

DNPIV AL  
No. 7.123  
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A Gyrodata Directional Survey

BRASKEM  
Well: Mina 04, 7"  
Location: RIGLESS, SAL GEMA  
Job Number: BZ0419GVC029

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	NORMALIZED DOGLEG deg/30m	HORIZONTAL COORDINATES meters	
172.00	0.09	198.14	172.00	0.09	0.11 N	0.50 E
173.00	0.09	247.31	173.00	0.09	0.10 N	0.50 E
174.00	0.09	248.42	174.00	0.09	0.10 N	0.50 E
175.00	0.09	250.90	175.00	0.07	0.10 N	0.50 E
176.00	0.09	254.43	176.00	0.06	0.10 N	0.49 E
177.00	0.09	269.45	177.00	0.04	0.10 N	0.49 E
178.00	0.09	280.42	178.00	0.03	0.10 N	0.49 E
179.00	0.09	288.22	179.00	0.03	0.10 N	0.49 E
180.00	0.08	299.52	180.00	0.04	0.10 N	0.49 E
181.00	0.08	297.13	181.00	0.07	0.10 N	0.49 E
182.00	0.07	312.81	182.00	0.12	0.10 N	0.49 E
183.00	0.06	331.36	183.00	0.15	0.11 N	0.49 E
184.00	0.06	333.44	184.00	0.19	0.11 N	0.48 E
185.00	0.05	103.88	185.00	0.20	0.11 N	0.49 E
186.00	0.05	51.97	186.00	0.19	0.11 N	0.49 E
187.00	0.05	45.00	187.00	0.12	0.11 N	0.49 E
188.00	0.04	45.00	188.00	0.21	0.11 N	0.49 E
189.00	0.04	45.00	189.00	0.24	0.11 N	0.49 E
190.00	0.04	70.11	190.00	0.26	0.11 N	0.49 E
191.00	0.04	75.00	191.00	0.29	0.11 N	0.49 E
192.00	0.05	88.38	192.00	0.34	0.11 N	0.49 E
193.00	0.05	89.38	193.00	0.37	0.11 N	0.49 E
194.00	0.06	114.77	194.00	0.39	0.11 N	0.49 E
195.00	0.07	122.79	195.00	0.40	0.11 N	0.49 E
196.00	0.07	133.93	196.00	0.40	0.11 N	0.49 E
197.00	0.09	144.83	197.00	0.41	0.11 N	0.49 E
198.00	0.11	155.49	198.00	0.42	0.11 N	0.50 E
199.00	0.13	161.70	199.00	0.42	0.10 N	0.50 E
200.00	0.14	165.59	200.00	0.34	0.10 N	0.50 E
201.00	0.16	165.87	201.00	0.37	0.10 N	0.50 E
202.00	0.18	166.31	202.00	0.37	0.10 N	0.50 E
203.00	0.20	162.59	203.00	0.35	0.09 N	0.50 E
204.00	0.22	161.02	204.00	0.33	0.09 N	0.50 E
205.00	0.25	161.13	205.00	0.30	0.09 N	0.50 E
206.00	0.27	160.24	206.00	0.28	0.08 N	0.50 E
207.00	0.29	159.60	207.00	0.26	0.08 N	0.50 E

DNPV/AL  
Fis. 7124  


A Gyrodata Directional Survey

BRASKEM  
Well: Mina 04, 7"  
Location: RIGLESS, SAL GEMA  
Job Number: BZ0419GVC029

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	NORMALIZED DOGLEG deg/30m	HORIZONTAL COORDINATES meters	
208.00	0.31	159.39	208.00	0.25	0.07 N	0.51 E
209.00	0.33	159.66	209.00	0.22	0.07 N	0.51 E
210.00	0.34	160.73	210.00	0.20	0.06 N	0.51 E
211.00	0.34	161.54	211.00	0.18	0.06 N	0.51 E
212.00	0.35	162.53	212.00	0.15	0.05 N	0.51 E
213.00	0.36	163.25	213.00	0.12	0.04 N	0.52 E
214.00	0.36	164.06	214.00	0.09	0.04 N	0.52 E
215.00	0.36	165.07	215.00	0.05	0.03 N	0.52 E
216.00	0.35	166.71	216.00	0.02	0.03 N	0.52 E
217.00	0.34	169.20	217.00	0.03	0.02 N	0.52 E
218.00	0.32	171.62	218.00	0.06	0.01 N	0.52 E
219.00	0.30	174.74	219.00	0.11	0.01 N	0.52 E
220.00	0.28	177.64	220.00	0.16	0.00 N	0.52 E
221.00	0.27	180.42	221.00	0.21	0.00 S	0.52 E
222.00	0.25	182.97	222.00	0.26	0.01 S	0.52 E
223.00	0.24	184.81	223.00	0.31	0.01 S	0.52 E
224.00	0.23	186.68	224.00	0.35	0.01 S	0.52 E
225.00	0.22	188.50	225.00	0.39	0.02 S	0.52 E
226.00	0.21	189.30	226.00	0.43	0.02 S	0.52 E
227.00	0.20	188.46	227.00	0.46	0.03 S	0.52 E
228.00	0.19	186.97	228.00	0.48	0.03 S	0.52 E
229.00	0.19	184.83	229.00	0.50	0.03 S	0.52 E
230.00	0.18	179.72	230.00	0.51	0.03 S	0.52 E
231.00	0.17	171.68	231.00	0.51	0.04 S	0.52 E
232.00	0.16	162.90	232.00	0.51	0.04 S	0.52 E
233.00	0.15	151.22	233.00	0.49	0.04 S	0.52 E
234.00	0.14	138.10	234.00	0.48	0.05 S	0.52 E
235.00	0.13	124.30	235.00	0.46	0.05 S	0.53 E
236.00	0.13	110.19	236.00	0.45	0.05 S	0.53 E
237.00	0.13	97.29	237.00	0.44	0.05 S	0.53 E
238.00	0.13	84.85	238.00	0.43	0.05 S	0.53 E
239.00	0.14	72.65	239.00	0.43	0.05 S	0.53 E
240.00	0.15	61.44	240.00	0.42	0.05 S	0.54 E
241.00	0.17	52.66	241.00	0.41	0.05 S	0.54 E
242.00	0.18	46.96	242.00	0.40	0.04 S	0.54 E
243.00	0.20	42.56	243.00	0.39	0.04 S	0.54 E



DNPV AL  
No. 7.125  
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A Gyrodata Directional Survey

BRASKEM  
Well: Mina 04, 7"  
Location: RIGLESS, SAL GEMA  
Job Number: BZ0419GVC029

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	NORMALIZED DOGLEG deg/30m	HORIZONTAL COORDINATES meters	
244.00	0.21	41.92	244.00	0.38	0.04 S	0.55 E
245.00	0.22	43.37	245.00	0.37	0.04 S	0.55 E
246.00	0.23	45.71	246.00	0.34	0.03 S	0.55 E
247.00	0.24	48.30	247.00	0.32	0.03 S	0.55 E
248.00	0.24	50.76	248.00	0.28	0.03 S	0.56 E
249.00	0.25	54.14	249.00	0.26	0.02 S	0.56 E
250.00	0.25	57.50	250.00	0.25	0.02 S	0.56 E
251.00	0.25	60.37	251.00	0.25	0.02 S	0.57 E
252.00	0.26	63.51	252.00	0.27	0.02 S	0.57 E
253.00	0.26	66.56	253.00	0.30	0.02 S	0.58 E
254.00	0.27	69.09	254.00	0.32	0.01 S	0.58 E
255.00	0.27	71.22	255.00	0.35	0.01 S	0.59 E
256.00	0.28	73.89	256.00	0.38	0.01 S	0.59 E
257.00	0.28	77.13	257.00	0.41	0.01 S	0.59 E
258.00	0.29	80.49	258.00	0.43	0.01 S	0.60 E
259.00	0.30	83.41	259.00	0.44	0.01 S	0.60 E
260.00	0.31	85.76	260.00	0.44	0.01 S	0.61 E
261.00	0.32	88.14	261.00	0.43	0.01 S	0.62 E
262.00	0.33	90.91	262.00	0.42	0.01 S	0.62 E
263.00	0.34	93.57	263.00	0.40	0.01 S	0.63 E
264.00	0.35	95.95	264.00	0.38	0.01 S	0.63 E
265.00	0.36	98.55	265.00	0.36	0.01 S	0.64 E
266.00	0.38	101.06	266.00	0.34	0.01 S	0.64 E
267.00	0.40	102.83	267.00	0.32	0.01 S	0.65 E
268.00	0.42	103.83	268.00	0.30	0.01 S	0.66 E
269.00	0.43	104.69	269.00	0.28	0.01 S	0.67 E
270.00	0.44	105.63	270.00	0.27	0.02 S	0.67 E
271.00	0.46	106.31	271.00	0.26	0.02 S	0.68 E
272.00	0.47	106.50	272.00	0.24	0.02 S	0.69 E
273.00	0.48	106.39	273.00	0.22	0.02 S	0.70 E
274.00	0.49	106.00	274.00	0.20	0.03 S	0.70 E
275.00	0.50	105.44	275.00	0.17	0.03 S	0.71 E
276.00	0.51	104.57	276.00	0.15	0.03 S	0.72 E
277.00	0.51	103.53	277.00	0.13	0.03 S	0.73 E
278.00	0.51	102.50	278.00	0.11	0.03 S	0.74 E
279.00	0.50	101.39	279.00	0.09	0.04 S	0.75 E

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**Parte 1**  
**Discussão**



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## 1.0 DISCUSSÃO

O Giroscópio FA088 foi utilizado para fazer uma amostragem na Mina 35.

A amostragem foi coletada da superfície até 899.00m.

Todas as Profundidades estão referenciadas à cabeça do poço.

A referência ao norte é Norte Verdadeiro.

Todas as Profundidades foram tomadas do cabo de perfilagem da unidade Flodim.

**Parte 2**  
**Página de Certificado da Amostragem**



**2.0 PÁGINA DE CERTIFICADO DA AMOSTRAGEM**

Os dados e cálculos para esta amostragem foram obtidos e atuados por mim de acordo com padrões e procedimentos da Gyrodata do Brasil LTDA, são verdadeiros e corretos pelo meu melhor conhecimento.

Lúcio Oliveira / Leonardo Gomes

**Data: 03 de Abril de 2019**

Os dados e cálculos para esta amostragem foram checados por mim e conforme os padrões e procedimentos da Gyrodata do Brasil LTDA.

Este relatório representa uma amostragem direcional do poço baseado nos dados originais obtidos na localização do poço.


Checado por :

Operations Manager

**Lucas Assad**

**Data: 03 de Abril de 2019**



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Fis. 149  


**Parte 3**  
**Detalhes da Amostragem**

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3.0     DETALHES DA AMOSTRAGEM

Cliente	:	Braskem
Sonda	:	N/A
Campo	:	Sal Gema
Poço	:	Mina 35
Latitude	:	9.637170 deg. S
Longitude	:	35.749208 deg. W
Data da amostragem	:	4 de Abril de 2019
Tipo de amostragem	:	Gyro Multishot Contínuo
Referência de profundidade	:	Ground
Max. Profundidade da amostragem	:	899 metros
Origem da seção vertical	:	-
Azimuth da seção vertical	:	-
Referência Norte	:	Norte Verdadeiro
Grid Correction	:	-
Método de cálculo	:	Mínima Curvatura
Surveyors	:	Lúcio Oliveira / Leonardo Gomes

**Parte 4**  
**Listagem Definitiva da Amostragem**



**DNP/AL**  
**Fls. 7-152**  


**4.0 LISTAGEM DEFINITIVA DA AMOSTRAGEM**

A Gyrodata Directional Survey

for

**BRASKEM**

Well: **Mina 35**, 9 5/8"  
Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC030

Run Date: 03 Apr 2019

Calculation Method: MINIMUM CURVATURE

Survey surface coordinates obtained from: Hand Held GPS

Survey Latitude: 9.637170 deg. S

Longitude: 35.749208 deg. W

Azimuth Correction:

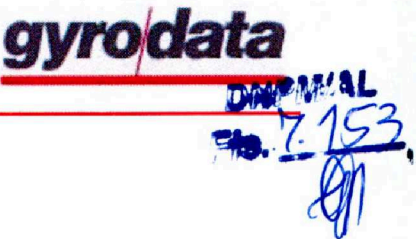
Gyro: Bearings are Relative to True North

Depth Reference: Wellhead

Vertical Section Calculated from Well Head Location

Closure Calculated from Well Head Location

Horizontal Coordinates Calculated from Well Head Location

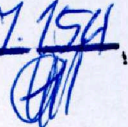


A Gyrodata Directional Survey

BRASKEM  
Well: Mina 35, 9 5/8"  
Location: RIGLESS, SAL GEMA  
Job Number: BZ0419GVC030

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	NORMALIZED DOGLEG deg/30m	HORIZONTAL COORDINATES meters	
0.00	0.00	0.00	0.00	0.00	0.00 N	0.00 E
20.00	0.61	58.54	20.00	0.00	0.06 N	0.09 E
21.00	0.60	60.30	21.00	0.00	0.06 N	0.10 E
22.00	0.59	59.82	22.00	0.00	0.07 N	0.11 E
23.00	0.58	60.52	23.00	0.00	0.07 N	0.12 E
24.00	0.58	61.50	24.00	0.00	0.08 N	0.13 E
25.00	0.56	57.41	25.00	0.00	0.08 N	0.13 E
26.00	0.57	59.83	26.00	0.00	0.09 N	0.14 E
27.00	0.58	58.96	27.00	0.00	0.09 N	0.15 E
28.00	0.58	57.89	28.00	0.00	0.10 N	0.16 E
29.00	0.58	56.69	29.00	0.00	0.10 N	0.17 E
30.00	0.58	55.74	30.00	0.00	0.11 N	0.18 E
31.00	0.59	54.53	31.00	0.00	0.11 N	0.19 E
32.00	0.59	52.64	32.00	0.00	0.12 N	0.19 E
33.00	0.59	50.70	33.00	0.00	0.13 N	0.20 E
34.00	0.60	48.90	34.00	0.00	0.13 N	0.21 E
35.00	0.60	47.28	35.00	0.37	0.14 N	0.22 E
36.00	0.61	45.63	36.00	0.40	0.15 N	0.23 E
37.00	0.62	43.41	37.00	0.39	0.15 N	0.23 E
38.00	0.62	41.35	38.00	0.40	0.16 N	0.24 E
39.00	0.63	39.40	39.00	0.42	0.17 N	0.25 E
40.00	0.63	37.61	40.00	0.39	0.18 N	0.25 E
41.00	0.64	35.62	41.00	0.41	0.19 N	0.26 E
42.00	0.64	33.95	42.00	0.41	0.20 N	0.27 E
43.00	0.65	32.67	43.00	0.40	0.21 N	0.27 E
44.00	0.66	31.55	44.00	0.38	0.22 N	0.28 E
45.00	0.66	30.28	45.00	0.37	0.23 N	0.28 E
46.00	0.67	29.15	46.00	0.36	0.24 N	0.29 E
47.00	0.68	28.19	47.00	0.33	0.25 N	0.30 E
48.00	0.69	27.72	48.00	0.31	0.26 N	0.30 E
49.00	0.70	27.28	49.00	0.28	0.27 N	0.31 E
50.00	0.71	26.95	50.00	0.26	0.28 N	0.31 E
51.00	0.71	26.71	51.00	0.24	0.29 N	0.32 E
52.00	0.72	26.64	52.00	0.20	0.30 N	0.32 E
53.00	0.72	26.59	53.00	0.18	0.31 N	0.33 E
54.00	0.73	26.60	54.00	0.15	0.32 N	0.34 E



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A Gyrodata Directional Survey

BRASKEM  
Well: Mina 35, 9 5/8"  
Location: RIGLESS, SAL GEMA  
Job Number: BZ0419GVC030

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	NORMALIZED DOGLEG deg/30m	HORIZONTAL COORDINATES meters	
55.00	0.74	26.46	55.00	0.13	0.33 N	0.34 E
56.00	0.75	26.51	56.00	0.10	0.35 N	0.35 E
57.00	0.76	26.83	57.00	0.09	0.36 N	0.35 E
58.00	0.76	27.25	58.00	0.08	0.37 N	0.36 E
59.00	0.77	27.63	59.00	0.08	0.38 N	0.36 E
60.00	0.77	27.96	60.00	0.08	0.39 N	0.37 E
61.00	0.77	28.36	61.00	0.09	0.41 N	0.38 E
62.00	0.77	28.83	62.00	0.10	0.42 N	0.38 E
63.00	0.77	29.33	63.00	0.10	0.43 N	0.39 E
64.00	0.77	29.94	64.00	0.11	0.44 N	0.40 E
65.00	0.77	30.32	65.00	0.12	0.45 N	0.40 E
66.00	0.77	30.79	66.00	0.13	0.46 N	0.41 E
67.00	0.76	31.23	67.00	0.13	0.48 N	0.42 E
68.00	0.75	31.54	68.00	0.14	0.49 N	0.42 E
69.00	0.75	31.95	69.00	0.15	0.50 N	0.43 E
70.00	0.74	32.27	70.00	0.15	0.51 N	0.44 E
71.00	0.74	32.68	71.00	0.16	0.52 N	0.45 E
72.00	0.73	33.06	72.00	0.17	0.53 N	0.45 E
73.00	0.73	33.34	73.00	0.17	0.54 N	0.46 E
74.00	0.73	33.72	74.00	0.18	0.55 N	0.47 E
75.00	0.73	34.01	75.00	0.18	0.56 N	0.47 E
76.00	0.73	34.44	76.00	0.19	0.57 N	0.48 E
77.00	0.73	34.96	77.00	0.19	0.58 N	0.49 E
78.00	0.73	35.39	78.00	0.21	0.59 N	0.50 E
79.00	0.73	35.82	79.00	0.21	0.60 N	0.50 E
80.00	0.73	36.23	80.00	0.22	0.61 N	0.51 E
81.00	0.74	36.71	81.00	0.23	0.62 N	0.52 E
82.00	0.74	37.05	82.00	0.25	0.63 N	0.53 E
83.00	0.75	37.50	83.00	0.25	0.65 N	0.53 E
84.00	0.76	37.86	84.00	0.26	0.66 N	0.54 E
85.00	0.77	37.97	84.99	0.27	0.67 N	0.55 E
86.00	0.78	38.19	85.99	0.27	0.68 N	0.56 E
87.00	0.80	38.69	86.99	0.28	0.69 N	0.57 E
88.00	0.82	38.94	87.99	0.29	0.70 N	0.58 E
89.00	0.84	39.10	88.99	0.29	0.71 N	0.58 E
90.00	0.86	39.24	89.99	0.29	0.72 N	0.59 E



ORIGINAL  
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A Gyrodata Directional Survey

BRASKEM  
Well: Mina 35, 9 5/8"  
Location: RIGLESS, SAL GEMA  
Job Number: BZ0419GVC030

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	NORMALIZED DOGLEG deg/30m	HORIZONTAL COORDINATES meters	
91.00	0.88	39.19	90.99	0.29	0.73 N	0.60 E
92.00	0.89	39.50	91.99	0.29	0.75 N	0.61 E
93.00	0.91	39.89	92.99	0.29	0.76 N	0.62 E
94.00	0.92	40.08	93.99	0.29	0.77 N	0.63 E
95.00	0.93	40.41	94.99	0.29	0.78 N	0.64 E
96.00	0.95	40.94	95.99	0.29	0.79 N	0.65 E
97.00	0.96	41.15	96.99	0.28	0.81 N	0.67 E
98.00	0.96	41.12	97.99	0.28	0.82 N	0.68 E
99.00	0.97	41.28	98.99	0.27	0.83 N	0.69 E
100.00	0.97	41.57	99.99	0.27	0.84 N	0.70 E
101.00	0.98	41.86	100.99	0.26	0.86 N	0.71 E
102.00	0.98	42.26	101.99	0.25	0.87 N	0.72 E
103.00	0.99	42.21	102.99	0.23	0.88 N	0.73 E
104.00	0.99	41.98	103.99	0.22	0.90 N	0.74 E
105.00	0.99	41.86	104.99	0.20	0.91 N	0.76 E
106.00	1.00	41.63	105.99	0.20	0.92 N	0.77 E
107.00	1.00	41.35	106.99	0.20	0.93 N	0.78 E
108.00	1.00	41.26	107.99	0.19	0.95 N	0.79 E
109.00	1.00	41.24	108.99	0.19	0.96 N	0.80 E
110.00	1.01	41.08	109.99	0.18	0.97 N	0.81 E
111.00	1.02	40.95	110.99	0.18	0.99 N	0.83 E
112.00	1.02	40.84	111.99	0.18	1.00 N	0.84 E
113.00	1.02	40.62	112.99	0.19	1.01 N	0.85 E
114.00	1.02	40.68	113.99	0.19	1.03 N	0.86 E
115.00	1.03	40.84	114.99	0.20	1.04 N	0.87 E
116.00	1.04	41.01	115.99	0.20	1.05 N	0.88 E
117.00	1.04	41.21	116.99	0.20	1.07 N	0.90 E
118.00	1.05	41.27	117.99	0.20	1.08 N	0.91 E
119.00	1.05	41.33	118.99	0.20	1.10 N	0.92 E
120.00	1.06	41.51	119.99	0.20	1.11 N	0.93 E
121.00	1.07	41.73	120.99	0.20	1.12 N	0.94 E
122.00	1.08	42.00	121.99	0.20	1.14 N	0.96 E
123.00	1.09	42.30	122.99	0.21	1.15 N	0.97 E
124.00	1.10	42.36	123.99	0.21	1.17 N	0.98 E
125.00	1.11	42.38	124.99	0.20	1.18 N	1.00 E
126.00	1.13	42.43	125.99	0.20	1.19 N	1.01 E


ORIGINAL  
No. 7156  
01

A Gyrodata Directional Survey

BRASKEM  
Well: Mina 35, 9 5/8"  
Location: RIGLESS, SAL GEMA  
Job Number: BZ0419GVC030

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	NORMALIZED DOGLEG deg/30m	HORIZONTAL COORDINATES meters	
127.00	1.14	42.33	126.99	0.21	1.21 N	1.02 E
128.00	1.15	42.22	127.99	0.21	1.22 N	1.04 E
129.00	1.16	42.04	128.99	0.22	1.24 N	1.05 E
130.00	1.17	41.81	129.99	0.23	1.25 N	1.06 E
131.00	1.17	41.46	130.99	0.23	1.27 N	1.08 E
132.00	1.18	41.07	131.99	0.24	1.28 N	1.09 E
133.00	1.18	40.54	132.99	0.25	1.30 N	1.10 E
134.00	1.19	39.98	133.99	0.26	1.32 N	1.12 E
135.00	1.19	39.73	134.99	0.26	1.33 N	1.13 E
136.00	1.20	39.52	135.99	0.26	1.35 N	1.14 E
137.00	1.20	39.16	136.99	0.25	1.36 N	1.16 E
138.00	1.20	39.02	137.99	0.24	1.38 N	1.17 E
139.00	1.20	38.88	138.99	0.23	1.40 N	1.18 E
140.00	1.21	38.74	139.99	0.21	1.41 N	1.20 E
141.00	1.22	38.68	140.99	0.19	1.43 N	1.21 E
142.00	1.22	38.70	141.99	0.17	1.45 N	1.22 E
143.00	1.23	38.74	142.99	0.15	1.46 N	1.24 E
144.00	1.24	38.87	143.99	0.13	1.48 N	1.25 E
145.00	1.25	39.27	144.98	0.11	1.50 N	1.26 E
146.00	1.26	39.22	145.98	0.09	1.51 N	1.28 E
147.00	1.28	39.34	146.98	0.08	1.53 N	1.29 E
148.00	1.29	39.69	147.98	0.09	1.55 N	1.31 E
149.00	1.31	39.68	148.98	0.11	1.57 N	1.32 E
150.00	1.32	39.81	149.98	0.14	1.58 N	1.33 E
151.00	1.33	39.85	150.98	0.19	1.60 N	1.35 E
152.00	1.33	39.93	151.98	0.23	1.62 N	1.36 E
153.00	1.33	40.01	152.98	0.29	1.64 N	1.38 E
154.00	1.32	39.98	153.98	0.34	1.65 N	1.39 E
155.00	1.32	40.02	154.98	0.38	1.67 N	1.41 E
156.00	1.31	39.63	155.98	0.47	1.69 N	1.42 E
157.00	1.30	39.55	156.98	0.56	1.71 N	1.44 E
158.00	1.28	39.22	157.98	0.65	1.72 N	1.45 E
159.00	1.26	38.83	158.98	0.77	1.74 N	1.47 E
160.00	1.24	38.37	159.98	0.89	1.76 N	1.48 E
161.00	1.22	37.73	160.98	1.00	1.78 N	1.49 E
162.00	1.20	37.11	161.98	1.15	1.79 N	1.51 E



SNP VIAL  
Fb. 7157  


A Gyrodata Directional Survey

BRASKEM  
Well: Mina 35, 9 5/8"  
Location: RIGLESS, SAL GEMA  
Job Number: BZ0419GVC030

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	NORMALIZED DOGLEG deg/30m	HORIZONTAL COORDINATES meters	
163.00	1.18	36.14	162.98	1.31	1.81 N	1.52 E
164.00	1.15	35.05	163.98	1.44	1.83 N	1.53 E
165.00	1.12	33.74	164.98	1.54	1.84 N	1.54 E
166.00	1.09	31.98	165.98	1.66	1.86 N	1.55 E
167.00	1.05	29.95	166.98	1.77	1.87 N	1.56 E
168.00	1.01	27.52	167.98	1.89	1.89 N	1.57 E
169.00	0.97	25.52	168.98	1.97	1.91 N	1.58 E
170.00	0.93	24.68	169.98	2.02	1.92 N	1.58 E
171.00	0.88	19.97	170.98	2.10	1.93 N	1.59 E
172.00	0.84	15.26	171.98	2.20	1.95 N	1.60 E
173.00	0.80	10.90	172.98	2.29	1.96 N	1.60 E
174.00	0.76	3.37	173.98	2.38	1.98 N	1.60 E
175.00	0.73	355.45	174.98	2.47	1.99 N	1.60 E
176.00	0.71	347.24	175.98	2.55	2.00 N	1.60 E
177.00	0.70	336.36	176.98	2.63	2.01 N	1.59 E
178.00	0.70	324.19	177.98	2.71	2.02 N	1.59 E
179.00	0.71	314.15	178.98	2.78	2.03 N	1.58 E
180.00	0.73	306.86	179.98	2.84	2.04 N	1.57 E
181.00	0.77	298.48	180.98	2.90	2.05 N	1.56 E
182.00	0.81	290.49	181.98	2.96	2.05 N	1.55 E
183.00	0.87	283.25	182.98	3.01	2.06 N	1.53 E
184.00	0.92	278.33	183.98	3.07	2.06 N	1.52 E
185.00	0.96	275.37	184.98	3.14	2.06 N	1.50 E
186.00	1.02	271.29	185.98	3.19	2.06 N	1.48 E
187.00	1.10	266.50	186.98	3.24	2.06 N	1.47 E
188.00	1.18	262.43	187.98	3.30	2.06 N	1.45 E
189.00	1.27	258.92	188.98	3.34	2.06 N	1.42 E
190.00	1.36	255.91	189.98	3.39	2.05 N	1.40 E
191.00	1.46	253.11	190.98	3.44	2.05 N	1.38 E
192.00	1.55	250.51	191.98	3.46	2.04 N	1.35 E
193.00	1.64	248.19	192.98	3.46	2.03 N	1.33 E
194.00	1.73	246.20	193.98	3.48	2.02 N	1.30 E
195.00	1.82	244.42	194.97	3.52	2.00 N	1.27 E
196.00	1.92	242.91	195.97	3.54	1.99 N	1.24 E
197.00	2.01	241.54	196.97	3.54	1.97 N	1.21 E
198.00	2.11	240.20	197.97	3.53	1.96 N	1.18 E



A Gyrodata Directional Survey

BRASKEM  
Well: Mina 35, 9 5/8"  
Location: RIGLESS, SAL GEMA  
Job Number: BZ0419GVC030

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	NORMALIZED DOGLEG deg/30m	HORIZONTAL COORDINATES meters	
199.00	2.22	238.83	198.97	3.55	1.94 N	1.15 E
200.00	2.32	237.49	199.97	3.58	1.92 N	1.12 E
201.00	2.43	236.27	200.97	3.58	1.89 N	1.08 E
202.00	2.55	235.23	201.97	3.54	1.87 N	1.04 E
203.00	2.67	234.40	202.97	3.49	1.84 N	1.01 E
204.00	2.81	233.71	203.97	3.44	1.81 N	0.97 E
205.00	2.94	233.09	204.97	3.38	1.78 N	0.93 E
206.00	3.08	232.45	205.96	3.32	1.75 N	0.89 E
207.00	3.22	231.74	206.96	3.25	1.72 N	0.84 E
208.00	3.35	231.08	207.96	3.18	1.68 N	0.80 E
209.00	3.49	230.51	208.96	3.11	1.65 N	0.75 E
210.00	3.62	230.11	209.96	3.04	1.61 N	0.70 E
211.00	3.74	229.84	210.96	2.97	1.56 N	0.66 E
212.00	3.86	229.62	211.95	2.90	1.52 N	0.60 E
213.00	3.98	229.40	212.95	2.83	1.48 N	0.55 E
214.00	4.08	229.17	213.95	2.76	1.43 N	0.50 E
215.00	4.17	228.91	214.95	2.68	1.38 N	0.45 E
216.00	4.26	228.64	215.94	2.60	1.34 N	0.39 E
217.00	4.34	228.42	216.94	2.52	1.29 N	0.33 E
218.00	4.41	228.30	217.94	2.43	1.24 N	0.28 E
219.00	4.47	228.30	218.93	2.33	1.18 N	0.22 E
220.00	4.53	228.36	219.93	2.23	1.13 N	0.16 E
221.00	4.59	228.47	220.93	2.13	1.08 N	0.10 E
222.00	4.64	228.59	221.93	2.02	1.03 N	0.04 E
223.00	4.68	228.75	222.92	1.92	0.97 N	0.02W
224.00	4.72	228.93	223.92	1.82	0.92 N	0.08W
225.00	4.76	229.10	224.92	1.73	0.86 N	0.14W
226.00	4.80	229.25	225.91	1.64	0.81 N	0.21W
227.00	4.84	229.37	226.91	1.56	0.76 N	0.27W
228.00	4.88	229.41	227.90	1.49	0.70 N	0.34W
229.00	4.92	229.37	228.90	1.43	0.64 N	0.40W
230.00	4.96	229.25	229.90	1.38	0.59 N	0.47W
231.00	5.00	229.11	230.89	1.35	0.53 N	0.53W
232.00	5.04	228.97	231.89	1.33	0.47 N	0.60W
233.00	5.08	228.86	232.89	1.30	0.42 N	0.66W
234.00	5.11	228.75	233.88	1.27	0.36 N	0.73W

A Gyrodata Directional Survey

BRASKEM  
Well: Mina 35, 9 5/8"  
Location: RIGLESS, SAL GEMA  
Job Number: BZ0419GVC030

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	NORMALIZED DOGLEG deg/30m	HORIZONTAL COORDINATES meters	
235.00	5.15	228.65	234.88	1.25	0.30 N	0.80W
236.00	5.19	228.60	235.87	1.23	0.24 N	0.87W
237.00	5.23	228.58	236.87	1.23	0.18 N	0.93W
238.00	5.27	228.62	237.87	1.27	0.12 N	1.00W
239.00	5.30	228.72	238.86	1.32	0.06 N	1.07W
240.00	5.34	228.85	239.86	1.39	0.00 S	1.14W
241.00	5.38	229.00	240.85	1.46	0.06 S	1.21W
242.00	5.42	229.12	241.85	1.55	0.13 S	1.28W
243.00	5.46	229.18	242.84	1.65	0.19 S	1.35W
244.00	5.51	229.20	243.84	1.77	0.25 S	1.43W
245.00	5.56	229.20	244.83	1.89	0.31 S	1.50W
246.00	5.61	229.18	245.83	2.03	0.38 S	1.57W
247.00	5.66	229.15	246.82	2.18	0.44 S	1.65W
248.00	5.71	229.11	247.82	2.34	0.51 S	1.72W
249.00	5.74	229.09	248.81	2.51	0.57 S	1.80W
250.00	5.78	229.06	249.81	2.69	0.64 S	1.87W
251.00	5.81	229.03	250.80	2.87	0.70 S	1.95W
252.00	5.87	228.98	251.80	3.06	0.77 S	2.03W
253.00	5.95	228.92	252.79	3.26	0.84 S	2.10W
254.00	6.05	228.85	253.79	3.46	0.91 S	2.18W
255.00	6.15	228.80	254.78	3.68	0.98 S	2.26W
256.00	6.27	228.77	255.78	3.89	1.05 S	2.34W
257.00	6.39	228.73	256.77	4.11	1.12 S	2.43W
258.00	6.53	228.69	257.76	4.33	1.19 S	2.51W
259.00	6.68	228.64	258.76	4.57	1.27 S	2.60W
260.00	6.85	228.60	259.75	4.79	1.35 S	2.69W
261.00	7.03	228.54	260.74	5.00	1.43 S	2.78W
262.00	7.22	228.47	261.74	5.21	1.51 S	2.87W
263.00	7.42	228.39	262.73	5.49	1.60 S	2.97W
264.00	7.62	228.31	263.72	6.09	1.68 S	3.06W
265.00	7.84	228.21	264.71	6.11	1.77 S	3.16W
266.00	8.06	228.12	265.70	6.28	1.86 S	3.27W
267.00	8.29	228.03	266.69	6.47	1.96 S	3.37W
268.00	8.52	227.86	267.68	6.65	2.06 S	3.48W
269.00	8.77	227.62	268.67	6.81	2.16 S	3.59W
270.00	9.01	227.33	269.66	6.97	2.26 S	3.71W



DNF VIAL  
# 7160  
R

A Gyrodata Directional Survey

BRASKEM  
Well: Mina 35, 9 5/8"  
Location: RIGLESS, SAL GEMA  
Job Number: BZ0419GVC030

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	NORMALIZED DOGLEG deg/30m	HORIZONTAL COORDINATES meters	
271.00	9.27	227.01	270.64	7.08	2.37 S	3.82W
272.00	9.52	226.73	271.63	7.16	2.48 S	3.94W
273.00	9.78	226.47	272.62	7.22	2.60 S	4.06W
274.00	10.06	226.19	273.60	7.24	2.72 S	4.19W
275.00	10.32	225.23	274.59	7.24	2.84 S	4.31W
276.00	10.57	224.84	275.57	7.19	2.97 S	4.44W
277.00	10.84	225.02	276.55	7.13	3.10 S	4.57W
278.00	11.18	225.21	277.53	7.04	3.23 S	4.71W
279.00	11.80	224.82	278.51	6.95	3.37 S	4.85W
280.00	11.85	224.61	279.49	6.82	3.52 S	4.99W
281.00	12.05	224.40	280.47	6.67	3.67 S	5.14W
282.00	12.30	224.46	281.45	6.51	3.82 S	5.29W
283.00	12.57	224.63	282.42	6.36	3.97 S	5.44W
284.00	12.83	224.79	283.40	6.21	4.13 S	5.59W
285.00	13.09	225.01	284.37	6.05	4.29 S	5.75W
286.00	13.32	225.25	285.35	5.88	4.45 S	5.91W
287.00	13.53	225.33	286.32	5.69	4.61 S	6.08W
288.00	13.73	225.52	287.29	5.50	4.78 S	6.25W
289.00	13.91	225.76	288.26	5.30	4.94 S	6.42W
290.00	14.07	225.94	289.23	5.12	5.11 S	6.59W
291.00	14.20	226.13	290.20	4.92	5.28 S	6.77W
292.00	14.33	226.29	291.17	4.69	5.45 S	6.94W
293.00	14.45	226.38	292.14	4.36	5.62 S	7.12W
294.00	14.56	226.54	293.11	3.80	5.80 S	7.30W
295.00	14.65	226.56	294.08	3.82	5.97 S	7.49W
296.00	14.72	226.51	295.04	3.71	6.14 S	7.67W
297.00	14.79	226.53	296.01	3.56	6.32 S	7.86W
298.00	14.88	226.59	296.98	3.35	6.50 S	8.04W
299.00	14.97	226.74	297.94	3.16	6.67 S	8.23W
300.00	15.06	226.93	298.91	2.98	6.85 S	8.42W
301.00	15.14	227.08	299.88	2.83	7.03 S	8.61W
302.00	15.21	227.17	300.84	2.73	7.21 S	8.80W
303.00	15.28	227.24	301.81	2.64	7.38 S	8.99W
304.00	15.35	227.34	302.77	2.57	7.56 S	9.19W
305.00	15.41	227.43	303.73	2.51	7.74 S	9.38W
306.00	15.46	227.49	304.70	2.50	7.92 S	9.58W

DNFVIAL  
No. 7.161  


A Gyrodata Directional Survey

BRASKEM  
Well: Mina 35, 9 5/8"  
Location: RIGLESS, SAL GEMA  
Job Number: BZ0419GVC030

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	NORMALIZED DOGLEG deg/30m	HORIZONTAL COORDINATES meters	
307.00	15.49	227.51	305.66	2.48	8.10 S	9.78W
308.00	15.50	227.53	306.63	2.48	8.28 S	9.97W
309.00	15.54	227.59	307.59	2.49	8.46 S	10.17W
310.00	15.60	227.63	308.55	2.54	8.65 S	10.37W
311.00	15.67	227.73	309.52	2.63	8.83 S	10.57W
312.00	15.77	227.78	310.48	2.73	9.01 S	10.77W
313.00	15.83	227.78	311.44	2.80	9.19 S	10.97W
314.00	15.90	227.82	312.40	2.89	9.38 S	11.17W
315.00	15.98	227.87	313.36	2.95	9.56 S	11.38W
316.00	16.07	227.96	314.32	3.04	9.74 S	11.58W
317.00	16.17	228.04	315.29	3.14	9.93 S	11.79W
318.00	16.28	228.14	316.25	3.21	10.12 S	12.00W
319.00	16.40	228.21	317.21	3.26	10.30 S	12.21W
320.00	16.50	228.36	318.16	3.32	10.49 S	12.42W
321.00	16.62	228.49	319.12	3.39	10.68 S	12.63W
322.00	16.73	228.58	320.08	3.50	10.87 S	12.84W
323.00	16.85	228.71	321.04	3.63	11.06 S	13.06W
324.00	16.98	228.78	321.99	3.71	11.25 S	13.28W
325.00	17.11	228.86	322.95	3.77	11.45 S	13.50W
326.00	17.26	229.03	323.91	3.83	11.64 S	13.72W
327.00	17.43	229.09	324.86	3.86	11.84 S	13.95W
328.00	17.59	229.13	325.81	3.94	12.03 S	14.18W
329.00	17.78	229.15	326.77	4.02	12.23 S	14.41W
330.00	17.94	229.12	327.72	4.08	12.43 S	14.64W
331.00	18.12	229.13	328.67	4.15	12.64 S	14.87W
332.00	18.30	229.12	329.62	4.23	12.84 S	15.11W
333.00	18.44	229.21	330.57	4.33	13.05 S	15.35W
334.00	18.56	229.27	331.52	4.42	13.25 S	15.59W
335.00	18.69	229.29	332.46	4.53	13.46 S	15.83W
336.00	18.81	229.30	333.41	4.56	13.67 S	16.07W
337.00	18.95	229.23	334.36	4.60	13.88 S	16.32W
338.00	19.10	229.16	335.30	4.61	14.10 S	16.57W
339.00	19.22	229.09	336.25	4.60	14.31 S	16.81W
340.00	19.35	229.02	337.19	4.60	14.53 S	17.06W
341.00	19.48	228.96	338.14	4.55	14.75 S	17.31W
342.00	19.61	228.91	339.08	4.48	14.97 S	17.57W



DNB V/AL  
No. 7162  
AM

A Gyrodata Directional Survey

BRASKEM  
Well: Mina 35, 9 5/8"  
Location: RIGLESS, SAL GEMA  
Job Number: BZ0419GVC030

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	NORMALIZED DOGLEG deg/30m	HORIZONTAL COORDINATES meters	
343.00	19.76	228.87	340.02	4.42	15.19 S	17.82W
344.00	19.91	228.84	340.96	4.33	15.41 S	18.08W
345.00	20.05	228.78	341.90	4.24	15.64 S	18.33W
346.00	20.21	228.69	342.84	4.11	15.86 S	18.59W
347.00	20.40	228.53	343.78	4.00	16.09 S	18.85W
348.00	20.61	228.39	344.71	3.93	16.32 S	19.11W
349.00	20.82	228.32	345.65	3.87	16.56 S	19.38W
350.00	21.03	228.27	346.58	3.82	16.80 S	19.64W
351.00	21.18	228.30	347.52	3.74	17.04 S	19.91W
352.00	21.33	228.32	348.45	3.63	17.28 S	20.18W
353.00	21.46	228.29	349.38	3.52	17.52 S	20.46W
354.00	21.58	228.24	350.31	3.42	17.76 S	20.73W
355.00	21.70	228.17	351.24	3.31	18.01 S	21.00W
356.00	21.80	228.09	352.17	3.24	18.26 S	21.28W
357.00	21.90	228.01	353.10	3.10	18.51 S	21.56W
358.00	21.99	227.97	354.02	2.97	18.76 S	21.84W
359.00	22.09	228.07	354.95	2.85	19.01 S	22.11W
360.00	22.17	228.14	355.88	2.72	19.26 S	22.39W
361.00	22.22	228.19	356.80	2.60	19.51 S	22.68W
362.00	22.29	228.24	357.73	2.45	19.76 S	22.96W
363.00	22.35	228.17	358.65	2.26	20.02 S	23.24W
364.00	22.41	228.14	359.58	2.08	20.27 S	23.53W
365.00	22.49	228.18	360.50	1.89	20.52 S	23.81W
366.00	22.53	228.16	361.43	1.78	20.78 S	24.10W
367.00	22.56	228.16	362.35	1.69	21.04 S	24.38W
368.00	22.60	228.16	363.27	1.60	21.29 S	24.67W
369.00	22.62	228.13	364.20	1.53	21.55 S	24.95W
370.00	22.64	228.09	365.12	1.45	21.81 S	25.24W
371.00	22.70	228.02	366.04	1.39	22.06 S	25.53W
372.00	22.69	227.96	366.96	1.32	22.32 S	25.81W
373.00	22.71	227.91	367.89	1.27	22.58 S	26.10W
374.00	22.74	227.95	368.81	1.21	22.84 S	26.39W
375.00	22.75	227.96	369.73	1.17	23.10 S	26.67W
376.00	22.80	227.96	370.65	1.20	23.36 S	26.96W
377.00	22.84	227.95	371.57	1.19	23.62 S	27.25W
378.00	22.86	227.90	372.50	1.20	23.88 S	27.54W

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A Gyrodata Directional Survey

BRASKEM  
Well: Mina 35, 9 5/8"  
Location: RIGLESS, SAL GEMA  
Job Number: BZ0419GVC030

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	NORMALIZED DOGLEG deg/30m	HORIZONTAL COORDINATES meters	
379.00	22.89	227.86	373.42	1.21	24.14 S	27.83W
380.00	22.91	227.82	374.34	1.20	24.40 S	28.11W
381.00	22.95	227.74	375.26	1.22	24.66 S	28.40W
382.00	23.00	227.72	376.18	1.25	24.92 S	28.69W
383.00	23.05	227.77	377.10	1.27	25.19 S	28.98W
384.00	23.10	227.82	378.02	1.28	25.45 S	29.27W
385.00	23.15	227.93	378.94	1.29	25.71 S	29.56W
386.00	23.19	228.01	379.86	1.26	25.98 S	29.85W
387.00	23.22	228.01	380.78	1.30	26.24 S	30.15W
388.00	23.26	228.05	381.70	1.33	26.50 S	30.44W
389.00	23.30	228.06	382.62	1.34	26.77 S	30.73W
390.00	23.34	228.05	383.53	1.37	27.03 S	31.03W
391.00	23.42	228.04	384.45	1.34	27.30 S	31.32W
392.00	23.48	227.98	385.37	1.56	27.56 S	31.62W
393.00	23.55	227.94	386.29	1.67	27.83 S	31.92W
394.00	23.62	227.88	387.20	1.70	28.10 S	32.21W
395.00	23.68	227.83	388.12	1.75	28.37 S	32.51W
396.00	23.74	227.76	389.03	1.76	28.64 S	32.81W
397.00	23.80	227.69	389.95	1.77	28.91 S	33.11W
398.00	23.85	227.58	390.86	1.79	29.18 S	33.41W
399.00	23.88	227.50	391.78	1.82	29.46 S	33.70W
400.00	23.91	227.48	392.69	1.86	29.73 S	34.00W
401.00	23.94	227.42	393.61	1.89	30.00 S	34.30W
402.00	23.97	227.39	394.52	1.91	30.28 S	34.60W
403.00	24.02	227.34	395.43	1.93	30.55 S	34.90W
404.00	24.05	227.29	396.35	1.95	30.83 S	35.20W
405.00	24.09	227.28	397.26	1.98	31.11 S	35.50W
406.00	24.11	227.22	398.17	1.97	31.38 S	35.80W
407.00	24.35	226.96	399.09	1.95	31.66 S	36.10W
408.00	24.47	226.83	400.00	1.95	31.94 S	36.40W
409.00	24.54	226.83	400.91	1.91	32.23 S	36.70W
410.00	24.61	226.81	401.82	1.91	32.51 S	37.01W
411.00	24.66	226.75	402.72	1.89	32.80 S	37.31W
412.00	24.72	226.73	403.63	1.88	33.09 S	37.61W
413.00	24.79	226.70	404.54	1.89	33.37 S	37.92W
414.00	24.86	226.65	405.45	1.92	33.66 S	38.22W




30/08/2014  
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A Gyrodata Directional Survey

BRASKEM  
Well: Mina 35, 9 5/8"  
Location: RIGLESS, SAL GEMA  
Job Number: BZ0419GVC030

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	NORMALIZED DOGLEG deg/30m	HORIZONTAL COORDINATES meters	
415.00	24.93	226.64	406.36	1.94	33.95 S	38.53W
416.00	24.99	226.63	407.26	1.95	34.24 S	38.84W
417.00	25.05	226.67	408.17	1.95	34.53 S	39.14W
418.00	25.11	226.72	409.07	1.91	34.82 S	39.45W
419.00	25.17	226.73	409.98	1.93	35.11 S	39.76W
420.00	25.24	226.71	410.88	1.95	35.40 S	40.07W
421.00	25.30	226.64	411.79	1.94	35.70 S	40.38W
422.00	25.35	226.63	412.69	1.75	35.99 S	40.69W
423.00	25.42	226.61	413.60	1.67	36.28 S	41.01W
424.00	25.46	226.61	414.50	1.65	36.58 S	41.32W
425.00	25.53	226.67	415.40	1.63	36.87 S	41.63W
426.00	25.58	226.72	416.30	1.60	37.17 S	41.94W
427.00	25.64	226.72	417.21	1.54	37.47 S	42.26W
428.00	25.70	226.67	418.11	1.45	37.76 S	42.57W
429.00	25.76	226.57	419.01	1.40	38.06 S	42.89W
430.00	25.80	226.46	419.91	1.36	38.36 S	43.21W
431.00	25.85	226.45	420.81	1.33	38.66 S	43.52W
432.00	25.88	226.48	421.71	1.32	38.96 S	43.84W
433.00	25.90	226.49	422.61	1.29	39.26 S	44.15W
434.00	25.95	226.51	423.51	1.25	39.56 S	44.47W
435.00	26.01	226.51	424.41	1.20	39.87 S	44.79W
436.00	26.03	226.53	425.31	1.12	40.17 S	45.11W
437.00	26.09	226.56	426.20	1.06	40.47 S	45.43W
438.00	26.14	226.54	427.10	0.97	40.77 S	45.75W
439.00	26.18	226.50	428.00	0.92	41.08 S	46.07W
440.00	26.23	226.42	428.90	0.83	41.38 S	46.39W
441.00	26.25	226.40	429.79	0.77	41.68 S	46.71W
442.00	26.25	226.40	430.69	0.67	41.99 S	47.03W
443.00	26.24	226.43	431.59	0.59	42.29 S	47.35W
444.00	26.26	226.51	432.48	0.57	42.60 S	47.67W
445.00	26.29	226.52	433.38	0.58	42.90 S	47.99W
446.00	26.32	226.52	434.28	0.62	43.21 S	48.31W
447.00	26.37	226.52	435.17	0.69	43.51 S	48.63W
448.00	26.40	226.50	436.07	0.73	43.82 S	48.95W
449.00	26.42	226.54	436.96	0.73	44.13 S	49.28W
450.00	26.44	226.56	437.86	0.72	44.43 S	49.60W

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A Gyrodata Directional Survey

BRASKEM  
Well: Mina 35, 9 5/8"  
Location: RIGLESS, SAL GEMA  
Job Number: BZ0419GVC030

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	NORMALIZED DOGLEG deg/30m	HORIZONTAL COORDINATES meters	
451.00	26.42	226.57	438.76	0.72	44.74 S	49.92W
452.00	26.41	226.59	439.65	0.70	45.04 S	50.25W
453.00	26.39	226.58	440.55	0.67	45.35 S	50.57W
454.00	26.38	226.59	441.44	0.65	45.65 S	50.89W
455.00	26.36	226.58	442.34	0.62	45.96 S	51.22W
456.00	26.35	226.55	443.23	0.64	46.27 S	51.54W
457.00	26.31	226.66	444.13	0.67	46.57 S	51.86W
458.00	26.29	226.71	445.03	0.72	46.87 S	52.18W
459.00	26.33	226.67	445.92	0.75	47.18 S	52.51W
460.00	26.38	226.61	446.82	0.77	47.48 S	52.83W
461.00	26.47	226.45	447.72	0.80	47.79 S	53.15W
462.00	26.57	226.30	448.61	0.80	48.10 S	53.47W
463.00	26.62	226.24	449.50	0.77	48.41 S	53.80W
464.00	26.67	226.21	450.40	0.81	48.72 S	54.12W
465.00	26.71	226.16	451.29	0.82	49.03 S	54.45W
466.00	26.73	226.13	452.18	0.90	49.34 S	54.77W
467.00	26.76	226.11	453.08	0.98	49.65 S	55.09W
468.00	26.77	226.06	453.97	1.06	49.96 S	55.42W
469.00	26.79	226.03	454.86	1.13	50.28 S	55.74W
470.00	26.82	226.02	455.76	1.19	50.59 S	56.07W
471.00	26.86	226.00	456.65	1.26	50.90 S	56.39W
472.00	26.90	226.00	457.54	1.35	51.22 S	56.72W
473.00	26.94	226.02	458.43	1.39	51.53 S	57.04W
474.00	26.98	226.03	459.32	1.32	51.85 S	57.37W
475.00	27.02	226.01	460.21	1.19	52.16 S	57.70W
476.00	27.08	225.99	461.10	1.00	52.48 S	58.02W
477.00	27.13	225.98	461.99	0.91	52.79 S	58.35W
478.00	27.14	225.99	462.88	0.88	53.11 S	58.68W
479.00	27.19	225.97	463.77	0.92	53.43 S	59.01W
480.00	27.21	225.95	464.66	1.03	53.75 S	59.34W
481.00	27.26	225.88	465.55	1.07	54.06 S	59.66W
482.00	27.32	225.76	466.44	1.08	54.38 S	59.99W
483.00	27.37	225.69	467.33	1.10	54.70 S	60.32W
484.00	27.42	225.63	468.22	1.07	55.03 S	60.65W
485.00	27.46	225.57	469.11	1.08	55.35 S	60.98W
486.00	27.51	225.49	469.99	1.11	55.67 S	61.31W



A Gyrodata Directional Survey

BRASKEM  
Well: Mina 35, 9 5/8"  
Location: RIGLESS, SAL GEMA  
Job Number: BZ0419GVC030

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	NORMALIZED DOGLEG deg/30m	HORIZONTAL COORDINATES meters	
487.00	27.54	225.45	470.88	1.15	56.00 S	61.64W
488.00	27.55	225.43	471.77	1.19	56.32 S	61.97W
489.00	27.53	225.43	472.65	1.21	56.64 S	62.30W
490.00	27.46	225.49	473.54	1.20	56.97 S	62.63W
491.00	27.40	225.61	474.43	1.17	57.29 S	62.96W
492.00	27.43	225.64	475.31	1.18	57.61 S	63.29W
493.00	27.45	225.57	476.20	1.21	57.94 S	63.61W
494.00	27.51	225.40	477.09	1.24	58.26 S	63.94W
495.00	27.62	225.08	477.98	1.28	58.59 S	64.27W
496.00	27.64	224.88	478.86	1.24	58.91 S	64.60W
497.00	27.66	224.80	479.75	1.16	59.24 S	64.93W
498.00	27.69	224.76	480.63	1.11	59.57 S	65.25W
499.00	27.70	224.78	481.52	1.10	59.90 S	65.58W
500.00	27.73	224.74	482.40	1.13	60.23 S	65.91W
501.00	27.79	224.69	483.29	1.22	60.56 S	66.24W
502.00	27.87	224.65	484.17	1.31	60.89 S	66.57W
503.00	27.94	224.62	485.06	1.38	61.23 S	66.89W
504.00	27.99	224.59	485.94	1.48	61.56 S	67.22W
505.00	28.01	224.56	486.82	1.63	61.90 S	67.55W
506.00	28.04	224.53	487.71	1.77	62.23 S	67.88W
507.00	28.09	224.50	488.59	1.85	62.57 S	68.21W
508.00	28.13	224.48	489.47	1.92	62.90 S	68.54W
509.00	28.21	224.47	490.35	1.93	63.24 S	68.87W
510.00	28.27	224.42	491.23	1.88	63.58 S	69.20W
511.00	28.32	224.48	492.11	1.92	63.92 S	69.54W
512.00	28.35	224.61	492.99	1.99	64.25 S	69.87W
513.00	28.37	224.65	493.87	2.03	64.59 S	70.20W
514.00	28.42	224.66	494.75	2.11	64.93 S	70.54W
515.00	28.50	224.61	495.63	2.17	65.27 S	70.87W
516.00	28.61	224.39	496.51	2.22	65.61 S	71.21W
517.00	28.72	224.25	497.39	2.25	65.95 S	71.54W
518.00	28.81	224.22	498.26	2.29	66.30 S	71.88W
519.00	28.89	224.17	499.14	2.32	66.64 S	72.21W
520.00	28.96	224.16	500.02	2.38	66.99 S	72.55W
521.00	29.03	224.13	500.89	2.43	67.34 S	72.89W
522.00	29.12	224.06	501.76	2.45	67.69 S	73.23W