

UNPINAL
Is. 7.669
01

A Gyrodata Directional Survey

BRASKEM

Well: Mina 11

Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC042

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
304.00	0.27	146.74	304.00	0.09	0.20 S	0.87 E
305.00	0.26	146.17	305.00	0.14	0.20 S	0.87 E
306.00	0.26	146.45	306.00	0.07	0.21 S	0.88 E
307.00	0.26	146.75	307.00	0.05	0.21 S	0.88 E
308.00	0.26	146.76	308.00	0.03	0.22 S	0.88 E
309.00	0.27	147.04	309.00	0.18	0.22 S	0.88 E
310.00	0.28	147.85	310.00	0.27	0.22 S	0.89 E
311.00	0.28	148.87	311.00	0.23	0.23 S	0.89 E
312.00	0.29	149.98	312.00	0.34	0.23 S	0.89 E
313.00	0.31	151.47	313.00	0.51	0.24 S	0.89 E
314.00	0.33	153.20	314.00	0.59	0.24 S	0.90 E
315.00	0.33	154.56	315.00	0.36	0.25 S	0.90 E
316.00	0.34	155.52	316.00	0.25	0.25 S	0.90 E
317.00	0.35	156.55	317.00	0.30	0.26 S	0.90 E
318.00	0.35	157.82	318.00	0.29	0.26 S	0.91 E
319.00	0.36	159.53	319.00	0.33	0.27 S	0.91 E
320.00	0.36	161.40	320.00	0.35	0.27 S	0.91 E
321.00	0.36	162.93	321.00	0.30	0.28 S	0.91 E
322.00	0.35	163.83	322.00	0.22	0.29 S	0.91 E
323.00	0.35	164.13	323.00	0.16	0.29 S	0.92 E
324.00	0.34	164.85	324.00	0.25	0.30 S	0.92 E
325.00	0.33	165.55	325.00	0.38	0.30 S	0.92 E
326.00	0.31	165.61	326.00	0.36	0.31 S	0.92 E
327.00	0.30	165.22	327.00	0.31	0.31 S	0.92 E
328.00	0.30	164.94	328.00	0.19	0.32 S	0.92 E
329.00	0.30	164.11	329.00	0.14	0.32 S	0.93 E
330.00	0.30	162.65	330.00	0.23	0.33 S	0.93 E
331.00	0.30	161.19	331.00	0.24	0.33 S	0.93 E
332.00	0.31	159.41	332.00	0.35	0.34 S	0.93 E
333.00	0.32	158.16	333.00	0.36	0.34 S	0.93 E
334.00	0.32	157.14	334.00	0.29	0.35 S	0.93 E
335.00	0.33	156.14	335.00	0.25	0.35 S	0.94 E
336.00	0.34	155.16	336.00	0.25	0.36 S	0.94 E
337.00	0.35	153.68	337.00	0.42	0.37 S	0.94 E
338.00	0.36	152.32	338.00	0.39	0.37 S	0.94 E
339.00	0.37	150.92	339.00	0.47	0.38 S	0.95 E
340.00	0.38	148.71	340.00	0.56	0.38 S	0.95 E
341.00	0.39	146.84	341.00	0.40	0.39 S	0.95 E
342.00	0.40	145.15	342.00	0.42	0.39 S	0.96 E
343.00	0.40	142.94	343.00	0.49	0.40 S	0.96 E
344.00	0.40	141.70	344.00	0.26	0.40 S	0.97 E
345.00	0.40	140.13	345.00	0.33	0.41 S	0.97 E
346.00	0.40	138.57	346.00	0.33	0.42 S	0.98 E
347.00	0.40	136.90	347.00	0.35	0.42 S	0.98 E
348.00	0.40	136.10	348.00	0.27	0.43 S	0.98 E

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A Gyrodata Directional Survey

BRASKEM
Well: Mina 11
Location: RIGLESS, SAL GEMA
Job Number: BZ0419GVC042

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
349.00	0.39	136.86	349.00	0.29	0.43 S	0.99 E
350.00	0.38	140.33	350.00	0.75	0.44 S	0.99 E
351.00	0.39	125.41	351.00	3.04	0.44 S	1.00 E
352.00	0.39	126.19	352.00	0.24	0.44 S	1.00 E
353.00	0.38	135.17	353.00	1.82	0.45 S	1.01 E
354.00	0.36	156.43	354.00	4.14	0.45 S	1.01 E
355.00	0.33	182.58	355.00	4.76	0.46 S	1.01 E
356.00	0.33	203.72	356.00	3.65	0.46 S	1.01 E

Final Station Closure: Distance: 1.11 m Az: 114.65 deg.




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Parte 5
Controle de Qualidade

DNPA/AL
Is. 7.672


5.0 CONTROLE DE QUALIDADE

Survey QC – Vertical Continuous Analysis Sheet	
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SURVEY QUALITY CONTROL – SPECIFICATION DATA

PRE-JOB CALIBRATION VERIFICATION (ROLL TEST)

System Parameter	dGx	dGy	dmbo	Mean Gravity Error	Stdev Gravity Error
Standard Deviation	0.010	0.010	0.010	0.00021	0.00001
Tolerance	0.033	0.033	0.087	0.00591	0.00720

CALIBRATION

Tool Number	FA088	Calibration Date	06 Jan 2016
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OPERATING TEMPERATURE

Calibration range	From	30.03	To	120.04	
Gyro operating range for Job	From	61.12	To	62.36	In-Spec If +/- 2.5 °C of Calibration

INCLINATION DIFFERENCE TEST

Chi-square test value	0.8
Tolerance	34.4
Number of overlapping survey stations used	15.0

CO-ORDINATE DIFFERENCE TEST

	North	East	Vertical
Chi-square test value	1.3	0.4	5.9
Tolerance	34.4	34.4	34.4
Number of overlapping survey stations used	15.0	15.0	15.0

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Parte 6
Relatório Cronológico
da Operação

6.0 RELATÓRIO CRONOLÓGICO DA OPERAÇÃO

19 de Abril de 2019

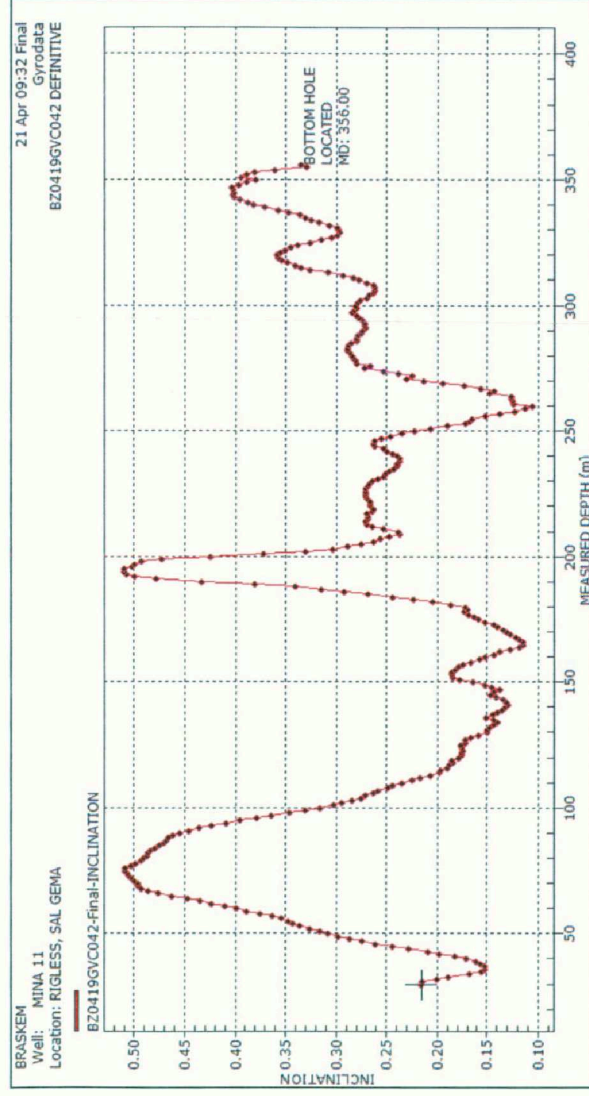
08:30 Pós calibração
10:00 Chegada na mina 11
11:00 Conexão Gyrodata/Flodim
11:45 Início de Corrida Multishot modo Compass
13:30 Desmontagem de equipamentos e saída da mina 11
15:00 Pós calibração



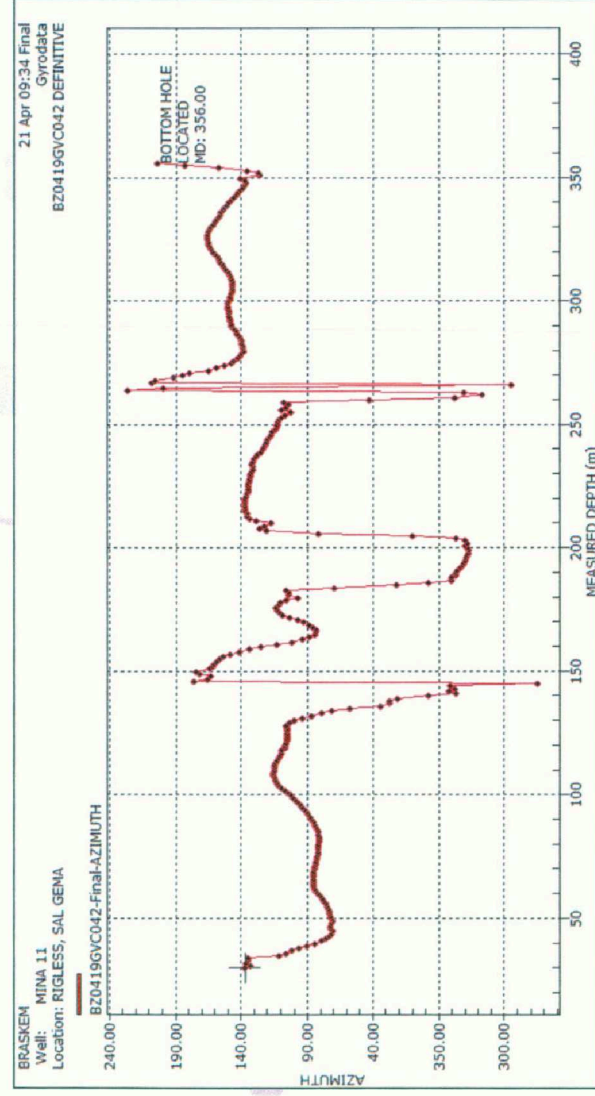
Parte 7
Gráficos

UNPUBLISHED
18. 7-676

INCLINATION

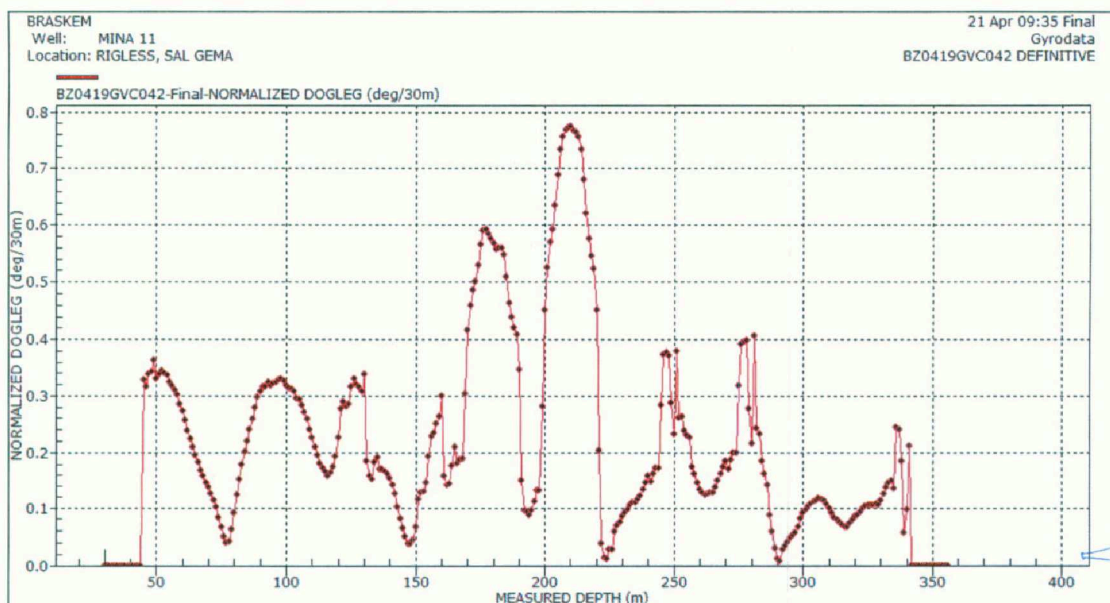


AZIMUTH



DNPMIAL
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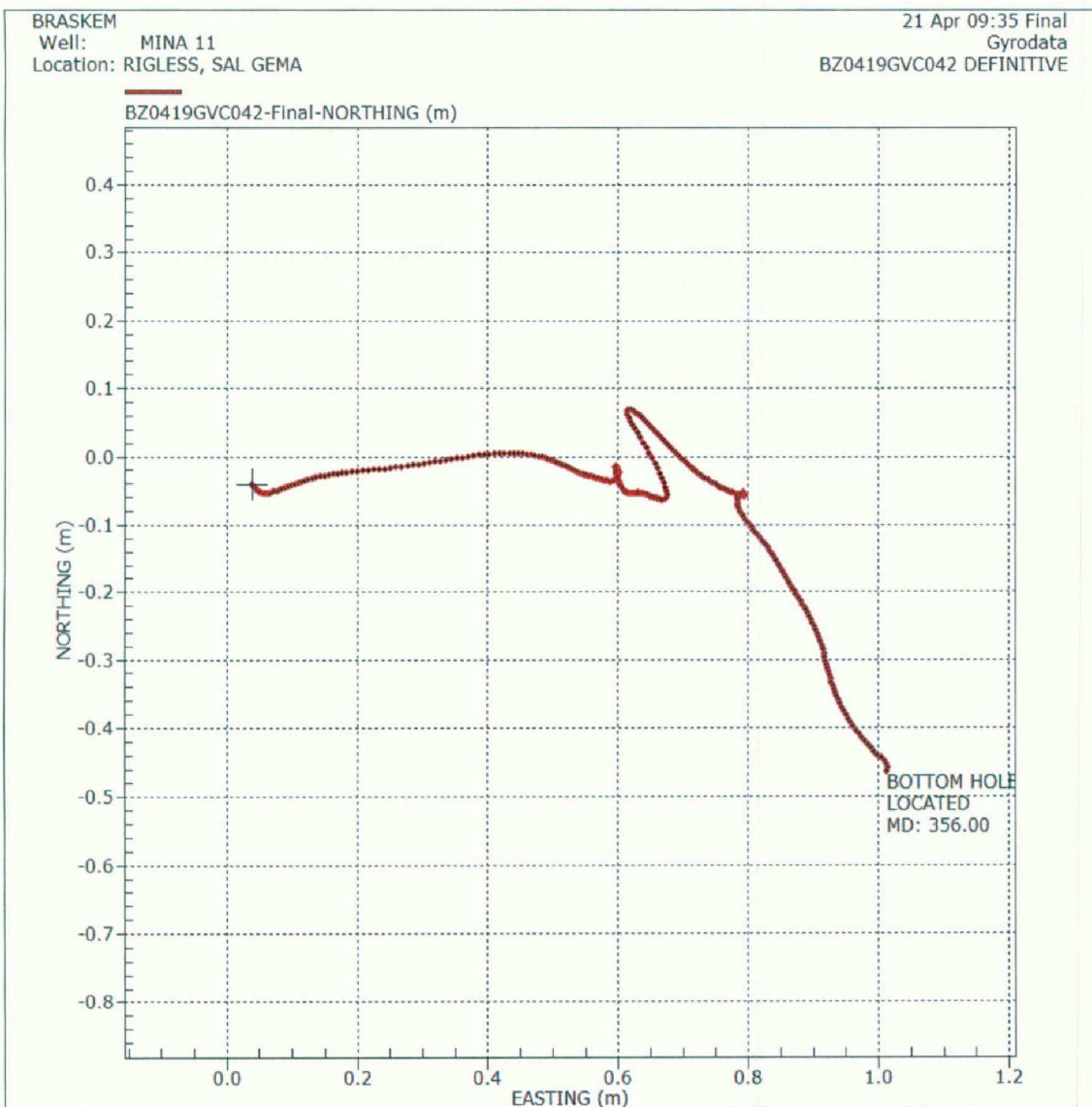
DOG LEG (deg/30m)



Gyrodata

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No. 7.678
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NORTE / LESTE



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[assinatura]



Braskem

Campo: Sal Gema

Poço: Mina 31

Gyro Multishot Contínuo

Data da Amostragem: 20 de Abril de 2019

Número de Trabalho: BZ0419GVC043

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Parte 1
Discussão

1.0 DISCUSSÃO

O Giroscópio FA0199 foi utilizado para fazer uma amostragem na Mina 31.

A amostragem foi coletada da superfície até 999.00m.

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.



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Parte 2
Página de Certificado da Amostragem

UNPM/AL
Nº. 7.684
[assinatura]

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.

Leonardo Gomes

Data: 21 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: 21 de Abril de 2019



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Parte 3
Detalhes da Amostragem

3.0 DETALHES DA AMOSTRAGEM

Cliente	:	Braskem
Sonda	:	N/A
Campo	:	Sal Gema
Poço	:	Mina 31
Latitude	:	9.633600 deg. S
Longitude	:	35.748600 deg. W
Data da amostragem	:	20 de Abril de 2019
Tipo de amostragem	:	Gyro Multishot Contínuo
Referência de profundidade	:	Ground
Max. Profundidade da amostragem	:	999.00 metros
Origem da seção vertical	:	-
Azimute da seção vertical	:	-
Referência Norte	:	Norte Verdadeiro
Grid Correction	:	-
Método de cálculo	:	Mínima Curvatura
Surveyors	:	Leonardo Gomes

Parte 4
Listagem Definitiva da Amostragem

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4.0 LISTAGEM DEFINITIVA DA AMOSTRAGEM

A Gyrodata Directional Survey

for

BRASKEM

Well: Mina 31,
Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC043

Run Date: 20 Apr 2019

Report Generated: 24 Apr 2019 08:09

Surveyor: Leonardo Gomes

Calculation Method: MINIMUM CURVATURE

Survey surface coordinates obtained from: Company Man

Survey Latitude: 9.633600 deg. S

Longitude: 35.748600 deg. W

Azimuth Correction:

Gyro: Bearings are Relative to True North

Depth Reference: Ground

Vertical Section Calculated from Well Head Location

Closure Calculated from Well Head Location

Horizontal Coordinates Calculated from Well Head Location

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A Gyrodata Directional Survey

BRASKEM

Well: Mina 31

Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
0.00	0.00	0.00	0.00	0.00	0.00 N	0.00 E
9.95	2.46	125.75	9.95	7.42	0.12 S	0.17 E
11.03	2.52	125.79	11.03	1.67	0.15 S	0.21 E
12.02	2.57	126.28	12.01	1.65	0.18 S	0.25 E
13.04	2.56	126.78	13.03	0.72	0.21 S	0.28 E
14.06	2.62	126.25	14.05	1.90	0.23 S	0.32 E
15.02	2.66	126.28	15.01	1.25	0.26 S	0.36 E
16.00	2.84	126.06	15.99	5.52	0.29 S	0.39 E
17.03	2.86	125.74	17.02	0.74	0.32 S	0.44 E
18.02	2.93	126.23	18.01	2.25	0.35 S	0.48 E
19.04	2.93	125.07	19.03	1.74	0.38 S	0.52 E
20.00	2.95	125.76	19.99	1.27	0.40 S	0.56 E
21.02	2.98	125.53	21.00	0.95	0.44 S	0.60 E
21.97	3.03	125.21	21.95	1.67	0.46 S	0.64 E
23.00	3.09	125.70	22.98	1.77	0.50 S	0.69 E
24.00	3.14	126.01	23.98	1.78	0.53 S	0.73 E
25.00	3.21	126.13	24.98	2.14	0.56 S	0.78 E
26.00	3.29	126.12	25.98	2.40	0.59 S	0.82 E
27.00	3.39	125.98	26.98	2.86	0.63 S	0.87 E
28.00	3.50	126.00	27.97	3.27	0.66 S	0.92 E
29.00	3.62	126.30	28.97	3.58	0.70 S	0.97 E
30.00	3.73	126.69	29.97	3.50	0.74 S	1.02 E
31.00	3.83	127.15	30.97	3.13	0.78 S	1.07 E
32.00	3.91	127.45	31.96	2.39	0.82 S	1.13 E
33.00	3.96	127.66	32.96	1.73	0.86 S	1.18 E
34.00	4.00	127.71	33.96	1.24	0.90 S	1.23 E
35.00	4.04	127.76	34.96	1.05	0.95 S	1.29 E
36.00	4.07	127.83	35.96	1.03	0.99 S	1.35 E
37.00	4.11	127.94	36.95	1.05	1.03 S	1.40 E
38.00	4.14	128.12	37.95	1.00	1.08 S	1.46 E
39.00	4.17	128.25	38.95	0.94	1.12 S	1.52 E
40.00	4.20	128.44	39.94	1.05	1.17 S	1.57 E
41.00	4.24	128.62	40.94	1.26	1.21 S	1.63 E
42.00	4.29	128.83	41.94	1.48	1.26 S	1.69 E
43.00	4.34	129.07	42.94	1.74	1.31 S	1.75 E
44.00	4.40	129.39	43.93	1.92	1.36 S	1.81 E
45.00	4.46	129.80	44.93	2.01	1.40 S	1.87 E
46.00	4.52	130.19	45.93	1.97	1.45 S	1.93 E
47.00	4.60	130.62	46.92	2.64	1.51 S	1.99 E
48.00	4.69	131.00	47.92	2.94	1.56 S	2.05 E
49.00	4.76	131.28	48.92	2.24	1.61 S	2.11 E
50.00	4.86	131.70	49.91	3.23	1.67 S	2.17 E
51.00	4.95	132.09	50.91	2.76	1.73 S	2.24 E
52.00	5.06	132.57	51.91	3.51	1.78 S	2.30 E
53.00	5.16	132.92	52.90	3.20	1.85 S	2.37 E
54.00	5.25	133.25	53.90	2.76	1.91 S	2.43 E

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A Gyrodata Directional Survey

BRASKEM

Well: Mina 31

Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
55.00	5.32	133.56	54.89	2.36	1.97 S	2.50 E
56.00	5.38	133.85	55.89	2.02	2.04 S	2.57 E
57.00	5.44	134.01	56.89	1.75	2.10 S	2.63 E
58.00	5.50	134.10	57.88	1.76	2.17 S	2.70 E
59.00	5.56	134.19	58.88	1.94	2.23 S	2.77 E
60.00	5.63	134.35	59.87	2.12	2.30 S	2.84 E
61.00	5.70	134.53	60.87	2.17	2.37 S	2.91 E
62.00	5.77	134.65	61.86	2.19	2.44 S	2.98 E
63.00	5.85	134.74	62.86	2.36	2.51 S	3.06 E
64.00	5.94	134.84	63.85	2.66	2.58 S	3.13 E
65.00	6.03	134.89	64.85	2.88	2.66 S	3.20 E
66.00	6.13	134.77	65.84	2.99	2.73 S	3.28 E
67.00	6.20	134.54	66.83	2.11	2.81 S	3.35 E
68.00	6.26	134.33	67.83	1.96	2.88 S	3.43 E
69.00	6.31	134.19	68.82	1.68	2.96 S	3.51 E
70.00	6.36	134.14	69.82	1.51	3.04 S	3.59 E
71.00	6.41	134.23	70.81	1.33	3.12 S	3.67 E
72.00	6.46	134.43	71.80	1.83	3.19 S	3.75 E
73.00	6.52	134.60	72.80	1.67	3.27 S	3.83 E
74.00	6.56	134.77	73.79	1.55	3.35 S	3.91 E
75.00	6.61	134.97	74.78	1.44	3.43 S	3.99 E
76.00	6.64	135.15	75.78	1.24	3.52 S	4.07 E
77.00	6.68	135.26	76.77	1.09	3.60 S	4.15 E
78.00	6.71	135.31	77.76	1.00	3.68 S	4.24 E
79.00	6.74	135.38	78.76	0.99	3.76 S	4.32 E
80.00	6.77	135.46	79.75	0.89	3.85 S	4.40 E
81.00	6.79	135.53	80.74	0.76	3.93 S	4.48 E
82.00	6.81	135.58	81.74	0.66	4.02 S	4.57 E
83.00	6.83	135.59	82.73	0.57	4.10 S	4.65 E
84.00	6.85	135.66	83.72	0.68	4.19 S	4.73 E
85.00	6.87	135.74	84.71	0.66	4.27 S	4.82 E
86.00	6.89	135.84	85.71	0.68	4.36 S	4.90 E
87.00	6.91	135.90	86.70	0.44	4.44 S	4.98 E
88.00	6.92	135.88	87.69	0.34	4.53 S	5.07 E
89.00	6.93	135.85	88.69	0.38	4.62 S	5.15 E
90.00	6.94	135.82	89.68	0.35	4.70 S	5.24 E
91.00	6.94	135.80	90.67	0.13	4.79 S	5.32 E
92.00	6.93	135.71	91.66	0.52	4.88 S	5.40 E
93.00	6.90	135.47	92.66	1.27	4.96 S	5.49 E
94.00	6.86	135.06	93.65	1.94	5.05 S	5.57 E
95.00	6.81	134.51	94.64	2.38	5.13 S	5.66 E
96.00	6.77	133.92	95.64	2.42	5.21 S	5.74 E
97.00	6.74	133.42	96.63	2.06	5.30 S	5.83 E
98.00	6.70	132.93	97.62	2.09	5.38 S	5.91 E
99.00	6.65	132.29	98.61	2.68	5.45 S	6.00 E
100.00	6.59	131.38	99.61	3.68	5.53 S	6.08 E

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A Gyrodata Directional Survey

BRASKEM

Well: Mina 31

Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
101.00	6.51	130.29	100.60	4.33	5.61 S	6.17 E
102.00	6.43	129.10	101.60	4.73	5.68 S	6.26 E
103.00	6.34	127.88	102.59	4.94	5.75 S	6.34 E
104.00	6.24	126.65	103.58	4.92	5.81 S	6.43 E
105.00	6.16	125.27	104.58	5.16	5.88 S	6.52 E
106.00	6.09	123.82	105.57	5.04	5.94 S	6.61 E
107.00	6.05	122.31	106.57	4.94	5.99 S	6.70 E
108.00	6.02	121.00	107.56	4.22	6.05 S	6.78 E
109.00	6.01	119.89	108.55	3.54	6.10 S	6.88 E
110.00	5.99	118.96	109.55	2.94	6.15 S	6.97 E
111.00	5.97	118.13	110.54	2.69	6.20 S	7.06 E
112.00	5.95	117.31	111.54	2.60	6.25 S	7.15 E
113.00	5.93	116.51	112.53	2.57	6.30 S	7.24 E
114.00	5.92	115.73	113.53	2.44	6.34 S	7.33 E
115.00	5.90	114.96	114.52	2.41	6.39 S	7.43 E
116.00	5.89	114.18	115.52	2.42	6.43 S	7.52 E
117.00	5.88	113.34	116.51	2.60	6.47 S	7.61 E
118.00	5.87	112.40	117.51	2.90	6.51 S	7.71 E
119.00	5.87	111.34	118.50	3.25	6.55 S	7.80 E
120.00	5.88	110.17	119.50	3.59	6.59 S	7.90 E
121.00	5.89	109.09	120.49	3.37	6.62 S	8.00 E
122.00	5.91	108.19	121.49	2.81	6.65 S	8.09 E
123.00	5.92	107.56	122.48	2.00	6.69 S	8.19 E
124.00	5.94	107.06	123.47	1.61	6.72 S	8.29 E
125.00	5.95	106.53	124.47	1.72	6.75 S	8.39 E
126.00	5.97	105.96	125.46	1.88	6.78 S	8.49 E
127.00	5.99	105.32	126.46	2.07	6.80 S	8.59 E
128.00	6.01	104.71	127.45	1.97	6.83 S	8.69 E
129.00	6.02	104.03	128.45	2.19	6.86 S	8.79 E
130.00	6.04	103.20	129.44	2.66	6.88 S	8.89 E
131.00	6.06	102.31	130.44	2.91	6.90 S	9.00 E
132.00	6.09	101.43	131.43	2.93	6.93 S	9.10 E
133.00	6.12	100.76	132.43	2.29	6.95 S	9.20 E
134.00	6.14	100.33	133.42	1.51	6.97 S	9.31 E
135.00	6.16	99.98	134.41	1.29	6.99 S	9.42 E
136.00	6.19	99.61	135.41	1.44	7.00 S	9.52 E
137.00	6.23	99.19	136.40	1.81	7.02 S	9.63 E
138.00	6.28	98.76	137.40	2.04	7.04 S	9.74 E
139.00	6.33	98.49	138.39	1.88	7.05 S	9.84 E
140.00	6.37	98.39	139.38	1.25	7.07 S	9.95 E
141.00	6.41	98.34	140.38	1.18	7.09 S	10.06 E
142.00	6.44	98.38	141.37	0.79	7.10 S	10.17 E
143.00	6.48	98.50	142.37	1.23	7.12 S	10.29 E
144.00	6.49	98.55	143.36	0.59	7.14 S	10.40 E
145.00	6.54	98.67	144.35	1.35	7.15 S	10.51 E
146.00	6.57	98.74	145.35	1.14	7.17 S	10.62 E

UNPLIAL
Is. 7.692
⑧

A Gyrodata Directional Survey

BRASKEM

Well: Mina 31

Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
147.00	6.62	98.77	146.34	1.41	7.19 S	10.74 E
148.00	6.69	98.78	147.33	2.13	7.21 S	10.85 E
149.00	6.77	98.88	148.33	2.46	7.22 S	10.97 E
150.00	6.86	99.05	149.32	2.54	7.24 S	11.08 E
151.00	6.94	99.35	150.31	2.66	7.26 S	11.20 E
152.00	7.02	99.67	151.30	2.72	7.28 S	11.32 E
153.00	7.10	100.05	152.30	2.89	7.30 S	11.44 E
154.00	7.20	100.46	153.29	3.18	7.33 S	11.57 E
155.00	7.30	100.88	154.28	3.45	7.35 S	11.69 E
156.00	7.41	101.33	155.27	3.86	7.37 S	11.81 E
157.00	7.54	101.82	156.26	4.15	7.40 S	11.94 E
158.00	7.66	102.32	157.25	4.21	7.43 S	12.07 E
159.00	7.77	102.78	158.25	3.87	7.46 S	12.20 E
160.00	7.87	103.21	159.24	3.39	7.49 S	12.33 E
161.00	7.95	103.56	160.23	2.84	7.52 S	12.47 E
162.00	8.02	103.86	161.22	2.54	7.55 S	12.60 E
163.00	8.10	104.13	162.21	2.49	7.59 S	12.74 E
164.00	8.18	104.40	163.20	2.59	7.62 S	12.88 E
165.00	8.25	104.68	164.19	2.55	7.66 S	13.02 E
166.00	8.32	104.96	165.18	2.50	7.69 S	13.15 E
167.00	8.39	105.22	166.17	2.43	7.73 S	13.29 E
168.00	8.47	105.57	167.16	2.69	7.77 S	13.44 E
169.00	8.55	106.07	168.14	3.28	7.81 S	13.58 E
170.00	8.64	106.70	169.13	3.82	7.85 S	13.72 E
171.00	8.72	107.37	170.12	4.03	7.90 S	13.87 E
172.00	8.81	107.92	171.11	3.62	7.94 S	14.01 E
173.00	8.89	108.36	172.10	3.17	7.99 S	14.16 E
174.00	8.97	108.65	173.09	2.73	8.04 S	14.30 E
175.00	9.05	108.90	174.07	2.69	8.09 S	14.45 E
176.00	9.13	109.22	175.06	2.85	8.14 S	14.60 E
177.00	9.21	109.60	176.05	2.88	8.19 S	14.75 E
178.00	9.27	110.01	177.04	2.79	8.25 S	14.90 E
179.00	9.32	110.38	178.02	2.43	8.30 S	15.06 E
180.00	9.38	110.71	179.01	2.22	8.36 S	15.21 E
181.00	9.43	111.10	180.00	2.51	8.42 S	15.36 E
182.00	9.49	111.52	180.98	2.73	8.48 S	15.51 E
183.00	9.55	111.98	181.97	2.97	8.54 S	15.67 E
184.00	9.62	112.46	182.95	3.17	8.60 S	15.82 E
185.00	9.70	112.96	183.94	3.41	8.67 S	15.98 E
186.00	9.79	113.48	184.93	3.79	8.74 S	16.13 E
187.00	9.89	113.95	185.91	3.81	8.80 S	16.29 E
188.00	9.98	114.38	186.90	3.55	8.88 S	16.45 E
189.00	10.06	114.72	187.88	2.96	8.95 S	16.60 E
190.00	10.13	115.00	188.86	2.54	9.02 S	16.76 E
191.00	10.17	115.33	189.85	2.18	9.10 S	16.92 E
191.00	10.18	115.47	189.85	0.00	9.10 S	16.92 E

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Is. 7-683
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A Gyrodata Directional Survey

BRASKEM

Well: Mina 31

Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
192.00	10.23	115.60	190.83	1.65	9.17 S	17.08 E
193.00	10.29	115.85	191.82	2.24	9.25 S	17.24 E
194.00	10.33	116.10	192.80	1.80	9.33 S	17.40 E
195.00	10.39	116.23	193.79	1.93	9.41 S	17.56 E
196.00	10.45	116.25	194.77	1.80	9.49 S	17.73 E
197.00	10.50	116.18	195.75	1.55	9.57 S	17.89 E
198.00	10.53	116.05	196.74	1.15	9.65 S	18.05 E
199.00	10.59	115.99	197.72	1.83	9.73 S	18.22 E
200.00	10.64	115.97	198.70	1.50	9.81 S	18.38 E
201.00	10.71	115.92	199.68	2.12	9.89 S	18.55 E
202.00	10.76	115.79	200.67	1.67	9.97 S	18.72 E
203.00	10.82	115.58	201.65	2.15	10.05 S	18.89 E
204.00	10.87	115.40	202.63	1.81	10.13 S	19.06 E
205.00	10.93	115.11	203.61	2.44	10.21 S	19.23 E
206.00	10.98	114.76	204.59	2.50	10.29 S	19.40 E
207.00	11.02	114.33	205.58	2.74	10.37 S	19.57 E
208.00	11.07	113.89	206.56	2.94	10.45 S	19.75 E
209.00	11.10	113.53	207.54	2.26	10.53 S	19.92 E
210.00	11.14	113.12	208.52	2.66	10.61 S	20.10 E
211.00	11.19	112.67	209.50	3.01	10.68 S	20.28 E
212.00	11.25	112.09	210.48	3.83	10.75 S	20.46 E
213.00	11.29	111.61	211.46	3.06	10.83 S	20.64 E
214.00	11.32	111.16	212.44	2.80	10.90 S	20.82 E
215.00	11.34	110.81	213.42	2.15	10.97 S	21.01 E
216.00	11.35	110.59	214.40	1.33	11.04 S	21.19 E
217.00	11.39	110.34	215.38	1.90	11.11 S	21.38 E
218.00	11.44	110.25	216.36	1.59	11.18 S	21.56 E
219.00	11.46	110.12	217.35	0.98	11.25 S	21.75 E
220.00	11.49	110.01	218.33	1.11	11.31 S	21.94 E
221.00	11.53	109.98	219.30	1.21	11.38 S	22.12 E
222.00	11.56	109.94	220.28	0.93	11.45 S	22.31 E
223.00	11.59	109.92	221.26	0.91	11.52 S	22.50 E
224.00	11.61	109.94	222.24	0.61	11.59 S	22.69 E
225.00	11.62	109.89	223.22	0.43	11.66 S	22.88 E
226.00	11.64	109.89	224.20	0.60	11.72 S	23.07 E
227.00	11.67	110.02	225.18	1.20	11.79 S	23.26 E
228.00	11.70	110.25	226.16	1.66	11.86 S	23.45 E
229.00	11.72	110.49	227.14	1.58	11.93 S	23.64 E
230.00	11.76	110.60	228.12	1.38	12.00 S	23.83 E
231.00	11.82	110.68	229.10	1.87	12.08 S	24.02 E
232.00	11.88	110.80	230.08	1.95	12.15 S	24.21 E
233.00	11.95	110.95	231.06	2.30	12.22 S	24.40 E
234.00	11.99	111.17	232.03	1.82	12.30 S	24.60 E
235.00	12.04	111.36	233.01	1.91	12.37 S	24.79 E
236.00	12.10	111.64	233.99	2.52	12.45 S	24.99 E
237.00	12.18	112.00	234.97	3.30	12.53 S	25.18 E

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A Gyrodata Directional Survey

BRASKEM

Well: Mina 31

Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
238.00	12.25	112.38	235.95	3.20	12.61 S	25.38 E
239.00	12.31	112.73	236.92	2.87	12.69 S	25.57 E
240.00	12.36	112.98	237.90	2.19	12.77 S	25.77 E
241.00	12.42	113.27	238.88	2.59	12.86 S	25.97 E
242.00	12.49	113.50	239.85	2.57	12.94 S	26.17 E
243.00	12.55	113.73	240.83	2.34	13.03 S	26.36 E
244.00	12.62	113.93	241.80	2.47	13.12 S	26.56 E
245.00	12.70	114.17	242.78	2.87	13.21 S	26.76 E
246.00	12.76	114.39	243.76	2.31	13.30 S	26.97 E
247.00	12.83	114.56	244.73	2.38	13.39 S	27.17 E
248.00	12.89	114.73	245.71	2.13	13.48 S	27.37 E
249.00	12.95	114.94	246.68	2.29	13.58 S	27.57 E
250.00	13.04	115.08	247.65	2.86	13.67 S	27.78 E
251.00	13.12	115.20	248.63	2.53	13.77 S	27.98 E
252.00	13.20	115.32	249.60	2.54	13.86 S	28.19 E
253.00	13.28	115.41	250.58	2.48	13.96 S	28.39 E
254.00	13.33	115.55	251.55	1.78	14.06 S	28.60 E
255.00	13.38	115.64	252.52	1.62	14.16 S	28.81 E
256.00	13.46	115.77	253.49	2.57	14.26 S	29.02 E
257.00	13.53	115.85	254.47	2.17	14.36 S	29.23 E
258.00	13.62	115.93	255.44	2.76	14.47 S	29.44 E
259.00	13.71	116.08	256.41	2.90	14.57 S	29.65 E
260.00	13.80	116.24	257.38	2.93	14.67 S	29.87 E
261.00	13.90	116.44	258.35	3.33	14.78 S	30.08 E
262.00	14.00	116.64	259.32	3.33	14.89 S	30.30 E
263.00	14.11	116.69	260.29	3.32	15.00 S	30.51 E
264.00	14.23	116.71	261.26	3.60	15.11 S	30.73 E
265.00	14.35	116.65	262.23	3.63	15.22 S	30.95 E
266.00	14.46	116.59	263.20	3.33	15.33 S	31.17 E
267.00	14.57	116.68	264.17	3.37	15.44 S	31.40 E
268.00	14.66	116.82	265.14	2.90	15.56 S	31.62 E
269.00	14.73	116.89	266.10	2.17	15.67 S	31.85 E
270.00	14.80	116.86	267.07	2.11	15.78 S	32.08 E
271.00	14.88	116.77	268.04	2.50	15.90 S	32.31 E
272.00	14.96	116.72	269.00	2.43	16.02 S	32.54 E
273.00	15.03	116.69	269.97	2.11	16.13 S	32.77 E
274.00	15.11	116.67	270.94	2.41	16.25 S	33.00 E
275.00	15.18	116.53	271.90	2.37	16.37 S	33.23 E
276.00	15.26	116.38	272.87	2.67	16.48 S	33.47 E
277.00	15.30	116.20	273.83	1.86	16.60 S	33.70 E
278.00	15.33	115.98	274.79	1.96	16.72 S	33.94 E
279.00	15.37	115.90	275.76	1.36	16.83 S	34.18 E
280.00	15.40	115.71	276.72	1.76	16.95 S	34.42 E
281.00	15.47	115.60	277.69	2.28	17.06 S	34.66 E
282.00	15.50	115.56	278.65	0.96	17.18 S	34.90 E

ORIGINAL
Is. 7.695
EN

A Gyrodata Directional Survey

BRASKEM

Well: Mina 31

Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
283.00	15.53	115.42	279.61	1.44	17.29 S	35.14 E
284.00	15.54	115.39	280.58	0.38	17.41 S	35.38 E
285.00	15.53	115.30	281.54	0.78	17.52 S	35.62 E
286.00	15.53	115.15	282.50	1.20	17.64 S	35.87 E
287.00	15.51	115.15	283.47	0.60	17.75 S	36.11 E
288.00	15.48	115.18	284.43	0.93	17.86 S	36.35 E
289.00	15.44	115.27	285.40	1.40	17.98 S	36.59 E
290.00	15.36	115.38	286.36	2.55	18.09 S	36.83 E
291.00	15.24	115.37	287.32	3.60	18.20 S	37.07 E
292.00	15.11	115.33	288.29	3.91	18.32 S	37.31 E
293.00	14.98	115.42	289.26	3.96	18.43 S	37.54 E
294.00	14.84	115.60	290.22	4.42	18.54 S	37.77 E
295.00	14.65	115.95	291.19	6.30	18.65 S	38.00 E
296.00	14.45	116.22	292.16	6.34	18.76 S	38.23 E
297.00	14.27	116.39	293.13	5.55	18.87 S	38.45 E
298.00	14.13	116.55	294.09	4.36	18.98 S	38.67 E
299.00	14.02	116.68	295.06	3.43	19.09 S	38.89 E
300.00	13.89	116.83	296.04	4.05	19.20 S	39.10 E
301.00	13.79	116.89	297.01	3.03	19.30 S	39.32 E
302.00	13.70	116.92	297.98	2.71	19.41 S	39.53 E
303.00	13.62	116.86	298.95	2.44	19.52 S	39.74 E
304.00	13.57	116.85	299.92	1.50	19.62 S	39.95 E
305.00	13.51	116.96	300.89	1.96	19.73 S	40.16 E
306.00	13.46	117.01	301.87	1.54	19.84 S	40.37 E
307.00	13.45	117.01	302.84	0.30	19.94 S	40.57 E
308.00	13.45	116.95	303.81	0.42	20.05 S	40.78 E
309.00	13.47	116.84	304.78	0.97	20.15 S	40.99 E
310.00	13.48	116.89	305.76	0.46	20.26 S	41.20 E
311.00	13.47	116.94	306.73	0.46	20.36 S	41.40 E
312.00	13.47	116.94	307.70	0.00	20.47 S	41.61 E
313.00	13.48	116.94	308.67	0.30	20.57 S	41.82 E
314.00	13.49	116.98	309.65	0.41	20.68 S	42.03 E
315.00	13.51	116.98	310.62	0.60	20.79 S	42.23 E
316.00	13.52	117.00	311.59	0.33	20.89 S	42.44 E
317.00	13.54	117.01	312.56	0.60	21.00 S	42.65 E
318.00	13.56	117.06	313.54	0.70	21.11 S	42.86 E
319.00	13.57	117.07	314.51	0.31	21.21 S	43.07 E
320.00	13.60	117.13	315.48	0.99	21.32 S	43.28 E
321.00	13.64	117.20	316.45	1.30	21.43 S	43.49 E
322.00	13.69	117.25	317.42	1.54	21.53 S	43.70 E
323.00	13.74	117.38	318.39	1.76	21.64 S	43.91 E
324.00	13.80	117.47	319.37	1.91	21.75 S	44.12 E
325.00	13.87	117.57	320.34	2.22	21.86 S	44.33 E
326.00	13.94	117.73	321.31	2.40	21.98 S	44.54 E
327.00	14.01	117.94	322.28	2.59	22.09 S	44.76 E

UNPLAL
Is. 7.696
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A Gyrodata Directional Survey

BRASKEM

Well: Mina 31

Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
328.00	14.09	118.12	323.25	2.73	22.20 S	44.97 E
329.00	14.16	118.18	324.22	2.15	22.32 S	45.19 E
330.00	14.24	118.22	325.19	2.42	22.43 S	45.40 E
331.00	14.30	118.17	326.16	1.84	22.55 S	45.62 E
332.00	14.37	118.22	327.13	2.13	22.67 S	45.84 E
333.00	14.45	118.25	328.09	2.41	22.78 S	46.06 E
334.00	14.56	118.35	329.06	3.38	22.90 S	46.28 E
335.00	14.68	118.47	330.03	3.71	23.02 S	46.50 E
336.00	14.77	118.49	331.00	2.70	23.14 S	46.72 E
337.00	14.86	118.39	331.96	2.81	23.27 S	46.95 E
338.00	14.96	118.13	332.93	3.61	23.39 S	47.18 E
339.00	15.11	117.82	333.90	5.11	23.51 S	47.40 E
340.00	15.25	117.44	334.86	5.15	23.63 S	47.64 E
341.00	15.38	117.07	335.82	4.88	23.75 S	47.87 E
342.00	15.46	116.70	336.79	3.80	23.87 S	48.11 E
343.00	15.54	116.33	337.75	3.82	23.99 S	48.35 E
344.00	15.61	115.98	338.72	3.52	24.11 S	48.59 E
345.00	15.69	115.61	339.68	3.84	24.23 S	48.83 E
346.00	15.79	115.22	340.64	4.37	24.34 S	49.08 E
347.00	15.88	114.78	341.60	4.50	24.46 S	49.32 E
348.00	15.97	114.35	342.56	4.45	24.57 S	49.57 E
349.00	16.06	113.99	343.53	4.02	24.69 S	49.83 E
350.00	16.12	113.68	344.49	3.14	24.80 S	50.08 E
351.00	16.18	113.30	345.45	3.65	24.91 S	50.33 E
352.00	16.22	112.88	346.41	3.71	25.02 S	50.59 E
353.00	16.27	112.36	347.37	4.61	25.13 S	50.85 E
354.00	16.32	111.85	348.33	4.55	25.23 S	51.11 E
355.00	16.36	111.32	349.29	4.63	25.33 S	51.37 E
356.00	16.40	110.77	350.25	4.81	25.44 S	51.63 E
357.00	16.46	110.30	351.21	4.38	25.54 S	51.90 E
358.00	16.53	109.88	352.16	4.15	25.63 S	52.16 E
359.00	16.59	109.56	353.12	3.28	25.73 S	52.43 E
360.00	16.64	109.13	354.08	3.98	25.82 S	52.70 E
361.00	16.65	108.67	355.04	3.96	25.92 S	52.97 E
362.00	16.66	108.14	356.00	4.57	26.01 S	53.25 E
363.00	16.66	107.60	356.96	4.64	26.10 S	53.52 E
364.00	16.66	107.02	357.91	4.99	26.18 S	53.79 E
365.00	16.66	106.44	358.87	4.99	26.26 S	54.07 E
366.00	16.64	105.77	359.83	5.79	26.34 S	54.34 E
367.00	16.58	104.92	360.79	7.51	26.42 S	54.62 E
368.00	16.55	104.03	361.75	7.67	26.49 S	54.89 E
369.00	16.54	103.27	362.71	6.50	26.56 S	55.17 E
370.00	16.56	102.54	363.66	6.27	26.62 S	55.45 E
371.00	16.58	101.95	364.62	5.08	26.68 S	55.73 E
372.00	16.57	101.34	365.58	5.23	26.74 S	56.01 E

ORIGINAL
Is. 7-697
01

A Gyrodata Directional Survey

BRASKEM

Well: Mina 31

Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
373.00	16.58	100.68	366.54	5.66	26.79 S	56.29 E
374.00	16.58	100.08	367.50	5.14	26.84 S	56.57 E
375.00	16.60	99.49	368.46	5.09	26.89 S	56.85 E
376.00	16.62	98.93	369.41	4.84	26.94 S	57.13 E
377.00	16.66	98.41	370.37	4.63	26.98 S	57.41 E
378.00	16.69	97.79	371.33	5.41	27.02 S	57.70 E
379.00	16.73	97.18	372.29	5.40	27.06 S	57.98 E
380.00	16.77	96.55	373.25	5.58	27.09 S	58.27 E
381.00	16.79	95.96	374.20	5.15	27.13 S	58.56 E
382.00	16.79	95.49	375.16	4.07	27.15 S	58.84 E
383.00	16.79	95.01	376.12	4.16	27.18 S	59.13 E
384.00	16.83	94.49	377.08	4.67	27.20 S	59.42 E
385.00	16.90	94.12	378.03	3.84	27.23 S	59.71 E
386.00	16.97	93.86	378.99	3.09	27.25 S	60.00 E
387.00	17.02	93.64	379.94	2.44	27.27 S	60.29 E
388.00	17.08	93.38	380.90	2.91	27.28 S	60.58 E
389.00	17.14	93.07	381.86	3.28	27.30 S	60.88 E
390.00	17.25	92.82	382.81	3.98	27.32 S	61.17 E
391.00	17.35	92.70	383.77	3.19	27.33 S	61.47 E
392.00	17.45	92.61	384.72	3.11	27.34 S	61.77 E
393.00	17.55	92.43	385.67	3.41	27.36 S	62.07 E
394.00	17.64	92.06	386.63	4.31	27.37 S	62.37 E
395.00	17.76	91.45	387.58	6.63	27.38 S	62.67 E
396.00	17.90	90.64	388.53	8.54	27.38 S	62.98 E
397.00	18.01	89.74	389.48	8.95	27.38 S	63.29 E
398.00	18.15	88.82	390.43	9.54	27.38 S	63.60 E
399.00	18.28	88.06	391.38	8.12	27.37 S	63.91 E
400.00	18.42	87.40	392.33	7.52	27.36 S	64.23 E
401.00	18.56	86.86	393.28	6.64	27.34 S	64.54 E
402.00	18.68	86.42	394.23	5.54	27.32 S	64.86 E
403.00	18.79	86.03	395.18	5.00	27.30 S	65.18 E
404.00	18.90	85.73	396.12	4.40	27.28 S	65.50 E
405.00	18.99	85.50	397.07	3.51	27.26 S	65.83 E
406.00	19.09	85.32	398.01	3.48	27.23 S	66.15 E
407.00	19.18	85.15	398.96	3.18	27.20 S	66.48 E
408.00	19.25	85.04	399.90	2.36	27.17 S	66.81 E
409.00	19.32	84.92	400.85	2.41	27.15 S	67.14 E
410.00	19.40	84.84	401.79	2.53	27.12 S	67.47 E
411.00	19.50	84.79	402.73	3.04	27.09 S	67.80 E
412.00	19.62	84.76	403.68	3.61	27.06 S	68.13 E
413.00	19.73	84.76	404.62	3.30	27.02 S	68.47 E
414.00	19.84	84.78	405.56	3.31	26.99 S	68.80 E
415.00	19.94	84.79	406.50	3.00	26.96 S	69.14 E
416.00	20.02	84.86	407.44	2.50	26.93 S	69.48 E
417.00	20.08	84.96	408.38	2.07	26.90 S	69.83 E

DNPEVAL
Is. 7.698
M

A Gyrodata Directional Survey

BRASKEM

Well: Mina 31

Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
418.00	20.13	85.08	409.32	1.94	26.87 S	70.17 E
419.00	20.16	85.20	410.26	1.53	26.84 S	70.51 E
420.00	20.19	85.36	411.19	1.88	26.81 S	70.85 E
421.00	20.22	85.49	412.13	1.62	26.79 S	71.20 E
422.00	20.25	85.73	413.07	2.65	26.76 S	71.54 E
423.00	20.27	85.92	414.01	2.06	26.73 S	71.89 E
424.00	20.29	86.13	414.95	2.26	26.71 S	72.23 E
425.00	20.32	86.33	415.89	2.27	26.69 S	72.58 E
426.00	20.36	86.47	416.82	1.89	26.67 S	72.93 E
427.00	20.41	86.56	417.76	1.77	26.64 S	73.28 E
428.00	20.49	86.58	418.70	2.41	26.62 S	73.62 E
429.00	20.57	86.57	419.63	2.40	26.60 S	73.97 E
430.00	20.66	86.55	420.57	2.71	26.58 S	74.33 E
431.00	20.73	86.59	421.51	2.14	26.56 S	74.68 E
432.00	20.79	86.61	422.44	1.81	26.54 S	75.03 E
433.00	20.86	86.64	423.37	2.12	26.52 S	75.39 E
434.00	20.91	86.71	424.31	1.68	26.50 S	75.74 E
435.00	20.97	86.75	425.24	1.85	26.48 S	76.10 E
436.00	21.04	86.79	426.18	2.14	26.46 S	76.46 E
437.00	21.09	86.81	427.11	1.52	26.44 S	76.82 E
438.00	21.13	86.82	428.04	1.20	26.42 S	77.18 E
439.00	21.16	86.79	428.98	0.96	26.40 S	77.54 E
440.00	21.18	86.75	429.91	0.74	26.38 S	77.90 E
441.00	21.22	86.73	430.84	1.22	26.36 S	78.26 E
442.00	21.25	86.74	431.77	0.91	26.34 S	78.62 E
443.00	21.26	86.78	432.70	0.53	26.32 S	78.98 E
444.00	21.27	86.78	433.64	0.30	26.30 S	79.34 E
445.00	21.26	86.77	434.57	0.32	26.27 S	79.71 E
446.00	21.27	86.76	435.50	0.32	26.25 S	80.07 E
447.00	21.28	86.78	436.43	0.37	26.23 S	80.43 E
448.00	21.28	86.85	437.36	0.76	26.21 S	80.79 E
449.00	21.31	86.88	438.30	0.96	26.19 S	81.16 E
450.00	21.33	86.91	439.23	0.68	26.17 S	81.52 E
451.00	21.34	86.90	440.16	0.32	26.15 S	81.88 E
452.00	21.37	86.86	441.09	1.00	26.13 S	82.25 E
453.00	21.40	86.89	442.02	0.96	26.11 S	82.61 E
454.00	21.41	86.90	442.95	0.32	26.09 S	82.97 E
455.00	21.42	86.94	443.88	0.53	26.08 S	83.34 E
456.00	21.41	86.96	444.81	0.37	26.06 S	83.70 E
457.00	21.41	86.99	445.74	0.33	26.04 S	84.07 E
458.00	21.41	87.02	446.68	0.33	26.02 S	84.43 E
459.00	21.40	87.09	447.61	0.82	26.00 S	84.80 E
460.00	21.39	87.12	448.54	0.44	25.98 S	85.16 E
461.00	21.35	87.14	449.47	1.22	25.96 S	85.52 E
462.00	21.30	87.12	450.40	1.52	25.94 S	85.89 E

ORIGINAL
Is. 7/99
A

A Gyrodata Directional Survey

BRASKEM

Well: Mina 31

Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
463.00	21.26	87.06	451.33	1.37	25.93 S	86.25 E
464.00	21.25	87.03	452.26	0.44	25.91 S	86.61 E
465.00	21.28	87.01	453.20	0.93	25.89 S	86.97 E
466.00	21.32	87.00	454.13	1.20	25.87 S	87.34 E
467.00	21.35	87.01	455.06	0.91	25.85 S	87.70 E
468.00	21.37	86.99	455.99	0.64	25.83 S	88.06 E
469.00	21.40	86.98	456.92	0.91	25.81 S	88.43 E
470.00	21.41	87.00	457.85	0.37	25.79 S	88.79 E
471.00	21.43	87.00	458.78	0.60	25.77 S	89.16 E
472.00	21.42	87.05	459.71	0.62	25.75 S	89.52 E
473.00	21.42	87.12	460.65	0.77	25.74 S	89.89 E
474.00	21.42	87.17	461.58	0.55	25.72 S	90.25 E
475.00	21.43	87.21	462.51	0.53	25.70 S	90.62 E
476.00	21.45	87.22	463.44	0.61	25.68 S	90.98 E
477.00	21.50	87.26	464.37	1.56	25.66 S	91.35 E
478.00	21.53	87.31	465.30	1.05	25.65 S	91.71 E
479.00	21.54	87.31	466.23	0.30	25.63 S	92.08 E
480.00	21.57	87.24	467.16	1.19	25.61 S	92.45 E
481.00	21.61	87.21	468.09	1.24	25.59 S	92.82 E
482.00	21.67	87.19	469.02	1.81	25.58 S	93.18 E
483.00	21.70	87.27	469.95	1.26	25.56 S	93.55 E
484.00	21.71	87.31	470.88	0.54	25.54 S	93.92 E
485.00	21.73	87.33	471.81	0.64	25.52 S	94.29 E
486.00	21.75	87.33	472.74	0.60	25.51 S	94.66 E
487.00	21.77	87.29	473.66	0.75	25.49 S	95.03 E
488.00	21.77	87.21	474.59	0.89	25.47 S	95.40 E
489.00	21.78	87.08	475.52	1.48	25.45 S	95.77 E
490.00	21.81	87.04	476.45	1.00	25.43 S	96.14 E
491.00	21.89	87.07	477.38	2.42	25.41 S	96.52 E
492.00	21.94	87.15	478.31	1.75	25.40 S	96.89 E
493.00	21.99	87.18	479.23	1.54	25.38 S	97.26 E
494.00	22.03	87.18	480.16	1.20	25.36 S	97.64 E
495.00	22.08	87.14	481.09	1.57	25.34 S	98.01 E
496.00	22.15	87.15	482.01	2.10	25.32 S	98.39 E
497.00	22.20	87.21	482.94	1.65	25.30 S	98.76 E
498.00	22.25	87.28	483.87	1.70	25.28 S	99.14 E
499.00	22.30	87.32	484.79	1.57	25.27 S	99.52 E
500.00	22.34	87.32	485.72	1.20	25.25 S	99.90 E
501.00	22.38	87.28	486.64	1.28	25.23 S	100.28 E
502.00	22.42	87.23	487.57	1.33	25.21 S	100.66 E
503.00	22.45	87.19	488.49	1.01	25.19 S	101.04 E
504.00	22.48	87.21	489.41	0.93	25.18 S	101.42 E
505.00	22.49	87.27	490.34	0.75	25.16 S	101.81 E
506.00	22.47	87.36	491.26	1.19	25.14 S	102.19 E
507.00	22.44	87.42	492.19	1.13	25.12 S	102.57 E

UNPEVAL
Is. 7.700
Q11

A Gyrodata Directional Survey

BRASKEM

Well: Mina 31

Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
508.00	22.39	87.49	493.11	1.70	25.11 S	102.95 E
509.00	22.33	87.57	494.03	2.02	25.09 S	103.33 E
510.00	22.23	87.67	494.96	3.21	25.07 S	103.71 E
511.00	22.12	87.74	495.89	3.39	25.06 S	104.09 E
512.00	21.98	87.83	496.81	4.32	25.04 S	104.46 E
513.00	21.82	87.92	497.74	4.90	25.03 S	104.83 E
514.00	21.71	87.94	498.67	3.31	25.02 S	105.20 E
515.00	21.67	87.94	499.60	1.20	25.00 S	105.57 E
516.00	21.71	87.86	500.53	1.49	24.99 S	105.94 E
517.00	21.81	87.78	501.46	3.13	24.98 S	106.31 E
518.00	21.92	87.74	502.38	3.33	24.96 S	106.69 E
519.00	22.01	87.79	503.31	2.76	24.95 S	107.06 E
520.00	22.08	87.86	504.24	2.24	24.93 S	107.43 E
521.00	22.11	87.97	505.17	1.53	24.92 S	107.81 E
522.00	22.11	88.06	506.09	1.02	24.91 S	108.19 E
523.00	22.09	88.11	507.02	0.82	24.89 S	108.56 E
524.00	22.06	88.20	507.95	1.36	24.88 S	108.94 E
525.00	21.98	88.32	508.87	2.75	24.87 S	109.31 E
526.00	21.89	88.48	509.80	3.24	24.86 S	109.69 E
527.00	21.76	88.60	510.73	4.12	24.85 S	110.06 E
528.00	21.64	88.60	511.66	3.60	24.84 S	110.43 E
529.00	21.52	88.54	512.59	3.66	24.83 S	110.80 E
530.00	21.46	88.46	513.52	2.00	24.82 S	111.16 E
531.00	21.43	88.51	514.45	1.05	24.81 S	111.53 E
532.00	21.37	88.67	515.38	2.51	24.80 S	111.89 E
533.00	21.27	88.87	516.31	3.71	24.79 S	112.26 E
534.00	21.15	88.98	517.24	3.79	24.79 S	112.62 E
535.00	21.06	88.98	518.18	2.70	24.78 S	112.98 E
536.00	21.00	88.96	519.11	1.81	24.78 S	113.34 E
537.00	20.95	88.99	520.04	1.53	24.77 S	113.69 E
538.00	20.88	89.09	520.98	2.36	24.76 S	114.05 E
539.00	20.79	89.23	521.91	3.09	24.76 S	114.41 E
540.00	20.67	89.30	522.85	3.68	24.75 S	114.76 E
541.00	20.54	89.30	523.78	3.90	24.75 S	115.11 E
542.00	20.42	89.28	524.72	3.61	24.74 S	115.46 E
543.00	20.32	89.30	525.66	3.01	24.74 S	115.81 E
544.00	20.25	89.35	526.60	2.16	24.74 S	116.16 E
545.00	20.18	89.48	527.53	2.50	24.73 S	116.50 E
546.00	20.10	89.53	528.47	2.45	24.73 S	116.85 E
547.00	20.01	89.55	529.41	2.71	24.73 S	117.19 E
548.00	19.93	89.51	530.35	2.43	24.72 S	117.53 E
549.00	19.85	89.53	531.29	2.41	24.72 S	117.87 E
550.00	19.77	89.60	532.23	2.50	24.72 S	118.21 E
551.00	19.67	89.74	533.17	3.32	24.72 S	118.55 E
552.00	19.56	89.89	534.12	3.63	24.72 S	118.88 E

UNPEVAL
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JH

A Gyrodata Directional Survey

BRASKEM

Well: Mina 31

Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
553.00	19.43	90.03	535.06	4.14	24.72 S	119.22 E
554.00	19.30	90.05	536.00	3.91	24.72 S	119.55 E
555.00	19.20	90.05	536.95	3.00	24.72 S	119.88 E
556.00	19.07	90.00	537.89	3.93	24.72 S	120.21 E
557.00	18.99	89.99	538.84	2.40	24.72 S	120.53 E
558.00	18.90	90.05	539.78	2.76	24.72 S	120.86 E
559.00	18.81	90.14	540.73	2.84	24.72 S	121.18 E
560.00	18.72	90.19	541.68	2.74	24.72 S	121.50 E
561.00	18.63	90.26	542.62	2.78	24.72 S	121.82 E
562.00	18.54	90.33	543.57	2.78	24.72 S	122.14 E
563.00	18.46	90.41	544.52	2.52	24.72 S	122.46 E
564.00	18.38	90.49	545.47	2.52	24.73 S	122.77 E
565.00	18.33	90.56	546.42	1.64	24.73 S	123.09 E
566.00	18.27	90.65	547.37	1.99	24.73 S	123.40 E
567.00	18.18	90.66	548.32	2.70	24.73 S	123.72 E
568.00	18.08	90.61	549.27	3.04	24.74 S	124.03 E
569.00	17.96	90.55	550.22	3.64	24.74 S	124.34 E
570.00	17.87	90.54	551.17	2.70	24.74 S	124.64 E
571.00	17.77	90.59	552.12	3.03	24.75 S	124.95 E
572.00	17.67	90.67	553.07	3.09	24.75 S	125.25 E
573.00	17.53	90.79	554.03	4.34	24.75 S	125.56 E
574.00	17.28	91.13	554.98	8.10	24.76 S	125.85 E
575.00	16.87	91.75	555.94	13.46	24.77 S	126.15 E
576.00	16.21	92.74	556.90	21.53	24.78 S	126.43 E
577.00	15.58	93.75	557.86	20.64	24.79 S	126.71 E
578.00	15.29	94.09	558.82	9.11	24.81 S	126.97 E
579.00	15.37	93.76	559.79	3.55	24.83 S	127.24 E
580.00	15.80	92.82	560.75	14.96	24.85 S	127.50 E
581.00	16.19	92.07	561.71	13.24	24.86 S	127.78 E
582.00	16.41	91.73	562.67	7.19	24.87 S	128.06 E
583.00	16.51	91.55	563.63	3.37	24.87 S	128.34 E
584.00	16.52	91.44	564.59	0.98	24.88 S	128.63 E
585.00	16.47	91.27	565.55	2.08	24.89 S	128.91 E
586.00	16.41	91.17	566.51	1.99	24.89 S	129.19 E
587.00	16.32	91.16	567.47	2.70	24.90 S	129.48 E
588.00	16.23	91.16	568.43	2.70	24.91 S	129.76 E
589.00	16.15	91.19	569.39	2.41	24.91 S	130.03 E
590.00	16.07	91.20	570.35	2.40	24.92 S	130.31 E
591.00	15.99	91.12	571.31	2.49	24.92 S	130.59 E
592.00	15.93	91.03	572.27	1.95	24.93 S	130.86 E
593.00	15.85	91.01	573.23	2.41	24.93 S	131.14 E
594.00	15.78	91.06	574.19	2.14	24.94 S	131.41 E
595.00	15.72	91.17	575.16	2.01	24.94 S	131.68 E
596.00	15.68	91.32	576.12	1.71	24.95 S	131.95 E
597.00	15.64	91.50	577.08	1.89	24.96 S	132.22 E

ORIGINAL
Is. 7.702
81

A Gyrodata Directional Survey

BRASKEM

Well: Mina 31

Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
598.00	15.57	91.55	578.04	2.14	24.96 S	132.49 E
599.00	15.50	91.44	579.01	2.28	24.97 S	132.76 E
600.00	15.46	91.31	579.97	1.59	24.98 S	133.02 E
601.00	15.41	91.23	580.94	1.63	24.98 S	133.29 E
602.00	15.36	91.23	581.90	1.50	24.99 S	133.56 E
603.00	15.27	91.26	582.86	2.71	24.99 S	133.82 E
604.00	15.17	91.22	583.83	3.02	25.00 S	134.08 E
605.00	15.07	91.13	584.79	3.08	25.00 S	134.34 E
606.00	14.99	91.08	585.76	2.43	25.01 S	134.60 E
607.00	14.90	91.08	586.73	2.70	25.01 S	134.86 E
608.00	14.82	91.13	587.69	2.43	25.02 S	135.12 E
609.00	14.75	91.21	588.66	2.19	25.02 S	135.37 E
610.00	14.69	91.27	589.63	1.86	25.03 S	135.63 E
611.00	14.63	91.25	590.59	1.81	25.04 S	135.88 E
612.00	14.58	91.20	591.56	1.55	25.04 S	136.13 E
613.00	14.53	91.14	592.53	1.57	25.05 S	136.38 E
614.00	14.47	91.09	593.50	1.84	25.05 S	136.63 E
615.00	14.43	91.01	594.47	1.34	25.06 S	136.88 E
616.00	14.39	91.01	595.44	1.20	25.06 S	137.13 E
617.00	14.33	91.02	596.40	1.80	25.06 S	137.38 E
618.00	14.27	91.05	597.37	1.81	25.07 S	137.63 E
619.00	14.20	91.04	598.34	2.10	25.07 S	137.87 E
620.00	14.12	91.10	599.31	2.44	25.08 S	138.12 E
621.00	14.02	91.22	600.28	3.13	25.08 S	138.36 E
622.00	13.89	91.43	601.25	4.19	25.09 S	138.60 E
623.00	13.79	91.51	602.22	3.05	25.09 S	138.84 E
624.00	13.73	91.49	603.19	1.81	25.10 S	139.08 E
625.00	13.69	91.39	604.17	1.39	25.11 S	139.31 E
626.00	13.64	91.35	605.14	1.53	25.11 S	139.55 E
627.00	13.58	91.37	606.11	1.81	25.12 S	139.79 E
628.00	13.49	91.44	607.08	2.74	25.12 S	140.02 E
629.00	13.41	91.58	608.05	2.59	25.13 S	140.25 E
630.00	13.34	91.79	609.03	2.56	25.14 S	140.48 E
631.00	13.26	92.04	610.00	2.96	25.14 S	140.71 E
632.00	13.16	92.25	610.97	3.33	25.15 S	140.94 E
633.00	13.09	92.28	611.95	2.11	25.16 S	141.17 E
634.00	13.05	92.27	612.92	1.20	25.17 S	141.39 E
635.00	13.03	92.21	613.90	0.72	25.18 S	141.62 E
636.00	12.98	92.20	614.87	1.50	25.19 S	141.84 E
637.00	12.90	92.26	615.85	2.43	25.20 S	142.07 E
638.00	12.84	92.33	616.82	1.86	25.21 S	142.29 E
639.00	12.79	92.49	617.80	1.84	25.22 S	142.51 E
640.00	12.73	92.68	618.77	2.20	25.23 S	142.73 E
641.00	12.65	92.90	619.75	2.80	25.24 S	142.95 E
642.00	12.54	93.02	620.72	3.39	25.25 S	143.17 E

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A Gyrodata Directional Survey

BRASKEM
 Well: Mina 31
 Location: RIGLESS, SAL GEMA
 Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
643.00	12.44	93.03	621.70	3.00	25.26 S	143.39 E
644.00	12.34	92.98	622.68	3.02	25.27 S	143.60 E
645.00	12.25	92.93	623.65	2.72	25.28 S	143.81 E
646.00	12.16	93.03	624.63	2.77	25.29 S	144.02 E
647.00	12.06	93.21	625.61	3.21	25.30 S	144.23 E
648.00	11.99	93.44	626.59	2.54	25.32 S	144.44 E
649.00	11.92	93.77	627.56	2.94	25.33 S	144.65 E
650.00	11.85	94.03	628.54	2.64	25.34 S	144.85 E
651.00	11.77	94.19	629.52	2.59	25.36 S	145.06 E
652.00	11.70	94.19	630.50	2.10	25.37 S	145.26 E
653.00	11.65	94.17	631.48	1.50	25.39 S	145.46 E
654.00	11.62	94.24	632.46	0.99	25.40 S	145.66 E
655.00	11.58	94.38	633.44	1.47	25.42 S	145.86 E
656.00	11.53	94.46	634.42	1.58	25.43 S	146.06 E
657.00	11.49	94.52	635.40	1.25	25.45 S	146.26 E
658.00	11.44	94.54	636.38	1.50	25.46 S	146.46 E
659.00	11.39	94.66	637.36	1.66	25.48 S	146.66 E
660.00	11.32	94.91	638.34	2.57	25.50 S	146.85 E
661.00	11.24	95.15	639.32	2.78	25.51 S	147.05 E
662.00	11.17	95.39	640.30	2.52	25.53 S	147.24 E
663.00	11.13	95.47	641.28	1.29	25.55 S	147.44 E
664.00	11.12	95.46	642.26	0.31	25.57 S	147.63 E
665.00	11.11	95.48	643.24	0.32	25.59 S	147.82 E
666.00	11.10	95.61	644.23	0.81	25.60 S	148.01 E
667.00	11.07	95.71	645.21	1.07	25.62 S	148.20 E
668.00	11.04	95.75	646.19	0.93	25.64 S	148.39 E
669.00	11.01	95.74	647.17	0.90	25.66 S	148.58 E
671.00	10.96	95.53	649.13	0.98	25.70 S	148.96 E
672.00	10.93	95.73	650.11	1.41	25.72 S	149.15 E
673.00	10.88	95.88	651.10	1.73	25.74 S	149.34 E
674.00	10.82	96.07	652.08	2.02	25.76 S	149.53 E
675.00	10.76	96.30	653.06	2.34	25.78 S	149.71 E
676.00	10.68	96.52	654.04	2.54	25.80 S	149.90 E
677.00	10.60	96.77	655.03	2.92	25.82 S	150.08 E
678.00	10.50	96.97	656.01	3.14	25.84 S	150.26 E
679.00	10.38	97.20	656.99	3.74	25.86 S	150.44 E
680.00	10.25	97.39	657.98	4.08	25.89 S	150.62 E
681.00	10.10	97.56	658.96	4.47	25.91 S	150.80 E
682.00	9.95	97.83	659.95	4.87	25.93 S	150.97 E
683.00	9.78	98.19	660.93	5.44	25.96 S	151.14 E
684.00	9.59	98.68	661.92	6.25	25.98 S	151.30 E
685.00	9.38	99.22	662.90	6.86	26.01 S	151.47 E
686.00	9.16	99.67	663.89	6.96	26.03 S	151.63 E
687.00	8.95	99.91	664.88	6.25	26.06 S	151.78 E
688.00	8.79	99.89	665.87	4.71	26.09 S	151.93 E

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A Gyrodata Directional Survey

BRASKEM

Well: Mina 31

Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
689.00	8.71	99.68	666.85	2.72	26.11 S	152.08 E
690.00	8.70	99.41	667.84	1.25	26.14 S	152.23 E
691.00	8.75	99.16	668.83	1.77	26.16 S	152.38 E
692.00	8.81	98.95	669.82	2.16	26.19 S	152.53 E
693.00	8.87	98.80	670.81	1.83	26.21 S	152.68 E
694.00	8.90	98.67	671.80	1.26	26.23 S	152.84 E
695.00	8.92	98.53	672.78	0.87	26.26 S	152.99 E
696.00	8.92	98.40	673.77	0.61	26.28 S	153.14 E
697.00	8.90	98.34	674.76	0.80	26.30 S	153.30 E
698.00	8.84	98.32	675.75	1.59	26.32 S	153.45 E
699.00	8.77	98.35	676.74	2.16	26.35 S	153.60 E
700.00	8.69	98.36	677.72	2.49	26.37 S	153.75 E
701.00	8.60	98.35	678.71	2.55	26.39 S	153.90 E
702.00	8.52	98.40	679.70	2.47	26.41 S	154.05 E
703.00	8.44	98.48	680.69	2.49	26.43 S	154.19 E
704.00	8.36	98.64	681.68	2.53	26.45 S	154.34 E
705.00	8.28	98.79	682.67	2.54	26.48 S	154.48 E
706.00	8.20	98.90	683.66	2.33	26.50 S	154.62 E
707.00	8.13	99.04	684.65	2.21	26.52 S	154.76 E
708.00	8.06	99.17	685.64	2.06	26.54 S	154.90 E
709.00	8.00	99.33	686.63	2.03	26.57 S	155.04 E
710.00	7.94	99.45	687.62	1.98	26.59 S	155.18 E
711.00	7.88	99.52	688.61	1.79	26.61 S	155.31 E
712.00	7.83	99.64	689.60	1.64	26.63 S	155.45 E
713.00	7.78	99.85	690.59	1.52	26.66 S	155.58 E
714.00	7.75	100.18	691.58	1.66	26.68 S	155.71 E
715.00	7.72	100.50	692.57	1.53	26.70 S	155.85 E
716.00	7.70	100.74	693.56	1.29	26.73 S	155.98 E
717.00	7.66	100.83	694.55	1.08	26.75 S	156.11 E
718.00	7.62	100.91	695.55	1.36	26.78 S	156.24 E
719.00	7.57	100.97	696.54	1.55	26.80 S	156.37 E
720.00	7.51	101.09	697.53	1.72	26.83 S	156.50 E
721.00	7.45	101.20	698.52	1.79	26.85 S	156.63 E
722.00	7.39	101.34	699.51	1.94	26.88 S	156.75 E
723.00	7.32	101.56	700.50	2.33	26.90 S	156.88 E
724.00	7.24	101.84	701.50	2.65	26.93 S	157.00 E
725.00	7.15	102.06	702.49	2.65	26.96 S	157.12 E
726.00	7.07	102.19	703.48	2.54	26.98 S	157.25 E
727.00	6.99	102.12	704.47	2.41	27.01 S	157.37 E
728.00	6.91	101.90	705.47	2.45	27.03 S	157.48 E
729.00	6.84	101.68	706.46	2.41	27.06 S	157.60 E
730.00	6.77	101.54	707.45	2.24	27.08 S	157.72 E
731.00	6.70	101.63	708.44	2.04	27.10 S	157.83 E
732.00	6.64	101.81	709.44	1.96	27.13 S	157.95 E
733.00	6.58	102.00	710.43	1.86	27.15 S	158.06 E

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A Gyrodata Directional Survey

BRASKEM

Well: Mina 31

Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
734.00	6.52	102.15	711.42	1.73	27.18 S	158.17 E
735.00	6.47	102.30	712.42	1.69	27.20 S	158.28 E
736.00	6.42	102.42	713.41	1.62	27.22 S	158.39 E
737.00	6.36	102.50	714.41	1.61	27.25 S	158.50 E
738.00	6.31	102.63	715.40	1.73	27.27 S	158.61 E
739.00	6.25	102.79	716.39	1.91	27.30 S	158.71 E
740.00	6.18	103.06	717.39	2.31	27.32 S	158.82 E
741.00	6.09	103.37	718.38	2.78	27.34 S	158.92 E
742.00	5.96	103.72	719.38	3.91	27.37 S	159.02 E
743.00	5.75	104.43	720.37	6.86	27.39 S	159.12 E
744.00	5.37	106.12	721.37	12.22	27.42 S	159.22 E
745.00	4.86	109.83	722.36	18.43	27.45 S	159.30 E
746.00	4.31	114.82	723.36	20.17	27.48 S	159.38 E
747.00	3.97	118.50	724.36	12.96	27.51 S	159.44 E
748.00	4.00	118.31	725.35	0.77	27.54 S	159.50 E
749.00	4.36	113.83	726.35	14.67	27.57 S	159.57 E
750.00	4.87	108.64	727.35	19.78	27.60 S	159.64 E
751.00	5.29	104.99	728.34	15.83	27.63 S	159.73 E
752.00	5.50	103.93	729.34	7.12	27.65 S	159.82 E
753.00	5.53	103.91	730.33	0.69	27.68 S	159.91 E
754.00	5.44	104.11	731.33	2.59	27.70 S	160.00 E
755.00	5.33	104.38	732.33	3.47	27.72 S	160.09 E
756.00	5.23	104.65	733.32	3.21	27.74 S	160.18 E
757.00	5.15	105.13	734.32	2.73	27.77 S	160.27 E
758.00	5.09	105.73	735.31	2.43	27.79 S	160.36 E
759.00	5.04	106.35	736.31	2.21	27.82 S	160.44 E
760.00	4.99	106.81	737.31	1.76	27.84 S	160.53 E
761.00	4.95	107.07	738.30	1.45	27.87 S	160.61 E
762.00	4.90	107.20	739.30	1.51	27.89 S	160.69 E
763.00	4.85	107.29	740.29	1.70	27.92 S	160.77 E
764.00	4.78	107.48	741.29	1.92	27.94 S	160.85 E
765.00	4.73	107.66	742.29	1.73	27.97 S	160.93 E
766.00	4.69	107.80	743.28	1.22	27.99 S	161.01 E
767.00	4.68	107.85	744.28	0.38	28.02 S	161.09 E
768.00	4.68	107.90	745.28	0.27	28.04 S	161.16 E
769.00	4.70	108.07	746.27	0.61	28.07 S	161.24 E
770.00	4.70	108.37	747.27	0.73	28.09 S	161.32 E
771.00	4.69	108.64	748.27	0.83	28.12 S	161.40 E
772.00	4.66	108.81	749.26	0.99	28.14 S	161.47 E
773.00	4.62	108.92	750.26	1.02	28.17 S	161.55 E
774.00	4.59	109.08	751.26	0.98	28.20 S	161.63 E
775.00	4.56	109.34	752.25	1.07	28.22 S	161.70 E
776.00	4.54	109.54	753.25	0.99	28.25 S	161.78 E
777.00	4.50	109.62	754.25	1.04	28.28 S	161.85 E
778.00	4.46	109.65	755.25	1.14	28.30 S	161.93 E

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A Gyrodata Directional Survey

BRASKEM

Well: Mina 31

Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
779.00	4.42	109.70	756.24	1.33	28.33 S	162.00 E
780.00	4.37	109.85	757.24	1.57	28.35 S	162.07 E
781.00	4.31	110.02	758.24	1.67	28.38 S	162.14 E
782.00	4.26	110.25	759.23	1.64	28.41 S	162.21 E
783.00	4.22	110.55	760.23	1.42	28.43 S	162.28 E
784.00	4.19	110.86	761.23	1.23	28.46 S	162.35 E
785.00	4.16	111.09	762.23	1.05	28.48 S	162.42 E
786.00	4.13	111.21	763.22	0.88	28.51 S	162.48 E
787.00	4.10	111.24	764.22	0.78	28.54 S	162.55 E
788.00	4.08	111.37	765.22	0.83	28.56 S	162.62 E
789.00	4.05	111.53	766.22	0.85	28.59 S	162.68 E
790.00	4.02	111.78	767.21	1.07	28.61 S	162.75 E
791.00	3.98	112.00	768.21	1.15	28.64 S	162.81 E
792.00	3.94	112.14	769.21	1.29	28.67 S	162.88 E
793.00	3.90	112.21	770.21	1.30	28.69 S	162.94 E
794.00	3.85	112.18	771.20	1.35	28.72 S	163.00 E
795.00	3.81	112.08	772.20	1.22	28.74 S	163.07 E
796.00	3.78	111.96	773.20	1.07	28.77 S	163.13 E
797.00	3.75	111.97	774.20	0.84	28.79 S	163.19 E
798.00	3.73	112.11	775.19	0.79	28.82 S	163.25 E
799.00	3.70	112.37	776.19	0.84	28.84 S	163.31 E
800.00	3.68	112.65	777.19	0.95	28.86 S	163.37 E
801.00	3.64	112.94	778.19	1.14	28.89 S	163.43 E
802.00	3.61	113.19	779.19	1.26	28.91 S	163.49 E
803.00	3.57	113.46	780.18	1.28	28.94 S	163.54 E
804.00	3.53	113.57	781.18	1.10	28.96 S	163.60 E
805.00	3.50	113.58	782.18	0.90	28.99 S	163.66 E
806.00	3.47	113.41	783.18	0.87	29.01 S	163.71 E
807.00	3.45	113.07	784.18	0.92	29.04 S	163.77 E
808.00	3.43	112.58	785.18	1.05	29.06 S	163.82 E
809.00	3.42	112.05	786.17	1.06	29.08 S	163.88 E
810.00	3.40	111.70	787.17	0.75	29.10 S	163.93 E
811.00	3.39	111.63	788.17	0.46	29.13 S	163.99 E
812.00	3.37	111.71	789.17	0.50	29.15 S	164.04 E
813.00	3.36	111.82	790.17	0.52	29.17 S	164.10 E
814.00	3.34	111.82	791.16	0.39	29.19 S	164.15 E
815.00	3.33	111.76	792.16	0.35	29.21 S	164.20 E
816.00	3.32	111.61	793.16	0.38	29.23 S	164.26 E
817.00	3.31	111.46	794.16	0.42	29.26 S	164.31 E
818.00	3.30	111.40	795.16	0.46	29.28 S	164.37 E
819.00	3.28	111.37	796.16	0.63	29.30 S	164.42 E
820.00	3.25	111.28	797.15	0.76	29.32 S	164.47 E
821.00	3.23	111.21	798.15	0.73	29.34 S	164.53 E
822.00	3.21	111.16	799.15	0.61	29.36 S	164.58 E
823.00	3.20	111.28	800.15	0.31	29.38 S	164.63 E

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A Gyrodata Directional Survey

BRASKEM

Well: Mina 31

Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
824.00	3.20	111.50	801.15	0.40	29.40 S	164.68 E
825.00	3.22	111.59	802.15	0.50	29.42 S	164.73 E
826.00	3.24	111.56	803.15	0.57	29.44 S	164.79 E
827.00	3.26	111.60	804.14	0.63	29.46 S	164.84 E
828.00	3.28	111.63	805.14	0.51	29.48 S	164.89 E
829.00	3.29	111.67	806.14	0.39	29.50 S	164.95 E
830.00	3.30	111.56	807.14	0.31	29.53 S	165.00 E
831.00	3.30	111.38	808.14	0.31	29.55 S	165.05 E
832.00	3.29	111.15	809.14	0.51	29.57 S	165.11 E
833.00	3.26	110.84	810.13	0.94	29.59 S	165.16 E
834.00	3.22	110.51	811.13	1.24	29.61 S	165.21 E
835.00	3.18	110.22	812.13	1.26	29.63 S	165.26 E
836.00	3.16	110.25	813.13	0.84	29.65 S	165.32 E
837.00	3.14	110.50	814.13	0.54	29.67 S	165.37 E
838.00	3.15	110.98	815.13	0.79	29.68 S	165.42 E
839.00	3.16	111.31	816.12	0.69	29.70 S	165.47 E
840.00	3.18	111.65	817.12	0.70	29.72 S	165.52 E
841.00	3.18	111.98	818.12	0.59	29.75 S	165.57 E
842.00	3.17	112.42	819.12	0.79	29.77 S	165.62 E
843.00	3.15	112.90	820.12	1.07	29.79 S	165.68 E
844.00	3.12	113.39	821.12	1.25	29.81 S	165.73 E
845.00	3.08	113.84	822.12	1.26	29.83 S	165.78 E
846.00	3.05	114.21	823.11	1.10	29.85 S	165.82 E
847.00	3.03	114.26	824.11	0.76	29.87 S	165.87 E
848.00	3.01	114.06	825.11	0.70	29.90 S	165.92 E
849.00	2.99	113.67	826.11	0.81	29.92 S	165.97 E
850.00	2.97	113.34	827.11	0.75	29.94 S	166.02 E
851.00	2.95	113.37	828.11	0.57	29.96 S	166.06 E
852.00	2.93	113.66	829.11	0.75	29.98 S	166.11 E
853.00	2.91	114.17	830.10	1.00	30.00 S	166.16 E
854.00	2.89	114.56	831.10	0.83	30.02 S	166.20 E
855.00	2.88	114.74	832.10	0.52	30.04 S	166.25 E
856.00	2.87	114.75	833.10	0.30	30.06 S	166.29 E
857.00	2.86	114.59	834.10	0.35	30.08 S	166.34 E
858.00	2.84	114.58	835.10	0.45	30.10 S	166.38 E
859.00	2.82	114.68	836.10	0.76	30.12 S	166.43 E
860.00	2.78	115.19	837.10	1.31	30.14 S	166.47 E
861.00	2.74	115.92	838.09	1.64	30.17 S	166.52 E
862.00	2.70	116.36	839.09	1.38	30.19 S	166.56 E
863.00	2.66	116.60	840.09	1.11	30.21 S	166.60 E
864.00	2.64	116.60	841.09	0.66	30.23 S	166.64 E
865.00	2.63	116.77	842.09	0.46	30.25 S	166.68 E
866.00	2.62	117.04	843.09	0.47	30.27 S	166.72 E
867.00	2.61	117.44	844.09	0.63	30.29 S	166.77 E
868.00	2.59	117.76	845.09	0.58	30.31 S	166.81 E

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A Gyrodata Directional Survey

BRASKEM

Well: Mina 31

Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
869.00	2.58	118.07	846.09	0.60	30.33 S	166.85 E
870.00	2.57	118.23	847.09	0.44	30.35 S	166.88 E
871.00	2.55	118.25	848.08	0.39	30.37 S	166.92 E
872.00	2.54	118.33	849.08	0.35	30.40 S	166.96 E
873.00	2.54	118.51	850.08	0.34	30.42 S	167.00 E
874.00	2.53	118.69	851.08	0.31	30.44 S	167.04 E
875.00	2.52	118.74	852.08	0.17	30.46 S	167.08 E
876.00	2.52	118.78	853.08	0.19	30.48 S	167.12 E
877.00	2.51	118.81	854.08	0.24	30.50 S	167.16 E
878.00	2.50	119.15	855.08	0.56	30.52 S	167.19 E
879.00	2.48	119.71	856.08	0.85	30.54 S	167.23 E
880.00	2.46	120.40	857.08	1.06	30.57 S	167.27 E
881.00	2.45	120.99	858.07	0.94	30.59 S	167.31 E
882.00	2.44	121.35	859.07	0.56	30.61 S	167.34 E
883.00	2.43	121.73	860.07	0.50	30.63 S	167.38 E
884.00	2.43	122.06	861.07	0.43	30.65 S	167.42 E
885.00	2.43	122.43	862.07	0.47	30.68 S	167.45 E
886.00	2.42	122.71	863.07	0.53	30.70 S	167.49 E
887.00	2.39	123.12	864.07	0.96	30.72 S	167.52 E
888.00	2.36	123.69	865.07	1.37	30.74 S	167.56 E
889.00	2.31	124.23	866.07	1.42	30.77 S	167.59 E
890.00	2.28	124.60	867.07	1.22	30.79 S	167.62 E
891.00	2.24	124.63	868.07	1.11	30.81 S	167.66 E
892.00	2.20	124.64	869.07	1.17	30.83 S	167.69 E
893.00	2.15	124.63	870.06	1.38	30.86 S	167.72 E
894.00	2.10	124.57	871.06	1.65	30.88 S	167.75 E
895.00	2.03	124.48	872.06	1.95	30.90 S	167.78 E
896.00	1.96	124.23	873.06	2.27	30.92 S	167.81 E
897.00	1.88	124.23	874.06	2.43	30.94 S	167.84 E
898.00	1.79	124.14	875.06	2.58	30.95 S	167.86 E
899.00	1.71	124.13	876.06	2.40	30.97 S	167.89 E
900.00	1.64	124.10	877.06	2.22	30.99 S	167.91 E
901.00	1.57	124.08	878.06	2.10	31.00 S	167.94 E
902.00	1.49	124.26	879.06	2.19	31.02 S	167.96 E
903.00	1.42	124.41	880.06	2.37	31.03 S	167.98 E
904.00	1.34	124.86	881.06	2.33	31.05 S	168.00 E
905.00	1.26	125.31	882.06	2.30	31.06 S	168.02 E
906.00	1.16	125.99	883.06	3.06	31.07 S	168.03 E
907.00	1.06	127.59	884.06	3.06	31.08 S	168.05 E
908.00	0.97	129.75	885.06	2.96	31.09 S	168.06 E
909.00	0.89	131.82	886.06	2.74	31.11 S	168.08 E
910.00	0.83	133.96	887.06	1.96	31.12 S	168.09 E
911.00	0.76	137.37	888.06	2.66	31.13 S	168.10 E
912.00	0.69	141.85	889.06	2.58	31.13 S	168.10 E
913.00	0.62	147.43	890.06	2.88	31.14 S	168.11 E

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A Gyrodata Directional Survey

BRASKEM

Well: Mina 31

Location: RIGLESS, SAL GEMA

Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
914.00	0.57	153.27	891.06	2.27	31.15 S	168.12 E
915.00	0.53	159.78	892.06	2.24	31.16 S	168.12 E
916.00	0.50	166.52	893.06	2.07	31.17 S	168.12 E
917.00	0.48	173.37	894.06	1.89	31.18 S	168.12 E
918.00	0.47	181.23	895.06	1.97	31.19 S	168.12 E
919.00	0.46	189.27	896.06	1.96	31.20 S	168.12 E
920.00	0.48	198.26	897.06	2.31	31.20 S	168.12 E
921.00	0.49	204.69	898.06	1.64	31.21 S	168.12 E
922.00	0.52	212.81	899.06	2.36	31.22 S	168.11 E
923.00	0.54	214.26	900.06	0.60	31.23 S	168.11 E
924.00	0.58	217.21	901.06	1.45	31.23 S	168.10 E
925.00	0.60	216.45	902.06	0.79	31.24 S	168.10 E
926.00	0.63	218.81	903.06	1.25	31.25 S	168.09 E
927.00	0.66	221.76	904.06	1.27	31.26 S	168.08 E
928.00	0.69	225.41	905.06	1.55	31.27 S	168.08 E
929.00	0.70	227.78	906.06	0.91	31.28 S	168.07 E
930.00	0.71	229.45	907.06	0.65	31.28 S	168.06 E
931.00	0.71	232.28	908.06	1.06	31.29 S	168.05 E
932.00	0.69	233.56	909.06	0.88	31.30 S	168.04 E
933.00	0.69	234.50	910.06	0.35	31.31 S	168.03 E
934.00	0.67	235.20	911.06	0.73	31.31 S	168.02 E
935.00	0.66	235.53	912.06	0.27	31.32 S	168.01 E
936.00	0.64	237.07	913.06	0.65	31.33 S	168.00 E
937.00	0.63	236.80	914.06	0.34	31.33 S	167.99 E
938.00	0.62	238.61	915.06	0.71	31.34 S	167.98 E
939.00	0.61	236.36	916.06	0.81	31.34 S	167.97 E
940.00	0.58	233.51	917.06	1.24	31.35 S	167.96 E
941.00	0.58	228.72	918.06	1.46	31.36 S	167.96 E
942.00	0.57	226.16	919.06	0.88	31.36 S	167.95 E
943.00	0.55	223.95	920.06	0.84	31.37 S	167.94 E
944.00	0.52	223.62	921.06	0.96	31.38 S	167.94 E
945.00	0.51	223.03	922.06	0.39	31.38 S	167.93 E
946.00	0.48	225.94	923.06	1.17	31.39 S	167.92 E
947.00	0.46	224.90	924.06	0.44	31.40 S	167.92 E
948.00	0.45	226.68	925.06	0.54	31.40 S	167.91 E
949.00	0.44	225.17	926.06	0.48	31.41 S	167.91 E
950.00	0.44	227.41	927.06	0.54	31.41 S	167.90 E
951.00	0.43	225.09	928.06	0.64	31.42 S	167.89 E
952.00	0.42	227.71	929.06	0.58	31.42 S	167.89 E
953.00	0.41	224.10	930.06	0.86	31.43 S	167.88 E
954.00	0.41	227.56	931.06	0.76	31.43 S	167.88 E
955.00	0.39	223.86	932.06	0.99	31.44 S	167.87 E
956.00	0.36	227.25	933.06	1.02	31.44 S	167.87 E
957.00	0.36	220.46	934.06	1.28	31.45 S	167.87 E
958.00	0.31	222.97	935.06	1.48	31.45 S	167.86 E

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BRASKEM
Well: Mina 31
Location: RIGLESS, SAL GEMA
Job Number: BZ0419GVC043

MEASURED DEPTH meters	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH meters	DOGLEG SEVERITY deg/30m	HORIZONTAL COORDINATES meters	
959.00	0.31	214.76	936.06	1.34	31.45 S	167.86 E
960.00	0.25	201.59	937.06	2.54	31.46 S	167.86 E
961.00	0.24	180.39	938.06	2.76	31.46 S	167.85 E
962.00	0.23	159.23	939.06	2.57	31.47 S	167.86 E
963.00	0.22	147.76	940.06	1.39	31.47 S	167.86 E
964.00	0.22	147.76	941.06	0.00	31.47 S	167.86 E
965.00	0.20	147.53	942.06	0.51	31.48 S	167.86 E
966.00	0.18	145.96	943.06	0.80	31.48 S	167.86 E
967.00	0.16	136.30	944.06	0.97	31.48 S	167.86 E
968.00	0.14	123.91	945.06	1.10	31.48 S	167.87 E
969.00	0.14	109.86	946.06	1.05	31.48 S	167.87 E
970.00	0.13	96.44	947.06	0.95	31.48 S	167.87 E
971.00	0.13	84.84	948.06	0.80	31.48 S	167.87 E
972.00	0.13	77.43	949.06	0.50	31.48 S	167.88 E
973.00	0.13	73.90	950.06	0.27	31.48 S	167.88 E
974.00	0.12	68.17	951.06	0.42	31.48 S	167.88 E
975.00	0.11	62.14	952.06	0.47	31.48 S	167.88 E
976.00	0.10	52.64	953.06	0.60	31.48 S	167.88 E
977.00	0.10	46.94	954.06	0.32	31.48 S	167.88 E
978.00	0.11	44.12	955.06	0.24	31.48 S	167.89 E
979.00	0.10	45.00	956.06	0.27	31.48 S	167.89 E
980.00	0.08	26.66	957.06	1.01	31.48 S	167.89 E
981.00	0.07	106.31	958.06	2.91	31.48 S	167.89 E
982.00	0.07	125.75	959.06	0.71	31.48 S	167.89 E
983.00	0.09	148.10	960.06	1.03	31.48 S	167.89 E
984.00	0.10	162.16	961.06	0.86	31.48 S	167.89 E
985.00	0.12	171.12	962.06	0.69	31.48 S	167.89 E
986.00	0.14	174.70	963.06	0.56	31.48 S	167.89 E
987.00	0.16	176.21	964.06	0.67	31.49 S	167.89 E
988.00	0.19	176.95	965.06	0.84	31.49 S	167.89 E
989.00	0.22	177.10	966.06	0.93	31.49 S	167.89 E
990.00	0.25	177.24	967.06	0.99	31.50 S	167.89 E
991.00	0.28	175.64	968.06	1.07	31.50 S	167.89 E
992.00	0.32	170.70	969.06	1.38	31.51 S	167.89 E
993.00	0.34	162.08	970.06	1.62	31.51 S	167.90 E
994.00	0.36	152.20	971.06	1.91	31.52 S	167.90 E
995.00	0.36	143.61	972.06	1.63	31.52 S	167.90 E
996.00	0.37	142.06	973.06	0.38	31.53 S	167.91 E
997.00	0.40	138.65	974.06	1.04	31.53 S	167.91 E
998.00	0.43	139.70	975.06	0.96	31.54 S	167.91 E
999.00	0.44	142.51	976.06	0.70	31.54 S	167.92 E

Final Station Closure: Distance: 170.86 m Az: 100.64 deg.

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Parte 5
Controle de Qualidade

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5.0 CONTROLE DE QUALIDADE

Survey QC – Vertical Continuous Analysis Sheet	gyrodata
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SURVEY QUALITY CONTROL – SPECIFICATION DATA

PRE-JOB CALIBRATION VERIFICATION (ROLL TEST)

System Parameter	dGx	dGy	dmbo	Mean Gravity Error	Stdev Gravity Error
Standard Deviation	0.010	0.010	0.010	0.00021	0.00001
Tolerance	0.033	0.033	0.087	0.00591	0.00720

CALIBRATION

Tool Number	FA088	Calibration Date	06 Jan 2016
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OPERATING TEMPERATURE

Calibration range	From	30.03	To	120.04	
Gyro operating range for Job	From	61.12	To	62.36	In-Spec If +/- 2.5 °C of Calibration

INCLINATION DIFFERENCE TEST

Chi-square test value	0.8
Tolerance	34.4
Number of overlapping survey stations used	15.0

CO-ORDINATE DIFFERENCE TEST

	North	East	Vertical
Chi-square test value	1.3	0.4	5.9
Tolerance	34.4	34.4	34.4
Number of overlapping survey stations used	15.0	15.0	15.0

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Survey QC - RGS-CT Continuous Specification Sheet	gyrodata
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SURVEY QUALITY CONTROL - SPECIFICATION DATA

PRE-JOB CALIBRATION VERIFICATION (ROLL TEST)

System Parameter	dGx	dGy	dmbo	Mean Gravity Error *	Stdev Gravity Error
Standard Deviation	0.009	0.009	0.009	-0.00025	0.00003
Tolerance	0.033	0.033	0.087	0.00591	0.00720

GYRO VERIFICATION (ADVANCED INITIALISATION)

Gyro Compass Parameter	Gyro noise	dGx	dGy	dmbo	Max corr coef
Standard Deviation	0.015	0.003	0.003	0.000	0.10
Tolerance	0.141	0.033	0.033	0.087	0.43
Initialisation inclination standard deviation					0.11
Initialisation azimuth standard deviation					0.27
Initialisation azimuth uncertainty in percent of error model - Tolerance < 100%					38%

ACCELEROMETER VERIFICATION (G-TOTAL TEST) - not applicable for 2 accelerometer systems

G-Total Test Parameter	Mean Gravity Error	Mean Gravity Error Standard Deviation
Error	-0.00041	0.00001
Tolerance	0.00592	0.01853

CALIBRATION

Tool Number	F0199	Calibration Date	30 Jul 2014
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OPERATING TEMPERATURE

Calibration range	From	49.99	To	119.77	
Gyro operating range	From	61.44	To	62.03	In-Spec if +/- 2.5 °C of Calibration

CONTINUOUS DRIFT CORRECTION

Linear Drift Uncertainty	0.28	Random Walk Uncertainty	0.07
Tolerance	0.46	Tolerance	0.23

CONTINUOUS MISALIGNMENT CORRECTION

Misalignment Parameter	dMx	dMy	Cross corr coef
Standard Deviation	0.00	0.00	0.06
Tolerance	0.12	0.12	0.70

DEPTH CONTROL

Wireline Company	FLODIM	Line type	Quad Cable	Encoder SF	0.0044615644
Max Depth (TD)	999m		CCL Corrected	N/A	
Zero Depth (Rig up)	-1.80m		Rezero Depth	-3.30m	
Given pup joint depth	N/A		Measured PJ	N/A	
Stretch cor. At TD divided by TD/1000			N/A		Spec' - 1.5/1000
Dif. Between rigup and rezero depths divided by TD/1000			N/A		Spec' - 2.0/1000
Dif. Between given and meas depth divided by meas/1000			N/A		Spec' - 2.0/1000

INDIVIDUAL STATION REPORT

% of Total stations accepted	Tolerance > 80%	100%
Consecutive Interval out of Specification	Tolerance < 100 m (300 ft)	0 meters

SURVEY RUNNING TIME

Rig up	4/20/2019 3:45:00 PM	Rig down	4/20/2019 10:00:00 PM
Start Inrun	4/20/2019 4:30:00 PM	Field Survey Presented	4/24/2019 09:30:00 PM
End outrun	4/20/2019 9:35:00 PM	Lost Time	N/A
Comments			

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ACCEPTANCE SUMMARY

	Accept Yes / No
Pre-job calibration verification (roll test)	YES
Gyro Verification (Advanced Initialisation)	YES
Accelerometer verification (G-Total Test)	YES
Operating temperature within calibration range (+/- 2.5°)	YES
Continuous Drift Correction	YES
Continuous Misalignment Correction	YES
Depth Control	YES
Individual Station Report	YES

NAME AND DATE

Leonardo Gomes
21/04/19

SIGNATURE

Leonardo Gomes

Note : Any modifications or amendments to this sheet must be reported to the client representative and the Gyrodata survey focal point.



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Parte 6
Relatório Cronológico
da Operação

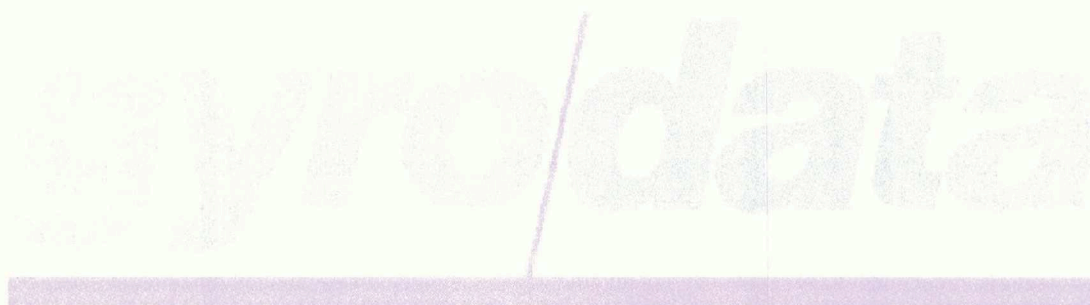
6.0 RELATÓRIO CRONOLÓGICO DA OPERAÇÃO

20 de Abril de 2019

08:00 Chegada na mina 31
08:30 Poço ainda estava pressurizado e teve de ser fechado novamente
09:40 Desmontagem de equipamentos e saída da mina 31
15:20 Chegada na mina 31
16:15 Conexão Gyrodata/Flodim
16:30 Início de Corrida Multishot modo Compass
21:45 Desmontagem de equipamentos e saída da mina 31

21 de Abril de 2019

10:00 Pós calibração



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Parte 7
Gráficos