TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 30, 2023

MICHAEL TAYLOR
MANAGER
CARDIFF ENERGY MARKETING LLC
1235 NORTH LOOP WEST, SUITE 920
HOUSTON, TEXAS 77018
Via email

Subject: ERC Creditability Review
ERC Certificate(s): 3913 AND 3914
Project Number: 418202

Dear Michael Taylor:

This letter is in response to the Application for Creditability Review of Emission Credits submitted on April 21, 2023, requesting review of the volatile organic compounds (VOC) emission reduction credits (ERCs) in certificates 3913 and 3914.

The Texas Commission on Environmental Quality (TCEQ) has determined that as of June 23, 2023, there have been no regulatory changes that decrease the certified amount of ERCs available in certificate 3914 Changes to the representations made in the original ERC application or future regulatory actions could affect the amount of credits available for use in the certificate.

The Texas Commission on Environmental Quality (TCEQ) has determined that as of June 23, 2023 there have been regulatory changes that decrease the certified amount of ERCs available in certificate 3913. Specifically, the fugitive components accounted for in the generation of this certificate would have been subject to 30 Texas Administrative Code §115.177. Therefore, the TCEQ devalued the ERC certificates as summarized below. Any retained certificates are now available for future use or trade as allowed under 30 Texas Administrative Code Chapter 101, Subchapter H, Division 1.

Certificate	Pollutant	Amount (tpy)	Retained Certificate	Amount Retained (tpy)
3913	VOC	0.6	4118	0.4
3914	VOC	2.1	3914	2.1

Additional information regarding this project and the site's portfolio is available online at https://www2.tceq.texas.gov/airperm/index.cfm?fuseaction=ebt_dpa.start. If you have questions concerning this project or the EBT program, please contact Matthew Hager at Matthew.Hager@tceq.texas.gov, or write to the TCEQ, Office of Air, Air Permits Division, MC-163, P.O. Box 13087, Austin, Texas 78711-3087.

Sincerely,

Samuel Short, Deputy Director
Air Permits Division
Office of Air

cc: Director, Harris County, Pollution Control Services, Pasadena
Director, Environmental Health, Brazoria County Health Department, Angleton

Emission Reduction Credit (ERC) Creditability Technical Review

Project Number:	418202	Project Manager:	Matthew Hager
Customer Reference No.:	N/A	Company Name:	Cardiff Energy Marketing LLC
Regulated Entity Reference No.:	N/A	Site Name:	Cardiff Energy Marketing LLC
Portfolio Number:	P4062	County:	Liberty

Project Overview

Cardiff Energy Marketing LLC submitted a Creditability Review of Emissions Credits application on April 21, 2023 for the review of ERC certificates 3913 and 3914.

During this review, it was determined that the credits on Certificate 3913 have devalued due to new regulatory requirements. Detailed evaluation is provided below.

ERC Creditability

Certificate 3913, 0.6 tpy VOC

The 0.6 tpy VOC credits on Certificate 3913 were certified in ERC Generation Project 414961 and issued on Certificate Number 3685. Project 414961 was a full site shutdown, and the credits were generated from four units: EPN 2 (amine scrubber), EPN 4 (glycol dehydrator), EPN 6 (loading), and EPN 8 (fugitives). The emission reduction date was based on the date of well plugging, December 3, 2019. The credits qualified for the oil and gas incentive in 30 Texas Administrative Code (TAC) §101.303(d)(1)(C), making them available for 72 months to December 3, 2025.

The credits on the generator certificate, 3685, were last reviewed in Project 417382.

Since the last review, a new regulatory provision became effective that has devalued the credits on Certificate 3913. Specifically, the fugitive components (EPN 8) would have become subject to the requirements under 30 TAC §115.177 (last revised 7/21/2021 and effective as of 1/1/2023). After taking in the appropriate control strategies into account, the value of certificate 3913 has been reduced by 0.2 tpy, with the remaining 0.4 tpy available for use.

Table 1 below lists the regulations that were evaluated in this project.

Table 1: Regulatory Review

FIN/EPN	Citations and Regulations	Verified	Last Revision Date
EPN 2 EPN 4 EPN 6 EPN 8	PBR No. 90048	The site was authorized by Permit by Rule No. 90048. The site complied with the emission limits set forth in the permit, as well as all applicable state and federal emission limitations and standards. The permit was voided on 10/15/2020.	10/15/2020
EPN 2 EPN 4 EPN 6 EPN 8	30 TAC Chapter 106, Subchapter O §106.352	Oil and Gas Handling and Production Facilities. This facility complied with the standard/limits that apply to this rule (i.e. the VOC limit is 25 tpy and this facility has less than 10 tpy).	11/22/2012
EPN 2 EPN 4 EPN 6	40 CFR Part 60, Subpart OOOO §60.5360	Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification, or Reconstruction Commenced After August 23, 2011, and on or Before September 18, 2015.	9/14/2020

FIN/EPN	Citations and Regulations	Verified	Last Revision Date
EPN 8		No facilities were constructed, reconstructed, or modified after 2011 or 2015; no facilities are subject to this subpart.	
EPN 2 EPN 4 EPN 6 EPN 8	40 CFR Part 60, Subpart OOOOa §60.5360a	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015. No facilities were constructed, reconstructed, or modified after 2011 or 2015.	9/14/2020
EPN 4	40 CFR Part 63, Subpart HH §63.765	National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities. This facility had a dehydrator with controls in place to achieve compliance with this standard. The dehydrator control efficiency is represented at 98%.	8/16/2012
Storage tanks associated with EPN 6	30 TAC Chapter 115, Subchapter B, Division 1 §115.112(e)(3)	Storage of Volatile Organic Compounds. The facility complied with this rule using the appropriate tank vapor controls that are in place via flare.	7/21/2021
Storage tanks associated with EPN 6	30 TAC Chapter 115, Subchapter B, Division 7 §115.175	The requirements found in §115.112(e) are now found in §115.175 as of January 1, 2023. Based on review of what is available in the generator project, the tanks appear to have been in compliance with the applicable regulations.	7/21/2021
EPN 8	30 TAC Chapter 115, Subchapter B, Division 7 §115.177	Subject to the applicable monitoring requirements under §115.177 because production of natural gas and hydrocarbon fluid from the well site exceeded the limit of 15 barrels of oil equivalent per day (BOE/day) specified in §115.172(a)(8). The BOE for the well was determined using EPA's conversion factor of 0.178 bbls crude/1,000 scf natural gas. When taking total production into account (oil and natural gas) for the two calendar years prior to last date of production (February 2019), the site produced an average of 171.69 BOE per day in 2017 and 164.05 BOE per day 2018 (average of 167.87 BOE per day). The BOE calculations can be found on Page 3 of the project file. As determined by APD management, the emissions for the historical years were adjusted by the control efficiencies allowed under the 28RCT LDAR Program to ensure the reductions are surplus to §115.177. The 28RCT LDAR control efficiencies are appropriate as the program is the most comparable to Chapter 115 requirements. The adjusted baseline emissions for EPN 8 are less than 0.1 tpy. The total ERCs on Certificate 3913 have been reduced by 0.2 tpy, leaving 0.4 tpy remaining.	7/21/2021

Certificate 3914, 2.1 tpy VOC

The 2.1 tpy VOC credits on Certificate 3914 were certified in ERC Generation Project 414959 and issued on Certificate Number 3707. The credits were generated from a reduction in emissions due to installation of control equipment (flare) on one water and one oil tank. Emissions for both units are now routed through EPN VENT, which is limited to 0.1002 tpy VOC. For the purposes of the ERC Generation project, the strategic limit for FIN WTRTNK was set to 0.09 tpy and 0.01 tpy for FIN OILTNK. The credits will expire on June 12, 2025.

The credits on the generator certificate, 3707, were last reviewed in Project 417382.

Table 2 below lists the regulations that were evaluated in this project. There have been no new regulatory provisions that would have affected the facilities since project 417382 and the submission of this creditability review project. Therefore, Certificate Number 3914 still retains the certified amount of 2.1 tpy and the full amount is available.

Table 2: Regulatory Review

FIN/EPN	Citations and Regulations	Verified	Last Revision Date
OILTNK, WTRTNK	30 TAC Chapter 115, Subchapter B, Division 2, §115.121	This rule applies to compressors and dehydrator units. These sources are not present at this facility.	7/21/2021
OILTNK, WTRTNK	30 TAC Chapter 115, Subchapter B, Division 7, §115.175	Per §115.175(b), the storage tanks at the site are exempt from the requirements of this rule because the potential and demonstrated emissions are both below 4.0 tpy VOC provided the facility was not subject to the requirements in §115.112(e). Based on review of what is available in the generator project, the tanks appear to have been in compliance with the applicable regulations.	7/21/2021
OILTNK, WTRTNK	30 TAC Chapter 106, Subchapter O, §106.352 (PBR)	This rule applies to Oil and Gas Production facilities. This facility complies with the standard/limits that apply to this rule. i.e. the VOC limit is 25 tpy and this facility has less than 10 tpy.	11/22/2012
OILTNK, WTRTNK	40 CFR Part 60, Subpart K, §60.110(b)	This subpart does not apply to storage vessels for petroleum or condensate stored, processed, and/or treated at a drilling and production facility prior to custody transfer.	4/4/1980
OILTNK, WTRTNK	40 CFR Part 60, Subpart Ka, §60.110a(a)	Each petroleum liquid storage vessel with a capacity of less than 1,589,873 liters (420,000 gallons) used for petroleum or condensate stored, processed, or treated prior to custody transfer is not an affected facility and, therefore, is exempt from the requirements of this subpart.	12/14/2000
OILTNK, WTRTNK	40 CFR Part 60, Subpart Kb, §60.110b(d)(4)	Each VOC storage tank is 400 bbl. This rule does not apply to this size of tank used to store VOC prior to custody transfer.	1/19/2021
OILTNK, WTRTNK	40 CFR Part 60, Subpart OOOO, §60.5365	No facilities have been constructed, reconstructed or modified after 2011 or before 2015.	9/14/2020
OILTNK, WTRTNK	40 CFR Part 60, Subpart OOOOa, §60.5365a	No facilities have been constructed, reconstructed or modified after 2015.	9/15/2020
OILTNK, WTRTNK	40 CFR Part 61, Subpart Y, §61.270(a)	Industrial grade/refined benzene is not being stored at this facility	10/14/2000
OILTNK, WTRTNK	40 CFR Part 61, Subpart FF, §61.340(a)	This facility is not a chemical manufacturing plan, coke by-product recovery plant or a petroleum refinery.	11/12/2002
OILTNK, WTRTNK	40 CFR Part 63, Subpart G,	This facility is not a Synthetic Organic Chemical Manufacturing facility.	1/22/2001

FIN/EPN	Citations and Regulations	Verified	Last Revision Date
	§63.110(a)		
OILTNK, WTRTNK	40 CFR Part 63, Subpart HH, §63.760(b)(2)	This facility does not have TEG Dehydration equipment present.	11/19/2020
OILTNK, WTRTNK	40 CFR Part 63, Subpart OO, §63.900	No other subpart applicable to these facilities is referencing this standard for air emission control.	7/1/1996
OILTNK, WTRTNK	40 CFR Part 63, Subpart WW, §63.1060	No other subpart applicable to these facilities is referencing this standard for air emission control.	6/29/1999
OILTNK, WTRTNK	40 CFR Part 63, Subpart HHH, §63.1270(a)	This facility is not a natural gas transmission or storage facility.	11/19/2020

Conclusion

As of the submission date of this project, the ERCs on certificate 3914 have not devalued. The ERCs on certificate 3913 have devalued from 0.6 tpy VOC to 0.4 tpy VOC.

06/30/2023 ---------- EBTP IMS- PROJECT RECORD ----------

PROJECT#: 418202 STATUS: C DISP CODE: _____
RECEIVED: 04/21/2023 PROJTYPE: BERR ISSUED DT: _____
SUP-DISP DATE: 06/30/2023

STAFF ASSIGNED TO PROJECT:
HAGER, MATTHEW

PROJECT TRANSACTIONS

COMPANY DATA
COMPANY NAME: CARDIFF ENERGY MARKETING LLC
CUSTOMER REGISTRY ID:

PORTFOLIO DATA
NUMBER: P4062 NAME: CARDIFF ENERGY MARKETING LLC

SITE DATA
ACCOUNT: BKR1081
REG ENTITY ID:
SITE NAME: CARDIFF ENERGY MARKETING LLC
COUNTY: LIBERTY NEAREST CITY:
LOCATION:

CONTACT DATA
NAME: MICHAEL TAYLOR TITLE: MANAGER
ROLE: AAR
STREET: 1235 North Loop West, Suite 920
CITY/STATE,ZIP: Houston, TX , 77018-
PHONE: 713-385-3321 -
EMAIL: MTAYLOR@EMISSIONADVISORS.COM

TRANSACTION DATA
TRANSACTION TYPE: ERC_RRVW
DATE ENTERED: 2023-04-21 00:00:00.0 DELETED DATE: EFFECTIVE YEAR:
CONTAMINATE: **VOC** TONS: **0** DOLLARS: **0**
ALLOWANCE**0** CERTIFICATE NO.: **0** COUNTY : **LIBERTY**

COMPANY DATA
COMPANY NAME: CARDIFF ENERGY MARKETING LLC
CUSTOMER REGISTRY ID:

PORTFOLIO DATA
NUMBER: P4062 NAME: CARDIFF ENERGY MARKETING LLC

SITE DATA
ACCOUNT: BKR1081
REG ENTITY ID:
SITE NAME: CARDIFF ENERGY MARKETING LLC
COUNTY: LIBERTY NEAREST CITY:
LOCATION:

CONTACT DATA

NAME: MICHAEL TAYLOR TITLE: MANAGER
ROLE: AAR
STREET: 1235 North Loop West, Suite 920
CITY/STATE,ZIP: Houston, TX , 77018-
PHONE: 713-385-3321 -
EMAIL: MTAYLOR@EMISSIONADVISORS.COM

TRANSACTION DATA

TRANSACTION TYPE: ERC_REV
DATE ENTERED: 2023-06-30 00:00:00.0 DELETED DATE: EFFECTIVE YEAR:
CONTAMINATE: **VOC** TONS: **0.40** DOLLARS: **0**
ALLOWANCE**0** CERTIFICATE NO.: **4118** COUNTY : **LIBERTY**

COMPANY DATA

COMPANY NAME: CARDIFF ENERGY MARKETING LLC
CUSTOMER REGISTRY ID:

PORTFOLIO DATA

NUMBER: P4062 NAME: CARDIFF ENERGY MARKETING LLC

SITE DATA

ACCOUNT: BKR1081
REG ENTITY ID:
SITE NAME: CARDIFF ENERGY MARKETING LLC
COUNTY: LIBERTY NEAREST CITY:
LOCATION:

CONTACT DATA

NAME: MICHAEL TAYLOR TITLE: MANAGER
ROLE: AAR
STREET: 1235 North Loop West, Suite 920
CITY/STATE,ZIP: Houston, TX , 77018-
PHONE: 713-385-3321 -
EMAIL: MTAYLOR@EMISSIONADVISORS.COM

TRANSACTION DATA

TRANSACTION TYPE: ERC_RET
DATE ENTERED: 2023-06-30 00:00:00.0 DELETED DATE: EFFECTIVE YEAR:
CONTAMINATE: **VOC** TONS: **2.10** DOLLARS: **0**
ALLOWANCE**0** CERTIFICATE NO.: **3914** COUNTY : **LIBERTY**

TRACKING ACTIVITES

PROJECT RECEIVED BY PM :	04/21/2023	PROJECT SUBMITTED :	04/21/2023	TEAM LEAD REVIEW :	05/22/2023
SECTION MANAGER REVIEW :	06/19/2023				

Texas Commission on Environmental Quality
Form EC-2
Credibility Review for Emission Credits

I. Requestor Information			
Company Name: Cardiff Energy Marketing LLC			
Telephone Number: 713-385-3321			
Email Address: lsutaylorproton@gmail.com			
Mailing Address: 3310 Lawrence Street			
City: Houston			
State: Texas			
II. Emission Credit Owner Information			
Company Name: Cardiff Energy Marketing LLC			
Customer Reference Number (CN): CN – N/A			
Site Name: N/A			
Regulated Entity Reference Number (RN): RN – N/A			
Nonattainment Area: HGB			
III. Emission Credit Certificates To Be Reviewed			
Certificate Number	**Expiration Date**	**TPY of VOC on Certificate**	**TPY of NOx on Certificate**
3913	12/03/2025	0.6	
3914	06/12/2025	2.1	
IV. Requestor Signature			
I, Michael Taylor			
hereby certify that the information entered in this application is correct to the best creditability per 30 TAC Chapter 101, Subchapter H, Division 1.			
Signature: *Michael Taylor*			
Signature Date: 4/21/2023			
Title: President			

Mail application to:
Texas Commission on Environmental Quality Emission Banking and Trading Program MC 163
PO BOX 13087
AUSTIN, TX 78711-3087

2017 Production			
Crude Oil	2,244	bbl	
	12,606,742	scf	0.178 bbl/1,000scf natural gas conversion factor
Natural Gas	339,456	mcf	**RRC Casinghead MCF**
	339,456,000	scf	
Total Natural Gas	352,062,742	scf	
	5,617.978		scf/BOE conversion factor
Total BOE	62,667		**Per day (assuming 365): 171.69 BOE**
2018 Production			
Crude Oil	4,723	bbl	
	26,533,708	scf	0.178 bbl/1,000scf natural gas conversion factor
Natural Gas	309,867	mcf	**RRC Casing head MCF**
	309,867,000	scf	
Total Natural Gas	336,400,708	scf	
	5,617.978		scf/BOE conversion factor
Total BOE	59,879		**Per day (assuming 365): 164.05 BOE**

RRC ONLINE SYSTEM

Oil & Gas Production Data Query

Production Data FAQs PDQ Help

General Production Query **Specific Lease Query**

Specific Lease Query Results

Query Path: Search Criteria > District 03, Lease: KENSINGER

Date Range: Jan 2017 **to** Dec 2017 Submit

Related Links

O&G Directory

O&G Proration Schedule

Offshore County Map

View by: **Production and Total Disposition** Disposition Details County Production

Lease Name: KENSINGER, Lease No: 246590, Well No: 1
District 03
Lease Production and Disposition
Jan 2017 - Dec 2017

Date	GW Gas (MCF)		Condensate (BBL)		Operator Name	Operator No.	Field Name	Field No.
	Production	Disposition	Production	Disposition				
Jan 2017	52,762	52,762	189	348	MARQUEE CORPORATION	526675	ULRICH, E. (YEGUA 2A)	92361495
Feb 2017	42,554	42,554	458	0				
Mar 2017	49,388	49,388	336	545				
Apr 2017	34,068	34,068	236	538				
May 2017	32,041	32,041	262	0				
Jun 2017	40,133	40,133	307	184				
Jul 2017	40,687	40,687	246	381				
Aug 2017	31,639	31,639	88	0				
Sep 2017	0	0	0	355				
Oct 2017	15,383	15,383	110	0				
Nov 2017	0	0	0	0				
Dec 2017	801	801	12	0				
Total	339,456	339,456	2,244	2,351				

RRC ONLINE SYSTEM

Oil & Gas Production Data Query

Production Data FAQs PDQ Help

General Production Query **Specific Lease Query**

Specific Lease Query Results

Query Path: Search Criteria > District 03, Lease: KENSINGER

Date Range: Jan 2018 **to** Dec 2018 Submit

Related Links

O&G Directory

O&G Proration Schedule

Offshore County Map

View by: **Production and Total Disposition** Disposition Details County Production

Lease Name: KENSINGER, Lease No: 246590, Well No: 1
District 03
Lease Production and Disposition
Jan 2018 - Dec 2018

Date	GW Gas (MCF)		Condensate (BBL)		Operator Name	Operator No.	Field Name	Field No.
	Production	Disposition	Production	Disposition				
Jan 2018	875	875	0	0	MARQUEE CORPORATION	526675	ULRICH, E. (YEGUA 2A)	92361495
Feb 2018	22,257	22,257	572	362				
Mar 2018	13,090	13,090	147	187				
Apr 2018	60,393	60,393	834	735				
May 2018	4,569	4,569	567	723				
Jun 2018	38,307	38,307	441	539				
Jul 2018	30,254	30,254	355	540				
Aug 2018	24,948	24,948	299	181				
Sep 2018	21,211	21,211	250	360				
Oct 2018	20,833	20,833	261	179				
Nov 2018	27,641	27,641	381	180				
Dec 2018	45,489	45,489	616	561				
Total	309,867	309,867	4,723	4,547				

Table V: Control Efficiencies for LDAR

Equipment/Service	28M	28RCT	28VHP	28MID	28LAER	28CNTQ	28CNTA	28PI	28AVO[9]
Valves[1]									97%
Gas/Vapor	75%	97%	97%	97%	97%			30%	
Light Liquid	75%	97%	97%	97%	97%			30%	
Heavy Liquid[5]	0%[6]	0%[6]	0%[6]	0%[6]	30%[6, 8]			30%[8]	
Pumps[1]									93%
Light Liquid	75%	75%	85%	93%	93%			30%	
Heavy Liquid[5]	0%	0%[7]	0%[7]	0%[8, 10]	30%[8]			30%[8]	
Flanges/Connectors[1]	30%	30%	30%	30%				30%	97%
Gas/Vapor					97%	97%	75%		
Light Liquid					97%	97%	75%		
Heavy Liquid[8]					30%	30%	30%		
Compressors[1]	75%	75%	85%	95%	95%			30%	95%
Relief Valves[1, 2] (Gas/Vapor)	75%	97%	97%	97%	97%			30%	97%
Sampling Connection[3] (pounds per hour per sample taken)	0%	0%	0%	0%	0%			0%	0%
Open Ended Lines[1, 4]									

It should be noted in the application and added to the permit conditions if any of the footnotes are applicable. For example, if components in heavy liquid service are monitored, then the application should include the monitored concentration and the concentration of saturation, in ppmv and such monitoring will be added as a separate condition.

Endnotes Table V

1 **Control efficiencies apply only to components that are actually monitored. Control efficiencies do not apply to components that are difficult or unsafe-to-monitor on the standard schedule. However, difficult-to-monitor gas or light liquid valves under the 28RCT, 28VHP, 28MID, or 28LAER programs that are monitored once per year may apply a 75% reduction credit.**

2 **100% control may be taken if a relief valve vents to an operating control device or if it is equipped with a rupture disc and a pressure-sensing device between the valve and disc to monitor for disc integrity. For new facilities, BACT guidelines generally require that all relief valves vent to a control device. When there are safety reasons that the relief valve cannot achieve 100% control, the relief valve can be monitored under the LDAR programs for the credit listed. This monitoring must be performed regardless of whether the relief valve is considered accessible, difficult-to-monitor or unsafe-to-monitor. Relief valves that do not achieve 100% control should not be built in locations that are unsafe-to-monitor.**

3 **Sampling connection control efficiencies are covered under other equipment and services. Sampling emissions are based on the number of samples taken per year as opposed to the number of connections. Fugitives for a closed loop sampling system are based on the component count.**

4 **Good design criteria for special chemicals handling and most LDAR programs require open-ended lines to be equipped with an appropriately sized cap, blind flange, plug, or a second valve. If so equipped, open-ended lines may be given a 100% control credit. Regardless of the lines given 100% credit, these lines should be mentioned in permit applications. Exceptions to the LDAR program criteria may be made for safety reasons with the approval of TCEQ management.**

[5] **Monitoring components in heavy liquid service using an instrument is not required by any of the 28 Series LDAR programs. If monitored with an instrument, the applicant must demonstrate that the VOC being monitored has sufficient vapor pressure to allow for reduction credit. Monitoring near or below background concentration is unreasonable and additional credit is not given for monitoring generic VOC below 500 ppmv. Credit will be given in cases where a specific compound is monitored below 500 ppmv when sufficient demonstration has been made of the ability to monitor at the specified concentration and there is no concern about the monitoring concentration being close to the background concentration. No credit may be taken if the concentration at saturation is below the leak definition of the monitoring program (i.e. (0.044 psia/14.7 psia) x 10^6 = 2,993 ppmv versus leak definition = 10,000 ppmv).**

[6] **If the concentration at saturation is greater than the leak definition. Contact the TCEQ to determine whether valves in heavy liquid service may be given a 97% credit if monitored at 500 ppmv**

[7] **If the concentration at saturation is greater than the leak definition. Contact the TCEQ to determine whether pumps in heavy liquid service may be given a 85% reduction credit if monitored at 2,000 ppmv.**

[8] **Ultra heavy liquid with a vapor pressure < 0.0147 psia at operating temperature may receive higher emission reduction credit (matching the credit of 28AVO) provided a 28PI inspection program is performed on these components.**

[9] **Audio, Visual and Olfactory (AVO) – AVO credit is based on the chemical constituent, not vapor pressure or service type. This program (28AVO) is approved for chlorine, ammonia, hydrogen sulfide, hydrogen fluoride, mercaptans, and hydrogen cyanide only.**

[10] **If the concentration at saturation is greater than the leak definition. Contact the TCEQ to determine whether pumps in heavy liquid service may be given a 93% credit if monitored at 500 ppmv.**

FUGITIVE EMISSION CALCULATIONS 2016

LDAR corrected values in red

EPN: 8

Component Type	Gas Component Count	Heavy Oil Component Count	Light Oil Component Count	Water/Light Oil Component Count
Valves	108	0	0	0
Pumps	0	0	0	0
Flanges / Connectors	170	0	0	0
Compressors	0	0	0	0
Relief Lines	11	0	0	0
Open-ended Lines	1	0	0	0
Other	1	0	0	0
Process Drains	0	0	0	0

Component Type	Gas lb/hr per component	Heavy Oil lb/hr per component	Light Oil lb/hr per component	Water/Light Oil lb/hr per component	Gas Emission Rate (lbs/hr)	Liquids Emission Rate (lbs/hr)	Control Efficiency %	Total Emissions lbs/hr	Original Total Emissions tn/yr	Revised
Valves	0.00992	0.0000	0.0055	0.0002	0.0751	0.0000	97%	0.0751	0.3046	0.009138
Pumps	0.00529	0.0011	0.0287	0.0001	0.0000	0.0000	0%	0.0000	0.0000	
Flanges / Connectors	0.00086	0.000001	0.0002	0.0000	0.0102	0.0000	30%	0.0102	0.0416	0.02912
Compressors	0.01940	0.0001	0.0165	0.0309	0.0000	0.0000	0%	0.0000	0.0000	
Relief Lines	0.01940	0.0001	0.0165	0.0309	0.0150	0.0000	97%	0.0150	0.0607	0.001821
Open-ended Lines	0.00441	0.0003	0.0031	0.0006	0.0003	0.0000	100%	0.0003	0.0013	0.0000
Other	0.01940	0.0001	0.0165	0.0309	0.0014	0.0000	0%	0.0014	0.0055	0.0055
Process Drains	0.01940	0.0001	0.0165	0.0309	0.0000	0.0000	0%	0.0000	0.0000	
Totals								**0.1020**	**0.4136**	**0.0456**
							VOC at 7.9%	**0.11493**	**0.46614**	

##	VOC % Calculation	Mole %	Mole Wt.	lb/mol Mix	Weight %
##	Methane	92.054	16.04	14.765	81.517
	Nitrogen	0.091	28.01	0.025	0.141
	Carbon Dioxide	2.295	44.01	1.010	5.576
	Ethane	3.467	30.07	1.043	5.756
	Hydrogen Sulfide	0.000	34.08	0.000	0.000
	Propane	0.967	44.09	0.426	2.354
	Iso-butane	0.204	58.12	0.119	0.655
	N-Butane	0.262	58.12	0.152	0.841
	Iso-Pentane	0.119	72.14	0.086	0.474
	N-Pentane	0.083	72.14	0.060	0.331
	Hexanes+	0.458	93.197	0.427	2.357
	Total Organic including Non-VOC	100.00		18.11	100.00
	Total VOC				**7.01**
					7.9

Notes: 7.9 % VOC was used in historic application.

FUGITIVE EMISSION CALCULATIONS 2017

LDAR corrected values in red

EPN: 8

Component Type	Gas Component Count	Heavy Oil Component Count	Light Oil Component Count	Water/Light Oil Component Count
Valves	108	0	0	0
Pumps	0	0	0	0
Flanges / Connectors	170	0	0	0
Compressors	0	0	0	0
Relief Lines	11	0	0	0
Open-ended Lines	1	0	0	0
Other	1	0	0	0
Process Drains	0	0	0	0

Original

Component Type	Gas lb/hr per component	Heavy Oil lb/hr per component	Light Oil lb/hr per component	Water/Light Oil lb/hr per component	Gas Emission Rate (lbs/hr)	Liquids Emission Rate (lbs/hr)	Control Efficiency %	Total Emissions lbs/hr	Total Emissions tn/yr	Revised
Valves	0.00992	0.0000	0.0055	0.0002	0.0751	0.0000	97%	0.0751	0.2253	0.006759
Pumps	0.00529	0.0011	0.0287	0.0001	0.0000	0.0000	0%	0.0000	0.0000	
Flanges / Connectors	0.00086	0.000001	0.0002	0.0000	0.0102	0.0000	30%	0.0102	0.0307	0.02149
Compressors	0.01940	0.0001	0.0165	0.0309	0.0000	0.0000	0%	0.0000	0.0000	
Relief Lines	0.01940	0.0001	0.0165	0.0309	0.0150	0.0000	97%	0.0150	0.0449	0.001347
Open-ended Lines	0.00441	0.0003	0.0031	0.0006	0.0003	0.0000	100%	0.0003	0.0009	0.0009
Other	0.01940	0.0001	0.0165	0.0309	0.0014	0.0000	0%	0.0014	0.0041	0.0000
Process Drains	0.01940	0.0001	0.0165	0.0309	0.0000	0.0000	0%	0.0000	0.0000	
Totals								**0.1020**	**0.3059**	**0.030496**
							At 7.9	**0.1149**	**0.3448**	

VOC % Calculation	Mole %	Mole Wt.	lb/mol Mix	Weight %
Methane	92.054	16.04	14.765	81.517
Nitrogen	0.091	28.01	0.025	0.141
Carbon Dioxide	2.295	44.01	1.010	5.576
Ethane	3.467	30.07	1.043	5.756
Hydrogen Sulfide	0.000	34.08	0.000	0.000
Propane	0.967	44.09	0.426	2.354
Iso-butane	0.204	58.12	0.119	0.655
N-Butane	0.262	58.12	0.152	0.841
Iso-Pentane	0.119	72.14	0.086	0.474
N-Pentane	0.083	72.14	0.060	0.331
Hexanes+	0.458	93.197	0.427	2.357
Total Organic including Non-VOC	100.00		18.11	100.00
Total VOC				**7.01**
			Historic	**7.9**

Notes: 7.9 % VOC was used in historic application.
2017 emissions are reduced by hours or operation

Revised ERC Historical Year Emissions

(0.0456 + 0.030496)/2 = 0.0380 (value too small to generate 0.1 tpy ERCs)

From: Cheryl Covone
To: Melissa Ruano
Cc: John Lewis
Subject: FW: Questions on Chapter 115 for Fugitive Emissions
Date: Friday, March 31, 2023 11:43:08 AM
Attachments: image001.jpg
image003.jpg

Melissa find John's response to your initial question below. If you determine that the site is subject to 115.177 and would like assistance investigation options for control efficiencies that might be reasonable, please let us know. We do recommend speaking with NSR because they have developed control efficiencies for different fugitive programs. None of the NSR monitoring programs line up with 115.177 with respect to lead definitions and monitoring frequencies so we can't point you to one to use.

Hi Melissa,

The term barrels of oil equivalent (BOE) is used to convert natural gas production to oil production on an equivalent energy basis. EPA's conversion factor of 0.178 bbls crude/ 1,000 scf natural gas is listed on Oil and Gas CTG Page 9-1 under reference 139 and specifies 5,617.978 scf natural gas production is equivalent 1 barrel of oil production (or 1 BOE).

If a well produces a hydrocarbon liquid, it is crude oil production for purposes of calculating BOE. If a well produces a hydrocarbon gas, it is natural gas production (even though some liquid may later condense from the gas after it is brought to the surface and its pressure is reduced to atmospheric pressure). To calculate a well's BOE, add the barrels of hydrocarbon liquid production to the natural gas production (in scf) divided by 5,617.978 scf.

Best Regards,

John

John Lewis, PE
TCEQ Air Quality Division
Stationary Source Program Team
12100 Park 35 Circle, Bldg. F, Austin, TX 78753
P.O. Box 13087, Austin TX 78711-3087
(512) 239-4922

From: Melissa Ruano <melissa.ruano@tceq.texas.gov>
Sent: Wednesday, March 29, 2023 8:57 AM
To: Cheryl Covone <cheryl.covone@tceq.texas.gov>

Cc: Joseph Thomas <Joseph.Thomas@tceq.texas.gov>
Subject: Questions on Chapter 115 for Fugitive Emissions

Good Morning Cheryl,

Our team is reviewing creditability for several credits that were generated at oil and gas sites in the HGB area. The credits were generated from permanent shutdowns of fugitive emission components at the sites.

We are reviewing the exemptions for fugitive emissions under 30 TAC §115.172(a)(8) and requirements under §115.177 and have some questions that we would like to ask for you and your team's assistance on.

1. A fugitive emission source is subject to applicable monitoring requirements in §115.177 if the threshold specified in §115.172(a)(8), 15 barrel of oil equivalents (BOE) per day , is exceeded; however, we are having difficulty converting actual barrels per day to BOE. We found information in the attached EPA document (Table 4-2) which appears to be correlated to actual daily throughput. If so, how many barrels per day of condensate and oil, respectively, would be equivalent to 15 BOE/day (the table appears to provide a range of BOE in each bracket)? If the actual daily throughput of condensate and oil cannot be determined from the table, how can the 15 BOE/day be converted to barrels/day?

2. If the fugitives do not meet exemption and are subject to §115.177, are the monitoring requirements in §115.177 for fugitive emission sources at well sites comparable to those under the 28MID LDAR Program? If so, can the emissions from the piping components be adjusted using the control efficiencies allowed by this program?

I am sorry to ask, but would it be possible to provide response by this **Friday, March 31**? I am sorry for the tight turnover, if this cannot be, please let me know!

Any information that you can provide will be greatly appreciated!

Sincerely,

Melissa Ruano

Emissions Banking and Trading Program Team Leader
Texas Commission on Environmental Quality
Air Permits Division

Office Phone: (512) 239-4496
Email: Melissa.Ruano@tceq.texas.gov

From: Harry Xue
To: Joseph Musa
Subject: RE: Control Efficiency for Open-Ended Lines under the 28RCT LDAR Program
Date: Monday, June 12, 2023 8:56:12 AM
Attachments: 28RCT.dotx

Joseph,

The footnote #1 may not be appropriate for open-ended lines in Table V. The TCEQ 28 Series LDAR Programs require open-ended lines to be equipped with a cap, blind flange, plug, or a second valve for 100% control credit in order to meet BACT. The requirement applies to the 28RCT LDAR program as well.

I have attached a copy of the boilerplate language of the 28RCT program. The second paragraph of SC 1.E requires that, "Each open-ended valve or line shall be equipped with an appropriately sized cap, blind flange, plug, or a second valve to seal the line."

To summarize, open-ended lines under the 28RCT program must be sealed as mentioned above and a reduction credit of 100% will be given.

Thanks,
Harry

From: Joseph Musa <joseph.musa@tceq.texas.gov>
Sent: Friday, June 9, 2023 3:35 PM
To: Harry Xue <Harry.Xue@Tceq.Texas.Gov>
Subject: Control Efficiency for Open-Ended Lines under the 28RCT LDAR Program

Harry:

In the attached table, no control efficiency is specified for open-ended lines under the 28RCT program. It appears that the control efficiency ranges from 75 to 100%. Is there a representative value?

Thank you,
Joseph Musa
Air Permits Division

From: John Lewis
To: Melissa Ruano
Cc: Kristin Jacobsen; Clayton Aldrich
Subject: RE: Chapter 115 fugitive question
Date: Friday, June 9, 2023 2:52:41 PM

Hi Melissa,

Some exemption guidance = The 15 bbl/day exemption is based on an average of the prior 2 years of production (which is assumed to be calendar years when 2 calendar years of data is available to account for seasonal fluctuations, but not explicitly stated as such in either the CTG or preamble). The calculation should be based on an average of the operating days and not include non-producing periods. This exemption evaluation is not dependent on the Chapter 115 effective date.

I have a surgery scheduled for each of the next 2 weeks and am not certain how that will affect my work schedule, so I copied Clayton in case I'm not available to provide additional assistance for any follow up questions you may have.

Hope this helps with your ERC evaluation.

Best Regards,

John

From: Melissa Ruano <melissa.ruano@tceq.texas.gov>
Sent: Friday, June 9, 2023 2:00 PM
To: John Lewis <John.Lewis@tceq.texas.gov>
Subject: FW: Chapter 115 fugitive question

Good Afternoon John,

I am sorry to bother you, especially since I know that y'all are short staffed, but I received a question relating to the guidance below relating to the fugitive component exemption under 115.172. We wanted to clarify the 2-year evaluation period. Specifically, is the evaluation period based on 2-years from the current year, the prior 2-years of operation/production, or 2 years from when the 115 rules became effective? Also, should we be looking at the previous 2 full calendar years, or 2 years to-date?

The reason we ask is to determine applicability to the rule for ERC generation. Let's say that a O&G Production site ended production in May 2020 and generated an ERC. In 2018 and 2019, the wells at the site produced greater than 15 BOE on average, but have had no production since 2020. The emissions relied upon to generate the emission credits were the site's 2018 and 2019 emissions. We need to ensure that emissions reduced to generate credits are surplus to any current regulatory requirements. Would the aforementioned site be considered exempt under 115.172?

I hope that this question makes some sense! If not, please feel free to give me a call. I am about to go into a 2 pm meeting, but should be free anytime after.

Thank you!
Melissa

From: John Lewis <John.Lewis@tceq.texas.gov>
Sent: Thursday, October 6, 2022 4:17 PM
To: Melissa Ruano <melissa.ruano@tceq.texas.gov>
Cc: Cheryl Covone <cheryl.covone@tceq.texas.gov>; Joseph Thomas <Joseph.Thomas@tceq.texas.gov>; Matthew Hager <Matthew.Hager@tceq.texas.gov>
Subject: RE: Chapter 115 fugitive question

Hi Melissa,

The 15-barrels per day equivalent limit is on an annual average basis. The production must be evaluated for the prior 2 year period, so a facility that has been (and remains) under this limit since 2017 would be exempt from all regulatory 115.170 through 115.183 requirements except recordkeeping.

Please let me know when you are available if want discuss your project and this exemption further.

Regards,

John

From: Melissa Ruano <melissa.ruano@tceq.texas.gov>
Sent: Thursday, October 6, 2022 3:35 PM
To: John Lewis <John.Lewis@tceq.texas.gov>
Cc: Cheryl Covone <cheryl.covone@tceq.texas.gov>; Joseph Thomas <Joseph.Thomas@tceq.texas.gov>; Matthew Hager <Matthew.Hager@tceq.texas.gov>
Subject: Chapter 115 fugitive question

Good Afternoon John,

We are processing an ERC Generation project and have a question regarding applicability of fugitive emissions to the new requirements in 30 Texas Administrative Code Chapter 115. Please see the write up below:

> For fugitive sources that are applicable to 30 TAC 115, Subchapter B, Division 7, there is an exemption in §115.172(a)(8) that states “fugitive emission components located at a well site with one or more wells that produce on average 15-barrel equivalents or less per day are exempt from the requirements of this division” (except for the recordkeeping requirements). When determining average production, what is the proper timeframe to use? Using the site

in my project, average production is below this threshold going back until October 2017. Going further back in time the sites production is well above this threshold. Is the average based on the life of the site, or a more specific timeframe?

Please let us know if you would like to discuss. Note that I will be out of the office from October 10 – 25. If I am not available, please contact the project manager, Matthew Hager (matthew.hager@tceq.texas.gov).

Thank you for your assistance!

Melissa Ruano

Emissions Banking and Trading Program Team Leader
Texas Commission on Environmental Quality
Air Permits Division

Office Phone: (512) 239-4496
Email: Melissa.Ruano@tceq.texas.gov

From: APDDIR
To: Rebecca Partee; APDDIR
Cc: PSSMGR; EBTTL; Matthew Hager
Subject: RE: For Review and Approval by 6/23/2023: ERC Creditability Review 418202
Date: Thursday, June 22, 2023 10:20:19 AM

Approved

Samuel Short
Air Permits Division
Texas Commission on Environmental Quality
512 239-5363
samuel.short@tceq.texas.gov

How are we doing? Fill out our online customer satisfaction survey at www.tceq.texas.gov/customersurvey

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From: Rebecca Partee <rebecca.partee@tceq.texas.gov>
Sent: Thursday, June 22, 2023 8:23 AM
To: APDDIR <APDDIR@tceq.texas.gov>
Cc: PSSMGR <PSSMGR@tceq.texas.gov>; EBTTL <EBTTL@tceq.texas.gov>; Matthew Hager <Matthew.Hager@tceq.texas.gov>
Subject: FW: For Review and Approval by 6/23/2023: ERC Creditability Review 418202

Sam,

Please see the attached for your approval.

Thank you,
Rebecca

From: PSSMGR <PSSMGR@tceq.texas.gov>
Sent: Wednesday, June 21, 2023 2:39 PM
To: Rebecca Partee <rebecca.partee@tceq.texas.gov>
Cc: EBTTL <EBTTL@tceq.texas.gov>; Matthew Hager <Matthew.Hager@tceq.texas.gov>
Subject: FW: For Review and Approval by 6/23/2023: ERC Creditability Review 418202

Hi Rebecca,

Please find the attached documents for ERC Creditability Review 418202. The credits for one certificate, 3913, have devalued from 0.6 tpy to 0.4 tpy.

Please let us know if you have any questions.

Thanks,
Daniel

From: EBTTL <EBTTL@tceq.texas.gov>
Sent: Monday, June 19, 2023 2:00 PM
To: PSSMGR <PSSMGR@tceq.texas.gov>
Cc: Matthew Hager <Matthew.Hager@tceq.texas.gov>
Subject: For Review and Approval by 6/23/2023: ERC Creditability Review 418202

Hi Daniel,

Please find the attached documents for ERC Creditability Review 418202. The credits for one certificate, 3913, have devalued from 0.6 tpy to 0.4 tpy due to the fugitive components being subject to 30 TAC §115.177. Below are some notes regarding the devaluation:

- The fugitive components were determined to be subject to §115.177 as the wells at the site did not meet the exemption under 30 TAC §115.172(a)(8). Specifically, the exemption allows that fugitive emission components located at a well site with one or more wells that produce on average 15-barrel equivalents (BOE) or less per day are to be exempt from the requirements of this division. We calculated that the well associated to this site produced on average more than 15 BOE per day. Please see the email on page 10 of the project file for the guidance we received from AQD on how to calculate (BOE) and the calculation sheet on page 3 for the average BOE. For the look-back period, we used the 2 years prior to the last production reported at the site (2019). This determination was also based on guidance that we received from AQD (see the email on page 13).
- As discussed with Sam and Rebecca on May 19th, the emissions from the affected components were devalued using the control efficiencies under the 28RCT LDAR program. We received clarification from Harry Xue on the Chemical Team that open ended lines that are under 28RCT have 100% control efficiency (see the email on page 12). The revised emission calculations can be found on pages 8-9. In the original generation, the fugitive components generated 0.2 tpy of ERCs. With the new calculations, the fugitive component baseline emissions are less than 0.1 tpy, making them ineligible to generate. As a result, the total ERCs on Certificate 3913 were reduced by 0.2 tpy, going from 0.6 tpy to 0.4 tpy.

We plan to discuss our findings with the requestor before closing this project. I know that this is a lot of information to take in; please let us know if you have any questions or concerns.

Thanks,
Melissa