OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE, NEW MEXICO

June 23, 1958

COPY

Mr. William Kastler
Gulf Oil Corporation
P.O. Box 669
Roswell, New Mexico

Dear Mr. Kastler:

We enclose two copies of Order R-1093-A issued June 18, 1958, by the Oil Conservation Commission in Case 1337, which was heard on June 11th at Santa Fe before an examiner.

Please note that this order requires that each meter installed in the subject system shall be tested for accuracy at intervals and in a manner satisfactory to the Commission. It will be necessary for you to run a series of tests of sufficient duration to determine that the meters are functioning properly immediately following installation. Thereafter tests should be made at intervals not to exceed one month and a report of said calibration filed with the Commission. The meters shall be calibrated against a master meter or against a test tank of measured volume.

Very truly yours,

A. L. Porter, Jr.
Secretary - Director

ALP/DSN:bp
Encls.

Case 1337

OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE, NEW MEXICO

March 3, 1958

COPY

Mr. W. A. Shellshear
Gulf Oil Corporation
P.O. Drawer 669
Roswell, New Mexico

Dear Mr. Shellshear:

Reference is made to your letter of February 24, 1958, wherein you note that the "continuous series of tests" required by our letter of December 6, 1957, on the dump type meter utilized in the automatic custody transfer system authorized for installation on Gulf's Learcy McBuffington Lease in the Justis Pool, Lea County, New Mexico, by Order No. R-1093 would not be feasible in that the production from the lease is not closed in while oil is run from the 1,000 barrel surge tank through the positive displacement meter into the pipeline.

We feel, inasmuch as the use of dump type meters is relatively new, particularly to measure oil that will be commingled from two separate pools, that an adequate series of tests should be run in order to determine the accuracy of said meters. Gulf Oil Corporation is, therefore, directed to so schedule a series of tests on these meters to provide that a minimum of fifteen tests will be conducted prior to the commingling of any oil from the two separate pools. This series of tests should provide the necessary information as to the accuracy of the meters. Upon completion of this series of tests, check tests shall be run at intervals not to exceed one month to determine that the accuracy is being maintained.

Yours very truly,

A. L. Porter, Jr.
Secretary - Director

ALP/DSN:bp

PETROLEUM AND ITS PRODUCTS

GULF OIL CORPORATION

P. O. DRAWER 669 • ROSWELL, NEW MEXICO

W. A. SHELLSHEAR
DISTRICT MANAGER

FORT WORTH
PRODUCTION DIVISION

February 24, 1958

Oil Conservation Commission
State of New Mexico
Post Office Box 871
Santa Fe, New Mexico

Gentlemen:

In Case No. 1337 the New Mexico Oil Conservation Commission approved the installation of a lease automatic custody transfer system for operation of Gulf's Learcy McBuffington Lease in the Justis Pool, Lea County, New Mexico. This lease is located in the S/2 of Section 13, T-25S, R-37E. It will be recalled that during the hearing on this application questions were asked regarding the feasibility of comparing oil volumes measured by the dump type meters and hand gauging. Subsequent to issuance of Order No. R-1093 in this case, we received your letter dated December 6, 1957, requesting that a continuous series of tests be made comparing metered volume through the dump type meter and those in the 1,000 barrel tank. We wish to call your attention to the fact that as this system operates on an automatic custody transfer basis, it is not possible to accurately hand gauge the volume of oil entering the 1,000 barrel surge tank. You will recall that operation of this system is such that as the tank fills to a predetermined level, it automatically turns on the pipeline pump. When a predetermined lower level is reached, the pump automatically shuts off. However, during this period of time production from the lease is not closed in, but continues to produce into the 1,000 barrel tank. It is, therefore, not feasible to obtain a "continuous" comparison of these readings as long as the system operates on an automatic basis.

You might be interested in knowing that the automatic custody phase of this installation has been operating since late December, 1957, however, since only one pay has been produced into the battery the commingling feature of the system has not been placed into operation. Equipment has been ordered and delivery has been promised by late March, 1958. Of course permanent installation and initial testing will be made at a later date.

We are probably more interested than the Commission in determining that accurate meter measurements are made from the dump type meters. It is our plan to make two or three tests per month to determine the accuracy of the dump type meter. During this time we plan to turn off the pipeline pump entirely, taking a gauge of the amount of oil in the tank, then a certain amount of production will be passed through the dump type meters into the 1,000 barrel surge tank and

a subsequent gauge made. By comparing the difference in the beginning and ending gauge we can determine the amount of production which has been made in the surge tank during the test period. A comparison of this volume with the dump type meter volume will give us an analysis on the difference between the metered volume and hand gauged volume. Although we have not set up a test schedule, we anticipate testing in this manner two or three times per month, or as often as necessary until we are assured the meter is working satisfactorily and then possibly reducing the test time to one day each month for the remaining period of installation. We would like to request that the Commission consider the feasibility of testing in this manner and accept the data which we would obtain from these tests in lieu of that required by your letter of December 6, 1957.

Yours very truly,

W. A. SHELLSHEAR

PROOF OF DUMP METER ON LEARCY McBUFFINGTON LEASE - ELLENBURGER PAY
TEST TANK - 1,000 BBLS.

		MANUAL GAUGING								DUMP METER					
	(1)	(2)		(3)	(4)	(5)		(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
	DATE 1958	STARTING GAUGE FT.	IN.	TEMP.	CORR. VOL.	CLOSING GAUGE FT.	IN.	TEMP.	CORR. VOL.	DIFF.IN VOLUMES (7 - 4)	START	FINAL	METERED VOLS. (10 - 9)	VOL.DIFF. IN BBLS. METER VS MANUAL (11 - 8)	PER CENT DIFFERENCE	REMARKS
	9-16	8	7-1/2	82°	639.27	13	0	81°	856.59	217.32	772.59	996.79	224.20	+ 6.88	+ 3.17	
	9-23	7	5-3/4	92	498.83	11	5-3/4	81	758.71	259.88	73.56	334.28	260.72	+ 0.84	+ 0.32	
	9-30	7	3-3/4	85	489.91	13	5-1/2	88	882.92	393.01	368.35	763.69	395.34	+ 2.33	+ 0.59	Compensater had run out of fluid.
	9-2	8	1	90	936.00	12	11-3/4	90	707.36	249.36	285.00	536.00	251.00	+ 1.64	+ 0.66	
	9-5	8	7	90	570.02	10	11-1/2	90	722.02	152.01	888.00	1041.00	153.00	+ 0.99	+ 0.65	
	9-6	8	4	86	559.14	12	1-1/2	90	796.69	241.55	804.70	1049.50	244.80	+ 3.25	+ 1.33	
	9-8	7	3-1/2	82	489.32	10	9-1/2	90	712.35	222.03	479.00	702.00	223.00	+ 0.97	+ 0.44	
	9-11	8	5	90	559.34	11	3	90	740.69	181.35	115.44	297.46	182.02	+ 0.67	+ 0.37	
	9-17	7	8-1/2	90	514.01	12	2-1/2	90	802.02	288.01	7762.00	8053.00	291.00	+ 2.99	+ 1.04	
10	9-19	8	0-1/2	90	535.33	11	8-1/4	90	768.68	233.35	8180.00	8416.00	236.00	+ 2.65	+ 1.14	
11	9-24	5	10-1/2	98	395.09	10	2	98	668.69	273.60	252.42	525.92	273.50	- 0.10	- 0.04	Flash factor adjustment changed.
12	9-29	8	11-1/2	82	596.42	11	11	80	787.33	190.91	2440.65					
	Metered thru P.D.Meter, 412.2 X 0.99698									410.96		3041.85				
										601.87			601.20	- 0.67	- 0.11	
13	10-1	7	5	74	499.31	10	10-1/4	76	720.36	221.05	751.00	972.00	221.00	- 0.05	- 0.02	
14	10-6	7	2-1/2	70	486.89	10	9-1/2	70	718.57	231.68	735.65	965.15	229.50	- 2.18	- 0.94	Fluid low in compensator.

PROOF OF DUMP METER ON LEARCY McBUFFINGTON LEASE - ELLENBURGER PAY
TEST TANK - 1,000 BBLS.

	MANUAL GAUGING								DUMP METER				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Run No.	DATE STARTED 1952	STARTING GAUGE FT. IN.	TEMP.	CORR. VOL.	CLOSING GAUGE FT. IN.	TEMP.	CORR. VOL.	DIFF. IN VOLUMES (7 - 4)	START	FINAL	METERED VOLS. (10 - 9)	VOL. DIFF. IN BBLS. METER VS MANUAL (11 - 8)	PER CENT DIFFERENCE
25	10-14	7 11	90	527.33	23 11	82	915.07	387.74	7657.83	8245.43	387.60	- 0.14	- 0.04
26	11-11	8 6-3/8	80	569.56	8 11-3/4	80	598.36	28.80	7174.10				
	Metered thru P.D.Meter			862.9 X 0.99510				858.67		8061.93			
								887.47			887.83	+ 0.36	+ 0.04
				TOTAL VOLUME GAUGED:				5,041.28	TOTAL METERED VOLUMES RECORDED:		5,051.71	+20.43	

WEIGHTED AVERAGE PER CENT DIFFERENCE: $\frac{+20.43}{5,041.28} \times 100 = + 0.41\%$

1337

PROOF OF DUMP METER ON LEARCY McBUFFINGTON LEASE - FUSSELMAN PAY
TEST TANK - LOW 500 BBL.

	MANUAL GAUGING									DUMP METER					
	(1)	(2)		(3)	(4)	(5)		(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
TEST NO.	DATE STARTED 1958	STARTING GAUGE FT.	IN.	TEMP.	CORR. VOL.	CLOSING GAUGE FT.	IN.	TEMP	CORR. VOL.	DIFF. IN VOLUMES (7 - 4)	START	FINAL	METERED VOLS. (10 - 9)	VOL. DIFF. IN BBLS. METER VS MANUAL (11 - 8)	PER CENT DIFFERENCE	REMARKS
1	7-28	2	9-1/2	88°	179.00	6	9-1/2	90°	434.78	255.78	66.00	322.80	256.80	∮ 1.02	∮ 0.40	
2	8- 7	3	1-1/4	88	199.04	7	3	88	464.57	265.53	87.00	352.33	265.33	- 0.20	- 0.08	
3	8-12	0	11-1/2	86	61.51	4	7-3/4	86	298.13	236.62	54.30	291.34	237.04	∮ 0.42	∮ 0.18	
4	8-16	3	7-1/2	90	232.20	5	11-3/4	90	382.81	150.61	13.00	164.00	151.00	∮ 0.39	∮ 0.26	
5	8-29	0	11	80	59.01	5	10	80	375.39	316.38	25.10	343.60	318.50	∮ 2.12	∮ 0.67	4018.13
6	9- 4	0	11	80	59.01	5	7-3/4	80	363.33	304.32	22.00	329.70	307.70	∮ 3.38	∮ 1.11	
7	9- 8	1	1-1/2	78	72.50	7	1-1/2	80	458.42	385.92	71.70	459.45	387.75	∮ 1.83	∮ 0.47	
8	9-15	3	6	82	225.10	7	4	82	471.34	246.24	98.10	343.30	244.20	- 2.04	- 0.85	
9	9-16	1	4	80	85.84	4	10	78	311.41	225.57	343.00	568.00	225.00	- 0.57	- 0.25	
10	9-22	1	3	84	80.31	7	2	86	459.70	379.39	23.30	402.90	379.60	∮ 0.21	∮ 0.06	
11	10- 5	0	11	70	59.31	6	7-1/2	76	427.10	367.79	6744.10	7114.70	370.60	∮ 2.81	∮ 0.76	
12	10- 6	0	11	70	59.31	7	2	88	459.24	399.93	114.70	515.12	400.42	∮ 0.49	∮ 0.12	
13	10-11	3	1-3/4	74	205.12	7	4	70	474.20	271.08	663.33	931.20	267.87	- 3.21	- 1.18	
14	10-14	0	11	60	58.60	5	9-3/4	80	374.04	314.44	7931.20	8245.70	314.50	∮ 0.06	∮ 0.02	
15	10-19	0	11	62	59.54	7	6-3/4	77	487.23	427.69	364.75	794.63	429.88	∮ 2.19	∮ 0.51	
								TOTAL TEST VOLUME GAUGED		4547.29			TOTAL TEST VOLUME METERED	4556.19	∮ 8.90	

WEIGHTED AVERAGE PERCENT DIFFERENCE: $\frac{\not 8.90}{4,547.29} \times 100 = \not 0.20\%$

PROOF OF DUMP METER ON LEARCY McBUFFINGTON LEASE - FUSSELMAN PAY
TEST TANK - LOW 500 BBL.

	MANUAL GAUGING (1) DATE STARTED 1950	(2) STARTING GAUGE FT.	IN.	(3) TEMP.	(4) CORR. VOL.	(5) CLOSING GAUGE FT.	IN.	(6) TEMP	(7) CORR. VOL.	(8) DIFF. IN VOLUMES (7 - 4)	DUMP METER (9) START	(10) FINAL	(11) METERED VOLS. (10 - 9)	(12) VOL. DIFF. IN BBLS. METER VS MANUAL (11 - 8)	(13) PER CENT DIFFERENCE	REMARKS
	7-28	2	9-1/2	68°	179.00	8	9-1/2	90°	434.38	255.38	66.00	322.80	256.80	∮ 1.02	∮ 3.40	
2	8- 7	3	1-1/4	88	199.04	7	3	88	464.57	265.53	87.00	352.33	265.33	- 0.20	- 0.08	
3	8-12	0	11-1/2	86	61.51	4	7-3/4	86	298.13	236.62	54.30	291.34	237.04	∮ 0.42	∮ 0.18	
4	8-16	3	7-1/2	90	232.20	5	11-3/4	90	382.81	150.61	13.00	164.00	151.00	∮ 0.39	∮ 0.26	
5	8-29	0	11	80	59.03	5	10	80	375.38	316.38	25.10	343.60	318.50	∮ 2.12	∮ 0.67	
6	9- 4	0	11	80	59.01	5	7-3/4	80	363.33	304.32	22.00	329.70	307.70	∮ 3.38	∮ 1.11	
7	9- 8	1	1-1/2	78	72.50	7	1-1/2	80	458.42	385.92	71.70	459.45	387.75	∮ 1.83	∮ 0.47	
8	9-15	3	6	82	225.13	7	4	82	471.34	246.24	99.10	343.30	244.20	- 2.04	- 0.83	
9	9-19	1	4	80	85.04	4	10	78	311.41	225.37	543.00	768.00	225.00	- 0.37	- 0.25	
10	9-22	1	3	84	80.51	7	2	86	459.70	379.39	23.30	402.90	379.60	∮ 0.21	∮ 0.06	
11	10- 5	0	11	70	59.51	6	7-1/2	76	427.10	367.79	6744.10	7114.70	370.60	∮ 2.81	∮ 0.76	
12	10- 6	0	11	70	59.31	7	2	88	459.24	399.93	114.70	515.12	400.42	∮ 0.49	∮ 0.12	
13	10-11	3	1-3/4	74	203.12	7	4	70	474.20	271.08	663.33	931.20	267.87	- 3.21	- 1.18	
14	10-14	0	11	60	59.60	5	9-3/4	80	374.04	314.44	7931.20	8245.70	314.50	∮ 0.06	∮ 0.02	
15	10-19	0	11	62	58.54	7	6-3/4	77	487.23	427.69	384.75	794.63	409.88	∮ 2.19	∮ 0.51	
								TOTAL TEST VOLUME GAUGED		4547.29			TOTAL TEST VOLUME METERED	4556.19	∮ 8.90	

WEIGHTED AVERAGE PERCENT DIFFERENCE: $\frac{\text{∮ } 8.90}{4,547.29} \times 100 = \text{∮ } 0.20\%$