ANALYSIS OF KANSAS CITY, MARMATON, AND CHEROKEE GROUP CUTTINGS SAMPLES FOR GAS CONTENT -- PETROL OIL & GAS #24-1 RAHMEIER; S2 NW NW SW sec. 24-T.20S.-R.16E., COFFEY COUNTY, KANSAS

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### **SUMMARY**

Seven cuttings samples from the Pennsylvanian Kansas City, Marmaton, and Cherokee Groups were collected from the Petrol Oil & Gas #24-1 Rahmeier, S2 NW NW SW 24-T.20S.-R.16E., in Coffey Co., KS. The samples calculate as having the following gas contents:

•	Stark Shale at 804.0' to 807.5' depth	(20 scf/ton)
•	Hushpuckney Shale at 835.0' to 838.0' depth	(20 scf/ton)
•	Anna Shale at 1101.0' to 1102.5' depth	(11 scf/ton)
•	Little Osage Shale at 1158.0' to 1161.0' depth	(5 scf/ton)
•	Mulky coal at 1182.0' to 1184.0' depth <sup>1</sup>	(28 scf/ton)
•	Bevier coal at 1250.0' to 1252.0' depth <sup>1</sup>	(24 scf/ton)
•	Croweburg coal at 1262.0' to 1264.0' depth <sup>1</sup>	(16 scf/ton)

Attempts at obtaining cores of the Tebo coal at 1344' depth and the Riverton coal at 1521' depth were not successful because the coal was apparently milled to fine-grained material and washed from the core barrel during the coring process, thus no samples of these coals were recovered. Sampling of Tebo coal was attempted when the hole was being reamed after the coring, but no adequate amount of coal was obtained:

Tebo coal at 1344.0' to 1345.5' depth<sup>2</sup>

 $(-- scf/ton)^2$ 

Fragments of carbonaceous underclay and coal were obtained from the Riverton core, but no significant amount of gas was desorbed from this material:

Riverton coal fragments/underclay at 1521.0 to 1522.5' depth (9 scf/ton)

### BACKGROUND

The Petrol Oil & Gas #24-1 Rahmeier well, S2 NW NW SW, 24-20S-16E in Coffey Co., KS, was selected for cuttings desorption tests in association with an on-going coalbed gas research project at the Kansas Geological Survey. The samples were gathered January 18, 19, and 20, 2004, by K.D. Newell and W.M. Brown of the Kansas Geological Survey. Cuttings samples were obtained during normal drilling of the well, with brief cessation of drilling before zones of interest (i.e., coals and dark shales in the Pennsylvanian Kansas City, Marmaton, and Cherokee Groups) were penetrated. The well was drilled using a mud rotary rig ("Rig #9") owned by Coconut Drilling.

Lag times for samples to reach the surface (important for assessing lost gas) were determined by periodic carbide tests.

Eight cuttings samples were collected:

Stark Shale at 804.0' to 807.5' depth (101 grams dry wt.)
Hushpuckney Shale at 835.0' to 838.0' depth (205 grams dry wt.)

<sup>&</sup>lt;sup>1</sup>assuming accompanying dark shales in sample desorb 3 scf/ton <sup>2</sup>no results due to negligible amount of coal in sample

•	Anna Shale at 1101.0' to 1102.5' depth	(432 grams dry wt.)
•	Little Osage Shale at 1158.0' to 1161.0' depth	(1275 grams dry wt.)
•	Mulky coal at 1182.0' to 1184.0' depth	(319 grams dry wt.)
•	Bevier coal at 1250.0' to 1252.0' depth	(335 grams dry wt.)
•	Croweburg coal at 1262.0' to 1264.0' depth	(678 grams dry wt.)
	Tebo coal at 1344.0' to 1345.5' depth	(797 grams dry wt.)

One core-fragment sample from the was also collected:

Riverton coal fragments/underclay at 1521.0' to 1522.5' depth

(493 grams dry wt.)

The cuttings were placed in kitchen strainers after they were shoveled from a settling box in the mud stream situated immediately before the mud emptied into the mud pit. After catching the cuttings samples, the samples were then washed in water while in the kitchen strainers to rid them of as much drilling mud as possible. The cuttings were then placed in desorption canisters.

The Tebo coal cuttings sample was also obtained from this settling box, but its sampling took place during the reaming of the hole after coring. The coring for this coal was unsuccessful because the coal was likely milled into fine-grained material that washed out of the core barrel during coring. Similarly, most of the Riverton coal was also likely milled and lost during coring. Some small core chunks of coaly material were placed in a canister in an attempt to salvage some information about the Riverton interval, but upon examination after decanistering, much of this material was considered underclay.

Five cuttings samples (Stark Shale, Hushpuckney Shale, Anna Shale, Mulky coal, Bevier coal) were place in "Stoeckinger" desorption canisters, which average 38 cubic inches internal volume (620 cm³). The Little Osage Shale sample was placed in a canister having 106 cubic inches internal volume (1740 cm³) (i.e., "Brady" canister). The Croweburg and Tebo samples were placed in canisters having 182 cubic inches internal volume (2985 cm³) (i.e., "Maggy" canisters). The Riverton coal sample was placed in a canister having 153 cubic inches internal volume (2985 cm³). With this latter sample, a concrete plug was also placed in the desorption canister to decrease the volume of free space within the canister. The volume of this plug was 77 cubic inches (1262 cm³).

The "Stoeckinger" desorption canisters were obtained from Bill Stoeckinger, consulting geologist to Petrol Oil and Gas. The "Maggy" and "Brady" canisters were made in-house at the Kansas Geological Survey. The canister used for the Riverton sample was obtained from SSD, Inc., in Grand Junction, CO.

Temperature baths for the desorption canisters were on site, with temperature kept at approximately 75 °F for the Croweburg and shallower samples. The Tebo and Riverton samples were placed in an 80 °F temperature bath. The canistered samples were transported to the laboratory at the Kansas Geological Survey in Lawrence, KS, on January 20, 2004, and desorption measurements were continued at approximately the

same temperature. Desorption measurements were periodically made until the canisters produced negligible gas with daily testing for at least two successive days.

### **DESORPTION MEASUREMENTS**

The equipment and method for measuring desorption gas is that prescribed by McLennan and others (1995). The volumetric displacement apparatus is a set of connected dispensing burettes, one of which measures the gas evolved from the desorption canister. The other burette compensates for the compression that occurs when the desorbed gas displaces the water in the measuring burette. This compensation is performed by adjusting the cylinders so that their water levels are identical, then figuring the amount of gas that evolved by reading the difference in water level using the volumetric scale on the side of the burette.

The desorbed gas that collected in the desorption canisters was periodically released into the volumetric displacement apparatus and measured as a function of time, temperature, and atmospheric pressure.

The time and atmospheric pressure were measured in the field using a portable weather station (model BA928) marketed by Oregon Scientific (Tualatin, OR). The atmospheric pressure was displayed in millibars on this instrument, however, this measurement was not the actual barometric pressure, but rather an altitude-compensated barometric pressure automatically converted to a sea-level-equivalent pressure. To translate this measurement to actual atmospheric pressure, a regression correlation was determined over several weeks by comparing readings from the Oregon Scientific instrument to that from a pressure transducer in the Petrophysics Laboratory in the Kansas Geological Survey in Lawrence, KS (Figure 1). The regression equation shown graphically in Figure 1 was entered into a spreadsheet and was used to automatically convert the millibar measurement to barometric pressure in pounds per square inch (psi).

A spreadsheet program written by K.D. Newell (Kansas Geological Survey) was used to convert all gas volumes at standard temperature and pressure. Conversion of gas volumes to standard temperature and pressure was by application of the perfect-gas equation, obtainable from basic college chemistry texts:

$$n = PV/RT$$

where n is moles of gas, T is degrees Kelvin (i.e., absolute temperature), V is in liters, and R is the universal gas constant, which has a numerical value depending on the units in which it is measured (for example, in the metric system R = 0.0820 liter atmosphere per degree mole). The number of moles of gas (i.e., the value n) is constant in a volumetric conversion, therefore the conversion equation, derived from the ideal gas equation, is:

$$(P_{stp}V_{stp})/(RT_{stp}) = (P_{rig}V_{rig})/(RT_{rig})$$

Customarily, standard temperature and pressure for gas volumetric measurements in the oil industry are 60 °F and 14.7 psi (see Dake, 1978, p. 13), therefore  $P_{\text{stp}}$ ,  $V_{\text{stp}}$ , and  $T_{\text{stp}}$ , respectively, are pressure, volume, and temperature at standard temperature and pressure, where standard temperature is degrees Rankine (°R = 460 + °F).  $P_{\text{rig}}$ ,  $V_{\text{rig}}$ , and  $T_{\text{rig}}$ , respectively, are ambient pressure, volume and temperature measurements taken at the rig site or in the desorption laboratory.

The universal gas constant R drops out as this equation is simplified and the determination of  $V_{\text{stp}}$  becomes:

$$V_{stp} = (T_{stp}/T_{rig}) (P_{rig}/P_{stp}) V_{rig}$$

The conversion calculations in the spreadsheet were carried out in the English metric system, the customary measure system used in American coal and oil industry. V is therefore converted to cubic feet; P is psia; T is °R. The desorbed gas was summed over the time period for which the coal samples evolved all of their gas.

Lost gas (i.e., the gas lost from the sample from the time it was drilled, brought to the surface, to the time it was canistered) was determined using the direct method (Kissel and others, 1975; also see McLennan and others, 1995, p. 6.1-6.14) in which the cumulative gas evolved is plotted against the square root of elapsed time. Time zero is assumed to be the moment that the rock is cut and its cuttings circulated off bottom. Characteristically, the cumulative gas evolved from the sample, when plotted against the square root of time, is linear for a short time period after the sample reaches ambient surface pressure conditions, therefore lost gas is determined by a line projected back to time zero. The period of linearity generally is about an hour for cuttings samples.

### LITHOLOGIC ANALYSIS

Upon removal from the canisters, the cuttings were washed of drilling mud, and dried in air for several days. After drying, the cuttings were weighed and then dry sieved into 5 size fractions: >0.0930", >0.0661", >0.0460", >0.0331", and <0.0331". For large sample sizes, the cuttings were run through a sample splitter and a lesser portion (approximately 75 grams) were sieved and weighed, and the derived size-fraction ratios were applied to the entire sample.

The size fractions were then inspected and sorted by hand under a dissecting microscope. Three major lithologic categories were differentiated: coal, dark shales (generally Munsell rock colors N3 [dark gray], N2 [grayish black], and N1 [black] on dry surface), and lighter-colored lithologies and/or dark and light-colored carbonates. The lighter-colored lithologies are considered to be incapable of generating significant amounts of gas. After sorting, and for every size class, each of these three lithologic categories was weighed and the proportion of coal dark shale and light-colored lithologies were determined for the entire cuttings sample based on the weight percentages.

### DATA PRESENTATION

Data and analyses accompanying this report are presented in the following order: 1) data tables for the desorption analyses, 2) lost-gas graphs, 3) "lithologic component sensitivity analyses" showing the interdependence of gas evolved from dark shale versus coal in each cuttings sample, 4) a summary component analysis for all samples showing relative reliability of the data from all the samples, and 5) a desorption graph for all the samples.

### Data Tables of the Desorption Analyses (Table 1)

These are the basic data used for lost-gas analysis and determination of total gas desorbed from the cuttings samples. Basic temperature, volume, and barometric measurements are listed at left. Farther to the right, these are converted to standard temperature, pressure, and volumes. The volumes are cumulatively summed, and converted to scf/ton based on the total weight of coal *and* dark shale in the sample. At the right of the table, the time of the measurements are listed and converted to hours (and square root of hours) since the sample was drilled.

### Lost-Gas Graphs (Figures 2-10)

Gas lost prior to the canistering of the sample was estimated by extrapolation of the first few data points after the sample was canistered. The linear characteristic of the initial desorption measurements is usually lost within the first hour after the cuttings leave the bottom of the hole, thus data for cuttings are presented in the lost-gas graphs for only up to one hour after cuttings were off bottom. Lost-gas for the Riverton coal fragments/underclay was posted for a 9-hour period after the core was pulled off bottom. The lost-gas volumes derived from these graphs are incorporated in the data tables described above.

### "Lithologic Component Sensitivity Analyses" (Figures 11-18)

Collection of pure lithologies from relatively thin-bedded strata is rather difficult using cuttings. Mixed lithologies are more the norm rather than the exception. Some of this mixing is due to cavings from strata farther up hole. The mixing may also be due to collection of two or more successively drilled lithologies in the kitchen sieve at the exit line, or differential lifting of relatively less-dense coal compared to other lithologies, all of which are more dense than coal.

The total gas evolved from the sample is due to gas being desorbed from both the coal and dark shale. Both lithologies are capable of generating gas, albeit the coal will be richer in gas than the dark-colored shale. Even though dark-colored shale is less rich in sorbed gas than coal, if a sample has a large proportion of dark, organic-rich shale and only a minor amount of coal, the total volume of gas evolved from the dark-shale component may be considerable. The lighter-colored lithologies are considered to be incapable of generating significant amounts of gas.

The total amount of gas evolved from a cuttings sample can be expressed by the following equation:

Total gas (cm<sup>3</sup>) = [weight<sub>coal</sub> (grams) X gas content<sub>coal</sub> (cm<sup>3</sup>/gram)] + [weight<sub>dark shale</sub> (grams) X gas content<sub>dark shale</sub> (cm<sup>3</sup>/gram)]

A unique solution for gas content<sub>coal</sub> in this equation is not possible because gas content<sub>dark shale</sub> is not known exactly. An answer can only be expressed as a linear solution to the above equation. The richer in gas the dark shales are, the poorer in gas the admixed coal has to be, and vice versa. If there is little dark shale in a sample, a relatively well constrained answer for gas content<sub>coal</sub> can be obtained. Conversely, if considerable dark shale is in a sample, the gas content of a coal will be hard to precisely determine.

The lithologic-component-sensitivity-analysis diagram therefore expresses the bivariant nature inherent in the determination of gas content in mixed cuttings. The gas content of dark shales in Kansas can vary greatly. Proprietary desorption analyses of dark shales in cores from southeastern Kansas have registered as much as 50 scf/ton, but can be as low as 2-4 scf/ton.

A value of 3 scf/ton for average dark shale is based on the assay of the gas content of cores of dark shales in wells in southeastern Kansas. However, high-gamma-ray shales (such as the Excello Shale), also colloquially known as "hot shales", typically have more organic matter and associated gas content than dark shales displaying no excessive gamma-ray level. Determination of gas content for a coal associated with a "hot" shale therefore carries more uncertainty than if the coal were associated with a shale without a high gamma-ray value.

In general, the assumed shale gas content does not have to be very much greater than 10 scf/ton before the associated coal starts to have a gas content less than that of the dark shale. In all the lithologic-component-sensitivity-analysis diagrams, a "break-even" point is therefore noted where the gas content of the coal is equal to that of the dark shale. This "break-even" point corresponds to the minimum gas content assignable to the coal and maximum gas content assignable to the dark shale. It can also be thought of the scf/ton gas content of the cuttings sample minus the weight of any of the lighter-colored lithologies, which are assumed to have no inherent gas content. Conversely though, to assume that all the gas evolved from a cuttings sample is derived solely from the coal would result in an erroneously high gas content for the coal.

Summary Component Analysis for all Cuttings Samples (Figure 19)
This diagram is a summary of the individual "lithologic component sensitivity analyses" for each sample, all set at a common scale. The steeper the angle of the line for a sample, the more uncertainty is attached to the results (i.e., gas content<sub>coal</sub>) for that sample. If the coal content is miniscule (i.e., < approximately 5%), the results are a better reflection of the gas content<sub>dark shale</sub>.

### Desorption Graph (Figure 20)

This is a desorption graph (gas content per weight vs. square root of time) for all the samples. The rate at which gas is evolved from the samples is thus comparable at a common scale.

### ASHING and DENSITY EXPERIMENTS

Simple ashing of the samples was carried out in a muffle furnace at the Kansas Geological Survey in which the samples were first weighed and then subjected to 110 °C until their weight stabilized. This first firing approximates moisture content. A second firing at 750 °C for three to four days essentially ashed the sample. Two crucibles of sample were utilized for both the 110 °C and 750 °C firings. Each crucible was filled with approximately 1.5 grams of pulverized coal (i.e., < 0.0460" sieve size). Results were accepted if the difference in weight loss for each sample was less than 2%.

unit	depth	moisture	ash	moisture-free ash
Stark Shale	804'	1.17%	77.75%	78.66%
Hushpuckney Shale	835'	0.72%	73.93%	74.46%
Anna Shale	1101'	3.42%	70.22%	72.70%
Little Osage Shale	1158'	0.93%	72.51%	73.19%
Excello Shale	1182'	1.82%	66.94%	68.18%
Mulky coal	1182'	0.78%	7.84%	7.90%
Bevier coal	1250'	0.79%	9.77%	9.84%
Croweburg coal	1162'	0.72%	7.83%	7.89%
Riverton underclay	1521'	1.17%	14.40%	14.57%

Using the equation from McLennan and others (1995):

$$G_c = G_{pc} (1-a_d)$$

where:

 $G_c = gas content, scf/ton$ 

 $G_{pc}$  = "pure coal", gas content, scf/ton

a<sub>d</sub> = dry ash content, weight fraction

the gas content of the samples converts to:

unit	depth	moisture-free ash	$G_c$	$G_{pc}$
Stark Shale	804'	78.66%	20.1 scf/ton	94.2 scf/ton
Hushpuckney Shale	835'	74.46%	20.4 scf/ton	79.9 scf/ton
Anna Shale	1101'	72.70%	10.8 scf/ton	39.6 scf/ton
Little Osage Shale	1158'	73.19%	4.6 scf/ton	17.2 scf/ton
Excello Shale	1182'	68.18%	3 (?) scf/ton	9.4 (?) scf/ton
Mulky coal	1182'	7.90%	27.6 scf/ton	30.0 scf/ton

Bevier coal	1250'	9.84%	23.8 scf/ton	26.4 scf/ton
Croweburg coal	1162'	7.89%	16.8 scf/ton	17.8 scf/ton
Riverton underclay	1521'	14.57%	9.2 scf/ton	10.7 scf/ton

Coal samples were also tested for their density. Cuttings samples (4 to 5 grams) were weighed and then placed in water in a 10-cc graduated cylinder to determine the volume of the sample. The Riverton coal/underclay samples were weighed and immersed in water in a beaker filled to its brim. The displaced water was spilled from the beaker and subsequently weighed. The volume of the sample is thus easily converted to volume using 1 gram/cc for the density of the water. The following density measurements were calculated:

unit	depth	density and uncertainty
Stark Shale	804'	$2.08 \text{ g/cc} \pm 0.07$
Hushpuckney Shale	835'	$2.11 \text{ g/cc} \pm 0.07$
Anna Shale	1101'	$2.11 \text{ g/cc} \pm 0.07$
Little Osage Shale	1158'	$2.12 \text{ g/cc} \pm 0.07$
Excello Shale	1182'	$2.01 \text{ g/cc} \pm 0.07$
Mulky coal	1182'	$1.68 \text{ g/cc} \pm 0.07$
Bevier coal	1250'	$1.29 \text{ g/cc} \pm 0.07$
Croweburg coal	1162'	$1.31 \text{ g/cc} \pm 0.07$
Riverton underclay	1521'	$1.69 \text{ g/cc} \pm 0.05$

### RESULTS and DISCUSSION

According to the summary diagram for the sensitivity analyses (Figure 19), the Mulky, Bevier, and Croweburg coals all have nearly identically constrained (in which the resultant coal gas content varies almost identically with shale gas content). The rest of the samples are shales, and thus there is no variation the gas content of coal vs. shale in these samples.

Estimates for gas content for the three coal samples, assuming the admixed dark shale in the samples desorb 3 scf/ton, are presented on their sensitivity diagrams. Air rigs typically produce cuttings samples having only about 10% coal, or less, but more coal in the sample (60% - 75%) is obtainable with a mud rig.

The Riverton sample registered a poor gas content due to its poor sample quality. True Riverton coal was not recovered from the core, thus this zone was not adequately tested for its gas content.

### REFERENCES

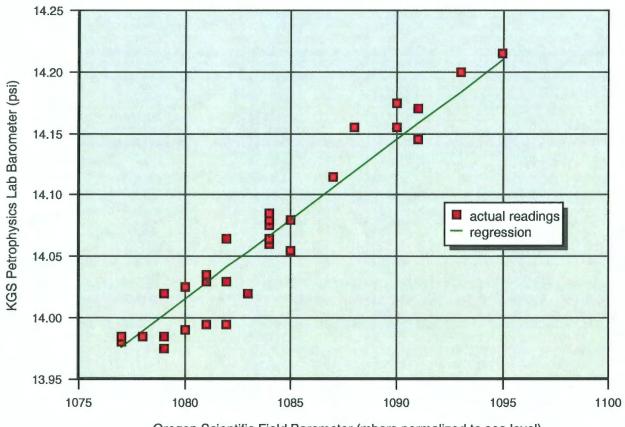
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### FIGURES and TABLES

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- TABLE 1. Desorption measurements for samples.
- FIGURE 2. Lost-gas graph for Stark Shale at 804.0' to 807.5' depth.
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- FIGURE 5. Lost-gas graph for Little Osage Shale at 1158.0' to 1161.0' depth.
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- FIGURE 11. Sensitivity analysis for Stark Shale at 804.0' to 807.5' depth.
- FIGURE 12. Sensitivity analysis for Hushpuckney Shale at 835.0' to 838.0' depth.
- FIGURE 13. Sensitivity analysis for Anna Shale at 1101.0' to 1102.5' depth.
- FIGURE 14. Sensitivity analysis for Little Osage Shale at 1158.0' to 1161.0' depth.
- FIGURE 15. Sensitivity analysis for Mulky coal at 1182.0' to 1184.0' depth.
- FIGURE 16. Sensitivity analysis for Bevier coal at 1250.0' to 1252.0' depth.
- FIGURE 17. Sensitivity analysis for Croweburg coal at 1262.0' to 1264.0' depth.
- FIGURE 18. Sensitivity analysis for Tebo coal at 1344.0' to 1345.5' depth.
- FIGURE 19. Lithologic component sensitivity analyses for all samples.
- FIGURE 20. Desorption graph for all samples.

# Correlation of Field Barometer to KGS Petrophysics Lab Barometer



Oregon Scientific Field Barometer (mbars normalized to sea level)

FIGURE 1.

TABLE 1 ~ Description measurements for Petrol Oil & Gas #24-1 Rahmeier, S2 NW NW SW 24-20S-18E, Coffey Co., KS

SAMPLE: 804.0'-	907 E' /S	ark Shala) o	ittinge in c	anister Stoecking	er R													
SPENFLE. 804.04	007.5 (5	lbs.	grams	district Cioaciding							est. lost gas (	(oc) =			TIME OF:			elapsed time (off bottom to canistering)
dry sample weight:		0.197	89.49									11			off bottom		in canister	10.0 minutes
																1/18/04 11:42	1/18/04 11:45	0.167 hours
RIGILAB MEASUREME	NTS		CONVER				P (@60 deg F; 14.7 pel)		LUMES (OSTP)		SCF/TON				TIME SINCE			0.408248290 SQRT (hrs)
measured oc measur			cubic ft	absolute T (F)		cubic ft (@STP)			ce	without lost gas			TIME OF MEA				in canister	SQRT hrs. (eince off bottom)
19	77	1078				0.000818445		0.000818445	17.51			10.21	1/18/04		1:09:00	1:02:00	0:59:00	1.072380529
6	77		4		3.992	0.000280398		0.000878843	24.89			12.85		14:09	2:34:00	2:27:00	2:24:00	1.802081979
0	74			534 1		0		0.000878843	24.69			12.85		17:42	6:07:00	8:00:00	5:57:00	2.473189574
5	75				4.031			0.001042655	29.52			14.51		20:21	8:48:00	8:39:00	8:36:00	2.980855732
7	77	1082			4.044	0.000226894		0.001271349	38.00			16.63		23:09	11:34:00	11:27:00	11:24:00	3.400980251
0	75			535 1	4.044	0		0.001271349	38.00 38.93			16.83	1/19/04		14:54:00 20:11:00	14:47:00 20:04:00	14:44:00	3.860051813 4.492586488
1	78							0.001304111	39.93			18.15		12:41	25:08:00	24:59:00	24:58:00	5.00999002
3	78 79	1082			4.044			0.001597055	45.22	14.6		20.13		15:21	27:48:00	27:39:00	27:38:00	5.269408569
-8	75					-0.000193119		0.001337055	37.80			17.47		22:39	35:04:00	34:57:00	34:54:00	5.921711464
-8	75				4.044			0.001387749	38 73			17.80		10:55	47:20:00	47:13:00	47:10:00	8.87992248
-4	75					-0.000132019		0.00123573	34.99			18.47		10:19	70:44:00	70:37:00	70:34:00	8,410311132
-5	75				4.213		-	0.001089797	30.29			14.78		11:48	96:11:00	98:04:00	98:01:00	9.807310199
0	75			535 1		0.000100000		0.001089797	30.29			14.78	1/23/04		121:03:00	120:58:00	120:53:00	11.00227249
DECANISTERED 1/23				303 .	0.010		0.00	0.001000101	00.20	10.0		14.70	1120104	12.00	121.00.00	100.00.00	120.00.00	
SAMPLE: 835.0'-	838.0' (Hi			ngs in canister St	becking	or 7					est. lost gas (	- (20)			TIME OF:			elepsed time (off bottom to canistering
day as wallatubb		D8.	grams 324.10								est. iost gas (	42			off bottom	at aurisce	in canister	11.5 minutes
dry sample weight:		0.715	324.10									76				1/18/04 12:58		0.192 hours
RIGILAB MEASUREMEI	MTS		CONVERS	SION OF BIGH AR	MEASH	REMENTS TO ST	(080 deg F; 14.7 pel)	CLIMA II ATIVE VOI	LMES (OSTP)	SCE/TON	SCF/TON				TIME SINCE	10/04 12.00	.710004 12.00	0.437797518 SQRT (hrs)
measured oc measur		measured P		absolute T (F) p		cubic ft (@STP)			COMES (WSIF)	without lost gas			TIME OF MEAS			at surface	in canister	SQRT hrs. (eince off bottom)
1	77			537 1		3.25799E-05		3.25799E-05	0.92			4.24	1/18/04		0:16:45	0:08:15	0:05:15	0.52836225
0	77			537 1		0	0.00	3.25799E-05	0.92			4.24	1/18/04	13:09	0:22:15	0:13:45	0:10:45	0.808960864
0	77	1079		537 1		0	0.00	3.25799E-05	0.92			4.24	1/18/04	13:14	0:27:00	0:18:30	0:15:30	0.870820393
0	77	1079		537 1		0	0.00	3.25799E-05	0.92	0.09		4.24	1/18/04	13:16	0:29:00	0:20:30	0:17:30	0.695221787
12	78				3.992	0.000389871	11.04	0.000422451	11.98	1,11	3	5.33	1/18/04	13:30	0:43:15	0:34:45	0:31:45	0.849019042
2	78		7E-05	538 1	3.992	8.49785E-05	1.84	0.000487429	13.60	1.30	3	5.52	1/18/04	13:32	0:45:00	0:38:30	0:33:30	0.888025404
2	78			538 1	3.992	8.49785E-05	1.64	0.000552408	15.64	1.5	5	5.70	1/18/04	13:34	0:46:30	0:38:00	0:35:00	0.880340843
0	78		0	538 1	3.992	0		0.000552408	15.84	1.58	3	5.70	1/18/04	13:35	0:47:45	0:39:15	0:38:15	0.892094913
1	78	1078	4E-05	538 1	3.992	3.24693E-05	0.92	0.000564897	16.58	1.64	1	5.79	1/18/04	13:38	0:48:45	0:40:15	0:37:15	0.901387819
1	78	1078	4E-05	538 1	3.992	3.24693E-05	0.92	0.000817388	17.48	1.73	3	5.88	1/18/04	13:37	0:49:45	0:41:15	0:38:15	0.910585892
4	78	1078	0.0001	538 1	3.992	0.000129957	3.68	0.000747343	21,18	2.08	9	6.24		13:40	0:52:45	0:44:15	0:41:15	0.937638879
1	78	1078	4E-05	538 1	3.992	3.24693E-05	0.92	0.000779633	22.08	2.10	3	6.33	1/18/04	13:42	0:54:45	0:46:15	0:43:15	0.955248659
2	78			538 1		6.49785E-05		0.000844811	23,92			6.52		13:43	0:56:15	0:47:45	0:44:45	0.988245837
2	78	1076		538 1		6.49785E-05	1.84	0.00090979	25.78			6.70		13:48	0:59:00	0:50:30	0:47:30	0.991631852
1	78	1078		538 1		3.24693E-05		0.000942279	26.88			6.79		13:47	1:00:15	0:51:45	0:48:45	1.002081168
1	78			536 1		3.24893E-05		0.000974788	27.60			8.88		13:48	1:01:00	0:52:30	0:49:30	1.008298897
1	78			536 1		3.24693E-05		0.001007257	28.52	2.82		6.97		13:49	1:02:15	0:53:45	0:50:45	1.018577439
1	78			538 1		3.24893E-05		0.001039747	29.44	2.9		7.08		13:50	1:03:15	0:54:45	0:51:45	1.026726189
1	78			538 1		3.24893E-05		0.001072236	30.38			7.15		13:52	1:04:45	0:56:15	0:53:15	1.03882947
2	78			538 1		6.49765E-05 3.24693E-05		0.001137214	32.20 33.12			7.33		13:53 13:55	1:08:15	0:57:45	0:54:45 0:56:15	1.050793351 1.082622542
1	78			536 1 536 1		3.24893E-05 3.24893E-05		0.001169704	33.12	3.2		7.52		13:55	1:07:45	1:00:45	0:57:45	1.074321491
1	78 78			536 1		6 49785E-05		0.001202193	35.88			7.70		13:59	1:09:15	1:03:15	1:00:15	1.093541647
3	78			536 1		9.74878E-05		0.001287171	38.64			7.70		14:02	1:14:30	1:08:00	1:03:00	1.114300977
2	78	1078		538 1		6.49785E-05		0.001429818	40.48	4.00		8.15		14:05	1:17:30	1:09:00	1:08:00	1.136515141
1	78			538 1		3.24893E-05		0.001482107	41.40			8.24		14:08	1:20:30	1:12:00	1:09:00	1.158303357
2	78			536 1		6.49785E-05		0.001527085	43.24	4.2		8.43		14:10	1:23:15	1:14:45	1:11:45	1.177921899
45	74			534 1		0.0014757		0.003002788	85.03	8.4		2.58		17:42	4:55:15	4:48:45	4:43:45	2.218295141
17	75			535 1		0.00055696		0.003559746	100.60			4.12		20:19	7:31:30	7:23:00	7:20:00	2.743173345
12	77			537 1				0.003951792	111.90	11.00		5.21	1/18/04		10:23:30	10:15:00	10:12:00	3.223610812
8	75					0.000262341		0.004214134	119.33			5.95	1/19/04		13:42:30	13:34:00	13:31:00	3.702476649
5	75			535 1				0.004376097	123.97			6.41	1/19/04		15:49:30	15:41:00	15:38:00	3.978064856
5	78			538 1	4.057	0.000183809		0.004541908	128.61	12.7		6.66	1/19/04		16:59:30	18:51:00	18:48:00	4.35794294
8	78			538 1		0.000280878		0.004802784	138.00	13.4		7.60	1/19/04	12:40	23:52:30	23:44:00	23:41:00	4.888205071
6	79			539 1		0.000195115		0.004997699	141.52	13.9	1	8.14	1/19/04	15:19	26:31:30	26:23:00	28:20:00	5.150242713
2	75			535 1		6.55247E-05		0.005063424	143.38			8.32	1/19/04	22:39	33:51:30	33:43:00	33:40:00	5.818791398
0.5	75			535 1	4.044	1.63963E-05	0.46		143.84	14.23	2 1	8.37	1/20/04	10:54	48:06:30	45:58:00	45:55:00	8.790311728
8	73		0.0002	533 1	4.135	0.000198772	5.63	0.005278592	149.47	14.78	3 1	8.93	1/21/04	10:20	89:32:30	69:24:00	69:21:00	8.339164626
4	76			536 1	4.135	0.000131773	3.73	0.005410365	153.20	15.14	1	9.30	1/22/04	11:48	94:58:30	94:50:00	94:47:00	9.745511787
8	75		0.0002		3.979		5.55	0.005606212	158.75	15.8	1	9.84	1/23/04	12:37	119:49:30	119:41:00	119:36:00	10.94846082
3	75			535 1	3.992	9.80143E-05	2.78	0.005704228	161.53	15.9	7 2	20.12	1/24/04	17:32	148:44:30	148:36:00	148:33:00	12.19596928
3	78	1069	0.0001	538 1	3.875	9.6654E-05	2.74	0.00580088	184.28	18.2	2	20.39	1/25/04	16:23	171:35:30	171:27:00	171:24:00	13.09930024
_																		

-1	7	5 10	78 -4E	05 535 13.99	2 -3.28714E-05	-0.93	0.005768209	183.34	18.15	20.30	1/28/04		194:38:30	194:30:00	194:27:00	13.95140375
-2	7	5 10	91 -7E				0.005702078	161.48	15.98	20.11	1/27/04		213:10:30	213:02:00	212:59:00	14.80051369
0	7			0 533 14.18			0.005702078	161.48	15.98	20.11	1/28/04		237:40:30	237:32:00	237:29:00	15.41871171
1	7				3 3.28222E-05	0.93	0.0057349	162.39	16.05	20.20	1/29/04	9:34	260:48:30	260:38:00	260:35:00	16.14852934
DECANISTERE	D 01/29/2004;	sample drie	d 8 days in	air												
SAMPLE: 1	101.0-1102.5	' (Anna Sha	le) cutting	In canister Stoeckinger 4												
		lbs.	grame						6	est. lost gas (cc) =			TIME OF:			elepsed time (off bottom to canistering)
dry sample weig	ht:	0.1	28 57.	13						9					in canteter	26.0 minutes
					UDEL SELECTO TO OTTO ( O OO -	-5.4430	CLEAR ATREVOLUE	*****************	OF TON	CF/TON			1/18/04 23:21 TIME SINCE	1/18/04 23:32	1/18/04 23:47	0.433 hours 0.658280589 SQRT (hrs)
measured oc m		money word			UREMENTS TO STP (@60 de cubic ft (@STP) cc (@STI		cubic ft cc				TIME OF MEAS			at surface	in canister	SQRT hrs. (since off bottom)
medeured oc in	neasured (F)			0 537 14.04		0.00	0	0.00	0.00	5.05	1/18/04		0:29:00	0:18:00	0:03:00	0.695221787
1	7						3.26705E-05	0.93	0.52	5.57	1/18/04		0:36:00	0:25:00	0:10:00	0.774596889
2	7	7 10	32 7E-	05 537 14.04	4 8.53411E-06	1.85	9.80116E-05	2.78	1.56	6.60	1/19/04	0:09	0:48:00	0:37:00	0:22:00	0.894427191
2	7	7 10					0.000163353	4.63	2.59	7.64	1/19/04		1:01:30	0:50:30	0:35:30	1.012422837
1	7						0.000198023	5.55	3.11	8.16	1/19/04		1:08:00	0:57:00	0:42:00	1.064581295
2	7						0.000261364	7.40 9.25	4.15 5.19	9.20 10.23	1/19/04		1:25:30	1:14:30	0:59:30 2:17:00	1.193733639 1.646231375
2	7						0.000328708	10.18	5.71	10.75	1/19/04		3:07:30	2:56:30	2:41:30	1.767766953
-2	7						0.000393791	8.32	4.67	9.71	1/19/04		4:05:00	3:54:00	3:39:00	2.020725942
1	7						0.000328552	9.25	5.19	10.23	1/19/04		8:27:00	8:16:00	8:01:00	2.908888371
0	7			0 538 14.04	0	0.00	0.000328552	9.25	5.19	10.23	1/19/04	12:36	13:15:00	13:04:00	12:49:00	3.640054945
1	7			05 539 14.03	3.25192E-05	0.92	0.000359071	10.17	5.70	10.75		15:17	15:58:00	15:45:00	15:30:00	3.991657968
-3	7						0.000280784	7.38	4.14	9.19		22:37	23:16:00	23:05:00	22:50:00	4.823553324
-1	7						0.000227992	6.48	3.62	8.67		10:54	35:33:00	35:22:00	35:07:00	5.982382074
-5	7:					-4.67	6.29877E-05	1.78	1.00	6.05 3.41		10:21	59:00:00 84:26:00	58:49:00 84:15:00	58:34:00 84:00:00	7.881145748 9.188781251
-5 1.1	7:				3 -0.000185933 0.000359052	-4.70 10.17	-0.00010297 0.000258087	7.25	-1.64 4.07	9.11		12:36	109:15:00	109:04:00	108:49:00	10.45227248
-1	7		78 -4E-		2 -3.28714E-05		0.000223415	6.33	3.55	8.59	1/24/04		138:12:00	138:01:00	137:46:00	11.75584961
DECANISTERE																
SAMPLE: 1	158.0'-1181.0'	Little Osa	ge Shale) grams	cuttings in canleter Brady	27					st. lost gas (oc) =			TIME OF:			elapsed time (off bottom to canistering)
dry sample weig	d-d-		25 737.	0.9					0	39				at surface	in canleter	35.8 minutes
dry sample weig	n M.	1.0														
													1/19/04 1:58	1/19/04 2:10	1/19/04 2:34	0.598 hours
RIGILAB MEASU	REMENTS		CONV	ERSION OF RIGILAR MEAS	UREMENTS TO STP (@60 de	g F; 14.7 pal)	CUMULATIVE VOLUE	MES(OSTP)	SCF/TON S	CF/TON			1/19/04 1:58 TIME SINCE	1/19/04 2:10		0.771902412 SQRT (hre)
RIG/LAB MEASU measured oc in			P cubic	t absolute T (F) pale	cubic ft (OSTP) oc (OSTI	P)	cubic ft cc	1	vithout lost gas w	ith lost gas	TIME OF MEAS	SURE (	TIME SINCE off bottom	at surface	in canlater	0.771902412 SQRT (hre) SQRT hre. (since off bottom)
	neasured T (F)	5 10	P cubic 32 0.00	t absolute T (F) pais 01 535 14.044	cubic ft (@STP) cc (@STI 0.000131171	P) 3.71	ouble ft cc 0.000131171	3.71	vithout lost gas w 0.16	vith lost gas	1/19/04	2:40	TIME SINCE off bottom 0:42:15	at surface 0:30:45	in canlater 0:06:30	0.771902412 SQRT (hre) SQRT hre. (since off bottom) 0.639146392
measured cc in	neesured T (F)	5 10 5 10	P cubic 32 0.00 32 4E-	t absolute T (F) pels 01 535 14.044 05 535 14.044	cubic ft (@STP) cc (@STI 0.000131171 3.27927E-05	3.71 0.93	oubic ft cc 0.000131171 0.000163963	3.71 4.84	vithout lost gas w 0.16 0.20	rith lost gas 1.88 1.90	1/19/04	2:40 2:44	TIME SINCE off bottom 0:42:15 0:48:15	at surface 0:30:45 0:34:45	0:06:30 0:10:30	0.771902412 SQRT (hre) SQRT hra. (since off bottom) 0.639146392 0.877971148 estimate
measured cc in 4 1 2	neesured T (F)	5 10 5 10 5 10	P cubic 32 0.00 32 4E- 32 7E-	t absolute T (F) peis 01 535 14.044 05 535 14.044 05 535 14.044	cubic ft (@STP) cc (@STI 0.000131171 3.27927E-05 6.55853E-05	3.71 0.93 1.86	cubic ft cc 0.000131171 0.000163963 0.000229549	3.71 4.84 8.50	vithout lost gas w 0.18 0.20 0.28	ith lost gas 1.88 1.90 1.98	1/19/04 1/19/04 1/19/04	2:40 2:44 2:47	TIME SINCE off bottom 0:42:15 0:48:15 0:48:45	0:30:45 0:34:45 0:37:15	0:06:30 0:10:30 0:13:00	0.771902412 SQRT (hre) SQRT hrs. (since off bottom) 0.639146392 0.877971148 estimate 0.901387819
measured oc n 4 1 2 3	neesured T (F) 7: 7: 7: 7: 7:	5 10 5 10 5 10 5 10	P cubic 32 0.00 32 4E- 32 7E- 32 0.00	t sheokte T (F) psis 01 535 14.044 05 535 14.044 05 535 14.044	cubic ft (@STP) cc (@STI 0.000131171 3.27927E-05 6.55853E-05 9.8378E-06	7) 3.71 0.93 1.86 2.79	cubic ft cc 0.000131171 0.000163963 0.000229549 0.000327927	3.71 4.84	vithout lost gas w 0.16 0.20	rith lost gas 1.88 1.90	1/19/04 1/19/04 1/19/04 1/19/04	2:40 2:44 2:47 2:54	TIME SINCE off bottom 0:42:15 0:48:15 0:48:45 0:58:15	0:30:45 0:34:45 0:37:15 0:44:45	0:06:30 0:10:30 0:13:00 0:20:30	0.771902412 SQRT (hre) SQRT hra. (eince off bottom) 0.639146392 0.877971148 estimate 0.901387819 0.968245637
measured cc in 4 1 2	neasured T (F) 7: 7: 7: 7: 7: 7: 7: 7: 7:	5 10 5 10 5 10 5 10 5 10	P cubic 32 0.00 32 4E- 32 7E- 32 0.00 32 0.00	t absolute T (F) pain 535 14.044 55 535 14.044 55 535 14.044 51 535 14.044 52 535 14.044	cubic ft (@STP) cc (@STI 0.000131171 3.27927E-05 6.55853E-05 9.8378E-05 0.000183963	7) 3.71 0.93 1.86 2.79 4.64	cubic ft cc 0.000131171 0.000163963 0.000229549	3.71 4.84 6.50 9.29	0.16 0.20 0.28 0.40	rith lost gas 1.88 1.90 1.98 2.10	1/19/04 1/19/04 1/19/04	2:40 2:44 2:47 2:54 3:04	TIME SINCE off bottom 0:42:15 0:48:15 0:48:45	0:30:45 0:34:45 0:37:15	0:06:30 0:10:30 0:13:00	0.771902412 SQRT (hre) SQRT hrs. (since off bottom) 0.639146392 0.877971148 estimate 0.901387819
measured oc n 4 1 2 3 5	neesured T (F) 7: 7: 7: 7: 7:	5 10 5 10 5 10 5 10 5 10 5 10	P cuble	t absolute T (F) pein 01 535 14.044 05 535 14.044 05 535 14.044 01 535 14.044 02 535 14.044	cubic ft (@STP) cc (@STI 0.000131171 3.27927E-05 0.55853E-05 9.8378E-05 0.000183983 0.000198758	7) 3.71 0.93 1.86 2.79 4.64 5.57	cubic ft cc 0.000131171 0.000163963 0.000229549 0.000327927 0.00049189	3.71 4.64 6.50 9.29 13.93	0.18 0.20 0.28 0.40 0.61	1.88 1.90 1.98 2.10 2.30	1/19/04 1/19/04 1/19/04 1/19/04	2:40 2:44 2:47 2:54 3:04 3:24	TIME SINCE off bottom 0:42:15 0:48:15 0:48:45 0:56:15 1:05:45	0:30:45 0:34:45 0:37:15 0:44:45 0:54:15 1:14:30 2:25:00	0:08:30 0:10:30 0:13:00 0:20:30 0:30:00 0:50:15 2:00:45	0.771902412 SQRT (hre) SQRT hra. (since off bottom) 0.839148392 0.877971148 estimate 0.901387819 0.988245837 1.048620583 1.197219 1.815033539
measured cc	neasured T (F) 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7:	5 10 5 10 5 10 5 10 5 10 5 10 5 10	P cuble   0.00   82   4E-82   7E-82   0.00   82   0.00   82   0.00   83   0.00   83   0.00	t absolute T (F) pein 01 535 14.04 05 535 14.04 05 535 14.04 01 535 14.04 02 535 14.04 02 535 14.04 04 536 14.05	cubic ft (@STP) oc (@ST)  0.000131171  3.27927E-05  6.55853E-05  9.8378E-05  0.000183983  0.000189758  0.00049189  7.0000393141	7) 3.71 0.93 1.86 2.79 4.64 5.57 13.93 11.13	cubic ft cc 0.000131171 0.000163963 0.000229549 0.000327927 0.00049189 0.00068646 0.001180536 0.001573677	3.71 4.64 6.50 9.29 13.93 19.50 33.43 44.56	vithout lost gas w 0.16 0.20 0.28 0.40 0.61 0.85 1.45	ith lost gas 1.88 1.90 1.98 2.10 2.30 2.54 3.15 3.83	1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04	2:40 2:44 2:47 2:54 3:04 3:24 4:35 7:49	TIME SINCE off bottom 0:42:15 0:48:15 0:48:45 0:56:15 1:05:45 1:28:00 2:38:30 5:50:30	0:30:45 0:34:45 0:37:15 0:44:45 0:54:15 1:14:30 2:25:00 5:39:00	in canleter 0:06:30 0:10:30 0:10:30 0:20:30 0:30:00 0:50:15 2:00:45 5:14:45	0.771902412 SQRT (hre) SQRT hra. (since off bottom) 0.839148392 0.877971148 estimate 0.901387819 0.988245837 1.048820583 1.197219 1.815033539 2.418954006
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### ### ##############################	7 (F) 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	5 10 5 10 5 10 5 10 5 10 5 10 5 10 6 10 5 10 6 10 5 10 6 10 6 10 6 10 6 10 6 10 6 10 6 10 6	P cuble 0.00 32 4E- 32 7E- 32 7E- 32 0.00 32 0.00 32 0.00 33 0.00 33 0.00 31 1.00 31 31 32 0.00 31 0.00 31 0.00 31 0.00 31 0.00 31 0.00 31 0.00 31 0.00 32 0.00 33 0.00 33 0.00 34 0.00 35 0.00 36 0.00 37 0.00 38 4E- 39 0.00 39 0.00 30 0.00 31 0.00 31 0.00 32 0.00 33 0.00 34 8 deys in 30 0.00 35 0.00 36 0.00 37 0.00 38 0.00 38 0.00 39 0.00 39 0.00 39 0.00 30	t absolute T (F) pais 1	cubic ft (@STP) co (@STI  0.000131171 3.27927E-05 4.55553E-05 4.55553E-05 5.000183983 0.000198758 0.00049897 0.000383141 0.000423927 9.7739E-05 0.000423927 9.7739E-05 0.000132747 0.000359052 3.26714E-05 0.00126533 20.00126533 20.00018397 0.000226518	9) 3.71 0.93 1.86 2.79 4.64 5.57 13.93 11.13 12.00 2.77 0.00 0.00 0.00 -3.74 -3.76 10.17 0.93 3.84 -4.64 -7.55	cubic ft cc 0.000131171   0.000163963   0.000229549   0.000327927   0.00049189   0.000327927   0.0018573877   0.001997804   0.002095343   0.002095343   0.002095343   0.002095343   0.002095343   0.002095343   0.002186984   0.001920446   CCUMULATIVE VOLUI  cubic ft cc 0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000239719	3.71 4.64 6.50 9.29 13.93 19.50 33.43 44.56 56.57 59.33 59.3	vithout lost gas w 0.16 0.20 0.28 0.40 0.61 0.85 1.45 1.94 2.46 2.56 2.58 2.58 2.42 2.25 2.99 2.74 2.89 2.33  SCF/TON S vithout lost gas w 0.89 0.89 0.89	/ith lost gas 1.88 1.90 1.98 2.10 2.30 2.54 3.15 3.83 4.15 4.27 4.27 4.27 4.11 3.95 4.39 4.43 4.59 4.39 4.06  st. lost gas (cc) = 40  CCF/TON rith lost gas 4.95 5.15 5.35	1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04	2:40 2:44 2:47 2:54 3:04 4:35 7:49 12:37 7:49 12:35 10:53 10:13 10:27 9:59	TIME SINCE off bottom 0:42:15 0:48:15 0:48:15 0:48:45 1:28:00 2:38:30 5:50:30 15:20:30 32:54:30 32:54:30 16:38:30 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:	at surface  0:30:45 0:34:45 0:37:15 0:44:45 0:54:15 1:14:30 2:25:00 5:39:00 10:27:00 12:55:00 32:43:00 61:38:00 108:25:00 135:24:00 136:	in canieter  0:06:30 0:10:30 0:10:30 0:20:30 0:30:00 0:50:15 2:00:45 5:14:45 10:02:45 12:30:45 14:44:45 20:00:45 32:16:45 55:48:45 81:13:45 106:00:45 134:59:45 136:52:45 199:24:45  In canieter 1/19/04 3:04 in canieter 0:05:45 0:07:30 0:10:30	0.771902412 SQRT (hre) SQRT hra. (since off bottom) 0.839148392 0.877971148 estimate 0.901387819 0.988245837 1.048820583 1.197219 1.815033539 2.418954008 3.282158751 3.820543237 3.918843988 4.539840221 5.738578539 7.508328709 9.045717219 10.32513115 11.84438348 12.5886854 13.47128572 14.14243025 eiapsed time (off bottom to canistering) 18.0 minutes 0.300 hours 0.547722558 SCRT (hrs) SCRT hrs. (since off bottom) 0.82915287 0.851920241 0.858202438
Meesured cc	neesured T (F) 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7:	5 10 5 10 5 10 5 10 5 10 5 10 6 8 10 8 10 8 10 8 10 6 10 7 10 7 10 7 10 7 10 7 10 7 10 7 10 7	P cuble   2	t absolute T (F) pais 1 535 14.04 05 535 14.04 05 535 14.04 01 535 14.04 02 535 14.04 02 535 14.04 04 536 14.05 05 536 14.05 05 536 14.06 01 536 14.06 01 536 14.06 01 536 14.06 01 537 14.04 01 538 14.03 01 538 14.04 02 538 14.04 05 535 14.04	cubic ft (@STP) co (@STI  0.000131171  0.00013177  0.327927E-05  0.55853E-05  0.000183983  0.000180758  0.00043997  0.000393141  0.000423927  9.7739E-05  0.000132019  0.000132019  0.000132747  0.000393147  0.000393147  0.000393147  0.000393147  0.000393147  0.000393147  0.000393147  0.000393147  0.000393147  0.000393147  0.000393147  0.000393147  0.000393147  0.000393147  0.000393147  0.000393147  0.000393147	9) 3.71 0.93 1.86 2.79 4.64 5.57 13.93 11.13 12.00 2.77 0.00 0.00 0.00 0.00 0.00 3.74 -3.76 4.64 -7.55	cubic ft cc 0.000131171   0.000163963   0.000229549   0.000327927   0.00049189   0.000327927   0.00049189   0.0001573877   0.001573877   0.001997804   0.002095343   0.002095343   0.002095343   0.002095343   0.002095343   0.002095343   0.002295343   0.002295343   0.002295343   0.002295343   0.002295343   0.002295343   0.00218983   0.002222301   0.002222301   0.002222301   0.002225549   0.00229549   0.000229549   0.000229549   0.000229549   0.000229549   0.0002295194   0.0002380719   0.00049189	3.71 4.64 6.50 9.29 13.93 19.50 33.43 34.58 56.57 59.33 59.33 59.33 55.59 51.84 62.00 62.93 66.57 61.93 54.36	without lost gas w 0.16 0.20 0.28 0.40 0.61 0.85 1.45 1.94 2.46 2.56 2.58 2.58 2.42 2.25 2.69 2.74 2.89 2.36   SCEFTON	### lost gas  1.88 1.90 1.98 2.10 2.30 2.54 3.15 3.63 4.15 4.27 4.27 4.27 4.27 4.11 3.95 4.39 4.43 4.59 4.39 4.06  ###################################	1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/22/04	2:40 2:47 2:47 2:54 4:35 3:04 4:35 7:49 12:37 7:49 12:37 7:49 12:37 7:49 12:35 10:53 11:48 12:35 10:53 11:48 12:35 10:53 13:54 14:55 15:59	TIME OF:  off bottom  0:42:15 0:48:15 0:48:45 0:56:15 1:05:45 1:28:00 2:36:30 10:36:30 13:06:30 15:20:30 32:54:30 32:54:30 16:36:30 17:36:30 18:126:30 20:30:30 18:126:30 20:00:30	at surface  0:30:45 0:34:45 0:37:15 0:44:45 0:54:15 1:14:30 2:25:00 5:39:00 10:27:00 12:55:00 15:09:00 32:43:00 56:11:00 106:25:00 135:24:00 136:25:00 136:25:00 136:25:00 140:25:00 150:17:00 181:17:00	in canieter  0:06:30 0:10:30 0:10:30 0:20:30 0:30:00 0:50:15 2:00:45 5:14:45 10:02:45 12:30:45 14:44:45 20:00:45 32:18:45 55:48:45 134:59:45 134:59:45 137:52:45 180:52:45 199:24:46  in canieter 1/19/04 3:04 in canieter 0:05:45 0:07:30 0:10:30 0:16:30	0.771902412 SQRT (hre) SQRT hra. (since off bottom) 0.839148392 0.877971148 estimate 0.901387819 0.988245837 1.048820583 1.197219 1.815033539 2.418954006 3.282158751 3.620543237 3.918643988 4.539640221 5.736576539 7.508328709 9.045717219 10.32513115 11.68438848 12.5886654 13.47128572 14.14243025  eispeed time (off bottom to canistering) 18.0 minutes 0.300 hours 0.547722558 SQRT (hre) SQRTT hrs. (eince off bottom) 0.02915287 0.651920241 0.669202430 0.755287544
### 1	7 (F) 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	5 10 5 10 5 10 5 10 5 10 5 10 6 10 6 10 8 10 8 10 8 10 8 10 8 10 8 10 8 10 8	P cuble 0.00 32 4E- 32 7E- 32 7E- 32 0.00 32 0.00 32 0.00 33 0.00 33 0.00 31 1.00 31 31 32 0.00 31 0.00 31 0.00 31 0.00 31 0.00 31 0.00 31 0.00 31 0.00 32 0.00 33 0.00 33 0.00 34 0.00 35 0.00 36 0.00 37 0.00 38 4E- 39 0.00 39 0.00 30 0.00 31 0.00 31 0.00 32 0.00 33 0.00 34 8 deys in 30 0.00 35 0.00 36 0.00 37 0.00 38 0.00 38 0.00 39 0.00 39 0.00 39 0.00 30	t absolute T (F) pais 1 535 14.04 05 535 14.04 05 535 14.04 05 535 14.04 02 535 14.04 02 535 14.04 03 535 14.04 04 536 14.05 05 536 14.04 04 536 14.03 0 536 14.03 0 536 14.03 0 537 14.04 01 538 14.03 0 538 14.04 01 538 14.03 0 538 14.04 01 538 14.03 0 538 14.03 0 538 14.04 01 538 14.03 0 538 14.03 0 538 14.04 01 538 14.03 0 538 14.03 0 538 14.03 0 538 14.03 0 538 14.03 0 538 14.03 0 538 14.03 0 538 14.03 0 538 14.03 0 538 14.03 0 538 14.03 0 538 14.03 0 538 14.03 0 538 14.03 0 538 14.03 0 538 14.03 0 538 14.03 0 538 14.03	cubic ft (@STP) co (@STI 0.000131171 0.000131171 0.55853E-05 0.55853E-05 0.000189893 0.000189893 0.000189893 0.000189758 0.000423927 0.7739E-05 0.000132019 0.000393141 0.000423927 0.7739E-05 0.000132019 0.000359052 0.20714E-05 0.000132747 0.000359052 0.00013283 0.000128633 0.000128633 0.000128633 0.0001286351 0.000289518	9) 3.71 0.93 1.86 2.79 4.64 5.57 13.93 11.13 12.00 2.77 0.00 0.00 0.00 0.00 0.3.74 -3.76 10.93 3.84 -7.55	cubic ft cc 0.000131171   0.000163963   0.000229549   0.000327927   0.00049189   0.000327927   0.0018573877   0.001997804   0.002095343   0.002095343   0.002095343   0.002095343   0.002095343   0.002095343   0.002186984   0.001920446   CCUMULATIVE VOLUI  cubic ft cc 0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000229549   0.000239719	3.71 4.64 6.50 9.29 13.93 19.50 33.43 44.56 56.57 59.33 59.3	vithout lost gas w 0.16 0.20 0.28 0.40 0.61 0.85 1.45 1.94 2.46 2.56 2.58 2.58 2.42 2.25 2.99 2.74 2.89 2.33  SCF/TON S vithout lost gas w 0.89 0.89 0.89	/ith lost gas 1.88 1.90 1.98 2.10 2.30 2.54 3.15 3.83 4.15 4.27 4.27 4.27 4.11 3.95 4.39 4.43 4.59 4.39 4.06  st. lost gas (cc) = 40  CCF/TON rith lost gas 4.95 5.15 5.35	1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04 1/22/04	2:40 2:44 2:47 2:54 3:24 4:35 3:24 4:35 7:49 12:37 15:05 10:21 11:40 12:35 10:21 11:40 12:35 10:21 11:40 12:35 10:21 11:40 12:35 10:21 13:27 9:59	TIME SINCE off bottom 0:42:15 0:48:15 0:48:15 0:48:45 1:28:00 2:38:30 5:50:30 15:20:30 32:54:30 32:54:30 16:38:30 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:20 15:	at surface  0:30:45 0:34:45 0:37:15 0:44:45 0:54:15 1:14:30 2:25:00 5:39:00 10:27:00 12:55:00 32:43:00 61:38:00 108:25:00 135:24:00 136:	in canieter  0:06:30 0:10:30 0:10:30 0:20:30 0:30:00 0:50:15 2:00:45 5:14:45 10:02:45 12:30:45 14:44:45 20:00:45 32:16:45 55:48:45 81:13:45 106:00:45 134:59:45 136:52:45 199:24:45  In canieter 1/19/04 3:04 in canieter 0:05:45 0:07:30 0:10:30	0.771902412 SQRT (hre) SQRT hra. (since off bottom) 0.839148392 0.877971148 estimate 0.901387819 0.988245837 1.048820583 1.197219 1.815033539 2.418954008 3.282158751 3.820543237 3.918843988 4.539840221 5.738578539 7.508328709 9.045717219 10.32513115 11.84438348 12.5886854 13.47128572 14.14243025 eiapsed time (off bottom to canistering) 18.0 minutes 0.300 hours 0.547722558 SCRT (hrs) SCRT hrs. (since off bottom) 0.82915287 0.851920241 0.858202438

	2	75	1082	7E-05	535	14.044	6.55853E-05	1.66	0.00075423	21.36	2.28	8.54	1/19/04 3:3	3 0:47:15	0:35:15	0:29:15	0.687411967
	3	75	1082			14.044	9.6378E-05	2.79	0.000852808	24.14	2.57	8.83	1/19/04 3:4	0 0:54:30	0:42:30	0:38:30	0.95308523
	7	75	1082	0.0008		14.044	0.000557475		0.001410085		4.25		1/19/04 4:2	8 1:42:00	1:30:00	1:24:00	1.303840481
3		76	1083	0.0011		14.057			0.002392937		7.22		1/19/04 7:2				
	5	77	1083	0.0002	537	14.057	0.000163504	4.83	0.00255844	72.39	7.71	11.97	1/19/04 8:3	7 5:51:00	5:39:00	5:33:00	2.416877324
	8	79	1083	0.0003		14.057			0.002817075		6.50		1/19/04 9:5			6:49:00	
	В	78	1082	0.0003		14.044			0.003077954		9.29		1/19/04 12:3			9:31:00	
	9	79	1081	0.0003		14.031			0.003370827		10.17	14.43	1/19/04 15:1			12:12:00	
	В	80	1081	0.0002		14.031			0.003585381		10.78		1/19/04 17:1			14:14:00	
	2	75	1081	7E-05		14.031			0.003830905		10.95	15.22	1/19/04 22:3			19:30:00	
	0	75	1082	0.0004		14.044			0.003958832		11.94	18.20	1/20/04 10:5			31:46:00	5.88588819
1		73	1089	0.0004		14.135			0.004323247		13.04	17.30	1/21/04 10:2			55:18:00	7.456540753
1		78	1095	0.0004		14.213			0.004854495		14.04 15.42	18.30 19.88	1/22/04 11:4			80:44:00 105:31:00	9.001851881 10.28872283
1	4	75 75	1077	0.0003		13.992		6.46			18.11	20.37	1/24/04 17:3			134:31:00	11.81105795
	6	78	1078	0.0002		13.875			0.005533478		18.89	20.37	1/25/04 16:2			157:24:00	
	0	75	1078	4E-05		13.092					18,79	21.05	1/28/04 15:2			180:24:00	
	2	75	1076	-7E-05		14,181					18.59	20.85	1/27/04 10:0			198:58:00	14.11500384
	2	73	1091	7E-05		14.181					18.79	21.05	1/26/04 10:2			223:25:00	
	4	78	1085	0.0001		14.063			0.005897887		17.19	21.45	1/29/04 9:3			248:31:00	15.71039995
	3	73	1089	-0.0001		14,135			0.005598301	156.53	18.69	21.15	1/30/04 10:3			271:31:00	
	9	79	1081	0.0003		14.031			0.005890974		17.77	22.03	1/31/04 12:3			297:31:00	
	2	74	1080	-7E-05		14.016			0.005825387	184.98	17.57	21.84	2/1/04 14:4	9 324:03:00	323:51:00	323:45:00	18.00138884
		73	1085	-4E-05		14.083			0.00579238	164.02	17.47	21.74	2/2/04 15:3	3 348:47:00	348:35:00	348:29:00	18.67574184
	0	77	1094	0		14.200		0.00	0.00579238	184.02	17.47	21.74	2/3/04 12:1	8 389:32:00	389:20:00	389:14:00	19.22324961
	2	75	1087	7E-05	535	14.109	8.56684E-05	1.67	0.005858288	185.89	17.87	21.94	2/4/04 18:2	2 397:38:00	397:24:00	397:16:00	19.93990973
	2	75	1080	7E-05	535	14.016	6.54641E-05	1.85	0.005923733	167.74	17.87	22.13	2/5/04 14:3	8 419:50:00	419:38:00	419:32:00	20.48983488
-	1	75	1088	-4E-05		14.098			0.005890818		17.77	22.03	2/6/04 9:3			438:28:00	20.94598222
-	3	74	1095	-0.0001		14.213			0.005791073	183.98	17.47	21.73	2/7/04 13:3			488:29:00	21.80518913
	4	74	1083	0.0001		14.057				187.71	17.87	22.13	2/8/04 12:1			489:11:00	22.12427023
		74	1091	-4E-05		14,181			0.005889483		17.77	22.03	2/9/04 10:2			511:18:00	22.81657844
	0	75	1092	0		14,174	0	0.00	0.005889483	188.77	17.77	22.03	2/10/04 10:1	6 535:30:00	535:18:00	535:12:00	23.14087293
DECANISTE	RED 2/10/20	004; sample	le dried 10 d	days in air	r												
QAMPI E-	1250 0513	252 O' (Bes	vier coal) c	uttings in	canister Stoecki	loner 5											
SAMPLE:	1250.0'-12				canister Stoecki	Inger 5						est. lost cas (oc) =		TIME OF:			elapsed time (off bottom to canistering
		252.0° (Bev lba.	A .	grams 304.04	canister Stoecki	Inger 5						est. lost gas (oc) =		TIME OF:	at surface	in canieler	elapsed time (off bottom to canistering 22.5 minutes
SAMPLE:			A .	grams	canister Stoecki	Inger 5									on our doo	in canister 1/19/04 5:45	elapsed time (off bottom to canistering 22.5 minutes 0.375 hours
dry sample v	veight:	lba.	0.870	grams 304.04			PREMENTS TO STR	P (\$60 dag F; 14.7 pal)	CUMULATIVE V	DLUMES (@STP)	SCF/TON			off bottom	on our doo		22.5 minutes 0.375 hours
	veight:	lbs.	0.870	grams 304.04		MEASU	PREMENTS TO STR cubic ft (@STP)		CUMULATIVE VI			38 SCF/TON	TIME OF MEASURE	off bottom 1/19/04 5:23 TIME SINCE	on our doo		22.5 minutes
dry sample v	veight:	lbs.	0.870	grams 304.04	SION OF RIGALAB	MEASU	cubic ft (@STP)	oc (@STP)				38 SCF/TON	TIME OF MEASURE 1/19/04 5:4	off bottom 1/19/04 5:23 TIME SINCE off bottom	1/19/04 5:38 at surface	1/19/04 5:46	22.5 minutes 0.375 hours 0.612372438 SQRT (hrs)
dry sample v	veight: SUREMENT: measured	S IT (F) me	0.870	grams 304.04 CONVERS cubic ft	SION OF RIGALAB absolute T (F) p	MEASU pela	aubic ft (@STP) 8.55853E-05	oc (@STP)	cubic ft 8.55853E-05	cc	without lost gas 0.20	36 SCF/TON with lost gas		off bottom 1/19/04 5:23 TIME SINCE off bottom 8 0:24:30	1/19/04 5:36 at surface 0:12:00	1/19/04 5:46 in canister	22.5 minutes 0.375 hours 0.612372438 SQRT (hrs) SQRT hrs. (since off bottom)
dry sample v	veight: \SUREMENT: : meesured	S IT (F) mer	0.870 easured P	grams 304.04 CONVERS cubic fi 7E-05	SION OF RIGILAB absolute T (F) p 535 1	MEASU pela 14.044	aubic ft (@STP) 8.55853E-05 9.8376E-05	cc (@STP) 1.86 2.79	cubic ft	1.88	without lost gas	SCF/TON with lost gas 4.20	1/19/04 5:4	off bottom 1/19/04 5:23 TIME SINCE off bottom 8 0:24:30 3 0:29:30	at surface 0:12:00 0:17:00	1/19/04 5:46 in canister 0:02:00	22.5 minutes 0.375 hours 0.612372438 SQRT (hrs) SQRT hrs. (since off bottom) 0.639009851
dry sample v	weight: ASUREMENT: Immessured 2 3	S 1T (F) mei 75 75	0.870 0.870 easured P 1082 1082	grams 304.04 CONVERS cubic ft 7E-05 0.0001	BION OF RIGALAB absolute T (F) p 535 1 535 1	MEASU pela 14.044 14.044	aubic ft (@STP) 8.55853E-05 9.8376E-05 0.000183963	oc (@STP) 1.86 2.79 4.64	cubic ft 8.55853E-05 0.000183983	1.88 4,84	without lost gas 0.20 0.49	SCF/TON with lost gas 4.20 4.49 4.98	1/19/04 5:4 1/19/04 5:5	off bottom 1/19/04 5:23 TIME SINCE off bottom 0:24:30 0:29:30 9 0:38:15	1/19/04 5:36 at surface 0:12:00 0:17:00 0:23:45	1/19/04 5:46 in canister 0:02:00 0:07:00	22.5 minutes 0.375 hours 0.612372438 SQRT (hrs) SQRT hrs. (since off bottom) 0.639009851 0.701189488
dry sample v	weight:  ASUREMENT:  measured  2  3  5	S IT (F) mer 75 75 75	0.870 easured P 1082 1082 1082	grams 304.04 CONVERS cubic ft 7E-06 0.0001 0.0002	SION OF RIGILAB absolute T (F) p 535 1 535 1 535 1	MEASU pela 14.044 14.044	oubic ft (@STP) 8.55853E-05 9.8376E-05 0.000183963 0.000295134	oc (@STP) 1.86 2.79 4.64 8.38	cubic ft 8.55853E-05 0.000183983 0.000327927	1.88 4.84 9.29	vithout lost gas 0.20 0.49 0.98	38 SCF/TON with lost gas 4.20 4.49	1/19/04 5:4 1/19/04 5:5 1/19/04 5:5	off bottom 1/19/04 5:23 TIME SINCE off bottom 8 0:24:30 3 0:29:30 9 0:36:15 4 0:51:15	1/19/04 5:38 at surface 0:12:00 0:17:00 0:23:45 0:38:45	1/19/04 5:46 in canister 0:02:00 0:07:00 0:13:45	22.5 minutes 0.375 hours 0.612372438 SCFIT (hrs) SQRT hrs. (since off bottom) 0.639009651 0.701189468 0.777281588
dry sample v	weight: SUREMENT: measured 2 3 5 9 9	S IT (F) mer 75 75 75 75 75 75	0.870 0.870 988ured P 1082 1082 1082 1082	grams 304.04 CONVERS cubic ft 7E-05 0.0001 0.0002 0.0003 0.0003	SION OF RICALAB absolute T (F) p 535 1 535 1 535 1 535 1	MEASU pela 14.044 14.044 14.044	oubic ft (@STP) 8.55853E-05 9.8376E-05 0.000183963 0.000295134	cc (@STP)  1.86 2.79 4.64 8.38 8.38	cubic ft 8.55853E-05 0.000183983 0.000327927 0.000823081 0.000918195	1.88 4.84 9.29 17.64 28.00	vithout lost gas 0.20 0.49 0.98 1.88	38 SCF/TON with lost gas 4.20 4.49 4.98 5.88	1/19/04 5:4 1/19/04 5:5 1/19/04 5:5 1/19/04 8:1	off bottom 1/19/04 5:23 TIME SINCE off bottom 6 0:24:30 3 0:29:30 9 0:36:15 4 0:51:15 1 1:06:15	1/19/04 5:36 at surface 0:12:00 0:17:00 0:23:45 0:38:45 0:55:45	1/19/04 5:46 in canister 0:02:00 0:07:00 0:13:45 0:26:45	22.5 minutes 0.375 hours 0.812372438 SCRT (hrs) SQRT hrs. (since off bottom) 0.639009851 0.701189488 0.777281588 0.924211378
dry sample v	veight:  SUREMENT!  measured  2  3  5  9  9	S IT (F) mer 75 75 75 75 76 78	0.870 0.870 0.870 1082 1082 1082	grams 304.04 CONVERS cubic ft 7E-05 0.0001 0.0002 0.0003 0.0003	SION OF RIGALAB absolute T (F) ; 535 1 535 1 535 1 535 1 536 1	MEASU pela 14.044 14.044 14.044 14.044 14.044	cubic ft (@STP) 8.55853E-05 9.8376E-05 0.000183963 0.000295134 0.000295134	cc (@STP)  1.86 2.79 4.64 6.38 6.38 21.34	cubic ft 8.55853E-05 0.000183983 0.000327927 0.000823061 0.000918195 0.001871714	1.86 4.84 9.29 17.84 28.00 47.34	without lost gas 0.20 0.49 0.98 1.88 2.74 4.99	38 SCF/TON with lost gas 4.20 4.49 4.98 5.68 8.74 8.99	1/19/04 5:4 1/19/04 5:5 1/19/04 5:5 1/19/04 8:1 1/19/04 6:3 1/19/04 7:5	off bottom 1/19/04 5:23 TIME SINCE 0 off bottom 0 0:24:30 0 0:29:30 9 0:38:15 4 0:51:15 1 1:08:15 2 2:28:30	1/19/04 5:36 at surface 0:12:00 0:17:00 0:23:45 0:36:45 0:55:45 2:18:00	1/19/04 5:46 in canister 0:02:00 0:07:00 0:13:45 0:28:45 0:45:45 2:08:00	22.5 minutes 0.375 hours 0.612372438 SCRT (hrs) SQRT hrs. (since off bottom) 0.639009851 0.701189488 0.777281588 0.924211378 1.08653845 1.573213272
dry sample v	veight:  SUREMENT!  measured  2  3  5  9  9  3	S IT (F) mer 75 75 75 75 76 77	0.870 0.870 98sured P 1082 1082 1082 1082 1082	grams 304.04 CONVERS cubic ft 7E-05 0.0001 0.0002 0.0003 0.0003	SION OF RIGILAB absolute T (F) g 535 1 535 1 535 1 535 1 536 1 537 1	MEASU pela 14.044 14.044 14.044 14.044	cubic ft (@STP) 8.55853E-05 9.8376E-05 0.000183963 0.000295134 0.000295134 0.00075352 0.000327007	oc (@STP)  1.86 2.79 4.64 6.38 8.38 21.34 9.26	cubic ft 8.55853E-05 0.000183983 0.000327927 0.000823081 0.000918195	1.88 4.84 9.29 17.64 28.00	without lost gas 0.20 0.49 0.98 1.88 2.74	38 SCF/TON with lost gas 4.20 4.49 4.98 5.88 6.74	1/19/04 5:4 1/19/04 5:5 1/19/04 5:5 1/19/04 8:1 1/19/04 6:3	off bottom 1/19/04 5:23 TIME SINCE 1 off bottom 8 0:24:30 9 0:38:15 4 0:51:15 1 1:08:15 2 2:28:30 5 3:11:30	at surface 0:12:00 0:17:00 0:23:45 0:38:45 0:55:45 2:18:00 2:59:00	1/19/04 5:46 in canister 0:02:00 0:07:00 0:13:45 0:26:45 0:45:45	22.5 minutes 0.375 hours 0.612372438 SOFIT (hrs) SOFIT hrs. (since off bottom) 0.639009851 0.701189486 0.777281588 0.924211378 1.08653845
dry sample w	weight: SUREMENT: measured 2 3 5 9 9 3 0 0	75 75 75 75 75 76 77 78 77	0.870 0.870 1082 1082 1082 1082 1082 1083 1083 1083	grams 304.04 CONVERS cubic ft 7E-05 0.0001 0.0002 0.0003 0.0003 0.0004 0.0004	SION OF RIGALAB absolute T (F) p 535 f 535 f 535 f 536 f 536 f 537 f 537 f	MEASU pela 14.044 14.044 14.044 14.044 14.057 14.057	cubic ft (@STP) 8.55853E-05 9.8376E-05 0.000183963 0.000295134 0.000295134 0.00075352 0.000327007 0.000390953	oc (@STP)  1.86 2.79 4.64 6.36 6.38 21.34 9.26 11.07	cubic ft 8.55853E-05 0.000183883 0.000327927 0.000823081 0.000918195 0.001871714 0.001998722 0.002389874	1.86 4.84 9.29 17.64 28.00 47.34 58.60 67.67	without lost gas 0.20 0.49 0.98 1.88 2.74 4.99 5.98 7.13	38 SCF/TON with lost gae 4.20 4.49 4.98 5.68 6.74 8.99 9.97 11.13	1/19/04 5:4 1/19/04 5:5 1/19/04 5:5 1/19/04 8:1 1/19/04 6:3 1/19/04 7:5 1/19/04 9:5	off bottom 1/19/04 5:23 TIME SINCE off bottom 3 0:29:30 9 0:36:15 4 0:51:15 1 1:06:15 2 2:26:30 2 4:26:30	at surface 0:12:00 0:17:00 0:23:45 0:38:45 0:55:45 2:18:00 4:18:00	1/19/04 5:46 in canister 0:02:00 0:07:00 0:13:45 0:26:45 0:45:45 2:06:00 4:08:00	22.5 minutes 0.375 hours 0.612372438 SCRT (hrs) SORT hrs. (since off bottom) 0.639009851 0.701189486 0.777281588 0.924211378 1.08853845 1.573213272 1.788523828 2.11541958
dry sample w	weight:  SUREMENT:  measured 2 3 5 9 9 3 0 2 6	S 1T (F) mer 75 75 75 75 76 77 79 78	0.870 0.870 1082 1082 1082 1082 1082 1083 1083	grams 304.04 CONVERS cuble ft 7E-05 0.0001 0.0002 0.0003 0.0003 0.0004 0.0004 0.0004	SION OF RIGILAB absolute T (F) p 535 i 535 i 535 i 536 i 536 i 537 i 539 i 538 i	MEASU pela 14.044 14.044 14.044 14.044 14.057 14.057	cubic ft (@STP) 8.55853E-05 9.8376E-05 0.000183983 0.000295134 0.00075352 0.000327007 0.000399953 0.000521757	oc (@STP)  1.86 2.79 4.64 6.36 6.38 21.34 9.26 11.07	cubic ft 8.55853E-05 0.000183983 0.000327927 0.000823081 0.000918195 0.001871714 0.001998722 0.002389874 0.002911431	1.88 4.84 9.29 17.64 28.00 47.34 58.80 87.87	without lost gas 0.20 0.49 0.98 1.88 2.74 4.99 5.98 7.13 8.89	38 SCF/TON with lost gas 4.20 4.49 4.98 5.88 8.74 8.99 9.97 11.13 12.69	1/19/04 5:4 1/19/04 5:5 1/19/04 5:5 1/19/04 6:1 1/19/04 6:3 1/19/04 6:3 1/19/04 9:5 1/19/04 12:3	off bottom 1/19/04 5:23 TIME SINCE off bottom 8 0:24:30 9 0:38:15 4 0:51:15 1 1:08:15 2 2:26:30 2 4:28:30 4 7:10:30	1/19/04 5:38 at surface 0:12:00 0:17:00 0:23:45 0:38:45 0:55:45 2:18:00 4:18:00 6:58:00	1/19/04 5:46 in canister 0:02:00 0:07:00 0:13:45 0:28:45 0:45:45 2:06:00 4:08:00 6:48:00	22.5 minutes 0.375 hours 0.612372438 SCRT (hrs) SORT hrs. (since off bottom) 0.639009851 0.707189486 0.777281588 0.924211376 1.08653845 1.573213272 1.786523828 2.11541958 2.878619047
dry sample v	weight:  SUREMENT:  measured 2 3 5 9 9 3 0 2 6	S S IT (F) mer 75 75 75 75 76 78 77 79 78 79	0.870 0.870 1082 1082 1082 1082 1083 1083 1083 1083 1082	grams 304.04 CONVERS cuble ft 7E-05 0.0001 0.0002 0.0003 0.0003 0.0004 0.0004 0.0004	SION OF RIGALAB absolute T (F)   535   535   535   536   536   537   538   538	MEASU pela 14.044 14.044 14.044 14.044 14.057 14.057 14.057	cubic ft (@STP) 8.55853E-05 9.8376E-05 0.000183963 0.000295134 0.000295134 0.00075352 0.000327007 0.000390953 0.000521757	oc (@STP)  1.86 2.79 4.84 6.38 6.38 21,34 9.26 11.07 14.77 11.97	cubic ft 8.55853E-05 0.000183985 0.000327927 0.000823081 0.000918195 0.001987721 0.001988722 0.002389874 0.002911431 0.003334181	1.88 4.84 9.29 17.64 28.00 47.34 58.80 87.87 82.44 94.41	without lost gas 0.20 0.49 0.98 1.88 2.74 4.99 5.98 7.13 8.89 9.95	38 SCF/TON with lost gas 4.20 4.49 4.98 5.68 6.74 8.99 9.97 11.13 12.09 13.95	1/19/04 5:4 1/19/04 5:5 1/19/04 6:3 1/19/04 6:3 1/19/04 6:3 1/19/04 6:3 1/19/04 12:3 1/19/04 12:3	off bottom 1/19/04 5:23 TME SINCE off bottom 3 0:28:30 9 0:38:15 1 1:08:15 2 2:28:30 5 3:11:30 2 4:28:30 4 7:10:30 6 9:52:30	at surface 0:12:00 0:17:00 0:23:45 0:36:45 2:18:00 2:59:00 4:18:00 8:56:00 9:40:00	1/19/04 5:46 in canister 0:02:00 0:07:00 0:13:45 0:26:45 2:08:00 2:48:00 8:48:00 9:30:00	22.5 minutes 0.375 hours 0.612372438 SCRT (hrs) SORT hrs. (since off bottom) 0.639009851 0.701189486 0.777281588 0.924211378 1.08853845 1.573213272 1.788523828 2.11541958
dry sample v	weight: SUREMENT: measured 2 3 5 9 9 3 0 2 8 8 3 7	S S T (F) mos 75 75 75 75 76 78 77 79 80	0.870 0.870 1082 1082 1082 1082 1083 1083 1083 1083 1083	grams 304.04  CONVERS cuble ft 7E-05 0.9001 0.0002 0.0003 0.0008 0.0004 0.0004 0.0006 0.0005 0.0002	SION OF RIGILAB absolute T (F) 535 535 535 535 535 536 537 539 539 539	MEASU pela 14.044 14.044 14.044 14.057 14.057 14.057 14.057 14.031	cubic ft (@STP) 8.55853E-05 9.8376E-05 0.000183983 0.000295134 0.000295134 0.000295135 0.000327007 0.000327007 0.000521757 0.0005227213	cc (@STP)  1.86 2.79 4.84 6.38 6.38 6.39 21.34 9.26 11.07 14.77 11.97 6.43	cublo ft 8.55853E-05 0.000163983 0.000327927 0.000823061 0.000918195 0.001671714 0.00198722 0.002389874 0.002911431 0.003334181 0.003561394	1.86 4.84 9.29 17.64 28.00 47.34 58.60 67.67 62.44 94.41	without lost gas 0.20 0.49 0.98 1.88 2.74 4.99 5.98 7.13 8.89 9.95	38 SCF/TON with lost gae  4.20 4.49 4.98 5.88 6.74 8.99 9.97 11.13 12.69 13.95 14.83	1/19/04 5:4 1/19/04 5:5 1/19/04 5:5 1/19/04 6:3 1/19/04 6:3 1/19/04 6:3 1/19/04 9:5 1/19/04 15:1 1/19/04 17:1	off bottom 1/19/04 5:23 TME SINCE off bottom 3 0:29:30 9 0:38:15 1 1:08:15 1 1:08:15 2 2:28:30 2 4:28:30 4 7:10:30 8 9:52:30 8 11:52:30	at surface 0:12:00 0:17:00 0:17:00 0:23:45 0:38:45 0:55:45 2:18:00 2:59:00 4:18:00 9:40:00 11:40:00	1/19/04 5:46 in canister 0:02:00 0:07:00 0:13:45 0:26:45 0:45:45 2:08:00 4:08:00 8:48:00 9:30:00	22.5 minutes 0.375 hours 0.612372438 SCRT (hrs) SORT hrs. (since off bottom) 0.639009851 0.701189486 0.777281588 0.924211378 1.08853645 1.573213272 1.788523828 2.11541956 2.878819047 3.142451273 3.444012188
RIGALAB MEA measured co	veight:  SUPREMENT:  measured  2  3  5  9  9  2  6  3  7  5  5	S IT (F) mer 75 75 75 75 76 78 77 79 78 80 75	0.670  sessured P 1082 1082 1082 1082 1083 1083 1083 1083 1081 1081	grams 304.04  CONVERS cuble ft 7E-05 0.0001 0.0002 0.0003 0.0008 0.0004 0.0004 0.0006 0.0005 0.0002	SION OF RIGHAB absolute T (F) g 535 i 535 i 535 i 535 i 536 i 537 i 538 i 538 i 538 i 538 i 539 i 540 i	MEASU pela 14.044 14.044 14.044 14.057 14.057 14.057 14.051 14.031	cubic R (@STP) 8.55853E-05 9.8376E-05 0.000183983 0.000295134 0.00075352 0.000327007 0.000327007 0.00032707 0.00042275 0.00042275 0.00042275 0.000422751 0.000163812	cc (@STP)  1.86 2.79 4.04 6.38 6.38 21.34 9.26 11.07 14.77 11.97 6.43	cubio ft 8.55853E-05 0.000183983 0.000327927 0.000823081 0.00181195 0.0018117174 0.00198722 0.002389874 0.002811431 0.003334181 0.003561394 0.003725208	1.88 4.84 9.29 17.64 28.00 47.34 56.80 87.87 62.44 94.41 100.85 105.49	without lost gas 0.20 0.49 0.98 1.88 2.74 4.99 5.98 7.13 8.89 9.955 10.63	38 SCF/TON with lost gas 4.20 4.49 4.98 5.88 8.74 8.99 9.97 11.13 12.69 13.95 14.83 15.12	1/19/04 5:4 1/19/04 5:5 1/19/04 6:3 1/19/04 6:3 1/19/04 7:5 1/19/04 9:5 1/19/04 12:3 1/19/04 15:1 1/19/04 17:1 1/19/04 22:3	off bottom 1/19/04 5:23 TIME SINCE off bottom 8 0:24:30 9 0:38:15 1 1:08:15 2 2:28:30 2:4:28:30 4 7:10:30 8 9:52:30 3 11:52:39 3 17:09:30	at surface 0:12:00 0:17:00 0:23:45 0:38:45 0:55:45 2:18:00 2:59:00 4:18:00 8:56:00 9:40:00 11:40:00 18:57:00	1/19/04 5:46 in canister 0:02:00 0:07:00 0:13:45 0:28:45 0:45:45 2:08:00 2:49:00 4:08:00 8:48:00 9:30:00 11:30:00	22.5 minutes 0.375 hours 0.612372438 SOFIT (hrs) SOFIT hrs. (since off bottom) 0.639009851 0.701189488 0.777281588 0.924211378 1.08853845 1.573213272 1.788523828 2.11541958 2.878819047 3.142451273
dry sample v	veight: SUREMENT: measured 3 3 5 9 9 2 6 6 3 7 7 5 0 0	S S T (F) mean 75 75 75 75 76 78 77 79 78 79 80 75 75 75 75 75 75 75 75 75 75 75 75 75	0.670  0.670  0.670  1082 1082 1082 1082 1083 1083 1083 1083 1081 1081 1081 1081	grams 304.04 CONVERS cuble ft 7E-05 0.0001 0.0002 0.0003 0.0003 0.0004 0.0004 0.0006 0.0005 0.0002 0.0002	SION OF RIGALAB absolute T (F)   535   535   535   535   536   537   538   538   540   540   541   542   543   544   545	MEASU pela 14.044 14.044 14.044 14.057 14.057 14.057 14.031 14.031	cubic ft (@STP) 8.56853C-05 9.8376E-05 0.000183983 0.000295134 0.00075352 0.000327007 0.000327007 0.0003272707 0.000227213 0.000227213 0.000227213	cc (@STP)  1.86 2.79 4.84 6.38 6.38 21.34 9.26 11.07 14.77 11.97 8.43 4.64	cubio ft 6.55653E-05 0.000183983 0.000327927 0.000823081 0.0001871714 0.00198722 0.002389874 0.002911431 0.003334181 0.003561394 0.003725208 0.004053132	1.88 4.84 9.29 17.84 28.00 47.34 58.80 87.87 82.44 94.41 100.85 105.49	without lost gas 0.20 0.49 0.98 1.88 2.74 4.99 5.98 7.13 8.89 9.95 10.63 11.12	38 SCF/TON with lost gas  4.20 4.49 4.98 5.68 8.74 8.99 9.97 11.13 12.69 13.95 14.63 15.12 18.10	1/19/04 5:4 1/19/04 5:5 1/19/04 6:1 1/19/04 6:1 1/19/04 6:3 1/19/04 6:3 1/19/04 12:3 1/19/04 12:3 1/19/04 17:1 1/19/04 17:1 1/19/04 22:3 1/20/04 10:5	off bottom 1/19/04 5:23 TME SINCE 1 off bottom 3 0:28:30 9 0:38:15 1 1:08:15 2 2:28:30 5 3:11:30 2 4:28:30 4 7:10:30 6 11:52:30 6 11:52:30 0 29:28:30	at surface 0:12:00 0:17:00 0:23:45 0:36:45 0:55:45 2:18:00 2:59:00 4:18:00 9:40:00 11:40:00 18:57:00 29:14:00	1/19/04 5:46 in cenister 0:02:00 0:07:00 0:13:45 0:26:45 2:08:00 2:49:00 4:08:00 9:38:00 11:30:00 18:47:00 29:04:00	22.5 minutes 0.375 hours 0.612372438 SOFIT (hrs) SOFIT hrs. (since off bottom) 0.639009851 0.701189488 0.777281588 0.924211378 1.08653845 1.573213272 1.786523828 2.11541958 2.878819047 3.142451273 3.448012188 4.142281882
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dry sample v RIGALAB MEA measured oc  2 1 1 1 1 1	weight: SUREMENT: measured 3 3 5 9 9 3 0 2 6 3 7 7 5 0 0 7	S S IT (F) mer 75 75 75 75 76 77 79 78 80 75 75 75 75 75 76 77 79 80 77 79 80 75 75 76 77 79 80 77 77 79 80 77 77 77 77 77 77 77 77 77 77 77 77 77	0.670  0.670  1062 1062 1062 1062 1063 1063 1063 1063 1061 1061 1061 1061	grams 304.04  CONVERS cuble ft 7E-05 0.9001 0.0002 0.0003 0.0004 0.0004 0.0005 0.0002 0.0002 0.0004 0.0004 0.0004 0.0004 0.0004 0.0002	SION OF RIGITABLE absolute T (F)   535   5	MEASU pela 14.044 14.044 14.044 14.057 14.057 14.057 14.031 14.031 14.031 14.031 14.044 14.135	cubic ft (@STP) 8.556582-05 9.8376E-05 0.000183983 0.000295134 0.000295134 0.00075352 0.000327007 0.000390963 0.000521757 0.00042275 0.000227213 0.000183812 0.0001327927 0.000327927	cc (@STP)  1.86 2.79 4.04 6.38 6.38 21.34 9.26 11.07 14.77 11.97 6.43 4.64 9.29 9.38 6.57	cubic ft 8.55653E-05 0.000183983 0.000327927 0.000823081 0.000918195 0.001871714 0.001986722 0.002888674 0.002911431 0.003631394 0.00361394 0.00363132 0.0044053132 0.0048184918	1,86 4,84 9,29 17,64 26,00 47,34 56,80 87,87 62,44 94,41 100,85 105,49 114,77 124,15	without lost gas 0.20 0.49 0.98 1.68 2.74 4.99 5.98 7.13 6.69 9.95 10.63 11.12 12.09 13.08	38 SCF/TON with lost gas  4.20 4.49 4.98 5.88 8.74 8.99 9.97 11.13 12.89 13.95 14.63 15.12 18.10 17.709	1/19/04 5:4 1/19/04 5:5 1/19/04 5:5 1/19/04 6:1 1/19/04 6:3 1/19/04 7:5 1/19/04 12:3 1/19/04 15:1 1/19/04 17:1 1/19/04 17:1 1/19/04 17:1 1/19/04 10:5 1/21/04 10:5	off bottom 1/19/04 5:23 TMESINCE off bottom 3 0:29:30 3 0:29:30 4 0:51:15 1 1:09:15 2 2:28:30 5 3:11:30 6 9:52:30 6 11:52:30 6 11:52:30 6 2:28:30 7:10	at surface 0:12:00 0:17:00 0:3:45 0:38:45 0:55:45 2:18:00 2:59:00 4:18:00 9:40:00 11:40:00 18:57:00 52:48:00 78:13:00	1/19/04 5:46 in cenister 0:02:00 0:07:00 0:13:45 0:28:45 0:45:45 2:06:00 2:49:00 4:08:00 9:30:00 11:30:00 18:47:00 29:04:00 52:38:00 78:03:00	22.5 minutes 0.375 hours 0.612372438 SCHT (hrs) SORT hrs. (since off bottom) 0.639009851 0.701189488 0.777281588 0.924211378 1.08653845 1.573213272 1.786523828 2.11541958 2.878819047 3.142451273 3.448012188 4.142281882 5.42801757 7.27839288 8.855789087
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dry sample v RICALAB ME/ measured co	veight: LSUFIEMENT: measured 2 3 5 9 9 3 0 2 6 3 7 7 5 0 0 0 7 9 9	S S IT (F) mean 75 75 75 75 76 77 79 78 80 75 75 75 75 75 75 75 75 75 75 75 75 75	0.670  0.670  1082 1082 1082 1082 1082 1083 1083 1083 1083 1083 1081 1081 1081	grams 304.04  CONVERS cuble ft 7E-05 0.9001 1 0.0002 0.0003 0.0003 0.0004 0.0004 0.0004 0.0004 0.0002 0.0002 0.0002 0.0002 0.0002 0.0004 0.0003 0.0002 0.0003 0.0002 0.0004 0.0003 0.0002 0.0004 0.0003 0.0002 0.0003 0.0002	SION OF RIGALAB absolute T (F) p 355 1 535 1 535 1 535 1 536 1 537 1 539 1	MEASU pola 14.044 14.044 14.044 14.057 14.057 14.057 14.031 14.031 14.031 14.031 14.031 14.031 14.031 14.031	cubic ft (@STP) 6.55658-0-5 9.8376-0-5 0.000183983 0.000295134 0.000295134 0.000395053 0.000327007 0.000390953 0.000521757 0.0002927213 0.00031673 0.000231673 0.000231673 0.000231797 0.000231797	cc (@STP)  1.86 2.79 4.64 6.38 6.38 21.34 9.26 11.07 14.77 11.97 6.43 4.64 9.29 9.36 6.57 8.32 4.63	cubic ft 8.55853E-05 0.000183983 0.000327927 0.0000823081 0.000918195 0.001871714 0.001898722 0.002389874 0.002911431 0.003561394 0.003561394 0.003561394 0.004384418 0.004818429 0.004818429 0.004818292 0.0057342 0.0057342	1,86 4,84 9,29 17,84 28,00 47,34 58,80 67,87 82,44 94,41 100,85 105,49 114,77 124,15 130,72 139,04	without lost gas 0.20 0.49 0.98 1.88 2.74 4.99 5.98 7.13 8.89 9.95 10.63 11.12 12.09 13.08 13.77 14.85	38 SCF/TON with lost gas  4.20 4.49 4.98 5.88 6.74 8.99 9.97 11.13 12.69 13.95 14.63 15.12 18.10 17.09 17.78 18.85 19.14	1/19/04 5:4 1/19/04 5:5 1/19/04 6:5 1/19/04 6:1 1/19/04 6:1 1/19/04 7:5 1/19/04 12:3 1/19/04 15:1 1/19/04 17:1 1/19/04 10:2 1/21/04 10:2 1/22/04 11:4 1/23/04 12:3 1/24/04 12:3	off bottom 1/19/04 5.23 TIME SINCE off bottom 3 0.29:30 9 0.38:15 1 1.08:15 1 1.08:15 2 2.28:30 2 4.28:30 4 7:10:30 8 9:52:30 8 11:52:30 3 17:09:30 2 29:28:30 28:28:30 28:28:	at surface 0:12:00 0:17:00 0:17:00 0:23:45 0:38:45 0:55:45 2:18:00 4:18:00 8:58:00 9:40:00 11:40:00 18:57:00 29:14:00 78:13:00 102:58:00 131:59:00	1/19/04 5:46 in canister 0:02:00 0:07:00 0:13:45 0:28:45 0:45:45 2:06:00 4:08:00 8:48:00 9:30:00 11:30:00 18:47:00 29:04:00 76:03:00 102:48:00	22.5 minutes 0.375 hours 0.612372438 SCRT (hrs) SORT hrs. (since off bottom) 0.639009851 0.701189486 0.777281588 0.924211378 1.08853845 1.573213272 1.788523828 2.11541958 2.878819047 3.142451273 3.444012188 4.142281882 5.42801757 7.27839288 8.855789087 10.15750954 11.49748349
dry sample v	veight:  SSURIEMENT:  measured  2  3  5  9  9  3  0  2  6  6  7  7  9  9  5  5  6  6  7  7  9  9  9  9  9  9  9  9  9  9  9	S S IT (F) mea T T T T T T T T T T T T T T T T T T T	0.670  sesured P  1062 1062 1062 1062 1062 1063 1063 1063 1063 1061 1061 1061 1069 1077 1078	grams 304.04  CONVERS cubic ft 7E-05 0.9001 1 0.0002 0.0003 0.0004 0.0004 0.0005 0.0002	SION OF RIGILAB absolute T (F)   535   535   535   535   535   536   537   538	MEASU pela 14.044 14.044 14.044 14.057 14.057 14.057 14.031 14.031 14.031 14.031 14.031 14.031 14.031 14.031 14.031 13.031 13.031	cubic ft (#STP) 8.55853E-05 9.8376E-05 0.000183983 0.000295134 0.000295134 0.000275035 0.000327007 0.000327507 0.00042275 0.000227213 0.00031287 0.00031287 0.000231673 0.00028317 0.000183857 0.00028377 0.000183857	cc (@STP)  1.86 2.79 4.84 8.38 6.38 21.34 9.26 11.07 14.77 11.97 6.43 4.84 9.29 9.36 6.57 8.32 4.63	cubic ft 8.55853E-05 0.000183983 0.000327927 0.00023081 0.000918195 0.001871714 0.001871874 0.002811431 0.003561394 0.003761394 0.003761394 0.003761392 0.004814292 0.004814292 0.00507342 0.0050742 0.00	1,88 4,84 9,29 17,84 28,00 47,34 58,80 87,87 82,44 100,85 105,49 114,77 124,15 130,72 139,04 143,88 148,22	without lost gas 0.20 0.49 0.98 1.88 2.74 4.99 5.98 7.13 8.89 9.95 10.83 11.12 12.09 13.08 13.77 14.85	38 SCF/TON with lost gas  4.20 4.49 4.98 5.68 6.74 8.99 9.97 11.13 12.09 13.95 14.63 15.12 18.10 17.09 17.78 18.65 19.14	1/19/04 5:4 1/19/04 5:5 1/19/04 5:5 1/19/04 6:1 1/19/04 6:3 1/19/04 7:5 1/19/04 12:3 1/19/04 15:1 1/19/04 17:1 1/19/04 17:1 1/19/04 17:1 1/20/04 10:5 1/21/04 10:2 1/22/04 11:4 1/23/04 12:3 1/24/04 17:3 1/25/04 16:2	off bottom 1/19/04 5:23 TME SINCE off bottom 3 0:29:30 3 0:29:30 4 0:51:15 1 1:08:15 2 2:26:30 5 3:11:30 2 4:28:30 6 11:52:30 6 11:52:30 6 11:52:30 7 7:25:30 9 78:25:30 9 78:25:30 9 132:11:30	at surface 0:12:00 0:17:00 0:17:00 0:23:45 0:38:45 0:55:45 2:18:00 2:59:00 4:18:00 9:40:00 11:40:00 18:57:00 29:14:00 78:13:00 102:58:00 131:59:00 154:53:00	1/19/04 5:46 in cenister	22.5 minutes 0.375 hours 0.612372438 SCHT (hrs) SQHT hrs. (since off bottom) 0.639009851 0.701189488 0.777281588 0.924211378 1.08653845 1.573213272 1.786523828 2.11541958 2.678619047 3.142451273 3.448012188 4.142241882 5.42801757 7.27639288 8.855789087 10.15750954 11.49748349 12.45358048
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dry sample v RICALAR ME/ measured oc	veight:  LSURIEMENT: measured  2  3  5  9  9  3  0  2  6  3  7  5  0  0  7  9  5  1  1  1  1  1  1  1  1  1  1  1  1	S S IT (F) mea T 5 T 5 T 5 T 5 T 6 T 7 8 T 7 9 T 8 0 T 5 T 5 T 6 T 7 5 T 6 T 7 5 T 6 T 7 5 T 6 T 7 5 T 6 T 7 5 T 6 T 7 5 T 6 T 7 5 T 6 T 7 5 T 6 T 7 5 T 6 T 7 5 T 6 T 7 5 T 6 T 7 5	0.670  0.670  0.670  1082 1082 1082 1082 1083 1083 1083 1089 1081 1081 1081 1081 1089 1095 1077 1078 1089 1078	grams 304.04  CONVERS cubic ft 7E-06 0.0001 1 0.0002 0.0003 0.0003 0.0004 0.0004 0.0004 0.0004 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002	SION OF RIGALAB absolute T (F) i 535 i 535 i 535 i 535 i 536 i 537 / 539 i	MEASU pola 14,044 14,044 14,044 14,057 14,057 14,057 14,051 14,03	cubic ft (@STP) 6.55658-0-5 9.8376-0-5 0.000183983 0.000295134 0.000295134 0.000327007 0.000390953 0.000521757 0.00042275 0.00029771 0.00031267 0.000231673 0.000231673 0.0002317 0.00018387 0.00018312 0.00018312 0.00018312	cc (@STP)  1.86 2.79 4.64 6.38 6.38 21.34 9.26 11.07 14.77 11.97 6.43 4.64 9.29 9.36 6.57 6.32 4.63 4.63	cubic ft 8.55853E-05 0.000183983 0.000327927 0.000823081 0.000918195 0.001871714 0.001998722 0.002389874 0.002911431 0.003361394 0.003725208 0.004384419 0.004818292 0.00439132 0.00523451 0.00523451 0.00523451 0.00523451	1,86 4,84 9,29 17,84 28,00 47,34 58,80 87,87 82,44 94,41 100,85 105,49 114,77 124,15 130,72 139,04 143,88 148,22 144,48	without lost gas	38 SCF/TON with lost gas  4.20 4.49 4.98 5.88 6.74 8.99 9.97 11.13 12.69 13.95 14.63 15.12 18.10 17.09 17.78 18.65 19.14 19.62 19.62	1/19/04 5:4 1/19/04 5:5 1/19/04 6:1 1/19/04 6:1 1/19/04 6:3 1/19/04 7:5 1/19/04 12:3 1/19/04 15:1 1/19/04 17:1 1/19/04 17:1 1/19/04 10:2 1/22/04 10:2 1/22/04 11:4 1/23/04 12:3 1/24/04 17:3 1/24/04 15:4 1/24/04 15:4 1/25/04 16:2 1/25/04 16:2	off bottom 1/19/04 5.23 TIME SINCE off bottom 3 0.29:30 9 0.38:15 1 1.08:15 1 1.08:15 2 2.22:830 2.42:28:30 2.42:30 3.11:92:30 3.17:09:30 2.92:28:30 2.92:28:30 3.17:09:30 3.17:	at surface 0:12:00 0:17:00 0:17:00 0:23:45 0:38:45 0:55:45 2:18:00 4:18:00 6:56:00 9:40:00 11:40:00 18:57:00 29:14:00 78:13:00 102:58:00 131:59:00 154:53:00 177:52:00	1/19/04 5:46 in canister  0:02:00 0:07:00 0:13:45 0:28:45 0:45:45 2:06:00 4:08:00 6:48:00 9:30:00 11:30:00 18:47:00 29:04:00 102:48:00 102:48:00 1131:49:00 154:43:00 177:42:00	22.5 minutes 0.375 hours 0.612372438 SCHT (hrs) SORT hrs. (since off bottom) 0.639009651 0.701189488 0.974211378 1.08653845 1.573213272 1.786523828 2.11541958 2.878819047 3.142451273 3.448012188 4.142281882 5.42801757 7.27839288 8.855789087 10.15750954 11.49748349 12.45358048 13.34447451 14.02170938
dry sample v	veight:  SSURIEMENT:  measured  2  3  5  9  9  9  3  7  5  0  0  7  9  5  0  0  7  9  1  5  0  0  1  1  1  1  1  1  1  1  1  1  1	S S IT (F) mer 75 75 75 75 76 77 79 80 75 75 75 76 75 76 77 79 80 75 76 77 79 80 75 75 75 75 75 75 75 75 75 75 75 75 75	0.670  sesured P  1062 1062 1062 1062 1062 1063 1063 1063 1063 1061 1061 1061 1069 1077 1078 1099 1078	grams 304.04  CONVERS cuble ft 7E-06 0.9001 0.0003 0.0003 0.0004 0.0005 0.0005 0.0002 0.0004 0.0002 0.0002 0.0002 0.0003 0.00003 0.00003 0.00003 0.00003 0.00000000	SION OF RIGALAB absolute T (F) [ 535   535   535   535   535   536   537   538   538   540   535   538	MEASU pala 14,044 14,044 14,044 14,044 14,057 14,057 14,057 14,051 14,031 14,031 14,031 14,031 14,031 14,031 14,031 14,031 14,041 14,135 14,213 13,979 13,979 13,979 13,975 13,975 13,975 13,975 13,975 14,161 14,161	cubic ft (@STP) 8.55853E-05 9.8378E-05 0.000183993 0.000295134 0.000295134 0.000275035 0.000327007 0.000390953 0.000521757 0.00042275 0.000227213 0.000183812 0.000183817 0.00019327 0.00019357 0.00019357 0.00019357	cc (@STP)  1.86 2.79 4.84 6.38 6.38 21.34 9.26 11.07 14.77 11.97 6.43 4.04 9.29 9.36 6.57 6.32 4.63 4.56 0.00 -3.75	cubic ft 8.55853E-05 0.000183983 0.000327927 0.000327927 0.000923081 0.000918195 0.001871714 0.00198722 0.002389874 0.002911431 0.003334181 0.0033418419 0.004384419 0.00468220 0.00469220 0.0046923451 0.00525451 0.00525451 0.005254510.00525451 0.00525451 0.00525451 0.00525451 0.00525451 0.00525451	1,86 4,84 9,29 17,84 26,00 47,34 56,80 87,87 62,44 100,85 105,49 114,77 124,15 130,72 139,04 143,86 148,22 148,22 144,48	without lost gas 0.20 0.49 0.98 1.88 2.74 4.99 5.98 7.13 8.89 9.95 10.83 11.12 12.09 13.08 13.77 14.85 15.14 15.82 15.82 15.82	38 SCF/TON with lost gas  4.20 4.49 4.98 5.88 8.74 8.99 9.97 11.13 12.89 13.95 14.63 15.12 18.10 17.09 17.78 18.85 19.14 19.62 19.62 19.63	1/19/04 5:4 1/19/04 5:5 1/19/04 5:5 1/19/04 6:1 1/19/04 6:3 1/19/04 7:5 1/19/04 12:3 1/19/04 17:5 1/19/04 17:3 1/19/04 17:3 1/20/04 10:5 1/21/04 10:2 1/22/04 11:4 1/23/04 12:3 1/28/04 15:2 1/28/04 15:2 1/28/04 10:5	off bottom 1/19/04 5.23 TME SINCE 1 off bottom 2 0.28:30 3 0.28:30 9 0.38:15 1 1:08:15 2 2:28:30 2 4:28:30 2 4:28:30 3 17:09:30 3 17:09:30 3 17:09:30 3 17:09:30 3 17:09:30 1 132:11:30 9 76:25:30 4 103:10:30 5 132:11:30 9 155:05:30 8 176:04:30 9 196:38:30 9 221:05:30	at surface 0:12:00 0:17:00 0:17:00 0:23:45 0:38:45 0:55:45 2:18:00 2:59:00 4:18:00 9:40:00 11:40:00 18:57:00 29:14:00 78:13:00 102:58:00 131:59:00 154:53:00 177:52:00 198:24:00 220:53:00	1/19/04 5:46 in cenister	22.5 minutes 0.375 hours 0.612372438 SOFIT (hrs) SOFIT hrs. (since off bottom) 0.639009851 0.701189488 0.777281588 0.924211378 1.08853845 1.573213272 1.788523828 2.11541958 2.878819047 3.142451273 3.448012188 4.142281882 5.42801757 7.27839288 8.855789087 10.15750954 11.49748349 12.45358048 13.34447451 14.02170938 14.88915151
dry sample v RICALAB ME/ measured co	veight:  SUFFEMENT:  measured  2  3  5  9  9  3  0  2  6  3  7  7  5  0  0  4  3  0	S S IT (F) med 75 75 75 76 77 79 78 80 75 75 75 75 75 75 75 75 75 75 75 75 75	0.870  0.870  0.870  0.870  1082 1082 1082 1083 1083 1083 1083 1083 1089 1095 1097 1078 1099 1078 1099 1078 1099 1078	grams 304.04  CONMERS cuble ft 7E-06 0.0001 0.0002 0.0003 0.0004 0.0004 0.0005 0.0002 0.0002 0.0003 0.0004 0.0004 0.0005 0.0002 0.0002 0.0002 0.0002 0.0001 0.0001	SION OF RIGALAB absolute T (F) p 535 1 535 1 535 1 535 1 535 1 537 1 539 1	MEASU pola 14,044 14,044 14,044 14,057 14,057 14,057 14,051 14,03	cubic ft (@STP) 6.55658-0-5 9.8376-0-5 0.000183983 0.000295134 0.000295134 0.000327007 0.000390953 0.000521757 0.00042275 0.00029771 0.00031267 0.000231673 0.000231673 0.0002317 0.00018387 0.00018312 0.00018312 0.00018312	cc (@STP)  1.86 2.79 4.84 6.38 6.38 21.34 9.26 11.07 14.77 11.97 6.43 4.04 9.29 9.36 6.57 6.32 4.63 4.56 0.00 -3.75	cubic ft 8.55853E-05 0.000183983 0.000327927 0.000823081 0.000918195 0.001871714 0.001998722 0.002389874 0.002911431 0.003361394 0.003725208 0.004384419 0.004818292 0.00439132 0.00523451 0.00523451 0.00523451 0.00523451	1,86 4,84 9,29 17,84 26,00 47,34 56,80 87,87 62,44 100,85 105,49 114,77 124,15 130,72 139,04 143,86 148,22 148,22 144,48	without lost gas	38 SCF/TON with lost gas  4.20 4.49 4.98 5.88 6.74 8.99 9.97 11.13 12.69 13.95 14.63 15.12 18.10 17.09 17.78 18.65 19.14 19.62 19.62	1/19/04 5:4 1/19/04 5:5 1/19/04 6:1 1/19/04 6:1 1/19/04 6:3 1/19/04 7:5 1/19/04 12:3 1/19/04 15:1 1/19/04 17:1 1/19/04 17:1 1/19/04 10:2 1/22/04 10:2 1/22/04 11:4 1/23/04 12:3 1/24/04 17:3 1/24/04 15:4 1/24/04 15:4 1/25/04 16:2 1/25/04 16:2	off bottom 1/19/04 5.23 TME SINCE 1 off bottom 2 0.28:30 3 0.28:30 9 0.38:15 1 1:08:15 2 2:28:30 2 4:28:30 2 4:28:30 3 17:09:30 3 17:09:30 3 17:09:30 3 17:09:30 3 17:09:30 1 132:11:30 9 76:25:30 4 103:10:30 5 132:11:30 9 155:05:30 8 176:04:30 9 196:38:30 9 221:05:30	at surface 0:12:00 0:17:00 0:17:00 0:23:45 0:38:45 0:55:45 2:18:00 2:59:00 4:18:00 9:40:00 11:40:00 18:57:00 29:14:00 78:13:00 102:58:00 131:59:00 154:53:00 177:52:00 198:24:00 220:53:00	1/19/04 5:46 in canister  0:02:00 0:07:00 0:13:45 0:28:45 0:45:45 2:06:00 4:08:00 6:48:00 9:30:00 11:30:00 18:47:00 29:04:00 102:48:00 102:48:00 1131:49:00 154:43:00 177:42:00	22.5 minutes 0.375 hours 0.612372438 SCHT (hrs) SORT hrs. (since off bottom) 0.639009651 0.701189488 0.974211378 1.08653845 1.573213272 1.786523828 2.11541958 2.878819047 3.142451273 3.448012188 4.142281882 5.42801757 7.27839288 8.855789087 10.15750954 11.49748349 12.45358048 13.34447451 14.02170938
dry sample v	veight:  SUFFEMENT:  measured  2  3  5  9  9  3  0  2  6  3  7  7  5  0  0  4  3  0	S S IT (F) med 75 75 75 76 77 79 78 80 75 75 75 75 75 75 75 75 75 75 75 75 75	0.870  0.870  0.870  0.870  1082 1082 1082 1083 1083 1083 1083 1083 1089 1095 1097 1078 1099 1078 1099 1078 1099 1078	grams 304.04  CONMERS cuble ft 7E-06 0.0001 0.0002 0.0003 0.0004 0.0004 0.0005 0.0002 0.0002 0.0003 0.0004 0.0004 0.0005 0.0002 0.0002 0.0002 0.0002 0.0001 0.0001	SION OF RIGALAB absolute T (F) p 535 1 535 1 535 1 535 1 535 1 537 1 539 1	MEASU pala 14,044 14,044 14,044 14,044 14,057 14,057 14,057 14,051 14,031 14,031 14,031 14,031 14,031 14,031 14,031 14,031 14,041 14,135 14,213 13,979 13,979 13,979 13,975 13,975 13,975 13,975 13,975 14,161 14,161	cubic ft (@STP) 8.55853E-05 9.8378E-05 0.000183993 0.000295134 0.000295134 0.000275035 0.000327007 0.000390953 0.000521757 0.00042275 0.000227213 0.000183812 0.000183817 0.00019327 0.00019357 0.00019357 0.00019357	cc (@STP)  1.86 2.79 4.84 6.38 6.38 21.34 9.26 11.07 14.77 11.97 6.43 4.04 9.29 9.36 6.57 6.32 4.63 4.56 0.00 -3.75	cubic ft 8.55853E-05 0.000183983 0.000327927 0.000327927 0.000923081 0.000918195 0.001871714 0.00198722 0.002389874 0.002911431 0.003334181 0.0033418419 0.004384419 0.00468220 0.00469220 0.0046923451 0.00525451 0.00525451 0.005254510.00525451 0.00525451 0.00525451 0.00525451 0.00525451 0.00525451	1,86 4,84 9,29 17,84 26,00 47,34 56,80 87,87 62,44 100,85 105,49 114,77 124,15 130,72 139,04 143,86 148,22 148,22 144,48	without lost gas 0.20 0.49 0.98 1.88 2.74 4.99 5.98 7.13 8.89 9.95 10.83 11.12 12.09 13.08 13.77 14.85 15.14 15.82 15.82 15.82	38 SCF/TON with lost gas  4.20 4.49 4.98 5.88 8.74 8.99 9.97 11.13 12.89 13.95 14.63 15.12 18.10 17.09 17.78 18.85 19.14 19.62 19.62 19.63	1/19/04 5:4 1/19/04 5:5 1/19/04 5:5 1/19/04 6:1 1/19/04 6:3 1/19/04 7:5 1/19/04 12:3 1/19/04 17:5 1/19/04 17:3 1/19/04 17:3 1/20/04 10:5 1/21/04 10:2 1/22/04 11:4 1/23/04 12:3 1/28/04 15:2 1/28/04 15:2 1/28/04 10:5	off bottom 1/19/04 5.23 TME SINCE 1 off bottom 2 0.28:30 3 0.28:30 9 0.38:15 1 1:08:15 2 2:28:30 2 4:28:30 2 4:28:30 3 17:09:30 3 17:09:30 3 17:09:30 3 17:09:30 3 17:09:30 1 132:11:30 9 76:25:30 4 103:10:30 5 132:11:30 9 155:05:30 8 176:04:30 9 196:38:30 9 221:05:30	at surface 0:12:00 0:17:00 0:17:00 0:23:45 0:38:45 0:55:45 2:18:00 2:59:00 4:18:00 9:40:00 11:40:00 18:57:00 29:14:00 78:13:00 102:58:00 131:59:00 154:53:00 177:52:00 198:24:00 220:53:00	1/19/04 5:46 in cenister	22.5 minutes 0.375 hours 0.612372438 SOFIT (hrs) SOFIT hrs. (since off bottom) 0.639009851 0.701189488 0.777281588 0.924211378 1.08853845 1.573213272 1.788523828 2.11541958 2.878819047 3.142451273 3.448012188 4.142281882 5.42801757 7.27839288 8.855789087 10.15750954 11.49748349 12.45358048 13.34447451 14.02170938 14.88915151
dry sample v	veight:  SURIEMENT:  measured  3  5  9  9  3  0  2  6  6  7  7  9  5  5  0  0  7  9  9	S S IT (F) mes 75 75 75 75 76 78 77 79 80 75 75 75 75 75 75 75 75 76 77 79 80 75 75 75 75 76 77 79 80 75 75 77 8 76 77 8 77 8 77 8 77 8 77 8	0.670  sesured P  1062 1082 1082 1082 1083 1083 1083 1083 1081 1081 1081 1089 1077 1076 1089 1078 1091 1095 ple dried 5	grams 304.04 CONMERS cuble if 7E-05 0.9001 0.0002 0.0003 0.0003 0.0003 0.0003 0.0003 0.0003 0.0004 0.0006	SION OF RIGALAB absolute T (F) [ 535   535   535   535   536   537   539   540   535   536   537   539   540   540   555	MEASU pola 14.044 14.044 14.044 14.057 14.057 14.057 14.031 14.031 14.031 14.031 14.031 14.133 14.133 14.131 14.131 14.131 14.131 14.131 14.131	cubic ft (@STP) 8.55853E-05 9.8378E-05 0.000183993 0.000295134 0.000295134 0.000275035 0.000327007 0.000390953 0.000521757 0.00042275 0.000227213 0.000183812 0.000183817 0.00019327 0.00019357 0.00019357 0.00019357	cc (@STP)  1.86 2.79 4.84 6.38 6.38 21.34 9.26 11.07 14.77 11.97 6.43 4.04 9.29 9.36 6.57 6.32 4.63 4.56 0.00 -3.75	cubic ft 8.55853E-05 0.000183983 0.000327927 0.000327927 0.000823061 0.000918195 0.001871714 0.00198722 0.002389874 0.002911431 0.003334181 0.0033418419 0.004361322 0.004384419 0.00461822 0.00481022 0.00507342 0.00507342 0.00507342 0.00507342 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.005202678 0.005202678 0.005202678 0.005202678 0.0050002678 0.005000000000000000000000	1,86 4,84 9,29 17,84 26,00 47,34 56,80 87,87 62,44 100,85 105,49 114,77 124,15 130,72 139,04 143,86 148,22 148,22 144,48	without lost gas 0.20 0.49 0.98 1.88 2.74 4.99 5.98 7.13 8.89 9.95 10.83 11.12 12.09 13.08 13.77 14.85 15.14 15.82 15.82 15.82	38 SCF/TON with lost gas  4.20 4.49 4.98 5.88 8.74 8.99 9.97 11.13 12.89 13.95 14.63 15.12 18.10 17.09 17.78 18.85 19.14 19.62 19.62 19.63	1/19/04 5:4 1/19/04 5:5 1/19/04 5:5 1/19/04 6:1 1/19/04 6:3 1/19/04 7:5 1/19/04 12:3 1/19/04 17:5 1/19/04 17:3 1/19/04 17:3 1/20/04 10:5 1/21/04 10:2 1/22/04 11:4 1/23/04 12:3 1/28/04 15:2 1/28/04 15:2 1/28/04 10:5	off bottom 1/19/04 5.23 TME SINCE 1 off bottom 2 0.28:30 3 0.28:30 9 0.38:15 1 1:08:15 2 2:28:30 2 4:28:30 2 4:28:30 3 17:09:30 3 17:09:30 3 17:09:30 3 17:09:30 3 17:09:30 1 132:11:30 9 76:25:30 4 103:10:30 5 132:11:30 9 155:05:30 8 176:04:30 9 196:38:30 9 221:05:30	at surface 0:12:00 0:17:00 0:17:00 0:23:45 0:38:45 0:55:45 2:18:00 2:59:00 4:18:00 9:40:00 11:40:00 18:57:00 29:14:00 78:13:00 102:58:00 131:59:00 154:53:00 177:52:00 198:24:00 220:53:00	1/19/04 5:46 in cenister	22.5 minutes 0.375 hours 0.612372438 SOFIT (hrs) SOFIT hrs. (since off bottom) 0.639009851 0.701189488 0.777281588 0.924211378 1.08853845 1.573213272 1.788523828 2.11541958 2.878819047 3.142451273 3.448012188 4.142281882 5.42801757 7.27839288 8.855789087 10.15750954 11.49748349 12.45358048 13.34447451 14.02170938 14.88915151
dry sample v RICALAB ME/ measured co	veight:  SURIEMENT:  measured  3  5  9  9  3  0  2  6  6  7  7  9  5  5  0  0  7  9  9	S S IT (F) mes 75 75 75 75 76 78 77 79 80 75 75 75 75 75 75 75 75 76 77 79 80 75 75 75 75 76 77 79 80 75 75 77 8 76 77 8 77 8 77 8 77 8 77 8	0.870  0.870  0.870  0.870  1082 1082 1082 1083 1083 1083 1083 1083 1089 1095 1077 1078 1091 1091 1095 1095 1078 1099 1095 1078 1099 1095 10778 1091 1095 1078 1099 1095 10778 1091 1095 1095 10778 1091 1095 1095 1078 1096 1095 10778 1091 1095 1095 1096 1095 10978 1091 1095 1095 1096 1098 1099 1099 1099 1099 1099 1099 1099	grams 304.04 CONMERS cuble if 7E-05 0.9001 0.0002 0.0003 0.0003 0.0003 0.0003 0.0003 0.0003 0.0004 0.0006	SION OF RIGALAB absolute T (F) p 535 1 535 1 535 1 535 1 535 1 537 1 539 1	MEASU pola 14.044 14.044 14.044 14.057 14.057 14.057 14.031 14.031 14.031 14.031 14.031 14.133 14.133 14.131 14.131 14.131 14.131 14.131 14.131	cubic ft (@STP) 8.55853E-05 9.8378E-05 0.000183993 0.000295134 0.000295134 0.000275035 0.000327007 0.000390953 0.000521757 0.00042275 0.000227213 0.000183812 0.000183817 0.00019327 0.00019357 0.00019357 0.00019357	cc (@STP)  1.86 2.79 4.84 6.38 6.38 21.34 9.26 11.07 14.77 11.97 6.43 4.04 9.29 9.36 6.57 6.32 4.63 4.56 0.00 -3.75	cubic ft 8.55853E-05 0.000183983 0.000327927 0.000327927 0.000823061 0.000918195 0.001871714 0.00198722 0.002389874 0.002911431 0.003334181 0.0033418419 0.004361322 0.004384419 0.00461822 0.00481022 0.00507342 0.00507342 0.00507342 0.00507342 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.005202678 0.005202678 0.005202678 0.005202678 0.0050002678 0.005000000000000000000000	1,86 4,84 9,29 17,84 26,00 47,34 56,80 87,87 62,44 100,85 105,49 114,77 124,15 130,72 139,04 143,86 148,22 148,22 144,48	without lost gas 0.20 0.49 0.98 1.88 2.74 4.99 5.98 7.13 8.89 9.95 10.83 11.12 12.09 13.08 13.77 14.85 15.14 15.82 15.82 15.82	38 SCF/TON with lost gas  4.20 4.49 4.98 5.68 6.74 8.99 9.97 11.13 12.69 13.95 14.63 15.12 18.10 17.09 17.78 18.85 19.14 19.62 19.23 18.93 18.93	1/19/04 5:4 1/19/04 5:5 1/19/04 5:5 1/19/04 6:1 1/19/04 6:3 1/19/04 7:5 1/19/04 12:3 1/19/04 17:5 1/19/04 17:3 1/19/04 17:3 1/20/04 10:5 1/21/04 10:2 1/22/04 11:4 1/23/04 12:3 1/28/04 15:2 1/28/04 15:2 1/28/04 10:5	off bottom 1/19/04 5.23 TME SINCE 1 off bottom 2 0.28:30 3 0.28:30 9 0.38:15 1 1:08:15 2 2:28:30 2 4:28:30 2 4:28:30 3 17:09:30 3 17:09:30 3 17:09:30 3 17:09:30 3 17:09:30 1 132:11:30 9 76:25:30 4 103:10:30 5 132:11:30 9 155:05:30 8 176:04:30 9 196:38:30 9 221:05:30	at surface 0:12:00 0:17:00 0:17:00 0:23:45 0:38:45 0:55:45 2:18:00 2:59:00 4:18:00 9:40:00 11:40:00 18:57:00 29:14:00 78:13:00 102:58:00 131:59:00 154:53:00 177:52:00 198:24:00 220:53:00	1/19/04 5:46 in cenister	22.5 minutes 0.375 hours 0.612372438 SCRT (hrs) SORT hrs. (since off bottom) 0.639009851 0.701189486 0.777281586 0.924211378 1.08653845 1.573213272 1.786523828 2.11541958 2.878619047 3.142451273 3.448012188 4.142281882 5.42801757 7.27839288 6.855789087 10.157570954 11.49748349 12.45358048 13.34447451 14.02170938 14.88915151 15.826883325
dry sample v	veight: SURIEMENT: measured 2 3 5 9 9 9 3 0 2 2 6 6 7 7 9 9 5 0 0 7 7 9 9 9 7 7 9 9 7 7 9 9 7 7 9 9 7 7 9 9 7 7 9 9 7 7 9 8 7 9 8 7 9 8 7 9 8 8 8 8	S S IT (F) med 75 75 75 75 76 77 79 78 79 75 75 75 75 75 75 75 75 76 77 79 78 79 79 70 79 70 70 70 70 70 70 70 70 70 70 70 70 70	0.670  0.670  1082 1082 1082 1082 1083 1083 1083 1083 1081 1081 1081 1081	grams 304.04 CONMERS could be received by the	SION OF RIGALAB absolute T (F) [ 535   535   535   535   536   537   539   540   535   536   537   539   540   540   555	MEASU pola 14.044 14.044 14.044 14.057 14.057 14.057 14.031 14.031 14.031 14.031 14.031 14.133 14.133 14.131 14.131 14.131 14.131 14.131 14.131	cubic ft (@STP) 8.55853E-05 9.8378E-05 0.000183993 0.000295134 0.000295134 0.000275035 0.000327007 0.000390953 0.000521757 0.00042275 0.000227213 0.000183812 0.000183817 0.00019327 0.00019357 0.00019357 0.00019357	cc (@STP)  1.86 2.79 4.84 6.38 6.38 21.34 9.26 11.07 14.77 11.97 6.43 4.04 9.29 9.36 6.57 6.32 4.63 4.56 0.00 -3.75	cubic ft 8.55853E-05 0.000183983 0.000327927 0.000327927 0.000823061 0.000918195 0.001871714 0.00198722 0.002389874 0.002911431 0.003334181 0.0033418419 0.004361322 0.004384419 0.00461822 0.00481022 0.00507342 0.00507342 0.00507342 0.00507342 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.00523451 0.005202678 0.005202678 0.005202678 0.005202678 0.0050002678 0.005000000000000000000000	1,86 4,84 9,29 17,84 26,00 47,34 56,80 87,87 62,44 100,85 105,49 114,77 124,15 130,72 139,04 143,86 148,22 148,22 144,48	without lost gas 0.20 0.49 0.98 1.88 2.74 4.99 5.98 7.13 8.89 9.95 10.83 11.12 12.09 13.08 13.77 14.85 15.14 15.82 15.82 15.82	38 SCF/TON with lost gas  4.20 4.49 4.98 5.88 8.74 8.99 9.97 11.13 12.89 13.95 14.63 15.12 18.10 17.09 17.78 18.85 19.14 19.62 19.62 19.63	1/19/04 5:4 1/19/04 5:5 1/19/04 5:5 1/19/04 6:1 1/19/04 6:3 1/19/04 7:5 1/19/04 12:3 1/19/04 17:5 1/19/04 17:3 1/19/04 17:3 1/20/04 10:5 1/21/04 10:2 1/22/04 11:4 1/23/04 12:3 1/28/04 15:2 1/28/04 15:2 1/28/04 10:5	off bottom 1/19/04 5:23 TIME SINCE off bottom 3 0:29:30 9 0:38:15 1 1:08:15 2 2:28:30 2 4:28:30 2 4:28:30 3 17:09:30 3 17	at surface 0:12:00 0:17:00 0:17:00 0:23:45 0:38:45 0:55:45 2:18:00 2:59:00 4:18:00 9:40:00 11:40:00 18:57:00 29:14:00 78:13:00 102:58:00 131:59:00 154:53:00 177:52:00 198:24:00 220:53:00	1/19/04 5:46 in cenister	22.5 minutes 0.375 hours 0.612372438 SOFIT (hrs) SOFIT hrs. (since off bottom) 0.639009851 0.701189488 0.777281588 0.924211378 1.08853845 1.573213272 1.788523828 2.11541958 2.878819047 3.142451273 3.448012188 4.142281882 5.42801757 7.27839288 8.855789087 10.15750954 11.49748349 12.45358048 13.34447451 14.02170938 14.88915151

without lost gas with lost gas

0.49

0.73

0.97

1.21

9.29

13.93

16.57

23.21

CONVERSION OF RIGILAB MEASUREMENTS TO STP (@60 deg F; 14.7 pei) CUMULATIVE VOLUMES (@STP) SCF/TON SCF/TON

cubic ft oc

9.29 0.000327927

4.84 0.00049189

4.64 0.000855853

4.64 0.000819817

0.873918687 SQRT (hrs)

SQRT hrs. (since off bottom)

0.839148392

0.950878788

0:09:15 0.779957284

0:20:15 0.889758521

0:15:00

0:27:00

TIME SINCE

0:38:30

0:42:15

0:47:30

0:54:15

ost gas TIME OF MEASURE off bottom 3.52 1/19/04 8:34 0:36

3.78 1/19/04 8:39

4.01 1/19/04 8:45

4.25 1/19/04 8:51

at surface

0:24:00

0:29:45

0:35:00

0:41:45

in canister

RIGILAB MEASUREMENTS

measured cc measured T (F) measured P cubic ft absolute T (F) pela cubic ft (@STP) cc (@STP) 10 75 1082 0.0004 535 14.044 0.000327927

535 14.044 0.000183963

535 14.044 0.000163983

535 14.044 0.000163983

75 1082 0.0004

75 1082 0.0002

1082 0.0002

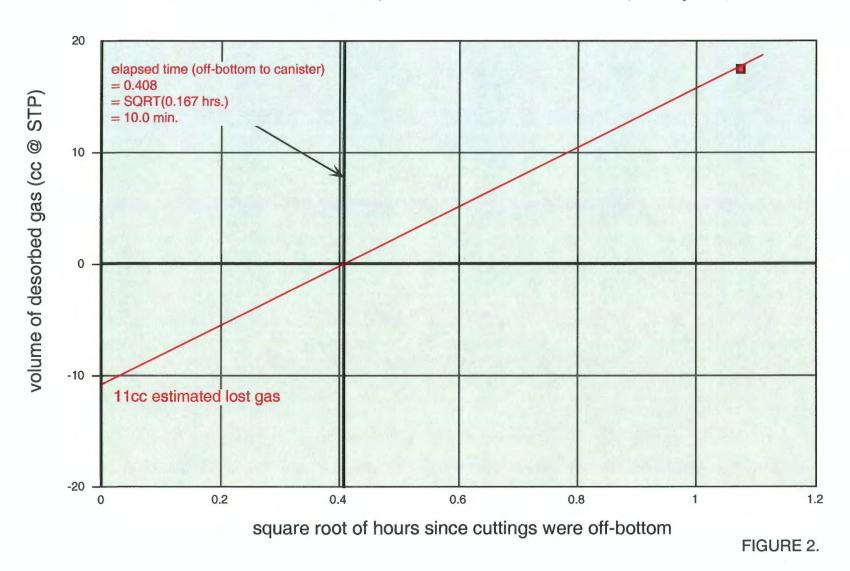
1082 0.0002

75

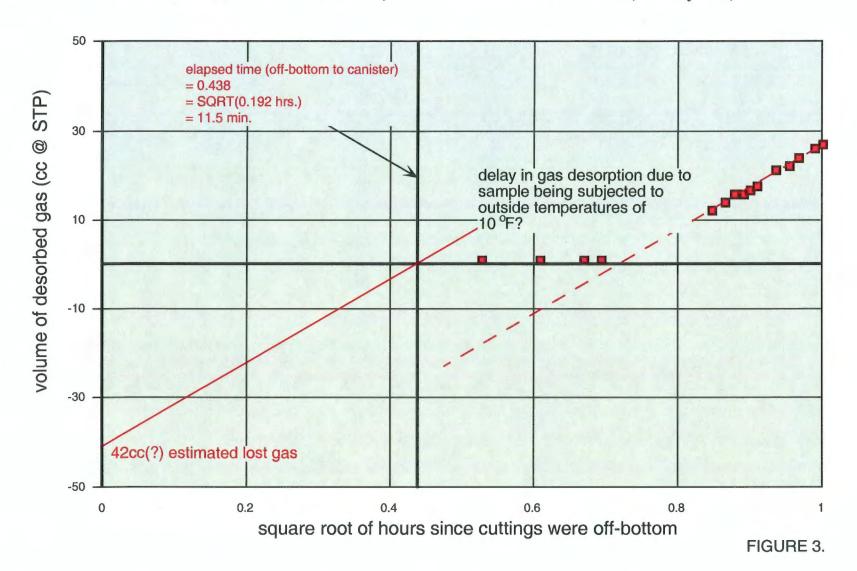
3	7.	5 10	0.82	0001	535 14.044	9.8378E-05	2	.79	0.000918195	28.00	1.38	4.40	1/19/0	4 6:57	0:59:45	0:47:15	0:32:30	0.997914492
4	7			0001	535 14 044				0.001049385	29.71	1.55	4.58	1/19/0	4 7:03	1:05:30	0:53:00	0:36:15	
4	7			0001	535 14 044		9	71	0.001180538	33.43	1.75	4.76	1/19/0	4 7:09	1:11:30	0:59:00	0:44:15	1.09183488
-	7			0002	535 14.057	0.000184115		85	0.001344851	38.08	1.99	5.03	1/19/0	4 7:17	1:19:30	1:07:00	0:52:15	
3	7			0001	535 14.057	0.000131292			0.001475943	41 79	2.19	5.22		4 7:26	1:28:30	1:18:00	1:01:15	1.21449578
2	7			.0001	536 14 057	9.82852E-05			0.001574228	44 58	2.33	5.37		4 7:32	1:34:30	1:22:00	1:07:15	1.25499004
3	7			0001	536 14.057	0.000131047			0.001705275	48.29	2.53	5.56		4 7:39	1:41:30	1:29:00	1:14:15	1.300840888
4	7			7E-05	536 14 057	8.55235E-05			0.001770798	50.14	2.62	5.66		4 7:44	1:48:30	1:34:00	1:19:15	1.332291259
2				0002	537 14.057	0.000183504			0.001934302	54 77	2.02	5.90		4 7:54	1:56:30	1:44:00	1:29:15	1.393436998
5	7			0002	536 14.057	0.000183809			0.00209811	59 41	3.11	B 14		4 6:07	2:09:30	1:57:00	1:42:15	1.489126725
5	7				537 14.057	0.000183809			0.002490519	70.52	3.89	6.72		4 8:34	2:38:30	2:24:00	2:09:15	1.615033539
12				0004	539 14.057				0.002490319	90.52	4.75	7.79		4 8:51	2:53:30	2:41:00	2:28:15	1.700490125
22				8000		0.000718748	-										6:08:15	2.587424131
30				0011	538 14.044	0.000978294			0.00418556	118.52	6.20	9.24			8:35:30	8:23:00		
30				.0011	538 14.031	0.00097739			0.00518295	148.20	7.85	10.88			9:07:30	8:55:00	8:40:15	3.020761493
12		-		0004	540 14.031	0.000389508			0.005552458	157.23	6.23	11.28			11:15:30	11:03:00	10:48:15	3.355343998
5				0002	538 14.031	0.000182898			0.005715356	181.84	6.47	11.50			13:07:30	12:55:00	12:40:15	3.822844187
-3		_		.0001	535 14.031	-9.82671E-05			0.005617089	159.06	8.32	11.36			18:33:30	16:21:00	16:06:15	4.069193204
5				0002	538 14.031	0.000163508			0.005780575	183.89	8.58	11.80			19:28:30	19:18:00	19:01:15	4.413046833
1	7.			4E-05	535 14.044	3.27927E-05			0.005813388	184.82	8.81	11.65			28:52:30	28:40:00	28:25:15	5.373546315
8	7:	3 10	0.089	0003	533 14.135	0.000265029			0.008078397	172.12	9.01	12.04			52:25:30	52:13:00	51:58:15	7.240511032
-4	7	B 10	95 -0.	0001	538 14.213	-0.000132499			0.005945898	168.37	8.81	11.84			77:51:30	77:39:00	77:24:15	8.823736926
21	7	5 10	77 0.	0007	535 13.979	0.000885484	19	41 (	0.006831382	187.78	9.82	12.86			102:35:30	102:23:00	102:08:15	10.12875445
-2	7.	5 10	77 -	7E-05	535 13.979	-6.52823E-05	-1	.85	0.00658808	185.93	9.73	12.78	1/24/04	17:36	131:38:30	131:28:00	131:11:15	11.47352024
10	7 /	8 10	69 0.	0004	538 13.875	0.00032218	9	.12	0.00888828	195.05	10.21	13.24	1/25/04	16:29	154:31:30	154:19:00	154:04:15	12.4308085
-10	7 :	5 10	78 -0.	0004	535 13.992	-0.000328714	-9	.25 (	0.006581545	185,80	9.72	12.76	1/26/04	15:29	177:31:30	177:19:00	177:04:15	13.32385079
-18	7:	5 10	91 -0.	0008	535 14.181	-0.000529047	-14	.98 (	0.006032498	170.82	6.94	11.97	1/27/04	10:01	196:03:30	195:51:00	195:36:15	14.00208318
DECANISTER	RED 01/27/2004;	sample drie	ed 5 days	s in air														
SAMPLE:	1344.0'-1345.5	(Tebo cos	ut) cutting	ge in canister	Maggy 4													
		lbs.	grai	me								est. lost gas (cc) =			TIME OF:			elapsed time (off bottom to canistering)
dry sample we	eight:	1.0	087 48	92.94								24			off bottom	at surface	in canister	37.5 minutes
															1/19/04 9:32	1/19/04 9:46	1/19/04 10:10	0.625 hours
RIGILAB MEAS	SUREMENTS		CO	NVERSION OF	F RIGILAB MEASU	REMENTS TO STP	@60 deg F; 14.7 g	mi) C	UMULATIVE VOLUN	MES (OSTP)	SCF/TON	SCF/TON			TIME SINCE			0.790589415 SQRT (hrs)
	measured T (F)	measured				cubic ft (OSTP)			ubic ft cc			with lost gas	TIME OF ME	ASURE	off bottom	at eurface	in canister	SQRT hrs. (since off bottom)
1				4E-05	539 14.057	3.25794E-05	0	.92	3.25794E-05	0.92	0.08	1.62	1/19/04	10:14	0:42:00	0:28:30	0:04:30	0.838860027
	7	9 10	183	7E-05	539 14.057	8.51568E-05	1	85			0.18		1/19/04	10:17	0:44:45	0:31:15	0:07:15	0.863616427
2				7E-05		8.51588E-05			9.77382E-05	2.77	0.18	1.74			0:44:45	0:31:15	0:07:15	0.863616427 0.880340843
2	80	0 10	83	0	540 14.057	0	0.	.00	9.77382E-05 9.77382E-05	2.77 2.77	0.18 0.18	1.74 1.74	1/19/04	10:19	0:44:45 0:46:30	0:33:00	0:09:00	0.880340843
2	81	0 10	83	0	540 14.057 540 14.057	0	0.	00	9.77382E-05 9.77382E-05 9.77382E-05	2.77 2.77 2.77	0.18 0.18 0.18	1.74 1.74 1.74	1/19/04 1/19/04	10:19 10:21	0:44:45 0:46:30 0:49:00	0:33:00 0:35:30	0:09:00 0:11:30	0.880340843 0.903698114
2	81	0 10 0 10 0 10	)83 )83 )83 4	0 0 4E-05	540 14.057 540 14.057 540 14.057	0 0 3.25191E-05	0.	00	9.77382E-05 9.77382E-05 9.77382E-05 0.000130257	2.77 2.77 2.77 3.89	0.18 0.18 0.18 0.24	1.74 1.74 1.74 1.80	1/19/04 1/19/04 1/19/04	10:19 10:21 10:23	0:44:45 0:46:30 0:49:00 0:50:45	0:33:00 0:35:30 0:37:15	0:09:00 0:11:30 0:13:15	0.880340843 0.903698114 0.919691977
2 0 0 1 1 1	81	0 10 0 10 0 10 0 10	)83 )83 )83 4	0 0 4E-05 4E-06	540 14.057 540 14.057 540 14.057 540 14.057	0 0 3.25191E-05 3.25191E-05	0.	00 00 92 92	9.77382E-05 9.77382E-05 9.77382E-05 0.000130257 0.000182778	2.77 2.77 2.77 3.89 4.81	0.18 0.18 0.18 0.24 0.30	1.74 1.74 1.74 1.80 1.88	1/19/04 1/19/04 1/19/04 1/19/04	10:19 10:21 10:23 10:35	0:44:45 0:46:30 0:49:00 0:50:45 1:03:00	0:33:00 0:35:30 0:37:15 0:49:30	0:09:00 0:11:30 0:13:15 0:25:30	0.880340843 0.903698114 0.919691977 1.024895077
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2 0 0 1 1 1 0 4 2 1 4 3 -8 -8 -9 -1 DECANISTEF SAMPLE: dry sample w	81 81 81 81 81 81 81 9 71 9 77 9 77 9 77 15 77 15 17 77 17 77 17 77 17 77 18 18 18 18 18 18 18 18 18 18 18 18 18 1	0 100 100 100 100 100 100 100 100 100 1	083 083 083 083 082 082 082 082 082 082 082 092 095 0077 008 008 008 008 008 008 00	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	540 14.057 540 14.057 540 14.057 540 14.057 540 14.057 540 14.054 540 14.044 540 14.044 540 14.031 535 14.034 533 14.135 536 14.213 535 13.079 chips in canister I wet samp	0 0 0 3.25191E-05 3.25191E-05 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.000 0.000	00 00 00 00 00 00 00 00 00 00 00 00 00	9.77382E-05 9.77382E-05 9.77382E-05 9.77382E-05 0.000130257 0.000182778 0.000182778 0.00028773 0.00028771 0.000380189 0.000520035 0.000421748 0.000159407 -0.00010562 -0.00043839  rams moi 508.95  LMMLIATIVE VOLUMubic ft co	2.77 2.77 2.77 3.89 4.81 4.61 8.29 10.13 11.05 14.73 11.94 4.51 -2.99 -11.43 -12.38	0.18 0.18 0.18 0.24 0.30 0.30 0.54 0.88 0.72 0.98 0.78 0.29 -0.19 -0.74 -0.80	1.74 1.74 1.80 1.86 2.10 2.22 2.28 2.52 2.34 1.65 1.37 0.82 0.76  est. lost gas (co) = 58 SCF/TON with lost gas	1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/22/04 1/23/04	10:19 10:21 10:23 10:35 10:41 12:29 12:30 12:32 15:01 22:31 10:50 10:23 11:49 12:31	0:44:45 0:49:30 0:49:00 0:50:45 1:03:00 1:09:00 2:58:30 2:57:30 2:59:30 5:28:30 25:17:30 48:50:30 74:18:30 98:58:30	0.33:00 0.37:15 0.49:30 0.55:30 2:44:00 2:44:00 2:48:00 2:48:00 48:37:00 74:03:00 98:45:00  at surface 1/20/04 14:30 at surface	0:09:00 0:11:30 0:11:30 0:13:15 0:25:30 0:31:30 2:19:00 2:20:00 4:51:00 12:21:00 24:40:00 48:13:00 73:39:00 98:21:00 in carrieter 1/20/04 15:44 in canister	0.880340843 0.903698114 0.919891977 1.024895077 1.072380529 1.715128761 1.71998062 1.729843509 2.339871791 3.802082731 5.022082731 5.022082731 5.022082731 9.948617994  elapsed time (off bottom to canistering) 160.0 minutes 2.867 hours 1.632993162 SCRT (hrs) SQRT hrs. (elince off bottom)
2 0 0 1 1 1 0 4 2 1 4 3 -8 -8 -9 -1 DECANISTEF SAMPLE: dry sample w	81 81 81 81 81 81 81 77 77 77 77 77 71 1521.0'-1522.5' eight:	0 100 100 100 100 100 100 100 100 100 1	083	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	540 14.057 540 14.057 540 14.057 540 14.057 540 14.057 540 14.054 540 14.054 540 14.054 540 14.031 535 14.031 535 14.031 535 14.031 535 14.031 536 14.213 536 14.213 536 14.213 536 14.213 5379	0 0 0 3.25191E-05 3.25191E-05 0.000129958 6.49761E-05 3.2489E-05 0.000129838 -9.82871E-05 0.000285029 -0.000285029 -0.000298123 -3.28411E-05	0 0 0 0 0 3 1 1 0 3 -2 -7 -7 -8 -0	00 00 00 92 (00 00 00 00 00 00 00 00 00 00 00 00 00	9.77382E-05 9.77382E-05 9.77382E-05 9.77382E-05 0.000130257 0.000182778 0.000182778 0.000282732 0.00038771 0.00038971 0.000389199 0.000520035 0.000421748 0.000159407 -0.00010562 -0.0004374 -0.00043839	2.77 2.77 2.77 3.89 4.61 4.61 8.29 10.13 11.05 14.73 11.94 4.51 -2.99 -11.43 -12.36 sture % 2.88%	0.18 0.18 0.18 0.18 0.24 0.30 0.30 0.54 0.88 0.72 0.98 0.78 0.29 -0.19 -0.74 -0.80  SCF/TON without lost gas 0.12	1.74 1.74 1.80 1.68 2.10 2.22 2.28 2.52 2.34 1.65 1.37 0.82 0.76  est. lost gas (cc) = 58  SCF/TON with lost gas 3.75	1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/22/04 1/23/04	10:19 10:21 10:23 10:35 10:41 12:29 12:30 12:32 15:01 22:31 10:50 10:23 11:49 12:31	0:44:45 0:46:30 0:49:00 0:50:45 1:03:00 1:09:00 2:58:30 2:57:30 2:59:30 12:58:30 12:58:30 74:18:30 74:18:30 98:58:30  TIME OF: off bottom 1/20/04 13:04 TME SINCE off bottom 2:44:00	0:33:00 0:35:31 0:37:15 0:49:30 0:55:30 2:44:00 2:44:00 3:15:00 12:45:00 25:04:00 46:37:00 74:03:00 98:45:00  at surface 1/20/04 14:30 at surface 1/20/04 11:30	0:09:00 0:11:30 0:11:30 0:13:15 0:25:30 0:31:30 2:19:00 2:20:00 4:51:00 12:21:00 24:40:00 48:13:00 73:39:00 98:21:00 in carister 1/20/04 15:44 in canister 0:04:00	0.880340843 0.903898114 0.919891977 1.024895077 1.024895077 1.072380529 1.715128761 1.71998062 1.729843509 2.339871791 3.802082731 5.02209209 8.988881325 8.618294495 9.948617994 elapsed time (off bottom to canistering) 160.0 minutes 2.667 hours 1.632993162 SORT (hrs) SQRT hrs. (elince off bottom) 1.653279569
2 0 0 1 1 1 4 2 1 4 -3 -8 -8 -1 DECANISTEF SAMPLE: dry sample we	81 81 81 81 81 81 81 9 7: 7 7: 9 7: 1521.0'-1522.5' 1521.0'-1522.5' superments measured T (F)	0 100 100 100 100 100 100 100 100 100 1	083	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	540 14.057 540 14.057 540 14.057 540 14.057 540 14.057 540 14.054 540 14.044 540 14.044 540 14.031 535 14.034 533 14.135 536 14.213 535 13.079 chips in canister I wet samp	0 0 0 3.25191E-05 3.25191E-05 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 3 1 1 0 3 -2 -7 -7 -8 -0	00 00 00 92 (00 00 00 00 00 00 00 00 00 00 00 00 00	9.77382E-05 9.77382E-05 9.77382E-05 9.77382E-05 0.000130257 0.000182778 0.000182778 0.00028773 0.00028771 0.000380189 0.000520035 0.000421748 0.000159407 -0.00010562 -0.00043839  rams moi 508.95  LMMLIATIVE VOLUMubic ft co	2.77 2.77 2.77 3.89 4.81 4.61 8.29 10.13 11.05 14.73 11.94 4.51 -2.99 -11.43 -12.38	0.18 0.18 0.18 0.24 0.30 0.30 0.54 0.88 0.72 0.98 0.78 0.29 -0.19 -0.74 -0.80	1.74 1.74 1.80 1.86 2.10 2.22 2.28 2.52 2.34 1.65 1.37 0.82 0.76  est. lost gas (co) = 58 SCF/TON with lost gas	1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/22/04 1/23/04	10:19 10:21 10:23 10:35 10:41 12:29 12:30 15:01 22:31 10:50 10:23 11:49 12:31	0:44:45 0:46:30 0:49:00 0:50:45 1:03:00 1:09:00 2:58:30 2:57:30 2:59:30 5:28:30 25:17:30 48:50:30 74:18:30 98:58:30  TIME OF: off bottom 1/20/04 13:04 TIME SMCE off bottom 2:44:00 2:50:00	0:33:00 0:35:30 0:37:15 0:49:30 0:55:30 2:44:00 2:46:00 5:15:00 12:45:00 25:04:00 46:37:00 74:03:00 98:45:00  at surface 1/20/04 14:30 at surface 1:18:00 1:24:00	0:09:00 0:11:30 0:13:15 0:25:30 0:31:30 2:19:00 2:20:00 4:51:00 12:21:00 24:40:00 73:39:00 98:21:00 in carrister 1/20/04 15:44 in canister 0:04:00 0:10:00	0.880340843 0.903698114 0.919891977 1.024895077 1.072380529 1.715128761 1.71998062 1.729843509 2.339871791 3.802082731 5.02908209 8.988681325 8.818294495 9.948617994  elapsed time (off bottom to canistering) 160.0 minutes 2.867 hours 1.632993162 SCHT (hrs) SCHT hrs. (since off bottom) 1.853279569 1.683250823
2 0 0 1 1 1 4 2 1 4 -3 -8 -8 -8 -9 DECANISTEF SAMPLE: dry sample we	81 81 81 81 81 81 81 9 7: 7 7: 9 7: 1521.0'-1522.5' 1521.0'-1522.5' superments measured T (F)	0 100 100 100 100 100 100 100 100 100 1	083	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	540 14.057 540 14.057 540 14.057 540 14.057 540 14.057 540 14.054 540 14.054 540 14.054 540 14.031 535 14.031 535 14.031 535 14.031 535 14.031 536 14.213 536 14.213 536 14.213 536 14.213 5379	0 0 0 3.25191E-05 3.25191E-05 0.000129958 6.49761E-05 3.2489E-05 0.000129838 -9.82871E-05 0.000285029 -0.000285029 -0.000298123 -3.28411E-05	0 0 0 0 0 0 1 0 3 1 0 3 -2 -7 -7 -8 -0 0 0 8 1 1.1 1 (2)80 dag F; 14.7 μ α (2)8TP)	00 00 00 00 00 00 00 00 00 00 00 00 00	9.77382E-05 9.77382E-05 9.77382E-05 9.77382E-05 0.000130257 0.000182778 0.000182778 0.000282732 0.00038771 0.00038971 0.000389199 0.000520035 0.000421748 0.000159407 -0.00010562 -0.0004374 -0.00043839	2.77 2.77 2.77 3.89 4.61 4.61 8.29 10.13 11.05 14.73 11.94 4.51 -2.99 -11.43 -12.36 sture % 2.88%	0.18 0.18 0.18 0.18 0.24 0.30 0.30 0.54 0.88 0.72 0.98 0.78 0.29 -0.19 -0.74 -0.80  SCF/TON without lost gas 0.12	1.74 1.74 1.80 1.68 2.10 2.22 2.28 2.52 2.34 1.65 1.37 0.82 0.76  est. lost gas (cc) = 58  SCF/TON with lost gas 3.75	1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/20/04 1/20/04 1/20/04	10:19 10:21 10:23 10:35 10:41 12:29 12:30 12:32 15:01 22:31 10:50 10:23 11:49 12:31	0:44:45 0:49:30 0:49:90 0:50:45 1:03:90 1:09:90 2:58:30 2:57:30 2:59:30 12:58:30 25:17:30 48:50:30 74:18:30 98:58:30  TIME OF: off bottom 1/20/04 13:04 TIME SINCE off bottom 2:44:00 2:50:00 2:54:00	0.33:00 0.37:15 0.49:30 0.55:30 2:44:00 2:44:00 2:46:00 3:15:00 12:45:00 48:37:00 74:03:00 98:45:00  at surface 1/20/04 14:30 at surface 1:18:00 1:24:00 1:24:00	0:09:00 0:11:30 0:11:30 0:13:15 0:25:30 0:31:30 2:19:00 2:20:00 4:51:00 12:21:00 24:40:00 48:13:00 73:39:00 98:21:00 in carrieter 1/20/04 15:44 in can/ster 0:04:00 0:14:00	0.880340843 0.903698114 0.919891977 1.024895077 1.024895077 1.072380529 1.715128761 1.71998062 1.729843509 2.339871791 3.802082731 5.029082731 5.02908209 8.988881325 6.618294495 9.948617994 elapsed time (off bottom to canistering) 160.0 minutes 2.867 hours 1.632693182 SCRT (hrs) SQRTh hrs. (elines off bottom) 1.653279569 1.683250823 1.702938837
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2 0 0 1 1 1 1 1 0 1 1 1 1 1 1 1 1 1 1 1	81 81 81 81 81 81 81 81 81 81 81 81 81 8	0 100 100 100 100 100 100 100 100 100 1	983   883   883   883   883   883   883   883   883   883   885	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	540 14.057 540 14.057 540 14.057 540 14.057 540 14.057 540 14.054 540 14.054 540 14.054 540 14.054 540 14.031 535 14.031 535 14.031 535 14.031 535 14.031 536 14.213 535 13.979  Chips in canister I wet samp FRICH_AB MEASU	0 0 0 3.25191E-05 3.25191E-05 0.000129958 6.49761E-05 3.2489E-05 0.000129838 -9.82871E-05 0.000285029 -0.000285029 -0.000285029 -0.000285029 -0.000285029 -0.000285029 -0.000285029 -0.000285029 -0.000285029 -0.00088011E-05 8.42829E-05 8.42829E-05 9.85718E-05 9.85718E-05 9.85718E-05 9.857494E-05 3.23093E-05 9.87494E-05 9.87494E-05 9.00082879 0.000164702 0.00082879 0.000164702 0.00029127 0.447378E-05	0.000 dog F; 14.7 p c (@STP)  1.1 2.0 0.2 0.7 2.4 2.0 0.1 2.0	00 00 00 92 (0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9.77382E-05 9.77382E-05 9.77382E-05 9.77382E-05 9.77382E-05 0.000130257 0.000182778 0.000182778 0.000182778 0.000282732 0.000520035 0.000421748 0.0003590199 0.000550035 0.000421748 0.000185407 0.00010582 0.0004374 0.00040374	2.77 2.77 2.77 3.89 4.61 4.61 4.61 6.29 10.13 11.05 14.73 11.94 4.51 -2.99 -11.43 -12.36  sture % 2.88% 4.55 8.37 9.10 10.02 12.78 13.87 38.67 43.34 72.48 74.31	0.18 0.19 0.19 0.19 0.24 0.30 0.54 0.88 0.72 0.98 0.78 0.29 -0.19 -0.74 -0.80  SCF/TON without lost gas 0.12 0.24 0.30 0.41 0.59 0.85 0.83 0.89 2.51 2.81 4.71	1.74 1.74 1.74 1.80 1.88 1.86 2.10 2.22 2.28 2.52 2.34 1.85 1.37 0.82 0.76  set lost gas (cc) = 58  SCF/TON with lost gas 3.75 3.87 3.93 4.05 4.23 4.29 4.46 4.52 6.15 6.45 8.34	1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/22/04 1/22/04 1/20/04	10:19 10:21 10:23 10:35 10:41 12:29 12:30 12:30 10:23 11:49 12:31 15:54 15:54 15:55 17:07 16:21 11:50 12:30	0:44:45 0:46:30 0:49:00 0:50:45 1:03:00 1:09:00 2:58:30 2:58:30 5:28:30 48:50:30 48:50:30 48:50:30 74:16:30 98:58:30  TIME OF: off bottom 2:44:00 2:50:00 3:03:00 3:17:00 3:25:00 3:51:00 4:03:00 71:20:00 10:34:00 10:34:00	0:33:00 0:35:31 0:35:30 0:37:15 0:49:30 0:55:30 2:44:00 2:44:00 2:48:00 12:45:00 12:45:00 48:37:00 74:03:00 98:45:00 at surface 1/20/04 14:30 at surface 1:18:00 1:24:00 1:28:00 1:28:00 1:55:00 2:37:00 19:54:00 45:20:00 99:08:00	0:09:00 0:11:30 0:11:30 0:13:15 0:25:30 0:31:30 2:19:00 2:20:00 4:51:00 12:21:00 24:40:00 48:13:00 73:39:00 98:21:00 in canister 1/20/04 15:44 in canister 0:04:00 0:14:00 0:14:00 0:14:00 0:14:00 0:12:3:00 0:46:00 1:11:00 1:23:00 0:46:00 0:18:40:00 0:84:60:00 97:54:00	0.880340843 0.903898114 0.919891977 1.024895077 1.024895077 1.072380529 1.715128761 1.71998062 1.729843509 2.339871791 3.802082731 5.02209209 8.988881325 8.618294495 9.948617994  elapsed time (off bottom to canistering) 160.0 minutes 2.667 hours 1.632993162 SCRT (hrs) SCRT hrs. (elince off bottom) 1.653279569 1.683250823 1.702938637 1.74642492 1.811997057 1.846422751 1.962141867 2.01246118 4.618802154 8.838615644 8.451824261 10.02829331
2 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	81 81 81 81 81 81 81 81 81 81 81 81 81 8	0 100 100 100 100 100 100 100 100 100 1	.833 .833 .833 .833 .833 .833 .833 .833	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	540 14.057 540 14.057 540 14.057 540 14.057 540 14.057 540 14.054 540 14.044 540 14.044 540 14.044 533 14.135 535 14.034 533 14.135 536 14.213 535 14.044 533 14.135 536 14.213 535 14.044 533 14.135 536 14.213 535 14.044 533 14.135 536 14.213 543 14.018 544 14.018 545 14.018 545 14.018 545 14.018 545 14.018 545 14.018 546 14.018 547 548 14.018 549 14.018	0 0 0 3.25191E-05 3.25191E-05 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.000	000 000 000 000 000 000 000 000 000 00	9.77382E-05 9.77382E-05 9.77382E-05 9.77382E-05 0.000130257 0.000182778 0.000182778 0.000282732 0.000390199 0.000520035 0.00041748 0.0004374 -0.00040374 -0.00043839  rame moi con control con	2.77 2.77 3.89 4.81 4.61 8.29 10.13 11.05 14.73 11.94 4.51 -2.99 -11.43 -12.38  sture % 2.88% (ES (@STP)  1.82 3.84 4.55 8.37 9.10 10.02 12.76 13.87 38.67 43.34 72.48 74.31	0.18 0.18 0.18 0.18 0.24 0.30 0.30 0.54 0.88 0.72 0.98 0.78 0.29 -0.19 -0.74 -0.80  SCF/TON without lost gas 0.12 0.24 0.30 0.41 1.0.59 0.85 0.83 0.89 2.51 2.81 4.71 4.83 5.53	1.74 1.74 1.74 1.80 1.88 2.10 2.22 2.28 2.52 2.34 1.85 1.37 0.82 0.76  scf. TON with lost gas 4.05 4.23 4.29 4.48 4.52 6.15 6.45 8.34	1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/20/04	10:19 10:21 10:23 10:35 12:30 10:35 12:30 10:35 12:30 10:35 12:30 10:23 11:49 12:31 15:58 16:07 10:24 15:58 16:07 10:24 17:38 16:07 10:24 17:38	0:44:45 0:46:30 0:49:00 0:50:45 1:03:00 1:09:00 2:58:30 2:57:30 2:59:30 5:28:30 25:17:30 48:50:30 74:18:30 98:58:30  TIME OF: off bottom 1/20/04 13:04 TWE SNCE off bottom 2:44:00 2:50:00 3:01:25:00 3:01:25:00 4:10:30 3:17:00 3:17:00 4:12:00 0:10:34:00 10:34:00 10:34:00 10:34:00 10:34:00 10:34:00	0.33:00 0.37:15 0.49:30 0.55:30 2:44:00 2:44:00 12:45:00 74:03:00 98:45:00  at surface 1/20/04 14:30 at surface 1:24:00 1:28:00 1:37:00 2:25:00 0:37:00 1:59:00 2:25:00 0:37:00 19:54:00 19:54:00 19:54:00 19:54:00 12:20:00	0:09:00 0:11:30 0:11:30 0:13:15 0:25:30 0:31:30 2:19:00 2:20:00 4:51:00 12:21:00 24:40:00 46:13:00 73:39:00 98:21:00  in canlater 1/20/04 15:44 in canlater 0:04:00 0:14:00 0:23:00 1:11:00 1:23:00 1:11:00 1:23:00 18:40:00 44:06:00 48:68:00 97:54:00	0.880340843 0.903698114 0.919891977 1.024895077 1.072380529 1.715128761 1.71998062 1.729843509 2.339871791 3.802209 8.98681325 8.618294495 9.946817994  etapeed time (off bottom to canistering) 160.0 minutes 2.667 hours 1.832993162 SQRT (hrs) SQRT hrs. (elince off bottom) 1.653279569 1.80329837 1.74642492 1.811997057 1.846422751 1.962141887 2.01246118 4.818801554 8.838615644 8.451824281 10.02829331 11.11080555
2 0 0 1 1 1 1 1 0 1 1 1 1 1 1 1 1 1 1 1	81 81 81 81 81 81 81 81 81 81 81 81 81 8	0 100 100 100 100 100 100 100 100 100 1	.833 .833 .833 .833 .833 .833 .833 .833	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	540 14.057 540 14.057 540 14.057 540 14.057 540 14.057 540 14.054 540 14.044 540 14.044 540 14.044 533 14.135 535 14.034 533 14.135 536 14.213 535 14.044 533 14.135 536 14.213 535 14.044 533 14.135 536 14.213 535 14.044 533 14.135 536 14.213 543 14.018 544 14.018 545 14.018 545 14.018 545 14.018 545 14.018 545 14.018 546 14.018 547 548 14.018 549 14.018	0 0 0 3.25191E-05 3.25191E-05 0.000129958 6.49761E-05 3.2489E-05 0.000129838 -9.82871E-05 0.000285029 -0.000285029 -0.000285029 -0.000285029 -0.000285029 -0.000285029 -0.000285029 -0.000285029 -0.000285029 -0.00088011E-05 8.42829E-05 8.42829E-05 9.85718E-05 9.85718E-05 9.85718E-05 9.857494E-05 3.23093E-05 9.87494E-05 9.87494E-05 9.00082879 0.000164702 0.00082879 0.000164702 0.00029127 0.447378E-05	0.000	000 000 000 000 000 000 000 000 000 00	9.77382E-05 9.77382E-05 9.77382E-05 9.77382E-05 9.77382E-05 0.000130257 0.000182778 0.000182778 0.000182778 0.000282732 0.000520035 0.000421748 0.0003590199 0.000550035 0.000421748 0.000185407 0.00010582 0.0004374 0.00040374	2.77 2.77 2.77 3.89 4.61 4.61 4.61 6.29 10.13 11.05 14.73 11.94 4.51 -2.99 -11.43 -12.36  sture % 2.88% 4.55 8.37 9.10 10.02 12.78 13.87 38.67 43.34 72.48 74.31	0.18 0.19 0.19 0.19 0.24 0.30 0.54 0.88 0.72 0.98 0.78 0.29 -0.19 -0.74 -0.80  SCF/TON without lost gas 0.12 0.24 0.30 0.41 0.59 0.85 0.83 0.89 2.51 2.81 4.71	1.74 1.74 1.74 1.80 1.88 1.86 2.10 2.22 2.28 2.52 2.34 1.85 1.37 0.82 0.76  set lost gas (cc) = 58  SCF/TON with lost gas 3.75 3.87 3.93 4.05 4.23 4.29 4.46 4.52 6.15 6.45 8.34	1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/19/04 1/20/04	10:19 10:21 10:23 10:35 12:30 10:35 12:30 10:35 12:30 10:35 12:30 10:23 11:49 12:31 15:58 16:07 10:24 15:58 16:07 10:24 17:38 16:07 10:24 17:38	0:44:45 0:46:30 0:49:00 0:50:45 1:03:00 1:09:00 2:58:30 2:58:30 5:28:30 48:50:30 48:50:30 48:50:30 74:16:30 98:58:30  TIME OF: off bottom 2:44:00 2:50:00 3:03:00 3:17:00 3:25:00 3:51:00 4:03:00 71:20:00 10:34:00 10:34:00	0:33:00 0:35:31 0:35:30 0:37:15 0:49:30 0:55:30 2:44:00 2:44:00 2:48:00 12:45:00 12:45:00 48:37:00 74:03:00 98:45:00 at surface 1/20/04 14:30 at surface 1:18:00 1:24:00 1:28:00 1:28:00 1:55:00 2:37:00 19:54:00 45:20:00 99:08:00	0:09:00 0:11:30 0:11:30 0:13:15 0:25:30 0:31:30 2:19:00 2:20:00 4:51:00 12:21:00 24:40:00 48:13:00 73:39:00 98:21:00 in canister 1/20/04 15:44 in canister 0:04:00 0:14:00 0:14:00 0:14:00 0:14:00 0:12:3:00 0:46:00 1:11:00 1:23:00 0:46:00 0:18:40:00 0:84:60:00 97:54:00	0.880340843 0.903898114 0.919891977 1.024895077 1.024895077 1.072380529 1.715128781 1.71998062 1.729843509 2.339871791 3.802082731 5.02908209 8.988881325 8.618294495 9.948617994  elapsed time (off bottom to canistering) 160.0 minutes 2.667 hours 1.632693162 SCRT (hrs) SCRT hrs. (elince off bottom) 1.653279569 1.683250823 1.702938637 1.74842492 1.811997057 1.848422751 1.962141887 2.01248118 4.618802154 8.838615844 8.451824261 10.02829331

-18	80	1091 -0.0006	540 14.161 -0.000524148	-14.84 0.002387283	67.60	4.39	8.03	1/27/04 10:01	164:57:00	163:31:00	162:17:00	12.84328618
-28	62	1065 -0.001	542 14.063 -0.000908649	-25.74 0.001478435	41.86	2.72	6.36	2/2/04 15:55	314:51:00	313:25:00	312:11:00	17.74401307
-40	84	1091 -0.0014	544 14.161 -0.001300736	-36.83 0.000177899	5.03	0.33	3.96	2/9/04 10:47	477:43:00	476:17:00	475:03:00	21.85873047
DECANISTERED 2/10	/2004; samp	le dried for 11 days in air										

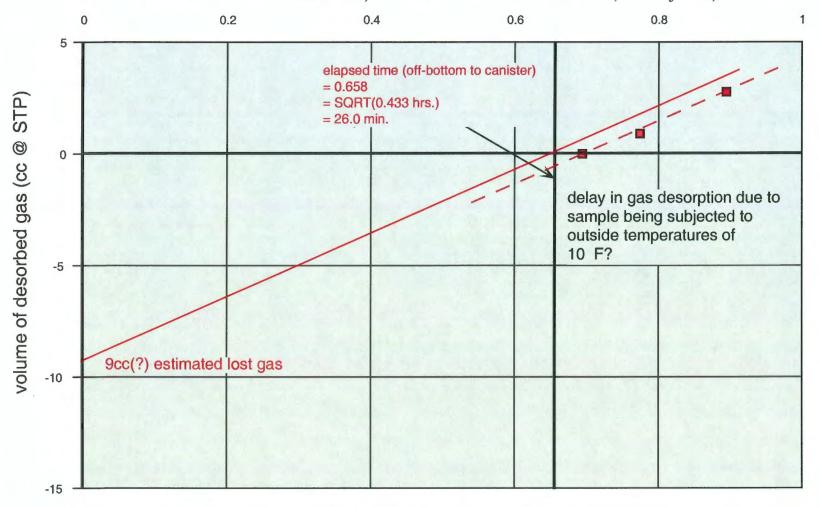
804.0'-807.5' (Stark Shale) cuttings in canister Stoeckinger 6 Petrol Oil & Gas #24-1 Rahmeier, S2 NW NW SW 24-20S-16E, Coffey Co., KS



835.0'-838.0' (Hushpuckney Shale) cuttings in canister Stoeckinger 7 Petrol Oil & Gas #24-1 Rahmeier, S2 NW NW SW 24-20S-16E, Coffey Co., KS



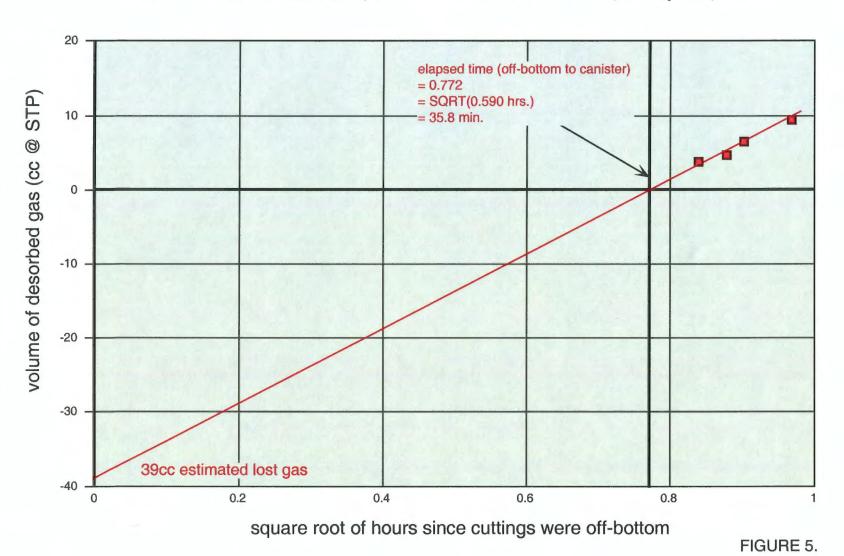
1101.0'-1102.5' (Anna Shale) cuttings in canister Stoeckinger 4 Petrol Oil & Gas #24-1 Rahmeier, S2 NW NW SW 24-20S-16E, Coffey Co., KS



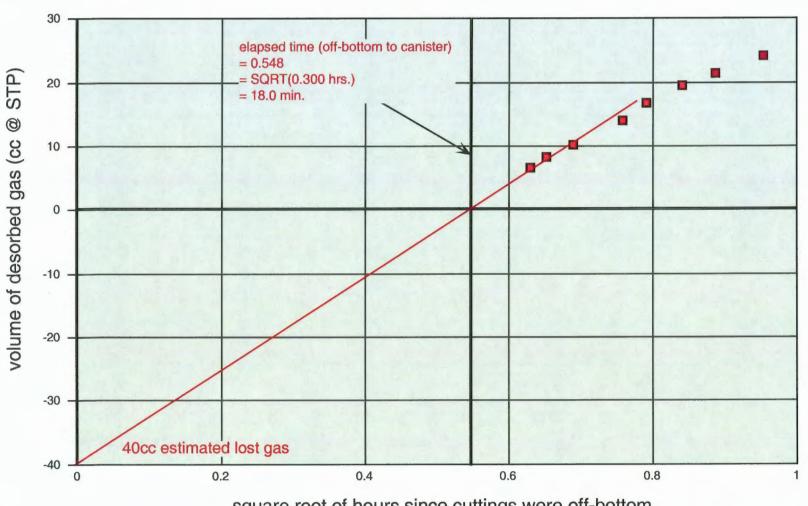
square root of hours since cuttings were off-bottom

FIGURE 4.

1158.0'-1161.0' (Little Osage Shale) cuttings in canister Brady 27 Petrol Oil & Gas #24-1 Rahmeier, S2 NW NW SW 24-20S-16E, Coffey Co., KS



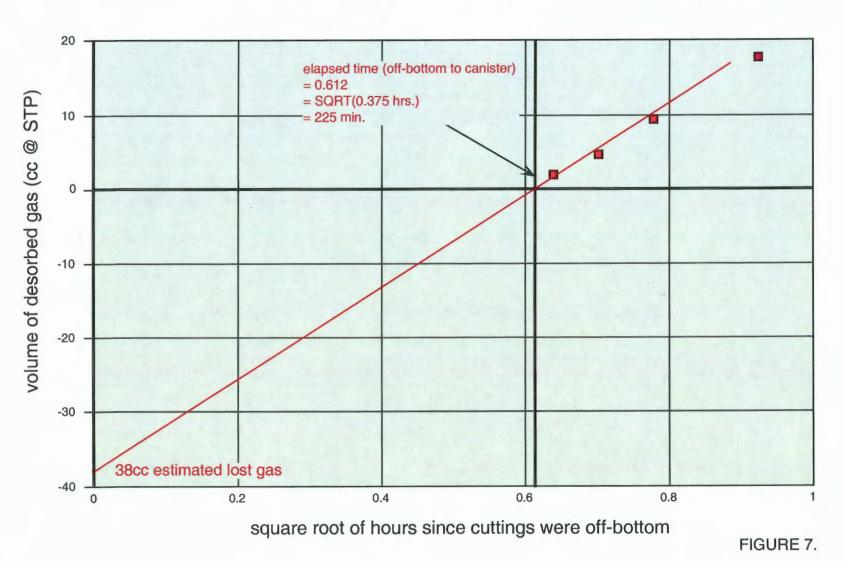
1182.0'-1184.0' (Mulky coal) cuttings in canister Stoeckinger 1 Petrol Oil & Gas #24-1 Rahmeier, S2 NW NW SW 24-20S-16E, Coffey Co., KS



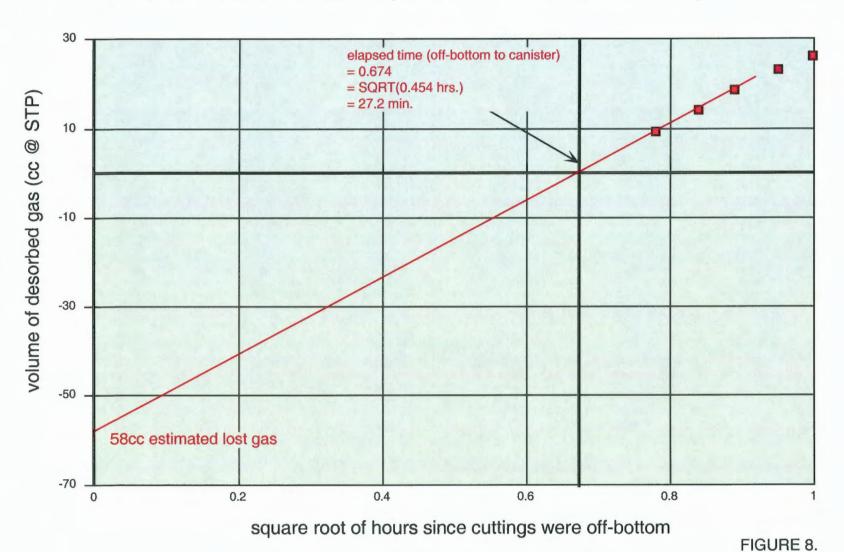
square root of hours since cuttings were off-bottom

FIGURE 6.

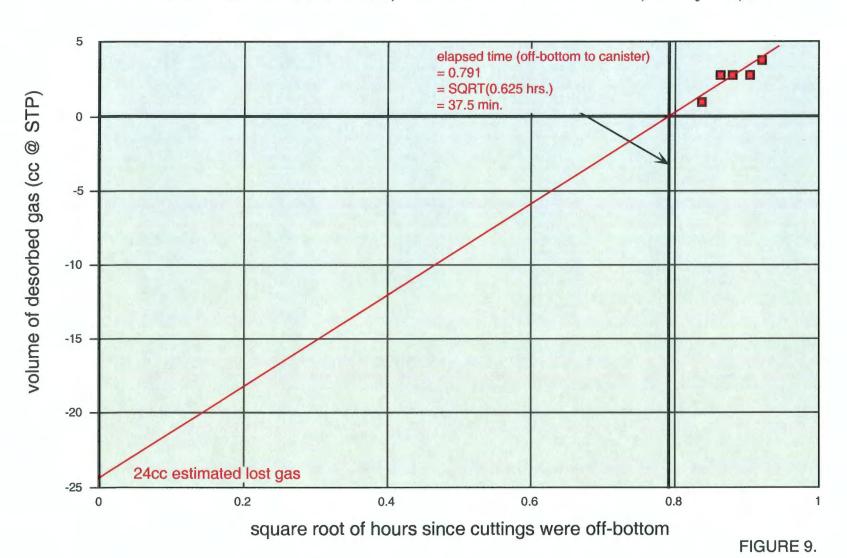
1250.0'-1152.0' (Bevier coal) cuttings in canister Stoeckinger 5 Petrol Oil & Gas #24-1 Rahmeier, S2 NW NW SW 24-20S-16E, Coffey Co., KS



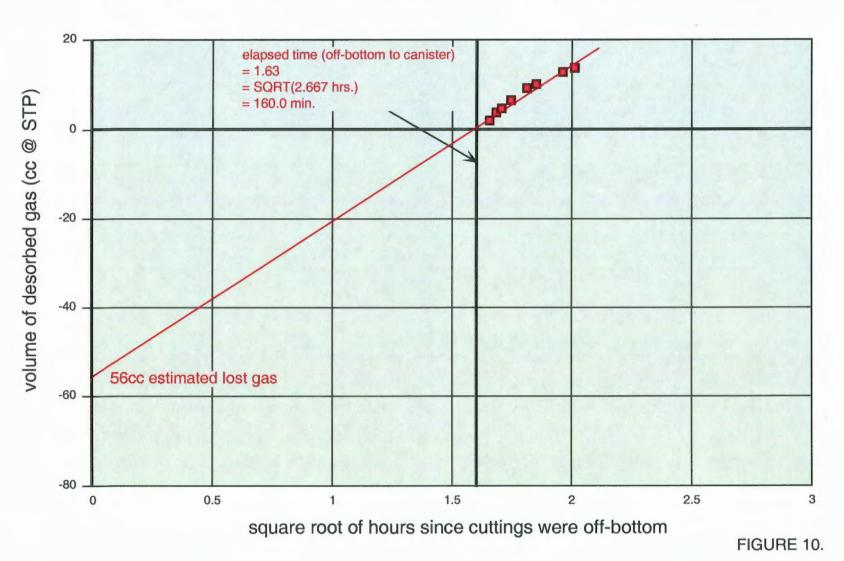
1262.0'-1164.0' (Croweburg coal) cuttings in canister Maggy 3 Petrol Oil & Gas #24-1 Rahmeier, S2 NW NW SW 24-20S-16E, Coffey Co., KS



1344.0'-1345.5' (Tebo coal) cuttings in canister Maggy 4 Petrol Oil & Gas #24-1 Rahmeier, S2 NW NW SW 24-20S-16E, Coffey Co., KS



1521.0'-1522.5' (Riverton coal underclay) core chips in canister I Petrol Oil & Gas #24-1 Rahmeier, S2 NW NW SW 24-20S-16E, Coffey Co., KS



LITHOLOGIC COMPONENT SENSITIVITY ANALYSIS for calculation of gas content of Stark Shale from 804.0'-807.5'



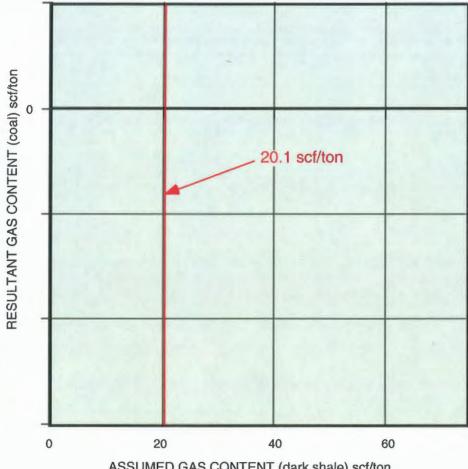
total gas desorbed - ((gas content<sub>dark shale</sub>) \* (weight<sub>dark shale</sub>)) weightcoal

total gas desorbed = 56.2 ccs

TOTAL DRY WEIGHT OF SAMPLE = 101.55 grams

weight<sub>light-colored lithologies</sub> = 12.06 grams (12.1%) 89.49 grams (88.1%) weight<sub>dark shale</sub> = weight<sub>coal</sub> = 0.00 grams (0.0%)

sieve size	grams	% coal / % dark shale / % light	ht-color	ed liths
>0.0930"	28.83	0.00% / 93.00% / 7.00%		
>0.0661"	30.79	0.00% / 88.87% / 11.13%		
>0.0460"	23.46	0.00% / 86.20% / 13.80%		
>0.0331"	10.74	0.00% / 82.86% / 17.14%		
<0.0331"	7.57	0.00% / 80.00% / 20.00%		1
	101.55	TOTAL	0% of total	25% sample



ASSUMED GAS CONTENT (dark shale) scf/ton

FIGURE 11.

LITHOLOGIC COMPONENT SENSITIVITY ANALYSIS for calculation of gas content of Hushpuckney Shale from 835.0'-838.0'

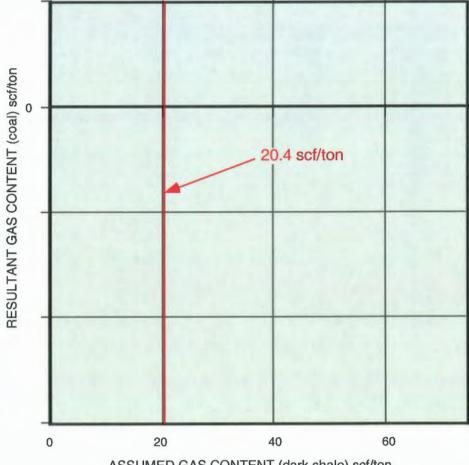


total gas desorbed - ((gas content<sub>dark shale</sub>)) \* (weight<sub>dark shale</sub>)) weight<sub>coal</sub>

total gas desorbed = 205.3 ccs

TOTAL DRY WEIGHT OF SAMPLE = 517.77 grams weight<sub>light-colored lithologies</sub> = 193.67 grams (37.4%) weight<sub>dark shale</sub> = 324.10 grams (62.6%) 0.00 grams (0.0%) weight =

sieve size	grams	% coal / % dark shale / % light-colored liths
>0.0930"	37.12	0.00% / 91.31% / 8.69%
>0.0661"	55.05	0.00% / 78.35% / 21.65%
>0.0460"	91.16	0.00% / 70.97% / 29.03%
>0.0331"	114.07	0.00% / 64.45% / 35.55%
< 0.0331"	220.37	0.00% / 49.40% / 50.60%
	TOTAL 0% 25%	



ASSUMED GAS CONTENT (dark shale) scf/ton

FIGURE 12.

LITHOLOGIC COMPONENT SENSITIVITY ANALYSIS for calculation of gas content of Anna Shale from 1101.5'-1102.5'



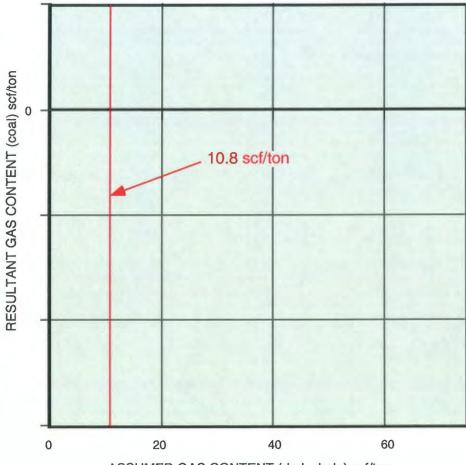
total gas desorbed - ((gas content<sub>dark shale</sub>) \* (weight<sub>dark shale</sub>))
weight<sub>coal</sub>

total gas desorbed = 19.2 ccs

TOTAL DRY WEIGHT OF SAMPLE = 432.29 grams weight<sub>light-colored lithologies</sub> = 375.16 grams (86.8%) weight<sub>dark shale</sub> = 57.13 grams (13.2%)

weight  $_{\text{coal}} = 0.00 \text{ grams } (0.0\%)$ 

sieve size	grams	% coal / % dark shale / % ligh	t-colored liths
>0.0930"	38.22	0.00% / 10.73% / 89.27%	(F)
>0.0661"	50.40	0.00% / 13.34% / 86.66%	
>0.0460"	70.12	0.00% / 15.33% / 84.67%	
>0.0331"	76.29	0.00% / 13.60% / 86.40%	
< 0.0331"	197.27	0.00% / 12.77% / 87.23%	
	0% 25% of total sample		



ASSUMED GAS CONTENT (dark shale) scf/ton

FIGURE 13.

LITHOLOGIC COMPONENT SENSITIVITY ANALYSIS for calculation of gas content of Little Osage Shale from 1158.0'-1161.0'

### GAS CONTENT<sub>coal</sub> =

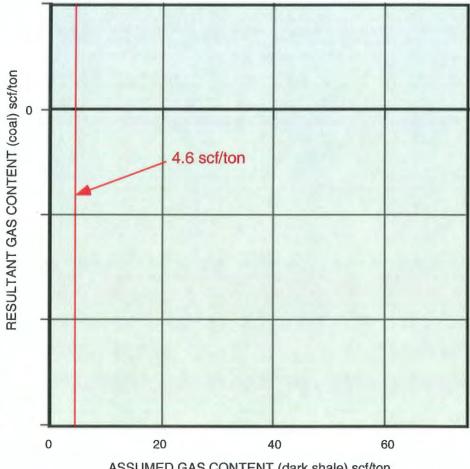
total gas desorbed - ((gas content<sub>dark shale</sub>) \* (weight<sub>dark shale</sub>)) weight<sub>coal</sub>

total gas desorbed = 105.6 ccs

TOTAL DRY WEIGHT OF SAMPLE = 1275.48 grams

weight<sub>light-colored lithologies</sub> = 538.39 grams (42.2%) weight<sub>dark shale</sub> = 737.09 grams (57.8%) 0.00 grams (0.0%) weight<sub>coal</sub> =

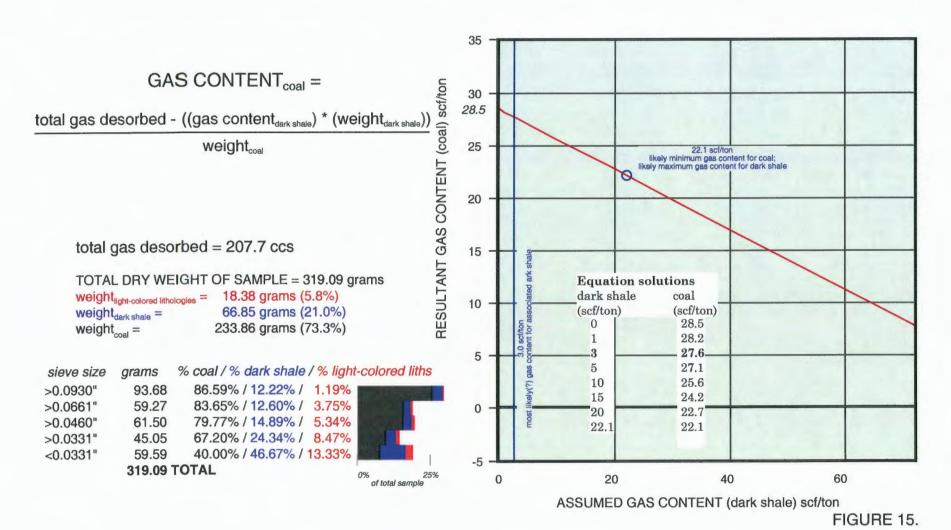
sieve size	grams	% coal / % dark shale / % lig	ht-colored liths
>0.0930"	99.26	0.00% / 81.07% / 18.33%	
>0.0661"	130.13	0.00% / 71.25% / 28.75%	
>0.0460"	217.99	0.00% / 67.11% / 32.89%	
>0.0331"	273.24	0.00% / 58.33% / 41.67%	
<0.0331"	554.87	0.00% / 46.43% / 53.57%	
	0% 25%		



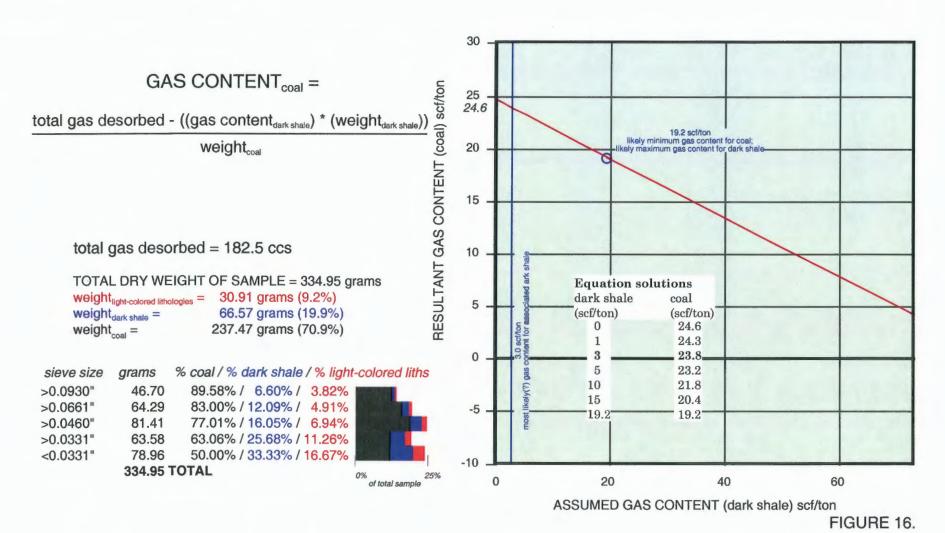
ASSUMED GAS CONTENT (dark shale) scf/ton

FIGURE 14.

LITHOLOGIC COMPONENT SENSITIVITY ANALYSIS for calculation of gas content of Mulky coal from 1182.0'-1184.0'



LITHOLOGIC COMPONENT SENSITIVITY ANALYSIS for calculation of gas content of Bevier coal from 1250.0'-1252.0'



LITHOLOGIC COMPONENT SENSITIVITY ANALYSIS for calculation of gas content of Croweburg coal from 1262.0'-1264.0'

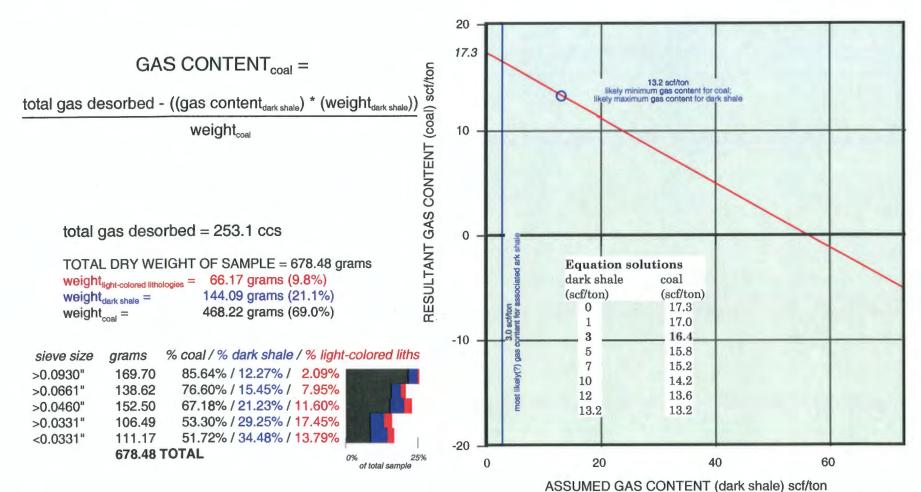


FIGURE 17.

LITHOLOGIC COMPONENT SENSITIVITY ANALYSIS for calculation of gas content of Tebo coal from 1344.0'-1345.5'

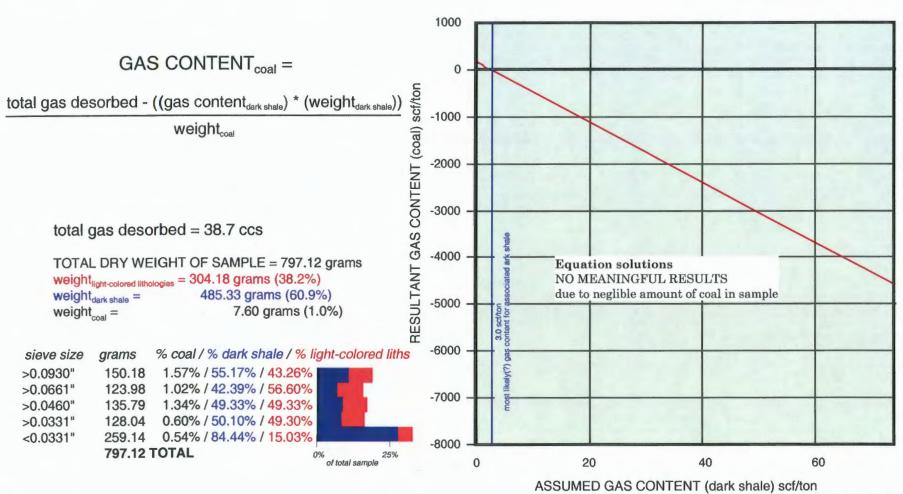


FIGURE 18.

800'

0 804'-808' Stark

O 635'-838' Hushpuckney

# Desorption Characteristics of Cuttings Samples Petrol Oil & Gas #24-1 Rahmeier, S2 NW NW SW 24-20S-16E, Coffey Co., KS

900'

LITHOLOGIC COMPONENT SENSITIVITY ANALYSIS for all cuttings samples

1000'

1100' 0 1101'-1103' Anna Sh.

O 1158'-1161' Little Osage Sh.

O 1182'-1184 Mulky

0 1250'-1252' Bevier O 1262'-1264' Croweburg

1300' O 1344'-1346'	UNIT	coal in sample	maximum scf/ton	scf/ton w/ shale @ 3 scf/ton	minimum scf/ton
1344-1340	Stark Sh.	0%		20.1	
		7			
	Hushpuckne	y Sh. 0%		20.4	
	Anna Sh.	0%		10.8	
	Little Osage	Sh. 0%		4.6	
	Mulky	73%	28.5	27.6	22.1
	Bevier	71%	24.6	23.8	19.2
	Croweburg	69%	17.3	16.4	13.2
	Tebo	1%			

(core sample)

O 1521'-1523' Riverton

Riverton u/clay

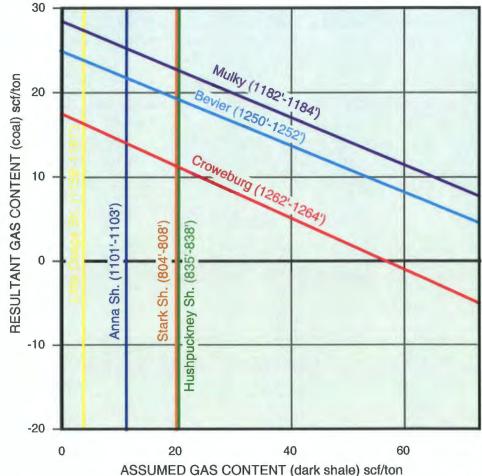


FIGURE 19.

1500'



# Desorption Characteristics of Cuttings Samples

based on total weight of gas-generating lithologies (i.e., coal and dark shale) in sample Petrol Oil & Gas #24-1 Rahmeier, S2 NW NW SW 24-20S-16E, Coffey Co., KS

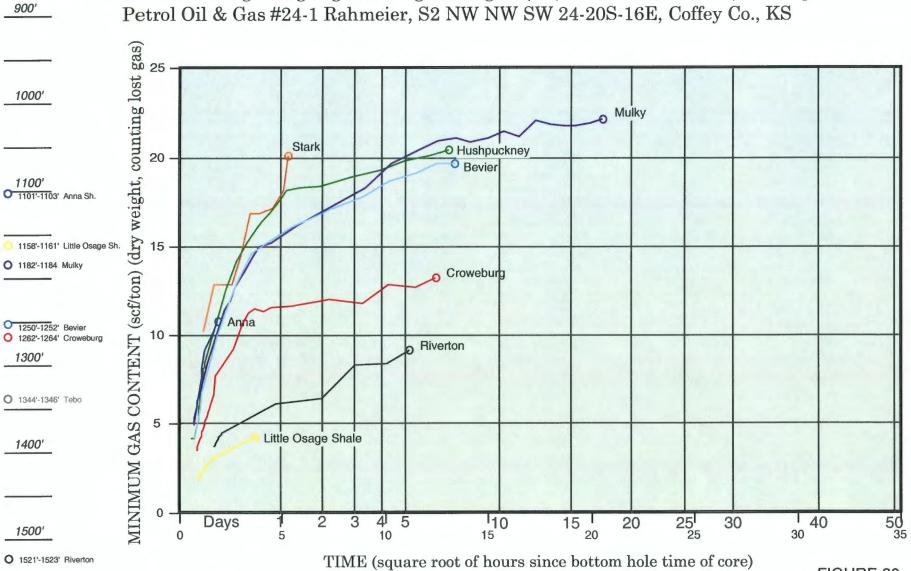


FIGURE 20.