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Exhibit A

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
Permit Application Analysis
A0009803

April 9, 2020

NAME OF FIRM:	Citation Oil & Gas Corporation (CMP000177)
MAILING ADDRESS:	14077 Cutten Road Houston, TX 77069
RESPONSIBLE OFFICIAL:	Lee Ann Elsom Regulatory Compliance Manager
TELEPHONE NUMBER:	(281) 891-1577
TYPE OF OPERATION:	multiple well, sour crude oil production tank battery
FACILITY NAME:	**Dallas Dome Tank Battery (F003333)**
FACILITY LOCATION:	SE¼ SW¼ Section 13, T32N, R99W Latitude: 42.74380° Longitude: -108.61690° Fremont County, Wyoming
DATE FACILITY BECAME OPERATIONAL:	6/28/1910, modified 10/1/2014 and 11/1/2014
REVIEWER:	Heather Bleile, Air Quality Engineer

PURPOSE OF APPLICATION: Citation Oil & Gas Corporation filed this application to modify the Dallas Dome Tank Battery by updating the equipment list.

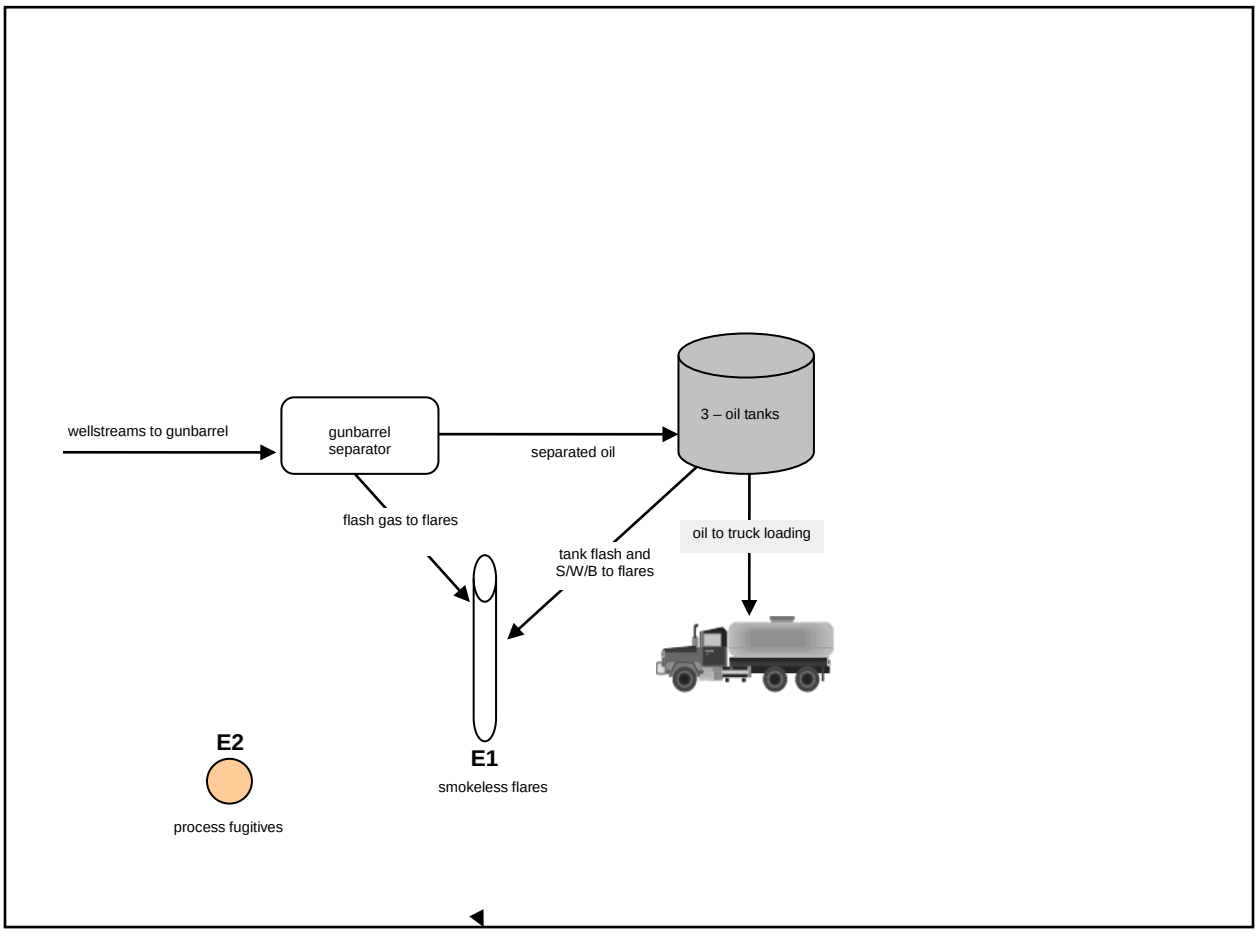
Production and equipment for the sixty-three wells are co-located and/or shared and all associated air emissions are aggregated for permitting determinations.

PERMIT HISTORY: The Dallas Dome Tank Battery currently operates under Air Quality Authorization Letter, wv-9347, issued on May 20, 2010. No controls were required under this authorization letter. This permit shall supersede wv-9347 for the Dallas Dome Tank Battery.

The following equipment operates at the Dallas Dome Tank Battery:

- one (1) gunbarrel separator
- one (1) 1000-barrel (bbl), one (1) 500-bbl and one (1) 400-bbl oil storage tanks
- two (2) common smokeless flares w/ **proposed** continuous pilot monitoring systems (oil tank and gunbarrel separator control)

PROCESS DESCRIPTION: The following is a schematic representation of the production process at this facility. A complete process description is found in the permit application.



ESTIMATED EMISSIONS: (summarized in the attached tables)

oil storage tanks / gunbarrel separator flash gas:

flashing losses and standing/working/breathing (S/W/B) losses:

Uncontrolled VOC, HAP and H_2S emissions are estimated using actual tank vapor measurements and an extended analysis of the tank vapors. Uncontrolled VOC emissions associated with S/W/B losses are estimated using EPA Tanks 4.0 software.

Controlled VOC and HAP emissions associated with flashing and S/W/B losses and gunbarrel separator flash gas (**Emission Source E1, Process Flow Diagram**) are based on the reported 98% destruction efficiency of the common smokeless flares. Nitrogen oxide (NO_X) and carbon monoxide (CO) emissions from combustion of the vapors are based on 0.14 lb NO_X/MMBtu and 0.035 lb CO/MMBtu and the volume of measured vapors. Sulfur dioxide (SO_2) emissions are calculated using the metered volume of tank vapor, the molecular weight of SO_2 and the H_2S mole fraction from the extended gas analysis.

fugitive sources: (**Emission Source E2, Process Flow Diagram**)

Citation Oil & Gas Corporation shall follow the fugitive emission monitoring requirements under 40 CFR part 60, Subpart OOOOa for fugitive VOC emissions from a production site as published in the federal register on June 3, 2016 (Federal Register Vol. 81 pg. 35824-35941). With these requirements met, fugitive emissions are considered insignificant.

truck loading: (**Emission Source E3, Process Flow Diagram**)

Uncontrolled VOC, HAP and H_2S emissions are based on AP-42 EF and the reported oil production rate.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT): The emissions associated with the oil tanks and gunbarrel separator are controlled with 98% efficient flares which meets current BACT requirements.

This facility was modified on October 1, 2014 with the addition of the Barber 89 well and again on November 1, 2014 with the addition of the Barber 49R and 88 wells. An application for these modifications was never submitted. Since the 2010 C6 S2 Guidance was not followed at the time this facility was modified, the modifications at the Dallas Dome Tank Battery must comply with the requirements under the 2018 C6 S2 Guidance. As a result, the Division is proposing the installation of continuous pilot monitoring systems on the flares. The continuous pilot monitoring systems shall be installed and operational within sixty (60) days of permit issuance.

Per the 2018 C6 S2 Guidance Presumptive BACT requirements for fugitive emissions, Citation Oil & Gas Corporation shall follow the fugitive emission monitoring requirements under 40 CFR part 60, Subpart OOOOa for fugitive VOC emissions from a production site as published in the federal register on June 3, 2016 (Federal Register Vol. 81 pg. 35824-35941).

NEW SOURCE PERFORMANCE STANDARDS (NSPS): The oil storage tanks are operated prior to custody transfer and are not subject to Subpart K, K_a or K_b.

40 CFR part 60, subpart OOOO - *Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution* applies to any new, modified or reconstructed emission source installed after August 23, 2011 at oil and gas production and gas processing facilities. The Dallas Dome Tank Battery is subject to 40 CFR part 60, subpart OOOO as the facility was modified after the effective date.

40 CFR part 60, subpart OOOOa - *Standards of Performance for Crude Oil and Natural Gas Facilities* applies to any new, modified or reconstructed emission source installed after September 18, 2015 at oil and gas production and gas processing facilities. The Dallas Dome Tank Battery is not subject to 40 CFR part 60, subpart OOOOa as the facility was not modified after the effective date.

PREVENTION OF SIGNIFICANT DETERIORATION (PSD): Emissions from this facility are less than the major source levels defined in WAQSR Chapter 6, Section 4.

CHAPTER 6, SECTION 3 (Operating Permit): Emissions from this facility are less than the major source levels defined in WAQSR Chapter 6, Section 3.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (MACT): Emissions from this facility are less than the major source levels of 10 TPY of any individual HAP and 25 TPY of any combination of HAPs; therefore this facility is not subject to Subpart HH requirements for oil and gas production facilities which are major sources of HAP emissions.

LAND USE PLANNING, GREATER SAGE-GROUSE PROTECTION AND MULE DEER / ANTELOPE MIGRATION CORRIDOR PROTECTION: Chapter 6, Section 2(c) of the Wyoming Air Quality Standards and Regulations (WAQSR) requires permit applicants to demonstrate that a proposed facility will be located in accordance with proper land use planning as determined by the appropriate state or local agency. The Wyoming Oil and Gas Conservation Commission (WOGCC) is the state agency charged with authorizing oil and gas wells, and the Commission's permit to drill is verification that an oil and gas production well and associated equipment are located in accordance with proper land use planning.

All permit applicants must also comply with the Governor's Executive Order 2019-3 for the protection of Greater Sage-Grouse habitat. For oil and gas production sites, the WOGCC established the *Greater Sage-Grouse Core Area Protection Policy*. The Division relies on the WOGCC's policy to enforce Executive Order 2019-3 during the permitting process for the drilling of production wells, before oil and gas production sites commence operation.

The Governor's Executive Order (EO) 2020-1 directs state agencies to consider the impact of proposed and modified facility sites on the migration corridors of mule deer and antelope. The Division has determined that the Dallas Dome Tank Battery is outside of any mule deer and antelope migration corridors. Therefore, the requirements of the Mule Deer and Antelope Migration Corridor Executive Order have been met.

PROPOSED PERMIT CONDITIONS: The Division proposes to issue an Air Quality Permit to Citation Oil & Gas Corporation for the Dallas Dome Tank Battery with the following conditions:

1. Authorized representatives of the Division of Air Quality be given permission to enter and inspect any property, premise or place on or at which an air pollution source is located or being installed for the purpose of investigating actual or potential sources of air pollution and for determining compliance or non-compliance with any rule, regulation, standard, permit or order.

2. All substantive commitments and descriptions set forth in the application for this permit, unless superseded by a specific condition of this permit, are incorporated herein by this reference and are enforceable as a condition of this permit.

3. A permit to operate in accordance with Chapter 6, Section 2(a)(iii) of the WAQSR is required after a 120-day start-up period in order to operate this facility.

4. All notifications, reports and correspondence required by this permit shall be submitted to the Stationary Source Compliance Program Manager. Submissions may be done electronically through https://airimpact.wyo.gov to satisfy requirements of this permit.

5. All records required under this permit shall be kept for a period of at least five (5) years and shall be made available to the Division upon request.

6. Effective upon permit issuance, this permit shall supersede Air Quality Authorization Letter wv-9347 for the Dallas Dome Tank Battery.

7. Periodic training on the proper operation of equipment, systems and devices used to contain, control, eliminate or reduce pollution shall be provided to company personnel whose primary job is to regularly ensure that facility production equipment is functional. The training shall provide these personnel with the ability to recognize, correct and report all instances of malfunctioning equipment, systems and devices associated with air pollution control. These equipment, systems and devices include, but are not limited to combustion units, reboiler overheads condensers, hydrocarbons liquids storage tanks, drip tanks, vent lines, connectors, fittings, valves, relief valves, hatches and any other appurtenance employed to, or involved with, eliminating, reducing, containing or collecting vapors and transporting them to a pollution control system or device.

8. Trained personnel shall perform, at a minimum, a quarterly site evaluation of the operation of the air pollution control equipment, systems and devices under Condition 7. The first quarterly site evaluation shall be conducted within the second quarter after permit issuance.

9. At least one of the quarterly evaluations per calendar year under Condition 8 shall include an evaluation of the facility for leaks from the equipment, systems and devices under Condition 7 using an optical gas imaging instrument. Monitoring utilizing the no detectable emissions test methods and procedures in 40 CFR §60.5416(b)(1) through (8) may be utilized to satisfy the requirements of this condition for the equipment, systems, and devices under Condition 7 in lieu of using an optical gas imaging instrument.

10. Notification shall be provided to the Division at least fifteen (15) days prior to the quarterly evaluation under Condition 8.

11. An annual preventative maintenance program shall be instituted to inspect and replace equipment, systems and devices under Condition 6 as necessary to ensure their proper operation.

12. Results of all inspections, evaluations and periodic monitoring shall be documented and maintained for review by the Division upon request. Digital files of any optical gas imaging instrument evaluations need not be maintained.

13. Citation Oil & Gas Corporation shall follow the fugitive emission monitoring requirements under 40 CFR part 60, Subpart OOOOa for fugitive VOC emissions from a production site as published in the federal register on June 3, 2016 (Federal Register Vol. 81 pg. 35824-35941).

14. Vapors from all oil tanks, including tank flash and S/W/B vapors, shall be routed to the common flares to reduce the mass content of VOCs, HAPs and H_2S in the tank vapors vented to the devices by at least ninety-eight percent (98%) by weight.

15. All gunbarrel flash gas which is not used as fuel for process burners and is not routed into a gas collection line or system, shall be routed to the common flares to reduce the mass content of VOCs and HAPs in the produced gas vented to the device by at least ninety-eight percent (98%) by weight.

16. The smokeless flares under Conditions 14 and 15 shall be operational for at least one (1) year following the date of installation of the control devices, after which time the devices may be removed upon Division approval without permit modification provided it can be demonstrated that the current, uncontrolled, annualized combined VOC emission rates from the oil tanks and gunbarrel separator is less than, and will remain less than four (4) tons per year.

17. The presence of the common flare pilot flames shall be monitored using thermocouples and continuous recording devices or any other equivalent devices to detect and record the presence of the flames. Records shall be maintained noting periods during active well site operation when any of the pilot flames are not present. The records shall contain a description of the reason(s) for absence of the pilot flames and steps taken to return the pilot flames to proper operation.

18. The continuous pilot monitoring systems under Condition 17 shall be installed and operational within sixty (60) days of permit issuance. Citation Oil & Gas Corporation shall notify the Division within fifteen (15) days of installation of the continuous pilot monitoring systems.

19. The common flares shall be designed, constructed, operated and maintained to be smokeless, per Chapter 3, Section 6(b)(i) of the WAQSR, with no visible emissions except for periods not to exceed a total of five (5) minutes during any two (2) consecutive hours as determined by 40 CFR part 60, appendix A, Method 22.

20. Emission control equipment, including the VOC and HAP emission control system or device, all vent lines, connections, fittings, valves, relief valves, hatches or any other appurtenance employed to contain and collect vapors and transport them to the emission control system or device, shall be maintained and operated during any time the well is producing such that the emissions are controlled at all times. Records shall be maintained noting dates and durations of times during such operation when any VOC or HAP emissions control system or device or the associated containment and collection equipment is not functioning to control emissions as required by this permit.

21. Citation Oil & Gas Corporation shall maintain records that the manufacturer-designed VOC destruction efficiency of the common flares is at least ninety-eight percent (98%).

22. Citation Oil & Gas Corporation shall comply with all applicable requirements of 40 CFR part 60, subpart OOOO.

Wells Producing to Dallas Dome Tank Battery

Facility	¼ ¼	Section	Township (N)	Range (W)	Latitude	Longitude	Startup
Fourt 3	NW NE	24	32	99	42.73939	-108.62077	9/14/1950
W J Patented 5-T	NW NE	24	32	99	42.73929	-108.60984	9/30/1951
Barber D-244 65-T	NE NE	24	32	99	42.73918	-108.60392	7/21/1949
Barber D-244 17-T	SE SW	13	32	99	42.74024	-108.62014	12/16/1987
Barber D-244 60-T	SE SW	13	32	99	42.74047	-108.60447	4/30/1948
Barber D-244 64	SE SW	13	32	99	42.74137	-108.60400	6/19/1949
W J Fourte 1-E	SW SE	13	32	99	42.74145	-108.61117	1/19/1951
Barber D-244 Patent 46-E	SE SW	13	32	99	42.74115	-108.62152	9/27/1920
Barber D-244 Patent 51-E	SE SW	13	32	99	42.74152	-108.62002	10/29/1920
W J Fourt Patented 4-E	SW SE	13	32	99	42.74016	-108.61017	1/29/1951
W J Fourt Patented 6-T	SW SE	13	32	99	42.74215	-108.62082	8/23/1951
Barber D-244 Patent 50-T	SW SW	13	32	99	42.74181	-108.61731	11/18/1966
Barber D-244 Patent 63-T	SW SW	13	32	99	42.74255	-108.61264	7/31/1948
W J Fourt Patented 7-T	SW SE	13	32	99	42.74259	-108.62016	9/18/1953
Barber D-244 Patent 33-T	SE SW	13	32	99	42.74306	-108.61451	5/31/1973
W J Fourt Patented 2-T	SW SE	13	32	99	42.74296	-108.61151	1/17/1949
Barber D-244 Patent 66-T	SE SW	13	32	99	42.74306	-108.61651	3/6/1957
Barber D-244 Patent 57-T	NE SW	13	32	99	42.74350	-108.61805	12/29/1930
W J Fourt Patented 8-T	NW SE	13	32	99	42.74395	-108.61126	1/28/1966
Barber D-244 Patent 31-T	NE SW	13	32	99	42.74018	-108.61940	4/1/1927
Barber D-244 Patent 26-T	NE SW	13	32	99	42.74466	-108.61533	2/5/1931
Barber D-244 Patent 37-T	NW SW	13	32	99	42.74411	-108.61814	5/19/1965
Barber D-244 Patent 45-T	NW SW	13	32	99	42.74484	-108.62006	1/2/1967
Barber D-244 Patent 35-E	NW SW	13	32	99	42.74096	-108.61718	3/15/1932
Barber D-244 Patent 55-T	NE SW	13	32	99	42.74526	-108.60783	3/15/1932
Barber D-244 Patent 28-T	NE SW	13	32	99	42.74163	-108.61965	6/28/1910
Barber D-244 Patent 30-T	NE SW	13	32	99	42.74496	-108.61197	11/5/1927
Barber D-244 Patent 36-T	NW SW	13	32	99	42.74579	-108.61851	9/1/1932
Dallas 40	NW SW	13	32	99	42.74306	-108.61727	6/21/1920
W J Fourt Patented 10-E	NW SE	13	32	99	42.7466	-108.61117	6/2/1960
Barber D-244 Patent 58-T	SW NW	13	32	99	42.74708	-108.61814	11/8/1930
W J Fourt Patented 42-E	SE NW	13	32	99	42.74029	-108.62113	7/22/1920
W J Fourt Patented 9-T	NW SE	13	32	99	42.74512	-108.6111	2/4/1960
Barber D-244 Patent 19-T	SW NW	13	32	99	42.74207	-108.61751	11/30/1959
W J Fourt Patented 1-T	SE SW	13	32	99	42.74116	-108.61147	8/1/1948
Barber D-244 Patent 69-T	NE SW	13	32	99	42.74445	-108.61302	5/7/1966
Barber 70	NE SW	13	32	99	42.74583	-108.61435	6/23/1966
Barber D-244 Patent 71-T	NE SW	13	32	99	42.74639	-108.61578	11/11/1966
Barber D-244 Patent 68-T	SE SW	13	32	99	42.74221	-108.61409	11/29/1966

Wells Producing to Dallas Dome Tank Battery

Facility	¼ ¼	Section	Township (N)	Range (W)	Latitude	Longitude	Startup
Barber D-244 Patent 44-E	NE SW	13	32	99	42.74027	-108.62148	8/26/1920
Barber D-244 Patent 61-E	SE SW	13	32	99	42.74055	-108.61857	5/1/1948
Barber D-244 Patent 53-T	SW SW	13	32	99	42.74310	-108.61890	5/28/1967
Barber D-244 Patent 9-A	SW NW	13	32	99	42.74744	-108.62007	5/17/1967
Barber D-244 Patent 40-A	NW SW	13	32	99	42.74666	-108.61761	6/27/1967
Barber 72	SE NW	13	32	99	42.74739	-108.61611	8/7/1967
Barber D-244 Patent 47-A	NW SW	13	32	99	42.74612	-108.62006	8/9/1967
Barber D-244 Patent 73-T	SW NW	13	32	99	42.74813	-108.61916	9/2/1967
Barber 74	NE NW	24	32	99	42.73952	-108.61471	6/15/1968
Barber D-244 Patent 76-T	NE SW	13	32	99	42.74660	-108.61468	10/6/1967
Barber D-244 Patent 75-T	SW NW	13	32	99	42.74778	-108.61759	9/26/1967
Barber D-244 78	SE NW	13	32	99	42.74825	-108.61637	4/26/1968
Barber D-244 Patent 81-T	SE SW	13	32	99	42.74046	-108.61253	5/11/1968
Barber D-244 Patent 79-T	SW NW	13	32	99	42.74722	-108.61489	8/23/1968
W J Fourt Patented 12-T	SW SE	13	32	99	42.74012	-108.61143	7/16/1969
Barber D-244 82	SW SW	13	32	99	42.74321	-108.61258	7/10/1969
Barber D-244 Patent 83	NE SW	13	32	99	42.74531	-108.61286	3/25/1971
Barber D-244 Patent 84-T	SE NW	13	32	99	42.74821	-108.61528	12/21/1971
Barber Fee 85	NE NW	24	32	99	42.73849	-108.61244	10/6/1989
Barber 87-T	SW NW	13	32	99	42.74924	-108.61844	12/15/1990
Barber 86-T	SE NW	13	32	99	42.74723	-108.61324	1/19/1991
Barber 49R	SW NW	13	32	99	42.74851	-108.61895	11/1/2014
Barber 89	SE SW	13	32	99	42.74221	-108.61703	10/1/2014
Barber 88	SW SW	13	32	99	42.74341	-108.61873	11/1/2014

EQUIPMENT LIST

- one (1) gunbarrel separator
- one (1) 1000-bbl, one (1) 500-bbl and one (1) 400-bbl oil storage tanks
- two (2) smokeless flares w/ **proposed** continuous pilot monitoring systems (oil tank and gunbarrel separator control)

EMISSIONS SUMMARY

Dallas Dome Tank Battery 191 BPD total oil [1]						
SOURCE	EMISSIONS (TPY) [2]					
	VOC	HAP	NO_X	CO	H_2S	SO_2
Oil Storage Tanks / Gunbarrel Flash Gas						
UNCONTROLLED	46.7	0.4	--	--	0.4	--
CONTROLLED	0.9	insig	0.4	0.1	--	0.8
Truck Loading	2.5	0.3	--	--	0.3	--
Fugitives [3]	insig	insig	--	--	insig	--
Total Uncontrolled Facility Emissions	**49.2**	**0.7**	**--**	**--**	**0.7**	**--**
Total Controlled Facility Emissions	**3.4**	**0.3**	**0.4**	**0.1**	**0.3**	**0.8**

[1] daily rates reported by the applicant
[2] rounded to the nearest 0.1 ton
[3] Citation will implement a FEM program; therefore, emissions associated with fugitive leaks are considered insignificant

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
Permit Application Analysis
A0008234

April 7, 2020

NAME OF FIRM:	Citation Oil & Gas Corporation (CMP000177)
MAILING ADDRESS:	14077 Cutten Road Houston, TX 77069
RESPONSIBLE OFFICIAL:	Lee Ann Elsom Regulatory Compliance Manager
TELEPHONE NUMBER:	(281) 891-1577
TYPE OF OPERATION:	multiple well, sour crude oil production tank battery
FACILITY NAME:	**Embar 1 Tank Battery (F004573)**
FACILITY LOCATION:	NE¼ SW¼ Section 12, T47N, R100W Latitude: 44.06275° Longitude: -108.80671° Park County, Wyoming
DATE FACILITY BECAME OPERATIONAL:	12/21/1970, modified 9/20/2008
REVIEWER:	Heather Bleile, Air Quality Engineer

PURPOSE OF APPLICATION: Citation Oil & Gas Corporation filed this application to modify the Embar 1 Tank Battery by updating the equipment list.

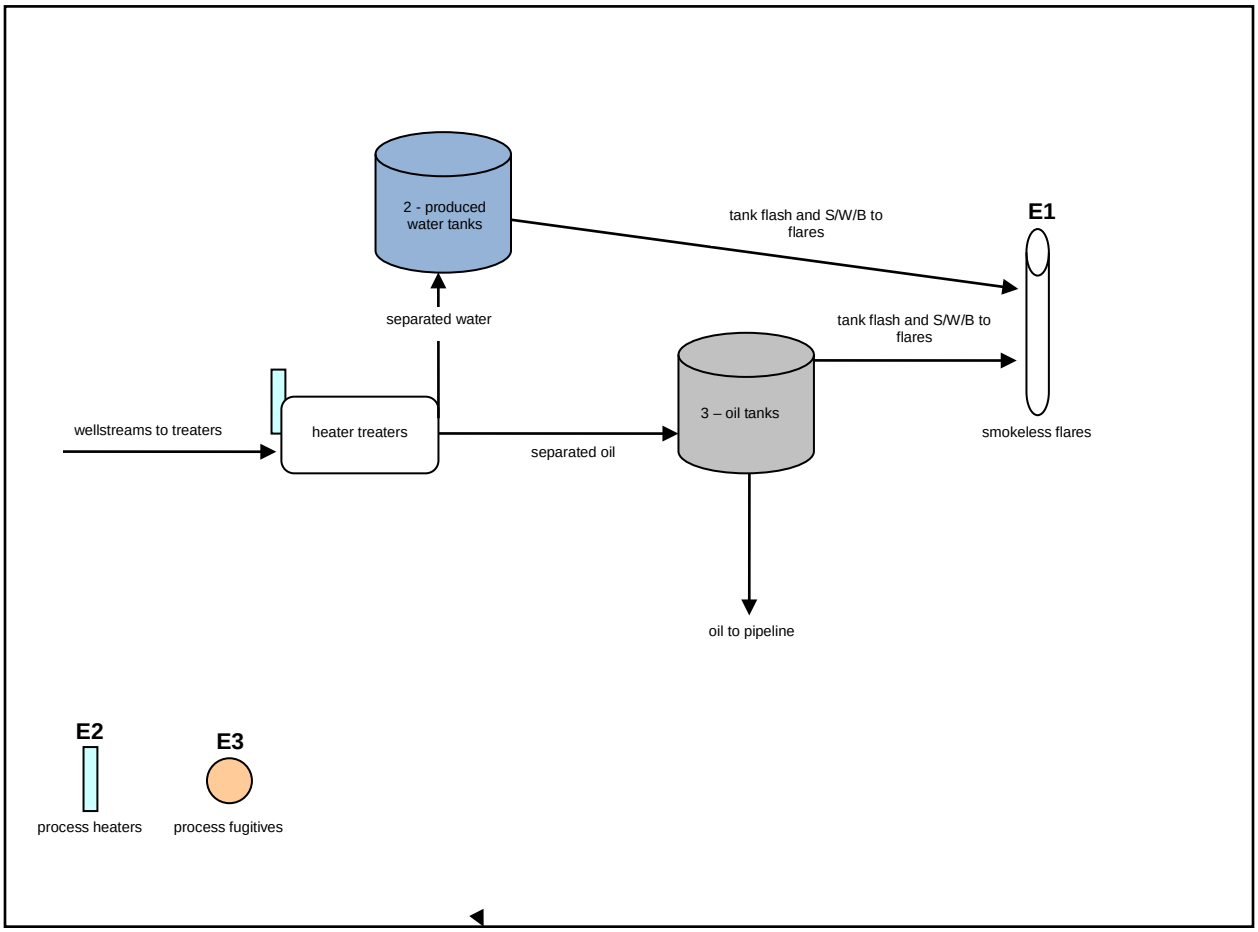
Production and equipment for the nineteen wells are co-located and/or shared and all associated air emissions are aggregated for permitting determinations.

PERMIT HISTORY: The Embar 1 Tank Battery currently operates under Air Quality Authorization Letter, wv-289, issued on December 8, 1998. No controls were required under this authorization letter. This permit shall supersede wv-289 for the Embar 1 Tank Battery.

The following equipment operates at the Embar 1 Tank Battery:

- three (3) heater treaters w/ 1.25 million Btu per hour (MMBtu/hr) heaters
- one (1) heater treater w/ 0.75 MMBtu/hr heater
- three (3) 400-barrel (bbl) oil storage tanks
- one (1) 3000-bbl and one (1) 400-bbl produced water tanks
- two (2) smokeless flares w/ **proposed** continuous pilot monitoring systems (oil tank and active produced water tank control)

PROCESS DESCRIPTION: The following is a schematic representation of the production process at this facility. A complete process description is found in the permit application.



ESTIMATED EMISSIONS: (summarized in the attached tables)

oil storage tanks:

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active produced water tanks: (**Emission Source E1, Process Flow Diagram**)

The Division is currently not requiring emission calculations for active produced water tanks. Vapors from the active produced water tanks are routed to the flares for 98% control.

natural gas fired heaters: **(Emission Source E2, Process Flow Diagram)**

NO_X, CO and SO_2 emissions are based on AP-42 EF for fuel boilers and heaters.

fugitive sources: (**Emission Source E3, Process Flow Diagram**)

Citation Oil & Gas Corporation shall follow the fugitive emission monitoring requirements under 40 CFR part 60, Subpart OOOOa for fugitive VOC emissions from a production site as published in the federal register on June 3, 2016 (Federal Register Vol. 81 pg. 35824-35941). With these requirements met, fugitive emissions are considered insignificant.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT): The emissions associated with the oil tanks and active produced water tanks are controlled with 98% efficient flares which meets current BACT requirements.

This facility was modified on September 20, 2008 with the addition of the LBB 386 well; however, an application for the modification was never submitted. Since the 2007 C6 S2 Guidance was not followed at the time this facility was modified, the modifications at the Embar 1 Tank Battery must comply with the requirements under the 2018 C6 S2 Guidance. As a result, the Division is proposing the installation of continuous pilot monitoring systems on the flares. The continuous pilot monitoring systems shall be installed and operational within sixty (60) days of permit issuance.

Per the 2018 C6 S2 Guidance Presumptive BACT requirements for fugitive emissions, Citation Oil & Gas Corporation shall follow the fugitive emission monitoring requirements under 40 CFR part 60, Subpart OOOOa for fugitive VOC emissions from a production site as published in the federal register on June 3, 2016 (Federal Register Vol. 81 pg. 35824-35941).

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LAND USE PLANNING, GREATER SAGE-GROUSE PROTECTION AND MULE DEER / ANTELOPE MIGRATION CORRIDOR PROTECTION: Chapter 6, Section 2(c) of the Wyoming Air Quality Standards and Regulations (WAQSR) requires permit applicants to demonstrate that a proposed facility will be located in accordance with proper land use planning as determined by the appropriate state or local agency. The Wyoming Oil and Gas Conservation Commission (WOGCC) is the state agency charged with authorizing oil and gas wells, and the Commission's permit to drill is verification that an oil and gas production well and associated equipment are located in accordance with proper land use planning.

All permit applicants must also comply with the Governor's Executive Order 2019-3 for the protection of Greater Sage-Grouse habitat. For oil and gas production sites, the WOGCC established the *Greater Sage-Grouse Core Area Protection Policy*. The Division relies on the WOGCC's policy to enforce Executive Order 2019-3 during the permitting process for the drilling of production wells, before oil and gas production sites commence operation.

The Governor's Executive Order (EO) 2020-1 directs state agencies to consider the impact of proposed and modified facility sites on the migration corridors of mule deer and antelope. The Division has determined that the Embar 1 Tank Battery is outside of any mule deer and antelope migration corridors. Therefore, the requirements of the Mule Deer and Antelope Migration Corridor Executive Order have been met.

PROPOSED PERMIT CONDITIONS: The Division proposes to issue an Air Quality Permit to Citation Oil & Gas Corporation for the Embar 1 Tank Battery with the following conditions:

1. Authorized representatives of the Division of Air Quality be given permission to enter and inspect any property, premise or place on or at which an air pollution source is located or being installed for the purpose of investigating actual or potential sources of air pollution and for determining compliance or non-compliance with any rule, regulation, standard, permit or order.

2. All substantive commitments and descriptions set forth in the application for this permit, unless superseded by a specific condition of this permit, are incorporated herein by this reference and are enforceable as a condition of this permit.

3. A permit to operate in accordance with Chapter 6, Section 2(a)(iii) of the WAQSR is required after a 120-day start-up period in order to operate this facility.

4. All notifications, reports and correspondence required by this permit shall be submitted to the Stationary Source Compliance Program Manager. Submissions may be done electronically through https://airimpact.wyo.gov to satisfy requirements of this permit.

5. All records required under this permit shall be kept for a period of at least five (5) years and shall be made available to the Division upon request.

6. Effective upon permit issuance, this permit shall supersede Air Quality Permit wv-289 for the Embar 1 Tank Battery.

7. Periodic training on the proper operation of equipment, systems and devices used to contain, control, eliminate or reduce pollution shall be provided to company personnel whose primary job is to regularly ensure that facility production equipment is functional. The training shall provide these personnel with the ability to recognize, correct and report all instances of malfunctioning equipment, systems and devices associated with air pollution control. These equipment, systems and devices include, but are not limited to combustion units, reboiler overheads condensers, hydrocarbons liquids storage tanks, drip tanks, vent lines, connectors, fittings, valves, relief valves, hatches and any other appurtenance employed to, or involved with, eliminating, reducing, containing or collecting vapors and transporting them to a pollution control system or device.

8. Trained personnel shall perform, at a minimum, a quarterly site evaluation of the operation of the air pollution control equipment, systems and devices under Condition 7. The first quarterly site evaluation shall be conducted within the second quarter after permit issuance.

9. At least one of the quarterly evaluations per calendar year under Condition 8 shall include an evaluation of the facility for leaks from the equipment, systems and devices under Condition 7 using an optical gas imaging instrument. Monitoring utilizing the no detectable emissions test methods and procedures in 40 CFR §60.5416(b)(1) through (8) may be utilized to satisfy the requirements of this condition for the equipment, systems, and devices under Condition 7 in lieu of using an optical gas imaging instrument.

10. Notification shall be provided to the Division at least fifteen (15) days prior to the quarterly evaluation under Condition 8.

11. An annual preventative maintenance program shall be instituted to inspect and replace equipment, systems and devices under Condition 6 as necessary to ensure their proper operation.

12. Results of all inspections, evaluations and periodic monitoring shall be documented and maintained for review by the Division upon request. Digital files of any optical gas imaging instrument evaluations need not be maintained.

13. Citation Oil & Gas Corporation shall follow the fugitive emission monitoring requirements under 40 CFR part 60, Subpart OOOOa for fugitive VOC emissions from a production site as published in the federal register on June 3, 2016 (Federal Register Vol. 81 pg. 35824-35941).

14. Vapors from all oil tanks and all active produced water tanks, including tank flash and S/W/B vapors, shall be routed to the flares to reduce the mass content of VOCs, HAPs and H_2S in the tank vapors vented to the devices by at least ninety-eight percent (98%) by weight for at least one (1) year following the date of installation of the control devices, after which time the devices may be removed upon Division approval without permit modification provided it can be demonstrated that the current, uncontrolled, annualized VOC emission rate from the oil tanks is less than, and will remain less than four (4) tons per year.

15. The presence of the flare pilot flames shall be monitored using thermocouples and continuous recording devices or any other equivalent devices to detect and record the presence of the flames. Records shall be maintained noting periods during active well site operation when any of the pilot flames are not present. The records shall contain a description of the reason(s) for absence of the pilot flames and steps taken to return the pilot flames to proper operation.

16. The continuous pilot monitoring systems under Condition 15 shall be installed and operational within sixty (60) days of permit issuance. Citation Oil & Gas Corporation shall notify the Division within fifteen (15) days of installation of the continuous pilot monitoring systems.

17. The flares shall be designed, constructed, operated and maintained to be smokeless, per Chapter 3, Section 6(b)(i) of the WAQSR, with no visible emissions except for periods not to exceed a total of five (5) minutes during any two (2) consecutive hours as determined by 40 CFR part 60, appendix A, Method 22.

18. Emission control equipment, including the VOC and HAP emission control system or device, all vent lines, connections, fittings, valves, relief valves, hatches or any other appurtenance employed to contain and collect vapors and transport them to the emission control system or device, shall be maintained and operated during any time the well is producing such that the emissions are controlled at all times. Records shall be maintained noting dates and durations of times during such operation when any VOC or HAP emissions control system or device or the associated containment and collection equipment is not functioning to control emissions as required by this permit.

19. Citation Oil & Gas Corporation shall maintain records that the manufacturer-designed VOC destruction efficiency of the flares is at least ninety-eight percent (98%).

Wells Producing to Embar 1 Tank Battery

Facility	¼ ¼	Section	Township (N)	Range (W)	Latitude	Longitude	Startup
LBB DSU Unit 265	SWSW	6	47	99	44.06534	-108.79255	2/9/83
LBB DSU C-045855 312	SENW	7	47	99	44.06079	-108.78639	2/14/84
LBB DSU C-045855 87	SESW	1	47	100	44.06539	-108.80583	12/21/70
LBB DSU 115	NESW	12	47	100	44.05583	-108.80899	2/11/73
LBB DSU 143	SENW	12	47	100	44.0575	-108.80539	6/18/75
LBB DSU 157	SENE	12	47	100	44.05649	-108.79849	3/7/77
Little Buffalo Basin 158	SENW	12	47	100	44.0575	-108.80667	1/30/77
LBB DSU C-044187 159	SWNE	12	47	100	44.05917	-108.80201	11/1/07
LBB DSU 160	NENE	12	47	100	44.06111	-108.79889	4/12/77
LBB DSU C-045855 190	SENW	12	47	100	44.05959	-108.80909	7/2/79
LBB DSU 212H	SESW	12	47	100	44.05307	-108.80364	8/31/87
Little Buffalo Basin 208	NWNW	12	47	100	44.0613	-108.8101	6/16/00
Unit C-045855 242	SWNW	12	47	100	44.05917	-108.81021	1/5/82
LBB DSU Unit 245	SWSE	1	47	100	44.06511	-108.80051	1/29/82
Unit C-044187 244	NWNE	12	47	100	44.06306	-108.80259	1/24/82
Unit C-045855 243	NENW	12	47	100	44.06151	-108.80541	1/25/82
Cheyenne 045855 246	C-SE	1	47	100	44.06759	-108.79667	2/12/82
LBB Unit C-045855 247	NWNW	12	47	100	44.06278	-108.80972	12/1/82
LBB 386	NENW	12	47	100	44.06344	-108.80815	9/20/08

EQUIPMENT LIST

- three (3) heater treaters w/ 1.25 MMBtu/hr heaters
- one (1) heater treater w/ 0.75 MMBtu/hr heater
- three (3) 400-bbl oil storage tanks
- one (1) 3000-bbl and one (1) 400-bbl produced water tanks
- two (2) smokeless flares w/ **proposed** continuous pilot monitoring systems (oil tank and active produced water tank control)

EMISSIONS SUMMARY

Embar 1 Tank Battery 135 BPD total oil [1]						
SOURCE	EMISSIONS (TPY) [2]					
	VOC	HAP	NO_X	CO	H_2S	SO_2
Oil Storage Tanks						
UNCONTROLLED	92.8	0.6	--	--	7.1	--
CONTROLLED	1.9	insig	1.2	0.3	--	13.4
Process Heaters	0.1	insig	1.9	1.6	--	insig
Fugitives [3]	insig	insig	--	--	insig	--
Total Uncontrolled Facility Emissions	**92.9**	**0.6**	**1.9**	**1.6**	**7.1**	**--**
Total Controlled Facility Emissions	**2.0**	**insig**	**3.1**	**1.9**	**insig**	**13.4**

[1] daily rates reported by the applicant
[2] rounded to the nearest 0.1 ton
[3] Citation will implement a FEM program; therefore, emissions associated with fugitive leaks are considered insignificant

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
Permit Application Analysis
A0008253

April 10, 2020

NAME OF FIRM:	Citation Oil & Gas Corporation (CMP000177)
MAILING ADDRESS:	14077 Cutten Road Houston, TX 77069
RESPONSIBLE OFFICIAL:	Lee Ann Elsom Regulatory Compliance Manager
TELEPHONE NUMBER:	(281) 891-1577
TYPE OF OPERATION:	multiple well, sour crude oil production tank battery
FACILITY NAME:	**Embar 3 Tank Battery (F006413)**
FACILITY LOCATION:	NW¼ SW¼ Section 1, T47N, R100W Latitude: 44.06890° Longitude: -108.81306° Park County, Wyoming
DATE FACILITY BECAME OPERATIONAL:	1/27/1969, modified 7/25/2011
REVIEWER:	Heather Bleile, Air Quality Engineer

PURPOSE OF APPLICATION: Citation Oil & Gas Corporation filed this application to modify the Embar 3 Tank Battery by updating the equipment list.

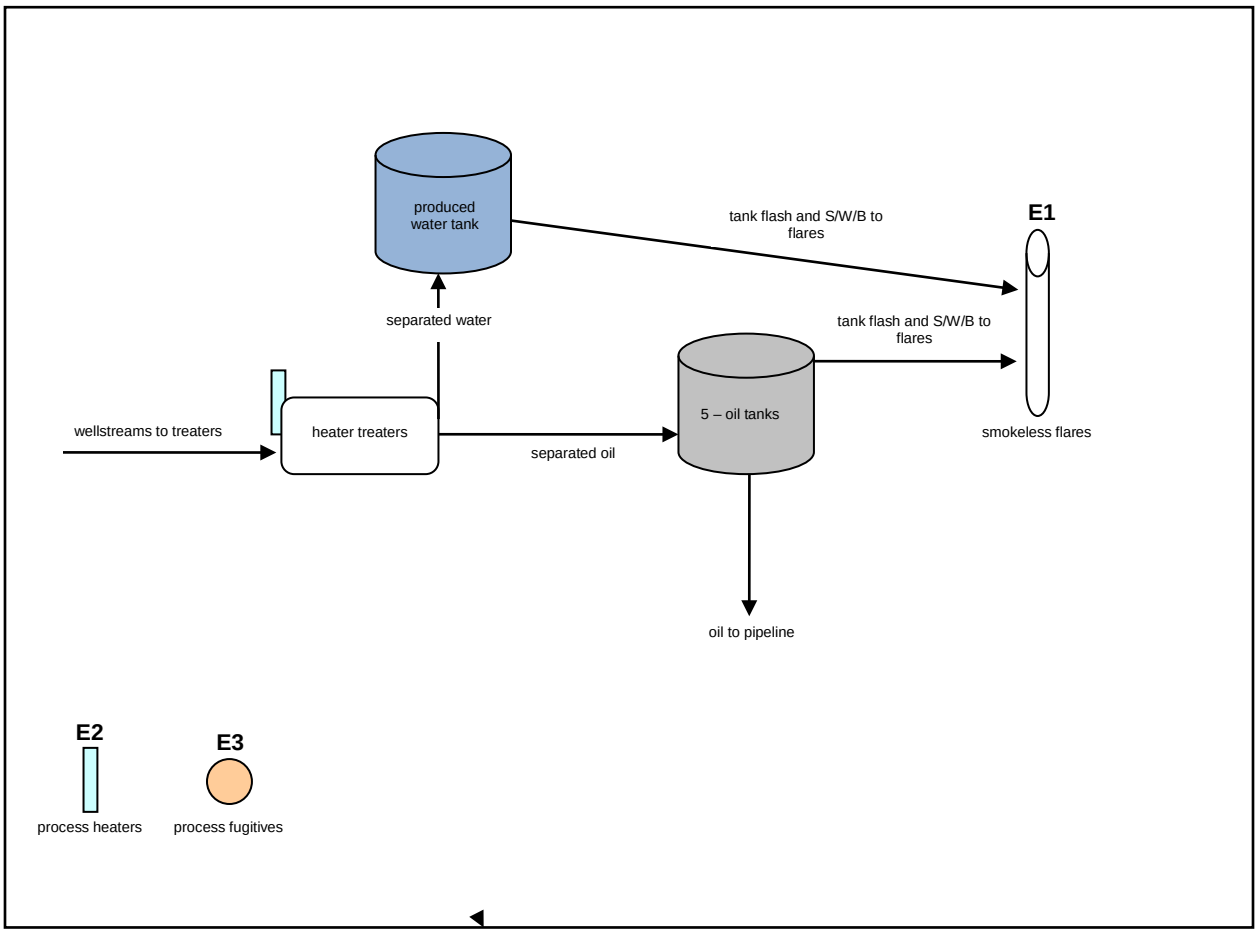
Production and equipment for the twenty-six wells are co-located and/or shared and all associated air emissions are aggregated for permitting determinations.

PERMIT HISTORY: The Embar 3 Tank Battery currently operates under Air Quality Permit, CT-1485, issued on February 26, 1999. A smokeless flare was required to control volatile organic compound (VOC) and hazardous air pollutant (HAP) emissions associated with the oil tanks. This permit shall supersede CT-1485 for the Embar 3 Tank Battery.

The following equipment operates at the Embar 3 Tank Battery:

- two (2) heater treaters w/ 1.25 million Btu per hour (MMBtu/hr) heaters
- two (2) heater treaters w/ 0.75 MMBtu/hr heaters
- one (1) 1000-barrel (bbl) oil storage tank
- two (2) 1000-bbl and one (1) 400-bbl oil overflow tanks
- one (1) 2000-bbl produced water tank
- one (1) 400-bbl oil pop tank
- three (3) smokeless flares w/ **proposed** continuous pilot monitoring systems (oil tank, active produced water tank, oil overflow tank and oil pop tank control)

PROCESS DESCRIPTION: The following is a schematic representation of the production process at this facility. A complete process description is found in the permit application.



ESTIMATED EMISSIONS: (summarized in the attached tables)

oil storage tanks:

flashing losses and standing/working/breathing (S/W/B) losses:

Uncontrolled VOC, HAP and H_2S emissions are estimated using actual tank vapor measurements and an extended analysis of the tank vapors. Uncontrolled VOC emissions associated with S/W/B losses are estimated using EPA Tanks 4.0 software.

Controlled VOC and HAP emissions associated with flashing and S/W/B losses (**Emission Source E1, Process Flow Diagram**) are based on the reported 98% destruction efficiency of the smokeless flares. Nitrogen oxide (NO_X) and carbon monoxide (CO) emissions from combustion of the vapors are based on 0.14 lb NO_X/MMBtu and 0.035 lb CO/MMBtu and the volume of measured vapors. Sulfur dioxide (SO_2) emissions are calculated using the metered volume of tank vapor, the molecular weight of SO_2 and the H_2S mole fraction from the extended gas analysis.

active produced water tank: (**Emission Source E1, Process Flow Diagram**)

The Division is currently not requiring emission calculations for active produced water tanks. Vapors from the active produced water tanks are routed to the flares for 98% control.

natural gas fired heaters: **(Emission Source E2, Process Flow Diagram)**

NO_X, CO and SO_2 emissions are based on AP-42 EF for fuel boilers and heaters.

fugitive sources: (**Emission Source E3, Process Flow Diagram**)

Citation Oil & Gas Corporation shall follow the fugitive emission monitoring requirements under 40 CFR part 60, Subpart OOOOa for fugitive VOC emissions from a production site as published in the federal register on June 3, 2016 (Federal Register Vol. 81 pg. 35824-35941). With these requirements met, fugitive emissions are considered insignificant.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT): The emissions associated with the oil tanks, oil overflow tanks, oil pop tank and active produced water tank are controlled with 98% efficient flares which meets current BACT requirements.

This facility was modified on November 29, 2005 with the recompletion of the LBB DSU 211 well and on July 25, 2011 with the workover of the LBB DSU 211 well. An application for the modifications was never submitted. Since the 2010 C6 S2 Guidance was not followed at the time this facility was modified, the modifications at the Embar 3 Tank Battery must comply with the requirements under the 2018 C6 S2 Guidance. As a result, the Division is proposing the installation of continuous pilot monitoring systems on the flares. The continuous pilot monitoring systems shall be installed and operational within sixty (60) days of permit issuance.

Per the 2018 C6 S2 Guidance Presumptive BACT requirements for fugitive emissions, Citation Oil & Gas Corporation shall follow the fugitive emission monitoring requirements under 40 CFR part 60, Subpart OOOOa for fugitive VOC emissions from a production site as published in the federal register on June 3, 2016 (Federal Register Vol. 81 pg. 35824-35941).

NEW SOURCE PERFORMANCE STANDARDS (NSPS): The oil storage tanks are operated prior to custody transfer and are not subject to Subpart K, K_a or K_b.

40 CFR part 60, subpart OOOO - *Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution* applies to any new, modified or reconstructed emission source installed after August 23, 2011 at oil and gas production and gas processing facilities. The Embar 3 Tank Battery is not subject to 40 CFR part 60, subpart OOOO as the facility was not modified after the effective date.

40 CFR part 60, subpart OOOOa - *Standards of Performance for Crude Oil and Natural Gas Facilities* applies to any new, modified or reconstructed emission source installed after September 18, 2015 at oil and gas production and gas processing facilities. The Embar 3 Tank Battery is not subject to 40 CFR part 60, subpart OOOOa as the facility was not modified after the effective date.

PREVENTION OF SIGNIFICANT DETERIORATION (PSD): Emissions from this facility are less than the major source levels defined in WAQSR Chapter 6, Section 4.

CHAPTER 6, SECTION 3 (Operating Permit): Emissions from this facility are less than the major source levels defined in WAQSR Chapter 6, Section 3.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (MACT): Emissions from this facility are less than the major source levels of 10 TPY of any individual HAP and 25 TPY of any combination of HAPs; therefore this facility is not subject to Subpart HH requirements for oil and gas production facilities which are major sources of HAP emissions.

LAND USE PLANNING, GREATER SAGE-GROUSE PROTECTION AND MULE DEER / ANTELOPE MIGRATION CORRIDOR PROTECTION: Chapter 6, Section 2(c) of the Wyoming Air Quality Standards and Regulations (WAQSR) requires permit applicants to demonstrate that a proposed facility will be located in accordance with proper land use planning as determined by the appropriate state or local agency. The Wyoming Oil and Gas Conservation Commission (WOGCC) is the state agency charged with authorizing oil and gas wells, and the Commission's permit to drill is verification that an oil and gas production well and associated equipment are located in accordance with proper land use planning.

All permit applicants must also comply with the Governor's Executive Order 2019-3 for the protection of Greater Sage-Grouse habitat. For oil and gas production sites, the WOGCC established the *Greater Sage-Grouse Core Area Protection Policy*. The Division relies on the WOGCC's policy to enforce Executive Order 2019-3 during the permitting process for the drilling of production wells, before oil and gas production sites commence operation.

The Governor's Executive Order (EO) 2020-1 directs state agencies to consider the impact of proposed and modified facility sites on the migration corridors of mule deer and antelope. The Division has determined that the Embar 3 Tank Battery is outside of any mule deer and antelope migration corridors. Therefore, the requirements of the Mule Deer and Antelope Migration Corridor Executive Order have been met.

PROPOSED PERMIT CONDITIONS: The Division proposes to issue an Air Quality Permit to Citation Oil & Gas Corporation for the Embar 3 Tank Battery with the following conditions:

1. Authorized representatives of the Division of Air Quality be given permission to enter and inspect any property, premise or place on or at which an air pollution source is located or being installed for the purpose of investigating actual or potential sources of air pollution and for determining compliance or non-compliance with any rule, regulation, standard, permit or order.

2. All substantive commitments and descriptions set forth in the application for this permit, unless superseded by a specific condition of this permit, are incorporated herein by this reference and are enforceable as a condition of this permit.

3. A permit to operate in accordance with Chapter 6, Section 2(a)(iii) of the WAQSR is required after a 120-day start-up period in order to operate this facility.

4. All notifications, reports and correspondence required by this permit shall be submitted to the Stationary Source Compliance Program Manager. Submissions may be done electronically through https://airimpact.wyo.gov to satisfy requirements of this permit.

5. All records required under this permit shall be kept for a period of at least five (5) years and shall be made available to the Division upon request.

6. Effective upon permit issuance, this permit shall supersede Air Quality Permit CT-1485 for the Embar 3 Tank Battery.

7. Periodic training on the proper operation of equipment, systems and devices used to contain, control, eliminate or reduce pollution shall be provided to company personnel whose primary job is to regularly ensure that facility production equipment is functional. The training shall provide these personnel with the ability to recognize, correct and report all instances of malfunctioning equipment, systems and devices associated with air pollution control. These equipment, systems and devices include, but are not limited to combustion units, reboiler overheads condensers, hydrocarbons liquids storage tanks, drip tanks, vent lines, connectors, fittings, valves, relief valves, hatches and any other appurtenance employed to, or involved with, eliminating, reducing, containing or collecting vapors and transporting them to a pollution control system or device.

8. Trained personnel shall perform, at a minimum, a quarterly site evaluation of the operation of the air pollution control equipment, systems and devices under Condition 7. The first quarterly site evaluation shall be conducted within the second quarter after permit issuance.

9. At least one of the quarterly evaluations per calendar year under Condition 8 shall include an evaluation of the facility for leaks from the equipment, systems and devices under Condition 7 using an optical gas imaging instrument. Monitoring utilizing the no detectable emissions test methods and procedures in 40 CFR §60.5416(b)(1) through (8) may be utilized to satisfy the requirements of this condition for the equipment, systems, and devices under Condition 7 in lieu of using an optical gas imaging instrument.

10. Notification shall be provided to the Division at least fifteen (15) days prior to the quarterly evaluation under Condition 8.

11. An annual preventative maintenance program shall be instituted to inspect and replace equipment, systems and devices under Condition 6 as necessary to ensure their proper operation.

12. Results of all inspections, evaluations and periodic monitoring shall be documented and maintained for review by the Division upon request. Digital files of any optical gas imaging instrument evaluations need not be maintained.

13. Citation Oil & Gas Corporation shall follow the fugitive emission monitoring requirements under 40 CFR part 60, Subpart OOOOa for fugitive VOC emissions from a production site as published in the federal register on June 3, 2016 (Federal Register Vol. 81 pg. 35824-35941).

14. Vapors from all oil tanks, all oil overflow tanks, all oil pop tanks and all active produced water tanks, including tank flash and S/W/B vapors, shall be routed to the flares to reduce the mass content of VOCs, HAPs and H_2S in the tank vapors vented to the devices by at least ninety-eight percent (98%) by weight for at least one (1) year following the date of installation of the control devices, after which time the devices may be removed upon Division approval without permit modification provided it can be demonstrated that the current, uncontrolled, annualized VOC emission rate from the oil tanks is less than, and will remain less than four (4) tons per year.

15. The presence of the flare pilot flames shall be monitored using thermocouples and continuous recording devices or any other equivalent devices to detect and record the presence of the flames. Records shall be maintained noting periods during active well site operation when any of the pilot flames are not present. The records shall contain a description of the reason(s) for absence of the pilot flames and steps taken to return the pilot flames to proper operation.

16. The continuous pilot monitoring systems under Condition 15 shall be installed and operational within sixty (60) days of permit issuance. Citation Oil & Gas Corporation shall notify the Division within fifteen (15) days of installation of the continuous pilot monitoring systems.

17. The flares shall be designed, constructed, operated and maintained to be smokeless, per Chapter 3, Section 6(b)(i) of the WAQSR, with no visible emissions except for periods not to exceed a total of five (5) minutes during any two (2) consecutive hours as determined by 40 CFR part 60, appendix A, Method 22.

18. Emission control equipment, including the VOC and HAP emission control system or device, all vent lines, connections, fittings, valves, relief valves, hatches or any other appurtenance employed to contain and collect vapors and transport them to the emission control system or device, shall be maintained and operated during any time the well is producing such that the emissions are controlled at all times. Records shall be maintained noting dates and durations of times during such operation when any VOC or HAP emissions control system or device or the associated containment and collection equipment is not functioning to control emissions as required by this permit.

19. Citation Oil & Gas Corporation shall maintain records that the manufacturer-designed VOC destruction efficiency of the flares is at least ninety-eight percent (98%).

Wells Producing to Embar 3 Tank Battery

Facility	¼ ¼	Section	Township (N)	Range (W)	Latitude	Longitude	Startup
LBB DSU 146	NW SW	6	47	99	44.06943	-108.79132	2/9/77
LBB DSU C-045855 281	SW NW	6	47	99	44.07570	-108.79281	10/28/83
C-045855 LBB 70	NE SE	1	47	100	44.06799	-108.79819	1/27/69
LBB DSU 86	NE SW	1	47	100	44.07039	-108.80929	7/26/70
LBB DSU 92	NE SW	1	47	100	44.06861	-108.80591	3/8/71
LBB DSU 95	SW NW	1	47	100	44.07171	-108.81061	3/4/71
LBB DSU 99	NE SE	1	47	100	44.07039	-108.79799	7/11/71
LBB DSU C-045855 100	SW SE	1	47	100	44.06667	-108.80209	7/30/71
LBB DSU Unit 121	NE SW	1	47	100	44.06851	-108.80841	11/30/82
LBB DSU C-045855 207	NE SE	1	47	100	44.06881	-108.79491	6/24/79
LBB DSU 211 [1]	SE NW	1	47	100	44.07417	-108.80849	11/29/05
LBB DSU 216	NW SW	1	47	100	44.07083	-108.81417	5/30/80
LBB DSU C-045855 215	NE NW	1	47	100	44.07569	-108.80583	5/2/80
LBB DSU 223	SE SW	1	47	100	44.065	-108.80667	4/19/80
LBB DSU 225	SE NE	1	47	100	44.07401	-108.79799	9/28/02
LBB 250	SW SW	1	47	100	44.06681	-108.80944	1/13/83
LBB 253	SE NE	1	47	100	44.07199	-108.79881	12/29/82
LBB 254	NW SW	1	47	100	44.06901	-108.81229	2/17/83
LBB 255	NW SW	1	47	100	44.07083	-108.80951	12/12/82
LBB DSU C-045855 252	SW NE	1	47	100	44.07149	-108.80167	1/29/83
LBB DSU Unit 251	NE SW	1	47	100	44.06911	-108.80551	1/16/83
LBB C-045855 248	NE SE	1	47	100	44.06889	-108.79944	12/21/82
LBB DSU C-045855 273	NE NE	1	47	100	44.075	-108.79929	7/12/83
Cheyenne 274	SW SW	1	47	100	44.06694	-108.81417	7/28/83
LBB DSU 277	NE NE	2	47	100	44.07222	-108.81649	5/26/88
LBB DSU 279	NWNW	1	47	100	44.07610	-108.81017	10/11/88

[1] the LBB DSU 211 well was recompleted in 2005 and worked over in 2011

EQUIPMENT LIST

- two (2) heater treaters w/ 1.25 MMBtu/hr heaters
- two (2) heater treaters w/ 0.75 MMBtu/hr heaters
- one (1) 1000-bbl oil storage tank
- two (2) 1000-bbl and one (1) 400-bbl oil overflow tanks
- one (1) 2000-bbl produced water tank
- one (1) 400-bbl oil pop tank
- three (3) smokeless flares w/ **proposed** continuous pilot monitoring systems (oil tank, active produced water tank, oil overflow tank and oil pop tank control)

EMISSIONS SUMMARY

Embar 3 Tank Battery 175 BPD total oil [1]						
SOURCE	EMISSIONS (TPY) [2]					
	VOC	HAP	NO_X	CO	H_2S	SO_2
Oil Storage Tanks						
UNCONTROLLED	16.5	0.2	--	--	3.0	--
CONTROLLED	0.3	insig	0.2	0.1	--	5.6
Process Heaters	0.1	insig	1.7	1.4	--	insig
Fugitives [3]	insig	insig	--	--	insig	--
Total Uncontrolled Facility Emissions	**16.6**	**0.2**	**1.7**	**1.4**	**3.0**	**--**
Total Controlled Facility Emissions	**0.4**	**insig**	**1.9**	**1.5**	**insig**	**5.6**

[1] daily rates reported by the applicant
[2] rounded to the nearest 0.1 ton
[3] Citation will implement a FEM program; therefore, emissions associated with fugitive leaks are considered insignificant

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
Permit Application Analysis
A0008256

April 7, 2020

NAME OF FIRM:	Citation Oil & Gas Corporation (CMP000177)
MAILING ADDRESS:	14077 Cutten Road Houston, TX 77069
RESPONSIBLE OFFICIAL:	Lee Ann Elsom Regulatory Compliance Manager
TELEPHONE NUMBER:	(281) 891-1577
TYPE OF OPERATION:	multiple well, sour crude oil production tank battery
FACILITY NAME:	**NWD 1 Tank Battery (F004577)**
FACILITY LOCATION:	SE¼ NW¼ Section 34, T48N, R100W Latitude: 44.08010° Longitude: -108.84625° Park County, Wyoming
DATE FACILITY BECAME OPERATIONAL:	3/27/1967, modified 5/31/2014
REVIEWER:	Heather Bleile, Air Quality Engineer

PURPOSE OF APPLICATION: Citation Oil & Gas Corporation filed this application to modify the NWD 1 Tank Battery by updating the equipment list.

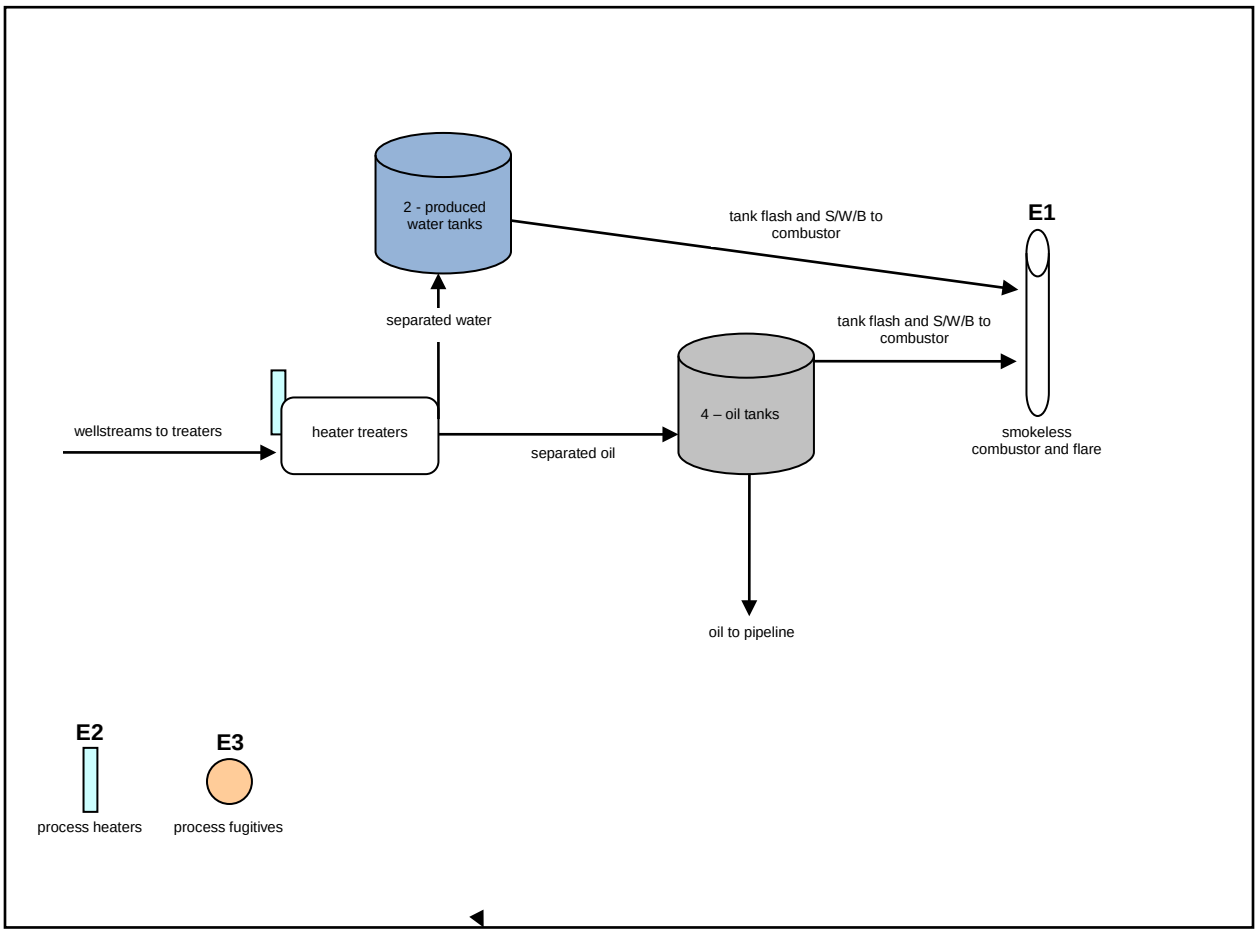
Production and equipment for the fourteen wells are co-located and/or shared and all associated air emissions are aggregated for permitting determinations.

PERMIT HISTORY: The NWD 1 Tank Battery currently operates under Air Quality Authorization Letter, wv-239, issued on December 7, 1998. No controls were required under this authorization letter. This permit shall supersede wv-239 for the NWD 1 Tank Battery.

The following equipment operates at the NWD 1 Tank Battery:

- two (2) heater treaters w/ 1.25 million Btu per hour (MMBtu/hr) heaters
- two (2) heater treaters w/ 0.75 MMBtu/hr heaters
- one (1) heater treater w/ 0.5 MMBtu/hr heater
- four (4) 400-barrel (bbl) oil storage tanks
- one (1) 1000-bbl and one (1) 400-bbl produced water tanks
- one (1) smokeless combustion device and one (1) smokeless flare w/ **proposed** continuous pilot monitoring systems (oil tank and active produced water tank control)

PROCESS DESCRIPTION: The following is a schematic representation of the production process at this facility. A complete process description is found in the permit application.



ESTIMATED EMISSIONS: (summarized in the attached tables)

oil storage tanks:

flashing losses and standing/working/breathing (S/W/B) losses:

Uncontrolled VOC, HAP and H_2S emissions are estimated using actual tank vapor measurements and an extended analysis of the tank vapors. Uncontrolled VOC emissions associated with S/W/B losses are estimated using EPA Tanks 4.0 software.

Controlled VOC and HAP emissions associated with flashing and S/W/B losses (**Emission Source E1, Process Flow Diagram**) are based on the reported 98% destruction efficiency of the smokeless combustion device and smokeless flare. Nitrogen oxide (NO_X) and carbon monoxide (CO) emissions from combustion of the vapors are based on 0.14 lb NO_X/MMBtu and 0.035 lb CO/MMBtu and the volume of measured vapors. Sulfur dioxide (SO_2) emissions are calculated using the metered volume of tank vapor, the molecular weight of SO_2 and the H_2S mole fraction from the extended gas analysis.

active produced water tanks: (**Emission Source E1, Process Flow Diagram**)

The Division is currently not requiring emission calculations for active produced water tanks. Vapors from the active produced water tanks are routed to the combustion device and flare for 98% control.

natural gas fired heaters: **(Emission Source E2, Process Flow Diagram)**

NO_X, CO and SO_2 emissions are based on AP-42 EF for fuel boilers and heaters.

fugitive sources: (**Emission Source E3, Process Flow Diagram**)

Citation Oil & Gas Corporation shall follow the fugitive emission monitoring requirements under 40 CFR part 60, Subpart OOOOa for fugitive VOC emissions from a production site as published in the federal register on June 3, 2016 (Federal Register Vol. 81 pg. 35824-35941). With these requirements met, fugitive emissions are considered insignificant.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT): The emissions associated with the oil tanks and active produced water tanks are controlled with a 98% efficient combustion device and flare which meets current BACT requirements.

This facility was modified on May 31, 2014 with the addition of the NWD 42 well; however, an application for the modification was never submitted. Since the 2013 C6 S2 Guidance was not followed at the time this facility was modified, the modifications at the NWD 1 Tank Battery must comply with the requirements under the 2018 C6 S2 Guidance. As a result, the Division is proposing the installation of continuous pilot monitoring systems on the combustion device and flare. The continuous pilot monitoring systems shall be installed and operational within sixty (60) days of permit issuance.

Per the 2018 C6 S2 Guidance Presumptive BACT requirements for fugitive emissions, Citation Oil & Gas Corporation shall follow the fugitive emission monitoring requirements under 40 CFR part 60, Subpart OOOOa for fugitive VOC emissions from a production site as published in the federal register on June 3, 2016 (Federal Register Vol. 81 pg. 35824-35941).

NEW SOURCE PERFORMANCE STANDARDS (NSPS): The oil storage tanks are operated prior to custody transfer and are not subject to Subpart K, K_a or K_b.

40 CFR part 60, subpart OOOO - *Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution* applies to any new, modified or reconstructed emission source installed after August 23, 2011 at oil and gas production and gas processing facilities. The NWD 1 Tank Battery is subject to 40 CFR part 60, subpart OOOO as the facility was modified after the effective date.

40 CFR part 60, subpart OOOOa - *Standards of Performance for Crude Oil and Natural Gas Facilities* applies to any new, modified or reconstructed emission source installed after September 18, 2015 at oil and gas production and gas processing facilities. The NWD 1 Tank Battery is not subject to 40 CFR part 60, subpart OOOOa as the facility was not modified after the effective date.

PREVENTION OF SIGNIFICANT DETERIORATION (PSD): Emissions from this facility are less than the major source levels defined in WAQSR Chapter 6, Section 4.

CHAPTER 6, SECTION 3 (Operating Permit): Emissions from this facility are less than the major source levels defined in WAQSR Chapter 6, Section 3.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (MACT): Emissions from this facility are less than the major source levels of 10 TPY of any individual HAP and 25 TPY of any combination of HAPs; therefore this facility is not subject to Subpart HH requirements for oil and gas production facilities which are major sources of HAP emissions.

LAND USE PLANNING, GREATER SAGE-GROUSE PROTECTION AND MULE DEER / ANTELOPE MIGRATION CORRIDOR PROTECTION: Chapter 6, Section 2(c) of the Wyoming Air Quality Standards and Regulations (WAQSR) requires permit applicants to demonstrate that a proposed facility will be located in accordance with proper land use planning as determined by the appropriate state or local agency. The Wyoming Oil and Gas Conservation Commission (WOGCC) is the state agency charged with authorizing oil and gas wells, and the Commission's permit to drill is verification that an oil and gas production well and associated equipment are located in accordance with proper land use planning.

All permit applicants must also comply with the Governor's Executive Order 2019-3 for the protection of Greater Sage-Grouse habitat. For oil and gas production sites, the WOGCC established the *Greater Sage-Grouse Core Area Protection Policy*. The Division relies on the WOGCC's policy to enforce Executive Order 2019-3 during the permitting process for the drilling of production wells, before oil and gas production sites commence operation.

The Governor's Executive Order (EO) 2020-1 directs state agencies to consider the impact of proposed and modified facility sites on the migration corridors of mule deer and antelope. The Division has determined that the NWD 1 Tank Battery is outside of any mule deer and antelope migration corridors. Therefore, the requirements of the Mule Deer and Antelope Migration Corridor Executive Order have been met.

PROPOSED PERMIT CONDITIONS: The Division proposes to issue an Air Quality Permit to Citation Oil & Gas Corporation for the NWD 1 Tank Battery with the following conditions:

1. Authorized representatives of the Division of Air Quality be given permission to enter and inspect any property, premise or place on or at which an air pollution source is located or being installed for the purpose of investigating actual or potential sources of air pollution and for determining compliance or non-compliance with any rule, regulation, standard, permit or order.

2. All substantive commitments and descriptions set forth in the application for this permit, unless superseded by a specific condition of this permit, are incorporated herein by this reference and are enforceable as a condition of this permit.

3. A permit to operate in accordance with Chapter 6, Section 2(a)(iii) of the WAQSR is required after a 120-day start-up period in order to operate this facility.

4. All notifications, reports and correspondence required by this permit shall be submitted to the Stationary Source Compliance Program Manager. Submissions may be done electronically through https://airimpact.wyo.gov to satisfy requirements of this permit.

5. All records required under this permit shall be kept for a period of at least five (5) years and shall be made available to the Division upon request.

6. Effective upon permit issuance, this permit shall supersede Air Quality Permit wv-239 for the NWD 1 Tank Battery.

7. Periodic training on the proper operation of equipment, systems and devices used to contain, control, eliminate or reduce pollution shall be provided to company personnel whose primary job is to regularly ensure that facility production equipment is functional. The training shall provide these personnel with the ability to recognize, correct and report all instances of malfunctioning equipment, systems and devices associated with air pollution control. These equipment, systems and devices include, but are not limited to combustion units, reboiler overheads condensers, hydrocarbons liquids storage tanks, drip tanks, vent lines, connectors, fittings, valves, relief valves, hatches and any other appurtenance employed to, or involved with, eliminating, reducing, containing or collecting vapors and transporting them to a pollution control system or device.

8. Trained personnel shall perform, at a minimum, a quarterly site evaluation of the operation of the air pollution control equipment, systems and devices under Condition 7. The first quarterly site evaluation shall be conducted within the second quarter after permit issuance.

9. At least one of the quarterly evaluations per calendar year under Condition 8 shall include an evaluation of the facility for leaks from the equipment, systems and devices under Condition 7 using an optical gas imaging instrument. Monitoring utilizing the no detectable emissions test methods and procedures in 40 CFR §60.5416(b)(1) through (8) may be utilized to satisfy the requirements of this condition for the equipment, systems, and devices under Condition 7 in lieu of using an optical gas imaging instrument.

10. Notification shall be provided to the Division at least fifteen (15) days prior to the quarterly evaluation under Condition 8.

11. An annual preventative maintenance program shall be instituted to inspect and replace equipment, systems and devices under Condition 6 as necessary to ensure their proper operation.

12. Results of all inspections, evaluations and periodic monitoring shall be documented and maintained for review by the Division upon request. Digital files of any optical gas imaging instrument evaluations need not be maintained.

13. Citation Oil & Gas Corporation shall follow the fugitive emission monitoring requirements under 40 CFR part 60, Subpart OOOOa for fugitive VOC emissions from a production site as published in the federal register on June 3, 2016 (Federal Register Vol. 81 pg. 35824-35941).

14. Vapors from all oil tanks and all active produced water tanks, including tank flash and S/W/B vapors, shall be routed to the combustion device and flare to reduce the mass content of VOCs, HAPs and H_2S in the tank vapors vented to the devices by at least ninety-eight percent (98%) by weight for at least one (1) year following the date of installation of the control devices, after which time the devices may be removed upon Division approval without permit modification provided it can be demonstrated that the current, uncontrolled, annualized VOC emission rate from the oil tanks is less than, and will remain less than four (4) tons per year.

15. The presence of the combustion device and flare pilot flames shall be monitored using thermocouples and continuous recording devices or any other equivalent devices to detect and record the presence of the flames. Records shall be maintained noting periods during active well site operation when any of the pilot flames are not present. The records shall contain a description of the reason(s) for absence of the pilot flames and steps taken to return the pilot flames to proper operation.

16. The continuous pilot monitoring systems under Condition 15 shall be installed and operational within sixty (60) days of permit issuance. Citation Oil & Gas Corporation shall notify the Division within fifteen (15) days of installation of the continuous pilot monitoring systems.

17. The combustion device and flare shall be designed, constructed, operated and maintained to be smokeless, per Chapter 3, Section 6(b)(i) of the WAQSR, with no visible emissions except for periods not to exceed a total of five (5) minutes during any two (2) consecutive hours as determined by 40 CFR part 60, appendix A, Method 22.

18. Emission control equipment, including the VOC and HAP emission control system or device, all vent lines, connections, fittings, valves, relief valves, hatches or any other appurtenance employed to contain and collect vapors and transport them to the emission control system or device, shall be maintained and operated during any time the well is producing such that the emissions are controlled at all times. Records shall be maintained noting dates and durations of times during such operation when any VOC or HAP emissions control system or device or the associated containment and collection equipment is not functioning to control emissions as required by this permit.

19. Citation Oil & Gas Corporation shall maintain records that the manufacturer-designed VOC destruction efficiency of the combustion device and flare is at least ninety-eight percent (98%).

20. Citation Oil & Gas Corporation, LLC shall comply with all applicable requirements of 40 CFR part 60, subpart OOOO.

Wells Producing to NWD 1 Tank Battery

Facility	¼ ¼	Section	Township (N)	Range (W)	Latitude	Longitude	Startup
NW Dome DS Unit 4	SE NW	34	48	100	44.08771	-108.84709	3/27/1967
LBB Unit 5	SE SW	27	48	100	44.095	-108.84722	8/30/1967
LBB DSU C-044193 6	NW NE	3	47	100	44.07611	-108.84231	1/4/1968
LBB DSU C-052237 7	SE NW	3	47	100	44.07278	-108.84701	6/29/1968
NWD 9	NW SE	3	47	100	44.06929	-108.84222	10/20/1969
NW Dome C-045633 18	NW NE	34	48	100	44.08361	-108.8425	11/1/1970
LBB DSU C-044193 16	SE NE	3	47	100	44.07269	-108.83639	9/9/1970
LBB DSU C-045633 19	SE SE	34	48	100	44.07989	-108.83722	4/21/1971
LBB DSU C-052235 22	NW SW	34	48	100	44.08320	-108.85212	9/30/1984
LBB DSU C-052235 25	SW SW	34	48	100	44.07831	-108.85017	6/16/1985
Little Buffalo Basin 36	SW NW	2	47	100	44.07431	-108.83417	10/6/1987
NW Dome C-044193 38	SE ME	3	47	100	44.0726	-108.83791	3/6/1993
North West Dome 40	SE SE	34	48	100	44.08045	-108.83782	8/22/1997
NWD 42	SW SE	34	48	100	44.08223	-108.84195	5/31/2014

EQUIPMENT LIST

- two (2) heater treaters w/ 1.25 MMBtu/hr heaters
- two (2) heater treaters w/ 0.75 MMBtu/hr heaters
- one (1) heater treater w/ 0.5 MMBtu/hr heater
- four (4) 400-bbl oil storage tanks
- one (1) 1000-bbl and one (1) 400-bbl produced water tanks
- one (1) smokeless combustion device and one (1) smokeless flare w/ **proposed** continuous pilot monitoring systems (oil tank and active produced water tank control)

EMISSIONS SUMMARY

NWD 1 Tank Battery 211 BPD total oil [1]						
SOURCE	EMISSIONS (TPY) [2]					
	VOC	HAP	NO_X	CO	H_2S	SO_2
Oil Storage Tanks						
UNCONTROLLED	69.0	0.4	--	--	4.5	--
CONTROLLED	1.4	insig	0.8	0.2	--	8.4
Process Heaters	0.1	insig	1.9	1.6	--	insig
Fugitives [3]	insig	insig	--	--	insig	--
Total Uncontrolled Facility Emissions	**69.1**	**0.4**	**1.9**	**1.6**	**4.5**	**--**
Total Controlled Facility Emissions	**1.5**	**insig**	**2.7**	**1.8**	**insig**	**8.4**

[1] daily rates reported by the applicant
[2] rounded to the nearest 0.1 ton
[3] Citation will implement a FEM program; therefore, emissions associated with fugitive leaks are considered insignificant

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
Permit Application Analysis
A0008260

April 7, 2020

NAME OF FIRM:	Citation Oil & Gas Corporation (CMP000177)
MAILING ADDRESS:	14077 Cutten Road Houston, TX 77069
RESPONSIBLE OFFICIAL:	Lee Ann Elsom Regulatory Compliance Manager
TELEPHONE NUMBER:	(281) 891-1577
TYPE OF OPERATION:	multiple well, sour crude oil production tank battery
FACILITY NAME:	**NWD 2 Tank Battery (F004576)**
FACILITY LOCATION:	SE¼ SE¼ Section 3, T47N, R100W Latitude: 44.06503° Longitude: -108.83998° Park County, Wyoming
DATE FACILITY BECAME OPERATIONAL:	2/8/1971, modified 3/24/2014
REVIEWER:	Heather Bleile, Air Quality Engineer

PURPOSE OF APPLICATION: Citation Oil & Gas Corporation filed this application to modify the NWD 2 Tank Battery by updating the equipment list.

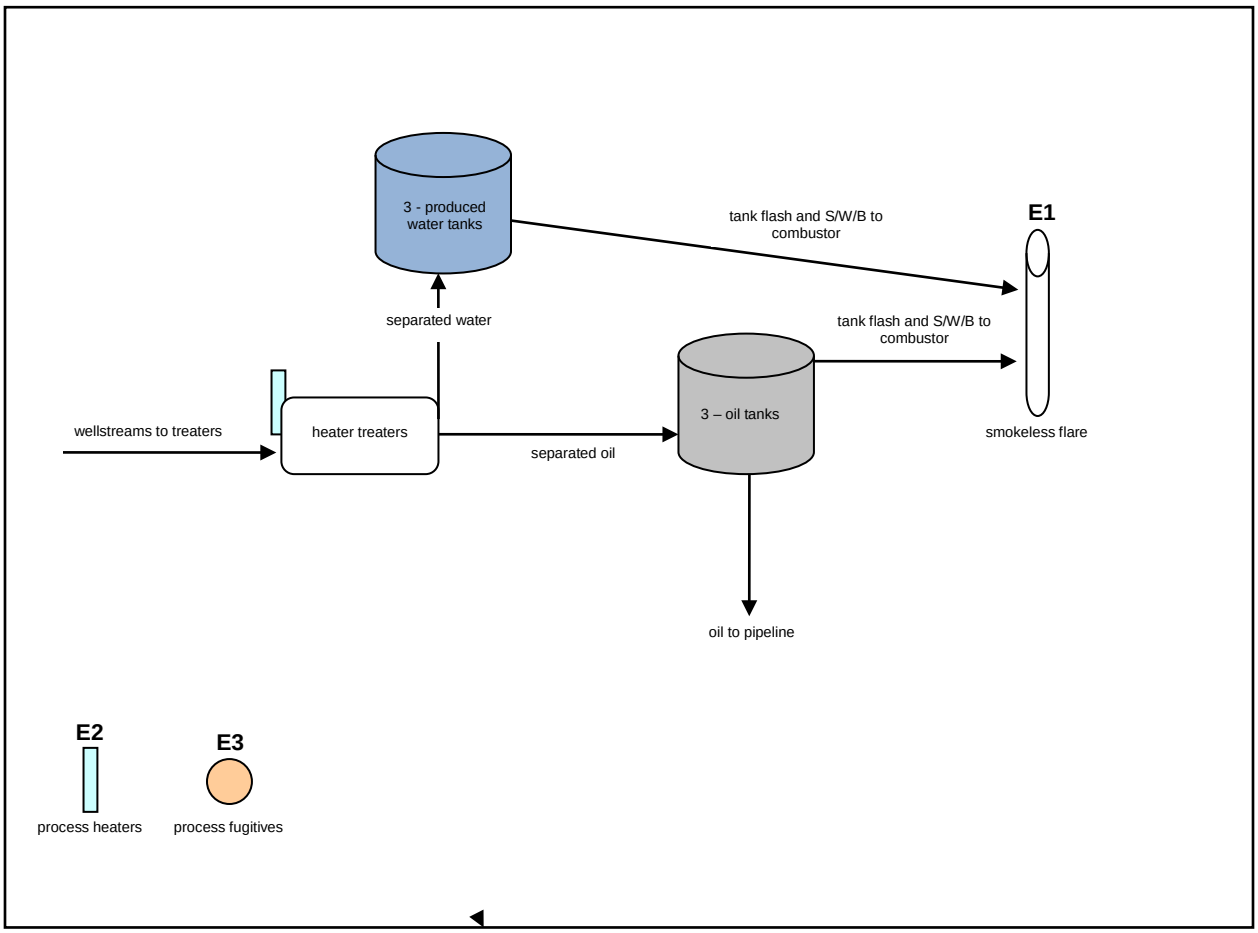
Production and equipment for the eight wells are co-located and/or shared and all associated air emissions are aggregated for permitting determinations.

PERMIT HISTORY: The NWD 2 Tank Battery currently operates under Air Quality Authorization Letter, wv-229, issued on December 7, 1998. No controls were required under this authorization letter. This permit shall supersede wv-229 for the NWD 2 Tank Battery.

The following equipment operates at the NWD 2 Tank Battery:

- one (1) heater treater w/ 1.25 million Btu per hour (MMBtu/hr) heater
- two (2) heater treaters w/ 0.75 MMBtu/hr heaters
- one (1) heater treater w/ 0.5 MMBtu/hr heater
- three (3) 400-barrel (bbl) oil storage tanks
- two (2) 400-bbl produced water tanks
- one (1) 400-bbl water knockout tank
- one (1) smokeless flare w/ **proposed** continuous pilot monitoring system (oil tank, active produced water tank and water knockout tank control)

PROCESS DESCRIPTION: The following is a schematic representation of the production process at this facility. A complete process description is found in the permit application.



ESTIMATED EMISSIONS: (summarized in the attached tables)

oil storage tanks:

flashing losses and standing/working/breathing (S/W/B) losses:

Uncontrolled VOC, HAP and H_2S emissions are estimated using actual tank vapor measurements and an extended analysis of the tank vapors. Uncontrolled VOC emissions associated with S/W/B losses are estimated using EPA Tanks 4.0 software.

Controlled VOC and HAP emissions associated with flashing and S/W/B losses (**Emission Source E1, Process Flow Diagram**) are based on the reported 98% destruction efficiency of the smokeless flare. Nitrogen oxide (NO_X) and carbon monoxide (CO) emissions from combustion of the vapors are based on 0.14 lb NO_X/MMBtu and 0.035 lb CO/MMBtu and the volume of measured vapors. Sulfur dioxide (SO_2) emissions are calculated using the metered volume of tank vapor, the molecular weight of SO_2 and the H_2S mole fraction from the extended gas analysis.

active produced water tanks: (**Emission Source E1, Process Flow Diagram**)

The Division is currently not requiring emission calculations for active produced water tanks. Vapors from the active produced water tanks are routed to the flare for 98% control.

natural gas fired heaters: **(Emission Source E2, Process Flow Diagram)**

NO_X, CO and SO_2 emissions are based on AP-42 EF for fuel boilers and heaters.

fugitive sources: (**Emission Source E3, Process Flow Diagram**)

Citation Oil & Gas Corporation shall follow the fugitive emission monitoring requirements under 40 CFR part 60, Subpart OOOOa for fugitive VOC emissions from a production site as published in the federal register on June 3, 2016 (Federal Register Vol. 81 pg. 35824-35941). With these requirements met, fugitive emissions are considered insignificant.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT): The emissions associated with the oil tanks and active produced water tanks are controlled with a 98% efficient flare which meets current BACT requirements.

This facility was modified on March 24, 2014 with the addition of the NWD 43 well; however, an application for the modification was never submitted. Since the 2013 C6 S2 Guidance was not followed at the time this facility was modified, the modifications at the NWD 2 Tank Battery must comply with the requirements under the 2018 C6 S2 Guidance. As a result, the Division is proposing the installation of a continuous pilot monitoring system on the flare. The continuous pilot monitoring system shall be installed and operational within sixty (60) days of permit issuance.

Per the 2018 C6 S2 Guidance Presumptive BACT requirements for fugitive emissions, Citation Oil & Gas Corporation shall follow the fugitive emission monitoring requirements under 40 CFR part 60, Subpart OOOOa for fugitive VOC emissions from a production site as published in the federal register on June 3, 2016 (Federal Register Vol. 81 pg. 35824-35941).

NEW SOURCE PERFORMANCE STANDARDS (NSPS): The oil storage tanks are operated prior to custody transfer and are not subject to Subpart K, K_a or K_b.

40 CFR part 60, subpart OOOO - *Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution* applies to any new, modified or reconstructed emission source installed after August 23, 2011 at oil and gas production and gas processing facilities. The NWD 2 Tank Battery is subject to 40 CFR part 60, subpart OOOO as the facility was modified after the effective date.

40 CFR part 60, subpart OOOOa - *Standards of Performance for Crude Oil and Natural Gas Facilities* applies to any new, modified or reconstructed emission source installed after September 18, 2015 at oil and gas production and gas processing facilities. The NWD 2 Tank Battery is not subject to 40 CFR part 60, subpart OOOOa as the facility was not modified after the effective date.

PREVENTION OF SIGNIFICANT DETERIORATION (PSD): Emissions from this facility are less than the major source levels defined in WAQSR Chapter 6, Section 4.

CHAPTER 6, SECTION 3 (Operating Permit): Emissions from this facility are less than the major source levels defined in WAQSR Chapter 6, Section 3.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (MACT): Emissions from this facility are less than the major source levels of 10 TPY of any individual HAP and 25 TPY of any combination of HAPs; therefore this facility is not subject to Subpart HH requirements for oil and gas production facilities which are major sources of HAP emissions.

LAND USE PLANNING, GREATER SAGE-GROUSE PROTECTION AND MULE DEER / ANTELOPE MIGRATION CORRIDOR PROTECTION: Chapter 6, Section 2(c) of the Wyoming Air Quality Standards and Regulations (WAQSR) requires permit applicants to demonstrate that a proposed facility will be located in accordance with proper land use planning as determined by the appropriate state or local agency. The Wyoming Oil and Gas Conservation Commission (WOGCC) is the state agency charged with authorizing oil and gas wells, and the Commission's permit to drill is verification that an oil and gas production well and associated equipment are located in accordance with proper land use planning.

All permit applicants must also comply with the Governor's Executive Order 2019-3 for the protection of Greater Sage-Grouse habitat. For oil and gas production sites, the WOGCC established the *Greater Sage-Grouse Core Area Protection Policy*. The Division relies on the WOGCC's policy to enforce Executive Order 2019-3 during the permitting process for the drilling of production wells, before oil and gas production sites commence operation.

The Governor's Executive Order (EO) 2020-1 directs state agencies to consider the impact of proposed and modified facility sites on the migration corridors of mule deer and antelope. The Division has determined that the NWD 2 Tank Battery is outside of any mule deer and antelope migration corridors. Therefore, the requirements of the Mule Deer and Antelope Migration Corridor Executive Order have been met.

PROPOSED PERMIT CONDITIONS: The Division proposes to issue an Air Quality Permit to Citation Oil & Gas Corporation for the NWD 2 Tank Battery with the following conditions:

1. Authorized representatives of the Division of Air Quality be given permission to enter and inspect any property, premise or place on or at which an air pollution source is located or being installed for the purpose of investigating actual or potential sources of air pollution and for determining compliance or non-compliance with any rule, regulation, standard, permit or order.

2. All substantive commitments and descriptions set forth in the application for this permit, unless superseded by a specific condition of this permit, are incorporated herein by this reference and are enforceable as a condition of this permit.

3. A permit to operate in accordance with Chapter 6, Section 2(a)(iii) of the WAQSR is required after a 120-day start-up period in order to operate this facility.

4. All notifications, reports and correspondence required by this permit shall be submitted to the Stationary Source Compliance Program Manager. Submissions may be done electronically through https://airimpact.wyo.gov to satisfy requirements of this permit.

5. All records required under this permit shall be kept for a period of at least five (5) years and shall be made available to the Division upon request.

6. Effective upon permit issuance, this permit shall supersede Air Quality Permit wv-229 for the NWD 2 Tank Battery.

7. Periodic training on the proper operation of equipment, systems and devices used to contain, control, eliminate or reduce pollution shall be provided to company personnel whose primary job is to regularly ensure that facility production equipment is functional. The training shall provide these personnel with the ability to recognize, correct and report all instances of malfunctioning equipment, systems and devices associated with air pollution control. These equipment, systems and devices include, but are not limited to combustion units, reboiler overheads condensers, hydrocarbons liquids storage tanks, drip tanks, vent lines, connectors, fittings, valves, relief valves, hatches and any other appurtenance employed to, or involved with, eliminating, reducing, containing or collecting vapors and transporting them to a pollution control system or device.

8. Trained personnel shall perform, at a minimum, a quarterly site evaluation of the operation of the air pollution control equipment, systems and devices under Condition 7. The first quarterly site evaluation shall be conducted within the second quarter after permit issuance.

9. At least one of the quarterly evaluations per calendar year under Condition 8 shall include an evaluation of the facility for leaks from the equipment, systems and devices under Condition 7 using an optical gas imaging instrument. Monitoring utilizing the no detectable emissions test methods and procedures in 40 CFR §60.5416(b)(1) through (8) may be utilized to satisfy the requirements of this condition for the equipment, systems, and devices under Condition 7 in lieu of using an optical gas imaging instrument.

10. Notification shall be provided to the Division at least fifteen (15) days prior to the quarterly evaluation under Condition 8.

11. An annual preventative maintenance program shall be instituted to inspect and replace equipment, systems and devices under Condition 6 as necessary to ensure their proper operation.

12. Results of all inspections, evaluations and periodic monitoring shall be documented and maintained for review by the Division upon request. Digital files of any optical gas imaging instrument evaluations need not be maintained.

13. Citation Oil & Gas Corporation shall follow the fugitive emission monitoring requirements under 40 CFR part 60, Subpart OOOOa for fugitive VOC emissions from a production site as published in the federal register on June 3, 2016 (Federal Register Vol. 81 pg. 35824-35941).

14. Vapors from all oil tanks and all active produced water tanks, including tank flash and S/W/B vapors, shall be routed to the flare to reduce the mass content of VOCs, HAPs and H_2S in the tank vapors vented to the device by at least ninety-eight percent (98%) by weight for at least one (1) year following the date of installation of the control device, after which time the device may be removed upon Division approval without permit modification provided it can be demonstrated that the current, uncontrolled, annualized VOC emission rate from the oil tanks is less than, and will remain less than four (4) tons per year.

15. The presence of the flare pilot flame shall be monitored using a thermocouple and continuous recording device or any other equivalent device to detect and record the presence of the flame. Records shall be maintained noting periods during active well site operation when the pilot flame is not present. The records shall contain a description of the reason(s) for absence of the pilot flame and steps taken to return the pilot flame to proper operation.

16. The continuous pilot monitoring system under Condition 15 shall be installed and operational within sixty (60) days of permit issuance. Citation Oil & Gas Corporation shall notify the Division within fifteen (15) days of installation of the continuous pilot monitoring system.

17. The flare shall be designed, constructed, operated and maintained to be smokeless, per Chapter 3, Section 6(b)(i) of the WAQSR, with no visible emissions except for periods not to exceed a total of five (5) minutes during any two (2) consecutive hours as determined by 40 CFR part 60, appendix A, Method 22.

18. Emission control equipment, including the VOC and HAP emission control system or device, all vent lines, connections, fittings, valves, relief valves, hatches or any other appurtenance employed to contain and collect vapors and transport them to the emission control system or device, shall be maintained and operated during any time the well is producing such that the emissions are controlled at all times. Records shall be maintained noting dates and durations of times during such operation when any VOC or HAP emissions control system or device or the associated containment and collection equipment is not functioning to control emissions as required by this permit.

19. Citation Oil & Gas Corporation shall maintain records that the manufacturer-designed VOC destruction efficiency of the flare is at least ninety-eight percent (98%).

20. Citation Oil & Gas Corporation, LLC shall comply with all applicable requirements of 40 CFR part 60, subpart OOOO.

Wells Producing to NWD 2 Tank Battery

Facility	¼ ¼	Section	Township (N)	Range (W)	Latitude	Longitude	Startup
LBB DSU C-052236A 26	SE SE	3	47	100	44.06611	-108.83771	2/8/71
NW Dome C-052236A 28	SE SW	3	47	100	44.06556	-108.84667	3/28/71
NW Dome C-064382 29	NW NE	10	47	100	44.0625	-108.84139	9/14/71
NWD State 33	NW SW	2	47	100	44.07056	-108.83278	12/31/84
NWD DSU C-045633 34	SW SW	2	47	100	44.06556	-108.83209	11/28/78
LBB NWD 35	NE SW	2	47	100	44.06931	-108.82722	1/10/80
LBB NWD C-045633 10	SE SW	2	47	100	44.06521	-108.82701	2/16/80
NWD 43	NW SW	2	47	100	44.06916	-108.8334	3/24/14

EQUIPMENT LIST

- one (1) heater treater w/ 1.25 MMBtu/hr heater
- two (2) heater treaters w/ 0.75 MMBtu/hr heaters
- one (1) heater treater w/ 0.5 MMBtu/hr heater
- three (3) 400-bbl oil storage tanks
- two (2) 400-bbl produced water tanks
- one (1) 400-bbl water knockout tank
- one (1) smokeless flare w/ **proposed** continuous pilot monitoring system (oil tank, active produced water tank and water knockout tank control)

EMISSIONS SUMMARY

NWD 2 Tank Battery 112 BPD total oil [1]						
SOURCE	EMISSIONS (TPY) [2]					
	VOC	HAP	NO_X	CO	H_2S	SO_2
Oil Storage Tanks						
UNCONTROLLED	60.0	0.2	--	--	5.3	--
CONTROLLED	1.2	insig	0.9	0.2	--	10.0
Process Heaters	0.1	insig	1.4	1.2	--	insig
Fugitives [3]	insig	insig	--	--	insig	--
Total Uncontrolled Facility Emissions	**60.1**	**0.2**	**1.4**	**1.2**	**5.3**	**--**
Total Controlled Facility Emissions	**1.3**	**insig**	**2.3**	**1.4**	**insig**	**10.0**

[1] daily rates reported by the applicant
[2] rounded to the nearest 0.1 ton
[3] Citation will implement a FEM program; therefore, emissions associated with fugitive leaks are considered insignificant

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
Permit Application Analysis
A0008248

April 10, 2020

NAME OF FIRM:	Citation Oil & Gas Corporation (CMP000177)
MAILING ADDRESS:	14077 Cutten Road Houston, TX 77069
RESPONSIBLE OFFICIAL:	Lee Ann Elsom Regulatory Compliance Manager
TELEPHONE NUMBER:	(281) 891-1577
TYPE OF OPERATION:	multiple well, sour crude oil production tank battery
FACILITY NAME:	**Tensleep 1 Tank Battery (F004571)**
FACILITY LOCATION:	SW¼ NE¼ Section 12, T47N, R100W Latitude: 44.06246° Longitude: -108.79512° Park County, Wyoming
DATE FACILITY BECAME OPERATIONAL:	6/3/1968, modified 9/2/2012
REVIEWER:	Heather Bleile, Air Quality Engineer

PURPOSE OF APPLICATION: Citation Oil & Gas Corporation filed this application to modify the Tensleep 1 Tank Battery by updating the equipment list.

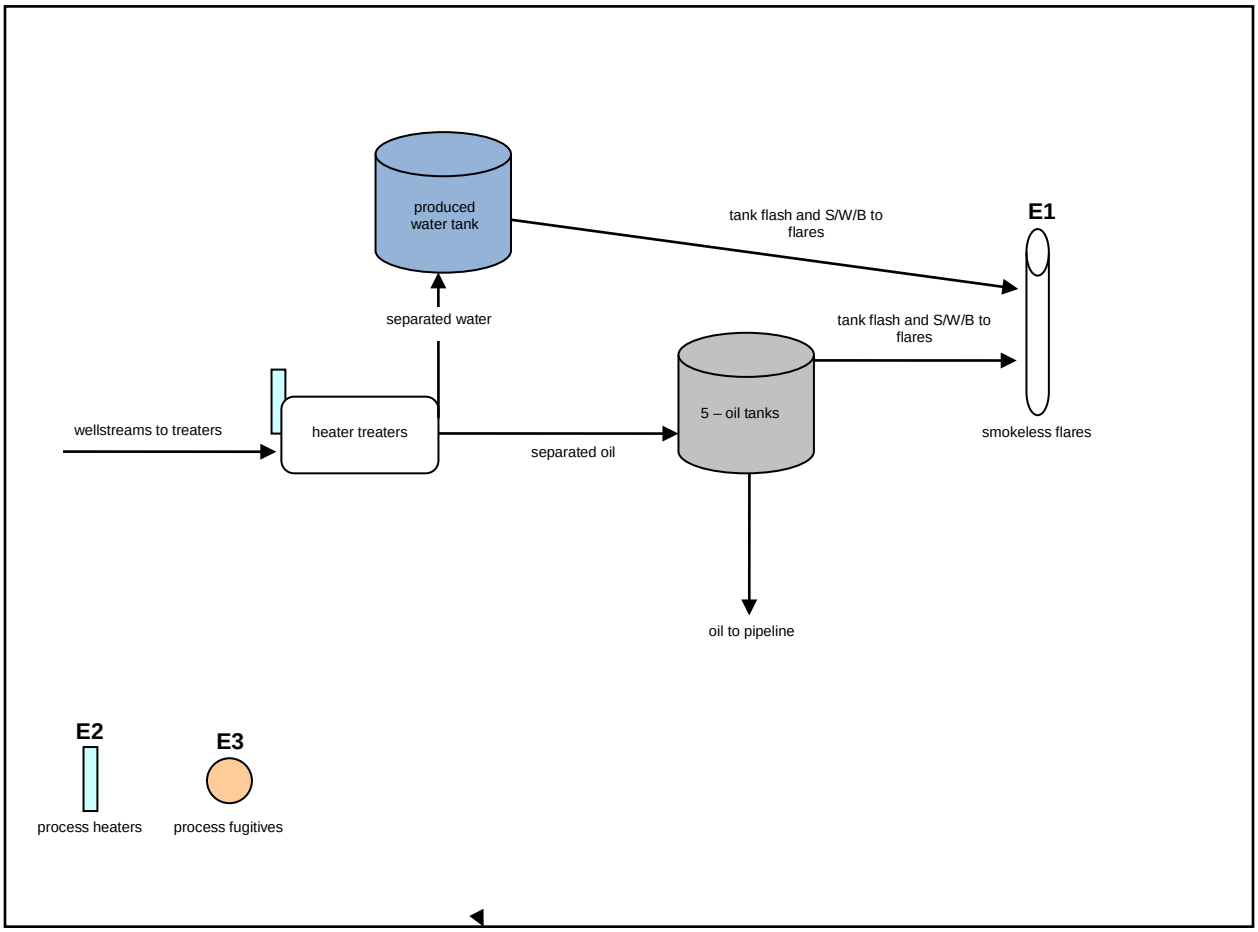
Production and equipment for the twenty-three wells are co-located and/or shared and all associated air emissions are aggregated for permitting determinations.

PERMIT HISTORY: The Tensleep 1 Tank Battery currently operates under Air Quality Authorization Letter, wv-WQ9, issued on August 16, 1999. No controls were required under this authorization letter. This permit shall supersede wv-WQ9 for the Tensleep 1 Tank Battery.

The following equipment operates at the Tensleep 1 Tank Battery:

- two (2) heater treaters w/ 1.25 million Btu per hour (MMBtu/hr) heaters
- two (2) 1000-barrel (bbl) and two (2) 300-bbl oil storage tanks
- one (1) 1000-bbl produced water tank
- one (1) 90-bbl oil pop tank
- three (3) smokeless flares w/ **proposed** continuous pilot monitoring systems (oil tank, active produced water tank and oil pop tank control)

PROCESS DESCRIPTION: The following is a schematic representation of the production process at this facility. A complete process description is found in the permit application.



ESTIMATED EMISSIONS: (summarized in the attached tables)

oil storage tanks:

flashing losses and standing/working/breathing (S/W/B) losses:

Uncontrolled VOC, HAP and H_2S emissions are estimated using actual tank vapor measurements and an extended analysis of the tank vapors. Uncontrolled VOC emissions associated with S/W/B losses are estimated using EPA Tanks 4.0 software.

Controlled VOC and HAP emissions associated with flashing and S/W/B losses (**Emission Source E1, Process Flow Diagram**) are based on the reported 98% destruction efficiency of the smokeless flares. Nitrogen oxide (NO_X) and carbon monoxide (CO) emissions from combustion of the vapors are based on 0.14 lb NO_X/MMBtu and 0.035 lb CO/MMBtu and the volume of measured vapors. Sulfur dioxide (SO_2) emissions are calculated using the metered volume of tank vapor, the molecular weight of SO_2 and the H_2S mole fraction from the extended gas analysis.

active produced water tank: (**Emission Source E1, Process Flow Diagram**)

The Division is currently not requiring emission calculations for active produced water tanks. Vapors from the active produced water tanks are routed to the flares for 98% control.

natural gas fired heaters: **(Emission Source E2, Process Flow Diagram)**

NO_X, CO and SO_2 emissions are based on AP-42 EF for fuel boilers and heaters.

fugitive sources: (**Emission Source E3, Process Flow Diagram**)

Citation Oil & Gas Corporation shall follow the fugitive emission monitoring requirements under 40 CFR part 60, Subpart OOOOa for fugitive VOC emissions from a production site as published in the federal register on June 3, 2016 (Federal Register Vol. 81 pg. 35824-35941). With these requirements met, fugitive emissions are considered insignificant.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT): The emissions associated with the oil tanks, oil pop tank and active produced water tank are controlled with 98% efficient flares which meets current BACT requirements.

This facility was modified on September 2, 2012 with the workover of the LBB 178H well; however, an application for the modification was never submitted. Since the 2010 C6 S2 Guidance was not followed at the time this facility was modified, the modifications at the Tensleep 1 Tank Battery must comply with the requirements under the 2018 C6 S2 Guidance. As a result, the Division is proposing the installation of continuous pilot monitoring systems on the flares. The continuous pilot monitoring systems shall be installed and operational within sixty (60) days of permit issuance.

Per the 2018 C6 S2 Guidance Presumptive BACT requirements for fugitive emissions, Citation Oil & Gas Corporation shall follow the fugitive emission monitoring requirements under 40 CFR part 60, Subpart OOOOa for fugitive VOC emissions from a production site as published in the federal register on June 3, 2016 (Federal Register Vol. 81 pg. 35824-35941).

NEW SOURCE PERFORMANCE STANDARDS (NSPS): The oil storage tanks are operated prior to custody transfer and are not subject to Subpart K, K_a or K_b.

40 CFR part 60, subpart OOOO - *Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution* applies to any new, modified or reconstructed emission source installed after August 23, 2011 at oil and gas production and gas processing facilities. The Tensleep 1 Tank Battery is subject to 40 CFR part 60, subpart OOOO as the facility was modified after the effective date.

40 CFR part 60, subpart OOOOa - *Standards of Performance for Crude Oil and Natural Gas Facilities* applies to any new, modified or reconstructed emission source installed after September 18, 2015 at oil and gas production and gas processing facilities. The Tensleep 1 Tank Battery is not subject to 40 CFR part 60, subpart OOOOa as the facility was not modified after the effective date.

PREVENTION OF SIGNIFICANT DETERIORATION (PSD): Emissions from this facility are less than the major source levels defined in WAQSR Chapter 6, Section 4.

CHAPTER 6, SECTION 3 (Operating Permit): Emissions from this facility are less than the major source levels defined in WAQSR Chapter 6, Section 3.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (MACT): Emissions from this facility are less than the major source levels of 10 TPY of any individual HAP and 25 TPY of any combination of HAPs; therefore this facility is not subject to Subpart HH requirements for oil and gas production facilities which are major sources of HAP emissions.

LAND USE PLANNING, GREATER SAGE-GROUSE PROTECTION AND MULE DEER / ANTELOPE MIGRATION CORRIDOR PROTECTION: Chapter 6, Section 2(c) of the Wyoming Air Quality Standards and Regulations (WAQSR) requires permit applicants to demonstrate that a proposed facility will be located in accordance with proper land use planning as determined by the appropriate state or local agency. The Wyoming Oil and Gas Conservation Commission (WOGCC) is the state agency charged with authorizing oil and gas wells, and the Commission's permit to drill is verification that an oil and gas production well and associated equipment are located in accordance with proper land use planning.

All permit applicants must also comply with the Governor's Executive Order 2019-3 for the protection of Greater Sage-Grouse habitat. For oil and gas production sites, the WOGCC established the *Greater Sage-Grouse Core Area Protection Policy*. The Division relies on the WOGCC's policy to enforce Executive Order 2019-3 during the permitting process for the drilling of production wells, before oil and gas production sites commence operation.

The Governor's Executive Order (EO) 2020-1 directs state agencies to consider the impact of proposed and modified facility sites on the migration corridors of mule deer and antelope. The Division has determined that the Tensleep 1 Tank Battery is outside of any mule deer and antelope migration corridors. Therefore, the requirements of the Mule Deer and Antelope Migration Corridor Executive Order have been met.

PROPOSED PERMIT CONDITIONS: The Division proposes to issue an Air Quality Permit to Citation Oil & Gas Corporation for the Tensleep 1 Tank Battery with the following conditions:

1. Authorized representatives of the Division of Air Quality be given permission to enter and inspect any property, premise or place on or at which an air pollution source is located or being installed for the purpose of investigating actual or potential sources of air pollution and for determining compliance or non-compliance with any rule, regulation, standard, permit or order.

2. All substantive commitments and descriptions set forth in the application for this permit, unless superseded by a specific condition of this permit, are incorporated herein by this reference and are enforceable as a condition of this permit.

3. A permit to operate in accordance with Chapter 6, Section 2(a)(iii) of the WAQSR is required after a 120-day start-up period in order to operate this facility.

4. All notifications, reports and correspondence required by this permit shall be submitted to the Stationary Source Compliance Program Manager. Submissions may be done electronically through https://airimpact.wyo.gov to satisfy requirements of this permit.

5. All records required under this permit shall be kept for a period of at least five (5) years and shall be made available to the Division upon request.

6. Effective upon permit issuance, this permit shall supersede Air Quality Permit wv-WQ9 for the Tensleep 1 Tank Battery.

7. Periodic training on the proper operation of equipment, systems and devices used to contain, control, eliminate or reduce pollution shall be provided to company personnel whose primary job is to regularly ensure that facility production equipment is functional. The training shall provide these personnel with the ability to recognize, correct and report all instances of malfunctioning equipment, systems and devices associated with air pollution control. These equipment, systems and devices include, but are not limited to combustion units, reboiler overheads condensers, hydrocarbons liquids storage tanks, drip tanks, vent lines, connectors, fittings, valves, relief valves, hatches and any other appurtenance employed to, or involved with, eliminating, reducing, containing or collecting vapors and transporting them to a pollution control system or device.

8. Trained personnel shall perform, at a minimum, a quarterly site evaluation of the operation of the air pollution control equipment, systems and devices under Condition 7. The first quarterly site evaluation shall be conducted within the second quarter after permit issuance.

9. At least one of the quarterly evaluations per calendar year under Condition 8 shall include an evaluation of the facility for leaks from the equipment, systems and devices under Condition 7 using an optical gas imaging instrument. Monitoring utilizing the no detectable emissions test methods and procedures in 40 CFR §60.5416(b)(1) through (8) may be utilized to satisfy the requirements of this condition for the equipment, systems, and devices under Condition 7 in lieu of using an optical gas imaging instrument.

10. Notification shall be provided to the Division at least fifteen (15) days prior to the quarterly evaluation under Condition 8.

11. An annual preventative maintenance program shall be instituted to inspect and replace equipment, systems and devices under Condition 6 as necessary to ensure their proper operation.

12. Results of all inspections, evaluations and periodic monitoring shall be documented and maintained for review by the Division upon request. Digital files of any optical gas imaging instrument evaluations need not be maintained.

13. Citation Oil & Gas Corporation shall follow the fugitive emission monitoring requirements under 40 CFR part 60, Subpart OOOOa for fugitive VOC emissions from a production site as published in the federal register on June 3, 2016 (Federal Register Vol. 81 pg. 35824-35941).

14. Vapors from all oil tanks, all oil pop tanks and all active produced water tanks, including tank flash and S/W/B vapors, shall be routed to the flares to reduce the mass content of VOCs, HAPs and H_2S in the tank vapors vented to the devices by at least ninety-eight percent (98%) by weight for at least one (1) year following the date of installation of the control devices, after which time the devices may be removed upon Division approval without permit modification provided it can be demonstrated that the current, uncontrolled, annualized VOC emission rate from the oil tanks is less than, and will remain less than four (4) tons per year.

15. The presence of the flare pilot flames shall be monitored using thermocouples and continuous recording devices or any other equivalent devices to detect and record the presence of the flames. Records shall be maintained noting periods during active well site operation when any of the pilot flames are not present. The records shall contain a description of the reason(s) for absence of the pilot flames and steps taken to return the pilot flames to proper operation.

16. The continuous pilot monitoring systems under Condition 15 shall be installed and operational within sixty (60) days of permit issuance. Citation Oil & Gas Corporation shall notify the Division within fifteen (15) days of installation of the continuous pilot monitoring systems.

17. The flares shall be designed, constructed, operated and maintained to be smokeless, per Chapter 3, Section 6(b)(i) of the WAQSR, with no visible emissions except for periods not to exceed a total of five (5) minutes during any two (2) consecutive hours as determined by 40 CFR part 60, appendix A, Method 22.

18. Emission control equipment, including the VOC and HAP emission control system or device, all vent lines, connections, fittings, valves, relief valves, hatches or any other appurtenance employed to contain and collect vapors and transport them to the emission control system or device, shall be maintained and operated during any time the well is producing such that the emissions are controlled at all times. Records shall be maintained noting dates and durations of times during such operation when any VOC or HAP emissions control system or device or the associated containment and collection equipment is not functioning to control emissions as required by this permit.

19. Citation Oil & Gas Corporation shall maintain records that the manufacturer-designed VOC destruction efficiency of the flares is at least ninety-eight percent (98%).

20. Citation Oil & Gas Corporation shall comply with all applicable requirements of 40 CFR part 60, subpart OOOO.

Wells Producing to Tensleep 1 Tank Battery

Facility	¼ ¼	Section	Township (N)	Range (W)	Latitude	Longitude	Startup
LBB DSU 129	SW NW	7	47	99	44.05999	-108.79207	10/6/75
LBB DSU 134	NW SW	7	47	99	44.05545	-108.77356	8/3/88
LBB DSU 163	SW SW	7	47	99	44.05299	-108.78911	1/5/78
LBB DSU C-045855 164	NWNW	7	47	99	44.06397	-108.79199	6/8/88
LBB 178H [1]	SW NW	7	47	99	44.05830	-108.78870	4/19/86
LBB DSU 175	NWNW	7	47	99	44.06193	-108.78972	9/22/78
LBB DSU 174	NWNW	7	47	99	44.06450	-108.78835	10/21/88
LBB DSU 214	SW NW	7	47	99	44.05804	-108.78912	3/27/80
LBB Unit 395	NWNW	7	47	99	44.06380	-108.79154	1/29/88
LBB DSU 65	SW SE	1	47	100	44.06519	-108.80009	6/3/68
LBB DSU C-045855 116	SW NE	12	47	100	44.05917	-108.80301	3/29/73
Little Buffalo Basin 127	NE NE	12	47	100	44.06083	-108.79481	8/4/75
LBB DSU 130	SW NE	12	47	100	44.05741	-108.80039	7/21/75
LBB DSU C-045855 131	SE NE	12	47	100	44.05729	-108.79479	9/19/88
C-044187 LBB 128	SE NE	12	47	100	44.05879	-108.79731	8/20/75
LBB DSU Unit 126	NW NE	12	47	100	44.06091	-108.80049	11/30/87
LBB DSU C-045855 161	SE SE	1	47	100	44.06459	-108.79589	7/15/88
LBB DSU C-044187 162	NW NE	12	47	100	44.06211	-108.80417	9/14/88
LBB DSU C-044187 236	SE NE	12	47	100	44.05931	-108.79583	11/15/80
LBB DSU C-044187 314	SE NE	12	47	100	44.05725	-108.79424	11/12/83
LBB Unit 393	NW NE	12	47	100	44.06281	-108.7986	1/22/88
LBB DSU 394	NE NE	12	47	100	44.06179	-108.79791	1/27/88
LBB DSU 396	SE SE	12	47	100	44.06509	-108.79437	4/13/88

[1] the LBB 178H well was worked over in 2012

EQUIPMENT LIST

- two (2) heater treaters w/ 1.25 MMBtu/hr heaters
- two (2) 1000-bbl and two (2) 300-bbl oil storage tanks
- one (1) 1000-bbl produced water tank
- one (1) 90-bbl oil pop tank
- three (3) smokeless flares w/ **proposed** continuous pilot monitoring systems (oil tank, active produced water tank and oil pop tank control)

EMISSIONS SUMMARY

Tensleep 1 Tank Battery 135 BPD total oil [1]						
SOURCE	EMISSIONS (TPY) [2]					
	VOC	HAP	NO_X	CO	H_2S	SO_2
Oil Storage Tanks						
UNCONTROLLED	15.7	0.2	--	--	2.2	--
CONTROLLED	0.3	insig	0.2	0.1	--	4.0
Process Heaters	0.1	insig	1.1	0.9	--	insig
Fugitives [3]	insig	insig	--	--	insig	--
Total Uncontrolled Facility Emissions	**15.8**	**0.2**	**1.1**	**0.9**	**2.2**	**--**
Total Controlled Facility Emissions	**0.4**	**insig**	**1.3**	**1.0**	**insig**	**4.0**

[1] daily rates reported by the applicant
[2] rounded to the nearest 0.1 ton
[3] Citation will implement a FEM program; therefore, emissions associated with fugitive leaks are considered insignificant

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
Permit Application Analysis
A0008249

April 10, 2020

NAME OF FIRM:	Citation Oil & Gas Corporation (CMP000177)
MAILING ADDRESS:	14077 Cutten Road Houston, TX 77069
RESPONSIBLE OFFICIAL:	Lee Ann Elsom Regulatory Compliance Manager
TELEPHONE NUMBER:	(281) 891-1577
TYPE OF OPERATION:	multiple well, sour crude oil production tank battery
FACILITY NAME:	**Tensleep 2 Tank Battery (F004572)**
FACILITY LOCATION:	NE¼ SE¼ Section 12, T47N, R100W Latitude: 44.05493° Longitude: -108.79750° Park County, Wyoming
DATE FACILITY BECAME OPERATIONAL:	6/4/1958, modified 8/10/2010
REVIEWER:	Heather Bleile, Air Quality Engineer

PURPOSE OF APPLICATION: Citation Oil & Gas Corporation filed this application to modify the Tensleep 2 Tank Battery by updating the equipment list.

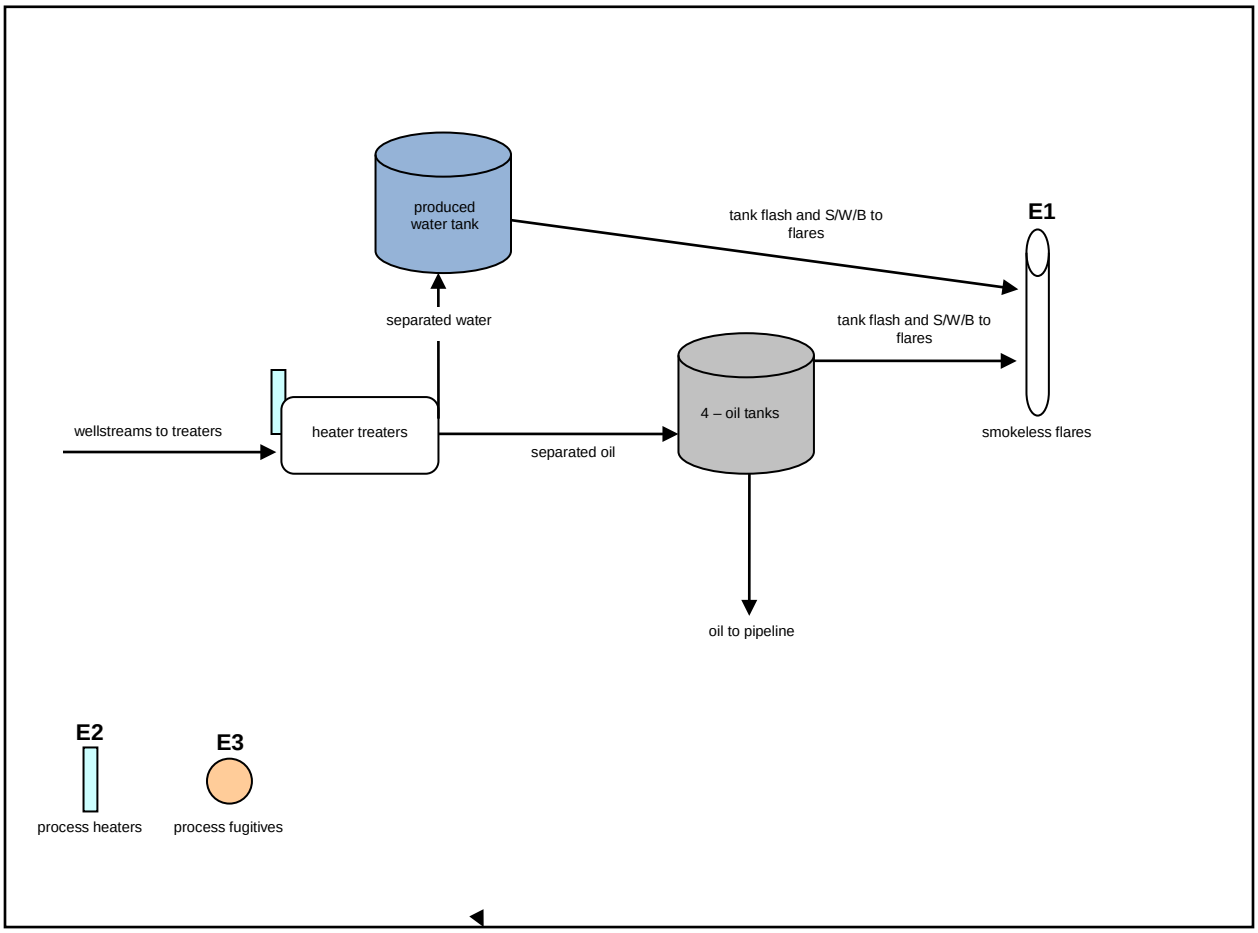
Production and equipment for the thirty-one wells are co-located and/or shared and all associated air emissions are aggregated for permitting determinations.

PERMIT HISTORY: The Tensleep 2 Tank Battery currently operates under Air Quality Permit, MD-466, issued on July 5, 2000. A smokeless flare was required to control volatile organic compound (VOC) and hazardous air pollutant (HAP) emissions associated with the oil tanks. This permit shall supersede MD-466 for the Tensleep 2 Tank Battery.

The following equipment operates at the Tensleep 2 Tank Battery:

- three (3) heater treaters w/ 1.25 million Btu per hour (MMBtu/hr) heaters
- three (3) 1000-barrel (bbl) oil storage tanks
- one (1) 5000-bbl produced water tank
- one (1) 400-bbl oil pop tank
- three (3) smokeless flares w/ **proposed** continuous pilot monitoring systems (oil tank, active produced water tank and oil pop tank control)

PROCESS DESCRIPTION: The following is a schematic representation of the production process at this facility. A complete process description is found in the permit application.



ESTIMATED EMISSIONS: (summarized in the attached tables)

oil storage tanks:

flashing losses and standing/working/breathing (S/W/B) losses:

Uncontrolled VOC, HAP and H_2S emissions are estimated using actual tank vapor measurements and an extended analysis of the tank vapors. Uncontrolled VOC emissions associated with S/W/B losses are estimated using EPA Tanks 4.0 software.

Controlled VOC and HAP emissions associated with flashing and S/W/B losses (**Emission Source E1, Process Flow Diagram**) are based on the reported 98% destruction efficiency of the smokeless flares. Nitrogen oxide (NO_X) and carbon monoxide (CO) emissions from combustion of the vapors are based on 0.14 lb NO_X/MMBtu and 0.035 lb CO/MMBtu and the volume of measured vapors. Sulfur dioxide (SO_2) emissions are calculated using the metered volume of tank vapor, the molecular weight of SO_2 and the H_2S mole fraction from the extended gas analysis.

active produced water tank: (**Emission Source E1, Process Flow Diagram**)

The Division is currently not requiring emission calculations for active produced water tanks. Vapors from the active produced water tanks are routed to the flares for 98% control.

natural gas fired heaters: **(Emission Source E2, Process Flow Diagram)**

NO_X, CO and SO_2 emissions are based on AP-42 EF for fuel boilers and heaters.

fugitive sources: (**Emission Source E3, Process Flow Diagram**)

Citation Oil & Gas Corporation shall follow the fugitive emission monitoring requirements under 40 CFR part 60, Subpart OOOOa for fugitive VOC emissions from a production site as published in the federal register on June 3, 2016 (Federal Register Vol. 81 pg. 35824-35941). With these requirements met, fugitive emissions are considered insignificant.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT): The emissions associated with the oil tanks, oil pop tank and active produced water tank are controlled with 98% efficient flares which meets current BACT requirements.

This facility was modified on August 10, 2010 with the fracture treating of the LBB DSU C-052236 172 well; however, an application for the modification was never submitted. Since the 2010 C6 S2 Guidance was not followed at the time this facility was modified, the modifications at the Tensleep 2 Tank Battery must comply with the requirements under the 2018 C6 S2 Guidance. As a result, the Division is proposing the installation of continuous pilot monitoring systems on the flares. The continuous pilot monitoring systems shall be installed and operational within sixty (60) days of permit issuance.

Per the 2018 C6 S2 Guidance Presumptive BACT requirements for fugitive emissions, Citation Oil & Gas Corporation shall follow the fugitive emission monitoring requirements under 40 CFR part 60, Subpart OOOOa for fugitive VOC emissions from a production site as published in the federal register on June 3, 2016 (Federal Register Vol. 81 pg. 35824-35941).

NEW SOURCE PERFORMANCE STANDARDS (NSPS): The oil storage tanks are operated prior to custody transfer and are not subject to Subpart K, K_a or K_b.

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40 CFR part 60, subpart OOOOa - *Standards of Performance for Crude Oil and Natural Gas Facilities* applies to any new, modified or reconstructed emission source installed after September 18, 2015 at oil and gas production and gas processing facilities. The Tensleep 2 Tank Battery is not subject to 40 CFR part 60, subpart OOOOa as the facility was not modified after the effective date.

PREVENTION OF SIGNIFICANT DETERIORATION (PSD): Emissions from this facility are less than the major source levels defined in WAQSR Chapter 6, Section 4.

CHAPTER 6, SECTION 3 (Operating Permit): Emissions from this facility are less than the major source levels defined in WAQSR Chapter 6, Section 3.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (MACT): Emissions from this facility are less than the major source levels of 10 TPY of any individual HAP and 25 TPY of any combination of HAPs; therefore this facility is not subject to Subpart HH requirements for oil and gas production facilities which are major sources of HAP emissions.

LAND USE PLANNING, GREATER SAGE-GROUSE PROTECTION AND MULE DEER / ANTELOPE MIGRATION CORRIDOR PROTECTION: Chapter 6, Section 2(c) of the Wyoming Air Quality Standards and Regulations (WAQSR) requires permit applicants to demonstrate that a proposed facility will be located in accordance with proper land use planning as determined by the appropriate state or local agency. The Wyoming Oil and Gas Conservation Commission (WOGCC) is the state agency charged with authorizing oil and gas wells, and the Commission's permit to drill is verification that an oil and gas production well and associated equipment are located in accordance with proper land use planning.

All permit applicants must also comply with the Governor's Executive Order 2019-3 for the protection of Greater Sage-Grouse habitat. For oil and gas production sites, the WOGCC established the *Greater Sage-Grouse Core Area Protection Policy*. The Division relies on the WOGCC's policy to enforce Executive Order 2019-3 during the permitting process for the drilling of production wells, before oil and gas production sites commence operation.

The Governor's Executive Order (EO) 2020-1 directs state agencies to consider the impact of proposed and modified facility sites on the migration corridors of mule deer and antelope. The Division has determined that the Tensleep 2 Tank Battery is outside of any mule deer and antelope migration corridors. Therefore, the requirements of the Mule Deer and Antelope Migration Corridor Executive Order have been met.

PROPOSED PERMIT CONDITIONS: The Division proposes to issue an Air Quality Permit to Citation Oil & Gas Corporation for the Tensleep 2 Tank Battery with the following conditions:

1. Authorized representatives of the Division of Air Quality be given permission to enter and inspect any property, premise or place on or at which an air pollution source is located or being installed for the purpose of investigating actual or potential sources of air pollution and for determining compliance or non-compliance with any rule, regulation, standard, permit or order.

2. All substantive commitments and descriptions set forth in the application for this permit, unless superseded by a specific condition of this permit, are incorporated herein by this reference and are enforceable as a condition of this permit.

3. A permit to operate in accordance with Chapter 6, Section 2(a)(iii) of the WAQSR is required after a 120-day start-up period in order to operate this facility.

4. All notifications, reports and correspondence required by this permit shall be submitted to the Stationary Source Compliance Program Manager. Submissions may be done electronically through https://airimpact.wyo.gov to satisfy requirements of this permit.

5. All records required under this permit shall be kept for a period of at least five (5) years and shall be made available to the Division upon request.

6. Effective upon permit issuance, this permit shall supersede Air Quality Permit MD-466 for the Tensleep 2 Tank Battery.

7. Periodic training on the proper operation of equipment, systems and devices used to contain, control, eliminate or reduce pollution shall be provided to company personnel whose primary job is to regularly ensure that facility production equipment is functional. The training shall provide these personnel with the ability to recognize, correct and report all instances of malfunctioning equipment, systems and devices associated with air pollution control. These equipment, systems and devices include, but are not limited to combustion units, reboiler overheads condensers, hydrocarbons liquids storage tanks, drip tanks, vent lines, connectors, fittings, valves, relief valves, hatches and any other appurtenance employed to, or involved with, eliminating, reducing, containing or collecting vapors and transporting them to a pollution control system or device.

8. Trained personnel shall perform, at a minimum, a quarterly site evaluation of the operation of the air pollution control equipment, systems and devices under Condition 7. The first quarterly site evaluation shall be conducted within the second quarter after permit issuance.

9. At least one of the quarterly evaluations per calendar year under Condition 8 shall include an evaluation of the facility for leaks from the equipment, systems and devices under Condition 7 using an optical gas imaging instrument. Monitoring utilizing the no detectable emissions test methods and procedures in 40 CFR §60.5416(b)(1) through (8) may be utilized to satisfy the requirements of this condition for the equipment, systems, and devices under Condition 7 in lieu of using an optical gas imaging instrument.

10. Notification shall be provided to the Division at least fifteen (15) days prior to the quarterly evaluation under Condition 8.

11. An annual preventative maintenance program shall be instituted to inspect and replace equipment, systems and devices under Condition 6 as necessary to ensure their proper operation.

12. Results of all inspections, evaluations and periodic monitoring shall be documented and maintained for review by the Division upon request. Digital files of any optical gas imaging instrument evaluations need not be maintained.

13. Citation Oil & Gas Corporation shall follow the fugitive emission monitoring requirements under 40 CFR part 60, Subpart OOOOa for fugitive VOC emissions from a production site as published in the federal register on June 3, 2016 (Federal Register Vol. 81 pg. 35824-35941).

14. Vapors from all oil tanks, all oil pop tanks and all active produced water tanks, including tank flash and S/W/B vapors, shall be routed to the flares to reduce the mass content of VOCs, HAPs and H_2S in the tank vapors vented to the devices by at least ninety-eight percent (98%) by weight for at least one (1) year following the date of installation of the control devices, after which time the devices may be removed upon Division approval without permit modification provided it can be demonstrated that the current, uncontrolled, annualized VOC emission rate from the oil tanks is less than, and will remain less than four (4) tons per year.

15. The presence of the flare pilot flames shall be monitored using thermocouples and continuous recording devices or any other equivalent devices to detect and record the presence of the flames. Records shall be maintained noting periods during active well site operation when any of the pilot flames are not present. The records shall contain a description of the reason(s) for absence of the pilot flames and steps taken to return the pilot flames to proper operation.

16. The continuous pilot monitoring systems under Condition 15 shall be installed and operational within sixty (60) days of permit issuance. Citation Oil & Gas Corporation shall notify the Division within fifteen (15) days of installation of the continuous pilot monitoring systems.

17. The flares shall be designed, constructed, operated and maintained to be smokeless, per Chapter 3, Section 6(b)(i) of the WAQSR, with no visible emissions except for periods not to exceed a total of five (5) minutes during any two (2) consecutive hours as determined by 40 CFR part 60, appendix A, Method 22.

18. Emission control equipment, including the VOC and HAP emission control system or device, all vent lines, connections, fittings, valves, relief valves, hatches or any other appurtenance employed to contain and collect vapors and transport them to the emission control system or device, shall be maintained and operated during any time the well is producing such that the emissions are controlled at all times. Records shall be maintained noting dates and durations of times during such operation when any VOC or HAP emissions control system or device or the associated containment and collection equipment is not functioning to control emissions as required by this permit.

19. Citation Oil & Gas Corporation shall maintain records that the manufacturer-designed VOC destruction efficiency of the flares is at least ninety-eight percent (98%).

Wells Producing to Tensleep 2 Tank Battery

Facility	¼ ¼	Section	Township (N)	Range (W)	Latitude	Longitude	Startup
LBB DSU 66	NW SW	7	47	99	44.05417	-108.78990	9/22/68
LBB DSU Unit 179	NW SW	7	47	99	44.05633	-108.78759	5/10/88
Federal C-045855 263	NE SW	7	47	99	44.05592	-108.78614	2/27/83
Little Buffalo Basin 373	SW SW	7	47	99	44.05080	-108.79010	2/9/85
LBB DSU C-045855 369	SW SW	7	47	99	44.05288	-108.79221	6/9/88
LBB DSU C-045855 380	SW NW	18	47	99	44.04432	-108.78782	7/12/85
LBB DSU C-045855 21	NW NE	13	47	100	44.04868	-108.80044	2/9/88
LBB DSU C-045855 12	SE SE	12	47	100	44.05182	-108.79541	6/4/58
LBB DSU C-045855 64	NE SE	12	47	100	44.05341	-108.79681	5/24/68
LBB DSU 72	NW NE	13	47	100	44.04679	-108.80278	7/18/68
LBB DSU C-045855 71	NE NE	13	47	100	44.04667	-108.79839	8/8/68
LBB DSU 141	SE SW	12	47	100	44.0520	-108.80833	10/21/75
LBB DSU C-045855 142	NE SW	12	47	100	44.05429	-108.80551	3/22/88
LBB DSU C-045855 132	NW SW	12	47	100	44.05570	-108.80347	1/9/88
LBB DSU 135	NW SE	12	47	100	44.05369	-108.80167	1/15/88
LBB DSU 133	NE SE	12	47	100	44.05541	-108.79839	2/9/88
LBB DSU C-045855 152	SW NE	13	47	100	44.04417	-108.79981	2/24/77
LBB DSU C-045855 153	NE NE	13	47	100	44.04694	-108.79667	3/25/77
LBB DSU C-045855 155	NW SE	12	47	100	44.05161	-108.79991	3/11/77
Little Buffalo Basin 156	NW SE	12	47	100	44.055	-108.8025	2/21/77
LBB DSU C-052236 172 [1]	NW SE	13	47	100	44.04701	-108.80491	11/20/78
LBB DSU 184	SE NE	13	47	100	44.04222	-108.79791	6/12/79
LBB DSU 183	SW NE	13	47	100	44.04349	-108.80049	5/11/79
LBB DSU 182	SE NE	13	47	100	44.04381	-108.79528	3/28/79
LBB DSU 194	SE SW	12	47	100	44.05071	-108.80489	7/18/79
LBB DSU C-052236 189	NW SE	13	47	100	44.04222	-108.80222	12/6/79
LBB DSU 286	SW SE	12	47	100	44.04979	-108.80351	12/31/83
LBB DSU C-045855 297	NW NE	13	47	100	44.04806	-108.79931	12/1/83
LBB DSU C-052236 301	NE SE	13	47	100	44.04083	-108.79729	10/31/83
LBB DSU 305	SE SE	12	47	100	44.04989	-108.79639	10/21/83
LBB DSU 392	NW SE	12	47	100	44.05472	-108.79944	2/17/88

[1] the LBB DSU C-052236 172 well was fracture treated in 2010

EQUIPMENT LIST

- three (3) heater treaters w/ 1.25 MMBtu/hr heaters
- three (3) 1000-bbl oil storage tanks
- one (1) 5000-bbl produced water tank
- one (1) 400-bbl oil pop tank
- three (3) smokeless flares w/ **proposed** continuous pilot monitoring systems (oil tank, active produced water tank and oil pop tank control)

EMISSIONS SUMMARY

Tensleep 2 Tank Battery 92 BPD total oil [1]						
SOURCE	EMISSIONS (TPY) [2]					
	VOC	HAP	NO_X	CO	H_2S	SO_2
Oil Storage Tanks						
UNCONTROLLED	10.2	0.1	--	--	1.4	--
CONTROLLED	0.2	insig	0.1	insig	--	2.8
Process Heaters	0.1	insig	1.6	1.4	--	insig
Fugitives [3]	insig	insig	--	--	insig	--
Total Uncontrolled Facility Emissions	**10.3**	**0.1**	**1.6**	**1.4**	**1.4**	**--**
Total Controlled Facility Emissions	**0.3**	**insig**	**1.7**	**1.4**	**insig**	**2.8**

[1] daily rates reported by the applicant
[2] rounded to the nearest 0.1 ton
[3] Citation will implement a FEM program; therefore, emissions associated with fugitive leaks are considered insignificant