ATTACHMENT 13

AIR POLLUTANT EMISSION NOTICE (APEN) APPLICATION

Form APCD-100

Colorado Department of Public Health and Environment Air Pollution Control Division



Oil & Gas Industry

Construction Permit Application Completeness Checklist

18	Consti	Ver. September 28, 2009	130	
Company	Name:	GreenBack Produced Water Recovery, LLC		
Source Na	ame:	Shaeffer Ranch Facility		
Date:		March 15, 2010	44 - 14 - 14 - 14 - 14 - 14 - 14 - 14 -	
Are you re	equesting a	facility wide permit for multiple emissions points?	Yes	No x
		mplete application, the following attachments must be provided, unle tion is incomplete, it will be returned to sender and filing fees will no		ded.
Attachment	,	Application Element	Applicant	APCD
A	APEN Fil		x	
В		ant Emission Notice(s) (APENs) & on(s) for Construction Permit(s) – APCD Form Series 200	x	
С	Emissions	Calculations and Supporting Documentation	x	
D	Company	Contact Information - Form APCD-101	x	
E	Ambient A	Air Impact Analysis		
	x C	heck here if source emits only VOC (Attachment E not required)		
F	Facility E	missions Inventory – Form APCD-102	х	
	C	heck here if single emissions point source (Attachment F not required)		
G	Process de facility	escription, flow diagram and plot plan of emissions unit and/or	x	
		heck here if single emissions point source (Attachment G not required)		
H	Operating	& Maintenance (O&M) Plan - APCD Form Series 300	x	
		heck here if true minor emissions source or application is for a general ermit (Attachment H not required)		
I	Regulator	y Analysis		
	2.5	heck here to request APCD to complete regulatory analysis Attachment I not required)		
J		Oil and Gas Conservation Commission (COGCC) 805 Series Rule ents—Form APCD-105		
		heck here if source is not subject to COGCC 805 Series requirements attachment J not required)		
	x if facility	APCD-SS-B1 4300 Cherry Creek Drive South Denver, Colorado 80246-1530 is an existing Title V source: Send an additional application cold modeling analysis included: Send an additional application cold	ру	

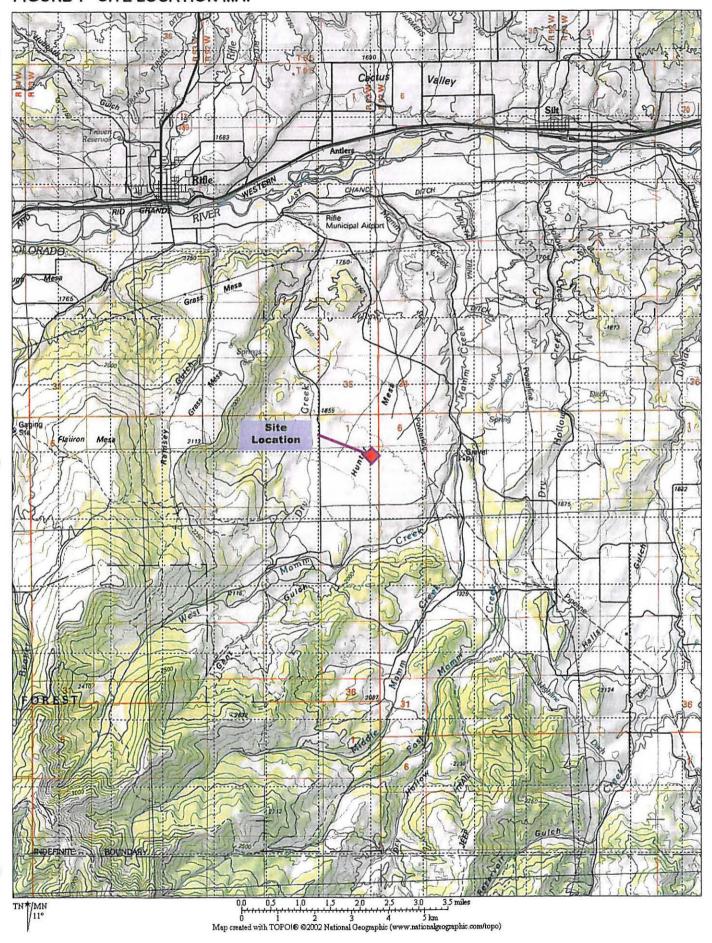
Air Pollution Control Division (APCD) - Construction Permit Application

PLEASE READ INSTRUCTIONS ON	REVERSE SIDE.	
1. Permit to be issued to:	GreenBack Produced Water Recovery, LLC	
2. Mailing Address:	1900 Grant Street, Suite 630	
	Denver, Colorado 80203	
3. General Nature of Business:	Commercial Produced Water Recycle Faci	lity
SIC code (if known)	Parameter Control of the Control of	
4. Air Pollution Source Description:	Multiple Emission Sources	
(List permit numbers if existing source,		
attach additional pages if needed)	Is this	a Portable Unit? Yes (No)
5. Source Location Address (Include Lo	cation Map) If portable, include the initial lo	
and the second s	W, Garfield County, Colorado	
11 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3		and the second s
6. Reason for Application: (Check all the	at apply)	
New or Previously Unreported S		lmonts
Modification of Existing Source		nip (Complete Section 9 & 10 below)
Request for Synthetic Minor Per		ange (Complete Section 9 below)
Other:	Other:	
7. Projected Startup Date: Anticipa	ted 10/2010	
AL AL.		03/17/2010
Signature of Legally Authorized Person	on of Company listed in Section 1	Date Signed
Jory Adams, C	hief Operations OFFICER	Phone: 970 493 - 7780 Fax: 976 493 7586
Type or Print Name and Official Title	e of Person Signing Above	Fax: 976 493 7586
8. Check appropriate box if you want:		
Copy of preliminary analysis co	nducted by Division	
To review a draft of the permit		
	if a company name change or transfer of ownership	has occurred
9. Permit previously issued to:	y a company name change or name, or of ownersmy	,
10. Transfer of Ownership Information Effective Date of Permit Transfer:		
	source(s) listed above, I certify that the business asso	ociated with this source has been
sold, and agree to transfer the permit	to said party.	
Simple of the state of the stat		Date Signed
Signature of Legally Authorized Pers	on of Company listed in Section 9	
		Phone:
Type or Print Name and Official Title	e of Person Signing Above	Fax:

Mail completed application, APENs, and filing fee to:

Colorado Department of Public Health and Environment Air Pollution Control Division 4300 Cherry Creek Drive South, APCD-SS-B1 Denver, Colorado 80246-1530 http://www.cdphe.state.co.us/ap/stationary.html Phone: (303) 692-3150

FIGURE 1 - SITE LOCATION MAP



ATTACHMENT A APEN FILING FEES

ATTACHMENT B

APCD FORMS SERIES 200

AIR POLLUTANT EMISSION NOTICE (APEN Application for Construction Permit - General **Permit Number:** [Leave blank unless APCD has already assigned a permit # & AIRS ID] **Emission Source AIRS ID:** Facility Equipment ID: ID #1 Concrete Sump [Provide Facility Equipment ID to identify how this equipment is referenced within your organization.] Section 01 - Administrative Information Section 02 – Requested Action (check applicable request boxes) Company Name: GreenBack Produced Water Recovery, LLC Request for NEW permit or newly reported emission source NAICS, or SIC Code: Source Name: Shaffer Ranch Facility Request PORTABLE source permit Source Location: NE1/4, NE1/4, S12, T7S, R93W County: Garfield Request MODIFICATION to existing permit (check each box below that applies) Elevation: 6.120 Feet Change fuel or equipment Change company name Portable Source Change permit limit Transfer of ownership Other Home Base: Request to limit HAPs with a Federally enforceable limit on PTE 1900 Grant Street, Suite 630 ZIP Code: 80203 Mailing Address: Request APEN update only (check the box below that applies) Revision to actual calendar year emissions for emission inventory Denver, Colorado Update 5-Year APEN term without change to permit limits or previously Person To Contact: Daniel Packard Phone Number: 303-887-8387 reported emissions E-mail Address: DanPackard@aol.com Fax Number: 303-318-9659 Additional Info. & 950 BBL Cast in Place Concrete Sump Notes: Section 03 – General Information For existing sources, operation began on: For new or reconstructed sources, the projected startup date is: 11 / 1 / 2010 Normal Hours of Source Operation: hours/day 7 days/week 52 weeks/year General description of equipment and purpose: Commercial produced water treatment, storage and recycling facility. Will this equipment be operated in any NAAQS nonattainment area? Don't No Colorado Department of Public Health and Environment (http://www.cdphe.state.co.us/ap/attainmaintain.html) know Air Pollution Control Division (APCD) Section 04 – Processing/Manufacturing Equipment Information & Material Use This notice is valid for five (5) years. Submit a revised APEN prior to expiration of five-year term, or when a significant change is made Description of equipment¹: (increase production, new equipment, change in fuel type, etc). Model No .: Serial No .: Manufacturer: Mail this form along with a check for \$152.90 to: Colorado Department of Public Health & Environment Annual Requested Permitted Level² Actual Level Design Process Rate Description APCD-SS-B1 (For Data Year) (Specify Units) (Specify Units/Hour) 4300 Cherry Creek Drive South Denver, CO 80246-1530 Raw For guidance on how to complete this APEN form: Materials: Air Pollution Control Division: (303) 692-3150 Small Business Assistance Program (SBAP): (303) 692-3148 or Finished (303) 692-3175 Products: APEN forms: http://www.cdphe.state.co.us/ap/downloadforms.html

FORM APCD-200

Other Process:

Application status: http://www.cdphe.state.co.us/ap/ss/sspcpt.html

Check box to request copy of draft permit prior to issuance.

Check box to request copy of draft permit prior to public notice.

¹If additional space is required, please attach a separate list of equipment, materials and throughputs.

²Requested values will become permit limitations. Requested level should consider process growth over the next five years.

Application for Construction Permit - General AIR POLLUTANT EMISSION NOTICE (APEN Emission Source AIRS ID: / Permit Number: Section 05 - Emission Release Information (Attach a separate sheet with relevant information in the event of multiple releases; provide datum & either Lat/Long or UTM) Discharge Height Horizontal Datum UTM UTM Easting or UTM Northing or Moisture Method of Collection for Location Temp. Flow Rate Velocity (NAD27, NAD83, Zone Longitude Latitude Above Ground (°F) (ACFM) (ft/sec) (%) Data (e.g. map, GPS, GoogleEarth) Level (Feet) WGS84) (12 or 13) (meters or degrees) (meters or degrees) -107.715334 39.466811 Topo Map Program 0 ☐ Horizontal ☐ Down Other (Describe): ☐ Vertical ☐ Vertical with obstructing raincap Direction of outlet (check one): **Fugitive** Exhaust Opening Shape & Size (check one): ☐ Circular: Inner Diameter (inches) = Other: Length (inches) = Width (inches) = Section 06 - Combustion Equipment & Fuel Consumption Information Company equipment Identification No.: Serial No .: Manufacturer: Model: Annual Requested Permitted Level² Fuel Heating Value (Indicate: Percent by Weight Seasonal Fuel Use (% of Annual Use) Design Input Rate Actual Level (106 Btu/hr) (For Data Year) (Specify Units) Btu/lb, Btu/gal, Btu/SCF) Sulfur Mar-May Ash Dec-Feb Jun-Aug Sep-Nov

Section 07 – Emissions Inventory Information & Emission Control Information

Attach any emission calculations and emission factor documentation to this APEN form.

Operator

Stack

ID No.

Sump

ID#1

Fuel Type

Base

Elevation

(feet)

6,120

D-10-2-2	Control Devi	ce Description	Overall Collection	Control Efficiency	Emission 1	Factor	Actual Cale Emiss	CANDADA SALLE BOOK OF CHARGE THE A	Requested Permitted Emissions ⁴		Estimation Method or
Pollutant	Primary	Secondary	Efficiency	(% Reduction)	Uncontrolled Basis	Units	Uncontrolled (Tons/Year)	Controlled (Tons/Year)	Uncontrolled (Tons/Year)	Controlled (Tons/Year)	Emission Factor Source
TSP											
PM ₁₀											
PM _{2.5}											
SO _X											
NO _X											
VOC					5.02	TPY			5.52		Water 9
СО											

VOC	5.02	TPY	5,52	Water 9
CO				
Plea	se use the APCD Non-Criteria Reportable Air Po	ollutant Addendum form to report polluta	ants not listed above.	
⁴ If Requested Permitted Emissions is left bl	ual emissions reported here. If left blank, annual emission lank, the APCD will calculate emissions based on the info reby certify that all information contained land.	rmation supplied in sections 03 - 07.	h this application is complete, tru	ne and correct.
Signature of Person Legally Authorized to S	3/17/2010	Name of Legally Authorized Perso	us <u>C</u> 0	
5 /	P	age 2 of 3	FormAPCD-2	200-GeneralAPEN-Sump.doc

²Requested values will become permit limitations. Requested level should consider process growth over the next five years.

ON-CRITERIA REPORTABLE AIR POL JTANT EMISSION NOTICE ADDENDUM

(See reverse side for guidance on completing this form)

Permit Numbe	p.					AIRS ID Number:					
Company Name		GreenBack Pro	duced Wat	er Recovery, LLC		All	10 11				
Plant Location:		NE1/4, NE1/4,				County:	Gar	field 7i	p Code:		
			312, 173, 1	X03VV		_			0 Code.		
Person to Conta		Joby Adams						-493-7780			
E-mail Address	:	Joby@cgrs.com	<u>m</u>		Fax	Number:	970	-493-7986			
Chemical Abstract Service (CAS) Number	C	Chemical Name	Reporting BIN	Control Equipment / Reduction (%)	Emission Factor (Include Units)	Emissior Factor Sou	2	Uncontrolled Actual Emissions (lbs/year			
71-43-2	Ben	zene	Α		0.0024 g/s	Water 9	9	155			
100-88-3	Tolu	iene	С		0.0181 g/s	Water 9	9	1,168			
100-41-4	Ethy	yl-benzene	С		0.0022 g/s	Water 9	9	142			
1330-20-7	Xyle	ene	С		0.0289 g/s	Water 9	9	1,865			
110-54-3	Hex	ane	С		_						
67-56-1	Met	hanol	С		0.0003 g/s	Water 9		19			
98-82-8	Cur	nene	Α		0.0003 g/s	Water 9		19			
	i i										
est and											
		a substant a									
								100			
Reporting Scer	nario	(1, 2 or 3): 1			Calendar Yea	r for which	Actu	ual Data Applies:			
AL	A	lu				March 1	17, 2	010			
Signature of Pe	rson	Legally Authoriz	zed to Supp	ly Data	Date						
Jobs	1 17	Jel wans				C	00				
Name of Person Legally Authorized to Supply Data (Please print)							Title of Person Legally Authorized to Supply Data				

Form Revision Date: December 4, 2006

Application for Construction Permit - General AIR POLLUTANT EMISSION NOTICE (APEN **Permit Number:** [Leave blank unless APCD has already assigned a permit # & AIRS ID] **Emission Source AIRS ID:** Facility Equipment ID: ID #3 DAF [Provide Facility Equipment ID to identify how this equipment is referenced within your organization.] Section 01 - Administrative Information Section 02 – Requested Action (check applicable request boxes) Company Name: GreenBack Produced Water Recovery, LLC Request for NEW permit or newly reported emission source NAICS, or SIC Code: Source Name: Shaffer Ranch Facility Request PORTABLE source permit NE1/4, NE1/4, S12, T7S, R93W Garfield Request MODIFICATION to existing permit (check each box below that applies) Source Location: County: Elevation: 6,120 Feet Change fuel or equipment Change company name Portable Source Change permit limit Other Transfer of ownership Home Base: Request to limit HAPs with a Federally enforceable limit on PTE ZIP Code: Mailing Address: 1900 Grant Street, Suite 630 80203 Request APEN update only (check the box below that applies) Denver, Colorado Revision to actual calendar year emissions for emission inventory Update 5-Year APEN term without change to permit limits or previously Person To Contact: Daniel Packard Phone Number: 303-887-8387 reported emissions E-mail Address: DanPackard@aol.com Fax Number: 303-318-9659 Additional Info. & Custom Built Dissolved Air Flotaton Unit by Palmer of Texas Notes: Section 03 - General Information For existing sources, operation began on: For new or reconstructed sources, the projected startup date is: 11 / 1 / 2010 Normal Hours of Source Operation: hours/day 7 days/week 52 weeks/year General description of equipment and purpose: Commercial produced water treatment, storage and recycling facility. Will this equipment be operated in any NAAQS nonattainment area? Don't Yes No Colorado Department of Public Health and Environment (http://www.cdphe.state.co.us/ap/attainmaintain.html) know Air Pollution Control Division (APCD) Section 04 – Processing/Manufacturing Equipment Information & Material Use This notice is valid for five (5) years. Submit a revised APEN prior to expiration of five-year term, or when a significant change is made Description of equipment¹: (increase production, new equipment, change in fuel type, etc). Manufacturer: Model No .: Serial No .: Mail this form along with a check for \$152.90 to: Colorado Department of Public Health & Environment APCD-SS-B1 4300 Cherry Creek Drive South Denver, CO 80246-1530

5°	Description	Actual Level (For Data Year)	Annual Requested Permitted Level ² (Specify Units)	Design Process Rate (Specify Units/Hour)
Raw Materials:				
Finished Products:				
Other Process:				

^{&#}x27;If additional space is required, please attach a separate list of equipment, materials and throughputs.

For guidance on how to complete this APEN form:

Air Pollution Control Division:

(303) 692-3150 (303) 692-3148 or

Small Business Assistance Program (SBAP):

(303) 692-3175 APEN forms: http://www.cdphe.state.co.us/ap/downloadforms.html

Application status: http://www.cdphe.state.co.us/ap/ss/sspcpt.html

☐ Check box to request copy of draft permit prior to issuance.

Check box to request copy of draft permit prior to public notice.

²Requested values will become permit limitations. Requested level should consider process growth over the next five years.

AIR POLLUTANT EMISSION NOTICE (APEN Application for Construction Permit – General

Section 05 –		mit Numbe	er:				evant inform		ion Source	AIRS ID: _		<i>I</i>	/Lat/Long o	r UTM)	
Operator Stack ID No.	Base Elevation (feet)	Discharge Hei Above Grour Level (Feet)	nd le		w Rate CFM)	Velocity (ft/sec)	Moisture (%)	Horizontal Datum (NAD27, NAD83, WGS84)	UTM Zone (12 or 13)	UTM Easting of Longitude (meters or degree		TM Northing of Latitude leters or degree	Data (e.	of Collection g. map, GPS, G	THE STATE OF STREET STREET, ST. P. LEWIS CO., LANSING, MICH. LANSI
DAF ID#3	6,120	20	5	55	15	172	95			-107.715334	1	39.466811	To	po Map Pro	ogram
Direction of o Exhaust Open Section 06 —	ning Shape &	Size (check or	ne): 🛛	Circular: I	nner Dia	meter (inches	structing rainces) = 4	eap 🛚 Hor	izontal Other: Lengt	Down h (inches) =		Other (Desc Width (inch			
Company equ	iipment Ident	ification No.:		1	Manufact	urer:		M	lodel:			Serial	No.:		4.7
ea laca xindan	Design	Input Rate	Actual	Level	Annual	Requested P	ermitted Lev	el ² Fuel Heating	Value (Indicate	e: Percent by	Weight	Season	nal Fuel Use	(% of Annu	al Use)
Fuel Type	(10 ⁶)	Btu/hr)	(For Dat		7 Milliaut	(Specify I			gal, Btu/SCF)	Sulfur	Ash	Dec-Feb	Mar-May	Jun-Aug	Sep-Nov
		-				-		ne next five years.							
	mission calcu	nventory Intallations and emi amentation attac	ission fact	tor document	ation to t	his APEN fo	rm.	below & throughput	above (e.g. 200°	7): Est.					
	Contro	Device Descr	iption	Overall		ontrol	Emis	ssion Factor		Calendar Year missions ³			d Permitted ssions ⁴	THE RESERVE AND ADDRESS OF THE PARTY OF THE	timation ethod or
Pollutant	Primar	y Seco	ondary	- Collection Efficiency		iciency eduction)	Uncontrolle Basis	ed Units	Uncontrolle (Tons/Year	ed Controll		ncontrolled Fons/Year)	Controlle (Tons/Ye	ed Emis	sion Factor Source
TSP															
PM ₁₀															
PM _{2.5}															
SO_X															
NO _X															
VOC	RTO			95		99	62.62	Mg/yr		63			69	1	Water 9
СО															
4 If R Section 08 –	Applicant C	tted Emissions is	on actual en eleft blank, · I hereby	missions repor , the APCD wi y certify th	ted here. I calculate at all in	If left blank, a emissions ba formation	nnual emission sed on the infor	ollutant Addendum fees will be based on rmation supplied in seconderein and inform Name of Legi	requested emiss tions 03 - 07.	ions.	s applic	ation is con	000	and corre	ect.
Signature of	Person Lega	lly Authorize	d to Supp	oly Data]	Daté		Name of Lega	ally Authbriz	ed Person (Ple	ease pri	nt)	Title		

ON-CRITERIA REPORTABLE AIR POL JTANT EMISSION NOTICE ADDENDUM

(See reverse side for guidance on completing this form)

Permit Numbe	r:				AIRS ID Number:					
Company Name	e:	GreenBack Pro	duced Wat	er Recovery, LLC				-		
Plant Location:		NE1/4, NE1/4,	S12, T7S, I	R63W		County:	Garl	field Zip	Code:	
Person to Conta	act:	Joby Adams		200	Phone	Number:	970-	-493-7780	O-14-00-00-00-00-00-00-00-00-00-00-00-00-00	
E-mail Address	:	Joby@cgrs.cor	<u>m</u>		Fax	Number: _	970-	-493-7986		
Chemical Abstract Service (CAS) Number	C	Chemical Name	Reporting BIN	Control Equipment / Reduction (%)	Emission Factor (Include Units)	Emission Factor Sour		Uncontrolled Actual Emissions (lbs/year)	Controlled Actual Emissions (lbs/year)	
71-43-2	Ben	zene	Α	RTO/95	0.0156 g/s	Water 9)	1085	54.25	
100-88-3	Tolu	iene	С	RTO/95	0.0685 g/s	Water 9)	476	23.8	
100-41-4	Ethy	/l-benzene	С	RTO/95	0.0332 g/s	Water 9)	2308	115.4	
1330-20-7	Xyle	ene	С	RTO/95	0.115 g/s	Water 9	9	7995	7595	
110-54-3	Hex	ane	С		0.0707 g/s	Water 9		4915	246	
67-56-1	Met	hanol	С	RTO/95	0.001 g/s	Water 9		70	3.5	
98-82-8	Cun	nene	Α	RTO/95	0.0003 g/s	Water 9)	21	1	
			6/02							
				3.18						

			- Inprinte					T-74-W-0		
								The state of the s		
Reporting Scen	nario	(1, 2 or 3):1			Calendar Yea	r for which	Actu	al Data Applies:		
Al	1	lan			March 17, 2010					
Signature of Pe	erson	Legally Authoriz	ed to Supp	ly Data	Date					
	ohen	Admis				C00				
Name of Person	n Leg	gally Authorized	to Supply D		Title of Person Legally Authorized to Supply Data					

Form Revision Date: December 4, 2006

AIR POLLUTANT EMISSION NOTICE (APEN ': Application for Construction Permit – General **Emission Source AIRS ID:** Permit Number: [Leave blank unless APCD has already assigned a permit # & AIRS ID] Facility Equipment ID: ID #4 Air Stripper [Provide Facility Equipment ID to identify how this equipment is referenced within your organization.] Section 02 – Requested Action (check applicable request boxes) Section 01 – Administrative Information Company Name: GreenBack Produced Water Recovery, LLC Request for NEW permit or newly reported emission source NAICS, or SIC Code: Source Name: Shaffer Ranch Facility Request PORTABLE source permit Source Location: NE1/4, NE1/4, S12, T7S, R93W County: Garfield Request MODIFICATION to existing permit (check each box below that applies) Change fuel or equipment Elevation: 6,120 Feet Change company name Portable Source Other Change permit limit Transfer of ownership Home Base: Request to limit HAPs with a Federally enforceable limit on PTE ZIP Code: 80203 Request APEN update only (check the box below that applies) Mailing Address: 1900 Grant Street, Suite 630 Revision to actual calendar year emissions for emission inventory Denver, Colorado Update 5-Year APEN term without change to permit limits or previously Person To Contact: Daniel Packard Phone Number: 303-887-8387 reported emissions E-mail Address: DanPackard@aol.com Fax Number: 303-318-9659 Additional Info. & Carbonair Stat 400 Air Stripper Notes: Section 03 - General Information For new or reconstructed sources, the projected startup date is: 11 / 1 / 2010 For existing sources, operation began on: hours/day 7 days/week weeks/year Normal Hours of Source Operation: 52 General description of equipment and purpose: Commercial produced water treatment, storage and recycling facility. Will this equipment be operated in any NAAOS nonattainment area? Don't No Colorado Department of Public Health and Environment (http://www.cdphe.state.co.us/ap/attainmaintain.html) Air Pollution Control Division (APCD) Section 04 – Processing/Manufacturing Equipment Information & Material Use This notice is valid for five (5) years. Submit a revised APEN prior to expiration of five-year term, or when a significant change is made Description of equipment¹: (increase production, new equipment, change in fuel type, etc). Serial No .: Manufacturer: Model No.: Mail this form along with a check for \$152.90 to: Colorado Department of Public Health & Environment Annual Requested Permitted Level² Design Process Rate Actual Level APCD-SS-B1 Description (Specify Units) (Specify Units/Hour) (For Data Year) 4300 Cherry Creek Drive South Denver, CO 80246-1530 Raw For guidance on how to complete this APEN form: Materials: Air Pollution Control Division: (303) 692-3150 Small Business Assistance Program (SBAP): (303) 692-3148 or (303) 692-3175 Finished APEN forms: http://www.cdphe.state.co.us/ap/downloadforms.html Products: Application status: http://www.cdphe.state.co.us/ap/ss/sspcpt.html Other Process: ¹If additional space is required, please attach a separate list of equipment, materials and throughputs. Check box to request copy of draft permit prior to issuance. ²Requested values will become permit limitations. Requested level should consider process growth over the next five years.

FORM APCD-200

Check box to request copy of draft permit prior to public notice.

AIR POLLUTANT EMISSION NOTICE (APEN Application for Construction Permit – General Emission Source AIRS ID: / Permit Number: Section 05 - Emission Release Information (Attach a separate sheet with relevant information in the event of multiple releases; provide datum & either Lat/Long or UTM) UTM Operator Base Discharge Height Horizontal Datum UTM Easting or UTM Northing or Moisture Method of Collection for Location Temp. Flow Rate Velocity (NAD27, NAD83, Longitude Latitude Stack Elevation Above Ground Zone Data (e.g. map, GPS, GoogleEarth) (ft/sec) (%) (°F) (ACFM) (meters or degrees) WGS84) (meters or degrees) ID No. (feet) Level (Feet) (12 or 13) -107.715334 39,466811 Topo Map Program 45 95 AS ID#4 6,120 20 55 2,100 Vertical ☐ Vertical with obstructing raincap ☐ Down Other (Describe): Direction of outlet (check one): Width (inches) = ☐ Circular: Inner Diameter (inches) = 12 Other: Length (inches) = Exhaust Opening Shape & Size (check one): Section 06 – Combustion Equipment & Fuel Consumption Information Serial No.: Manufacturer: Model: Company equipment Identification No.: Annual Requested Permitted Level² Fuel Heating Value (Indicate: Percent by Weight Seasonal Fuel Use (% of Annual Use) Design Input Rate Actual Level Fuel Type (106 Btu/hr) (Specify Units) Btu/lb, Btu/gal, Btu/SCF) Sulfur (For Data Year) Dec-Feb Mar-May Jun-Aug Sep-Nov ²Requested values will become permit limitations. Requested level should consider process growth over the next five years. Section 07 - Emissions Inventory Information & Emission Control Information Attach any emission calculations and emission factor documentation to this APEN form. Data year for actual calendar yr. emissions below & throughput above (e.g. 2007): **Emission Factor Documentation attached** Actual Calendar Year Requested Permitted Estimation Control Device Description Overall Control **Emission Factor** Emissions⁴ Emissions³ Method or Collection Efficiency **Pollutant** Uncontrolled Uncontrolled Controlled Uncontrolled Controlled **Emission Factor** (% Reduction) Secondary Efficiency Units Primary Basis (Tons/Year) (Tons/Year) (Tons/Year) (Tons/Year) Source TSP PM_{10} $PM_{2.5}$ SO_X NO_{x} VOC **RTO** 95 115 tons/yr 115 127 Stat Calcs CO Please use the APCD Non-Criteria Reportable Air Pollutant Addendum form to report pollutants not listed above. Annual emission fees will be based on actual emissions reported here. If left blank, annual emission fees will be based on requested emissions. ⁴ If Requested Permitted Emissions is left blank, the APCD will calculate emissions based on the information supplied in sections 03 - 07. Section 08 - Applicant Certification - I hereby certify that all information contained herein and information submitted with this application is complete, true and correct.

Date Name of Legally Authorized Person (Please print)

Title

Signature of Person Legally Authorized to Supply Data

ON-CRITERIA REPORTABLE AIR POL JTANT EMISSION NOTICE ADDENDUN

(See reverse side for guidance on completing this form)

Permit Numbe	r:				AIRS ID Number:					
Company Name	e:	GreenBack Pro	oduced Wat	ter Recovery, LLC						
Plant Location:		NE1/4, NE1/4,	S12, T7S,	R63W		County:	Gar	field Zip C	Code:	
Person to Conta	act:	Joby Adams			Phone	Number:	970	-493-7780		
E-mail Address	•	Joby@cgrs.com	<u>m</u>		Fax	Number:	970	-493-7986		
Chemical Abstract Service (CAS) Number	C	Chemical Name	Reporting BIN	Control Equipment / Reduction (%)	Emission Factor (Include Units)	Emission Factor Sou	×.	Uncontrolled Actual Emissions (lbs/year)	Controlled Actual Emissions (lbs/year)	
71-43-2	Ben	zene	Α	RTO/95	5140 lbs/yr	Stat Mod	lel	5140 lbs/yr	257	
100-88-3	Tolu	iene	С	RTO/95	20,240 lbs/yr	Stat Mod	lel	20,240 lbs/yr	1012	
100-41-4	Ethy	yl-benzene	С	RTO/95	3620 lbs/yr	Stat Mod	lel	3620 lbs/yr	181	
1330-20-7	Xyle	ene	С	RTO/95	26,780 lbs/yr	Stat Mod	lel	26,780 lbs/yr	1339	
110-54-3	Hex	ane	С	RTO/95	1,465 lbs/yr	Stat Mod	lel	1,465 lbs/yr	73	
67-56-1	Met	hanol	С	RTO/95	634 lbs/yr	Stat Mod	lel	634 lbs/yr	32	
Reporting Scer	nario [L	(1, 2 or 3): <u>1</u>			Calendar Yea	r for which March 1		ual Data Applies:		
Signature of Pe	erson	Legally Authoriz	zed to Supr	oly Data	- J 1	Date				
	<i></i>	oby Alam				COO				
Name of Perso	7	gally Authorized		Title of Person Legally Authorized to Supply Data						

Form Revision Date: December 4, 2006

	AIR	POLLUTANT I	EMISSIO	N NOTIO	CE (APE)	N, A	Applic	cation	n for C	onstruction Per	rmit – <u>General</u>			
Permit Numbe	r:	[Le	eave blank unle	ss APCD has	already assign	ed a perm	it#&A	IRS ID]	F	Emission Source	AIRS ID: /		1	
Facility Equipme	ent ID: ID #6 Tre	at Tank	[Provide F	Facility Equip	ment ID to ider	ntify how	this equi	pment is	s reference	d within your organizat	ion.]	,		-
Section 01 – Adı	ministrative Inform	nation_					Secti	on 02	– Reque	ested Action (check	k applicable request b	oxes)		
Company Name	: GreenBack Prod	uced Water Recovery	, LLC	NAICS, or			\boxtimes	Requ	uest for N	EW permit or newl	ly reported emission sour	ce		
Source Name	Shaffer Ranch Fa	acility		SIC Code:				Requ	uest POR	TABLE source peri	mit			
Source Location	: NE1/4, NE1/4, S1	2, T7S, R93W		County:	Garfield			Requ	uest MOI	DIFICATION to exi	sting permit (check each	box below	that applie	es)
				Elevation:	6,120	Feet			Change	e fuel or equipment	☐ Change compar	ny name		
Portable Source Home Base									Change	e permit limit	☐ Transfer of own	nership	□ Ot	ther
	-	No. of Contract of District						Requ	uest to lin	nit HAPs with a Fed	lerally enforceable limit	on PTE		
Mailing Address	: 1900 Grant Stree	t, Suite 630		ZIP Code:	80203			Requ	uest APE	N update only (chec	k the box below that app	lies)		
	Denver, Colorado	0								THE PARTY OF THE P	year emissions for emission	300120000000000000000000000000000000000		
Person To Contact	: Daniel Packard		Phone Nu	umber: 30	3-887-8387					e 5-Year APEN term ed emissions	without change to permit l	imits or pre	viously	
E-mail Address	: DanPackard@ao	l.com	- Fax Nu	umber: 30	3-318-9659		Add	itional						
			_				Info.	. &	400 BI	BL Heated Oil Tank				
Section 03 - Ger	neral Information						Note	s:						
For existing source	s, operation began on	: 1	1				Fo	or new o	or reconst	ructed sources, the pr	rojected startup date is:	11 / 1	/ 20	010
Normal Hours of S	0. 08/1 (.00)		nours/day	7 days/	week 52	2 wee				•	•	20		
General description	of equipment and pu	rpose: Comme	rcial produc	ed water tre	eatment, stor	rage and	recycli	ing fac	ility.					
Will this equipmen	t be operated in any N	JAAQS nonattainment	area?		v 5	7 N.		Don'	`t					7
	state.co.us/ap/attainm				Yes 🗅	No	Ц	knov	v		partment of Public Heal Pollution Control Divisi		ironment	
Section 04 - Pro	cessing/Manufactu	iring Equipment In	formation &	& Materia	l Use					This notice is valid	d for five (5) years. Subm	it a revised	APEN prior	r to
Description of eq	uipment ¹ :										e-year term, or when a si on, new equipment, chang			ade
Manufacturer:		Model No.:			Serial No.:						ong with a check for \$15.		c, etc).	
		Actual Level	Annual De	quested Derr	mitted Level ²	De	sign Pr	ocess P	Pate	Colorado Depart	ment of Public Health &		ent	
	Description	(For Data Year)		Specify Uni			ecify U			APCD-SS-B1 4300 Cherry Cre	ak Drive South			
							twoes - bo			Denver, CO 8024				
Raw Materials:											ow to complete this APEN			
										Air Pollution Con	trol Division: ssistance Program (SBAP)		692-3150 692-3148 o)r
Finished										1000 1000 1000 1000 1000 1000 1000 100		(303)	692-3175	
Products:											://www.cdphe.state.co.us/			1
Other Process:										Application status	: http://www.cdphe.state.c	o.us/ap/ss/ss	spept.html	
	62 125%	ttach a separate list of equ	0.50		70.70					7717007 12707 12717	request copy of draft perm			
*Requested value	ies will become permit l	imitations. Requested lev	el should consi	ider process g	rowth over the	next five	years.			Check box to	request copy of draft perm	it prior to pr	ublic notice	ð.

FORM APCD-200

		AIR PO	OLLUI	CANT EN	MISSIO	N NOT	ICE (APE	N, Applica	tion for C	onstructio	n Pern	nit – <u>Gene</u>	eral		
	Per	mit Numbe	r:					Emissi	on Source	AIRS ID:		1	/		
Section 05 –	Emission R	elease Inforn	nation (A	Attach a sep	arate shee	et with rele	evant informa	ation in the event	of multiple 1	releases; prov	ide datu	ım & either	Lat/Long o	r UTM)	
Operator Stack ID No.	Base Elevation (feet)	Discharge Heig Above Groun Level (Feet)	d (°		w Rate CFM)	Velocity (ft/sec)	Moisture (%)	Horizontal Datum (NAD27, NAD83, WGS84)	UTM Zone (12 or 13)	UTM Easting Longitude (meters or degr		JTM Northing of Latitude neters or degree	Data (e.c	of Collection g. map, GPS, C	
Tank ID #6	6,120	24	amb	oient	0	0	0			-107.71533	4	39.466811	То	po Map Pro	gram
Direction of o	outlet (check	one):	⊠ Vei	rtical	☐ Vertic	al with obs	tructing rainca	p 🗌 Hori	izontal	☐ Down		Other (Des	cribe): Fu	gitive	
Exhaust Oper	ning Shape &	Size (check on	e): 🛚	Circular: I	nner Diam	eter (inches	s) =	_ □	Other: Lengt	h (inches) =		Width (incl	nes) =		
Section 06 –	Combustion	1 Equipment	& Fuel	Consumpt	ion Infor	mation									
Company equ	uipment Ident	fication No.:	-99]	Manufactur	rer:		M	odel:			Serial	No.:		1000
Fuel Type	Design 1	nput Rate	Actual	Level	Annual R	equested P	ermitted Level	Fuel Heating	Value (Indicate	e: Percent by	Weight	Seaso	nal Fuel Use	(% of Annua	ıl Use)
ruei Type	(10 ⁶	Btu/hr)	(For Data	a Year)		(Specify U	Jnits)	Btu/lb, Btu/g	gal, Btu/SCF)	Sulfur	Ash	Dec-Feb	Mar-May	Jun-Aug	Sep-Nov
		come permit limit													
Section 07 – Attach any e	Emissions I	nventory Inflations and emis	ormation	n & Emissi or document	ion Contration to thi	ol Inform	nation rm.	elow & throughput a	above (e.g. 2007	7): Est.					
Dallatant	Control	Device Descri	ption	Overall		ntrol	Emiss	ion Factor		Calendar Year missions ³			d Permitted ssions ⁴		timation ethod or
Pollutant	Primar	y Seco	ondary	Collection Efficiency		duction)	Uncontrolled Basis	Units	Uncontrolle (Tons/Year			Incontrolled Tons/Year)	Controlle (Tons/Yea		sion Factor Source
TSP															
PM ₁₀															
PM _{2.5}															
SO _X							.,								
NO _X															
VOC			- W- W-1				1.69	Mg/yr	1.86			2		'	Vater 9
СО															
³ Ann ⁴ If R	nual emission fe equested Permit	es will be based o	n actual en	nissions repor	ted here. If	left blank, ar	nnual emission f	lutant Addendum ees will be based on r nation supplied in sec	equested emiss		ot listed	l above.			
Section 08 –	Applicant C	ertification -	I hereby	certify th	at all info	rmation	contained he	erein and inform	ation submi	itted with thi	s applic	cation is con	nplete, true	and corre	ct.
	Men.	Ll.				3/17/	2010		Taba	Adams			000		
Signature of	Person Lega	ly Authorized	l to Supp	ly Data				Name of Lega	Ily Authoriz	ed Person (Pl	ease pri	nt)	Title		

'ON-CRITERIA REPORTABLE AIR POL' JTANT EMISSION NOTICE ADDENDUM

(See reverse side for guidance on completing this form)

Permit Numbe	r:					AIRS ID Number:					
Company Name	e:	GreenBack Pro	oduced Wat	er Recovery, LLC				-			
Plant Location:		NE1/4, NE1/4,	S12, T7S, I	R63W		County:	Gai	rfield Zi	p Code:		
Person to Cont	act:	Joby Adams		- Waste	Phone	Number:	970	0-493-7780			
E-mail Address	:	Joby@cgrs.com	<u>m</u>		Fax	Number:	970)-493-7986	-		
Chemical Abstract Service (CAS) Number	C	chemical Name	Reporting BIN	Control Equipment / Reduction (%)	Emission Factor (Include Units)	Emissio Factor Sou		Uncontrolled Actu Emissions (lbs/yea			
71-43-2	Ben	zene	Α		0.012 g/s	Water	9	779			
00-88-3 Toluene			С		0.007 g/s	Water	9	1530			
100-41-4 Ethyl-benzene			С		0.0018 g/s	Water	9	125			
1330-20-7	Xyle	ene	С		0.0094 g/s	Water 9		654			
110-54-3	Hex	ane	С			Water 9		De minimis			
67-56-1	Met	hanol	С			Water 9		De minimis			
98-82-8	Cun	nene	Α		0.0002	Water 9		14			
Reporting Scen	ario	(1, 2 or 3):1			Calendar Yea	r for which	Actu	ual Data Applies:			
Al	$\supset \#$	the				March '	17, 2	2010			
Signature of Pe	erson	Legally Authoriz	zed to Supp	ly Data		Date					
\circ	Job.	y Adams				<u></u>					
Name of Person Legally Authorized to Supply Data (Please print)							Title of Person Legally Authorized to Supply Data				

Form Revision Date: December 4, 2006

AIR POLLUTANT EMISSION NOTICE (APEN) Application for Construction Permit – General Permit Number: [Leave blank unless APCD has already assigned a permit # & AIRS ID] Emission Source AIRS ID: / Facility Equipment ID: ID #7 Sales Tank [Provide Facility Equipment ID to identify how this equipment is referenced within your organization.] Section 01 – Administrative Information Section 02 – Requested Action (check applicable request boxes) Company Name: GreenBack Produced Water Recovery, LLC Request for NEW permit or newly reported emission source NAICS, or SIC Code: Source Name: Shaffer Ranch Facility Request PORTABLE source permit Source Location: NE1/4, NE1/4, S12, T7S, R93W County: Garfield Request MODIFICATION to existing permit (check each box below that applies) Elevation: 6,120 Feet Change fuel or equipment Change company name Portable Source Change permit limit Transfer of ownership Other Home Base: Request to limit HAPs with a Federally enforceable limit on PTE ZIP Code: 80203 Request APEN update only (check the box below that applies) Mailing Address: 1900 Grant Street, Suite 630 Denver, Colorado Revision to actual calendar year emissions for emission inventory Update 5-Year APEN term without change to permit limits or previously Person To Contact: Daniel Packard Phone Number: 303-887-8387 reported emissions E-mail Address: DanPackard@aol.com Fax Number: 303-318-9659 Additional Info. & 400 BBL Oil Tank - Sales Notes: Section 03 - General Information For existing sources, operation began on: For new or reconstructed sources, the projected startup date is: 11 / 1 / 2010 Normal Hours of Source Operation: hours/day 7 days/week 52 weeks/year General description of equipment and purpose: Commercial produced water treatment, storage and recycling facility. Will this equipment be operated in any NAAQS nonattainment area? Colorado Department of Public Health and Environment (http://www.cdphe.state.co.us/ap/attainmaintain.html) Air Pollution Control Division (APCD) Section 04 – Processing/Manufacturing Equipment Information & Material Use This notice is valid for five (5) years. Submit a revised APEN prior to expiration of five-year term, or when a significant change is made Description of equipment¹: (increase production, new equipment, change in fuel type, etc). Serial No .: Model No .: Manufacturer: Mail this form along with a check for \$152.90 to: Colorado Department of Public Health & Environment Design Process Rate Annual Requested Permitted Level² Actual Level Description APCD-SS-B1 (Specify Units/Hour) (For Data Year) (Specify Units) 4300 Cherry Creek Drive South Denver, CO 80246-1530 Raw For guidance on how to complete this APEN form: Materials: Air Pollution Control Division: (303) 692-3150

Check box to request copy of draft permit prior to issuance.

Small Business Assistance Program (SBAP):

Check box to request copy of draft permit prior to public notice.

APEN forms: http://www.cdphe.state.co.us/ap/downloadforms.html

Application status: http://www.cdphe.state.co.us/ap/ss/sspcpt.html

Finished

Products:

Other Process:

(303) 692-3148 or (303) 692-3175

¹If additional space is required, please attach a separate list of equipment, materials and throughputs.

²Requested values will become permit limitations. Requested level should consider process growth over the next five years.

AIR POLLUTANT EMISSION NOTICE (APEN, Application for Construction Permit – General Emission Source AIRS ID: / **Permit Number:** Section 05 - Emission Release Information (Attach a separate sheet with relevant information in the event of multiple releases; provide datum & either Lat/Long or UTM) UTM UTM Easting or Base Discharge Height Horizontal Datum UTM Northing or Operator Method of Collection for Location Temp. Flow Rate Velocity Moisture Stack Elevation Above Ground (NAD27, NAD83, Zone Longitude Latitude (ACFM) (ft/sec) (%) Data (e.g. map, GPS, GoogleEarth) (°F) Level (Feet) WGS84) (12 or 13) (meters or degrees) ID No. (feet) (meters or degrees) Tank ID 6.120 24 ambient 0 0 0 -107.715334 39.466811 Topo Map Program Down Direction of outlet (check one): ∇ertical Vertical with obstructing raincap ☐ Horizontal Other (Describe): Fugitive ☐ Circular: Inner Diameter (inches) = Exhaust Opening Shape & Size (check one): Other: Length (inches) = Width (inches) = Section 06 - Combustion Equipment & Fuel Consumption Information Serial No.: Model: Company equipment Identification No.: Manufacturer: Design Input Rate Actual Level Annual Requested Permitted Level² Fuel Heating Value (Indicate: Percent by Weight Seasonal Fuel Use (% of Annual Use) Fuel Type (10⁶ Btu/hr) (For Data Year) (Specify Units) Btu/lb, Btu/gal, Btu/SCF) Sulfur Dec-Feb Mar-May Jun-Aug Ash Sep-Nov ²Requested values will become permit limitations. Requested level should consider process growth over the next five years. Section 07 – Emissions Inventory Information & Emission Control Information Attach any emission calculations and emission factor documentation to this APEN form. M Emission Factor Documentation attached Data year for actual calendar yr. emissions below & throughput above (e.g. 2007): Est. Actual Calendar Year Requested Permitted Estimation Overall Control **Emission Factor** Control Device Description Emissions4 Method or Emissions³ Pollutant Collection Efficiency Uncontrolled Uncontrolled Controlled Controlled **Emission Factor** Uncontrolled Efficiency (% Reduction) Primary Secondary Units Basis (Tons/Year) (Tons/Year) (Tons/Year) (Tons/Year) Source TSP PM10 PM_{25} SO_{x} NO_X VOC 1.65 1.82 2 Water 9 Mg/yr CO Please use the APCD Non-Criteria Reportable Air Pollutant Addendum form to report pollutants not listed above. ³ Annual emission fees will be based on actual emissions reported here. If left blank, annual emission fees will be based on requested emissions. ⁴ If Requested Permitted Emissions is left blank, the APCD will calculate emissions based on the information supplied in sections 03 - 07. Section 08 - Applicant Certification - I hereby certify that all information contained herein and information submitted with this application is complete, true and correct.

Page 2 of 3

Signature of Person Legally Authorized to Supply Data

ON-CRITERIA REPORTABLE AIR POL JTANT EMISSION NOTICE ADDENDUM

(See reverse side for guidance on completing this form)

Permit Numbe	r:					All	RS I	D Number:			
Company Name	e:	GreenBack Pro	oduced Wat	er Recovery, LLC							
Plant Location:		NE1/4, NE1/4,	S12, T7S, I	R63W		County:	Gar	field Zip	Code:		
Person to Cont	act:	Joby Adams			Phone	Number:	970	-493-7780			
E-mail Address	:	Joby@cgrs.co	<u>m</u>		Fax	Number:	970	-493-7986			
Chemical Abstract Service (CAS) Number	C	Chemical Name	Reporting BIN	Control Equipment / Reduction (%)	Emission Factor (Include Units)	Emission Factor Sou	100	Uncontrolled Actua Emissions (lbs/yea	· 사용		
71-43-2	Ber	zene	Α		0.012 g/s	Water 9	9	765			
100-88-3	Tolu	uene	С		0.007 g/s	Water 9	9	1502			
100-41-4	Eth	yl-benzene	С		0.0018 g/s	Water 9	9	118			
1330-20-7	Xyle	ene	С		0.0094 g/s	Water 9	9	639			
110-54-3	Hex	ane	С			Water	9	De minimis			
67-56-1	Met	hanol	С			Water	9	De minimis			
98-82-8	Cur	mene	Α		0.0002	Water	9	14			
Reporting Scer	nario I	(1, 2 or 3): <u>1</u>			Calendar Yea			ual Data Applies:			
All	$\supset A$	flu			a	March 1	17, 2	2010			
Signature of Pe	Legally Authori	zed to Supp	oly Data		Date						
Joby	Mars				COO						
Name of Perso	n Le	gally Authorized	to Supply D	Data (Please print)	3	Title of Person Legally Authorized to Supply Data					

Form Revision Date: December 4, 2006

	AIR	POLLUTANT E	EMISSIO	N NOTIO	CE (AP	El :	Appli	catio	n for C	Construction Per	rmit – <u>G</u> e	eneral			
Permit Numbe	r:	[Le	eave blank unle	ess APCD has	already assi	igned a pe	rmit#&/	AIRS ID)]	Emission Source	AIRS ID:	. /	1	ſ.	
Facility Equipme	nt ID: ID #8.1 Po	ond	[Provide F	Facility Equip	ment ID to i	dentify ho	w this equ	iipment	is referenc	ed within your organization	ion.]	_			-
Section 01 – Adr	ninistrative Inforn	nation					Sect	ion 02	2 – Requ	ested Action (check	k applicabl	e request box	es)		
Company Name	GreenBack Produ	uced Water Recovery	, LLC	NAICS, or			\boxtimes	Reg	uest for	NEW permit or newl	y reported e	emission source			
Source Name:	Shaffer Ranch Fa	ncility		SIC Code:				Req	uest POI	RTABLE source peri	nit				
Source Location:	NE1/4, NE1/4, S1	2, T7S, R93W		County:	Garfield	-d		Req	uest MO	DIFICATION to exis	sting permit	(check each bo	x below th	at appl	ies)
	-			Elevation:	6,120	Feet	•		Chang	ge fuel or equipment	□ c	hange company	name		
Portable Source Home Base			3.			_			Chang	ge permit limit	□ T	ransfer of owner	ship		Other
								Reg	uest to li	mit HAPs with a Fed	erally enfor	ceable limit on	PTE		
Mailing Address	1900 Grant Stree	t, Suite 630		ZIP Code:	80203			Req	uest API	EN update only (chec	k the box be	elow that applie	s)		
	Denver, Colorado)								ion to actual calendar					
Person To Contact:	Daniel Packard		Phone Nu	umber: 30	3-887-838	7				te 5-Year APEN term ted emissions	without char	nge to permit lim	its or previo	ously	
E-mail Address:	DanPackard@ao	l.com	Fax Nu	umber: 30	3-318-9659	9	- Add	litional							
For <u>existing</u> source Normal Hours of S	101	h	/ ours/day		· ·		Not F eeks/yea	or <u>new</u>	or recons	0 BBL Storage Pond structed sources, the pr	rojected start	tup date is: 11	_ / _1_	_ / _3	2010
General description	of equipment and pu	rpose: Comme	rcial produc	ed water tre	eatment, st	torage a	nd recyc	ling fa	cility.						
(http://www.cdphe.	state.co.us/ap/attainm				Yes	⊠ N	o [Don kno				f Public Health control Division		nment	i i
Section 04 – Pro	cessing/Manufactu	iring Equipment In	formation of	& Materia	<u>l Use</u>					This notice is valid					
Description of equ	uipment ¹ :									expiration of five (increase production					made
Manufacturer:		Model No.:			Serial N	o.:				Mail this form ale	3 3 3		7.5	cic).	
	Description	Actual Level (For Data Year)		quested Perr (Specify Uni			Design P Specify			Colorado Depart APCD-SS-B1 4300 Cherry Cre Denver, CO 8024	ment of Pul ek Drive So	olic Health & E		t	
Raw Materials:										For guidance on h		ete this APEN fo	orm:		
										Air Pollution Cont Small Business As			(303) 69 (303) 69	2-3148	or
Finished Products:						+				APEN forms: http				orms.ht	<u>ml</u>
Other Process:										Application status	: http://www	.cdphe.state.co.u	is/ap/ss/ssp	cpt.htm	1
		ttach a separate list of equ								☐ Check box to	request copy	of draft permit	orior to issu	ance.	
² Requested value	es will become permit li	mitations. Requested lev	el should consi	ider process gr	rowth over t	he next fi	ve years.			Check box to	request copy	of draft permit	orior to pub	lic noti	ce.

Page 1 of 2

FormAPCD-200-GeneralAPEN-pnd1

FORM APCD-200

AIR POLLUTANT EMISSION NOTICE (APEN) **Application for Construction Permit – General** Emission Source AIRS ID: / Permit Number: Section 05 - Emission Release Information (Attach a separate sheet with relevant information in the event of multiple releases; provide datum & either Lat/Long or UTM) **Horizontal Datum** UTM UTM Easting or UTM Northing or Base Discharge Height Operator Moisture Method of Collection for Location Flow Rate Velocity Temp. (NAD27, NAD83, Zone Longitude Latitude Stack Above Ground Elevation (°F) (ACFM) (ft/sec) (%) Data (e.g. map, GPS, GoogleEarth) Level (Feet) WGS84) (12 or 13) (meters or degrees) (meters or degrees) ID No. (feet) 6,120 -107.715334 39.466811 Topo Map Program Sum ID#1 ☐ Vertical with obstructing raincap ☐ Horizontal Direction of outlet (check one): Vertical □ Down Other (Describe): Fugitive ☐ Circular: Inner Diameter (inches) = Other: Length (inches) = Exhaust Opening Shape & Size (check one): Width (inches) = Section 06 - Combustion Equipment & Fuel Consumption Information Serial No.: Company equipment Identification No.: Manufacturer: Model: Annual Requested Permitted Level² Fuel Heating Value (Indicate: Percent by Weight Seasonal Fuel Use (% of Annual Use) Design Input Rate Actual Level Fuel Type (106 Btu/hr) Btu/lb, Btu/gal, Btu/SCF) (Specify Units) (For Data Year) Sulfur Ash Dec-Feb Mar-May Jun-Aug Sep-Nov ²Requested values will become permit limitations. Requested level should consider process growth over the next five years. Section 07 – Emissions Inventory Information & Emission Control Information Attach any emission calculations and emission factor documentation to this APEN form. **Emission Factor Documentation attached** Data year for actual calendar yr. emissions below & throughput above (e.g. 2007): Actual Calendar Year Requested Permitted Estimation Control Device Description Overall Control **Emission Factor** Emissions³ Emissions⁴ Method or Pollutant Collection Efficiency Uncontrolled Uncontrolled Controlled Uncontrolled Controlled **Emission Factor** Efficiency (% Reduction) Primary Secondary Units Basis (Tons/Year) (Tons/Year) (Tons/Year) (Tons/Year) Source TSP PM_{10} PM_{2.5} SO_{x} NOx VOC 34.03 37.51 41.26 Water 9 Mg/yr CO Please use the APCD Non-Criteria Reportable Air Pollutant Addendum form to report pollutants not listed above.

Section 08 - Applicant Certification - I hereby certify that	all information contained he	erein and information submitted with this application is	complete, true and correct.	
Delu	3/17/2010	Joby Adams	(00	
Signature of Person Legally Authorized to Supply Data	Date	Name of Legally Authorized Person (Please print)	Title	N. P.

³ Annual emission fees will be based on actual emissions reported here. If left blank, annual emission fees will be based on requested emissions.

⁴ If Requested Permitted Emissions is left blank, the APCD will calculate emissions based on the information supplied in sections 03 - 07.

ON-CRITERIA REPORTABLE AIR POL. TANT EMISSION NOTICE ADDENDUM

(See reverse side for guidance on completing this form)

Permit Numbe	r:					Al	RS I	D Number:			
Company Nam	e:	GreenBack Pr	oduced Wat	ter Recovery, LLC				-		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Plant Location:		NE1/4, NE1/4,	S12, T7S,	R63W		County:	Gar	field	Zip C	Code:	
Person to Cont	act:	Joby Adams			Phone	Number:	970	-493-7780			
E-mail Address	i:	Joby@cgrs.co	<u>m</u>		Fax	Fax Number: 970-493-7986			e de la como		
Chemical Abstract Service (CAS) Number	C	Chemical Name	Reporting BIN	Control Equipment / Reduction (%)	Emission Factor (Include Units)	Emission Factor Sou		Uncontrolled / Emissions (lbs		Controlled Actual Emissions (lbs/year)	
71-43-2	Ber	zene	Α	RTO/95							
100-88-3	Tol	uene	С	RTO/95							
100-41-4	Eth	yl-benzene	С	RTO/95							
1330-20-7	Xyle	ene	С	RTO/95							
110-54-3	Hex	ane	С	RTO/95							
67-56-1	Met	hanol	С	RTO/95	1.0713 g/s	Water	9	74,482			
98-82-8	Cur	nene	Α	RTO/95							
Reporting Scer	nario	(1, 2 or 3): 1			Calendar Yea	r for which	Actu	ıal Data Appl	ies:		
raparang ara	A	h Jlun				March 1			_		
Signature of Pe	Legally Authori	ly Data		Date							
Appen	oby Adam	~~~		C00							
Name of Perso				Data (Please print)		Title of Person Legally Authorized to Supply Data					

	AIR	POLLUTANT I	EMISSIO	N NOTI	CE (AP	EN,	Appli	cation	ı for C	onstruction Pe	rmit –	<u>General</u>				
Permit Number:		ĮL	eave blank unle	ess APCD has	already assi	igned a per	rmit#&A	IRS ID]]	Emission Source	AIRS	ID: /	1	P		
Facility Equipment	ID: ID #8.2 Po	ond	[Provide I	Facility Equip	ment ID to i	dentify ho	w this equi	ipment is	s reference	ed within your organizat	ion.]				_	
Section 01 – Admi	inistrative Inforn	<u>nation</u>					Secti	ion 02	– Reque	ested Action (chec	k appli	cable request boxes	s)			
Company Name:	GreenBack Produ	uced Water Recovery	, LLC	NAICS, or			\boxtimes	Requ	uest for N	NEW permit or new	ly repor	ted emission source				
Source Name:	Shaffer Ranch Fa	acility		SIC Code:				Requ	iest POR	RTABLE source per	mit					
Source Location:	NE1/4, NE1/4, S1	2, T7S, R93W	1	County:	Garfield	d d		Requ	est MODIFICATION to existing permit (check each box below that applies)							
				Elevation:	6,120	Feet			Chang	e fuel or equipment		Change company n	ame			
Portable Source Home Base:						_			Chang	e permit limit		Transfer of owners	nip	□ c	Other	
								Requ	uest to lin	mit HAPs with a Fed	lerally e	nforceable limit on P	TE			
Mailing Address:	1900 Grant Stree	t, Suite 630		ZIP Code:	80203			Requ	uest APE	N update only (chec	k the bo	ox below that applies)			
,	Denver, Colorado	0									100	issions for emission in	7.11 J. S. S.			
Person To Contact:	Daniel Packard		Phone N	umber: 30	3-887-838	7				e 5-Year APEN term ed emissions	without	change to permit limit	s or previo	ously		
E-mail Address:	DanPackard@ao	l.com	Fax N	umber: 30	3-318-965	9		itional	report							
	*		- \$	-			Info	. &	35,000	BBL Storage Pond						
Section 03 – Gene	ral Information						Note	es:								
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Normal Hours of Sou			hours/day	7 days	/week	52 w	eeks/year		or recomb	mucica sources, me p	rojecica	startup date is. 11	_ ′	_ ′ _	010	
General description o			ercial produc			torage aı	nd recycl	ing faci	ility.							
Will this aguinment b	na approted in any N	JAAQS nonattainment	area?					Don'	+							
http://www.cdphe.st	ate.co.us/ap/attainm	naintain.html)	alca:		Yes	⊠ N	0 🗌	know				nt of Public Health a on Control Division (nment		
Section 04 – Proce	essing/Manufactu	ıring Equipment In	formation	& Materia	l Use									DENT.		
Description of equi	nment ¹ :											e (5) years. Submit a rm, or when a signif				
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-						3=						h a check for \$152.90				
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Other Process:										Application status	:: <u>http://v</u>	www.cdphe.state.co.us	/ap/ss/sspc	ept,html		
	e is required, please at	I ttach a separate list of equ	ı ipment, materi	ials and throug	ghputs.					☐ Check box to	request	copy of draft permit pr	rior to issu	ance.		
² Requested values	will become permit li	imitations. Requested lev	el should cons	ider process g	rowth over t	he next fiv	e vears.					conv of draft permit p			۵	

Page 1 of 2

FormAPCD-200-GeneralAPEN-pnd1

FORM APCD-200

Application for Construction Permit – General AIR POLLUTANT EMISSION NOTICE (APEN Emission Source AIRS ID: / Permit Number: Section 05 - Emission Release Information (Attach a separate sheet with relevant information in the event of multiple releases; provide datum & either Lat/Long or UTM) Horizontal Datum UTM UTM Easting or UTM Northing or Discharge Height Operator Base Moisture Method of Collection for Location Temp. Flow Rate Velocity (NAD27, NAD83, Zone Longitude Latitude Above Ground Stack Elevation (°F) (ACFM) (ft/sec) (%) Data (e.g. map, GPS, GoogleEarth) WGS84) (12 or 13) (meters or degrees) (meters or degrees) ID No. Level (Feet) (feet) -107.715334 39,466811 Topo Map Program Sum ID#1 6,120 ☐ Vertical with obstructing raincap ☐ Horizontal Direction of outlet (check one): Vertical □ Down Other (Describe): Fugitive Exhaust Opening Shape & Size (check one): Circular: Inner Diameter (inches) = Other: Length (inches) = Width (inches) = Section 06 – Combustion Equipment & Fuel Consumption Information Serial No.: Model: Company equipment Identification No.: Manufacturer: Annual Requested Permitted Level² Percent by Weight Fuel Heating Value (Indicate: Seasonal Fuel Use (% of Annual Use) Design Input Rate Actual Level Fuel Type Btu/lb, Btu/gal, Btu/SCF) (106 Btu/hr) (Specify Units) Dec-Feb | Mar-May | Jun-Aug | Sep-Nov (For Data Year) Sulfur Ash ²Requested values will become permit limitations. Requested level should consider process growth over the next five years. Section 07 - Emissions Inventory Information & Emission Control Information Attach any emission calculations and emission factor documentation to this APEN form. Data year for actual calendar yr. emissions below & throughput above (e.g. 2007): Emission Factor Documentation attached Actual Calendar Year Requested Permitted Estimation Overall Control **Emission Factor** Control Device Description Emissions⁴ Emissions³ Method or Pollutant Collection Efficiency Uncontrolled Controlled Uncontrolled Controlled Uncontrolled Emission Factor Efficiency (% Reduction) Primary Secondary Units Basis (Tons/Year) (Tons/Year) (Tons/Year) (Tons/Year) Source **TSP** PM_{10} $PM_{2.5}$ SO_x NO_{x} VOC 11.91 13.1 14.41 Water 9 Mg/yr CO Please use the APCD Non-Criteria Reportable Air Pollutant Addendum form to report pollutants not listed above. Annual emission fees will be based on actual emissions reported here. If left blank, annual emission fees will be based on requested emissions. ⁴ If Requested Permitted Emissions is left blank, the APCD will calculate emissions based on the information supplied in sections 03 - 07. Section 08 -Applicant Certification - I hereby certify that all information contained herein and information submitted with this application is complete, true and correct.

Signature of Person Logally Authorized to Supply Data

Date Name of Legally Authorized Person (Please print)

ON-CRITERIA REPORTABLE AIR POLL TANT EMISSION NOTICE ADDENDUM

(See reverse side for guidance on completing this form)

Permit Numbe	r:					Al	RSI	D Number:		
Company Name	e:	GreenBack Pr	oduced Wat	ter Recovery, LLC						
Plant Location:		NE1/4, NE1/4	, S12, T7S,	R63W		County:	Ga	rfield	Zip C	Code:
Person to Cont	act:	Joby Adams	· · · · · · · · · · · · · · · · · · ·		Phone	Number:	970	0-493-7780	300.	
E-mail Address	:	Joby@cgrs.cc	<u>om</u>		Fax	Fax Number: 970-493-				
Chemical Abstract Service (CAS) Number	C	Chemical Name	Reporting BIN	Control Equipment / Reduction (%)	Emission Factor (Include Units)	Emissio Factor Sou		Uncontrolled / Emissions (lbs		Controlled Actual Emissions (lbs/year)
71-43-2	Ber	zene	A	RTO/95						
100-88-3	Tol	uene	С	RTO/95						
100-41-4	Eth	yl-benzene	С	RTO/95	0.056411.00					
1330-20-7	Xyle	ene	С	RTO/95	TERRORIU ROSE III SACONO III III II					
110-54-3	Hex	ane	С	RTO/95						
67-56-1	Met	thanol	С	RTO/95	0.3777 g/s	Water	9	26,260		
98-82-8	Cur	nene	Α	RTO/95						
			.5 tp							
Reporting Scer	nario	(1, 2 or 3):1			Calendar Yea	r for which	Act	ual Data Appl	ies:	
	A	lu				March	17, 2	2010		
Signature of Pe	erson	Legally Author	ized to Supp	oly Data		Date				
	sy Nams			000						
				Data (Please print)					uthoriz	ed to Supply Data

Form Revision Date: December 4 2006

Permit Number: [Leave blank unless APCD has already assigned a permit # & AIRS ID] **Emission Source AIRS ID:** Facility Equipment ID: ID #8.3 Pond [Provide Facility Equipment ID to identify how this equipment is referenced within your organization.] Section 01 – Administrative Information Section 02 – Requested Action (check applicable request boxes) Company Name: GreenBack Produced Water Recovery, LLC \boxtimes Request for NEW permit or newly reported emission source NAICS, or SIC Code: Source Name: Shaffer Ranch Facility Request PORTABLE source permit Source Location: NE1/4, NE1/4, S12, T7S, R93W County: Garfield Request MODIFICATION to existing permit (check each box below that applies) Elevation: 6,120 Feet Change fuel or equipment Change company name Portable Source Change permit limit Transfer of ownership Other Home Base: Request to limit HAPs with a Federally enforceable limit on PTE ZIP Code: 80203 Mailing Address: 1900 Grant Street, Suite 630 Request APEN update only (check the box below that applies) Denver, Colorado Revision to actual calendar year emissions for emission inventory Update 5-Year APEN term without change to permit limits or previously Person To Contact: Daniel Packard Phone Number: 303-887-8387 reported emissions E-mail Address: DanPackard@aol.com Fax Number: 303-318-9659 Additional Info. & 35,000 BBL Storage Pond Notes: Section 03 - General Information For existing sources, operation began on: For new or reconstructed sources, the projected startup date is: 11 / 1 / 2010 hours/day Normal Hours of Source Operation: 7 days/week 52 weeks/year General description of equipment and purpose: Commercial produced water treatment, storage and recycling facility. Will this equipment be operated in any NAAQS nonattainment area? Don't Yes No Colorado Department of Public Health and Environment (http://www.cdphe.state.co.us/ap/attainmaintain.html) know Air Pollution Control Division (APCD) Section 04 – Processing/Manufacturing Equipment Information & Material Use This notice is valid for five (5) years. Submit a revised APEN prior to expiration of five-year term, or when a significant change is made Description of equipment¹: (increase production, new equipment, change in fuel type, etc). Manufacturer: Model No .: Serial No .: Mail this form along with a check for \$152.90 to: Colorado Department of Public Health & Environment Annual Requested Permitted Level² Design Process Rate Actual Level APCD-SS-B1 Description (For Data Year) (Specify Units) (Specify Units/Hour) 4300 Cherry Creek Drive South Denver, CO 80246-1530 Raw For guidance on how to complete this APEN form: Materials: Air Pollution Control Division: (303) 692-3150 Small Business Assistance Program (SBAP): (303) 692-3148 or (303) 692-3175 Finished APEN forms: http://www.cdphe.state.co.us/ap/downloadforms.html Products: Application status: http://www.cdphe.state.co.us/ap/ss/sspcpt.html Other Process: ¹If additional space is required, please attach a separate list of equipment, materials and throughputs. Check box to request copy of draft permit prior to issuance. ²Requested values will become permit limitations. Requested level should consider process growth over the next five years.

Application for Construction Permit - General

AIR POLLUTANT EMISSION NOTICE (APEN

Check box to request copy of draft permit prior to public notice.

AIR POLLUTANT EMISSION NOTICE (APEN Application for Construction Permit – General Permit Number: ______ Emission Source AIRS ID: ____ / ____ / on Release Information (Attach a separate sheet with relevant information in the event of multiple releases; provide datum & either Lat/Long or UT

Operator Stack ID No.	Base Elevation (feet)	Discharge Hei Above Grou Level (Feet	đ l	CAN THE REPORT OF THE PARTY OF	ow Rate ACFM)	Velocity (ft/sec)	Moisture (%)	Horizontal Datum (NAD27, NAD83, WGS84)	UTM Zone (12 or 13)	UTM Easting Longitude (meters or deg		ITM Northing of Latitude neters or degree	Data (e.	of Collection : g. map, GPS, C	
Sum ID#1	6,120	0								-107.7153	34	39.466811	To	po Map Pro	gram
Direction of o	outlet (check	one):	□ V	ertical	☐ Verti	ical with obs	tructing raince	ap 🗌 Hori	izontal	☐ Down	\boxtimes	Other (Desc	ribe): Fu	gitive	
Exhaust Oper	ning Shape &	Size (check or	e):	Circular:	nner Dian	meter (inches)=		Other: Length	h (inches) =		Width (inch	ies) =		
ection 06 –	Combustion	a Equipmen	& Fuel	Consump	ion Infor	rmation									
Company equ	uipment Ident	ification No.:			Manufactu	urer:		M	odel:			Serial 1	No.:		
Final Trans	Design	Input Rate	Actua	Level	Annual 1	Requested P	ermitted Leve	1 ² Fuel Heating	Value (Indicate	: Percent b	y Weight	Season	nal Fuel Use	(% of Annua	l Use)
Fuel Type	(10 ⁶	Btu/hr)	(For Da	ta Year)		(Specify t	Inits)	Btu/lb, Btu/g	gal, Btu/SCF)	Sulfur	Ash		Mar-May	Jun-Aug	Sep-Nov
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ection 07 –	Emissions I	nventory In	ormatic	on & Emiss	ion Cont	trol Inforn	ation	next five years.							
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ON-CRITERIA REPORTABLE AIR POL TANT EMISSION NOTICE ADDENDUM

(See reverse side for guidance on completing this form)

Permit Numbe	r:				AII	RS IE	O Number:				
Company Nam	e:	GreenBack Pro	oduced Wat	ter Recovery, LLC					The water particular		
Plant Location:		NE1/4, NE1/4,	S12, T7S, I	R63W	a la constitue de la constitue	County:	Garf	field Zip	Code:		
Person to Cont	act:	Joby Adams			Phone	Number:	970-	-493-7780			
E-mail Address	:	Joby@cgrs.com	<u>m</u>		Fax	Fax Number: 970-493-7986					
Chemical Abstract Service (CAS) Number	C	Chemical Name	Reporting BIN	Control Equipment / Reduction (%)	Emission Factor (Include Units)	Emission Factor Sou		Uncontrolled Actual Emissions (lbs/year)			
71-43-2	Ber	zene	Α	RTO/95							
100-88-3	Tolu	uene	С	RTO/95							
100-41-4	Eth	yl-benzene	С	RTO/95							
1330-20-7	Xyle	ene	С	RTO/95							
110-54-3	Hex	ane	С	RTO/95							
67-56-1	Met	hanol	С	RTO/95	0.1155 g/s	Water 9	9	8,030			
98-82-8	Cur	nene	Α	RTO/95							
			=======================================								
Reporting Scen	nario	(1, 2 or 3):1	_		Calendar Yea	r for which	Actu	al Data Applies:			
	A	ln				March 1	7, 20	010			
Signature of De	erson	Legally Authoriz	zed to Supp	ly Data		Date					
)	Tol	y Adrems				1 000					
Name of Perso	-		to Supply D	ata (Please print)		Title of F			ized to Supply Data		

ATTACHMENT C

EMISSION CALCULATIONS AND SUPPORTING DOCUMENTS

GreenBack Produced Water Recovery, LLC (GreenBack) Air Emission Estimation Methods and RACT Analysis Shaeffer Ranch Facility

The proposed GreenBack facility is designed to treat, store and recycle produced water generated during oil and gas collection activities. This commercial facility will accept waste streams from a variety of operators in the Piceance Basin. There are a number of treatment processes that will generate volatile organic compound (VOC) and hazardous air pollutant (HAP) emissions. These processes will include:

- off-loading water storage;
- hydrocylone solids separation and storage;
- oil water separation;
- oil storage;
- water clarification by dissolved air flotation;
- · recycled oil loading;
- dissolved hydrocarbon removal by air stripping; and
- pond water storage.

Emission points are depicted on Figures 2 and 3 of Attachment G. To evaluate potential air emissions the composition of the waste stream must be known. One condensate sample and six water samples were obtained from various oil and natural gas operations in the Piceance Basin. The samples were analyzed for VOCs and methanol as well as other parameters. To simulate the oil water separation process free oil was removed from the six water samples by a process referred to as a 'grind out'. The six samples were also composited prior to the grind out and a VOC scan performed as well. Oil removal was accomplished by sonicating the samples to coalesce free oil and then centrifuging the samples to simulate gravity separation. These samples are identified as EN-1 through EN-6 in Section A. The composite sample is identified as "Composite". The condensate sample is identified as "Sample 2" (Pace Analytical).

Air emissions were estimated by the use of analytical models Water 9, EPA Tanks, Carbonair Stat Air Stripping Model and by mass balance techniques. The total flow for the treatment system was set at 5000 barrels (bbls) per day or 145.83 gpm. A 5% waste stream loss was estimated for hydrocyclone separation and a 4% loss for oil water separation. Emission estimates were made by grouping the emission units into five model units as described below.

- 1. Pre-treatment using Water 9 The concrete sump (950 bbl), solids removal by hydrocyclone, oil water separation and oil storage were modeled using Water 9. Water 9 has the ability to deduct the hydrocarbon mass lost at each unit in the treatment model train. The chemical and physical properties of the waste stream were input into the model, which were then used though out the treatment process, which is depicted in the analysis documentation. As most of these treatment processes include the presence of free oil, analytical data generated from the condensate analysis was used to estimate emission factors and total VOC losses. The model was assigned the most appropriate treatment or storage unit as described below.
 - a. Concrete Sump (ID #1) modeled as "Open Sump". The concrete sump will be covered but will have sections that are open to air. The program allows the modeler to input dimensions and the area exposed to a constant velocity wind, which is likely a very conservative estimate.
 - b. Hydrocyclone to filter box (ID #2) modeled as "Porous Solids Unit". The porous solids unit was chosen as it best represented the waste stream generated from the de-silting process, which has a very high solids content. The diffusion of VOCs into open pore spaces is the primary emission mechanism.
 - c. Gun Barrel (ID# 5) modeled as "Storage Tank Constant Level". The Gun Barrel will maintain a constant water and oil level, which greatly reduces emission tank emissions. The through put through the tank was set at 4% to total flow (0.36 l/s)

- as this is the anticipated maximum oil cut from the separation process.
- d. Storage Tanks (ID 6 and 7) modeled as "Storage Tanks". Emission estimates were made by using both Water 9 and EPA Tanks, which yielded very similar results. The Tanks program allowed the input of Gasoline (RVP 7) where Water 9 did not. Compounds measured in the condensate analysis were input into both models as allowed by each models data set. The emission estimate difference for the oil storage tanks was approximately 6%, with the higher emission estimates from Water 9, which were used in the permit submittals. The computer emission data sheets are provided in the analysis attachment.
- 2. DAF Water 9 Analysis (ID #3) A rectangular DAF unit was available in the program and was used to model emissions. The total area and volume were set equal to the proposed DAF. As water entering the DAF will have gone through two oil water separation units the "Grind Out" analytical data was used for the influent waste characteristics. The averages of the BTEX, hexane, DRO and GRO values (EN-1 through EN-6) were used to estimate VOC emissions. Analytical data sheets are provided in Section B of this Attachment.
- 3. Air Stripper (ID #4) the DAF effluent concentrations were used as dissolved hydrocarbon concentrations in the influent to the air stripper. VOC concentrations were input into an excel spread sheet which, calculated total VOC removal by the air stripper. These values were then used in the permit submittal. Removal efficiencies estimated from the Stat Model calculations (provided in Section C of this Attachment) were used to estimate influent concentrations to the storage Ponds, which were modeled in Water 9. An excel spreadsheet generated by the author provides potential emissions for VOC compounds from the air stripper.

- 4. Pond Emissions (ID 8.1-8.3) The "Lagoon function" in Water 9 was used to estimate VOC emissions from the three storage ponds. The model, as mentioned previously, deducts the mass losses from the previous unit to estimate VOC emissions from the next unit in the model train. The primary VOC of concern for these emission estimates is methanol. Section D of this Attachment presents model data.
- 5. Oil Sales Loading (ID # 9) Emissions for this process was modeled using EPA tanks. The input values are provided in the Tanks Analysis attachment. An aluminum, 8,000 gallon capacity, horizontal tank was modeled. The throughput was set at approximately 73,000 bbls, which represents the 4% oil cut mentioned previously. Model results are presented in Section E of this Attachment.

RACT Analysis - Pond Methanol Recovery

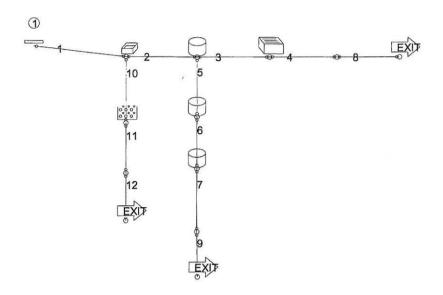
Our permit submittal does not address the capture and treatment of methanol. Methanol is an extremely soluble polar compound. At ambient temperatures it cannot be effectively removed by air stripping, carbon absorption or by reverse osmosis. It can be removed by evaporation via steam stripping, mechanical vapor recompression or by oxidation. All options are extremely expensive with treatment costs of between \$12,000 and \$50,000 per ton. The presence of dissolved petroleum will be removed by the treatment process and is not addressed by this analysis.

Approximately 569 calories are required to evaporate one gram of water. The assumed average flow is 145.83 gallons per minute. The energy required to vaporize 145.83 gallons of water is 365.04 kilowatt hours (KWH). Assuming an average methanol concentration of 425 mg/L, the total mass of methanol in 145.83 gallons of water is 0.52 lbs or 2.6 x 10-4 tons. A reasonable electrical cost is \$0.09 per KWH. This yields a cost of in excess of \$126,000 just to capture one ton of methanol. This does not include the capital cost of equipment, labor and maintenance. Using natural gas as the energy source the calculated evaporation cost is in excess of \$46,000 per ton of methanol. It

is obvious that with current technologies the capture and treatment of methanol in a high volume waste stream is not economically viable.

SECTION A

WATER 9 ANALYSIS – CONCRETE SUMP, FILTER BOX, GUN BARREL, OIL TREATING TANK AND OIL SALES TANK



No.	Name Type	flow (I/s)
1	Off-loading Pipe hard piped, no headspace	
2	Concrete Sump #1 open sump	8.74
3	Gun Barrel ID# 5 storage tank	8.39
4	DAF Unit #3 DAF or grit separator	8.39
5	Gun Barrel oil removal stream	.35
6	Oil Treating Tank storage tank	.35
7	Oil SalesTank #7 storage tank	.35
8	def.system exit st system exit stream	8.39
9	def.system exit st system exit stream	.35
10	def.solids removal solids removal stream	
11	Filter Box ID#2 porous solids unit	.46
12	def.system exit st system exit stream	.46

Raw Water Quality - Pre-treatment

UNIT CONCENTRATION SUMMARY 03-17-2010 15:41:50 GreenBack Pre-treatment

Project H:\Documents\PreTreatment 3/17/2010 8:49:24 AM The selected unit is 1 Off-loading Pipe

THE DETECTED UNITE ID I OIL TON	arra rrbc			
COMPOUND NAME	Cin	Air	Removal	Cout
	(PPMW)	fe	fbio	(ppmw)
BENZENE	3980.			3980.
CUMENE (isopropylbenzene)	773.	•		773.
ETHYLBENZENE	4610.			4610.
OIL (decane as surrogate)	2.e+05	•		2.e+05
TOLUENE	3.46e+04	•	•	3.46e+04
XYLENE	5.28e+04			5.28e+04
METHANOL	412.275			412.275
BUTYL BENZENE	467.	3.0		467.
PROPYL(-n) BENZENE	1120.			1120.
TRIMETHYLBENZENE (1,3,5)	7850.			7850.
CYMENE, para	317.			317.
sec BUTYLBENZENE	211.			211.
1,2,4-TRIMETHYLBENZENE	7590.			7590.
HEXANE (-n)	8.47			8.47

TOTAL ALL COMPOUNDS

0.00E+00 g/s air emissions



Project:

SAMPLE 2

Pace Project No.: 6070736

Sample: SAMPLE 2	Lab ID: 607073	36001 Collecte	d: 12/07	/09 19:45	Received:	12/09/09 09:15	Matrix: Water	
Parameters	Results	Units Rep	ort Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260 MSV	Analytical Method	: EPA 5030B/8260						
Acetone	ND ug/L			100000		12/20/09 14:3	5 67-64-1	
Benzene	3980000 ug/L		100000	100000		12/20/09 14:3	5 71-43-2	
Bromobenzene	ND ug/L		100000	100000		12/20/09 14:3	5 108-86-1	
Bromochloromethane	ND ug/L		100000	100000		12/20/09 14:3	5 74-97-5	
Bromodichloromethane	ND ug/L		100000	100000		12/20/09 14:3	5 75-27-4	
Bromoform	ND ug/L		100000	100000		12/20/09 14:3	5 75-25-2	
Bromomethane	ND ug/L		100000	100000		12/20/09 14:3	5 74-83-9	
2-Butanone (MEK)	ND ug/L		1000000	100000		12/20/09 14:3		
n-Butylbenzene	467000 ug/L		100000	100000		12/20/09 14:3	5 104-51-8 ⁺	
sec-Butylbenzene	211000 ug/L		100000	100000		12/20/09 14:3	5 135-98-8	
tert-Butylbenzene	ND ug/L		100000	100000		12/20/09 14:3	5 98-06-6	
Carbon disulfide	ND ug/L		500000	100000		12/20/09 14:3	5 75-15-0	
Carbon tetrachloride	ND ug/L		100000	100000		12/20/09 14:3	5 56-23-5	
Chlorobenzene	ND ug/L		100000	100000		12/20/09 14:3	5 108-90-7	
Chloroethane	ND ug/L		100000	100000		12/20/09 14:3	5 75-00-3	
Chloroform	ND ug/L			100000		12/20/09 14:3	5 67-66-3	
Chloromethane	ND ug/L		100000	100000		12/20/09 14:3	5 74-87-3	
Chlorotoluene	ND ug/L			100000		12/20/09 14:3	5 95-49-8	
Chlorotoluene	ND ug/L			100000		12/20/09 14:3	5 106-43-4	
1,2-Dibromo-3-chloropropane	ND ug/L			100000		12/20/09 14:3	5 96-12-8	
Dibromochloromethane	ND ug/L			100000		12/20/09 14:3		
1,2-Dibromoethane (EDB)	ND ug/L			100000		12/20/09 14:3		
Dibromomethane	ND ug/L			100000		12/20/09 14:3		
1,2-Dichlorobenzene	ND ug/L			100000		12/20/09 14:3		
1,3-Dichlorobenzene	ND ug/L			100000		12/20/09 14:3	The second second second	
1,4-Dichlorobenzene	ND ug/L			100000		12/20/09 14:3		
Dichlorodifluoromethane	ND ug/L			100000		12/20/09 14:3		
1,1-Dichloroethane	ND ug/L			100000		12/20/09 14:3		
1,2-Dichloroethane	ND ug/L			100000		12/20/09 14:3		
1,2-Dichloroethene (Total)	ND ug/L			100000		12/20/09 14:3		
1,1-Dichloroethene	ND ug/L			100000		12/20/09 14:3		
cis-1,2-Dichloroethene	ND ug/L			100000		12/20/09 14:3		
trans-1,2-Dichloroethene	ND ug/L			100000		12/20/09 14:3		
1,2-Dichloropropane	ND ug/L			100000		12/20/09 14:3		
	ND ug/L			100000		12/20/09 14:3		
1,3-Dichloropropane	ND ug/L			100000		12/20/09 14:3		
2,2-Dichloropropane				100000		12/20/09 14:3		
1,1-Dichloropropene	ND ug/L						5 10061-01-5	
cis-1,3-Dichloropropene	ND ug/L			100000				
lrans-1,3-Dichloropropene	ND ug/L			100000			5 10061-02-6	
Ethylbenzene	4610000 ug/L			100000		12/20/09 14:3		
Hexachloro-1,3-butadiene	ND ug/L			100000		12/20/09 14:3		
2-Hexanone	ND ug/L			100000		12/20/09 14:3		
Isopropylbenzene (Cumene)	773000 ug/L			100000			5 98-82-8 Line	,
p-Isopropyltoluene	317000 ug/L			100000			5 99-87-6 Juliu	~
Methylene chloride	ND ug/L			100000		12/20/09 14:3		
4-Methyl-2-pentanone (MIBK)	ND ug/L			100000		12/20/09 14:3		
hyl-tert-butyl ether	ND ug/L		100000	100000		12/20/09 14:3	5 1634-04-4	

Date: 12/21/2009 04:26 PM

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Project:

SAMPLE 2

Pace Project No.: 6070736

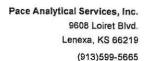
Sample: SAMPLE 2	Lab ID: 607073600	Collected: 12/07	/09 19:45	Received:	12/09/09 09:15	Matrix: Water	
Parameters	Results Unit	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA	A 5030B/8260					
Naphthalene	ND ug/L	1000000	100000		12/20/09 14:35	91-20-3	
n-Propylbenzene	1120000 ug/L		100000		12/20/09 14:35		
Styrene	ND ug/L		100000		12/20/09 14:35		
1,1,1,2-Tetrachloroethane	ND ug/L		100000		12/20/09 14:35		
1,1,2,2-Tetrachloroethane Tetrachloroethene	ND ug/L ND ug/L		100000		12/20/09 14:35 12/20/09 14:35		
Toluene	34600000 ug/L		100000		12/20/09 14:35		E
1,2,3-Trichlorobenzene	ND ug/L		100000		12/20/09 14:35		_
1,2,4-Trichlorobenzene	ND ug/L		100000		12/20/09 14:35		
1,1,1-Trichloroethane	ND ug/L		100000		12/20/09 14:35		
1,1,2-Trichloroethane	ND ug/L		100000		12/20/09 14:35		
Trichloroethene	ND ug/L	100000	100000		12/20/09 14:35	79-01-6	
Trichlorofluoromethane	ND ug/L	100000	100000		12/20/09 14:35	75-69-4	
1,2,3-Trichloropropane	ND ug/L		100000		12/20/09 14:35		
1,2,4-Trimethylbenzene	7590000 ug/L		100000		12/20/09 14:35	c name canada care	
1,3,5-Trimethylbenzene	7850000 ug/L+		100000		12/20/09 14:35		
Vinyl chloride Yvlene (Total)	ND ug/L 52800000 ug/L		100000		12/20/09 14:35		-
3romofluorobenzene (S)	108 %		100000 100000		12/20/09 14:35 12/20/09 14:35	3 AMERICAN STREET	E
Dibromofluoromethane (S)	90 %		100000		12/20/09 14:35		
1,2-Dichloroethane-d4 (S)	83 %		100000		12/20/09 14:35		
Toluene-d8 (S)	117 %		100000		12/20/09 14:35		P2,S2
Preservation pH	1.0		100000		12/20/09 14:35		19
8260 MSV GRO and Oxygenates	Analytical Method: EPA	8260				114.32	11 43 0.
TPH-GRO	590000000 ug/L 🗸	50000000	100000		12/20/09 14:35		
HEM, Oil and Grease	Analytical Method: EPA	1664A					
Oil and Grease	115000 mg/L	5.0	1		12/14/09 15:55		
2540C Total Dissolved Solids	Analytical Method: SM	2540C					
Total Dissolved Solids	3300 mg/L	5.0	1		12/10/09 21:48		
2540D Total Suspended Solids	Analytical Method: SM	2540D					
Total Suspended Solids	140 mg/L	5.0	1		12/10/09 22:01		
5540C MBAS Surfactants	Analytical Method: SM	5540C					
Surfactants	ND mg/L	0.80	1		12/09/09 20:00		D3,H1
8015M Alcohols	Analytical Method: EPA	8015 Modified					
Methanol	ND mg/L	500	100		12/15/09 11:08	67-56-1	

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Project:

SAMPLE 2

Pace Project No.:

6070736

Lab ID: 6070736003 Collected: 12/07/09 19:45 Received: 12/09/09 09:15 Matrix: Solid Sample: SAMPLE 2 Results reported on a "wet-weight" basis DF Prepared Analyzed CAS No. Qual **Parameters** Results Units Report Limit 8015B Diesel Range Organics Analytical Method: EPA 8015B Preparation Method: EPA 3546 12/10/09 00:00 12/16/09 10:36 5940 20 202000 mg/kg TPH-DRO 0 % 41-130 20 12/10/09 00:00 12/16/09 10:36 646-31-1 1e.D4 n-Tetracosane (S) 0 % 39-130 20 12/10/09 00:00 12/16/09 10:36 92-94-4 1e p-Terphenyl (S) Analytical Method: EPA 8270 Preparation Method: EPA 3546 8270 MSSV Semivolatiles 990000 12/15/09 00:00 12/16/09 20:51 83-32-9 10 Acenaphthene ND ug/kg 990000 10 12/15/09 00:00 12/16/09 20:51 208-96-8 ND ug/kg Acenaphthylene 10 12/15/09 00:00 12/16/09 20:51 120-12-7 ND ug/kg 990000 Anthracene 12/15/09 00:00 12/16/09 20:51 56-55-3 ND ug/kg 990000 10 Benzo(a)anthracene 12/15/09 00:00 12/16/09 20:51 50-32-8 Benzo(a)pyrene ND ug/kg 990000 10 12/15/09 00:00 12/16/09 20:51 205-99-2 ND ug/kg 990000 10 Benzo(b)fluoranthene 990000 10 12/15/09 00:00 12/16/09 20:51 191-24-2 Benzo(g,h,i)perylene ND ua/ka 990000 10 12/15/09 00:00 12/16/09 20:51 207-08-9 Benzo(k)fluoranthene ND ug/kg 12/15/09 00:00 12/16/09 20:51 65-85-0 Benzoic acid ND ug/kg 5010000 10 ND ug/kg 1980000 10 12/15/09 00:00 12/16/09 20:51 100-51-6 Benzyl alcohol 12/15/09 00:00 12/16/09 20:51 101-55-3 4-Bromophenylphenyl ether ND ug/kg 990000 10 990000 10 12/15/09 00:00 12/16/09 20:51 85-68-7 ND ug/kg tylbenzylphthalate 12/15/09 00:00 12/16/09 20:51 59-50-7 1980000 10 Chloro-3-methylphenol ND ug/kg 12/15/09 00:00 12/16/09 20:51 106-47-8 1980000 10 4-Chloroaniline ND ug/kg 12/15/09 00:00 12/16/09 20:51 111-91-1 10 bis(2-Chloroethoxy)methane ND ug/kg 990000 12/15/09 00:00 12/16/09 20:51 111-44-4 bis(2-Chloroethyl) ether ND ug/kg 990000 10 12/15/09 00:00 12/16/09 20:51 39638-32-9 ND ug/kg 990000 10 bis(2-Chloroisopropyl) ether 12/15/09 00:00 12/16/09 20:51 91-58-7 ND ug/kg 990000 10 2-Chloronaphthalene 12/15/09 00:00 12/16/09 20:51 95-57-8 2-Chlorophenol ND ug/kg 990000 10 990000 10 12/15/09 00:00 12/16/09 20:51 7005-72-3 4-Chlorophenylphenyl ether ND ug/kg 12/15/09 00:00 12/16/09 20:51 218-01-9 ND ug/kg 990000 10 Chrysene 12/15/09 00:00 12/16/09 20:51 53-70-3 990000 10 ND ug/kg Dibenz(a,h)anthracene 990000 10 12/15/09 00:00 12/16/09 20:51 132-64-9 ND ug/kg Dibenzofuran 990000 12/15/09 00:00 12/16/09 20:51 95-50-1 10 ND ug/kg 1,2-Dichlorobenzene 990000 10 12/15/09 00:00 12/16/09 20:51 541-73-1 ND ug/kg 1,3-Dichlorobenzene 990000 10 12/15/09 00:00 12/16/09 20:51 106-46-7 1,4-Dichlorobenzene ND ug/kg 12/15/09 00:00 12/16/09 20:51 91-94-1 3,3'-Dichlorobenzidine ND ug/kg 1980000 10 12/15/09 00:00 12/16/09 20:51 120-83-2 2,4-Dichlorophenol ND ug/kg 990000 10 12/15/09 00:00 12/16/09 20:51 84-66-2 ND ug/kg 990000 10 Diethylphthalate 990000 10 12/15/09 00:00 12/16/09 20:51 105-67-9 2,4-Dimethylphenol ND ug/kg 12/15/09 00:00 12/16/09 20:51 131-11-3 ND ug/kg 990000 10 Dimethylphthalate ND ug/kg 990000 10 12/15/09 00:00 12/16/09 20:51 84-74-2 Di-n-butylphthalate 5010000 10 12/15/09 00:00 12/16/09 20:51 534-52-1 ND ug/kg 4,6-Dinitro-2-methylphenol ND ug/kg 5010000 10 12/15/09 00:00 12/16/09 20:51 51-28-5 2,4-Dinitrophenol ND ug/kg 990000 10 12/15/09 00:00 12/16/09 20:51 121-14-2 2,4-Dinitrotoluene 12/15/09 00:00 12/16/09 20:51 606-20-2 2,6-Dinitrotoluene ND ug/kg 990000 10 12/15/09 00:00 12/16/09 20:51 117-84-0 Di-n-octylphthalate ND ug/kg 990000 10 12/15/09 00:00 12/16/09 20:51 117-81-7 bis(2-Ethylhexyl)phthalate ND ug/kg 990000 10 12/15/09 00:00 12/16/09 20:51 206-44-0 Fluoranthene ND ug/kg 990000 10

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xachloro-1,3-butadiene

"··orene

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990000

990000

10

10

12/15/09 00:00 12/16/09 20:51 86-73-7

12/15/09 00:00 12/16/09 20:51 87-68-3

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ND ug/kg

ND ug/kg



Project:

SAMPLE 2

Pace Project No.:

6070736

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

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8270 MSSV Semivolatiles	Analytical Meti	nod: EPA 827	O Preparation Meth	hod: EF	PA 3546			
Hexachlorobenzene	ND ug	/kg	990000	10	12/15/09 00:00	12/16/09 20:51	118-74-1	
Hexachlorocyclopentadiene	ND ug	/kg	990000	10	12/15/09 00:00	12/16/09 20:51	77-47-4	
Hexachloroethane	ND ug	/kg	990000	10	12/15/09 00:00	12/16/09 20:51	67-72-1	
Indeno(1,2,3-cd)pyrene	ND ug	/kg	990000	10	12/15/09 00:00	12/16/09 20:51	193-39-5	
sophorone	ND ug	/kg	990000	10	12/15/09 00:00	12/16/09 20:51	78-59-1	
2-Methylnaphthalene	ND ug	/kg	990000	10	12/15/09 00:00	12/16/09 20:51	91-57-6	
2-Methylphenol(o-Cresol)	ND ug	/kg	990000	10	12/15/09 00:00	12/16/09 20:51	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND ug	/kg	990000	10	12/15/09 00:00	12/16/09 20:51		
Naphthalene	ND ug	/kg	990000	10	12/15/09 00:00	12/16/09 20:51	91-20-3	
2-Nitroaniline	ND ug		1980000	10	12/15/09 00:00	12/16/09 20:51	88-74-4	
3-Nitroaniline	ND ug	/kg	1980000	10	12/15/09 00:00	12/16/09 20:51	99-09-2	
I-Nitroaniline	ND ug	/kg	1980000	10	12/15/09 00:00	12/16/09 20:51	100-01-6	
Nitrobenzene	ND ug	/kg	990000	10	12/15/09 00:00	12/16/09 20:51	98-95-3	
2-Nitrophenol	ND ug	/kg	990000	10	12/15/09 00:00	12/16/09 20:51	88-75-5	
1-Nitrophenol	ND ug		5010000	10	12/15/09 00:00	12/16/09 20:51	100-02-7	
N-Nitroso-di-n-propylamine	ND ug	/kg	990000	10	12/15/09 00:00	12/16/09 20:51	621-64-7	
' Nitrosodiphenylamine	ND ug	/kg	990000	10	12/15/09 00:00	12/16/09 20:51	86-30-6	
ntachlorophenol	ND ug	/kg	5010000	10	12/15/09 00:00	12/16/09 20:51	87-86-5	
Phenanthrene	ND ug	/kg	990000	10	12/15/09 00:00	12/16/09 20:51	85-01-8	
Phenol	ND ug	/kg	990000	10	12/15/09 00:00	12/16/09 20:51	108-95-2	
Pyrene	ND ug	/kg	990000	10	12/15/09 00:00	12/16/09 20:51	129-00-0	
1,2,4-Trichlorobenzene	ND ug	/kg	990000	10	12/15/09 00:00	12/16/09 20:51	120-82-1	
2,4,5-Trichlorophenol	ND ug	/kg	990000	10	12/15/09 00:00	12/16/09 20:51	95-95-4	
2,4,6-Trichlorophenol	ND ug	(T)-4	990000	10	12/15/09 00:00	12/16/09 20:51	88-06-2	
Nitrobenzene-d5 (S)	0 %		20-107	10	12/15/09 00:00	12/16/09 20:51	4165-60-0	D3,P3, S4
2-Fluorobiphenyl (S)	0 %		36-105	10	12/15/09 00:00	12/16/09 20:51	321-60-8	S4
Terphenyl-d14 (S)	0 %		46-130	10	12/15/09 00:00	12/16/09 20:51	1718-51-0	S4
Phenol-d6 (S)	0 %		38-102	10	12/15/09 00:00	12/16/09 20:51	13127-88-3	S4
2-Fluorophenol (S)	0 %		33-105	10	12/15/09 00:00	12/16/09 20:51	367-12-4	S4
2,4,6-Tribromophenol (S)	0 %		38-102	10	12/15/09 00:00	12/16/09 20:51	118-79-6	S4

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WASTEWATER TREATMENT UNIT AIR EMISSIONS 03-17-2010 GreenBack Pre-treatment 1,2,4-TRIMETHYLBENZENE 2 Concrete Sump #1

No. 1	Name	loading (g/s)	FE.	FBIO	EMISS. (g/s)
1	BENZENE	36.616	.00007		.0024
2	CUMENE (isopropylbenzene)	7.1116	.00005		.0003
3	ETHYLBENZENE	42.412	.00005		.0022
4	OIL (decane as surrogate)	1840.	.00005		.0843
5	TOLUENE	318.32	.00006		.0181
6	XYLENE	485.76	.00006		.0289
7	METHANOL	3.7929	.00007		.0003
8	BUTYL BENZENE	4.2964	.00004		.0002
9	PROPYL(-n) BENZENE	10.304	.00005		.0006
10	TRIMETHYLBENZENE (1,3,5)	72.22	.00005		.0035
11	CYMENE, para	2.9164	.00004		.0001
12	sec BUTYLBENZENE	1.9412	.00006		.0001
13	1,2,4-TRIMETHYLBENZENE	69.828	.00005		.0034
	TOTALS	2895.519			.1444

The total air emissions are 4.55 Mg/yr

open sump (no. 2)

Description of unit	Concrete Smp 1
Underflow T (C)	25
Total water added at the unit (1/s)	
Area of openings at unit (cm2)	50
Radius of drop pipe (cm)	5
Drop length to conduit (cm)	61
Open surface=1	1
Subsurface entrance=1	1
subsurface exit =1	1
radius of underflow conduit (cm)	3.81
distance to next unit (cm)	500
slope of underflow conduit	0.015
Open surface of liquid at the unit (cm2)	10000
flow entrance depth under surface (cm)	180
depth of liquid in sump (cm)	200
velocity air at opening (ft/min)	88
municipal waste in conduit =1	
Assume equilibrium in unit, =1	
рН	

WASTEWATER TREATMENT UNIT AIR EMISSIONS 03-16-2010 GreenBack Pre-treatment 1,2,4-TRIMETHYLBENZENE 11 Filter Box ID#2

No.	Name	loading (g/s)	FE.	FBIO	EMISS. (g/s)
1 2 3 4 5 6 7 8 9 10 11 12	CYMENE, para sec BUTYLBENZENE	2.9794 .4529 2.8633 102.8721 23.4554 32.7968 .1875 .2456 .638 4.2966 .1704 .0979 4.3609	.00006 .00001 .00002 .00001 .00001	.00433 .00337 .0035 .00328 .00319 .00315 .00316 .00317 .0033 .00328 .00318	.0002 .0001 .0007 .0008 .0001
	TOTALS	175.4169			.0019

The total air emissions are .06 Mg/yr

007 tons/45

porous solids unit (no. 11)

Description of unit	Filter BoxID#
temperature in porous solids (C)	25
depth of waste layer (cm)	121
total porosity	0.4
air porosity	0.01
mwt oil	180
time of calculations (days)	365
active biomass (g/cc)	
loading g/cc soil	0.036
Wind speed (cm/s at 10 m)	20
area of landtreatment (m2)	10.41
reserved	
Hq	7

WASTEWATER TREATMENT UNIT AIR EMISSIONS 03-16-2010 GreenBack Pre-treatment 1,2,4-TRIMETHYLBENZENE 3 Gun Barrel ID# 5

No. 1		loading (g/s)	FE.	FBIO	EMISS. (g/s)
1	BENZENE	33.5214	2	2	.0001
2	CUMENE (isopropylbenzene)	6.656			
3	ETHYLBENZENE	39.5277			
4	OIL (decane as surrogate)	1710.72			.0001
5	TOLUENE	294.5057			.0001
6	XYLENE	452.7491	•		.0001
7	METHANOL	3.6053	•	•	
8	BUTYL BENZENE	4.0506			
9	PROPYL(-n) BENZENE	9.664		•	
10	TRIMETHYLBENZENE (1,3,5)	67.9195			
11	CYMENE, para	2.7458			
12	sec BUTYLBENZENE	1.8238			
13	1,2,4-TRIMETHYLBENZENE	65.4581	*		•
	TOTALS	2692.947			.0004
1					

The total air emissions are .01 Mg/yr

0 61 Lus/45

storage tank (no. 3)

Description of unit	Gun BarrelID#5
Wastewater temperature (C)	25
Open surface area of tank (m2)	
Density of liquid in tank (g/cc)	0.98
tank waste Mwt, water=18	180
unit storage time (days)	
tank paint factor	0.6
tank diameter (m)	3.81
tank vapor space height (m)	0.91
diurnal temp. change (deg.C)	11
tank height (m)	
oil in composite wastewater (wt. %)	95
reserved	
рН	7

WASTEWATER TREATMENT UNIT AIR EMISSIONS 03-16-2010 GreenBack Pre-treatment 1,2,4-TRIMETHYLBENZENE 6 Oil Treating Tank

No. 1	Name	loading (g/s)	FE.	FBIO	EMISS. (g/s)
1	BENZENE	27.5055	.00041	¥	.0112
2	CUMENE (isopropylbenzene)	6.4728	.00003	•	.0002
3	ETHYLBENZENE	37.974	.00005		.0018
4	OIL (decane as surrogate)	1683.801			.0072
5	TOLUENE	272.9819	.00008		.022
6	XYLENE	434.9537	.00002		.0094
7	METHANOL	.0372	.00071		
8	BUTYL BENZENE	3.9849	.00001		
9	PROPYL(-n) BENZENE	9.4363	.00002	•	.0002
10	TRIMETHYLBENZENE (1,3,5)	66.6067	.00001		.0008
11	CYMENE, para	2.6969	.00001	•	•
12	sec BUTYLBENZENE	1.4554		•	
13	1,2,4-TRIMETHYLBENZENE	63.8436	.00001	*(.0007
	TOTALS	2611.75			.0535

The total air emissions are 1.69 Mg/yr

1.96 145/45

storage tank (no. 6)

Description of unit	Oil Treatig Tnk
Wastewater temperature (C)	25
Open surface area of tank (m2)	
Density of liquid in tank (g/cc)	0.78
tank waste Mwt, water=18	180
unit storage time (days)	
tank paint factor	0.6
tank diameter (m)	3.657
tank vapor space height (m)	0.91
diurnal temp. change (deg.C)	25
tank height (m)	6.096
oil in composite wastewater (wt. %)	99
reserved	
рН	7

WASTEWATER TREATMENT UNIT AIR EMISSIONS 03-16-2010 GreenBack Pre-treatment 1,2,4-TRIMETHYLBENZENE 7 Oil SalesTank #7

No.	Name	loading (g/s)	FE.	FBIO	EMISS. (g/s)
1	BENZENE	27.4942	.0004		.011
2	CUMENE (isopropylbenzene)	6.4726	.00002		.0002
3	ETHYLBENZENE	37.9722	.00004		.0017
4	OIL (decane as surrogate)	1683.794		•	.007
5	TOLUENE	272.9599	.00008	•	.0216
6	XYLENE	434.9443	.00002		.0092
7	METHANOL	.0371	.00064	•	•
8	BUTYL BENZENE	3.9849	.00001	*	
9	PROPYL(-n) BENZENE	9.4361	.00002	•	.0002
10	TRIMETHYLBENZENE (1,3,5)	66.6059	.00001		.0007
1:	L CYMENE, para	2.6968	.00001		
1:	2 sec BUTYLBENZENE	1.4554		(*)	•
13	3 1,2,4-TRIMETHYLBENZENE	63.843	.00001	•	.0006
	TOTALS	2611.696			.0522

The total air emissions are 1.65 Mg/yr

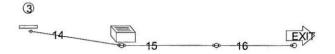
1.82 tons/41

storage tank (no. 7)

Description of unit	Oil SalesTnk
Wastewater temperature (C)	25
Open surface area of tank (m2)	
Density of liquid in tank (g/cc)	0.78
tank waste Mwt, water=18	180
unit storage time (days)	
tank paint factor	0.6
tank diameter (m)	3.657
tank vapor space height (m)	0.91
diurnal temp. change (deg.C)	11
tank height (m)	6.096
oil in composite wastewater (wt. %)	
reserved	
рН	7

SECTION B

WATER 9 ANALYSIS - DAF UNIT



No.	Name	Туре	flow (I/s)
14	default hard	piped hard piped, no headspace	
15	DAF Unit	AF or grit separator	8.39
16	def.system	exit st. system exit stream	8.39

DAF Water Quality Input

UNIT CONCENTRATION SUMMARY 03-17-2010 15:48:48
GreenBack Pre-treatment

Project H:\Documents\DAF 3/16/2010 12:47:02 PM The selected unit is 14 default hard piped

COMPOUND NAME Cin	Air	Removal	Cout
(PPMW)	fe	fbio	(ppmw)
BENZENE 9.78	¥		9.78
CUMENE (isopropylbenzene) 0.0837		// & /	0.0837
ETHYLBENZENE 15.66		N•8	15.66
OIL (decane as surrogate) 200.		•	200.
TOLUENE 38.			38.
XYLENE 60.			60.
METHANOL 450.	*		450.
BUTYL BENZENE 1.e-20		•	1.e-20
PROPYL(-n) BENZENE 1.e-20		((*)	1.e-20
TRIMETHYLBENZENE (1,3,5) 1.011		3.0	1.011
CYMENE, para 1.e-20			1.e-20
sec BUTYLBENZENE 1.e-20		314.0	1.e-20
1,2,4-TRIMETHYLBENZENE 1.219			1.219
HEXANE(-n) 8.43	•	98	8.43

TOTAL ALL COMPOUNDS

0.00E+00 g/s air emissions

WASTEWATER TREATMENT UNIT AIR EMISSIONS 03-17-2010 GreenBack Pre-treatment HEXANE(-n) 15 DAF Unit

No.	Name	loading (g/s)	FE.	FBIO	EMISS. (g/s)
1	BENZENE	.0821	.18979	i a s	.0156
2	CUMENE (isopropylbenzene)	.0007	.3722		.0003
3	ETHYLBENZENE	.1314	.25279		.0332
4	OIL (decane as surrogate)	1.678	1.	•	1.678
5	TOLUENE	.3188	.21474	9 6 N	.0685
6	XYLENE	.5034	.22847	•	.115
7	METHANOL	3.7755	.00027	•	.001
8	BUTYL BENZENE	*	.28687		
9	PROPYL(-n) BENZENE		.30924	< ● 3	
1	O TRIMETHYLBENZENE (1,3,5)	.0085	.17006	\$ 6 3	.0014
1	1 CYMENE, para	•	.20315	•	
1	2 sec BUTYLBENZENE		.40965	•	
1	3 1,2,4-TRIMETHYLBENZENE	.0102	.1941		.002
1	4 HEXANE (-n)	.0707	1.	•	.0707
	TOTALS	6.5793			1.9857

The total air emissions are 62.62 Mg/yr

DAF or grit separator (no. 4)

Description of unit	DAF Unit #
Wastewater temperature (C)	25
KL unit surface (m/s)	0.001
Pretreatment length (m)	4
Pretreatment width (m)	4 3
Pretreatment depth (m)	3
air flow (m3/s)	0.007079
oil in composite wastewater (wt. %)	
fraction surface covered with float	0.2
Oil molecular weight	180
Density of oil (g/cc)	0.78
reserved	
reserved	
reserved	
vent air emission control factor	
cover vent rate (m3/s per m2 surface)	0.0005
If covered, then enter 1	1
reserved	
рН	7



TECHNOLOGY LABORATORY INC. CENTRE PROFESSIONAL PARK

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

CERTIFICATE OF ANALYSIS

CGRS, INC. PO Box 1489 Fort Collins, CO 80522 Received Date:

1/29/2010

Matrix:

Water

Project ID:

11727AA

Sample Number Da	<u>Date</u>	Sample Depth	Benzene	Toluene	Ethylbenze ne	<u>Total</u> <u>Xylenes</u>		GRO (TVPH)	DRO (TEPH)	Other Analytes?	Rationale	Lab ID	Date Analyzed
		(ft)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	(y/n)			i
Composite	01/28/10		4.58	8.04	< 1.0	5.57		N/A	208			9952-07	2/9/2010
EN-1	01/28/10		6.83	18	1.22	18.3		58.9	18.4			9952-01	2/9/2010
EN-2	01/28/10		10.4	40.3	3.82	58.5		167	N/A			9952-02	2/9/2010
EN-3	01/28/10		2.93	4.37	< 1.0	2.82		10.1	16			9952-03	2/9/2010
EN-4	01/28/10		4.43	8.77	< 1.0	5.41		18.6	168			9952-04	2/9/2010
EN-5	01/28/10		23.7	137	15.6	252		1977	29.1			9952-05	2/9/2010
EN-6	01/28/10		5.83	14.1	< 1.0	13.2		110	26.2			9952-06	2/9/2010

BIEX VALUES THIPLT FOR DAF MODEL - DAO OF 200 mg/L USED 390.267 77.6167

273.187 54.3317 FROM DAF

BTEXMG Method: EPA-8260B



CENTRE PROFESSIONAL PARK

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

CERTIFICATE OF ANALYSIS

CGRS, INC.

PO Box 1489

Fort Collins, CO 80522

Sample ID:

Laboratory ID

EN-1

9952-01

Sampled:

01/28/10

Received:

01/29/10

Project No.:

11727AA

Matrix:

Water

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

QA/QC SURROGATE RECOVERIES

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

BLES EMELY TECHNOLOGY LABORATORY, INC.



CENTRE PROFESSIONAL PARK

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

CERTIFICATE OF ANALYSIS

CGRS, INC. PO Box 1489

Fort Collins, CO 80522

Sample ID:

EN-2

Laboratory ID

9952-02

Sampled:

01/28/10

Received:

01/29/10

Project No.:

11727AA

Matrix:

Water

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

QA/QC SURROGATE RECOVERIES

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

Bie Emery TECHNOLOGY LABORATORY, INC.



CENTRE PROFESSIONAL PARK

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

CERTIFICATE OF ANALYSIS

CGRS, INC.

PO Box 1489

Fort Collins, CO 80522

Sample ID:

EN-3

Laboratory ID

9952-03

Sampled:

01/28/10

Received:

01/29/10

Project No.: 11727AA

Matrix:

Water

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

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



CENTRE PROFESSIONAL PARK

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

CERTIFICATE OF ANALYSIS

CGRS, INC. PO Box 1489

Fort Collins, CO 80522

Sample ID:

EN-4

Laboratory ID

9952-04

Sampled:

01/28/10

Received:

01/29/10

Project No.:

11727AA

Matrix:

Water

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

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



CENTRE PROFESSIONAL PARK

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

CERTIFICATE OF ANALYSIS

CGRS, INC. PO Box 1489

Fort Collins, CO 80522

Sample ID:

EN-5

Laboratory ID

9952-05

Sampled:

01/28/10

Received:

01/29/10

Project No.:

11727AA

Matrix:

Water

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

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





CENTRE PROFESSIONAL PARK

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

CERTIFICATE OF ANALYSIS

CGRS, INC. PO Box 1489

Fort Collins, CO 80522

Sample ID:

Laboratory ID

EN-6

9952-06

Sampled:

01/28/10

Received:

01/29/10

Project No.:

11727AA

Matrix:

Water

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

QA/QC SURROGATE RECOVERIES

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

Bie Emery TECHNOLOGY LABORATORY, INC.



CENTRE PROFESSIONAL PARK

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

CERTIFICATE OF ANALYSIS

CGRS, INC. PO Box 1489

Fort Collins, CO 80522

Sample ID:

Composite

Laboratory ID

9952-07

Sampled:

01/28/10

Received:

01/29/10

Project No.: 11727AA

Matrix:

Water

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

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

IM.

TECHNOLOGY LABORATORY, INC.

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

CERTIFICATE OF ANALYSIS

CGRS, INC. PO Box 1489

Fort Collins, CO 80522

Sample ID:

Composite

Laboratory ID:

9952-07

Sampled:

01/28/10

Received:

01/29/10

Analyzed:

02/12/10

Project No.:

11727AA

Method:

EPA-8260B

Matrix:

Water

						matrix: vvater		
	CAS		Result	MDL	CAS		Result	MDL
	Number	<u>Parameter</u>	<u>µg/L</u>	<u>µg/L</u>	Number	<u>Parameter</u>	<u>µg/L</u>	µg/L
	71-43-2	Benzene	4580	0.5	108-88-3	Toluene	8040	0.5
ı	100-41-4	Ethylbenzene	711	0.5	1330-20-7	Total Xylenes	5570	0.5
Į	91-20-3	Naphthalene	< 0.5	0.5	75-01-4	Vinyl Chloride	< 0.5	0.5
	74-87-3	Chloromethane	< 0.5	0.5	74-83-9	Bromomethane	< 0.5	0.5
١	75-00-3	Chloroethane	< 0.5	0.5	75-69-4	Trichlorofluoromethane	< 0.5	0.5
	75-35-4	1,1-Dichloroethene	< 0.5	0.5	156-60-5	trans-1,2-Dichloroethene	< 0.5	0.5
1	156-59-2	cis-1,2-Dichloroethene	< 0.5	0.5	75-09-2	Methylene Chloride	< 0.5	0.5
	75-34-3	1,1-Dichloroethane	< 0.5	0.5	74-97-5	Bromochloromethane	< 0.5	0.5
ı	67-66-3	Chloroform	< 0.5	0.5	71-55-6	1,1,1-Trichloroethane	< 0.5	0.5
	56-23-5	Carbon Tetrachloride	< 0.5	0.5	107-06-2	1,2-Dichloroethane	< 0.5	0.5
	79-01-6	Trichloroethene	< 0.5	0.5	78-87-5	1,2-Dichloropropane	< 0.5	0.5
l	75-27-4	Bromodichloromethane	< 0.5	0.5	74-95-3	Dibromomethane	< 0.5	0.5
ı	79-00-5	1,1,2-Trichloroethane	< 0.5	0.5	142-28-9	1,3-Dichloropropane	< 0.5	0.5
l	590-20-7	2,2-Dichloropropane	< 0.5	0.5	563-58-6	1,1-Dichloropropene	< 0.5	0.5
l	10061-01-5	cis-1,3-Dichloropropene	< 0.5	0.5	10061-02-6	trans-1,3-Dichloropropene	< 0.5	0.5
1	127-18-4	Tetrachloroethene	< 0.5	0.5	106-93-4	1,2-Dibromoethane (EDB)	< 0.5	0.5
l	124-48-1	Dibromochloromethane	< 0.5	0.5	108-90-7	Chlorobenzene	< 0.5	0.5
l	630-20-6	1,1,1,2-Tetrachloroethane	< 0.5	0.5	100-42-5	Styrene	< 0.5	0.5
l	75-25-2	Bromoform	< 0.5	0.5	79-34-5	1,1,2,2-Tetrachloroethane	< 0.5	0.5
l	98-82-8	Isopropylbenzene	83.7	0.5	108-86-1	Bromobenzene	< 0.5	0.5
	103-65-1	n-Propylbenzene	81.6	0.5	95-49-8	2-Chlorotoluene	< 0.5	0.5
l	106-43-4	4-Chlorotoluene	< 0.5	0.5	108-67-8	1,3,5-Trimethylbenzene	1011	0.5
	95-63-6	1,2,4-Trimethylbenzene	1219	0.5	98-06-6	tert-Butylbenzene	< 0.5	0.5
l	135-98-8	sec-Butylbenzene	1404	0.5	541-73-1	1,3-Dichlorobenzene	< 0.5	0.5
l	106-46-7	1,4-Dichlorobenzene	< 0.5	0.5	99-87-6	4-Isopropyltoluene	70.1	0.5
	104-51-8	n-Butylbenzene	< 0.5	0.5	120-82-1	1,2,4-Trichlorobenzene	< 0.5	0.5
	87-61-6	1,2,3-Trichlorobenzene	< 0.5	0.5	87-68-3	Hexachlorobutadiene	< 0.5	0.5
	95-50-1	1,2-Dichlorobenzene	< 0.5	0.5				

QA/QC SURROGATE RECOVERIES

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

Bill Emery TECHNOLOGY LABORATORY, INC.

III,

TECHNOLOGY LABORATORY, INC. 1012 CENTRE AVENUE

W.O. NUMBER 4952 CHAIN-OF-CUSTODY REPORT

FORT COLLINS, CO 80526

Phone: (970) 490-1414 Fax: (970) 472 5488 www.techlabusa.com sales@techlabusa.com ANALYSIS REQUESTED **OTHER** COMPANY NAME CGRS, INC. SOIL (S) AIR (A) OTHER (O) RCRA 8 METALS (TOTAL/TCLP/DISSOLYED) 3 NITRATE / NITRITE/ AMMONIA React. / Ignite. / Corr. / Paint Filter PROJECT MANAGER NUMBER OF CONTAINERS Oll & Grease 413.1 / 1664 HOLD AFTER ANALYSIS TO-1/TO-14/TO-15/TVPH T. ADAMS PROJECT NUMBER SVOC 625 / 8270 / PAH 541/SS1/Hd ģ HOLD, DON'T ANALYZE BTEX /***** TVPH GASES (N. O2, терн (ово) BOD / COD TRPH 418.1 11 727 AA VOC 624 / 8260 PROJECT LOCATION OR NAME GREENBACK PROPULAD WATER LLC. SAMPLERS SIGNATURE (FIXED LAB SAMPLE ID DATE/TIME SAMPLED # × X 01/28/2010 W EM - 1 × EN-2 × × 35 × EH-3 × × × × EN-4 * × EN-5 w 7 × EN-4 PAGE / OF / E 4°C ☐ None ☐ Other COMMENTS: LOGGED IN BY: Sample Preservative: ☐ Acid TURNAROUND TIME RECEIVED EN EMPLY RELINQUISHED BY: Normal (5-10 working days) COMPANY COMPANY: (1.5x Normal Rates) □3 day DATE: RECEIVED BY: ☐ 24 hr (2x Normal Rates) Same day (4x Normal Rates) TIME: COMPANY:

SECTION C AIR STRIPPER ANALYSIS

VOC Mass Balance Estimations - Liquid to Gas Phase

	TPH	Benzene	Toluene	Ethyl-benzen	Xylenes
Air Stripper Flow Rate (cfm)	2100	2100	2100	2100	2100
Influent VOC Concentration (mg/L)	305	6.84	26.9	4.8	35.58
Influent Flow Rate (gpm)	145	145	145	145	145
Liters as Vapor Hydrocarbon	45,36	1.37	4.56	0.71	5.23
moles/L	1.594205952	0.048059954	0.160245224	0.024812659	0.183924
PPM(v)	762.7112115	22.99318079	76.6656459	11.87104661	87.99413
lbs/Cubic Foot	0.000207958	4.66372E-06	1.83412E-05	3.27278E-06	2.43E-05
Run Time (hrs)	24.00	24.00	24.00	24.00	24.00
BBLs/Day (water intake)	4971.43	4971.43	4971.43	4971.43	4971.43
Tons/Yr (Vapor Emissions)	114.77	2.57	10.12	1.81	13.39

Note: Concentrations estimated from Water 9 DAF effluent concentrations

Date: 3/10 7710



TECHNOLOGY LABORATORY INC. CENTRE PROFESSIONAL PARK

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

CERTIFICATE OF ANALYSIS

CGRS, INC. PO Box 1489 Fort Collins, CO 80522 Received Date:

1/29/2010

Matrix:

Water

Project ID:

11727AA

NAME OF THE PARTY	Sample Depth		Ethylbenze Total ne Xylenes		GRO (TVPH)	DRO Other (TEPH) Analytes	Other Analytes?	Rationale Lab ID	Lab ID	Date Analyzed			
		<u>(ft)</u>	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	(y/n)			
Composite	01/28/10		4.58	8.04	< 1.0	5.57		N/A	208			9952-07	2/9/2010
EN-1	01/28/10		6.83	18	1.22	18.3		58.9	18.4			9952-01	2/9/2010
EN-2	01/28/10		10.4	40.3	3.82	58.5		167	N/A			9952-02	2/9/2010
EN-3	01/28/10		2.93	4.37	< 1.0	2.82		10.1	16			9952-03	2/9/2010
EN-4	01/28/10		4.43	8.77	< 1.0	5.41		18.6	168			9952-04	2/9/2010
EN-5	01/28/10		23.7	137	15.6	252		1977	29.1			9952-05	2/9/2010
EN-6	01/28/10		5.83	14.1	< 1.0	13.2		110	26.2			9952-06	2/9/2010

9.78333 38.43 6.88 50.8286 390.267 77.6167

6.84833 26.901 4.816

BYEX AS. INFLUENT

EFFLUENT BASED ON BEDUCTEUM RFF.

273.187 54.3317

6496 AS. REI) 34, 77 mg/L USED AS OIL CANC. IN PONIS

INPOT.

BTEXMG Method: EPA-8260B

STAT MODEL CALCULATIONS VERSION 4.1

02/12/10 13:16:26

EPG COMPANIES INC. 19900 COUNTY ROAD 81, MAPLE GROVE, MN 55311 PHONE: 763-424-2613 FAX: 763-493-4812

UNIT MODEL:	STAT 400	WATER TEMPERATURE (F):	55.0
WATER FLOW RATE (GPM):	150.0	AIR TEMPERATURE (F):	55.0
AIR FLOW RATE (ACFM): OPERATING PRESS (ATM):	2100.0	AIR-TO-WATER RATIO:	105:1
	1.0	SAFETY FACTOR (%):	15.0

Influent Conc. for BENZENE 9000.0 ppb

NO OF	REMOVAL EFF	EFF CONC	OFF-GAS_CONC	AIR EMISSION
TRAY	%	ppb	ug/l	lb∕d
1	76.11799	2149.3810	65.2440	12.3365
2	94.09651	531.3140	80.6542	15.2504
3	98.52851	132.4344	84.4530	15.9686
4	99.63246	33.0785	85.3993	16.1476
5	99.90815	8.2663	85.6356	16.1923
6	99.97704	2.0660	85.6946	16.2034

Influent Conc. for TOLUENE 37000.0 ppb

NO OF	REMOVAL EFF	EFF CONC	OFF-GAS CONC	AIR EMISSION
TRAY	%	ppb	ug/l	lb/d
1	72.03174	10348.2551	253.8261	47.9943
2	91.87647	3005.7060	323.7552	61.2167
3	97.61517	882.3870	343.9773	65.0403
4	99.29771	259.8488	349.9062	66.1614
5	99.79300	76.5912	351.6515	66.4914
6	99.93897	22.5815	352.1659	66.5887

Influent Conc. for ETHYLBENZENE 10000.0 ppb

NO OF	REMOVAL EFF	EFF CONC	OFF-GAS CONC	AIR EMISSION
TRAY	%	ppb	ug/l	lb/d
1	73.86412	2613.5883	70.3468	13.3014
2	92.97640	702.3604	88.5489	16,7431
3	98.09863	190.1365	93,4273	17.6655
4	99.48426	51.5737	94.7469	17.9151
5	99.86003	13.9966	95.1048	17.9827
6	99.96201	3.7991	95.2019	18.0011

Influent Conc. for XYLENES (TOTAL) 59000.0 ppb

NO OF	REMOVAL EFF	EFF CONC	OFF-GAS CONC	AIR EMISSION
TRAY	%	ppb	ug/l	lb/d
1	74.46140	15067.7757	418.4021	79.1128
2	93.30392	3950.6861	524.2792	99.1324
3	98.23240	1042.8831	551.9725	104.3688
4	99.53257	275.7852	559.2782	105.7502
5	99.87633	72.9643	561.2099	106.1154
6	99.96728	19.3065	561.7209	106.2120

Influent Conc. for TPH AS GAS(ASSUME BENZENE) 59000.0 ppb

NO OF TRAY	REMOVAL EFF %	EFF CONC ppb	OFF-GAS CONC ug/l	AIR EMISSION 1b/d
1	76.11799	14090.3863	427.7106	80.8729
2	94.09651	3483.0586	528.7328	99.9745
3	98.52851	868.1811	553.6364	104.6834
4	99.63246	216.8477	559.8395	105.8563
5	99.90815	54.1904	561.3887	106.1492
6	99.97704	13.5440	561.7758	106.2224

Influent Conc. for METHANOL 100000.0 ppb

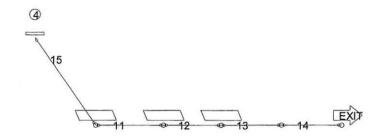
NO OF TRAY	REMOVAL EFF %	EFF CONC	OFF-GAS CONC ug/l	AIR EMISSION 1b/d
1	0.37944	99620.5628	3.6137	0.6833
2	0.61863	99381.3722	5.8917	1.1140
3	0.76975	99230.2464	7.3310	1.3862
4	0.86538	99134.6243	8.2417	1.5584
5	0.92593	99074.0660	8.8184	1.6674
6	0.96431	99035.6918	9.1839	1.7365

Influent Conc. for TOTAL VOCs 274000.0 ppb

NO OF	REMOVAL EFF	EFF CONC	OFF-GAS CONC	AIR EMISSION
TRAY	%	dqq	ug/l	lb/d
1	47.48542	143889.9491	1239.1433	234.3013
2	59.46916	111054.4972	1551.8619	293.4311
3	62.64735	102346.2685	1634.7974	309.1128
4	63.51396	99971.7582	1657.4118	313.3888
5	63.75910	99300.0748	1663.8088	314.5984
6	63.83322	99096.9890	1665.7430	314.9641

SECTION D

POND WATER 9 MODEL



No.	. Name Type	flow (I/s)
11	Pond Storage 8.1 lagoon	8.39
12	Pond Storage 8.2 lagoon	8.39
13	Pond Storage 8.3 lagoon	8.39
14	def.system exit st system exit str	ream 8.39
15	default hard piped hard piped, no	o headspace
	20 - 100-100-00 (100-100-00 (100-00 (100-00 (100 (1	8.39

POND WATER QUALITY INPUT

UNIT CONCENTRATION SUMMARY 03-19-2010 11:04:58
GreenBack Emission Estimates
Project H:\Documents\Pond 3/16/2010 4:42:24 PM
The selected unit is 15 default hard piped

COMPOUND NAME	Cin	Air	Removal	Cout
	(PPMW)	fe	fbio	(ppmw)
BENZENE	0.00246	*		0.00246
CUMENE (isopropylbenzene)	1.e-20			1.e-20
ETHYLBENZENE	0.003799		•	0.003799
OIL (decane as surrogate)	34.77	•		34.77
TOLUENE	0.0234		•	0.0234
XYLENE	0.019307			0.019307
METHANOL	412.			412.
HEXANE (-n)	0.00848			0.00848

TOTAL ALL COMPOUNDS

0.00E+00 g/s air emissions

WASTEWATER TREATMENT UNIT AIR EMISSIONS 03-19-2010 GreenBack Emission Estimates HEXANE(-n) 11 Pond Storage 8.1

	Greenback Emission Escimaces	1115	XMINE (-II)	II FOIIG	blorage 6.1
No.	Name	loading (g/s)	FE.	FBIO	EMISS. (g/s)
1	BENZENE		.11291	.8237	
2	CUMENE (isopropylbenzene)		.0481	.91758	
3	ETHYLBENZENE	•	.06784	.88667	
4	OIL (decane as surrogate)	.2917	.02662	.9534	.0078
5	TOLUENE	.0002	.06398	.89581	*
6	XYLENE	.0002	.08669	.86173	
7	METHANOL	3.4567	.30993	.26735	1.0713
8	HEXANE(-n)	.0001	.09246	.8455	¥
T	TOTALS he total air emissions are 34.03 Mg	3.7489 /yr			1.0791

WASTEWATER TREATMENT UNIT AIR EMISSIONS 03-19-2010 GreenBack Emission Estimates HEXANE(-n) 12 Pond Storage 8.2

No.	Name	loading (g/s)	FE.	FBIO	EMISS. (g/s)
1	BENZENE		.11291	.8237	
2	CUMENE (isopropylbenzene)	,	.0481	.91758	
3	ETHYLBENZENE		.06783	.88668	
4	OIL (decane as surrogate)	.0058	.02073	.96372	.0001
5	TOLUENE		.06397	.89581	•
6	XYLENE		.08668	.86174	
7	METHANOL	1.4612	.25846	.38901	.3777
8	HEXANE (-n)		.09246	.8455	•
ייני	TOTALS	1.4671			.3778

The total air emissions are 11.91 Mg/yr

WASTEWATER TREATMENT UNIT AIR EMISSIONS 03-19-2010 GreenBack Emission Estimates HEXANE(-n) 13 Pond Storage 8.3

No.	Name	loading (g/s)	FE.	FBIO	EMISS. (g/s)
1	BENZENE		.11291	.8237	
2	CUMENE (isopropylbenzene)	·	.0481	.91758	
3	ETHYLBENZENE	*	.06783	.88668	•
4	OIL (decane as surrogate)	.0001	.02063	.96388	•
5	TOLUENE	•	.06397	.89581	•
6	XYLENE	•	.08668	.86174	•
7	METHANOL	.5151	.22429	.46981	.1155
8	HEXANE (-n)		.09246	.8455	•
	TOTALS	.5152			.1155

The total air emissions are 3.64 Mg/yr

lagoon (no. 11)

Description of unit	Pond Storae 81
Wastewater temperature (C)	25
Length of impoundment (m)	67.056
Depth of impoundment (m)	1.8288
Width of impoundment (m)	45.72
active biomass, impoundment (g/l)	0.05
if there is plug flow, enter 1	
time for emissions in lagoon (months)	
Overall biorate (mg/g bio-hr)	19
sorption flag for solids settling =1	
reserved	
рН	

SECTION E EPA TANKS ANALYSES

TANKS 4.0.9d

Emissions Report - Summary Format Tank Indentification and Physical Characteristics

Identification

User Identification: Treat Tank
City: Rifle
State: Colorado

Company: GreenBack Produced Water Recovery, LLC

Type of Tank: Vertical Fixed Roof Tank
Description: 400 bbl Oil Treating Tanks

Tank Dimensions

 Shell Height (ft):
 20.00

 Diameter (ft):
 12.00

 Liquid Height (ft):
 17.00

 Avg. Liquid Height (ft):
 17.00

 Volume (gallons):
 14,382.50

 Turnovers:
 210.12

 Net Throughput(gal/yr):
 3,022,051.65

Is Tank Heated (y/n): Y

Paint Characteristics

Shell Color/Shade: Gray/Light
Shell Condition Good
Roof Color/Shade: Gray/Light
Roof Condition: Good

Roof Characteristics

Type: Dome

Height (ft) 25.00 Radius (ft) (Dome Roof) 12.00

Breather Vent Settings

Vacuum Settings (psig): 0.00
Pressure Settings (psig) 0.00

Meterological Data used in Emissions Calculations: Grand Junction, Colorado (Avg Atmospheric Pressure = 12.37 psia)

TANKS 4.0.9d Emissions Report - Summary Format Liquid Contents of Storage Tank

Treat Tank - Vertical Fixed Roof Tank Rifle, Colorado

			ily Liquid S perature (d		Liquid Bulk Temp	Vapo	r Pressure	(psia)	Vapor Mol.	Liquid Mass	Vapor Mass	Mol.	Basis for Vapor Pressure
Mixture/Component	Month	Avg.	Min.	Max.	(deg F)	Avg.	Min.	Max.	Weight.	Fract.	Fract.	Weight	Calculations
Crude oil (RVP 5)	All	60.92	50.34	71.50	55.17	2.9302	2.3720	3.5895	50.0000			207.00	Option 4: RVP=5
Benzene						1.1980	0.8879	1.5932	78.1100	0.0040	0.0067	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Distillate fuel oil no. 2						0.0067	0.0046	0.0095	130.0000	0.2200	0.0014	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethylbenzene						0.1121	0.0769	0.1602	106.1700	0.0046	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 7)						3.5505	2.8517	4.3822	68.0000	0.2600	0.9640	92.00	Option 4: RVP=7, ASTM Slope=3
Isopropyl benzene						0.0498	0.0332	0.0731	120.2000	8000.0	0.0001	120.20	Option 2: A=6.93666, B=1460.793, C=207.78
Residual oil no. 6						0.0000	0.0000	0.0001	190.0000	0.1150	0.0000	387.00	Option 1: VP60 = .00004 VP70 = .00006
Toluene						0.3397	0.2427	0.4679	92.1300	0.0340	0.0163	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						-9.1819	-3.3868	-3.3947	0.6987	0.3096	0.0038	-733.44	Fig. 12 (1997) 1997 1997 1997 1997 1997 1997 1997
Xylenes (mixed isomers)						0.0933	0.0638	0.1339	106.1700	0.0520	0.0069	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d Emissions Report - Summary Format Individual Tank Emission Totals

Emissions Report for: Annual

Treat Tank - Vertical Fixed Roof Tank Rifle, Colorado

		Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions	
Crude oil (RVP 5)	2,446.60	1,101.83	3,548.43	
Benzene	16.48	7.42	23.90	
Toluene	39.93	17.98	57.91	
Xylenes (mixed isomers)	16.78	7.56	24.33	
Gasoline (RVP 7)	2,358.58	1,062.19	3,420.77	
Residual oil no. 6	0.01	0.00	0.01	
Isopropyl benzene	0.13	0.06	0.19	
Distillate fuel oil no. 2	3.54	1.59	5.13	
Ethylbenzene	1.79	0.80	2.59	
Unidentified Components	9.36	4.22	13.58	

TANKS 4.0.9d

Emissions Report - Summary Format Tank Indentification and Physical Characteristics

Identification

User Identification:
City:
State:
Oil Sales Tank
Rifle
Colorado

Company: GreenBack Produced Water Recovery, LLC

Type of Tank: Vertical Fixed Roof Tank
Description: Heated Oll Sales Tank

Tank Dimensions

 Shell Height (ft):
 20.00

 Diameter (ft):
 12.00

 Liquid Height (ft):
 17.00

 Avg. Liquid Height (ft):
 17.00

 Volume (gallons):
 14,382.50

 Turnovers:
 210.12

 Net Throughput(gal/yr):
 3,022,051.65

Is Tank Heated (y/n): N

Paint Characteristics

Shell Color/Shade: Gray/Light
Shell Condition Good
Roof Color/Shade: Gray/Light
Roof Condition: Good

Roof Characteristics

Type: Dome

 Height (ft)
 25.00

 Radius (ft) (Dome Roof)
 12.00

Breather Vent Settings

Vacuum Settings (psig): -0.13
Pressure Settings (psig) 0.25

Meterological Data used in Emissions Calculations: Grand Junction, Colorado (Avg Atmospheric Pressure = 12.37 psia)

TANKS 4.0.9d Emissions Report - Summary Format Liquid Contents of Storage Tank

Oil Sales Tank - Vertical Fixed Roof Tank Rifle, Colorado

			ily Liquid Si perature (de		Liquid Bulk Temp	Vapo	r Pressure	(psia)	Vapor Mol.	Liquid Mass	Vapor Mass	Mol.	Basis for Vapor Pressure
Mixture/Component	Month	Avg.	Min.	Max.	(deg F)	Avg.	Min.	Max.	Weight.	Fract.	Fract.	Weight	Calculations
Crude oil (RVP 5)	All	60.92	50.34	71.50	55.17	2.9302	2.3720	3.5895	50.0000			207.00	Option 4: RVP=5
Benzene						1.1980	0.8879	1.5932	78.1100	0.0040	0.0067	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Distillate fuel oil no. 2						0.0067	0.0046	0.0095	130.0000	0.2200	0.0014	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethylbenzene						0.1121	0.0769	0.1602	106.1700	0.0046	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 7)						3.5505	2.8517	4.3822	68,0000	0.2600	0.9640	92.00	Option 4: RVP=7, ASTM Slope=3
Isopropyl benzene						0.0498	0.0332	0.0731	120.2000	0.0008	0.0001	120.20	Option 2: A=6.93666, B=1460.793, C=207.78
Residual oil no. 6						0.0000	0.0000	0.0001	190.0000	0.1150	0.0000	387.00	Option 1: VP60 = .00004 VP70 = .00006
Toluene						0.3397	0.2427	0.4679	92.1300	0.0340	0.0163	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						-9.1819	-3.3868	-3.3947	0.6987	0.3096	0.0038	-733.44	
Xylenes (mixed isomers)						0.0933	0.0638	0.1339	106.1700	0.0520	0.0069	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d Emissions Report - Summary Format Individual Tank Emission Totals

Emissions Report for: Annual

Oil Sales Tank - Vertical Fixed Roof Tank Rifle, Colorado

		Losses(lbs)	
Components	Working Loss	Breathing Loss	Total Emissions
Crude oil (RVP 5)	2,446.60	1,104.33	3,550.93
Benzene	16.48	7.44	23.92
Toluene	39.93	18.02	57.95
Xylenes (mixed isomers)	16.78	7.57	24.35
Gasoline (RVP 7)	2,358.58	1,064.60	3,423.18
Residual oil no. 6	0.01	0.00	0.01
Isopropyl benzene	0.13	0.06	0.19
Distillate fuel oil no. 2	3.54	1.60	5.14
Ethylbenzene	1.79	0.81	2.59
Unidentified Components	9.36	4.23	13.59

			\cup
	4		

TANKS 4.0.9d

Emissions Report - Summary Format Tank Indentification and Physical Characteristics

Identification

User Identification: Gun Barrel City: Rifle State: Colorado

Company: GreenBack Produced Water Recovery, LLC

Type of Tank: Vertical Fixed Roof Tank
Description: Vertical Oil-Water Separator

Tank Dimensions

 Shell Height (ft):
 27.00

 Diameter (ft):
 12.60

 Liquid Height (ft):
 24.00

 Avg. Liquid Height (ft):
 24.00

 Volume (gallons):
 22,385.94

 Turnovers:
 135.00

 Net Throughput(gal/yr):
 3,022,102.42

Is Tank Heated (y/n): N

Paint Characteristics

Shell Color/Shade: Gray/Light
Shell Condition Good
Roof Color/Shade: Gray/Light
Roof Condition: Good

Roof Characteristics

Type: Dome

 Height (ft)
 25.00

 Radius (ft) (Dome Roof)
 12.60

Breather Vent Settings

Vacuum Settings (psig): -0.13 Pressure Settings (psig) 0.25

Meterological Data used in Emissions Calculations: Grand Junction, Colorado (Avg Atmospheric Pressure = 12.37 psia)

TANKS 4.0.9d Emissions Report - Summary Format Liquid Contents of Storage Tank

Gun Barrel - Vertical Fixed Roof Tank Rifle, Colorado

			ily Liquid Si perature (de		Liquid Bulk Temp	Vapo	r Pressure	(psia)	Vapor Mol.	Liquid Mass	Vapor Mass	Mol.	Basis for Vapor Pressure
Mixture/Component	Month	Avg.	Min.	Max.	(deg F)	Avg.	Min.	Max.	Weight.	Fract.	Fract.	Weight	Calculations
Crude oil (RVP 5)	All	60.92	50.34	71.50	55.17	2.9302	2.3720	3.5895	50.0000			207.00	Option 4: RVP=5
Benzene						1.1980	0.8879	1.5932	78.1100	0.0040	0.0067	78.11	Option 2: A=6,905, B=1211.033, C=220.79
Distillate fuel oil no. 2						0.0067	0.0046	0.0095	130.0000	0.2200	0.0014	188.00	Option 1: VP60 = .0065 VP70 = .009
Ethylbenzene						0.1121	0.0769	0.1602	106.1700	0.0046	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 7)						3.5505	2.8517	4.3822	68.0000	0.2600	0.9640	92.00	Option 4: RVP=7, ASTM Slope=3
Isopropyl benzene						0.0498	0.0332	0.0731	120.2000	0.0008	0.0001	120.20	Option 2: A=6.93666, B=1460.793, C=207.78
Residual oil no. 6						0.0000	0.0000	0.0001	190.0000	0.1150	0.0000	387.00	Option 1: VP60 = .00004 VP70 = .00006
Toluene						0.3397	0.2427	0.4679	92.1300	0.0340	0.0163	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						-9.1819	-3.3868	-3.3947	0.6987	0.3096	0.0038	-733.44	
Xylenes (mixed isomers)						0.0933	0.0638	0.1339	106,1700	0.0520	0.0069	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d Emissions Report - Summary Format Individual Tank Emission Totals

Emissions Report for: Annual

Gun Barrel - Vertical Fixed Roof Tank Rifle, Colorado

	Losses(lbs)											
Components	Working Loss	Breathing Loss	Total Emissions									
Crude oil (RVP 5)	3,074.79	1,210.67	4,285.46									
Benzene	20.71	8.16	28.87									
Toluene	50.18	19.76	69.94									
Xylenes (mixed isomers)	21.09	8.30	29.39									
Gasoline (RVP 7)	2,964.18	1,167.11	4,131.29									
Residual oil no. 6	0.01	0.00	0.01									
Isopropyl benzene	0.17	0.07	0.23									
Distillate fuel oil no. 2	4.45	1.75	6.20									
Ethylbenzene	2.24	0.88	3.13									
Unidentified Components	11.77	4.63	16.40									

TANKS 4.0.9d

Emissions Report - Summary Format Tank Indentification and Physical Characteristics

Identification

User Identification: Oil Sales Tank ID #8 Gas RVP 7

City: Rifle State: Colorado

Company: GreenBack Produced Water, LLC Type of Tank: Vertical Fixed Roof Tank

Description: Vertical Fixed Roof Tank
Condenstate Oil Sales Tank

Tank Dimensions

 Shell Height (ft):
 20.00

 Diameter (ft):
 12.00

 Liquid Height (ft):
 17.00

 Avg. Liquid Height (ft):
 17.00

 Volume (gallons):
 14,382.50

 Turnovers:
 210.12

 Net Throughput(gal/yr):
 3,022,051.65

Is Tank Heated (y/n): N

Paint Characteristics

Shell Color/Shade: Gray/Light
Shell Condition Good
Roof Color/Shade: Gray/Light
Roof Condition: Good

Roof Characteristics

Type: Dome

Height (ft) 20.00 Radius (ft) (Dome Roof) 12.00

Breather Vent Settings

Vacuum Settings (psig): -0.13
Pressure Settings (psig) 0.25

Meterological Data used in Emissions Calculations: Grand Junction, Colorado (Avg Atmospheric Pressure = 12.37 psia)

TANKS 4.0.9d Emissions Report - Summary Format Liquid Contents of Storage Tank

Oil Sales Tank ID #8 Gas RVP 7 - Vertical Fixed Roof Tank Rifle, Colorado

			ily Liquid S perature (d		Líquið Bulk Temp	Vapo	r Pressure	(psia)	Vapor Mol.	Liquid Mass	Vapor Mass	Mol.	Basis for Vapor Pressure
Mixture/Component	Month	Avg.	Min.	Max.	(deg F)	Avg.	Min.	Max.	Weight.	Fract.	Fract.	Weight	Calculations
Gasoline (RVP 7)	All	60.92	50.34	71.50	55.17	3.5505	2.8517	4.3822	68.0000		W	92.00	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)						3.5505	2.8517	4.3822	68.0000	0.5900	0.5900	92.00	Option 4: RVP=7, ASTM Slope=3
Residual oil no. 6						0.0000	0.0000	0.0001	190.0000	0.2200	0.0000	387.00	Option 1: VP60 = .00004 VP70 = .00006
Unidentified Components						4.0696	2.6978	2.6978	67.9998	0.1900	0.4100	48.87	

TANKS 4.0.9d Emissions Report - Summary Format Individual Tank Emission Totals

Emissions Report for: Annual

Oil Sales Tank ID #8 Gas RVP 7 - Vertical Fixed Roof Tank Rifle, Colorado

	Losses(lbs)											
Components	Working Loss	Breathing Loss	Total Emissions									
Gasoline (RVP 7)	5,375.68	1,814.97	7,190.65									
Gasoline (RVP 7)	3,171.65	1,070.83	4,242.48									
Residual oil no. 6	0.01	0.00	0.01									
Unidentified Components	2,204.02	744.13	2,948.15									

TANKS 4.0.9d

Emissions Report - Summary Format Tank Indentification and Physical Characteristics

Identification

User Identification: Tanker Off-Loading

City: Rifle State: Colorado

Company: GreenBack Produced Water Recovery, LLC

Type of Tank: Horizontal Tank

Description: GreenBack Shaeffer Ranch Site

Tank Dimensions

 Shell Length (ft):
 22.00

 Diameter (ft):
 8.00

 Volume (gallons):
 8,000.00

 Turnovers:
 383.25

 Net Throughput(gal/yr):
 3,066,000.00

Is Tank Heated (y/n):
Is Tank Underground (y/n):

N

Paint Characteristics

Shell Color/Shade: Aluminum/Diffuse

Shell Condition Good

Breather Vent Settings

Vacuum Settings (psig): -0.03 Pressure Settings (psig) 0.03

Meterological Data used in Emissions Calculations: Grand Junction, Colorado (Avg Atmospheric Pressure = 12.37 psia)

TANKS 4.0.9d Emissions Report - Summary Format Liquid Contents of Storage Tank

Tanker Off-Loading - Horizontal Tank Rifle, Colorado

			ily Liquid S perature (d		Liquid Bulk Temp	Vapo	r Pressure	(psia)	Vapor Mol.	Liquid Mass	Vapor Mass	Mol.	Basis for Vapor Pressure
Mixture/Component	Month	Avg.	Min.	Max.	(deg F)	Avg.	Min.	Max.	Weight.	Fract.	Fract.	Weight	Calculations
Crude oil (RVP 5)	All	61.87	50.63	73.11	55.53	2.9851	2.3859	3.6996	50.0000			207.00	Option 4: RVP=5
Benzene						1.2298	0.8953	1.6619	78.1100	0.0040	0.0068	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Elhylbenzene						0.1158	0.0777	0.1689	106.1700	0.0040	0.0006	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Gasoline (RVP 7)						3.6195	2.8690	4.5217	68.0000	0.2500	0.9276	92.00	Option 4: RVP=7, ASTM Slope=3
Residual oil no. 6						0.0000	0.0000	0.0001	190.0000	0.0000	0.0000	387.00	Option 1: VP60 = .00004 VP70 = .00006
Toluene						0.3499	0.2449	0.4906	92.1300	0.0346	0.0168	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						3.7668	1.5240	1.5519	6.8301	0.6546	0.0411	568.35	
Xylenes (mixed isomers)						0.0965	0.0645	0.1413	106,1700	0.0528	0.0071	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d Emissions Report - Summary Format Individual Tank Emission Totals

Emissions Report for: Annual

Tanker Off-Loading - Horizontal Tank Rifle, Colorado

	Losses(lbs)											
Components	Working Loss	Breathing Loss	Total Emissions									
Crude oil (RVP 5)	2,001.60	923.10	2,924.71									
Benzene	13.66	6.30	19.95									
Ethylbenzene	1.29	0.59	1.88									
Gasoline (RVP 7)	1,856.66	856.26	2,712.92									
Residual oil no. 6	0.00	0.00	0.00									
Toluene	33.60	15.50	49.10									
Xylenes (mixed isomers)	14.14	6.52	20.67									
Unidentified Components	82.26	37.94	120.19									

ATTACHMENT D

FORM APCD-101

Section VI.C)

Colorado Department of Public Health and Environment Air Pollution Control Division



Company Contact Information Form

Ver. September 10, 2008

Company Na	me: GreenBack	Produc	ced Water I	Recovery, LLC			
Source Name	Shaeffer 1	Ranch	Facility				
Permit Contact ¹ :	JOBY ADAMS - C	GRS, I	INC	Compliance Contact ² :	JOBY ADAMS - C	GRS,	INC.
	1301 ACADEMY C	T.			1301 ACADEMY	CT	
Address:	Street			Address:	Street		
radi ess.	FORT COLLINS	CO	80524	Address.	FORT COLLINS	co	80524
	City	State	Zip		City	State	Zip
Phone Number:	970-493-7780			Phone Number:	970-493-7780		
Fax Number:	970-493-7986			Fax Number:	970-493-7986		
E-mail:	JOBY@CGRS.COM			E-mail:	JOBY@CGRS.COM		
Billing Contact: (Permit Fees) ³	DANIEL PACKARI)		Billing Contact: (Annual Fees) ⁴	DANIEL PACKARD		
	1900 GRANT STRE	ET, SU	JITE 630		1900 GRANT STRE	ET, SU	JITE 630
Address:	Street			Address:	Street		
	DENVER	CO	80203		DENVER	CO	80203
	City	State	Zip		City	State	Zip
Phone Number:	303-88	7-8387	7	Phone Number:	303-887-	8387	
Fax Number:	303-31	8-9659	9	Fax Number:	303-318-	9659	
E-mail:	DANPACKARD@AC	L.COM		E-mail:	DANPACKARD@	AOL.C	MC
Check how would	you like to receive E-ma		ermit fee inv	voice?			
This may be a co The compliance facility.	ompany representat contact should be t	ive or a	a consultant. at of contact	echnical information co	on and compliance a	t the p	

associated with processing the permit application & issuing the permit. (Reg. 3, Part A, Section VI.B)

The billing contact (Annual fees) should be the point of contact that should receive the invoices issued on an annual basis for fees associated with actual emissions reported on APENs for the facility. (Reg. 3, Part A,

ATTACHMENT E

AIR IMPACT ANALYSIS

(INTENTIONALLY LEFT BLANK)

ATTACHMENT F

FORM APCD-102

Facility Wide Emissions Inventory Form

Ver. September 10, 2008



Company Name: GreenBack Produced Water Recovery, LLC Source Name: Shaeffer Ranch Facility Source AIRS ID: Proposed

								Unc	ontrolled	d Potentia	al to Emi	it (PTE)			are is										Cor	trolled I	Potential	to Emit	(PTE)						
				Cr	riteria (TI	PY)			ŗ				H	APs (lbs/y	r)						С	riteria (1	TPY)			Ţ		to Dant	(* 12)	HA	Ps (lbs/yr	•)			
AIRS ID	Equipment Description	TSP	PM10	PM2.5	SO2	NOx	со	voc	l BZ	Tol	EB	Xyl	нсно	Acetal	Acro	n-Hex	Meth	224-TMP	TSP	PM10	PM2.5	SO2	NOx	со	voc	l BZ	Tol	ЕВ	Xyi	нсно	-	Acro	n-Hex	Meth	224-TN
Proposed	Sump ID [*] #1							5.0	155	1,168	142	1,865					19																		
Proposed	DAF ID#3								1																3.5-	310	236	118	403		-		243	7	-
Proposed	Oil Tank ID#6								779	1,530		0															27/20/20						215	1	
Proposed	Oil Tank ID#7								765	1,502	118	639														1000		1397							
Proposed	Pond ĮD 8.1							37.5	<u></u>								74,482																		
Proposed	Pond ID 8.2							13.1									26,260																		
Proposed	Pond ID 8.3							4.0	L								8,030																		
Proposed	Air Stripper ID#4		- Marie - S						<u> </u>	-		-					-		-						57.5 -*	5,914	24,304	6,570	38,767				20,863	634	
Permitted	Sources Subtotal =	0.0	0.0	0.0	0.0	0.0	0.0	58.3	1,543	3,031	132	639	0	0	0	0	108,772	0	0.0	0.0	0.0	0.0	0.0	0.0	60.9	6,225	24,540	6,688	39,170	0	0	0	21,106	641	0
N Only - Pern	nit Exempt Sources																																		
																														T					
							_	-	<u> </u>	-		_				-	-																		
									-							14. 31											-								
							-		!	-							-		-+									-							
API	EN Only Subtotal =	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0
N Exempt / Ir	nsignificant sources																																		
																												T		T		T	T	T	
	Gun Barrel ID #5							0.0	7	7	0	7													i										
	Filter Box ID #2							0.1	14	56	7	7					0								i										
	Off-Loading #9							1.5	20	49	2	21	_								\rightarrow				—-i										
					_				-				$\overline{}$		-		\vdash		-	_	-	-	-+	-	- i	-	-	\rightarrow							
									!																- !	-	-		-	-	\rightarrow	-+	-	-	-
Insig	gnificant Subtotal =	0.0	0.0	0.0	0.0	0.0	0.0	1,5	40	112	9	35	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0
т	otal, All Sources =	0.0	0.0	0.0	0.0	0.0	0.0	59.9	1,584	3,143	141	674	0	0	0	0	108,772	0	0.0	0.0	0.0	0.0	0.0	0.0	60.9	6,225	24,540	6.688	39,170	0	0 1	0 1	21,106	641	0
																								-				,]	,,,,,			0	22,200	041	U
				1	Uncontro	lled HAPs	Summar	y (TPY) =	0.8	1.6	0.1	0.3	0.0	0.0	0.0	0.0	54.4	0.0				Controll	ed HAPs S	Summary	(TPY) =	3.1	12.3	3,3	19.6	0.0	0.0	0.0	10.6	0.3	0.0

- 1. This form should be completed to include both existing sources and all proposed new or modifications to existing emissions sources
- 2. If the emissions source is new then enter "proposed" under the Permit No. and AIRS ID data columns

3. HAP abbreviations include:

224-TMP = 2,2,4-Trimethylpentane

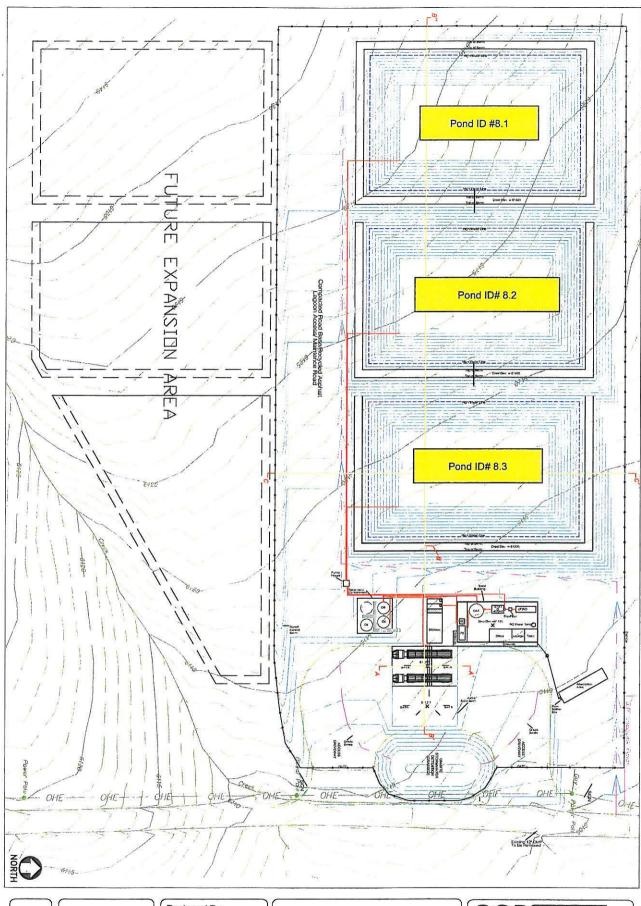
BZ = Benzene Tol = Toluene Acetal = Acetaldehyde EB = EthylbenzeneAcro = Acrolein Xyl = Xylene n-Hex = n-Hexane

HCHO = Formaldehyde Meth = Methanol

4. APEN Exempt/Insignificant Sources should be included when warranted.

ATTACHMENT G

PROCESS DESCRIPTION, FACILITY PLOT PLAN AND PROCESS FLOW DIAGRAMS



Sheet No.

FIGURE 2 Site Development Map GreenBack Shaeffer Ranch Facility
Garfield County, Colorado

Designed By:

Drawn By: ARG

Checked By: Date: MARCH 2010

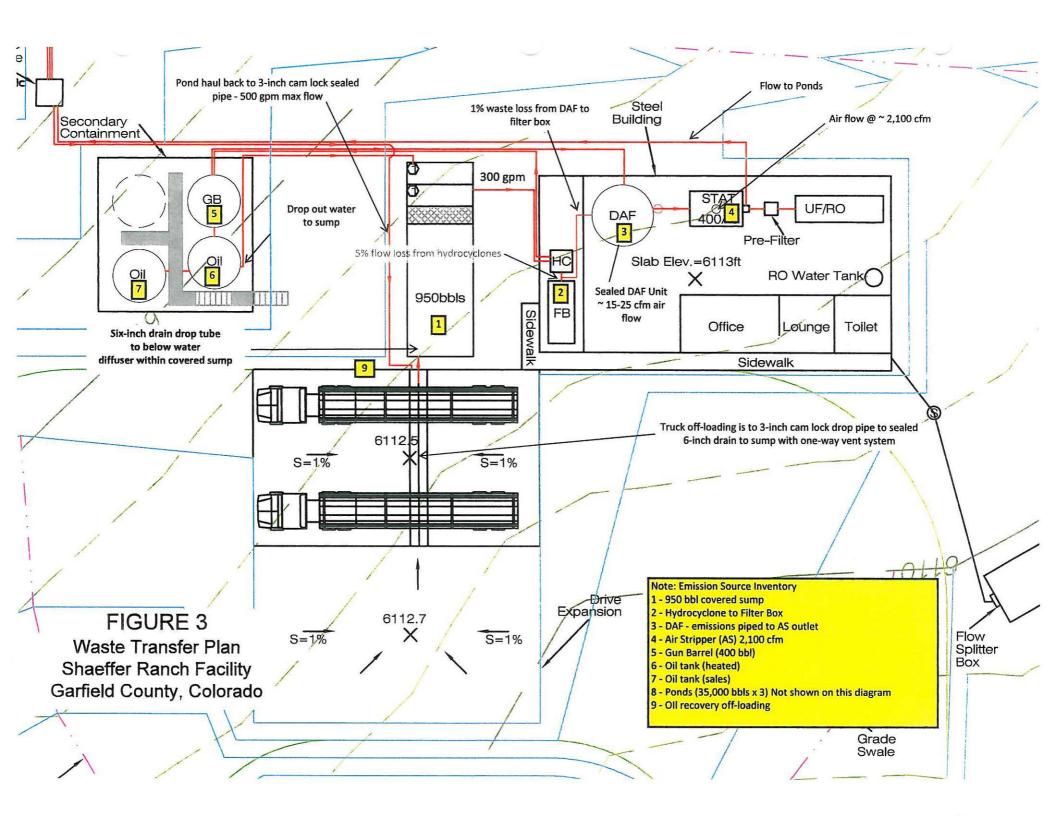
Scale: 1" = 60'

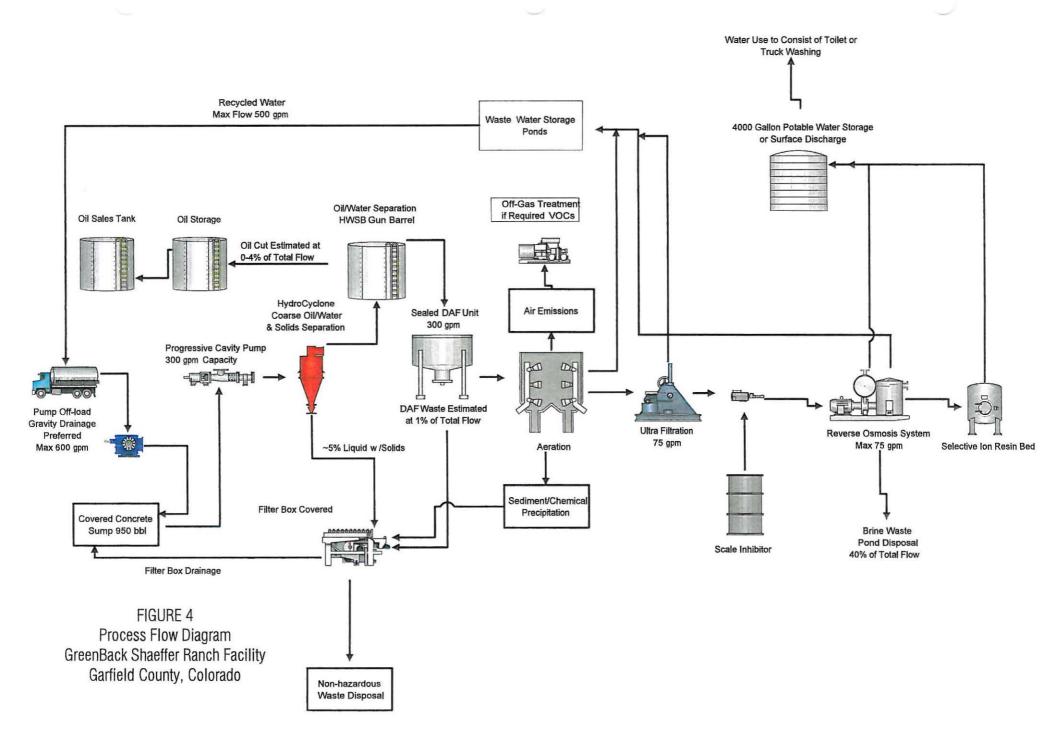
GREENBACK PRODUCED WATER MANAGMENT

RIFLE, COLORADO



P.O. BOX 1489 FORT COLLINS, CO 80522 Tel. (970) 493-7780 Fax. (970) 493-7986





ATTACHMENT H

OPERATIONS AND MAINTENANCE PLAN - APCD FORM SERIES 300

X

general conditions.

Colorado Department of Public Health and Environment Air Pollution Control Division



Operating and Maintenance Plan Template for Condensate and Mixed Liquid Storage Tanks

Ver. September 10, 2008

The Air Pollution Control Division (Division) developed this Operating and Maintenance Plan (O&M Plan) for condensate and mixed liquid storage tanks permitted at synthetic minor facilities in the State of Colorado. An O&M Plan shall be submitted with the permit application. One O&M Plan may be used for multiple tanks at one facility if each are controlled and monitored in the same manner. If the O&M Plan template is completed correctly, the Division will approve the O&M Plan and a construction permit will be issued with the requirement to follow the O&M Plan as submitted. If the template is not completed correctly, the Division will work with the facility to make corrections. Once a construction permit is issued, the facility operator must comply with the requirements of the O&M Plan upon commencement of operation. Operators are not required to use this template. Independent case specific O&M Plans may be developed and submitted for approval with the permit application. However, the Division encourages the use of this template to expedite the permit application approval process.

application, 110 iic	vor, the British	in checourages tr	ic abe of time to	inplate to expe	ance the permit up	prioution appro-	rai process.
Submittal Date:	March 22, 2	010					
Section 1 - Source	Identification						
For new permits so may not be known							
Company Name:	GreenBack I Recovery, L	Produced Water LC	Facil	ity Location:	NE, NE, S12,	T7S, R93W	
Facility Name:	Shaeffer Ran		Facil	ity AIRS ID (fo	or existing facilit	ies)	
	X						1
			ts Covered by				
Facility Equipm	ent ID	#1	#2	#3	#5	#6	#7
Permit Number							
AIRS Point ID							
Tank Type ^a		ML	ML	ML	ML	C	C
Controlled (Y/N)	N	N	Y	N	N	N
^a Tank types include Section 2 - Maintee Check one of the f	nance Schedu	Notice Fig. (Without and the Control of Annual C	quid (ML)				
	an arangalista (S. 🗷 191						
devices. Th	ese schedules		well as any ma	nintenance reco	nd maintenance or ords showing con		

Facility shall follow individually developed maintenance practices and schedules for the operation and maintenance of equipment and control devices. These schedules and practices, as well as any maintenance records showing compliance

with these recommendations, shall be made available to the division upon request and should be consistent with good air pollution control practices for minimizing emissions as defined in the New Source Performance Standard (NSPS)

Section 3 - Monthly Emission Modeling or Calculations

The following box must be checked for O&M plan to be considered complete.

The source will calculate emissions based on the methods and emission factors provided in the permit application and approved by the division, as reflected in the construction permit. Please see the operation and maintenance plan guidance document for further details and examples of emission calculations.

Section 4 - General Monitoring Requirements

All condensate collection, storage, processing and handling operations, regardless of size, shall be designed, operated and maintained to minimize leakage of volatile organic compounds to the atmosphere to the maximum extent practicable.

Table 1 below details the schedule on which the source must monitor each of the listed operating parameters depending on the requested permitted emissions at the facility. Check the appropriate box based on the facility wide permitted VOC emissions.

	Table 1	
	Monitoring	g Frequency
Parameter	Permitted Facility Emissions = 80 tpy VOC	Permitted Facility Emissions < 80 tpy VOC
Condensate Throughput	Monthly	Monthly
Separator Temperature (if present)	Weekly	Monthly
Separator Pressure (if present)	Weekly	Monthly

Table 2 outlines condensate and mixed liquid throughput monitoring methods. The source must chose one primary monitoring method and, optionally, may chose up to two backup methods. Check each box that applies.

Table 2				
Primary	Back-up	Condensate or Mixed Liquid Throughput Monitoring Method		
\boxtimes		Inlet meter(s)		
		Tank level measurements which take into account all additions and loadout activity		
	\boxtimes	Sales or haul tickets		
		Other (to be approved by the division): attach method explanation and sample calculations		

Section 5 - Emission Control or Recycling Equipment Monitoring Requirements

If a control device is used then leakage of VOCs to the atmosphere must be minimized as follows:

- Thief hatch seals shall be inspected for integrity annually and replaced as necessary;
- Thief hatch covers shall be weighted and properly seated;
- · Pressure relief valves (PRV) shall be inspected annually for proper operation and replaced as necessary;
- PRVs shall be set to release at a pressure that will ensure flashing, working and breathing losses (as applicable) are routed to the control device under normal operating conditions;
- Annual inspections shall be documented with an indication of status, a description of any problems found, and their resolution.

Table 3 below details the monitoring frequency for control equipment depending on the type of control equipment used and the requested permitted emissions at the facility. Check the appropriate box for "Monitoring Frequency" based on the facility-wide permitted VOC emissions. In addition, indicate storage tank emissions controls by checking the appropriate boxes.

		Table 3		
Emissions Control	- 11		Monitoring Frequency	
or Recycling Method		Parameter	Permitted Facility Emissions = 80 tpy VOC	Permitted Facility Emissions < 80 tpy VOC
Thermal Oxidizer	\boxtimes	Combustion Chamber Temperature ^b	Daily	Weekly
Combustor or Flare		Pilot Light Monitoring ^c	Daily	Weekly
Compusion of Flare		Method 22 Readings	Daily	Weekly
Recycled or Closed Loop System (Including Vapor Recovery Units)		To be determined by the s	ource and approved by th	e division ^d
Re-routed to Reboiler Burner		To be determined by the s	ource and approved by th	e division ^e

If the facility uses a thermal oxidizer to control emissions then the minimum combustion chamber temperature shall be: Select one of the following options from Table 4:

		Table 4
·×	1400°F	
	°F	Based on manufacturer specifications. Specifications must be submitted with the permit application and made available to the Division upon request
	Based on te	sting performed. The test data shall be submitted and attached to the O&M Plan

^c Pilot Light Monitoring Options

If the facility uses a Combustor or Flare then the source must indicate the method by which the presence of a pilot light will be monitored in Table 5. One primary method for Pilot Light Monitoring must be checked and, optionally, up to two backup methods may be checked.

Table 5					
Primary	Back-up	Monitoring Method			
		Visual Inspection			
		Optical Sensor			
		Auto-Igniter Signal			
		Thermocouple			

d Recycled or Closed Loop System Monitoring Plan

In the space provided below please provide a brief description of the emission control or recycling system, including an explanation of how the system design ensures that emissions are being routed to the appropriate system at all times, or during all permitted runtime.

^b Minimum Thermal Oxidizer Combustion Chamber Temperature

e Reboiler Burner Control Monitoring Plan

In the space provided below please provide a brief description of the emission control system, including an explanation of how the system design ensures that emissions are being held or rerouted when the reboiler is not firing.

Section 6 - Recordkeeping Requirements

The following box must be checked for O&M plan to be considered complete.

Synthetic minor sources are required to maintain maintenance and monitoring records for the requirements listed in sections 2, 3, 4 and 5 for a period of 2 years. If an applicable Federal NSPS, NESHAP or MACT requires a longer record retention period the operator must comply with the longest record retention requirement.

Section 7 - Additional Notes and O&M Activities

Please use this section to describe any additional notes or operation and maintenance activities.

Note: These templates are intended to address operation and maintenance requirements of the State of Colorado for equipment operated at synthetic minor facilities. If the facility or equipment is subject to other state or federal regulations with duplicative requirements, the source shall follow the most stringent regulatory requirement.

ATTACHMENT I REGULATORY ANALYSIS

(INTENTIONALLY LEFT BLANK)

ATTACHMENT J

FORM APCD-105

(INTENTIONALLY LEFT BLANK)