Please print or type in the unshaded areas only.

Form Approved. OMB No. 2040-0086.

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

S		T/A	C
F			D

1 2 13 14 15

LABEL ITEMS	
I. EPA I.D. NUMBER	PLEASE PLACE LABEL IN THIS SPACE
III. FACILITY NAME	
V. FACILITY MAILING ADDRESS	
VI. FACILITY LOCATION	

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of **bold-faced terms**.

SPECIFIC QUESTIONS	Mark "X" YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	Mark "X" YES	NO	FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge to waters of the U.S.**? (FORM 2A)		X		B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge to waters of the U.S.**? (FORM 2B)		X	
	16	17	18		19	20	21
C. Is this a facility which currently results in **discharges to waters of the U.S.** other than those described in A or B above? (FORM 2C)	X			D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge to waters of the U.S.**? (FORM 2D)	X		
	22	23	24		25	26	27
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)		X		F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
	28	29	30		31	32	33
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
	34	35	36		37	38	39
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X		J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	
	40	41	42		43	44	45

III. NAME OF FACILITY

C 1 SKIP

15 16 – 29 30

69

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*

C 2 RICKAWAY ENERGY, CORP.

15 16 45

B. PHONE *(area code & no.)*

8302818210

45 46 49 51 52 55

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

C 3 205 LOS ROBLES DR.

15 16 45

B. CITY OR TOWN

C 4 PLEASANTON

15 16 40

C. STATE: TX

D. ZIP CODE: 78064

41 42 47 51

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

C 5 CR 136

15 16 45

B. COUNTY NAME

WILSON

45 70

C. CITY OR TOWN

C 6

15 16 40

D. STATE: TX

41 42

E. ZIP CODE

47 51

F. COUNTY CODE *(if known)*

52 54

RECEIVED DEC 5 PM 3:23 MAY 1 1995 PLANT

EPA Form 3510-1 (8-90)

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

VII. SIC CODES *(4-digit, in order of priority)*

A. FIRST	B. SECOND
C 7 1382 *(specify)* OIL & GAS FIELD EXPLORATION	C 7 *(specify)*
C. THIRD	**D. FOURTH**
C 7 *(specify)*	C 7 *(specify)*

VIII. OPERATOR INFORMATION

A. NAME: C 8 RICKAWAY ENERGY, CORP.

B. Is the name listed in Item VIII-A also the owner? ☐ YES ☐ NO

C. STATUS OF OPERATOR *(Enter the appropriate letter into the answer box: if "Other," specify.)*

F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC *(other than federal or state)*
O = OTHER *(specify)*

P *(specify)*

D. PHONE *(area code & no.)*: C A 830 281 8210

E. STREET OR P.O. BOX: 205 LOS ROBLES DR.

F. CITY OR TOWN: C B PLEASANTON

G. STATE:

H. ZIP CODE: 78064

IX. INDIAN LAND

Is the facility located on Indian lands? ☐ YES ☐ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES *(Discharges to Surface Water)*: C T I 9 N	D. PSD *(Air Emissions from Proposed Sources)*: C T I 9 P
B. UIC *(Underground Injection of Fluids)*: C T I 9 U	E. OTHER *(specify)*: C T I 9 RAILROAD COMM. *(specify)* FRESH WATER DISCHARGE PERMIT
C. RCRA *(Hazardous Wastes)*: C T I 9 R	E. OTHER *(specify)*: C T I 9 *(specify)*

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers, and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS *(provide a brief description)*

OIL PRODUCER – THE WATER TO BE DISCHARGED INTO BORREGO CREEK IS PRODUCED FRESH WATER FROM THE REKLAW AND CARRIZO WILCOX FORMATIONS. THE CHLORIDE CONTENT IS 56.9 mg/L.

XIII. CERTIFICATION *(see instructions)*

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE *(type or print)*	B. SIGNATURE	C. DATE SIGNED
RONALD L. RICKAWAY	Ronald L. Rickaway	11-30-12

COMMENTS FOR OFFICIAL USE ONLY

C

Please print or type in the unshaded areas only.	EPA ID Number (copy from Item 1 of Form 1)	Form Approved. OMB No. 2040-0086. Approval expires 5-31-92.

FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number (list)	Latitude Deg	Latitude Min	Latitude Sec	Longitude Deg	Longitude Min	Longitude Sec	Receiving Water (name)
	29	2.05	N	98	17.99	W	BORREGO CREEK

II. DISCHARGE DATE (If a new discharger, the date you expect to begin discharging)

UPON RECEIVING EPA PERMIT

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☐ Noncontact Cooling Water ☒ Other Nonprocess Wastewater (Identify)

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

IV. EFFLUENT CHARACTERISTICS

A. **Existing Sources** — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority (see instructions).

B. **New Dischargers** — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values (see instructions).

Pollutant or Parameter	(1) Maximum Daily Value (include units) Mass	(1) Maximum Daily Value (include units) Concentration	(2) Average Daily Value (last year) (include units) Mass	(2) Average Daily Value (last year) (include units) Concentration	(3) Number of Measurements Taken (last year)	(or) (4) Source of Estimate (if new discharger)
Biochemical Oxygen Demand (BOD)	553g/L	<2.00mg/L				SAN ANTONIO TESTING LAB (SATL)
Total Suspended Solids (TSS)	691g/L	<2.50mg/L				SATL
Fecal Coliform (if believed present or if sanitary waste is discharged)	0	0				0
Total Residual Chlorine (if chlorine is used)	0	0				0
Oil and Grease	1516g/L	<5.49mg/L				SATL
*Chemical oxygen demand (COD)	1492g/L	<5.40mg/L				SATL
*Total organic carbon (TOC)	497g/L	<1.80mg/L				SATL
Ammonia (as N)	276g/L	<1.00mg/L				SATL
Discharge Flow	Value 1700 BBLS./DAY					OUR TEST
pH (give range)	Value 6.82					SATL
Temperature (Winter)	N/A °C					
Temperature (Summer)	13.9 °C					SATL

*If noncontact cooling water is discharged

RECEIVED
12 DEC -5 PM 3:23
PLANNING & ANALYSIS BRANCH
SWO - N

EPA Form 3510-2E (8-90)

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☐ Yes ☒ No

If yes, briefly describe the frequency of flow and duration.

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

A WATER CLARIFIER CHEMICAL WILL BE USED AT A RATE OF 2 QUARTS PER 500 BBLS. OF PRODUCED FRESH WATER. THE WATER WILL GO THROUGH (1) 750 BBL. GUNBARREL, (2) 200 BBL. WATER TANKS, (1) 375 BBL. GUNBARREL, (3) 210 BBL. WATER TANKS, LAND OWNERS STOCK TANK, BEFORE ANY EXCESS WATER GOES INTO BORREGO CREEK.

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

THE RAILROAD COMMISSION OF TEXAS HAS ISSUED RICKAWAY ENERGY, CORP. A DISCHARGE PERMIT NO. 01099 FOR THIS FACILITY EFFECTIVE FOR 5 YEARS AND WILL EXPIRE ON NOVEMBER 19, 2017.

VIII. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name & Official Title	B. Phone No. *(area code & no.)*
RONALD L. RICKAWAY	830 - 281-8210
C. Signature	**D. Date Signed**
Ronald L Rickaway	11-30-12

BARRY T. SMITHERMAN, CHAIRMAN
DAVID PORTER, COMMISSIONER
BUDDY GARCIA, COMMISSIONER

GIL BUJANO, P.E.
ACTING DIRECTOR, OIL AND GAS DIVISION

RAILROAD COMMISSION OF TEXAS
OIL AND GAS DIVISION

November 20, 2012

RONALD RICKAWAY
RICKAWAY ENERGY, CORP
205 LOS ROBLES DR
PLEASANTON, TX 78064-1500

Re: Discharge Permit No. 01099
W.C. Hasse (00132) Lease, Well Nos. 2, 3, 7, F4, & F5
W.C. Hasse 'A' (02020) Lease, Well Nos. 1A, 2A, & 3A
W.C. Hasse 'B' (02021) Lease, Well Nos. 1B, 2B, & 3B
C. H. Hierholzer (02115) Lease, Well Nos. 1 & 1A
Hierholzer 7 BRS (14277) Lease, Well Nos. 6 & 10
Hierholzer 7 GMK (14278) Lease, Well Nos. 21 & 22
Wilson County, Texas

Dear Mr. Rickaway:

This is your authority from the Railroad Commission of Texas to discharge produced water from the referenced leases to Borrego Creek located on the C. H. Hierholzer lease in Wilson County, Texas. This authority is granted in accordance with Statewide Rule 8 and based on the information contained in your application received on February 27, 2012, and subsequent information received through June 12, 2012. This authority is subject to the following conditions:

1. This permit authorizes the discharge of water produced only from the referenced lease and well. The discharged water must meet the limitations specified in the attached "Effluent Limitations and Monitoring Requirements."

2. **This permit is effective for 5 years and will expire on November 19, 2017.**

3. Water treatment vessels and equipment shall be maintained in good operating condition for the duration of the permit.

4. The discharge point shall be clearly marked with the name of the operator, the discharge permit number, and the referenced lease name and number.

5. The discharged water must meet the limitations specified in the attached "Effluent Limitations and Monitoring Requirements". The water must be sampled and analyzed as indicated and the results must be submitted quarterly to the Railroad Commission San Antonio District Office and to the Environmental Services Section in Austin. If there is no discharge during a

particular month or quarter under this permit, submit your quarterly report stating "no discharge" for that month or quarter. Reports must be submitted no later than the 28th day of the month following each reporting period.

6. All quarterly reports must be certified as follows: "I declare under penalties prescribed in Section 91.143, Natural Resources Code, that I am authorized to make this report, that this report was prepared by me or under my direct supervision and direction, and that data and facts stated therein are true and complete to the best of my knowledge."

7. Changes affecting this permit, such as leases or wells being added or deleted, or a change in water treatment must be reported to the Environmental Services Section in Austin in order for the Commission to determine whether a permit amendment is necessary.

8. This permit is non-transferable without the consent of the Commission.

9. Any skimming pits to be used in conjunction with this facility must be permitted separately by the filing of Form H-11 and the supporting data.

10. In the event any of these conditions are not met, this permit is subject to modification, suspension, or cancellation by the Commission.

If you have any questions, please contact Michael Sims at (512) 463-5405.

Attachment:

cc: RRC – San Antonio

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The produced water discharge must meet the following criteria. The parameters listed must be reported for each month on a quarterly basis. Samples shall be representative of the discharged produced water. Analysis must be performed according to procedures approved in 40 CFR Part 136 and, where applicable, samples must be preserved as specified by these procedures.

Parameter	Monthly Avg	Daily Max	Frequency	Type
Flow (bbl/day)	Report	3,400	Daily	Estimate
Oil & Grease (mg/l)	25	35	1/month	grab
Chlorides (mg/l)	65	150	1/month	grab

SAN ANTONIO TESTING LABORATORY, INC.

Cert. No. T104704360-12-8

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hasse / Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
11/21/12 09:45
Received:
11/13/12 14:54

Report No. 1211156

Sample ID #: Hasse / Hierholzer

Sampling Method: Grab

Lab Sample ID #: 1211156-01

Sample Matrix: Liquid

Date/Time Collected: 11/13/12 12:10

Analyte	Result	Units	PQL	Prep Method	Batch	Analyzed	Method	Analyst	Notes
General Chemistry									
COD *	5.40	mg/L	5.00		B246139	11/16/12 13:50	H8000	AK	
BOD-5 *	<2.00	mg/L	2.00		B247015	11/14/12 07:25	SM5210B	AK	

SAN ANTONIO TESTING LABORATORY, INC.

Cert. No. T104704360-12-8

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hasse / Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
11/21/12 09:45
Received:
11/13/12 14:54

Report No. 1211156

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B246139 - NO PREP									
Blank (B246139-BLK1)				Prepared: 11/16/12 13:50	Analyzed: 11/16/12 13:50				
COD	<5.00	5.00	mg/L						
LCS (B246139-BS1)				Prepared: 11/16/12 13:50	Analyzed: 11/16/12 13:50				
COD	51.5	5.00	mg/L	50.0		103	80-120		
Duplicate (B246139-DUP1)		Source: 1211177-01		Prepared: 11/16/12 13:50	Analyzed: 11/16/12 13:50				
COD	48.6	5.00	mg/L		52.4			8	20
Batch B247015 - NO PREP									
Blank (B247015-BLK1)				Prepared: 11/14/12 07:25	Analyzed: 11/14/12 07:25				
BOD-5	<2.00	2.00	mg/L						
LCS (B247015-BS1)				Prepared: 11/14/12 07:25	Analyzed: 11/14/12 07:25				
BOD-5	186	2.00	mg/L	200		93	80-120		
LCS Dup (B247015-BSD1)				Prepared: 11/14/12 07:25	Analyzed: 11/14/12 07:25				
BOD-5	177	2.00	mg/L	200		88	80-120	5	20

Definitions and Notes

All quality control samples and checks are within acceptance limits unless otherwise indicated.
Test results pertain only to those items tested.
All samples were in good condition when received by the laboratory unless otherwise noted.

PQL	Practical Quantitation Limit
MCL	Maximum Contaminant Level
mg/Kg	Milligrams per Kilogram (Parts per Million)
mg/L	Milligrams per Liter (Parts per Million)
PPM	Parts per Million
F/NF	Found / Not Found
*	TNI / NELAC accredited analyte
RMCCL	Recommended Maximum Concentration of Contaminants Level
µR/hr	MicroRoentgens per hour (Measure of Radioactivity Level)

Test Methods: Standard Methods for the Examination of Water and Wastewater, 20th Edition 1998
Methods for Chemical Analysis of Water and Wastes, EPA 600/4-79-020, Rev. March 1983
EPA SW Test Methods for the Examination of Solid Waste, SW-846, 1996

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hasse / Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
11/21/12 09:45
Received:
11/13/12 14:54

Report No. 1211156

Aimee Landon For Marcela Gracia Hawk, President For

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Richard Hawk, General Manager

SAN ANTONIO TESTING LABORATORY, INC.

Sample Receipt Checklist

Client: Rickaway Eng. Report Number: 121156

Project Name: Hasse / Hierhoker Date Received: 11/13/12

Shipped via: ☐ FedEx ☐ UPS ☐ Lonestar ☒ Hand Delivered ☐ DHL ☐ SATL ☐ Other Date Due: 11/26/12

Rush: ☐ Specify: ☐ 3-5 ☐ 2 ☐ 1

Items to be checked upon Receipt: [Yes, No, N/A]

1. Custody Seals present?	Yes		No	✓	NA		If NA–reason:	
2. Custody Seals intact?	Yes		No		NA	✓	If NA–reason:	
3. Air Bill included in folder, if received?	Yes		No		NA		If NA–reason:	
4. Is COC included with samples?	Yes	✓	No		NA		If NA–reason:	
5. Is COC signed and dated by client?	Yes		No		NA		If NA–reason:	
6. Sample temperature: Thermal preservation between >0°-6° C? (Samples that are delivered to the laboratory on the same day that they are collected may not meet this criterion, but are acceptable if they arrive on ice.)	Yes	✓	No		NA		Temp: 3.3 °C	T-6#4
7. Samples received with ice ☒ ice packs ☐ other cooling ☐	Yes	✓	No		NA		If NA–reason:	
8. Is the COC filled out correctly, and completely?	Yes	✓	No		NA		If NA–reason:	
9. Information on the COC matches the samples?	Yes	✓	No		NA		If NA–reason:	
10. Samples received within holding time?	Yes	✓	No		NA		If NA–reason:	
11. Samples properly labeled?	Yes	✓	No		NA		If NA–reason:	
12. Samples submitted with chemical preservation? (e.g. pH adjusted, or sodium thiosulfate added for microbiological tests)	Yes	✓	No		NA	✓	If NA–reason:	no h
13. Proper sample containers used?	Yes	✓	No		NA		If NA–reason:	
14. All samples received intact, containers not damaged or leaking?	Yes	✓	No		NA		If NA–reason:	
15. VOA vials (requesting BTEX/VOC analysis) received with no air bubbles? Bubbles acceptable on VOA vials for TPH.	Yes		No		NA	✓	If NA–reason:	no voa vials
16. Sample volume sufficient for requested analysis?	Yes	✓	No		NA		If NA–reason:	
17. Subcontracted Samples: [if Yes, complete the next section]	Yes		No	✓	NA		If NA–reason:	

Analyses Subcontracted Out: _____ No. of Samples _____

Samples sent to: _____ Sent By: _____

Date samples sent: _____ Samples shipped via: _____

TAT Requested: _____

Tracking number [if any]: _____

Comments:

Received By: [signature] Date: 11/13/12

Labeled By: _____ Date: _____

Logged into LIMS By: _____ Date: _____

Logged into RF By: _____ Date: _____

Q:\Forms\Sample Receipt Checklist Form Rev 012010.doc

SATL#FO001
Effective: 04/05/06
Revised 01/20/10

1610 S. Laredo Street, San Antonio, Texas 78207-7029 • (210) 229-9920 • Fax (210) 229-9921

CHAIN-OF-CUSTODY RECORD

SAN ANTONIO TESTING LABORATORY, INC.

1610 S. Laredo Street, San Antonio, Texas 78207
(210) 229-9920 • Fax (210) 229-9921
www.satestinglab.com

REPORT TO:	INVOICE TO:	P.O. #
COMPANY: Rickaway Energy Corp.	COMPANY:	REPORT NUMBER: 1211156
ADDRESS: 205 Los Robles	ADDRESS:	
CITY: Pleasanton STATE: TX ZIP: 78064	CITY: STATE: ZIP:	FAX #
ATTN: Ron Jr. PHONE #: 830.220.1660	ATTN: PHONE #:	E-MAIL

PROJECT NAME/LOCATION/SITE: Hasse / Hiller Holzer

REQUESTED TURNAROUND TIME (begins at Log-In): ☒ 7-10 Business Days ☐ 3-5 Business Days ☐ 2 Business Days ☐ Next Business Day ☐ SAME DAY WHEN POSSIBLE

TRRP 13 REQUEST ☐ YES ☐ NO

COMMENTS/SPECIAL REQUESTS: Field Temp 89.8° F

PROJECT NO.

TEMP. I.R. GUN #: 4

SAMPLE TEMPERATURE WITHIN COMPLIANCE (> 0°C ≤ 6°C) ☒ YES ☐ NO

PROPER CONTAINERS ☒ YES ☐ NO

IF NO, SIGN HERE TO AUTHORIZE ANALYSIS

SAMPLED BY: Patrick

TEMP. ON RECPT.: 3.3°C

COND. OF SAMPLE: Cool

SAMPLE NUMBER	COLLECTED DATE	COLLECTED TIME	MATRIX: GROUND WATER	MATRIX: LIQUID	MATRIX: PAINT CHIPS	MATRIX: OIL	MATRIX: SOLID	MATRIX: SLUDGE	MATRIX: OTHER	SAMPLING METHOD: COMPOSITE	SAMPLING METHOD: GRAB	SAMPLING METHOD: OTHER	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	SAMPLE AMOUNT	CONTAINER SIZE	BTEX / MTBE (8260)	TPH (TX1005 / TX1006)	METALS 8 / 11 / 12 / 13 / TCLP / SPLP	PAH / SVOC / (8270 / 625 / TCLP / SPLP)	VOC / (8260 / 624 / TCLP / SPLP)	Cd / Cr / Pb - Total / TCLP / SPLP	RT. MINERALS	COLI / TC / FC / HPC	BOD	COD	HOLD	CO2	SO4	NO3	NH3	H2SO4	HNO3	HCl	NaOH	NaS2O3	PRESERVED IN THE LAB	PRESERVED WITH: COMPOSITED IN THE LAB	REMARKS
1	11/13	12:10	X								X		Hasse / Hiller Holzer	2	600ml 600ml										X	X															

11-13-12 14:54 IR

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY (SIGNATURE)
	11/13/12	Aimee Landon			

RELINQUISHED BY (PRINT NAME)	RECEIVED BY (PRINT NAME)	RELINQUISHED BY (PRINT NAME)	RECEIVED BY (PRINT NAME)
Patrick Mashek	Aimee Landon		
RELINQUISHED BY (SIGNATURE)	RECEIVED BY (SIGNATURE)	METHOD OF SHIPMENT: Hand	TO BE SENT OUT ☐ YES ☐ NO
RELINQUISHED BY (PRINT NAME)	RECEIVED BY (PRINT NAME)		CUSTODY SEAL IN PLACE & INTACT ☐ YES ☐ NO

FORM: COC REV 08/11 WHITE - LAB CANARY - CLIENT

SAN ANTONIO TESTING LABORATORY, INC.

Cert. No. T104704360-11-5

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Sample ID #: Hierholzer Lease

Sampling Method: Grab

Lab Sample ID #: 1112280-01

Sample Matrix: Liquid

Date/Time Collected: 12/22/11 13:18

Analyte	Result	Units	PQL	Prep Method	Batch	Analyzed	Method	Analyst	Notes
General Chemistry									
Cyanide, Total *	<0.020	mg/L	0.020		B153001	12/23/11 15:00	4500CNE&G	RA	
Chloride *	56.9	mg/L	10.0		B152089	12/22/11 19:04	300.0	AK	
Sulfate *	20.1	mg/L	5.00		B152089	12/22/11 19:04	300.0	AK	
Total Dissolved Solids *	454	mg/L	10.0		B153020	12/27/11 10:35	SM2540C	AK	
pH *	6.82	pH Units	0.05		B152091	12/22/11 15:45	SM4500HB	AK	H
pH Temperature	15	°C	1.0		B152091	12/22/11 15:45	170.1	AK	H
Total Suspended Solids *	<2.50	mg/L	2.50		B153031	12/28/11 16:45	SM2540D	AK	
Dissolved Oxygen *	4.01	mg/L	2.00		B152096	12/22/11 16:30	360.1	AK	
Oil & Grease (HEM) *	<5.49	mg/L	5.49		B152111	12/23/11 08:15	1664A	AK	
Hexavalent Chromium *	<0.010	mg/L	0.010		B152095	12/22/11 15:55	1-1230-85	AK	
Ammonia-Nitrogen *	<1.00	mg/L	1.00		B153036	12/29/11 10:55	350.2	AK	
Field Parameters									
Temperature	13.9	°C			B201010	12/22/11 13:18	170.1	AK	
Total Metals									
Aluminum *	<0.030	mg/L	0.030	200.7	B152098	12/23/11 16:36	200.7	ID	
Arsenic *	<0.010	mg/L	0.010	200.7	B152098	12/23/11 16:36	200.7	ID	
Barium *	0.151	mg/L	0.010	200.7	B152098	12/23/11 16:36	200.7	ID	
Cadmium *	<0.001	mg/L	0.001	200.7	B152098	12/23/11 16:36	200.7	ID	
Calcium *	26.6	mg/L	1.00	200.7	B152098	12/23/11 16:36	200.7	ID	
Chromium *	<0.010	mg/L	0.010	200.7	B152098	12/23/11 16:36	200.7	ID	
Copper *	<0.010	mg/L	0.010	200.7	B152098	12/23/11 16:36	200.7	ID	
Iron *	0.112	mg/L	0.050	200.7	B152098	12/23/11 16:36	200.7	ID	
Lead *	<0.005	mg/L	0.005	200.7	B152098	12/23/11 16:36	200.7	ID	
Magnesium *	11.1	mg/L	0.010	200.7	B152098	12/23/11 16:36	200.7	ID	
Manganese *	0.01	mg/L	0.01	200.7	B152098	12/23/11 16:36	200.7	ID	
Nickel *	<0.01	mg/L	0.01	200.7	B152098	12/23/11 16:36	200.7	ID	
Potassium *	11.2	mg/L	1.00	200.7	B152098	12/23/11 16:36	200.7	ID	
Selenium *	<0.01	mg/L	0.01	200.7	B152098	12/23/11 16:36	200.7	ID	
Silver *	<0.002	mg/L	0.002	200.7	B152098	12/23/11 16:36	200.7	ID	
Sodium *	87.8	mg/L	50.0	200.7	B152098	12/29/11 16:24	6010B	ID	
Zinc *	0.033	mg/L	0.005	200.7	B152098	12/23/11 16:36	200.7	ID	
Mercury *	0.0004	mg/L	0.0002	245.1	B153014	12/29/11 11:02	245.1	ID	

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Sample ID #: Hierholzer Lease

Sampling Method: Grab

Lab Sample ID #: 1112280-01

Sample Matrix: Liquid

Date/Time Collected: 12/22/11 13:18

Analyte	Result	Units	PQL	Prep Method	Batch	Analyzed	Method	Analyst	Notes
Hardness as CaCO3 by ICP									
	112	mg/L		[CALC]	[CALC]	12/23/11 16:36	Calc	ID	
Semivolatile Organic Compounds by GC/MS									
Pyridine *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
N-Nitrosodimethylamine *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
2-Chlorophenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
2,6-Dinitrotoluene	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Bis(2-Chloroethyl)ether *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Phenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
1,3-Dichlorobenzene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
1,4-Dichlorobenzene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
1,2-Dichlorobenzene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Bis(2-chloroisopropyl)ether *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
2-Methylphenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Hexachloroethane *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
3/4-Methylphenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
N-Nitroso-di-n-propylamine *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Nitrobenzene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
2-Nitrophenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Isophorone *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
1,2,4-Trichlorobenzene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
4-Chloro-3-methylphenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
2,4-Dimethylphenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
bis(2-Chloroethoxy)methane *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
2,4-Dichlorophenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Naphthalene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
4-Chloroaniline *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Hexachlorobutadiene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
2-Methylnaphthalene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Hexachlorocyclopentadiene *	<0.050	mg/L	0.050	3510C	B153055	12/29/11 19:35	8270C	HH	
2,4,6-Trichlorophenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
2,4,5-Trichlorophenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
2-Chloronaphthalene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
2-Nitroaniline *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Acenaphthylene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Dimethylphthalate *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Acenaphthene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
4-Nitrophenol *	<0.050	mg/L	0.050	3510C	B153055	12/29/11 19:35	8270C	HH	
Dibenzofuran *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
4-Chlorophenyl-phenylether *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Sample ID #: Hierholzer Lease

Sampling Method: Grab

Lab Sample ID #: 1112280-01

Sample Matrix: Liquid

Date/Time Collected: 12/22/11 13:18

Analyte	Result	Units	PQL	Prep Method	Batch	Analyzed	Method	Analyst	Notes
Semivolatile Organic Compounds by GC/MS									
2,4-Dinitrophenol *	<0.050	mg/L	0.050	3510C	B153055	12/29/11 19:35	8270C	HH	
2,4-Dinitrotoluene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Fluorene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Diethylphthalate *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
4-Nitroaniline *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
4,6-Dinitro-2-methylphenol *	<0.050	mg/L	0.050	3510C	B153055	12/29/11 19:35	8270C	HH	
Azobenzene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
N-Nitrosodiphenylamine *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
4-Bromophenyl-phenylether *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Hexachlorobenzene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Pentachlorophenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Phenanthrene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Anthracene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Di-n-butylphthalate *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Fluoranthene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Pyrene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Benzidine *	<0.050	mg/L	0.050	3510C	B153055	12/29/11 19:35	8270C	HH	
Butylbenzylphthalate *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Benz(a)anthracene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Chrysene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Bis(2-Ethylhexyl)phthalate *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Di-n-octylphthalate *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Indeno[1,2,3-cd]pyrene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Benzo[b]fluoranthene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Benzo[k]fluoranthene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Benzo[a]pyrene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Dibenz[a,h]anthracene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Benzo[g,h,i]perylene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
1,2-Diphenyl Hydrazine	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Surrogate: 2-Fluorophenol	*31 %*		*21-125*	*3510C*	*B153055*	*12/29/11 19:35*	*8270C*	*HH*	
Surrogate: Phenol-d5	*18 %*		*10-110*	*3510C*	*B153055*	*12/29/11 19:35*	*8270C*	*HH*	
Surrogate: Nitrobenzene-d5	*68 %*		*32-125*	*3510C*	*B153055*	*12/29/11 19:35*	*8270C*	*HH*	
Surrogate: 2-Fluorobiphenyl	*71 %*		*43-125*	*3510C*	*B153055*	*12/29/11 19:35*	*8270C*	*HH*	
Surrogate: 2,4,6-Tribromophenol	*100 %*		*10-123*	*3510C*	*B153055*	*12/29/11 19:35*	*8270C*	*HH*	
Surrogate: Terphenyl-d14	*95 %*		*33-141*	*3510C*	*B153055*	*12/29/11 19:35*	*8270C*	*HH*	

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Sample ID #: Hierholzer Lease

Sampling Method: Grab

Lab Sample ID #: 1112280-01

Sample Matrix: Liquid

Date/Time Collected: 12/22/11 13:18

Analyte	Result	Units	PQL	Prep Method	Batch	Analyzed	Method	Analyst	Notes
Volatile Organic Compounds by GC/MS									
Benzene *	<0.005	mg/L	0.005	5030B	B152097	12/22/11 21:24	8260B	HH	
Surrogate: Toluene-d8	*96 %*		*76-129*	*5030B*	*B152097*	*12/22/11 21:24*	*8260B*	*HH*	
Surrogate: 4-Bromofluorobenzene	*87 %*		*70-130*	*5030B*	*B152097*	*12/22/11 21:24*	*8260B*	*HH*	
Surrogate: Dibromofluoromethane	*103 %*		*84-123*	*5030B*	*B152097*	*12/22/11 21:24*	*8260B*	*HH*	

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B152089 - NO PREP									
Blank (B152089-BLK1)				Prepared: 12/22/11 14:08		Analyzed: 12/22/11 19:04			
Chloride	<1.00	1.00	mg/L						
Sulfate	<0.50	0.50	mg/L						
LCS (B152089-BS1)				Prepared: 12/22/11 14:08		Analyzed: 12/22/11 19:04			
Chloride	4.80	1.00	mg/L	5.00		96	90-110		
Sulfate	5.08	0.50	mg/L	5.00		102	90-110		
LCS Dup (B152089-BSD1)				Prepared: 12/22/11 14:08		Analyzed: 12/22/11 19:04			
Chloride	4.82	1.00	mg/L	5.00		96	90-110	0.4	20
Sulfate	5.17	0.50	mg/L	5.00		103	90-110	2	20
Duplicate (B152089-DUP1)		Source: 1112228-01		Prepared: 12/22/11 14:08		Analyzed: 12/22/11 19:04			
Chloride	27.0	1.00	mg/L		27.1			0.4	20
Matrix Spike (B152089-MS1)		Source: 1112228-01		Prepared: 12/22/11 14:08		Analyzed: 12/22/11 19:04			
Chloride	32.1	1.00	mg/L	5.00	27.1	100	80-120		
Batch B152091 - NO PREP									
LCS (B152091-BS1)				Prepared: 12/22/11 11:30		Analyzed: 12/22/11 11:30			
pH	4.10	0.05	pH Units	4.00		102	80-120		
Duplicate (B152091-DUP1)		Source: 1112252-01		Prepared: 12/22/11 11:30		Analyzed: 12/22/11 11:30			
pH	8.39	0.05	pH Units		8.36			0.4	20
pH Temperature	19.8	1.0	°C		19.7			0.5	30
Batch B152095 - NO PREP									
Blank (B152095-BLK1)				Prepared: 12/22/11 15:55		Analyzed: 12/22/11 15:55			
Hexavalent Chromium	<0.010	0.010	mg/L						
LCS (B152095-BS1)				Prepared: 12/22/11 15:55		Analyzed: 12/22/11 15:55			
Hexavalent Chromium	0.413	0.010	mg/L	0.400		103	80-120		
Duplicate (B152095-DUP1)		Source: 1112280-01		Prepared: 12/22/11 15:55		Analyzed: 12/22/11 15:55			
Hexavalent Chromium	<0.010	0.010	mg/L		<0.010				20
Batch B152096 - NO PREP									
Duplicate (B152096-DUP1)		Source: 1112280-01		Prepared: 12/22/11 16:30		Analyzed: 12/22/11 16:30			
Dissolved Oxygen	3.95	2.00	mg/L		4.01			2	20

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B152111 - NO PREP									
Blank (B152111-BLK1)				Prepared: 12/23/11 08:15 Analyzed: 12/23/11 08:15					
Oil & Grease (HEM)	<5.00	5.00	mg/L						
LCS (B152111-BS1)				Prepared: 12/23/11 08:15 Analyzed: 12/23/11 08:15					
Oil & Grease (HEM)	36.2	5.00	mg/L	40.0		90	78-114		
LCS Dup (B152111-BSD1)				Prepared: 12/23/11 08:15 Analyzed: 12/23/11 08:15					
Oil & Grease (HEM)	35.7	5.00	mg/L	40.0		89	78-114	1	20
Matrix Spike (B152111-MS1)		Source: 1112195-01		Prepared: 12/23/11 08:15 Analyzed: 12/23/11 08:15					
Oil & Grease (HEM)	76.9	5.00	mg/L	40.0	38.7	96	78-114		
Batch B153001 - NO PREP									
Blank (B153001-BLK1)				Prepared: 12/23/11 11:00 Analyzed: 12/23/11 15:00					
Cyanide, Total	<0.020	0.020	mg/L						
LCS (B153001-BS1)				Prepared: 12/23/11 11:00 Analyzed: 12/23/11 15:00					
Cyanide, Total	0.0930	0.020	mg/L	0.100		93	80-120		
LCS Dup (B153001-BSD1)				Prepared: 12/23/11 11:00 Analyzed: 12/23/11 15:00					
Cyanide, Total	0.0920	0.020	mg/L	0.100		92	80-120	1	20
Duplicate (B153001-DUP1)		Source: 1112246-01		Prepared: 12/23/11 11:00 Analyzed: 12/23/11 15:00					
Cyanide, Total	<0.020	0.020	mg/L		<0.020				20
Matrix Spike (B153001-MS1)		Source: 1112246-01		Prepared: 12/23/11 11:00 Analyzed: 12/23/11 15:00					
Cyanide, Total	0.101	0.020	mg/L	0.100	<0.020	101	80-120		
Batch B153020 - NO PREP									
Blank (B153020-BLK1)				Prepared: 12/27/11 10:35 Analyzed: 12/27/11 10:35					
Total Dissolved Solids	<10.0	10.0	mg/L						
LCS (B153020-BS1)				Prepared: 12/27/11 10:35 Analyzed: 12/27/11 10:35					
Total Dissolved Solids	95.0	10.0	mg/L	100		95	80-120		
Duplicate (B153020-DUP1)		Source: 1112280-01		Prepared: 12/27/11 10:35 Analyzed: 12/27/11 10:35					
Total Dissolved Solids	460	10.0	mg/L		454			1	20
Batch B153031 - NO PREP									
Blank (B153031-BLK1)				Prepared: 12/28/11 15:45 Analyzed: 12/28/11 16:45					
Total Suspended Solids	<2.50	2.50	mg/L						

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B153031 - NO PREP									
LCS (B153031-BS1)				Prepared: 12/28/11 15:45		Analyzed: 12/28/11 16:45			
Total Suspended Solids	93.0	2.50	mg/L	100		93	80-120		
LCS Dup (B153031-BSD1)				Prepared: 12/28/11 15:45		Analyzed: 12/28/11 16:45			
Total Suspended Solids	97.0	2.50	mg/L	100		97	80-120	4	20
Duplicate (B153031-DUP1)		Source: 1112295-01		Prepared: 12/28/11 15:45		Analyzed: 12/28/11 16:45			
Total Suspended Solids	49.0	25.0	mg/L		50.0			2	20
Batch B153036 - NO PREP									
Blank (B153036-BLK1)				Prepared: 12/29/11 10:55		Analyzed: 12/29/11 10:55			
Ammonia-Nitrogen	<1.00	1.00	mg/L						
LCS (B153036-BS1)				Prepared: 12/29/11 10:55		Analyzed: 12/29/11 10:55			
Ammonia-Nitrogen	19.6	1.00	mg/L	20.0		98	80-120		
Duplicate (B153036-DUP1)		Source: 1112280-01		Prepared: 12/29/11 10:55		Analyzed: 12/29/11 10:55			
Ammonia-Nitrogen	<1.00	1.00	mg/L		<1.00				20
Matrix Spike (B153036-MS1)		Source: 1112280-01		Prepared: 12/29/11 10:55		Analyzed: 12/29/11 10:55			
Ammonia-Nitrogen	19.1	1.00	mg/L	20.0	<1.00	96	80-120		

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B152098 - 200.7									
Blank (B152098-BLK1)				Prepared: 12/23/11 08:51		Analyzed: 12/23/11 14:02			
Aluminum	<0.030	0.030	mg/L						
Arsenic	<0.010	0.010	mg/L						
Barium	<0.010	0.010	mg/L						
Cadmium	<0.001	0.001	mg/L						
Calcium	<1.00	1.00	mg/L						
Chromium	<0.010	0.010	mg/L						
Copper	<0.010	0.010	mg/L						
Iron	<0.050	0.050	mg/L						
Lead	<0.005	0.005	mg/L						
Magnesium	<0.010	0.010	mg/L						

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B152098 - 200.7									
Blank (B152098-BLK1)				Prepared: 12/23/11 08:51 Analyzed: 12/23/11 14:02					
Manganese	<0.01	0.01	mg/L						
Nickel	<0.01	0.01	mg/L						
Potassium	<1.00	1.00	mg/L						
Selenium	<0.01	0.01	mg/L						
Silver	<0.002	0.002	mg/L						
Sodium	<1.00	1.00	mg/L						
Zinc	<0.005	0.005	mg/L						
Blank (B152098-BLK2)				Prepared: 12/23/11 08:51 Analyzed: 12/23/11 14:08					
Aluminum	<0.030	0.030	mg/L						
Arsenic	<0.010	0.010	mg/L						
Barium	<0.010	0.010	mg/L						
Cadmium	<0.001	0.001	mg/L						
Calcium	<1.00	1.00	mg/L						
Chromium	<0.010	0.010	mg/L						
Copper	<0.010	0.010	mg/L						
Iron	<0.050	0.050	mg/L						
Lead	<0.005	0.005	mg/L						
Magnesium	<0.010	0.010	mg/L						
Manganese	<0.01	0.01	mg/L						
Nickel	<0.01	0.01	mg/L						
Potassium	<1.00	1.00	mg/L						
Selenium	<0.01	0.01	mg/L						
Silver	<0.002	0.002	mg/L						
Sodium	<1.00	1.00	mg/L						
Zinc	<0.005	0.005	mg/L						
LCS (B152098-BS1)				Prepared: 12/23/11 08:51 Analyzed: 12/23/11 14:14					
Aluminum	1.93	0.030	mg/L	2.00		96	80-120		
Arsenic	1.98	0.010	mg/L	2.00		99	80-120		
Barium	1.94	0.010	mg/L	2.00		97	80-120		
Cadmium	2.04	0.001	mg/L	2.00		102	80-120		
Calcium	1.99	1.00	mg/L	2.00		100	80-120		
Chromium	1.94	0.010	mg/L	2.00		97	80-120		
Copper	1.94	0.010	mg/L	2.00		97	80-120		
Iron	1.94	0.050	mg/L	2.00		97	80-120		
Lead	2.02	0.005	mg/L	2.00		101	80-120		
Magnesium	2.02	0.010	mg/L	2.00		101	80-120		
Manganese	2.03	0.01	mg/L	2.00		102	80-120		

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B152098 - 200.7									
LCS (B152098-BS1)				Prepared: 12/23/11 08:51		Analyzed: 12/23/11 14:14			
Nickel	2.01	0.01	mg/L	2.00		101	80-120		
Potassium	19.5	1.00	mg/L	20.0		97	80-120		
Selenium	2.01	0.01	mg/L	2.00		101	80-120		
Silver	0.937	0.002	mg/L	1.00		94	80-120		
Sodium	2.06	1.00	mg/L	2.00		103	80-120		
Zinc	2.00	0.005	mg/L	2.00		100	80-120		
LCS (B152098-BS2)				Prepared: 12/23/11 08:51		Analyzed: 12/23/11 14:20			
Aluminum	1.86	0.030	mg/L	2.00		93	80-120		
Arsenic	1.92	0.010	mg/L	2.00		96	80-120		
Barium	1.86	0.010	mg/L	2.00		93	80-120		
Cadmium	1.97	0.001	mg/L	2.00		98	80-120		
Calcium	1.92	1.00	mg/L	2.00		96	80-120		
Chromium	1.89	0.010	mg/L	2.00		94	80-120		
Copper	1.86	0.010	mg/L	2.00		93	80-120		
Iron	1.89	0.050	mg/L	2.00		94	80-120		
Lead	1.96	0.005	mg/L	2.00		98	80-120		
Magnesium	1.97	0.010	mg/L	2.00		98	80-120		
Manganese	1.97	0.01	mg/L	2.00		99	80-120		
Nickel	1.97	0.01	mg/L	2.00		98	80-120		
Potassium	19.2	1.00	mg/L	20.0		96	80-120		
Selenium	1.93	0.01	mg/L	2.00		96	80-120		
Silver	0.907	0.002	mg/L	1.00		91	80-120		
Sodium	2.00	1.00	mg/L	2.00		100	80-120		
Zinc	1.94	0.005	mg/L	2.00		97	80-120		
LCS Dup (B152098-BSD1)				Prepared: 12/23/11 08:51		Analyzed: 12/23/11 14:43			
Aluminum	1.86	0.030	mg/L	2.00		93	80-120	4	20
Arsenic	1.91	0.010	mg/L	2.00		96	80-120	4	20
Barium	1.85	0.010	mg/L	2.00		93	80-120	4	20
Cadmium	1.95	0.001	mg/L	2.00		98	80-120	4	20
Calcium	1.90	1.00	mg/L	2.00		95	80-120	5	20
Chromium	1.88	0.010	mg/L	2.00		94	80-120	4	20
Copper	1.86	0.010	mg/L	2.00		93	80-120	4	20
Iron	1.87	0.050	mg/L	2.00		94	80-120	4	20
Lead	1.94	0.005	mg/L	2.00		97	80-120	4	20
Magnesium	1.93	0.010	mg/L	2.00		97	80-120	4	20
Manganese	1.94	0.01	mg/L	2.00		97	80-120	4	20
Nickel	1.94	0.01	mg/L	2.00		97	80-120	4	20

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	
Batch B152098 - 200.7										
LCS Dup (B152098-BSD1)				Prepared: 12/23/11 08:51		Analyzed: 12/23/11 14:43				
Potassium	19.0	1.00	mg/L	20.0		95	80-120	2	20	
Selenium	1.93	0.01	mg/L	2.00		97	80-120	4	20	
Silver	0.905	0.002	mg/L	1.00		91	80-120	3	20	
Sodium	1.93	1.00	mg/L	2.00		96	80-120	6	20	
Zinc	1.93	0.005	mg/L	2.00		97	80-120	4	20	
LCS Dup (B152098-BSD2)				Prepared: 12/23/11 08:51		Analyzed: 12/23/11 14:50				
Aluminum	1.94	0.030	mg/L	2.00		97	80-120	4	20	
Arsenic	2.01	0.010	mg/L	2.00		101	80-120	5	20	
Barium	1.96	0.010	mg/L	2.00		98	80-120	5	20	
Cadmium	2.06	0.001	mg/L	2.00		103	80-120	4	20	
Calcium	1.99	1.00	mg/L	2.00		100	80-120	3	20	
Chromium	1.96	0.010	mg/L	2.00		98	80-120	3	20	
Copper	1.96	0.010	mg/L	2.00		98	80-120	5	20	
Iron	1.96	0.050	mg/L	2.00		98	80-120	4	20	
Lead	2.04	0.005	mg/L	2.00		102	80-120	4	20	
Magnesium	2.03	0.010	mg/L	2.00		102	80-120	3	20	
Manganese	2.05	0.01	mg/L	2.00		103	80-120	4	20	
Nickel	2.04	0.01	mg/L	2.00		102	80-120	4	20	
Potassium	19.5	1.00	mg/L	20.0		98	80-120	2	20	
Selenium	2.04	0.01	mg/L	2.00		102	80-120	6	20	
Silver	0.944	0.002	mg/L	1.00		94	80-120	4	20	
Sodium	2.03	1.00	mg/L	2.00		102	80-120	2	20	
Zinc	2.03	0.005	mg/L	2.00		102	80-120	5	20	
Duplicate (B152098-DUP1)		Source: 1112246-01		Prepared: 12/23/11 08:51		Analyzed: 12/23/11 15:07				
Aluminum	0.143	0.030	mg/L		0.143			0.6	20	
Arsenic	0.00340	0.010	mg/L		0.00350			3	20	
Barium	0.129	0.010	mg/L		0.125			3	20	
Cadmium	0.00400	0.001	mg/L		0.00420			5	20	
Calcium	82.7	1.00	mg/L		81.3			2	20	
Chromium	0.00980	0.010	mg/L		0.00990			1	20	
Copper	0.0185	0.010	mg/L		0.0182			2	20	
Iron	0.326	0.050	mg/L		0.253			25	20	RPD
Lead	0.00820	0.005	mg/L		0.00750			9	20	
Magnesium	17.1	0.010	mg/L		16.7			3	20	
Manganese	0.0473	0.01	mg/L		0.0459			3	20	
Nickel	0.00770	0.01	mg/L		0.00660			15	20	
Potassium	31.4	1.00	mg/L		30.7			2	20	

SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

December 29, 2011

Client: San Antonio Testing Laboratory, Inc.
Address: 1610 S. Laredo
San Antonio, TX 78207

Received: 12/23/2011
Project #: N/A

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	LOQ	Run	Analyst
1112280-01	1126602-01	22-Dec-11	Sulfide	ND	mg/L	L	SM4500-s2-E	1	1	27-Dec-11	TIR

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	LOQ	Run	Analyst
1112280-01	1126602-01	22-Dec-11	TOC	1.8	mg/L	L	SM5310B	1	1	27-Dec-11	CXS

"Analytical Integrity" - EPA Certified - NELAP Certified
3310 Win Street - Cuyahoga Falls, Ohio 44223 - Phone: 330-253-8211 - Fax: 330-253-4489
Web Site: www.settek.com

SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

Report Narrative

Client: San Antonio Testing Laboratory, Inc.
Order Number: 1126602

No problems were encountered during analysis of this order number, except as noted.

Data Qualifiers:
B = Analyte found in the method blank
J = Estimated concentration of analyte between MDL (LOD) and Reporting Limit (LOQ)
C = Analyte has been confirmed by another instrument or method
E = Analyte exceeds the upper limit of the calibration curve.
D = Sample or extract was analyzed at a higher dilution
X = User defined data qualifier.
S = Surrogate out of control limits
U = Undetected
a = Not Accredited by NELAC

ND = Non Detected at LOQ
DF = Dilution Factor

Limit Of Quantitation (LOQ) = Laboratory Reporting Limit (not adjusted for dilution factor)
Limit Of Detection (LOD) = Laboratory Detection Limit

Matrices:
A = Air
C = Cream
DW = Drinking Water
L = Liquid
O = Oil
SL = Sludge
SO = Soil
S = Solid
T = Tablet
TC = TCLP Extract
WW = Waste Water
W = Wipe

Estimated uncertainty values are available upon request.

The test results meet the requirements of the NELAC standard, except where noted. The information contained in this analytical report is the sole property of Summit Environmental Technologies, Inc. and that of the client. It cannot be reproduced in any form without the consent of Summit Environmental Technologies, Inc. or the client for which this report was issued. The results contained in this report are only representative of the samples received. Conditions can vary at different times and at different sampling conditions. Summit Environmental Technologies, Inc. is not responsible for use or interpretation of the data included herein.

SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

Sample Summary

Client: San Antonio Testing Laboratory, Inc.
Order Number: 1126602

Laboratory ID	Client ID	Matrix	Sampling Date
1126602-01	1112280-01	Liquid	12/22/2011

SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

LABORATORY REPORT

Client
San Antonio Testing Laboratory, Inc.
1610 S. Laredo
San Antonio, TX 78207

Order Number
1126602

Project Number
N/A

Issued
Thursday, December 29, 2011

Total Number of Pages
4 (excluding C.O.C. and cooler receipt form)

Approved By : D S Gibas
QA Manager

NELAC Accreditation #E87688

"Analytical Integrity" · EPA Certified · NELAP Certified
3310 Win Street · Cuyahoga Falls, Ohio 44223 • Phone: 330-253-8211 · Fax: 330-253-4489
Web Site: www.settek.com

Blank QC Report

Client: San Antonio Laboratory
Address: 1610 Laredo Street
San Antonio, TX 78207
Project ID: NA

Batch #: S122711

ACCURACY

	BLANK	BLANK
	Sulfide	mg/L
		<25

METHOD	LAB PROJECT #	LAB SAMPLE ID	EXTRACTED	ANALYZED
4500S^{2}E	1126602	Blank	12/27/2011	12/27/2011

LCS QC Report

ACCURACY

LABORATORY CONTROL SAMPLE	SPK CONC	LCS	LCS	ACP
	mg/L	mg/L	% REC	%
Sulfide	76	69.4	91.3	70-130

METHOD	LAB. PROJECT #	LAB SAMPLE ID	EXTRACTED	ANALYZED
4500S^{2}E	1126602	LCS	12/27/2011	12/27/2011

MS/MSD QC Report

			ACCURACY					PRECISION	
MATRIX SPIKE/	SAMP	SPK CONC	MS	MS	MSD	MSD	ACP	RPD	ACP
MATRIX SPIKE DUPLICATE	AMT	mg/L	mg/L	% REC	mg/L	% REC	%	%	%RPD
Sulfide	ND	76	70.0	92.1	67.2	88.4	70-130	4.1	0-30

METHOD	LAB. PROJECT #	LAB SAMPLE ID	EXTRACTED	ANALYZED
4500S^{2}E	1126602	1126637-01	12/27/2011	12/27/2011

Blank QC Report

Client: San Antonio Laboratory
Address: 1610 Laredo Street
San Antonio, TX 78207
Project ID: NA

Batch #: TOC122711

ACCURACY

BLANK	Blank mg/L
TOC	<0.5

METHOD	LAB PROJECT #	LAB SAMPLE ID	EXTRACTED	ANALYZED
SM5310B	1126602	Blank	12/27/2011	12/27/2011

LCS QC Report

ACCURACY

LABORATORY CONTROL SAMPLE	SPK CONC	LCS mg/L	LCS % REC	ACP %
TOC	12.5	12.8	102.4	80-120

METHOD	LAB. PROJECT #	LAB Sample ID	EXTRACTED	ANALYZED
SM5310B	1126602	LCS	12/27/2011	12/27/2011

MS/MSD QC Report

			ACCURACY					PRECISION	
MATRIX SPIKE/ MATRIX SPIKE DUPLICATE	SAMP AMT	SPK CONC mg/L	MS mg/L	MS % REC	MSD mg/L	MSD % REC	ACP %	RPD %	ACP %RPD
TOC	ND	13.4	13.81	103.1	13.87	103.5	70-130	0.4	0-30

METHOD	LAB. PROJECT #	LAB SAMPLE ID	EXTRACTED	ANALYZED
SM5310B	1126602	1126602-01	12/27/2011	12/27/2011

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, OH 44223

QC Report

Order ID

1126602

Client

San Antonio Testing Laboratory, Inc.
1610 S. Laredo Street
San Antonio, TX 78207

Project Name

NA

Submitted by:

Ron Gibas

Ron Gibas
QA/QC Manager

Summit Environmental Technologies, Inc.
Cooler Receipt Form

Order ID: 1126602 **COOLER**

Client: San Antonio Order ID:

Log in Initials:

Date Received: 12/23/11 Time Received: 0740 Date opened: 12/23/11

Number of Coolers/Boxes: 1 N/A Unpacked by: RS

Shipper FED EX UPS DHL Airborne US Postal Walk-in Pickup Other

Packaging: Peanuts Bubble Wrap Paper Foam None Other:

Tape on cooler/box.	Y	N	N/A
Custody Seals intact	Y	N	N/A
C-O-C in plastic	Y	N	N/A

Coolant Ice ✓ Blue ice ___ Water ___ None ___ Sample Temperature 5.1 °C

C-O-C filled out properly	Y	N	N/A
Samples in separate bags	Y	N	N/A
Sample containers intact	Y	N	N/A

*If no, list broken sample(s):

Sample label(s) complete (ID date, etc.)	Y	N	N/A
Label(s) agree with C-O-C	Y	N	N/A
Correct containers used	Y	N	N/A
Sufficient sample received	Y	N	N/A
Samples at correct pH? (list below)	Y	N	NA
Bubbles absent from 40 mL vials**	Y	N	N/A

** Samples with bubbles less than the size of a pea are acceptable

Client contact: Date/Time:

Comments

Sample ID	pH	Sample ID	pH

CHAIN-OF-CUSTODY

SAN ANTONIO TESTING LABORATORY, INC.

1610 S. Laredo Street, San Antonio, Texas 78207
(210) 229-9920 • Fax (210) 229-9921
www.satestinglab.com

Order ID: 1126602 **COC**

REPORT TO:	INVOICE TO
COMPANY: SATL	COMPANY:
ADDRESS:	ADDRESS:
CITY: STATE: ZIP:	CITY: STATE:
ATTN: Aimee PHONE #	ATTN: PHONE #
	E-MAIL:

PROJECT NAME/LOCATION/SITE:

PROJECT NO.:

SAMPLED BY:

REQUESTED TURNAROUND TIME (begins at Log-In): ☐ 7-10 Business Days ☐ 3-5 Business Days ☐ 2 Business Days ☐ Next Business Day ☐ SAME DAY WHEN POSSIBLE

TRRP 13 REQUEST ☐ YES ☐ NO COMMENTS/SPECIAL REQUESTS: 5 days need by 1/3/12

TEMP. I.R. GUN #: SAMPLE TEMPERATURE WITHIN COMPLIANCE (> 0°C ≤ 6°C) ☐ YES ☐ NO
PROPER CONTAINERS ☐ YES ☐ NO IF NO, SIGN HERE TO AUTHORIZE ANALYSIS

TEMP. ON RECPT.: COND. OF SAMPLE:

SAMPLE NUMBER	COLLECTED DATE	COLLECTED TIME	MATRIX: DRINKING WATER	LIQUID	PAINT CHIPS	OIL	SOLID	SLUDGE	OTHER	SAMPLING METHOD: COMPOSITE	GRAB	CORE	OTHER	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	SAMPLE AMOUNT	CONTAINER SIZE	BTEX / MTBE (8260)	TPH (TX1005 / TX1006)	METALS 6 / 11 / 12 / 13 / TCLP / SPLP	PAH / SVOC / (8270 / 625 / TCLP / SPLP)	VOC / (8260 / 624 / TCLP / SPLP)	Cd / Cr / Pb - 1d / TCLP / SPLP	RT. MINERALS	COLI / TC / FC / HPC	TDS	Sulfate	SC	HOLD	COD	NO2	NO3	NH3	PRESERVED WITH: PRESERVED IN THE LAB	COMPOSITED IN THE LAB	REMARKS
1	12/22/11	11:19a	X								X			1126280-01 (Hertholzer Lease)	2	1 liter								X	X	X			X	X							

1126602-01

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY (SIGNATURE)
Aimee Lendon	12/22/11				
RELINQUISHED BY (PRINT NAME): Aimee Lendon		RECEIVED BY (PRINT NAME)	RELINQUISHED BY (PRINT NAME)		RECEIVED BY (PRINT NAME)
RELINQUISHED BY (SIGNATURE)		RECEIVED BY (SIGNATURE)	METHOD OF SHIPMENT		TO BE SENT OUT ☐ YES ☐ NO
RELINQUISHED BY (PRINT NAME)		RECEIVED BY (PRINT NAME)			CUSTODY SEAL IN PLACE & INTACT ☐ YES ☐ NO

FORM COC REV 08/11 WHITE - LAB CANARY - CLIENT

SAN ANTONIO TESTING LABORATORY, INC.

Sample Receipt Checklist

Client: Rickaway Report Number: 1112280

Project Name: Date Received: 12/22/11

Shipped via: ☐FedEx ☐UPS ☐Lonestar ☒Hand Delivered ☐DHL ☐SATL ☐Other Date Due: 1/4/12

Rush: ☐ Specify: ☐3-5 ☐2 ☐1

Items to be checked upon Receipt: [Yes, No, N/A]

	Yes	No	NA	If NA–reason:
1. Custody Seals present?			✓	
2. Custody Seals intact?			✓	
3. Air Bill included in folder, if received?			✓	
4. Is COC included with samples?	✓			
5. Is COC signed and dated by client?	✓			
6. Sample temperature: Thermal preservation between >0° - 6° C? (Samples that are delivered to the laboratory on the same day that they are collected may not meet this criterion, but are acceptable if they arrive on ice.)	✓			Temp: 5.0 T.6#4 °C
7. Samples received with ice ☒ ice packs ☐ other cooling ☐	✓			
8. Is the COC filled out correctly, and completely?	✓			
9. Information on the COC matches the samples?	✓			
10. Samples received within holding time?	✓			
11. Samples properly labeled?	✓			
12. Samples submitted with chemical preservation? (e.g. pH adjusted, or sodium thiosulfate added for microbiological tests)	✓			
13. Proper sample containers used?	✓			
14. All samples received intact; containers not damaged or leaking?	✓			
15. VOA vials (requesting BTEX/VOC analysis) received with no air bubbles? Bubbles acceptable on VOA vials for TPH.	✓			
16. Sample volume sufficient for requested analysis?	✓			
17. Subcontracted Samples: [if Yes, complete the next section]	✓			

Analyses Subcontracted Out: Sulfide, TOC No. of Samples

Samples sent to: Summit Sent By: [signature]

Date samples sent: 12/22/11 Samples shipped via: UPS next

TAT Requested: 5 days

Tracking number [if any]:

Comments:

Received By: [signature] Date: 12/22/11

Labeled By: Date:

Logged into LIMS By: Date:

Logged into RF By: Date:

Q:\Forms\Sample Receipt Checklist Form Rev 012010.doc

SATL#FO001
Effective: 04/05/06
Revised 01/20/10

1610 S. Laredo Street, San Antonio, Texas 78207-7029 • (210) 229-9920 • Fax (210) 229-9921

$890.00

GENERAL PARAMETERS	TOXIC POLLUTANTS***	
Temperature (°F)	Parameter	MAL (mg/l) field
pH (standard units)	Aluminum	0.03
Dissolved Oxygen	Arsenic	0.01
Hardness (mg/l as $CaCO_3$)	Barium	0.01
Total Suspended Solids	Benzene	0.01
Total Dissolved Solids	Cadmium	0.001
Chlorides	Chromium	0.01
Sulfates	Hexavalent Chromium	0.01
Sulfides	Copper	0.01
Ammonia Nitrogen	Cyanide	0.02
Calcium	Lead	0.005
Magnesium	Mercury	0.0002
Sodium	Nickel	0.01
Potassium	Selenium	0.01
Iron	Silver	0.002
Manganese	Zinc	0.005
Oil & Grease		
Total Organic Carbon		
SVOC Phenols		
Naphthalene		

*** These toxic pollutants have numerical criteria specified in the Texas Surface Water Quality Standards (http://www.tceq.state.tx.us/nav/eq/eq_swqs.html) (effective 4/30/97) and may be present in some produced water. Toxic pollutant concentrations above the specified minimum analytical limit (MAL) must be reported. If the laboratory, using acceptable analytical practices, cannot report concentrations down to the specified level due to reasons such as matrix interference, a statement to that effect from the laboratory must be submitted with the results. Also, the MAL achieved by the laboratory for each toxic pollutant must be reported.

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Rate Notification

CHAIN-OF-CUSTODY RECORD

SAN ANTONIO TESTING LABORATORY, INC.
1610 S. Laredo Street, San Antonio, Texas 78207
(210) 229-9920 • Fax (210) 229-9921
www.satestinglab.com

REPORT TO:	INVOICE TO:	P.O. #
COMPANY	COMPANY Rickaway Energy Corp	REPORT NUMBER 1112280
ADDRESS	ADDRESS 205 Los Robles	
CITY STATE ZIP	CITY Pleasanton TX STATE ZIP 78064	FAX 830 To both pleasee
ATTN: PHONE #	ATTN: Ron Rickaway PHONE # 830-220-1660	E-MAIL Ronrickaway@yahoo.com Sandy.Rickaway@yahoo.com

PROJECT NAME/LOCATION/SITE: Hierholzer

PROJECT NO. 1

REQUESTED TURNAROUND TIME (begins at Log-in): ☒ 7-10 Business Days ☐ 3-5 Business Days ☐ 2 Business Days ☐ Next Business Day ☐ SAME DAY WHEN POSSIBLE

TRRP 13 REQUEST ☐ YES ☐ NO

COMMENTS/SPECIAL REQUESTS: Field Temp 57° F

TEMP. I.R. GUN # 4

SAMPLE TEMPERATURE WITHIN COMPLIANCE (> 0°C ≤ 6°C) ☒ YES ☐ NO

PROPER CONTAINERS ☐ YES ☐ NO

IF NO, SIGN HERE TO AUTHORIZE ANALYSIS _____

SAMPLED BY: Ron Sr.

TEMP. ON RECPT. 5.0°C

COND. OF SAMPLE Iced

SAMPLE NUMBER	COLLECTED DATE	COLLECTED TIME	MATRIX: DRINKING WATER	LIQUID	PAINT CHIPS	SOIL	SOLID	SLUDGE	OTHER	SAMPLING METHOD: COMPOSITE	GRAB	CORE	OTHER	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	SAMPLE AMOUNT	CONTAINER SIZE	8TEX / MTBE (8260)	TPH (TX1005 / TX1006)	METALS 6 / 11 / 12 / 13 / TCLP / SPLP	PAH / SVOC / (8270 / 625 / TCLP / SPLP)	VOC / (8260 / 624 / TCLP / SPLP)	Cd / Cr / Pb - RCT / TCLP / SPLP	RT. MINERALS	COLI / TC / FC / HPC	Railroad Commission Scheduled	HOLD	FOR FUTURE USE	PRESERVED IN THE LAB	PRESERVED IN THE LAB COMPOSITED IN THE LAB	REMARKS
	12-22	1:18pm	X								X			Hierholzer Lease	12	4,785ml									X	X		XXXXXX				

12-22-11 14:58 IN

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY (SIGNATURE)
RELINQUISHED BY (PRINT NAME): Ron Rickaway Jr.		RECEIVED BY (PRINT NAME): Aimee Landon	RELINQUISHED BY (PRINT NAME)		RECEIVED BY (PRINT NAME)
RELINQUISHED BY (SIGNATURE)		RECEIVED BY (SIGNATURE)	METHOD OF SHIPMENT: Hand		TO BE SENT OUT ☐ YES ☐ NO
RELINQUISHED BY (PRINT NAME)		RECEIVED BY (PRINT NAME)			CUSTODY SEAL IN PLACE & INTACT ☐ YES ☐ NO

FORM: COC REV 08/11 WHITE - LAB CANARY - CLIENT

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Definitions and Notes

All quality control samples and checks are within acceptance limits unless otherwise indicated.
Test results pertain only to those items tested.
All samples were in good condition when received by the laboratory unless otherwise noted.

RPD	RPD is outside QC limits due to possible matrix interferences.
LCSH	LCS recovery is outside QC limits, the results may have a slight high bias.
LCSDH	LCSD recovery is outside QC limits, the results may have a slight high bias.
ICVL	ICV recovery is outside QC limits, the results may have a slight low bias.
H	pH and temperature are field tests and should be analyzed within 15 minutes. Due to transportation, hold time has been exceeded.
PQL	Practical Quantitation Limit
mg/Kg	Milligrams per Kilogram (Parts per Million)
mg/L	Milligrams per Liter (Parts per Million)
PPM	Parts per Million
*	TNI / NELAC accredited analyte
RMCCL	Recommended Maximum Concentration of Contaminants Level

Test Methods: Standard Methods for the Examination of Water and Wastewater, 20th Edition 1998
Methods for Chemical Analysis of Water and Wastes, EPA 600/4-79-020, Rev. March 1983
EPA SW Test Methods for the Examination of Solid Waste, SW-846, 1996

Subcontracted Analyses

Subcontractor Lab	Lab Number	Analysis
Summit Environmental	1112280-01	Sulfide
Summit Environmental	1112280-01	TOC

Aimee Landon For Marcela Gracia Hawk, President For

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Richard Hawk, General Manager

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B152097 - 5030B									
LCS (B152097-BS1)				Prepared: 12/22/11 15:00		Analyzed: 12/22/11 18:32			
Benzene	0.0506	0.005	mg/L	0.0500		101	80-120		
Toluene	0.0506	0.005	mg/L	0.0500		101	80-120		
Ethylbenzene	0.0472	0.005	mg/L	0.0500		94	80-120		
Total Xylenes	0.145	0.015	mg/L	0.150		97	80-120		
Surrogate: Toluene-d8	*0.0484*		*mg/L*	*0.0500*		*97*	*76-129*		
Surrogate: 4-Bromofluorobenzene	*0.0465*		*mg/L*	*0.0500*		*93*	*70-130*		
Surrogate: Dibromofluoromethane	*0.0480*		*mg/L*	*0.0500*		*96*	*84-123*		
LCS Dup (B152097-BSD1)				Prepared: 12/22/11 15:00		Analyzed: 12/22/11 19:01			
Benzene	0.0504	0.005	mg/L	0.0500		101	80-120	0.4	20
Toluene	0.0491	0.005	mg/L	0.0500		98	80-120	3	20
Ethylbenzene	0.0466	0.005	mg/L	0.0500		93	80-120	1	20
Total Xylenes	0.142	0.015	mg/L	0.150		95	80-120	2	20
Surrogate: Toluene-d8	*0.0473*		*mg/L*	*0.0500*		*95*	*76-129*		
Surrogate: 4-Bromofluorobenzene	*0.0462*		*mg/L*	*0.0500*		*92*	*70-130*		
Surrogate: Dibromofluoromethane	*0.0499*		*mg/L*	*0.0500*		*100*	*84-123*		
Matrix Spike (B152097-MS1)		**Source: 1112258-01**		Prepared: 12/22/11 15:00		Analyzed: 12/22/11 19:58			
Benzene	0.0518	0.005	mg/L	0.0500	<0.005	104	89-117		
Toluene	0.0501	0.005	mg/L	0.0500	<0.005	100	97-114		
Ethylbenzene	0.0496	0.005	mg/L	0.0500	<0.005	99	97-115		
Total Xylenes	0.149	0.015	mg/L	0.150	<0.015	100	36-148		
Surrogate: Toluene-d8	*0.0476*		*mg/L*	*0.0500*		*95*	*76-129*		
Surrogate: 4-Bromofluorobenzene	*0.0458*		*mg/L*	*0.0500*		*92*	*70-130*		
Surrogate: Dibromofluoromethane	*0.0497*		*mg/L*	*0.0500*		*99*	*84-123*		
Matrix Spike Dup (B152097-MSD1)		**Source: 1112258-01**		Prepared: 12/22/11 15:00		Analyzed: 12/22/11 20:27			
Benzene	0.0509	0.005	mg/L	0.0500	<0.005	102	89-117	2	20
Toluene	0.0504	0.005	mg/L	0.0500	<0.005	101	97-114	0.7	20
Ethylbenzene	0.0502	0.005	mg/L	0.0500	<0.005	100	97-115	1	20
Total Xylenes	0.148	0.015	mg/L	0.150	<0.015	99	36-148	0.9	20
Surrogate: Toluene-d8	*0.0484*		*mg/L*	*0.0500*		*97*	*76-129*		
Surrogate: 4-Bromofluorobenzene	*0.0464*		*mg/L*	*0.0500*		*93*	*70-130*		
Surrogate: Dibromofluoromethane	*0.0498*		*mg/L*	*0.0500*		*100*	*84-123*		

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	
Batch B153055 - 3510C										
LCS Dup (B153055-BSD1)				Prepared: 12/29/11 08:00 Analyzed: 12/29/11 18:56						
Di-n-butylphthalate	0.0289	0.010	mg/L	0.0400		72	25-136	0.5	20	
Fluoranthene	0.0302	0.010	mg/L	0.0400		75	37-135	0.03	20	
Pyrene	0.0303	0.010	mg/L	0.0400		76	26-117	0.1	20	
Butylbenzylphthalate	0.0274	0.010	mg/L	0.0400		69	25-135	0.3	20	
Benz(a)anthracene	0.0281	0.010	mg/L	0.0400		70	41-143	0.04	20	
Chrysene	0.0293	0.010	mg/L	0.0400		73	45-143	0.9	20	
Bis(2-Ethylhexyl)phthalate	0.0295	0.010	mg/L	0.0400		74	25-139	0.4	20	
Di-n-octylphthalate	0.0654	0.010	mg/L	0.0400		164	28-137	0.8	20	LCSDH
Indeno[1,2,3-cd]pyrene	0.0182	0.010	mg/L	0.0400		45	25-170	0.6	20	
Benzo[b]fluoranthene	0.0434	0.010	mg/L	0.0400		108	27-135	6	20	
Benzo[k]fluoranthene	0.0498	0.010	mg/L	0.0400		125	56-116	1	20	LCSDH
Benzo[a]pyrene	0.0329	0.010	mg/L	0.0400		82	31-135	3	20	
Dibenz[a,h]anthracene	0.0173	0.010	mg/L	0.0400		43	40-135	1	20	
Benzo[g,h,i]perylene	0.0217	0.010	mg/L	0.0400		54	25-159	1	20	
Surrogate: 2-Fluorophenol	*0.0583*		*mg/L*	*0.100*		*58*	*21-125*			
Surrogate: Phenol-d5	*0.0626*		*mg/L*	*0.100*		*63*	*10-110*			
Surrogate: Nitrobenzene-d5	*0.0315*		*mg/L*	*0.0500*		*63*	*32-125*			
Surrogate: 2-Fluorobiphenyl	*0.0306*		*mg/L*	*0.0500*		*61*	*43-125*			
Surrogate: 2,4,6-Tribromophenol	*0.0773*		*mg/L*	*0.100*		*77*	*10-123*			
Surrogate: Terphenyl-d14	*0.0325*		*mg/L*	*0.0500*		*65*	*33-141*			

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B152097 - 5030B									
Blank (B152097-BLK1)				Prepared: 12/22/11 15:00 Analyzed: 12/22/11 19:30					
Benzene	<0.005	0.005	mg/L						
Toluene	<0.005	0.005	mg/L						
Ethylbenzene	<0.005	0.005	mg/L						
Total Xylenes	<0.015	0.015	mg/L						
Surrogate: Toluene-d8	*0.0495*		*mg/L*	*0.0500*		*99*	*76-129*		
Surrogate: 4-Bromofluorobenzene	*0.0437*		*mg/L*	*0.0500*		*87*	*70-130*		
Surrogate: Dibromofluoromethane	*0.0514*		*mg/L*	*0.0500*		*103*	*84-123*		
LCS (B152097-BS1)				Prepared: 12/22/11 15:00 Analyzed: 12/22/11 18:32					

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

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Report No. 1112280

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B153055 - 3510C									
LCS Dup (B153055-BSD1)				Prepared: 12/29/11 08:00 Analyzed: 12/29/11 18:56					
3/4-Methylphenol	0.0319	0.010	mg/L	0.0400		80	25-135	0.9	20
N-Nitroso-di-n-propylamine	0.0287	0.010	mg/L	0.0400		72	27-135	2	20
Nitrobenzene	0.0314	0.010	mg/L	0.0400		79	36-143	1	20
2-Nitrophenol	0.0306	0.010	mg/L	0.0400		77	34-135	1	20
Isophorone	0.0276	0.010	mg/L	0.0400		69	25-175	0	20
1,2,4-Trichlorobenzene	0.0303	0.010	mg/L	0.0400		76	39-98	0.8	20
4-Chloro-3-methylphenol	0.0319	0.010	mg/L	0.0400		80	34-135	0.3	20
2,4-Dimethylphenol	0.0321	0.010	mg/L	0.0400		80	35-149	0.7	20
bis(2-Chloroethoxy)methane	0.0276	0.010	mg/L	0.0400		69	39-135	0.4	20
2,4-Dichlorophenol	0.0315	0.010	mg/L	0.0400		79	36-135	1	20
Naphthalene	0.0325	0.010	mg/L	0.0400		81	40-135	0.4	20
4-Chloroaniline	0.0306	0.010	mg/L	0.0400		77	35-146	0.1	20
Hexachlorobutadiene	0.0370	0.010	mg/L	0.0400		93	25-135	2	20
2-Methylnaphthalene	0.0311	0.010	mg/L	0.0400		78	31-135	0.5	20
Hexachlorocyclopentadiene	0.0368	0.050	mg/L	0.0400		92	31-135	1	20
2,4,6-Trichlorophenol	0.0329	0.010	mg/L	0.0400		82	29-138	0.2	20
2,4,5-Trichlorophenol	0.0300	0.010	mg/L	0.0400		75	25-175	4	20
2-Chloronaphthalene	0.0294	0.010	mg/L	0.0400		74	50-135	0.6	20
2-Nitroaniline	0.0300	0.010	mg/L	0.0400		75	40-135	0.7	20
Acenaphthylene	0.0285	0.010	mg/L	0.0400		71	37-135	1	20
Dimethylphthalate	0.0299	0.010	mg/L	0.0400		75	25-175	1	20
Acenaphthene	0.0307	0.010	mg/L	0.0400		77	39-135	0.7	20
4-Nitrophenol	0.0377	0.050	mg/L	0.0400		94	10-141	3	20
Dibenzofuran	0.0318	0.010	mg/L	0.0400		80	42-135	0.3	20
4-Chlorophenyl-phenylether	0.0322	0.010	mg/L	0.0400		81	41-142	0.5	20
2,4-Dinitrophenol	0.0283	0.050	mg/L	0.0400		71	10-161	5	20
2,4-Dinitrotoluene	0.0301	0.010	mg/L	0.0400		75	29-149	1	20
Fluorene	0.0300	0.010	mg/L	0.0400		75	38-149	0.3	20
Diethylphthalate	0.0286	0.010	mg/L	0.0400		72	25-175	0.07	20
4-Nitroaniline	0.0239	0.010	mg/L	0.0400		60	30-153	2	20
4,6-Dinitro-2-methylphenol	0.0329	0.050	mg/L	0.0400		82	25-144	2	20
Azobenzene	0.0288	0.010	mg/L	0.0400		72	65-123	0.6	20
N-Nitrosodiphenylamine	0.0299	0.010	mg/L	0.0400		75	69-142	0.5	20
4-Bromophenyl-phenylether	0.0320	0.010	mg/L	0.0400		80	43-137	0.09	20
Hexachlorobenzene	0.0330	0.010	mg/L	0.0400		82	36-143	0.8	20
Pentachlorophenol	0.0325	0.010	mg/L	0.0400		81	10-146	3	20
Phenanthrene	0.0304	0.010	mg/L	0.0400		76	44-135	1	20
Anthracene	0.0302	0.010	mg/L	0.0400		76	35-175	0.1	20

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Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	
Batch B153055 - 3510C										
LCS (B153055-BS1)				Prepared: 12/29/11 08:00 Analyzed: 12/29/11 18:17						
Hexachlorobenzene	0.0332	0.010	mg/L	0.0400		83	36-143			
Pentachlorophenol	0.0316	0.010	mg/L	0.0400		79	10-146			
Phenanthrene	0.0308	0.010	mg/L	0.0400		77	44-135			
Anthracene	0.0302	0.010	mg/L	0.0400		76	35-175			
Di-n-butylphthalate	0.0288	0.010	mg/L	0.0400		72	25-136			
Fluoranthene	0.0302	0.010	mg/L	0.0400		75	37-135			
Pyrene	0.0303	0.010	mg/L	0.0400		76	26-117			
Butylbenzylphthalate	0.0274	0.010	mg/L	0.0400		68	25-135			
Benz(a)anthracene	0.0281	0.010	mg/L	0.0400		70	41-143			
Chrysene	0.0290	0.010	mg/L	0.0400		73	45-143			
Bis(2-Ethylhexyl)phthalate	0.0296	0.010	mg/L	0.0400		74	25-139			
Di-n-octylphthalate	0.0649	0.010	mg/L	0.0400		162	28-137			LCSH
Indeno[1,2,3-cd]pyrene	0.0181	0.010	mg/L	0.0400		45	25-170			
Benzo[b]fluoranthene	0.0458	0.010	mg/L	0.0400		115	27-135			
Benzo[k]fluoranthene	0.0491	0.010	mg/L	0.0400		123	56-116			LCSH
Benzo[a]pyrene	0.0339	0.010	mg/L	0.0400		85	31-135			
Dibenz[a,h]anthracene	0.0175	0.010	mg/L	0.0400		44	40-135			
Benzo[g,h,i]perylene	0.0215	0.010	mg/L	0.0400		54	25-159			
Surrogate: 2-Fluorophenol	*0.0577*		*mg/L*	*0.100*		*58*	*21-125*			
Surrogate: Phenol-d5	*0.0625*		*mg/L*	*0.100*		*62*	*10-110*			
Surrogate: Nitrobenzene-d5	*0.0310*		*mg/L*	*0.0500*		*62*	*32-125*			
Surrogate: 2-Fluorobiphenyl	*0.0303*		*mg/L*	*0.0500*		*61*	*43-125*			
Surrogate: 2,4,6-Tribromophenol	*0.0778*		*mg/L*	*0.100*		*78*	*10-123*			
Surrogate: Terphenyl-d14	*0.0321*		*mg/L*	*0.0500*		*64*	*33-141*			
LCS Dup (B153055-BSD1)				Prepared: 12/29/11 08:00 Analyzed: 12/29/11 18:56						
Pyridine	0.0241	0.010	mg/L	0.0400		60	35-135	11	20	
N-Nitrosodimethylamine	0.0244	0.010	mg/L	0.0400		61	42-122	0.8	20	
2-Chlorophenol	0.0310	0.010	mg/L	0.0400		77	31-135	0.4	20	
2,6-Dinitrotoluene	0.0270	0.010	mg/L	0.0400		68	25-159	2	20	
Bis(2-Chloroethyl)ether	0.0270	0.010	mg/L	0.0400		68	34-135	0.7	20	
Phenol	0.0309	0.010	mg/L	0.0400		77	12-110	0.5	20	
1,3-Dichlorobenzene	0.0309	0.010	mg/L	0.0400		77	26-135	0.03	20	
1,4-Dichlorobenzene	0.0323	0.010	mg/L	0.0400		81	25-135	0.5	20	
1,2-Dichlorobenzene	0.0344	0.010	mg/L	0.0400		86	32-135	1	20	
Bis(2-chloroisopropyl)ether	0.0283	0.010	mg/L	0.0400		71	26-175	2	20	
2-Methylphenol	0.0314	0.010	mg/L	0.0400		78	25-135	2	20	
Hexachloroethane	0.0328	0.010	mg/L	0.0400		82	25-163	0.3	20	

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Report No. 1112280

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B153055 - 3510C									
LCS (B153055-BS1)				Prepared: 12/29/11 08:00 Analyzed: 12/29/11 18:17					
1,2-Dichlorobenzene	0.0348	0.010	mg/L	0.0400		87	32-135		
Bis(2-chloroisopropyl)ether	0.0288	0.010	mg/L	0.0400		72	26-175		
2-Methylphenol	0.0320	0.010	mg/L	0.0400		80	25-135		
Hexachloroethane	0.0329	0.010	mg/L	0.0400		82	25-163		
3/4-Methylphenol	0.0322	0.010	mg/L	0.0400		80	25-135		
N-Nitroso-di-n-propylamine	0.0293	0.010	mg/L	0.0400		73	27-135		
Nitrobenzene	0.0310	0.010	mg/L	0.0400		78	36-143		
2-Nitrophenol	0.0302	0.010	mg/L	0.0400		76	34-135		
Isophorone	0.0276	0.010	mg/L	0.0400		69	25-175		
1,2,4-Trichlorobenzene	0.0306	0.010	mg/L	0.0400		76	39-98		
4-Chloro-3-methylphenol	0.0318	0.010	mg/L	0.0400		79	34-135		
2,4-Dimethylphenol	0.0323	0.010	mg/L	0.0400		81	35-149		
bis(2-Chloroethoxy)methane	0.0277	0.010	mg/L	0.0400		69	39-135		
2,4-Dichlorophenol	0.0312	0.010	mg/L	0.0400		78	36-135		
Naphthalene	0.0324	0.010	mg/L	0.0400		81	40-135		
4-Chloroaniline	0.0306	0.010	mg/L	0.0400		76	35-146		
Hexachlorobutadiene	0.0376	0.010	mg/L	0.0400		94	25-135		
2-Methylnaphthalene	0.0310	0.010	mg/L	0.0400		77	31-135		
Hexachlorocyclopentadiene	0.0364	0.050	mg/L	0.0400		91	31-135		
2,4,6-Trichlorophenol	0.0328	0.010	mg/L	0.0400		82	29-138		
2,4,5-Trichlorophenol	0.0312	0.010	mg/L	0.0400		78	25-175		
2-Chloronaphthalene	0.0292	0.010	mg/L	0.0400		73	50-135		
2-Nitroaniline	0.0302	0.010	mg/L	0.0400		75	40-135		
Acenaphthylene	0.0282	0.010	mg/L	0.0400		70	37-135		
Dimethylphthalate	0.0296	0.010	mg/L	0.0400		74	25-175		
Acenaphthene	0.0305	0.010	mg/L	0.0400		76	39-135		
4-Nitrophenol	0.0365	0.050	mg/L	0.0400		91	10-141		
Dibenzofuran	0.0317	0.010	mg/L	0.0400		79	42-135		
4-Chlorophenyl-phenylether	0.0321	0.010	mg/L	0.0400		80	41-142		
2,4-Dinitrophenol	0.0268	0.050	mg/L	0.0400		67	10-161		
2,4-Dinitrotoluene	0.0297	0.010	mg/L	0.0400		74	29-149		
Fluorene	0.0299	0.010	mg/L	0.0400		75	38-149		
Diethylphthalate	0.0286	0.010	mg/L	0.0400		72	25-175		
4-Nitroaniline	0.0235	0.010	mg/L	0.0400		59	30-153		
4,6-Dinitro-2-methylphenol	0.0323	0.050	mg/L	0.0400		81	25-144		
Azobenzene	0.0286	0.010	mg/L	0.0400		72	65-123		
N-Nitrosodiphenylamine	0.0298	0.010	mg/L	0.0400		74	69-142		
4-Bromophenyl-phenylether	0.0320	0.010	mg/L	0.0400		80	43-137		

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B153055 - 3510C									
Blank (B153055-BLK1)				Prepared: 12/29/11 08:00 Analyzed: 12/29/11 17:38					
N-Nitrosodiphenylamine	<0.010	0.010	mg/L						
4-Bromophenyl-phenylether	<0.010	0.010	mg/L						
Hexachlorobenzene	<0.010	0.010	mg/L						
Pentachlorophenol	<0.010	0.010	mg/L						
Phenanthrene	<0.010	0.010	mg/L						
Anthracene	<0.010	0.010	mg/L						
Di-n-butylphthalate	<0.010	0.010	mg/L						
Fluoranthene	<0.010	0.010	mg/L						
Pyrene	<0.010	0.010	mg/L						
Benzidine	<0.050	0.050	mg/L						
Butylbenzylphthalate	<0.010	0.010	mg/L						
Benz(a)anthracene	<0.010	0.010	mg/L						
Chrysene	<0.010	0.010	mg/L						
Bis(2-Ethylhexyl)phthalate	<0.010	0.010	mg/L						
Di-n-octylphthalate	<0.010	0.010	mg/L						
Indeno[1,2,3-cd]pyrene	<0.010	0.010	mg/L						
Benzo[b]fluoranthene	<0.010	0.010	mg/L						
Benzo[k]fluoranthene	<0.010	0.010	mg/L						
Benzo[a]pyrene	<0.010	0.010	mg/L						
Dibenz[a,h]anthracene	<0.010	0.010	mg/L						
Benzo[g,h,i]perylene	<0.010	0.010	mg/L						
1,2-Diphenyl Hydrazine	<0.010	0.010	mg/L						
Surrogate: 2-Fluorophenol	*0.0543*		*mg/L*	*0.100*		*54*	*21-125*		
Surrogate: Phenol-d5	*0.0384*		*mg/L*	*0.100*		*38*	*10-110*		
Surrogate: Nitrobenzene-d5	*0.0385*		*mg/L*	*0.0500*		*77*	*32-125*		
Surrogate: 2-Fluorobiphenyl	*0.0390*		*mg/L*	*0.0500*		*78*	*43-125*		
Surrogate: 2,4,6-Tribromophenol	*0.106*		*mg/L*	*0.100*		*106*	*10-123*		
Surrogate: Terphenyl-d14	*0.0513*		*mg/L*	*0.0500*		*103*	*33-141*		
LCS (B153055-BS1)				Prepared: 12/29/11 08:00 Analyzed: 12/29/11 18:17					
Pyridine	0.0215	0.010	mg/L	0.0400		54	35-135		
N-Nitrosodimethylamine	0.0246	0.010	mg/L	0.0400		62	42-122		
2-Chlorophenol	0.0311	0.010	mg/L	0.0400		78	31-135		
2,6-Dinitrotoluene	0.0265	0.010	mg/L	0.0400		66	25-159		
Bis(2-Chloroethyl)ether	0.0272	0.010	mg/L	0.0400		68	34-135		
Phenol	0.0307	0.010	mg/L	0.0400		77	12-110		
1,3-Dichlorobenzene	0.0308	0.010	mg/L	0.0400		77	26-135		
1,4-Dichlorobenzene	0.0321	0.010	mg/L	0.0400		80	25-135		

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Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B153055 - 3510C									
Blank (B153055-BLK1)				Prepared: 12/29/11 08:00 Analyzed: 12/29/11 17:38					
1,3-Dichlorobenzene	<0.010	0.010	mg/L						
1,4-Dichlorobenzene	<0.010	0.010	mg/L						
1,2-Dichlorobenzene	<0.010	0.010	mg/L						
Bis(2-chloroisopropyl)ether	<0.010	0.010	mg/L						
2-Methylphenol	<0.010	0.010	mg/L						
Hexachloroethane	<0.010	0.010	mg/L						
3/4-Methylphenol	<0.010	0.010	mg/L						
N-Nitroso-di-n-propylamine	<0.010	0.010	mg/L						
Nitrobenzene	<0.010	0.010	mg/L						
2-Nitrophenol	<0.010	0.010	mg/L						
Isophorone	<0.010	0.010	mg/L						
1,2,4-Trichlorobenzene	<0.010	0.010	mg/L						
4-Chloro-3-methylphenol	<0.010	0.010	mg/L						
2,4-Dimethylphenol	<0.010	0.010	mg/L						
bis(2-Chloroethoxy)methane	<0.010	0.010	mg/L						
2,4-Dichlorophenol	<0.010	0.010	mg/L						
Naphthalene	<0.010	0.010	mg/L						
4-Chloroaniline	<0.010	0.010	mg/L						
Hexachlorobutadiene	<0.010	0.010	mg/L						
2-Methylnaphthalene	<0.010	0.010	mg/L						
Hexachlorocyclopentadiene	<0.050	0.050	mg/L						
2,4,6-Trichlorophenol	<0.010	0.010	mg/L						
2,4,5-Trichlorophenol	<0.010	0.010	mg/L						
2-Chloronaphthalene	<0.010	0.010	mg/L						
2-Nitroaniline	<0.010	0.010	mg/L						
Acenaphthylene	<0.010	0.010	mg/L						
Dimethylphthalate	<0.010	0.010	mg/L						
Acenaphthene	<0.010	0.010	mg/L						
4-Nitrophenol	<0.050	0.050	mg/L						
Dibenzofuran	<0.010	0.010	mg/L						
4-Chlorophenyl-phenylether	<0.010	0.010	mg/L						
2,4-Dinitrophenol	<0.050	0.050	mg/L						
2,4-Dinitrotoluene	<0.010	0.010	mg/L						
Fluorene	<0.010	0.010	mg/L						
Diethylphthalate	<0.010	0.010	mg/L						
4-Nitroaniline	<0.010	0.010	mg/L						
4,6-Dinitro-2-methylphenol	<0.050	0.050	mg/L						
Azobenzene	<0.010	0.010	mg/L						

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Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	
Batch B152098 - 200.7										
Matrix Spike (B152098-MS2)		**Source: 1112280-01**		Prepared: 12/23/11 08:51 Analyzed: 12/23/11 16:49						
Chromium	1.85	0.010	mg/L	2.00	<0.010	93	75-125			
Copper	1.85	0.010	mg/L	2.00	<0.010	92	75-125			
Manganese	1.84	0.01	mg/L	2.00	0.0111	92	75-125			
Nickel	1.86	0.01	mg/L	2.00	<0.01	93	75-125			
Potassium	33.2	1.00	mg/L	20.0	11.2	110	75-125			
Selenium	1.99	0.01	mg/L	2.00	<0.01	99	75-125			
Silver	0.907	0.002	mg/L	1.00	<0.002	91	75-125			
Zinc	1.97	0.005	mg/L	2.00	0.0332	97	75-125			
Batch B153014 - 245.1										
Blank (B153014-BLK1)				Prepared: 12/27/11 09:00 Analyzed: 12/29/11 11:02						
Mercury	<0.0002	0.0002	mg/L							ICVL
LCS (B153014-BS1)				Prepared: 12/27/11 09:00 Analyzed: 12/29/11 11:02						
Mercury	0.00972	0.0002	mg/L	0.0100		97	85-115			
LCS Dup (B153014-BSD1)				Prepared: 12/27/11 09:00 Analyzed: 12/29/11 11:02						
Mercury	0.0101	0.0002	mg/L	0.0100		101	85-115	3	25	
Duplicate (B153014-DUP1)		**Source: 1112286-01**		Prepared: 12/27/11 09:00 Analyzed: 12/29/11 11:02						
Mercury	0.000354	0.0002	mg/L		0.000356			0.6	25	
Matrix Spike (B153014-MS1)		**Source: 1112286-01**		Prepared: 12/27/11 09:00 Analyzed: 12/29/11 11:02						
Mercury	0.00824	0.0002	mg/L	0.0100	0.000356	79	75-125			

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B153055 - 3510C									
Blank (B153055-BLK1)				Prepared: 12/29/11 08:00 Analyzed: 12/29/11 17:38					
Pyridine	<0.010	0.010	mg/L						
N-Nitrosodimethylamine	<0.010	0.010	mg/L						
2-Chlorophenol	<0.010	0.010	mg/L						
2,6-Dinitrotoluene	<0.010	0.010	mg/L						
Bis(2-Chloroethyl)ether	<0.010	0.010	mg/L						
Phenol	<0.010	0.010	mg/L						

Rickaway Energy Corp.
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Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B152098 - 200.7									
Duplicate (B152098-DUP1)		**Source: 1112246-01**		Prepared: 12/23/11 08:51 Analyzed: 12/23/11 15:07					
Selenium	<0.01	0.01	mg/L		<0.01				20
Silver	<0.002	0.002	mg/L		<0.002				20
Zinc	0.0798	0.005	mg/L		0.0728			9	20
Duplicate (B152098-DUP2)		**Source: 1112280-01**		Prepared: 12/23/11 08:51 Analyzed: 12/23/11 16:42					
Aluminum	0.0168	0.030	mg/L		0.0163			3	20
Arsenic	<0.010	0.010	mg/L		<0.010				20
Barium	0.156	0.010	mg/L		0.151			3	20
Cadmium	<0.001	0.001	mg/L		<0.001				20
Calcium	27.1	1.00	mg/L		26.6			2	20
Chromium	<0.010	0.010	mg/L		<0.010				20
Copper	<0.010	0.010	mg/L		<0.010				20
Iron	0.113	0.050	mg/L		0.112			1	20
Lead	<0.005	0.005	mg/L		0.00300				20
Magnesium	11.4	0.010	mg/L		11.1			2	20
Manganese	0.0113	0.01	mg/L		0.0111			2	20
Nickel	<0.01	0.01	mg/L		<0.01				20
Potassium	11.3	1.00	mg/L		11.2			1	20
Selenium	<0.01	0.01	mg/L		<0.01				20
Silver	<0.002	0.002	mg/L		<0.002				20
Zinc	0.0342	0.005	mg/L		0.0332			3	20
Matrix Spike (B152098-MS1)		**Source: 1112246-01**		Prepared: 12/23/11 08:51 Analyzed: 12/23/11 15:13					
Arsenic	1.90	0.010	mg/L	2.00	0.00350	95	75-125		
Barium	1.94	0.010	mg/L	2.00	0.125	91	75-125		
Cadmium	1.82	0.001	mg/L	2.00	0.00420	91	75-125		
Chromium	1.82	0.010	mg/L	2.00	0.00990	90	75-125		
Copper	1.79	0.010	mg/L	2.00	0.0182	89	75-125		
Manganese	1.87	0.01	mg/L	2.00	0.0459	91	75-125		
Nickel	1.78	0.01	mg/L	2.00	0.00660	89	75-125		
Potassium	53.1	1.00	mg/L	20.0	30.7	112	75-125		
Selenium	1.87	0.01	mg/L	2.00	<0.01	93	75-125		
Silver	0.890	0.002	mg/L	1.00	<0.002	89	75-125		
Zinc	1.94	0.005	mg/L	2.00	0.0728	93	75-125		
Matrix Spike (B152098-MS2)		**Source: 1112280-01**		Prepared: 12/23/11 08:51 Analyzed: 12/23/11 16:49					
Arsenic	1.98	0.010	mg/L	2.00	<0.010	99	75-125		
Barium	2.06	0.010	mg/L	2.00	0.151	95	75-125		
Cadmium	1.90	0.001	mg/L	2.00	<0.001	95	75-125		

Soil, Water & Forage Analytical Laboratory

Oklahoma State University Division of Agricultural Sciences and Natural Resources
045 Agricultural Hall
Stillwater, OK 74078
E-mail: soiltesting@okstate.edu
Website: www.soiltesting.okstate.edu

WATER QUALITY REPORT

GORE PETROLEUM LAND & ENVIRONM... PO BOX 4061 EDMOND, OK 73083 (405)513-8562	Name : HEIRHOLZER SHALLOW Location : WEN-BE WILSON COUNTY, TX	Lab ID No.: : 596112 Customer Code : 1711 Sample No. : 10 Received : 3/22/2011 Report Date : 3/24/2011

Test Results for Irrigation Water

Cations		Anions		Other	
Sodium (ppm)	95	Nitrate-N (ppm)	<1	pH	8.2
Calcium (ppm)	36	Chloride (ppm)	73	EC (µmhos/cm)	668
Magnesium (ppm)	14	Sulfate (ppm)	14		
Potassium (ppm)	12	Boron (ppm)	0.35		
		Bicarbonate (ppm)	282		

Derived Values		Derived Values(cont'd)	
Total Soluble Salts (TSS in ppm)	526.1	Sodium Percentage	58.6 %
Sodium Adsorption Ratio (SAR)	3.4	Hardness (ppm)	146.1
Potassium Adsorption Ratio (PAR)	0.3	Hardness Class	Hard
Residual Carbonates (meq)	1.7	Alkalinity (ppm as CaCO3)	231.4

INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

This water can be used satisfactorily for most crops if care is taken to prevent accumulation of soluble salts including sodium in the soil. Good soil management and irrigation practices should be followed. This water can be used with little danger on permeable, well-drained soils.

If this water is used extensively, it is recommended that a soil sample be obtained every few years from the irrigated fields to determine the extent to which sodium or salts may be accumulating and the need for special management practices.

Residual carbonates are present in excess amounts lowering water quality to marginal.

Signature

Oklahoma State University, U.S. Department of Agriculture, state and local governments cooperating. Oklahoma Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, sex, age or disability and is an Equal Opportunity Employer.

OPERATOR NAME AND ADDRESS, including city, state and zip
RICKAWAY ENERGY, CORP.
205 LOS ROBLES DR
PLEASANTON TX 78064

OIL WELL STATUS REPORT

RAILROAD COMMISSION OF TEXAS
Oil and Gas Division
P.O. Box 12967
Austin, Texas 78711-2967

Reason For Filing: [X] Survey [ ] Retest

Operator P-5 Organization No.: 710557
RRC Dist. No.: 01

W-10 rev. 7/95

Test Period: JULY - DECEMBER
Due Date: 1/1/2013
Effective Date: 02/1/2013

FIELD NAME * LEASE NAME	LEASE NO.	WELL NO.	F - FLOWING P - PUMPING G - GAS LIFT S - SWABBING	DATE TESTED MO/DAY/YR	OIL PRODUCED (BBL/DAY)	WATER PRODUCED (BBL/DAY)	GAS PRODUCED (MCF/DAY)	SHUT-IN X
BOWMAN (CARRIZO) HASSE, W. C.	00132	2	P	12-27-12	1. BBL	68. BBL	0. MCF	
		3	P	12-28-12	.5 BBL	41. BBL	0. MCF	
		7			. BBL	. BBL	. MCF	X
		F 4	P	12-29-12	1. BBL	50. BBL	0. MCF	
		F 5			. BBL	. BBL	. MCF	X
HASSE, W. C. -A-	02020	1A	P	12-27-12	1. BBL	62. BBL	0. MCF	
		2A	P	12-28-12	1. BBL	54. BBL	0. MCF	
		3A	P	12-29-12	.5 BBL	61. BBL	0. MCF	
HASSE, W. C. -B-	02021	1B	P	12-28-12	1. BBL	46. BBL	0. MCF	
		2B			. BBL	. BBL	. MCF	X
		3B	P	12-31-12	.5 BBL	54. BBL	0. MCF	
HIERHOLZER, C. H.	02115	1	P	12-1-12	1. BBL	85. BBL	. MCF	
		1A	P	12-3-12	1. BBL	70. BBL	. MCF	
BOWMAN (REKLAW) HIERHOLZER 7 BRS	14277	6	P	12-21-12	.5 BBL	50. BBL	. MCF	
		10	P	12-3-12	.5 BBL	45. BBL	. MCF	
HIERHOLZER 7 GMK	14278	21	P	12-11-12	.5 BBL	28. BBL	. MCF	
		22	P	12-8-12	.5 BBL	30. BBL	. MCF	

TOTALS 10.5 BO/D 744 BW/D 14 WELLS

CERTIFICATION: I declare under penalties prescribed in Texas Natural Resources Code, Sec. 91.143, that I am authorized to make this report, that this report was prepared by me or under my supervision and direction, and that data and facts stated herein are true, correct, and complete to the best of my knowledge.

Signature: [signature] Title: PRESIDENT Phone: 830-281-8210 Date:

* AN ASTERISK PREPRINTED ON A SURVEY IDENTIFIES WELL SUBJECT TO COMMINGLING TEST REQUIREMENT

X AN "X" IS PLACED IN THE SHUT-IN BLOCK TO INDICATE THE WELL IS SHUT-IN.

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal?
If yes, briefly describe the frequency of flow and duration.

☐ Yes ☒ No

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

A WATER CLARIFIER CHEMICAL WILL BE USED AT A RATE OF 2 QUARTS PER 500 BBLS. OF PRODUCED FRESH WATER. THE WATER WILL GO THROUGH (1) 750 BBL. GUNBARREL, (2) 200 BBL. WATER TANKS, (1) 375 BBL. GUN BARREL, (3) 210 BBL WATER TANKS, LANDOWNERS STOCK TANK, BEFORE ANY EXCESS WATER GOES INTO BORREGO CREEK.

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

THE RAILROAD COMMISSION OF TEXAS HAS ISSUED RICKAWAY ENERGY, CORP. A DISCHARGE PERMIT NO. 01099 FOR THIS FACILITY EFFECTIVE FOR 5 YEARS TO DISCHARGE PRODUCED FRESH WATER INTO BORREGO CREEK. IT WILL EXPIRE ON NOVEMBER 19, 2017.

VIII. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name & Official Title	B. Phone No. *(area code & no.)*
RONALD L. RICKAWAY PRESIDENT	830 - 281-8210
C. Signature	D. Date Signed
[signature]	2-8-13

Please print or type in the unshaded areas only.

EPA ID Number (copy from Item 1 of Form 1)

Form Approved. OMB No. 2040-0086. Approval expires 5-31-92.

FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number (list)	Latitude			Longitude			Receiving Water (name)
	Deg	Min	Sec	Deg	Min	Sec	BORREGO CREEK
	29	2	2	98	17	59	

II. DISCHARGE DATE (If a new discharger, the date you expect to begin discharging)

UPON RECEIVING EPA PERMIT

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☐ Noncontact Cooling Water ☒ Other Nonprocess Wastewater (Identify)

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority (see instructions).

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values (see instructions).

Pollutant or Parameter	(1) Maximum Daily Value (include units)		(2) Average Daily Value (last year) (include units)		(3) Number of Measurements Taken (last year)	(or) (4) Source of Estimate (if new discharger)
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	243 g/L	<2.00 mg/L				SAN ANTONIO TESTING LAB (SATL)
Total Suspended Solids (TSS)	304 g/L	<2.50 mg/L				SATL
Fecal Coliform (if believed present or if sanitary waste is discharged)	0	0				SATL
Total Residual Chlorine (if chlorine is used)	0	0				SATL
Oil and Grease	667 g/L	<5.49 mg/L				SATL
*Chemical oxygen demand (COD)	656 g/L	<5.40 mg/L				SATL
*Total organic carbon (TOC)	218 g/L	<1.80 mg/L				SATL
Ammonia (as N)	121 g/L	<1.00 mg/L				SATL
Discharge Flow	Value 750 BBLS./DAY					OUR TEST SENT TORRC
pH (give range)	Value 6.82					SATL
Temperature (Winter)	N/A °C		°C			
Temperature (Summer)	13.9 °C		°C			SATL

*If noncontact cooling water is discharged

CONTINUED FROM THE FRONT

VII. SIC CODES *(4-digit, in order of priority)*

A. FIRST	B. SECOND
1382 (specify) OIL & GAS FIELD EXPLORATION	(specify)
C. THIRD	**D. FOURTH**
(specify)	(specify)

VIII. OPERATOR INFORMATION

A. NAME: RICKAWAY ENERGY, CORP.

B. Is the name listed in Item VIII-A also the owner? ☐ YES ☐ NO

C. STATUS OF OPERATOR *(Enter the appropriate letter into the answer box: if "Other," specify.)*

F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC *(other than federal or state)*
O = OTHER *(specify)*

P (specify)

D. PHONE *(area code & no.)*: A 830 281 8210

E. STREET OR P.O. BOX: 205 LOS ROBLES DR.

F. CITY OR TOWN: B PLEASANTON

G. STATE: TX

H. ZIP CODE: 78064

IX. INDIAN LAND

Is the facility located on Indian lands? ☐ YES ☐ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES *(Discharges to Surface Water)*: N	D. PSD *(Air Emissions from Proposed Sources)*: P
B. UIC *(Underground Injection of Fluids)*: U	E. OTHER *(specify)*: RAILROAD COMM (specify) FRESH WATER DISCHARGE PERMIT
C. RCRA *(Hazardous Wastes)*: R	E. OTHER *(specify)*: (specify)

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers, and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS *(provide a brief description)*

OIL PRODUCER – THE WATER TO BE DISCHARGED INTO BORREGO CREEK IS PRODUCED FRESH WATER FROM THE REKLAW AND CARRIZO WILCOX FORMATIONS. THE CALORIDE CONTENT IS 56.9 mg/L.

XIII. CERTIFICATION *(see instructions)*

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE *(type or print)*	B. SIGNATURE	C. DATE SIGNED
RONALD L. RICKAWAY PRESIDENT	Ronald L. Rickaway	2-8-13

COMMENTS FOR OFFICIAL USE ONLY

C

Please print or type in the unshaded areas only.

Form Approved. OMB No. 2040-0086.

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER: F D

LABEL ITEMS	
I. EPA I.D. NUMBER	PLEASE PLACE LABEL IN THIS SPACE
III. FACILITY NAME	
V. FACILITY MAILING ADDRESS	
VI. FACILITY LOCATION	

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of **bold-faced terms**.

SPECIFIC QUESTIONS	Mark "X" YES	NO	FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge to waters of the U.S.**? (FORM 2A)		X	
B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge to waters of the U.S.**? (FORM 2B)		X	
C. Is this a facility which currently results in **discharges to waters of the U.S.** other than those described in A or B above? (FORM 2C)	X		
D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge to waters of the U.S.**? (FORM 2D)	X		
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)		X	
F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X	
H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	
J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	

III. NAME OF FACILITY

C 1 SKIP

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*: C 2 RICKAWAY ENERGY, CORP.

B. PHONE *(area code & no.)*: 830 281 8210

V. FACILTY MAILING ADDRESS

A. STREET OR P.O. BOX: C 3 205 LOS ROBLES DR.

B. CITY OR TOWN: C 4 PLEASANTON

C. STATE: TX

D. ZIP CODE: 78064

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER: C 5 CR 136

B. COUNTY NAME: WILSON

C. CITY OR TOWN: C 6

D. STATE: TX

E. ZIP CODE

F. COUNTY CODE *(if known)*

CONTINUE ON REVERSE

W. C. Hasse 'A' (02020)	#1A	N 29* 2' 25" W 098* 18' 2" Elev. 389'
	#2A	N 29* 2' 28" W 098* 18' 7" Elev. 411'
	#3A	N 29* 2' 23" W 098* 18' 6" Elev. 389'
W.C. Hasse 'B' (02021)	#1B	N 29* 2' 31" W 098* 18' 5" Elev. 432'
	#2B	N 29* 2' 23" W 098* 18' 0" Elev. 379'
	#3B	N 29* 2' 15" W 098* 17' 52" Elev. 456'

C.H. Hierholzer #1 (02115)		N 29* 2' 20" W 098* 18' 2" Elev. 403'
	#1A(02115)	N 29* 2' 19" W 098* 18' 6" Elev. 395'
Hierholzer 7 BRS (14277)	#6	N 29* 2' 3" W 098* 18' 3" Elev. 406'
	#10	N 29* 2' 9" W 098* 18' 8" Elev. 370'
Hierholzer GMK (14278)	#21	N 29* 2' 7" W 098* 18' 5" Elev. 383'
	#22	N 29* 2' 9" W 098* 18' 1" Elev. 360'
W. C. Hasse (00132)	#2	N 29* 2' 21" W 098* 18' 10" Elev. 400'
	#3	N 29* 2' 24" W 098* 18' 11" Elev. 404'
	#7	N 29* 2' 25" W 098* 18' 18" Elev. 399'
	#F4	N 29* 2' 27" W 098* 18' 12" Elev. 407'
	#F5	N 29* 2' 25" W 098* 18' 15" Elev. 394'

RICKAWAY ENERGY, CORP.
205 Los Robles Dr.
Pleasanton, Texas 78064
(830)281-8210
Fax (830)281-8222

RECEIVED
13 FEB 11 PM 1:17
PERMITS BRANCH
6WQ-P

February 9, 2013

Ms. Okpala,
Permit Processing Team (WQ-NP)
1445 Ross Ave., Suite 1200
Dallas, TX 75202

Dear Ms. Okpala,

First of all I hope I am spelling your last name correctly.

I have prepared new EPA forms asking for an EPA permit to discharge fresh produced water from oil wells completed in the Reklaw and Carrizo Wilcox formations with chlorides of 56.9 mg/L, in Wilson County, Texas.

I have also sent GPS readings on all the oil wells that will produce fresh water to be discharged, along with the Railroad Commission of Texas Form W-10, which also lists these wells with their RRC ID number, date tested and the amount of oil and water each well produced on a 24 hour basis.

I have also included a separated analysis by San Antonio Testing Laboratory, Inc. on the same Hasse/Hierholzer produced water dated 4-27-11, and a brief analysis by Oklahoma State University dated 3-24-11.

Should you need any more information, please advise.

Thank you.

Ronald L. Rickaway

To: Railroad Commission of Texas

From: Alton Hierholzer
3885 Good Luck Rd.
Seguin, TX 78155

Re: Discharge of Produced Water
Rickaway Energy, Corp.
Hasse and Hierholzer Leases
Wilson County, Texas

I am the surface owner of the Alton Hierholzer Property in Wilson County, and I have no objection to Rickaway Energy, Corp., discharging fresh water produced from oil wells located on or about my property on to the surface of the ground.

Signed this 13 day of FEBRUARY, 2012

Alton Hierholzer

Alton Hierholzer

To: Railroad Commission of Texas

From: J.C. Hierholzer
5041 CR 136
Floresville, TX 78114

Re: Discharge of Produced Water
Rickaway Energy, Corp.
Hasse and Hoerholzer Leases
Wilson County, Texas

I am the surface owner of the J. C. Hierholzer Lease in Wilson County, and I have no objection to Rickaway Energy, Corp., discharging fresh water produced from oil wells located on or about my property onto the surface of the ground. In fact I have a need for the water and was using such water to water my livestock and had been using it for many years.

Signed this 10 **day of** February**, 2012.**

J.C. Hierholzer

J. C. Hierholzer

RICKAWAY ENERGY, CORP.
205 Los Robles Dr.
Pleasanton, Texas 78064
(830)281-8210
Fax (830)281-8222

February 9, 2012

Gentleman:

Rickaway Energy, Corp., plans to discharge fresh produced water from oil wells on or near your property. We do this by permits from the Railroad Commission of Texas and the U.S. Environmental Protection Agency. These permits are good for five years and then must be renewed. That is the purpose for the enclosed letter for you to sign.

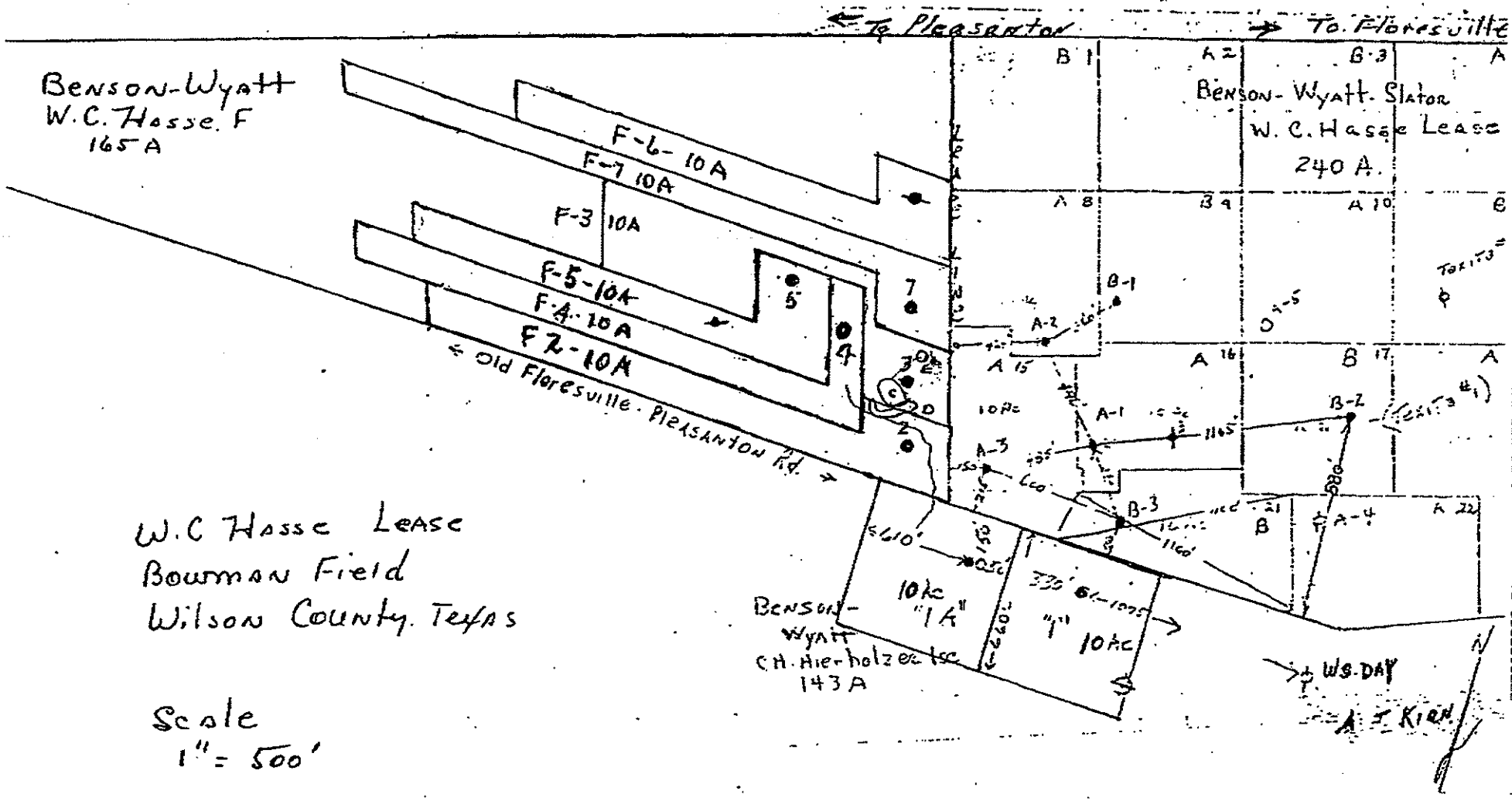
Please sign one copy and return it to us as soon as possible so it can be forwarded to the proper agency along with other data that we must submit. The other copy is for your records.

Thank you for your time in this matter.

Yours very truly,

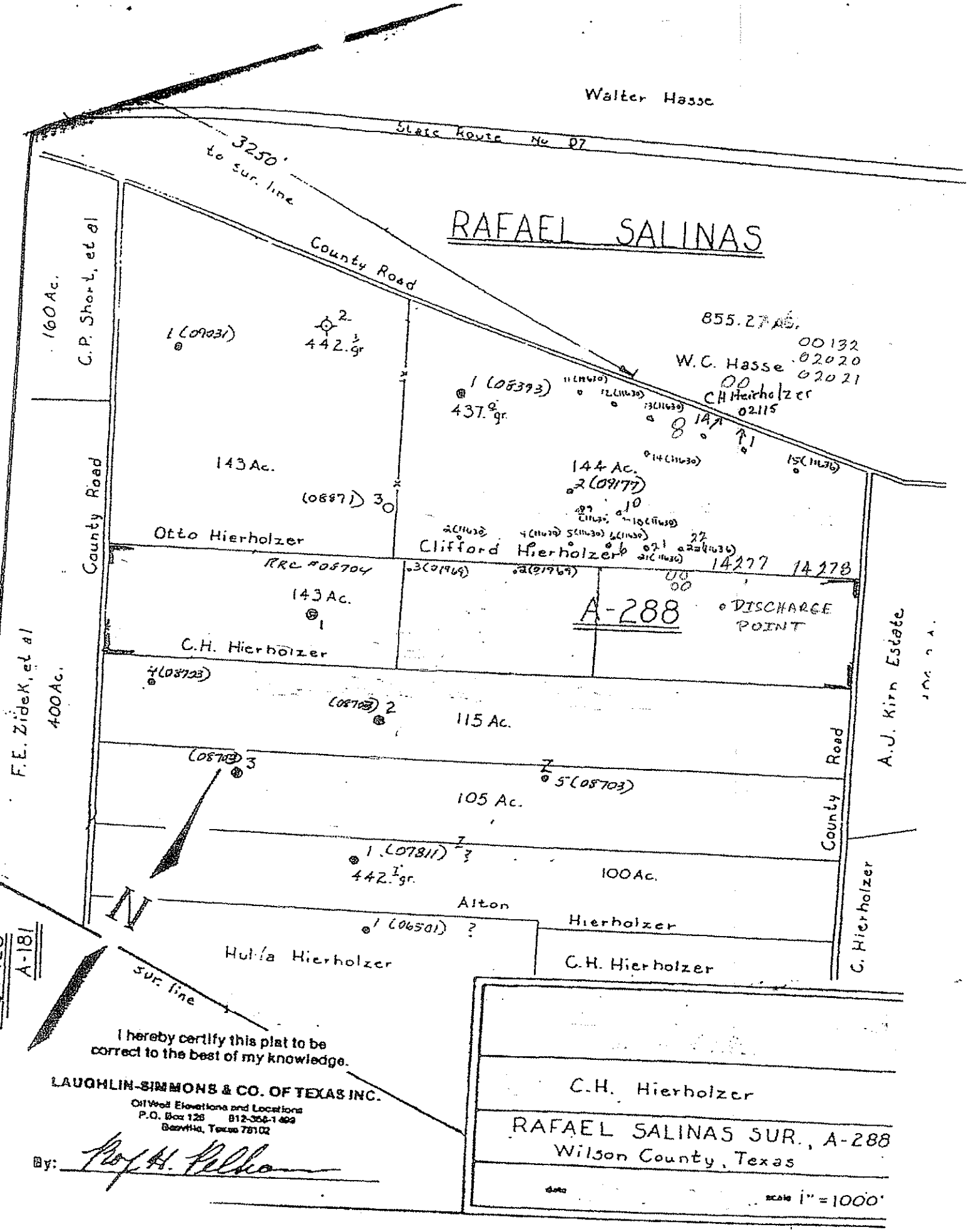
Ronald L. Rickaway
President

COPY



W.C Hasse Lease
Bowman Field
Wilson County. Texas

Scale
1" = 500'



I hereby certify this plat to be correct to the best of my knowledge.

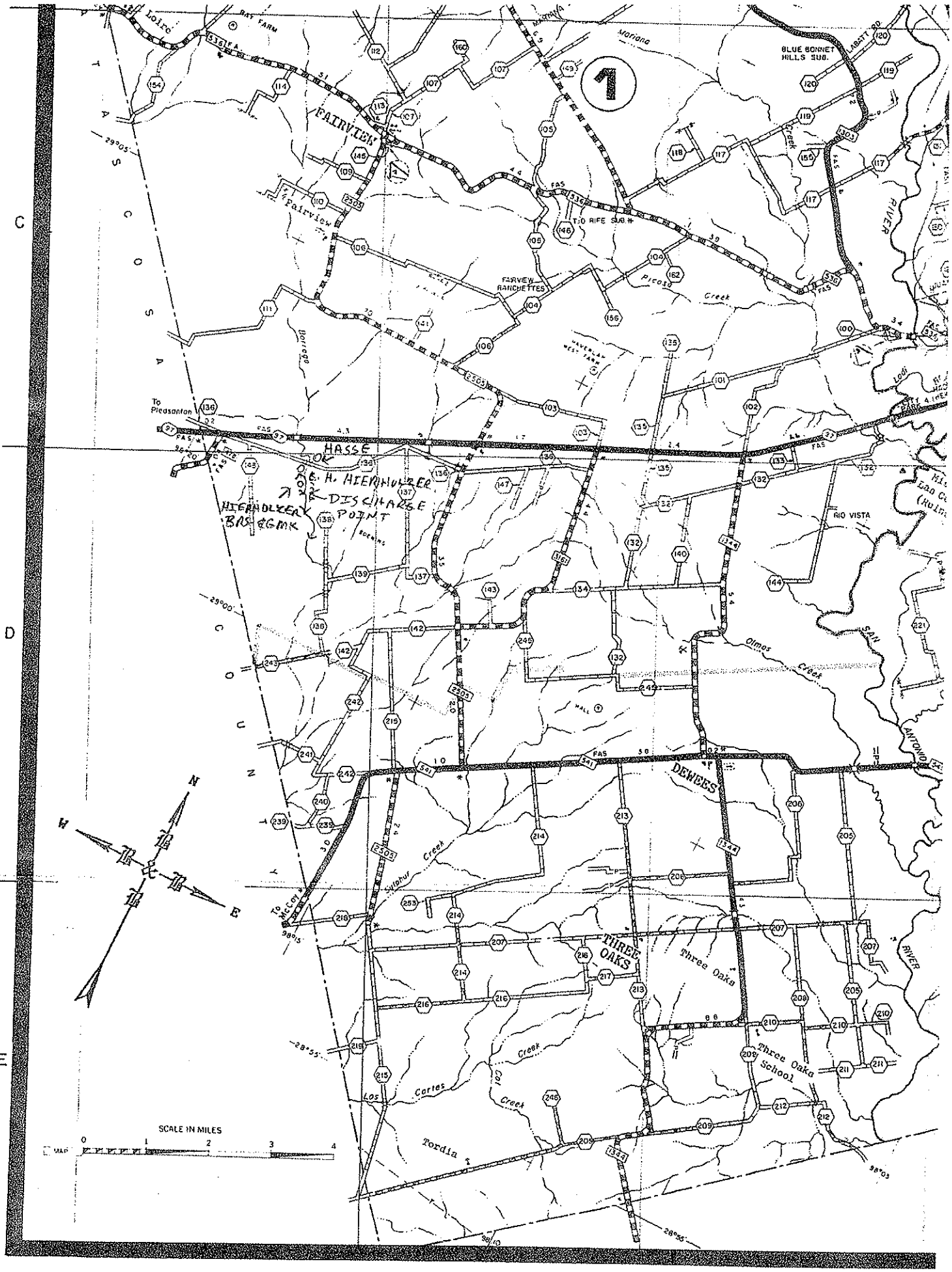
LAUGHLIN-SIMMONS & CO. OF TEXAS INC.
Oil Well Elevations and Locations
P.O. Box 126 812-358-1499
Beeville, Texas 78102

By: Rof H. Pelham

C.H. Hierholzer

RAFAEL SALINAS SUR., A-288
Wilson County, Texas

date scale 1" = 1000'



1
FAIRVIEW
Fairview
BLUE BONNET HILLS SUB.
LABATT RD.
Mariana
Loire
BAY FARM
T.O RIFE SUB.
FAIRVIEW RANCHETTES
Picosa Creek
Borrego
To Pleasanton
HASSE
OR
C. H. HIERHOLZER
DISCHARGE POINT
HIERHOLZER BRS & GMK
RIO VISTA
Olmos Creek
SAN ANTONIO RIVER
DEWEES
Sulphur Creek
To McCoy
THREE OAKS
Three Oaks
Three Oaks School
Los Cortes Creek
Cat Creek
Tordia
SCALE IN MILES
0 1 2 3 4
MAP
N
E
W
C
D
E

SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

December 29, 2011

Client: San Antonio Testing Laboratory, Inc.
Address: 1610 S. Laredo
San Antonio, TX 78207

Received: 12/23/2011
Project #: N/A

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	LOQ	Run	Analyst
1112280-01	1126602-01	22-Dec-11	Sulfide	ND	mg/L	L	SM4500-s2-E	1	1	27-Dec-11	TIR

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	LOQ	Run	Analyst
1112280-01	1126602-01	22-Dec-11	TOC	1.8	mg/L	L	SM5310B	1	1	27-Dec-11	CXS

"Analytical Integrity" · EPA Certified · NELAP Certified
3310 Win Street · Cuyahoga Falls, Ohio 44223 · Phone: 330-253-8211 · Fax: 330-253-4489
Web Site: www.settek.com

SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

Report Narrative

Client: San Antonio Testing Laboratory, Inc.
Order Number: 1126602

No problems were encountered during analysis of this order number, except as noted.

Data Qualifiers:
B = Analyte found in the method blank
J = Estimated concentration of analyte between MDL (LOD) and Reporting Limit (LOQ)
C = Analyte has been confirmed by another instrument or method
E = Analyte exceeds the upper limit of the calibration curve.
D = Sample or extract was analyzed at a higher dilution
X = User defined data qualifier.
S = Surrogate out of control limits
U = Undetected
a = Not Accredited by NELAC

ND = Non Detected at LOQ
DF = Dilution Factor

Limit Of Quantitation (LOQ) = Laboratory Reporting Limit (not adjusted for dilution factor)
Limit Of Detection (LOD) = Laboratory Detection Limit

Matrices:
A = Air
C = Cream
DW = Drinking Water
L = Liquid
O = Oil
SL = Sludge
SO = Soil
S = Solid
T = Tablet
TC = TCLP Extract
WW = Waste Water
W = Wipe

Estimated uncertainty values are available upon request.

The test results meet the requirements of the NELAC standard, except where noted. The information contained in this analytical report is the sole property of Summit Environmental Technologies, Inc. and that of the client. It cannot be reproduced in any form without the consent of Summit Environmental Technologies, Inc. or the client for which this report was issued. The results contained in this report are only representative of the samples received. Conditions can vary at different times and at different sampling conditions. Summit Environmental Technologies, Inc. is not responsible for use or interpretation of the data included herein.

Sample Summary

Client: San Antonio Testing Laboratory, Inc.
Order Number: 1126602

Laboratory ID	Client ID	Matrix	Sampling Date
1126602-01	1112280-01	Liquid	12/22/2011

SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

LABORATORY REPORT

Client
San Antonio Testing Laboratory, Inc.
1610 S. Laredo
San Antonio, TX 78207

Order Number
1126602

Project Number
N/A

Issued
Thursday, December 29, 2011

Total Number of Pages
4 (excluding C.O.C. and cooler receipt form)

Approved By : _____
QA Manager

NELAC Accreditation #E87688

"Analytical Integrity" · EPA Certified · NELAP Certified
3310 Win Street · Cuyahoga Falls, Ohio 44223 · Phone: 330-253-8211 · Fax: 330-253-4489
Web Site: www.settek.com

Blank QC Report

Client: San Antonio Laboratory
Address: 1610 Laredo Street
San Antonio, TX 78207
Project ID: NA

Batch #: TOC122711

ACCURACY

BLANK	Blank
TOC	mg/L
	<0.5

METHOD	LAB PROJECT #	LAB SAMPLE ID	EXTRACTED	ANALYZED
SM5310B	1126602	Blank	12/27/2011	12/27/2011

LCS QC Report

ACCURACY

LABORATORY CONTROL SAMPLE	SPK CONC	LCS mg/L	LCS % REC	ACP %
TOC	12.5	12.8	102.4	80-120

METHOD	LAB. PROJECT #	LAB Sample ID	EXTRACTED	ANALYZED
SM5310B	1126602	LCS	12/27/2011	12/27/2011

MS/MSD QC Report

			ACCURACY					PRECISION	
MATRIX SPIKE/ MATRIX SPIKE DUPLICATE	SAMP AMT	SPK CONC mg/L	MS mg/L	MS % REC	MSD mg/L	MSD % REC	ACP %	RPD %	ACP %RPD
TOC	ND	13.4	13.81	103.1	13.87	103.5	70-130	0.4	0-30

METHOD	LAB. PROJECT #	LAB SAMPLE ID	EXTRACTED	ANALYZED
SM5310B	1126602	1126602-01	12/27/2011	12/27/2011

Blank QC Report

Client: San Antonio Laboratory
Address: 1610 Laredo Street
San Antonio, TX 78207
Project ID: NA

Batch #: S122711

ACCURACY

	BLANK mg/L
BLANK Sulfide	<25

METHOD	LAB PROJECT #	LAB SAMPLE ID	EXTRACTED	ANALYZED
4500S^{2}E	1126602	Blank	12/27/2011	12/27/2011

LCS QC Report

ACCURACY

LABORATORY CONTROL SAMPLE	SPK CONC mg/L	LCS mg/L	LCS % REC	ACP %
Sulfide	76	69.4	91.3	70-130

METHOD	LAB. PROJECT #	LAB SAMPLE ID	EXTRACTED	ANALYZED
4500S^{2}E	1126602	LCS	12/27/2011	12/27/2011

MS/MSD QC Report

			ACCURACY					PRECISION	
MATRIX SPIKE/ MATRIX SPIKE DUPLICATE	SAMP AMT	SPK CONC mg/L	MS mg/L	MS % REC	MSD mg/L	MSD % REC	ACP %	RPD %	ACP %RPD
Sulfide	ND	76	70.0	92.1	67.2	88.4	70-130	4.1	0-30

METHOD	LAB. PROJECT #	LAB SAMPLE ID	EXTRACTED	ANALYZED
4500S^{2}E	1126602	1126637-01	12/27/2011	12/27/2011

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, OH 44223

QC Report

Order ID

1126602

Client

San Antonio Testing Laboratory, Inc.
1610 S. Laredo Street
San Antonio, TX 78207

Project Name

NA

Submitted by:

Ron Gibas

Ron Gibas
QA/QC Manager

Summit Environmental Technologies, Inc.
Cooler Receipt Form

Order ID: 1126602 **COOLER**

Client: San Antonio

Order ID:

Log in Initials:

Date Received: 12/23/11 Time Received: 940 Date opened: 12/23/11

Number of Coolers/Boxes: 1 N/A Unpacked by: RS

Shipper FED EX UPS DHL Airborne US Postal Walk-in Pickup Other

Packaging: Peanuts Bubble Wrap Paper Foam None Other:

Tape on cooler/box.	Y	N	N/A
Custody Seals intact	Y	N	N/A
C-O-C in plastic	Y	N	N/A

Coolant Ice ✓ Blue ice ___ Water ___ None ___ Sample Temperature 5.1 °C

C-O-C filled out properly	Y	N	N/A
Samples in separate bags	Y	N	N/A
Sample containers intact	Y	N	N/A

*If no, list broken sample(s):

Sample label(s) complete (ID date etc.)	Y	N	N/A
Label(s) agree with C-O-C	Y	N	N/A
Correct containers used	Y	N	N/A
Sufficient sample received	Y	N	N/A
Samples at correct pH? (list below)	Y	N	NA
Bubbles absent from 40 mL vials**	Y	N	N/A

** Samples with bubbles less than the size of a pea are acceptable

Client contact: Date/Time:

Comments

Sample ID	pH	Sample ID	pH

CHAIN-OF-CUSTODY

SAN ANTONIO TESTING LABORATORY, INC.
1610 S. Laredo Street, San Antonio, Texas 78207
(210) 229-9920 • Fax (210) 229-9921
www.satestinglab.com

Order ID: 1126602 COC

REPORT TO:		INVOICE TO:	
COMPANY	SATL	COMPANY	CK# 14435
ADDRESS		ADDRESS	
CITY	STATE ZIP	CITY	STATE
ATTN:	Aimee PHONE #	ATTN:	PHONE # E-MAIL

PROJECT NAME/LOCATION/SITE

PROJECT NO.

SAMPLED BY

REQUESTED TURNAROUND TIME (begins at Log-In) ☐ 7-10 Business Days ☐ 3-5 Business Days ☐ 2 Business Days ☐ Next Business Day ☐ SAME DAY WHEN POSSIBLE

TRRP 13 REQUEST ☐ YES ☐ NO COMMENTS/SPECIAL REQUESTS: 5 days need by 1/3/12

TEMP. I.R. GUN # SAMPLE TEMPERATURE WITHIN COMPLIANCE (> 0°C ≤ 6°C) ☐ YES ☐ NO
PROPER CONTAINERS ☐ YES ☐ NO IF NO, SIGN HERE TO AUTHORIZE ANALYSIS

TEMP. ON RECPT. COND. OF SAMPLE

SAMPLE NUMBER	COLLECTED DATE	COLLECTED TIME	MATRIX: DRINKING WATER	MATRIX: LIQUID	MATRIX: PAINT CHIPS	MATRIX: OIL	MATRIX: SOLID	MATRIX: SLUDGE	MATRIX: OTHER	SAMPLING METHOD: COMPOSITE	SAMPLING METHOD: GRAB	SAMPLING METHOD: CORE	SAMPLING METHOD: OTHER	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	SAMPLE AMOUNT	CONTAINER SIZE	BTEX / MTBE (8260)	TPH (TX1005 / TX1006)	METALS 8 / 11 / 12 / 13 / TCLP / SPLP	PAH / SVOC / (8270 / 625 / TCLP / SPLP)	VOC / (8260 / 624 / TCLP / SPLP)	Cd / Cr / Pb - ToT / TCLP / SPLP	RT. MINERALS	COLI / TC / FC / HPC	TOC	Sulfide	QC	HOLD	HCL	HNO3	H2SO4	NaOH	H2SO3	NaOH	NaOH	PRESERVED WITH: PRESERVED IN THE LAB	PRESERVED WITH: COMPOSITED IN THE LAB	REMARKS
1	12/22/11	11:19		X							X			1112280-01 (Hierholzer Lease)	2	125ml											X	X	X				X	X					

1126602-01

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY (SIGNATURE)
Aimee L. [signature]	12/22/11				
RELINQUISHED BY (PRINT NAME) Aimee Landon	RECEIVED BY (PRINT NAME)		RELINQUISHED BY (PRINT NAME)	RECEIVED BY (PRINT NAME)	
RELINQUISHED BY (SIGNATURE)	RECEIVED BY (SIGNATURE)		METHOD OF SHIPMENT	TO BE SENT OUT ☐ YES ☐ NO	
RELINQUISHED BY (PRINT NAME)	RECEIVED BY (PRINT NAME)			CUSTODY SEAL IN PLACE & INTACT ☐ YES ☐ NO	

FORM: COC REV 08/11 WHITE - LAB CANARY - CLIENT

SAN ANTONIO TESTING LABORATORY, INC.

Sample Receipt Checklist

Client: Ridaway

Report Number: 1112280

Project Name:

Date Received: 12/22/11

Shipped via: ☐FedEx ☐UPS ☐Lonestar ☒Hand Delivered ☐DHL ☐SATL ☐Other

Date Due: 1/4/12

Rush: ☐ Specify: ☐3-5 ☐2 ☐1

Items to be checked upon Receipt: [Yes, No, N/A]

1. Custody Seals present?	Yes		No	✓	NA		If NA–reason:		
2. Custody Seals intact?	Yes		No		NA	✓	If NA–reason:		
3. Air Bill included in folder, if received?	Yes		No		NA	✓	If NA–reason:		
4. Is COC included with samples?	Yes	✓	No		NA		If NA–reason:		
5. Is COC signed and dated by client?	Yes	✓	No		NA		If NA–reason:		
6. Sample temperature: Thermal preservation between >0°- 6° C? (Samples that are delivered to the laboratory on the same day that they are collected may not meet this criterion, but are acceptable if they arrive on ice.)	Yes	✓	No		NA		Temp:	5.0 °C	T.6#4
7. Samples received with ~~ice~~ ☐ ice packs ☐ other cooling ☐	Yes	✓	No		NA		If NA–reason:		
8. Is the COC filled out correctly, and completely?	Yes	✓	No		NA		If NA–reason:		
9. Information on the COC matches the samples?	Yes	✓	No		NA		If NA–reason:		
10. Samples received within holding time?	Yes	✓	No		NA		If NA–reason:		
11. Samples properly labeled?	Yes	✓	No		NA		If NA–reason:		
12. Samples submitted with chemical preservation? (e.g. pH adjusted, or sodium thiosulfate added for microbiological tests)	Yes	✓	No		NA		If NA–reason:		
13. Proper sample containers used?	Yes	✓	No		NA		If NA–reason:		
14. All samples received intact, containers not damaged or leaking?	Yes	✓	No		NA		If NA–reason:		
15. VOA vials (requesting BTEX/VOC analysis) received with no air bubbles? Bubbles acceptable on VOA vials for TPH.	Yes	✓	No		NA		If NA–reason:		
16. Sample volume sufficient for requested analysis?	Yes	✓	No		NA		If NA–reason:		
17. Subcontracted Samples: [if Yes, complete the next section]	Yes		No		NA		If NA–reason:		

Analyses Subcontracted Out: Sulfide, TOC

No. of Samples

Samples sent to: Summit

Sent By:

Date samples sent: 12/22/11

Samples shipped via: UPS next

TAT Requested: 5 days

Tracking number [if any]:

Comments:

Received By: Date: 12/22/11

Labeled By: Date:

Logged into LIMS By: Date:

Logged into RF By: Date:

Q:\Forms\Sample Receipt Checklist Form Rev 012010.doc

SATL#FO001
Effective: 04/05/06
Revised 01/20/10

1610 S. Laredo Street, San Antonio, Texas 78207-7029 • (210) 229-9920 • Fax (210) 229-9921

$890.00

GENERAL PARAMETERS	TOXIC POLLUTANTS***	
Temperature (°F)	Parameter	MAL (mg/l) field
pH (standard units)	Aluminum	0.03
Dissolved Oxygen	Arsenic	0.01
Hardness (mg/l as $CaCO_3$)	Barium	0.01
Total Suspended Solids	Benzene	0.01
Total Dissolved Solids	Cadmium	0.001
Chlorides	Chromium	0.01
Sulfates	Hexavalent Chromium	0.01
Sulfides	Copper	0.01
Ammonia Nitrogen	Cyanide	0.02
Calcium	Lead	0.005
Magnesium	Mercury	0.0002
Sodium	Nickel	0.01
Potassium	Selenium	0.01
Iron	Silver	0.002
Manganese	Zinc	0.005
Oil & Grease		
Total Organic Carbon		
SVOC Phenols		
SVOC Naphthalene		

*** These toxic pollutants have numerical criteria specified in the Texas Surface Water Quality Standards (http://www.tceq.state.tx.us/nav/eq/eq_swqs.html) (effective 4/30/07) and may be present in some produced water. Toxic pollutant concentrations above the specified minimum analytical limit (MAL) must be reported. If the laboratory, using acceptable analytical practices, cannot report concentrations down to the specified level due to reasons such as matrix interference, a statement to that effect from the laboratory must be submitted with the results. Also, the MAL achieved by the laboratory for each toxic pollutant must be reported.

Advanced Search | Compact with Texans | Open Records | Texas Homeland Security | TRAIL Search | Texas Online | Reporting Fraud, Waste & Abuse | RRC Expenditures-Where the Money Goes | Site Policies | Site Map |

CHAIN-OF-CUSTODY RECORD

SAN ANTONIO TESTING LABORATORY, INC.

1610 S. Laredo Street, San Antonio, Texas 78207
(210) 229-9920 • Fax (210) 229-9921
www.satestinglab.com

REPORT TO:	INVOICE TO:	P.O. #
COMPANY	COMPANY Rickaway Energy Corp.	REPORT NUMBER 1112280
ADDRESS	ADDRESS 205 Los Robles	
CITY STATE ZIP	CITY Pleasanton TX STATE ZIP 78064	FAX # Send to both please
ATTN: PHONE #	ATTN: Ron Rickaway PHONE # 830-220-1660	E-MAIL Ronrickaway@yahoo.com Sandy.Rickaway@yahoo.com

PROJECT NAME/LOCATION/SITE: Hierholzer

PROJECT NO. 1

SAMPLED BY: Ron Jr.

REQUESTED TURNAROUND TIME (begins at Log-In): ☒ 7-10 Business Days ☐ 3-5 Business Days ☐ 2 Business Days ☐ Next Business Day ☐ SAME DAY WHEN POSSIBLE

TRRP 13 REQUEST ☐ YES ☐ NO

COMMENTS/SPECIAL REQUESTS: Field Temp 57° F

TEMP. I.R. GUN # 4

SAMPLE TEMPERATURE WITHIN COMPLIANCE (> 0°C ≤ 6°C) ☒ YES ☐ NO

PROPER CONTAINERS ☒ YES ☐ NO

IF NO, SIGN HERE TO AUTHORIZE ANALYSIS _____

TEMP. ON RECPT. 5.0°C

COND. OF SAMPLE Iced

SAMPLE NUMBER	COLLECTED DATE	COLLECTED TIME	MATRIX: DRINKING WATER	LIQUID	PAINT CHIPS	OIL	SOLID	SLUDGE	OTHER	SAMPLING METHOD: COMPOSITE	GRAB	CORE	OTHER	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	SAMPLE AMOUNT	CONTAINER SIZE	BTEX / MTBE (8260)	TPH (TX1005 / TX1006)	METALS 8 / 11 / 12 / 13 / TCLP / SPLP	PAH / SVOC / (8270 / 625 / TCLP / SPLP)	VOC / (8260 / 624 / TCLP / SPLP)	Cd / Cr / Pb - ToT / TCLP / SPLP	RT. MINERALS	COLI / TC / FC / HPC	Rollhead Omnisite Sealoffhead	HOLD	PRESERVED WITH: 1 LOZ H2SO4	2 OZ H2SO4	3 OZ NaOH	4 OZ NaOH/ZnAc	5 ELT TO PRESERVED IN THE LAB	6 NO PRESERVED IN THE LAB COMPOSITED IN THE LAB	REMARKS
	12-22	1:18pm	X								X			Hierholzer Lease	12	4.785 ml										X	X	X	X	X	X	X			

12-22-11 14:38 IN

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY (SIGNATURE)
RELINQUISHED BY (PRINT NAME): Ron Rickaway Jr.		RECEIVED BY (PRINT NAME): Aimee Landon	RELINQUISHED BY (PRINT NAME)		RECEIVED BY (PRINT NAME)
RELINQUISHED BY (SIGNATURE)		RECEIVED BY (SIGNATURE)	METHOD OF SHIPMENT: Hand		TO BE SENT OUT ☐ YES ☐ NO
RELINQUISHED BY (PRINT NAME)		RECEIVED BY (PRINT NAME)			CUSTODY SEAL IN PLACE & INTACT ☐ YES ☐ NO

FORM: COC REV 08/11 WHITE - LAB CANARY - CLIENT

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Definitions and Notes

All quality control samples and checks are within acceptance limits unless otherwise indicated.
Test results pertain only to those items tested.
All samples were in good condition when received by the laboratory unless otherwise noted.

RPD	RPD is outside QC limits due to possible matrix interferences.
LCSH	LCS recovery is outside QC limits, the results may have a slight high bias.
LCSDH	LCSD recovery is outside QC limits, the results may have a slight high bias.
ICVL	ICV recovery is outside QC limits, the results may have a slight low bias.
H	pH and temperature are field tests and should be analyzed within 15 minutes. Due to transportation, hold time has been exceeded.
PQL	Practical Quantitation Limit
mg/Kg	Milligrams per Kilogram (Parts per Million)
mg/L	Milligrams per Liter (Parts per Million)
PPM	Parts per Million
*	TNI / NELAC accredited analyte
RMCCL	Recommended Maximum Concentration of Contaminants Level

Test Methods: Standard Methods for the Examination of Water and Wastewater, 20th Edition 1998
Methods for Chemical Analysis of Water and Wastes, EPA 600/4-79-020, Rev. March 1983
EPA SW Test Methods for the Examination of Solid Waste, SW-846, 1996

Subcontracted Analyses

Subcontractor Lab	Lab Number	Analysis
Summit Environmental	1112280-01	Sulfide
Summit Environmental	1112280-01	TOC

Aimee Landon For Marcela Gracia Hawk, President For

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Richard Hawk, General Manager

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B152097 - 5030B									
LCS (B152097-BS1)				Prepared: 12/22/11 15:00		Analyzed: 12/22/11 18:32			
Benzene	0.0506	0.005	mg/L	0.0500		101	80-120		
Toluene	0.0506	0.005	mg/L	0.0500		101	80-120		
Ethylbenzene	0.0472	0.005	mg/L	0.0500		94	80-120		
Total Xylenes	0.145	0.015	mg/L	0.150		97	80-120		
Surrogate: Toluene-d8	*0.0484*		*mg/L*	*0.0500*		*97*	*76-129*		
Surrogate: 4-Bromofluorobenzene	*0.0465*		*mg/L*	*0.0500*		*93*	*70-130*		
Surrogate: Dibromofluoromethane	*0.0480*		*mg/L*	*0.0500*		*96*	*84-123*		
LCS Dup (B152097-BSD1)				Prepared: 12/22/11 15:00		Analyzed: 12/22/11 19:01			
Benzene	0.0504	0.005	mg/L	0.0500		101	80-120	0.4	20
Toluene	0.0491	0.005	mg/L	0.0500		98	80-120	3	20
Ethylbenzene	0.0466	0.005	mg/L	0.0500		93	80-120	1	20
Total Xylenes	0.142	0.015	mg/L	0.150		95	80-120	2	20
Surrogate: Toluene-d8	*0.0473*		*mg/L*	*0.0500*		*95*	*76-129*		
Surrogate: 4-Bromofluorobenzene	*0.0462*		*mg/L*	*0.0500*		*92*	*70-130*		
Surrogate: Dibromofluoromethane	*0.0499*		*mg/L*	*0.0500*		*100*	*84-123*		
Matrix Spike (B152097-MS1)		**Source: 1112258-01**		Prepared: 12/22/11 15:00		Analyzed: 12/22/11 19:58			
Benzene	0.0518	0.005	mg/L	0.0500	<0.005	104	89-117		
Toluene	0.0501	0.005	mg/L	0.0500	<0.005	100	97-114		
Ethylbenzene	0.0496	0.005	mg/L	0.0500	<0.005	99	97-115		
Total Xylenes	0.149	0.015	mg/L	0.150	<0.015	100	36-148		
Surrogate: Toluene-d8	*0.0476*		*mg/L*	*0.0500*		*95*	*76-129*		
Surrogate: 4-Bromofluorobenzene	*0.0458*		*mg/L*	*0.0500*		*92*	*70-130*		
Surrogate: Dibromofluoromethane	*0.0497*		*mg/L*	*0.0500*		*99*	*84-123*		
Matrix Spike Dup (B152097-MSD1)		**Source: 1112258-01**		Prepared: 12/22/11 15:00		Analyzed: 12/22/11 20:27			
Benzene	0.0509	0.005	mg/L	0.0500	<0.005	102	89-117	2	20
Toluene	0.0504	0.005	mg/L	0.0500	<0.005	101	97-114	0.7	20
Ethylbenzene	0.0502	0.005	mg/L	0.0500	<0.005	100	97-115	1	20
Total Xylenes	0.148	0.015	mg/L	0.150	<0.015	99	36-148	0.9	20
Surrogate: Toluene-d8	*0.0484*		*mg/L*	*0.0500*		*97*	*76-129*		
Surrogate: 4-Bromofluorobenzene	*0.0464*		*mg/L*	*0.0500*		*93*	*70-130*		
Surrogate: Dibromofluoromethane	*0.0498*		*mg/L*	*0.0500*		*100*	*84-123*		

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	
Batch B153055 - 3510C										
LCS Dup (B153055-BSD1)				Prepared: 12/29/11 08:00 Analyzed: 12/29/11 18:56						
Di-n-butylphthalate	0.0289	0.010	mg/L	0.0400		72	25-136	0.5	20	
Fluoranthene	0.0302	0.010	mg/L	0.0400		75	37-135	0.03	20	
Pyrene	0.0303	0.010	mg/L	0.0400		76	26-117	0.1	20	
Butylbenzylphthalate	0.0274	0.010	mg/L	0.0400		69	25-135	0.3	20	
Benz(a)anthracene	0.0281	0.010	mg/L	0.0400		70	41-143	0.04	20	
Chrysene	0.0293	0.010	mg/L	0.0400		73	45-143	0.9	20	
Bis(2-Ethylhexyl)phthalate	0.0295	0.010	mg/L	0.0400		74	25-139	0.4	20	
Di-n-octylphthalate	0.0654	0.010	mg/L	0.0400		164	28-137	0.8	20	LCSDH
Indeno[1,2,3-cd]pyrene	0.0182	0.010	mg/L	0.0400		45	25-170	0.6	20	
Benzo[b]fluoranthene	0.0434	0.010	mg/L	0.0400		108	27-135	6	20	
Benzo[k]fluoranthene	0.0498	0.010	mg/L	0.0400		125	56-116	1	20	LCSDH
Benzo[a]pyrene	0.0329	0.010	mg/L	0.0400		82	31-135	3	20	
Dibenz[a,h]anthracene	0.0173	0.010	mg/L	0.0400		43	40-135	1	20	
Benzo[g,h,i]perylene	0.0217	0.010	mg/L	0.0400		54	25-159	1	20	
Surrogate: 2-Fluorophenol	*0.0583*		*mg/L*	*0.100*		*58*	*21-125*			
Surrogate: Phenol-d5	*0.0626*		*mg/L*	*0.100*		*63*	*10-110*			
Surrogate: Nitrobenzene-d5	*0.0315*		*mg/L*	*0.0500*		*63*	*32-125*			
Surrogate: 2-Fluorobiphenyl	*0.0306*		*mg/L*	*0.0500*		*61*	*43-125*			
Surrogate: 2,4,6-Tribromophenol	*0.0773*		*mg/L*	*0.100*		*77*	*10-123*			
Surrogate: Terphenyl-d14	*0.0325*		*mg/L*	*0.0500*		*65*	*33-141*			

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B152097 - 5030B									
Blank (B152097-BLK1)				Prepared: 12/22/11 15:00 Analyzed: 12/22/11 19:30					
Benzene	<0.005	0.005	mg/L						
Toluene	<0.005	0.005	mg/L						
Ethylbenzene	<0.005	0.005	mg/L						
Total Xylenes	<0.015	0.015	mg/L						
Surrogate: Toluene-d8	*0.0495*		*mg/L*	*0.0500*		*99*	*76-129*		
Surrogate: 4-Bromofluorobenzene	*0.0437*		*mg/L*	*0.0500*		*87*	*70-130*		
Surrogate: Dibromofluoromethane	*0.0514*		*mg/L*	*0.0500*		*103*	*84-123*		
LCS (B152097-BS1)				Prepared: 12/22/11 15:00 Analyzed: 12/22/11 18:32					

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B153055 - 3510C									
LCS Dup (B153055-BSD1)				Prepared: 12/29/11 08:00 Analyzed: 12/29/11 18:56					
3/4-Methylphenol	0.0319	0.010	mg/L	0.0400		80	25-135	0.9	20
N-Nitroso-di-n-propylamine	0.0287	0.010	mg/L	0.0400		72	27-135	2	20
Nitrobenzene	0.0314	0.010	mg/L	0.0400		79	36-143	1	20
2-Nitrophenol	0.0306	0.010	mg/L	0.0400		77	34-135	1	20
Isophorone	0.0276	0.010	mg/L	0.0400		69	25-175	0	20
1,2,4-Trichlorobenzene	0.0303	0.010	mg/L	0.0400		76	39-98	0.8	20
4-Chloro-3-methylphenol	0.0319	0.010	mg/L	0.0400		80	34-135	0.3	20
2,4-Dimethylphenol	0.0321	0.010	mg/L	0.0400		80	35-149	0.7	20
bis(2-Chloroethoxy)methane	0.0276	0.010	mg/L	0.0400		69	39-135	0.4	20
2,4-Dichlorophenol	0.0315	0.010	mg/L	0.0400		79	36-135	1	20
Naphthalene	0.0325	0.010	mg/L	0.0400		81	40-135	0.4	20
4-Chloroaniline	0.0306	0.010	mg/L	0.0400		77	35-146	0.1	20
Hexachlorobutadiene	0.0370	0.010	mg/L	0.0400		93	25-135	2	20
2-Methylnaphthalene	0.0311	0.010	mg/L	0.0400		78	31-135	0.5	20
Hexachlorocyclopentadiene	0.0368	0.050	mg/L	0.0400		92	31-135	1	20
2,4,6-Trichlorophenol	0.0329	0.010	mg/L	0.0400		82	29-138	0.2	20
2,4,5-Trichlorophenol	0.0300	0.010	mg/L	0.0400		75	25-175	4	20
2-Chloronaphthalene	0.0294	0.010	mg/L	0.0400		74	50-135	0.6	20
2-Nitroaniline	0.0300	0.010	mg/L	0.0400		75	40-135	0.7	20
Acenaphthylene	0.0285	0.010	mg/L	0.0400		71	37-135	1	20
Dimethylphthalate	0.0299	0.010	mg/L	0.0400		75	25-175	1	20
Acenaphthene	0.0307	0.010	mg/L	0.0400		77	39-135	0.7	20
4-Nitrophenol	0.0377	0.050	mg/L	0.0400		94	10-141	3	20
Dibenzofuran	0.0318	0.010	mg/L	0.0400		80	42-135	0.3	20
4-Chlorophenyl-phenylether	0.0322	0.010	mg/L	0.0400		81	41-142	0.5	20
2,4-Dinitrophenol	0.0283	0.050	mg/L	0.0400		71	10-161	5	20
2,4-Dinitrotoluene	0.0301	0.010	mg/L	0.0400		75	29-149	1	20
Fluorene	0.0300	0.010	mg/L	0.0400		75	38-149	0.3	20
Diethylphthalate	0.0286	0.010	mg/L	0.0400		72	25-175	0.07	20
4-Nitroaniline	0.0239	0.010	mg/L	0.0400		60	30-153	2	20
4,6-Dinitro-2-methylphenol	0.0329	0.050	mg/L	0.0400		82	25-144	2	20
Azobenzene	0.0288	0.010	mg/L	0.0400		72	65-123	0.6	20
N-Nitrosodiphenylamine	0.0299	0.010	mg/L	0.0400		75	69-142	0.5	20
4-Bromophenyl-phenylether	0.0320	0.010	mg/L	0.0400		80	43-137	0.09	20
Hexachlorobenzene	0.0330	0.010	mg/L	0.0400		82	36-143	0.8	20
Pentachlorophenol	0.0325	0.010	mg/L	0.0400		81	10-146	3	20
Phenanthrene	0.0304	0.010	mg/L	0.0400		76	44-135	1	20
Anthracene	0.0302	0.010	mg/L	0.0400		76	35-175	0.1	20

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	
Batch B153055 - 3510C										
LCS (B153055-BS1)				Prepared: 12/29/11 08:00 Analyzed: 12/29/11 18:17						
Hexachlorobenzene	0.0332	0.010	mg/L	0.0400		83	36-143			
Pentachlorophenol	0.0316	0.010	mg/L	0.0400		79	10-146			
Phenanthrene	0.0308	0.010	mg/L	0.0400		77	44-135			
Anthracene	0.0302	0.010	mg/L	0.0400		76	35-175			
Di-n-butylphthalate	0.0288	0.010	mg/L	0.0400		72	25-136			
Fluoranthene	0.0302	0.010	mg/L	0.0400		75	37-135			
Pyrene	0.0303	0.010	mg/L	0.0400		76	26-117			
Butylbenzylphthalate	0.0274	0.010	mg/L	0.0400		68	25-135			
Benz(a)anthracene	0.0281	0.010	mg/L	0.0400		70	41-143			
Chrysene	0.0290	0.010	mg/L	0.0400		73	45-143			
Bis(2-Ethylhexyl)phthalate	0.0296	0.010	mg/L	0.0400		74	25-139			
Di-n-octylphthalate	0.0649	0.010	mg/L	0.0400		162	28-137			LCSH
Indeno[1,2,3-cd]pyrene	0.0181	0.010	mg/L	0.0400		45	25-170			
Benzo[b]fluoranthene	0.0458	0.010	mg/L	0.0400		115	27-135			
Benzo[k]fluoranthene	0.0491	0.010	mg/L	0.0400		123	56-116			LCSH
Benzo[a]pyrene	0.0339	0.010	mg/L	0.0400		85	31-135			
Dibenz[a,h]anthracene	0.0175	0.010	mg/L	0.0400		44	40-135			
Benzo[g,h,i]perylene	0.0215	0.010	mg/L	0.0400		54	25-159			
Surrogate: 2-Fluorophenol	*0.0577*		*mg/L*	*0.100*		*58*	*21-125*			
Surrogate: Phenol-d5	*0.0625*		*mg/L*	*0.100*		*62*	*10-110*			
Surrogate: Nitrobenzene-d5	*0.0310*		*mg/L*	*0.0500*		*62*	*32-125*			
Surrogate: 2-Fluorobiphenyl	*0.0303*		*mg/L*	*0.0500*		*61*	*43-125*			
Surrogate: 2,4,6-Tribromophenol	*0.0778*		*mg/L*	*0.100*		*78*	*10-123*			
Surrogate: Terphenyl-d14	*0.0321*		*mg/L*	*0.0500*		*64*	*33-141*			
LCS Dup (B153055-BSD1)				Prepared: 12/29/11 08:00 Analyzed: 12/29/11 18:56						
Pyridine	0.0241	0.010	mg/L	0.0400		60	35-135	11	20	
N-Nitrosodimethylamine	0.0244	0.010	mg/L	0.0400		61	42-122	0.8	20	
2-Chlorophenol	0.0310	0.010	mg/L	0.0400		77	31-135	0.4	20	
2,6-Dinitrotoluene	0.0270	0.010	mg/L	0.0400		68	25-159	2	20	
Bis(2-Chloroethyl)ether	0.0270	0.010	mg/L	0.0400		68	34-135	0.7	20	
Phenol	0.0309	0.010	mg/L	0.0400		77	12-110	0.5	20	
1,3-Dichlorobenzene	0.0309	0.010	mg/L	0.0400		77	26-135	0.03	20	
1,4-Dichlorobenzene	0.0323	0.010	mg/L	0.0400		81	25-135	0.5	20	
1,2-Dichlorobenzene	0.0344	0.010	mg/L	0.0400		86	32-135	1	20	
Bis(2-chloroisopropyl)ether	0.0283	0.010	mg/L	0.0400		71	26-175	2	20	
2-Methylphenol	0.0314	0.010	mg/L	0.0400		78	25-135	2	20	
Hexachloroethane	0.0328	0.010	mg/L	0.0400		82	25-163	0.3	20	

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B153055 - 3510C									
LCS (B153055-BS1)				Prepared: 12/29/11 08:00 Analyzed: 12/29/11 18:17					
1,2-Dichlorobenzene	0.0348	0.010	mg/L	0.0400		87	32-135		
Bis(2-chloroisopropyl)ether	0.0288	0.010	mg/L	0.0400		72	26-175		
2-Methylphenol	0.0320	0.010	mg/L	0.0400		80	25-135		
Hexachloroethane	0.0329	0.010	mg/L	0.0400		82	25-163		
3/4-Methylphenol	0.0322	0.010	mg/L	0.0400		80	25-135		
N-Nitroso-di-n-propylamine	0.0293	0.010	mg/L	0.0400		73	27-135		
Nitrobenzene	0.0310	0.010	mg/L	0.0400		78	36-143		
2-Nitrophenol	0.0302	0.010	mg/L	0.0400		76	34-135		
Isophorone	0.0276	0.010	mg/L	0.0400		69	25-175		
1,2,4-Trichlorobenzene	0.0306	0.010	mg/L	0.0400		76	39-98		
4-Chloro-3-methylphenol	0.0318	0.010	mg/L	0.0400		79	34-135		
2,4-Dimethylphenol	0.0323	0.010	mg/L	0.0400		81	35-149		
bis(2-Chloroethoxy)methane	0.0277	0.010	mg/L	0.0400		69	39-135		
2,4-Dichlorophenol	0.0312	0.010	mg/L	0.0400		78	36-135		
Naphthalene	0.0324	0.010	mg/L	0.0400		81	40-135		
4-Chloroaniline	0.0306	0.010	mg/L	0.0400		76	35-146		
Hexachlorobutadiene	0.0376	0.010	mg/L	0.0400		94	25-135		
2-Methylnaphthalene	0.0310	0.010	mg/L	0.0400		77	31-135		
Hexachlorocyclopentadiene	0.0364	0.050	mg/L	0.0400		91	31-135		
2,4,6-Trichlorophenol	0.0328	0.010	mg/L	0.0400		82	29-138		
2,4,5-Trichlorophenol	0.0312	0.010	mg/L	0.0400		78	25-175		
2-Chloronaphthalene	0.0292	0.010	mg/L	0.0400		73	50-135		
2-Nitroaniline	0.0302	0.010	mg/L	0.0400		75	40-135		
Acenaphthylene	0.0282	0.010	mg/L	0.0400		70	37-135		
Dimethylphthalate	0.0296	0.010	mg/L	0.0400		74	25-175		
Acenaphthene	0.0305	0.010	mg/L	0.0400		76	39-135		
4-Nitrophenol	0.0365	0.050	mg/L	0.0400		91	10-141		
Dibenzofuran	0.0317	0.010	mg/L	0.0400		79	42-135		
4-Chlorophenyl-phenylether	0.0321	0.010	mg/L	0.0400		80	41-142		
2,4-Dinitrophenol	0.0268	0.050	mg/L	0.0400		67	10-161		
2,4-Dinitrotoluene	0.0297	0.010	mg/L	0.0400		74	29-149		
Fluorene	0.0299	0.010	mg/L	0.0400		75	38-149		
Diethylphthalate	0.0286	0.010	mg/L	0.0400		72	25-175		
4-Nitroaniline	0.0235	0.010	mg/L	0.0400		59	30-153		
4,6-Dinitro-2-methylphenol	0.0323	0.050	mg/L	0.0400		81	25-144		
Azobenzene	0.0286	0.010	mg/L	0.0400		72	65-123		
N-Nitrosodiphenylamine	0.0298	0.010	mg/L	0.0400		74	69-142		
4-Bromophenyl-phenylether	0.0320	0.010	mg/L	0.0400		80	43-137		

Rickaway Energy Corp.
205 Los Robles Dr.
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Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

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01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B153055 - 3510C									
Blank (B153055-BLK1)				Prepared: 12/29/11 08:00 Analyzed: 12/29/11 17:38					
N-Nitrosodiphenylamine	<0.010	0.010	mg/L						
4-Bromophenyl-phenylether	<0.010	0.010	mg/L						
Hexachlorobenzene	<0.010	0.010	mg/L						
Pentachlorophenol	<0.010	0.010	mg/L						
Phenanthrene	<0.010	0.010	mg/L						
Anthracene	<0.010	0.010	mg/L						
Di-n-butylphthalate	<0.010	0.010	mg/L						
Fluoranthene	<0.010	0.010	mg/L						
Pyrene	<0.010	0.010	mg/L						
Benzidine	<0.050	0.050	mg/L						
Butylbenzylphthalate	<0.010	0.010	mg/L						
Benz(a)anthracene	<0.010	0.010	mg/L						
Chrysene	<0.010	0.010	mg/L						
Bis(2-Ethylhexyl)phthalate	<0.010	0.010	mg/L						
Di-n-octylphthalate	<0.010	0.010	mg/L						
Indeno[1,2,3-cd]pyrene	<0.010	0.010	mg/L						
Benzo[b]fluoranthene	<0.010	0.010	mg/L						
Benzo[k]fluoranthene	<0.010	0.010	mg/L						
Benzo[a]pyrene	<0.010	0.010	mg/L						
Dibenz[a,h]anthracene	<0.010	0.010	mg/L						
Benzo[g,h,i]perylene	<0.010	0.010	mg/L						
1,2-Diphenyl Hydrazine	<0.010	0.010	mg/L						
Surrogate: 2-Fluorophenol	*0.0543*		*mg/L*	*0.100*		*54*	*21-125*		
Surrogate: Phenol-d5	*0.0384*		*mg/L*	*0.100*		*38*	*10-110*		
Surrogate: Nitrobenzene-d5	*0.0385*		*mg/L*	*0.0500*		*77*	*32-125*		
Surrogate: 2-Fluorobiphenyl	*0.0390*		*mg/L*	*0.0500*		*78*	*43-125*		
Surrogate: 2,4,6-Tribromophenol	*0.106*		*mg/L*	*0.100*		*106*	*10-123*		
Surrogate: Terphenyl-d14	*0.0513*		*mg/L*	*0.0500*		*103*	*33-141*		
LCS (B153055-BS1)				Prepared: 12/29/11 08:00 Analyzed: 12/29/11 18:17					
Pyridine	0.0215	0.010	mg/L	0.0400		54	35-135		
N-Nitrosodimethylamine	0.0246	0.010	mg/L	0.0400		62	42-122		
2-Chlorophenol	0.0311	0.010	mg/L	0.0400		78	31-135		
2,6-Dinitrotoluene	0.0265	0.010	mg/L	0.0400		66	25-159		
Bis(2-Chloroethyl)ether	0.0272	0.010	mg/L	0.0400		68	34-135		
Phenol	0.0307	0.010	mg/L	0.0400		77	12-110		
1,3-Dichlorobenzene	0.0308	0.010	mg/L	0.0400		77	26-135		
1,4-Dichlorobenzene	0.0321	0.010	mg/L	0.0400		80	25-135		

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Project: Hierholzer

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Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B153055 - 3510C									
Blank (B153055-BLK1)				Prepared: 12/29/11 08:00 Analyzed: 12/29/11 17:38					
1,3-Dichlorobenzene	<0.010	0.010	mg/L						
1,4-Dichlorobenzene	<0.010	0.010	mg/L						
1,2-Dichlorobenzene	<0.010	0.010	mg/L						
Bis(2-chloroisopropyl)ether	<0.010	0.010	mg/L						
2-Methylphenol	<0.010	0.010	mg/L						
Hexachloroethane	<0.010	0.010	mg/L						
3/4-Methylphenol	<0.010	0.010	mg/L						
N-Nitroso-di-n-propylamine	<0.010	0.010	mg/L						
Nitrobenzene	<0.010	0.010	mg/L						
2-Nitrophenol	<0.010	0.010	mg/L						
Isophorone	<0.010	0.010	mg/L						
1,2,4-Trichlorobenzene	<0.010	0.010	mg/L						
4-Chloro-3-methylphenol	<0.010	0.010	mg/L						
2,4-Dimethylphenol	<0.010	0.010	mg/L						
bis(2-Chloroethoxy)methane	<0.010	0.010	mg/L						
2,4-Dichlorophenol	<0.010	0.010	mg/L						
Naphthalene	<0.010	0.010	mg/L						
4-Chloroaniline	<0.010	0.010	mg/L						
Hexachlorobutadiene	<0.010	0.010	mg/L						
2-Methylnaphthalene	<0.010	0.010	mg/L						
Hexachlorocyclopentadiene	<0.050	0.050	mg/L						
2,4,6-Trichlorophenol	<0.010	0.010	mg/L						
2,4,5-Trichlorophenol	<0.010	0.010	mg/L						
2-Chloronaphthalene	<0.010	0.010	mg/L						
2-Nitroaniline	<0.010	0.010	mg/L						
Acenaphthylene	<0.010	0.010	mg/L						
Dimethylphthalate	<0.010	0.010	mg/L						
Acenaphthene	<0.010	0.010	mg/L						
4-Nitrophenol	<0.050	0.050	mg/L						
Dibenzofuran	<0.010	0.010	mg/L						
4-Chlorophenyl-phenylether	<0.010	0.010	mg/L						
2,4-Dinitrophenol	<0.050	0.050	mg/L						
2,4-Dinitrotoluene	<0.010	0.010	mg/L						
Fluorene	<0.010	0.010	mg/L						
Diethylphthalate	<0.010	0.010	mg/L						
4-Nitroaniline	<0.010	0.010	mg/L						
4,6-Dinitro-2-methylphenol	<0.050	0.050	mg/L						
Azobenzene	<0.010	0.010	mg/L						

Rickaway Energy Corp.
205 Los Robles Dr.
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Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B152098 - 200.7									
Matrix Spike (B152098-MS2)		**Source: 1112280-01**		Prepared: 12/23/11 08:51 Analyzed: 12/23/11 16:49					
Chromium	1.85	0.010	mg/L	2.00	<0.010	93	75-125		
Copper	1.85	0.010	mg/L	2.00	<0.010	92	75-125		
Manganese	1.84	0.01	mg/L	2.00	0.0111	92	75-125		
Nickel	1.86	0.01	mg/L	2.00	<0.01	93	75-125		
Potassium	33.2	1.00	mg/L	20.0	11.2	110	75-125		
Selenium	1.99	0.01	mg/L	2.00	<0.01	99	75-125		
Silver	0.907	0.002	mg/L	1.00	<0.002	91	75-125		
Zinc	1.97	0.005	mg/L	2.00	0.0332	97	75-125		
Batch B153014 - 245.1									
Blank (B153014-BLK1)				Prepared: 12/27/11 09:00 Analyzed: 12/29/11 11:02					
Mercury	<0.0002	0.0002	mg/L						ICVL
LCS (B153014-BS1)				Prepared: 12/27/11 09:00 Analyzed: 12/29/11 11:02					
Mercury	0.00972	0.0002	mg/L	0.0100		97	85-115		
LCS Dup (B153014-BSD1)				Prepared: 12/27/11 09:00 Analyzed: 12/29/11 11:02					
Mercury	0.0101	0.0002	mg/L	0.0100		101	85-115	3	25
Duplicate (B153014-DUP1)		**Source: 1112286-01**		Prepared: 12/27/11 09:00 Analyzed: 12/29/11 11:02					
Mercury	0.000354	0.0002	mg/L		0.000356			0.6	25
Matrix Spike (B153014-MS1)		**Source: 1112286-01**		Prepared: 12/27/11 09:00 Analyzed: 12/29/11 11:02					
Mercury	0.00824	0.0002	mg/L	0.0100	0.000356	79	75-125		

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B153055 - 3510C									
Blank (B153055-BLK1)				Prepared: 12/29/11 08:00 Analyzed: 12/29/11 17:38					
Pyridine	<0.010	0.010	mg/L						
N-Nitrosodimethylamine	<0.010	0.010	mg/L						
2-Chlorophenol	<0.010	0.010	mg/L						
2,6-Dinitrotoluene	<0.010	0.010	mg/L						
Bis(2-Chloroethyl)ether	<0.010	0.010	mg/L						
Phenol	<0.010	0.010	mg/L						

Rickaway Energy Corp.
205 Los Robles Dr.
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Project: Hierholzer

Project Number: [none]
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12/22/11 14:38

Report No. 1112280

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B152098 - 200.7									
Duplicate (B152098-DUP1)		**Source: 1112246-01**		Prepared: 12/23/11 08:51 Analyzed: 12/23/11 15:07					
Selenium	<0.01	0.01	mg/L		<0.01				20
Silver	<0.002	0.002	mg/L		<0.002				20
Zinc	0.0798	0.005	mg/L		0.0728			9	20
Duplicate (B152098-DUP2)		**Source: 1112280-01**		Prepared: 12/23/11 08:51 Analyzed: 12/23/11 16:42					
Aluminum	0.0168	0.030	mg/L		0.0163			3	20
Arsenic	<0.010	0.010	mg/L		<0.010				20
Barium	0.156	0.010	mg/L		0.151			3	20
Cadmium	<0.001	0.001	mg/L		<0.001				20
Calcium	27.1	1.00	mg/L		26.6			2	20
Chromium	<0.010	0.010	mg/L		<0.010				20
Copper	<0.010	0.010	mg/L		<0.010				20
Iron	0.113	0.050	mg/L		0.112			1	20
Lead	<0.005	0.005	mg/L		0.00300				20
Magnesium	11.4	0.010	mg/L		11.1			2	20
Manganese	0.0113	0.01	mg/L		0.0111			2	20
Nickel	<0.01	0.01	mg/L		<0.01				20
Potassium	11.3	1.00	mg/L		11.2			1	20
Selenium	<0.01	0.01	mg/L		<0.01				20
Silver	<0.002	0.002	mg/L		<0.002				20
Zinc	0.0342	0.005	mg/L		0.0332			3	20
Matrix Spike (B152098-MS1)		**Source: 1112246-01**		Prepared: 12/23/11 08:51 Analyzed: 12/23/11 15:13					
Arsenic	1.90	0.010	mg/L	2.00	0.00350	95	75-125		
Barium	1.94	0.010	mg/L	2.00	0.125	91	75-125		
Cadmium	1.82	0.001	mg/L	2.00	0.00420	91	75-125		
Chromium	1.82	0.010	mg/L	2.00	0.00990	90	75-125		
Copper	1.79	0.010	mg/L	2.00	0.0182	89	75-125		
Manganese	1.87	0.01	mg/L	2.00	0.0459	91	75-125		
Nickel	1.78	0.01	mg/L	2.00	0.00660	89	75-125		
Potassium	53.1	1.00	mg/L	20.0	30.7	112	75-125		
Selenium	1.87	0.01	mg/L	2.00	<0.01	93	75-125		
Silver	0.890	0.002	mg/L	1.00	<0.002	89	75-125		
Zinc	1.94	0.005	mg/L	2.00	0.0728	93	75-125		
Matrix Spike (B152098-MS2)		**Source: 1112280-01**		Prepared: 12/23/11 08:51 Analyzed: 12/23/11 16:49					
Arsenic	1.98	0.010	mg/L	2.00	<0.010	99	75-125		
Barium	2.06	0.010	mg/L	2.00	0.151	95	75-125		
Cadmium	1.90	0.001	mg/L	2.00	<0.001	95	75-125		

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Project: Hierholzer

Project Number: [none]
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12/22/11 14:38

Report No. 1112280

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	
Batch B152098 - 200.7										
LCS Dup (B152098-BSD1)				Prepared: 12/23/11 08:51 Analyzed: 12/23/11 14:43						
Potassium	19.0	1.00	mg/L	20.0		95	80-120	2	20	
Selenium	1.93	0.01	mg/L	2.00		97	80-120	4	20	
Silver	0.905	0.002	mg/L	1.00		91	80-120	3	20	
Sodium	1.93	1.00	mg/L	2.00		96	80-120	6	20	
Zinc	1.93	0.005	mg/L	2.00		97	80-120	4	20	
LCS Dup (B152098-BSD2)				Prepared: 12/23/11 08:51 Analyzed: 12/23/11 14:50						
Aluminum	1.94	0.030	mg/L	2.00		97	80-120	4	20	
Arsenic	2.01	0.010	mg/L	2.00		101	80-120	5	20	
Barium	1.96	0.010	mg/L	2.00		98	80-120	5	20	
Cadmium	2.06	0.001	mg/L	2.00		103	80-120	4	20	
Calcium	1.99	1.00	mg/L	2.00		100	80-120	3	20	
Chromium	1.96	0.010	mg/L	2.00		98	80-120	3	20	
Copper	1.96	0.010	mg/L	2.00		98	80-120	5	20	
Iron	1.96	0.050	mg/L	2.00		98	80-120	4	20	
Lead	2.04	0.005	mg/L	2.00		102	80-120	4	20	
Magnesium	2.03	0.010	mg/L	2.00		102	80-120	3	20	
Manganese	2.05	0.01	mg/L	2.00		103	80-120	4	20	
Nickel	2.04	0.01	mg/L	2.00		102	80-120	4	20	
Potassium	19.5	1.00	mg/L	20.0		98	80-120	2	20	
Selenium	2.04	0.01	mg/L	2.00		102	80-120	6	20	
Silver	0.944	0.002	mg/L	1.00		94	80-120	4	20	
Sodium	2.03	1.00	mg/L	2.00		102	80-120	2	20	
Zinc	2.03	0.005	mg/L	2.00		102	80-120	5	20	
Duplicate (B152098-DUP1)		**Source: 1112246-01**		Prepared: 12/23/11 08:51 Analyzed: 12/23/11 15:07						
Aluminum	0.143	0.030	mg/L		0.143			0.6	20	
Arsenic	0.00340	0.010	mg/L		0.00350			3	20	
Barium	0.129	0.010	mg/L		0.125			3	20	
Cadmium	0.00400	0.001	mg/L		0.00420			5	20	
Calcium	82.7	1.00	mg/L		81.3			2	20	
Chromium	0.00980	0.010	mg/L		0.00990			1	20	
Copper	0.0185	0.010	mg/L		0.0182			2	20	
Iron	0.326	0.050	mg/L		0.253			25	20	RPD
Lead	0.00820	0.005	mg/L		0.00750			9	20	
Magnesium	17.1	0.010	mg/L		16.7			3	20	
Manganese	0.0473	0.01	mg/L		0.0459			3	20	
Nickel	0.00770	0.01	mg/L		0.00660			15	20	
Potassium	31.4	1.00	mg/L		30.7			2	20	

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B152098 - 200.7									
LCS (B152098-BS1)				Prepared: 12/23/11 08:51		Analyzed: 12/23/11 14:14			
Nickel	2.01	0.01	mg/L	2.00		101	80-120		
Potassium	19.5	1.00	mg/L	20.0		97	80-120		
Selenium	2.01	0.01	mg/L	2.00		101	80-120		
Silver	0.937	0.002	mg/L	1.00		94	80-120		
Sodium	2.06	1.00	mg/L	2.00		103	80-120		
Zinc	2.00	0.005	mg/L	2.00		100	80-120		
LCS (B152098-BS2)				Prepared: 12/23/11 08:51		Analyzed: 12/23/11 14:20			
Aluminum	1.86	0.030	mg/L	2.00		93	80-120		
Arsenic	1.92	0.010	mg/L	2.00		96	80-120		
Barium	1.86	0.010	mg/L	2.00		93	80-120		
Cadmium	1.97	0.001	mg/L	2.00		98	80-120		
Calcium	1.92	1.00	mg/L	2.00		96	80-120		
Chromium	1.89	0.010	mg/L	2.00		94	80-120		
Copper	1.86	0.010	mg/L	2.00		93	80-120		
Iron	1.89	0.050	mg/L	2.00		94	80-120		
Lead	1.96	0.005	mg/L	2.00		98	80-120		
Magnesium	1.97	0.010	mg/L	2.00		98	80-120		
Manganese	1.97	0.01	mg/L	2.00		99	80-120		
Nickel	1.97	0.01	mg/L	2.00		98	80-120		
Potassium	19.2	1.00	mg/L	20.0		96	80-120		
Selenium	1.93	0.01	mg/L	2.00		96	80-120		
Silver	0.907	0.002	mg/L	1.00		91	80-120		
Sodium	2.00	1.00	mg/L	2.00		100	80-120		
Zinc	1.94	0.005	mg/L	2.00		97	80-120		
LCS Dup (B152098-BSD1)				Prepared: 12/23/11 08:51		Analyzed: 12/23/11 14:43			
Aluminum	1.86	0.030	mg/L	2.00		93	80-120	4	20
Arsenic	1.91	0.010	mg/L	2.00		96	80-120	4	20
Barium	1.85	0.010	mg/L	2.00		93	80-120	4	20
Cadmium	1.95	0.001	mg/L	2.00		98	80-120	4	20
Calcium	1.90	1.00	mg/L	2.00		95	80-120	5	20
Chromium	1.88	0.010	mg/L	2.00		94	80-120	4	20
Copper	1.86	0.010	mg/L	2.00		93	80-120	4	20
Iron	1.87	0.050	mg/L	2.00		94	80-120	4	20
Lead	1.94	0.005	mg/L	2.00		97	80-120	4	20
Magnesium	1.93	0.010	mg/L	2.00		97	80-120	4	20
Manganese	1.94	0.01	mg/L	2.00		97	80-120	4	20
Nickel	1.94	0.01	mg/L	2.00		97	80-120	4	20

Rickaway Energy Corp.
205 Los Robles Dr.
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Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B152098 - 200.7									
Blank (B152098-BLK1)				Prepared: 12/23/11 08:51 Analyzed: 12/23/11 14:02					
Manganese	<0.01	0.01	mg/L						
Nickel	<0.01	0.01	mg/L						
Potassium	<1.00	1.00	mg/L						
Selenium	<0.01	0.01	mg/L						
Silver	<0.002	0.002	mg/L						
Sodium	<1.00	1.00	mg/L						
Zinc	<0.005	0.005	mg/L						
Blank (B152098-BLK2)				Prepared: 12/23/11 08:51 Analyzed: 12/23/11 14:08					
Aluminum	<0.030	0.030	mg/L						
Arsenic	<0.010	0.010	mg/L						
Barium	<0.010	0.010	mg/L						
Cadmium	<0.001	0.001	mg/L						
Calcium	<1.00	1.00	mg/L						
Chromium	<0.010	0.010	mg/L						
Copper	<0.010	0.010	mg/L						
Iron	<0.050	0.050	mg/L						
Lead	<0.005	0.005	mg/L						
Magnesium	<0.010	0.010	mg/L						
Manganese	<0.01	0.01	mg/L						
Nickel	<0.01	0.01	mg/L						
Potassium	<1.00	1.00	mg/L						
Selenium	<0.01	0.01	mg/L						
Silver	<0.002	0.002	mg/L						
Sodium	<1.00	1.00	mg/L						
Zinc	<0.005	0.005	mg/L						
LCS (B152098-BS1)				Prepared: 12/23/11 08:51 Analyzed: 12/23/11 14:14					
Aluminum	1.93	0.030	mg/L	2.00		96	80-120		
Arsenic	1.98	0.010	mg/L	2.00		99	80-120		
Barium	1.94	0.010	mg/L	2.00		97	80-120		
Cadmium	2.04	0.001	mg/L	2.00		102	80-120		
Calcium	1.99	1.00	mg/L	2.00		100	80-120		
Chromium	1.94	0.010	mg/L	2.00		97	80-120		
Copper	1.94	0.010	mg/L	2.00		97	80-120		
Iron	1.94	0.050	mg/L	2.00		97	80-120		
Lead	2.02	0.005	mg/L	2.00		101	80-120		
Magnesium	2.02	0.010	mg/L	2.00		101	80-120		
Manganese	2.03	0.01	mg/L	2.00		102	80-120		

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B153031 - NO PREP									
LCS (B153031-BS1)				Prepared: 12/28/11 15:45 Analyzed: 12/28/11 16:45					
Total Suspended Solids	93.0	2.50	mg/L	100		93	80-120		
LCS Dup (B153031-BSD1)				Prepared: 12/28/11 15:45 Analyzed: 12/28/11 16:45					
Total Suspended Solids	97.0	2.50	mg/L	100		97	80-120	4	20
Duplicate (B153031-DUP1)		Source: 1112295-01		Prepared: 12/28/11 15:45 Analyzed: 12/28/11 16:45					
Total Suspended Solids	49.0	25.0	mg/L		50.0			2	20
Batch B153036 - NO PREP									
Blank (B153036-BLK1)				Prepared: 12/29/11 10:55 Analyzed: 12/29/11 10:55					
Ammonia-Nitrogen	<1.00	1.00	mg/L						
LCS (B153036-BS1)				Prepared: 12/29/11 10:55 Analyzed: 12/29/11 10:55					
Ammonia-Nitrogen	19.6	1.00	mg/L	20.0		98	80-120		
Duplicate (B153036-DUP1)		Source: 1112280-01		Prepared: 12/29/11 10:55 Analyzed: 12/29/11 10:55					
Ammonia-Nitrogen	<1.00	1.00	mg/L		<1.00				20
Matrix Spike (B153036-MS1)		Source: 1112280-01		Prepared: 12/29/11 10:55 Analyzed: 12/29/11 10:55					
Ammonia-Nitrogen	19.1	1.00	mg/L	20.0	<1.00	96	80-120		

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B152098 - 200.7									
Blank (B152098-BLK1)				Prepared: 12/23/11 08:51 Analyzed: 12/23/11 14:02					
Aluminum	<0.030	0.030	mg/L						
Arsenic	<0.010	0.010	mg/L						
Barium	<0.010	0.010	mg/L						
Cadmium	<0.001	0.001	mg/L						
Calcium	<1.00	1.00	mg/L						
Chromium	<0.010	0.010	mg/L						
Copper	<0.010	0.010	mg/L						
Iron	<0.050	0.050	mg/L						
Lead	<0.005	0.005	mg/L						
Magnesium	<0.010	0.010	mg/L						

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
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Received:
12/22/11 14:38

Report No. 1112280

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B152111 - NO PREP									
Blank (B152111-BLK1)				Prepared: 12/23/11 08:15 Analyzed: 12/23/11 08:15					
Oil & Grease (HEM)	<5.00	5.00	mg/L						
LCS (B152111-BS1)				Prepared: 12/23/11 08:15 Analyzed: 12/23/11 08:15					
Oil & Grease (HEM)	36.2	5.00	mg/L	40.0		90	78-114		
LCS Dup (B152111-BSD1)				Prepared: 12/23/11 08:15 Analyzed: 12/23/11 08:15					
Oil & Grease (HEM)	35.7	5.00	mg/L	40.0		89	78-114	1	20
Matrix Spike (B152111-MS1)		Source: 1112195-01		Prepared: 12/23/11 08:15 Analyzed: 12/23/11 08:15					
Oil & Grease (HEM)	76.9	5.00	mg/L	40.0	38.7	96	78-114		
Batch B153001 - NO PREP									
Blank (B153001-BLK1)				Prepared: 12/23/11 11:00 Analyzed: 12/23/11 15:00					
Cyanide, Total	<0.020	0.020	mg/L						
LCS (B153001-BS1)				Prepared: 12/23/11 11:00 Analyzed: 12/23/11 15:00					
Cyanide, Total	0.0930	0.020	mg/L	0.100		93	80-120		
LCS Dup (B153001-BSD1)				Prepared: 12/23/11 11:00 Analyzed: 12/23/11 15:00					
Cyanide, Total	0.0920	0.020	mg/L	0.100		92	80-120	1	20
Duplicate (B153001-DUP1)		Source: 1112246-01		Prepared: 12/23/11 11:00 Analyzed: 12/23/11 15:00					
Cyanide, Total	<0.020	0.020	mg/L		<0.020				20
Matrix Spike (B153001-MS1)		Source: 1112246-01		Prepared: 12/23/11 11:00 Analyzed: 12/23/11 15:00					
Cyanide, Total	0.101	0.020	mg/L	0.100	<0.020	101	80-120		
Batch B153020 - NO PREP									
Blank (B153020-BLK1)				Prepared: 12/27/11 10:35 Analyzed: 12/27/11 10:35					
Total Dissolved Solids	<10.0	10.0	mg/L						
LCS (B153020-BS1)				Prepared: 12/27/11 10:35 Analyzed: 12/27/11 10:35					
Total Dissolved Solids	95.0	10.0	mg/L	100		95	80-120		
Duplicate (B153020-DUP1)		Source: 1112280-01		Prepared: 12/27/11 10:35 Analyzed: 12/27/11 10:35					
Total Dissolved Solids	460	10.0	mg/L		454			1	20
Batch B153031 - NO PREP									
Blank (B153031-BLK1)				Prepared: 12/28/11 15:45 Analyzed: 12/28/11 16:45					
Total Suspended Solids	<2.50	2.50	mg/L						

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B152089 - NO PREP									
Blank (B152089-BLK1)				Prepared: 12/22/11 14:08 Analyzed: 12/22/11 19:04					
Chloride	<1.00	1.00	mg/L						
Sulfate	<0.50	0.50	mg/L						
LCS (B152089-BS1)				Prepared: 12/22/11 14:08 Analyzed: 12/22/11 19:04					
Chloride	4.80	1.00	mg/L	5.00		96	90-110		
Sulfate	5.08	0.50	mg/L	5.00		102	90-110		
LCS Dup (B152089-BSD1)				Prepared: 12/22/11 14:08 Analyzed: 12/22/11 19:04					
Chloride	4.82	1.00	mg/L	5.00		96	90-110	0.4	20
Sulfate	5.17	0.50	mg/L	5.00		103	90-110	2	20
Duplicate (B152089-DUP1)		Source: 1112228-01		Prepared: 12/22/11 14:08 Analyzed: 12/22/11 19:04					
Chloride	27.0	1.00	mg/L		27.1			0.4	20
Matrix Spike (B152089-MS1)		Source: 1112228-01		Prepared: 12/22/11 14:08 Analyzed: 12/22/11 19:04					
Chloride	32.1	1.00	mg/L	5.00	27.1	100	80-120		
Batch B152091 - NO PREP									
LCS (B152091-BS1)				Prepared: 12/22/11 11:30 Analyzed: 12/22/11 11:30					
pH	4.10	0.05	pH Units	4.00		102	80-120		
Duplicate (B152091-DUP1)		Source: 1112252-01		Prepared: 12/22/11 11:30 Analyzed: 12/22/11 11:30					
pH	8.39	0.05	pH Units		8.36			0.4	20
pH Temperature	19.8	1.0	°C		19.7			0.5	30
Batch B152095 - NO PREP									
Blank (B152095-BLK1)				Prepared: 12/22/11 15:55 Analyzed: 12/22/11 15:55					
Hexavalent Chromium	<0.010	0.010	mg/L						
LCS (B152095-BS1)				Prepared: 12/22/11 15:55 Analyzed: 12/22/11 15:55					
Hexavalent Chromium	0.413	0.010	mg/L	0.400		103	80-120		
Duplicate (B152095-DUP1)		Source: 1112280-01		Prepared: 12/22/11 15:55 Analyzed: 12/22/11 15:55					
Hexavalent Chromium	<0.010	0.010	mg/L		<0.010				20
Batch B152096 - NO PREP									
Duplicate (B152096-DUP1)		Source: 1112280-01		Prepared: 12/22/11 16:30 Analyzed: 12/22/11 16:30					
Dissolved Oxygen	3.95	2.00	mg/L		4.01			2	20

Cert. No. T104704360-11-5

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Sample ID #: Hierholzer Lease

Sampling Method: Grab

Lab Sample ID #: 1112280-01

Sample Matrix: Liquid

Date/Time Collected: 12/22/11 13:18

Analyte	Result	Units	PQL	Prep Method	Batch	Analyzed	Method	Analyst	Notes
Volatile Organic Compounds by GC/MS									
Benzene *	<0.005	mg/L	0.005	5030B	B152097	12/22/11 21:24	8260B	HH	
Surrogate: Toluene-d8	*96 %*		*76-129*	*5030B*	*B152097*	*12/22/11 21:24*	*8260B*	*HH*	
Surrogate: 4-Bromofluorobenzene	*87 %*		*70-130*	*5030B*	*B152097*	*12/22/11 21:24*	*8260B*	*HH*	
Surrogate: Dibromofluoromethane	*103 %*		*84-123*	*5030B*	*B152097*	*12/22/11 21:24*	*8260B*	*HH*	

Rickaway Energy Corp.
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Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

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12/22/11 14:38

Report No. 1112280

Sample ID #: Hierholzer Lease

Sampling Method: Grab

Lab Sample ID #: 1112280-01

Sample Matrix: Liquid

Date/Time Collected: 12/22/11 13:18

Analyte	Result	Units	PQL	Prep Method	Batch	Analyzed	Method	Analyst	Notes
Semivolatile Organic Compounds by GC/MS									
2,4-Dinitrophenol *	<0.050	mg/L	0.050	3510C	B153055	12/29/11 19:35	8270C	HH	
2,4-Dinitrotoluene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Fluorene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Diethylphthalate *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
4-Nitroaniline *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
4,6-Dinitro-2-methylphenol *	<0.050	mg/L	0.050	3510C	B153055	12/29/11 19:35	8270C	HH	
Azobenzene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
N-Nitrosodiphenylamine *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
4-Bromophenyl-phenylether *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Hexachlorobenzene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Pentachlorophenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Phenanthrene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Anthracene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Di-n-butylphthalate *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Fluoranthene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Pyrene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Benzidine *	<0.050	mg/L	0.050	3510C	B153055	12/29/11 19:35	8270C	HH	
Butylbenzylphthalate *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Benz(a)anthracene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Chrysene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Bis(2-Ethylhexyl)phthalate *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Di-n-octylphthalate *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Indeno[1,2,3-cd]pyrene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Benzo[b]fluoranthene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Benzo[k]fluoranthene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Benzo[a]pyrene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Dibenz[a,h]anthracene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Benzo[g,h,i]perylene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
1,2-Diphenyl Hydrazine	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Surrogate: 2-Fluorophenol	*31 %*		*21-125*	*3510C*	*B153055*	*12/29/11 19:35*	*8270C*	*HH*	
Surrogate: Phenol-d5	*18 %*		*10-110*	*3510C*	*B153055*	*12/29/11 19:35*	*8270C*	*HH*	
Surrogate: Nitrobenzene-d5	*68 %*		*32-125*	*3510C*	*B153055*	*12/29/11 19:35*	*8270C*	*HH*	
Surrogate: 2-Fluorobiphenyl	*71 %*		*43-125*	*3510C*	*B153055*	*12/29/11 19:35*	*8270C*	*HH*	
Surrogate: 2,4,6-Tribromophenol	*100 %*		*10-123*	*3510C*	*B153055*	*12/29/11 19:35*	*8270C*	*HH*	
Surrogate: Terphenyl-d14	*95 %*		*33-141*	*3510C*	*B153055*	*12/29/11 19:35*	*8270C*	*HH*	

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Sample ID #: Hierholzer Lease

Sample Matrix: Liquid

Sampling Method: Grab
Date/Time Collected: 12/22/11 13:18

Lab Sample ID #: 1112280-01

Analyte	Result	Units	PQL	Prep Method	Batch	Analyzed	Method	Analyst	Notes
Hardness as CaCO3 by ICP									
	112	mg/L		[CALC]	[CALC]	12/23/11 16:36	Calc	ID	
Semivolatile Organic Compounds by GC/MS									
Pyridine *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
N-Nitrosodimethylamine *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
2-Chlorophenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
2,6-Dinitrotoluene	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Bis(2-Chloroethyl)ether *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Phenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
1,3-Dichlorobenzene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
1,4-Dichlorobenzene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
1,2-Dichlorobenzene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Bis(2-chloroisopropyl)ether *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
2-Methylphenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Hexachloroethane *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
3/4-Methylphenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
N-Nitroso-di-n-propylamine *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Nitrobenzene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
2-Nitrophenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Isophorone *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
1,2,4-Trichlorobenzene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
4-Chloro-3-methylphenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
2,4-Dimethylphenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
bis(2-Chloroethoxy)methane *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
2,4-Dichlorophenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Naphthalene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
4-Chloroaniline *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Hexachlorobutadiene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
2-Methylnaphthalene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Hexachlorocyclopentadiene *	<0.050	mg/L	0.050	3510C	B153055	12/29/11 19:35	8270C	HH	
2,4,6-Trichlorophenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
2,4,5-Trichlorophenol *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
2-Chloronaphthalene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
2-Nitroaniline *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Acenaphthylene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Dimethylphthalate *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
Acenaphthene *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
4-Nitrophenol *	<0.050	mg/L	0.050	3510C	B153055	12/29/11 19:35	8270C	HH	
Dibenzofuran *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	
4-Chlorophenyl-phenylether *	<0.010	mg/L	0.010	3510C	B153055	12/29/11 19:35	8270C	HH	

SAN ANTONIO TESTING LABORATORY, INC.

Cert. No. T104704360-11-5

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
01/03/12 11:31
Received:
12/22/11 14:38

Report No. 1112280

Sample ID #: Hierholzer Lease

Sampling Method: Grab

Lab Sample ID #: 1112280-01

Sample Matrix: Liquid

Date/Time Collected: 12/22/11 13:18

Analyte	Result	Units	PQL	Prep Method	Batch	Analyzed	Method	Analyst	Notes
General Chemistry									
Cyanide, Total *	<0.020	mg/L	0.020		B153001	12/23/11 15:00	4500CNE&G	RA	
Chloride *	56.9	mg/L	10.0		B152089	12/22/11 19:04	300.0	AK	
Sulfate *	20.1	mg/L	5.00		B152089	12/22/11 19:04	300.0	AK	
Total Dissolved Solids *	454	mg/L	10.0		B153020	12/27/11 10:35	SM2540C	AK	
pH *	6.82	pH Units	0.05		B152091	12/22/11 15:45	SM4500HB	AK	H
pH Temperature	15	°C	1.0		B152091	12/22/11 15:45	170.1	AK	H
Total Suspended Solids *	<2.50	mg/L	2.50		B153031	12/28/11 16:45	SM2540D	AK	
Dissolved Oxygen *	4.01	mg/L	2.00		B152096	12/22/11 16:30	360.1	AK	
Oil & Grease (HEM) *	<5.49	mg/L	5.49		B152111	12/23/11 08:15	1664A	AK	
Hexavalent Chromium *	<0.010	mg/L	0.010		B152095	12/22/11 15:55	1-1230-85	AK	
Ammonia-Nitrogen *	<1.00	mg/L	1.00		B153036	12/29/11 10:55	350.2	AK	
Field Parameters									
Temperature	13.9	°C			B201010	12/22/11 13:18	170.1	AK	
Total Metals									
Aluminum *	<0.030	mg/L	0.030	200.7	B152098	12/23/11 16:36	200.7	ID	
Arsenic *	<0.010	mg/L	0.010	200.7	B152098	12/23/11 16:36	200.7	ID	
Barium *	0.151	mg/L	0.010	200.7	B152098	12/23/11 16:36	200.7	ID	
Cadmium *	<0.001	mg/L	0.001	200.7	B152098	12/23/11 16:36	200.7	ID	
Calcium *	26.6	mg/L	1.00	200.7	B152098	12/23/11 16:36	200.7	ID	
Chromium *	<0.010	mg/L	0.010	200.7	B152098	12/23/11 16:36	200.7	ID	
Copper *	<0.010	mg/L	0.010	200.7	B152098	12/23/11 16:36	200.7	ID	
Iron *	0.112	mg/L	0.050	200.7	B152098	12/23/11 16:36	200.7	ID	
Lead *	<0.005	mg/L	0.005	200.7	B152098	12/23/11 16:36	200.7	ID	
Magnesium *	11.1	mg/L	0.010	200.7	B152098	12/23/11 16:36	200.7	ID	
Manganese *	0.01	mg/L	0.01	200.7	B152098	12/23/11 16:36	200.7	ID	
Nickel *	<0.01	mg/L	0.01	200.7	B152098	12/23/11 16:36	200.7	ID	
Potassium *	11.2	mg/L	1.00	200.7	B152098	12/23/11 16:36	200.7	ID	
Selenium *	<0.01	mg/L	0.01	200.7	B152098	12/23/11 16:36	200.7	ID	
Silver *	<0.002	mg/L	0.002	200.7	B152098	12/23/11 16:36	200.7	ID	
Sodium *	87.8	mg/L	50.0	200.7	B152098	12/29/11 16:24	6010B	ID	
Zinc *	0.033	mg/L	0.005	200.7	B152098	12/23/11 16:36	200.7	ID	
Mercury *	0.0004	mg/L	0.0002	245.1	B153014	12/29/11 11:02	245.1	ID	

MATERIAL SAFETY DATA SHEET
RB-501

ENVIRONMENTAL DATA SHEET

SECTION I - IDENTIFICATION

COMPANY NAME	SOLUTION SERVICES HWY 281 PLEASANTON TX
PHONE NUMBER	830-570-0173
EMERGENCY PHONE NUMBER	830-570-0173
EFFECTIVE DATE	10/10
TRADE NAME	RB-501
CHEMICAL FAMILY	REVERSE EMULSION BREAKER

SPECIAL NOTICE: In accordance with 40 CFR 372.45, this product contains the following materials which have been classified as TOXIC under SARA Title III, Section 313. This page is a part of the Material Safety Data Sheet describing the above named product and shall not be detached. Any reproduction or distribution of this Material Safety Data Sheet after January 1, 1989 must include this page.

SECTION IX - SARA TITLE III, SECTION 313

TOXIC CHEMICALS	%	PROD. CAS#
NONE		

SECTION X - ENVIRONMENTAL DATA

EPA HAZARD	ACUTE
CERCLA RQ VALUE	
SARA TPQ	NONE
SARA RQ	NONE
RCRA HAZARDOUS WASTE	D002 - CHARACTERISTIC OF CORROSIVITY
CLEAN AIR	NONE
CLEAN WATER	CWA SECTION 311

MATERIAL SAFETY DATA SHEET
RB-501

TRADE NAME	RB-501
SIGNAL WORD	DANGER!
STATEMENT OF HAZARD	CORROSIVE HARMFUL IF INHALED CAUSES SEVERE EYE BURNS CAUSES EYE BURNS AND SKIN IRRITATION
DOT LABEL REQUIRED	CORROSIVE!

MATERIAL SAFETY DATA SHEET
RB-501

SECTION VIII - SPECIAL PROTECTION

RESPIRATORY PROTECTION	NIOSH approved Acid Vapor Mask recommended.
VENTILATION	Desired in closed places
MECHANICAL EXHAUST	Desired
LOCAL EXHAUST	Desired in closed places
PROTECTIVE GLOVES	Chemical type - Rubber or PVC coated
EYE PROTECTION	Chemical Goggles or Full Face Shield recommended.
OTHER PROTECTIVE EQUIP.	HMIS Personal Protection: H: Safety goggles, gloves, Synthetic Apron, and Vapor Respirator.

SECTION IX - SPECIAL HANDLING AND DOT

HANDLING AND STORAGE	Store in a cool place away form ignition sources. Store away from oxidizers or materials bearing a yellow "DOT" label.
PRECAUTIONARY MEASURES	Keep away from heat, sparks and flame. Use with adequate ventilation. Do not breathe vapors. Avoid prolonged or repeated contact with skin.
HAZARD CLASS	CORROSIVE MATERIAL
DOT SHIPPING NAME	CORROSIVE LIQUID, N.O.S., 8, UN1760, PG II (HYDROCHLORICACID)
REPORTABILITY QUANTITY(RQ)	RQ
UN NUMBER	1760
NA #	NONE
PACKAGING SIZE	BULK AND DRUMS

FOOT NOTES N/A=NOT APPLICABLE N/D=NO DATA AVAILABLE <=LESS THAN
>=GREATER THAN APP.=APPROXIMATE EST.=ESTIMATED

PREPARED BY HI-CHEM STAFF

REVISED DATE 10/10

THIS PRODUCT'S HEALTH AND SAFETY INFORMATION IS PROVIDED TO ASSIST OUR CUSTOMERS IN ASSESSING COMPLIANCE WITH HEALTH, SAFETY AND ENVIRONMENTAL REGULATIONS. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US, AND IS BELIEVED TO BE ACCURATE, ALTHOUGH NO GUARANTEE OR WARRANTY IS PROVIDED OR IMPLIED BY THE COMPANY IN THIS RESPECT. SINCE THE USE OF THIS PRODUCT IS WITHIN THE EXCLUSIVE CONTROL OF SAFE USE. SUCH CONDITIONS MUST COMPLY WITH ALL GOVERNMENTAL REGULATIONS.

ALL MATERIALS IN THIS PRODUCT ARE PRODUCED IN COMPLIANCE WITH PUBLIC LAW 94-469. (ALSO KNOWN AS THE "TOXIC SUBSTANCES CONTROL ACT" OF 1976.)

MATERIAL SAFETY DATA SHEET
RB-501

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE 400 PPM, BASED ON ISOPROPHYL ALCOHOL

ROUTES OF ENTRY	INHALATION?	SKIN?	INGESTION?
	Unknown	Corrosive	Corrosive

HEALTH HAZARDS ACUTE. Inhalation of vapors may be irritating to skin, eyes, or mucous membranes.

CARCINOGENICITY	NTP?	IARC MONOGRAPHS?	OSHA REGULATED?
NO	NO	NO	NO

OVER EXPOSURE EFFECTS Skin irritation develops slowly after contact. Eye Irritation develops immediately upon contact. Signs of Inhalation Overexposure: Irritation of Respiratory Tract, Nervous System Depression, Headaches, Dizziness, Staggering Gait, Confusion, Unconsciousness, Coma.

FIRST AID PROCEDURES IN CASE OF EYE CONTACT, FLUSH IMMEDIATELY WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION; FOR SKIN, WASH THOROUGHLY WITH SOAP AND WATER. IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION, PREFERABLY MOUTH-TO-MOUTH IF BREATHING IS DIFFICULT, GIVE OXYGEN. GET MEDICAL ATTENTION. IF SWALLOWED, DO NOT INDUCE VOMITING, GET IMMEDIATE MEDICAL ATTENTION.

SECTION VI - REACTIVITY DATA

CHEMICAL STABILITY STABLE
CONDITIONS TO AVOID NONE
INCOMPATIBLE MATERIALS OXIDIZERS OR OXIDIZING MATERIALS
DECOMPOSITION PRODUCTS FROM FIRE: SMOKE, CARBON DIOXIDE, CARBON MONOXIDE, AND OXIDES OF NITROGEN AND SULFUR.
HAZARDOUS POLYMERIZATION WILL NOT OCCUR
POLYMERIZATION AVOID NONE

SECTION VII - SPILL OR LEAK PROCEDURE

FOR SPILL In case of spillage, absorb with inert material and dispose of in accordance with applicable regulations.

WASTE DISPOSAL METHOD HAZARDOUS WASTE. EPA APPROVED HAZARDOUS WASTE DISPOSAL SITE. FOLLOW APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

MATERIAL SAFETY DATA SHEET
RB-501

2 HMIS HEALTH
2 HMIS FLAMMABILITY
0 HMIS REACTIVITY
H HMIS PERSONAL PROTECTION

SECTION I - IDENTIFICATION

COMPANY NAME	SOLUTION SERVICES HWY 281 PLEASANTON TX.
PHONE NUMBER	830- 570-0173
EMERGENCY PHONE NUMBER	830-570-0173
EFFECTIVE DATE	10/10
TRADE NAME	RB-501
CHEMICAL FAMILY	REVERSE EMULSION BREAKER
CAS NUMBER	BLEND
CHEMICAL FORMULA	CONFIDENTIAL

SECTION II - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENTS	%	TLV(UNITS)	PROD. CAS #
ISOPROPYL ALCOHOL	1.0	ACGIH 400 PPMS	67-63-0
HYDROCHLORIC ACID	5.0	5(C)	

SECTION III - PHYSICAL DATA

BOILING POINT(F)	197 TO 215
FREEZING POINT(F)	ND
VAPOR PRESSURE(mmHg)	ND
VAPOR DENSITY(Air=1)	ND
VOLATILITY / VOL (%)	80
SOLUBILITY IN H20	SOLUBLE
APPEARANCE/ODOR	BROWN LIQUID
SPECIFIC GRAVITY(H20=1)	1.10 TO 1.2
PH	1.0 TO 2.0

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	NONE
LOWER FLAME UNIT	NA
HIGHER FLAME UNIT	NA
EXTINGUISH MEDIA	WILL NOT BURN
USUAL FIRE HAZARD	Containers may explode form internal pressure if confined to fire. Cool with water. Keep unnecessary people away.

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The produced water discharge must meet the following criteria. The parameters listed must be reported for each month on a quarterly basis. Samples shall be representative of the discharged produced water. Analysis must be performed according to procedures approved in 40 CFR Part 136 and, where applicable, samples must be preserved as specified by these procedures.

Parameter	Monthly Avg	Daily Max	Frequency	Type
Flow (bbl/day)	Report	3,400	Daily	Estimate
Oil & Grease (mg/l)	25	35	1/month	grab
Chlorides (mg/l)	65	150	1/month	grab

particular month or quarter under this permit, submit your quarterly report stating "no discharge" for that month or quarter. Reports must be submitted no later than the 28th day of the month following each reporting period.

6. All quarterly reports must be certified as follows: "I declare under penalties prescribed in Section 91.143, Natural Resources Code, that I am authorized to make this report, that this report was prepared by me or under my direct supervision and direction, and that data and facts stated therein are true and complete to the best of my knowledge."

7. Changes affecting this permit, such as leases or wells being added or deleted, or a change in water treatment must be reported to the Environmental Services Section in Austin in order for the Commission to determine whether a permit amendment is necessary.

8. This permit is non-transferable without the consent of the Commission.

9. Any skimming pits to be used in conjunction with this facility must be permitted separately by the filing of Form H-11 and the supporting data.

10. In the event any of these conditions are not met, this permit is subject to modification, suspension, or cancellation by the Commission.

If you have any questions, please contact Michael Sims at (512) 463-5405.

Attachment:

cc: RRC – San Antonio

BARRY T. SMITHERMAN, CHAIRMAN
DAVID PORTER, COMMISSIONER
BUDDY GARCIA, COMMISSIONER

GIL BUJANO, P.E.
ACTING DIRECTOR, OIL AND GAS DIVISION

RAILROAD COMMISSION OF TEXAS
OIL AND GAS DIVISION

October 2, 2012

RONALD RICKAWAY
RICKAWAY ENERGY, CORP
205 LOS ROBLES DR
PLEASANTON, TX 78064-1500

Re: Discharge Permit No. 01099
W.C. Hasse (00132) Lease, Well Nos. 2, 3, 7, F4, & F5
W.C. Hasse 'A' (02020) Lease, Well Nos. 1A, 2A, & 3A
W.C. Hasse 'B' (02021) Lease, Well Nos. 1B, 2B, & 3B
C. H. Hierholzer (02115) Lease, Well Nos. 1 & 1A
Hierholzer 7 BRS (14277) Lease, Well Nos. 6 & 10
Hierholzer 7 GMK (14278) Lease, Well Nos. 21 & 22
Wilson County, Texas

Dear Mr. Rickaway:

This is your authority from the Railroad Commission of Texas to discharge produced water from the referenced leases to Borrego Creek located on the C. H. Hierholzer lease in Wilson County, Texas. This authority is granted in accordance with Statewide Rule 8 and based on the information contained in your application received on February 27, 2012, and subsequent information received through June 12, 2012. This authority is subject to the following conditions:

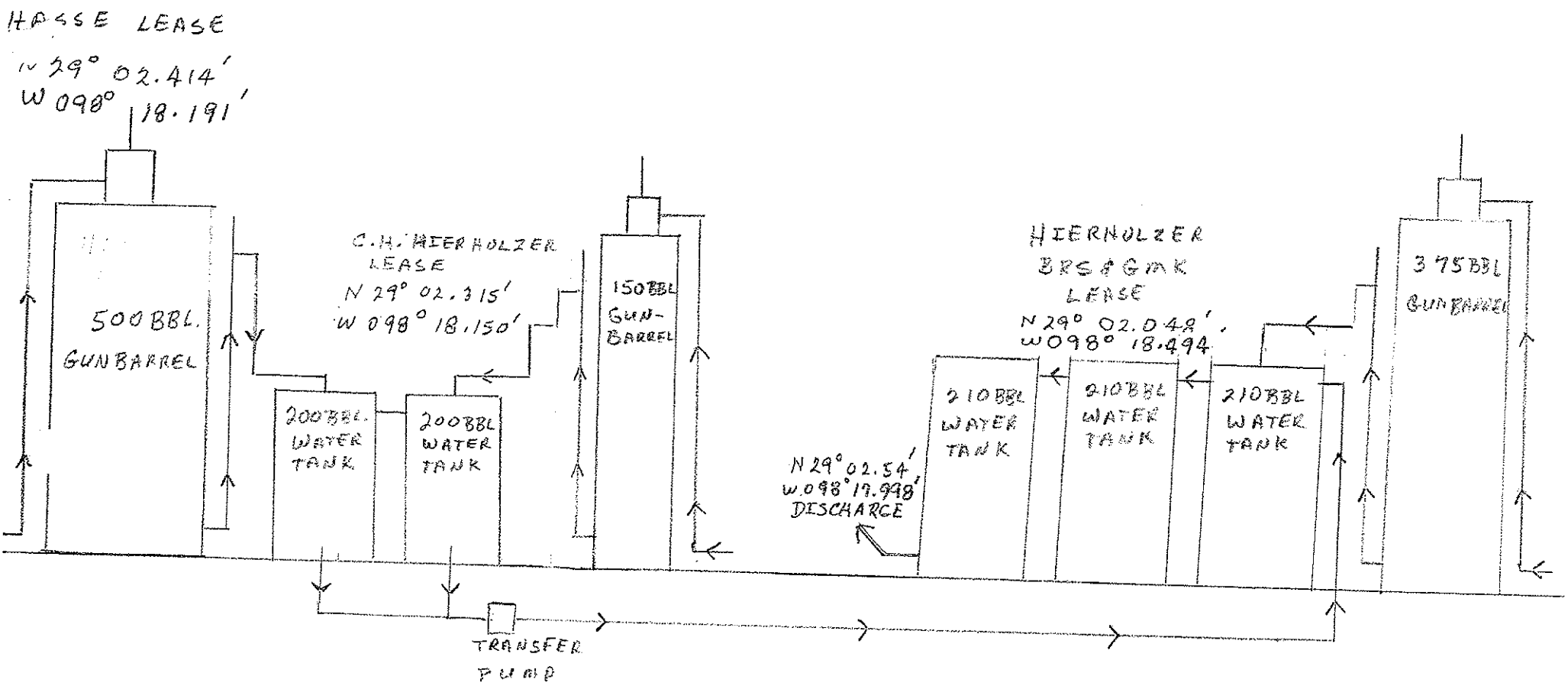
1. This permit authorizes the discharge of water produced only from the referenced lease and well. The discharged water must meet the limitations specified in the attached "Effluent Limitations and Monitoring Requirements."

2. **This permit is effective for 5 years and will expire on October 1, 2017.**

3. Water treatment vessels and equipment shall be maintained in good operating condition for the duration of the permit.

4. The discharge point shall be clearly marked with the name of the operator, the discharge permit number, and the referenced lease name and number.

5. The discharged water must meet the limitations specified in the attached "Effluent Limitations and Monitoring Requirements". The water must be sampled and analyzed as indicated and the results must be submitted quarterly to the Railroad Commission San Antonio District Office and to the Environmental Services Section in Austin. If there is no discharge during a



BOWMAN (CARRIZO) & (REKLAW) WATER
TREATMENT FACILITIES PRIOR TO DISCHARGE

W. C. Hasse 'A' (02020)	#1A	N 29* 02.431' W 098* 18.046' Elev. 389'
	#2A	N 29* 02.483' W 098* 18.117' Elev. 411'
	#3A	N 29* 02.388' W 098* 18.106' Elev. 389'
W.C. Hasse 'B' (02021)	#1B	N 29* 02.528' W 098* 18.089' Elev. 432'
	#2B	N 29* 02.396' W 098* 18.003' Elev. 379'
	#3B	N 29* 02.255' W 098* 17.878' Elev. 456'

C.H. Hierholzer #1 (02115)		N 29* 02.340'
		W 098* 18.045'
		Elev. 403'
	#1A(02115)	N 29* 02.320'
		W 098* 18.105'
		Elev. 395'
Hierholzer 7 BRS (14277)	#6	N 29* 02.055'
		W 098* 18.064'
		Elev. 406'
	#10	N 29* 02.118'
		W 098* 18.144'
		Elev. 370'
Hierholzer GMK (14278)	#21	N 29* 02.131'
		W 098* 18.085
		Elev. 383'
	#22	N 29* 02.156'
		W 098* 18.033'
		Elev. 360'
W. C. Hasse (00132)	#2	N 29* 02.360'
		W 098* 18.170'
		Elev. 400'
	#3	N 29* 02.414'
		W 098* 18.200'
		Elev. 404'
	#7	N 29* 02.433'
		W 098* 18.315'
		Elev. 399'
	#F4	N 29* 02.462'
		W 098* 18.213'
		Elev. 407'
	#F5	N 29* 02.417'
		W 098* 18.262'
		Elev. 394'

9. & 10. Attached are maps showing the location of Rickaway Energy, Corp., Hasse and Hierholzer leases and the discharge point of produced fresh water.

11. The Hierholzer tracts cover more than 3/4 mile of the creek and the area is not in any city, town or village. The address of the two property owners are as follows:

J. C. Heirholzer
5041 CR 136
Floresville, TX 78114

Alton Hierholzer
3885 Good Luck Rd.
Seguin, TX 78155

12. The water is not delivered into a flood controlled waterway.

13. The discharge point is approximately at N 29*02.054', W 098*17.998' and the water is for wildlife and livestock use.

14. I certify that I am authorized to make this application, that this application was prepared by me or under my supervision and direction, and that the data and facts stated herein are true, correct and complete to the best of my knowledge. I am knowledgeable of the parameters & reporting requirements of these permits, as Rickaway Energy, Corp., currently has six active discharge permits.

Yours very truly,

Ronald L. Rickaway
President

Hasse #1A	100	200
Hasse #2A	100	200
Hasse #3A	100	200
Hasse #1B	100	200
Hasse #2B	100	200
Hasse #3B	100	200
Hierholzer #1	100	200
Hierholzer #1A	100	200
Hierholzer #6	100	200
Hierholzer #10	100	200
Hierholzer #21	100	200
Hierholzer #22	100	200

4. The water cut on these wells as evidenced by past production information will be 99% water. If the fresh water is required to be injected into a subsurface zone, the additional expense would cause these wells to be uneconomical to produce. Once these wells are abandoned, they will never be reentered nor will any new wells ever be drilled to recover any oil left in place because of the poor prospects of payout. By disposing of the produced water on the surface we can prolong the economic life of the field, thus recover additional oil that otherwise would have never been produced. Furthermore, this produced fresh water is an asset to the landowners in the area as shown by the enclosed letter indicating they want the water and have no objection to the water being released on their property. The subject wells are located in an arid area with little to no other surface water available for livestock and wild game.

5. Sketches of treatment facilities are attached.

6. There are no earthen pits.

7. The only chemical that will be used by Rickaway Energy, Corp. on the subject lease is a water clarifier purchased from Solution Services, which they identify as RB-501, at a rate of 2 quarts/500 bbls. water. The Material Data Sheets for the chemical is attached.

8. An analysis of a representative sample of the produced water is attached. We do not expect any of the elements analyzed to increase or decrease.

RICKAWAY ENERGY, CORP.
205 Los Robles Drive
Pleasanton, Texas 78064-1500
(830)281-8210

June 8, 2012

Railroad Commission of Texas
Oil and Gas Division
Environmental Services Section
P.O. Box 12967
Austin, Texas 78711-2967

Railroad Commission of Texas
115 E. Travis, Suite 1610
San Antonio, Texas 78205

Re: Application for a Permit to Discharge Water to Inland Waters

1. Rickaway Energy Corp.
   205 Los Robles Drive
   Pleasanton, Texas 78064-1500

2. Bowman (Carrizo), Wilson County, Texas
   Hasse, W.C. (00132) wells 2,3,7, F4 & F5
   Hasse, W.C. 'A' (02020) wells 1A, 2A & 3A
   Hasse, W.C. 'B' (02021) wells 1B, 2B & 3B
   Hierholzer, C. H. (02115) wells 1 & 1A

   Bowman (Reklaw), Wilson County , Texas
   Hierholzer 7 BRS (14277) wells 6 & 10
   Hierholzer 7 GMK (14278) wells 21 & 22

3. Wells

Wells	Est. Average Bbls/Day	Est.Maximum Bbls/Day
Hasse #2	100	200
Hasse #3	100	200
Hasse #7	100	200
Hasse #F4	100	200
Hasse #F5	100	200

RICKAWAY ENERGY, CORP.
205 Los Robles Dr.
Pleasanton, Texas 78064
(830)281-8210
Fax (830)281-8222

February 23, 2012

Mr. Michael Sims
Environmental Service Section
Railroad Commission of Texas
Oil and Gas Division
P.O. Box 12967
Austin, TX 78711-2967

Re: Discharge Permit

Mr. Sims,

We purchased the leases involved with this discharge permit, because the previous operator did not have one, and was shut down as a result.

We propose to pipe the fresh water from the W. C. Hasse (00132), W. C. Hasse 'A' (02020) and W. C. Hasse 'B' (2021) to the C. H. Hierholzer (02115) lease; where it will go through (2) 200 barrel and (3) 210 barrel settling tanks, before being discharged into the Borrego Creek on J. C. Hierholzer's property. The water will go down stream onto Alton Hierholzer's property which will be more than 1/2 mile total.

Enclosed are letters from J. C. Hierholzer and Alton Hierholzer, stating that they have need of the water for their livestock to utilize from the creek.

I hope this discharge permit can be approve soon, so we can get more than 12 wells that are currently shut in back on production.

Thank you.

Ronald L. Rickaway
President

RICKAWAY ENERGY, CORP.
205 Los Robles Dr.
Pleasanton, Texas 78064
(830)281-8210
Fax (830)281-8222

RECEIVED
13 FEB -1 PM 1:49
PERMITS BRANCH
6WQ-P

January 29, 2013

Dear Ms. Maria Okpala,

In regards to our conversation on the afternoon of January 23, 2013, I am faxing to you all the information sent and approved by the Texas Railroad Commission on 10-1-12. Also you requested information on the number of wells and their barrels of oil production per day. This is listed as follows: each well produce $\frac{1}{2}$ bbl/

W.C. Hasse - 3 wells producing 1 1/2 BOPD
2 wells shut in.
W.C. Hasse 'A' - 3 wells producing 1 1/2 BOPD -1/2 BOPD
W.C. Hasse 'B' - 2 wells producing 1 1/2 BOPD
1 well shut in.

C.H. Hierholzer - 3 wells producing 2 BOPD
Hierholzer 7BRS - 2 wells producing 1 BOPD
Hierholzer GMK - 2 wells producing 1BOPD

Should you need any additional information please advise. Hopefully this is all the information you need and we can get our EPA Discharge Permit, so we can hopefully get all the wells producing as soon as possible.

Thank you,

Ronald L. Rickaway
President

SAN ANTONIO TESTING LABORATORY, INC.

Sample Receipt Checklist

Client: Rickaway Eng. Report Number: 121156

Project Name: Hasse / Hierholzer Date Received: 11/13/12

Shipped via: ☐ FedEx ☐ UPS ☐ Lonestar ☒ Hand Delivered ☐ DHL ☐ SATL ☐ Other Date Due: 11/26/12

Rush: ☐ Specify: ☐ 3-5 ☐ 2 ☐ 1

Items to be checked upon Receipt: [Yes, No, N/A]

	Yes	No	NA	If NA–reason:
1. Custody Seals present?			✓	
2. Custody Seals intact?			✓	
3. Air Bill included in folder, if received?				
4. Is COC included with samples?	✓	✓		
5. Is COC signed and dated by client?				
6. Sample temperature: Thermal preservation between >0°-6° C? (Samples that are delivered to the laboratory on the same day that they are collected may not meet this criterion, but are acceptable if they arrive on ice.)	✓	✓		Temp: 3.3 °C
7. Samples received with ice ☒ ice packs ☐ other cooling ☐	✓	✓		
8. Is the COC filled out correctly, and completely?	✓			
9. Information on the COC matches the samples?	✓			
10. Samples received within holding time?	✓			
11. Samples properly labeled?	✓			
12. Samples submitted with chemical preservation? (e.g. pH adjusted, or sodium thiosulfate added for microbiological tests)	✓		✓	not
13. Proper sample containers used?	✓			
14. All samples received intact, containers not damaged or leaking?	✓			
15. VOA vials (requesting BTEX/VOC analysis) received with no air bubbles? Bubbles acceptable on VOA vials for TPH.			✓	no VOA vials
16. Sample volume sufficient for requested analysis?	✓			
17. Subcontracted Samples: [if Yes, complete the next section]		✓		

Analyses Subcontracted Out: _____ No. of Samples _____

Samples sent to: _____ Sent By: _____

Date samples sent: _____ Samples shipped via: _____

TAT Requested: _____

Tracking number [if any]: _____

Comments:

Received By: [illegible] Date: 11/13/12

Labeled By: ✓ Date: ✓

Logged into LIMS By: ✓ Date: ✓

Logged into RF By: ✓ Date: ✓

Q:\Forms\Sample Receipt Checklist Form Rev 012010.doc

SATL#FO001
Effective: 04/05/06
Revised 01/20/10

1610 S. Laredo Street, San Antonio, Texas 78207-7029 • (210) 229-9920 • Fax (210) 229-9921

SAN ANTONIO TESTING LABORATORY, INC.

Cert. No. T104704360-12-8

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hasse / Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
11/21/12 09:45
Received:
11/13/12 14:54

Report No. 1211156

Sample ID #: Hasse / Hierholzer

Sampling Method: Grab

Lab Sample ID #: 1211156-01

Sample Matrix: Liquid

Date/Time Collected: 11/13/12 12:10

Analyte	Result	Units	PQL	Prep Method	Batch	Analyzed	Method	Analyst	Notes
General Chemistry									
COD *	5.40	mg/L	5.00		B246139	11/16/12 13:50	H8000	AK	
BOD-5 *	<2.00	mg/L	2.00		B247015	11/14/12 07:25	SM5210B	AK	

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hasse / Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
11/21/12 09:45
Received:
11/13/12 14:54

Report No. 1211156

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B246139 - NO PREP									
Blank (B246139-BLK1)				Prepared: 11/16/12 13:50		Analyzed: 11/16/12 13:50			
COD	<5.00	5.00	mg/L						
LCS (B246139-BS1)				Prepared: 11/16/12 13:50		Analyzed: 11/16/12 13:50			
COD	51.5	5.00	mg/L	50.0		103	80-120		
Duplicate (B246139-DUP1)		Source: 1211177-01		Prepared: 11/16/12 13:50		Analyzed: 11/16/12 13:50			
COD	48.6	5.00	mg/L		52.4			8	20
Batch B247015 - NO PREP									
Blank (B247015-BLK1)				Prepared: 11/14/12 07:25		Analyzed: 11/14/12 07:25			
BOD-5	<2.00	2.00	mg/L						
LCS (B247015-BS1)				Prepared: 11/14/12 07:25		Analyzed: 11/14/12 07:25			
BOD-5	186	2.00	mg/L	200		93	80-120		
LCS Dup (B247015-BSD1)				Prepared: 11/14/12 07:25		Analyzed: 11/14/12 07:25			
BOD-5	177	2.00	mg/L	200		88	80-120	5	20

Definitions and Notes

All quality control samples and checks are within acceptance limits unless otherwise indicated.
Test results pertain only to those items tested.
All samples were in good condition when received by the laboratory unless otherwise noted.

PQL	Practical Quantitation Limit
MCL	Maximum Contaminant Level
mg/Kg	Milligrams per Kilogram (Parts per Million)
mg/L	Milligrams per Liter (Parts per Million)
PPM	Parts per Million
F/NF	Found / Not Found
*	TNI / NELAC accredited analyte
RMCCL	Recommended Maximum Concentration of Contaminants Level
µR/hr	MicroRoentgens per hour (Measure of Radioactivity Level)

Test Methods: Standard Methods for the Examination of Water and Wastewater, 20th Edition 1998
Methods for Chemical Analysis of Water and Wastes, EPA 600/4-79-020, Rev. March 1983
EPA SW Test Methods for the Examination of Solid Waste, SW-846, 1996

Rickaway Energy Corp.
205 Los Robles Dr.
Pleasanton TX, 78064

Project: Hasse / Hierholzer

Project Number: [none]
Project Manager: Ronald A. Rickaway

Reported:
11/21/12 09:45
Received:
11/13/12 14:54

Report No. 1211156

Aimee Landon For Marcela Gracia Hawk, President For

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Richard Hawk, General Manager

CHAIN-OF-CUSTODY RECORD

SAN ANTONIO TESTING LABORATORY, INC.
1610 S. Laredo Street, San Antonio, Texas 78207
(210) 229-9920 • Fax (210) 229-9921
www.satestinglab.com

REPORT TO:		INVOICE TO:		P.O. #
COMPANY	Rickaway Energy Corp.	COMPANY	Pd Wiamex	REPORT NUMBER 1211156
ADDRESS	205 Los Robles	ADDRESS		
CITY	Pleasanton STATE TX ZIP 78064	CITY STATE ZIP		FAX #
ATTN:	Ron Jr. PHONE # 830.220.1660	ATTN: PHONE #		E-MAIL

PROJECT NAME/LOCATION/SITE: Hasse / Hier Holzer

PROJECT NO.

SAMPLED BY: Patrick N

REQUESTED TURNAROUND TIME (begins at Log-In): ☒ 7-10 Business Days ☐ 3-5 Business Days ☐ 2 Business Days ☐ Next Business Day ☐ SAME DAY WHEN POSSIBLE

TRRP 13 REQUEST ☐ YES ☐ NO

COMMENTS/SPECIAL REQUESTS: Field Temp 89.8° F

TEMP. I.R. GUN # 4

SAMPLE TEMPERATURE WITHIN COMPLIANCE (> 0°C ≤ 6°C) ☒ YES ☐ NO

PROPER CONTAINERS ☒ YES ☐ NO

IF NO, SIGN HERE TO AUTHORIZE ANALYSIS

TEMP. ON RECPT. 3.3°C

COND. OF SAMPLE Ice

SAMPLE NUMBER	COLLECTED DATE	COLLECTED TIME	MATRIX: DRINKING WATER	MATRIX: LIQUID	MATRIX: PAINT CHIPS	MATRIX: OIL	MATRIX: SOLID	MATRIX: SLUDGE	MATRIX: OTHER	SAMPLING METHOD: COMPOSITE	SAMPLING METHOD: GRAB	SAMPLING METHOD: CORE	SAMPLING METHOD: OTHER	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	SAMPLE AMOUNT	CONTAINER SIZE	BTEX / MTBE (8260)	TPH (TX1005 / TX1006)	METALS 8 / 11 / 12 / 13 / TCLP / SPLP	PAH / SVOC / (8270 / 625 / TCLP / SPLP)	VOC / (8260 / 624 / TCLP / SPLP)	Cd / Cr / Pb - TbT / TCLP / SPLP	RT. MINERALS	COLI / TC / FC / HPC	BOD	COD	HOLD	HCL	HNO3	NaOH	H2SO4	H2S2O3	NaOH	OTHER	PRESERVED IN THE LAB	COMPOSITED IN THE LAB	REMARKS
1	11/13	12:10	X								X			Hasse / Hier Holzer	2	~~600ml~~ 625ml										X	X					X		X					

11-13-12 14:54 IN

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY (SIGNATURE)
[signature]	11/13/12	Aimee [signature]			

RELINQUISHED BY (PRINT NAME)	RECEIVED BY (PRINT NAME)	RELINQUISHED BY (PRINT NAME)	RECEIVED BY (PRINT NAME)
Patrick Mazurek	Aimee Landon		
RELINQUISHED BY (SIGNATURE)	RECEIVED BY (SIGNATURE)	METHOD OF SHIPMENT: Hand	TO BE SENT OUT ☐ YES ☐ NO ✓
RELINQUISHED BY (PRINT NAME)	RECEIVED BY (PRINT NAME)		CUSTODY SEAL IN PLACE & INTACT ☐ YES ☒ NO

FORM: COC REV 08/11

WHITE - LAB CANARY - CLIENT

SAN ANTONIO TESTING LABORATORY, INC.

ACCREDITED IN ACCORDANCE WITH nelac

Cert. No. T104704360-10-2

Southern Specialty
608 N. Norton Ave
Freer TX, 78357

Project: Rail Road Commision Samples

Project Number: [none]
Project Manager: Jay Lambert

Reported:
04/27/11 08:22
Received:
04/18/11 15:56

Report No. 1104198

Sample ID #: Hierholzer Water Tank Discharge

Sampling Method: Grab

Lab Sample ID #: 1104198-01

Sample Matrix: Liquid

Date/Time Collected: 04/18/11 15:00

Analyte	Result	Units	PQL	Prep Method	Batch	Analyzed	Method	Analyst	Notes
General Chemistry									
Cyanide, Total *	<0.020	mg/L	0.020		B117061	04/22/11	4500CNE&G	AS	
Chloride *	62.2	mg/L	10.0		B117070	04/21/11	300.0	AK	
Sulfide	<1.00	mg/L	1.00		B117050	04/19/11	H8131	AK	
TOC	7.60	mg/L	1.00		B118029	04/26/11	H10129	AK	
Sulfate *	12.1	mg/L	0.50		B117070	04/21/11	300.0	AK	
Total Dissolved Solids *	426	mg/L	10.0		B117078	04/21/11	SM2540C	AK	
pH *	6.87	pH Units	0.05		B117021	04/18/11	SM4500HB	AK	H
pH Temperature	29	°C	1.0		B117021	04/18/11	170.1	AK	H
Total Suspended Solids *	14.5	mg/L	2.50		B117035	04/18/11	SM2540D	AK	
Dissolved Oxygen *	9.14	mg/L	2.00		B117053	04/18/11	360.1	AK	
Oil & Grease (HEM) *	<5.00	mg/L	5.00		B117040	04/20/11	1664A	AK	
Hexavalent Chromium *	<0.010	mg/L	0.010		B117018	04/18/11	1-1230-85	AK	
Ammonia-Nitrogen *	<1.00	mg/L	1.00		B118011	04/22/11	350.2	AK	
Total Metals									
Aluminum *	0.225	mg/L	0.030	200.7	B117052	04/21/11	200.7	ID	
Arsenic *	<0.010	mg/L	0.010	200.7	B117052	04/21/11	200.7	ID	
Barium *	0.148	mg/L	0.010	200.7	B117052	04/21/11	200.7	ID	
Cadmium *	0.004	mg/L	0.001	200.7	B117052	04/21/11	200.7	ID	
Calcium *	31.7	mg/L	20.0	200.7	B117052	04/25/11	200.7	ID	
Chromium *	<0.010	mg/L	0.010	200.7	B117052	04/21/11	200.7	ID	
Copper *	<0.010	mg/L	0.010	200.7	B117052	04/21/11	200.7	ID	
Iron *	0.115	mg/L	0.050	200.7	B117052	04/21/11	200.7	ID	
Lead *	0.006	mg/L	0.005	200.7	B117052	04/21/11	200.7	ID	
Magnesium *	13.1	mg/L	0.100	200.7	B117052	04/25/11	200.7	ID	
Manganese *	0.02	mg/L	0.01	200.7	B117052	04/21/11	200.7	ID	
Nickel *	<0.01	mg/L	0.01	200.7	B117052	04/21/11	200.7	ID	
Potassium *	10.5	mg/L	1.00	200.7	B117052	04/21/11	200.7	ID	
Selenium *	<0.01	mg/L	0.01	200.7	B117052	04/21/11	200.7	ID	
Silver *	0.005	mg/L	0.002	200.7	B117052	04/21/11	200.7	ID	
Sodium *	112	mg/L	100	200.7	B117052	04/21/11	6010B	ID	
Zinc *	0.024	mg/L	0.005	200.7	B117052	04/21/11	200.7	ID	
Mercury *	<0.0002	mg/L	0.0002	245.1	B117055	04/21/11	245.1	ID	

01-31-2013 13:01 806-354-2835 830 281 8222 D 2/2

Southern Specialty
608 N. Norton Ave
Freer TX, 78357

Project: Rail Road Commision Samples

Project Number: [none]
Project Manager: Jay Lambert

Reported:
04/27/11 08:22
Received:
04/18/11 15:56

Report No. 1104198

Sample ID #: Hierholzer Water Tank Discharge

Sampling Method: Grab

Lab Sample ID #: 1104198-01

Sample Matrix: Liquid

Date/Time Collected: 04/18/11 15:00

Analyte	Result	Units	PQL	Prep Method	Batch	Analyzed	Method	Analyst	Notes
Hardness as CaCO3 by ICP									
	133	mg/L		[CALC]	[CALC]	04/25/11	Calc	ID	
Semivolatile Organic Compounds by GC/MS									
2-Chlorophenol *	<0.010	mg/L	0.010	3510C	B117001	04/21/11	8270C	MSR	
Phenol *	<0.010	mg/L	0.010	3510C	B117001	04/21/11	8270C	MSR	
2-Methylphenol *	<0.010	mg/L	0.010	3510C	B117001	04/21/11	8270C	MSR	
3/4-Methylphenol *	<0.010	mg/L	0.010	3510C	B117001	04/21/11	8270C	MSR	
2-Nitrophenol *	<0.010	mg/L	0.010	3510C	B117001	04/21/11	8270C	MSR	
4-Chloro-3-methylphenol *	<0.010	mg/L	0.010	3510C	B117001	04/21/11	8270C	MSR	
2,4-Dimethylphenol *	<0.010	mg/L	0.010	3510C	B117001	04/21/11	8270C	MSR	
2,4-Dichlorophenol *	<0.010	mg/L	0.010	3510C	B117001	04/21/11	8270C	MSR	
Naphthalene *	<0.010	mg/L	0.010	3510C	B117001	04/21/11	8270C	MSR	
2,4,5-Trichlorophenol *	<0.010	mg/L	0.010	3510C	B117001	04/21/11	8270C	MSR	
4-Nitrophenol *	<0.050	mg/L	0.050	3510C	B117001	04/21/11	8270C	MSR	
2,4-Dinitrophenol *	<0.050	mg/L	0.050	3510C	B117001	04/21/11	8270C	MSR	
4,6-Dinitro-2-methylphenol *	<0.050	mg/L	0.050	3510C	B117001	04/21/11	8270C	MSR	
Pentachlorophenol *	<0.010	mg/L	0.010	3510C	B117001	04/21/11	8270C	MSR	
Surrogate: 2-Fluorophenol	*30 %*		*21-125*	*3510C*	*B117001*	*04/21/11*	*8270C*	*MSR*	
Surrogate: Phenol-d5	*15 %*		*10-110*	*3510C*	*B117001*	*04/21/11*	*8270C*	*MSR*	
Surrogate: Nitrobenzene-d5	*59 %*		*32-125*	*3510C*	*B117001*	*04/21/11*	*8270C*	*MSR*	
Surrogate: 2,4,6-Tribromophenol	*90 %*		*10-123*	*3510C*	*B117001*	*04/21/11*	*8270C*	*MSR*	
Surrogate: Terphenyl-d14	*125 %*		*33-141*	*3510C*	*B117001*	*04/21/11*	*8270C*	*MSR*	
Volatile Organic Compounds by GC/MS									
Benzene *	<0.005	mg/L	0.005	5030B	B117042	04/20/11	8260B	AS	
Surrogate: Toluene-d8	*95 %*		*76-129*	*5030B*	*B117042*	*04/20/11*	*8260B*	*AS*	
Surrogate: 4-Bromofluorobenzene	*90 %*		*70-130*	*5030B*	*B117042*	*04/20/11*	*8260B*	*AS*	
Surrogate: Dibromofluoromethane	*99 %*		*84-123*	*5030B*	*B117042*	*04/20/11*	*8260B*	*AS*	

Southern Specialty
608 N. Norton Ave
Freer TX, 78357

Project: Rail Road Commision Samples

Project Number: [none]
Project Manager: Jay Lambert

Reported:
04/27/11 08:22
Received:
04/18/11 15:56

Report No. 1104198

Sample ID #: #1 Point of Ent.

Sampling Method: Grab

Lab Sample ID #: 1104198-02

Sample Matrix: Liquid

Date/Time Collected: 04/18/11 15:00

Analyte	Result	Units	PQL	Prep Method	Batch	Analyzed	Method	Analyst	Notes
General Chemistry									
Oil & Grease (HEM) *	43.0	mg/L	16.6		B117040	04/20/11	1664A	AK	Z

Southern Specialty
608 N. Norton Ave
Freer TX, 78357

Project: Rail Road Commision Samples

Project Number: [none]
Project Manager: Jay Lambert

Reported:
04/27/11 08:22
Received:
04/18/11 15:56

Report No. 1104198

Sample ID #: #3 - Down Stream

Sampling Method: Grab

Lab Sample ID #: 1104198-03

Sample Matrix: Liquid

Date/Time Collected: 04/18/11 15:00

Analyte	Result	Units	PQL	Prep Method	Batch	Analyzed	Method	Analyst	Notes
General Chemistry									
Oil & Grease (HEM) *	<11.1	mg/L	11.1		B117040	04/20/11	1664A	AK	Za

Southern Specialty
608 N. Norton Ave
Freer TX, 78357

Project: Rail Road Commision Samples

Project Number: [none]
Project Manager: Jay Lambert

Reported:
04/27/11 08:22
Received:
04/18/11 15:56

Report No. 1104198

Sample ID #: #1 - Up Stream

Sampling Method: Grab

Lab Sample ID #: 1104198-04

Sample Matrix: Liquid

Date/Time Collected: 04/18/11 15:00

Analyte	Result	Units	PQL	Prep Method	Batch	Analyzed	Method	Analyst	Notes
General Chemistry									
Oil & Grease (HEM) *	<11.1	mg/L	11.1		B117068	04/22/11	1664A	AK	Zb

Southern Specialty
608 N. Norton Ave
Freer TX, 78357

Project: Rail Road Commision Samples

Project Number: [none]
Project Manager: Jay Lambert

Reported:
04/27/11 08:22
Received:
04/18/11 15:56

Report No. 1104198

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B117018 - NO PREP									
Blank (B117018-BLK1)				Prepared: 04/18/11 11:33		Analyzed: 04/18/11 11:33			
Hexavalent Chromium	<0.010	0.010	mg/L						
LCS (B117018-BS1)				Prepared: 04/18/11 11:33		Analyzed: 04/18/11 11:33			
Hexavalent Chromium	0.404	0.010	mg/L	0.400		101	80-120		
Duplicate (B117018-DUP1)		**Source: 1104130-01**		Prepared: 04/18/11 11:33		Analyzed: 04/18/11 11:33			
Hexavalent Chromium	0.517	0.010	mg/L		0.518			0.2	20
Batch B117021 - NO PREP									
LCS (B117021-BS1)				Prepared: 04/18/11 13:48		Analyzed: 04/18/11 13:48			
pH	4.06	0.05	pH Units	4.00		102	80-120		
Duplicate (B117021-DUP1)		**Source: 1104194-01**		Prepared: 04/18/11 13:48		Analyzed: 04/18/11 13:48			
pH	7.22	0.05	pH Units		7.22			0	20
pH Temperature	18.1	1.0	°C		18.1			0	30
Batch B117035 - NO PREP									
Blank (B117035-BLK1)				Prepared: 04/18/11 16:10		Analyzed: 04/18/11 17:10			
Total Suspended Solids	<2.50	2.50	mg/L						
LCS (B117035-BS1)				Prepared: 04/18/11 16:10		Analyzed: 04/18/11 17:10			
Total Suspended Solids	103	2.50	mg/L	100		103	80-120		
LCS Dup (B117035-BSD1)				Prepared: 04/18/11 16:10		Analyzed: 04/18/11 17:10			
Total Suspended Solids	104	2.50	mg/L	100		104	80-120	1	20
Duplicate (B117035-DUP1)		**Source: 1104184-03**		Prepared: 04/18/11 16:10		Analyzed: 04/18/11 17:10			
Total Suspended Solids	274	50.0	mg/L		270			1	20
Batch B117040 - NO PREP									
Blank (B117040-BLK1)				Prepared: 04/19/11 08:10		Analyzed: 04/20/11 09:20			
Oil & Grease (HEM)	<5.00	5.00	mg/L						
LCS (B117040-BS1)				Prepared: 04/19/11 08:10		Analyzed: 04/20/11 09:20			
Oil & Grease (HEM)	37.6	5.00	mg/L	40.0		94	78-114		
LCS Dup (B117040-BSD1)				Prepared: 04/19/11 08:10		Analyzed: 04/20/11 09:20			
Oil & Grease (HEM)	37.1	5.00	mg/L	40.0		93	78-114	1	20
Batch B117050 - NO PREP									

Southern Specialty
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Project Manager: Jay Lambert

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Report No. 1104198

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Blank (B117050-BLK1)				Prepared: 04/19/11 10:55	Analyzed: 04/19/11 10:55				
Sulfide	<1.00	1.00	mg/L						
Duplicate (B117050-DUP1)		Source: 1104198-01		Prepared: 04/19/11 10:55	Analyzed: 04/19/11 10:55				
Sulfide	<1.00	1.00	mg/L		<1.00				20
Batch B117053 - NO PREP									
Duplicate (B117053-DUP1)		Source: 1104198-01		Prepared: 04/18/11 16:55	Analyzed: 04/18/11 16:55				
Dissolved Oxygen	9.16	2.00	mg/L		9.14			0.2	20
Batch B117061 - NO PREP									
Blank (B117061-BLK1)				Prepared: 04/22/11 08:32	Analyzed: 04/22/11 13:41				
Cyanide, Total	<0.020	0.020	mg/L						
LCS (B117061-BS1)				Prepared: 04/22/11 08:32	Analyzed: 04/22/11 13:41				
Cyanide, Total	0.102	0.020	mg/L	0.100		102	80-120		
Duplicate (B117061-DUP1)		Source: 1104220-02		Prepared: 04/22/11 08:32	Analyzed: 04/22/11 13:41				
Cyanide, Total	<0.020	0.020	mg/L		<0.020				20
Matrix Spike (B117061-MS1)		Source: 1104220-02		Prepared: 04/22/11 08:32	Analyzed: 04/22/11 13:41				
Cyanide, Total	0.0960	0.020	mg/L	0.100	<0.020	96	80-120		
Batch B117068 - NO PREP									
Blank (B117068-BLK1)				Prepared: 04/21/11 08:20	Analyzed: 04/22/11 10:45				
Oil & Grease (HEM)	<5.00	5.00	mg/L						
LCS (B117068-BS1)				Prepared: 04/21/11 08:20	Analyzed: 04/22/11 10:45				
Oil & Grease (HEM)	36.5	5.00	mg/L	40.0		91	78-114		
LCS Dup (B117068-BSD1)				Prepared: 04/21/11 08:20	Analyzed: 04/22/11 10:45				
Oil & Grease (HEM)	35.8	5.00	mg/L	40.0		90	78-114	2	20
Matrix Spike (B117068-MS1)		Source: 1104231-01		Prepared: 04/21/11 08:20	Analyzed: 04/22/11 10:45				
Oil & Grease (HEM)	31.7	5.00	mg/L	40.0	<5.00	79	78-114		
Batch B117070 - NO PREP									
Blank (B117070-BLK1)				Prepared: 04/21/11 10:31	Analyzed: 04/21/11 18:38				
Chloride	<1.00	1.00	mg/L						
Sulfate	<0.50	0.50	mg/L						
LCS (B117070-BS1)				Prepared: 04/21/11 10:31	Analyzed: 04/21/11 18:38				

Southern Specialty
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Project: Rail Road Commision Samples

Project Number: [none]
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Report No. 1104198

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B117070 - NO PREP									
Chloride	5.17	1.00	mg/L	5.00		103	90-110		
Sulfate	5.32	0.50	mg/L	5.00		106	90-110		
LCS Dup (B117070-BSD1)				Prepared: 04/21/11 10:31		Analyzed: 04/21/11 18:38			
Chloride	5.06	1.00	mg/L	5.00		101	90-110	2	20
Sulfate	5.26	0.50	mg/L	5.00		105	90-110	1	20
Duplicate (B117070-DUP1)		**Source: 1104198-01**		Prepared: 04/21/11 10:31		Analyzed: 04/21/11 18:38			
Sulfate	12.0	0.50	mg/L		12.1			0.8	20
Matrix Spike (B117070-MS1)		**Source: 1104198-01**		Prepared: 04/21/11 10:31		Analyzed: 04/21/11 18:38			
Sulfate	16.6	0.50	mg/L	5.00	12.1	90	90-110		
Batch B117078 - NO PREP									
Blank (B117078-BLK1)				Prepared: 04/21/11 13:15		Analyzed: 04/21/11 17:15			
Total Dissolved Solids	<10.0	10.0	mg/L						
LCS (B117078-BS1)				Prepared: 04/21/11 13:15		Analyzed: 04/21/11 17:15			
Total Dissolved Solids	94.0	10.0	mg/L	100		94	80-120		
Duplicate (B117078-DUP1)		**Source: 1104198-01**		Prepared: 04/21/11 13:15		Analyzed: 04/21/11 17:15			
Total Dissolved Solids	419	10.0	mg/L		426			2	20
Batch B118011 - NO PREP									
Blank (B118011-BLK1)				Prepared: 04/22/11 15:45		Analyzed: 04/22/11 16:05			
Ammonia-Nitrogen	<1.00	1.00	mg/L						
LCS (B118011-BS1)				Prepared: 04/22/11 15:45		Analyzed: 04/22/11 16:05			
Ammonia-Nitrogen	19.6	1.00	mg/L	20.0		98	80-120		
Duplicate (B118011-DUP1)		**Source: 1104203-04**		Prepared: 04/22/11 15:45		Analyzed: 04/22/11 16:05			
Ammonia-Nitrogen	<1.00	1.00	mg/L		<1.00				20
Matrix Spike (B118011-MS1)		**Source: 1104203-04**		Prepared: 04/22/11 15:45		Analyzed: 04/22/11 16:05			
Ammonia-Nitrogen	19.1	1.00	mg/L	20.0	<1.00	96	80-120		
Batch B118029 - NO PREP									
Blank (B118029-BLK1)				Prepared: 04/26/11 11:40		Analyzed: 04/26/11 15:05			
TOC	<1.00	1.00	mg/L						
LCS (B118029-BS1)				Prepared: 04/26/11 11:40		Analyzed: 04/26/11 15:05			

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Report No. 1104198

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B118029 - NO PREP									
LCS (B118029-BS1)				Prepared: 04/26/11 11:40 Analyzed: 04/26/11 15:05					
TOC	9.20	1.00	mg/L	10.0		92	80-120		
Duplicate (B118029-DUP1)		Source: 1104198-01		Prepared: 04/26/11 11:40 Analyzed: 04/26/11 15:05					
TOC	7.90	1.00	mg/L		7.60			4	20

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	
Batch B117052 - 200.7										
Blank (B117052-BLK1)				Prepared: 04/20/11 13:15 Analyzed: 04/21/11 10:00						
Aluminum	<0.030	0.030	mg/L							
Arsenic	<0.010	0.010	mg/L							
Barium	<0.010	0.010	mg/L							
Cadmium	<0.001	0.001	mg/L							
Calcium	<1.00	1.00	mg/L							
Chromium	<0.010	0.010	mg/L							
Copper	<0.010	0.010	mg/L							
Iron	<0.050	0.050	mg/L							
Lead	<0.005	0.005	mg/L							
Magnesium	<0.010	0.010	mg/L							
Manganese	<0.01	0.01	mg/L							
Nickel	<0.01	0.01	mg/L							
Potassium	<1.00	1.00	mg/L							
Selenium	<0.01	0.01	mg/L							
Silver	<0.002	0.002	mg/L							CCVH
Sodium	<1.00	1.00	mg/L							
Zinc	<0.005	0.005	mg/L							
LCS (B117052-BS1)				Prepared: 04/20/11 13:15 Analyzed: 04/21/11 10:05						
Aluminum	2.04	0.030	mg/L	2.00		102	80-120		20	
Arsenic	2.10	0.010	mg/L	2.00		105	80-120			
Barium	1.96	0.010	mg/L	2.00		98	80-120			
Cadmium	2.08	0.001	mg/L	2.00		104	80-120		20	
Calcium	2.06	1.00	mg/L	2.00		103	80-120			
Chromium	1.98	0.010	mg/L	2.00		99	80-120			
Copper	1.97	0.010	mg/L	2.00		99	80-120		20	

Southern Specialty
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Report No. 1104198

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B117052 - 200.7									
LCS (B117052-BS1)				Prepared: 04/20/11 13:15		Analyzed: 04/21/11 10:05			
Iron	2.01	0.050	mg/L	2.00		100	80-120		
Lead	2.07	0.005	mg/L	2.00		103	80-120		20
Magnesium	2.04	0.010	mg/L	2.00		102	80-120		
Manganese	2.00	0.01	mg/L	2.00		100	80-120		
Nickel	2.07	0.01	mg/L	2.00		104	80-120		
Potassium	19.8	1.00	mg/L	20.0		99	80-120		
Selenium	2.14	0.01	mg/L	2.00		107	80-120		
Silver	1.14	0.002	mg/L	1.00		114	80-120		20
Sodium	2.08	1.00	mg/L	2.00		104	80-120		
Zinc	2.09	0.005	mg/L	2.00		105	80-120		20
LCS Dup (B117052-BSD1)				Prepared: 04/20/11 13:15		Analyzed: 04/21/11 10:10			
Aluminum	2.02	0.030	mg/L	2.00		101	80-120	0.8	20
Arsenic	2.03	0.010	mg/L	2.00		102	80-120	3	20
Barium	1.97	0.010	mg/L	2.00		98	80-120	0.5	20
Cadmium	2.01	0.001	mg/L	2.00		100	80-120	3	20
Calcium	2.33	1.00	mg/L	2.00		117	80-120	12	20
Chromium	1.97	0.010	mg/L	2.00		98	80-120	0.5	20
Copper	1.98	0.010	mg/L	2.00		99	80-120	0.3	20
Iron	2.00	0.050	mg/L	2.00		100	80-120	0.5	20
Lead	2.00	0.005	mg/L	2.00		100	80-120	3	20
Magnesium	2.03	0.010	mg/L	2.00		102	80-120	0.5	20
Manganese	1.98	0.01	mg/L	2.00		99	80-120	0.7	20
Nickel	2.00	0.01	mg/L	2.00		100	80-120	3	20
Potassium	19.7	1.00	mg/L	20.0		98	80-120	0.6	20
Selenium	2.06	0.01	mg/L	2.00		103	80-120	3	20
Silver	1.14	0.002	mg/L	1.00		114	80-120	0.5	20
Sodium	2.08	1.00	mg/L	2.00		104	80-120	0.2	20
Zinc	2.03	0.005	mg/L	2.00		101	80-120	3	20
Duplicate (B117052-DUP1)		Source: 1104198-01		Prepared: 04/20/11 13:15		Analyzed: 04/21/11 10:21			
Aluminum	0.224	0.030	mg/L		0.225			0.7	20
Arsenic	<0.010	0.010	mg/L		0.00340				20
Barium	0.131	0.010	mg/L		0.148			13	20
Cadmium	<0.001	0.001	mg/L		0.00360				20
Calcium	30.4	1.00	mg/L		31.7			4	20
Chromium	<0.010	0.010	mg/L		0.00740				20
Copper	<0.010	0.010	mg/L		0.00740				20
Iron	0.120	0.050	mg/L		0.115			4	20

Southern Specialty
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Report No. 1104198

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B117052 - 200.7									
Duplicate (B117052-DUP1)		**Source: 1104198-01**		Prepared: 04/20/11 13:15 Analyzed: 04/21/11 10:21					
Lead	<0.005	0.005	mg/L		0.00650				20
Magnesium	12.2	0.010	mg/L		13.1			7	20
Manganese	0.0200	0.01	mg/L		0.0221			10	20
Nickel	<0.01	0.01	mg/L		0.00300				20
Potassium	10.3	1.00	mg/L		10.5			1	20
Selenium	<0.01	0.01	mg/L		<0.01				20
Silver	<0.002	0.002	mg/L		0.00520				20
Zinc	0.0206	0.005	mg/L		0.0240			15	20
Matrix Spike (B117052-MS1)		**Source: 1104198-01**		Prepared: 04/20/11 13:15 Analyzed: 04/21/11 10:26					
Aluminum	2.09	0.030	mg/L	2.00	0.225	93	75-125		20
Arsenic	1.83	0.010	mg/L	2.00	0.00340	91	75-125		
Barium	1.86	0.010	mg/L	2.00	0.148	85	75-125		
Cadmium	1.78	0.001	mg/L	2.00	0.00360	89	75-125		20
Chromium	1.72	0.010	mg/L	2.00	0.00740	86	75-125		
Copper	1.71	0.010	mg/L	2.00	0.00740	85	75-125		20
Iron	1.94	0.050	mg/L	2.00	0.115	91	75-125		
Lead	1.74	0.005	mg/L	2.00	0.00650	87	75-125		20
Manganese	1.75	0.01	mg/L	2.00	0.0221	87	75-125		
Nickel	1.74	0.01	mg/L	2.00	0.00300	87	75-125		
Potassium	30.8	1.00	mg/L	20.0	10.5	102	75-125		
Selenium	1.86	0.01	mg/L	2.00	<0.01	93	75-125		
Silver	1.00	0.002	mg/L	1.00	0.00520	99	75-125		20
Zinc	1.83	0.005	mg/L	2.00	0.0240	90	75-125		20
Batch B117055 - 245.1									
Blank (B117055-BLK1)				Prepared: 04/20/11 14:00 Analyzed: 04/21/11 13:56					
Mercury	<0.0002	0.0002	mg/L						
LCS (B117055-BS1)				Prepared: 04/20/11 14:00 Analyzed: 04/21/11 13:56					
Mercury	0.0112	0.0002	mg/L	0.0100		112	85-115		
LCS Dup (B117055-BSD1)				Prepared: 04/20/11 14:00 Analyzed: 04/21/11 13:56					
Mercury	0.00938	0.0002	mg/L	0.0100		94	85-115	18	25
Duplicate (B117055-DUP1)		**Source: 1104198-01**		Prepared: 04/20/11 14:00 Analyzed: 04/21/11 13:56					
Mercury	<0.0002	0.0002	mg/L		<0.0002				25
Matrix Spike (B117055-MS1)		**Source: 1104198-01**		Prepared: 04/20/11 14:00 Analyzed: 04/21/11 13:56					

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Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B117055 - 245.1									
Matrix Spike (B117055-MS1)		**Source: 1104198-01**		Prepared: 04/20/11 14:00 Analyzed: 04/21/11 13:56					
Mercury	0.0108	0.0002	mg/L	0.0100	<0.0002	108	75-125		

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B117001 - 3510C									
Blank (B117001-BLK1)				Prepared: 04/15/11 08:18 Analyzed: 04/19/11 11:07					
Pyridine	<0.010	0.010	mg/L						
N-Nitrosodimethylamine	<0.010	0.010	mg/L						
2-Chlorophenol	<0.010	0.010	mg/L						
2,6-Dinitrotoluene	<0.010	0.010	mg/L						
Bis(2-Chloroethyl)ether	<0.010	0.010	mg/L						
Phenol	<0.010	0.010	mg/L						
1,3-Dichlorobenzene	<0.010	0.010	mg/L						
1,4-Dichlorobenzene	<0.010	0.010	mg/L						
1,2-Dichlorobenzene	<0.010	0.010	mg/L						
Bis(2-chloroisopropyl)ether	<0.010	0.010	mg/L						
2-Methylphenol	<0.010	0.010	mg/L						
Hexachloroethane	<0.010	0.010	mg/L						
3/4-Methylphenol	<0.010	0.010	mg/L						
N-Nitroso-di-n-propylamine	<0.010	0.010	mg/L						
Nitrobenzene	<0.010	0.010	mg/L						
2-Nitrophenol	<0.010	0.010	mg/L						
Isophorone	<0.010	0.010	mg/L						
1,2,4-Trichlorobenzene	<0.010	0.010	mg/L						
4-Chloro-3-methylphenol	<0.010	0.010	mg/L						
2,4-Dimethylphenol	<0.010	0.010	mg/L						
bis(2-Chloroethoxy)methane	<0.010	0.010	mg/L						
2,4-Dichlorophenol	<0.010	0.010	mg/L						
Naphthalene	<0.010	0.010	mg/L						
4-Chloroaniline	<0.010	0.010	mg/L						
Hexachlorobutadiene	<0.010	0.010	mg/L						
2-Methylnaphthalene	<0.010	0.010	mg/L						
Hexachlorocyclopentadiene	<0.050	0.050	mg/L						
2,4,6-Trichlorophenol	<0.010	0.010	mg/L						

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Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B117001 - 3510C									
Blank (B117001-BLK1)				Prepared: 04/15/11 08:18 Analyzed: 04/19/11 11:07					
2,4,5-Trichlorophenol	<0.010	0.010	mg/L						
2-Chloronaphthalene	<0.010	0.010	mg/L						
2-Nitroaniline	<0.010	0.010	mg/L						
Acenaphthylene	<0.010	0.010	mg/L						
Dimethylphthalate	<0.010	0.010	mg/L						
Acenaphthene	<0.010	0.010	mg/L						
4-Nitrophenol	<0.050	0.050	mg/L						
Dibenzofuran	<0.010	0.010	mg/L						
4-Chlorophenyl-phenylether	<0.010	0.010	mg/L						
2,4-Dinitrophenol	<0.050	0.050	mg/L						
2,4-Dinitrotoluene	<0.010	0.010	mg/L						
Fluorene	<0.010	0.010	mg/L						
Diethylphthalate	<0.010	0.010	mg/L						
4-Nitroaniline	<0.010	0.010	mg/L						
4,6-Dinitro-2-methylphenol	<0.050	0.050	mg/L						
Azobenzene	<0.010	0.010	mg/L						
N-Nitrosodiphenylamine	<0.010	0.010	mg/L						
4-Bromophenyl-phenylether	<0.010	0.010	mg/L						
Hexachlorobenzene	<0.010	0.010	mg/L						
Pentachlorophenol	<0.010	0.010	mg/L						
Phenanthrene	<0.010	0.010	mg/L						
Anthracene	<0.010	0.010	mg/L						
Di-n-butylphthalate	<0.010	0.010	mg/L						
Fluoranthene	<0.010	0.010	mg/L						
Pyrene	<0.010	0.010	mg/L						
Benzidine	<0.050	0.050	mg/L						
Butylbenzylphthalate	<0.010	0.010	mg/L						
Benz(a)anthracene	<0.010	0.010	mg/L						
Chrysene	<0.010	0.010	mg/L						
Bis(2-Ethylhexyl)phthalate	<0.010	0.010	mg/L						
Di-n-octylphthalate	<0.010	0.010	mg/L						
Indeno[1,2,3-cd]pyrene	<0.010	0.010	mg/L						
Benzo[b]fluoranthene	<0.010	0.010	mg/L						
Benzo[k]fluoranthene	<0.010	0.010	mg/L						
Benzo[a]pyrene	<0.010	0.010	mg/L						
Dibenz[a,h]anthracene	<0.010	0.010	mg/L						
Benzo[g,h,i]perylene	<0.010	0.010	mg/L						
1,2-Diphenyl Hydrazine	<0.010	0.010	mg/L						

Southern Specialty
608 N. Norton Ave
Freer TX, 78357

Project: Rail Road Commision Samples

Project Number: [none]
Project Manager: Jay Lambert

Reported:
04/27/11 08:22
Received:
04/18/11 15:56

Report No. 1104198

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B117001 - 3510C									
Blank (B117001-BLK1)				Prepared: 04/15/11 08:18		Analyzed: 04/19/11 11:07			
Surrogate: 2-Fluorophenol	*0.108*		*mg/L*	*0.100*		*108*	*21-125*		
Surrogate: Phenol-d5	*0.0959*		*mg/L*	*0.100*		*96*	*10-110*		
Surrogate: Nitrobenzene-d5	*0.0472*		*mg/L*	*0.0500*		*94*	*32-125*		
Surrogate: 2-Fluorobiphenyl	*0.0514*		*mg/L*	*0.0500*		*103*	*43-125*		
Surrogate: 2,4,6-Tribromophenol	*0.0957*		*mg/L*	*0.100*		*96*	*10-123*		
Surrogate: Terphenyl-d14	*0.0715*		*mg/L*	*0.0500*		*143*	*33-141*		
LCS (B117001-BS1)				Prepared: 04/15/11 08:18		Analyzed: 04/19/11 11:46			
Pyridine	0.0267	0.010	mg/L	0.0500		53	35-135		
N-Nitrosodimethylamine	0.0314	0.010	mg/L	0.0500		63	42-122		
2-Chlorophenol	0.0326	0.010	mg/L	0.0500		65	31-135		
Bis(2-Chloroethyl)ether	0.0311	0.010	mg/L	0.0500		62	34-135		
Phenol	0.0304	0.010	mg/L	0.0500		61	12-110		
1,3-Dichlorobenzene	0.0328	0.010	mg/L	0.0500		66	26-135		
1,4-Dichlorobenzene	0.0330	0.010	mg/L	0.0500		66	25-135		
1,2-Dichlorobenzene	0.0315	0.010	mg/L	0.0500		63	32-135		
Bis(2-chloroisopropyl)ether	0.0376	0.010	mg/L	0.0500		75	26-175		
2-Methylphenol	0.0320	0.010	mg/L	0.0500		64	25-135		
3/4-Methylphenol	0.0291	0.010	mg/L	0.0500		58	25-135		
N-Nitroso-di-n-propylamine	0.0345	0.010	mg/L	0.0500		69	27-135		
Nitrobenzene	0.0307	0.010	mg/L	0.0500		61	36-143		
2-Nitrophenol	0.0293	0.010	mg/L	0.0500		59	34-135		
Isophorone	0.0343	0.010	mg/L	0.0500		69	25-175		
1,2,4-Trichlorobenzene	0.0311	0.010	mg/L	0.0500		62	39-98		
4-Chloro-3-methylphenol	0.0275	0.010	mg/L	0.0500		55	34-135		
2,4-Dimethylphenol	0.0299	0.010	mg/L	0.0500		60	35-149		
bis(2-Chloroethoxy)methane	0.0305	0.010	mg/L	0.0500		61	39-135		
2,4-Dichlorophenol	0.0256	0.010	mg/L	0.0500		51	36-135		
Naphthalene	0.0318	0.010	mg/L	0.0500		64	40-135		
4-Chloroaniline	0.0233	0.010	mg/L	0.0500		47	35-146		
Hexachlorobutadiene	0.0334	0.010	mg/L	0.0500		67	25-135		
2-Methylnaphthalene	0.0310	0.010	mg/L	0.0500		62	31-135		
Hexachlorocyclopentadiene	0.0255	0.050	mg/L	0.0500		51	31-135		
2,4,6-Trichlorophenol	0.0298	0.010	mg/L	0.0500		60	29-138		
2,4,5-Trichlorophenol	0.0300	0.010	mg/L	0.0500		60	25-175		
2-Chloronaphthalene	0.0303	0.010	mg/L	0.0500		61	50-135		
2-Nitroaniline	0.0318	0.010	mg/L	0.0500		64	40-135		
Acenaphthylene	0.0303	0.010	mg/L	0.0500		61	37-135		

Southern Specialty
608 N. Norton Ave
Freer TX, 78357

Project: Rail Road Commision Samples

Project Number: [none]
Project Manager: Jay Lambert

Reported:
04/27/11 08:22
Received:
04/18/11 15:56

Report No. 1104198

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	
Batch B117001 - 3510C										
LCS (B117001-BS1)				Prepared: 04/15/11 08:18 Analyzed: 04/19/11 11:46						
Dimethylphthalate	0.0290	0.010	mg/L	0.0500		58	25-175			
Acenaphthene	0.0303	0.010	mg/L	0.0500		61	39-135			
4-Nitrophenol	0.0240	0.050	mg/L	0.0500		48	10-141			
Dibenzofuran	0.0302	0.010	mg/L	0.0500		60	42-135			
4-Chlorophenyl-phenylether	0.0291	0.010	mg/L	0.0500		58	41-142			
2,4-Dinitrotoluene	0.0293	0.010	mg/L	0.0500		59	29-149			
Fluorene	0.0305	0.010	mg/L	0.0500		61	38-149			
Diethylphthalate	0.0285	0.010	mg/L	0.0500		57	25-175			
4-Nitroaniline	0.0268	0.010	mg/L	0.0500		54	30-153			
4,6-Dinitro-2-methylphenol	0.0302	0.050	mg/L	0.0500		60	25-144			
Azobenzene	0.0331	0.010	mg/L	0.0500		66	65-123			
N-Nitrosodiphenylamine	0.0335	0.010	mg/L	0.0500		67	69-142			LCSDL
4-Bromophenyl-phenylether	0.0277	0.010	mg/L	0.0500		55	43-137			
Hexachlorobenzene	0.0293	0.010	mg/L	0.0500		59	36-143			
Pentachlorophenol	0.0246	0.010	mg/L	0.0500		49	10-146			
Phenanthrene	0.0296	0.010	mg/L	0.0500		59	44-135			
Anthracene	0.0295	0.010	mg/L	0.0500		59	35-175			
Di-n-butylphthalate	0.0254	0.010	mg/L	0.0500		51	25-136			
Fluoranthene	0.0218	0.010	mg/L	0.0500		44	37-135			
Pyrene	0.0467	0.010	mg/L	0.0500		93	26-117			
Butylbenzylphthalate	0.0363	0.010	mg/L	0.0500		73	25-135			
Benz(a)anthracene	0.0326	0.010	mg/L	0.0500		65	41-143			
Chrysene	0.0324	0.010	mg/L	0.0500		65	45-143			
Bis(2-Ethylhexyl)phthalate	0.0302	0.010	mg/L	0.0500		60	25-139			
Di-n-octylphthalate	0.0329	0.010	mg/L	0.0500		66	28-137			
Indeno[1,2,3-cd]pyrene	0.0400	0.010	mg/L	0.0500		80	25-170			
Benzo[b]fluoranthene	0.0339	0.010	mg/L	0.0500		68	27-135			
Benzo[k]fluoranthene	0.0299	0.010	mg/L	0.0500		60	56-116			
Benzo[a]pyrene	0.0324	0.010	mg/L	0.0500		65	31-135			
Benzo[g,h,i]perylene	0.0429	0.010	mg/L	0.0500		86	25-159			
Surrogate: 2-Fluorophenol	*0.0582*		*mg/L*	*0.100*		*58*	*21-125*			
Surrogate: Phenol-d5	*0.0629*		*mg/L*	*0.100*		*63*	*10-110*			
Surrogate: Nitrobenzene-d5	*0.0297*		*mg/L*	*0.0500*		*59*	*32-125*			
Surrogate: 2-Fluorobiphenyl	*0.0320*		*mg/L*	*0.0500*		*64*	*43-125*			
Surrogate: 2,4,6-Tribromophenol	*0.0682*		*mg/L*	*0.100*		*68*	*10-123*			
Surrogate: Terphenyl-d14	*0.0326*		*mg/L*	*0.0500*		*65*	*33-141*			
LCS Dup (B117001-BSD1)				Prepared: 04/15/11 08:18 Analyzed: 04/19/11 12:25						

Southern Specialty
608 N. Norton Ave
Freer TX, 78357

Project: Rail Road Commision Samples

Project Number: [none]
Project Manager: Jay Lambert

Reported:
04/27/11 08:22
Received:
04/18/11 15:56

Report No. 1104198

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B117001 - 3510C									
LCS Dup (B117001-BSD1)				Prepared: 04/15/11 08:18	Analyzed: 04/19/11 12:25				
Pyridine	0.0304	0.010	mg/L	0.0500		61	35-135	13	20
N-Nitrosodimethylamine	0.0313	0.010	mg/L	0.0500		63	42-122	0.3	20
2-Chlorophenol	0.0324	0.010	mg/L	0.0500		65	31-135	0.6	20
Bis(2-Chloroethyl)ether	0.0301	0.010	mg/L	0.0500		60	34-135	3	20
Phenol	0.0299	0.010	mg/L	0.0500		60	12-110	2	20
1,3-Dichlorobenzene	0.0321	0.010	mg/L	0.0500		64	26-135	2	20
1,4-Dichlorobenzene	0.0321	0.010	mg/L	0.0500		64	25-135	3	20
1,2-Dichlorobenzene	0.0307	0.010	mg/L	0.0500		61	32-135	2	20
Bis(2-chloroisopropyl)ether	0.0360	0.010	mg/L	0.0500		72	26-175	5	20
2-Methylphenol	0.0310	0.010	mg/L	0.0500		62	25-135	3	20
3/4-Methylphenol	0.0287	0.010	mg/L	0.0500		57	25-135	1	20
N-Nitroso-di-n-propylamine	0.0339	0.010	mg/L	0.0500		68	27-135	2	20
Nitrobenzene	0.0304	0.010	mg/L	0.0500		61	36-143	1	20
2-Nitrophenol	0.0292	0.010	mg/L	0.0500		58	34-135	0.2	20
Isophorone	0.0338	0.010	mg/L	0.0500		68	25-175	1	20
1,2,4-Trichlorobenzene	0.0302	0.010	mg/L	0.0500		60	39-98	3	20
4-Chloro-3-methylphenol	0.0274	0.010	mg/L	0.0500		55	34-135	0.5	20
2,4-Dimethylphenol	0.0292	0.010	mg/L	0.0500		58	35-149	3	20
bis(2-Chloroethoxy)methane	0.0302	0.010	mg/L	0.0500		60	39-135	1	20
2,4-Dichlorophenol	0.0281	0.010	mg/L	0.0500		56	36-135	10	20
Naphthalene	0.0317	0.010	mg/L	0.0500		63	40-135	0.4	20
4-Chloroaniline	0.0238	0.010	mg/L	0.0500		48	35-146	2	20
Hexachlorobutadiene	0.0324	0.010	mg/L	0.0500		65	25-135	3	20
2-Methylnaphthalene	0.0307	0.010	mg/L	0.0500		61	31-135	1	20
Hexachlorocyclopentadiene	0.0254	0.050	mg/L	0.0500		51	31-135	0.2	20
2,4,6-Trichlorophenol	0.0287	0.010	mg/L	0.0500		57	29-138	4	20
2,4,5-Trichlorophenol	0.0286	0.010	mg/L	0.0500		57	25-175	5	20
2-Chloronaphthalene	0.0294	0.010	mg/L	0.0500		59	50-135	3	20
2-Nitroaniline	0.0318	0.010	mg/L	0.0500		64	40-135	0.1	20
Acenaphthylene	0.0292	0.010	mg/L	0.0500		58	37-135	4	20
Dimethylphthalate	0.0278	0.010	mg/L	0.0500		56	25-175	4	20
Acenaphthene	0.0294	0.010	mg/L	0.0500		59	39-135	3	20
4-Nitrophenol	0.0252	0.050	mg/L	0.0500		50	10-141	5	20
Dibenzofuran	0.0293	0.010	mg/L	0.0500		59	42-135	3	20
4-Chlorophenyl-phenylether	0.0287	0.010	mg/L	0.0500		57	41-142	1	20
2,4-Dinitrophenol	0.0264	0.050	mg/L	0.0500		53	10-161		20
2,4-Dinitrotoluene	0.0294	0.010	mg/L	0.0500		59	29-149	0.2	20
Fluorene	0.0297	0.010	mg/L	0.0500		59	38-149	3	20

Southern Specialty
608 N. Norton Ave
Freer TX, 78357

Project: Rail Road Commision Samples

Project Number: [none]
Project Manager: Jay Lambert

Reported:
04/27/11 08:22
Received:
04/18/11 15:56

Report No. 1104198

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	
Batch B117001 - 3510C										
LCS Dup (B117001-BSD1)				Prepared: 04/15/11 08:18 Analyzed: 04/19/11 12:25						
Diethylphthalate	0.0279	0.010	mg/L	0.0500		56	25-175	2	20	
4-Nitroaniline	0.0273	0.010	mg/L	0.0500		55	30-153	2	20	
4,6-Dinitro-2-methylphenol	0.0306	0.050	mg/L	0.0500		61	25-144	1	20	
Azobenzene	0.0304	0.010	mg/L	0.0500		61	65-123	9	20	LCSDL
N-Nitrosodiphenylamine	0.0313	0.010	mg/L	0.0500		63	69-142	7	20	LCSDL
4-Bromophenyl-phenylether	0.0284	0.010	mg/L	0.0500		57	43-137	2	20	
Hexachlorobenzene	0.0274	0.010	mg/L	0.0500		55	36-143	7	20	
Pentachlorophenol	0.0238	0.010	mg/L	0.0500		48	10-146	3	20	
Phenanthrene	0.0294	0.010	mg/L	0.0500		59	44-135	0.8	20	
Anthracene	0.0286	0.010	mg/L	0.0500		57	35-175	3	20	
Di-n-butylphthalate	0.0250	0.010	mg/L	0.0500		50	25-136	2	20	
Fluoranthene	0.0225	0.010	mg/L	0.0500		45	37-135	3	20	
Pyrene	0.0438	0.010	mg/L	0.0500		88	26-117	6	20	
Butylbenzylphthalate	0.0341	0.010	mg/L	0.0500		68	25-135	6	20	
Benz(a)anthracene	0.0302	0.010	mg/L	0.0500		60	41-143	8	20	
Chrysene	0.0303	0.010	mg/L	0.0500		61	45-143	7	20	
Bis(2-Ethylhexyl)phthalate	0.0280	0.010	mg/L	0.0500		56	25-139	8	20	
Di-n-octylphthalate	0.0319	0.010	mg/L	0.0500		64	28-137	3	20	
Indeno[1,2,3-cd]pyrene	0.0380	0.010	mg/L	0.0500		76	25-170	5	20	
Benzo[b]fluoranthene	0.0316	0.010	mg/L	0.0500		63	27-135	7	20	
Benzo[k]fluoranthene	0.0308	0.010	mg/L	0.0500		62	56-116	3	20	
Benzo[a]pyrene	0.0314	0.010	mg/L	0.0500		63	31-135	3	20	
Dibenz[a,h]anthracene	0.0359	0.010	mg/L	0.0500		72	40-135		20	
Benzo[g,h,i]perylene	0.0410	0.010	mg/L	0.0500		82	25-159	4	20	
Surrogate: 2-Fluorophenol	*0.0588*		*mg/L*	*0.100*		*59*	*21-125*			
Surrogate: Phenol-d5	*0.0613*		*mg/L*	*0.100*		*61*	*10-110*			
Surrogate: Nitrobenzene-d5	*0.0300*		*mg/L*	*0.0500*		*60*	*32-125*			
Surrogate: 2-Fluorobiphenyl	*0.0297*		*mg/L*	*0.0500*		*59*	*43-125*			
Surrogate: 2,4,6-Tribromophenol	*0.0635*		*mg/L*	*0.100*		*63*	*10-123*			
Surrogate: Terphenyl-d14	*0.0309*		*mg/L*	*0.0500*		*62*	*33-141*			

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B117042 - 5030B									

Southern Specialty
608 N. Norton Ave
Freer TX, 78357

Project: Rail Road Commision Samples

Project Number: [none]
Project Manager: Jay Lambert

Reported:
04/27/11 08:22
Received:
04/18/11 15:56

Report No. 1104198

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B117042 - 5030B									
Blank (B117042-BLK1)				Prepared: 04/20/11 13:05		Analyzed: 04/20/11 14:18			
Benzene	<0.005	0.005	mg/L						
Surrogate: Toluene-d8	*48.3*		*ug/L*	*50.0*		*97*	*76-129*		
Surrogate: 4-Bromofluorobenzene	*44.5*		*ug/L*	*50.0*		*89*	*70-130*		
Surrogate: Dibromofluoromethane	*53.0*		*ug/L*	*50.0*		*106*	*84-123*		
LCS (B117042-BS1)				Prepared: 04/20/11 13:05		Analyzed: 04/20/11 14:49			
Benzene	0.0575	0.005	mg/L	0.0500		115	80-120		
Surrogate: Toluene-d8	*49.0*		*ug/L*	*50.0*		*98*	*76-129*		
Surrogate: 4-Bromofluorobenzene	*47.6*		*ug/L*	*50.0*		*95*	*70-130*		
Surrogate: Dibromofluoromethane	*52.2*		*ug/L*	*50.0*		*104*	*84-123*		
LCS Dup (B117042-BSD1)				Prepared: 04/20/11 13:05		Analyzed: 04/20/11 15:21			
Benzene	0.0567	0.005	mg/L	0.0500		113	80-120	1	20
Surrogate: Toluene-d8	*49.3*		*ug/L*	*50.0*		*99*	*76-129*		
Surrogate: 4-Bromofluorobenzene	*48.0*		*ug/L*	*50.0*		*96*	*70-130*		
Surrogate: Dibromofluoromethane	*50.2*		*ug/L*	*50.0*		*100*	*84-123*		

Definitions and Notes

All quality control samples and checks are within acceptance limits unless otherwise indicated.
Test results pertain only to those items tested.
All samples were in good condition when received by the laboratory unless otherwise noted.

Southern Specialty
608 N. Norton Ave
Freer TX, 78357

Project: Rail Road Commision Samples

Project Number: [none]
Project Manager: Jay Lambert

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Report No. 1104198

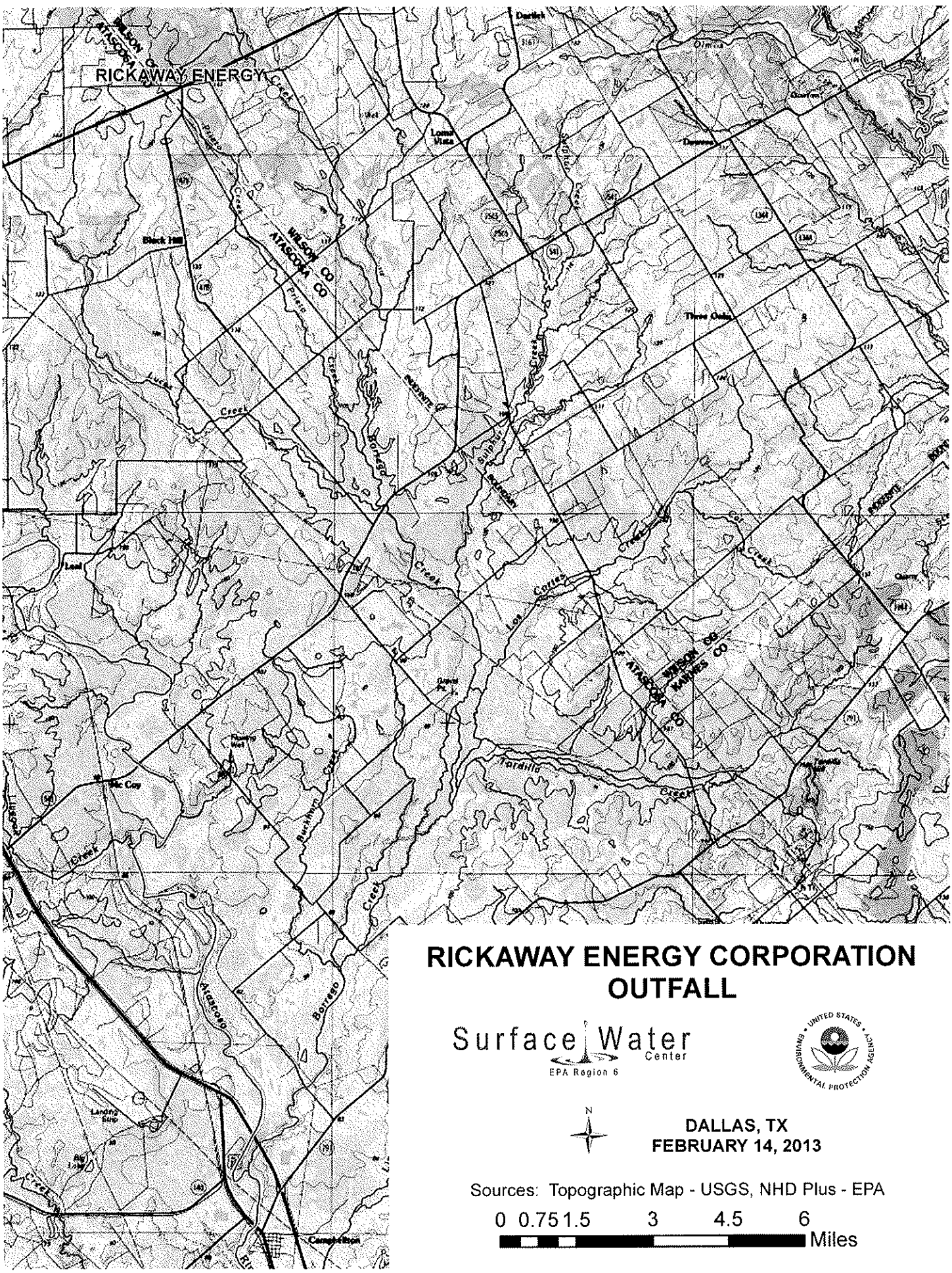
Zb	Used 450 ml, due to insufficient amount of sample.
Za	Used 450 ml, due to insufficient amount of sample.
Z	Used 300 ml, due to insufficient amount of sample.
LCSDL	LCSD recovery is outside QC limits, the results may have a slight low bias.
H	pH and temperature are field tests and should be analyzed within 15 minutes. Due to transportation, hold time has been exceeded.
CCVH	CCV recovery is outside QC limits, the results may have a slight high bias.
PQL	Practical Quantitation Limit
mg/Kg	Milligrams per Kilogram (Parts per Million)
mg/L	Milligrams per Liter (Parts per Million)
PPM	Parts per Million
*	NELAC accredited analyte
RMCCL	Recommended Maximum Concentration of Contaminants Level

Test Methods
Standard Methods for the Examination of Water and Wastewater, 20th Edition 1998
Methods for Chemical Analysis of Water and Wastes, EPA 600/4-79-020, Rev. March 1983
EPA SW Test Methods for the Examination of Solid Waste, SW-846, 1996

Sandra Felix For Marcela Gracia Hawk, President For

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Richard Hawk, General Manager



RICKAWAY ENERGY CORPORATION OUTFALL

Surface Water Center
EPA Region 6

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

N

DALLAS, TX
FEBRUARY 14, 2013

Sources: Topographic Map - USGS, NHD Plus - EPA

0 0.75 1.5 3 4.5 6 Miles

4015
RED

REGION 6
1445 ROSS AVENUE
DALLAS, TEXAS 75202-2733

NPDES Permit No TX0133990

AUTHORIZATION TO DISCHARGE UNDER THE

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended, (33 U.S.C. 1251 et. seq; the "Act"),

Rickaway Energy, Corporation
205 Los Robles Dr.
Pleasanton, TX 78064

is authorized to discharge from a facility located at 205 Los Robles Drive, CR 136, Pleasanton, Wilson County, Texas.

from Outfall 001: Latitude 29° 2' 2" N; Longitude 98° 18' 1.9152" W which discharge into Borrego Creek, an intermittent stream, then to Atascosa River in Water Body Segment No. 2107 of the Nueces River Basin.

in accordance with this cover page and the effluent limitations, monitoring requirements, and other conditions set forth in Part I, Part II and Part III hereof.

This permit shall become effective on August 1, 2013

This permit and the authorization to discharge shall expire at midnight, July 31, 2018

Issued on June 28, 2013

William K. Honker, P.E.
Director
Water Quality Protection Division (6WQ)

Prepared by

Maria E. Okpala
Environmental Engineer
Permits & Technical Section (6WQ-PP)

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PART I – REQUIREMENTS FOR NPDES PERMITS

SECTION A. LIMITATIONS AND MONITORING REQUIREMENTS

1. Outfall 001 – Produced Water – 0.024 MGD Average Flow (750 bbls/day)
During the period beginning on the effective date of the permit and lasting through the expiration date, the permittee is authorized to discharge produced water from Outfall 001, thence to Borrego Creek, an intermittent stream, then to Atascosa River in Water Body Segment No. 2107 of the Nueces River Basin. Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS		DISCHARGE LIMITATIONS Standard Units		MONITORING REQUIREMENTS	
POLLUTANT	STORET CODE	MINIMUM	MAXIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
pH	00400	6.5	9.0	Twice/month (*1)	Grab

EFFLUENT CHARACTERISTICS		DISCHARGE LIMITATIONS lbs/day, unless noted		mg/l, unless noted		MONITORING REQUIREMENTS	
POLLUTANT	STORET CODE	MON AVG	DAY MAX	MON AVG	DAY MAX	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	50050	Report MGD	Report MGD	N/A	N/A	Weekly	Record
Oil & Grease	00556	Report	Report	10	15	Twice/month (*1)	Grab
Total Dissolved Solids	70295	Report	Report	Report	Report	Twice/month (*1)	Grab
Dissolved Oxygen *2	00300	N/A	N/A	5.0	N/A	Twice/month (*1)	Grab
Dissolved Oxygen, Spring *3	00300	N/A	N/A	5.5	N/A	Twice/month (*1)	Grab
Total Sulfate	00945	Report	Report	Report	Report	Twice/month (*1)	Grab
Total Chloride	00940	Report	Report	Report	Report	Twice/month (*1)	Grab
Total Cadmium	01027	0.001	0.002	5.57 ug/l	11.78 ug/l	Twice/month (*1)	Grab
Total Petroleum Hydrocarbon	82181	N/A	N/A	N/A	Report	Once/three months (*1)	Grab
Total Benzene	34030	N/A	N/A	N/A	Report	Once/three months (*1)	Grab
Total BETX *4	30383	N/A	N/A	N/A	Report	Once/three months (*1)	Grab
Total Radium 226, pCi/l	0950	N/A	N/A	N/A	Report	Once/three months (*1)	Grab
Total Radium 228, pCi/l	11501	N/A	N/A	N/A	Report	Once/three months (*1)	Grab
Ra 226+Ra 228, pCi/l	11503	N/A	N/A	N/A	Report	Once/three months (*1)	Grab
Adjusted Gross Alpha, pCi/l	80029	N/A	N/A	N/A	Report	Once/three months (*1)	Grab

EFFLUENT CHARACTERISTICS	DISCHARGE MONITORING		MONITORING REQUIREMENTS	
WHOLE EFFLUENT TOXICITY (7day. Static Renewal) (*5)	30-Day AVG MINIMUM	7-Day MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Ceriodaphnia dubia	Report	Report	Once/Quarter	24-Hr Composite
Pimephales promelas	Report	Report	Once/Quarter	24-Hr Composite

EFFLUENT CHARACTERISTICS	DISCHARGE MONITORING		MONITORING REQUIREMENTS	
WHOLE EFFLUENT TOXICITY (Texas 24-Hour Acute LC50) (*5)	30-DAY AVG MINIMUM	24-HR MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Daphnia pulex	Report	Report	Once/6-months	Grab

Footnotes:

*1 For any monitoring period, samples shall be taken at least seven (7) days from the first sample of the previous monitoring period.

*2 The minimum dissolved Oxygen limit shall be 3.0 mg/l , with a mean DO of 5.0 mg/l.

*3 In the spring, the minimum dissolved oxygen limit shall be 4.5 mg/l, with a mean DO of 5.5 mg/l. Spring is from March 21 to June 20.

*4 BTEX is the sum of benzene, ethyl benzene, toluene and xylene.

*5 Monitoring and reporting requirements begin on the effective date of this permit. See Part II, Whole Effluent Toxicity Testing Requirements for additional WET monitoring and reporting conditions.

SAMPLING LOCATION(S) AND OTHER REQUIREMENTS

Samples taken in compliance with the monitoring requirements specified above shall be taken at the discharge from the final treatment unit prior to the receiving stream from the following approximate location:

Outfall 001: Latitude 29° 2' 2" N; Longitude 98° 17' 59" W

FLOATING SOLIDS, VISIBLE FOAM AND/OR OILS

There shall be no discharge of floating solids or visible foam in other than trace amounts. There shall be no discharge of visible films of oil, globules of oil, grease or solids in or on the water, or coatings on stream banks.

SECTION B. SCHEDULE OF COMPLIANCE

NONE

SECTION C. MONITORING AND REPORTING (MINOR DISCHARGERS)

1. Monitoring results must be reported to EPA on either the electronic or paper Discharge Monitoring Report (DMR) approved formats. Monitoring results can be submitted electronically in lieu of the paper DMR Form. To submit electronically, access the NetDMR website at www.epa.gov/netdmr and contact the R6NetDMR@epa.gov in-box for further instructions. Until you are approved for Net DMR, you must report on the Discharge Monitoring Report (DMR) Form EPA. No. 3320-1 in accordance with the "General Instructions" provided on the form. No additional copies are needed if reporting electronically, however when submitting paper form EPA No. 3320-1, the permittee shall submit the original DMR signed and certified as required by Part III.D.11 and all other reports required by Part III.D. to the EPA and other agencies as required. (See Part III.D.IV of the permit.)

Discharge Monitoring Report Form(s) shall be submitted quarterly. Each quarterly submittal shall include separate forms for each month of the reporting period.

2. Reporting periods shall end on the last day of the months March, June, September, and December.

3. The first Discharge Monitoring Report(s) shall represent facility operations from the effective date of the permit through the last day of the current reporting period.

4. Thereafter, the permittee is required to submit regular quarterly reports as described above and shall submit those reports postmarked no later than the 28th day of the month following each reporting period.

5. NO DISCHARGE REPORTING - If there is no discharge from any outfall during the sampling month, place an "X" in the NO DISCHARGE box located in the upper right corner of the Discharge Monitoring Report.

6. If any daily maximum or monthly average value exceeds the effluent limitations specified in Part I. A, the permittee shall report the excursion in accordance with the requirements of Part III. D.

7. Any daily maximum or monthly average value reported in the required Discharge Monitoring Report which is in excess of the effluent limitation specified in Part I. A shall constitute evidence of violation of such effluent limitation and of this permit.

The permittee shall effectively monitor the operation and efficiency of all treatment and control facilities and the quantity and quality of the treated discharge.

All reports shall be sent both to EPA and the Texas Railroad Commission at the addresses shown in Part III of the permit.

C. WATER TREATMENT CHEMICAL PROHIBITION

Products containing chromium and zinc will be prohibited from use as additives to the utility waters.

PART II - OTHER REQUIREMENTS

A. MINIMUM QUANTIFICATION LEVEL (MQL)

See list of MQL's at Appendix A of Part II below. For pollutants listed on Appendix A of Part II with MQL's, analyses must be performed to the listed MQL. If any individual analytical test result is less than the MQL listed, a value of zero (0) may be used for that pollutant result for the Discharge Monitoring Report (DMR) calculations and reporting requirements.

In addition, any additional pollutant sampling for purposes of this permit, including renewal applications or any other reporting, shall be tested to the MQL shown on the attached Appendix A of Part II. Results of analyses that are less than the listed MQL may be reported as "non detect" (ND).

B. 24-HOUR ORAL REPORTING: DAILY MAXIMUM LIMITATION VIOLATIONS

Under the provisions of Part III.D.7.b.(3) of this permit, violations of daily maximum limitations for the following pollutants shall be reported orally to EPA Region 6, Compliance and Assurance Division, Water Enforcement Branch (6EN-W), Dallas, Texas, at (214) 665-6595, and concurrently to Railroad Commission of Texas, at (512) 463-6804, within 24 hours from the time the permittee becomes aware of the violation followed by a written report in five days.

Total Cadmium, Total Sulfate, Total Chloride and Total dissolved solids

C. 40 CFR PART 136 ANALYTICAL REQUIREMENTS

Unless otherwise specified in this permit, monitoring shall be conducted according to the analytical, apparatus and materials, sample collection, preservation, handling, etc., procedures listed at 40 CFR Part 136 in effect on the effective date of this permit. Appendices A, B, and C to 40 CFR Part 136 are specifically referenced as part of this requirement. Amendments to 40 CFR Part 136 promulgated after the effective date of this permit shall supersede these requirements as applicable.

D. REOPENER

The permit may be reopened and modified during the life of the permit if relevant portions of the Texas Commission on Environmental Quality (TCEQ) Water Quality Standards for Interstate and Intrastate Streams are revised or remanded. In addition, the permit may be reopened and modified during the life of the permit if relevant procedures implementing the Water Quality Standards are either revised or promulgated by the TCEQ. Should the State adopt a State water quality standard, this permit may be reopened to establish effluent limitations for the parameter(s) to be consistent with that approved State standard in accordance with 40CFR122.44 (d). Modification of the permit is subject to the provisions of 40CFR124.5.

If a new or revised TMDL is determined for the receiving stream, the permit may be reopened, and new limitations based on the TMDL may be incorporated into the permit. Additionally, in accordance with 40 CFR Part 122.62 (a) (2), the permit may be reopened and modified if new information is received that was not available at the time of permit issuance that would have justified the application of different permit conditions at the time of permit issuance. Permit modifications shall reflect the results of any of these actions and shall follow regulations listed at 40 CFR Part 124.5.

E. WHOLE EFFLUENT TOXICITY TESTING (7-DAY CHRONIC NOEC MARINE)

It is unlawful and a violation of this permit for a permittee or his designated agent, to manipulate test samples in any manner, to delay sample shipment, or to terminate or to cause to terminate a toxicity test. Once initiated, all toxicity tests must be completed unless specific authority has been granted by EPA Region 6 or the State NPDES permitting authority.

1. SCOPE AND METHODOLOGY

a. The permittee shall test the effluent for toxicity in accordance with the provisions in this section.

APPLICABLE TO FINAL OUTFALL(S): 001

REPORTED ON DMR AS FINAL OUTFALL: 001

CRITICAL DILUTION (%): 100

EFFLUENT DILUTION SERIES (%): 32%, 42%, 56%, 75% & 100%

COMPOSITE SAMPLE TYPE: Defined at PART I

TEST SPECIES/METHODS: 40 CFR Part 136

Ceriodaphnia dubia chronic static renewal survival and reproduction test, Method 1002.0, EPA-821-R-02-013, or the most recent update thereof. This test should be terminated when 60% of the surviving females in the control produce three broods or at the end of eight days, whichever comes first.

Pimephales promelas (Fathead minnow) chronic static renewal 7-day larval survival and growth test, Method 1000.0, EPA-821-R-02-013, or the most recent update thereof. A minimum of five (5) replicates with eight

(8) organisms per replicate must be used in the control and in each effluent dilution of this test.

b. The NOEC (No Observed Effect Concentration) is herein defined as the greatest effluent dilution at and below which toxicity that is statistically different from the control (0% effluent) at the 95% confidence level does not occur. Chronic lethal test failure is defined as a demonstration of a statistically significant lethal effect at test completion to a test species at or below the critical dilution. Chronic sub-lethal test failure is defined as a demonstration of a statistically significant sub-lethal effect (i.e., growth or reproduction) at test completion to a test species at or below the critical dilution.

c. The conditions of this item are effective beginning with the effective date of the WET limit. When the testing frequency stated above is less than monthly and the effluent fails the lethal or sub-lethal endpoint at or below the critical dilution, the permittee shall be considered in violation of this permit limit and the frequency for the affected species will increase to monthly until such time compliance with the No Observed Effect Concentration (NOEC) effluent limitation is demonstrated for a period of three consecutive months, at which time the permittee may return to the testing frequency stated in PART I of this permit. During the period the permittee is out of compliance, test results shall be reported on the DMR for that reporting period. The purpose of additional tests (also referred to as 'retests' or confirmation tests) is to determine the duration of a toxic event. A test that meets all test acceptability criteria and demonstrates significant toxic effects does not need additional confirmation. Such testing cannot confirm or disprove a previous test result.

d. This permit may be reopened to require chemical specific effluent limits, additional testing, and/or other appropriate actions to address toxicity.

2. REQUIRED TOXICITY TESTING CONDITIONS

a. Test Acceptance

The permittee shall repeat a test, including the control and all effluent dilutions, if the procedures and quality assurance requirements defined in the test methods or in this permit are not satisfied, including the following additional criteria:

i. The toxicity test control (0% effluent) must have survival equal to or greater than 80%.

ii. The mean number of *Ceriodaphnia dubia* neonates produced per surviving female in the control (0% effluent) must be 15 or more.

iii. 60% of the surviving control females must produce three broods.

iv. The mean dry weight of surviving Fathead minnow larvae at the end of the 7 days in the control (0% effluent) must be 0.25 mg per larva or greater.

v. The percent coefficient of variation between replicates shall be 40% or less in the control (0% effluent) for: the young of surviving females in the Ceriodaphnia dubia reproduction test, the growth and survival of the Fathead minnow test.

vi. The percent coefficient of variation between replicates shall be 40% or less in the critical dilution, unless significant lethal or nonlethal effects are exhibited for: the young of surviving females in the Ceriodaphnia dubia reproduction test; the growth and survival endpoints in the Fathead minnow test.

vii. A Percent Minimum Significant Difference (PMSD) range of 13 - 47 for *Ceriodaphnia dubia* reproduction;

viii. A PMSD range of 12 - 30 for Fathead minnow growth.

Test failure may not be construed or reported as invalid due to a coefficient of variation value of greater than 40%. A repeat test shall be conducted within the required reporting period of any test determined to be invalid.

b. Statistical Interpretation

i. For the Ceriodaphnia dubia survival test, the statistical analyses used to determine if there is a significant difference between the control and the critical dilution shall be Fisher's Exact Test as described in EPA-821-R-02-013 or the most recent update thereof.

ii. For the Ceriodaphnia dubia reproduction test and the Fathead minnow larval survival and growth test, the statistical analyses used to determine if there is a significant difference between the control and the critical dilution shall be in accordance with the methods for determining the No Observed Effect Concentration (NOEC) as described in EPA-821-R-02-013, or the most recent update thereof.

iii. If the conditions of Test Acceptability are met in Item 2.a above and the percent survival of the test organism is equal to or greater than 80% in the critical dilution concentration and all lower

dilution concentrations, the test shall be considered to be a passing test, and the permittee shall report a survival NOEC of not less than the critical dilution for the DMR reporting requirements found in Item 3 below.

c. Dilution Water

i. Dilution water used in the toxicity tests will be receiving water collected as close to the point of discharge as possible but unaffected by the discharge. The permittee shall substitute synthetic dilution water of similar pH, hardness, and alkalinity to the closest downstream perennial water where the receiving stream is classified as intermittent or where the receiving stream has no flow due to zero flow conditions.

ii. If the receiving water is unsatisfactory as a result of instream toxicity (fails to fulfill the test acceptance criteria of Item 2.a), the permittee may substitute synthetic dilution water for the receiving water in all subsequent tests provided the unacceptable receiving water test met the following stipulations:

(A) a synthetic dilution water control which fulfills the test acceptance requirements of Item 2.a was run concurrently with the receiving water control;

(B) the test indicating receiving water toxicity has been carried out to completion (i.e., 7 days);

(C) the permittee includes all test results indicating receiving water toxicity with the full report and information required by Item 3.a below; and

(D) the synthetic dilution water shall have a pH, hardness, and alkalinity similar to that of the receiving water or closest downstream perennial water not adversely affected by the discharge, provided the magnitude of these parameters will not cause toxicity in the synthetic dilution water.

d. Samples and Composites

i. The permittee shall collect a minimum of three flow-weighted composite samples from the outfall(s) listed at Item 1.a above.

ii. The permittee shall collect second and third composite samples for use during 24-hour renewals of each dilution concentration for each test. The permittee must collect the composite samples such

that the effluent samples are representative of any periodic episode of chlorination, biocide usage or other potentially toxic substance discharged on an intermittent basis.

iii. The permittee must collect the composite samples so that the maximum holding time for any effluent sample shall not exceed 72 hours. The permittee must have initiated the toxicity test within 36 hours after the collection of the last portion of the first composite sample. Samples shall be chilled to 6 degrees Centigrade during collection, shipping, and/or storage.

iv. If the flow from the outfall(s) being tested ceases during the collection of effluent samples, the requirements for the minimum number of effluent samples, the minimum number of effluent portions and the sample holding time are waived during that sampling period. However, the permittee must collect an effluent composite sample volume during the period of discharge that is sufficient to complete the required toxicity tests with daily renewal of effluent. When possible, the effluent samples used for the toxicity tests shall be collected on separate days if the discharge occurs over multiple days. The effluent composite sample collection duration and the static renewal protocol associated with the abbreviated sample collection must be documented in the full report required in Item 3 of this section.

v. MULTIPLE OUTFALLS: If the provisions of this section are applicable to multiple outfalls, the permittee shall combine the composite effluent samples in proportion to the average flow from the outfalls listed in Item 1.a above for the day the sample was collected. The permittee shall perform the toxicity test on the flow-weighted composite of the outfall samples.

3. REPORTING

a. The permittee shall prepare a full report of the results of all tests conducted pursuant to this section in accordance with the Report Preparation Section of EPA-821-R-02-013, or the most current publication, for every valid or invalid toxicity test initiated whether carried to completion or not. The permittee shall retain each full report pursuant to the provisions of PART III.C.3 of this permit. The permittee shall submit full reports upon the specific request of the Agency. For any test which fails, is considered invalid or which is terminated early for any reason, the full report must be submitted for agency review.

b. The permittee shall report the Whole Effluent Toxicity values for the 30-Day Average Minimum and the 7-Day Minimum under Parameter No.

22414 on the DMR for that reporting period in accordance with PART III.D.4 of this permit.

If more than one valid test for a species was performed during the reporting period, the test NOECs will be averaged arithmetically and reported as the DAILY AVERAGE MINIMUM NOEC for that reporting period.

If more than one species is tested during the reporting period, the permittee shall report the lowest 30-Day Average Minimum NOEC and the lowest 7-Day Minimum NOEC for Whole Effluent Toxicity.

A valid test for each species must be reported on the DMR during each reporting period specified in PART I of this permit. Only ONE set of biomonitoring data for each species is to be recorded on the DMR for each reporting period. The data submitted should reflect the LOWEST lethal and sub-lethal effects results for each species during the reporting period. All invalid tests, repeat tests (for invalid tests), and retests (for tests previously failed) performed during the reporting period must be attached to the DMR for EPA review.

c. The permittee shall submit the results of the valid toxicity test on the DMR for that reporting period in accordance with PART III.D.4 of this permit, as follows below. Submit retest information clearly marked as such with the following month's DMR. Only results of valid tests are to be reported on the DMR.

i. *Pimephales promelas* (Fathead Minnow)

A. If the No Observed Effect Concentration (NOEC) for lethal effects is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TLP6C

B. Report the NOEC value for survival, Parameter No. TOP6C

C. Report the Lowest Observed Effect Concentration (LOEC) value for survival, Parameter No. TXP6C

D. Report the NOEC value for growth, Parameter No. TPP6C

E. Report the LOEC value for growth, Parameter No. TYP6C

F. If the No Observed Effect Concentration (NOEC) for growth is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TGP6C

G. Report the highest (critical dilution or control) Coefficient of Variation, Parameter No. TQP6C

ii. Ceriodaphnia dubia

A. If the NOEC for lethal effects is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TLP3B

B. Report the NOEC value for survival, Parameter No. TOP3B

C. Report the LOEC value for survival, Parameter No. TXP3B

D. Report the NOEC value for reproduction, Parameter No. TPP3B

E. Report the LOEC value for reproduction, Parameter No. TYP3B

F. If the No Observed Effect Concentration (NOEC) for reproduction is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TGP3B

G. Report the higher (critical dilution or control) Coefficient of Variation, Parameter No. TQP3B

F. WHOLE EFFLUENT TOXICITY TESTING (TEXAS 24 HOUR ACUTE LC50 FRESHWATER)

1. SCOPE AND METHODOLOGY

a. The provisions of this section shall apply individually and separately to the outfalls listed below. No samples or portions of samples from one outfall may be composited with samples or portions of samples from another outfall. The provisions of this section are in addition to other biomonitoring requirements in this permit.

APPLICABLE TO FINAL OUTFALL(S): 001

COMPOSITE SAMPLE TYPE: Defined at PART I

TEST SPECIES/METHODS: 40 CFR Part 136

Daphnia pulex acute static nonrenewal 24 hour toxicity test using EPA/600/4-90/027F or the latest update thereof. A minimum of five (5) replicates with eight (8) organisms per replicate must be used in the control and in each effluent dilution of this test.
24 HOUR ACUTE TEST SUBSTITUTIONS If any other tests conducted under biomonitoring requirements elsewhere in PART II of this permit include the 100% effluent concentration in the dilution series, the mean survival results at 24 hours from those tests, for each species, may be submitted to fulfill the requirements of this section. See Item 4.b of this section for acceptable test substitutions. The >50% survival in 100% effluent for 24 hour period standard applies to all tests utilizing a 100% effluent dilution, regardless of whether the results are submitted for compliance with the minimum testing frequency.

b. The permittee shall test the effluent for lethality in accordance with the provisions of this section. Such testing will determine if an effluent sample meets the Texas Surface Water Quality Standard listed at 30 TAC '307.6(e)(2)(B) of greater than 50% survival of the appropriate test organisms in 100% effluent for a 24 hour period.

c. The permittee shall submit the results of these tests on the Discharge Monitoring Report (DMR) due in the month following the test.

d. In addition to an appropriate control (0% effluent), a 100% effluent concentration shall be used in the toxicity tests.

e. This permit may be reopened to require whole effluent toxicity limits, chemical specific effluent limits, additional testing, and/or other appropriate actions to address toxicity.

2. PERSISTENT LETHALITY

a. If any toxicity test at the 100% effluent concentration demonstrates 50% or greater mortality, the permittee shall conduct two (2) additional tests (retests) for each species that demonstrates mortality and report these results as required in Item 4 of this section. The two additional retests shall be conducted monthly during the next two consecutive months. Five (5) dilutions in addition to an appropriate control (0% effluent) shall be used in the two (2) retests. These effluent concentrations shall be 6%, 13%, 25%, 50%, and 100%. If one of the retests indicates 50% or greater mortality at the 100% effluent concentration, the permittee may suspend additional retesting for this period and shall notify the EPA in writing within five (5) days. If none of the retests indicates 50% or greater mortality at the 100% effluent concentration, the permittee shall continue testing at the original frequency.

b. Within thirty (30) days after submitting the original and retest results which demonstrate 50% or greater mortality at the 100% effluent concentration, the permittee shall initiate a Toxicity Reduction Evaluation (TRE) in accordance with the procedures stated Item 5 below and substituting the timetable given in Item 2.c, below. The permittee shall continue biomonitoring quarterly (as a minimum) during the TRE, using the affected species, unless otherwise authorized by the permitting authority. All information related to the TRE shall be directed to the Texas Natural Resources Conservation Commission (TNRCC).

c. Within eighteen (18) months from the date of completion of the test confirming 50% or greater mortality at the 100% effluent concentration, the permittee shall submit a Final Report on Toxicity Reduction Activities detailing the specific actions and control mechanism(s) and necessary to achieve greater than 50% survival in 100% effluent for a period of 24 hours. The final report shall also contain a corrective action schedule for implementing the control measures outlined.

Within three (3) years from the date of completion of the test confirming 50% or greater mortality at the 100% effluent concentration, the permittee shall demonstrate greater than 50% mean survival of the appropriate test organism in 100% effluent for a 24 hour test period for all subsequent testing.

3. REQUIRED TOXICITY TESTING CONDITIONS

a. Control/Dilution Water

Control and/or dilution water used in the test shall normally consist of a standard, synthetic, moderately hard, reconstituted water of similar pH and alkalinity to the closest downstream perennial water. If the permittee is utilizing the results of a 48 hour acute test or 7 day chronic test to satisfy these 24 hour acute biomonitoring requirements in accordance with Item 1.a, the permittee may use receiving water as the control and dilution water if the control meets the requirements of Item 3.b.

b. Control Survival

If more than 10% of the test organisms in any control die within 24 hours, that test including the control and all effluent dilution(s) shall be repeated with all results from both tests reported as per Item 4 of this section.

c. Repeat Test

The permittee shall repeat a test, including the control and all effluent dilutions, if the procedures and quality assurance requirements defined in the test methods or in this permit are not satisfied. A repeat test shall be conducted within the required reporting period of any test determined to be invalid, in accordance with Item 3.b of this section.

d. Samples and Composites

GRAB samples are authorized for this test. The samples shall be collected at a point following the last treatment unit.

One **grab** sample representative of normal operating flows will be collected from each outfall, and a discrete test will be run on each **grab** sample.

Samples shall be chilled to 4 degrees Centigrade during collection, shipping, and/or storage. The toxicity tests must be initiated within 36 hours after collection of the **grab** sample. The **grab**

sample must be collected such that the sample is representative of any periodic episode of chlorination, biocide usage, or other potentially toxic substance discharged on an intermittent basis.

4. REPORTING

a. The permittee shall prepare a full report of the results of all tests conducted pursuant to this Part in accordance with the Report Preparation section of EPA/600¬/4-90/027F for every valid or invalid toxicity test initiated, whether carried to completion or not. The permittee shall retain each full report pursuant to the provisions of PART III.C.3 of this permit. The permittee shall submit the information contained in any full report upon the specific request of the Agency.

b. The permittee shall report the following results of each toxicity test on the subsequent monthly DMR for that reporting period in accordance with PART III.D.4 of this permit:

i. Daphnia pulex

Enter the following codes on the DMR for Parameter No. TIE3D:

"0" if mean survival at 24 hrs. is greater than 50% in 100% effluent;

"1" if the mean survival at 24 hrs. is less than or equal to 50% in 100% effluent.

In cases of test substitution (See 24 HOUR ACUTE TEST SUBSTITUTIONS, Item 1.a, above), mean survival results in 100% effluent from the 48 hr. Daphnia pulex acute test, determined at 24 hrs., shall be reported on the DMR under Parameter No. TIE3D.

5. TEXAS 24 HR LC50 TOXICITY REDUCTION EVALUATION (TRE)

a. Within thirty (30) days of confirming lethality in the retests, the permittee shall submit a Toxicity Reduction Evaluation (TRE) Action Plan and Schedule for conducting a TRE. The TRE Action Plan shall specify the approach and methodology to be used in performing the TRE. A Toxicity Reduction Evaluation is an investigation intended to determine those actions necessary to achieve compliance with water quality-based effluent limits by reducing an effluent's toxicity to an acceptable level. A TRE is defined as a step-wise process which combines toxicity testing and analyses of the physical and chemical characteristics of a toxic effluent to identify the constituents causing effluent toxicity and/or treatment methods which will reduce the effluent toxicity. The TRE Action Plan shall lead to the successful elimination of effluent toxicity at the critical dilution and include the following:

i. Specific Activities. The plan shall detail the specific approach the permittee intends to utilize in conducting the TRE. The approach may include toxicity characterizations, identifications and confirmation activities, source evaluation, treatability studies, or alternative approaches. When the permittee conducts Toxicity Characterization Procedures, the permittee shall perform multiple characterizations and follow the procedures specified in the documents "Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization

Procedures" (EPA-600/6-91/003) or alternate procedures. When the permittee conducts Toxicity Identification Evaluations and Confirmations, the permittee shall perform multiple identifications and follow the methods specified in the documents "Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/080) and "Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/081), as appropriate;

The documents referenced above may be obtained through the National Technical Information Service (NTIS) by phone at (703) 487-4650, or by writing:

U.S. Department of Commerce
National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161

ii. Sampling Plan (e.g., locations, methods, holding times, chain of custody, preservation, etc.). The effluent sample volume collected for all tests shall be adequate to perform the toxicity test, toxicity characterization, identification and confirmation procedures, and conduct chemical specific analyses when a probable toxicant has been identified;

Where the permittee has identified or suspects specific pollutant(s) and/or source(s) of effluent toxicity, the permittee shall conduct, concurrent with toxicity testing, chemical specific analyses for the identified and/or suspected pollutant(s) and/or source(s) of effluent toxicity;

iii. Quality Assurance Plan (e.g., QA/QC implementation, corrective actions, etc.); and

iv. Project Organization (e.g., project staff, project manager, consulting services, etc.).

b. The permittee shall initiate the TRE Action Plan within thirty (30) days of plan and schedule submittal. The permittee shall assume all risks for failure to achieve the required toxicity reduction.

c. The permittee shall submit a quarterly TRE Activities Report with the Discharge Monitoring Report in the months of January, April, July, and October containing information on toxicity reduction evaluation activities including:

i. any data and/or substantiating documentation which identifies the pollutant(s) and/or source(s) of effluent toxicity;

ii. any studies/evaluations and results on the treatability of the facility's effluent toxicity; and

iii. any data which identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to meet the Texas Surface Water Quality Standard listed at 30 TAC '307.6(e)(2)(B) of greater than 50% survival of the appropriate test organisms in 100% effluent for a 24 hour period.

A copy of the TRE Activities Report shall also be submitted to the state agency.

d. The permittee shall submit a Final Report on Toxicity Reduction Evaluation Activities no later than eighteen (18) months from confirming lethality in the retests, which provides information pertaining to the specific control mechanism selected that will, when implemented, result in reduction of effluent toxicity to less than 50% mortality in 100% effluent after 24 hours. The report will also provide a specific corrective action schedule for implementing the selected control mechanism.
A copy of the Final Report on Toxicity Reduction Evaluation Activities shall also be submitted to the state agency.

APPENDIX A of PART II

The following Minimum Quantification Levels (MQL's) are to be used for reporting pollutant data for NPDES permit applications and/or compliance reporting.

POLLUTANTS	MQL µg/l	POLLUTANTS	MQL µg/l
METALS, RADIOACTIVITY, CYANIDE and CHLORINE			
Aluminum	2.5	Molybdenum	10
Antimony	60	Nickel	0.5
Arsenic	0.5	Selenium	5
Barium	100	Silver	0.5
Beryllium	0.5	Thalllium	0.5
Boron	100	Uranium	0.1
Cadmium	1	Vanadium	50
Chromium	10	Zinc	20
Cobalt	50	Cyanide	10
Copper	0.5	Cyanide, weak acid dissociable	10
Lead	0.5	Total Residual Chlorine	33
Mercury *1	0.0005		
	0.005		
DIOXIN			
2,3,7,8-TCDD	0.00001		
VOLATILE COMPOUNDS			
Acrolein	50	1,3-Dichloropropylene	10
Acrylonitrile	20	Ethylbenzene	10
Benzene	10	Methyl Bromide	50
Bromoform	10	Methylene Chloride	20
Carbon Tetrachloride	2	1,1,2,2-Tetrachloroethane	10
Chlorobenzene	10	Tetrachloroethylene	10
Clorodibromomethane	10	Toluene	10
Chloroform	50	1,2-trans-Dichloroethylene	10
Dichlorobromomethane	10	1,1,2-Trichloroethane	10
1,2-Dichloroethane	10	Trichloroethylene	10
1,1-Dichloroethylene	10	Vinyl Chloride	10
1,2-Dichloropropane	10		
ACID COMPOUNDS			
2-Chlorophenol	10	2,4-Dinitrophenol	50
2,4-Dichlorophenol	10	Pentachlorophenol	5
2,4-Dimethylphenol	10	Phenol	10
4,6-Dinitro-o-Cresol	50	2,4,6-Trichlorophenol	10

POLLUTANTS	MQL µg/l	POLLUTANTS	MQL µg/l
	BASE/NEUTRAL		
Acenaphthene	10	Dimethyl Phthalate	10
Anthracene	10	Di-n-Butyl Phthalate	10
Benzidine	50	2,4-Dinitrotoluene	10
Benzo(a)anthracene	5	1,2-Diphenylhydrazine	20
Benzo(a)pyrene	5	Fluoranthene	10
3,4-Benzofluoranthene	10	Fluorene	10
Benzo(k)fluoranthene	5	Hexachlorobenzene	5
Bis(2-chloroethyl)Ether	10	Hexachlorobutadiene	10
Bis(2-chloroisopropyl)Ether	10	Hexachlorocyclopentadiene	10
Bis(2-ethylhexyl)Phthalate	10	Hexachloroethane	20
Butyl Benzyl Phthalate	10	Indeno(1,2,3-cd)Pyrene	5
2-Chloronapthalene	10	Isophorone	10
Chrysene	5	Nitrobenzene	10
Dibenzo(a,h)anthracene	5	n-Nitrosodimethylamine	50
1,2-Dichlorobenzene	10	n-Nitrosodi-n-Propylamine	20
1,3-Dichlorobenzene	10	n-Nitrosodiphenylamine	20
1,4-Dichlorobenzene	10	Pyrene	10
3,3'-Dichlorobenzidine	5	1,2,4-Trichlorobenzene	10
Diethyl Phthalate	10		
	PESTICIDES AND PCBS		
Aldrin	0.01	Beta-Endosulfan	0.02
Alpha-BHC	0.05	Endosulfan sulfate	0.02
Beta-BHC	0.05	Endrin	0.02
Gamma-BHC	0.05	Endrin Aldehyde	0.1
Chlordane	0.2	Heptachlor	0.01
4,4'-DDT and derivatives	0.02	Heptachlor Epoxide	0.01
Dieldrin	0.02	PCBs	0.2
Alpha-Endosulfan	0.01	Toxaphene	0.3

(MQL's Revised November 1, 2007)

Footnotes:

*1 Default MQL for Mercury is 0.005 unless Part I of your permit requires the more sensitive Method 1631 (Oxidation / Purge and Trap / Cold vapor Atomic Fluorescence Spectrometry), then the MQL shall be 0.0005

PART III - STANDARD CONDITIONS FOR NPDES PERMITS

A. GENERAL CONDITIONS

1. INTRODUCTION

In accordance with the provisions of 40 CFR Part 122.41, et. seq., this permit incorporates by reference ALL conditions and requirements applicable to NPDES Permits set forth in the Clean Water Act, as amended, (hereinafter known as the "Act") as well as ALL applicable reMa$ria1261
gulations.

2. DUTY TO COMPLY

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

3. TOXIC POLLUTANTS

a. Notwithstanding Part III.A.5, if any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the Act for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitation on the pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition.

b. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Act for toxic pollutants within the time provided in the regulations that established those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

4. DUTY TO REAPPLY

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. The application shall be submitted at least 180 days before the expiration date of this permit. The Director may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date. Continuation of expiring permits shall be governed by regulations promulgated at 40 CFR Part 122.6 and any subsequent amendments.

5. PERMIT FLEXIBILITY

This permit may be modified, revoked and reissued, or terminated for cause in accordance with 40 CFR 122.62-64. The filing of a request for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

6. PROPERTY RIGHTS

This permit does not convey any property rights of any sort, or any exclusive privilege.

7. DUTY TO PROVIDE INFORMATION

The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

8. CRIMINAL AND CIVIL LIABILITY

Except as provided in permit conditions on "Bypassing" and "Upsets", nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Any false or materially misleading representation or concealment of information required to be reported by the provisions of the permit, the Act, or applicable regulations, which avoids or effectively defeats the regulatory purpose of the Permit may subject the Permittee to criminal enforcement pursuant to 18 U.S.C. Section 1001.

9. OIL AND HAZARDOUS SUBSTANCE LIABILITY

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under

Section 311 of the Act.

10. STATE LAWS

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Act.

11. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

B. PROPER OPERATION AND MAINTENANCE

1. NEED TO HALT OR REDUCE NOT A DEFENSE

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. The permittee is responsible for maintaining adequate safeguards to prevent the discharge of untreated or inadequately treated wastes during electrical power failure either by means of alternate power sources, standby generators or retention of inadequately treated effluent.

2. DUTY TO MITIGATE

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

3. PROPER OPERATION AND MAINTENANCE

a. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by permittee as efficiently as possible and in a manner which will minimize upsets and discharges of excessive pollutants and will achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of this permit.

b. The permittee shall provide an adequate operating staff which is duly qualified to carry out operation, maintenance and testing functions required to insure compliance with the conditions of this permit.

4. BYPASS OF TREATMENT FACILITIES

a. BYPASS NOT EXCEEDING LIMITATIONS

The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Parts III.B.4.b. and 4.c.

b. NOTICE

(1) ANTICIPATED BYPASS

If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.

(2) UNANTICIPATED BYPASS

The permittee shall, within 24 hours, submit notice of an unanticipated bypass as required in Part III.D.7.

c. PROHIBITION OF BYPASS

(1) Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:

(a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and,

(c) The permittee submitted notices as required by Part III.B.4.b.

(2) The Director may allow an anticipated bypass after considering its adverse effects, if the Director determines that it will meet the three conditions listed at Part III.B.4.c(1).

5. UPSET CONDITIONS

a. EFFECT OF AN UPSET
An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Part III.B.5.b. are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

b. CONDITIONS NECESSARY FOR A DEMONSTRATION OF UPSET
A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and that the permittee can identify the cause(s) of the upset;

(2) The permitted facility was at the time being properly operated;

(3) The permittee submitted notice of the upset as required by Part III.D.7; and,

(4) The permittee complied with any remedial measures required by Part III.B.2.

c. BURDEN OF PROOF
In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

6. REMOVED SUBSTANCES
Unless otherwise authorized, solids, sewage sludges, filter backwash, or other pollutants removed in the course of treatment or wastewater control shall be disposed of in a manner such as to prevent any pollutant from such materials from entering navigable waters.

7. PERCENT REMOVAL (PUBLICLY OWNED TREATMENT WORKS)
For publicly owned treatment works, the 30-day average (or Monthly Average) percent removal for Biochemical Oxygen Demand and Total Suspended Solids shall not be less than 85 percent unless otherwise authorized by the permitting authority in accordance with 40 CFR 133.103.

C. MONITORING AND RECORDS

1. INSPECTION AND ENTRY
The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by the law to:

a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit; and

d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Act, any substances or parameters at any location.

2. REPRESENTATIVE SAMPLING

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

3. RETENTION OF RECORDS

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report, or application. This period may be extended by request of the Director at any time.

4. RECORD CONTENTS

Records of monitoring information shall include:

a. The date, exact place, and time of sampling or measurements;
b. The individual(s) who performed the sampling or measurements;
c. The date(s) and time(s) analyses were performed;
d. The individual(s) who performed the analyses;
e. The analytical techniques or methods used; and
f. The results of such analyses.

5. MONITORING PROCEDURES

a. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit or approved by the Regional Administrator.

b. The permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instruments at intervals frequent enough to insure accuracy of measurements and shall maintain appropriate records of such activities.

c. An adequate analytical quality control program, including the analyses of sufficient standards, spikes, and duplicate samples to insure the accuracy of all required analytical results shall be maintained by the permittee or designated commercial laboratory.

6. FLOW MEASUREMENTS

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated, and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than 10% from true discharge rates throughout the range of expected discharge volumes.

D. REPORTING REQUIREMENTS

1. PLANNED CHANGES

a. INDUSTRIAL PERMITS

The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

(1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR Part 122.29(b); or,

(2) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements listed at Part III.D.10.a.

b. MUNICIPAL PERMITS
Any change in the facility discharge (including the introduction of any new source or significant discharge or significant changes in the quantity or quality of existing discharges of pollutants) must be reported to the permitting authority. In no case are any new connections, increased flows, or significant changes in influent quality permitted that will cause violation of the effluent limitations specified herein.

2. ANTICIPATED NONCOMPLIANCE
The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

3. TRANSFERS
This permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Act.

4. DISCHARGE MONITORING REPORTS AND OTHER REPORTS
Monitoring results must be reported on Discharge Monitoring Report (DMR) Form EPA No. 3320-1 in accordance with the "General Instructions" provided on the form. The permittee shall submit the original DMR signed and certified as required by Part III.D.11 and all other reports required by Part III.D. to the EPA at the address below. Duplicate copies of DMR's and all other reports shall be submitted to the appropriate State agency(ies) at the following address(es):

EPA:
Compliance Assurance and Enforcement Division
Water Enforcement Branch (6EN-W)
U.S. Environmental Protection Agency, Region 6
1445 Ross Avenue
Dallas, TX 75202-2733

Texas:
Program Manager
Environmental Services
Railroad Commission of Texas
1701 North Congress Avenue
P.O. Box 12967
Austin, Texas 7871-2967

5. ADDITIONAL MONITORING BY THE PERMITTEE
If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR Part 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report (DMR). Such increased monitoring frequency shall also be indicated on the DMR.

6. AVERAGING OF MEASUREMENTS
Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.

7. TWENTY-FOUR HOUR REPORTING

a. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the

circumstances. A written submission shall be provided within 5 days of the time the permittee becomes aware of the circumstances. The report shall contain the following information:

(1) A description of the noncompliance and its cause;

(2) The period of noncompliance including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and,

(3) Steps being taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.

b. The following shall be included as information which must be reported within 24 hours:

(1) Any unanticipated bypass which exceeds any effluent limitation in the permit;

(2) Any upset which exceeds any effluent limitation in the permit; and,

(3) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in Part II (industrial permits only) of the permit to be reported within 24 hours.

c. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

8. OTHER NONCOMPLIANCE

The permittee shall report all instances of noncompliance not reported under Parts III.D.4 and D.7 and Part I.B (for industrial permits only) at the time monitoring reports are submitted. The reports shall contain the information listed at Part III.D.7.

9. OTHER INFORMATION

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information.

10. CHANGES IN DISCHARGES OF TOXIC SUBSTANCES

All existing manufacturing, commercial, mining, and silvacultural permittees shall notify the Director as soon as it knows or has reason to believe:

a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant listed at 40 CFR Part 122, Appendix D, Tables II and III (excluding Total Phenols) which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

(1) One hundred micrograms per liter (100 µg/L);
(2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,4-dinitro-phenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
(3) Five (5) times the maximum concentration value reported for that pollutant in the permit application; or
(4) The level established by the Director.

b. That any activity has occurred or will occur which would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

(1) Five hundred micrograms per liter (500 µg/L);
(2) One milligram per liter (1 mg/L) for antimony;
(3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application; or
(4) The level established by the Director.

11. SIGNATORY REQUIREMENTS

All applications, reports, or information submitted to the Director shall be signed and certified.

a. ALL PERMIT APPLICATIONS shall be signed as follows:

(1) FOR A CORPORATION - by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(a) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation; or,

(b) The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

(2) FOR A PARTNERSHIP OR SOLE PROPRIETORSHIP - by a general partner or the proprietor, respectively.

(3) FOR A MUNICIPALITY, STATE, FEDERAL, OR OTHER PUBLIC AGENCY - by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(a) The chief executive officer of the agency, or

(b) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

b. ALL REPORTS required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described above;

(2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. A duly authorized representative may thus be either a named individual or an individual occupying a named position; and,

(3) The written authorization is submitted to the Director.

c. CERTIFICATION

Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

12. AVAILABILITY OF REPORTS

Except for applications, effluent data, permits, and other data specified in 40 CFR 122.7, any information submitted pursuant to this permit may be claimed as confidential by the submitter. If no claim is made at the time of submission, information may be made available to the public without further notice.

E. PENALTIES FOR VIOLATIONS OF PERMIT CONDITIONS

1. CRIMINAL

a. NEGLIGENT VIOLATIONS

The Act provides that any person who negligently violates permit conditions implementing Section 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than 1 year, or both.

b. KNOWING VIOLATIONS

The Act provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than 3 years, or both.

c. KNOWING ENDANGERMENT

The Act provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 303, 306, 307, 308, 318, or 405 of the Act and who knows at that time that he is placing another person in imminent danger of death or serious bodily injury is subject to a fine of not more than $250,000, or by imprisonment for not more than 15 years, or both.

d. FALSE STATEMENTS

The Act provides that any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under the Act or who knowingly falsifies, tampers with, or renders inaccurate, any monitoring device or method required to be maintained under the Act, shall upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment shall be by a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or by both. (See Section 309.c.4 of the Clean Water Act)

2. CIVIL PENALTIES

The Act provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a civil penalty not to exceed $27,500 per day for each violation.

3. ADMINISTRATIVE PENALTIES

The Act provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to an administrative penalty, as follows:

a. CLASS I PENALTY

Not to exceed $16,000 per violation nor shall the maximum amount exceed $37,500.

b. CLASS II PENALTY

Not to exceed $16,000 per day for each day during which the violation continues nor shall the maximum amount exceed $177,500.

F. DEFINITIONS

All definitions contained in Section 502 of the Act shall apply to this permit and are incorporated herein by reference. Unless otherwise specified in this permit, additional definitions of words or phrases used in this permit are as follows:

1. ACT means the Clean Water Act (33 U.S.C. 1251 et. seq.), as amended.

2. ADMINISTRATOR means the Administrator of the U.S. Environmental Protection Agency.

3. APPLICABLE EFFLUENT STANDARDS AND LIMITATIONS means all state and Federal effluent standards and limitations to which a discharge is subject under the Act, including, but not limited to, effluent limitations, standards or performance, toxic effluent standards and prohibitions, and pretreatment standards.

4. APPLICABLE WATER QUALITY STANDARDS means all water quality standards to which a discharge is subject under the Act.

5. BYPASS means the intentional diversion of waste streams from any portion of a treatment facility.

6. DAILY DISCHARGE means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in terms of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the sampling day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the sampling day. "Daily discharge" determination of concentration made using a composite sample shall be the concentration of the composite sample. When grab samples are used, the "daily discharge" determination of concentration shall be arithmetic average (weighted by flow value) of all samples collected during that sampling day.

7. DAILY MAXIMUM discharge limitation means the highest allowable "daily discharge" during the calendar month.

8. DIRECTOR means the U.S. Environmental Protection Agency Regional Administrator or an authorized representative.

9. ENVIRONMENTAL PROTECTION AGENCY means the U.S. Environmental Protection Agency.

10. GRAB SAMPLE means an individual sample collected in less than 15 minutes.

11. INDUSTRIAL USER means a nondomestic discharger, as identified in 40 CFR 403, introducing pollutants to a publicly owned treatment works.

12. MONTHLY AVERAGE (also known as DAILY AVERAGE) discharge limitations means the highest allowable average of "daily discharge(s)" over a calendar month, calculated as the sum of all "daily discharge(s)" measured during a calendar month divided by the number of "daily discharge(s)" measured during that month. When the permit establishes daily average concentration effluent limitations or conditions, the daily average concentration means the arithmetic average (weighted by flow) of all "daily discharge(s)" of concentration determined during the calendar month where C = daily concentration, F = daily flow, and n = number of daily samples; daily average discharge =

$$\frac{C_1F_1 + C_2F_2 + \ldots + C_nF_n}{F_1 + F_2 + \ldots + F_n}$$

13. NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of the Act.

14. SEVERE PROPERTY DAMAGE means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

15. SEWAGE SLUDGE means the solids, residues, and precipitates separated from or created in sewage by the unit processes of a publicly owned treatment works. Sewage as used in this definition means any wastes, including wastes from humans, households, commercial establishments, industries, and storm water runoff that are discharged to or otherwise enter a publicly owned treatment works.

16. TREATMENT WORKS means any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage and industrial wastes of a liquid nature to implement Section 201 of the Act, or necessary to recycle or reuse water at the most economical cost over the estimated life of the works, including intercepting sewers, sewage collection systems, pumping, power and other equipment, and their appurtenances, extension, improvement,

remodeling, additions, and alterations thereof.

17. UPSET means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

18. FOR FECAL COLIFORM BACTERIA, a sample consists of one effluent grab portion collected during a 24-hour period at peak loads.

19. The term "MGD" shall mean million gallons per day.

20. The term "mg/L" shall mean milligrams per liter or parts per million (ppm).

21. The term "µg/L" shall mean micrograms per liter or parts per billion (ppb).

22. MUNICIPAL TERMS

a. 7-DAY AVERAGE or WEEKLY AVERAGE, other than for fecal coliform bacteria, is the arithmetic mean of the daily values for all effluent samples collected during a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The 7-day average for fecal coliform bacteria is the geometric mean of the values for all effluent samples collected during a calendar week.

b. 30-DAY AVERAGE or MONTHLY AVERAGE, other than for fecal coliform bacteria, is the arithmetic mean of the daily values for all effluent samples collected during a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month. The 30-day average for fecal coliform bacteria is the geometric mean of the values for all effluent samples collected during a calendar month.

c. 24-HOUR COMPOSITE SAMPLE consists of a minimum of 12 effluent portions collected at equal time intervals over the 24-hour period and combined proportional to flow or a sample collected at frequent intervals proportional to flow over the 24-hour period.

d. 12-HOUR COMPOSITE SAMPLE consists of 12 effluent portions collected no closer together than one hour and composited according to flow. The daily sampling intervals shall include the highest flow periods.

e. 6-HOUR COMPOSITE SAMPLE consists of six effluent portions collected no closer together than one hour (with the first portion collected no earlier than 10:00 a.m.) and composited according to flow.

f. 3-HOUR COMPOSITE SAMPLE consists of three effluent portions collected no closer together than one hour (with the first portion collected no earlier than 10:00 a.m.) and composited according to flow.