## KANSAS CORPORATION COMMISSION ONE POINT STABILIZED OPEN FLOW OR DELIVERABILITY TEST

(SEE INSTRUCTIONS ON REVERSE SIDE)

Type Test:	X Open Fk	~		Test Date:	08/01/1998				API No. 15	007-22467 -	~>.^\
				rest Date.					AF1140. 13-	001-22401 -	<u>یدر</u>
	Deliveral	bility				·	•				
Company				Lease						Well No.	
ONEOK Re	sources Co			Harbaugh A		*				2-21	
County		Location		Section	TWP		RNG(E/W)			ACRES Attrib	uted
Barber	1320' F	SL & 660'	FEL	21 Reservoir	33S		14W				
Field							Gas Gathering Co				
Aetna Completion Da				Mississippi Plug Back Total De	noth.		Kansas Gas S Packer Set at	upply			
·	ne			•	spui						
02/24/1995 Casing Size		Weight		5105 Internal Diameter	Set at	*	None Perforations		То		
5-1/2"		14 ppf		5.012	5150		4642		4680		
Tubing Size		Weight		Internal Diameter	Set at		Perforations		To		
2-3/8"		4.7 ppf		1.995"	4620						
Type of Compl	letion (Describ			Type of Fluid Produ			Pump Unit or Trav	veling Plunger?	<u> </u>	Yes / No	
SINGLE GA	\S			Water	*		Yes				
Producing Thr	u (Annulus / Ti	ubing)		% Carbon Dioxide			% Nitrogen		Gas Gravity		·
Annulus									0.6639		
Vertical Depth	(H)					Pressure Taps			(Meter Run) (F	Prover) Size	
4661						Flange	•		Meter	2"	
Pressure Bu	uildup:		Shut in	07/28/1998	at	11:10 AM	TAKEN:	07/31/1998	AT	11:10 AM	
Well on Line	e:		Started	07/31/1998	at	11:10 AM	TAKEN:	08/01/1998	. AT	11:10 AM	
				OBSI	ERVED SUF	RFACE DATA	A	Duratio	on of Shut-in	72	hours
Static / Dynamic	Ortfice Size	Circle ane: Meter or	Pressure Differential	Flowing	Well Head	I .	Casing ad Pressure	Tub Weilhead	•	Duration	Liquid Produced
Property	inches	Prover Pressure	1	Temperature	Temperature	ŀ	(Pt) or (Pc)	(Pw) or (P		(Hours)	(Barrels)
Shut-In			2		•	80.0	94.4	0.0	0.0	72.0	0.0
Flow	0.3750	48.0	7.0	76.0		69.0	83.4	0.0	0.0	24.0	0.0
	1 0.0.00	1	1		OW STREA	M ATTRIBU			, <u> </u>	2	<u>  0.0  </u>
Pla	ate	Circle	one:	Press	Gravity	Flowing			······································		Flowing
Coeff		Meter or Prover Pressure		Extension Square Root (Pm x hw	Factor	Temperature Factor	Deviation Factor	Metered Flow R		GOR (Cubic Foot)	Fluid Gravity
(Fb) (Fp) Mcfpd		psia		Square Rook (Pill X liw)	)) Fg	Ft	Fpv (Mc			(Cubic Feet/ Barrel)	Gm
0.686	3	62.4		20.9	1.227	0.9850	1.006	17.4		None	0.6639
··-				(OPEN FLOW	) (DELIVER	ABILITY) C	ALCULATIONS	3		·	
						·			Pa^2=	0.207	
(Pc)*:	2 = 8.9	(Pw)^2=	7.0	•		. *	(Pc-14.4) + 14.4 =		Pd^2=		
(Pc)^2-	(Pa\)2			Choose forms  1. (Pc)^2-		Log of formula	Backpressure Curve Slope = "n"			Open F Delivera	
(10) 2	or	(Pc)^2-(I	Pw)^2	2. (Pc)^2-		1. or 2.		nxLOG[ ]	Antilog	Equals R x	- 1
(Pc)^2-	(Pd)^2			divided by:		and divde	Assigned			Mcfp	đ
			, <del></del> -			by: [Pc^2-Pw^2]	Standard Slope				
8.704	<del></del>	1.956		4.450	<del></del>	0.648	0.647	0.420	2.627	46	· · · · · ·
Open Flow		.t	Mcfpd (	@ 14.65 psia		0.0.0	Deliverability	0.120	Mcfpd @ 14	·	
***********	gned authori				nat he is duly	authorized to		report and that			· · · · · · · · · · · · · · · · · · ·
The undersigned authority, on behalf of the Company, states that he is duly authorized to make the above report and that he has knowledge of the facts stated therein, and that said report is true and correct. Executed this the 8th day of December, 1998.											
						•	1 (V	NY	Ja	(, (,	
	Witness	(if any)					~~~		For Company		
		, ,			•		• 0	Daryl K. Duv		٠	
	For Com	mission							Checked By		

### MID CONTINENT MEASUREMENT, 922 SOUTH ROLAND P.O. BOX 49 BRISTOW OK 74010 TEL 918-367-5517 FAX 918-367-9 FAX 918-367-9392

08-03-2002 PAGE 41 GAS ANALYSIS REPORT ONEOK RESOURCES CO. ANALYSIS DATE : COMPANY NAME 02/07/16 PLANT NUMBER LEASE NAME 998 N/A HARBAUGH A # PROD. DEPT. SAMPLE DATE 06-29-02 SAMPLE TEMP 90 LOCATION ID 2š SAMPLE PRES SAMPLE NUMBER 1625 SAMPLED BY FIELD GRAVITY EFFECTIVE DATE : 02-07-01 OLDHAM SPOT 0.000 FLOW RATE ====== ========== Mole % GPM @ 14.650 \_\_\_\_\_\_ ====== ========= Helium Не 0.071 Oxygen 02 0.004 Hydro Sulfide H2S 0.000 Carbon Dioxide CO<sub>2</sub> 0.152 Nitrogen N2 1.473 Methane C1 85.208 Ethane C2 6.165 1.6389 C3 3.250 0.8900 Propane I-Butane IC4 0.466 0.1516 N-Butane NC4 1.304 0.4089 I-Pentane IC5 0.343 0.1249 N-Pentane NC<sub>5</sub> 0.443 0.1596 Hexane Plus C6+ 1.121 0.4841 Totals 100.000 3.8580 BTU Values @ 14.650 60 F Gallons Per Thousand \_\_\_\_\_\_\_\_ BTU REAL DRY 1198.1217 C2 + GPM3.8580 1194.4056 BTU IDEAL DRY C3 + GPM2.2191 BTU REAL WET 1177.1698 C4 + GPM1.3291 BTU IDEAL WET 1173.5035 C5 + GPM0.7686 0.6955 SPECIFIC GRAVITY (REAL) DRY SPECIFIC GRAVITY 0.6943 (REAL) WET Z FACTOR 0.99690 DRY Z FACTOR 0.99689 WET

#### COMMENT -

26# GASOLINE GPM

Calculations based on 14.650 Pressure Base and 60 Temperature Base NOTE:

1.1775



## Kansas Corporation Commission

Bill Graves, Governor John Wine, Chair Cynthia L. Claus, Commissioner Brian J. Moline, Commissioner

Daryl Duvall ONEOK Resources Company P.O. Box 871 Tulsa, OK. 74102-0871

October 29, 2002 Dear Mr. Duvall:

The recently submitted application for an annual open flow testing exemption (Form G-2) for the **Harbaugh "A"#2-21** located in Sec.21-33S-14W of Barber County has been reviewed by the Conservation Division staff. The indicated status has been conferred by the Commissioners or else the indicated corrective action needs to be taken in order to bring the gas well into full compliance:



The annual exemption is hereby granted for the current calendar year or until the subject well no longer meets the eligibility criteria checked off on the backside of the G-2 form, whichever comes first.

- The request for an exemption is hereby denied. Contact the Wichita office to learn the reason(s). Please schedule an one-point, open flow test for this well as soon as possible. Otherwise, file an application for "special relief" from the Commission to excuse this well from testing on grounds other than those listed on the backside of the G-2.
- The exemption will be granted upon the insertion of the gas well's shut-in pressure in the box provided on the front side of the form and return of the completed form to this office.

The minimum buildup time for taking a shut-in pressure reading is 24 hours. Operators of offsetting wells have the right to witness the measurement of your well's shut-in pressure. It isn't required for a Corporation Commission Field Agent to witness the shut-in pressure.

In the event of a sale/transfer, the testing exemption goes with the well/lease.

If the exemption has been denied, failure to perform the stipulated open flow test within thirty (30) days of receiving this letter could result in the shutting in of your well and the imposition of a \$500 penalty fine. All questions concerning this determination of eligibility for the testing exemption pertaining to the well cited above should be directed to the undersigned.

Sincerely,

Jim Hemmen

Jim Hemmen

Research Analyst

Production Department

#### □ NEW □ RECONNECT ☐ CHANGE □ INACTIVE **MEASURING STATION REPORT** DEALIBRATION ☐ PERM. D.O.L. (2-O.P. INSPECTION STATION NO. 1 HARBAUGH (0,29,02 STATION NAME PRODUCER/OPERATOR ONOK RESOURCES TYPE MEASUREMENT □ Oil Well Gas GATHERING SYSTEM ☐ Gas Well Gas ☐ Liquid ☐ Other RECORDING DEVICE METER TEST GRAVITY / DENSITY MAKE Diff. Found Diff. Left ☐ Ranarex Barton □ Daniels Zero @ WP Zero @ AP ☐ Analysis ☐ Foxboro □ Applied . □ Yes PNo. WP Zero Reset . Effective Period □ Other ☐ American Pen Arc . .. ☐ Reset ₽OK □ Reset Time Lag Leaks Found ☐ Yes **₽10**0 from Leaks Repaired . . 🗆 Yes □ No\* 2 Pen SAMPLE Bellows DIFFERENTIAL TEST ☐ Mercury ☐ 3 Pen ₽ Yes □ Electronic Found in Calibration . . . □ No Yes □ No □ UPT Left in Calibration Yes □ No\* DIFFERENTIAL RANGE Cylinder No. □ 0-20" Ø-100" Cal Mtr Cal Mtr □ 0-50" □ 0-200" **ANALYSIS DATA** □ 0-250" □ Other CO2 \_\_\_ PRESSURE RANGE □ 0-50# □ 0-500# O2 □ 0-10<del>0#</del> □ 0-1000# €2 0-250# □ 0-1500# Total Acid Gas \_ □ Other Other CHART ROTATION ☐ 24 Hour 8 Day ☐ 7 Day ☐ 31 Day COMPRESSION TEST STATIC TEST □ Other Static Calibration: Psig Psia Cu. Ft. Actually Run TEMPERATURE RECORDER Test Gauge Pressure . . . . . . . Temp. Gas °F MAKE Static Pressure Found . . □ American □ EFR Pressure Base □ Barton □ Taylor Static Pressure Left □ Foxboro □ Other TEMPERATURE RECORDER TEST Corr. Cu. Ft. @ Press. Base and 60°F **RANGE** □ 0-200° C. C. Recovery Gross □ 0-120° □ 10-130° □ 0-150° Temp. Gross °F □ Other □ -40 - 140° Recorder Left. G. P. M. Gross PRIMARY ELEMENT DETAIL Schedule Orifice Size C. C. Recovery @ 60°F ☑ Flange Taps □ Pipe Taps Miked Line Size **GPM NET** ORIFICE PLATE CHANGE / INSPECTION Static Connect: □ Upstream Remove. Downstream Average Annubar Model: Temporature 3 ORIFICE FITTING Type: Senior ☐ Junior ☐ Simplex □ Flange

FOR

Limited Partnership

WITNESS\_

#### □ NFW □ RECONNECT CHANGE **MEASURING STATION REPORT** □ INACTIVE **EXCAUBRATION** □ PERM. D.O.L. **DO.P. INSPECTION** STATION NO. 1 HARBAUGH ATT STATION NAME PRODUCER/OPERATOR ONGOK RESOURCES CO GATHERING SYSTEM OWN TYPE MEASUREMENT □ Oil Well Gas ☐ Gas Well Gas ☐ Liquid ☐ Other RECORDING DEVICE METERTEST GRAVITY / DENSITY Diff. Found Diff. Left □ Ranarex Barton □ Daniels Zero @ WP Zero @ AP Analysis ☐ Applied ☐ Foxboro WP Zero Reset . . . 🗆 Yes **1100** Effective Period □ Other ☐ American Pen Arc . . **∃** OK □ Reset Time Lag TOK. □ Reset Leaks Found . . . 🗆 Yes □ No Leaks Repaired . ☐ Yes □ No\* SAMPLE 1 Bellows PZ 2 Pen **DIFFERENTIAL TEST** □ Mercury ☐ 3 Pen Yes | No | UPT ☐ Electronic Found in Calibration . . . Erres □ No Left in Calibration ☐ Yes □ No\* Cylinder No. DIFFERENTIAL RANGE □ 0-20" ₽ 0-100° Mtr Mtr □ 0-50" □ '0-200" **ANALYSIS DATA** □ Other 0-250" CO2 H2S % PRESSURE RANGE □ 0-50# □ 0-500# O2 \_\_\_\_ #90رو 🗆 □ 0-1000# 0-250# □ 0-1500# Total Acid Gas \_\_\_ □ Other Other CHART ROTATION ☐ 24 Hour 8 Dav ☐ 7 Day ☐ 31 Day STATIC TEST COMPRESSION TEST ☐ Other Static Calibration: Psig Psia Cu. Ft. Actually Run TEMPERATURE RECORDER Test Gauge Pressure . . . Temp. Gas °F MAKE 42 Static Pressure Found . . . ☐ American □ EFR Pressure Base ☐ Barton □ Taylor Static Pressure Left ☐ Foxboro ☐ Other TEMPERATURE RECORDER TEST Corr. Cu. Ft. @ Press. Base and 60°F RANGE Thermometer June 1. C. C. Recovery Gross □ 0-120° □ 0-200° Ø 0-150° □ 10-130° Temp. Gross °F ☐ Other □ -40 - 140° Recorder Left . G. P. M. Gross PRIMARY ELEMENT DETAIL Orifice Size Schedule C. C. Recovery @ 60°F fange Taps □ Pipe Taps Miked Line Size Miked Orifice Size **GPM NET** ORIFICE PLATE CHANGE / INSPECTION Static Connect: □ Upstream Remove\_ **□** Downstream Average

WITNESS\_\_\_\_\_\_FOR\_\_\_\_\_TESTER\_LES ONLE

Temperature at miking

Annubar Model:

REMARKS

Installed.

Inspected

Senior

☐ Junior

Type:

ORIFICE FITTING

☐ Simplex

□ Flange

# MID CONTINENT MEASUREMENT, INC. 922 SOUTH ROLAND P.O. BOX 49 BRISTOW, OK 74010 TEL (918)-367-5517 FAX (918)-367-9392

01-04-2002	, 30, 331, 1111	(310) 307 3332	Page 2
**************************************			and the second s
**************************************	A N A L Y S I S	5	*****
Company Name : ONEOK RESOURC	ES CO.	Sample Pres	: 25.00
Lease Number : N/A		Sample Temp	: 71
Lease Name : HARBAUGH A # :	2-21	Sample Date	: 12/01/01
Location ID : AMBER	•	Analysis Date	: 01/12/19
		Sample Number	: 0
Cylinder # : 1461			
		Sampled By	: OLDHAM
COMPONENT	===== Mole % ======	GPM 14.65	GPM 14.73
Helium He	0.068		*9:
Oxygen O2	0.000		
Carbon Dioxide CO2	0.158		
Nitrogen N2	1.462		
Methane C1	86.006	•	
Ethane C2	5.729	1.5230	1.5314
Propane C3	3.107	0.8508	0.8555
I-Butane IC4	0.442	0.1438	0.1446
N-Butane NC4	1.219	0.3822	0.3843
I-Pentane IC5	0.335	0.1220	0.1227
N-Pentane NC5	0.434	0.1563	0.1572
Hexane Plus C6+	1.040	0.4492	0.4517
Totals	100.000	3.6273	3.6474
Calculated BTU Values	14.65 PB	14.73 PB	SPEC GRAV
$^{\delta}$ Gross Dry BTU	1186.3578	1192.8827	0.6879
Gross Wet BTU	1165.5965	1172.0073	
Gallons Per Thousand	======= 14.65 PB	14.73 PB	Z FACTOR
C2 + GPM C3 + GPM C4 + GPM C5 + GPM	3.6273 2.1043 1.2535 0.7275	3.6474 2.1160 1.2605 0.7316	0.9970
,			*3.
COMMENT :	•	Fp= 1.0106	Ft = 0.9404

Calculations based on 60 Temperature Base NOTE:



# Trident NGL, Inc. MEASURING STATION REPORT

Trident	Trident NGL, Inc. MEASURING STATION REPO	ORT	☐ NEW ☐ CHANGE ☐ CHANGE ☐ CALIBRATION ☐ O.P. INSPECTION	☐ RECONNECT☐ INACTIVE☐ PERM. D.O.L.
STATION NO.	, , , , , , , , , , , , , , , , , , ,		BOTH	ı
STATION NAME #AR	BAUGH A 2-2/		DATE 12/2	10
PRODUCER / OPERATOR	BAUGH A 2-2/ BOK RESOURCES CO		TIME 14:19	· · · · · · · · · · · · · · · · · · ·
	TYPE MEASUREMEN			
RECORDING DEVICE	METER TEST			
MAKE	Diff. Found Diff. Left Zero @ WP Zero @ AP-	<i>y</i>	•	☐ Ranarex
☐ Barton ☐ Daniels ☐ Foxboro ☐ Applied				Analysis
Other American	WP Zero Reset	□ No □ Reset	Effective P	eriod
S/N 202 5 - 397144	Time Lag	Reset □ Reset	11102	11/02
TYPE	Leaks Repaired	□ No*	•	10
☐ Bellows ☐ 2 Pen ☐ 3 Pen	DIFFERENTIAL TEST		SAMPL	<u>:</u> E:
☐ Electronic	Found in Calibration	□ No □ No*	☑Yes ☐ No ☐ UPT	111/1
DIFFERENTIAL RANGE  □ 0-20"	Cal Mtr Cal	Mtr	Cylinder No.	40)
□ 0-50" □ 0-200"		1010	ANALYSIS	DATA
Other 0-250"			H2S %	CO2 %
PRESSURE RANGE  □ 0-50# □ 0-500#	70 70		N2 %	
□ 0-100# □ 0-1000# □ 0-1500#	50 50 30 30 SM	MO		
☐ Other			Total Acid Gas	%
CHART ROTATION			Air %	Other %
☐ 24 Hour ☐ 8 Day ☐ 1 Day ☐ 31 Day	The second secon			
Other	STATIC TEST  Static Calibration: □ Psig □ Psia 1/3, 2	₹ CC	DMPRESSION TEST	
TEMPERATURE RECORDER	Test Gauge Pressure	Cu. Ft. Actually Run		
MAKE  □ American □ EFR	Static Pressure Found 38: 2	Temp. Gas °F		
☐ Barton ☐ Taylor	Static Pressure Left	Pressure Base		
Foxboro Other	NOTINSERVICE	Corr. Cu. Ft. @ Press	. Base and 60°F	
□ 0-120° □ 0-200°	Thermometer	C. C. Recovery Gross		
☐ 0-150° ☐ 10-130° ☐ 0ther ☐ -40 - 140°	Recorder Found	Temp. Gross °F		
PRIMARY EI	Recorder Left			
Tube Size,So	chedule Orifice Size	G. P. M. Gross		
☑ Flange Taps ☐ Pipe Taps ☐ Miked	Line Size Miked Orifice Size	C. C. Recovery @ 60°	F	
, , ,		GF	PM NET	
	•		ATE CHANGE / INSI	PECTION
☐ Upstream •	•	Remove		
Average •				
Annubar Model:		Installed		
	Temperature at miking/°F	Inspected	The state of the s	in a put the constant
REMARKS PULON NOU	DiFF. Pen		ORIFICE FITTING	
CARTRIDAE		Type: Asenior	□ Junior □ Simple:	x 🗆 Flange
		Typo. Comor	_ cantor cample.	. Driange
				•
		<u> </u>	<u> </u>	
WITNESS		$\bigcirc 1$	,11	
FOR	TEOTER	Jonas	) lkling	



## Kansas Corporation Commission

Bill Graves, Governor John Wine, Chair Cynthia L. Claus, Commissioner Brian J. Moline, Commissioner

Daryl K. Duvall ONEOK resources Company P.O. Box 871 Tulsa, OK. 74102-0871

September 15, 1999 Dear Mr. Duvall:

The recently submitted application for an annual open flow testing exemption (Form G-2) for the **Harbaugh "A"#2-21** located in Sec.21-33S-14W of Barber County has been reviewed by the Conservation Division staff. The described status has been conferred by the Commissioners or else the indicated action needs to be taken in order to bring the gas well into full authorization and/or compliance:

<b>X</b>	The exemption is hereby granted for one year from today's date or until the gas well no longer meets the eligibility criteria on the backside of the G-2 form, whichever comes first
	The request for an exemption is hereby denied. Contact this Wichita office to learn the reason(s). Please schedule an one-point open flow test for this well as soon as possible or else apply for "special relief" from Commission regulation K.A.R. 82-3-304.
□ ·	The exemption will be granted upon the insertion of the well's shut-in pressure into the labeled box on the front side of the G-2 form, the affixing of your signature at the bottom, and the immediate return of the form to this office.

The minimum buildup time leading up to a shut-in pressure reading is 24 hours. Operators of offsetting wells have the right to witness the measurement of your well's shut-in pressure. A Corporation Commission Field Agent doesn't have to witness the shut-in pressure.

In the event of a sale/transfer, the testing exemption goes with the well for the duration of the year. The exemption is forfeited in the event of any enhancement of or changes to the well.

If the exemption has been denied, failure to perform the stipulated open flow test within thirty (30) days of receiving this letter could result in the sealing of your well and the imposition of a \$500 penalty fine. All questions concerning this determination of eligibility for the testing exemption pertaining to the well cited above should be directed to the undersigned.

Sincerely,

Jim Hemmen Research Analyst



## Kansas Corporation Commission

Bill Graves, Governor John Wine, Chair Susan M. Seltsam, Commissioner Cynthia L. Claus, Commissioner

Daryl K. Duvall ONEOK Resources Company P.O. Box 871 Tulsa, OK. 74102-0871

December 17, 1998 Dear Mr. Duvall:

The recently submitted application for an annual open flow testing exemption (Form G-2) for the Harbaugh "A" #2-21 located in Sec.21-33S-14W of Barber County has been reviewed by the Conservation Division staff. The described status has been conferred by the Commissioners or else the indicated action needs to be taken in order to bring the gas well into full compliance:

<b>ਹ</b>	The exemption is hereby granted for one year from today's date or until the gas well no longer meets the eligibility criteria on the backside of the G-2 form, whichever comes first.
	The request for an exemption is hereby denied. Contact the Wichita office to learn the reason(s). Please schedule an one-point open flow test for the subject well as soon as possible or else apply for "special relief" from Commission regulation K.A.R. 82-3-304.
	The exemption will be granted upon the insertion of the well's shut-in pressure in the labeled box on the front side of the G-2 form, the affixing of your signature at the bottom, and the return of the form to this office.

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If the exemption has been denied, failure to perform the stipulated open flow test within thirty (30) days of receiving this letter could result in the sealing of your well and the imposition of a \$500 penalty fine. All questions concerning this determination of eligibility for the testing exemption pertaining to the well cited above should be directed to the undersigned.

Sincerely,

Jim Hemmen
Research Analyst

**Production Department**