

Commonwealth of Virginia Department of Mines, Minerals, and Energy Division of Gas and Oil

P.O. Box 1416; Abingdon, VA 24212

CNX Gas Company LLC

Telephone: (276) 676-5423

CBM E22A W/PL

615

BU-3413

		Operation	Туре:	Coalbed/Pipeline		
		Drilling Re	port Type:	Origin	nal	
	DRILL	ING REPO	ORT (DGC	)-GO-	-14)	
1. Drilling Data						
Date drilling commenced:	4/27/2007	D	rilling Contra	actor:	Noah Horn	
Date drilling completed:	5/4/2007		Ü		Rotary □ Cable Tool	
Driller's Total Depth (feet):	2,500		3	, ,,,		
Log Total Depth (feet):	2,494	Co	al Seam At	Total [	Depth Pocahontas	
2. Final Location Plat (as red	quired by 4	VAC25-150-	·360.C.)			
Permitted State Plane X 98	5,884	Fin	al Plat State	e Plane	e X: <u>985,885</u>	
Permitted State Plane Y: 35	8,134	Fin	al Plat State	e Plane	e Y: <u>358,133</u>	
☐ Plat Previously Submitted	Or					
List of Attached Items:						
Descrip	otion				FileName	
Pla				Platt.pdf		
3. Geological Data						
Fresh Water At:						
Depth	n (in feet)			Rate	Unit of Measure	
Salt Water At:						
Depth	n (in feet)			Rate	Unit of Measure	
	1 770			amn	GPM	

**Tracking Number:** 

**Operations Name:** 

Company:

File Number:

Form DGO-GO-14-E Rev. 1/2007

#### Coal Seams

List of Attached Items:

Description	FileName
Exhibit A	Exhibit A.pdf

#### Gas and Oil Shows

List of Attached Items:

Description	FileName
Gas Show	E22A Gas Show.xls

#### **4. Electric Logs** (As required by 4VAC25-150-280.A.)

List all logs run: Caliper Gamma Density Temp Deviation

Did logs disclose vertical locations of a coal seam? ✓ Yes □ No

#### **5. Survey Results** (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
Deviation	Deviation.pdf

#### 6. Casing and Tubing Program

List of Attached Items:

Description	FileName
Casing	E22A Casing.xls

#### 7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurence.

Mine Void @ 460' - 462'; Cemented 9 5/8" casing to surface on the backside

#### 8. Drillers Log

Compiled By: Noah Horn

List of Attached Items:

Description	FileName
Drill Data	Drill Data.pdf

### 9. Comments

10. Signature

Permitee: CNX Gas Company LLC Date: 8/16/2007 (Company)

Signed By: Leslie K Arrington Title: Manager (Signature)

INTERNAL USE ONLY

Submit Date: 8/16/2007

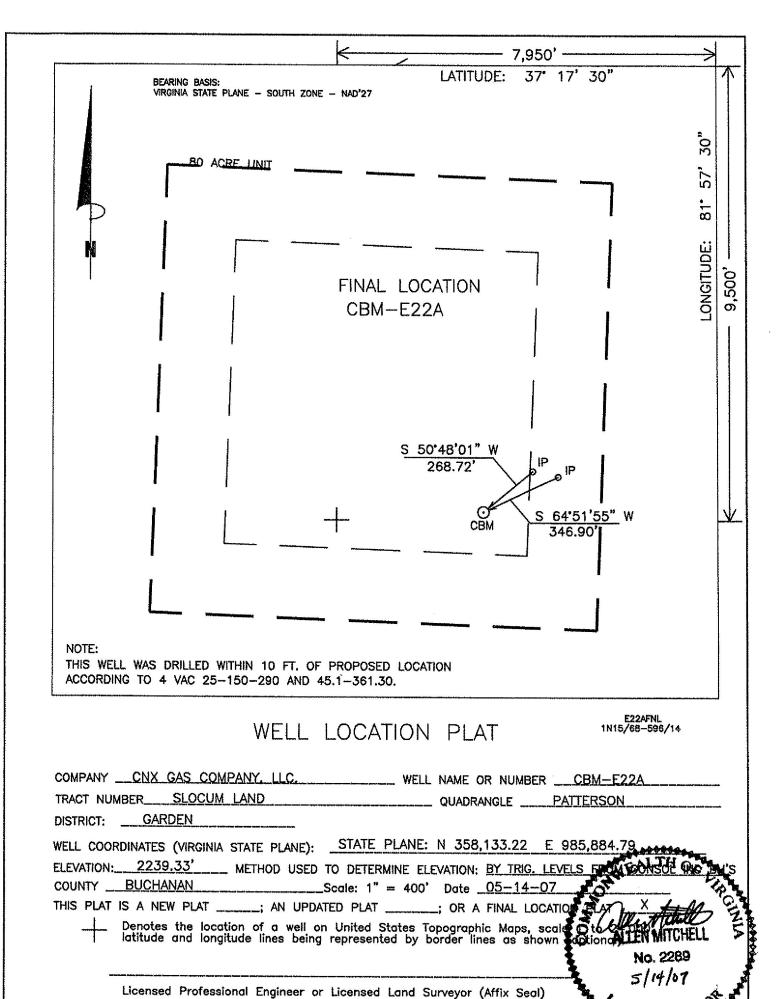
Status: Inspr Approved Date: 8/28/2007

Final PDF Date: 8/29/2007

Form DGO-GO-14-E

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Rev. 1/2007



Form DG0-G0-7 Rev. 10/96

Exhibit A

Well Name: 07 CBM E22A

SURFACE ELEV: 2239.33 EASTING: 985884.79 NORTHING: 358133.22

SEAM	DEPTH FROM (FT)	DEPTH TO (FT)	ELEVATION (TÖSE)	THK. (FT)	REMARKS
NR1	106.20 106.90	106.90 129.60		0.70 22.70	
NR2	129.60 132.30	132.30 243.30	2109.73 2107.03	2.70 111.00	
COAL	243.30 244.10	244.10 277.00	1996.03 1995.23	0.80 32.90	
SD1	277.00	279.00	1962.33 1960.33	2.00	
COAL	286.30	286.30 288.00 299.10	1953.03 1951.33	1.70 11.10	
SD2	299.10 300.00	300.00 366.50	1940.23 1939.33	0.90 66.50	
UB2	366.50 368.90	368.90 460.00	1872.83 1870.43	2.40 91.10	
LB1	460.00	461.80 493.70	1779.33 1777.53	1.80	MINED OUT
LB2		494.80 623.30	1745.63 1744.53	1.10 128.50	
KN1	623.30 623.90	623.90 642.80	1616.03 1615.43	0.60 18.90	
KN2	642.80	643.80 857.70	1596.53 1595.53	1.00 213.90	
RA2	857.70	859.00 986.00	1381.63 1380.33	1.30 127.00	
JB1	986.00	987.00 1015.80	1253.33 1252.33	1.00	
JB3	1015.80 1017.20	1017.20 1050.80	1223.53 1222.13	1.40 33.60	
T2	1050.80 1051.80	1051.80 1078.40	1188.53 1187.53	1.00 26.60	
TI	1078.40 1078.60	1078.60 1348.90	1160.93 1160.73	0.20 270.30	
*GC2	1348.90	1349.10	890.43 890.23	0.20	
*GC2	1349.50 1349.90		889.83 889.43	0.40 41.30	
*SE1	1391.20 1391.40	1391.40 1439.00	848.13 847.93	0.20 47.60	
*SE2	1439.00 1440.20	1440.20 1465.80	800.33 799.13	1.20 25.60	
*LS1	1465.80 1466.10	1466.10 1550.40	773.53 773.23	0.30 84.30	
*UH1	1550.40 1551.10	1551.10 1590.00	688.93 688.23	0.70	
*UH2	1590.00 1591.00	1591.00 1627.00	649.33 648.33	1.00 36.00	
*MH1	1627.00	1627.80	612.33	0.80	

	1627.80	1628.00	611.53	0.20
*MH1	1628.00	1628.60	611.33	0.60
	1628.60	1747.20	610.73	118.60
*P11	1747.20	1752.10	492.13	4.90
	1752.10	1851.90	487.23	99.80
*P91	1851.90	1852.30	387.43	0.40
	1852.30	1854.20	387.03	1.90
*COAL	1854.20	1854.80	385.13	0.60
	1854.80	1856.10	384.53	1.30
*P92	1856.10	1857.50	383.23	1.40
	1857.50	1910.40	381.83	52.90
*P81	1910.40	1911.70	328.93	1.30
	1911.70	2111.80	327.63	200.10
*P41	2111.80	2117.00	127.53	5.20
	2117.00	2147.60	122.33	30.60
*P43	2147.60	2147.90	91.73	0.30
	2147.90	2218.10	91.43	70.20
*P31	2218.10	2219.39	21.23	1.29
	2219.39	2219.58	19.94	0.19
*P32	2219.58	2221.79	19.75	2.21
	2221.79	2309.70	17.54	87.91
*P01	2309.70	2310.10	-70.37	0.40
	2310.10	2500.00	-70.77	189.90

COAL SEAMS TO BE STIMULATED WERE ADJUSTED DUE TO THE GAS WELL'S PROXIMITY TO MIDWAY BRANCH.

GAMMA-CALIPER LOG FROM 0 TO 570.00

GAMMA-DENSITY LOG FROM 570.00 TO TD.

NOTE: FOOTAGE NOT ADJUSTED FOR DEVIATION

FILE: H:\JIMHAZ~1\PROJECTS\GAS\E22A.CMP

DATE: 05/30/07

Well: E22A

## Oil & Gas Show

Formation	Тор	Bottom	Thickness	IPF	Pressure	Hours
				(MCFD/BOPD)		Tested
Lee/Norton	1856	1912	56			
Pocahontas	2112	2222	110			
Total IPF				No Show		

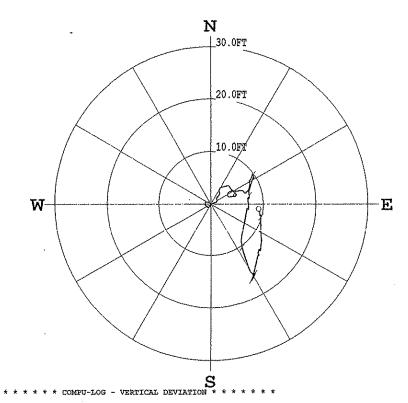
## COMPU-LOG DEVIATION

ENT: CNX-GAS ATION: -JE ID: 07-CNX-E-22A 'E OF LOG: 05/04/07

)BE: 9136CH 1244

MAG DECL: -7.1

SCALE: 10 FT/IN TRUE DEPTH: 2492.44 FT AZIMUTH: 95.7 DISTANCE: 9.1 FT + = 300 FT INCRO = BOTTOM OF HOLE



CLIENT : CNX-GAS HOLE ID. : 07-CNX-E-22X
FIELD OFFICE : 0'DRISCOLL DATE OF LOG : 05/04/07
DATA FROM : PROBE : 9136CH , 1244
MAG. DECL. : -7.100 DEPTH UNITS : FEET
LOG: 07-CNX-E-22X\_05-04-07\_00-00\_9136CH .10\_0.00\_2493.60\_DEVI.log

TE DEPTH	TRUE DEPTH	NORTH DEV.	EAST DEV.	DISTANCE	AZIMUTH	Sang	Sangb
0.50	0,50	0.00	0,00	0.0	0.0	0.0	0.0
10.00	10.00	-0.02	~0.02	0.0	225.4	2.2	39.8
20.00	19.99	-0.28	0.04	0.3	172.3	2.1	
30.00	29.98	0.06	-0.08	0.1	305.2	2.1	
40.00	39.98	0.32	-0.31	0.4	316,4	2.1	
50.00	49.97	0.44	~0.64	0.8	304.2	2,1	
60.00	59.96	0.33	-0.98	1.0	288.7	2.1	
70.00	69.96	-0.01	-1.05	1.0	269.5	2.2	
80.00	79.95	~0.36	~0.87	0.9	247.7	2.1	
90,00	89.94	-0.60	-0.56	0.8	223.1	2.5	
100,00	99.93	-0.46	-0.22	0.5	204.9	2.2	
110.00	109.93	-0.14	-0.03	0.1	190.0	2.2	
120,00	119.92	0.09	0.28	0.3	72.4	2.3	
130.00	129.91	0.21	0.68	0.7	73.1	2.4	
140.00	139.90	0.37	1.06	1.1	70.6	2.3	
150.00	149.90	0.70	1.19	1.4	59.5	2.1	
160,00	159.89	1.06	1.13	1.6	47.0	2.0	
170.00	169,88	1.40	1,27	1.9	42.4	2.3	
180.00	179.87	1,69	1.54	2.3	42.3	2.3	
190.00	189.87	2.06	1.66	2.6	38.9	2.2	
200.00	199.86	2.41	1.60	2.9	33.6	2.0	
210.00	209.85	2.77	1.62	3.2	30.4	2.2	
220.00	219.84	3.11	1.84	3.6	30.6	2,5	
230.00	229,84	3.27	2,22	4.0	34.2	2.6	
240.00	239.83	3,34	2.67	4.3	38.6	2.6	
250.00	249.82	3.49	3.08	4.7	41.5	2.5	74.9

940.00	1939.18	-13.76	8.04	15.5	149.1	1.0	***
950.00	1949.18	-13.50	8,12	15.8	149.0	1.9	5.2
960.00	1959.17	-13.22	8.19	15.5	146.2	1.7	5.5
970,00	1969.17	-12.93	8.25	15.3	147.4	1.8	11.8
980.00	1979,16	~12.62	8.32	15.1	146.6	1.B	11.5
990.00	1989.16	-12.31	6.39	14.9	145.7	2.0	15.5
00.00	1999.15	-11.98	8.45	14.7	144.8	1.7	9.6
010.00	2009.15	-11.67	8.54	14.5	143.8	2.1	343.0
020.00	2019.14	~11.34	8,58	14.2	142.9	2.1	21.1
030.00	2029.13	-11.00	8.66	14.0	141.8	2.1	21.7
040.00	2039.12	-10.65	8.75	13.8	140.6	2.3	9.8
050.00	2049.12	-10.30	8.81	13.6	139.4	2.3	12.1
060.00	2059,11	-9.94	8.91	13.3	138.1	2.3	359.4
070,00	2069.10	-9.77	9.08	13.3	137.1	2.0	271.8
080,00	2079.09	-9.47	8.97	13.0	136.6	2.4	354.0
090.00	2089.08	-9.09	9.03	12.8	135.2	2.4	9.3
100.00	2099.08	-8.80	9.19	12.7	133.7	2.2	31.4
110.00	2109.07	-9.02	9,27	12.9	134.2	2.6	141.4
120.00	2119.06	-8.72	9.46	12.9	132.7	2.2	14.5 352.3
130.00	2129.05	-8.33	9.49	12.6	131.3	2,5	350.1
140.00	2139.04	-7.91	9,50	12.4	129.8	2.2	
150.00	2149.04	-7.57	9.58	12.2	128.3	1.8	0.8 31.7
160.00	2159.03	~7.26	9.58	12.0	127.1	1.6 1.5	354.9
170,00	2169.03	-7.02	. 9 . 62	11.9	126.1	1.3	347.3
180.00	2179.03	-6.78	9.62	11.8	125.2		354.7
190.00	2189.02	-6.56	9.59	11.6	124.4	1.2	357.6
200.00	2199.02	-6.34	9.55	11.5	123.6	1.3	359.5
210.00	2209.02	-6.11	9.54	11.3	122.6	1.3	
220.00	2219.02	-5.90	9.54	11.2	121.7	1.2	305.4 341.1
230.00	2229.01	~5.68	9.53	11.1	120.8	1.3	356.7
240.00	2239.01	~5.44	9.50	10.9	119.8	1.4	345.1
250.00	2249.01	-5.22	9.49	10.B	118.8	1.3 1.3	3.3
.260.00	2259.01	-4.99	9.49	10.7	117.7		8.9
:270.00	2269,00	-4.73	9.48	10.6	116.5	1.7 1.6	1.9
:280.00	2279.00	~4.45	9.48	10.5	115.2	1.6	11.0
:290.00	2288.99	-4.17	9.50	10.4 10.3	113.7 112.4	1.4	347.2
:300.00	2298.99	-3.92	9.53		112.5	1.5	174.8
:310.00	2308,99	~3.92	9.47 9.43	10.3 10.2	112.3	1.3	359.9
:320.00	2318,98	-3.87	9.45	10.1	111.1	1.3	11.3
:330.00	2328.98	-3.64	9.44	10.0	109.8	1.5	8,0
:340.00	2336.98	-3.41 -3.18	9.48	10.0	108.5	1.4	8.4
1350.00	2348.97	-3.10 -3.05	9.47	10.0	107.9	1.4	7.5
:560.00	2350.97	-2.97	9.46	9.9	107.5	1.1	346.3
1370.00	2369.97	-2.81	9.49	9.9	106.5	0.8	4.5
1380.00	2378.97	-2.65	9.50	9.9	105.6	1.1	6.3
1390.00	2388.97 2398.96	-2.47	9.51	9.8	104.6	1.0	3.6
1400.00	2408.96	-2.28	9.49	9.8	103.5	1.4	351.0
2410.00		-2.16	9.47	9.7	102.8	1.3	192.6
3420.00	2418.96	-2.15	9.52	9.8	102.7	1.2	5.9
2430.00	2428.96	-2.19	9.36	9.6	103.2	1.2	258.3
1440.00	2436.95	-1.97	9.30	9.5	101.9	1.7	334.5
2450.00	2448.95	-1.69	9.28	9.4	100.3	1.4	3.8
2460.00	2458.95	-1.69 -1.44	9.27	9.4	98.9	1.4	4.9
2470.00	2468.94	-1.21	9.23	9.3	97.4	1.5	336.6
2480.00	2478.94	-0.98	9.15	9.2	96.1	1.4	319,2
2490.00	2488.94	~0.98	9.09	9.1	95.7	1,6	314.2
2493.50	2492.44	~V.51	3.03	V. 1			

000, 00										
070.00 1059.36		****	72 O N	e ne	't a	5911 4	a			
000.00	070.00	1069,36	-4.17	6.26	7.5	123.7	2.0	189.0		
110.00 1109.53 -9.57 6.01 8.2 120.9 2.0 189.46 189.60 1109.00 1139.81 -9.80 189.60 189.60 189.80 189		1089.34	-4.90	6.15	7.9	128.6	2,2	184.1		
120.00 1119.306.50 5.85 5.86 135.0 1.9 1.9 1.9 1.9 1.9 1.1 1.1 1.1 1.1 1.1					8.2	132.9	2,0	187,4		
130.00 1139.91 -6.00 5.02 0.8 1.8 1.95.6 2.2 180.3 1 150.00 1149.30 -7.52 5.76 8.2 1.6 1.6 1.7 1.80.8 1 170.00 1149.30 -7.52 5.76 8.2 1.6 1.6 1.7 1.80.8 1 170.00 1149.30 -7.55 5.76 8.2 1.6 1.6 1.7 1.80.8 1 170.00 1170.20 -7.57 8.80 9.5 1.20.4 1.7 1.80.8 1 180.00 1179.20 -7.57 8.80 9.5 1.20.4 1.2 1.7 1.70.8 1 180.00 1179.20 -7.57 8.80 9.5 1.20.4 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2	120.00									
189.00 1189.30 -7.21 5.77 9.2 141.4 1.7 189.8   1.7 189.8   1.1 190.00 1189.29 -7.00 1.70 9.7 18.2 141.4 1.7 189.2   1.1 190.00 1189.29 -8.00 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8	140.00	1139.31	-6.60	5.82	B.8	138.6	2.2	189.3		
140.00 1179.29		1159,30	-7.21	5.77	9.2	141.4	1.7	169.5		
190.00 1399.28				5.83	9.7		1.7	166.2		
220.00 1209.28	190.00	1189.29	~8.06	5.88	10.0					
220.00 1229.27	.210.00	1209.28	-8,61	5.98	10.5	145.2	1.6	181.1		
250.00 1269.27 -9.27 6.18 11.1 146.3 1.7 159.8 26.20 11.2 250.00 1289.42 1.9 -9.57 6.38 11.1 146.3 1.7 159.8 26.20 11.2 250.00 1299.25 -0.0 16.42 11.9 147.4 1.9 159.2 20.00 1299.25 -0.0 1.8 6.42 11.9 147.4 1.9 159.2 20.00 1299.25 -0.0 1.8 6.42 11.9 147.4 1.9 159.2 20.00 1299.25 -0.0 1.8 6.42 11.9 147.4 1.9 159.2 20.00 1299.25 -0.0 1.8 6.42 11.9 147.4 1.9 159.2 20.00 1299.25 -0.0 1.8 6.42 11.9 147.4 1.9 159.2 20.00 1299.25 -0.0 1.8 6.42 11.9 147.4 1.9 159.2 20.00 1299.25 -0.0 1.8 6.42 11.9 147.4 1.9 159.2 20.00 1299.24 -0.0 36 6.42 11.9 148.1 1.9 160.7 1.9 160.7 1.8 149.1 1.9 160.7 1.9 160.7 1.8 149.1 1.9 160.7 1.9 160.7 1.8 149.1 1.9 160.7 1.9 160.7 1.8 149.1 1.9 160.7 1.9 160.7 1.8 149.1 1.9 160.7 1.9 160.	.230.00	1229.27	-9.13	6.11.	11.0	146.2	1.8	247.9		
260.00 1259.26 -9.55 6.24 11.4 14.6.8 1.8 158.4.  270.00 1259.26 -9.57 6.22 11.9 144.7 8 1.9 160.7  280.00 1269.25 -10.36 6.52 12.2 144.7 8 1.9 160.7  280.00 1269.25 -10.36 6.52 12.2 144.7 8 1.9 160.7  310.00 1309.24 -10.65 6.62 12.5 148.1 1.9 160.7  310.00 1309.24 -10.65 6.62 12.5 148.1 1.9 160.7  310.00 1309.23 -10.49 6.71 12.5 148.1 1.9 160.7  310.00 1309.22 -11.74 6.88 13.1 12.5 148.8 1.8 162.5 8  310.00 1339.22 -11.74 6.88 13.1 14.8 162.5 8  330.00 1339.22 -11.74 6.88 13.1 14.8 162.5 8  330.00 1339.22 -12.27 7.22 14.3 149.8 1.7 164.8 1.3 18.8 162.3 8  380.00 1339.22 -12.27 7.22 14.3 149.8 1.7 164.8 1.8 162.3 8  380.00 1339.21 -12.56 7.24 14.5 150.0 0.9 167.8 1.8 162.3 8  380.00 1339.21 -12.56 7.24 14.5 150.0 0.9 167.8 1.8 162.4 1.8 162.4 1.8 162.5 8  380.00 1389.21 -12.56 7.24 14.5 150.0 0.9 167.8 1.8 162.4 1.8 162.4 1.8 162.5 8  380.00 1389.21 -12.3 1.4 7.55 15.2 150.1 1.0 133.8 1.4 1.4 1.5 1.5 1.4 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5							1.7	159.8		
290.00 1299.25 -10.05 6.42 11.9 147.4 1.9 159.2 290.00 1299.25 -10.36 6.52 12.2 147.8 1.9 160.7 300.00 1299.24 -10.65 6.52 12.2 147.8 1.9 160.7 300.00 1299.24 -10.65 6.52 12.2 147.8 1.9 160.7 300.00 1299.24 -10.65 6.52 12.2 147.8 1.9 160.7 300.00 1399.22 -11.49 6.89 13.4 148.5 1.9 160.5 330.00 1339.22 -11.49 6.89 13.1 148.8 1.7 160.5 330.00 1339.22 -11.49 6.89 13.4 149.1 1.7 160.5 330.00 1399.22 -11.49 6.89 13.4 149.1 1.7 164.8 1.3 165.6 1.3 160.5 1.3	.260.00	1259.26								
310.00   1399.24   -10.65	280.00	1279.25	-10.05	6.42	11.9	147.4	1,9	159.2		
130.00		1299.24	~10.65	6.62	12.5	148.1	1.9	160.7		
330.00 1329.23 -11.49 6.88 13.4 149.1 1.7 164.8 3 340.00 1339.22 -11.94 6.85 13.4 149.1 1.7 164.8 3 350.00 1349.22 -11.93 7.02 13.5 16 149.1 1.5 162.5 3 350.00 1349.22 -11.93 7.02 13.5 14.1 149.8 1.3 165.6 3 370.00 1349.21 -12.56 7.24 14.5 150.0 0.9 167.8 3 380.00 1379.21 -12.56 7.24 14.5 150.0 0.9 167.8 3 380.00 1379.21 -12.56 7.24 14.5 150.0 0.9 167.8 3 380.00 1399.21 -12.72 7.31 14.1 150.1 1.1 151.1 151.1 149.8 1.1 1.1 151.1 149.8 1.1 1.1 151.1 149.8 1.1 1.1 151.1 149.8 1.1 1.1 151.1 149.8 1.1 1.1 151.1 149.8 1.1 1.1 151.1 149.8 1.1 1.1 151.1 149.8 1.1 1.1 151.1 149.8 1.1 1.1 151.1 149.8 1.1 1.1 151.1 149.8 1.1 1.1 151.1 149.8 1.1 1.1 151.1 149.8 1.1 1.1 151.1 149.8 1.1 1.1 151.1 149.8 1.1 1.1 151.1 149.8 1.1 1.1 151.1 149.8 1.1 1.1 151.1 149.8 1.1 149.							1.7	160.5		
159.00   1549.22   -11.98	.330,00	1329.23	-11.49	6.88	13.4		1.7	164.8		
1369.22		1349,22	-11.98	7.02	13.9	149.6	1.4	158,5		
1890 00   1379 21   -12 .76			-12.37	7.22	14.3	149.7	1.4	132.4		
1400.00   1409.21   -12.86	.380.00	1379,21	-12.56	7.24						
1420.00 1449.21 -13.14 -13.26 -13.37 -13.26 15.2 15.0 15.0 15.0 15.0 15.0 13.3 1440.00 1439.20 -13.35 -17.76 15.4 149.6 0.7 130.3 1450.00 1449.20 -13.43 1.8 15.6 149.6 0.7 130.3 1460.00 1489.20 -13.49 -13.7 188 15.6 149.3 0.7 115.5 149.3 0.7 149.	.400.00	1399,21	-12,86	7.39	14.8	150.1	0.8	160.8		
1440.00 1449.20 -13.35 7.76 15.4 149.6 0.7 130.3   1450.00 1459.20 -13.49 7.99 15.7 149.6 0.8 118.5   1460.00 1459.20 -13.49 7.99 15.7 149.3 0.7 112.8   1470.00 1459.20 -13.55 8.06 15.8 149.3 0.7 112.8   1470.00 1479.20 -13.55 8.06 15.8 149.3 0.7 112.8   1480.00 1479.20 -13.55 8.06 15.8 149.3 0.7 112.8   1480.00 1479.20 -13.55 8.06 15.8 149.3 0.5 129.2   1480.00 1599.20 -13.52 8.26 15.8 148.6 0.5 104.5   1550.00 1599.20 -13.52 8.26 15.8 148.6 0.5 104.5   1550.00 1599.20 -13.48 8.34 15.9 148.4 0.5 2.4   1550.00 1539.20 -13.48 8.34 15.9 148.2 0.1 48.3 0.7 73.5   1560.00 1539.20 -13.48 8.36 15.9 148.2 0.1 148.3 0.7 125.5   1560.00 1599.20 -13.79 8.36 15.9 148.2 0.1 148.3 0.7 20.2 9   1570.00 1599.20 -13.8 8.6 8.36 15.9 148.2 0.1 148.3 0.7 20.2 9   1580.00 1599.20 -13.8 8.6 8.36 15.9 148.2 0.7 20.2 9   1580.00 1599.20 -13.7 8.8 11 16.0 148.8 0.7 20.2 9   1580.00 1599.20 -13.8 8.6 8.36 15.9 148.2 0.7 20.2 9   1580.00 1599.20 -13.7 8.8 11 16.0 148.8 0.7 20.2 9   1580.00 1599.20 -13.7 8.8 11 16.0 148.8 0.7 20.2 9   1580.00 1599.20 -13.7 8.8 11 16.0 148.8 0.7 20.2 9   1580.00 1599.20 -13.7 9 8.1 16.0 149.6 8.15 16.2 149.6 0.8 194.3   1590.00 1599.20 -14.06 8.15 16.2 149.6 0.8 194.3   1590.00 1599.20 -14.4 6 8.15 16.3 149.9 0.8 194.3   1590.00 1599.20 -14.4 6 8.15 16.3 149.9 0.8 194.3   1590.00 1599.20 -14.4 6 8.15 16.3 16.0 148.8 0.7 20.2 9   1580.00 1599.20 -14.4 6 8.15 16.3 16.0 149.6 0.8 194.3   1590.00 1599.9 1 -14.30 7.99 16.4 150.8 0.5 222.5   1580.00 1599.9 1 -14.4 77 8.0 11 16.5 151.0 0.2 202.6   1590.00 1599.9 1 -14.4 77 8.0 11 16.0 148.8 0.7 20.2 20.3   1590.00 1599.9 1 -14.4 77 8.0 11 16.0 148.8 0.7 20.2 20.3   1590.00 1599.9 1 -14.4 77 8.8 11 16.0 148.8 0.7 20.2 20.3   1590.00 1599.9 1 -14.4 8.0 9 16.6 150.8 0.4 150.8 0.4 150.8 0.8   1590.00 1599.9 1 -14.4 7.9 8 16.6 150.8 0.4 150.	1420.00	1419.21	~13.14	7.55	15.2	150.1	1.0	133.8		
1591.00	1430,00 1440.00	1429.21 1439.20					0.7	130.3		
1591.00	1450.00	1449.20	-13.43				0.B 0.7	118.5 112.8		
1591.00	1470.00	1469.20	-13.55	8.06	15.8	149.3	0.6	133.5		
1591.00	1480.00 1490.00	1479.20	-13.53	8.19	15.8	148.8	0.6	14.5		
1591.00	1500.00 1510.00	1499.20 1509.20						2.4		
1591.00	1520.00	1519.20	-13.48							
1550   20	1540.00	1539.20	-13.49	8,36	15.9	148.2	0.2	156.2		
1550   00   1579   20			-13.61	8.34	16.0	148.5	0,6	195.4		
1590							0.7	204.9		
1690   1690   20	1590.00	1589,20	-13.93							
1630.00	L610.00	1609.20	-14.14	8.09	16.3	150.2	0.5	205.1		
1640.00       1639.19       -14.30       7.99       16.4       150.8       0.4       1655.3         1650.00       1649.19       -14.37       7.98       16.4       151.0       0.4       206.3         1670.00       1669.19       -14.41       7.98       16.5       151.1       0.4       206.3         1680.00       1679.19       -14.45       7.95       16.5       151.1       0.2       208.9         1680.00       1689.19       -14.48       7.94       16.5       151.3       0.2       203.4         1700.00       1699.19       -14.50       7.93       16.5       151.3       0.2       203.4         1720.00       1709.19       -14.52       7.93       16.5       151.4       0.1       202.6         1730.00       1729.19       -14.53       7.91       16.5       151.4       0.1       202.6         1730.00       1729.19       -14.53       7.91       16.5       151.5       0.1       179.2         1730.00       1749.19       -14.60       7.82       16.6       151.7       0.2       239.1         1750.00       1749.19       -14.60       7.78       16.6       151.0       0.3 </td <td></td> <td>1619.20 1629.20</td> <td></td> <td>8.01</td> <td>16.4</td> <td>150,7</td> <td>0.4</td> <td>215.0</td> <td></td> <td></td>		1619.20 1629.20		8.01	16.4	150,7	0.4	215.0		
1660	1640.00									
1630.00	1660.00	1659.19	-14.37	7.98	16.4					
1700.00	L68000	1679.19	-14.45	7.95	16.5	151.2	0.2	191.6		
1710.00 1709.19 -14.52 7.93 16.5 151.4 0.1 202.6   1720.00 1719.19 -14.53 7.92 16.6 151.4 0.1 219.0   1730.00 1729.19 -14.53 7.91 16.5 151.4 0.1 179.2   1740.00 1739.19 -14.55 7.89 16.6 151.5 0.3 226.6   1750.00 1749.19 -14.69 7.85 16.6 151.8 0.3 236.3   1770.00 1769.19 -14.60 7.82 16.6 151.8 0.3 236.3   1770.00 1769.19 -14.63 7.78 16.6 152.0 0.3 222.1   1780.00 1779.19 -14.68 7.75 16.6 152.2 0.4 198.5   1790.00 1789.19 -14.77 7.70 16.6 152.4 0.3 204.0   1800.00 1799.19 -14.76 7.77 16.6 152.4 0.2 29.4   1820.00 1819.19 -14.76 7.77 16.7 152.2 0.2 45.5   1830.00 1829.19 -14.74 7.76 16.7 152.2 0.2 45.5   1840.00 1839.19 -14.72 7.74 16.6 152.2 0.2 280.6   1840.00 1839.19 -14.60 7.75 16.6 152.2 0.2 280.6   1860.00 1859.19 -14.66 7.72 16.6 152.2 0.1 353.6   1860.00 1859.19 -14.66 7.72 16.6 152.2 0.2 255.9   1870.00 1869.19 -14.66 7.72 16.6 152.2 0.2 255.9   1870.00 1869.19 -14.66 7.72 16.6 152.2 0.1 353.6   1890.00 1879.19 -14.66 7.72 16.6 152.2 0.2 255.9   1890.00 1899.19 -14.66 7.72 16.6 152.2 0.2 255.9   1890.00 1899.19 -14.66 7.72 16.6 152.2 0.2 255.9   1890.00 1899.19 -14.66 7.72 16.6 152.2 0.1 259.8   1890.00 1899.19 -14.66 7.72 16.6 152.2 0.1 259.8   1890.00 1899.19 -14.66 7.72 16.6 152.2 0.1 259.8   1890.00 1899.19 -14.66 7.72 16.6 152.2 0.1 259.8   1890.00 1899.19 -14.66 7.72 16.6 152.2 0.1 259.8   1890.00 1899.19 -14.66 7.72 16.6 152.2 0.1 259.8   1890.00 1999.19 -14.67 7.9 16.3 151.0 1.4 22.5   1930.00 1999.19 -14.55 7.77 16.5 151.9 0.9 10.2   1990.00 1999.19 -14.55 7.91 16.3 151.0 1.4 22.5   1930.00 1999.19 -14.55 7.91 16.3 151.0 1.4 22.5   1930.00 1999.19 -14.50 7.98 16.1 150.4 1.4 14.4   1990.00 1999.18 -13.76 8.04 15.9 149.7 1.6 11.1   1950.00 1969.17 -12.93 8.25 15.3 147.4 1.8 11.5   1990.00 1989.16 -13.16 -12.23 8.39 14.9 145.7 2.0 15.5   15.5 151.9 10.0 15.5 15.5				7.93	16.5	151.3	0.1	190.0		
1730.00 1729.19 -14.53 7.91 16.5 151.4 0.1 179.2 1740.00 1739.19 -14.55 7.89 16.6 151.5 0.3 226.6 1750.00 1749.19 -14.69 7.85 16.6 151.7 0.2 239.1 1760.00 1759.19 -14.60 7.82 16.6 151.8 0.3 236.3 1770.00 1769.19 -14.63 7.78 16.6 152.0 0.3 236.3 1780.00 1779.19 -14.68 7.75 16.6 152.2 0.4 198.5 1790.00 1789.19 -14.73 7.71 16.6 152.4 0.3 204.0 1800.00 1799.19 -14.77 7.70 16.7 152.5 0.2 116.4 1810.00 1809.19 -14.76 7.77 16.7 152.2 0.2 45.5 1820.00 1829.19 -14.76 7.77 16.7 152.2 0.2 45.5 1840.00 1839.19 -14.76 7.77 16.6 152.2 0.2 45.5 1840.00 1849.19 -14.69 7.76 16.7 152.2 0.2 280.6 1840.00 1849.19 -14.69 7.75 16.6 152.2 0.1 353.6 1860.00 1859.19 -14.66 7.74 16.6 152.2 0.2 255.9 1870.00 1869.19 -14.66 7.74 16.6 152.2 0.1 353.6 1890.00 1879.19 -14.66 7.72 16.6 152.2 0.1 259.8 1890.00 1869.19 -14.66 7.72 16.6 152.2 0.1 259.8 1890.00 1899.19 -14.63 7.73 16.5 151.0 0.3 36.7 1900.00 1899.19 -14.63 7.73 16.5 151.0 0.3 36.7 1900.00 1899.19 -14.63 7.73 16.5 151.0 0.3 36.7 1900.00 1899.19 -14.63 7.73 16.5 151.0 0.3 36.7 1900.00 1909.19 -14.63 7.73 16.5 151.0 0.3 36.7 1900.00 1909.19 -14.63 7.73 16.5 151.0 0.3 36.7 1900.00 1909.19 -14.63 7.79 16.6 152.2 0.1 259.8 1920.00 1939.18 -13.76 8.04 15.9 149.7 1.6 11.1 1950.00 1949.18 -13.50 8.12 15.8 149.0 1.9 5.2 1990.00 1989.16 -13.50 8.12 15.5 140.6 1.9 1.9 5.2 1990.00 1989.16 -13.50 8.12 15.5 140.6 1.8 11.5 1.9 1990.00 1989.16 -12.31 8.39 14.9 145.7 2.0 15.5	1710.00	1709.19								
1750.00 1749.19 -14.60 7.85 16.6 151.7 0.2 239.1 1750.00 1759.19 -14.60 7.82 16.6 151.8 0.3 236.3 1770.00 1769.19 -14.60 7.78 16.6 152.0 0.3 222.1 1780.00 1779.19 -14.68 7.75 16.6 152.2 0.4 198.5 1790.00 1799.19 -14.73 7.71 16.6 152.4 0.3 204.0 1800.00 1799.19 -14.77 7.70 16.7 152.5 0.2 116.4 1810.00 1809.19 -14.76 7.73 16.7 152.5 0.2 116.4 1810.00 1829.19 -14.76 7.77 16.7 152.2 0.2 45.5 1830.00 1829.19 -14.76 7.77 16.7 152.2 0.2 280.6 1849.19 -14.72 7.74 16.6 152.2 0.2 280.6 1849.19 -14.66 7.75 16.6 152.2 0.2 280.6 1849.19 -14.66 7.74 16.6 152.2 0.2 280.6 1860.00 1859.19 -14.66 7.74 16.6 152.2 0.1 259.8 1860.00 1859.19 -14.66 7.74 16.6 152.2 0.1 259.8 1880.00 1899.19 -14.66 7.74 16.6 152.2 0.1 259.8 1880.00 1899.19 -14.66 7.72 16.6 152.2 0.1 259.8 1880.00 1899.19 -14.66 7.72 16.6 152.2 0.1 259.8 1880.00 1899.19 -14.65 7.77 16.5 151.9 0.9 10.2 1990.00 1899.19 -14.65 7.77 16.5 151.0 3 36.7 1990.00 1899.19 -14.65 7.77 16.5 151.0 1.4 22.5 1930.00 1909.19 -14.65 7.77 16.5 151.0 1.4 22.5 1930.00 1929.19 -14.65 7.77 16.5 151.0 1.4 22.5 1930.00 1929.19 -14.65 7.77 16.5 151.0 1.4 22.5 1930.00 1939.18 -14.55 7.91 16.3 151.0 1.4 22.5 1930.00 1939.18 -13.50 8.12 15.8 149.0 1.9 5.2 1930.00 1949.18 -13.50 8.12 15.8 149.0 1.9 5.2 1930.00 1949.18 -13.50 8.12 15.8 149.0 1.9 5.2 1930.00 1959.17 -12.93 8.25 15.3 147.4 1.8 11.8 1980.00 1979.16 -12.62 8.32 15.1 146.6 1.8 11.5	1730.00	1729.19	-14.53	7.91	16.5					
1770.00 1769.19 -14.63 7.78 16.6 152.0 0.3 222.1 1780.00 1779.19 -14.68 7.75 16.6 152.2 0.4 198.5 1790.00 1799.19 -14.73 7.71 16.6 152.4 0.3 204.0 1800.00 1799.19 -14.77 7.70 16.7 152.5 0.2 116.4 1810.00 1809.19 -14.76 7.73 16.7 152.5 0.2 116.4 1810.00 1819.19 -14.76 7.73 16.7 152.5 0.2 14.5 1830.00 1829.19 -14.76 7.77 16.7 152.2 0.2 45.5 1830.00 1829.19 -14.74 7.76 16.7 152.2 0.2 280.6 1849.19 -14.72 7.74 16.6 152.2 0.2 280.6 1849.19 -14.66 7.75 16.6 152.2 0.1 353.6 1860.00 1859.19 -14.66 7.75 16.6 152.2 0.1 353.6 1860.00 1859.19 -14.66 7.72 16.6 152.2 0.2 255.9 1870.00 1869.19 -14.66 7.72 16.6 152.2 0.1 259.8 1880.00 1879.19 -14.66 7.72 16.6 152.2 0.0 352.7 1890.00 1869.19 -14.66 7.72 16.6 152.2 0.0 352.7 1900.00 1899.19 -14.56 7.77 16.5 151.9 0.9 10.2 1910.00 1909.19 -14.44 7.82 16.4 151.6 1.0 22.8 1920.00 1919.19 -14.56 7.77 16.5 151.9 0.9 10.2 1910.00 1909.19 -14.44 7.82 16.4 151.6 1.0 22.8 1930.00 1939.18 -14.56 7.79 16.5 151.9 0.9 10.2 1919.19 -14.25 7.91 16.3 151.0 1.4 22.5 1930.00 1939.18 -13.76 8.04 15.9 149.7 1.6 11.1 1950.00 1949.18 -13.50 8.12 15.8 149.0 1.9 5.2 1950.00 1949.18 -13.50 8.12 15.8 149.0 1.9 5.2 1950.00 1949.18 -13.50 8.12 15.8 149.0 1.9 5.2 1950.00 1959.17 -12.93 8.25 15.3 147.4 1.8 11.8 1980.00 1979.16 -12.62 8.32 15.1 146.6 1.8 11.5 1990.00 1989.16 -12.31 8.39 14.9 145.7 2.0 15.5	1750.00	1749.19	-14.59	7.85	16.6	151.7	0.2	239.1		
1780.00 1779.19 -14.68 7.75 16.6 152.2 0.4 198.5 1790.00 1789.19 -14.73 7.71 16.6 152.4 0.3 204.0 1800.00 1799.19 -14.77 7.70 16.7 152.5 0.2 116.4 1810.00 1809.19 -14.76 7.73 16.7 152.5 0.2 45.5 1830.00 1829.19 -14.74 7.76 16.7 152.2 0.2 45.5 1840.00 1839.19 -14.74 7.76 16.7 152.2 0.2 280.6 1849.00 1839.19 -14.72 7.74 16.6 152.2 0.2 39.7 1850.00 1859.19 -14.69 7.75 16.6 152.2 0.1 353.6 1860.00 1859.19 -14.66 7.72 16.6 152.2 0.1 353.6 1860.00 1859.19 -14.66 7.72 16.6 152.2 0.1 259.8 1880.00 1879.19 -14.66 7.72 16.6 152.2 0.1 259.8 1880.00 1879.19 -14.66 7.72 16.6 152.2 0.0 352.7 1890.00 1889.19 -14.63 7.73 16.5 182.1 0.3 36.7 1900.00 1899.19 -14.65 7.72 16.6 152.2 0.0 352.7 1890.00 1899.19 -14.67 7.78 16.5 151.9 0.9 10.2 1910.00 1909.19 -14.44 7.82 16.4 151.6 1.0 22.8 1920.00 1929.19 -14.02 7.98 16.1 150.4 1.4 14.4 1940.00 1939.18 -13.76 8.04 15.9 149.7 1.6 11.1 1950.00 1949.18 -13.76 8.04 15.9 149.7 1.6 11.1 1950.00 1949.18 -13.76 8.04 15.9 149.7 1.6 11.1 1950.00 1969.17 -12.93 8.25 15.3 147.4 1.8 11.5 1990.00 1989.16 -12.31 8.39 14.9 145.7 2.0 15.5		1769.19	-14.63	7.78	16.6	152.0	0.3	222.1		
1800 00 1799 19 -14 77 7.70 16.7 152.5 0.2 116.4 1810.00 1809.19 -14.76 7.73 16.7 152.4 0.2 92.4 1820.00 1819.19 -14.76 7.77 16.7 152.2 0.2 45.5 1830.00 1829.19 -14.76 7.77 16.7 152.2 0.2 280.6 1840.00 1839.19 -14.72 7.74 16.6 152.3 0.2 39.7 1850.00 1849.19 -14.66 7.75 16.6 152.2 0.1 353.6 1860.00 1859.19 -14.66 7.74 16.6 152.2 0.1 353.6 1860.00 1859.19 -14.66 7.74 16.6 152.2 0.1 353.6 1860.00 1879.19 -14.66 7.72 16.6 152.2 0.1 259.8 1880.00 1879.19 -14.66 7.72 16.6 152.2 0.1 259.8 1880.00 1879.19 -14.66 7.72 16.6 152.2 0.0 352.7 1890.00 1889.19 -14.65 7.77 16.5 152.1 0.3 36.7 1900.00 1899.19 -14.56 7.77 16.5 151.9 0.9 10.2 1910.00 1909.19 -14.44 7.82 16.4 151.6 1.0 22.8 1920.00 1919.19 -14.25 7.91 16.3 151.0 1.4 22.5 1930.00 1929.19 -14.02 7.98 16.1 150.4 14.4 14.4 1940.00 1939.18 -13.76 8.04 15.9 149.7 1.6 11.1 150.4 1.4 14.4 1940.00 1939.18 -13.50 8.12 15.8 149.0 1.9 5.2 1950.00 1959.17 -13.22 8.19 15.5 148.2 1.7 5.5 1930.00 1959.17 -12.93 8.25 15.3 147.4 1.8 11.8 1980.00 1979.16 -12.62 8.32 15.1 146.6 1.8 11.5 1990.00 1989.16 -12.31 8.39 14.9 145.7 2.0 15.5	1780.00	1779.19	-14.68 -14.73			152.2 152.4	0.3	204.0		
1820.00 1819.19 -14.76 7.77 16.7 152.2 0.2 45.5 1830.00 1829.19 -14.74 7.76 16.7 152.2 0.2 280.6 1840.00 1839.19 -14.72 7.74 16.6 152.3 0.2 39.7 1850.00 1849.19 -14.69 7.75 16.6 152.2 0.1 353.6 1860.00 1859.19 -14.66 7.74 16.6 152.2 0.1 353.6 1870.00 1869.19 -14.66 7.72 16.6 152.2 0.1 259.8 1880.00 1879.19 -14.66 7.72 16.6 152.2 0.1 259.8 1880.00 1879.19 -14.66 7.72 16.6 152.2 0.1 259.8 1880.00 1889.19 -14.63 7.73 16.5 152.1 0.3 36.7 1900.00 1899.19 -14.56 7.77 16.5 151.9 0.9 10.2 1910.00 1909.19 -14.44 7.82 16.4 151.6 1.0 22.8 1920.00 1919.19 -14.25 7.91 16.3 151.0 1.4 22.5 1930.00 1929.19 -14.02 7.98 16.1 150.4 14.4 14.4 1940.00 1939.18 -13.76 8.04 15.9 149.7 1.6 11.1 1950.00 1949.18 -13.50 8.12 15.8 149.0 1.9 5.2 1950.00 1949.18 -13.50 8.12 15.8 149.0 1.9 5.2 1950.00 1959.17 -12.93 8.25 15.3 147.4 1.8 11.8 1980.00 1979.16 -12.62 8.32 15.1 146.6 1.8 11.5 1990.00 1989.16 -12.31 8.39 14.9 145.7 2.0 15.5	1800.00	1799.19	-14.77	7.70	16.7	152.5				
1840.00 1839.19 -14.72 7.74 16.6 152.3 0.2 39.7 1850.00 1849.19 -14.66 7.75 16.6 152.2 0.1 353.6 1860.00 1859.19 -14.66 7.74 16.6 152.2 0.2 255.9 1870.00 1869.19 -14.66 7.72 16.6 152.2 0.1 259.8 1880.00 1879.19 -14.66 7.72 16.6 152.2 0.1 259.8 1880.00 1889.19 -14.66 7.72 16.6 152.2 0.1 259.8 1890.00 1899.19 -14.66 7.72 16.6 152.2 0.1 259.8 1990.00 1899.19 -14.56 7.77 16.5 151.9 0.9 10.2 1990.00 1899.19 -14.56 7.77 16.5 151.9 0.9 10.2 1990.00 1999.19 -14.44 7.82 16.4 151.6 1.0 22.8 1990.00 1999.19 -14.25 7.91 16.3 151.0 1.4 22.5 1930.00 1929.19 -14.02 7.98 16.1 150.4 1.4 14.4 194.00 1939.18 -13.76 8.04 15.9 149.7 1.6 11.1 1950.00 1949.18 -13.50 8.12 15.8 149.0 1.9 5.2 1960.00 1959.17 -12.93 8.25 15.3 147.4 1.8 11.8 1980.00 1979.16 -12.62 8.32 15.1 146.6 1.8 11.5 1990.00 1989.16 -12.31 8.39 14.9 145.7 2.0 15.5	1820.00	1819.19	-14.76	7.77	16.7	152.2	0.2	45.5		
1850.00 1849.19 -14.69 7.75 16.6 152.2 0.1 353.6 1860.00 1859.19 -14.66 7.74 16.6 152.2 0.2 255.9 1870.00 1869.19 -14.66 7.72 16.6 152.2 0.1 259.8 1880.00 1879.19 -14.66 7.72 16.6 152.2 0.0 352.7 1890.00 1889.19 -14.63 7.73 16.5 152.1 0.3 36.7 1900.00 1899.19 -14.56 7.77 16.5 151.9 0.9 10.2 1910.00 1909.19 -14.44 7.82 16.4 151.6 1.0 22.8 1920.06 1919.19 -14.25 7.91 16.3 151.0 1.4 22.5 1930.00 1929.19 -14.02 7.98 16.1 150.4 14.4 14.4 1940.00 1939.18 -13.76 8.04 15.9 149.7 1.6 11.1 150.4 14.4 14.4 1940.00 1939.18 -13.50 8.12 15.8 149.0 1.9 5.2 1960.00 1959.17 -12.29 8.25 15.3 147.4 1.8 11.8 1980.00 1959.16 -12.29 8.32 15.1 146.6 1.8 11.5 19.5 19.5 19.5 19.5 19.5 19.5 19.5		1839.19	-14.72	7.74	16.6	152.3	0.2	39.7		
1870.00 1869.19 -14.66 7.72 16.6 152.2 0.1 259.8 1880.00 1879.19 -14.66 7.72 16.6 152.2 0.0 352.7 1890.00 1869.19 -14.63 7.73 16.5 152.1 0.3 36.7 1900.00 1899.19 -14.56 7.77 16.5 151.9 0.9 10.2 1910.00 1909.19 -14.44 7.82 16.4 151.6 1.0 22.8 1920.00 1919.19 -14.25 7.91 16.3 151.0 1.4 22.5 1930.00 1929.19 -14.02 7.98 16.1 150.4 1.4 14.4 1940.00 1939.18 -13.76 8.04 15.9 149.7 1.6 11.1 1950.00 1949.18 -13.50 8.12 15.8 149.0 1.9 5.2 1960.00 1959.17 -13.22 8.19 15.5 148.2 1.7 5.5 1970.00 1969.17 -12.93 8.25 15.3 147.4 1.8 11.8 1980.00 1979.16 -12.62 8.32 15.1 146.6 1.8 11.5 1990.00 1989.16 -12.31 8.39 14.9 145.7 2.0 15.5	1850.00	1849.19				152.2	0.2	255.9		
1890.00 1889.19 -14.63 7.73 16.5 152.1 0.3 36.7 1900.00 1899.19 -14.56 7.77 16.5 151.0 0.9 10.2 1910.00 1909.19 -14.44 7.82 16.4 151.6 1.0 22.8 1920.00 1919.19 -14.25 7.91 16.3 151.0 1.4 22.5 1930.00 1929.19 -14.02 7.98 16.1 150.4 1.4 14.4 1940.00 1939.18 -13.76 8.04 15.9 149.7 1.6 11.1 1950.00 1949.18 -13.50 8.12 15.8 149.7 1.6 11.1 1950.00 1949.18 -13.50 8.12 15.8 149.0 1.9 5.2 1930.00 1959.17 -12.93 8.25 15.3 147.4 1.8 11.8 1980.00 1979.16 -12.02 8.32 15.1 146.6 1.8 11.5 1990.00 1989.16 -12.31 8.39 14.9 145.7 2.0 15.5	1870.00	1869.19	-14.66	7.72	16.6	152.2				
1910.00 1909.19 -14.44 7.82 16.4 151.6 1.0 22.8 1920.00 1919.19 -14.25 7.91 16.3 151.0 1.4 22.5 1930.00 1929.19 -14.02 7.98 16.1 150.4 1.4 14.4 1940.00 1939.18 -13.76 8.04 15.9 149.7 1.6 11.1 1950.00 1949.18 -13.50 8.12 15.8 149.7 1.6 11.1 1950.00 1949.18 -13.50 8.12 15.8 149.0 1.9 5.2 1960.00 1959.17 -12.93 8.25 15.3 147.4 1.8 11.8 1980.00 1979.16 -12.62 8.32 15.1 146.6 1.8 11.5 1980.00 1989.16 -12.31 8.39 14.9 145.7 2.0 15.5	1890.00	1889.19	-14.63	7.73	16.5	152.1	0.3	36.7		
1920.00     1919.19     -14.25     7.91     16.3     151.0     1.4     22.5       1930.00     1929.19     -14.02     7.98     16.1     150.4     1.4     14.4       1940.00     1939.18     -13.76     8.04     15.9     149.7     1.6     11.1       1950.00     1949.18     -13.50     8.12     15.8     149.0     1.9     5.2       1950.00     1959.17     -13.22     8.19     15.5     148.2     1.7     5.5       1970.00     1969.17     -12.93     8.25     15.3     147.4     1.8     11.8       1980.00     1979.16     -12.62     8.32     15.1     146.6     1.8     11.5       1990.00     1989.16     -12.31     8.39     14.9     145.7     2.0     15.5	1900.00		-14.44	7.82	16.4	151.6	1.0	22.8		
1940.00 1939.18 -13.76 8.04 15.9 149.7 1.6 11.1 1950.00 1949.18 -13.50 8.12 15.8 149.0 1.9 5.2 1960.00 1959.17 -13.22 8.19 15.5 148.2 1.7 5.5 1970.00 1969.17 -12.93 8.25 15.3 147.4 1.8 11.8 11.8 1980.00 1979.16 -12.62 8.32 15.1 146.6 1.8 11.5 1990.00 1989.16 -12.31 8.39 14.9 145.7 2.0 15.5	1920.00	1919.19	-14.25	7.91	16.3					
1950.00 1959.17 -13.22 8.19 15.5 148.2 1.7 5.5 1970.00 1969.17 -12.93 8.25 15.3 147.4 1.8 11.8 1980.00 1979.16 -12.62 8.32 15.1 146.6 1.8 11.5 1990.00 1989.16 -12.31 8.39 14.9 145.7 2.0 15.5	1940.00	1939,18	-13.76	8.04	15.9	149.7	1.6	11.1		
1970.00 1969.17 -12.93 8.25 15.3 147.4 1.8 12.8 1980.00 1979.16 -12.62 8.32 15.1 146.6 1.8 11.5 1990.00 1989.16 -12.31 8.39 14.9 145.7 2.0 15.5			-13.22	8.19	15.5	148.2	1.7	5.5		
1990.00 1989.16 -12.31 8.39 14.9 145.7 2.0 15.5	1970.00	1969.17			15.1	146.6	i.8	11.5		
2000.00 1999.15 -11.98 8.45 14.7 144.8 1.7 9.6	1990.00	1989.16	-12,31	8.39	14.9		2.0 1.7			
2010.00 2009.15 -11.67 8.54 14.5 143.8 2.1 343.0	2010.00	2009.15	~11.67	8,54	14.5	143.8	2.1	343.0		

140.00	239.30	U.31	1.00	1,1	10.6	2.3 48.4		
150.00	149.90	0.70	1.19	1.4	59.5	2.1 359.4		
160.00	159.89	1.06	1.13	1.6	47.0	2,0 354.8		
170.00	169.88	1.40	1.27	1.9	42.4	2,3 39.9		
180.00	179.87	1.69	1.54	2.3	42.3	2.3 41.3		
190.00 200.00	189.87 199.86	2.06 2.41	1.66	2.6	38.9	2.2 0.9		
210.00	209.85	2.77	1.60 1.62	2.9 3.2	33.6 30.4	2.0 342.1 2.2 16.1		
220.00	219.84	3.11	1.84	3.6	30.6	2.5 44.5		
230.00	229.84	3.27	2.22	4.0	34.2	2.6 76.9		
240.00	239.83	3.34	2.67	4.3	38.6	2.6 89.6		
250.00	249.82	3.49	3.08	4.7	41.5	2.5 74.9		
260.00	259,81	3.39	3.48	4,9	45.7	2.4 139.0		
270.00	269.80	3.04	3.71	4.8	50.6	2.4 142.1		
280.00	279.79	2.74	3.98	4 B	55.5	2.3 144.7		
290.00	289.78	2.43	4.28	4.9	60.4	2.5 127.2		
300.00 310,00	299,77 309,76	2.15 1.85	4.58	5.1	64.8	2.3 130.4		
320.00	319.76	1.57	4.85 4.71	5.2 5.0	69.1 71.6	2,2 150.6 2,0 231.8		
330.00	329.75	1.50	4.35	4.6	71.0	2.2 265.8		
340.00	339.74	1.45	4.00	4.3	70.1	2.0 269.0		
350.00	349.74	1.41	3.65	3.9	68.9	2.1 260.9		
360,00	359,73	1.45	3,31	3.6	66.4	1.7 311.2		
370.00	369.72	1.75	3.14	3.6	60,9	2.1 350.6		
380.00	379.72	2,11	3.25	3.9	57.0	2.3 36.7		
390,00	389.71	2.37	3,57	4.3	56.4	2.4 62.7		
400.00	399.70	2.45	3.98	4.7	58.4	2.6 78.0		
410.00 420.00	409.69 419.68	2.52 2.51	4.40 4.81	5.1	60.2	2.3 91.8		
430.00	429.67	2.49	5.21	5.4 5.6	62.5 64.4	2.4 95.8 2.3 80.7		
440.00	439.66	2.62	5.61	6,2	65.0	2.5 89.5		
450.00	449.65	2.57	6,03	6.6	66.9	2.4 117.3		
460.00	459,65	2.30	6.34	6.7	70.1	2.0 90.3		
470.00	469.64	2.11	6.64	7.0	72.4	2.6 72,1		
480.00	479.63	2.40	6.91	7.3	70.9	2.5 48.0		
490.00	489,62	2.70	7.16	7.7	69.4	2.3 30.8		
500.00	499.61	3.07	7.28	7.9	67.1	2.2 6.6		
510.00	509.60	3.44	7.38	8.1	65.0	2.3 30.9		
520,00 530,00	519.60 529.59	3.80 4.14	7.44	8.3	62.9	2.1 356.0		
540.00	539.58	4.49	7.33 7.37	8.4 8.6	60.5 58.6	2.0 350.9 2.4 44.5		
550.00	549.58	4.81	7.61	9.0	57.7	2,3 30.8		
560.00	559.57	5.15	7.77	9.3	56.4	2.2 17.0		
570,00	569.56	5,51	7.85	9.6	54.9	2.1 18.7		
580.00	579.56	5.74	7.95	9.8	54.2	0.4 1.77.9		
590,00	589.56	5,68	7.99	9.8	54.6	0.7 135.0	•	
600.00	599.56	5.62	8,02	9.8	55.0	0.4 175.9		
610.00	609.56	5.57	8.05	9.8	55.3	0.5 143.1		
620.00	619.56	5.51 5.52	8.07	9.8	55.7 55.5	0.3 288.0		
630.00 640.00	629,55 639.55	5.49	8,04 8.07	9.8 9.8	55.8	0.3 130.3 0.2 119.2		
650.00	649.55	5.45	8.10	9.8	56.1	0.4 148.8		
660.00	659.55	5.41	8.08	9.7	56.2	0,5 186,3		
670.00	669.55	5.44	B.14	9.8	56.2	0.7 148.4		
680.00	679.55	5.34	8.15	9.7	56.8	0.9 199.4		
690.00	689.55	5.24	8.20	9.7	57.4	0.9 111.4		
700.00	699.55	5.15	8.15	9.6		0.7 202.7		
710.00	709.55	5.03	8.23	9.6	58.6	1.1 192.0		
720.00	719.55	4.93	8.12	9.5 9.5	58.7	1,3 341,9		
730.00 740.00	729.54 739.54	4.76	8.04 7.96	9.3	58.2 59.0	1.3 219.4 1.2 200.7		
750.00	749.54	4,59	7.90	9.1	59.8	1.3 194.5		
760.00	759.54	4.38	7.82	9.0	60.7	1.3 197.6		
770.00	769.53	4.17	7.76	8.8	61.7	1.3 302.0		
780.00	779.53	3.95	7.68	8.6	62.8	1.4 201.5		
790.00	789.53	3.71	7.62	8.5	64.0	1.5 200.1		
800.00	799.53	3.48	7.54	8.3	65.3	1.4 190.9		
810.00 820.00	809.52 819.52	3.23 2.98	7.47 7.41	8.1 8.0	66.6 68.1	1.5 198.5 1.6 193.7		
830.00	829.51	2.72	7.33	7.8	69.6	1.5 195.6		
840.00	839.51	2.46	7.26	7.7	71.3	1.6 212.7		
850.00	849.51	2.33	7.28	7.6	72.3	1.2 12.8		
860.00	859.50	2,42	7.20	7.6	71.4	1.2 312.3		
870.00	869.50	2.29	7.27	7.6	72.5	1.3 184.1	* *	
00,088	879.50	2.07	7.28	7.6	74.1	1.3 170.6		
890.00	889.50	1.85	7.26	7.5	75.7	1.4 162.0		
900.00	899.49	1.62	7.31	7.5	77.5	1.4 187.4		
910.00 920.00	909.49 919.49	1.38 1.15	7.31 7.28	7.4 7.4	79.3 81.0	1.5 179.9 1.5 244.7		
930.00	929.48	0.97	7.13	7.2	82.2	1.9 206.8		
940.00	939.48	0.67	7.06	7.1	84.6	2.3 175.7		
950.00	949.47	0.29	7,10	7.1	87.7	2,4 175,3		
960.00	959.46	-0.12	7.13	7.1	90.9	2.4 178.5		
970.00	969.45	-0.52	7.16	7.2	94.2	2.4 177.1		
980.00	979.44	-0.92	7.19	7.2	97.3	2.4 176.4		
990.00	989.44	-0.85	6.88	6.9	97.1	2.1 195.3		
.000.00	999.43	-1.25 -1.65	6.B1	6,9	100.4	2.4 191.3 2.5 187.1		
.010.00	1009.42 1019.41	-1.65 -2.09	6.75 6.67	6.9 7.0	103.7 107.4	2.5 187.1 2.8 188.8		
.030.00	1029.40	-2.54	6.60	7.1	111.1	2.7 188.3		
.040.60	1039.39	-2.98	6.50	7.1	114.6	2.5 191.6		
.050.00	1049.38	~3.40	6.43	7.3	117.9	2.6 193.4		
,060.00	1059.37	-3.81	6.36	7.4	120.9	2.4 188.0		
.070.00	1069.36	-4.17	6.26	7.5	123.7	2.0 189.0		
.080.00	1079.35	-4.53	6.20	7.7	126,1	2.4 188.8 2.2 184.1		
.090,00 100 00	1089.34 1099.34	-4.90 -5.26	6.15 6.08	7.9 8 n	128.6 131 0	2.2 184.1 2 0 192 R	•	
, 1/11	111-7 74							

Well: E22A

# Casing & Tubing Program

	Casing	Casing	Hole	Cement	Ceme	nted	Date
		Interval	Size	used in cu/ft	to Sur	face	Cemented
					Yes	No	
Conductor	13 3/8"	16.5'	15 3/8"			Χ	4/27/07
Surface	9 5/8"	572.30'	12 3/8"	288		Χ	5/1/07
Water Protection	4 1/2"	2330.03'	6 1/2"	536.8	X		5/4/07
Coal Protection	4 1/2"	2330.03'	6 1/2"	536.8	Х		5/4/07
Other Casing & Tubing							
Other Casing & Tubing							
Liners					·	•	

Packers or Bridge Plugs Kind/Size/Set

Bkt @ 396'

## DRILL DATA HOLE-NOAH HORN WELL DRILLING, INC

COMPANY:

CNX

HOLE #: E-22A

LOCATION: LOWER BIG BRANCH

DRILL RIG #: 17

DATE STARTED: 04-27-07

DATED COMPLETED: 05-04-07

ELECTRIC LOGGED:YES

GROUTED:YES

DEPTH	THICKNESS	Si	TRATA REMARKS
FROM	ТО	FT	DESCRIPTION, VOIDS ETC
0	5	5	OVERBURDEN
5	16.5	11.5	SAND STONE
16.5	40	23.5	SHALE
40	70	30	SHALE
70	85	15	SANDY SHALE
85	100	15	SANDY SHALE
100	130	30	SANDY SHALE/COAL/SANDY SHALE
130	160	30	SANDY SHALE/SAND
160	190	30	SAND STONE
190	220	30	SAND/SANDY SHALE
220	250	30	SANDY SHALE
250	280	30	SANDY SHALE/COAL/SANDY SHALE
280	310	30	SANDY SHALE/COAL
310	340	30	SANDY SHALE/SAND
340	370	30	SAND STONE
370			
370	400	30	SAND STONE/SANDY SHALE/COAL
400	430	30	SANDY SHALE
430	460	30	SANDY SHALE/SHALE
460	465	5	SHALE
465	468	3	VOID
468	490	22	SANDY SHALE/SHALE
490	520	30	SHALE/SANDY SHALE
520	590	70	SANDY SHALE
590	600	10	SANDY SHALE
600	630	30	SANDY SHALE/COAL
630	660	30	SANDY SHALE/COAL/SANDY SHALE
660	720	60	SAND STONE
720	750	30	SAND STONE/SANDY SHALE/COAL
750	810	60	SAND STONE
810	840	30	SAND STONE/SANDY SHALE
840	870	30	SANDY SHALE/COAL
870	930	60	SANDY SHALE
930	960	30	SANDY SHALE/COAL/SHALE
960	990	30	SHALE/COAL
990	1020	30	SHALE/SANDY SHALE/COAL
1020	1050	30	SHALE/SANDY SHALE
1050	1080	30	SANDY SHALE/SHALE/COAL
1080	1140	60	SANDY SHALE
1140	1170	30	SANDY SHALE/SHALE
1170	1200	30	SHALE/SANDY SHALE/SAND STONE
1200	1230	30	SANDY SHALE/SAND STONE

1230	1260	30	SAND STONE
1260	1290	30	SAND STONE SAND STONE/COAL/SANDY SHALE
1290	1320	30	SANDY SHALE
1320	1350	30	SANDY SHALE/SHALE/COAL
1350	1410	60	SAND I SHALE/SHALE/COAL SAND STONE/SANDY SHALE
1410	1470	60	SAND STONE/SANDT SHALE SANDY SHALE/COAL
1470	1470	00	SANDI SHALE/COAL
1470	1500	30	SAND STONE
1500	1530	30	SAND STONE SAND/SANDY SHALE
1530	1590	60	SAND/SANDT SHALE SAND/SHALE/COAL
1590	1620	30	
1620	1650		SAND/COAL/SHALE SANDY SHALE/COAL/SANDY SHALE
1650	1680	30	SANDI SHALE/COAL/SANDI SHALE SAND/SHALE
		30	
1680	1710	30	SANDY SHALE/SAND
1710	1740	30	SAND/SANDY SHALE
1740	1770	30	SANDY SHALE/COAL/SANDY SHALE
1770	1800	30	SANDY SHALE
1800	1820	20	SANDY SHALE/SAND
1820	1830	10	SANDY SHALE/COAL
1830	1860	30	SANDY SHALE/SHALE/COAL
1860	1890	30	SANDY SHALE
1890	1920	30	SANDY SHALE/COAL/SANDY SHALE
1920	1950	30	SANDY SHALE/SHALE
1950	1980	30	SAND STONE/SHALE
1980	2010	30	SAND STONE/SANDY SHALE
2010	2100	90	SAND STONE
2100	2130	30	SANDY SHALE/COAL/SANDY SHALE
2130			
2130	2160	30	SANDY SHALE
2160	2190	30	SANDY SHALE/SAND
2190	2218	28	SAND/SANDY SHALE
2218	2222	4	COAL P-3
2222	2250	28	SANDY SHALE/SAND
2250	2280	30	SAND/COAL/SANDY SHALE
2280	2310	30	SANDY SHALE/COAL/SANDY SHALE
2310	2370	60	SAND STONE
2370	2400	30	SAND/SHALE
2400	2460	60	SAND STONE
2460	2500	40	

2500' – TOTAL DEPTH 16.5' – 13 3/8" CASING 572.30' – 7" CASING 2330.03' – 4 ½" CASING