LAREDO
PETROLEUM, INC.

15 W. 6th Street, Suite 900 ▪ Tulsa, Oklahoma 74119
Phone: (918) 513-4570 ▪ Fax: (918) 513-4571

RECEIVED
US EPA-DALLAS, TX
ASSOCIATE DIRECTOR
18 OCT 22 PM 1:10
COMPLIANCE ASSURANCE
& ENFORCEMENT DIV.

October 18, 2018

VIA CERTIFIED MAIL

Director: Air, Pesticides, and Toxics Division
U.S. Environmental Protection Agency 1445 Ross Avenue Suite 1200
Dallas, TX 75202-2733

Re: NSPS Subpart OOOOa §60.5420(b) Annual Report
Various Texas Facilities

Dear Sir or Madam:

Per 40 CFR §60.5420a, Laredo Petroleum (LPI) is submitting this NSPS Subpart OOOOa Annual Report (Annual Report) for various affected facilities located throughout Texas. In accordance with §60.5420a, LPI is providing the attached report with the required information regarding the affected facilities.

LPI has taken thorough steps to identify all affected equipment and facilities which are subject to NSPS Subpart OOOOa requirements. Based on comprehensive evaluations of LPI facilities, we believe that all potentially affected equipment has been identified and are submitting relevant reports for the identified equipment. Nevertheless, given the breadth of the requirements and the number of facilities potentially subject to NSPS Subpart OOOOa, we believe that it is necessary to state that there is a slight potential that affected equipment may have been overlooked. In the event that LPI discovers any such oversight, a revised §60.5420a report will be submitted.

I hereby certify based on information and belief formed after reasonable inquiry, the statements and information in this Annual Report are true, accurate, and complete. If you have any questions, please contact me at srose@laredopetro.com or 918-858-5177.

Sincerely,
Laredo Petroleum

Scott Rose
Sr. Air Specialist

cc: Mr. Steve Hagle, Deputy
Director, Office of Air, TCEQ,
12100 Park 35 Circle, Austin, TX
78753

LAREDO PETROLEUM, INC.

40 CFR 60 SUBPART OOOOa | ANNUAL REPORT
REPORTING PERIOD: 8/2/17 **to** 8/2/18

Certification

I hereby certify that, based on information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete.

Karen Chandler	VP Operations
Name of Responsible Official	**Title**
Karen Chandler	October 17, 2018
Signature of Responsible Official	**Date**
Scott Rose	Sr. Air Specialist
Name of Environmental Representative	**Title**
SORose	10-17-2018
Signature of Environmental Representative	**Date**

LAREDO PETROLEUM, INC.

40 CFR 60 SUBPART OOOO | ANNUAL REPORT

REPORTING PERIOD: 8/2/17 to 8/2/18

Date: 10/30/2018

General Information				
Company Name: Laredo Petroleum Inc.				
Operating Region: Permian Basin Region - Midland				
Mailing Address				
Street:	15 W 6th Street			
City:	Tulsa			
State:	OK		**Zip code:** 74119	
Responsible Official				
Name:	Karen Chandler	**Title:**	VP Operations	
Email:	kchandler@laredopetro.com	**Phone:**	918-858-5060	**Fax:**
Report Preparer				
Name:	Scott Rose	**Title:**	Sr. Air Specialist	
E-mail:	srose@laredopetro.com	**Phone:**	918-858-5177	**Fax:**

Affected Facilities	*Included in this report?*
Affected Well Facilities	✓
Fugitive Inspections	✓
Reciprocating Compressors	✓
Pneumatic Pumps	✓

1 With the exception of the reported tanks in this submittal, all storage vessels constructed during the reporting period have VOC emissions less than 6 TPY.

2 All reciprocating compressors installed during the reporting period are either at a well site, or at an adjacent well site and servicing more than one well site. Therefore there were no affected facilities constructed, reconstructed, or modified during the reporting period.

3 All pneumatic controllers installed during the reporting period are either intermittent or continuous bleed with a natural gas bleed rate of less than 6 scfh. Subsequently, there were no pneumatic controller affected facilities constructed, reconstructed, or modified during the reporting period.

NSPS OOOOa Annual Report

Well Affected Facility

Reporting Period: 8/2/2017 to 8/2/2018

Well Name	Well ID #	Latitude	Longitude	Date & Time of Onset of Flow back	Date & Time flow sent to separator	Date & Time of gas sales	Date & Time Returning to initial flow back	Date & Time of well shut in	Duration of flowback (hrs)	Duration of venting (hrs)	Duration of Flaring (hrs)	Production Startup	Comments
LPI Kloesel 31-19 C 3NU	42-173-37542-0000	31.7833	-101.5451										Photographed in Appendix A
LPI Kloesel 31-19 D 4NM	42-173-37544-6000	31.78332	-101.54508										Photographed in Appendix A
LPI Kloesel 31-19 A 1NU	42-173-37548-0000	31.78274	-101.549										Photographed in Appendix A
LPI Kloesel 31-19 B 2 NU	42-173-37544-0000	31.7828	-101.5488										Photographed in Appendix A
Book A 190-28 D 4SM	42-383-39866-0000	31.5066	-101.4383										Photographed in Appendix A
Lane Trust E 43-42 E 5NU	42-383-39921-0000	31.6353	-101.4942										Photographed in Appendix A
Lane Trust E 43-42 F 6NM	42-383-39922-0000	31.6353	-101.4941										Photographed in Appendix A
Lane Trust E 43-42 C 3NM	42-383-39917-0000	31.6343	-101.4986										Photographed in Appendix A
Lane Trust E 43-42 D 4NU	42-383-39897-0000	31.6343	-101.4985										Photographed in Appendix A
Lane Trust E 43-42 A 1NU	42-383-39909-0000	31.6331	-101.5035										Photographed in Appendix A
Lane Trust E 43-42 A 1NL	42-383-39916-0000	31.63311	-101.50345										Photographed in Appendix A
Lane Trust E 43-42 A 1NM	42-383-39915-0000	31.63312	-101.50337										Photographed in Appendix A
Lane Trust E 43-42 E 5NM	42-383-39919-0000	31.6349	-101.4958										Photographed in Appendix A
Lane Trust E 43-42 E 5NL	42-383-39918-0000	31.6349	-101.4957										Photographed in Appendix A
Bearkat 8-5 A 1NC	42-173-37654-0000	31.8616	-101.4511										Photographed in Appendix A
Bearkat 8-5 D 4NC	42-173-37655-0000	31.8599	-101.4428										Photographed in Appendix A
Sugg D 105 1NU	42-383-40016-0000	31.5487	-101.3411										Photographed in Appendix A
Sugg D 104 1NM	42-383-39808-0000	31.5487	-101.3413	12/31/17 6:00 AM	1/23/18 5:00	1/23/18 5:00	1/18/18 10:00 AM		199	0	8	1/23/18 5:00	
Sugg D 104 2NM	42-383-39810-0000	31.5847	-101.3412	1/3/18 5:00 AM	1/21/18 6:00	1/23/18 14:00	1/19/18 1:00 PM		152	0	55	1/23/18 14:00	
Barbee B 2-1 D 4SU	42-173-37707-0000	31.6679	-101.3497	1/24/18 12:00 AM	2/12/18 15:00	2/18/18 23:00	2/10/18 12:00 PM		526		84	2/18/18 23:00	
Barbee B 2-1 E 5SU	42-173-37708-0000	31.6679	-101.3496	1/3/18 6:00 AM	2/8/18 18:00	2/10/18 12:00	2/8/18 8:00 AM		591		42	2/10/18 12:00	
Barbee B 2-6 B 2SU	42-173-37700-0000	31.6668	-101.3541	1/24/18 9:00 PM	2/14/18 11:00	2/14/18 13:00	2/13/18 9:00 AM		394		2	2/14/18 13:00	
Sugg B 133-135 D 4SM	42-383-39941-0000	31.5381	-101.3696										Photographed in Appendix A

NSPS OOOOa Annual Report

Well Affected Facility

Reporting Period: 8/2/2017 to 8/2/2018

Well Name	Well ID #	Latitude	Longitude	Date & Time of Onset of Flow back	Date & Time flow sent to separator	Date & Time of gas sales	Date & Time Returning to initial flow back	Date & Time of well shut in	Duration of flowback (hrs)	Duration of venting (hrs)	Duration of Flaring (hrs)	Production Startup	Comments
Sugg B 133-135 D 4SU	42-383-39944-0000	31.538	-101.3696										Photographed in Appendix A
Barbee B 2-1 G 7SU	42-173-37627-0000	31.6678	-101.3459										Photographed in Appendix A
Barbee B 2-1 F 6SU	42-173-37625-0000	31.6677	-101.3459										Photographed in Appendix A
Sugg B 133-135 B1S 2MB	42-383-39938-0000	31.5482	-101.3731	3/9/18 8:30 PM	3/16/18 18:00	3/19/18 11:00			231		67	3/19/18 11:00	
Sugg B 133-135 B2S 2MF	42-383-39939-0000	31.5482	-101.373										Well Was not completed
Sugg B 133-135 C 3SM	42-383-39940-0000	31.5482	-101.3729										Photographed in Appendix A
Sugg B 133-135 A 1SU	42-383-39937-0000	31.5496	-101.3764	3/10/18 5:00 AM	3/24/18 7:00	3/27/18 9:00	3/21/18 3:00 PM		381		74	3/27/18 9:00	
Sugg B 133-135 A 1SM	42-383-39936-0000	31.5495	-101.3764	3/11/18 10:00 PM	3/16/18 11:00	3/16/18 12:00			111		1	3/16/18 12:00	
Sugg B 133 5 SM	42-383-39930-0000	31.5379	-101.3696										Photographed in Appendix A
Taylor A 14-16 A 1NU	42-383-40031-0000	31.6099	-101.4346	3/10/18 6:00 PM	3/31/18 11:00	5/4/18 23:00	3/14/18 5:00 AM		1464		218	5/4/18 23:00	
Taylor A 14-16 C 3NU	42-383-40032-0000	31.6099	-101.4345	3/23/18 12:00 PM	4/16/18 20:00	5/4/18 23:00			895		434	5/4/18 23:00	
Taylor A 14-16 G 7NU	42-383-40033-0000	31.611	-101.4281	3/24/18 10:00 AM	4/4/18 12:00	5/4/18 23:00			795		661	5/4/18 23:00	
McDowell C 173-174 A 1NU	42-383-40037-0000	31.6109	-101.4281	3/30/18 12:00 PM	4/4/18 13:00	5/4/18 23:00			827		704	5/4/18 23:00	

NSPS OOOOa Annual Report

Well Affected Facility

Reporting Period: 8/2/2017 to 8/2/2018

Well Name	Well ID #	Latitude	Longitude	Date & Time of Onset of Flow back	Date & Time flow sent to separator	Date & Time of gas sales	Date & Time Returning to initial flow back	Date & Time of well shut in	Duration of flowback (hrs)	Duration of venting (hrs)	Duration of Flaring (hrs)	Production Startup	Comments
Holt E 130-132 D 4SU	42-383-40025-0000	31.5933	-101.3682	5/5/18 2:00 PM	5/8/18 13:00	5/17/18 18:00			305		233	5/17/18 18:00	
Holt E 130-132 E 5SU	42-383-40027-0000	31.5933	-101.3681	5/5/18 3:00 PM	5/8/18 18:00	5/17/18 18:00			292		217	5/17/18 18:00	
Holt E 130-132 H 8SU	42-383-40029-0000	31.5933	-101.3627										Photographed in Appendix A
Bodine C 306 NM	42-173-37652-0000	31.6802	-101.5091	4/25/18 12:00 PM	5/1/18 16:00	5/7/18 13:00			289		141	5/7/18 13:00	
Bodine C 305 NM	42-173-37650-0000	31.6802	-101.5091	4/28/18 1:00 PM	5/3/18 17:00	5/7/18 14:00			217		93	5/7/18 14:00	
Fuchs F 46-34 C 3NU	42-173-37757-0000	31.6525	-101.4523										Photographed in Appendix A
Fuchs F 46-34 C 3NM	42-173-37763-0000	31.6525	-101.4522										Photographed in Appendix A
Fuchs F 46-34 D 4NU	42-173-37764-0000	31.6525	-101.4521										Photographed in Appendix A
Fuchs F 46-34 D 4NM	42-173-37765-0000	31.6526	-101.4521										Photographed in Appendix A
FuchsD 46-39 E 5NU	42-383-40050-0000	31.6471	-101.4461	5/29/18 6:00 AM	6/13/18 13:00	6/28/18 10:00	6/25/18 9:00 PM		686		296	6/28/18 10:00	
Fuchs D 46-39 F 6NM	42-383-40051-0000	31.6471	-101.4461	5/29/18 6:00 AM	6/7/18 16:00	6/23/18 11:00			605		379	6/23/18 11:00	
Fuchs G 46-34 A 1NU	42-173-37736-0000	31.6523	-101.456	6/13/18 8:30 AM	6/18/18 15:00	6/23/18 20:00			252		125	6/23/18 20:00	
JE Cox 33-45 H 8SM	42-173-37753-0000	31.6811	-101.4681	6/12/18 7:30 PM	6/14/18 13:00	6/16/18 15:00			87.5		50	6/16/18 15:00	

NSPS OOOOa Annual Report

Well Affected Facility

Reporting Period: 8/2/2017 to 8/2/2018

Well Name	Well ID #	Latitude	Longitude	Date & Time of Onset of Flow back	Date & Time flow sent to separator	Date & Time of gas sales	Date & Time Returning to initial flow back	Date & Time of well shut in	Duration of flowback (hrs)	Duration of venting (hrs)	Duration of Flaring (hrs)	Production Startup	Comments
Fuchs G 46-34 A 1NM	42-173-37754-0000	31.6525	-101.456	6/13/18 3:00 PM	6/14/18 0:00	6/17/18 4:00			85		28	6/17/18 4:00	
Sugg C 191 6SM	42-383-40085-0000	31.5067	-101.4482	6/29/18 10:00 AM	7/4/18 20:00	7/24/18 13:00	7/5/18 4:00 AM		576		323	7/24/18 13:00	
Fuchs F 46-34 B 2NM	42-173-37756-0000	31.6524	-101.456										Photographed in Appendix A
Fuchs F 46-34 B 2NU	42-173-37755-0000	31.6525	-101.456										Photographed in Appendix A
Sugg C 191 6SU	42-383-40086-0000	31.5067	-101.4481	6/29/18 11:00 PM	7/12/18 23:00	7/24/18 0:00	7/10/18 1:00 PM		476		265		
Sugg C 191 8SM	42-383-40125-0000	31.5067	-101.4481	6/26/18 12:00 AM	7/10/18 20:00	7/23/18 14:00	7/8/18 8:00 PM		605		354		
Sugg C 191 5SU	42-383-40084-0000	31.5068	-101.4519	7/1/18 4:00 PM	7/13/18 13:00	7/23/18 11:00	7/7/18 8:00 PM		488		375		
Sugg C 191 5SM	42-383-40083-0000	31.5068	-101.452	7/1/18 6:00 PM	7/10/18 15:00	7/24/18 2:00			536		323		

FUGITIVE EMISSIONS MONITORING REPORT

DEVIATIONS

Laredo Petroleum (LPI) is reporting multiple deviations on inspections for fugitive monitoring for the period August 2, 2017 through March 9, 2018. The deviations were the result of software reset on the FLIR camera being used to conduct the inspections.

LPI uses a FLIR GF 320 camera to conduct inspections for fugitive emissions. Beginning August 2, 2017 a software malfunction occurred that stopped embedding the date, time, and GPS coordinates into photographs from the camera. Therefore, from Aug 2, 2017-Mar 9, 2018 the pictures taken to verify inspections at specific locations do not include date, time, or GPS coordinates. This malfunction did not affect the ability to detect gas in any way. The ability to detect gas is verified in the daily camera verification.

LPI contacted FLIR and the camera was reset and all future pictures include the date, time, and GPS coordinates. LPI personnel utilizing the camera are now required to check the date/time/GPS stamp each time the camera is used to prevent this issue from recurring.

Other than this issue during the time frame discussed above were conducted according to the NSPS OOOOa rule and the LPI monitoring plan.

NSPS OOOOa Fugitive Emissions Monitoring Reporting

Reporting Period 8/2/2017 to 8/2/2018

Facility Name	Date of Survey	Latitude	Longitude	Beginning Time of Survey	Ending Time of Survey	Name of Inspector	Temp during survey	Sky conditions during Survey	Monitoring Instrument used	Is this a repair check survey?	Did a deviation from the monitoring plan occur during the survey?	Number of leaking components where fugitives were detected	Type of components where fugitives were detected.	List leaking components	Date of Repair of component	What instrument was used to resurvey leaking component
Sugg E 208 & 209 8SU IP	08/02/17	31.58823	-101.4631	11:00	11:51	Caleb Edwards	73	Overcast	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Book Sugg C TB	08/02/17	31.50306	-101.42941	12:15	13:10	Caleb Edwards	76	Cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
JL McMaster 155-156 7SU	08/07/17	31.6309	-101.39603	12:25	13:20	Caleb Edwards	80	Overcast	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
SRH A-9 TB	08/22/17	31.47805	-101.40535	9:20	10:00	Caleb Edwards	86	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
SRH A-9 IP	08/22/17	31.48074	-101.42635	10:30	11:19	Caleb Edwards	86	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Lane Trust C 42-43 1SU	08/24/17	31.65577	-101.50775	13:00	13:50	Caleb Edwards	83	Cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
P-Dog Comp Station	08/29/17	31.58264	-101.46651	8:45	9:25	Caleb Edwards	68	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Graham CH Sugg TB	08/29/17	31.5632	-101.4409	9:45	10:50	Caleb Edwards	73	Clear	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Glass 4 #1 TB	08/30/17	31.76831	-101.40581	12:45	13:32	Caleb Edwards	82	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Halfmann OU 47-15 TB	08/30/17	31.66303	-101.44198	15:50	16:50	Caleb Edwards	84	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
D Schaefer OU 15-47 (E) 5RU	09/05/17	31.63897	-101.42112	12:00	12:35	Caleb Edwards	87	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Book A 190-28 B 2SM	09/05/17	31.50677	-101.44361	12:45	13:25	Caleb Edwards	88	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Barbee C 1-1 1RU, 2RU 1SU 1 SP IP	09/07/17	31.6718	-101.33467	9:30	10:20	Caleb Edwards	70	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Curry 15 TB	09/11/17	31.7437	-101.36814	14:00	15:13	Caleb Edwards	85	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg B Holt E TB	09/15/17	31.57046	-101.37636	12:45	13:35	Caleb Edwards	82	Cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Bodine 174 IP	09/18/17	31.62503	-101.41892	16:50	17:15	Caleb Edwards	94	Partly cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Taylor A-14 TB	09/18/17	31.61669	-101.43148	15:00	16:38	Caleb Edwards	93	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg A 158 4SU 5SM IP	09/19/17	31.59013	-101.40236	12:00	12:49	Caleb Edwards	82	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Holt 136-25 IP	09/20/17	31.5062	-101.36836	8:20	9:07	Caleb Edwards	74	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg A 184 SL TB	09/26/17	31.58436	-101.43017	13:00	13:43	Caleb Edwards	75	Cloudy w/rain	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg A 171 4SU 4SM 5SM 7SU 8SU	09/28/17	31.5851	-101.41978	11:00	12:20	Caleb Edwards	64	Overcast	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg A 157 3SM 3SU 4SM IP	09/28/17	31.6081	-101.40472	12:20	12:39	Caleb Edwards	65	Overcast	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg A 197-195 4SU 5SU IP	09/28/17	31.58574	-101.45048	13:00	13:38	Caleb Edwards	66	Overcast	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Taylor 7NS	10/02/17	31.61068	-101.43042	11:00	12:00	Caleb Edwards	74	Cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Holt C 132-130 4NM 8NM	10/02/17	31.56403	-101.36903	12:45	13:32	Caleb Edwards	82	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg E 197-195 3SU NU IP	10/04/17	31.58687	-101.45532	9:00	9:54	Caleb Edwards	70	Overcast	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Lacy Creek 22 #1 TB	10/12/17	31.73781	-101.37317	11:00	12:15	Caleb Edwards	76	Clear	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg A 143 4NU 5NU IP	10/13/17	31.58088	-101.38454	10:30	11:00	Caleb Edwards	75	Clear	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg A 142 3NU	10/13/17	31.56628	-101.38797	11:05	11:35	Caleb Edwards	77	Clear	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Barbee CBD TB	10/25/17	31.66274	-101.33323	14:30	15:48	Caleb Edwards	73	Clear	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg C 165 SL TB	10/30/17	31.50464	-101.41915	13:45	14:55	Caleb Edwards	68	Clear	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Barbee C 1-1 1RU, 2RU 1SU 1 SP IP	11/07/17	31.6718	-101.33467	12:30	13:28	Caleb Edwards	59	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
JL McMaster 155 TB	11/10/17	31.63397	-101.40203	8:30	9:22	Caleb Edwards	50	Overcast	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
LPI Cox 21 #2 TB	11/13/17	31.72587	-101.38782	15:30	16:30	Caleb Edwards	63	Overcast	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg E&A Main IP	11/14/17	31.58676	-101.47094	9:50	11:30	Caleb Edwards	67	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg E&A 208 SL TB	11/15/17	31.58692	-101.46615	9:45	10:55	Caleb Edwards	63	Overcast	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
P-Dog Comp Station	11/21/17	31.58264	-101.46651	11:15	11:47	Caleb Edwards	64	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Book A 190-28 B 2SM	11/27/17	31.50677	-101.44361	13:45	14:30	Caleb Edwards	76	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Graham CH Sugg IP	11/28/17	31.56407	-101.44087	12:30	13:19	Caleb Edwards	80	Partly cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Book Sugg C TB	11/29/17	31.50306	-101.42941	11:00	12:50	Caleb Edwards	57	Partly cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
LPI Halfmann 31-1 TB	12/06/17	31.7837	-101.5419	12:00	12:52	Caleb Edwards	35	Rainy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
LPI Kloesel 31-19 IP	12/06/17	31.78246	-101.54608	12:55	13:23	Caleb Edwards	35	Rainy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
G Schwartz IP	12/18/17	31.73632	-101.40108	13:00	13:40	Caleb Edwards	55	Partly cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
LPI Glass 40 TB	12/18/17	31.77857	-101.50136	15:00	16:30	Caleb Edwards	58	Cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA

NSPS OOOOa Fugitive Emissions Monitoring Reporting

Reporting Period 8/2/2017 to 8/2/2018

Facility Name	Date of Survey	Latitude	Longitude	Beginning Time of Survey	Ending Time of Survey	Name of Inspector	Temp during survey	Sky conditions during Survey	Monitoring Instrument used	Is this a repair check survey?	Did a deviation from the monitoring plan occur during the survey?	Number of leaking components where fugitives were detected	Type of components where fugitives were detected.	List leaking components	Date of Repair of component	What instrument was used to resurvey leaking component
Griffith B TB	12/21/17	31.64787	-101.38019	13:00	14:00	Caleb Edwards	70	Partly cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Reagan Station	12/28/17	31.5498	-101.3631	12:00	12:42	Caleb Edwards	34	Overcast	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Taylor A-14 TB	01/02/18	31.61669	-101.43148	9:45	10:53	Caleb Edwards	19	Overcast	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Lane Trust E 43-42 IP	01/02/18	31.63384	-101.49747	11:00	11:35	Caleb Edwards	19	Overcast	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Glass 10 #2	01/05/18	31.756	-101.37881	12:00	12:57	Caleb Edwards	56	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Ratliff 17 A #5 TB	01/05/18	31.85975	-101.44048	13:20	14:08	Caleb Edwards	59	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Bodine A 174 TB	01/10/18	31.62741	-101.41855	12:20	13:14	Caleb Edwards	68	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg D 104 SL TB	01/10/18	31.55425	-101.33336	13:25	14:33	Caleb Edwards	71	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg A 171 SL TB	01/15/18	31.5827	-101.42533	10:40	12:00	Caleb Edwards	54	Clear	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
JL McMaster 155-156 7SU	01/07/18	31.63082	-101.39638	11:40	12:11	Caleb Edwards	33	Overcast	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
JL McMaster 155-156 3SU	01/07/18	31.63758	-101.40404	11:15	11:40	Caleb Edwards	31	Overcast	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Halfmann OU 47-15 TB	01/18/18	31.66303	-101.44198	12:20	13:45	Caleb Edwards	44	Clear	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg E 197-195 1SU 2SU	01/18/18	31.58661	-101.45978	15:00	15:38	Caleb Edwards	50	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg E 208-209 8SU IP	01/18/18	31.58662	-101.46196	15:39	16:05	Caleb Edwards	49	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Lane Trust E 43 #2 TB	01/25/18	31.63376	-101.4928	13:10	14:16	Caleb Edwards	50	Partly cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
SRH A-9 IP	02/01/18	31.48074	-101.42635	11:25	12:30	Caleb Edwards	52	Partly cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
SRH A-9 TB	02/01/18	31.47805	-101.40535	10:00	11:19	Caleb Edwards	47	Partly cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Lazy E 1601/1503	02/05/18	32.06499	-101.59078	11:30	12:31	Caleb Edwards	46	Partly cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Lane Trust C 42-43 1SU	02/05/18	31.65577	-101.50775	13:30	14:20	Caleb Edwards	63	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Glass 4 #1 TB	02/06/18	31.76831	-101.40581	8:25	9:02	Caleb Edwards	42	Overcast	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Book A 190-28 B 2SM	02/08/18	31.50677	-101.44361	13:45	14:31	Caleb Edwards	65	Partly cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
D Schaefer OU 15-47 (E) 5RU	02/09/18	31.63897	-101.42112	9:40	10:16	Caleb Edwards	52	Partly cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Curry 15 TB	02/13/18	31.7437	-101.36814	10:00	11:04	Caleb Edwards	50	Cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
P-Dog Comp Station	02/13/18	31.58264	-101.46651	12:20	12:58	Caleb Edwards	58	Partly cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg A 158 4SU 5SM IP	02/15/18	31.59013	-101.40236	14:35	15:22	Caleb Edwards	77	Partly cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg B Holt E TB	02/20/18	31.57046	-101.37636	8:00	9:02	Caleb Edwards	65	Partly cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Bodine A 174 IP	02/20/18	31.62503	-101.41892	9:20	9:58	Caleb Edwards	67	Partly cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
G Schwartz IP	02/21/18	31.73632	-101.40108	9:15	10:19	Caleb Edwards	25	Overcast	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Holt 136-25 IP	02/21/18	31.5062	-101.36836	10:50	11:29	Caleb Edwards	27	Overcast	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg D 105 1NM NU 2NM IP	02/22/18	31.5478	-101.3418	9:00	9:55	Caleb Edwards	20	Overcast	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg A 197-195 4SU 5SU IP	02/27/18	31.58574	-101.45048	14:40	15:24	Caleb Edwards	78	Partly cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg A 184 SL TB	02/27/18	31.58436	-101.43017	15:30	16:10	Caleb Edwards	79	Partly cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg A 171 6SU SM 5SU IP	02/28/18	31.5855	-101.41572	9:20	9:56	Caleb Edwards	65	Overcast	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg A 171 8SU SM 7SU SM	02/28/18	31.5856	-101.4114	9:56	10:15	Caleb Edwards	65	Overcast	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg A 157 3SM 3SU 4SM IP	03/05/18	31.6081	-101.40472	10:30	11:05	Caleb Edwards	66	Partly cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Sugg E 197-195 3SU NU IP	03/05/18	31.58687	-101.45532	11:10	11:42	Caleb Edwards	66	Partly cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Holt C 132-130 4NM 8NM	03/07/18	31.56403	-101.36903	15:00	15:25	Caleb Edwards	66	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Holt C 132-130 D 4SM	03/07/18	31.56427	-101.36913	13:25	13:43	Caleb Edwards	66	Sunny	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Taylor 7NS	03/09/18	31.61068	-101.43042	9:15	9:42	Caleb Edwards	57	Partly cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Barbee B 2-1 6SC IP	03/09/18	31.66897	-101.34608	9:45	10:36	Caleb Edwards	61	Partly cloudy	FLIR GF 320 Camera	no	Yes	none	none	none	NA	NA
Lacy Creek 22 #1 TB	03/19/18	31.73781	-101.37317	14:00	15:04	Caleb Edwards	68	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Sugg A 143 4NU 5NU IP	03/21/18	31.58088	-101.38454	15:10	15:30	Caleb Edwards	77	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Sugg A 142 TB	03/21/18	31.5714	-101.3854	15:32	16:05	Caleb Edwards	77	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Sugg A 142 3NU	03/21/18	31.56627	-101.38781	16:18	16:46	Caleb Edwards	77	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA

NSPS OOOOa Fugitive Emissions Monitoring Reporting

Reporting Period 8/2/2017 to 8/2/2018

Facility Name	Date of Survey	Latitude	Longitude	Beginning Time of Survey	Ending Time of Survey	Name of Inspector	Temp during survey	Sky conditions during Survey	Monitoring Instrument used	Is this a repair check survey?	Did a deviation from the monitoring plan occur during the survey?	Number of leaking components where fugitives were detected	Type of components where fugitives were detected.	List leaking components	Date of Repair of component	What instrument was used to resurvey leaking component
Sugg E 197-198 1NU Sugg E 208-207	03/22/18	31.58664	-101.46183	10:30	10:58	Caleb Edwards	65	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Sugg D 104 SL TB	03/26/18	31.55425	-101.33336	14:00	15:00	Caleb Edwards	77	Overcast	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Barbee C 1-1 1RU, 2RU 1SU 1 SP IP	03/28/18	31.6718	-101.33467	10:26	11:26	Caleb Edwards	54	Overcast	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
LPI Cox 21 #2 TB	04/05/18	31.72587	-101.38782	12:10	13:10	Caleb Edwards	78	Clear	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Sugg C 165 SL TB	04/16/18	31.50464	-101.41915	12:45	13:45	Caleb Edwards	83	Clear	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Barbee CBD TB	04/18/18	31.66274	-101.33323	14:25	15:34	Caleb Edwards	74	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
JL McMaster 155 TB	04/23/18	31.63397	-101.40203	12:45	13:35	Caleb Edwards	74	Clear	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Sugg E&A 208 SL TB	04/26/18	31.58692	-101.46615	10:00	11:00	Caleb Edwards	62	Clear	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
G Schwartz IP	05/01/18	31.73632	-101.40108	13:48	14:36	Caleb Edwards	87	Cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Sugg E&A 208 SL TB	05/02/18	31.58692	-101.46615	10:00	11:15	Caleb Edwards	75	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Sugg E&A Main IP	05/03/18	31.58676	-101.47094	8:15	9:20	Caleb Edwards	70	Clear	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Sugg A 169 TB	05/04/18	31.5649	-101.4192	8:30	9:30	Caleb Edwards	66	Partly cloudy	FLIR GF 320 Camera	no	no	2	Enardo Valve & Thief Hatch	Water Tank Enardo \	NA	NA
Sugg A 169 TB	05/07/18	31.5649	-101.4192	8:25	8:35	Caleb Edwards	70	Partly cloudy	FLIR GF 320 Camera	Yes	no	none	none	none	5/3/2018	FLIR GF 320 Cam
Book A 190-28 F 6SM	05/07/18	31.50668	-101.434	13:15	14:03	Caleb Edwards	91	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Graham CH Sugg IP	05/08/18	31.56407	-101.44087	7:50	8:30	Caleb Edwards	69	Clear	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Book Sugg C TB	05/10/18	31.50306	-101.42941	9:45	10:55	Caleb Edwards	79	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
P-Dog Comp Station	05/14/18	31.58264	-101.46651	10:45	11:30	Caleb Edwards	82	Cloudy	FLIR GF 320 Camera							
Taylor A-14 TB	05/14/18	31.61669	-101.43148	12:50	13:46	Caleb Edwards	88	Cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
LPI Halfmann 31-1 TB	05/16/18	31.7837	-101.5419	8:30	9:32	Caleb Edwards	78	Clear	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
LPI Kloesel 31-19 IP	05/16/18	31.78246	-101.54608	9:45	10:47	Caleb Edwards	78	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
LPI Glass 40 TB	05/22/18	31.77857	-101.50136	8:35	9:28	Caleb Edwards	68	Overcast	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Griffith B TB	05/24/18	31.64787	-101.38019	13:10	14:11	Caleb Edwards	88	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Reagan Station	05/30/18	31.5498	-101.3631	9:25	10:10	Caleb Edwards	84	Sunny	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Griffith B TB	05/30/15	31.64787	-101.38019	10:25	11:25	Caleb Edwards	93	Sunny	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Sugg B 133 H TB	05/31/18	31.5485	-101.3693	9:34	10:26	Caleb Edwards	84	Sunny	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Lane Trust E 43 #2 TB	06/13/18	31.63376	-101.4928	13:00	14:18	Caleb Edwards	93	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Lane Trust E 43-42 IP	06/13/18	31.63384	-101.49747	14:30	15:00	Caleb Edwards	94	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Bodine C 30 TB	06/14/18	31.6865	-101.5055	11:48	12:38	Caleb Edwards	90	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Bodine C 30 IP	06/14/18	31.68129	-101.50796	12:40	13:07	Caleb Edwards	90	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Ratliff 17 A #5 TB	06/18/18	31.85975	-101.44048	11:50	12:42	Caleb Edwards	90	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Glass 10 #2	06/18/18	31.756	-101.37881	13:20	13:59	Caleb Edwards	89	Cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Sugg B Holt E TB	06/19/18	31.57046	-101.37636	12:45	13:25	Caleb Edwards	85	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Bodine A 174 TB	06/20/18	31.62741	-101.41855	10:30	11:29	Caleb Edwards	81	Cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Sugg A 171 SL TB	06/26/18	31.5827	-101.42533	9:35	10:20	Caleb Edwards	82	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Sugg E 208-209 8SU IP	06/26/18	31.58662	-101.46196	10:25	10:47	Caleb Edwards	83	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
JL McMaster 155-156 3SU	06/27/18	31.63758	-101.40404	12:20	12:42	Caleb Edwards	84	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
JL McMaster 155-156 7SU	06/27/18	31.63082	-101.39638	12:45	13:17	Caleb Edwards	84	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
G Schwartz IP	06/28/18	31.73632	-101.40108	14:15	14:48	Caleb Edwards	97	Sunny	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
SRH A-9 IP	07/02/18	31.48074	-101.42635	10:18	10:48	Caleb Edwards	83	Sunny	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
SRH A-9 SL TB	07/02/18	31.47805	-101.40535	10:50	11:30	Caleb Edwards	85	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Lazy E 1601/1503	07/03/18	32.06499	-101.59078	11:30	12:19	Caleb Edwards	93	Sunny	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Lane Trust C 42-43 1SU	07/05/18	31.65577	-101.50775	14:00	14:50	Caleb Edwards	85	Cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Graham CH Sugg TB	07/09/18	31.5632	-101.4409	12:00	12:45	Caleb Edwards	83	Cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Glass 4 #1 TB	07/10/18	31.76831	-101.40581	10:45	11:25	Caleb Edwards	79	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA

NSPS OOOOa Fugitive Emissions Monitoring Reporting

Reporting Period 8/2/2017 to 8/2/2018

Facility Name	Date of Survey	Latitude	Longitude	Beginning Time of Survey	Ending Time of Survey	Name of Inspector	Temp during survey	Sky conditions during Survey	Monitoring Instrument used	Is this a repair check survey?	Did a deviation from the monitoring plan occur during the survey?	Number of leaking components where fugitives were detected	Type of components where fugitives were detected.	List leaking components	Date of Repair of component	What instrument was used to resurvey leaking component
D Schaefer OU 15-47 (E) 5RU	07/11/18	31.63897	-101.42112	12:40	13:18	Caleb Edwards	87	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Curry 15 TB	07/11/18	31.7437	-101.36814	13:40	14:32	Caleb Edwards	92	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Bodine A 174 IP	07/16/18	31.62503	-101.41892	10:00	10:34	Caleb Edwards	85	Sunny	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Holt 136-25 IP	07/16/18	31.5062	-101.36836	10:45	11:35	Caleb Edwards	88	Sunny	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Sugg A 197-195 4SU 5SU IP	07/17/18	31.58574	-101.45048	13:45	14:03	Caleb Edwards	95	Sunny	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Sugg D 105 1NM NU 2NM IP	07/18/18	31.5478	-101.3418	9:38	10:03	Caleb Edwards	87	Sunny	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Sugg A 184 SL TB	07/18/18	31.58436	-101.43017	10:42	11:39	Caleb Edwards	89	Sunny	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Sugg A 171 6SU SM 5SU IP	07/24/18	31.5855	-101.41572	12:40	13:16	Caleb Edwards	93	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Sugg A 171 8SU SM 7SU SM	07/24/18	31.5856	-101.4114	13:20	13:45	Caleb Edwards	93	Partly cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA
Sugg A 157 3SM 3SU 4SM IP	07/31/18	31.6081	-101.40472	11:20	12:10	Caleb Edwards	79	Cloudy	FLIR GF 320 Camera	no	no	none	none	none	NA	NA

LAREDO PETROLEUM, INC.

40 CFR 60 SUBPART OOOOa | ANNUAL REPORT

REPORTING PERIOD: 8/2/17 to 8/2/18

Affected Facility: Reciprocating Compressors

Note: This report includes all applicable reciprocating compressor affected facilities constructed during the reporting period.

Reciprocating Compressor ID	Latitude	Longitude	Cumulative hours operated since Installation
Sugg A 143 Unit 1	31.58412	-101.3873	8410
Sugg A 143 Unit 2	31.58412	-101.3873	8424
Sugg A 143 Unit 3	31.58412	-101.3873	7638
Sugg A 143 Unit 4	31.58412	-101.3873	8015
Sugg A 143 Unit 5	31.58412	-101.3873	8502
P-Dog Unit 1	31.58264	-101.46651	6331
P-Dog Unit 2	31.58264	-101.46651	5526
P-Dog Unit 3	31.58264	-101.46651	8774
P-Dog Unit 4	31.58264	-101.46651	7693
D Schaefer OU 15-47 (Alloc E) 5RU	31.63928	-101.42178	5880
Sugg C 191 Comp	31.50664	-101.45	6171

LAREDO PETROLEUM, INC.

40 CFR 60 SUBPART OOOOa | ANNUAL REPORT

REPORTING PERIOD: 8/2/17 to 8/2/18

Affected Facility: Pneumatic Pumps

A single natural gas-driven diaphragm pump.

Site Name	Latitude	Longitude	Is a control device on site?	A control device has been added to the site	Control Device or Process is on site but unfeasible	Date (month and year) of installation, reconstruction or modification	Deviations	Comments
Barbee C 1 Central North	31.67182	-101.33474	No	NA	Yes	12/31/2016	none	
G Schwartz IP #1	31.73629	-101.40094	No	NA	Yes	8/4/2016	none	
P Dog Unit #4	31.58271	-101.46663	Yes	NA	Yes	6/17/2017	none	
D Schaefer OU 15-47 E 5RU	31.63922	-101.42177	No	NA	Yes	12/1/2017	none	
Sugg D 104 Comp Unit #2	31.55531	-101.33613	No	NA	Yes	10/19/2017	none	

Stateless Engineering
3323 N. Midland Dr. Ste 113-111
Midland, Texas 79707
432-203-3036
stateless.engineering

Firm: 19998

Laredo Petroleum

Texas Facilities

Diaphragm Pump Study

Mr. Rose,

This certification is to comply with NSPS OOOOa, specifically 60.5393a (b)(5)(iii) that states that "The assessment of technical feasibility to route emissions from the pneumatic pump to an existing control device onsite or to a process shall include but is not limited to, safety considerations, distance from the control device, pressure losses and differentials in the closed vent system and the ability of the control device to handle the pneumatic pump emissions which are routed to them."

I certify that the following assessment of technical infeasibility was prepared under my direction or supervision. I further certify that the following assessment was conducted and this report was prepared pursuant to the requirements of 60.5393a (b)(5)(iii). Based on my professional knowledge and experience, and inquiry of personnel involved in the following assessment, the certification submitted herein is true, accurate, and complete. I am aware that there are penalties for knowingly submitting false information.

Facilities:
P-Dog Compressor Station- Laredo Petroleum (Midstream)
G Schwartz Intermediate Pad
Barbee C1 Central North
D Schaefer OU 15-47 E 5RU
Sugg D 104 Compressor Unit 2

STATE OF TEXAS
TAYLOR W. CRISP
125017
LICENSED
PROFESSIONAL ENGINEER

10/01/20108 Taylor Crisp, P.E. 125017

Purpose

The purpose of this study is to examine the feasibility of rerouting the emissions of diaphragm pumps located at multiple facilities back to the process or to an emission control device. The study was initiated in order to comply with the NSPS 0000a requirement that the owner/operator must conduct an engineering assessment of technical feasibility in order to pursue an exception to 60.5393a (b)(2).

Scope

The applicability of this study is for the following facilities:

- P-Dog Compressor Station
- G Schwartz Intermediate pad
- Barbee C1 Central North
- D Schaefer OU 15-47 E 5RU
- Sugg D 104 Compressor Unit 2

The following aspects of rerouting emissions will be discussed:

- Safety
- Environmental impact
- Pressure losses (Pressure differential available to run the pump)
- Other technical concerns

Due to the small size of the pump and correspondingly low exhaust flow, the ability of the VRU at the P-Dog facility to handle the flow and the differential induced on the existing closed vent system are assumed to be non-issues and are not discussed further.

Description of Facilities

On September 20th 2018, five sites were visited in order to collect information on pumps, facility layout and operating pressures. Of the five sites, only two were considered relevant to this study(three sites utilized blowcases for skid drains). The two facilities visited that were both affected per the 0000a, and did not qualify for another exception. These two facilities were presented as typical of the other affected, non-exempt facilities by Laredo.

The P-Dog facility has four compressors, a slop tank battery of two tanks with adjacent VRU and some separation equipment. An existing ~425 foot run of 2 inch pipe is between the pump and tank battery. The Sugg D facility has only one compressor utilizing a diaphragm pump. The Sugg D facility has no control device available.

Feasibility Discussion

At the P-Dog facility, motive gas is provided from purchased gas coming into the facility at 150 PSIG. The pressure rating of the pump is 100 PSIG. The facility process inlet (the lowest pressure, usable process stream identified) was running at 70 PSIG during the site visit. This would provide only 30 PSID to drive the pump. This will result in at least an 8 GPM lower flow rate than the original design and inhibit skid draining.

At Sugg D, motive gas is provided from the suction side of the compressor. Because of the nature of the process, this is the lowest pressure stream available. Also, a regulator is used to prevent exceeding the pressure rating of the pump. It is therefore technically infeasible, to route emissions back to the process as doing so would result in zero or negative motive to the pump. Doing so would also create a potential to expose the gas discharge of the pump to pressures higher than it is rated for.

At the P-Dog facility, the only nearby tie in that would lead to the existing control device is the closed drain header. Scrubbers from all four compressors tie into the closed drain line. During the visit, the discharge scrubbers were running at approximately 150 PSIG. This would mean, that in the case of a blocked or plugged closed drain line, the rating of the gas discharge of the diaphragm pump would be exceeded. In this particular service (standing corrosive liquid), the use of a check valve to prevent overpressure would not be reliable protection.

From a safety perspective, anyone standing near the over pressured pump would be at risk of being exposed to high pressure, toxic and flammable liquid.

A seal ruptured during an over pressure event, could allow significant amounts of condensate and lubricant onto the surrounding ground. Rerouting the exhaust gas to the closed drain would also have an adverse effect on the ability of the pump to function to specification anytime a compressor scrubber is dumping liquids. This inability of the pump to operate could prevent the pump from draining the skid at the designed rate and cause fluids to over-top the compressor skid containment.

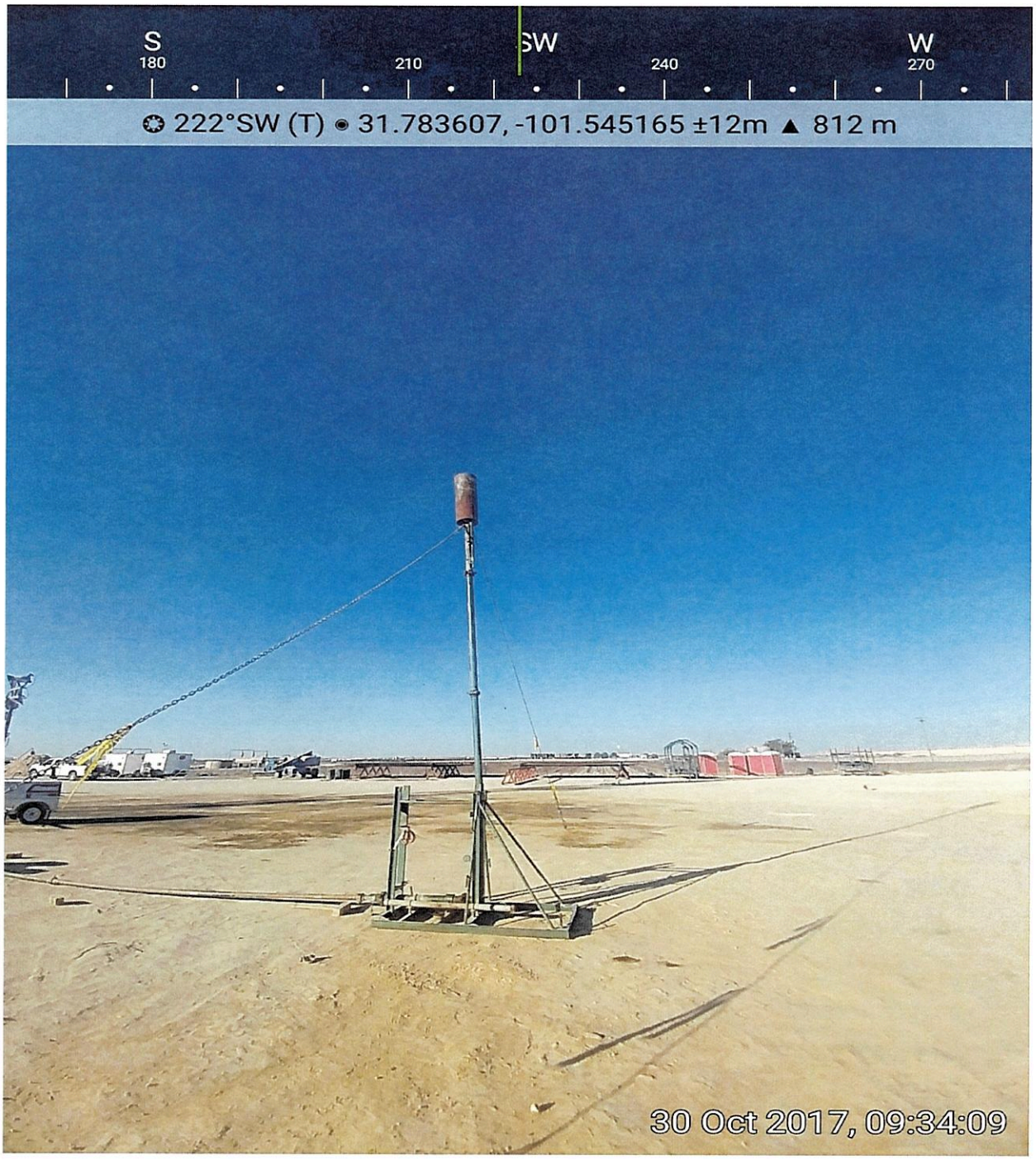
Conclusion

Due to the safety, environmental and technical issues associated, rerouting of exhaust gas to the exiting control devices should be considered infeasible. This analysis and conclusion would also hold true for facilities matching the two which were visited.

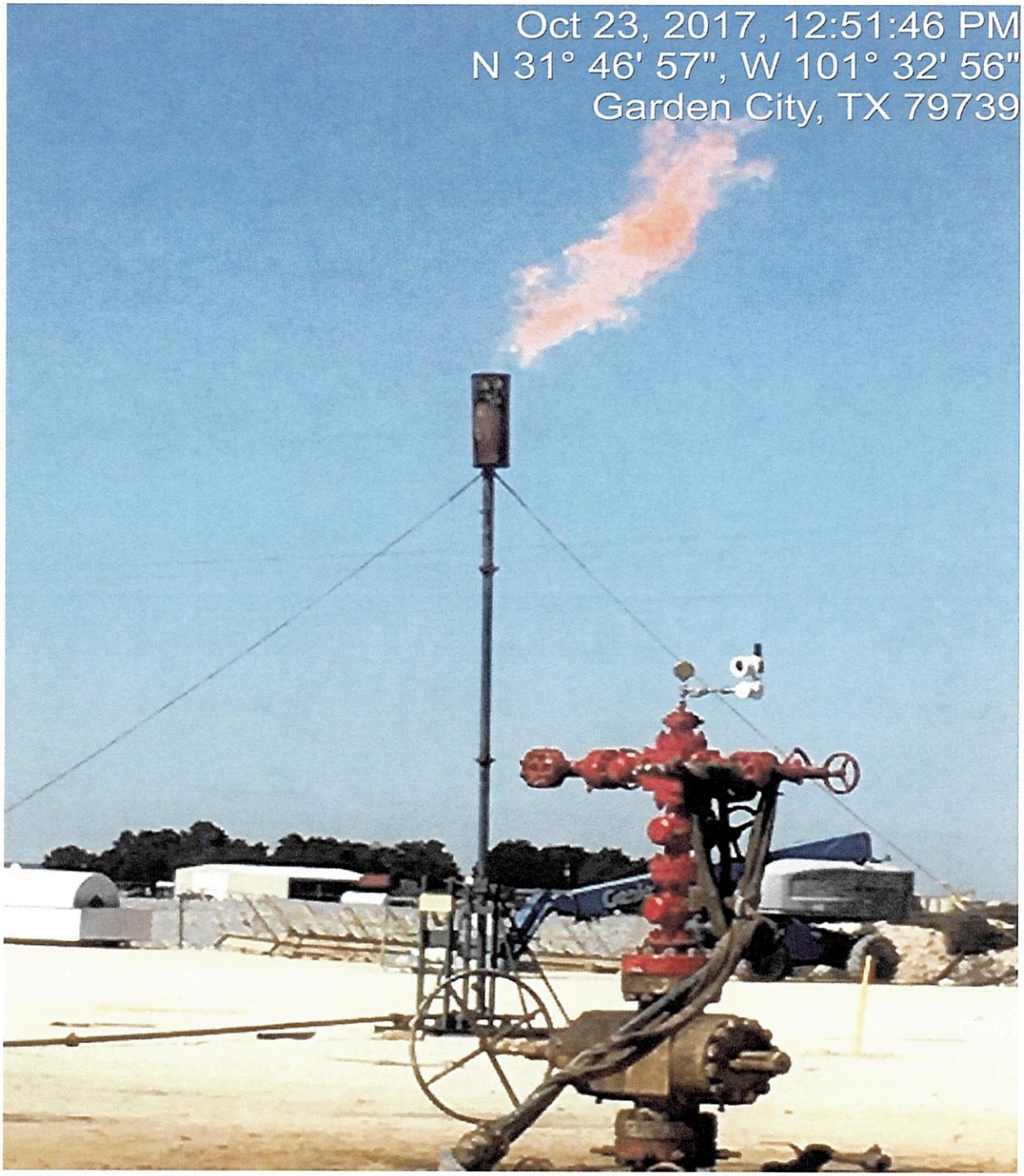
Appendix A

Completion Photographs

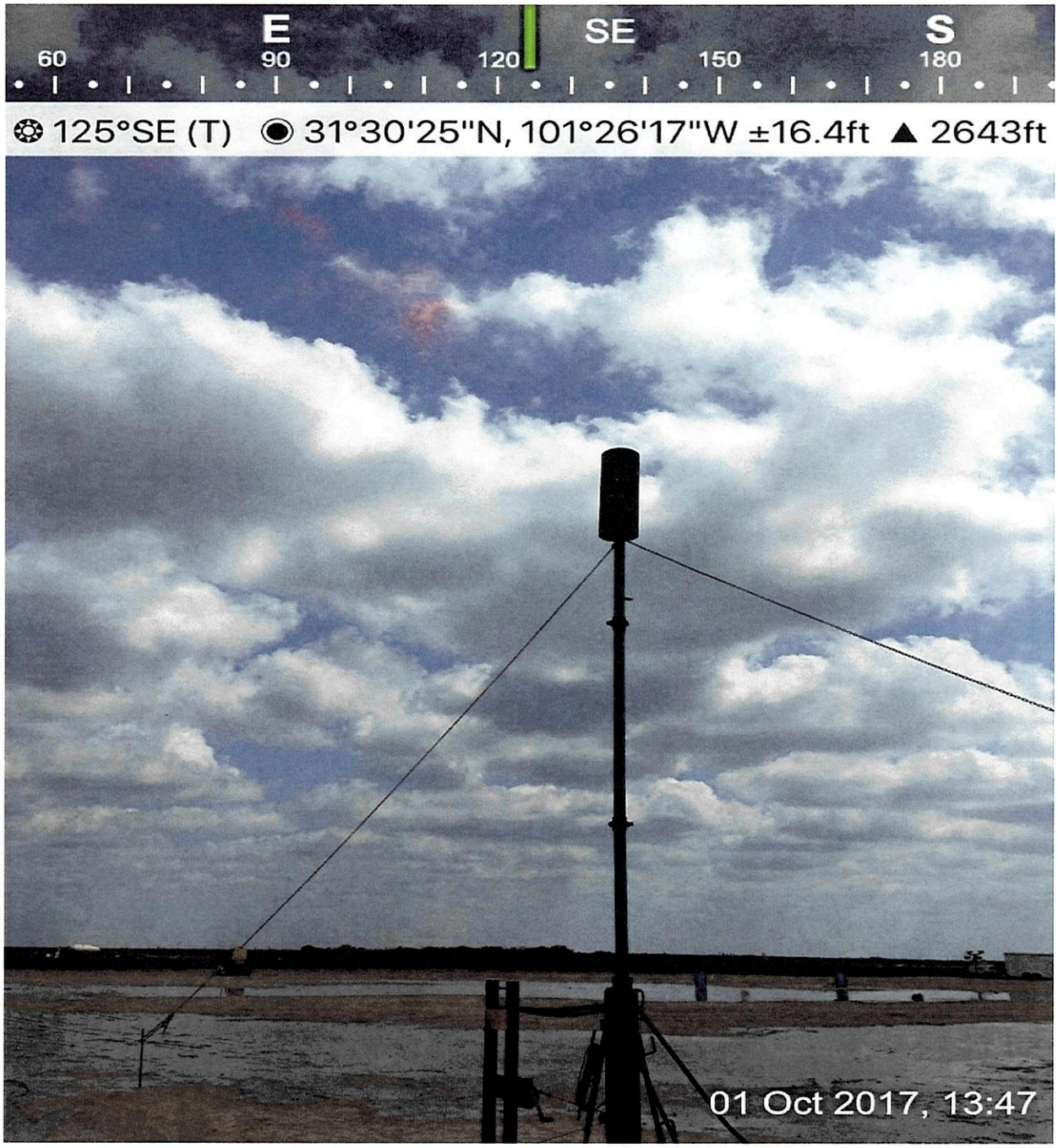
LPI Kloesel 31-19 4NM & LPI Kloesel 31-19 3NU



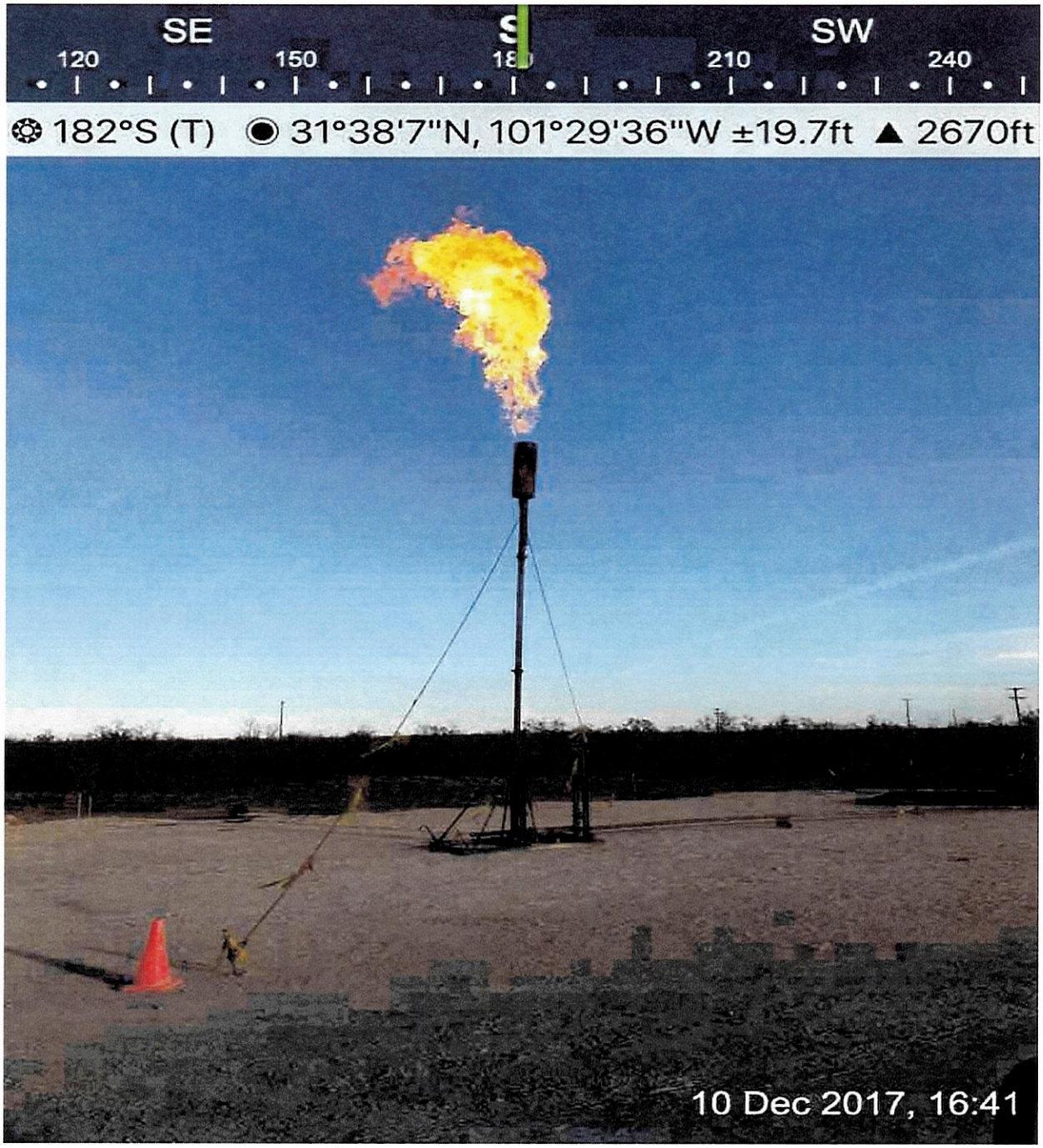
LPI Kloesel 31-19 A 1NL & LPI Kloesel 31-19 B 2NU



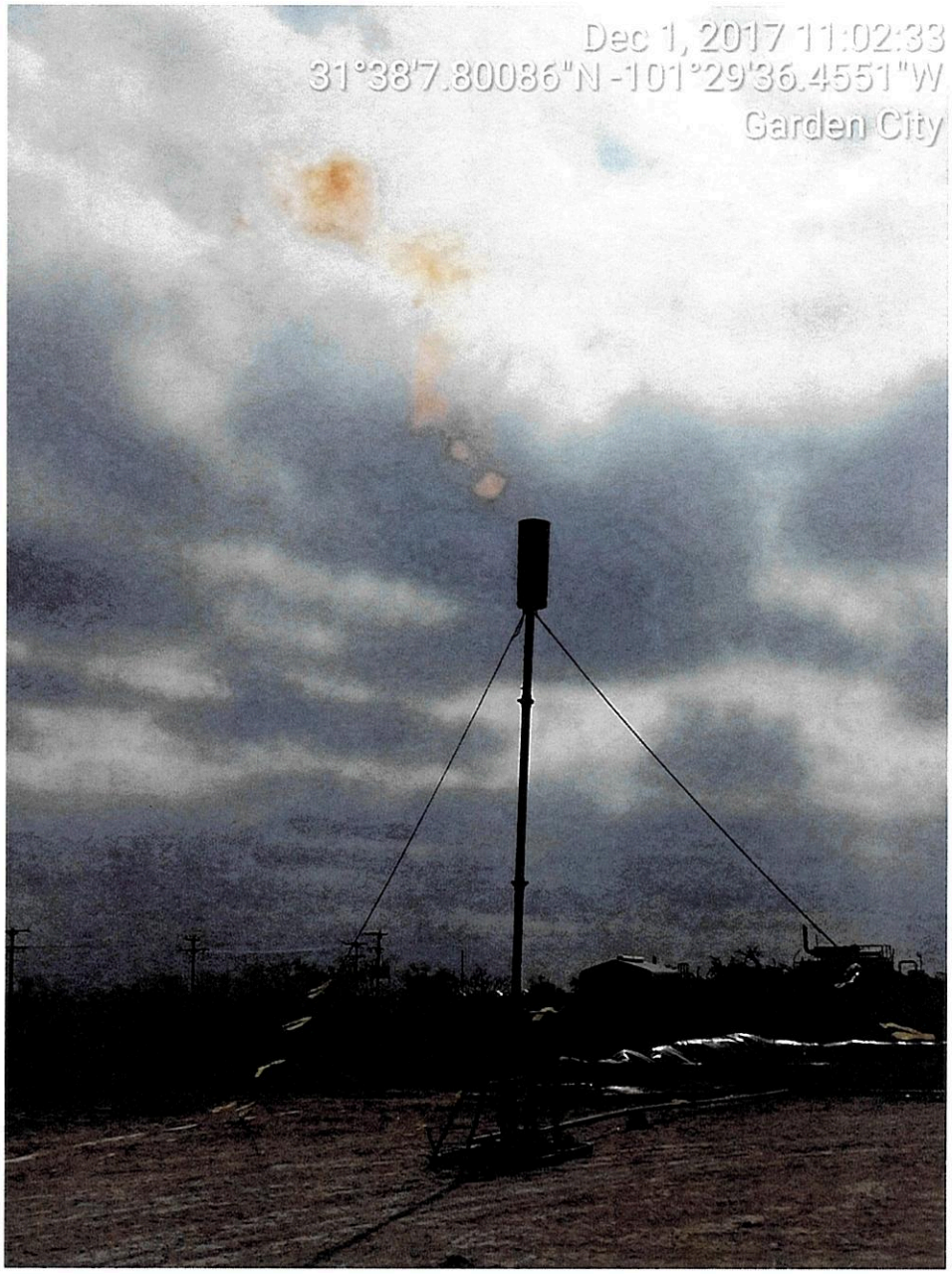
Book A 190-28 4SM



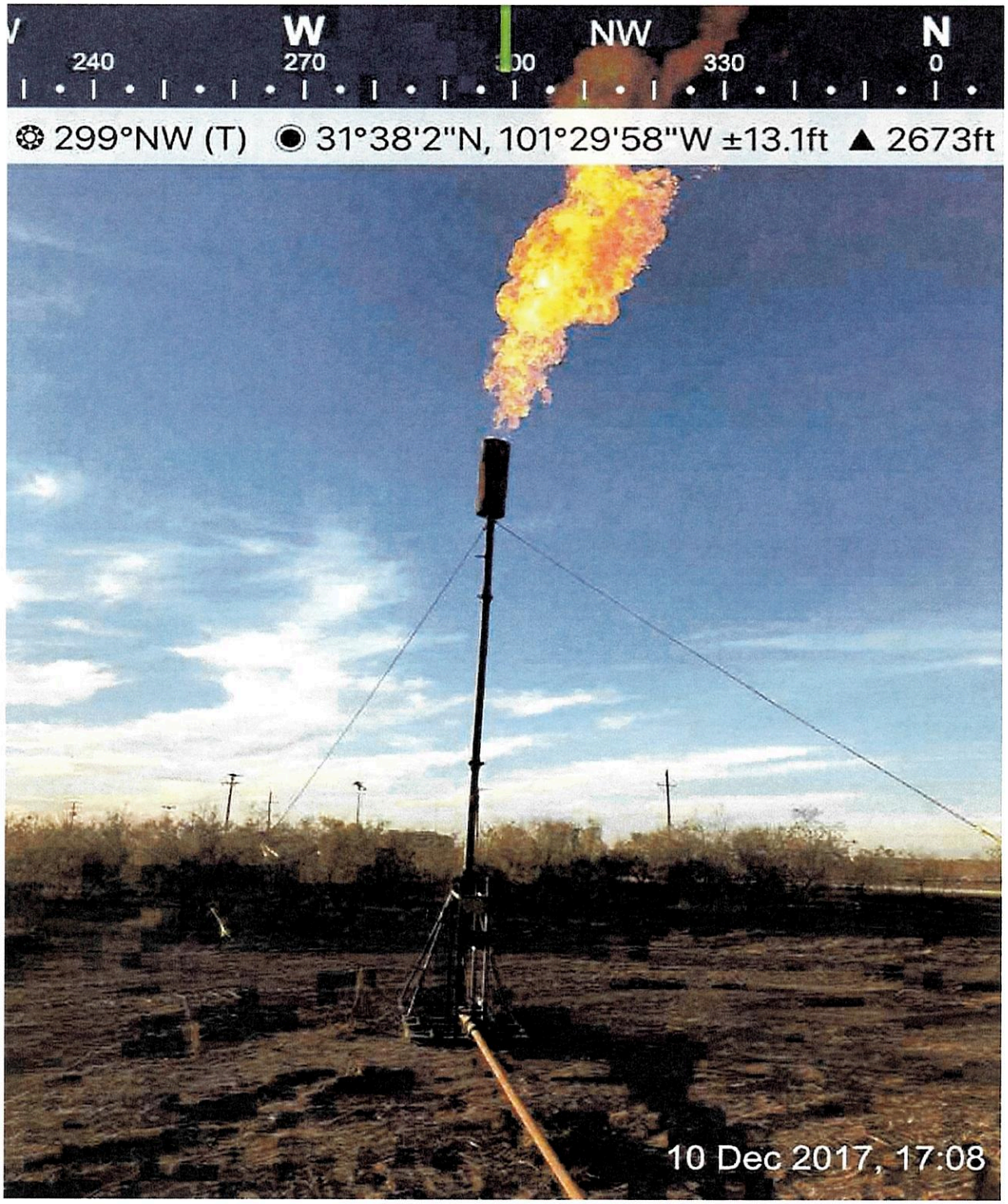
Lane Trust E 43-42 E 5NU



Lane Trust E 43-42 F 6NM

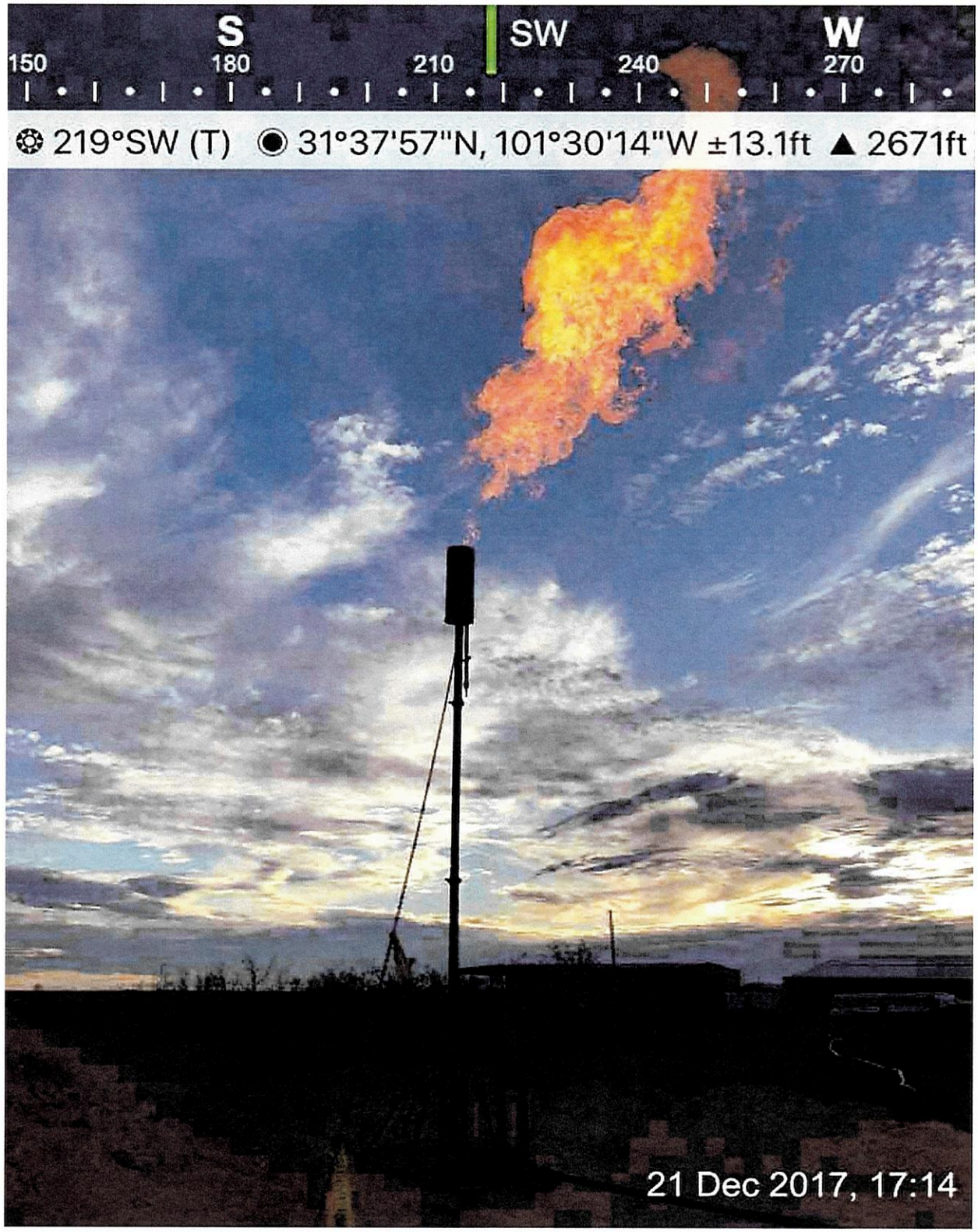


Lane Trust E 43-42 C 3NM

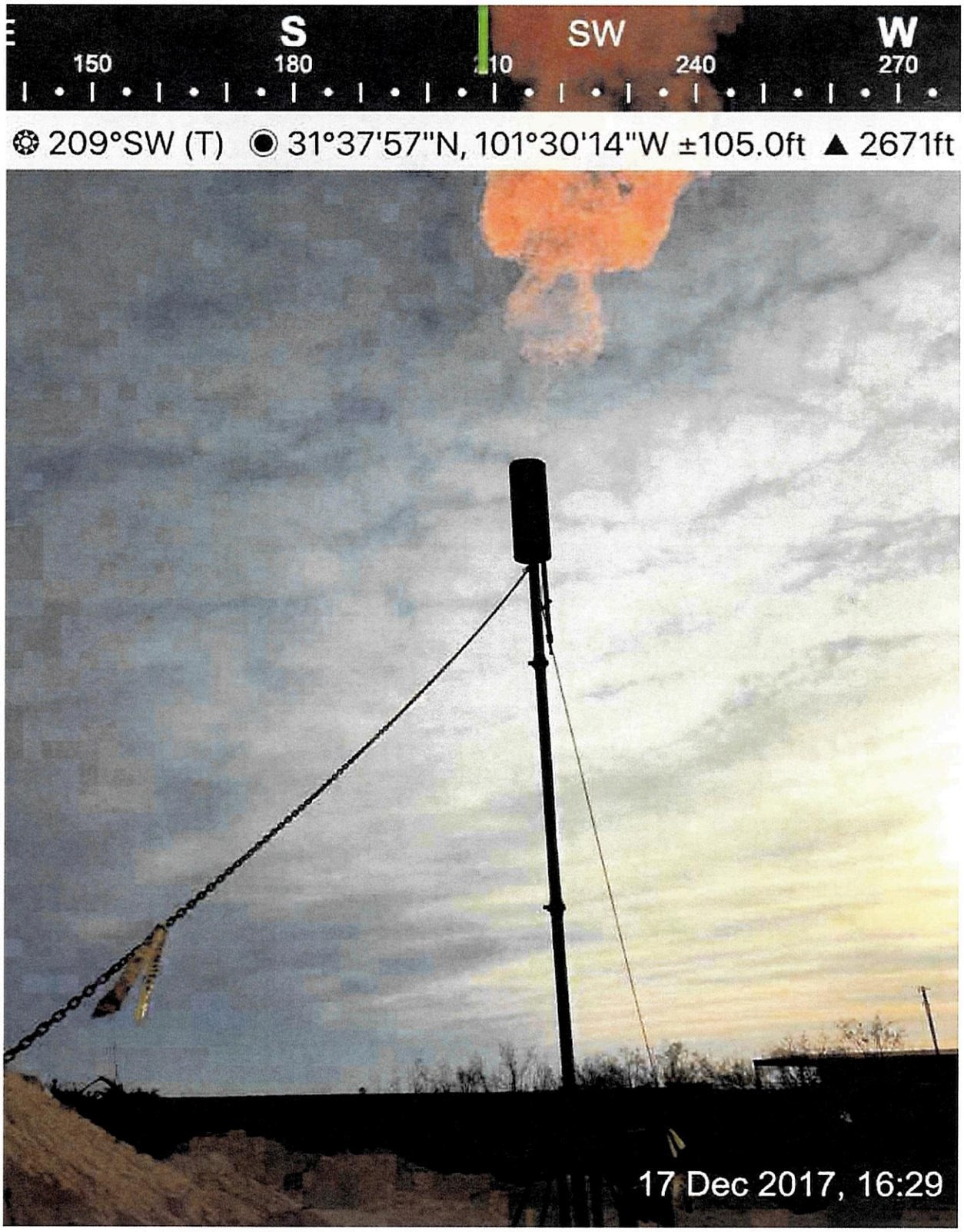


Lane Trust E 43-42 D 4NU

Lane Trust E 43-42 A 1NU

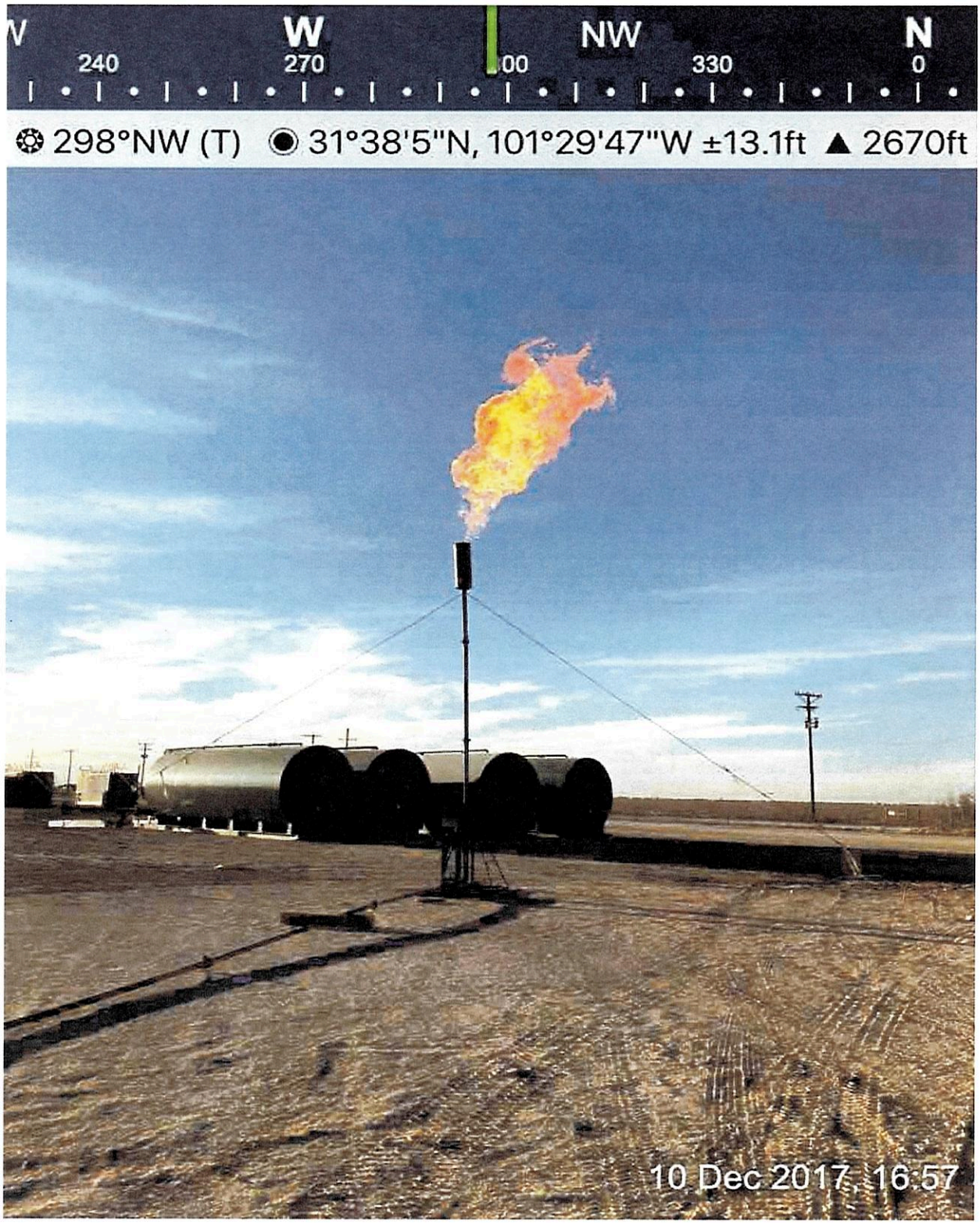


Lane Trust E 43-42 A 1NL

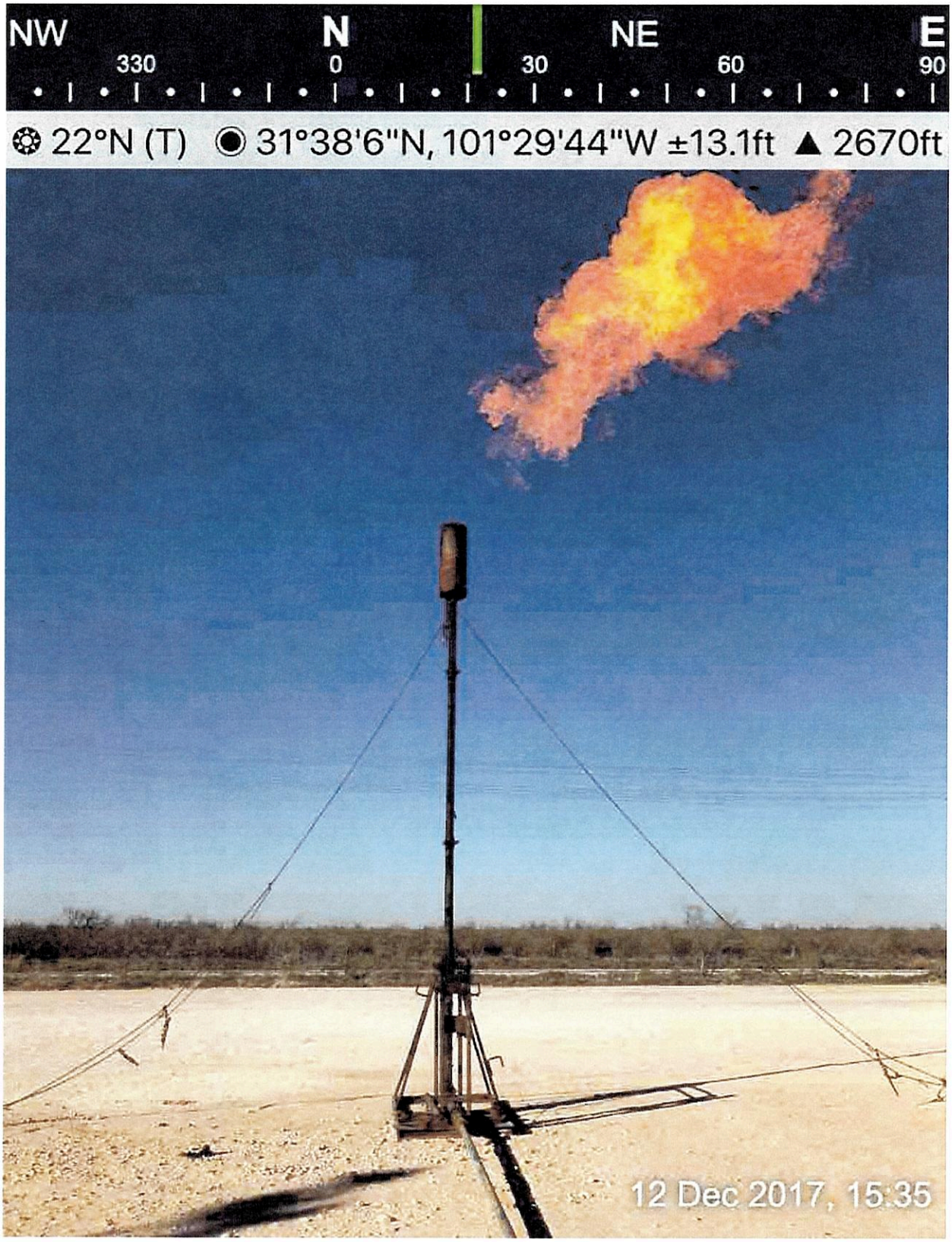


Lane Trust E 43-42 A 1NM

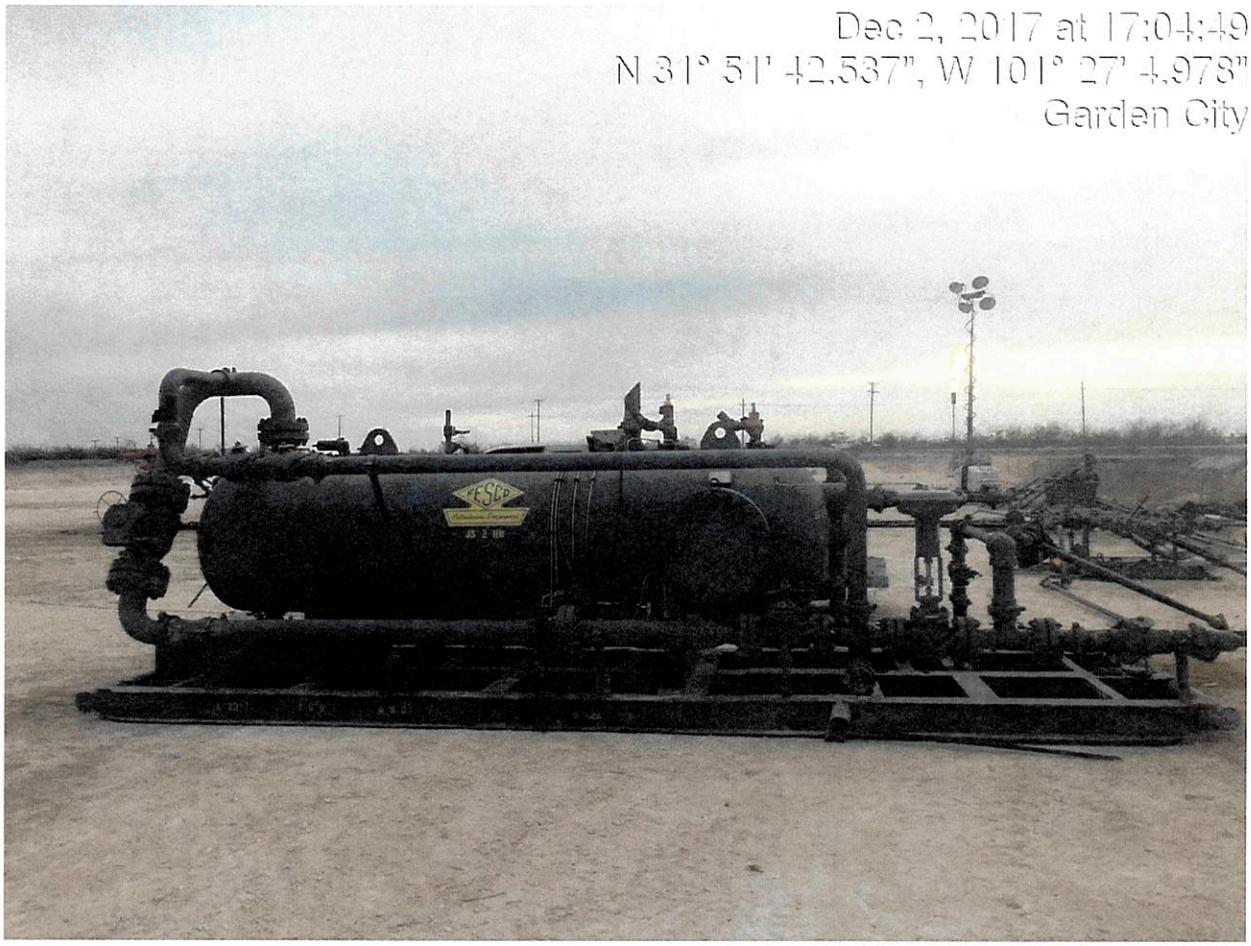
Lane Trust E 43-42 E 5NM



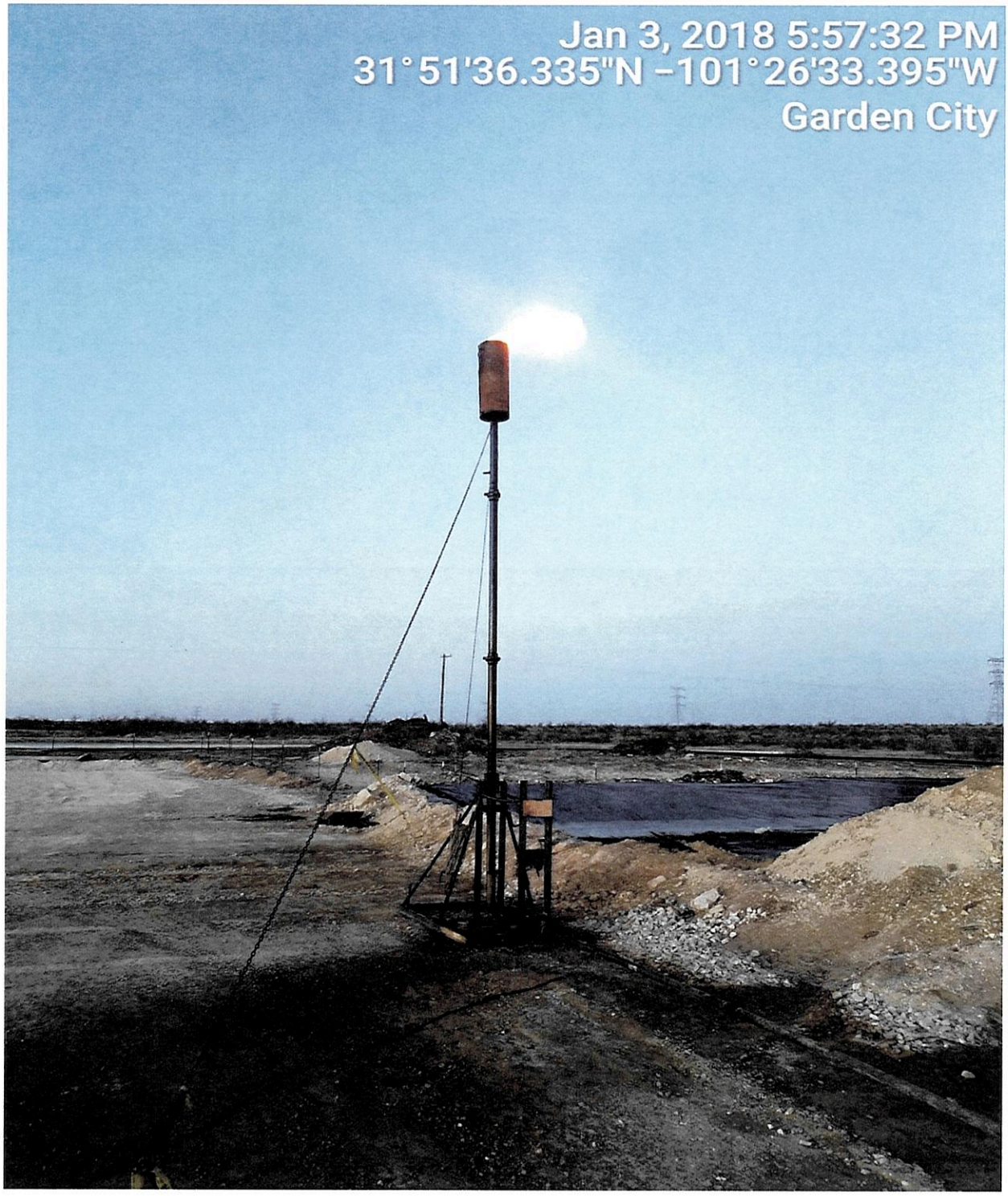
Lane Trust E 43-42 E 5NL



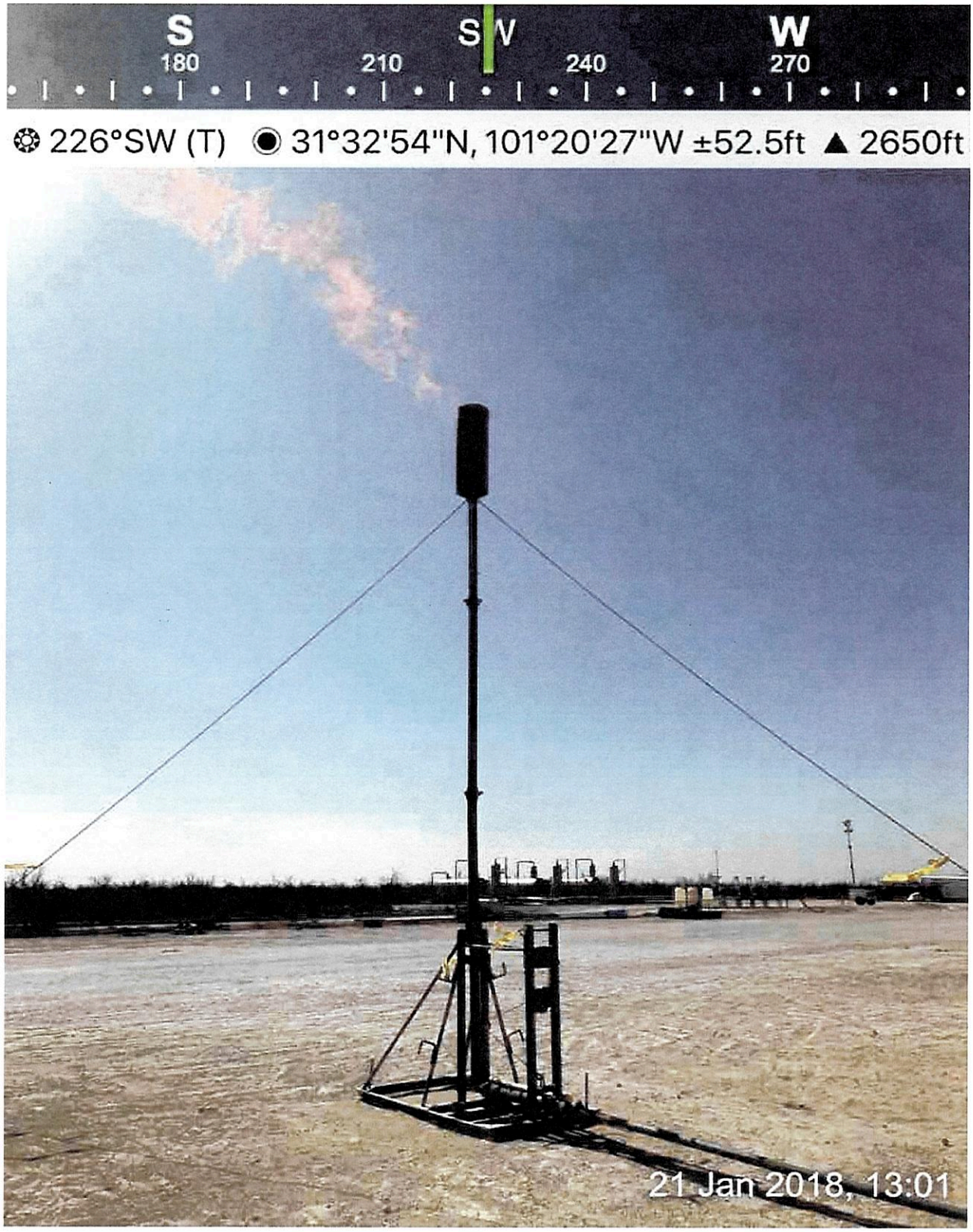
Bearkat 8-5 A 1NC



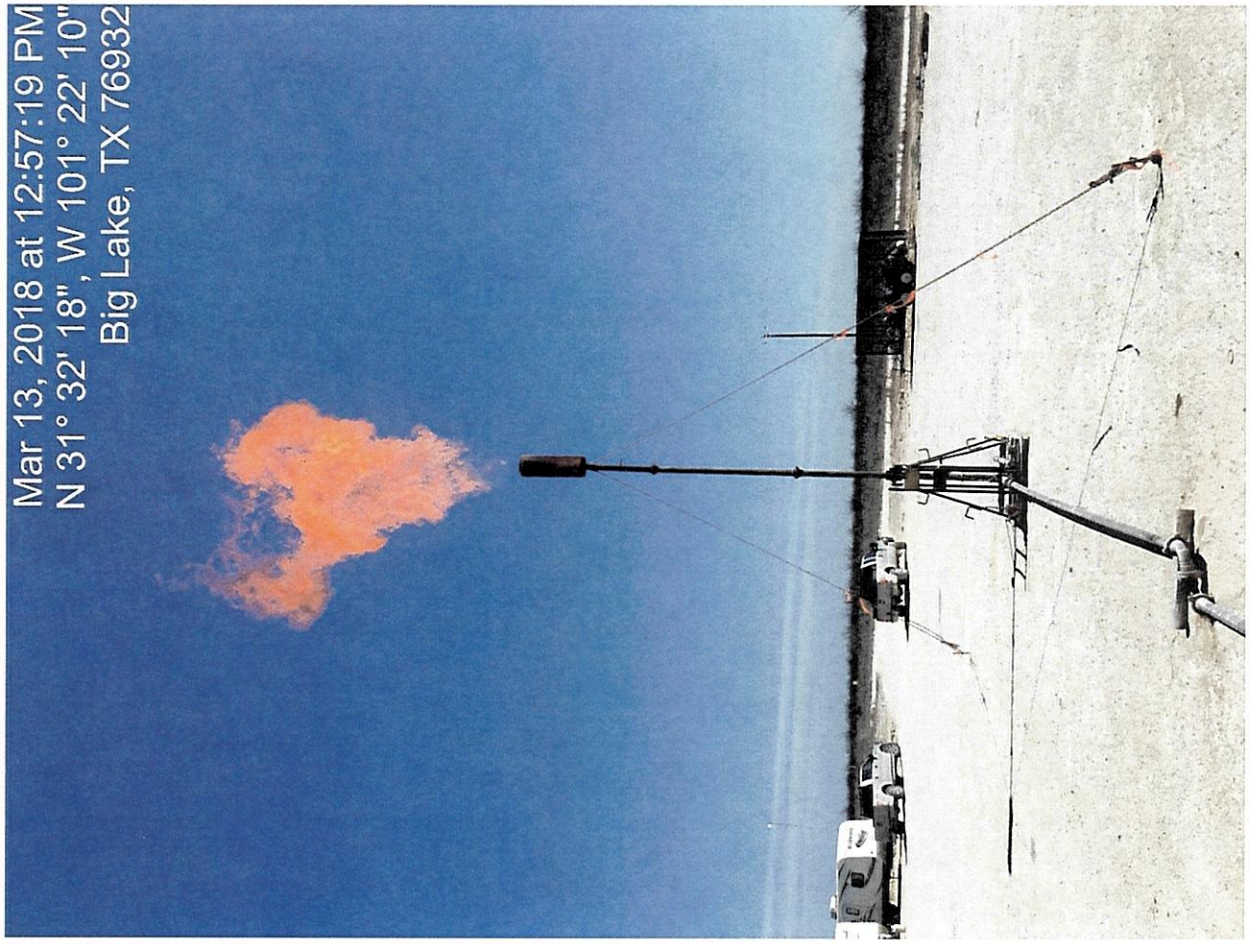
Bearlat 8-5 D 4NC



Sugg D 105 1NU

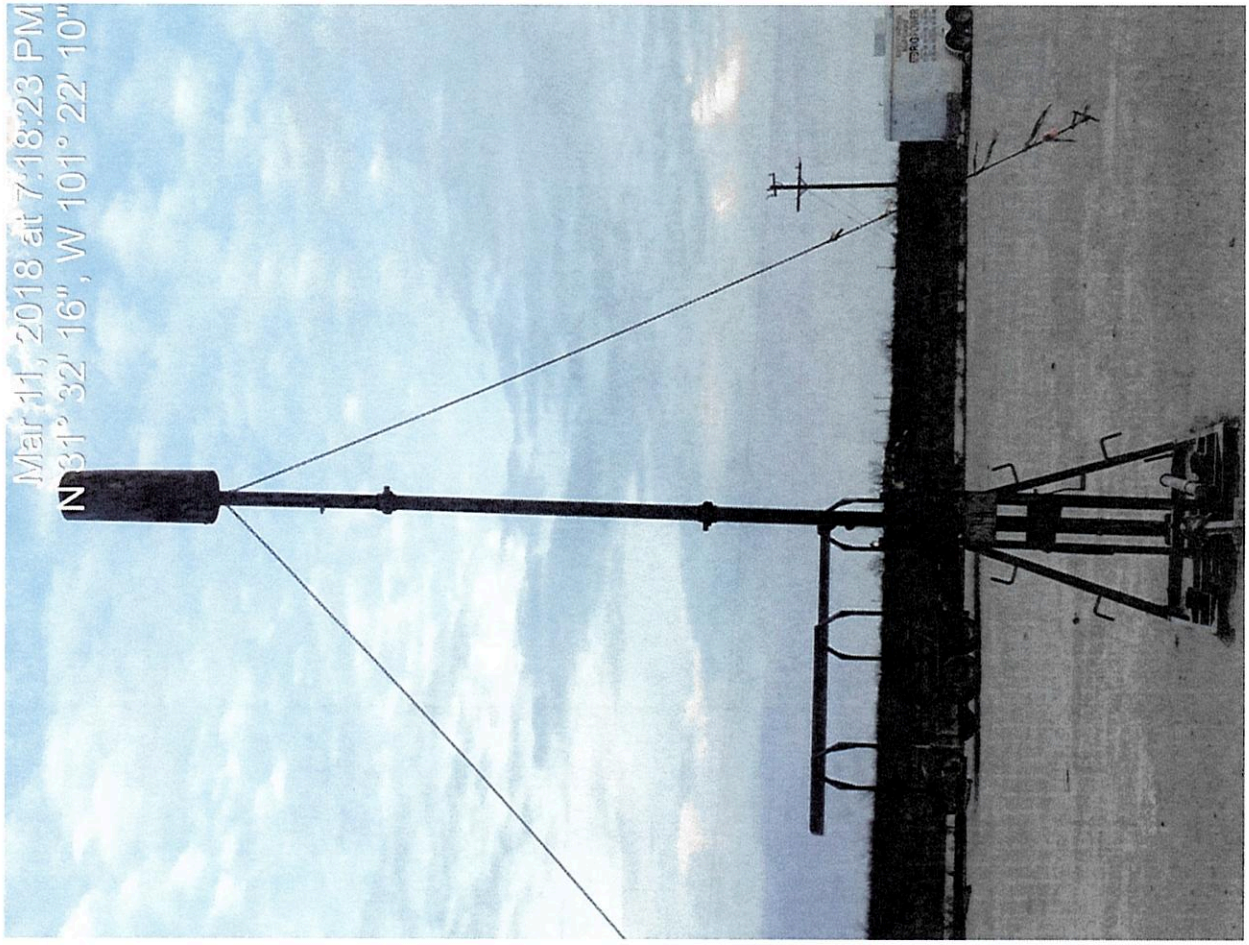


Sugg B 133-135 D 4SM & Sugg B 133-135 D 4SU

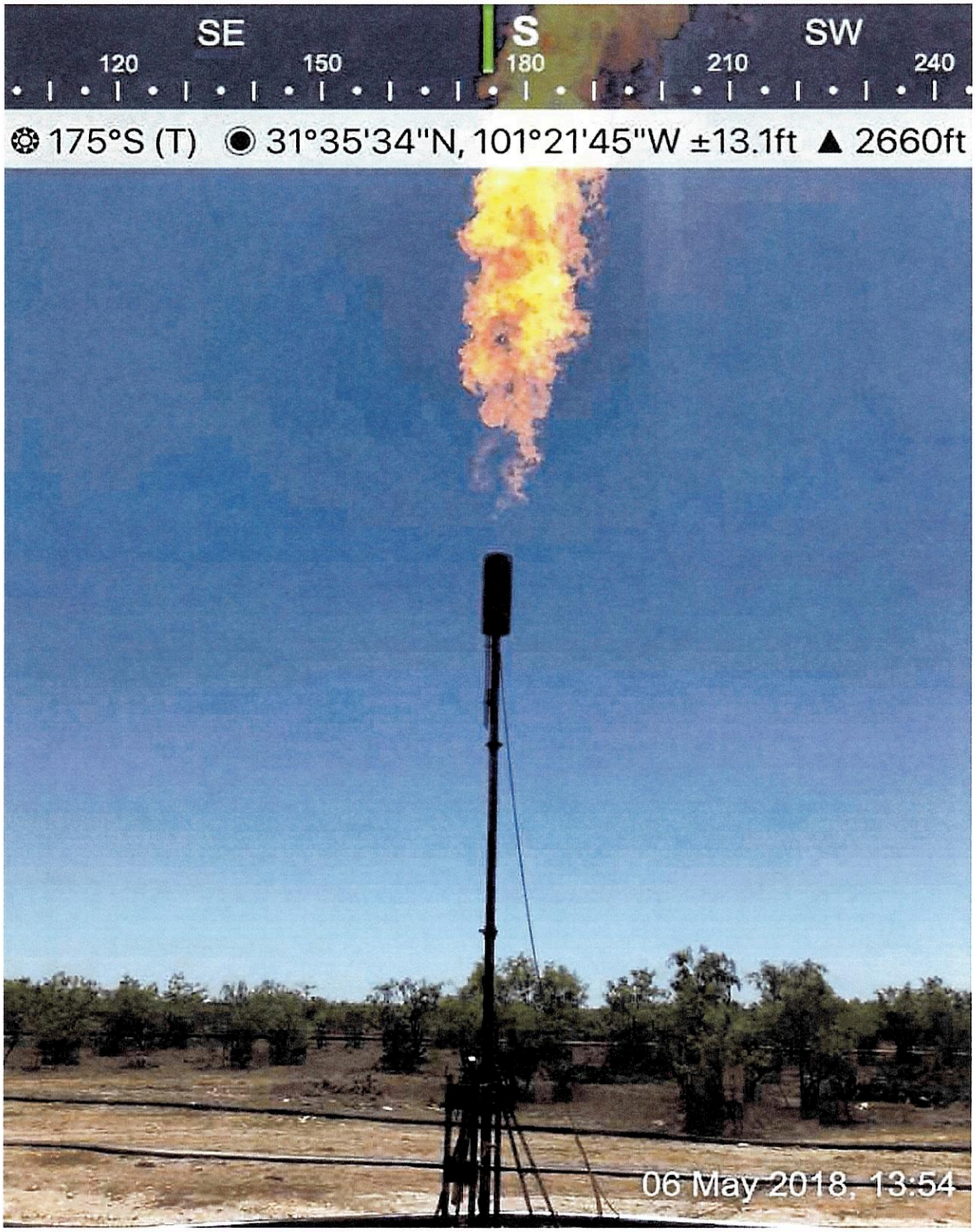


Barbee B 2-1 G 7SU & Barbee B 2-1 F 6SU

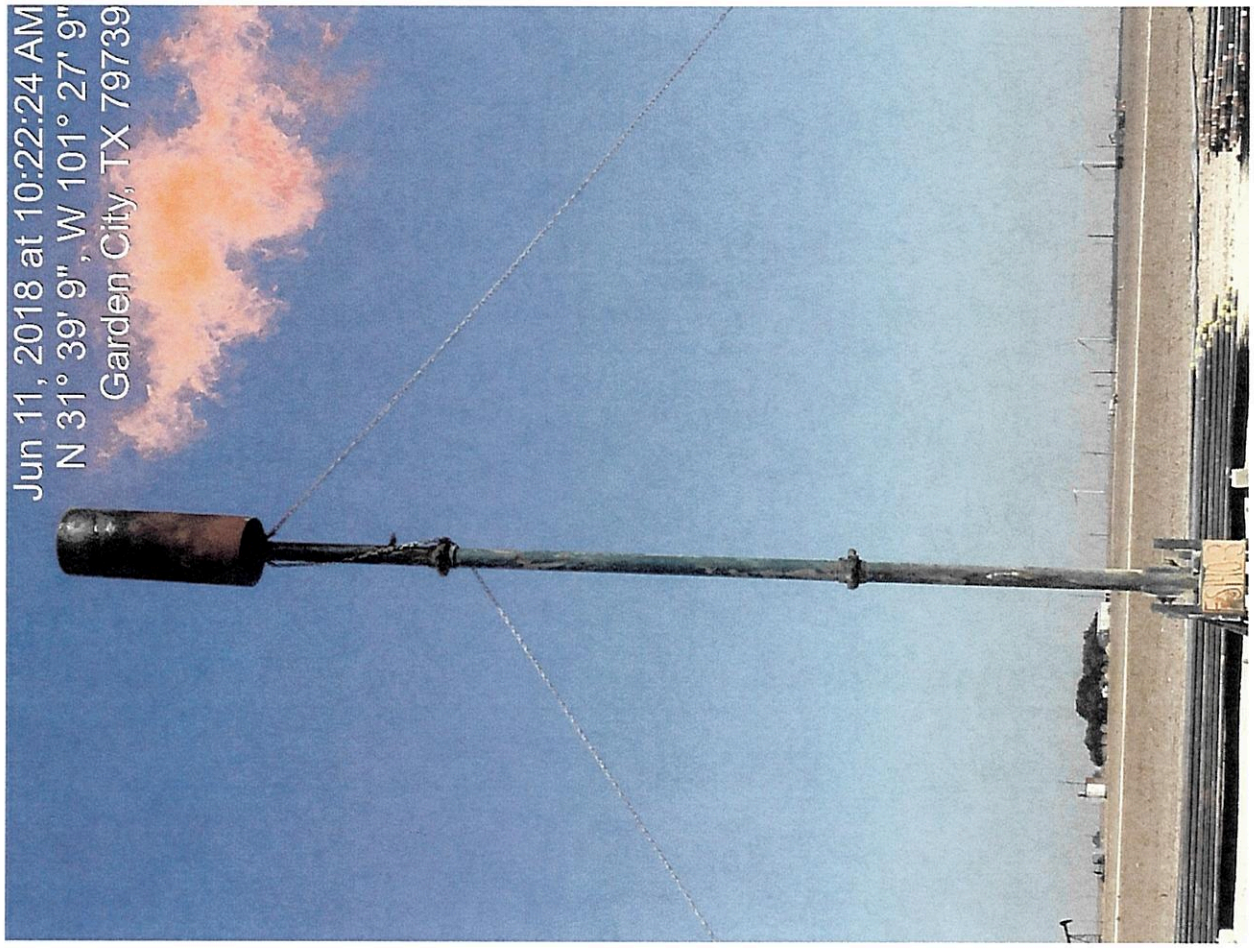
Sugg B 133 5 SM



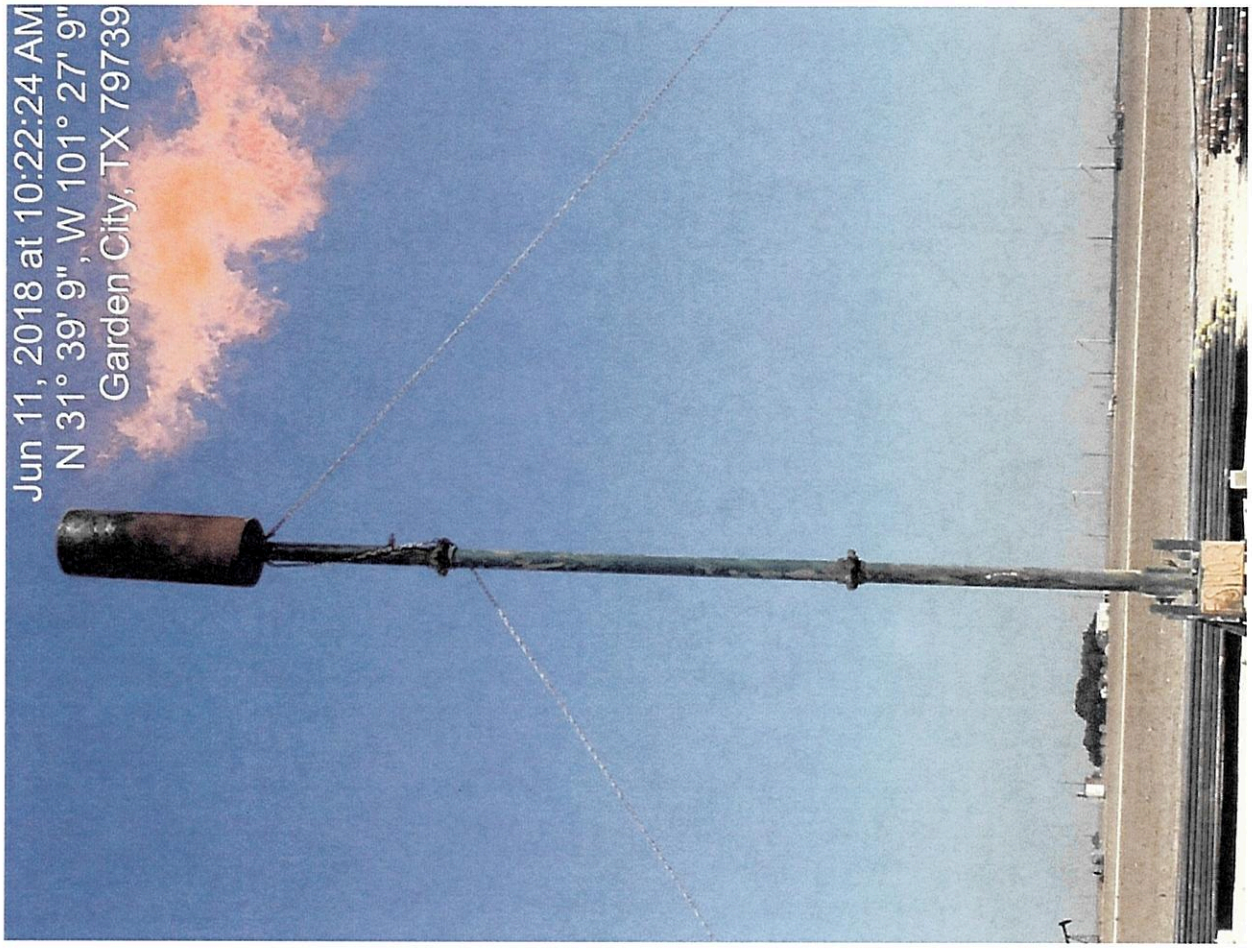
Holt E 130-132 H 8SU



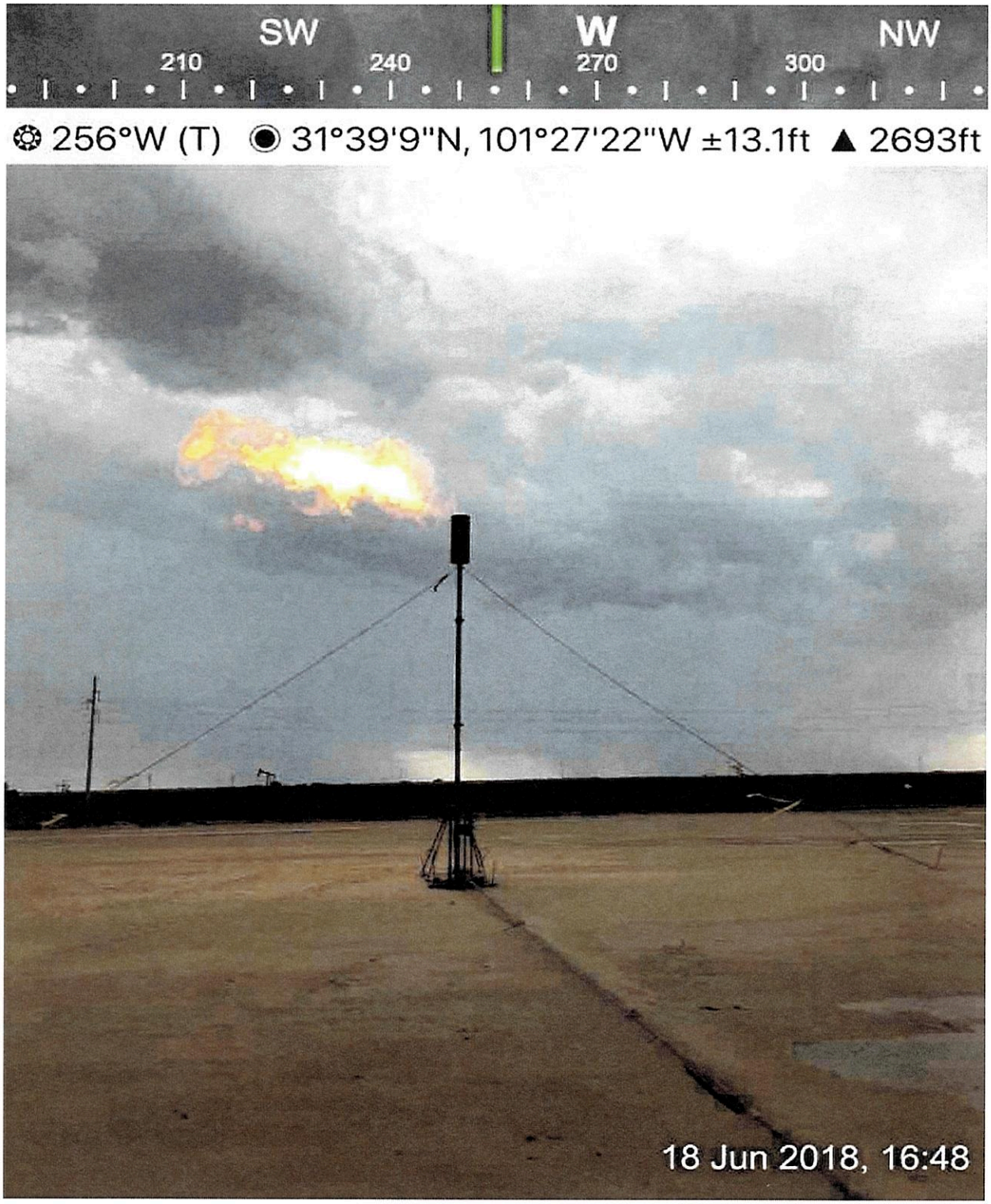
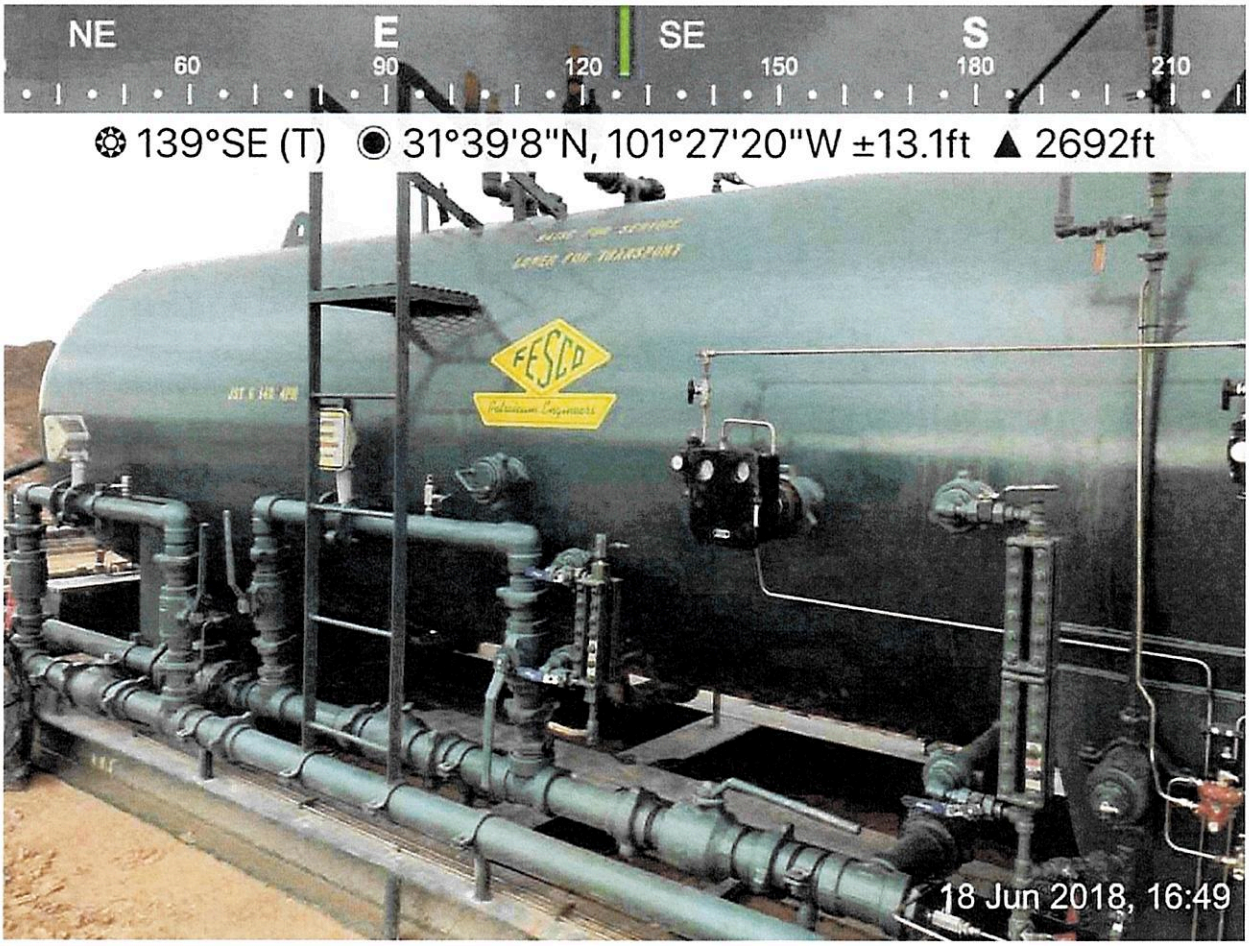
Fuchs F 46-34 C 3NU & Fuchs F 46-34 C 3NM



Fuchs F 46-34 D 4NM & Fuchs F 46-34 D 4NU



Fuchs F 46-34 B 2NM



Fuchs F 46-34 B 2NU