ANALYSIS OF MARMATON AND CHEROKEE GROUP CUTTINGS SAMPLES FOR GAS CONTENT

-- LAYNE ENERGY OPERATING, L.L.C. #8-4 TINCKNELL, E2 SE NE 4-T.31S.-R.17E., MONTGOMERY COUNTY, KANSAS

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SUMMARY

Eight cuttings samples from the Pennsylvanian Marmaton Group and Cherokee Group were collected from the Layne Energy Operating, L.L.C. #8-4 Tincknell well, E2 SE NE 4-T.31S.-R.17E., Montgomery County, KS. The samples calculate as having the following gas contents:

	0.0	
•	Little Osage Shale at 624' to 625' depth	(11 scf/ton)
•	Excello Shale at 646' to 650' depth ¹	(25 scf/ton)
•	Mulky coal at 651' to 652' depth ^{2, 3}	(222 scf/ton)
•	Iron Post coal at 680' to 682' depth ⁴	(scf/ton)
•	Croweburg coal at 709' to 710' depth ^{2, 5}	(688 scf/ton)
•	Flemming coal at 718' to 719' depth ⁴	(scf/ton)
•	Mineral coal at 746' to 748' depth ²	(176 scf/ton)
•	lower Weir coal at 877' to 878' depth ²	(28 scf/ton)

no coal in sample

²assuming accompanying dark shales in sample desorb 3 scf/ton

BACKGROUND

The Layne Energy Operating, L.L.C. #8-4 Tincknell, E2 SE NE sec. 4-T.31S.-R.17E., in Montgomery 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 April 7, 2004, by Jim Stegeman of Colt Energy, and turned over to K. David Newell of the Kansas Geological Survey on April 8, 2004. Samples were obtained during normal drilling of the well, with no cessation of drilling before zones of interest (i.e., coals and dark shales in the Marmaton Group and Cherokee Group) were penetrated.

These samples were collected in canisters that were supplied by the Kansas Geological Survey. Lag times for samples to reach the surface (important for assessing lost gas) were determined by using the lag times from a nearby air-drilled well (Dart Cherokee Basin #CH-1 Holder; sec. 1-T.30S.-R.14E., Wilson County, KS), which was also drilled in this vicinity. The lag times were determined by periodically noting the time it took for cuttings to reach the surface following resumption of drilling after new pipe was added to the drill string. In addition, 5 1/2 minutes was estimated for the surface time to the canistering time. This was the average time derived from the handling of 109 air-drilled cuttings samples by various industry and Survey personnel.

³gas content is 98 scf/ton if accompanying dark shales in sample desorb 25 scf/ton (derived from Excello Shale sample at 646' to 650' depth)

⁴a leak was detected in the canister after desorption finished, no valid gas content measure is possible

⁵coal gas content difficult to assess due to gas-rich shales admixed with the coal

Eight cuttings samples from the Pennsylvanian Marmaton and Cherokee Groups were collected:

•	Little Osage Shale at 624' to 625' depth	(1912 grams dry wt.)
•	Excello Shale at 646' to 650' depth	(654 grams dry wt.)
•	Mulky coal at 651' to 652' depth	(131 grams dry wt.)
•	Iron Post coal at 680' to 682' depth	(sample not saved)
•	Croweburg coal at 709' to 710' depth	(1261 grams dry wt.)
•	Flemming coal at 718' to 719' depth	(sample not saved)
•	Mineral coal at 746' to 748' depth	(698 grams dry wt.)
•	lower Weir coal at 877' to 878' depth	(2000 grams dry wt.)

The cuttings were caught in kitchen strainers as they exited the air-stream pipe emptying to the mud pit. The samples were then washed in water while in the kitchen strainers to rid them of as much drilling mud as possible before the cuttings were placed in desorption canisters. Water with zephyrn chloride biocide was then added to the canisters, with a headspace of 1 to 2 inches being preserved at the top of the canister.

Several desoprtion volumetric measurements were made April 7 and 8 by Jim Stegeman. All samples were transported on the afternoon of April 8th afternoon to the laboratory at the Kansas Geological Survey in Lawrence, KS, and desorption measurements were continued at approximately 70 °F . 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 desorption canisters were obtained from SSD, Inc., in Grand Junction, CO. These canisters are 12.5 inches high (32 cm), 3 1/2 inches (9 cm) in diameter, and enclose a volume of approximately 150 cubic inches (2450 cm³). 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.

Atmospheric pressure was measured in the field by Jim Stegeman using an analog barometer. The time and atmospheric pressure were measured in the lab 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_{stp} , V_{stp} , and T_{stp} , respectively, are pressure, volume, and temperature at standard temperature and pressure, where standard temperature is degrees Rankine (°R = 460 + °F). P_{rig} , V_{rig} , and T_{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 Vstp 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 for samples (i.e., the gas lost from the sample from the time it was drilled, brought to the surface, to the time it was canistered) are normally 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. Lost gas, however, had to be inferred for the samples collected from this well because few desorption measurements could be made in the first hour after canistering. The procedure used to infer lost gas for these samples is outlined in the section below on Lost Gas.

LITHOLOGIC ANALYSIS

Upon removal from the canisters, the cuttings were washed of drilling mud, and dried in an oven at 150 °F for 1 to 3 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) lag time to surface for the well cuttings, 2) data tables for the desorption analyses, 3) lost-gas graphs, 4) "lithologic component sensitivity analyses" showing the interdependence of gas evolved from dark shale versus coal in each sample, 5) a summary component analysis for all samples showing relative reliability of the data from all the samples, and 6) a desorption graph for all the samples.

Graph of Lag-time to Surface for Well Cuttings (Figure 2)

Lag time of cuttings to surface varied, but there is a general trend of longer lag times for greater depth. The lag times accepted for cuttings were taken to be a visual average of the trend (defined by the scatter of data points on this graph) at the depth at which the samples were taken.

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 (Figure 3)

To infer an approximate lost-gas value for each sample, a correlation of the total gas desorbed from a sample after it had been canistered to its rate of lost gas was developed using desorption data accumulated for 42 cuttings samples obtained from air-drilled wells in the Cherokee basin in southeastern Kansas (Figure 3). The rate of lost gas used in this correlation was that amount of gas lost by 0.6 hours^{0.5} (the square root of 0.36 hours). By knowing the total gas given up by the sample after canistering (i.e., the total gas desorbed) a hypothetical rate of lost-gas could be calculated using the a regression line:

lost gas rate per square root of 0.36 hours = 0.1241 X (total gas desorbed in ccs) + 48.14

Once the hypothetical lost-gas rate was calculated, the lost gas could be calculated by taking the square root of the bottom-hole to canister time (derived from subtracting the lag time plus 5 1/2 minutes handling time [surface time to canister time] from the surface time), and multiplying it times the hypothetical lost-gas rate. Analysis of the lithology of the cuttings used in this correlation revealed no consistent relationship (see Figure 3), therefore further refinement of the relationship of the rate of lost gas to the total gas desorbed after canistering is not possible.

"Lithologic Component Sensitivity Analyses" (Figures 4-8)

The rapidity of penetration of an air-drilled well makes collection of individual (i.e., unmixed) lithologies from relatively thin-bedded strata rather difficult. 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^3) = [weight_{coal} (grams) X gas content_{coal} $(cm^3/gram)$] +

[weight_{dark shale} (grams) X gas content_{dark shale} (cm³/gram)]

A unique solution for gas content_{coal} in this equation is not possible because gas content_{dark shale} 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_{coal} 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 nearby wells. 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 with 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, shale gas content does not have to be very much greater that 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, 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 Samples (Figure 9)

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., $gas\ content_{coal}$) for that sample. If the coal content is miniscule (i.e., < approximately 5%), the results are a better reflection of the $gas\ content_{dark\ shale}$.

Desorption Graph (Figure 10)

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. The final value represents the standard cubic feet of gas per ton (scf/ton)

calculated for the sample, using the combined weight of the coal and dark shale in the sample.

RESULTS and DISCUSSION

Two samples (Little Osage Shale at 624' to 625' depth; Excello Shale at 646' to 650' depth) contained no coal. The gas analyses associated with these samples are therefore a gas content for shale.

The Mulky coal (651'-652' depth) and Croweburg coal (709'-710' depth) samples registered high gas contents (respectively 222 scf/ton and 688 scf/ton; assuming accompanying black shales desorbed 3 scf/ton). These samples were dominated by very dark to black shales (N1, N2) that display high-gamma ray values on wireline logs. If 25 scf/ton is assumed to be the gas content of the dark shales accompanying the Mulky coal (i.e., the gas content determined for the Excello Shale sample just a few feet above the Mulky coal), a unique solution of 97 scf/ton for the gas content for the Mulky coal can be determined. The shales accompanying the Croweburg sample are likely richer in gas content, perhaps 50 to 60 scf/ton.

The best constrained data are that associated with the Mineral coal sample (746'-748'), which contained 24% coal. This sample is followed closely by the Mulky coal sample (651'-652' depth) and Croweburg coal sample (709'-710' depth), which respectively have 4% and 6% coal. The lower Weir coal sample (877'-878' depth), with 4% coal, also has acceptably constrained data, but the calculated gas content for the coal in this samples varies more with whatever value is assumed for the accompanying black shales due to the large amount of dark shale in the sample. The subsidiary amount of coal in this sample imparts some uncertainty to the desorption measurements, but an approximation of its gas content is nevertheless obtained. An estimate for gas content for the coal in this sample can be made, assuming the admixed dark shale in the sample desorb 3 scf/ton.

Leaks were detected in the canisters containing the Iron Post coal (680'-682' depth) and Flemming coal (718'-719' depth), thus any data collected for these sample are considered invalid. No material was retained from this canister for any further analyses.

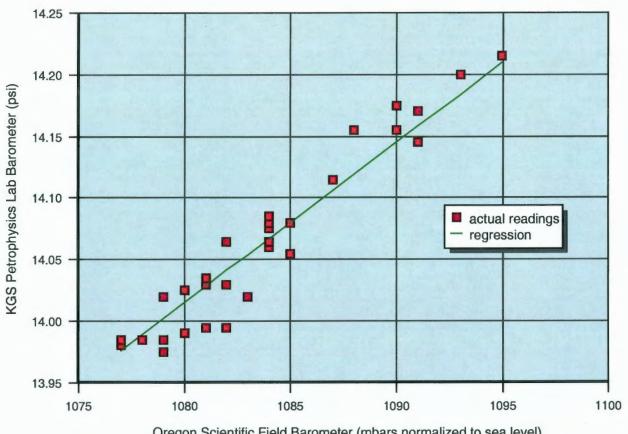
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FIGURES and TABLES

- FIGURE 1. Correlation of field barometer to Petrophysics Lab pressure transducer.
- FIGURE 2. Lag-time to surface for well cuttings.
- TABLE 1. Desorption measurements for samples.
- FIGURE 3. Correlation of the rate of lost gas to the total gas desorbed after canistering.
- FIGURE 4. Sensitivity analysis for Little Osage Shale at 624' to 625' depth.
- FIGURE 5. Sensitivity analysis for Excello Shale at 646' to 650' depth and Mulky coal sample at 651' to 652' depth.
- FIGURE 6. Sensitivity analysis for Croweburg coal at 709' to 710' depth.
- FIGURE 7. Sensitivity analysis for Mineral coal at 746' to 748' depth.
- FIGURE 8. Sensitivity analysis for lower Weir coal at 877' to 878' depth.
- FIGURE 10. Lithologic component sensitivity analyses for all samples.
- FIGURE 11. 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.

Layne Energy Operating, L.L.C. #8-4 Tincknell, E2 SE NE 4-T.31S.-R.17E., Montgomery Co., KS (based on lag times from Dart Cherokee Basin #CH-1 Holder; sec. 1-T.30S.-R.14E., Wilson County, KS lag-time to surface for well cuttings

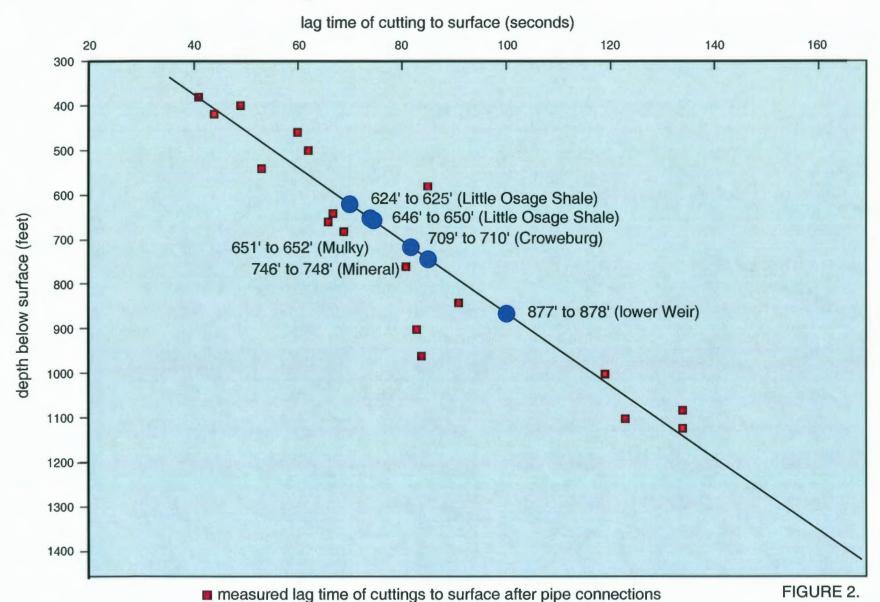


TABLE 1 -- Description measurements for Layne Energy Operating, L.L.C. #8-4 Tincknell, E2 SE NE 4-T.31S.-R.17E., Montgomery Co., KS

AMPLE: (024-025 (Little			n canister DCB10						NOTE: los gas is es				ce and canister times	s, allu total gas evolve	
	labe.	lbs.	grame 1700.59							est. lost gas (cc) = 37			TIME OF: off bottom	at surface	in canister	elapsed time (off bottom to car 6.7 minutes
sample weig	ignit:	3.748	1700.58	,						37			4/7/04 10:33		4/7/04 10:40	0.111 hours
LAB MEASU	IDCMENTS		CONVER	ISION OF RIGILAR MEASL	IREMENTS TO ST	P (060 deg F: 14.7 onl)	CLIM II ATIVE VOLU	MES (OSTP)	SCE/TON.	SCF/TON			TIMESINGE	47704 10.04	47704 10.40	0.333749740 SQRT (hre
	measured T (F)	manage and P			cubic it (@STP)		cubic ft c			with lost gas	TIME OF MEA			at surface	in canister	SQRT hrs. (since off bottom)
41	7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		0.0014		0.001398713		0.001396713	39.55	0.75				1:56:41		1:50:00	1,394532978
84	5						0.003574932	101.23	1.91	2.60			4:28:41	4:25:30	4:20:00	2.108250987
98	5				0.003332313		0.008907245	195.59	3.68	4.38			11:08:41	11:05:30	11:00:00	3.333375
53	5						0.008897734	248.29	4.64	5.34			23:58:41	23:55:30	23:50:00	4.693334469
77	6							318.95	8.01	8.71	4/9/04		54:28:41	54:27:30	54:22:00	7.360925115
36	8						0.012539574	355.08	8.89	7.39		16:32	77:58:41	77:57:30	77:52:00	8.630518419
8	8						0.012741217	360.79	6.80	7.49		22:52	108:18:41	108:17:30	108:12:00	10.40727577
1.4	6						0.013213487	374.18	7.05	7.75		14:52	124:18:41	124:17:30	124:12:00	11.14950173
14	8						0.013887535	367.59	7.30	8.00		14:18	147:42:41	147:41:30	147:38:00	12.15365743
16	8						0.01429416	404 78	7.83	8.32		14:11	171:37:41	171:38:30	171:31:00	13.10068913
23	6						0.015059974	428.45	8.03	8.73	-410-1	14:29	195:55:41	195:54:30	195:49:00	13.99743032
18	6						0.015855857	443.32	8.35	9.05		13:55	219:21:41	219:20:30	219:15:00	14.61065375
15	7						0.018150994	457.34	8.82	9.31		19:33	248:59:41	248:58:30	248:53:00	15.7795888
	7						0.018548371	488.54	8.83	9.52		18:04	269:30:41	269:29:30	269:24:00	18.41680203
12							0.018848808	471.38	8.66	9.58		14:05	291:31:41	291:30:30	291:25:00	17.07419268
3	6						0.017202571	487.12	9.18	9.67		13:00	314:28:41	314:25:30	314:20:00	17.73258927
17							0.017400845	492.73	9.18	9.98		13:16	336:42:41	338:41:30	338:38:00	18.40411337
8	6						0.017400645	494.81	9.28	10.01		16:17	385:43:41	365:42:30	385:37:00	19.12401777
2	_							494.81	9.32 9.25	10.01		16:17	385:43:41	365:42:30		19.12401777
-4	6		-0.0001		-0.000134155		0.017332822			4.4					387:42:00	
10	6		0.0004				0.017663242	500.17	9.42	10.12		12:11	409:37:41	409:38:30	409:31:00	20.23927013
-1	8						0.017629642	499.21	9.40	10.10		23:19	488:45:41	468:44:30	488:39:00	21.85089811
5	8.				0.000167659		0.017797501	503.97	9.49	10.19		12:34	482:00:41	481:59:30	481:54:00	21.95475777
13	6				0.000427984		0.018225485	518.09	9.72	10.42		15:30	508:58:41	508:55:30	508:50:00	22.55980324
3	6			528 14.005			0.016324871	518.90	9.76	10.47		14:30	531:56:41	531:55:30	531:50:00	23.08392686
-1.5	8			526 14.096			0.016274655	517.48	9.75	10.45		17:46	583:12:41	583:11:30	583:08:00	24.14978996
-1	6- ED 5/3/2004; sa			524 14.070	-3.35429E-05	-0.95	0.018241112	518.53	9.73	10.43	5/3/04	16:44	832:10:41	632:09:30	832:04:00	25.14315127
													al between at surfac			
sample weig	ight:	lbs. 1.842	grame 835.36							est. lost gas (cc) = 42			TIME OF:		in canister	elapsed time (off bottom to car 6.7 minutes
sample wei	ight:		835.36							est. lost gas (cc) = 42			TIME OF: off bottom 4/7/04 11:04			elapsed time (off bottom to car 6.7 minutes 0.112 hours
			835.38 CONVERS	SION OF RIGILAB MEASU						est. lost gas (cc) =			TIME OF: off bottom 4/7/04 11:04 TIME SINCE	at surface 4/7/04 11:05	in canister 4/7/04 11:11	elepsed time (off bottom to car 8.7 minutes 0.112 hours 0.334995854 SQRT (hre
LAB MEASU		1.842 measured P	835.36 CONVERS cubic ft	SION OF RIGILAB MEASU absolute T (F) pela	cubic fl (@STP)	oc (@STP)	cubic ft co	c	without lost gas	est. lost gas (cc) = 42 SCF/TON with lost gas	TIME OF MEAS	SURE	TIME OF: off bottom 4/7/04 11:04 TIME SINCE off bottom	at surface 4/7/04 11:05 at surface	in canister 4/7/04 11:11	elepsed time (off bottom to can 8.7 minutes 0.112 hours 0.334995854 SQRT (hre SQRT hrs. (since off bottom)
LAB MEASU sured cc r 97	JEEMENTS measured T (F)	1.842) measured P 5 1082	835.36 CONVERS cubic ft 0.0034	SION OF RIGILAB MEASU absolute T (F) pela 515 14.044	ouble ft (@STP) 0.003304416	oc (@STP) 93.57	cubic ft co 0.003304416	93.57	without lost gas 3.59	est. lost gas (cc) = 42 SCF/TON with lost gas 5.20	TIME OF MEAS	SURE 12:30	TIME OF: off bottom 4/7/04 11:04 TIME SINCE off bottom 1:25:44	at surface 4/7/04 11:05 at surface 1:24:30	in canister 4/7/04 11:11 in canister 1:19:00	elepsed time (off bottom to can 8.7 minutes 0.334995854 SQRT (hre SQRT hrs. (since off bottom) 1.195381405
LAB MEASU sured cc r 97 64	UREMENTS measured T (F) 5:	1.842) measured P 5 1082 5 1081	835.36 CONVERS cuble ft 0.0034 0.003	SION OF RIGALAB MEASU absolute T (F) pela 515 14.044 515 14.031	oubic 8 (@STP) 0.003304416 0.002656913	cc (@STP) 93.57 80.96	oubic ft co 0.003304416 0.008183331	93.57 174.53	without lost gas 3.59 6.69	est. lost gas (cc) = 42 SCF/TON with lost gas 5.20 8.30	TIME OF MEAS 4/7/04 4/7/04	SURE 12:30 15:00	TIME OF: off bottom 4/7/04 11:04 TIME SINCE off bottom 1:25:44 3:55:44	at surface 4/7/04 11:05 at surface 1:24:30 3:54:30	in canister 4/7/04 11:11 in canister 1:19:00 3:49:00	elepsed time (off bottom to car 6.7 minutes 0.112 hours 0.334995654 SQRT (hrs SQRT hrs. (since off bottom) 1.195361405 1.9821425
LAB MEASU sured co r 97 64 97	UREMENTS measured T (F) 5: 5: 5:	1.842 measured P 5 1082 5 1081 5 1080	835.36 CONVERS cuble ft 0.0034 0.003 0.0034	SION OF FIGALAB MEASU absolute T (F) pela 515 14.044 515 14.031 515 14.016	cubic 8 (@STP) 0.003304418 0.002858913 0.00329831	oc (@STP) 93.57 80.96 93.40	oubic ft co 0.003304418 0.008183331 0.009481841	93.57 174.53 287.92	without lost gas 3.59 6.69 10.28	est. lost gas (cc) = 42 SCF/TON with lost gas 5.20 8.30 11.89	TIME OF MEAS 4/7/04 4/7/04 4/7/04	SURE 12:30 15:00 21:40	TIME OF: off bottom 4/7/04 11:04 TIME SINCE off bottom 1:25:44 3:55:44 10:35:44	at surface 4/7/04 11:05 at surface 1:24:30 3:54:30 10:34:30	in canister 4/7/04 11:11 in canister 1:19:00 3:49:00 10:29:00	elapsed time (off bottom to car 8.7 minutes 0.112 hours 0.334995854 SQRT (hre SQRT hrs. (since off bottom) 1.195381405 1.9821425 3.255081498
LAB MEASU sured cc r 97 64 97 60	UREMENTS measured T (F) 5: 5: 5: 5.	1.842) measured P 5 1082 5 1081 5 1080 5 1073	835.36 CONVERS cubic ft 0.0034 0.0034 0.0021	SION OF RIGILAB MEASU absolute T (F) pela 515 14.044 515 14.031 515 14.016 515 13.927	oubic 8 (@STP) 0.003304418 0.002658913 0.00329631 0.002026988	cc (@STP) 93.57 80.96 93.40 57.40	cubic ft co 0.003304418 0.008183331 0.009481841 0.011488809	93.57 174.53 287.92 325.32	without lost gas 3.59 8.69 10.28 12.48	est. lost gas (cc) = 42 SCF/TON with lost gas 5.20 8.30 11.89 14.09	TIME OF MEAS 4/7/04 4/7/04 4/7/04 4/8/04	SURE 12:30 15:00 21:40 10:30	TIME OF: off bottom 4/7/04 11:04 TIME SINCE off bottom 1:25:44 3:55:44 10:35:44 23:25:44	at surface 4/7/04 11:05 at surface 1:24:30 3:54:30 10:34:30 23:24:30	in canister 4/7/04 11:11 in canister 1:19:00 3:49:00 10:29:00 23:19:00	elapsed time (off bottom to car 8.7 minutes 0.112 hours 0.334995654 SQRT (fine SQRT hrs. (since off bottom) 1.195381405 1.9821425 3.255081498 4.840339749
LAB MEASU sured co in 97 64 97	FREMENTS measured T (F) 5: 5: 5: 6	1.842) measured P 5 1082 5 1081 5 1080 5 1073 6 1081	635.36 CONVERS cubic ft 0.0034 0.003 0.0034 0.0021 0.0028	SION OF FIGALAB MEASU absolute T (F) pela 515 14.044 515 14.031 515 14.016 515 13.927 528 14.031	cubic # (@STP) 0.003304418 0.002858913 0.00329631 0.002026968 0.002465897	cc (@STP) 93.57 80.96 93.40 57.40 69.83	cubic ft co 0.003304418 0.008183331 0.009481841 0.011488809 0.013954508	93.57 174.53 287.92 325.32 395.15	3.59 6.69 10.28 12.48 15.15	est. lost gas (co) = 42 SCF/TON with lost gas 5.20 6.30 11.89 14.09 16.77	TIME OF MEAS 4/7/04 4/7/04 4/7/04 4/8/04 4/8/04	SURE 12:30 15:00 21:40 10:30 17:09	TIME OF: off bottom 4/7/04 11:04 TIME SINCE off bottom 1:25:44 3:55:44 10:35:44 23:25:44 54:04:44	at surface 4/7/04 11:05 at surface 1:24:30 3:54:30 10:34:30 23:24:30 54:03:30	in canister 4/7/04 11:11 in canister 1:19:00 3:49:00 10:29:00 23:19:00 53:58:00	elapsed time (off bottom to car 8.7 minutes 0.112 hours 0.334995654 SQRT (hre SQRT hrs. (since off bottom) 1.195381405 1.9821425 3.255081498 4.840339749 7.353834978
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LAB MEASU sured co r 97 64 97 60 74	FREMENTS measured T (F) 5: 5: 5: 6	1.842) measured P 5 1082 5 1081 5 1080 5 1073 6 1081 2 1081 3 1084	835.36 CONVERS cubic ft 0.0034 0.003 0.0034 0.0021 0.0026 0.0014 0.0005	sion OF RIGILAB MEASU absolute T (F) pale 515 14.044 515 14.031 515 14.018 515 13.927 528 14.031 522 14.031	cubic 8 (@STP) 0.003304418 0.002858913 0.00329631 0.002026988 0.002465897 0.001376709 0.000504108	oc (@STP) 93.57 80.96 93.40 57.40 69.83 38.96 14.27	cubic ft co 0.003304418 0.008183331 0.009481841 0.011488609 0.013954508 0.015331215 0.015835322	93.57 174.53 287.92 325.32 395.15 434.13 448.40	without lost gas 3.59 6.69 10.28 12.48 15.15 18.65	est. lost gas (cc) = 42 SCF/TON with lost gas 5.20 8.30 11.89 14.09 18.77 18.26 18.81	TIME OF MEAS 4/7/04 4/7/04 4/7/04 4/8/04 4/9/04 4/10/04 4/11/04	SUPE 12:30 15:00 21:40 10:30 17:09 16:33 22:53	TIME OF: off bottom 4/7/04 11:04 TIME SINCE off bottom 1:25:44 3:55:44 10:35:44 23:25:44 54:04:44 77:28:44 107:48:44	at surface 4/7/04 11:05 at surface 1:24:30 3:54:30 10:34:30 23:24:30 54:03:30 77:27:30 107:47:30	in canister 4/7/04 11:11 in canister 1:19:00 3:49:00 10:29:00 23:19:00 77:22:00 107:42:00	elapsed time (off bottom to car 8.7 minutes 0.112 hours 0.334995654 SQRT (fine SQRT hrs. (since off bottom) 1.195361405 1.9821425 3.255081498 4.840339749 7.353834978 8.802209319 10.38328645
AB MEASU sured cc r 97 64 97 60 74 41	PREMENTS measured T (F) 5. 5. 6. 6. 6.	1.842) measured P 5 1082 5 1081 5 1080 5 1073 6 1081 2 1081 3 1064 2 1086	635.36 CONVERS cubic ft 0.0034 0.003 0.0034 0.0021 0.0025 0.0014 0.0005 0.0008	SION OF RIGILAB MEASU absolute T (F) pela 515 14.044 515 14.031 515 13.927 528 14.031 522 14.031 522 14.070 522 14.070	cubic fl (@STP) 0.003304416 0.002656913 0.00329631 0.002026986 0.002465897 0.001376709 0.000504106 0.000573471	oc (@STP) 93.57 80.96 93.40 57.40 69.83 38.96 14.27 18.24	cubic ft co 0.003304418 0.008183331 0.009481841 0.011488699 0.013954508 0.015331215 0.015835322 0.018408793	93.57 174.53 287.92 325.32 395.15 434.13 448.40 484.84	without lost gas 3.59 8.69 10.28 12.48 15.15 18.85 17.20 17.82	est. lost gas (cc) = 42 SCF/TON with lost gas 5.20 6.30 11.89 14.09 16.77 18.26 18.81 19.43	TIME OF MEAS 4/7/04 4/7/04 4/7/04 4/8/04 4/9/04 4/10/04 4/11/04 4/12/04	SUPE 12:30 15:00 21:40 10:30 17:09 16:33 22:53 14:52	TIME OF: off bottom 4/7/04 11:04 TIME SINCE off bottom 1:25:44 3:55:44 10:35:44 23:25:44 54:04:44 77:28:44 107:48:44 123:47:44	at surface 4/7/04 11:05 at surface 1:24:30 3:54:30 10:34:30 54:03:30 77:27:30 107:47:30 123:46:30	in canister 4/7/04 11:11 in canister 1:19:00 3:49:00 10:29:00 23:19:00 53:58:00 77:22:00 107:42:00 123:41:00	elapsed time (off bottom to car 8.7 minutes 0.112 hours 0.334995654 9CRT (hre SCRT hrs. (since off bottom) 1.195361405 1.9821425 3.255081498 4.840339749 7.353834978 8.802209319 10.38328645 11.12834511
DAB MEASURE Surred oc	UREMENTS measured T (F) 5. 5. 6. 6. 6. 6. 6.	1.842) measured P 5 1082 5 1081 5 1080 5 1073 6 1081 2 1081 3 1084 2 1086 1 1088 1 1 1088	635.36 CONVERS cubic ft 0.0034 0.0031 0.0021 0.0026 0.0014 0.0005 0.0008	sion OF RIGILAB MEASU absolute T (F) pale 515 14,044 515 14,031 515 14,031 515 19,927 528 14,031 522 14,031 523 14,070 522 14,096 521 14,122	cubic fl (@STP) 0.003304416 0.00265631 0.002026981 0.002026988 0.002465897 0.001376709 0.000573471 0.000474046	oc (@STP) 93.57 80.96 93.40 57.40 69.83 38.98 14.27 18.24	cubic ft 0.003304418 0.008183331 0.009481841 0.001488609 0.013954508 0.015331215 0.015835322 0.018408793 0.016882841	93.57 174.53 287.92 325.32 395.15 434.13 448.40 484.84 478.07	without lost gas 3.59 6.89 10.28 12.48 15.15 18.65 17.20 17.82 18.33	est. lost gas (cc) = 42 SCF/TON with lost gas 5.20 6.30 11.89 14.09 16.77 18.26 18.81 19.43 19.95	TIME OF MEAS 417/04 4/7/04 4/7/04 4/8/04 4/10/04 4/11/04 4/11/04 4/13/04	SURE 12:30 15:00 21:40 10:30 17:09 16:33 22:53 14:52 14:18	TIME OF: off bottom 4/7/04 11:04 11:04 11:04 11:04 11:04 11:04 11:05:04 01:05:04 10:35:44 10:35:44 10:36:44 10:46:44 10:46:44 10:46:44 123:47:26:44 147:11:44	at surface 4/7/04 11:05 at surface 1:24:30 3:54:30 10:34:30 23:24:30 54:03:30 77:27:30 107:47:30 123:46:30 147:10:30	in canister 4/7/04 11:11 in canister 1:19:00 3:49:00 10:29:00 23:19:00 53:56:00 107:42:00 123:41:00 147:05:00	elapsed time (off bottom to car 8.7 minutes 0.112 hours 0.334995654 SQRT (free SQRT fra. (eince off bottom) 1.195381405 1.9821425 3.255081498 4.840339749 7.353834978 8.802209319 10.38328645 11.12834511 12.13241755
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LAB MEASU sured oc r 97 64 97 60 74 41 15 17 14	JREMENTS measured T (F) 5.5.5.5.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6	1.842) meesured P 5 1082 5 1081 5 1080 5 1073 6 1081 2 1081 3 1084 2 1086 1 1088 2 1085 4 1076 8 1076	835.36 CONVERS cubic ft 0.0034 0.0034 0.0021 0.0026 0.0006 0.0006 0.0005 0.0006 0.0005 0.0006 0.0005 0.0005 0.0006 0.0005 0.0006 0.0005 0.0005 0.0005 0.0005	SION OF RIGILAB MEASU absolute T (F) pale 515 14.044 515 14.031 515 14.016 515 13.927 526 14.031 522 14.031 523 14.070 522 14.096 521 14.122 522 14.083 524 13.986 528 13.992 531 14.031	cubic fl (@STP) 0.002304415 0.002656913 0.00226983 0.00226988 0.002465897 0.001378709 0.000504108 0.000573471 0.000471835 0.000532728 0.0004348348	cc (@STP) 93.57 80.96 93.40 67.40 69.83 38.98 14.27 18.24 13.42 13.36 15.09 13.12	cubic ft c	93.57 174.53 287.92 325.32 395.15 434.13 448.40 464.84 478.07 491.43 508.51 519.84 531.79	without lost gas 3.59 8.89 10.28 12.48 15.15 16.65 17.20 17.82 18.33 18.85 19.43 19.93 20.39	est. lost gas (cc) = 42 SCF/TON with lost gas 5.20 8.30 11.89 14.09 16.77 18.28 18.43 19.43 19.95 20.48 21.04 21.54	TIME OF MEAS 4/7/04 4/7/04 4/8/04 4/8/04 4/10/04 4/11/04 4/11/04 4/13/04 4/14/04 4/15/04 4/18/04 4/18/04	SUPE 12:30 15:00 21:40 10:30 17:09 22:53 14:52 14:18 14:12 14:30 13:58 19:34	TIME OF: off bottom 47704 11:04 TIME SINCE off bottom 1:25:44 3:55:44 10:35:44 23:25:44 54:04:44 77:28:44 107:48:44 123:47:44 171:107:44 171:07:44 248:29:44 248:29:44	at surface 4/7/04 11:05 at surface 1:24:30 3:54:30 10:34:30 23:24:30 54:03:30 77:27:30 107:47:30 123:46:30 147:10:30 147:10:30 171:08:30 218:50:30 248:28:30	in canister 4/7/04 11:11 in canister 1:19:00 3:49:00 10:29:00 23:19:00 77:22:00 107:42:00 147:05:00 171:01:00 195:19:00 218:45:00 248:23:00	elapsed time (off bottom to car 8.7 minutes 0.112 hours 0.334995654 SQRT (five SQRT hrs. (eince off bottom) 1.195381405 1.9821425 3.255081498 4.840339749 7.353834978 8.802209319 10.38328945 11.12634511 12.13241755 13.08182409 13.97958829 14.79399277 15.7837418
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		70	1083	4E-05		530 14.057			0.021519889	609.37	23.37			14:31				
4		72		0.0001			0.000131788		0.021651478	813.10	23.51							
DECANISTER	ED 5/20/2004					302 14.001	0.000101100	9.70	0.021001470	010.10	20.01	20.12	0120704	10.00	1004.40.44	1001111100	1001100110	
DEGRAGIETA	LD GEGEOO	i, darrpro	anioa oc	,.														
SAMPLE:	651'-652' (M				er DCB8								timated by tir	ne inter		ce and cenister time	es, and total gas evolve	ed elapsed time (off bottom to canistering)
		lbs.		grama								est. lost gas (cc) = 21			TIME OF: off bottom	at surface	in canister	6.7 minutes
dry sample we	eight:		0.258	115.98								21			4/7/04 11:10			
DIOI AD MEAG	N IDEACHTO			COMMED	CION OF D	ON ADMEAS	PREMENTS TO STP (@60 deg	C- 14 7 nell	CLAR IL ATTVE VOLLE	MES (OSTP)	SCE/TON	SCF/TON			TIME SINCE	4///04 11.11	47704 11.17	0.334995854 SQRT (hrs)
RIG/LAB MEAS		/E) man		cubic ft	absolute 1		cubic ft (@STP) cc (@STP)		cubic ft cc		without lost gas		TIME OF ME	NSI PE		at surface	in canister	SQRT hrs. (since off bottom)
measured oc	measured I	(F) mean		0.0005		515 14.044			0.00044288	12.54	3.46		4/7/04	1001 65	1:19:44	1:18:30		
13		55	1081	0.0004			0.00044288		0.000851278	24.11	6.66			15:05	3:54:44	3:53:30		
15		55	1080	0.0005			0.000510048		0.001361324	38.55	10.65			21:40	10:29:44	10:28:30		
13		55		0.0001		515 13.927			0.001462873	41.42	11.44		4/8/04	10:30	23:19:44	23:18:30		4.82999885
5		88	1081	0.0002		528 14.031	0.000186615		0.001629287	46.14	12.74		4/9/04	17:12	54:01:44	54:00:30	53:55:00	
3		62	1081	7E-05		522 14.031	6.71566E-05		0.001696444	48.04	13.27		4/10/04	18:34	77:23:44	77:22:30		
6		83	1084	0.0002		523 14.070			0.001864479	52.80	14.58		4/11/04	22:54	107:43:44	107:42:30		
3		62	1088	7E-05		522 14.098			0.001931946	54.71	15.11		4/12/04	14:53	123:42:44	123:41:30		
2		61	1088	7E-05		521 14.122			0.001999666	58.62	15.64		4/13/04	14:17	147:08:44	147:05:30		
2			1085	0.0001		522 14.083			0.002100775	59.49	18.43		4/14/04	14:12	171:01:44	171:00:30	170:55:00	
9		62	1078	0.0002		524 13.986			0.002100110	84.20	17.73		4/15/04	14:30	195:19:44	195:18:30		
5		68	1078	0.0002		528 13.992			0.002432775	88.89	19.03		4/18/04	13:58	218:45:44	218:44:30		14.79081284
5		71	1078	0.0001		531 14.031	0.000132037		0.002564612	72.83	20.08		4/17/04	19:34	248:23:44	248:22:30		
4		71	1079	0.0001		531 14.005	9.88442E-05		0.002863658	75.43	20.84		4/18/04	16:06	286:55:44	268:54:30		
3		68	1088	-4E-05		528 14.122	-3.34117E-05	4.44	0.002630244	74.48	20.57		4/19/04	14:08	290:55:44	290:54:30		
-1		71	1071	0.0002		531 13.901			0.002828467	80.04	22.11		4/20/04	13:01	313:50:44	313:49:30	313:44:00	
0			1075	7E-05		528 13.953			0.002892492	81.91	22.83		4/21/04	13:17	338:08:44	336:05:30		
5		68	1060	0		528 14.018	0.00248E-03		0.002892492	81.91	22.63		4/22/04	18:18		385:06:30	365:01:00	19.10834805
0		68	1088	-7E-05		526 14.122			0.002825414	60.01	22.10		4/23/04	14:23	387:12:44	387:11:30	000101100	
-2		88	1088	0.0001		529 13.992	9.9126E-05	2.61	0.00292454	82.81	22.88		4/24/04	12:13		409:01:30	408:58:00	20.22487487
3		69	1010	4,444.												468:07:30	486:02:00	
-1		88	1090	-4E-05		526 14.146 525 14.109	-3.36004E-05 6.71434E-05	-0.95 1.90	0.00289094	81.86 83.78	22.81		4/27/04	23:19	468:08:44 481:24:44	481:23:30		21.94110804
2		85	1087	7E-05			and the same and		0.002958084	88.42	24.43		4/28/04	15:31	506:20:44	508:19:30		22.54851981
5		88	1072	0.0002		528 13.914				90.30	24.43		4/29/04	14:32		531:20:30		
2		68	1079	7E-05		528 14.005	8.62706E-05		0.003188956	90.30	24.94		5/1/04	17:48	582:37:44	582:36:30		
0		66	1088	0		526 14.098			0.003188958	90.30	24.94		5/3/04	18:48	831:35:44	631:34:30		
0		84	1084			524 14.070	0		0.003188956	00,00	m +1.0 -	04110	5/5/04		870:26:44	670:25:30	870:20:00	
3		88	1081	0.0001		526 14.031 529 14.005	9.99688E-05 9.92179E-05		0.003288924	93.13 95.94	25.73 26.50		5/8/04	10:55	895:44:44	895:43:30		
3		69	1079	0.0001		531 14 070	6.62015E-05		0.003454344	97.62	27.02		5/7/04	13:29	722:16:44	722:17:30		26.87586891
2		71	1084	7E-05			4.444.44			100.62	27.02		5/8/04	14:27	747:16:44	747:15:30		27.33840227
3		70	1080	0.0001		530 14.016	9.91225E-05		0.003553468	100,62	28.57	33.60	5/9/04	19:51	776:40:44	778:39:30		
3		71	1079	0.0001		531 14.005	9.88442E-05		0.003652311	100.42	20.0.		5/10/04	13:51	794:40:44	794:39:30		
2		71	1081	7E-05		531 14.031	6.60183E-05		0.003718329	105.29	29.09		5/11/04	14:12	819:01:44	819:00:30		
3		71		0.0001		531 13.979	9.8861E-05 6.55894E-05	2.79		108.08	29.86		5/11/04	10:38	839:25:44	839:24:30		
2		72	1078	7E-05		532 13.986	0.03884E-05		0.003882579	109.94	30.37	00.11	5/12/04	14:23	887:12:44	867:11:30	867:08:00	
0		72	1061	0 0004		532 14.031	0.00012411		0.003882579	109.94	29.32			23:22	924:11:44	924:10:30		
-4		85	1088	-0.0001		525 14.122	-0.00013441		0.003748189		29.32		5/15/04		958:25:44	958:24:30		
0		68	1082	0 4E-05		526 14.044 530 14.057	3.31326E-05		0.003748189 0.003781302	108.14	29.32				987:20:44	987:19:30		31.42205524
1		70	1083			532 14.031			0.003761302	108.94	30.09				1034:39:44			
DECANISTER		72	1081	7E-05		332 14.031	0.56842E-05	1.07	0.003047180	100.84	30.09	35.68	5/20/04	13.50	1034.38.44	1034,30.30	1004.55.00	32.1001030
DECANISTER	IED SYZUYZUU	4; ватрю	anea 32	days in ai	•													
SAMPLE:	680'-682' (lr	on Post o	oal) cutti	nge in cer	nister DCB9													
_		lba.		grame								est. fost gas (cc) =			TIME OF:			elapsed time (off bottom to canistering)
dry eample we	elght:		0.000	0.00								0			off bottom	at aurisce	in canister	minutes
																	4/7/04 11:30	
RIG/LAB MEAS	SUREMENTS						REMENTS TO STP (@60 deg		CUMULATIVE VOLU			SCF/TON			TIME SINCE			0.000000000 SQRT (hrs)
measured oc	measured T	(F) mea	sured P	cubic ft	absolute 7	(F) pela	cubic fi (@STP) oc (@STP)		cubic ft cc		without lost gas	with lost gas	TIME OF ME	ASURE	off bottom	at surface	in canister	SQRT hrs. (since off bottom)
DECANISTER																		
		10										MOTE: has see in	throated by the	na let-	unl hotungs at a	on and ourletes #	and total one with	ad
SAMPLE:	709' to 710'	-			n candater 1								inneced by tir	INGIN	val between at surface TIME OF:	Ce and canleter time	es, and total gas evolve	elapsed time (off bottom to canistering)
	1-64	lba.		grame								est. lost gas (cc) = 68			off bottom	at surface	in canister	6.8 minutes
dry sample we	eignt:		1.015	460.29								88			4/7/04 11:42			
DIO4 40 4 5 1 0	N ADEL ACT TO			COMME	CION OF PA	OA AR MEAN	REMENTS TO STP (@60 deg	E: 44.7 mell	CHARATMENO	LEC / ACTEL	SCELLON	SCF/TON			TIMESINCE	9/1/09 11:43	9///09 11:99	0.337885582 SQRT (hre)
RIGILAB MEAS		(E) ====					cubic ft (@STP) cc (@STP)		cubic ft cc		without lost gas		TIME OF ME	ASI IDE		at surface	in canister	SQRT hrs. (since off bottom)
measured oc	LINEBRILLEG I	(P) 1198	outeu r	OUDIO II	and interest	(r) bear	man a (woir) or (woir)		00		minut not gao	mar ion gas	THE OF ME	LJOI E	on bolloin	at Dollars	a , som morali	Tarina an admini

128		4000	0.0044	818 14044	0.004292337	101 64	0.004292337	121.54	6.48	13.05	4/7/04	10.00	0:47:51	0:46:30	0:41:00	0.893028555
162	55 55	1082		515 14.031			0.009805955		19.33	23.92			3:02:51	3:01:30		1.745709025
	55	1080		515 14.018			0.01602854		31.59	36.18				9:58:30	9:51:00	3.158808828
183	55	1073		515 13.927			0.020386521	577.28	40.18	44.77		10:30	22:47:51	22:48:30	22:41:00	4.774672764
129			0.0049	526 14.031			0.025018406		49.31	53.90		17:18		53:34:30	53:29:00	7.321031348
139	88	1061		522 14.031			0.025018406					18:35		78:51:30		8.788171807
63	82	1081	0.0022	523 14.070		59.90	0.02713384	829.25	53.48 57.72	56.07 62.31	4/11/04		107:18:51	107:17:30	107:12:00	10.35925512
84	63	1084						857 90						123:11:30	123:08:00	11.10018789
30	82	1088	0.0011	522 14.096			0.030296701		59.71	64.31			123:12:51			
30	61	1088	0.0011	521 14.122			0.031312518		61.71	68.31			148:34:51	146:33:30	146:28:00	12.10705717
30	82	1085	0.0011	522 14.083			0.032323594	915.30	63.71	68.30				170:29:30	170:24:00	13.05810732
31	84	1076	0.0011	524 13.988			0.033355751	944.53	65.74	70.33			194:48:51	194:47:30	194:42:00	13.95758458
28	68	1076	0.001	526 13.992			0.034282879		67.57	72.16			216:13:51	218:12:30	218:07:00	14.772838
26	71	1081	0.0009	531 14.031	0.000858238		0.035140917	995.08	69.26	73.85		19:35	247:52:51	247:51:30	247:48:00	15.74423175
20	71	1079	0.0007	531 14.005			0.035799879		70.58	75.15			268:23:51	268:22:30	268:17:00	16.38284183
12	88	1068	0.0004	528 14.122			0.038200819		71.35	75.94			290:24:51	290:23:30	290:18:00	17.04154238
20	71	1071	0.0007	531 13.901	0.000854078		0.036854895		72.64	77.23	4/20/04		313:19:51	313:18:30	313:13:00	17.70115345
12	66	1075		528 13.953			0.037251044		73.42	78.01		13:18		337:34:30	337:29:00	18.37382849
9	68	1060		528 14.018			0.037549538		74.01	76.60	4/22/04			384:34:30	384:29:00	19.09443636
3	68	1088	0.0001	526 14.122			0.037650154		74.20	78.80	4/23/04		388:41:51	386:40:30	386:35:00	19.6646256
11	69	1076	0.0004	529 13.992			0.038013616		74.92	79.51	4/24/04		408:30:51	408:29:30	408:24:00	20.21173339
6	86	1090	0.0002	526 14.148		5.71	0.038215216		75.32	79.91	4/26/04		467:37:51	487:38:30	467:31:00	21.8247738
7	65	1087	0.0002	525 14.109		6.65	0.03845022		75.78	60.38	4/27/04		480:52:51	480:51:30	480:46:00	21.92899527
13	88	1072		528 13.914			0.038878165		76.62	61.22		15:31	507:48:51	507:47:30	507:42:00	22.53473245
6	68	1079	0.0002	528 14.005			0.039076998		77.02	81.81	4/29/04		530:49:51	530:48:30	530:43:00	23.03976635
5	68	1086	0.0002	526 14.096			0.039244382		77.35	81.94	5/1/04		582:05:51	582:04:30	581:59:00	24.12669663
2	84	1084	7E-06	524 14.070	6.70859E-05		0.039311467	1113.17	77.48	82.07	5/3/04		631:04:51	631:03:30	630:58:00	25.12132228
8	66	1081	0.0003	526 14.031	0.000266563		0.039578051	1120.72	78.00	82.80	5/5/04		669:54:51	889:53:30	669:46:00	25.88270014
8	69	1079	0.0003	529 14.005			0.039842632	1128.21	78.53	83.12	5/8/04		695:13:51	695:12:30	695:07:00	28.36723029
7	71	1084	0.0002	531 14.070			0.040074337	1134.77	76.98	83.58	5/7/04		721:47:51	721:48:30	721:41:00	28.88628929
8	70	1080	0.0003	530 14.016			0.040338664	1142.26	79.50	64.10	5/6/04		746:45:51	748:44:30	746:39:00	27.32698605
8	71	1079	0.0003	531 14.005	0.000263585		0.040602249	1149.72	80.02	84.62	5/9/04		778:09:51	776:08:30	778:03:00	27.85972302
4	71	1081	0.0001	531 14.031	0.000132037	3.74	0.040734285	1153.46	80.28	84.88		13:51	794:08:51	794:07:30	794:02:00	28.18062278
8	71	1077	0.0002	531 13.979	0.000197322	5.59	0.040931607	1159.05	60.87	65.27	5/11/04	14:13	818:30:51	818:29:30	818:24:00	28.80988859
8	72	1076	0.0002	532 13.966	0.000198768	5.57	0.041126376	1164.62	61.08	65.85	5/12/04	10:36	838:53:51	838:52:30	838:47:00	28.96372732
3	72	1081	0.0001	532 14.031	9.88413E-05	2.80	0.041227217	1167.42	81.25	85.85		14:23	866:40:51	868:39:30	866:34:00	29.4394435
-10	85	1088	-0.0004	525 14.122	-0.000336028	-9.52	0.040891191	1157.91	60.59	85.19		23:24	923:41:51	923:40:30	923:35:00	30.39239214
3	68	1062	0.0001	528 14.044	9.96622E-05	2.82	0.040990873	1180.73	80.79	85.38	5/17/04	9:36	957:53:51	957:52:30	957:47:00	30.94991922
3	70	1083	0.0001	530 14.057	9.93979E-05		0.041090271	1163.54	80.98	65.58		14:32	988:49:51	988:48:30	986:43:00	31.41386371
8	72	1081	0.0003	532 14.031	0.000283577		0.041353846		61.50	68.10		13:51	1034:08:51	1034:07:30	1034:02:00	32.15816362
8	73	1079	0.0002	533 14.005	0.000196947		0.041550795	1176.58	81.69	68.49		13:50	1058:07:51	1058:08:30	1058:01:00	32.52892303
8	72	1074	0.0003	532 13.940	0.00028187		0.041812865	1184.00	82.41	87.00		14:59	1107:18:51	1107:15:30	1107:10:00	33.27582957
3	73	1075	0.0001	533 13.953	9.81083E-05		0.041910773	1166.78	82.60	87.20		10:23	1128:40:51	1128:39:30	1128:34:00	33.56806669
0	72	1080	0	532 14 018	0	0.00	0.041910773	1186.78	82.80	87.20	0, 20, 0 ,	11:50	1152:07:51	1152:08:30	1152:01:00	33.9430528
				002 11.010				1187,71	82.67	87 28	5/28/04	12:35	1178:52:51	1178:51:30	1178:46:00	34.30589881
1	70	1075	4E-05	530 13.953	3.28879E-05	0.93	0.041943661	1107.71		01.20						
1 3		1075 1070		530 13.953 530 13.668	9.82047E-05	2.78	0.042041868	1190.49	82.66	87.45		11:12	1199:29:51	1199:28:30	1199:23:00	34.83378243
1 3 0	70 70 72	1070 1078	0.0001	530 13.953 530 13.668 532 13.892	9.82047E-05 0	2.78 0.00	0.042041868 0.042041888	1190.49 1190.49	82.86 82.86	87.45 87.45	5/28/04	13:10	1225:27:51	1225:28:30	1225:21:00	34.63376243 35.00863032
_	70 70 72 71	1070 1078 1079	0.0001 0 0.0001	530 13.953 530 13.668 532 13.992 531 14.005	9.82047E-05 0 0.000131792	2.78 0.00 3.73	0.042041868 0.042041868 0.042173658	1190.49 1190.49 1194.22	82.86 82.86 83.12	87.45 87.45 87.71	5/28/04 5/29/04	13:10 14:20	1225:27:51 1250:37:51	1225:28:30 1250:36:30	1225:21:00 1250:31:00	34.83378243 35.00883032 35.36425926
_	70 70 72 71 71	1070 1078 1079 1067	0.0001 0 0.0001 0.0001	530 13.953 530 13.668 532 13.992 531 14.005 531 13.849	9.82047E-05 0 0.000131792 9.7745E-05	2.78 0.00 3.73 2.77	0.042041868 0.042041888 0.042173658 0.042271403	1190.49 1190.49 1194.22 1198.99	82.86 82.86 83.12 83.31	87.45 87.45 87.71 87.91	5/28/04 5/29/04 5/30/04	13:10 14:20 12:48	1225:27:51 1250:37:51 1273:03:51	1225:28:30 1250:36:30 1273:02:30	1225:21:00 1250:31:00 1272:57:00	34.83376243 35.00863032 35.36425926 35.68002476
0 4 3 -1	70 70 72 71 71 70	1070 1078 1079 1067 1077	0.0001 0 0.0001 0.0001 -4E-05	530 13.953 530 13.668 532 13.992 531 14.005 531 13.849 530 13.979	9.82047E-05 0 0.000131792 9.7745E-05 -3.29491E-05	2.78 0.00 3.73 2.77 -0.83	0.042041868 0.042041868 0.042173658 0.042271403 0.042238454	1190.49 1190.49 1194.22 1198.99 1198.08	82.86 82.86 83.12 83.31 83.25	87.45 87.45 87.71 87.91 87.84	5/28/04 5/29/04 5/30/04 6/1/04	13:10 14:20 12:48 10:48	1225:27:51 1250:37:51 1273:03:51 1319:05:51	1225:28:30 1250:36:30 1273:02:30 1319:04:30	1225:21:00 1250:31:00 1272:57:00 1318:59:00	34.83378243 35.00883032 35.38425928 35.88002478 38.31938188
0 4 3	70 70 72 71 71 70 70	1070 1078 1079 1067 1077 1085	0.0001 0.0001 0.0001 -4E-05 -0.0001	530 13.953 530 13.668 532 13.992 531 14.005 531 13.849 530 13.979 530 14.063	9.82047E-05 0 0.000131792 9.7745E-05 -3.29491E-05 -9.95814E-05	2.78 0.00 3.73 2.77 -0.83 -2.82	0.042041866 0.042041866 0.042173658 0.042271403 0.042238454 0.042136873	1190,49 1190,49 1194,22 1196,99 1196,08 1193,24	82.86 82.86 83.12 83.31 83.25 83.05	87.45 87.45 87.71 87.91 87.84 87.84	5/28/04 5/29/04 5/30/04 6/1/04 6/2/04	13:10 14:20 12:46 10:48 13:34	1225:27:51 1250:37:51 1273:03:51 1319:05:51 1345:51:51	1225:28:30 1250:36:30 1273:02:30 1319:04:30 1345:50:30	1225:21:00 1250:31:00 1272:57:00 1316:59:00 1345:45:00	34.83378243 35.00883032 35.36425926 35.68002478 38.31938188 38.88802141
0 4 3 -1	70 70 72 71 71 70 70	1070 1078 1079 1067 1077 1085 1090	0.0001 0.0001 0.0001 -4E-05 -0.0001 -7E-06	530 13.953 530 13.668 532 13.992 531 14.005 531 13.849 530 13.979 530 14.063 530 14.146	9.82047E-05 0 0.000131792 9.7745E-05 -3.29491E-05 -9.95614E-05 -6.66935E-05	2.78 0.00 3.73 2.77 -0.93 -2.82 -1.89	0.042041868 0.042041888 0.042173658 0.042271403 0.042238454 0.042138873 0.042072179	1190.49 1190.49 1194.22 1196.99 1196.08 1193.24 1191.35	82.86 82.86 83.12 83.31 83.25 83.05 82.92	87.45 87.45 87.71 87.91 87.84 87.64	5/28/04 5/29/04 5/30/04 6/1/04 6/2/04 6/3/04	13:10 14:20 12:46 10:48 13:34 11:09	1225:27:51 1250:37:51 1273:03:51 1319:05:51 1345:51:51 1387:28:51	1225:28:30 1250:36:30 1273:02:30 1319:04:30 1345:50:30 1367:25:30	1225:21:00 1250:31:00 1272:57:00 1318:59:00 1345:45:00 1367:20:00	34.63376243 35.00863032 35.38425926 35.88002476 38.31938188 36.8802141 36.97901432
0 4 3 -1 -3 -2 2	70 70 72 71 71 70 70 70	1070 1078 1079 1067 1077 1085 1090 1087	0.0001 0.0001 0.0001 -4E-05 -0.0001 -7E-06 7E-05	530 13.953 530 13.668 532 13.992 531 14.005 531 13.849 530 13.979 530 14.063	9.82047E-05 0 0.000131792 9.7745E-05 -3.29491E-05 -9.95614E-05 -6.66935E-05	2.78 0.00 3.73 2.77 -0.93 -2.82 -1.89	0.042041866 0.042041866 0.042173658 0.042271403 0.042238454 0.042136873	1190,49 1190,49 1194,22 1196,99 1196,08 1193,24	82.86 82.86 83.12 83.31 83.25 83.05	87.45 87.45 87.71 87.91 87.84 87.84	5/28/04 5/29/04 5/30/04 6/1/04 6/2/04	13:10 14:20 12:46 10:48 13:34 11:09	1225:27:51 1250:37:51 1273:03:51 1319:05:51 1345:51:51	1225:28:30 1250:36:30 1273:02:30 1319:04:30 1345:50:30	1225:21:00 1250:31:00 1272:57:00 1316:59:00 1345:45:00	34.83378243 35.00883032 35.36425926 35.68002478 38.31938188 38.88802141
0 4 3 -1 -3 -2	70 70 72 71 71 70 70 70	1070 1078 1079 1067 1077 1085 1090 1087	0.0001 0.0001 0.0001 -4E-05 -0.0001 -7E-06 7E-05	530 13.953 530 13.668 532 13.992 531 14.005 531 13.849 530 13.979 530 14.063 530 14.146	9.82047E-05 0 0.000131792 9.7745E-05 -3.29491E-05 -9.95614E-05 -6.66935E-05	2.78 0.00 3.73 2.77 -0.93 -2.82 -1.89	0.042041868 0.042041888 0.042173658 0.042271403 0.042238454 0.042138873 0.042072179	1190.49 1190.49 1194.22 1196.99 1196.08 1193.24 1191.35	82.86 82.86 83.12 83.31 83.25 83.05 82.92	87.45 87.45 87.71 87.91 87.84 87.64	5/28/04 5/29/04 5/30/04 6/1/04 6/2/04 6/3/04	13:10 14:20 12:46 10:48 13:34 11:09	1225:27:51 1250:37:51 1273:03:51 1319:05:51 1345:51:51 1387:28:51	1225:28:30 1250:36:30 1273:02:30 1319:04:30 1345:50:30 1367:25:30	1225:21:00 1250:31:00 1272:57:00 1318:59:00 1345:45:00 1367:20:00	34.63376243 35.00863032 35.38425926 35.88002476 38.31938188 36.8802141 36.97901432
0 4 3 -1 -3 -2 2 DECANISTERED 8/4	70 70 72 71 71 70 70 70 71 4/2004; sample	1070 1078 1079 1067 1077 1085 1090 1087 e dried 15 d	0.0001 0.0001 0.0001 -4E-05 -0.0001 -7E-06 7E-05 ays in air	530 13.953 530 13.868 532 13.992 531 14.005 531 13.849 530 13.975 530 14.083 530 14.146 531 14.109	9.82047E-05 0 0.000131792 9.7745E-05 -3.29491E-05 -9.95614E-05 -6.66935E-05	2.78 0.00 3.73 2.77 -0.93 -2.82 -1.89	0.042041868 0.042041888 0.042173658 0.042271403 0.042238454 0.042138873 0.042072179	1190.49 1190.49 1194.22 1196.99 1196.08 1193.24 1191.35	82.86 82.86 83.12 83.31 83.25 83.05 82.92	87.45 87.45 87.71 87.91 87.84 87.64	5/28/04 5/29/04 5/30/04 6/1/04 6/2/04 6/3/04	13:10 14:20 12:46 10:48 13:34 11:09	1225:27:51 1250:37:51 1273:03:51 1319:05:51 1345:51:51 1387:28:51	1225:28:30 1250:36:30 1273:02:30 1319:04:30 1345:50:30 1367:25:30	1225:21:00 1250:31:00 1272:57:00 1318:59:00 1345:45:00 1367:20:00	34.63376243 35.00863032 35.38425926 35.88002476 38.31938188 36.8802141 36.97901432
0 4 3 -1 -3 -2 2 DECANISTERED 8/4	70 70 72 71 71 70 70 70 71 71 4/2004; sampl	1070 1078 1079 1067 1077 1085 1090 1087 e dried 15 d	0.0001 0.0001 0.0001 -4E-05 -0.0001 -7E-06 7E-05 ays in air	530 13.953 530 13.868 532 13.992 531 14.005 531 13.849 530 13.975 530 14.083 530 14.146 531 14.109	9.82047E-05 0 0.000131792 9.7745E-05 -3.29491E-05 -9.95614E-05 -6.66935E-05	2.78 0.00 3.73 2.77 -0.93 -2.82 -1.89	0.042041868 0.042041888 0.042173658 0.042271403 0.042238454 0.042138873 0.042072179	1190.49 1190.49 1194.22 1196.99 1196.08 1193.24 1191.35	82.86 82.86 83.12 83.31 83.25 83.05 82.92	87.45 87.45 87.45 87.71 87.91 87.84 87.84 87.64	5/28/04 5/29/04 5/30/04 6/1/04 6/2/04 6/3/04	13:10 14:20 12:46 10:48 13:34 11:09 13:43	1225:27:51 1250:37:51 1273:03:51 1319:05:51 1345:51:51 1387:28:51 1394:00:51	1225:28:30 1250:36:30 1273:02:30 1319:04:30 1345:50:30 1367:25:30	1225:21:00 1250:31:00 1272:57:00 1316:59:00 1345:45:00 1367:20:00 1393:54:00	34,63376243 35,00863032 35,36425926 35,68002478 38,31938188 38,68802141 36,97901432 37,33849912
0 4 3 -1 -3 -2 2 DECANISTERED 8/4 SAMPLE: 718*-1	70 70 72 71 71 70 70 70 71 71 4/2004; sampl	1070 1078 1079 1067 1077 1085 1090 1087 e dried 15 d	0.0001 0.0001 0.0001 -4E-05 -0.0001 -7E-06 7E-05 aye in air	530 13.953 530 13.868 532 13.992 531 14.005 531 13.849 530 13.975 530 14.083 530 14.146 531 14.109	9.82047E-05 0 0.000131792 9.7745E-05 -3.29491E-05 -9.95614E-05 -6.66935E-05	2.78 0.00 3.73 2.77 -0.93 -2.82 -1.89	0.042041868 0.042041888 0.042173658 0.042271403 0.042238454 0.042138873 0.042072179	1190.49 1190.49 1194.22 1196.99 1196.08 1193.24 1191.35	82.86 82.86 83.12 83.31 83.25 83.05 82.92	87.45 87.45 87.71 87.91 87.84 87.84 87.51 87.64	5/28/04 5/29/04 5/30/04 6/1/04 6/2/04 6/3/04	13:10 14:20 12:46 10:48 13:34 11:09 13:43	1225:27:51 1250:37:51 1273:03:51 1319:05:51 1345:51:51 1367:28:51 1394:00:51	1225:28:30 1250:36:30 1273:02:30 1319:04:30 1345:50:30 1367:25:30 1393:59:30	1225:21:00 1250:31:00 1272:57:00 1316:59:00 1345:45:00 1367:20:00 1393:54:00	34.63376243 35.0083032 35.36425926 35.68002476 38.31938188 36.68602141 36.97901432 37.33849912
0 4 3 -1 -3 -2 2 DECANISTERED 8/4	70 70 72 71 71 70 70 70 71 71 4/2004; sampl	1070 1078 1079 1067 1077 1085 1090 1087 e dried 15 d	0.0001 0.0001 0.0001 -4E-05 -0.0001 -7E-06 7E-05 ays in air	530 13.953 530 13.868 532 13.992 531 14.005 531 13.849 530 13.975 530 14.083 530 14.146 531 14.109	9.82047E-05 0 0.000131792 9.7745E-05 -3.29491E-05 -9.95614E-05 -6.66935E-05	2.78 0.00 3.73 2.77 -0.93 -2.82 -1.89	0.042041868 0.042041888 0.042173658 0.042271403 0.042238454 0.042138873 0.042072179	1190.49 1190.49 1194.22 1196.99 1196.08 1193.24 1191.35	82.86 82.86 83.12 83.31 83.25 83.05 82.92	87.45 87.45 87.45 87.71 87.91 87.84 87.84 87.64	5/28/04 5/29/04 5/30/04 6/1/04 6/2/04 6/3/04	13:10 14:20 12:46 10:48 13:34 11:09 13:43	1225:27:51 1250:37:51 1273:03:51 1319:05:51 1345:51:51 1387:28:51 1394:00:51	1225:28:30 1250:36:30 1273:02:30 1319:04:30 1345:50:30 1367:25:30	1225:21:00 1250:31:00 1272:37:00 1316:59:00 1345:45:00 1367:20:00 1393:54:00	34.63376243 35.00863032 35.38425926 35.68002478 38.31936186 36.68602141 36.97901432 37.33849912 elapsed time (off bottom to canistering) 52736399.0 minutes
0 4 3 -1 -3 -2 2 DECANISTERED 8/4 SAMPLE: 718'-1 dry sample weight:	70 70 72 71 71 70 70 70 70 71 4/2004; sampl	1070 1078 1079 1067 1077 1085 1090 1087 e dried 15 d	0.0001 0.0001 0.0001 -4E-05 -0.0001 -7E-06 7E-05 aye in air ings in canter grame 0.00	530 13.953 530 13.963 532 13.992 531 14.005 531 13.849 530 13.979 530 14.083 530 14.146 531 14.109	9.82047E-05 0.000131792 9.7745E-05 -3.29491E-05 -8.95514E-05 -6.69935E-05 6.83847E-05	2.78 0.00 3.73 2.77 -0.93 -2.92 -1.89 1.88	0.042041866 0.042041866 0.042173658 0.042271403 0.04223454 0.042136873 0.042072179 0.042072179	1190.49 1190.49 1194.22 1196.99 1196.08 1193.24 1191.35 1193.23	82.66 82.86 83.12 83.31 83.25 83.05	87.45 87.45 87.71 87.91 87.84 87.64 87.64 87.64	5/28/04 5/29/04 5/30/04 6/1/04 6/2/04 6/3/04	13:10 14:20 12:46 10:48 13:34 11:09 13:43	1225:27:51 1250:37:51 1273:03:51 1319:05:51 1345:51:51 1394:00:51	1225:28:30 1250:36:30 1273:02:30 1319:04:30 1345:50:30 1367:25:30 1393:59:30	1225:21:00 1250:31:00 1272:57:00 1316:59:00 1345:45:00 1367:20:00 1393:54:00	34.63376243 35.00863032 35.36425926 35.68002478 38.31938186 36.88802141 36.97901432 37.33849912 elapsed time (off bottom to canistering) 52738399.0 minutes 878939.983 hours
0 4 3 -1 -3 -2 2 DECANISTERED 8/4 SAMPLE: 716'- dry sample weight: RIGILAB MEASUREM	70 70 72 71 71 70 70 70 71 4/2004; sample	1070 1078 1079 1067 1067 1085 1090 1087 e dried 15 d	0.0001 0.0001 0.0001 -4E-05 -0.0001 -7E-06 ays in air ings in canter grams 0.00	530 13.953 530 13.966 532 13.992 531 14.005 531 13.849 530 13.979 530 14.063 530 14.146 531 14.109	9.82047E-05 0.000131792 9.7745E-05 -3.29491E-05 -9.95614E-05 -6.86935E-05 6.83847E-05	2.78 0.00 3.73 2.77 -0.93 -2.92 -1.89 1.88	0.042041866 0.042041866 0.042173658 0.042271403 0.042238454 0.042138673 0.042072179 0.042072178	1190.49 1190.49 1194.22 1196.99 1196.09 1193.24 1191.35 1193.23	92.86 82.86 83.12 83.31 83.25 83.05 82.92 83.05	87.45 87.45 87.71 87.91 87.84 87.84 87.64 87.64 est. lost gas (oc) = 0	5/28/04 5/29/04 5/30/04 6/1/04 6/2/04 6/3/04 8/4/04	13:10 14:20 12:48 10:48 13:34 11:09 13:43	1225:27:51 1250:37:51 1270:03:51 1319:05:51 1345:51:51 1387:26:51 1394:00:51	1225:28:30 1250:36:30 1273:02:30 1319:04:30 1345:50:30 1367:25:30 1393:59:30	1225:21:00 1250:31:00 1272:57:00 1318:59:00 1345:45:00 1367:20:00 1393:54:00	34.63376243 35.0083032 35.36425926 35.68002476 38.31938188 36.88002141 36.97901432 37.33849912 elapsed time (off bottom to canistering) 52738399.0 minutes 878939.963 hours 937.517990938 SCHT (time)
0 4 3 -1 -3 -2 2 DECANISTERED 6/ SAMPLE: 718- dry sample weight: RIG/LAB MEASUREM measured or meas	70 70 72 71 71 70 70 70 70 71 4/2004; sample	1070 1078 1079 1067 1077 1085 1090 1087 e dried 15 d	0.0001 0.0001 0.0001 -4E-05 -0.0001 -7E-06 ays in air ings in canter grams 0.00	530 13.953 530 13.966 532 13.992 531 14.005 531 13.849 530 13.979 530 14.063 530 14.146 531 14.109	9.82047E-05 0.000131792 9.7745E-05 -3.29491E-05 -8.95514E-05 -6.69935E-05 6.83847E-05	2.78 0.00 3.73 2.77 -0.93 -2.92 -1.89 1.88	0.042041866 0.042041866 0.042173658 0.042271403 0.04223454 0.042136873 0.042072179 0.042072179	1190.49 1190.49 1194.22 1196.99 1196.09 1193.24 1191.35 1193.23	82.66 82.86 83.12 83.31 83.25 83.05	87.45 87.45 87.71 87.91 87.84 87.84 87.64 87.64 est. lost gas (oc) = 0	5/28/04 5/29/04 5/30/04 6/1/04 6/2/04 6/3/04	13:10 14:20 12:48 10:48 13:34 11:09 13:43	1225:27:51 1250:37:51 1270:03:51 1319:05:51 1345:51:51 1387:26:51 1394:00:51	1225:28:30 1250:36:30 1273:02:30 1319:04:30 1345:50:30 1367:25:30 1393:59:30	1225:21:00 1250:31:00 1272:57:00 1318:59:00 1345:45:00 1367:20:00 1393:54:00	34.83376243 35.00863032 35.36425926 35.86002478 38.31938188 38.88802141 36.97901432 37.33849912 elapsed time (off bottom to canistering) 52738399.0 minutes 878939.983 hours
0 4 3 -1 -3 -2 DECANISTERED 84 SAMPLE: 718-: dry sample weight:	70 70 72 71 71 70 70 70 70 71 4/2004; sample	1070 1078 1079 1067 1077 1085 1090 1087 e dried 15 d	0.0001 0.0001 0.0001 -4E-05 -0.0001 -7E-06 ays in air ings in canter grams 0.00	530 13.953 530 13.966 532 13.992 531 14.005 531 13.849 530 13.979 530 14.063 530 14.146 531 14.109	9.82047E-05 0.000131792 9.7745E-05 -3.29491E-05 -9.95614E-05 -6.86935E-05 6.83847E-05	2.78 0.00 3.73 2.77 -0.93 -2.92 -1.89 1.88	0.042041866 0.042041866 0.042173658 0.042271403 0.042238454 0.042138673 0.042072179 0.042072178	1190.49 1190.49 1194.22 1196.99 1196.09 1193.24 1191.35 1193.23	92.86 82.86 83.12 83.31 83.25 83.05 82.92 83.05	87.45 87.45 87.71 87.91 87.84 87.84 87.64 87.64 est. lost gas (oc) = 0	5/28/04 5/29/04 5/30/04 6/1/04 6/2/04 6/3/04 8/4/04	13:10 14:20 12:48 10:48 13:34 11:09 13:43	1225:27:51 1250:37:51 1270:03:51 1319:05:51 1345:51:51 1387:26:51 1394:00:51	1225:28:30 1250:36:30 1273:02:30 1319:04:30 1345:50:30 1367:25:30 1393:59:30	1225:21:00 1250:31:00 1272:57:00 1318:59:00 1345:45:00 1367:20:00 1393:54:00	34.63376243 35.0083032 35.36425926 35.68002476 38.31938188 36.88002141 36.97901432 37.33849912 elapsed time (off bottom to canistering) 52738399.0 minutes 878939.963 hours 937.517990938 SCHT (time)
0 4 3 -1 -3 -2 DECANISTERED 8/4 SAMPLE: 716'- dry sample weight: PIG/LAB MEASUREM measured oc meas	70 70 72 71 71 71 70 70 70 71 4/2004; sample lc IENTS LENTS LENTS LEVES LENTS LEVES LENTS LEVES LE	1070 1078 1079 1067 1077 1085 1090 1087 e dried 15 d ig coal) cutti is. 0.000	0.0001 0.0001 -4E-05 -0.0001 -7E-06 7E-06 ays in air ings in cantel grame 0.00	530 13.953 530 13.966 532 13.992 531 14.005 531 13.979 530 13.979 530 14.063 530 14.146 531 14.109	9.82047E-05 0.000131792 9.7745E-05 -3.29491E-05 -9.95614E-05 -6.86935E-05 6.83847E-05	2.78 0.00 3.73 2.77 -0.93 -2.92 -1.89 1.88	0.042041866 0.042041866 0.042173658 0.042271403 0.042238454 0.042138673 0.042072179 0.042072178	1190.49 1190.49 1194.22 1196.99 1196.09 1193.24 1191.35 1193.23	92.86 82.86 83.12 83.31 83.25 83.05 82.92 83.05	87.45 87.45 87.45 87.71 87.91 87.84 87.64 87.64 est. lost gas (cc) = 0 SCF/TON with lost gas	5/28/04 5/29/04 5/30/04 8/1/04 8/3/04 8/3/04 8/4/04	13:10 14:20 12:46 10:48 13:34 11:09 13:43	1225:27:51 1250:37:51 1270:03:51 1319:05:51 1345:51:51 1387:26:51 1394:00:51 TIME OF: off bottom	1225:28:30 1250:38:30 1273:02:30 1319:04:30 1345:50:30 1387:25:30 1393:59:30	1225:21:00 1250:31:00 1272:37:00 1318:59:00 1345:45:00 1367:20:00 1393:54:00	34.63376243 35.0083032 35.38425926 35.88002478 38.31938188 36.88802141 36.97901432 37.33849912 elapsed time (off bottom to cantatering) 52738399.0 minutes 878939.983 hours 937.517990938 SQRT (hrs) SQRT hrs. (since off bottom)
0 4 3 -1 -3 -2 2 DECANISTERED 8/4 SAMPLE: 716'- dry sample weight: RIGILAB MEASUREM measured oc meas	70 70 72 71 71 71 70 70 70 71 4/2004; sampl	1070 1078 1079 1067 1077 1085 1090 1087 e dried 15 d	0.0001 0.0001 0.0001 -4E-05 -0.0001 -7E-06 7E-05 ays hair grame 0.00	530 13.953 530 13.966 532 13.992 531 14.005 531 13.979 530 13.979 530 14.063 530 14.146 531 14.109	9.82047E-05 0.000131792 9.7745E-05 -3.29491E-05 -9.95614E-05 -6.86935E-05 6.83847E-05	2.78 0.00 3.73 2.77 -0.93 -2.92 -1.89 1.88	0.042041866 0.042041866 0.042173658 0.042271403 0.042238454 0.042138673 0.042072179 0.042072178	1190.49 1190.49 1194.22 1196.99 1196.09 1193.24 1191.35 1193.23	92.86 82.86 83.12 83.31 83.25 83.05 82.92 83.05	87.45 87.45 87.45 87.71 87.91 87.84 87.64 87.64 est. lost gas (cc) = 0 SCF/TON with lost gas	5/28/04 5/29/04 5/30/04 8/1/04 8/3/04 8/3/04 8/4/04	13:10 14:20 12:46 10:48 13:34 11:09 13:43	1225:27:51 1250:37:51 1270:03:51 1319:05:51 1345:55:51 1367:26:51 1394:00:51 TIME OF: off bottom	1225:28:30 1250:38:30 1273:02:30 1319:04:30 1345:50:30 1387:25:30 1393:59:30	1225:21:00 1250:31:00 1272:37:00 1318:59:00 1345:45:00 1367:20:00 1393:54:00 in canister 4/7/04 11:59 in canister	34,63376243 35,00863032 35,36425926 35,68002476 38,31938188 38,88802141 36,97901432 37,33849912 elapsed time (off bottom to canistering) 52738399,0 minutes 878939,983 hours 937,517990938 SCRT (fms) SQRT hrs. (since off bottom)
0 4 3 3 -1 -3 -2 2 DECANISTERED 8/4 SAMPLE: 718'-1 dry sample weight: RIGILAB MEASUREM measured or meas DECANISTERED 4/ SAMPLE: 746 1	70 70 72 71 71 71 70 70 70 71 4/2004; sample lc IENTS LENTS LENTS LEVES LENTS LEVES LENTS LEVES LE	1070 1078 1079 1067 1077 1087 1087 e dried 15 d ig coel) cutti is.	0.0001 0.0001 0.0001 -4E-05 -0.0001 -7E-06 7E-05 aye in air ngs in cantel grams 0.00 CONVERSIC	530 13.953 530 13.966 532 13.992 531 14.005 531 13.979 530 13.979 530 14.063 530 14.146 531 14.109	9.82047E-05 0.000131792 9.7745E-05 -3.29491E-05 -9.95614E-05 -6.86935E-05 6.83847E-05	2.78 0.00 3.73 2.77 -0.93 -2.92 -1.89 1.88	0.042041866 0.042041866 0.042173658 0.042271403 0.042238454 0.042138673 0.042072179 0.042072178	1190.49 1190.49 1194.22 1196.99 1196.09 1193.24 1191.35 1193.23	92.86 82.86 83.12 83.31 83.25 83.05 82.92 83.05	87.45 87.45 87.71 87.91 87.84 87.64 87.64 87.64 98.64 97.64 98 98.64 98.64 98.64 98.64 98.64 98.64 98.64 98.64 98.	5/28/04 5/29/04 5/30/04 8/1/04 8/3/04 8/3/04 8/4/04	13:10 14:20 12:48 10:48 13:34 11:09 13:43	1225:27:51 1250:37:51 1273:03:51 1273:03:51 1319:05:51 1387:28:51 1387:28:51 1394:00:51 TIME OF: off bottom TIME SINCE off bottom	1225:28:30 1250:38:30 1273:02:30 1319:04:30 1345:50:30 1367:25:30 1393:59:30	1225:21:00 1250:31:00 1272:57:00 1316:59:00 1345:45:00 1367:20:00 1393:54:00	34.63376243 35.00863032 35.36425926 35.86002476 38.31938188 36.86802141 36.97901432 37.33849912 elapsed time (off bottom to canistering) 52736399.0 minutes 878.939.963 hours 937.517990936 SQRT (hrs) SQRT hrs. (since off bottom)
0 4 3 -1 -3 -2 2 DECANISTERED 8/4 SAMPLE: 716- dry sample weight: PIGILAB MEASUREM measured oc meas DECANISTERED 4/	70 70 72 71 71 71 70 70 70 71 4/2004; sampl	1070 1078 1079 1067 1077 1087 1087 e dried 15 d ig coel) cutti is.	0.0001 0.0001 0.0001 -4E-05 -0.0001 -7E-06 7E-05 ays hair grame 0.00	530 13.953 530 13.966 532 13.992 531 14.005 531 13.979 530 13.979 530 14.063 530 14.146 531 14.109	9.82047E-05 0.000131792 9.7745E-05 -3.29491E-05 -9.95614E-05 -6.86935E-05 6.83847E-05	2.78 0.00 3.73 2.77 -0.93 -2.92 -1.89 1.88	0.042041866 0.042041866 0.042173658 0.042271403 0.042238454 0.042138673 0.042072179 0.042072178	1190.49 1190.49 1194.22 1196.99 1196.09 1193.24 1191.35 1193.23	92.86 82.86 83.12 83.31 83.25 83.05 82.92 83.05	87.45 87.45 87.45 87.71 87.91 87.84 87.64 87.64 est. lost gas (cc) = 0 SCF/TON with lost gas	5/28/04 5/29/04 5/30/04 8/1/04 8/3/04 8/3/04 8/4/04	13:10 14:20 12:48 10:48 13:34 11:09 13:43	1225:27:51 1250:37:51 1273:03:51 1319:05:51 1345:51:51 1394:00:51 TIME OF: off bottom TIME SINCE off bottom	1225:28:30 1250:38:30 1273:02:30 1319:04:30 1345:50:30 1397:25:30 1393:59:30 at surface at surface	1225:21:00 1250:31:00 1272:57:00 1318:59:00 1345:45:00 1367:20:00 1393:54:00	34.63376243 35.0083032 35.38425926 35.68002476 38.31938188 38.88602141 36.97901432 37.33849912 elapsed time (off bottom to canistering) 52738399.0 minutes 878939.983 hours 937.517990936 SQIFT (hrs) SQIFT hrs. (since off bottom)
DECANISTERED 6/4 SAMPLE: 718-1 dry sample weight: RIG/LAB MEASUREM measured or measured or measured or dry sample weight: SAMPLE: 746' dry sample weight:	70 70 72 71 71 71 70 70 70 70 70 71 10 10 10 1ENTS IENTS	1070 1078 1079 1067 1077 1085 1090 1087 e dried 15 d ig coal) cuffi is. 0.000	0.0001 0.0001 0.0001 -4E-05 -0.0001 -7E-05 ays in air ings in canlet grams 0.00 CONVERSIC cubic fit at	530 13.953 530 13.953 530 13.698 531 14.005 531 13.699 530 14.063 530 14.146 531 14.109	9.82047E-05 0.000131792 9.7745E-05 -3.29491E-05 -8.95514E-05 -6.69935E-05 6.83847E-05	2.78 0.00 3.73 2.77 -0.93 -2.82 -1.69 1.86	0.042041886 0.042041886 0.042173658 0.042271403 0.042238453 0.04238673 0.042072179 0.042138564	1190.49 1190.49 1194.22 1196.99 1198.09 1193.24 1191.35 1193.23	92.86 82.86 83.12 83.31 83.25 83.05 82.92 83.05	87.45 87.45 87.45 87.71 87.91 87.84 87.64 87.64 87.61 87.64 87.51 87.64 87.51 87.64	5/28/04 5/29/04 5/30/04 8/1/04 8/3/04 8/3/04 8/4/04	13:10 14:20 12:48 10:48 13:34 11:09 13:43	1225:27:51 1250:37:51 1273:03:51 1319:05:51 1345:51:51 1394:00:51 TIME OF: off bottom TIME SINCE off bottom TIME OF: off bottom AUT/04 12:07	1225:28:30 1250:38:30 1273:02:30 1319:04:30 1345:50:30 1367:25:30 1393:59:30	1225:21:00 1250:31:00 1272:57:00 1316:59:00 1345:45:00 1367:20:00 1393:54:00	34.63376243 35.00863032 35.36425926 35.68002476 38.31938186 38.688022141 36.97901432 37.33849912 elapsed time (off bottom to canistering) 52738399.0 minutes 879939.963 hours 937.517990936 SORT (hm) SORT hrs. (since off bottom)
0 4 3 -1 -3 -2 DECANISTERED 6/4 SAMPLE: 716'-1 dry sample weight: FIG/LAB MEASUREM measured co meas DECANISTERED 4/ SAMPLE: 746' I dry sample weight: FIG/LAB MEASUREM	70 70 72 71 71 71 70 70 70 71 71 71 70 71 71 71 71 70 71 71 71 71 71 71 71 71 71 71 71 71 71	1070 1078 1079 1067 1077 1085 1090 1087 e dried 15 d 1090 e d 1090	0.0001 0.0001 0.0001 -4E-05 -0.0001 -7E-06 ays in air 0.00 CONVERSIC cubic ft at	530 13.953 530 13.953 530 13.958 531 13.992 531 14.005 531 13.979 530 14.083 530 14.146 531 14.109 NOF RIGILAB MEASU Inter DCB11	9.82047E-05 0.000131792 9.7745E-05 -3.29491E-05 -9.95614E-05 -6.89835E-05 6.83847E-05	2.78 0.00 3.73 2.77 -0.93 -2.82 -1.89 1.88	0.042041886 0.042041886 0.042173858 0.042271403 0.042238454 0.042138574 0.042138564	1190.49 1190.49 1194.22 1196.99 1196.08 1193.24 1191.35 1193.23	92.86 82.86 83.12 83.31 83.25 83.05 82.92 83.05	87.45 87.45 87.45 87.71 87.91 87.84 87.64 87.64 87.64 98. (oc) = 0 SCF/TON with lost gas a seesest. lost gas (oc) = 54 SCF/TON	5/28/04 5/29/04 5/39/04 6/1/04 6/3/04 6/3/04 6/4/04	13:10 14:20 12:46 10:48 13:34 11:09 13:43	1225:27:51 1250:37:51 1273:03:51 1319:05:51 1319:05:51 1387:26:51 1394:00:51 TIME OF: off bottom TIME SINCE off bottom TIME OF: off bottom 47/04 12:07 TIME SINCE	1225:28:30 1250:38:30 1273:02:30 1319:04:30 1345:50:30 1367:25:30 1393:59:30 at surface at surface at surface 4/7/04 12:08	1225:21:00 1250:31:00 1272:57:00 1318:59:00 1345:45:00 1367:20:00 1393:54:00 In canister 4/7/04 11:59 in canister 4/7/04 12:14	34.63376243 35.00863032 35.36425926 35.86002476 38.31938188 36.86802141 36.97901432 37.33849912 elapsed time (off bottom to canistering) 52736399.0 minutes 878039.963 houre 937.517990936 SQRT (hrs) SQRT hrs. (since off bottom) add elapsed time (off bottom to canistering) 6.9 minutes 0.115 hours 0.339525813 SQRT (hrs)
DECANISTERED 8/4 SAMPLE: 716- dry sample weight: PIGILAB MEASUREM measured oc meas DECANISTERED 4/ SAMPLE: 746 the dry sample weight: RIGILAB MEASUREM measured oc meas	70 70 72 71 71 71 70 70 70 70 71 4/2004; sample ib: IENTS uned T (F) m 12/2004; canii to 748' (Miner ib: IENTS	1070 1078 1079 1067 1077 1087 1090 1097 e dried 15 d 1090 0.000 easured P eter leaky!	0.0001 0.0001 1.00001 -4E-06 7-0.0001 -7E-06 7B-06 ays in air ings in canies grams 0.00 CONVERSIC cubic fit at	530 13.953 530 13.953 530 13.952 531 14.905 531 14.905 531 14.905 530 14.903 530 14.105 531 14.109 NOF RIGILAB MEASU sociute T (F) pelin	9.82047E-05 0 0.000131792 9.7745E-05 -3.29491E-05 -9.95614E-05 -6.86936E-05 6.83847E-05 REMENTS TO STP (@60 de; cubic R (@STP) oc (@STF	2.78 0.00 3.73 2.77 -0.93 -2.82 -1.89 1.88	0.042041886 0.042041886 0.042173858 0.042271403 0.042238454 0.042138564 0.042138564 CUMULATIVE Vicubio ft	1190.49 1190.49 1194.22 1198.99 1198.08 1193.24 1191.35 1193.23	82.86 82.86 83.12 83.31 83.25 83.05 82.92 83.05	87.45 87.45 87.45 87.71 87.91 87.84 87.64	5/28/04 5/29/04 5/39/04 6/1/04 6/2/04 8/2/04 8/4/04 Time OF MEA	13:10 14:20 12:46 10:48 13:34 11:09 13:43	1225:27:51 1250:37:51 1273:03:51 1319:05:51 1345:51:51 1394:00:51 TIME OF: off bottom TIME SINCE off bottom 47/04 12:07 TIME OF: off bottom	1225:28:30 1250:38:30 1273:02:30 1319:04:30 1345:50:30 1397:25:30 1393:59:30 at surface at surface 4/7/04 12:08 at surface 4/7/04 12:08	1225:21:00 1250:31:00 1272:57:00 1318:59:00 1345:45:00 1367:20:00 1393:54:00 In canleter 4/7/04 11:59 In canister 4/7/04 12:14 In canister	34, 63376243 35, 00863032 35, 36425926 35, 68002476 38, 31938188 38, 68802141 36, 97901432 37, 33849912 elapsed time (off bottom to canistering) 52736399, 0 minutes 937, 517990936 SCRT (tre) SCRT hrs. (since off bottom)
DECANISTERED 8/4 SAMPLE: 718-1 dry sample weight: RIGILAB MEASUREM measured or meas DECANISTERED 4/4 SAMPLE: 746'1 dry sample weight: RIGILAB MEASUREM measured or meas 131	70 70 72 71 71 71 70 70 70 70 70 70 71 71 71 71 71 71 71 71 71 72 72 74/2004; sample Liberts L	1070 1078 1079 1067 1077 1085 1090 1087 e dried 15 d ig coal) cuttilis. 0.000 tessured P toter leaky! at coal) cuttilis. 0.986	0.0001 0.0001 0.0001 -4E-05 -0.0001 -7E-08 7E-05 ays in air ngs in canlet grams 0.00 CONVERSIC cubic ft at	530 13.953 530 13.953 530 13.953 530 13.952 531 14.005 531 13.979 530 14.063 530 14.146 531 14.109 IN OF RIGILAB MEASU BOOLUT T (F) pela TO FRIGILAB MEASU BOOLUT T (F) PELA TO FRI	9.82047E-05 0 0.000131792 9.7745E-05 -3.29491E-05 -9.95514E-05 -6.69935E-05 6.63847E-05 REMENTS TO STP (@00 de; cubic R (@STP) oc (@STR	2.78 0.00 3.73 2.77 -0.93 -2.82 -1.89 1.88	0.042041886 0.042041886 0.042173658 0.042271403 0.042238454 0.042138673 0.042072179 0.042138564 CUMLLATIVE Vicubic ft	1190.49 1190.49 1194.22 1196.99 1193.24 1191.35 1193.23 DLUMES (@STP) cc	92.86 82.86 83.12 83.31 83.25 83.05 82.92 83.05 SCF/TON without lost gas SCF/TON without lost gas 9.05	87.45 87.45 87.45 87.71 87.91 87.84 87.64 87.64 87.61 87.64 87.51 87.64 87.61 87.64 87.61 87.64 87.61 87.64 87.61 87.64	5/28/04 5/29/04 5/30/04 6/1/04 6/3/04 6/3/04 6/4/04 TIME OF MEA timated by tim	13:10 14:20 12:48 10:48 10:48 11:09 13:43	1225:27:51 1250:37:51 1273:03:51 1319:05:51 1319:05:51 1387:28:51 1394:00:51 TIME OF: off bottom TIME SINCE off bottom all between at surfact TIME OF: off bottom 4/7/04 12:07 TIME SINCE off bottom 2:37:55	1225:28:30 1250:38:30 1273:02:30 1319:04:30 1345:50 1367:25:30 1367:25:30 at surface at surface 4/7/04 12:08 at surface 4/7/04 12:08	1225:21:00 1250:31:00 1272:57:00 1316:59:00 1345:45:00 1367:20:00 1393:54:00 In canister 4/7/04 11:59 in canister 4/7/04 12:14 in canister 2:31:00	34.83376243 35.00863032 35.36425926 35.86002478 38.31938188 36.86802141 36.97901432 37.33849912 elapsed time (off bottom to canistering) 52738399.0 minutes 879939.983 hours 937.517990938 SOFT (hrs) SOFT hrs. (since off bottom) delapsed time (off bottom to canistering) 6.9 minutes 0.115 hours 0.339525813 SOFT (hrs) SOFT hrs. (since off bottom) 1.622328881
0 4 3 -1 -3 -2 DECANISTERED 8/4 SAMPLE: 716'-: dry sample weight: PIG/LAB MEASUREM measured oc meas DECANISTERED 4/ SAMPLE: 746' 1 dry sample weight: RIGLAB MEASUREM measured oc meas 131 104	70 70 72 71 71 71 70 70 70 70 70 71 4/2004; sample 1b: IENTS	1070 1078 1079 1067 1077 1085 1090 1087 e dried 15 d 0.000 tessured P ster leakyl al coal) cutties. 0.986	0.0001 0.0001 0.0001 -4E-05 -0.0001 -7E-06 ays in air 0.00 CONVERSIC cubic ft at 447.34 CONVERSIC cubic ft at 0.0048 0.0048	530 13.953 530 13.953 530 13.968 532 13.992 531 14.005 531 13.849 530 13.979 530 14.063 530 14.166 531 14.109 NOF RIGILAB MEASU seclute T (F) poin NOF RIGILAB MEASU seclute T (F) poin 10 OF RIGILAB MEASU seclute T (F) poin 11 OF RIGILAB MEASU	9.82047E-05 0 0.000131792 9.7745E-05 -3.29491E-05 -9.95614E-05 -6.89836E-05 6.83847E-05 REMENTS TO STP (@60 decubic R (@STP) oc (@STR	2.78 0.00 3.73 2.77 -0.93 -2.62 -1.89 1.86 (F; 14.7 pel) ()	0.042041886 0.042041886 0.042173858 0.042271403 0.042238454 0.04238854 0.042072179 0.042138584 CUMULATIVE Vicubic ft	1190.49 1190.49 1194.22 1196.99 1193.24 1191.35 1193.23 DLUMES (@STP) cc	92.86 82.86 83.12 83.31 83.25 83.05 82.92 83.05 SCF/TON without lost gas	87.45 87.45 87.45 87.71 87.91 87.84 87.84 87.64 87.64 87.64 87.51 87.64	5/28/04 5/29/04 5/39/04 6/1/04 6/3/04 6/4/04 TIME OF MEA 4/7/04 4/7/04	13:10 14:20 12:48 13:34 11:09 13:43 SURE 14:45 21:40	1225:27:51 1250:37:51 1273:03:51 1319:05:51 1345:51:51 1394:00:51 TIME OF: off bottom TIME SINCE off bottom 477:04 12:07 TIME OF: off bottom 2:37:55 9:32:55	1225:28:30 1225:28:30 1273:02:30 1319:04:30 1345:50:30 1393:59:30 at surface at surface 47704 12:08 at surface 2:36:30 9:31:30	1225:21:00 1250:31:00 1272:57:00 1318:59:00 1345:45:00 1367:20:00 1393:54:00 In canleter 4/7/04 11:59 in canister e, and total gas evolve in canister 2:31:00 9:28:00	34.63376243 35.00863032 35.36425926 35.68002476 38.31938186 36.68602141 36.97901432 37.33849912 elapsed time (off bottom to canistering) 52736399.0 minutes 878939.963 hours 937.517990936 SQRT (hrs) SQRT hrs. (since off bottom) add elapsed time (off bottom to canistering) 6.9 minutes 0.336528613 SQRT (hrs) SQRT hrs. (since off bottom) 1.622328661 3.090082703
0 4 3 -1 -3 -2 2 DECANISTERED B/ SAMPLE: 718'- dry sample weight: PIG/LAB MEASUREM measured co meas DECANISTERED 4/ SAMPLE: 746' I dry sample weight: RIGLAB MEASUREM measured co meas 131	70 70 72 71 71 71 70 70 70 70 70 70 71 71 71 71 71 71 71 71 71 72 72 74/2004; sample Liberts L	1070 1078 1079 1067 1077 1077 1085 1090 1087 e dried 15 d eg coal) cuff is. 0.000 reasured P eter leakyl al coal) cuff is. 0.986	0.0001 0.0001 0.0001 -4E-05 -0.0001 -7E-06 ays in air 0.00 CONVERSIC cubic ft at 447.34 CONVERSIC cubic ft at 0.0048 0.0048	530 13.953 530 13.953 530 13.958 531 13.902 531 14.005 531 13.979 530 14.063 530 14.166 531 14.109 NOF RIGILAB MEASU sociute T (F) pela 516 14.044 516 14.031 516 14.031	9.82047E-05 0 0.000131792 9.7745E-05 -3.29491E-05 -9.95614E-05 -6.89836E-05 6.83847E-05 REMENTS TO STP (@60 decubic R (@STP) oc (@STR	2.78 0.00 3.73 2.77 -0.93 -2.82 -1.89 1.88 (F; 14.7 pol) (F) 128.37 100.23 68.44	0.042041886 0.042041886 0.042173658 0.042271403 0.042238454 0.042138673 0.042072179 0.042138564 CUMLLATIVE Vicubic ft	1190.49 1190.49 1194.22 1196.99 1193.24 1191.35 1193.23 DLUMES (@STP) cc	92.86 82.86 83.12 83.31 83.25 83.05 82.92 83.05 SCF/TON without lost gas SCF/TON without lost gas 9.05	87.45 87.45 87.45 87.71 87.91 87.84 87.64 87.64 87.61 87.64 87.51 87.64 87.61 87.64 87.61 87.64 87.61 87.64 87.61 87.64	5/28/04 5/29/04 5/30/04 6/1/04 6/3/04 6/3/04 6/4/04 TIME OF MEA timated by tim	13:10 14:20 12:46 10:48 13:34 11:09 13:43	1225:27:51 1250:37:51 1273:03:51 1319:05:51 1319:05:51 1387:28:51 1394:00:51 TIME OF: off bottom TIME SINCE off bottom all between at surfact TIME OF: off bottom 4/7/04 12:07 TIME SINCE off bottom 2:37:55	1225:28:30 1250:38:30 1273:02:30 1319:04:30 1345:50 1367:25:30 1367:25:30 at surface at surface 4/7/04 12:08 at surface 4/7/04 12:08	1225:21:00 1250:31:00 1272:57:00 1316:59:00 1345:45:00 1367:20:00 1393:54:00 In canister 4/7/04 11:59 in canister 4/7/04 12:14 in canister 2:31:00	34.83376243 35.00863032 35.36425926 35.86002478 38.31938188 36.86802141 36.97901432 37.33849912 elapsed time (off bottom to canistering) 52738399.0 minutes 879939.983 hours 937.517990938 SOFT (hrs) SOFT hrs. (since off bottom) delapsed time (off bottom to canistering) 6.9 minutes 0.115 hours 0.339525813 SOFT (hrs) SOFT hrs. (since off bottom) 1.622328881

18	62	1081	0.0006	22 14.03	1 0.000604409	17.11	0.013565933	364.14	27.51	31.38	4/10/04	18:38	78:28:55	78:27:30	78:22:00	8.745395614
22	63		0.0008	23 14.07		20.94	0.014305289	405.08	29.01	32.86	4/11/04	23:02	108:54:55	108:53:30	106:48:00	10.33998442 estimate
11	62		0.0004	22 14.09	6 0.000371069	10.51	0.014678358	415.59	29.78	33.83	4/12/04	14:55	122:47:55	122:46:30	122:41:00	11.08145347
15	81		0.0005	21 14.12	2 0.000507909	14.38	0.015184287	429.97	30.79	34.88	4/13/04	14:18	148:10:55	146:09:30	146:04:00	12.09057254
	82		0.0006	22 14.08		17.18	0.015790912	447.15	32.02	35.89	4/14/04	14:13	170:05:55	170:04:30	189:59:00	13.04218583
16	84		0.0008	24 13.98			0.018558707	488.83	33.58	37.44	4/15/04	14:31	194:23:55	194:22:30	194:17:00	13.94269024
23 23	88		0.0008	28 13.99			0.017318112	490.39	35.12	38.99	4/16/04	13:57	217:49:55	217:48:30	217:43:00	14.75913088
24	71	1081	0.0008	31 14.03			0.018110331	512.83	36.73	40.59	4/17/04	19:35	247:27:55	247:28:30	247:21:00	15.73102914
18	71		0.0006	31 14.00			0.018703397	529.62	37.93	41.80	4/16/04	16:07	287:59:55	267:58:30	287:53:00	16.37066312
12	68		0.0004	28 14.12			0.019104337	540.97	38.74	42.81	4/19/04	14:08	290:00:55	289:59:30	289:54:00	17.02983493
18	71		0.0006	31 13.90			0.019893005	557.84	39.94	43.80	4/20/04	13:02	312:54:55	312:53:30	312:46:00	17.88941146
14	88		0.0005	28 13.95		13.09	0.02015518	570.73	40.87	44.74	4/21/04	13:19	337:11:55	337:10:30	337:05:00	18.38296847
	68		0.0004	28 14.01			0.020553172	582.00	41.88	45.55	4/22/04	16:19	364:11:55	364:10:30	364:05:00	19.08398834
12	66		0.0002	26 14.12			0.020787942	588.65	42.18	48.02		14:24	388:18:55	386:15:30	386:10:00	19.65405669
	69		0.0004	29 13.99			0.021184448	599.87	42.96	48.83	4/24/04		408:08:55	408:05:30	408:00:00	20.20186323
12	68	1090	0.0005	28 14.14			0.021821251	812.24	43.85	47.71	4/26/04		487:12:55	487:11:30	467:08:00	21.81516314
13			0.0004	25 14.10		10.48	0.02199054	622.70	44.80	48.48	4/27/04		480:27:55	480:26:30	480:21:00	21.91951819
11	85 88		0.0005		4 0.000480885		0.022451424	835.75	45.53	49.40		15:35	507:27:55	507:26:30	507:21:00	22.52898998
14			0.0003	28 14.00			0.022749842	844.20	48.14	50.00	4/29/04		530:25:55	530:24:30	530:19:00	23.03110619
9	68		0.0003	28 14.09			0.023017459	651.78	46.88	50.55	5/1/04		581:41:55	581:40:30	581:35:00	24.11842687
6	66	1084	0.0004	24 14.07			0.023386431	662.23	47.43	51.29	5/3/04		630:39:55	630:38:30	830:33:00	25.11304995
11	64	1084	0.0004	26 14.03			0.023788308	873.55	48.24	52.10	5/5/04		889:30:55	669:29:30	689:24:00	25.87499329
12	88			29 14.00			0.024117033	682.92	48.91	52.78	5/6/04		694:48:55	894:47:30	894:42:00	26.35934896
10	89		0.0004			9.37	0.02444804	892.29	49.58	53.45		13:31	721:23:55	721:22:30	721:17:00	28.85888487
10	71		0.0004	31 14.07 30 14.01			0.024811489	702.58	50.32	54.18		14:28	748:20:55	746:19:30	748:14:00	27,3193616
11	70	1080	0.0004				0.025239814	714.71	51.18	55.05		19:53	775:45:55	775:44:30	775:39:00	27.85256322
13	7 1	1079	0.0005	31 14.00 31 14.01			0.025503643	722.18	51.72	55.59		13:52	793:44:55	793:43:30	793:38:00	28.17354453
8	71	1080	0.0003				0.025832513	731.49	52.39	56.25		14:13	818:05:55	818:04:30	817:59:00	28.80242317
10	7 1		0.0004	31 13.97 32 13.96			0.028180481	740.78	53.05	56.92		10:37	838:29:55	838:28:30	838:23:00	26.95884049
10	72	1076	0.0004	32 14.03			0.028458985	749.18	53.85	57.52		14:23	866:15:55	868:14:30	866:09:00	29.43238485
9	72	1081	0.0003	25 14.12		5.71	0.0268588	754.88	54.08	57.93	5/15/04		923:18:55	923:15:30	923:10:00	30.38555486
8	65	1088		26 14.04			0.027024102	785.23	54.80	58.87	5/17/04		957:28:55	957:27:30	957:22:00	30.94320514
11	68	1082	0.0004	30 14.05			0.027024102	773.68	55.41	59.28	5/16/04		986:25:55	986:24:30	986:19:00	31,40751414
9	70	1083	0.0003	32 14.03			0.027818502	787.87	56.41	80.28	5/20/04		1033:44:55	1033:43:30	1033:38:00	32.15196123
15	72	1061	0.0005	33 14.00			0.027616362	798.97	57.08	80.94		13:50	1057:42:55	1057:41:30	1057:38:00	32.52253492
10	73		0.0004	32 13.94			0.028835753	810.87	56.07	81.94		14:59	1108:51:55	1108:50:30	1108:45:00	33.26956488
15	72	1074	0.0003	33 13.95			0.028884872	817.35	58.54	62.40		10:24	1128:18:55	1128:15:30	1128:10:00	33,56012432
7	73		0.0002	32 14.01			0.028998339	821.08	58.80	62.67	5/25/04		1151:42:55	1151:41:30	1151:38:00	33,93893088
4	72			30 13.95			0.029180778	825.74	59.14	63.00		12:35	1178:27:55	1178:26:30	1176:21:00	34.29983982
5	70		0.0002	30 13.88			0.029150775	831.30	59.53	63.40	5/27/04		1199:04:55	1199:03:30	1198:58:00	34.82778283
8	70	1070	0.0002	32 13.99		3.72	0.02948881	835.02	59.60	83.87		13:11	1225:03:55	1225:02:30	1224:57:00	35.00093253
4	72	1078	0.0002	31 13.87			0.029717109	841.49	60.26	64.13	5/29/04		1250:12:55	1250:11:30	1250:06:00	35.35838342
7	71	1089	0.0002	31 13.84			0.029912599	847.03	60.88	84.53		12:47	1272:39:55	1272:38:30	1272:33:00	35.87443451
8	71 70	1087 1077	0.0002	30 13.97			0.030044395	850.78	60.93	84.60	6/1/04		1318:40:55	1318:39:30	1316:34:00	38.31388058
4			7E-05	30 14.08			0.030110783	852.84	61.08	84.93	6/2/04		1345:28:55	1345:25:30	1345:20:00	36.88035729
2	70	1085	7E-05	30 14.14			0.030177478	854.53	81.20	85.07	6/3/04		1367:02:55	1387:01:30	1366:56:00	36.97362048
2	70 71	1087	0.0002	31 14.10			0.030343438	859.23	81.53	85.40	6/4/04		1393:34:55	1393:33:30	1393:28:00	37.33071047
5		1081	0.0002	31 14.03			0.030541493	864.84	81.94	85.80	6/5/04		1417:38:55	1417:37:30	1417:32:00	37.85167475
6	71	1078	0.0002	33 13.96			0.030770828	871.32	62.40	86.27		10:30	1482:22:55	1462:21:30	1462:16:00	38.24110281
7	79	1076	0.0002	33 14.03			0.030889281	874.12	82.60	66.47	6/8/04		1487:38:55	1487:35:30	1487:30:00	38.58981599
3	73	1083	7E-05	32 14.05			0.030935298	875.99	62.74	66.60		12:38	1512:28:55	1512:27:30	1512:22:00	38.89084083
2	72	1073	0.0002	33 13.92			0.031131149	881.53	63.13	87.00		18:32	1542:24:55	1542:23:30	1542:18:00	39.27359517
6	73	1073	0.0002	32 13.92			0.031281982	885.24	83.40	87.28	6/11/04		1562:17:55	1562:18:30	1582:11:00	39.52592328
4	72	1073	0.0007	37 13.98			0.031424409	689.64	83.73	87.59	6/12/04		1588:14:55	1588:13:30	1588:08:00	39.82773871
5	77 75	1078	0.0002	35 13.99			0.031522423	892.61	63.93	87.79		14:09	1810:01:55	1810:00:30	1609:55:00	40.12520336
-	75	1078	0.0001	35 13.99			0.031820438	895.39	64.12	67.99		10:41	1630:33:55	1830:32:30	1830:27:00	40.38025852
3 0	72	1078	0.0001	32 14.00			0.031620438	895.39	84.12	67.99		14:02	1657:54:55	1857:53:30	1657:48:00	40.71750579
-1	72	1082	-4E-05		4 -3.29778E-05		0.03158748	894.45	84.08	67.92	8/18/04		1679:47:55	1879:48:30	1679:41:00	40.9853463
CANISTERED 6/1				02 14.04	3.207702.00	0.00										
CWAID LEWED ON	GEOOT, SaiTpie	W100 14 (my o m an													

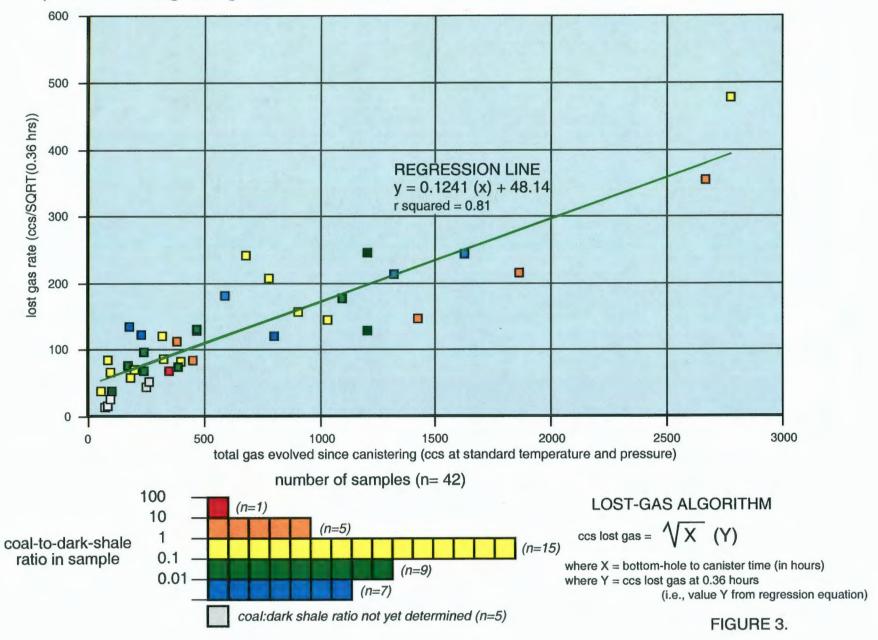
DECANISTERED 6/16/2004; sample dried 14 days in air

SAMPLE:	877° to 80	78' flows	r Weir coal	cuttings in	canister DCB	5								NOTE: I	os gas is	estimated b	time inte	val between at surfa	ce and canister tim	nes, and total gas eve	blyed
Green LL.	017 10 0		lbs.	grams										est. lost	gas (oc	2		TIME OF:			elapsed time (off bottom to canistering)
dry sample	wainht.			1710.87												2.5		off bottom	at surface	in canister	7.2 minutes
City sairthio	wolgon.		0															4/7/04 13:09	4/7/04 13:1	1 4/7/04 13:	17 0.120 hours
RIGILAS ME	A CH HOEN MENIT	9		CONVERS	SON OF RIGIL	AR ME	ASUF	REMENTS TO STP	(960 deg F	14.7 pm)	CLMULATIVE V	OLUMES (OST	P) SCF/TON	SCF/TO	N			TIME SINCE			0.348410161 SQRT (hrs)
	C measured		mass red P		absolute T (F			ouble it (@STP)			cubic ft	cc	without lost ga	s with lost	gas	TIME OF	MEASURE	off bottom	at surface	In canister	SQRT hrs. (since off bottom)
THOROGING C	I Medadion	55	1082			5 14.		0.00115825		32.60	0.0011582	5 32.	80 0.0	11	1	08 4/7/	04 14:45	1:35:12	1:33:3	0 1:28:	1.259829575
	9	55	1081			5 14.				27.95	0.00214525	5 80.	75 1.1	4	1.	81 4/7/	04 21:40	8:30:12	6:26:3	0 8:23:	2.918047553
	0	55	1080		-			0.000340032			0.002485287		38 1.3	2	1	79 4/8/	04 10:30	21:20:12	21:16:3	0 21:13:	00 4.619182983
	0	86	1073			6 13.					0.00288220		81 1.5	3	2	00 4/9/	04 17:27	52:17:12	52:15:3	0 52:10:	7.230951989
	1	62	1081			2 14.					0.00291578			5	2	01 4/10/	04 18:37	75:27:12	75:25:3	0 75:20:	00 8.688367818
	4	63	1084					0.000134428		3.81				12	2	09 4/11/	04 23:02	105:52:12	105:50:3	0 105:45:	00 10.28931485
	4	62	1088					0.000134934			0.00318514				2	16 4/12/	04 14:56	121:46:12	121:44:3	0 121:39:	00 11.03494449
	4	81	1088			1 14.					0.00325288				2	19 4/13/	04 14:18	145:08:12	145:08:3	0 145:01:	00 12.04726802
	2	62	1085			2 14.					0.00336767				2	26 4/14/	04 14:14	189:04:12	169:02:3	0 188:57:	00 13.00269203
	6	64	1076					0.000199772			0.00358744	-			2	37 4/15/	04 14:3	193:21:12	193:19:3	0 193:14:	00 13.90515492

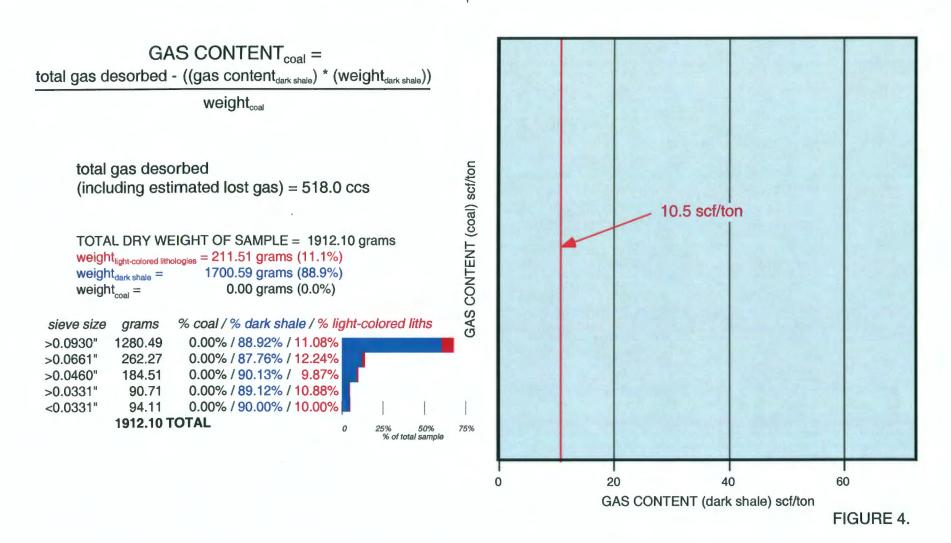
4	88	1078	0.0001	528 13.992	0.000132418	3.75	0.003719888	105.33	1.97	2.44	4/18/04 13:58	216:48:12	218:48:30	218:41:00	14.72424305
4	71	1081	0.0001	531 14.031	0.000132037	3.74	0.003651903	109.07	2.04	2.51	4/17/04 19:38	246:26:12	246:24:30	246:19:00	15.69830139
3	71	1079	0.0001	531 14,005	9.88442E-05	2.80	0.003950747	111.87	2.10	2.56	4/18/04 18:07	266:57:12	288:55:30	268:50:00	16.3387066
0	88	1088	0	528 14.122	0	0.00	0.003950747	111.87	2.10	2.56	4/19/04 14:08	288:58:12	288:58:30	288:51:00	16.99911782
A	71	1071	0.0003	531 13,901	0.00028163	7.41	0.004212377	119.28	2.23	2.70	4/20/04 13:03	311:53:12	311:51:30	311:46:00	17.66031332
3	88	1075	0.0001	528 13.953	9.90373E-05	2.80	0.004311415	122.09	2.29	2.75	4/21/04 13:19	338:09:12	336:07:30	336:02:00	18.33448481
2	68	1080	7E-05	528 14.018	6.6332E-05	1.88	0.004377747	123.98	2.32	2.79	4/22/04 16:19	383:09:12	363:07:30	363:02:00	19.05858241
-1	86	1088	-4E-05	528 14,122	-3.35387E-05	-0.95	0.004344208	123.01	2.30	2.77	4/23/04 14:24	385:14:12	385:12:30	385:07:00	19.82744677
5	89	1078	0.0002	529 13.992	0.00016521	4.66	0.004509418	127.69	2.39	2.88	4/24/04 12:14	407:04:12	407:02:30	406:57:00	20.17597581
0	66	1090	0	528 14.148	0	0.00	0.004509418	127.69	2.39	2.86	4/28/04 23:21	468;11:12	486:09:30	468:04:00	21.5913583
3	85	1087	0.0001	525 14.109	0.000100715	2.65	0.004810133	130.54	2.44	2.91	4/27/04 12:36	479:26:12	479:24:30	479:19:00	21.89604226
7	66	1072	0.0002	528 13.914		6.53	0.004840575	137.07	2.57	3.04	4/28/04 15:32	508:22:12	508:20:30	508:15:00	22.50266651
2	86	1079	7E-05	528 14.005	6.62708E-05	1.88	0.004908846	138.95	2.80	3.07	4/29/04 14:33	529:23:12	529:21:30	529:16:00	23.00840426
0	66	1088	0	528 14.098	0	0.00	0.004908848	138.95	2.60	3.07	5/1/04 17:49	580:39:12	580:37:30	580:32:00	24.09674944
2	84	1084	7E-05	524 14.070	6.70859E-05	1.90	0.004973932	140.85	2.64	3.11	5/3/04 18:48	629:38:12	629:38:30	629:31:00	25.09256198
5	86	1061	0.0002	528 14.031	0.000168615	4.72	0.005140548	145.58	2.73	3.19	5/5/04 9:39	868:29:12	888:27:30	888:22:00	25.8551091
4	69	1079	0.0001	529 14.005	0.000132291	3.75	0.005272837	149.31	2.80	3.26	5/8/04 10:57	893:47:12	693:45:30	693:40:00	26.33983042
3	7.1	1084	0.0001	531 14.070	9.93023E-05	2.61	0.005372139	152.12	2.85	3.32	5/7/04 13:31	720:21:12	720:19:30	720:14:00	26.8393989
4	70	1080	0.0001	530 14.018	0.000132163	3.74	0.005504303	155.88	2.92	3.39	5/8/04 14:29	745:19:12	745:17:30	745:12:00	27.30054945
4	71	1079	0.0001	531 14.005	0.000131792	3.73	0.005838095	159.60	2.99	3.46	5/9/04 19:54	774:44:12	774:42:30	774:37:00	27.83409181
2	7.1	1081	7E-05	531 14.031	6.80183E-05	1.87	0.005702113	181.47	3.02	3.49	5/10/04 13:52	792:42:12	792:40:30	792:35:00	28.15498772
3	71	1077	0.0001	531 13.979	9.8661E-05	2.79	0.005800774	164.26	3.08	3.54	5/11/04 14:13	817:03:12	817:01:30	816:56:00	28.58414479
3	72	1078	0.0001	532 13.968	9.83841E-05	2.79	0.005899158	187.04	3.13	3.60	5/12/04 10:38	837:28:12	837:26:30	837:21:00	28.93907393
1	72	1081	4E-05	532 14.031	3.29471E-05		0.005932105	167.98	3.15	3.61	5/13/04 14:24	865:14:12	885:12:30	865:07:00	29.41490552
-3	85	1088	-0.0001	525 14.122	-0.000100808		0.005831298	165.12	3.09	3.58	5/15/04 23:24	922:14:12	922:12:30	922:07:00	30.36834975
4	68	1082	0.0001	528 14.044	0.00013291	3.78	0.005984207	188.89	3.16	3.63	5/17/04 9:37	958:27:12	956:25:30	956:20:00	30.92857972
2	70	1083	7E-05	530 14.057	6.62652E-05		0.006030473	170.78	3.20	3.87	5/18/04 14:33	985:23:12	985:21:30	985:18:00	31.39068916
5	72	1081	0.0002	532 14.031	0.000164736		0.008195208	175.43	3.29	3.75	5/20/04 13:52	1032:42:12	1032:40:30	1032:35:00	32.13570185
3	73	1079	0.0001	533 14.005	9.84733E-05	2.79	0.008293881	178.22	3.34	3.81	5/21/04 13:51	1058:41:12	1056:39:30	1058:34:00	32.50671725
5	72	1074	0.0002	532 13.940	0.000163669	4.83		182.85	3.42	3.89	5/23/04 14:59	1105:49:12	1105:47:30	1105:42:00	33.25367196
2	73	1075	7E-05	533 13.953	6.54055E-05	1.85	0.008522756	184.70	3.46	3.93	5/24/04 10:24	1125:14:12	1125:12:30	1125:07:00	33.5445475
0	72	1080	0	532 14.018	0		0.006522758	184.70	3.48	3.93	5/25/04 11:51	1150:41:12	1150:39:30	1150:34:00	33.92177275
1	70	1075	4E-05	530 13.953	3.26879E-05		0.008555644	185.63	3.48	3.94	5/28/04 12:38	1175:26:12	1175:24:30	1175:19:00	34.28464185
3	70	1070	0.0001	530 13.666	9.82047E-05		0.008653848	188.42	3.53	4.00	5/27/04 11:12	1198:02:12	1198:00:30	1197:55:00	34.81266628
0	72	1078	0	532 13.992	0		0.008653848	188.42	3.53	4.00	5/28/04 13:11	1224:01:12	1223:59:30	1223:54:00	34.9859972
4	71	1069	0.0001	531 13.875	0.000130571		0.008784419	192.11	3.60	4.07	5/29/04 14:20	1249:10:12	1249:08:30	1249:03:00	35.34359914
2	71	1067	7E-05	531 13.849	6.51833E-05		0.006849583	193.96	3.83	4.10	5/30/04 12:47	1271:37:12	1271:35:30	1271:30:00	35.65978127
-1	70	1077	-4E-05	530 13.979			0.006818634	193.02	3.81	4.08	6/1/04 10:49	1317:39:12	1317:37:30	1317:32:00	38.29949495
-2	70	1085	-7E-05	530 14.083	-6.63676E-05		0.008750248	191.14	3.58	4.05	6/2/04 13:34	1344:24:12	1344:22:30	1344:17:00	38.88610606
-1	70	1090	-4E-05	530 14.148	-3.33468E-05		0.008718699	190.20	3.58	4.03	6/3/04 11:11	1388:01:12	1385:59:30	1365:54:00	38.95970779
2	71	1087	7E-05	531 14.109	8.83847E-05	1.68	0.006763284	192.08	3.60	4.07	6/4/04 13:43	1392:33:12	1392:31:30	1392:28:00	37.31893092

DECANISTERED 6/4/2004; sample dried 10 days in air

RELATIONSHIP of TOTAL GAS EVOLVED FROM a CUTTINGS SAMPLE to RATE of LOST-GAS (from 42 cuttings samples from air-drilled wells, Cherokee basin, southeastern Kansas)



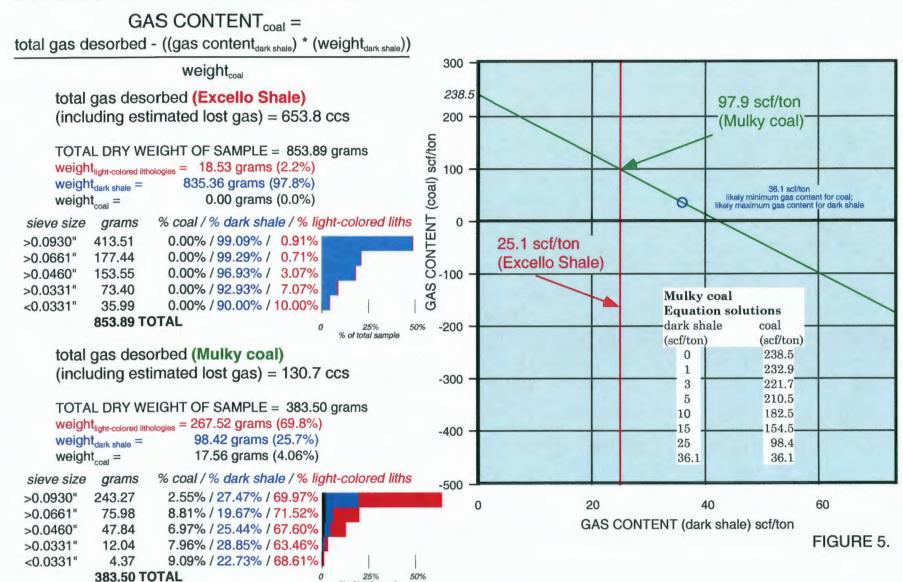
LITHOLOGIC COMPONENT SENSITIVITY ANALYSIS for calculation of Little Osage Shale from 624' to 625'



Desorption Characteristics of Cuttings Samples

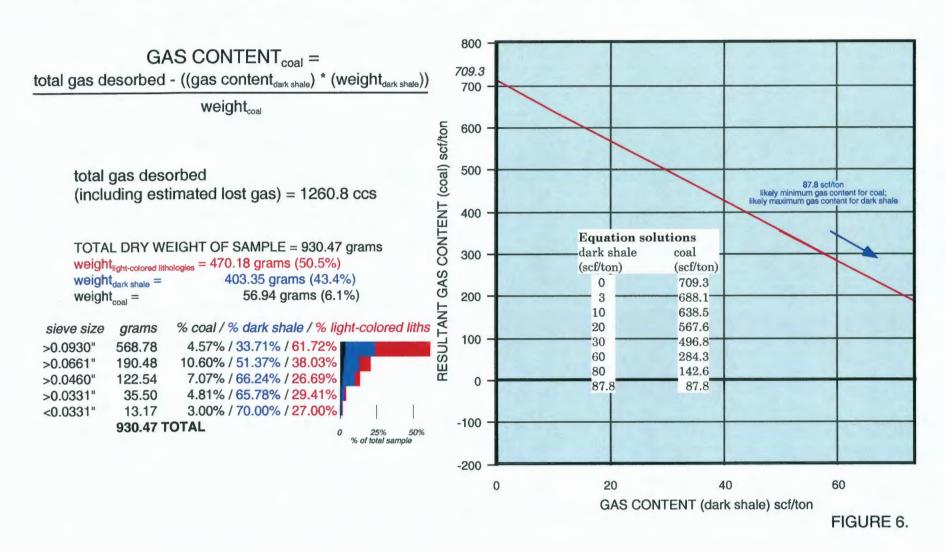
Layne Energy Operating, L.L.C. #8-4 Tincknell, E2 SE NE 4-T.31S.-R.17E., Montgomery Co., KS

LITHOLOGIC COMPONENT SENSITIVITY ANALYSIS for calculation of Excello Shale from 646' to 650' and Mullky coal from 651' to 652'

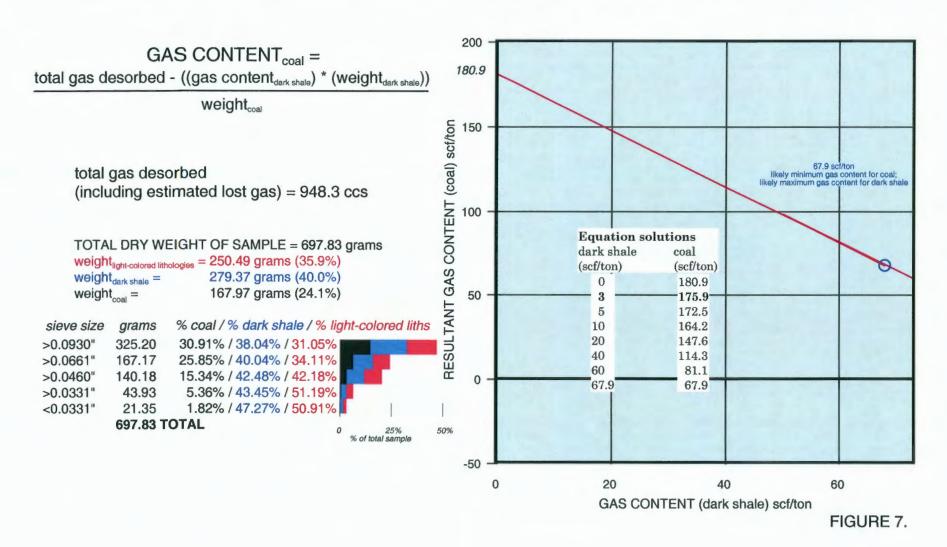


% of total sample

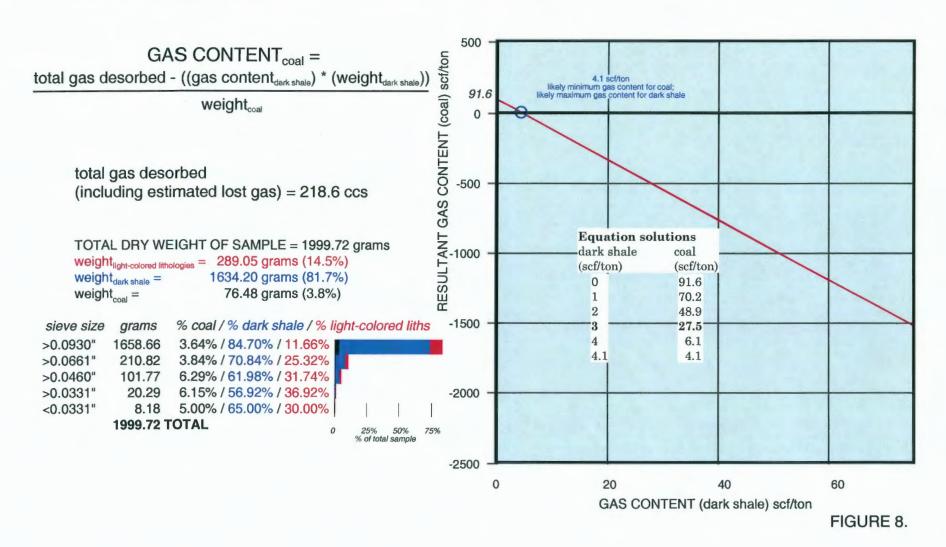
LITHOLOGIC COMPONENT SENSITIVITY ANALYSIS for calculation of gas content of Croweburg coal from 709' to 710'



LITHOLOGIC COMPONENT SENSITIVITY ANALYSIS for calculation of gas content of Mineral coal from 746' to 748'



LITHOLOGIC COMPONENT SENSITIVITY ANALYSIS for calculation of gas content of lower Weir coal from 877' to 878'



Desorption Characteristics of Cuttings Samples

Layne Energy Operating, L.L.C. #8-4 Tincknell, E2 SE NE 4-T.31S.-R.17E., Montgomery Co., KS

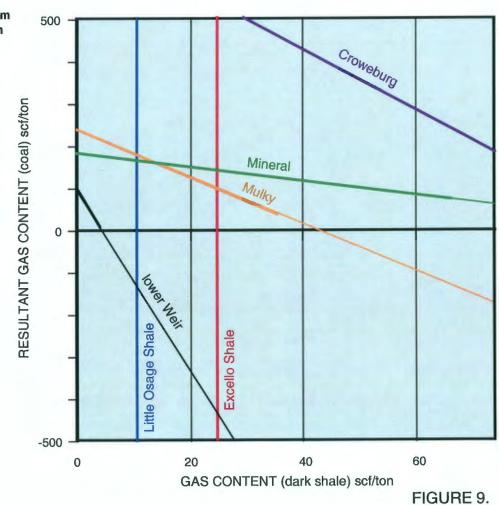
LITHOLOGIC COMPONENT SENSITIVITY ANALYSIS for all samples

200'		oal in ample	scf/ton w/ shale @ 3 scf/ton	maximum scf/ton	minimum scf/ton
	Little Osage Shale	0%			10.5
300'	Excello Shale	0%		****	25.1
	Mulky	4%	221.7	238.5	36.1
	Iron Post		no vali	d data	
400'	Croweburg	6%	688.1	709.3	87.8
	Flemming		no vali	d data	
	Mineral	24%	175.9	180.9	67.9
500'	lower Weir	4%	27.5	91.6	4.1

600'

624'-625' Little Osage Shale
646'-650' Excello Shale
651'-652' Mulky
680'-682' Iron Post
709'-710' Croweburg
746'-748' Mineral
800'

O 877'-878' lower Weir



Desorption Characteristics of Cuttings Samples

based on total weight of gas-generating lithologies (i.e., coal and dark shale) in sample Layne Energy Operating, L.L.C. #8-4 Tincknell, E2 SE NE 4-T.31S.-R.17E., Montgomery Co., KS

