



GAS and WATER ANALYSIS FINAL REPORT
of
FAIRVIEW
for
TIPPERARY OIL & GAS (AUSTRALIA) PTY LTD
by
ACS LABORATORIES PTY LTD



6 May, 2003

Tipperary Oil & Gas (Australia) Pty Ltd
Level 20
307 Queen Street
BRISBANE QLD 4000

Attention: Mr Richard Barber

GAS and WATER ANALYSIS - FINAL REPORT 0600-06

FAIRVIEW

Please find enclosed final results of the gas and water analysis from the above field, which were sampled by our field staff from 1st – 3rd April, 2003.

If ACS can assist you in any way or if you require any further information, please do not hesitate to contact the undersigned.

NICK COX
PVT Laboratory Manager

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CHAPTER 1

SAMPLE DETAILS

SAMPLE DETAILS

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview

Field	Fairview
Formation	Bandanna
Sampling Date	1st - 3rd April 2003
Sample Type	Surface Separator
Separator Pressure	25 - 125 psia
Separator Temperature	21 - 46 °C

Standard conditions of temperature and pressure for this study are 15.6°C and 14.7 psia.

CHAPTER 2

GAS ANALYSIS RESULTS

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 1
Sampling Date and Time: 3/4/2003 at 12:15 hrs
Sampling Conditions: 60 psia at 43°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.05	0.14		44.01	0.817
N ₂ Nitrogen	2.59	4.43		28.01	0.809
C ₁ Methane	97.34	95.39		16.04	0.300
C ₂ Ethane	0.02	0.04	0.005	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.005		

Sample Properties

Critical Pressure, psia:	662.7	Gas Gravity Factor, Fg:	1.3303
Critical Temperature, °R:	340.2	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.4	at sampling conditions:	1.0030
Calculated Gas Gravity, Air = 1.000:	0.565	Gas Z-Factor	
		at sampling conditions*:	0.994
Gross Heating Value, Btu/scf dry gas:	983 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 2
Sampling Date and Time: 3/4/2003 at 11:40 hrs
Sampling Conditions: 48 psia at 32°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.04	0.11		44.01	0.817
N ₂ Nitrogen	2.89	4.93		28.01	0.809
C ₁ Methane	97.05	94.92		16.04	0.300
C ₂ Ethane	0.02	0.04	0.005	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.005		

Sample Properties

Critical Pressure, psia:	662.1	Gas Gravity Factor, Fg:	1.3290
Critical Temperature, °R:	339.8	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.4	at sampling conditions:	1.0030
Calculated Gas Gravity, Air = 1.000:	0.566	Gas Z-Factor	
		at sampling conditions*:	0.994
Gross Heating Value, Btu/scf dry gas:	980 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 4
Sampling Date and Time: 3/4/2003 at 13:05 hrs
Sampling Conditions: 57 psia at 33°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.04	0.11		44.01	0.817
N ₂ Nitrogen	2.51	4.30		28.01	0.809
C ₁ Methane	97.44	95.57		16.04	0.300
C ₂ Ethane	0.01	0.02	0.003	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.003		

Sample Properties

Critical Pressure, psia:	662.8	Gas Gravity Factor, Fg:	1.3309
Critical Temperature, °R:	340.2	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.4	at sampling conditions:	1.0035
Calculated Gas Gravity, Air = 1.000:	0.565	Gas Z-Factor	
		at sampling conditions*:	0.993
Gross Heating Value, Btu/scf dry gas:	984 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 5
Sampling Date and Time: 1/4/2003 at 12:50 hrs
Sampling Conditions: 42 psia at 40°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.03	0.08		44.01	0.817
N ₂ Nitrogen	8.10	13.34		28.01	0.809
C ₁ Methane	91.86	86.56		16.04	0.300
C ₂ Ethane	0.01	0.02	0.003	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇ + Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.003		

Sample Properties

Critical Pressure, psia:	653.0	Gas Gravity Factor, Fg:	1.3045
Critical Temperature, °R:	333.7	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	17.0	at sampling conditions:	1.0020
Calculated Gas Gravity, Air = 1.000:	0.588	Gas Z-Factor	
		at sampling conditions*:	0.996
Gross Heating Value, Btu/scf dry gas:	928 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 6
Sampling Date and Time: 3/4/2003 at 13:15 hrs
Sampling Conditions: 53 psia at 36°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.08	0.22		44.01	0.817
N ₂ Nitrogen	2.31	3.96		28.01	0.809
C ₁ Methane	97.58	95.76		16.04	0.300
C ₂ Ethane	0.03	0.06	0.008	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.008		

Sample Properties

Critical Pressure, psia:	663.3	Gas Gravity Factor, Fg:	1.3312
Critical Temperature, °R:	340.6	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.3	at sampling conditions:	1.0030
Calculated Gas Gravity, Air = 1.000:	0.564	Gas Z-Factor	
		at sampling conditions*:	0.994
Gross Heating Value, Btu/scf dry gas:	985 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 7
Sampling Date and Time: 1/4/2003 at 13:05 hrs
Sampling Conditions: 67 psia at 43°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.04	0.11		44.01	0.817
N ₂ Nitrogen	2.77	4.74		28.01	0.809
C ₁ Methane	97.19	95.15		16.04	0.300
C ₂ Ethane	<0.01	<0.01	<0.001	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	<0.001		

Sample Properties

Critical Pressure, psia:	662.3	Gas Gravity Factor, Fg:	1.3296
Critical Temperature, °R:	339.9	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.4	at sampling conditions:	1.0035
Calculated Gas Gravity, Air = 1.000:	0.566	Gas Z-Factor	
		at sampling conditions*:	0.993
Gross Heating Value, Btu/scf dry gas:	982 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 8
Sampling Date and Time: 2/4/2003 at 10:40 hrs
Sampling Conditions: 45 psia at 28°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.18	0.38		44.01	0.817
N ₂ Nitrogen	35.65	49.06		28.01	0.809
C ₁ Methane	64.17	50.56		16.04	0.300
C ₂ Ethane	<0.01	<0.01	<0.001	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	<0.001		

Sample Properties

Critical Pressure, psia:	605.2	Gas Gravity Factor, Fg:	1.1928
Critical Temperature, °R:	302.1	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	20.4	at sampling conditions:	1.0020
Calculated Gas Gravity, Air = 1.000:	0.703	Gas Z-Factor	
		at sampling conditions*:	0.996
Gross Heating Value, Btu/scf dry gas:	648 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 9
Sampling Date and Time: 1/4/2003 at 13:30 hrs
Sampling Conditions: 59 psia at 31°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.04	0.11		44.01	0.817
N ₂ Nitrogen	3.06	5.22		28.01	0.809
C ₁ Methane	96.89	94.65		16.04	0.300
C ₂ Ethane	0.01	0.02	0.003	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇ + Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.003		

Sample Properties

Critical Pressure, psia:	661.8	Gas Gravity Factor, Fg:	1.3282
Critical Temperature, °R:	339.6	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.4	at sampling conditions:	1.0035
Calculated Gas Gravity, Air = 1.000:	0.567	Gas Z-Factor	
		at sampling conditions*:	0.993
Gross Heating Value, Btu/scf dry gas:	979 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 10
Sampling Date and Time: 3/4/2003 at 13:30 hrs
Sampling Conditions: 76 psia at 31°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.07	0.20		44.01	0.817
N ₂ Nitrogen	1.61	2.77		28.01	0.809
C ₁ Methane	98.30	96.99		16.04	0.300
C ₂ Ethane	0.02	0.04	0.005	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.005		

Sample Properties

Critical Pressure, psia:	664.5	Gas Gravity Factor, Fg:	1.3348
Critical Temperature, °R:	341.3	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.3	at sampling conditions:	1.0045
Calculated Gas Gravity, Air = 1.000:	0.561	Gas Z-Factor	
		at sampling conditions*:	0.991
Gross Heating Value, Btu/scf dry gas:	993 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 12
Sampling Date and Time: 1/4/2003 at 13:15 hrs
Sampling Conditions: 70 psia at 41°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.05	0.13		44.01	0.817
N ₂ Nitrogen	12.02	19.24		28.01	0.809
C ₁ Methane	87.93	80.63		16.04	0.300
C ₂ Ethane	<0.01	<0.01	<0.001	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	<0.001		

Sample Properties

Critical Pressure, psia:	646.2	Gas Gravity Factor, Fg:	1.2867
Critical Temperature, °R:	329.2	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	17.5	at sampling conditions:	1.0035
Calculated Gas Gravity, Air = 1.000:	0.604	Gas Z-Factor	
		at sampling conditions*:	0.993
Gross Heating Value, Btu/scf dry gas:	888 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 14
Sampling Date and Time: 1/4/2003 at 11:20 hrs
Sampling Conditions: 45 psia at 34°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.08	0.22		44.01	0.817
N ₂ Nitrogen	2.81	4.80		28.01	0.809
C ₁ Methane	97.09	94.94		16.04	0.300
C ₂ Ethane	0.02	0.04	0.005	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.005		

Sample Properties

Critical Pressure, psia:	662.4	Gas Gravity Factor, Fg:	1.3289
Critical Temperature, °R:	340.0	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.4	at sampling conditions:	1.0025
Calculated Gas Gravity, Air = 1.000:	0.566	Gas Z-Factor	
		at sampling conditions*:	0.995
Gross Heating Value, Btu/scf dry gas:	981 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 15
Sampling Date and Time: 1/4/2003 at 11:05 hrs
Sampling Conditions: 47 psia at 31°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.11	0.26		44.01	0.817
N ₂ Nitrogen	14.40	22.67		28.01	0.809
C ₁ Methane	85.49	77.07		16.04	0.300
C ₂ Ethane	<0.01	<0.01	<0.001	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	<0.001		

Sample Properties

Critical Pressure, psia:	642.2	Gas Gravity Factor, Fg:	1.2759
Critical Temperature, °R:	326.6	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	17.8	at sampling conditions:	1.0025
Calculated Gas Gravity, Air = 1.000:	0.614	Gas Z-Factor	
		at sampling conditions*:	0.995
Gross Heating Value, Btu/scf dry gas:	863 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 16
Sampling Date and Time: 1/4/2003 at 10:20 hrs
Sampling Conditions: 32 psia at 33°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.19	0.46		44.01	0.817
N ₂ Nitrogen	15.45	24.12		28.01	0.809
C ₁ Methane	84.34	75.39		16.04	0.300
C ₂ Ethane	0.02	0.03	0.005	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.005		

Sample Properties

Critical Pressure, psia:	640.7	Gas Gravity Factor, Fg:	1.2704
Critical Temperature, °R:	325.5	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	18.0	at sampling conditions:	1.0015
Calculated Gas Gravity, Air = 1.000:	0.620	Gas Z-Factor	
		at sampling conditions*:	0.997
Gross Heating Value, Btu/scf dry gas:	817 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 17
Sampling Date and Time: 3/4/2003 at 11:15 hrs
Sampling Conditions: 51 psia at 43°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.06	0.16		44.01	0.817
N ₂ Nitrogen	7.23	11.96		28.01	0.809
C ₁ Methane	92.70	87.86		16.04	0.300
C ₂ Ethane	0.01	0.02	0.003	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.003		

Sample Properties

Critical Pressure, psia:	654.6	Gas Gravity Factor, Fg:	1.3082
Critical Temperature, °R:	334.8	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.9	at sampling conditions:	1.0025
Calculated Gas Gravity, Air = 1.000:	0.584	Gas Z-Factor	
		at sampling conditions*:	0.995
Gross Heating Value, Btu/scf dry gas:	936 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 18X
Sampling Date and Time: 2/4/2003 at 9:45 hrs
Sampling Conditions: 125 psia at 34°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.03	0.08		44.01	0.817
N ₂ Nitrogen	3.48	5.92		28.01	0.809
C ₁ Methane	96.49	94.00		16.04	0.300
C ₂ Ethane	<0.01	<0.01	<0.001	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	<0.001		

Sample Properties

Critical Pressure, psia:	661.1	Gas Gravity Factor, Fg:	1.3263
Critical Temperature, °R:	339.0	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.5	at sampling conditions:	1.0071
Calculated Gas Gravity, Air = 1.000:	0.569	Gas Z-Factor	
		at sampling conditions*:	0.986
Gross Heating Value, Btu/scf dry gas:	975 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 19
Sampling Date and Time: 1/4/2003 at 10:50 hrs
Sampling Conditions: 38 psia at 36°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.12	0.29		44.01	0.817
N ₂ Nitrogen	13.06	20.74		28.01	0.809
C ₁ Methane	86.82	78.97		16.04	0.300
C ₂ Ethane	<0.01	<0.01	<0.001	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	<0.001		

Sample Properties

Critical Pressure, psia:	644.6	Gas Gravity Factor, Fg:	1.2815
Critical Temperature, °R:	328.1	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	17.6	at sampling conditions:	1.0020
Calculated Gas Gravity, Air = 1.000:	0.609	Gas Z-Factor	
		at sampling conditions*:	0.996
Gross Heating Value, Btu/scf dry gas:	877 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 20
Sampling Date and Time: 2/4/2003 at 10:10 hrs
Sampling Conditions: 51 psia at 29°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.07	0.19		44.01	0.817
N ₂ Nitrogen	11.34	18.24		28.01	0.809
C ₁ Methane	88.59	81.57		16.04	0.300
C ₂ Ethane	<0.01	<0.01	<0.001	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	<0.001		

Sample Properties

Critical Pressure, psia:	647.4	Gas Gravity Factor, Fg:	1.2895
Critical Temperature, °R:	330.0	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	17.4	at sampling conditions:	1.0030
Calculated Gas Gravity, Air = 1.000:	0.601	Gas Z-Factor	
		at sampling conditions*:	0.994
Gross Heating Value, Btu/scf dry gas:	895 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 21
Sampling Date and Time: 1/4/2003 at 12:40 hrs
Sampling Conditions: 55 psia at 46°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.07	0.18		44.01	0.817
N ₂ Nitrogen	14.81	23.27		28.01	0.809
C ₁ Methane	85.12	76.55		16.04	0.300
C ₂ Ethane	<0.01	<0.01	<0.001	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	<0.001		

Sample Properties

Critical Pressure, psia:	641.4	Gas Gravity Factor, Fg:	1.2744
Critical Temperature, °R:	326.0	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	17.8	at sampling conditions:	1.0025
Calculated Gas Gravity, Air = 1.000:	0.616	Gas Z-Factor	
		at sampling conditions*:	0.995
Gross Heating Value, Btu/scf dry gas:	860 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 22
Sampling Date and Time: 3/4/2003 at 10:30 hrs
Sampling Conditions: 57 psia at 35°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.07	0.19		44.01	0.817
N ₂ Nitrogen	4.56	7.70		28.01	0.809
C ₁ Methane	95.35	92.07		16.04	0.300
C ₂ Ethane	0.02	0.04	0.005	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.005		

Sample Properties

Critical Pressure, psia:	659.3	Gas Gravity Factor, Fg:	1.3205
Critical Temperature, °R:	337.9	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.6	at sampling conditions:	1.0030
Calculated Gas Gravity, Air = 1.000:	0.574	Gas Z-Factor	
		at sampling conditions*:	0.994
Gross Heating Value, Btu/scf dry gas:	963 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 23
Sampling Date and Time: 3/4/2003 at 11:00 hrs
Sampling Conditions: 57 psia at 40°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.09	0.24		44.01	0.817
N ₂ Nitrogen	7.03	11.64		28.01	0.809
C ₁ Methane	92.87	88.10		16.04	0.300
C ₂ Ethane	0.01	0.02	0.003	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.003		

Sample Properties

Critical Pressure, psia:	655.1	Gas Gravity Factor, Fg:	1.3088
Critical Temperature, °R:	335.1	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.9	at sampling conditions:	1.0030
Calculated Gas Gravity, Air = 1.000:	0.584	Gas Z-Factor	
		at sampling conditions*:	0.994
Gross Heating Value, Btu/scf dry gas:	938 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 24
Sampling Date and Time: 3/4/2003 at 11:55 hrs
Sampling Conditions: 65 psia at 38°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.07	0.19		44.01	0.817
N ₂ Nitrogen	2.90	4.96		28.01	0.809
C ₁ Methane	97.00	94.79		16.04	0.300
C ₂ Ethane	0.03	0.06	0.008	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇ + Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.008		

Sample Properties

Critical Pressure, psia:	662.2	Gas Gravity Factor, Fg:	1.3285
Critical Temperature, °R:	339.9	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.4	at sampling conditions:	1.0035
Calculated Gas Gravity, Air = 1.000:	0.567	Gas Z-Factor	
		at sampling conditions*:	0.993
Gross Heating Value, Btu/scf dry gas:	980 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 25
Sampling Date and Time: 3/4/2003 at 12:05 hrs
Sampling Conditions: 65 psia at 36°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.11	0.30		44.01	0.817
N ₂ Nitrogen	1.99	3.41		28.01	0.809
C ₁ Methane	97.88	96.25		16.04	0.300
C ₂ Ethane	0.02	0.04	0.005	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.005		

Sample Properties

Critical Pressure, psia:	664.0	Gas Gravity Factor, Fg:	1.3325
Critical Temperature, °R:	341.0	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.3	at sampling conditions:	1.0035
Calculated Gas Gravity, Air = 1.000:	0.563	Gas Z-Factor	
		at sampling conditions*:	0.993
Gross Heating Value, Btu/scf dry gas:	989 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 26
Sampling Date and Time: 3/4/2003 at 13:40 hrs
Sampling Conditions: 47 psia at 33°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.16	0.43		44.01	0.817
N ₂ Nitrogen	1.40	2.41		28.01	0.809
C ₁ Methane	98.41	97.10		16.04	0.300
C ₂ Ethane	0.03	0.06	0.008	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.008		

Sample Properties

Critical Pressure, psia:	665.2	Gas Gravity Factor, Fg:	1.3348
Critical Temperature, °R:	341.8	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.3	at sampling conditions:	1.0030
Calculated Gas Gravity, Air = 1.000:	0.561	Gas Z-Factor	
		at sampling conditions*:	0.994
Gross Heating Value, Btu/scf dry gas:	994 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 27
Sampling Date and Time: 1/4/2003 at 12:25 hrs
Sampling Conditions: 65 psia at 34°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.03	0.08		44.01	0.817
N ₂ Nitrogen	4.72	7.95		28.01	0.809
C ₁ Methane	95.23	91.93		16.04	0.300
C ₂ Ethane	0.02	0.04	0.005	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇ + Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.005		

Sample Properties

Critical Pressure, psia:	658.9	Gas Gravity Factor, Fg:	1.3203
Critical Temperature, °R:	337.7	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.6	at sampling conditions:	1.0035
Calculated Gas Gravity, Air = 1.000:	0.574	Gas Z-Factor	
		at sampling conditions*:	0.993
Gross Heating Value, Btu/scf dry gas:	962 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 29
Sampling Date and Time: 1/4/2003 at 10:35 hrs
Sampling Conditions: 65 psia at 43°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.05	0.13		44.01	0.817
N ₂ Nitrogen	8.56	14.03		28.01	0.809
C ₁ Methane	91.39	85.84		16.04	0.300
C ₂ Ethane	<0.01	<0.01	<0.001	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇ + Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	<0.001		

Sample Properties

Critical Pressure, psia:	652.2	Gas Gravity Factor, Fg:	1.3022
Critical Temperature, °R:	333.2	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	17.1	at sampling conditions:	1.0030
Calculated Gas Gravity, Air = 1.000:	0.590	Gas Z-Factor	
		at sampling conditions*:	0.994
Gross Heating Value, Btu/scf dry gas:	923 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 30
Sampling Date and Time: 2/4/2003 at 10:25 hrs
Sampling Conditions: 52 psia at 28°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.09	0.25		44.01	0.817
N ₂ Nitrogen	3.25	5.53		28.01	0.809
C ₁ Methane	96.66	94.22		16.04	0.300
C ₂ Ethane	<0.01	<0.01	<0.001	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	<0.001		

Sample Properties

Critical Pressure, psia:	661.7	Gas Gravity Factor, Fg:	1.3267
Critical Temperature, °R:	339.4	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.5	at sampling conditions:	1.0030
Calculated Gas Gravity, Air = 1.000:	0.568	Gas Z-Factor	
		at sampling conditions*:	0.994
Gross Heating Value, Btu/scf dry gas:	976 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 34
Sampling Date and Time: 3/4/2003 at 10:05 hrs
Sampling Conditions: 55 psia at 31°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.20	0.51		44.01	0.817
N ₂ Nitrogen	10.15	16.42		28.01	0.809
C ₁ Methane	89.63	83.03		16.04	0.300
C ₂ Ethane	0.02	0.04	0.005	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.005		

Sample Properties

Critical Pressure, psia:	650.0	Gas Gravity Factor, Fg:	1.2934
Critical Temperature, °R:	331.7	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	17.3	at sampling conditions:	1.0030
Calculated Gas Gravity, Air = 1.000:	0.598	Gas Z-Factor	
		at sampling conditions*:	0.994
Gross Heating Value, Btu/scf dry gas:	905 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 35
Sampling Date and Time: 3/4/2003 at 9:20 hrs
Sampling Conditions: 55 psia at 21°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.28	0.74		44.01	0.817
N ₂ Nitrogen	2.63	4.47		28.01	0.809
C ₁ Methane	97.01	94.64		16.04	0.300
C ₂ Ethane	0.08	0.15	0.021	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.021		

Sample Properties

Critical Pressure, psia:	663.6	Gas Gravity Factor, Fg:	1.3272
Critical Temperature, °R:	340.7	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.4	at sampling conditions:	1.0035
Calculated Gas Gravity, Air = 1.000:	0.568	Gas Z-Factor	
		at sampling conditions*:	0.993
Gross Heating Value, Btu/scf dry gas:	980 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 37
Sampling Date and Time: 3/4/2003 at 9:35 hrs
Sampling Conditions: 60 psia at 26°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.10	0.28		44.01	0.817
N ₂ Nitrogen	2.87	4.91		28.01	0.809
C ₁ Methane	97.03	94.81		16.04	0.300
C ₂ Ethane	<0.01	<0.01	<0.001	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	<0.001		

Sample Properties

Critical Pressure, psia:	662.4	Gas Gravity Factor, Fg:	1.3284
Critical Temperature, °R:	339.9	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.4	at sampling conditions:	1.0040
Calculated Gas Gravity, Air = 1.000:	0.567	Gas Z-Factor	
		at sampling conditions*:	0.992
Gross Heating Value, Btu/scf dry gas:	980 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 38
Sampling Date and Time: 2/4/2003 at 12:45 hrs
Sampling Conditions: 63 psia at 36°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.05	0.14		44.01	0.817
N ₂ Nitrogen	6.42	10.69		28.01	0.809
C ₁ Methane	93.53	89.17		16.04	0.300
C ₂ Ethane	<0.01	<0.01	<0.001	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	<0.001		

Sample Properties

Critical Pressure, psia:	656.0	Gas Gravity Factor, Fg:	1.3122
Critical Temperature, °R:	335.7	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.8	at sampling conditions:	1.0035
Calculated Gas Gravity, Air = 1.000:	0.581	Gas Z-Factor	
		at sampling conditions*:	0.993
Gross Heating Value, Btu/scf dry gas:	945 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 39
Sampling Date and Time: 2/4/2003 at 12:05 hrs
Sampling Conditions: 45 psia at 26°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.12	0.29		44.01	0.817
N ₂ Nitrogen	15.01	23.52		28.01	0.809
C ₁ Methane	84.84	76.14		16.04	0.300
C ₂ Ethane	0.03	0.05	0.008	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.008		

Sample Properties

Critical Pressure, psia:	641.2	Gas Gravity Factor, Fg:	1.2730
Critical Temperature, °R:	325.9	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	17.9	at sampling conditions:	1.0030
Calculated Gas Gravity, Air = 1.000:	0.617	Gas Z-Factor	
		at sampling conditions*:	0.994
Gross Heating Value, Btu/scf dry gas:	857 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 40
Sampling Date and Time: 2/4/2003 at 12:00 hrs
Sampling Conditions: 35 psia at 34°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.08	0.22		44.01	0.817
N ₂ Nitrogen	4.51	7.60		28.01	0.809
C ₁ Methane	95.39	92.14		16.04	0.300
C ₂ Ethane	0.02	0.04	0.005	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.005		

Sample Properties

Critical Pressure, psia:	659.5	Gas Gravity Factor, Fg:	1.3207
Critical Temperature, °R:	338.0	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.6	at sampling conditions:	1.0020
Calculated Gas Gravity, Air = 1.000:	0.573	Gas Z-Factor	
		at sampling conditions*:	0.996
Gross Heating Value, Btu/scf dry gas:	963 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 41
Sampling Date and Time: 2/4/2003 at 11:15 hrs
Sampling Conditions: 50 psia at 30°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.16	0.40		44.01	0.817
N ₂ Nitrogen	9.61	15.62		28.01	0.809
C ₁ Methane	90.23	83.98		16.04	0.300
C ₂ Ethane	<0.01	<0.01	<0.001	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇ + Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	<0.001		

Sample Properties

Critical Pressure, psia:	650.8	Gas Gravity Factor, Fg:	1.2964
Critical Temperature, °R:	332.2	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	17.2	at sampling conditions:	1.0030
Calculated Gas Gravity, Air = 1.000:	0.595	Gas Z-Factor	
		at sampling conditions*:	0.994
Gross Heating Value, Btu/scf dry gas:	911 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 42
Sampling Date and Time: 2/4/2003 at 11:30 hrs
Sampling Conditions: 47 psia at 42°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.07	0.19		44.01	0.817
N ₂ Nitrogen	5.18	8.70		28.01	0.809
C ₁ Methane	94.74	91.09		16.04	0.300
C ₂ Ethane	0.01	0.02	0.003	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇ + Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.003		

Sample Properties

Critical Pressure, psia:	658.2	Gas Gravity Factor, Fg:	1.3176
Critical Temperature, °R:	337.2	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.7	at sampling conditions:	1.0025
Calculated Gas Gravity, Air = 1.000:	0.576	Gas Z-Factor	
		at sampling conditions*:	0.995
Gross Heating Value, Btu/scf dry gas:	957 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 43
Sampling Date and Time: 2/4/2003 at 10:55 hrs
Sampling Conditions: 55 psia at 30°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.19	0.49		44.01	0.817
N ₂ Nitrogen	4.05	6.84		28.01	0.809
C ₁ Methane	95.75	92.65		16.04	0.300
C ₂ Ethane	0.01	0.02	0.003	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.003		

Sample Properties

Critical Pressure, psia:	660.7	Gas Gravity Factor, Fg:	1.3218
Critical Temperature, °R:	338.7	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.6	at sampling conditions:	1.0035
Calculated Gas Gravity, Air = 1.000:	0.572	Gas Z-Factor	
		at sampling conditions*:	0.993
Gross Heating Value, Btu/scf dry gas:	967 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 44
Sampling Date and Time: 2/4/2003 at 11:05 hrs
Sampling Conditions: 50 psia at 31°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.07	0.19		44.01	0.817
N ₂ Nitrogen	3.51	5.97		28.01	0.809
C ₁ Methane	96.42	93.84		16.04	0.300
C ₂ Ethane	<0.01	<0.01	<0.001	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	<0.001		

Sample Properties

Critical Pressure, psia:	661.2	Gas Gravity Factor, Fg:	1.3257
Critical Temperature, °R:	339.1	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.5	at sampling conditions:	1.0030
Calculated Gas Gravity, Air = 1.000:	0.569	Gas Z-Factor	
		at sampling conditions*:	0.994
Gross Heating Value, Btu/scf dry gas:	974 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 45
Sampling Date and Time: 2/4/2003 at 9:55 hrs
Sampling Conditions: 35 psia at 28°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.02	0.05		44.01	0.817
N ₂ Nitrogen	8.22	13.51		28.01	0.809
C ₁ Methane	91.76	86.44		16.04	0.300
C ₂ Ethane	<0.01	<0.01	<0.001	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	<0.001		

Sample Properties

Critical Pressure, psia:	652.7	Gas Gravity Factor, Fg:	1.3041
Critical Temperature, °R:	333.5	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	17.0	at sampling conditions:	1.0020
Calculated Gas Gravity, Air = 1.000:	0.588	Gas Z-Factor	
		at sampling conditions*:	0.996
Gross Heating Value, Btu/scf dry gas:	927 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 46
Sampling Date and Time: 2/4/2003 at 9:30 hrs
Sampling Conditions: 43 psia at 33°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.13	0.32		44.01	0.817
N ₂ Nitrogen	8.26	13.55		28.01	0.809
C ₁ Methane	91.61	86.13		16.04	0.300
C ₂ Ethane	<0.01	<0.01	<0.001	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	<0.001		

Sample Properties

Critical Pressure, psia:	653.1	Gas Gravity Factor, Fg:	1.3029
Critical Temperature, °R:	333.7	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	17.1	at sampling conditions:	1.0025
Calculated Gas Gravity, Air = 1.000:	0.589	Gas Z-Factor	
		at sampling conditions*:	0.995
Gross Heating Value, Btu/scf dry gas:	925 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 47
Sampling Date and Time: 2/4/2003 at 9:00 hrs
Sampling Conditions: 125 psia at 33°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.04	0.11		44.01	0.817
N ₂ Nitrogen	3.12	5.33		28.01	0.809
C ₁ Methane	96.84	94.56		16.04	0.300
C ₂ Ethane	<0.01	<0.01	<0.001	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	<0.001		

Sample Properties

Critical Pressure, psia:	661.7	Gas Gravity Factor, Fg:	1.3279
Critical Temperature, °R:	339.5	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.4	at sampling conditions:	1.0071
Calculated Gas Gravity, Air = 1.000:	0.567	Gas Z-Factor	
		at sampling conditions*:	0.986
Gross Heating Value, Btu/scf dry gas:	978 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 48
Sampling Date and Time: 2/4/2003 at 9:15 hrs
Sampling Conditions: 41 psia at 36°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.03	0.08		44.01	0.817
N ₂ Nitrogen	5.62	9.41		28.01	0.809
C ₁ Methane	94.35	90.51		16.04	0.300
C ₂ Ethane	<0.01	<0.01	<0.001	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	<0.001		

Sample Properties

Critical Pressure, psia:	657.3	Gas Gravity Factor, Fg:	1.3161
Critical Temperature, °R:	336.6	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.7	at sampling conditions:	1.0025
Calculated Gas Gravity, Air = 1.000:	0.577	Gas Z-Factor	
		at sampling conditions*:	0.995
Gross Heating Value, Btu/scf dry gas:	953 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 49
Sampling Date and Time: 3/4/2003 at 8:45 hrs
Sampling Conditions: 33 psia at 31°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.08	0.22		44.01	0.817
N ₂ Nitrogen	2.35	4.03		28.01	0.809
C ₁ Methane	97.54	95.69		16.04	0.300
C ₂ Ethane	0.03	0.06	0.008	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇ + Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.008		

Sample Properties

Critical Pressure, psia:	663.2	Gas Gravity Factor, Fg:	1.3310
Critical Temperature, °R:	340.5	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.4	at sampling conditions:	1.0020
Calculated Gas Gravity, Air = 1.000:	0.565	Gas Z-Factor	
		at sampling conditions*:	0.996
Gross Heating Value, Btu/scf dry gas:	985 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 50
Sampling Date and Time: 3/4/2003 at 9:05 hrs
Sampling Conditions: 57 psia at 28°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.09	0.25		44.01	0.817
N ₂ Nitrogen	3.21	5.47		28.01	0.809
C ₁ Methane	96.67	94.22		16.04	0.300
C ₂ Ethane	0.03	0.06	0.008	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇ + Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.008		

Sample Properties

Critical Pressure, psia:	661.8	Gas Gravity Factor, Fg:	1.3267
Critical Temperature, °R:	339.6	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.5	at sampling conditions:	1.0035
Calculated Gas Gravity, Air = 1.000:	0.568	Gas Z-Factor	
		at sampling conditions*:	0.993
Gross Heating Value, Btu/scf dry gas:	976 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 51
Sampling Date and Time: 3/4/2003 at 10:45 hrs
Sampling Conditions: 63 psia at 43°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.14	0.36		44.01	0.817
N ₂ Nitrogen	4.67	7.85		28.01	0.809
C ₁ Methane	95.17	91.75		16.04	0.300
C ₂ Ethane	0.02	0.04	0.005	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.005		

Sample Properties

Critical Pressure, psia:	659.4	Gas Gravity Factor, Fg:	1.3193
Critical Temperature, °R:	337.9	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.6	at sampling conditions:	1.0035
Calculated Gas Gravity, Air = 1.000:	0.575	Gas Z-Factor	
		at sampling conditions*:	0.993
Gross Heating Value, Btu/scf dry gas:	961 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 52
Sampling Date and Time: 3/4/2003 at 11:30 hrs
Sampling Conditions: 52 psia at 32°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.17	0.45		44.01	0.817
N ₂ Nitrogen	6.68	11.08		28.01	0.809
C ₁ Methane	93.15	88.47		16.04	0.300
C ₂ Ethane	<0.01	<0.01	<0.001	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	<0.001		

Sample Properties

Critical Pressure, psia:	656.0	Gas Gravity Factor, Fg:	1.3096
Critical Temperature, °R:	335.6	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.9	at sampling conditions:	1.0030
Calculated Gas Gravity, Air = 1.000:	0.583	Gas Z-Factor	
		at sampling conditions*:	0.994
Gross Heating Value, Btu/scf dry gas:	941 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 53
Sampling Date and Time: 3/4/2003 at 9:50 hrs
Sampling Conditions: 31 psia at 29°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.06	0.17		44.01	0.817
N ₂ Nitrogen	3.39	5.77		28.01	0.809
C ₁ Methane	96.53	94.02		16.04	0.300
C ₂ Ethane	0.02	0.04	0.005	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇ + Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.005		

Sample Properties

Critical Pressure, psia:	661.3	Gas Gravity Factor, Fg:	1.3263
Critical Temperature, °R:	339.3	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.5	at sampling conditions:	1.0020
Calculated Gas Gravity, Air = 1.000:	0.569	Gas Z-Factor	
		at sampling conditions*:	0.996
Gross Heating Value, Btu/scf dry gas:	975 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 57
Sampling Date and Time: 2/4/2003 at 12:35 hrs
Sampling Conditions: 55 psia at 26°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.15	0.41		44.01	0.817
N ₂ Nitrogen	2.39	4.09		28.01	0.809
C ₁ Methane	97.43	95.44		16.04	0.300
C ₂ Ethane	0.03	0.06	0.008	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇ + Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.008		

Sample Properties

Critical Pressure, psia:	663.5	Gas Gravity Factor, Fg:	1.3300
Critical Temperature, °R:	340.6	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.4	at sampling conditions:	1.0035
Calculated Gas Gravity, Air = 1.000:	0.565	Gas Z-Factor	
		at sampling conditions*:	0.993
Gross Heating Value, Btu/scf dry gas:	984 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 58
Sampling Date and Time: 2/4/2003 at 12:15 hrs
Sampling Conditions: 55 psia at 24°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.07	0.19		44.01	0.817
N ₂ Nitrogen	3.06	5.22		28.01	0.809
C ₁ Methane	96.87	94.59		16.04	0.300
C ₂ Ethane	<0.01	<0.01	<0.001	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	<0.001		

Sample Properties

Critical Pressure, psia:	662.0	Gas Gravity Factor, Fg:	1.3278
Critical Temperature, °R:	339.6	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.4	at sampling conditions:	1.0035
Calculated Gas Gravity, Air = 1.000:	0.567	Gas Z-Factor	
		at sampling conditions*:	0.993
Gross Heating Value, Btu/scf dry gas:	978 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

COMPOSITION OF SEPARATOR GAS
(by Chromatographic Techniques)

Client: Tipperary Oil & Gas (Australia) Pty Ltd
Field: Fairview
Well: 59
Sampling Date and Time: 1/4/2003 at 12:10 hrs
Sampling Conditions: 25 psia at 31°C

Component	Separator Gas (Mole %)	Separator Gas (Weight %)	Liquid Recovery (GPM)	Molecular Weight	Liquid Density (g/cm ³)
H ₂ S Hydrogen Sulphide	0.00	0.00		34.08	0.801
CO ₂ Carbon Dioxide	0.11	0.30		44.01	0.817
N ₂ Nitrogen	4.12	6.97		28.01	0.809
C ₁ Methane	95.75	92.69		16.04	0.300
C ₂ Ethane	0.02	0.04	0.005	30.07	0.356
C ₃ Propane	<0.01	<0.01	<0.001	44.10	0.507
iC ₄ iso-Butane	0.00	0.00	0.000	58.12	0.563
nC ₄ n-Butane	0.00	0.00	0.000	58.12	0.584
iC ₅ iso-Pentane	0.00	0.00	0.000	72.15	0.624
nC ₅ n-Pentane	0.00	0.00	0.000	72.15	0.631
C ₆ Hexanes	0.00	0.00	0.000	84.00	0.685
C ₇₊ Heptanes	0.00	0.00	0.000	103.00	0.737
TOTALS:	100.00	100.00	0.005		

Sample Properties

Critical Pressure, psia:	660.3	Gas Gravity Factor, Fg:	1.3222
Critical Temperature, °R:	338.5	Super Compressibility Factor, Fpv	
Molecular Weight, g/mol:	16.6	at sampling conditions:	1.0015
Calculated Gas Gravity, Air = 1.000:	0.572	Gas Z-Factor	
		at sampling conditions*:	0.997
Gross Heating Value, Btu/scf dry gas:	967 at 14.7 psia and 15.6°C		

* From Standing, M.B., "Volumetric and Phase Behaviour of Oil Field Hydrocarbon Systems", SPE (Dallas), 1997, 8th Edition, Appendix II

CHAPTER 3

WATER ANALYSIS RESULTS

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-1
Sampling Time and Date: 2/4/2003 at 12:15 hrs

<u>CHEMICAL COMPOSITION</u>					
	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	465.0	20.2	Chloride (Cl):	82.0	2.3
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	802.0	16.0
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	0.2	0.0	Carbonate (CO ₃):	78.0	1.3
Potassium (K):	3.0	0.1	Fluoride (F) :	1.8	0.1
			Hydroxide (OH):	<1.0	0.0
Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO ₃					
<u>DERIVED DATA</u>			<u>TOTAL AND BALANCE</u>		
Total Dissolved Solids:	mg/L		Cations	20	
Based on E.C	1330		Anions	20	
Calculated (HCO ₃ = CO ₃)	1130		Ion Balance (Diff*100/sum)	-1.577	
Total Hardness (as Ca CO ₃)	4		Sodium Adsorption Ratio	109.0	
Total Alkalinity (as Ca CO ₃)	881		Difference (Anions - Cations)	-0.63	
<u>OTHER ANALYSES</u>			Sum (Anions + Cations)	40.1	
Resistivity	4.900 ohm.m @ 25 °C				
Conductivity (E.C)	2040.0 µS/cm @ 25 °C				
Reaction - pH	8.9				

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-1
Sampling Time and Date: 2/4/2003 at 12:15 hrs

ADDITIONAL ITEMS

Cations

	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.03
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.10
Beryllium (Be) :	<0.01
Lead (Pb) :	0.15
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0011
Boron (B) :	0.80
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.02
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

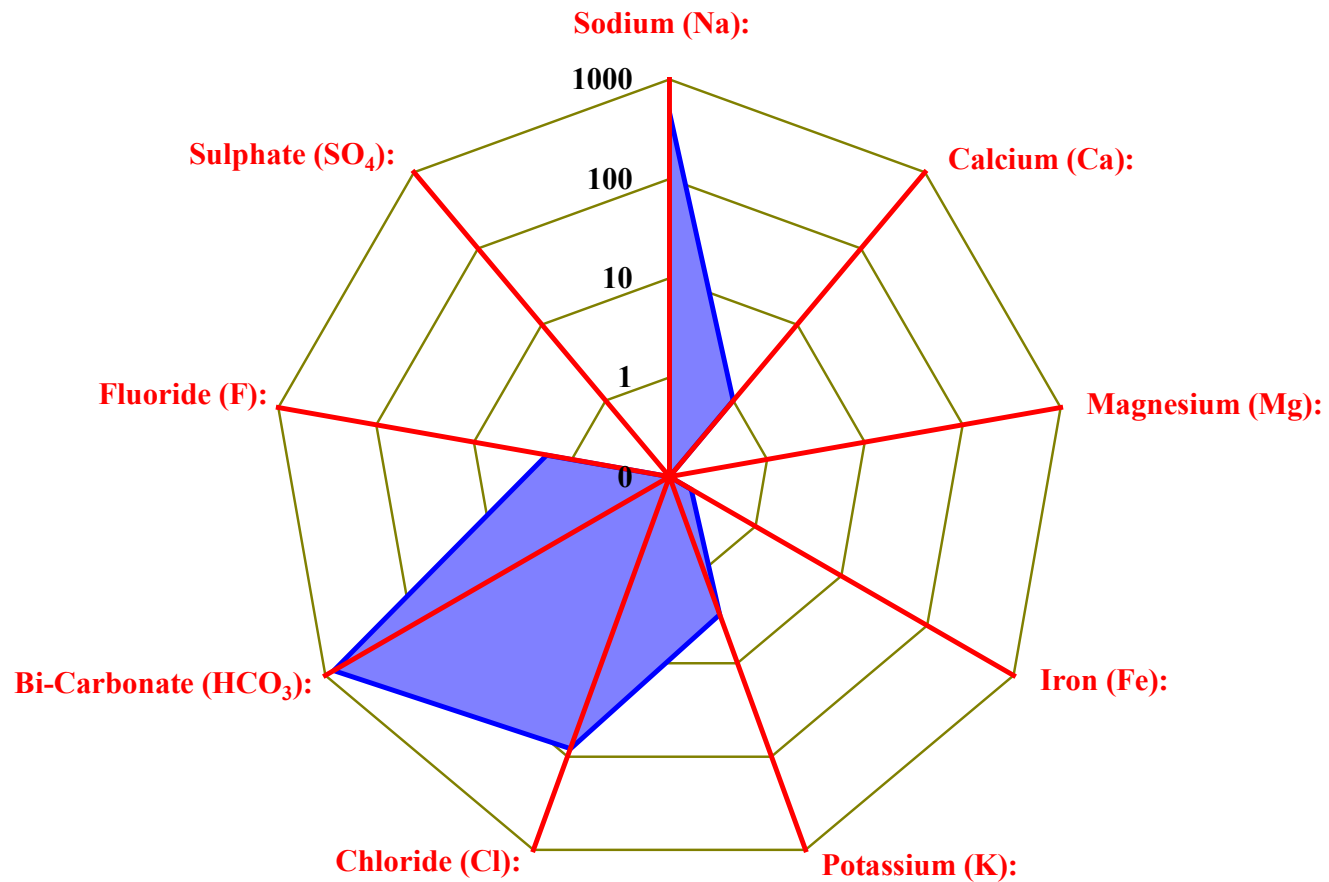
Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	<0.01
Selenium (Se) :	<0.01
Ammonia as N :	0.41
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd

Well: Fairview-1



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-2
Sampling Time and Date: 3/4/2003 at 11:40 hrs

CHEMICAL COMPOSITION

	Cations		Anions	
	mg/L	meq/L	mg/L	meq/L
Sodium (Na):	404.0	17.6	Chloride (Cl):	7.0
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	761.0
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0
Iron (Fe):	0.4	0.0	Carbonate (CO ₃):	102.0
Potassium (K):	3.0	0.1	Fluoride (F) :	1.6
			Hydroxide (OH):	<1.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1140
Calculated (HCO ₃ = CO ₃)	975
Total Hardness (as Ca CO ₃)	4
Total Alkalinity (as Ca CO ₃)	862

OTHER ANALYSES

Resistivity	5.680 ohm.m @ 25 °C
Conductivity (E.C)	1760.0 µS/cm @ 25 °C
Reaction - pH	9.0

TOTAL AND BALANCE

Cations	18
Anions	17
Ion Balance (Diff*100/sum)	-1.513
Sodium Adsorption Ratio	95.7
Difference (Anions - Cations)	-0.53
Sum (Anions + Cations)	34.9

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-2
Sampling Time and Date: 3/4/2003 at 11:40 hrs

ADDITIONAL ITEMS

Cations

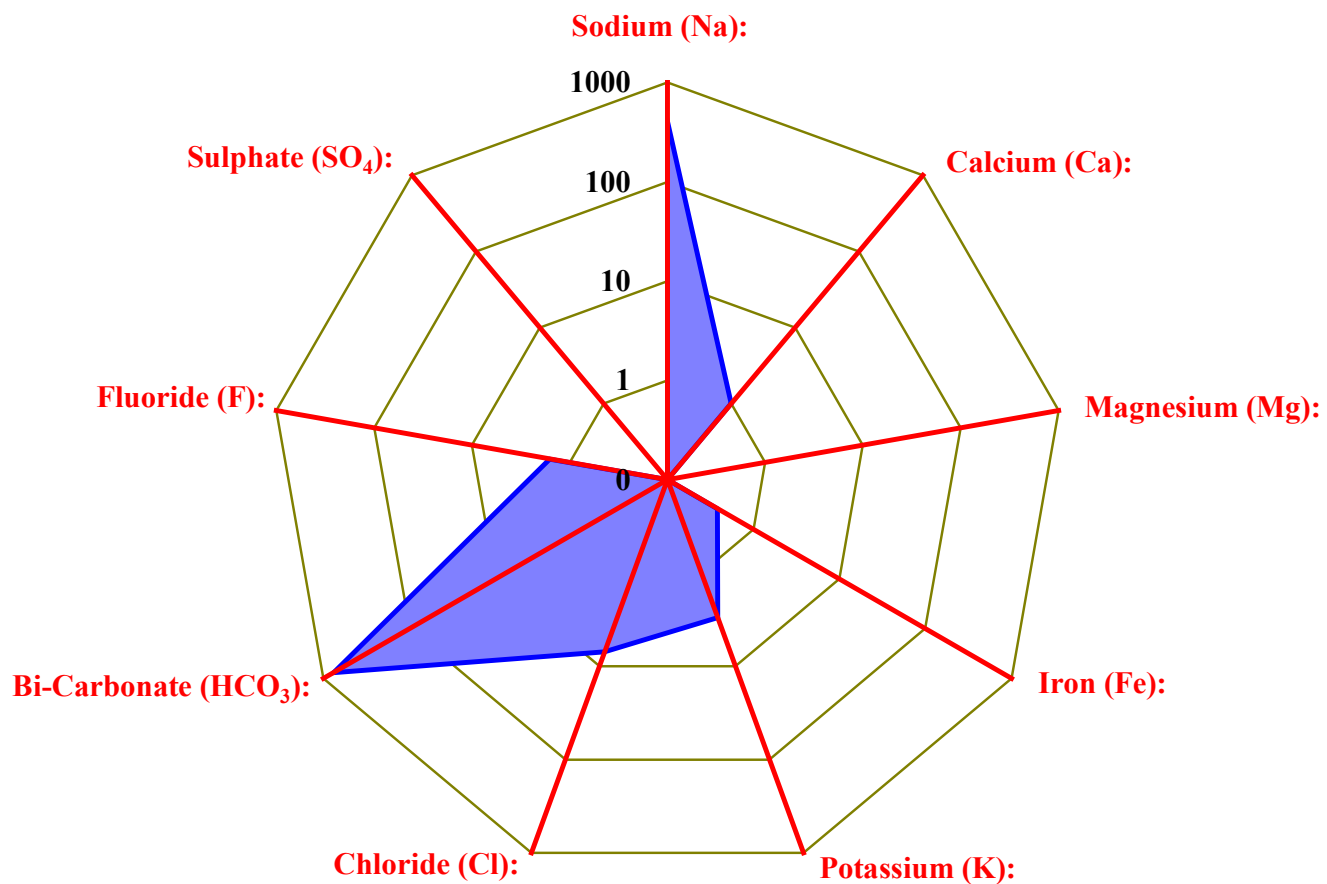
	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	<0.01
Nickel (Ni) :	<0.01
Zinc (Zn) :	<0.01
Beryllium (Be) :	<0.01
Lead (Pb) :	<0.01
Vanadium (V) :	<0.01
Mercury (Hg) :	<0.0001
Boron (B) :	0.60
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.01
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	<0.01
Selenium (Se) :	0.01
Ammonia as N :	0.40
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-2



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-4
Sampling Time and Date: 3/4/2003 at 13:05 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	452.0	19.7	Chloride (Cl):	40.0	1.1
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	818.0	16.3
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	5.4	0.2	Carbonate (CO ₃):	102.0	1.7
Potassium (K):	5.0	0.1	Fluoride (F) :	2.0	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1260
Calculated (HCO ₃ = CO ₃)	1100
Total Hardness (as Ca CO ₃)	4
Total Alkalinity (as Ca CO ₃)	920

OTHER ANALYSES

Resistivity	5.150 ohm.m @ 25 °C
Conductivity (E.C)	1940.0 µS/cm @ 25 °C
Reaction - pH	9.0

TOTAL AND BALANCE

Cations	20
Anions	19
Ion Balance (Diff*100/sum)	-1.930
Sodium Adsorption Ratio	104.0
Difference (Anions - Cations)	-0.76
Sum (Anions + Cations)	39.3

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-4
Sampling Time and Date: 3/4/2003 at 13:05 hrs

ADDITIONAL ITEMS

Cations

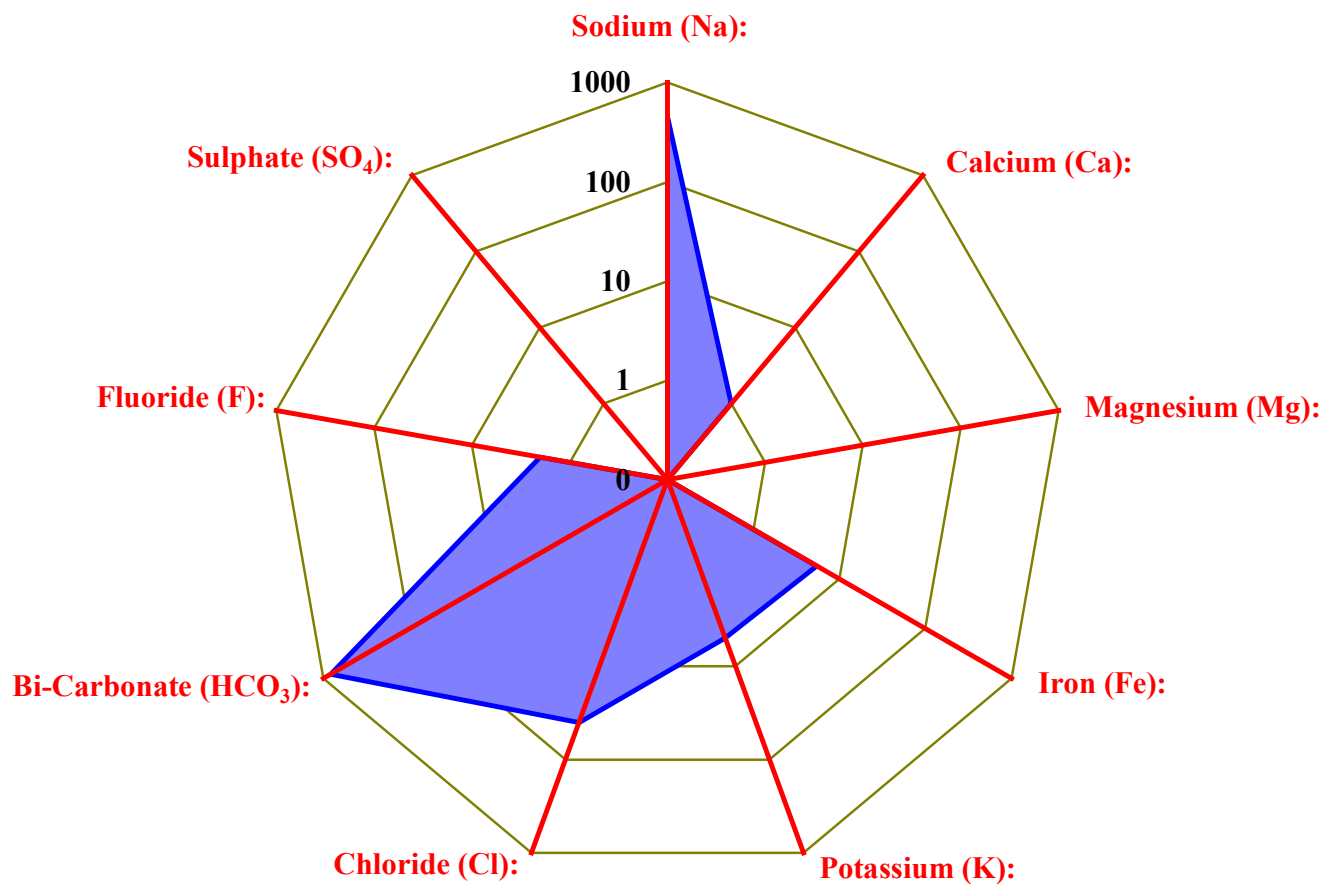
	mg/L
Aluminium (Al) :	0.20
Cadmium (Cd) :	0
Chromium (Cr) :	<0.01
Copper (Cu) :	0.03
Nickel (Ni) :	0.05
Zinc (Zn) :	0.04
Beryllium (Be) :	<0.01
Lead (Pb) :	0.05
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0010
Boron (B) :	0.70
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.04
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.02
Selenium (Se) :	<0.01
Ammonia as N :	0.34
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-4



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-5
Sampling Time and Date: 1/4/2003 at 12:50 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	375.0	16.3	Chloride (Cl):	29.0	0.8
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	691.0	13.8
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	2.3	0.1	Carbonate (CO ₃):	103.0	1.7
Potassium (K):	2.0	0.1	Fluoride (F) :	1.3	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	936
Calculated (HCO ₃ = CO ₃)	922
Total Hardness (as Ca CO ₃)	2
Total Alkalinity (as Ca CO ₃)	794

OTHER ANALYSES

Resistivity	6.940 ohm.m @ 25 °C
Conductivity (E.C)	1440.0 µS/cm @ 25 °C
Reaction - pH	9.0

TOTAL AND BALANCE

Cations	16
Anions	16
Ion Balance (Diff*100/sum)	-0.268
Sodium Adsorption Ratio	104.0
Difference (Anions - Cations)	-0.09
Sum (Anions + Cations)	32.9

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-5
Sampling Time and Date: 1/4/2003 at 12:50 hrs

ADDITIONAL ITEMS

Cations

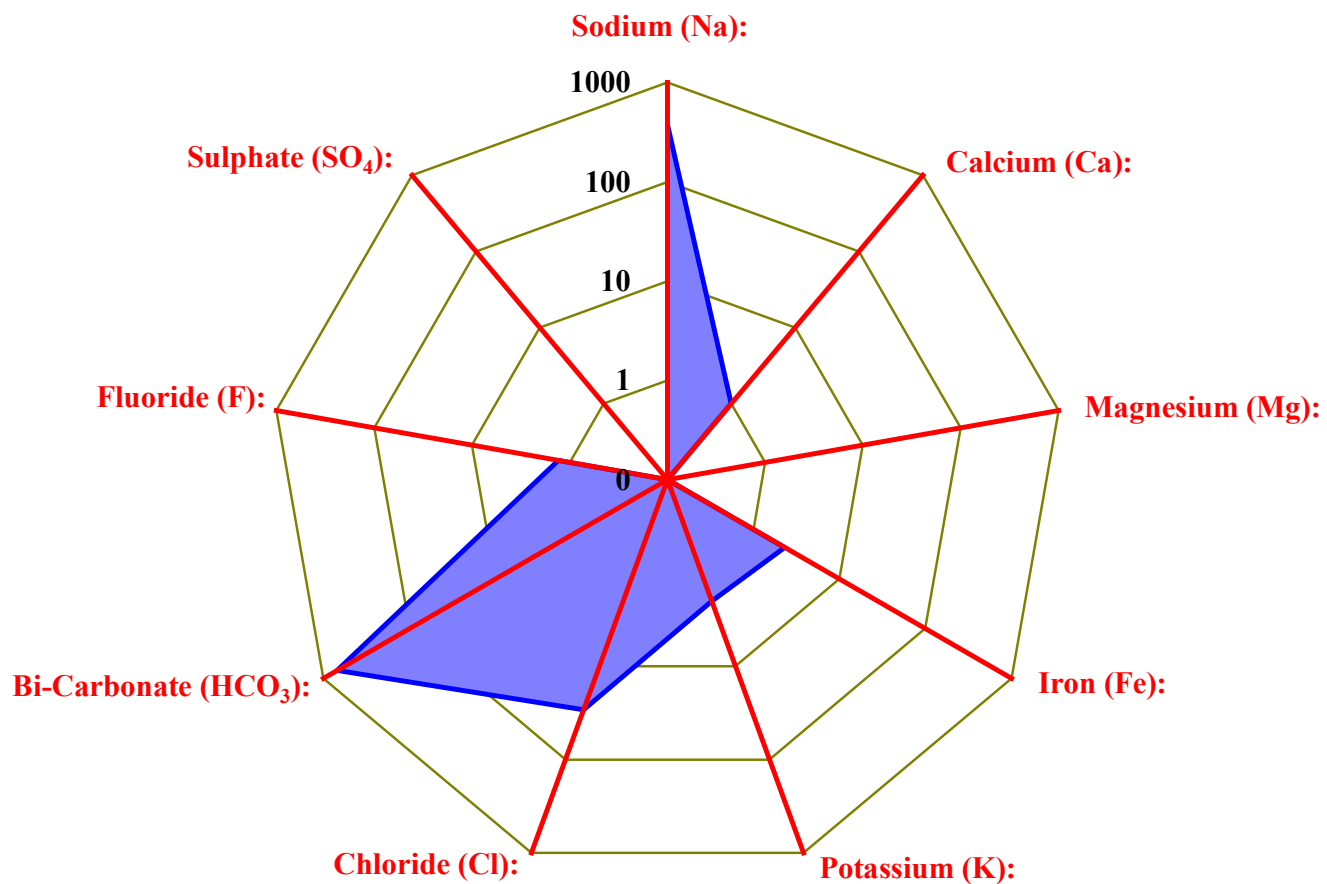
	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	0
Copper (Cu) :	0.27
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.13
Beryllium (Be) :	<0.01
Lead (Pb) :	0.15
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0012
Boron (B) :	0.40
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.03
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.05
Selenium (Se) :	<0.01
Ammonia as N :	0.41
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-5



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-7
Sampling Time and Date: 1/4/2003 at 13:05 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	478.0	20.8	Chloride (Cl):	165.0	4.6
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	734.0	14.7
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	0.5	0.0	Carbonate (CO ₃):	96.0	1.6
Potassium (K):	2.0	0.1	Fluoride (F) :	1.7	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1230
Calculated (HCO ₃ = CO ₃)	1180
Total Hardness (as Ca CO ₃)	3
Total Alkalinity (as Ca CO ₃)	830

OTHER ANALYSES

Resistivity	5.260 ohm.m @ 25 °C
Conductivity (E.C)	1900.0 µS/cm @ 25 °C
Reaction - pH	8.9

TOTAL AND BALANCE

Cations	21
Anions	21
Ion Balance (Diff*100/sum)	0.219
Sodium Adsorption Ratio	109.0
Difference (Anions - Cations)	0.09
Sum (Anions + Cations)	41.9

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-7
Sampling Time and Date: 1/4/2003 at 13:05 hrs

ADDITIONAL ITEMS

Cations

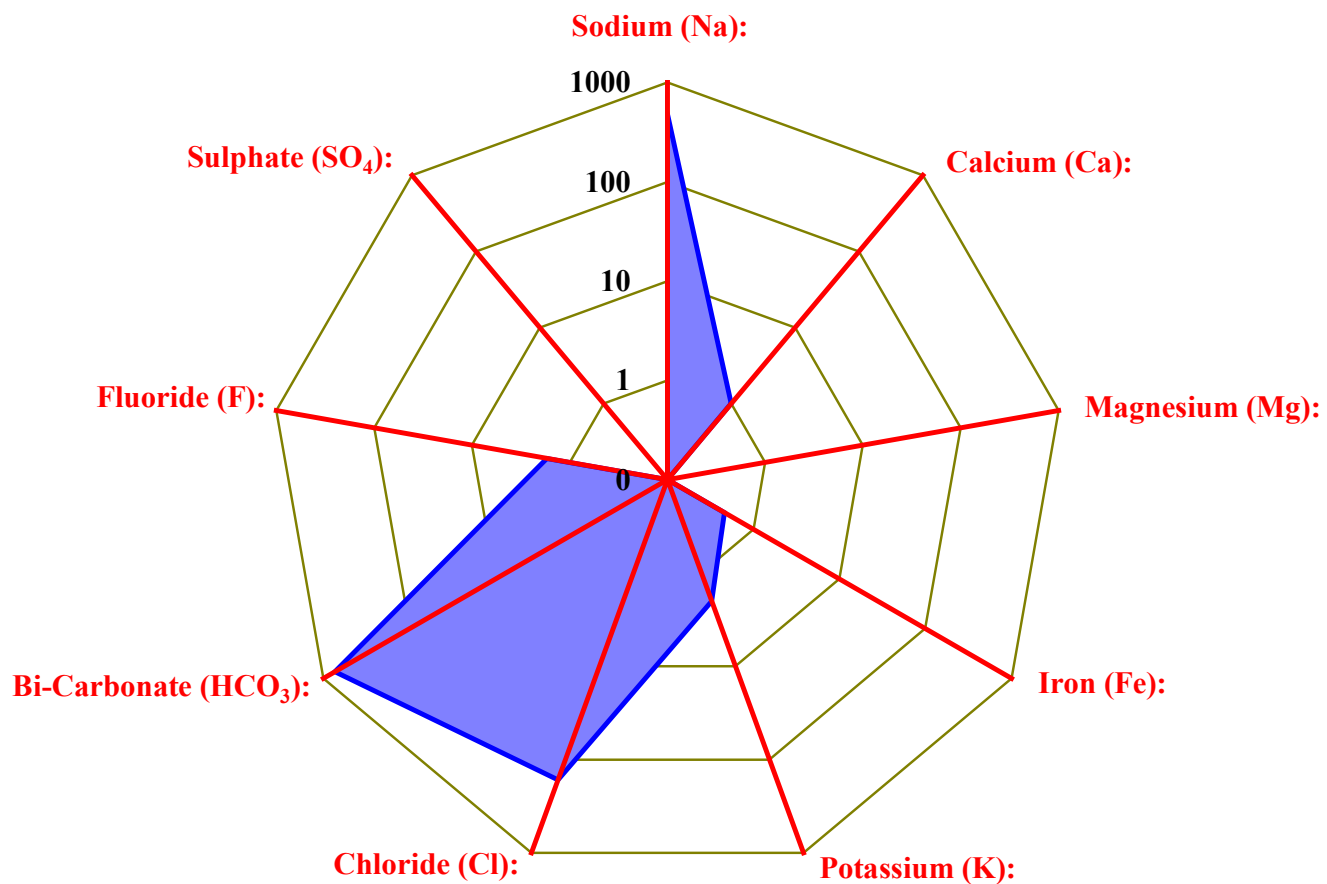
	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.05
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.03
Beryllium (Be) :	<0.01
Lead (Pb) :	0.04
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0010
Boron (B) :	0.60
Cobalt (Co) :	<0.01
Manganese (Mn) :	<0.01
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	<0.01
Selenium (Se) :	<0.01
Ammonia as N :	0.44
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-7



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-8
Sampling Time and Date: 2/4/2003 at 10:40 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	296.0	12.9	Chloride (Cl):	11.0	0.3
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	623.0	12.4
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	0.2	0.0	Carbonate (CO ₃):	20.0	0.3
Potassium (K):	1.0	0.0	Fluoride (F) :	0.9	0.0
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	748
Calculated (HCO ₃ = CO ₃)	726
Total Hardness (as Ca CO ₃)	4
Total Alkalinity (as Ca CO ₃)	643

OTHER ANALYSES

Resistivity	8.700 ohm.m @ 25 °C
Conductivity (E.C)	1150.0 µS/cm @ 25 °C
Reaction - pH	8.6

TOTAL AND BALANCE

Cations	13
Anions	13
Ion Balance (Diff*100/sum)	0.693
Sodium Adsorption Ratio	61.4
Difference (Anions - Cations)	0.18
Sum (Anions + Cations)	26.1

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-8
Sampling Time and Date: 2/4/2003 at 10:40 hrs

ADDITIONAL ITEMS

Cations

	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.01
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.01
Beryllium (Be) :	<0.01
Lead (Pb) :	0.17
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0003
Boron (B) :	0.30
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.02
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

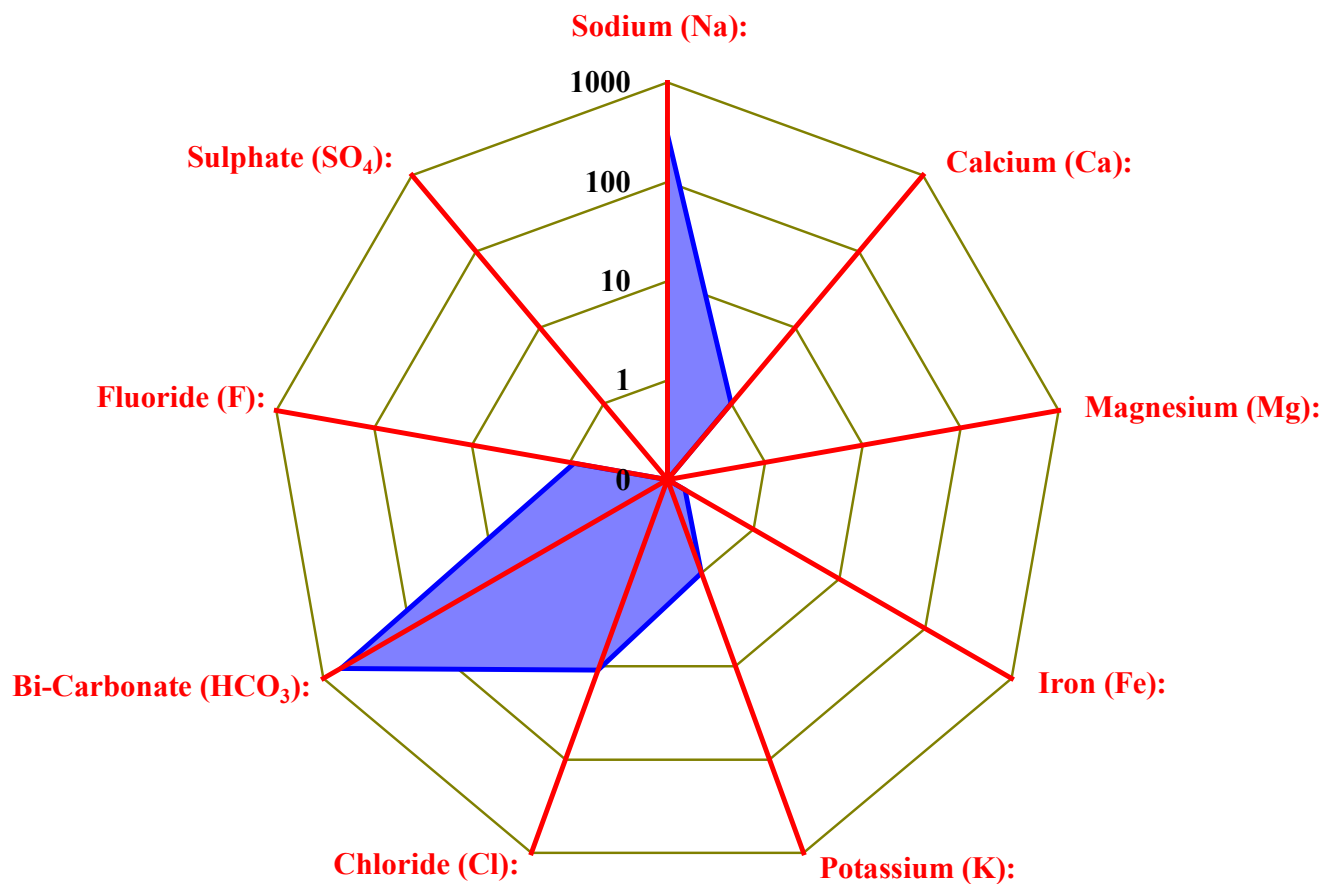
Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.06
Selenium (Se) :	<0.01
Ammonia as N :	0.23
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd

Well: Fairview-8



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-9
Sampling Time and Date: 1/4/2003 at 13:30 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	502.0	21.8	Chloride (Cl):	154.0	4.3
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	841.0	16.8
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	1.4	0.0	Carbonate (CO ₃):	53.0	0.9
Potassium (K):	2.0	0.1	Fluoride (F) :	1.8	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1260
Calculated (HCO ₃ = CO ₃)	1240
Total Hardness (as Ca CO ₃)	3
Total Alkalinity (as Ca CO ₃)	894

OTHER ANALYSES

Resistivity	5.150 ohm.m @ 25 °C
Conductivity (E.C)	1940.0 µS/cm @ 25 °C
Reaction - pH	8.7

TOTAL AND BALANCE

Cations	22
Anions	22
Ion Balance (Diff*100/sum)	0.297
Sodium Adsorption Ratio	110.0
Difference (Anions - Cations)	0.13
Sum (Anions + Cations)	44.1

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-9
Sampling Time and Date: 1/4/2003 at 13:30 hrs

ADDITIONAL ITEMS

Cations

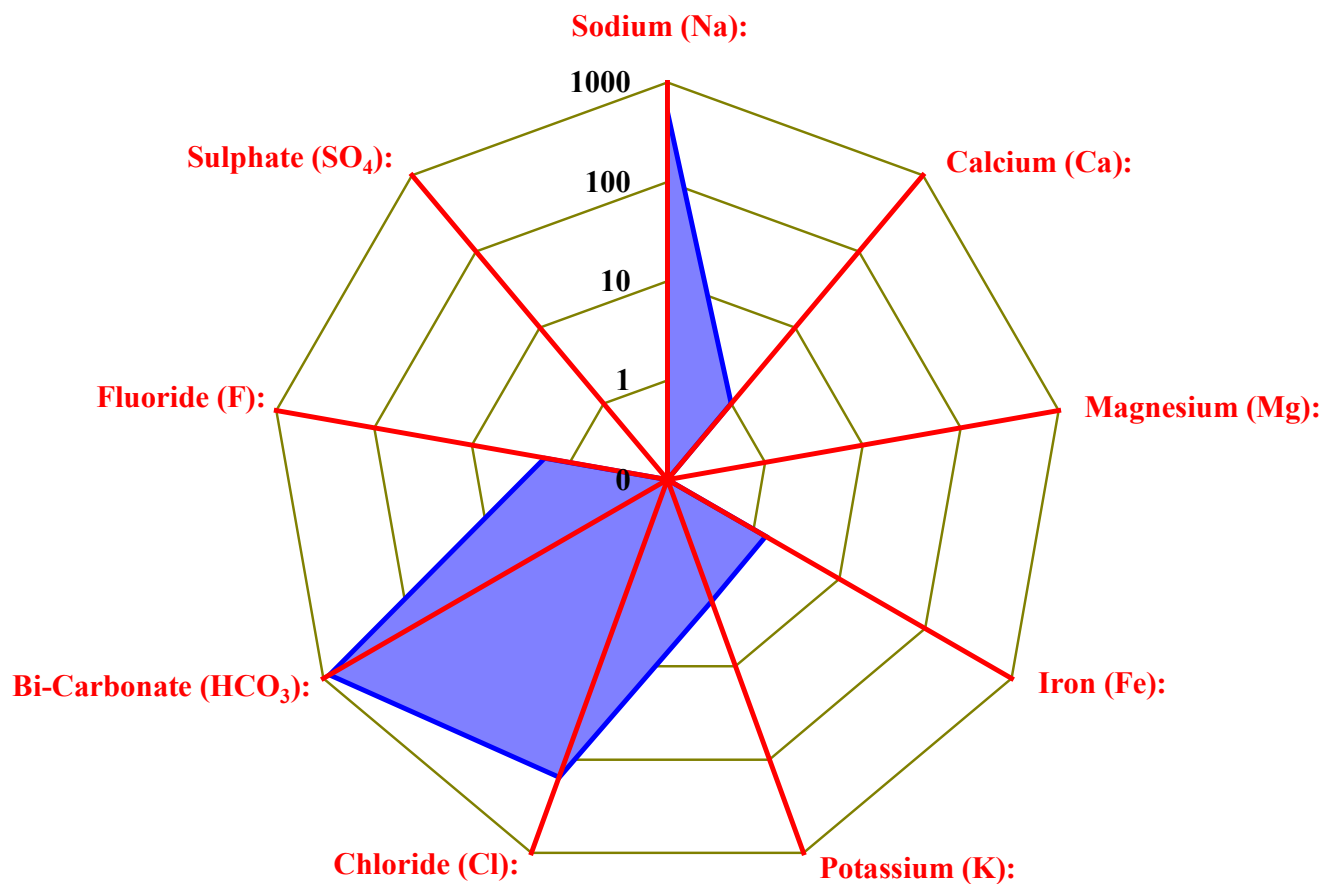
	mg/L
Aluminium (Al) :	0.20
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.31
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.08
Beryllium (Be) :	<0.01
Lead (Pb) :	0.19
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0002
Boron (B) :	0.60
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.02
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.17
Selenium (Se) :	<0.01
Ammonia as N :	0.10
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-9



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-10
Sampling Time and Date: 3/4/2003 at 13:30 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	997.0	43.4	Chloride (Cl):	808.0	22.8
Calcium (Ca):	3.0	0.1	Bi-Carbonate (HCO ₃):	980.0	19.6
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	1.7	0.1	Carbonate (CO ₃):	88.0	1.5
Potassium (K):	5.0	0.1	Fluoride (F) :	2.6	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	2900
Calculated (HCO ₃ = CO ₃)	2510
Total Hardness (as Ca CO ₃)	9
Total Alkalinity (as Ca CO ₃)	1070

OTHER ANALYSES

Resistivity	2.240 ohm.m @ 25 °C
Conductivity (E.C)	4460.0 µS/cm @ 25 °C
Reaction - pH	8.8

TOTAL AND BALANCE

Cations	44
Anions	44
Ion Balance (Diff*100/sum)	0.269
Sodium Adsorption Ratio	141.0
Difference (Anions - Cations)	0.24
Sum (Anions + Cations)	87.6

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-10
Sampling Time and Date: 3/4/2003 at 13:30 hrs

ADDITIONAL ITEMS

Cations

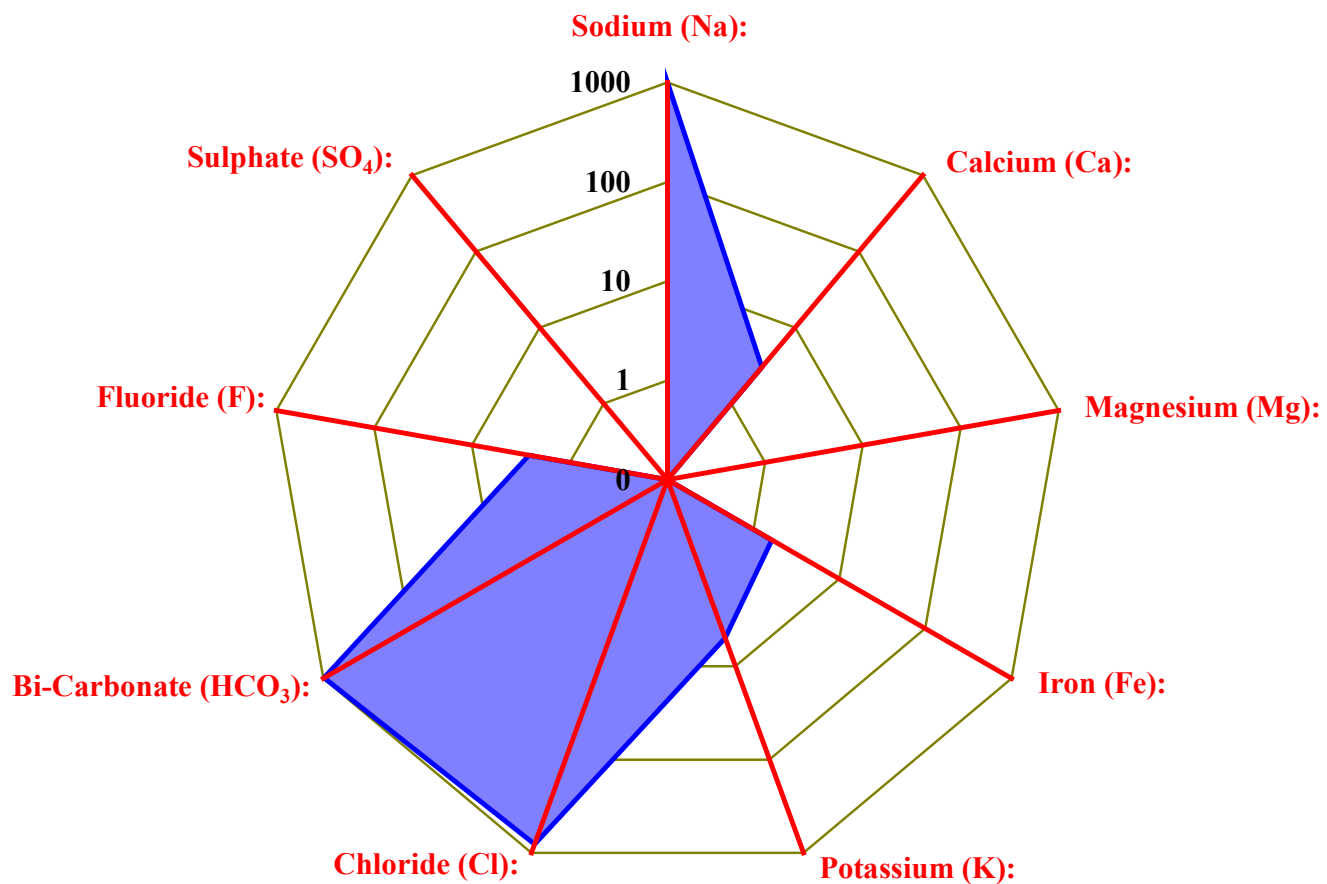
	mg/L
Aluminium (Al) :	0.10
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.27
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.41
Beryllium (Be) :	<0.01
Lead (Pb) :	0.40
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0005
Boron (B) :	0.90
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.03
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.02
Selenium (Se) :	<0.01
Ammonia as N :	0.65
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-10



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-12
Sampling Time and Date: 1/4/2003 at 13:15 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	376.0	16.4	Chloride (Cl):	6.0	0.2
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	775.0	15.5
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	0.5	0.0	Carbonate (CO ₃):	48.0	0.8
Potassium (K):	2.0	0.1	Fluoride (F) :	1.5	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1000
Calculated (HCO ₃ = CO ₃)	918
Total Hardness (as Ca CO ₃)	2
Total Alkalinity (as Ca CO ₃)	822

OTHER ANALYSES

Resistivity	6.500 ohm.m @ 25 °C
Conductivity (E.C)	1540.0 µS/cm @ 25 °C
Reaction - pH	8.7

TOTAL AND BALANCE

Cations	16
Anions	17
Ion Balance (Diff*100/sum)	0.174
Sodium Adsorption Ratio	123.0
Difference (Anions - Cations)	0.06
Sum (Anions + Cations)	33.0

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-12
Sampling Time and Date: 1/4/2003 at 13:15 hrs

ADDITIONAL ITEMS

Cations

	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.08
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.04
Beryllium (Be) :	<0.01
Lead (Pb) :	0.03
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0053
Boron (B) :	0.60
Cobalt (Co) :	<0.01
Manganese (Mn) :	<0.01
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

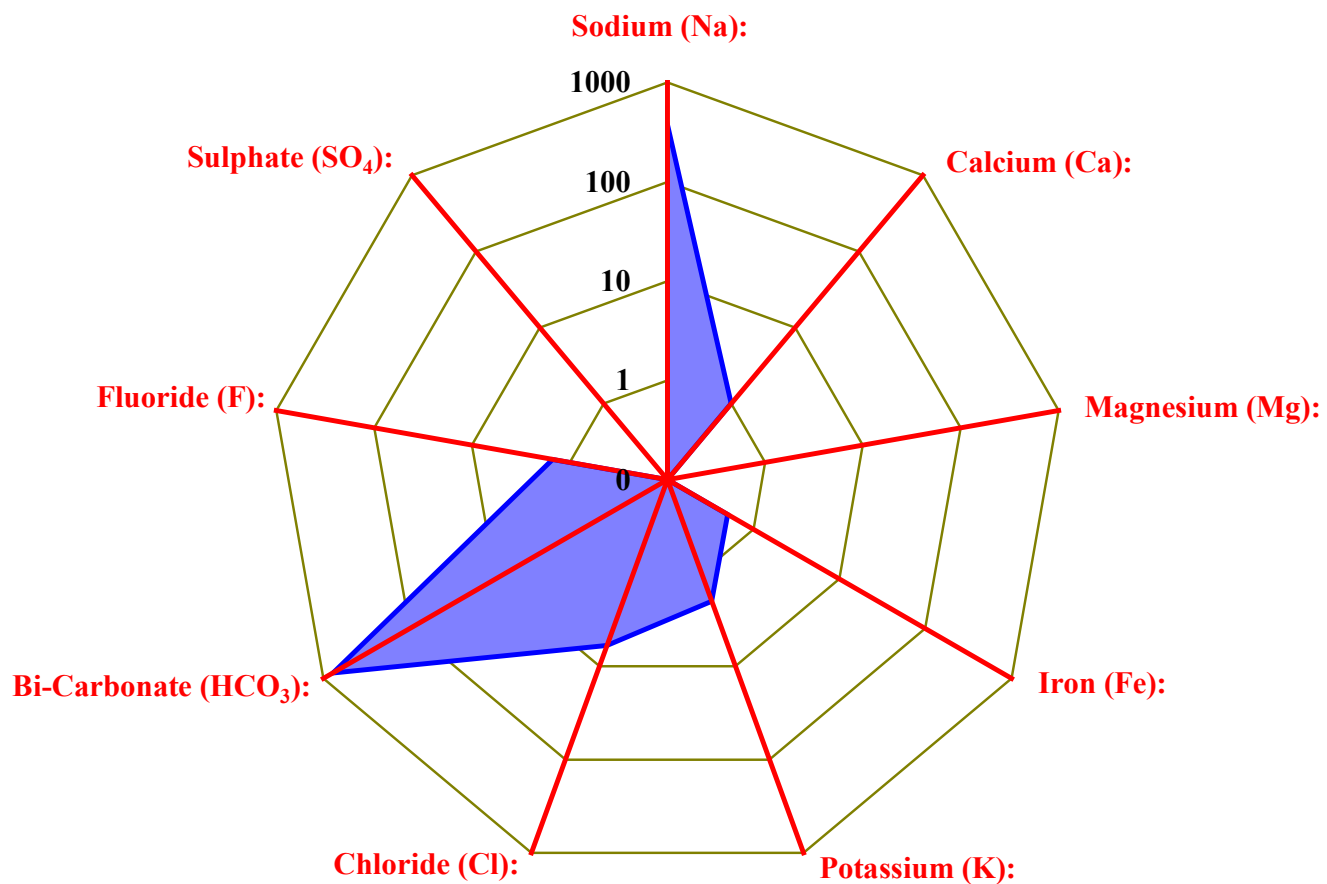
Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.03
Selenium (Se) :	<0.01
Ammonia as N :	0.17
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd

Well: Fairview-12



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-14
Sampling Time and Date: 1/4/2003 at 11:20 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	712.0	31.0	Chloride (Cl):	396.0	11.2
Calcium (Ca):	2.0	0.1	Bi-Carbonate (HCO ₃):	914.0	18.3
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	3.0	0.1	Carbonate (CO ₃):	71.0	1.2
Potassium (K):	4.0	0.1	Fluoride (F) :	2.0	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	2050
Calculated (HCO ₃ = CO ₃)	1750
Total Hardness (as Ca CO ₃)	6
Total Alkalinity (as Ca CO ₃)	985

OTHER ANALYSES

Resistivity	3.160 ohm.m @ 25 °C
Conductivity (E.C)	3160.0 µS/cm @ 25 °C
Reaction - pH	8.7

TOTAL AND BALANCE

Cations	31
Anions	31
Ion Balance (Diff*100/sum)	-0.930
Sodium Adsorption Ratio	127.0
Difference (Anions - Cations)	-0.58
Sum (Anions + Cations)	62.0

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-14
Sampling Time and Date: 1/4/2003 at 11:20 hrs

ADDITIONAL ITEMS

Cations

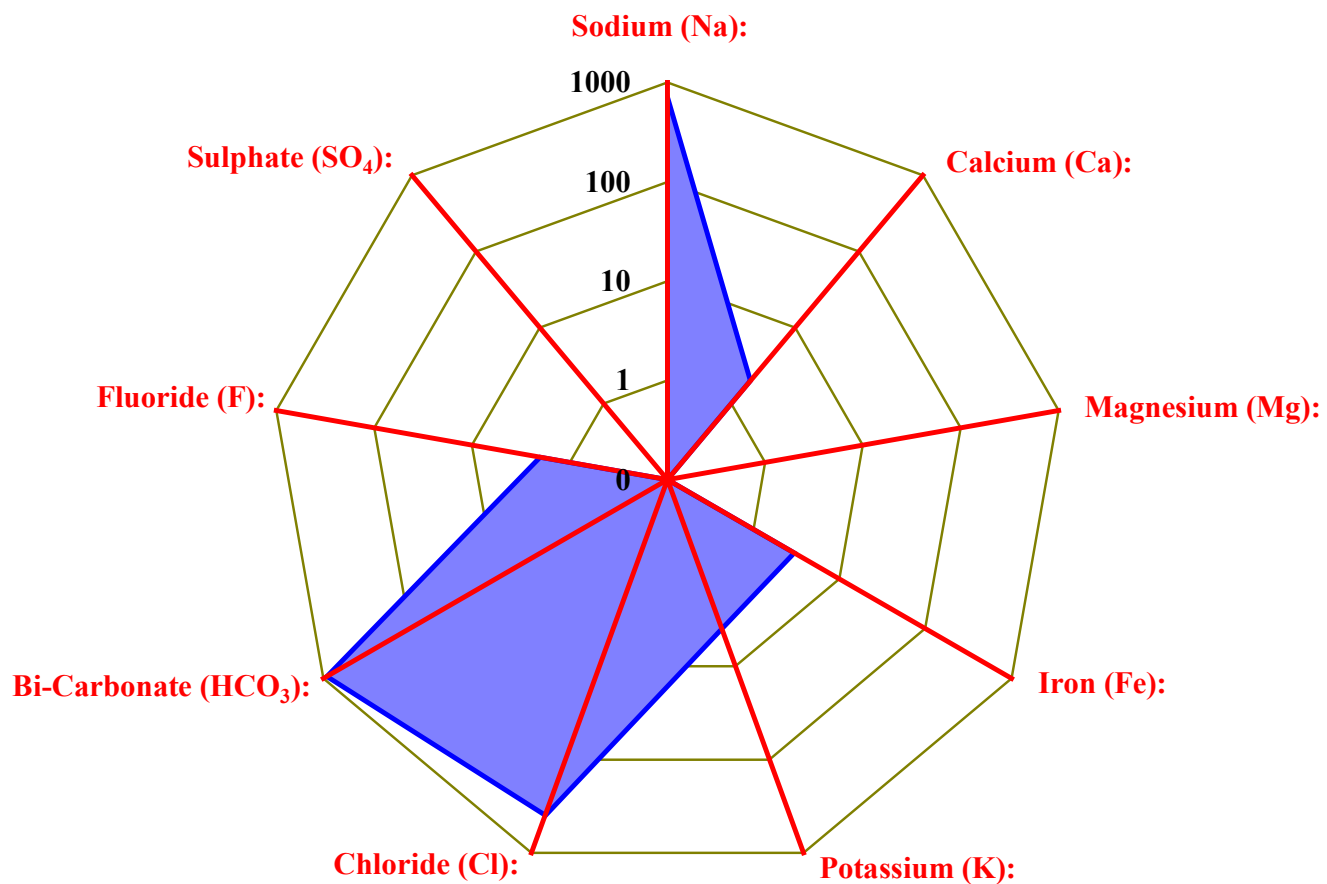
	mg/L
Aluminium (Al) :	0.10
Cadmium (Cd) :	<0.005
Chromium (Cr) :	0
Copper (Cu) :	0.15
Nickel (Ni) :	0.01
Zinc (Zn) :	0.37
Beryllium (Be) :	<0.01
Lead (Pb) :	0.90
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0030
Boron (B) :	0.90
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.05
Molybdenum (Mo) :	0.03
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.02
Selenium (Se) :	<0.01
Ammonia as N :	0.56
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-14



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-15
Sampling Time and Date: 1/4/2003 at 11:05 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	343.0	14.9	Chloride (Cl):	29.0	0.8
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	687.0	13.7
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	1.0	0.0	Carbonate (CO ₃):	30.0	0.5
Potassium (K):	2.0	0.1	Fluoride (F) :	1.1	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	839
Calculated (HCO ₃ = CO ₃)	840
Total Hardness (as Ca CO ₃)	2
Total Alkalinity (as Ca CO ₃)	718

OTHER ANALYSES

Resistivity	7.750 ohm.m @ 25 °C
Conductivity (E.C)	1290.0 µS/cm @ 25 °C
Reaction - pH	8.6

TOTAL AND BALANCE

Cations	15
Anions	15
Ion Balance (Diff*100/sum)	0.145
Sodium Adsorption Ratio	89.8
Difference (Anions - Cations)	0.04
Sum (Anions + Cations)	30.2

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-15
Sampling Time and Date: 1/4/2003 at 11:05 hrs

ADDITIONAL ITEMS

Cations

	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.07
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.27
Beryllium (Be) :	<0.01
Lead (Pb) :	0.24
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0030
Boron (B) :	0.60
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.02
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

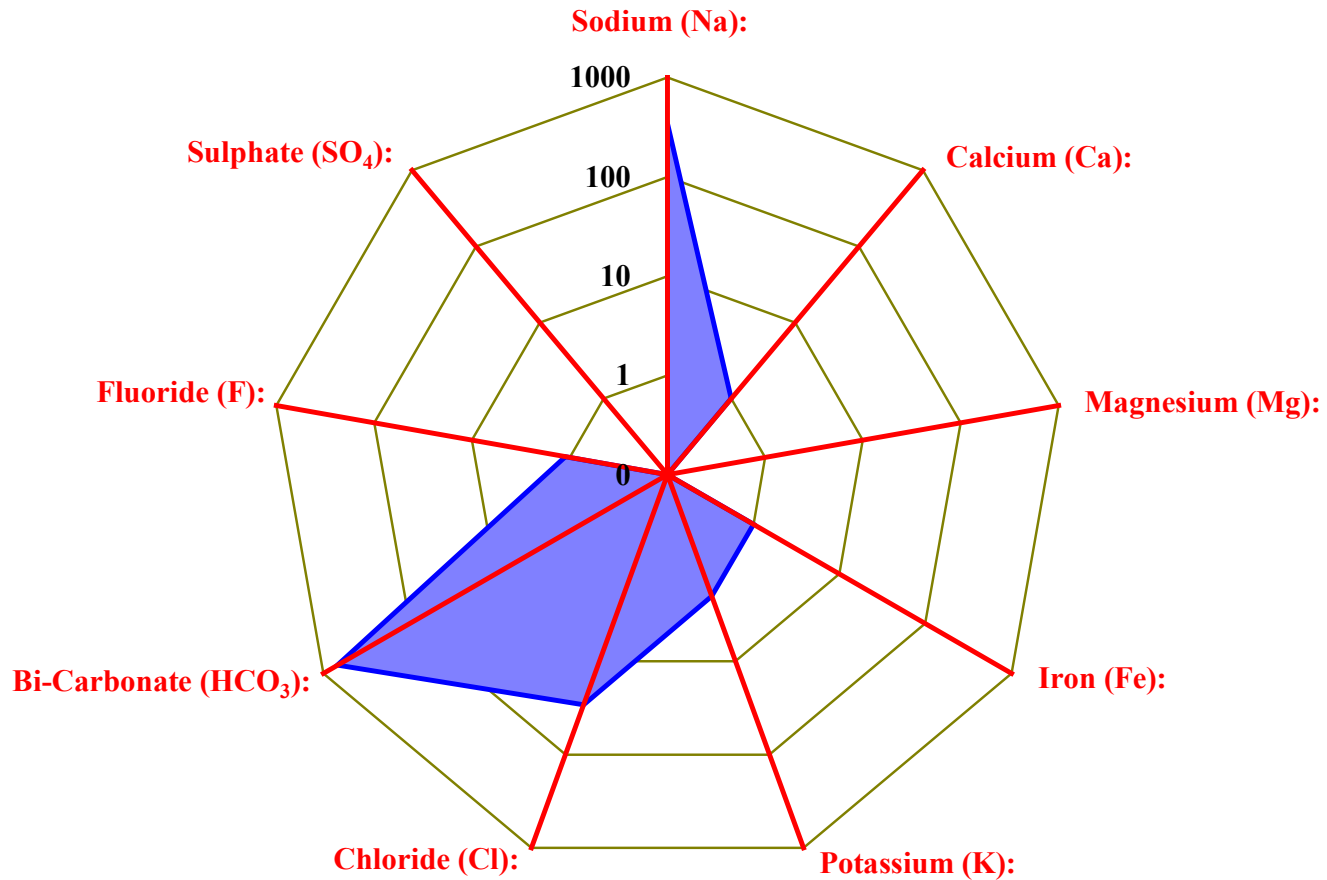
Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.03
Selenium (Se) :	<0.01
Ammonia as N :	0.12
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd

Well: Fairview-15



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-16
Sampling Time and Date: 1/4/2003 at 10:20 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	315.0	13.7	Chloride (Cl):	19.0	0.5
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	639.0	12.8
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	0.6	0.0	Carbonate (CO ₃):	32.0	0.5
Potassium (K):	2.0	0.1	Fluoride (F) :	1.2	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	780
Calculated (HCO ₃ = CO ₃)	772
Total Hardness (as Ca CO ₃)	2
Total Alkalinity (as Ca CO ₃)	671

OTHER ANALYSES

Resistivity	8.330 ohm.m @ 25 °C
Conductivity (E.C)	1200.0 µS/cm @ 25 °C
Reaction - pH	8.7

TOTAL AND BALANCE

Cations	14
Anions	14
Ion Balance (Diff*100/sum)	0.272
Sodium Adsorption Ratio	89.2
Difference (Anions - Cations)	0.08
Sum (Anions + Cations)	27.7

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-16
Sampling Time and Date: 1/4/2003 at 10:20 hrs

ADDITIONAL ITEMS

Cations

	mg/L
Aluminium (Al) :	0.10
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.06
Nickel (Ni) :	0.01
Zinc (Zn) :	0.07
Beryllium (Be) :	<0.01
Lead (Pb) :	0.05
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0387
Boron (B) :	0.50
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.01
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

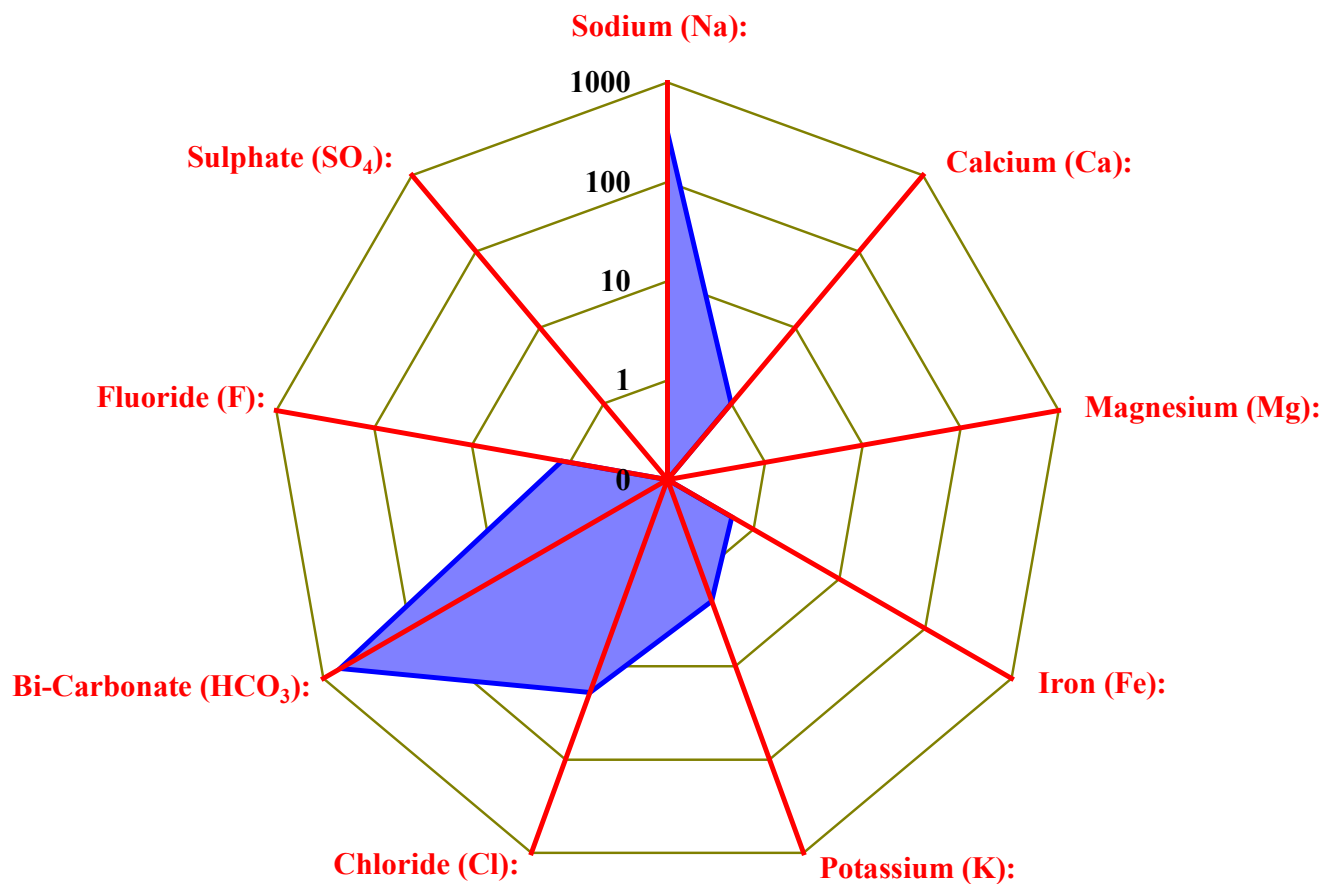
Anions

	mg/L
Nitrate as N :	0.04
Phosphorus as P :	0.04
Selenium (Se) :	<0.01
Ammonia as N :	0.33
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd

Well: Fairview-16



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-17
Sampling Time and Date: 3/4/2003 at 11:15 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	384.0	16.7	Chloride (Cl):	7.0	0.2
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	763.0	15.2
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	1.8	0.1	Carbonate (CO ₃):	75.0	1.3
Potassium (K):	2.0	0.1	Fluoride (F) :	1.4	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1010
Calculated (HCO ₃ = CO ₃)	937
Total Hardness (as Ca CO ₃)	2
Total Alkalinity (as Ca CO ₃)	837

OTHER ANALYSES

Resistivity	6.450 ohm.m @ 25 °C
Conductivity (E.C)	1550.0 µS/cm @ 25 °C
Reaction - pH	8.9

TOTAL AND BALANCE

Cations	17
Anions	17
Ion Balance (Diff*100/sum)	-0.313
Sodium Adsorption Ratio	115.0
Difference (Anions - Cations)	-0.11
Sum (Anions + Cations)	33.6

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-17
Sampling Time and Date: 3/4/2003 at 11:15 hrs

ADDITIONAL ITEMS

Cations

	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	0
Copper (Cu) :	0.20
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.11
Beryllium (Be) :	<0.01
Lead (Pb) :	0.64
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0004
Boron (B) :	0.50
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.04
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

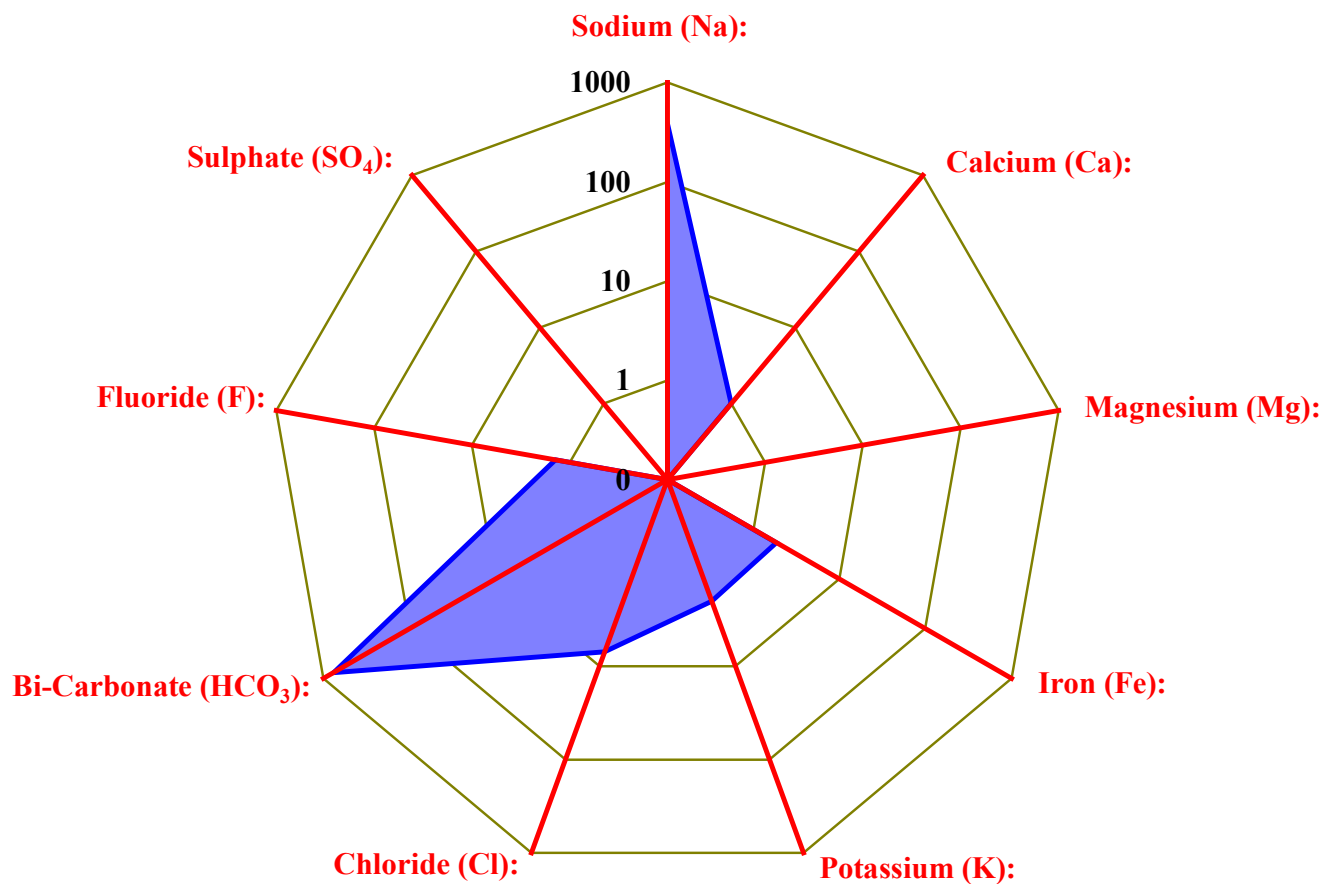
Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.04
Selenium (Se) :	<0.01
Ammonia as N :	0.32
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd

Well: Fairview-17



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-18X
Sampling Time and Date: 2/4/2003 at 9:45 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	405.0	17.6	Chloride (Cl):	8.0	0.2
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	832.0	16.6
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	1.0	0.0	Carbonate (CO ₃):	52.0	0.9
Potassium (K):	2.0	0.1	Fluoride (F) :	2.3	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1060
Calculated (HCO ₃ = CO ₃)	991
Total Hardness (as Ca CO ₃)	4
Total Alkalinity (as Ca CO ₃)	884

OTHER ANALYSES

Resistivity	6.130 ohm.m @ 25 °C
Conductivity (E.C)	1630.0 µS/cm @ 25 °C
Reaction - pH	8.7

TOTAL AND BALANCE

Cations	18
Anions	18
Ion Balance (Diff*100/sum)	0.227
Sodium Adsorption Ratio	88.9
Difference (Anions - Cations)	0.08
Sum (Anions + Cations)	35.6

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-18X
Sampling Time and Date: 2/4/2003 at 9:45 hrs

ADDITIONAL ITEMS

Cations

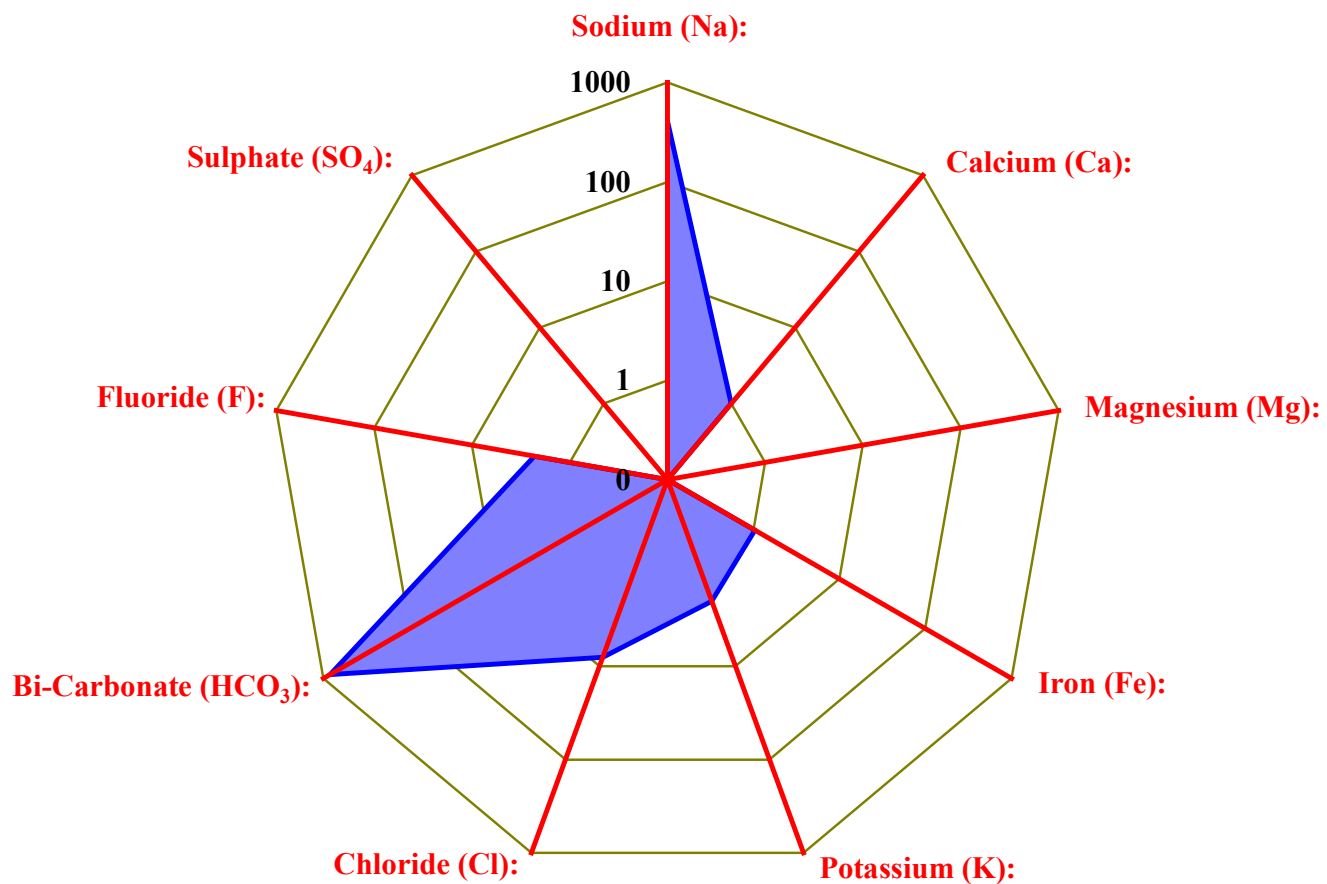
	mg/L
Aluminium (Al) :	0.20
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	2.65
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.05
Beryllium (Be) :	<0.01
Lead (Pb) :	<0.01
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0007
Boron (B) :	0.60
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.03
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.09
Selenium (Se) :	<0.01
Ammonia as N :	0.41
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-18X



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-19
Sampling Time and Date: 1/4/2003 at 10:50 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	302.0	13.1	Chloride (Cl):	6.0	0.2
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	619.0	12.4
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	0.8	0.0	Carbonate (CO ₃):	43.0	0.7
Potassium (K):	2.0	0.1	Fluoride (F) :	1.1	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	793
Calculated (HCO ₃ = CO ₃)	740
Total Hardness (as Ca CO ₃)	2
Total Alkalinity (as Ca CO ₃)	662

OTHER ANALYSES

Resistivity	8.200 ohm.m @ 25 °C
Conductivity (E.C)	1220.0 µS/cm @ 25 °C
Reaction - pH	8.7

TOTAL AND BALANCE

Cations	13
Anions	13
Ion Balance (Diff*100/sum)	0.169
Sodium Adsorption Ratio	82.3
Difference (Anions - Cations)	0.04
Sum (Anions + Cations)	26.6

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-19
Sampling Time and Date: 1/4/2003 at 10:50 hrs

ADDITIONAL ITEMS

Cations

	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.02
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.05
Beryllium (Be) :	<0.01
Lead (Pb) :	0.13
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0040
Boron (B) :	0.50
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.02
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

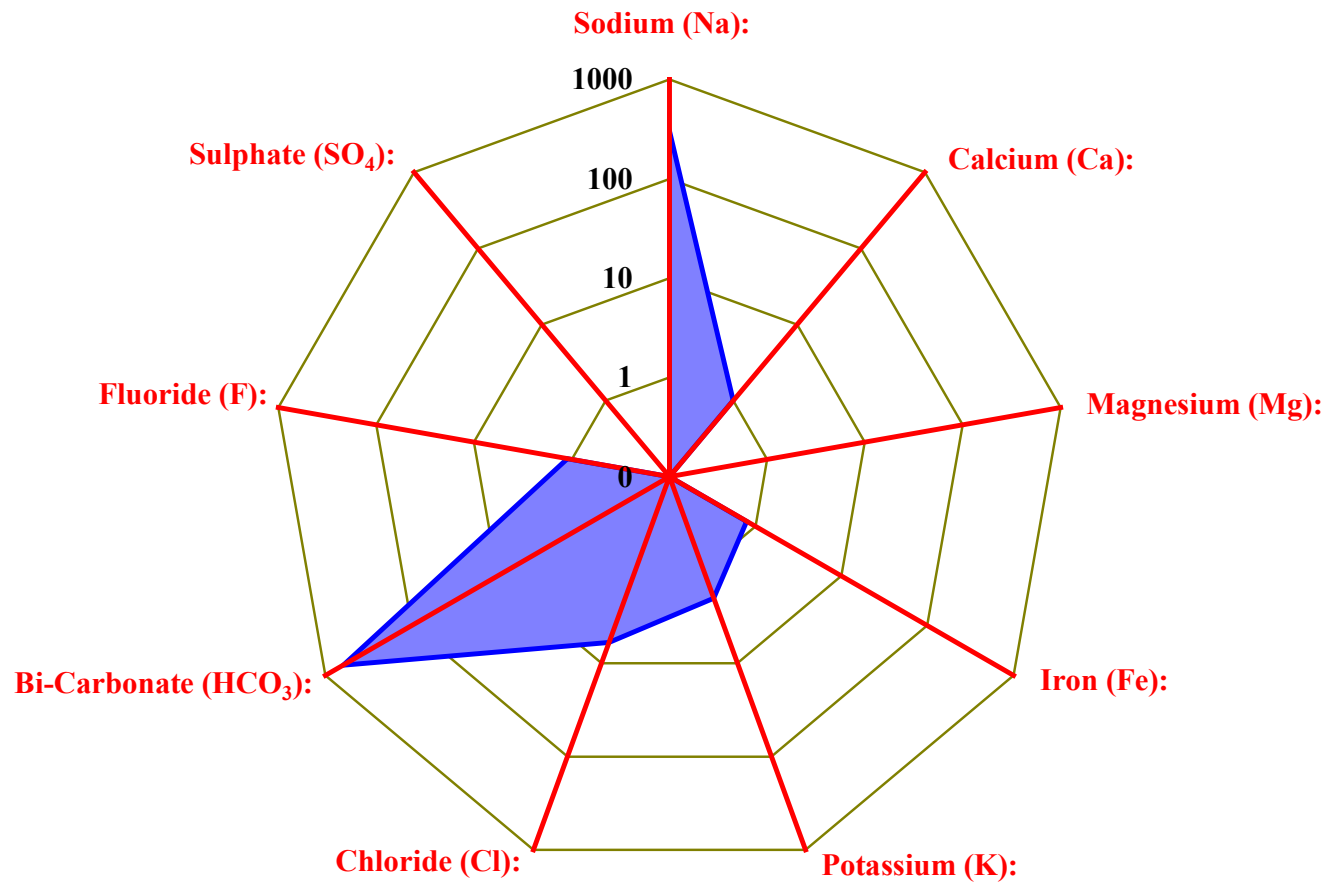
Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.03
Selenium (Se) :	<0.01
Ammonia as N :	0.28
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd

Well: Fairview-19



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-20
Sampling Time and Date: 2/4/2003 at 10:10 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	204.0	8.9	Chloride (Cl):	6.0	0.2
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	432.0	8.6
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	0.3	0.0	Carbonate (CO ₃):	12.0	0.2
Potassium (K):	1.0	0.0	Fluoride (F) :	0.7	0.0
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	513
Calculated (HCO ₃ = CO ₃)	500
Total Hardness (as Ca CO ₃)	2
Total Alkalinity (as Ca CO ₃)	444

OTHER ANALYSES

Resistivity	12.700 ohm.m @ 25 °C
Conductivity (E.C)	789.0 µS/cm @ 25 °C
Reaction - pH	8.5

TOTAL AND BALANCE

Cations	9
Anions	9
Ion Balance (Diff*100/sum)	0.432
Sodium Adsorption Ratio	62.3
Difference (Anions - Cations)	0.08
Sum (Anions + Cations)	18.0

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-20
Sampling Time and Date: 2/4/2003 at 10:10 hrs

ADDITIONAL ITEMS

Cations

	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.06
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.07
Beryllium (Be) :	<0.01
Lead (Pb) :	0.11
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0003
Boron (B) :	0.10
Cobalt (Co) :	<0.01
Manganese (Mn) :	<0.01
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

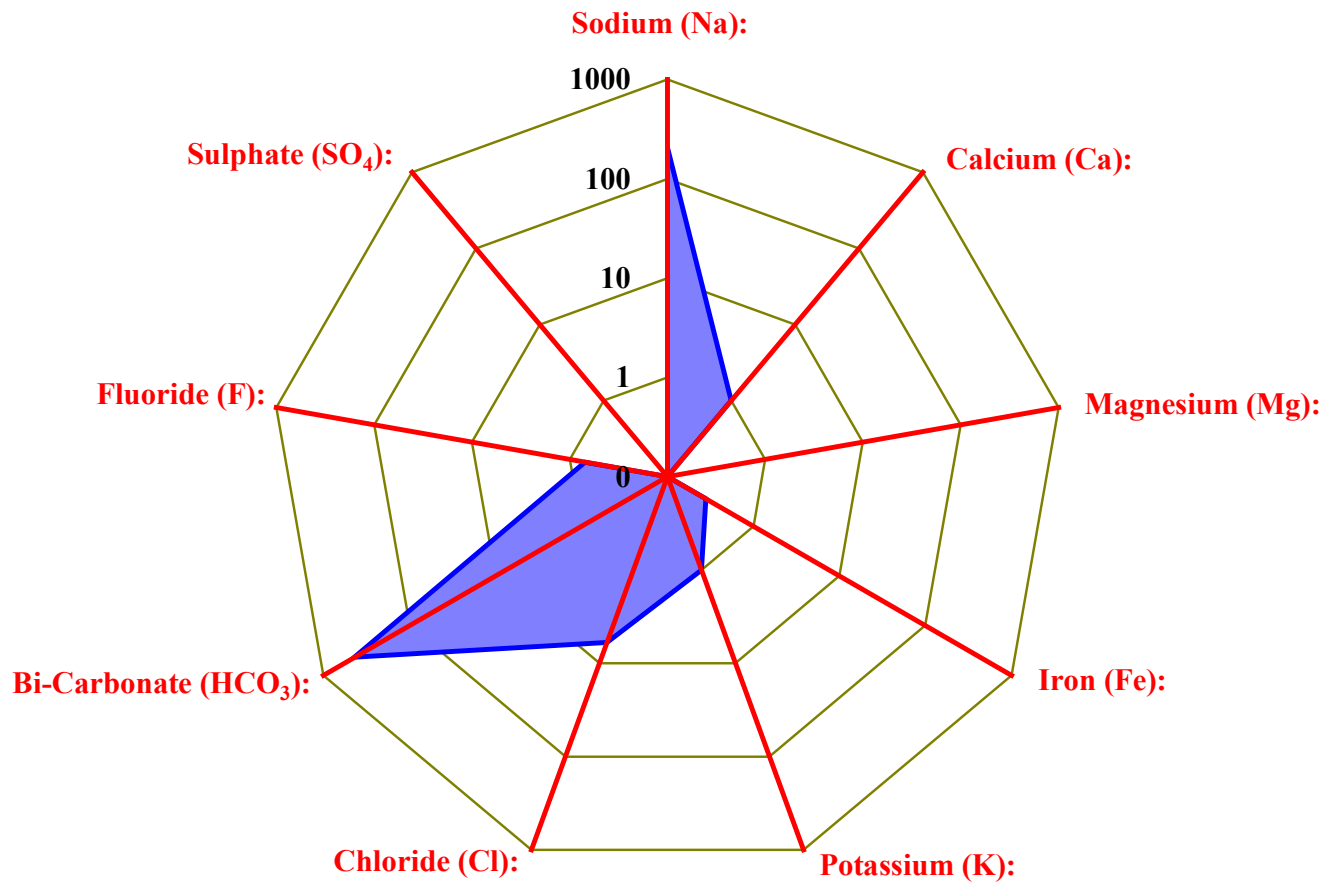
Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.10
Selenium (Se) :	<0.01
Ammonia as N :	0.20
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd

Well: Fairview-20



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-21
Sampling Time and Date: 1/4/2003 at 12:40 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	367.0	16.0	Chloride (Cl):	6.0	0.2
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	745.0	14.9
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	3.4	0.1	Carbonate (CO ₃):	60.0	1.0
Potassium (K):	2.0	0.1	Fluoride (F) :	1.3	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	942
Calculated (HCO ₃ = CO ₃)	899
Total Hardness (as Ca CO ₃)	2
Total Alkalinity (as Ca CO ₃)	806

OTHER ANALYSES

Resistivity	6.900 ohm.m @ 25 °C
Conductivity (E.C)	1450.0 µS/cm @ 25 °C
Reaction - pH	8.8

TOTAL AND BALANCE

Cations	16
Anions	16
Ion Balance (Diff*100/sum)	-0.204
Sodium Adsorption Ratio	111.0
Difference (Anions - Cations)	-0.07
Sum (Anions + Cations)	32.3

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-21
Sampling Time and Date: 1/4/2003 at 12:40 hrs

ADDITIONAL ITEMS

Cations

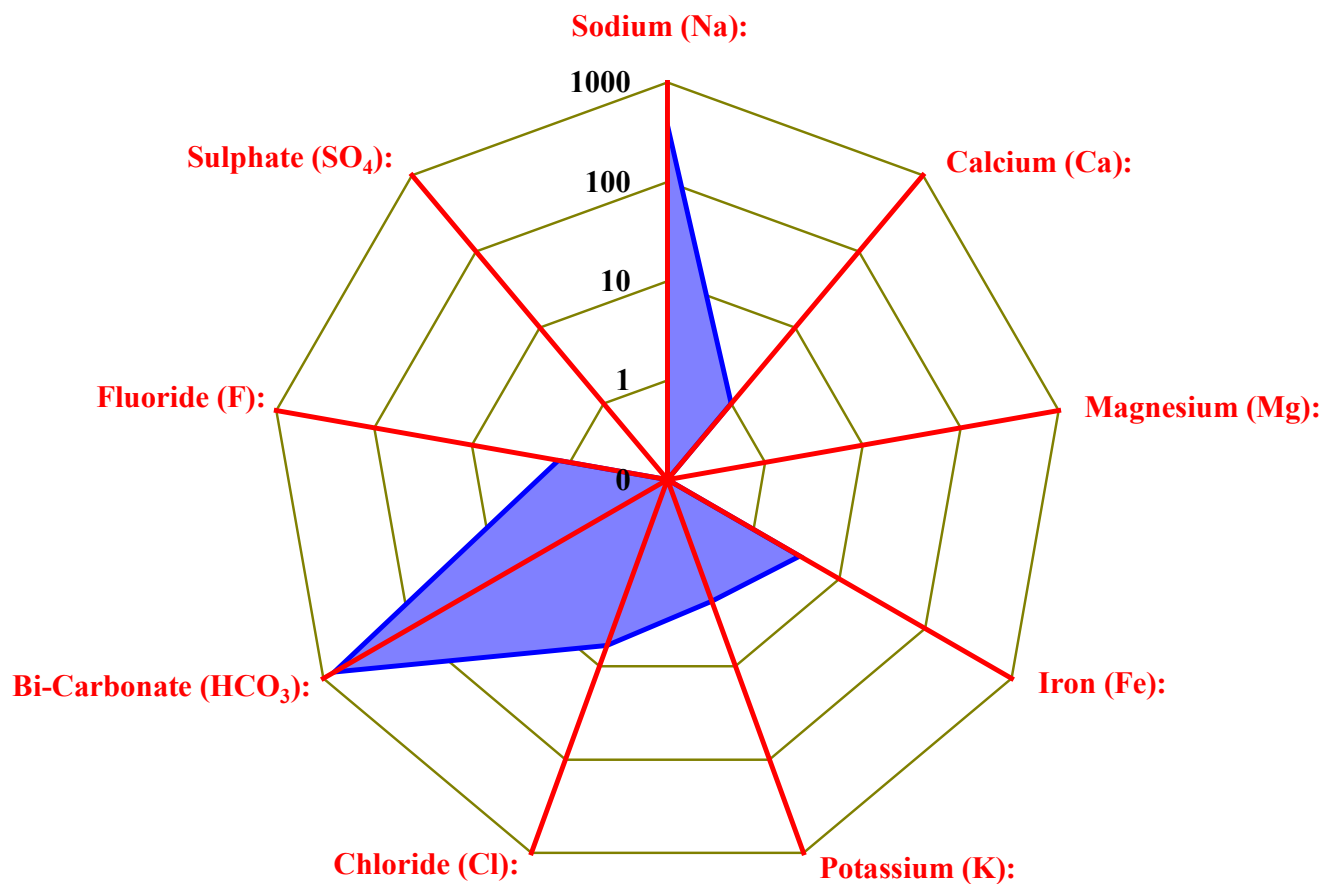
	mg/L
Aluminium (Al) :	0.50
Cadmium (Cd) :	<0.005
Chromium (Cr) :	0
Copper (Cu) :	3.05
Nickel (Ni) :	0.02
Zinc (Zn) :	0.45
Beryllium (Be) :	<0.01
Lead (Pb) :	0.61
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0017
Boron (B) :	0.50
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.06
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.08
Selenium (Se) :	<0.01
Ammonia as N :	0.39
Arsenic (As) :	0

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-21



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-22
Sampling Time and Date: 3/4/2003 at 10:30 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	439.0	19.1	Chloride (Cl):	87.0	2.5
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	763.0	15.2
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	0.4	0.0	Carbonate (CO ₃):	86.0	1.4
Potassium (K):	2.0	0.1	Fluoride (F) :	1.4	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1050
Calculated (HCO ₃ = CO ₃)	1080
Total Hardness (as Ca CO ₃)	2
Total Alkalinity (as Ca CO ₃)	850

OTHER ANALYSES

Resistivity	6.170 ohm.m @ 25 °C
Conductivity (E.C)	1620.0 µS/cm @ 25 °C
Reaction - pH	8.8

TOTAL AND BALANCE

Cations	19
Anions	19
Ion Balance (Diff*100/sum)	-0.025
Sodium Adsorption Ratio	110.0
Difference (Anions - Cations)	-0.01
Sum (Anions + Cations)	38.4

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-22
Sampling Time and Date: 3/4/2003 at 10:30 hrs

ADDITIONAL ITEMS

Cations

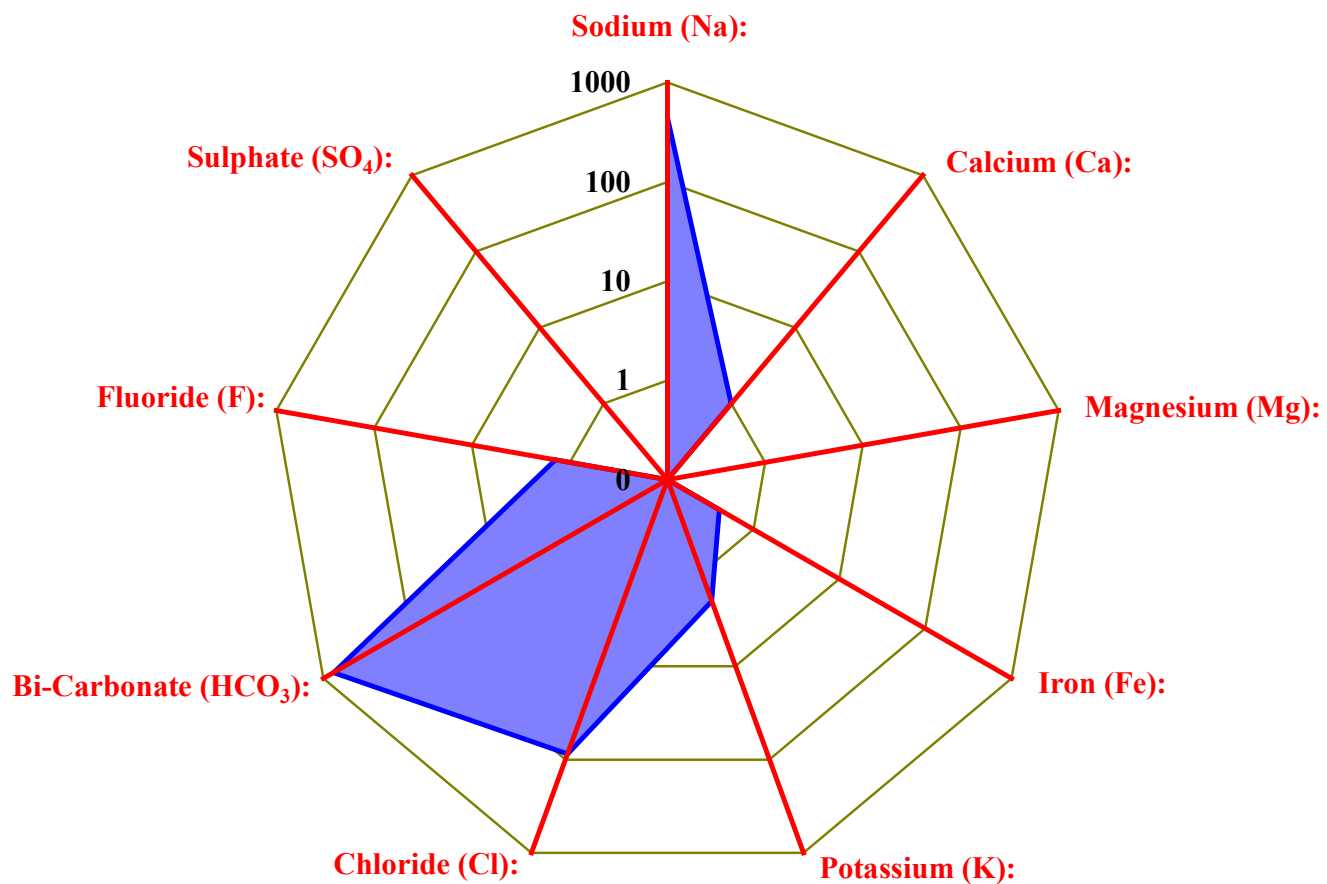
	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	<0.01
Nickel (Ni) :	0.01
Zinc (Zn) :	0.06
Beryllium (Be) :	<0.01
Lead (Pb) :	0.04
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0016
Boron (B) :	0.50
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.01
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.02
Selenium (Se) :	<0.01
Ammonia as N :	0.40
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-22



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-23
Sampling Time and Date: 3/4/2003 at 11:00 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	404.0	17.6	Chloride (Cl):	57.0	1.6
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	770.0	15.4
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	0.1	0.0	Carbonate (CO ₃):	47.0	0.8
Potassium (K):	2.0	0.1	Fluoride (F) :	1.4	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1010
Calculated (HCO ₃ = CO ₃)	995
Total Hardness (as Ca CO ₃)	3
Total Alkalinity (as Ca CO ₃)	817

OTHER ANALYSES

Resistivity	6.410 ohm.m @ 25 °C
Conductivity (E.C)	1560.0 µS/cm @ 25 °C
Reaction - pH	8.7

TOTAL AND BALANCE

Cations	18
Anions	18
Ion Balance (Diff*100/sum)	0.473
Sodium Adsorption Ratio	96.2
Difference (Anions - Cations)	0.17
Sum (Anions + Cations)	35.5

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-23
Sampling Time and Date: 3/4/2003 at 11:00 hrs

ADDITIONAL ITEMS

Cations

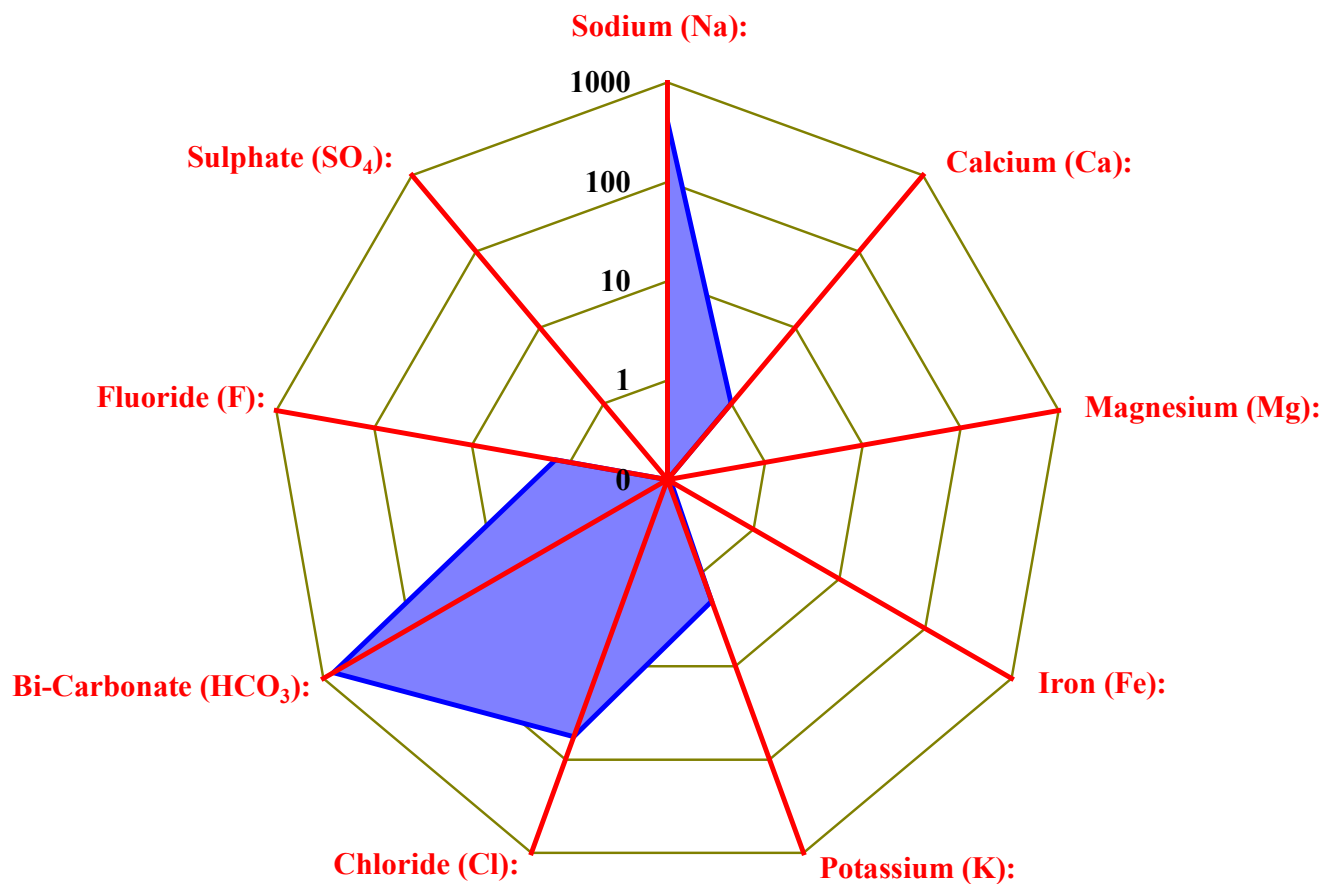
	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.01
Nickel (Ni) :	<0.01
Zinc (Zn) :	<0.01
Beryllium (Be) :	<0.01
Lead (Pb) :	0.01
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0003
Boron (B) :	0.50
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.02
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	<0.01
Selenium (Se) :	<0.01
Ammonia as N :	0.38
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-23



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-24
Sampling Time and Date: 3/4/2003 at 11:55 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	703.0	30.6	Chloride (Cl):	435.0	12.3
Calcium (Ca):	2.0	0.1	Bi-Carbonate (HCO ₃):	872.0	17.4
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	0.4	0.0	Carbonate (CO ₃):	73.0	1.2
Potassium (K):	4.0	0.1	Fluoride (F) :	2.0	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1760
Calculated (HCO ₃ = CO ₃)	1760
Total Hardness (as Ca CO ₃)	5
Total Alkalinity (as Ca CO ₃)	945

OTHER ANALYSES

Resistivity	3.690 ohm.m @ 25 °C
Conductivity (E.C)	2710.0 µS/cm @ 25 °C
Reaction - pH	8.8

TOTAL AND BALANCE

Cations	31
Anions	31
Ion Balance (Diff*100/sum)	0.326
Sodium Adsorption Ratio	120.0
Difference (Anions - Cations)	0.20
Sum (Anions + Cations)	61.8

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-24
Sampling Time and Date: 3/4/2003 at 11:55 hrs

ADDITIONAL ITEMS

Cations

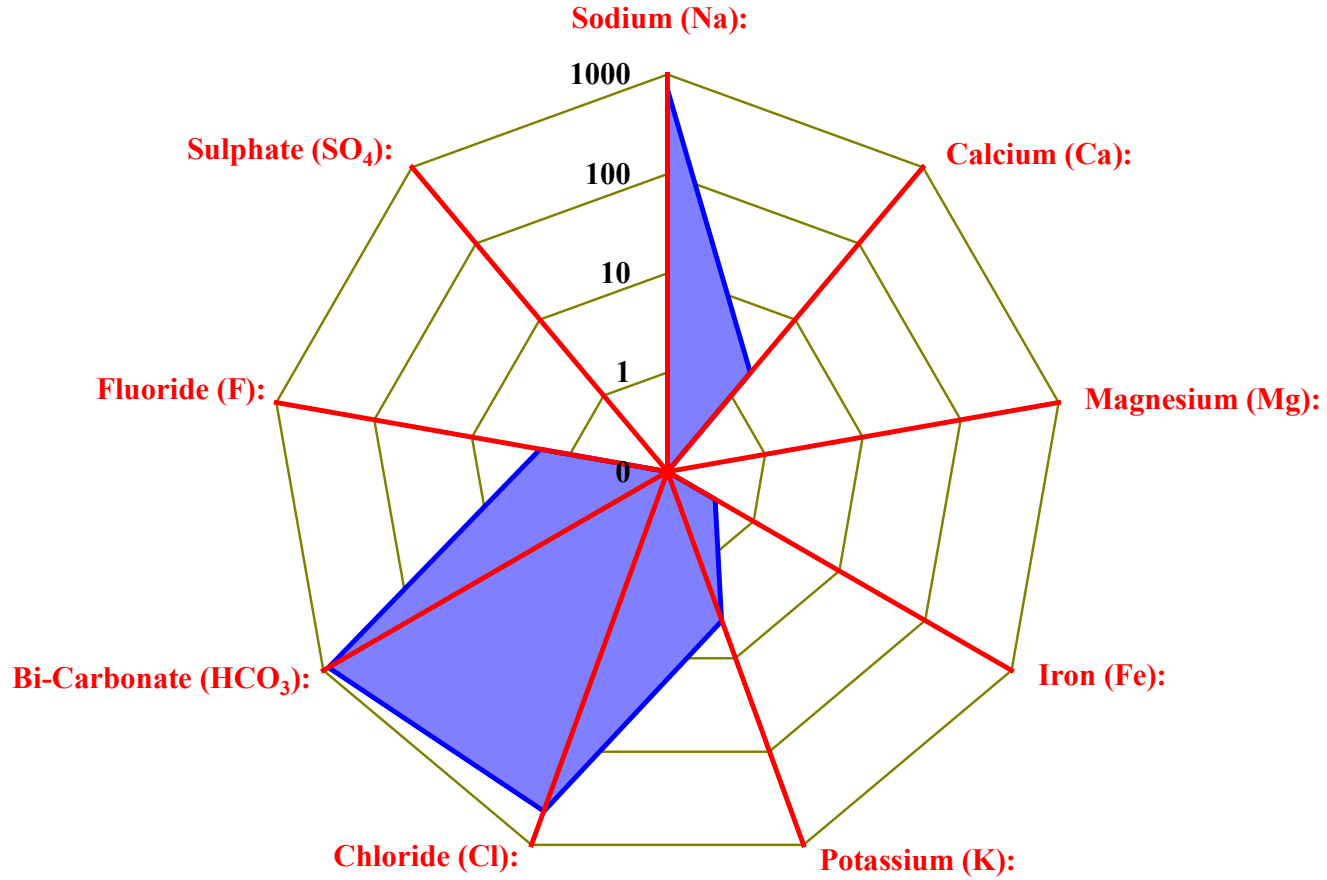
	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.23
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.79
Beryllium (Be) :	<0.01
Lead (Pb) :	2.18
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0008
Boron (B) :	0.70
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.02
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	<0.01
Selenium (Se) :	<0.01
Ammonia as N :	0.58
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-24



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-25
Sampling Time and Date: 3/4/2003 at 12:05 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	1070.0	46.5	Chloride (Cl):	947.0	26.7
Calcium (Ca):	3.0	0.1	Bi-Carbonate (HCO ₃):	979.0	19.6
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	0.9	0.0	Carbonate (CO ₃):	56.0	0.9
Potassium (K):	5.0	0.1	Fluoride (F) :	2.5	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	2680
Calculated (HCO ₃ = CO ₃)	2700
Total Hardness (as Ca CO ₃)	10
Total Alkalinity (as Ca CO ₃)	1040

OTHER ANALYSES

Resistivity	2.430 ohm.m @ 25 °C
Conductivity (E.C)	4120.0 µS/cm @ 25 °C
Reaction - pH	8.6

TOTAL AND BALANCE

Cations	47
Anions	47
Ion Balance (Diff*100/sum)	0.470
Sodium Adsorption Ratio	119.0
Difference (Anions - Cations)	0.44
Sum (Anions + Cations)	94.2

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-25
Sampling Time and Date: 3/4/2003 at 12:05 hrs

ADDITIONAL ITEMS

Cations

	mg/L
Aluminium (Al) :	0.10
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.07
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.10
Beryllium (Be) :	<0.01
Lead (Pb) :	0.22
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0050
Boron (B) :	0.90
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.03
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

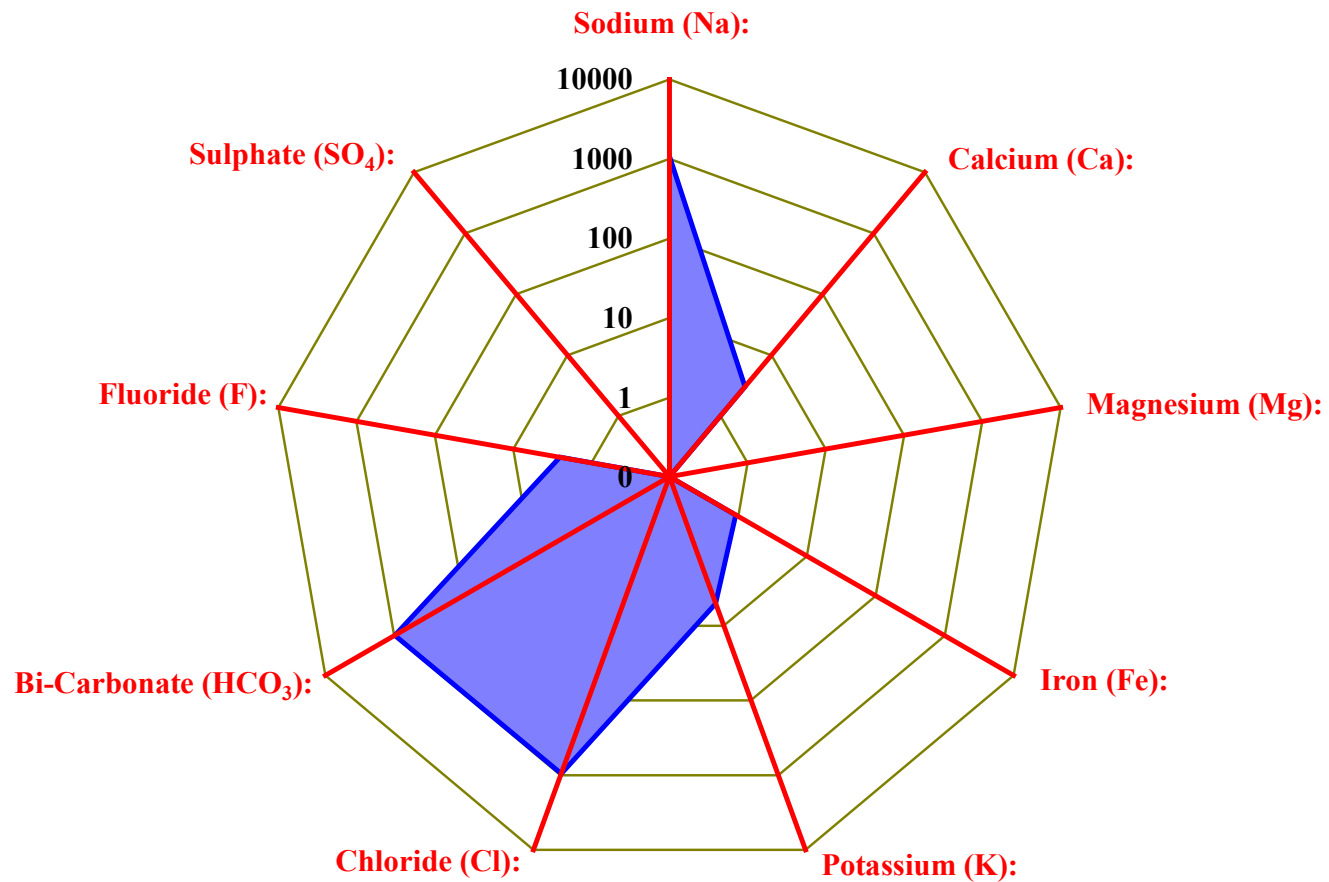
Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	<0.01
Selenium (Se) :	<0.01
Ammonia as N :	0.70
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd

Well: Fairview-25



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-26
Sampling Time and Date: 3/4/2003 at 13:40 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	1890.0	82.2	Chloride (Cl):	2140.0	60.3
Calcium (Ca):	5.0	0.2	Bi-Carbonate (HCO ₃):	1140.0	22.8
Magnesium (Mg):	2.0	0.2	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	2.3	0.1	Carbonate (CO ₃):	98.0	1.6
Potassium (K):	66.0	1.7	Fluoride (F) :	3.8	0.2
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	5600
Calculated (HCO ₃ = CO ₃)	4910
Total Hardness (as Ca CO ₃)	20
Total Alkalinity (as Ca CO ₃)	1240

OTHER ANALYSES

Resistivity	1.160 ohm.m @ 25 °C
Conductivity (E.C)	8620.0 µS/cm @ 25 °C
Reaction - pH	8.7

TOTAL AND BALANCE

Cations	84
Anions	85
Ion Balance (Diff*100/sum)	0.287
Sodium Adsorption Ratio	172.0
Difference (Anions - Cations)	0.49
Sum (Anions + Cations)	169.3

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-26
Sampling Time and Date: 3/4/2003 at 13:40 hrs

ADDITIONAL ITEMS

Cations

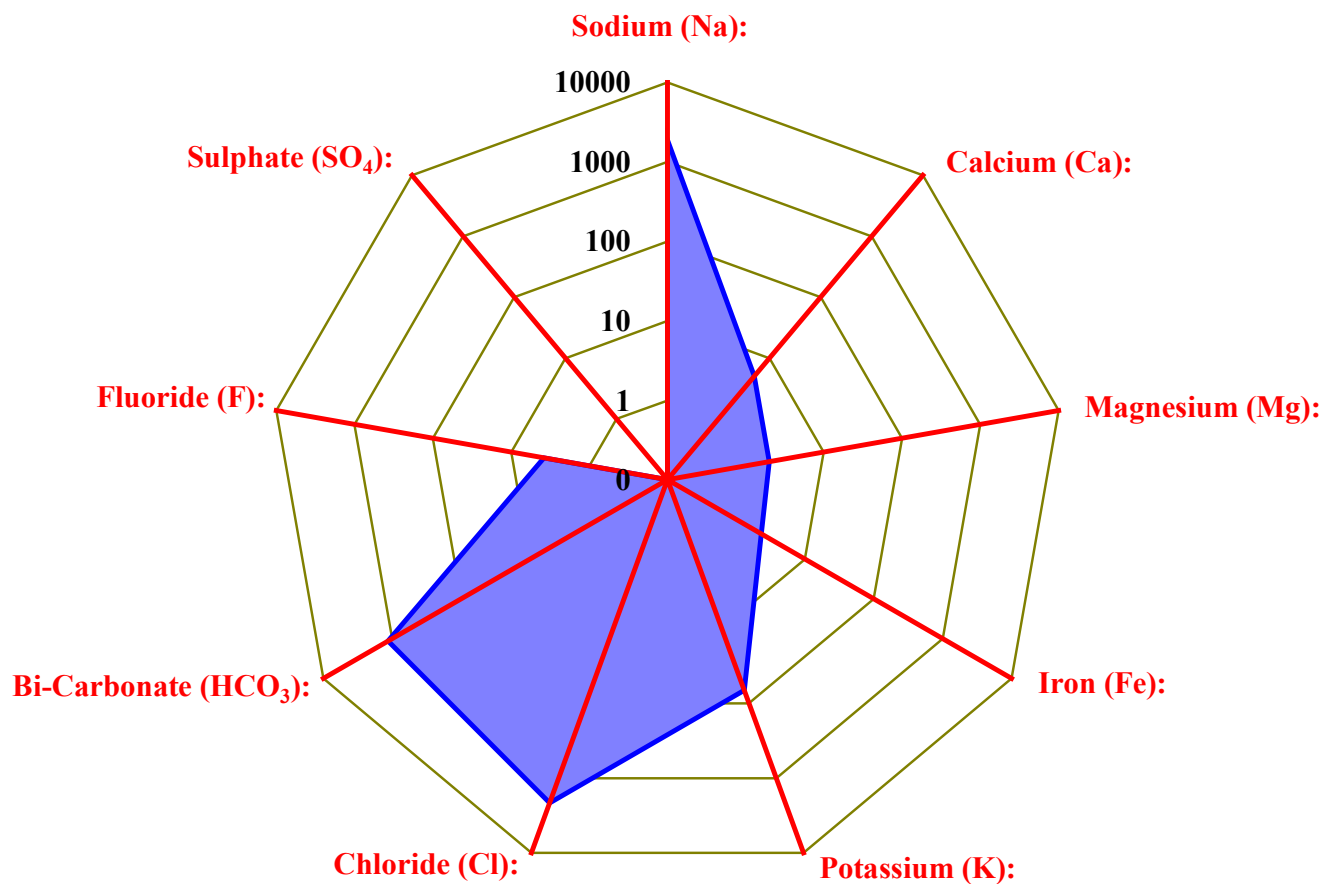
	mg/L
Aluminium (Al) :	0.30
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.54
Nickel (Ni) :	0.01
Zinc (Zn) :	0.14
Beryllium (Be) :	<0.01
Lead (Pb) :	0.20
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0006
Boron (B) :	1.40
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.03
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.05
Selenium (Se) :	<0.01
Ammonia as N :	0.50
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-26



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-27
Sampling Time and Date: 1/4/2003 at 12:25 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	391.0	17.0	Chloride (Cl):	9.0	0.3
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	765.0	15.3
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	1.6	0.1	Carbonate (CO ₃):	81.0	1.4
Potassium (K):	2.0	0.1	Fluoride (F) :	1.5	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1080
Calculated (HCO ₃ = CO ₃)	952
Total Hardness (as Ca CO ₃)	3
Total Alkalinity (as Ca CO ₃)	846

OTHER ANALYSES

Resistivity	6.020 ohm.m @ 25 °C
Conductivity (E.C)	1660.0 µS/cm @ 25 °C
Reaction - pH	8.9

TOTAL AND BALANCE

Cations	17
Anions	17
Ion Balance (Diff*100/sum)	-0.586
Sodium Adsorption Ratio	95.3
Difference (Anions - Cations)	-0.20
Sum (Anions + Cations)	34.1

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-27
Sampling Time and Date: 1/4/2003 at 12:25 hrs

ADDITIONAL ITEMS

Cations

	mg/L
Aluminium (Al) :	0.50
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.02
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.06
Beryllium (Be) :	<0.01
Lead (Pb) :	0.03
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0042
Boron (B) :	0.60
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.03
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

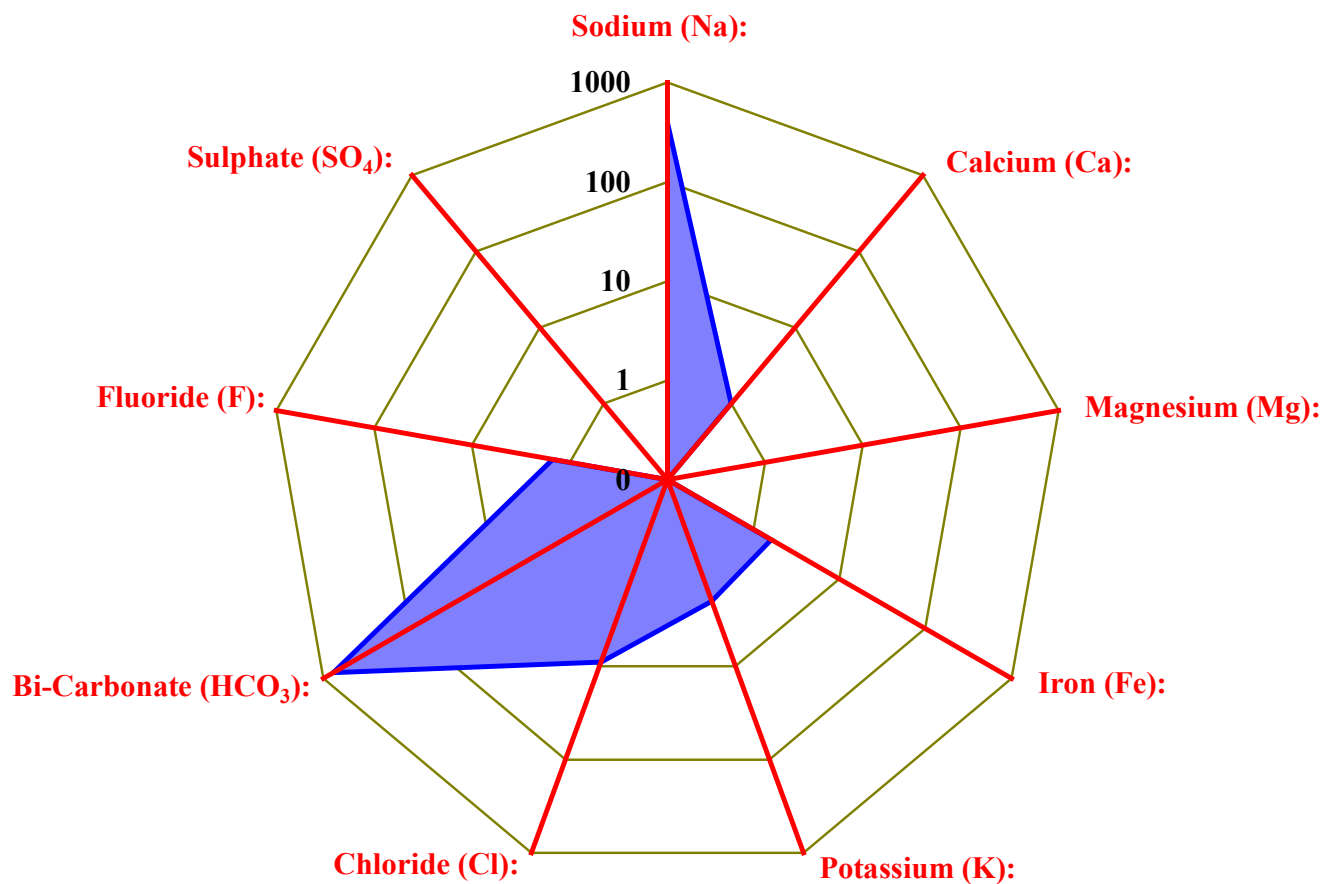
Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.04
Selenium (Se) :	<0.01
Ammonia as N :	0.32
Arsenic (As) :	0

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd

Well: Fairview-27



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-29
Sampling Time and Date: 1/4/2003 at 10:35 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	338.0	14.7	Chloride (Cl):	7.0	0.2
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	690.0	13.8
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	0.6	0.0	Carbonate (CO ₃):	49.0	0.8
Potassium (K):	2.0	0.1	Fluoride (F) :	1.3	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	878
Calculated (HCO ₃ = CO ₃)	828
Total Hardness (as Ca CO ₃)	3
Total Alkalinity (as Ca CO ₃)	739

OTHER ANALYSES

Resistivity	7.410 ohm.m @ 25 °C
Conductivity (E.C)	1350.0 µS/cm @ 25 °C
Reaction - pH	8.8

TOTAL AND BALANCE

Cations	15
Anions	15
Ion Balance (Diff*100/sum)	0.148
Sodium Adsorption Ratio	87.6
Difference (Anions - Cations)	0.04
Sum (Anions + Cations)	29.7

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-29
Sampling Time and Date: 1/4/2003 at 10:35 hrs

ADDITIONAL ITEMS

Cations

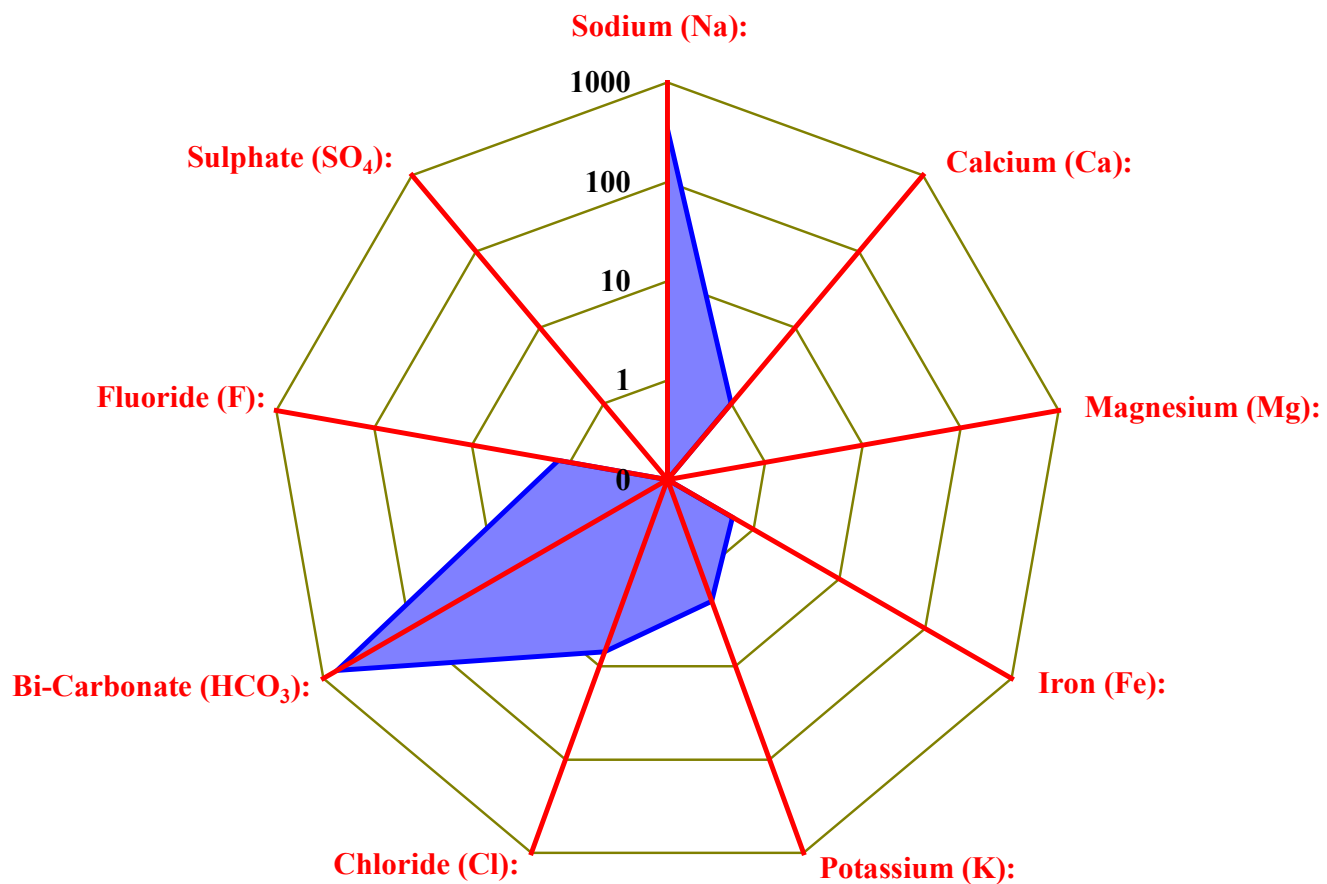
	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.02
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.03
Beryllium (Be) :	<0.01
Lead (Pb) :	0.04
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0105
Boron (B) :	0.50
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.02
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	0.42
Phosphorus as P :	0.03
Selenium (Se) :	<0.01
Ammonia as N :	0.74
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-29



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-30
Sampling Time and Date: 2/4/2003 at 10:25 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	512.0	22.3	Chloride (Cl):	46.0	1.3
Calcium (Ca):	2.0	0.1	Bi-Carbonate (HCO ₃):	930.0	18.6
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	4.7	0.2	Carbonate (CO ₃):	120.0	2.0
Potassium (K):	3.0	0.1	Fluoride (F) :	3.9	0.2
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1380
Calculated (HCO ₃ = CO ₃)	1250
Total Hardness (as Ca CO ₃)	8
Total Alkalinity (as Ca CO ₃)	1050

OTHER ANALYSES

Resistivity	4.720 ohm.m @ 25 °C
Conductivity (E.C)	2120.0 µS/cm @ 25 °C
Reaction - pH	8.9

TOTAL AND BALANCE

Cations	23
Anions	22
Ion Balance (Diff*100/sum)	-1.192
Sodium Adsorption Ratio	79.0
Difference (Anions - Cations)	-0.53
Sum (Anions + Cations)	44.7

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-30
Sampling Time and Date: 2/4/2003 at 10:25 hrs

ADDITIONAL ITEMS

Cations

	mg/L
Aluminium (Al) :	1.10
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.10
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.03
Beryllium (Be) :	<0.01
Lead (Pb) :	0.19
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0003
Boron (B) :	0.80
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.05
Molybdenum (Mo) :	0.02
Uranium (U) :	<0.001

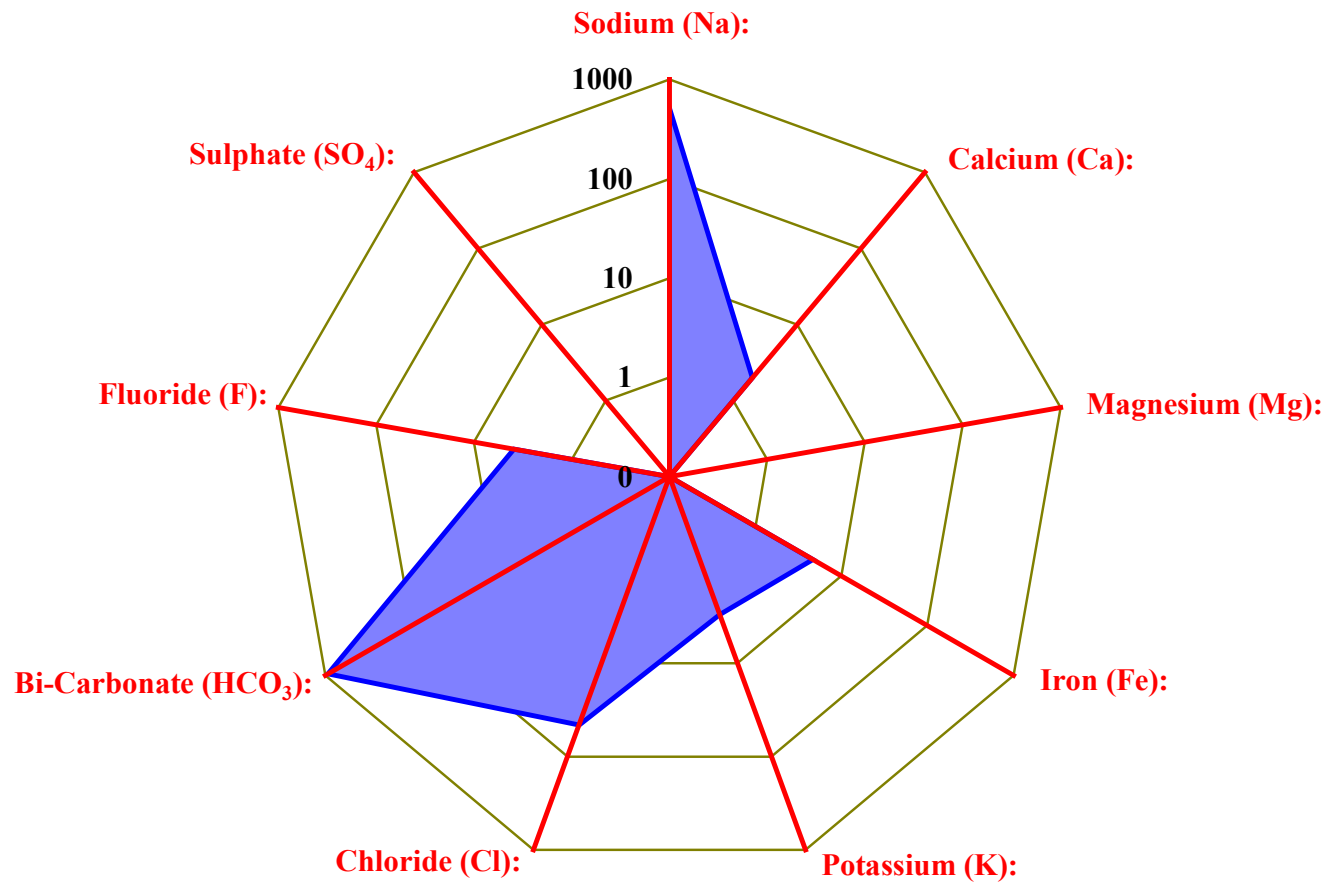
Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.09
Selenium (Se) :	<0.01
Ammonia as N :	0.25
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd

Well: Fairview-30



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-34
Sampling Time and Date: 3/4/2003 at 10:05 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	449.0	19.5	Chloride (Cl):	77.0	2.2
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	852.0	17.0
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	0.2	0.0	Carbonate (CO ₃):	34.0	0.6
Potassium (K):	2.0	0.1	Fluoride (F) :	1.7	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1120
Calculated (HCO ₃ = CO ₃)	1100
Total Hardness (as Ca CO ₃)	3
Total Alkalinity (as Ca CO ₃)	886

OTHER ANALYSES

Resistivity	5.810 ohm.m @ 25 °C
Conductivity (E.C)	1720.0 µS/cm @ 25 °C
Reaction - pH	8.6

TOTAL AND BALANCE

Cations	20
Anions	20
Ion Balance (Diff*100/sum)	0.525
Sodium Adsorption Ratio	105.0
Difference (Anions - Cations)	0.21
Sum (Anions + Cations)	39.5

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-34
Sampling Time and Date: 3/4/2003 at 10:05 hrs

ADDITIONAL ITEMS

Cations

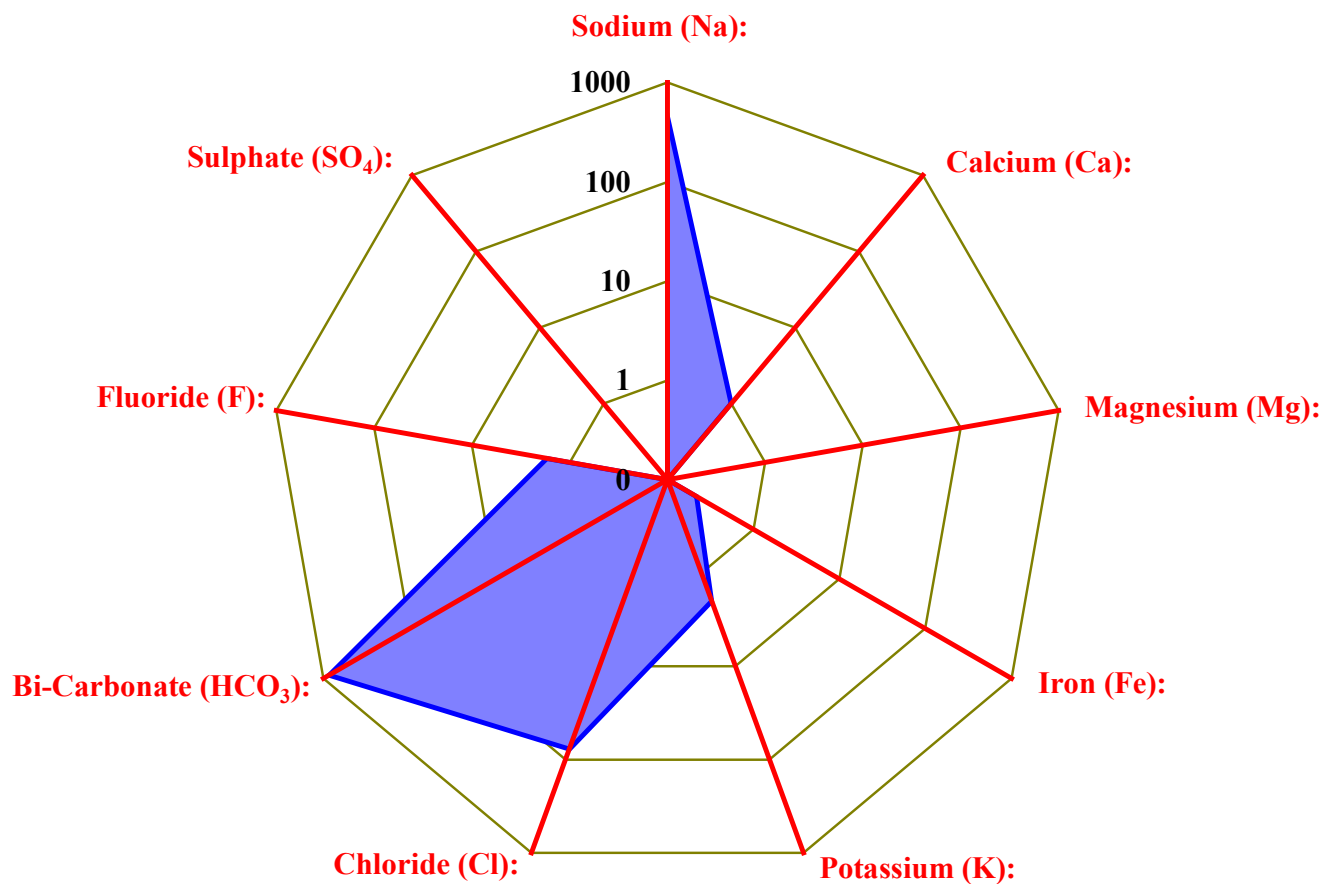
	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.05
Nickel (Ni) :	0.01
Zinc (Zn) :	0.16
Beryllium (Be) :	<0.01
Lead (Pb) :	0.29
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0018
Boron (B) :	0.50
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.01
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	<0.01
Selenium (Se) :	<0.01
Ammonia as N :	0.37
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-34



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-35
Sampling Time and Date: 3/4/2003 at 9:20 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	783.0	34.1	Chloride (Cl):	146.0	4.1
Calcium (Ca):	2.0	0.1	Bi-Carbonate (HCO ₃):	1460.0	29.2
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	1.2	0.0	Carbonate (CO ₃):	57.0	1.0
Potassium (K):	4.0	0.1	Fluoride (F) :	5.5	0.3
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1900
Calculated (HCO ₃ = CO ₃)	1920
Total Hardness (as Ca CO ₃)	7
Total Alkalinity (as Ca CO ₃)	1520

OTHER ANALYSES

Resistivity	3.410 ohm.m @ 25 °C
Conductivity (E.C)	2930.0 µS/cm @ 25 °C
Reaction - pH	8.5

TOTAL AND BALANCE

Cations	34
Anions	35
Ion Balance (Diff*100/sum)	0.315
Sodium Adsorption Ratio	108.0
Difference (Anions - Cations)	0.22
Sum (Anions + Cations)	68.8

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-35
Sampling Time and Date: 3/4/2003 at 9:20 hrs

ADDITIONAL ITEMS

Cations

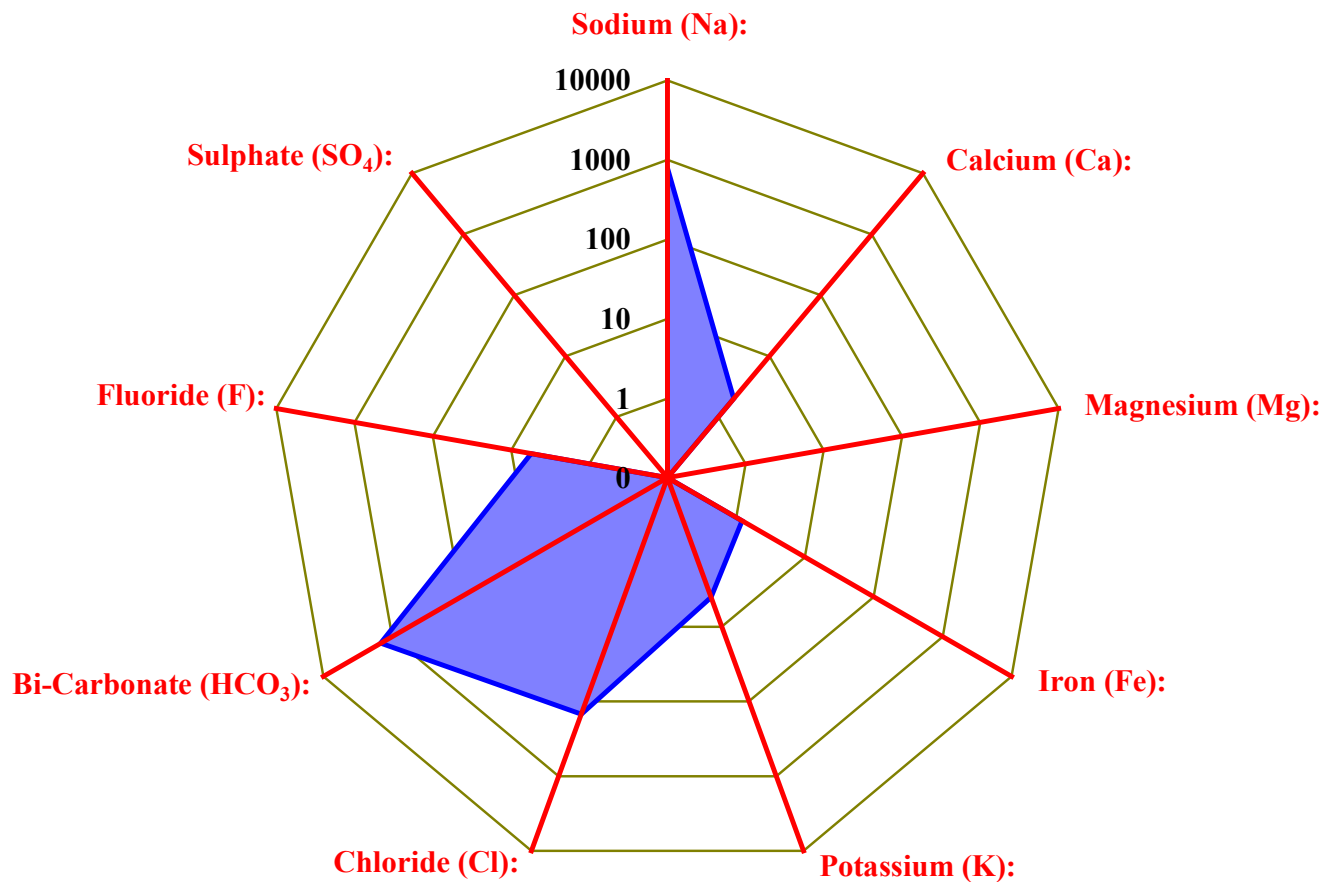
	mg/L
Aluminium (Al) :	0.40
Cadmium (Cd) :	0
Chromium (Cr) :	<0.01
Copper (Cu) :	<0.01
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.03
Beryllium (Be) :	<0.01
Lead (Pb) :	<0.01
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0012
Boron (B) :	1.60
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.03
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.01
Selenium (Se) :	<0.01
Ammonia as N :	0.48
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-35



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-37
Sampling Time and Date: 3/4/2003 at 9:35 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	806.0	35.1	Chloride (Cl):	203.0	5.7
Calcium (Ca):	2.0	0.1	Bi-Carbonate (HCO ₃):	1410.0	28.2
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	1.1	0.0	Carbonate (CO ₃):	89.0	1.5
Potassium (K):	4.0	0.1	Fluoride (F) :	4.7	0.2
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1920
Calculated (HCO ₃ = CO ₃)	1990
Total Hardness (as Ca CO ₃)	8
Total Alkalinity (as Ca CO ₃)	1500

OTHER ANALYSES

Resistivity	3.390 ohm.m @ 25 °C
Conductivity (E.C)	2950.0 µS/cm @ 25 °C
Reaction - pH	8.7

TOTAL AND BALANCE

Cations	35
Anions	36
Ion Balance (Diff*100/sum)	0.449
Sodium Adsorption Ratio	109.0
Difference (Anions - Cations)	0.32
Sum (Anions + Cations)	70.9

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-37
Sampling Time and Date: 3/4/2003 at 9:35 hrs

ADDITIONAL ITEMS

Cations

	mg/L
Aluminium (Al) :	0.30
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.02
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.06
Beryllium (Be) :	<0.01
Lead (Pb) :	0.11
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0004
Boron (B) :	1.40
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.02
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

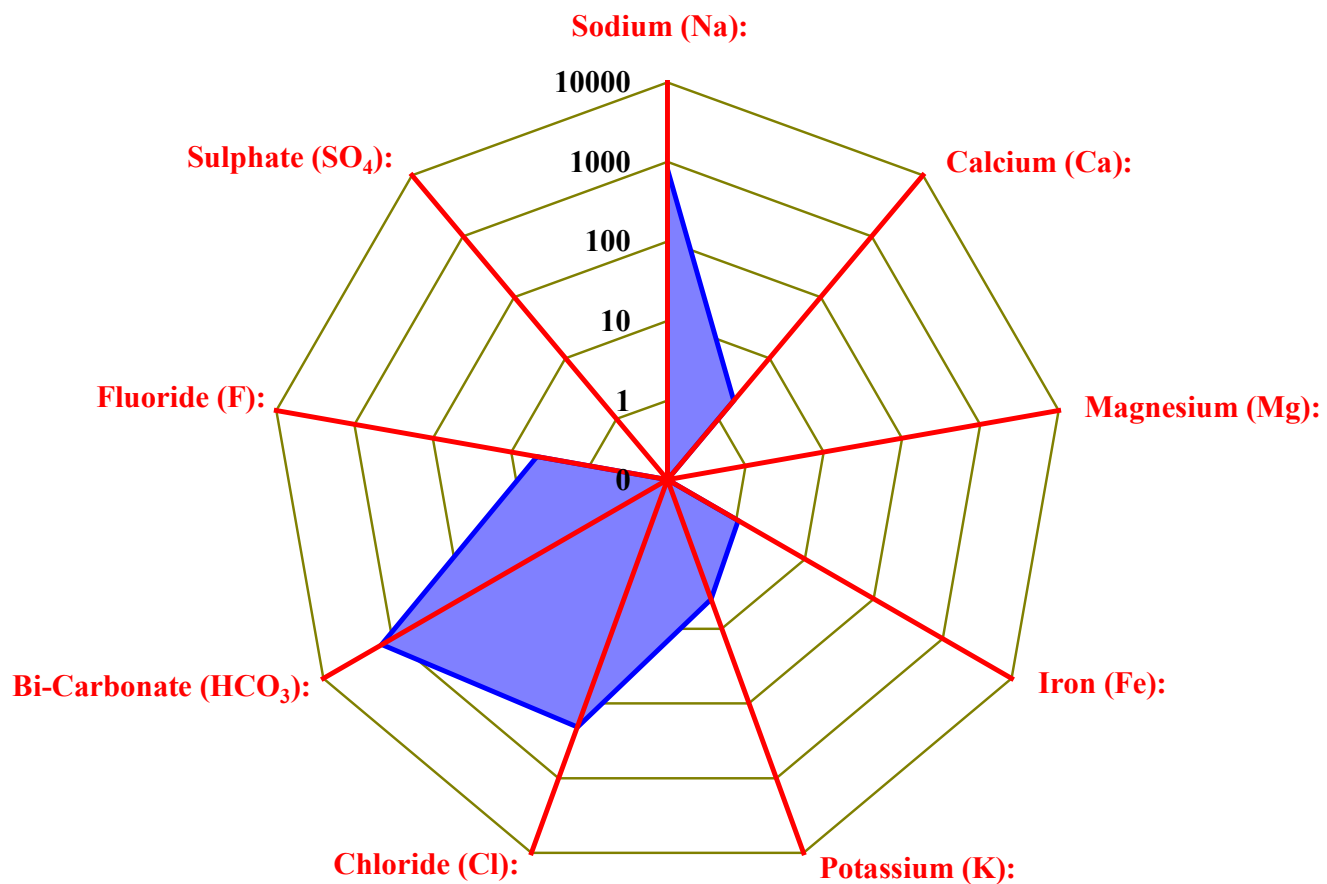
Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.02
Selenium (Se) :	<0.01
Ammonia as N :	0.48
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd

Well: Fairview-37



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-38
Sampling Time and Date: 2/4/2003 at 12:45 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	269.0	11.7	Chloride (Cl):	13.0	0.4
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	538.0	10.7
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	0.2	0.0	Carbonate (CO ₃):	37.0	0.6
Potassium (K):	1.0	0.0	Fluoride (F) :	0.7	0.0
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	663
Calculated (HCO ₃ = CO ₃)	657
Total Hardness (as Ca CO ₃)	2
Total Alkalinity (as Ca CO ₃)	576

OTHER ANALYSES

Resistivity	9.800 ohm.m @ 25 °C
Conductivity (E.C)	1020.0 µS/cm @ 25 °C
Reaction - pH	8.8

TOTAL AND BALANCE

Cations	12
Anions	12
Ion Balance (Diff*100/sum)	-0.057
Sodium Adsorption Ratio	81.9
Difference (Anions - Cations)	-0.01
Sum (Anions + Cations)	23.6

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-38
Sampling Time and Date: 2/4/2003 at 12:45 hrs

ADDITIONAL ITEMS

Cations

	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	<0.01
Nickel (Ni) :	<0.01
Zinc (Zn) :	<0.01
Beryllium (Be) :	<0.01
Lead (Pb) :	<0.01
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0003
Boron (B) :	0.20
Cobalt (Co) :	<0.01
Manganese (Mn) :	<0.01
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

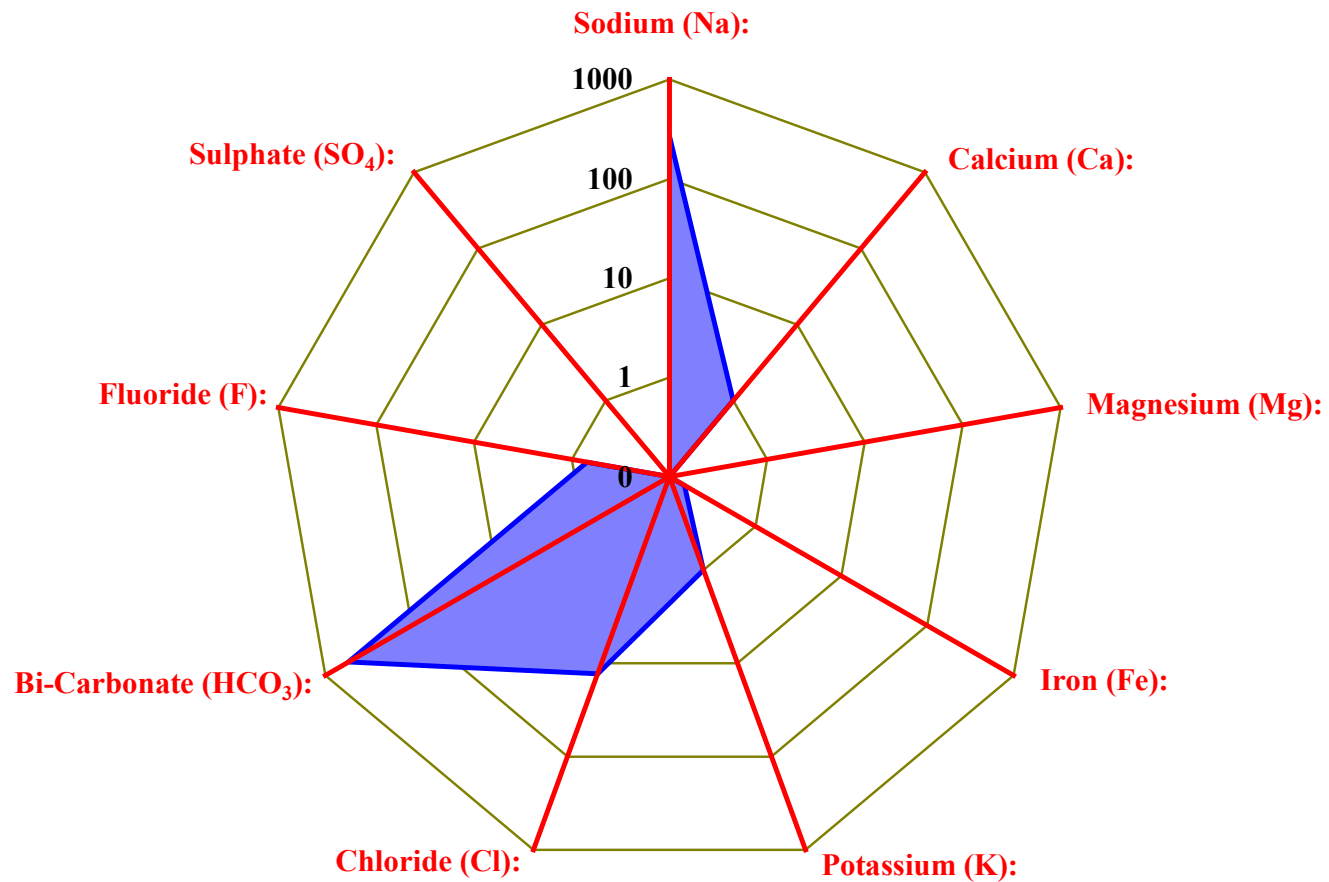
Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.04
Selenium (Se) :	<0.01
Ammonia as N :	0.27
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd

Well: Fairview-38



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-39
Sampling Time and Date: 2/4/2003 at 12:05 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	414.0	18.0	Chloride (Cl):	53.0	1.5
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	774.0	15.5
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	1.0	0.0	Carbonate (CO ₃):	67.0	1.1
Potassium (K):	3.0	0.1	Fluoride (F) :	1.4	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	981
Calculated (HCO ₃ = CO ₃)	1020
Total Hardness (as Ca CO ₃)	2
Total Alkalinity (as Ca CO ₃)	840

OTHER ANALYSES

Resistivity	6.620 ohm.m @ 25 °C
Conductivity (E.C)	1510.0 µS/cm @ 25 °C
Reaction - pH	8.8

TOTAL AND BALANCE

Cations	18
Anions	18
Ion Balance (Diff*100/sum)	-0.067
Sodium Adsorption Ratio	104.0
Difference (Anions - Cations)	-0.02
Sum (Anions + Cations)	36.3

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-39
Sampling Time and Date: 2/4/2003 at 12:05 hrs

ADDITIONAL ITEMS

Cations

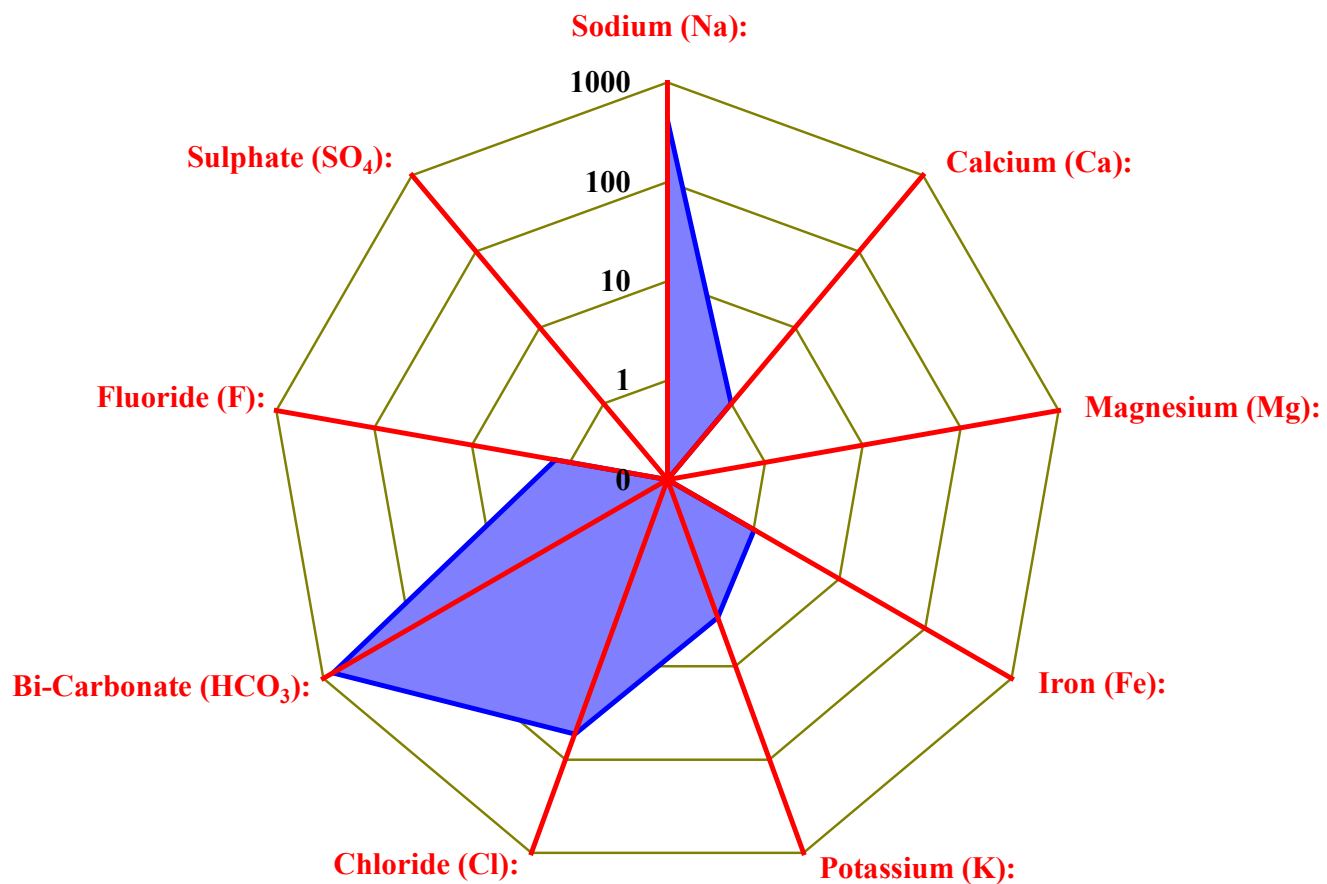
	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.03
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.02
Beryllium (Be) :	<0.01
Lead (Pb) :	<0.01
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0003
Boron (B) :	0.50
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.02
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.07
Selenium (Se) :	<0.01
Ammonia as N :	0.32
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-39



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-41
Sampling Time and Date: 2/4/2003 at 11:15 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	348.0	15.1	Chloride (Cl):	39.0	1.1
Calcium (Ca):	2.0	0.1	Bi-Carbonate (HCO ₃):	692.0	13.8
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	1.0	0.0
Iron (Fe):	7.4	0.3	Carbonate (CO ₃):	26.0	0.4
Potassium (K):	2.0	0.1	Fluoride (F) :	0.9	0.0
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	832
Calculated (HCO ₃ = CO ₃)	859
Total Hardness (as Ca CO ₃)	5
Total Alkalinity (as Ca CO ₃)	718

OTHER ANALYSES

Resistivity	7.810 ohm.m @ 25 °C
Conductivity (E.C)	1280.0 µS/cm @ 25 °C
Reaction - pH	8.5

TOTAL AND BALANCE

Cations	16
Anions	15
Ion Balance (Diff*100/sum)	-0.415
Sodium Adsorption Ratio	60.7
Difference (Anions - Cations)	-0.13
Sum (Anions + Cations)	31.0

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-41
Sampling Time and Date: 2/4/2003 at 11:15 hrs

ADDITIONAL ITEMS

Cations

	mg/L
Aluminium (Al) :	0.90
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.60
Nickel (Ni) :	0.02
Zinc (Zn) :	0.15
Beryllium (Be) :	<0.01
Lead (Pb) :	0.29
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0002
Boron (B) :	0.30
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.13
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

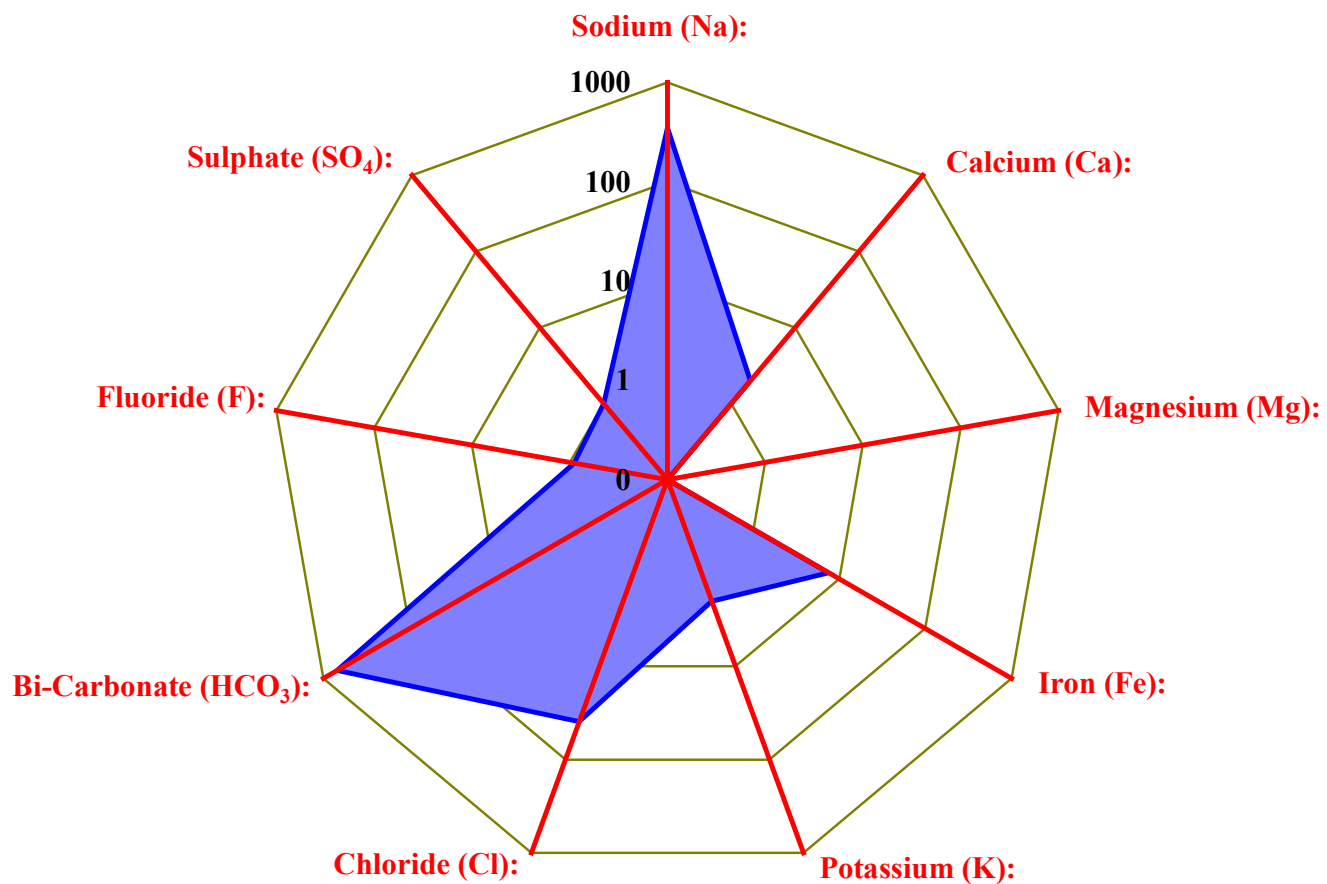
Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.10
Selenium (Se) :	<0.01
Ammonia as N :	0.02
Arsenic (As) :	0

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd

Well: Fairview-41



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-42
Sampling Time and Date: 2/4/2003 at 11:30 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	431.0	18.7	Chloride (Cl):	39.0	1.1
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	800.0	16.0
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	0.4	0.0	Carbonate (CO ₃):	95.0	1.6
Potassium (K):	2.0	0.1	Fluoride (F) :	2.1	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1070
Calculated (HCO ₃ = CO ₃)	1050
Total Hardness (as Ca CO ₃)	3
Total Alkalinity (as Ca CO ₃)	896

OTHER ANALYSES

Resistivity	6.100 ohm.m @ 25 °C
Conductivity (E.C)	1640.0 µS/cm @ 25 °C
Reaction - pH	8.9

TOTAL AND BALANCE

Cations	19
Anions	19
Ion Balance (Diff*100/sum)	-0.233
Sodium Adsorption Ratio	106.0
Difference (Anions - Cations)	-0.09
Sum (Anions + Cations)	37.6

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-42
Sampling Time and Date: 2/4/2003 at 11:30 hrs

ADDITIONAL ITEMS

Cations

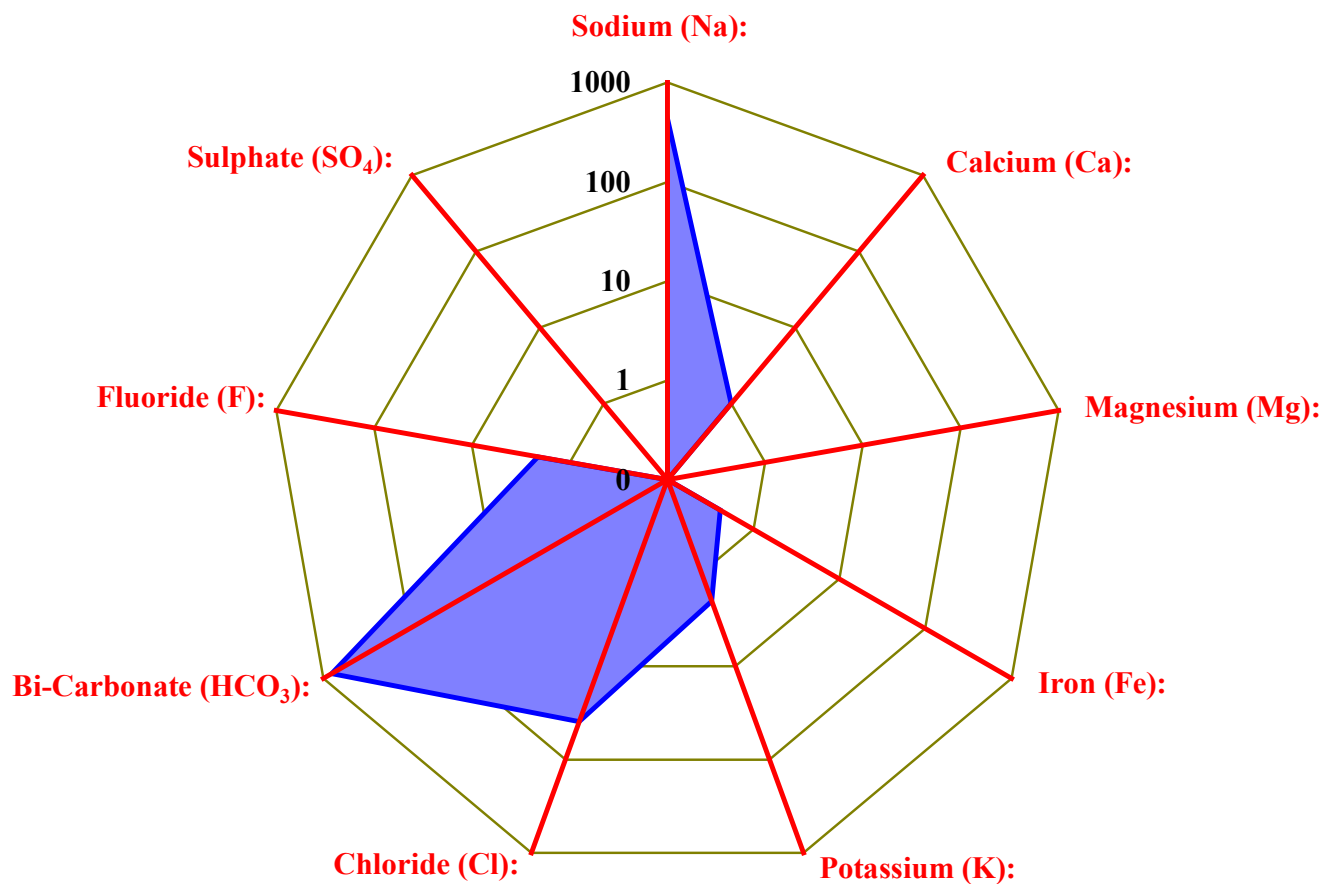
	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.02
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.02
Beryllium (Be) :	<0.01
Lead (Pb) :	0.02
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0006
Boron (B) :	0.60
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.02
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.02
Selenium (Se) :	<0.01
Ammonia as N :	0.36
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-42



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-43
Sampling Time and Date: 2/4/2003 at 10:55 hrs

CHEMICAL COMPOSITION

	Cations		Anions	
	mg/L	meq/L	mg/L	meq/L
Sodium (Na):	484.0	21.1	Chloride (Cl):	8.0
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	961.0
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0
Iron (Fe):	0.1	0.0	Carbonate (CO ₃):	76.0
Potassium (K):	2.0	0.1	Fluoride (F) :	3.1
			Hydroxide (OH):	<1.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1320
Calculated (HCO ₃ = CO ₃)	1170
Total Hardness (as Ca CO ₃)	3
Total Alkalinity (as Ca CO ₃)	1040

OTHER ANALYSES

Resistivity	4.900 ohm.m @ 25 °C
Conductivity (E.C)	2040.0 µS/cm @ 25 °C
Reaction - pH	8.8

TOTAL AND BALANCE

Cations	21
Anions	21
Ion Balance (Diff*100/sum)	-0.720
Sodium Adsorption Ratio	127.0
Difference (Anions - Cations)	-0.30
Sum (Anions + Cations)	42.0

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-43
Sampling Time and Date: 2/4/2003 at 10:55 hrs

ADDITIONAL ITEMS

Cations

	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.01
Nickel (Ni) :	<0.01
Zinc (Zn) :	<0.01
Beryllium (Be) :	<0.01
Lead (Pb) :	<0.01
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0022
Boron (B) :	1.00
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.02
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

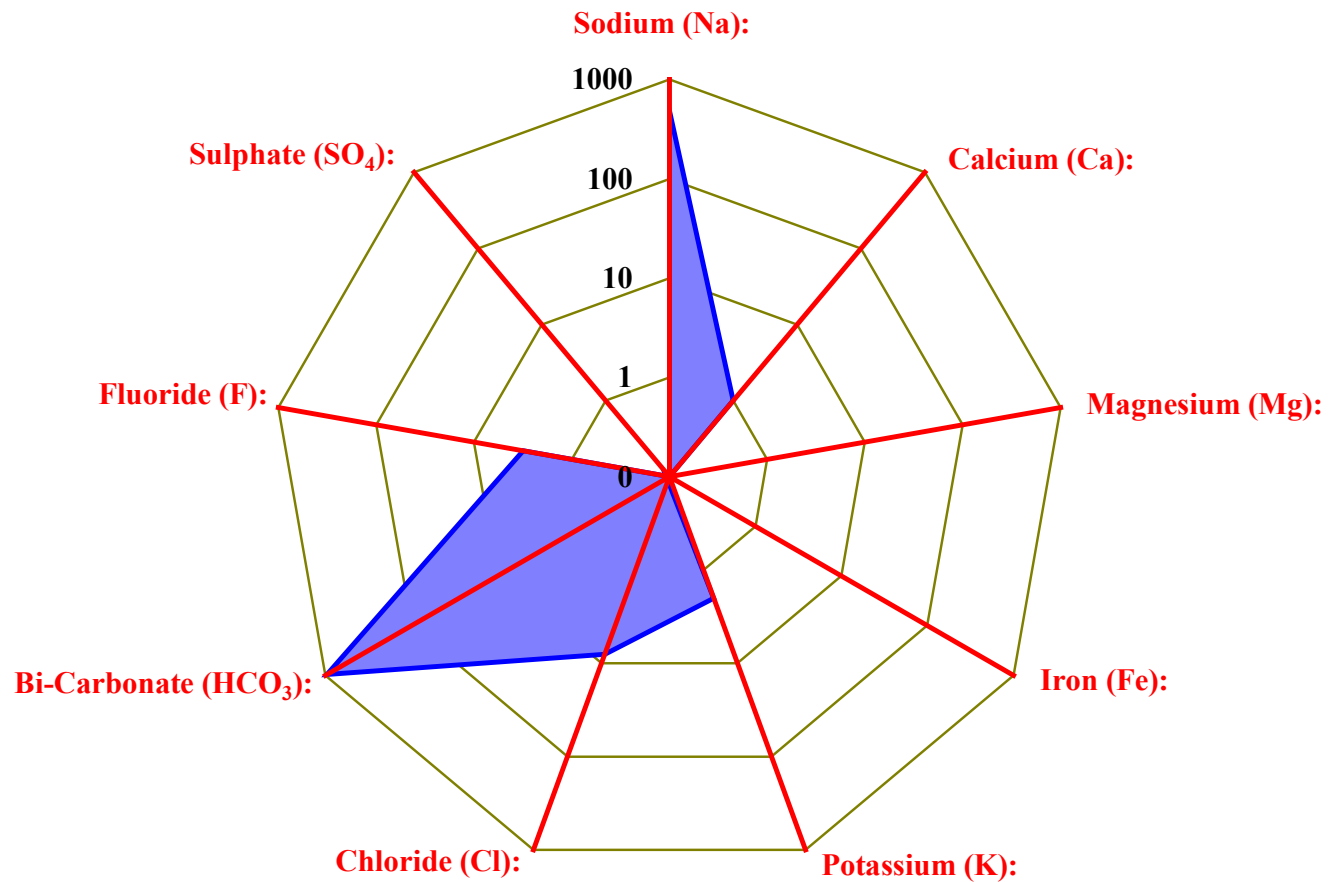
Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	<0.01
Selenium (Se) :	<0.01
Ammonia as N :	0.35
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd

Well: Fairview-43



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-44
Sampling Time and Date: 2/4/2003 at 11:05 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	385.0	16.7	Chloride (Cl):	39.0	1.1
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	723.0	14.4
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	0.3	0.0	Carbonate (CO ₃):	76.0	1.3
Potassium (K):	2.0	0.1	Fluoride (F) :	1.6	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	930
Calculated (HCO ₃ = CO ₃)	946
Total Hardness (as Ca CO ₃)	3
Total Alkalinity (as Ca CO ₃)	799

OTHER ANALYSES

Resistivity	7.000 ohm.m @ 25 °C
Conductivity (E.C)	1430.0 µS/cm @ 25 °C
Reaction - pH	8.9

TOTAL AND BALANCE

Cations	17
Anions	17
Ion Balance (Diff*100/sum)	0.105
Sodium Adsorption Ratio	84.8
Difference (Anions - Cations)	0.04
Sum (Anions + Cations)	33.8

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-44
Sampling Time and Date: 2/4/2003 at 11:05 hrs

ADDITIONAL ITEMS

Cations

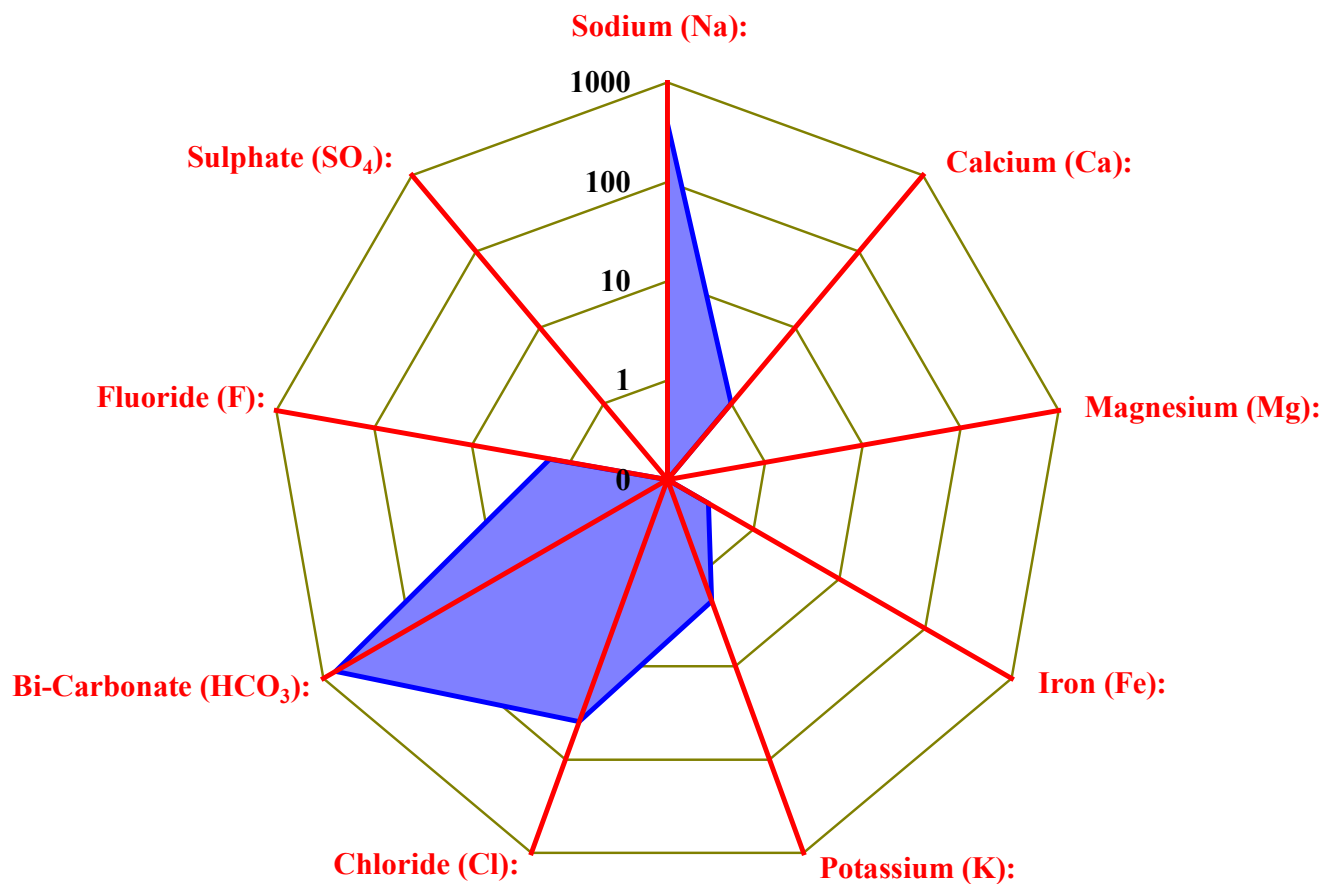
	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	<0.01
Nickel (Ni) :	<0.01
Zinc (Zn) :	<0.01
Beryllium (Be) :	<0.01
Lead (Pb) :	<0.01
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0001
Boron (B) :	0.50
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.02
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.05
Selenium (Se) :	<0.01
Ammonia as N :	0.32
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-44



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-45
Sampling Time and Date: 2/4/2003 at 9:55 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	331.0	14.4	Chloride (Cl):	3.0	0.1
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	623.0	12.4
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	1.3	0.0	Carbonate (CO ₃):	108.0	1.8
Potassium (K):	2.0	0.1	Fluoride (F) :	1.0	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	852
Calculated (HCO ₃ = CO ₃)	813
Total Hardness (as Ca CO ₃)	3
Total Alkalinity (as Ca CO ₃)	731

OTHER ANALYSES

Resistivity	7.630 ohm.m @ 25 °C
Conductivity (E.C)	1310.0 µS/cm @ 25 °C
Reaction - pH	9.1

TOTAL AND BALANCE

Cations	15
Anions	14
Ion Balance (Diff*100/sum)	-0.552
Sodium Adsorption Ratio	74.7
Difference (Anions - Cations)	-0.16
Sum (Anions + Cations)	28.9

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-45
Sampling Time and Date: 2/4/2003 at 9:55 hrs

ADDITIONAL ITEMS

Cations

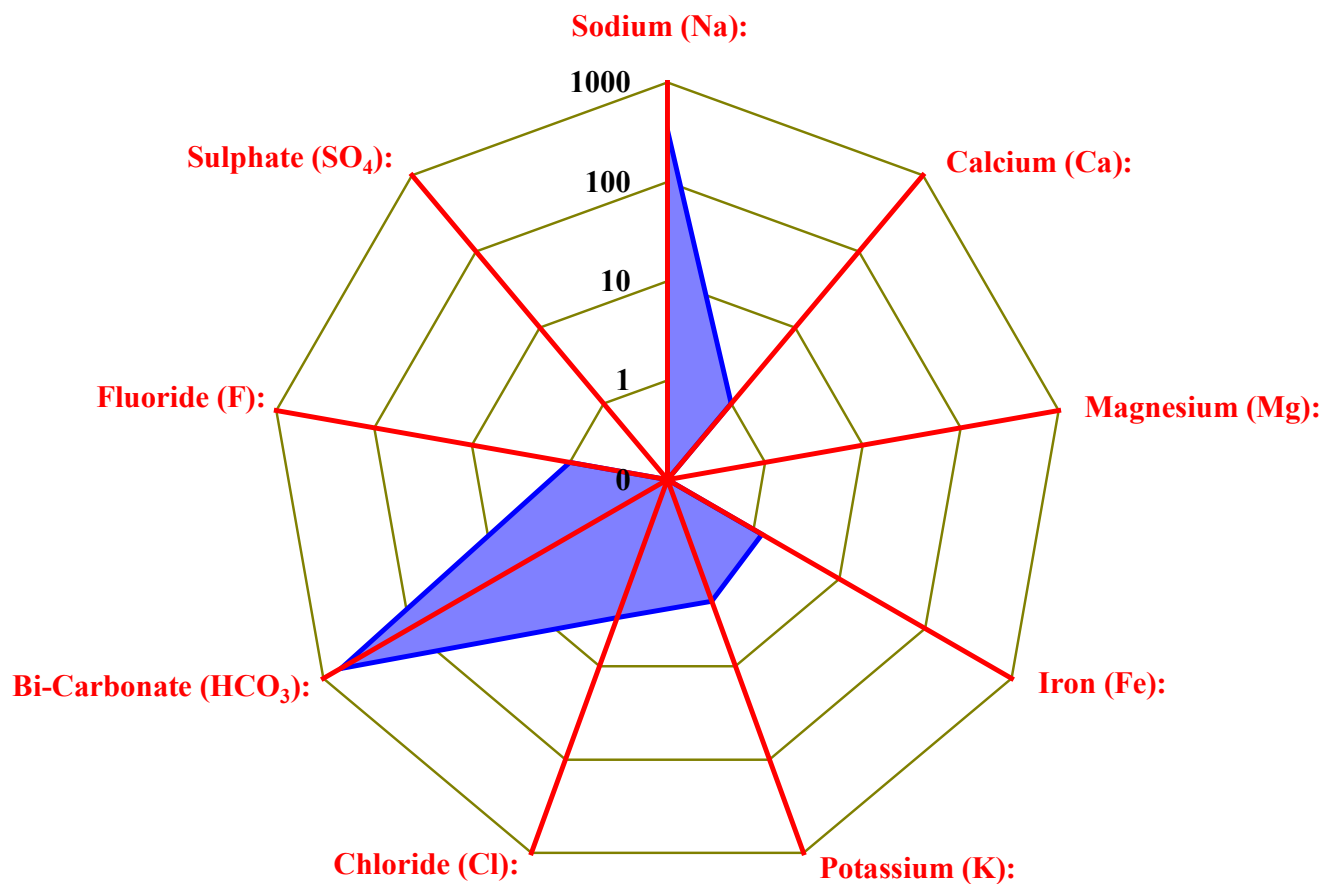
	mg/L
Aluminium (Al) :	2.50
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.17
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.12
Beryllium (Be) :	<0.01
Lead (Pb) :	0.02
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0002
Boron (B) :	0.30
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.02
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.08
Selenium (Se) :	<0.01
Ammonia as N :	0.31
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-45



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-46
Sampling Time and Date: 2/4/2003 at 9:30 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	288.0	12.5	Chloride (Cl):	<1.0	0.0
Calcium (Ca):	3.0	0.1	Bi-Carbonate (HCO ₃):	591.0	11.8
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	3.0	0.1
Iron (Fe):	0.2	0.0	Carbonate (CO ₃):	28.0	0.5
Potassium (K):	2.0	0.1	Fluoride (F) :	1.1	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	715
Calculated (HCO ₃ = CO ₃)	699
Total Hardness (as Ca CO ₃)	10
Total Alkalinity (as Ca CO ₃)	620

OTHER ANALYSES

Resistivity	9.090 ohm.m @ 25 °C
Conductivity (E.C)	1100.0 µS/cm @ 25 °C
Reaction - pH	8.6

TOTAL AND BALANCE

Cations	13
Anions	12
Ion Balance (Diff*100/sum)	-1.360
Sodium Adsorption Ratio	40.9
Difference (Anions - Cations)	-0.34
Sum (Anions + Cations)	25.1

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-46
Sampling Time and Date: 2/4/2003 at 9:30 hrs

ADDITIONAL ITEMS

Cations

	mg/L
Aluminium (Al) :	0.10
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	<0.01
Nickel (Ni) :	<0.01
Zinc (Zn) :	<0.01
Beryllium (Be) :	<0.01
Lead (Pb) :	<0.01
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0005
Boron (B) :	0.40
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.03
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

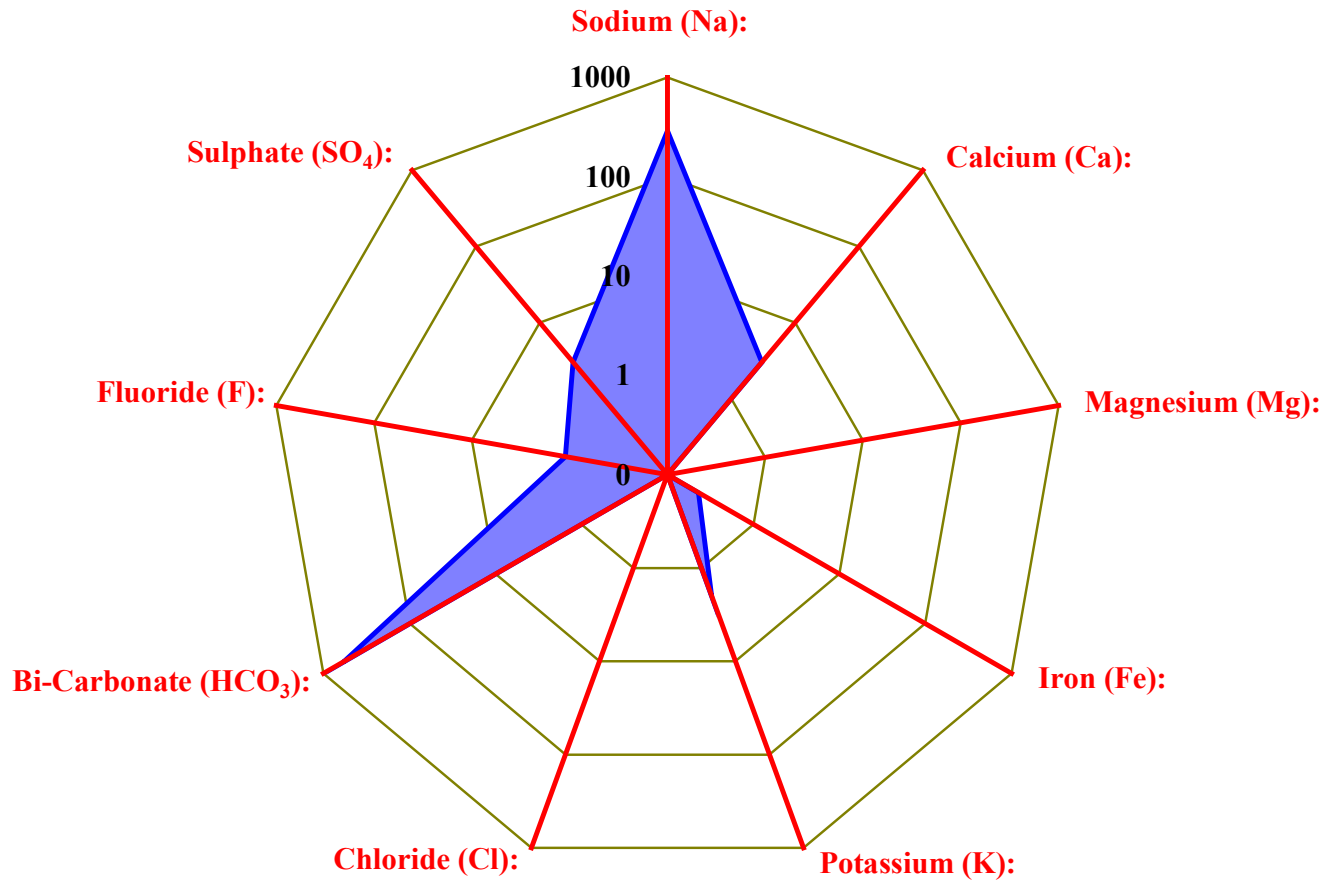
Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.05
Selenium (Se) :	<0.01
Ammonia as N :	<0.01
Arsenic (As) :	0

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd

Well: Fairview-46



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-47
Sampling Time and Date: 2/4/2003 at 9:00 hrs

CHEMICAL COMPOSITION

	Cations		Anions	
	mg/L	meq/L	mg/L	meq/L
Sodium (Na):	358.0	15.6	Chloride (Cl):	6.0
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	741.0
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0
Iron (Fe):	9.9	0.4	Carbonate (CO ₃):	46.0
Potassium (K):	2.0	0.1	Fluoride (F) :	1.9
			Hydroxide (OH):	<1.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	936
Calculated (HCO ₃ = CO ₃)	879
Total Hardness (as Ca CO ₃)	4
Total Alkalinity (as Ca CO ₃)	787

OTHER ANALYSES

Resistivity	6.940 ohm.m @ 25 °C
Conductivity (E.C)	1440.0 µS/cm @ 25 °C
Reaction - pH	8.7

TOTAL AND BALANCE

Cations	16
Anions	16
Ion Balance (Diff*100/sum)	-0.587
Sodium Adsorption Ratio	75.1
Difference (Anions - Cations)	-0.19
Sum (Anions + Cations)	31.9

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-47
Sampling Time and Date: 2/4/2003 at 9:00 hrs

ADDITIONAL ITEMS

Cations

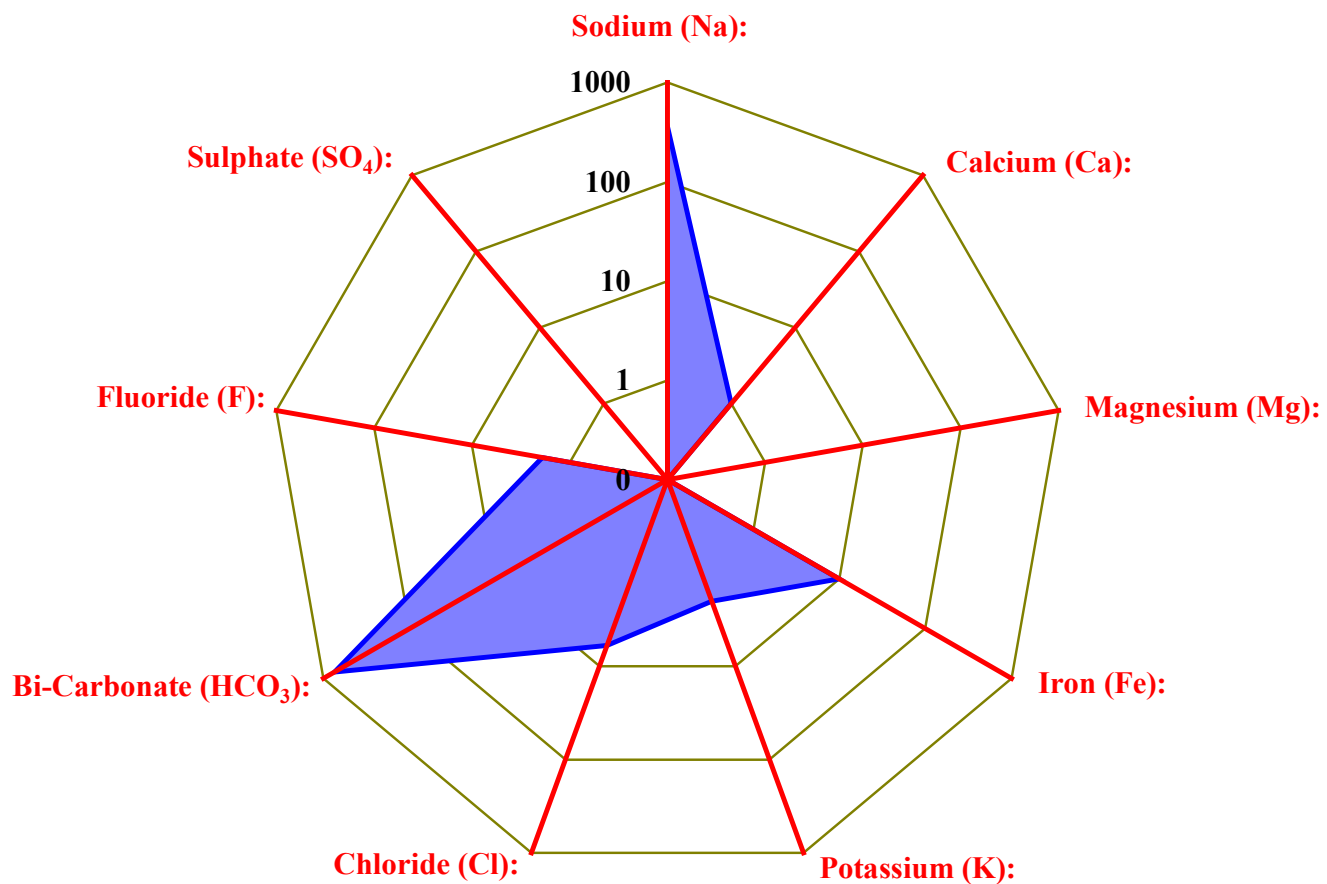
	mg/L
Aluminium (Al) :	0.10
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.05
Nickel (Ni) :	0.01
Zinc (Zn) :	0.32
Beryllium (Be) :	<0.01
Lead (Pb) :	0.04
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0019
Boron (B) :	0.60
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.07
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.02
Selenium (Se) :	<0.01
Ammonia as N :	0.27
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-47



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-48
Sampling Time and Date: 2/4/2003 at 9:15 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	323.0	14.1	Chloride (Cl):	5.0	0.1
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	639.0	12.8
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	1.5	0.1	Carbonate (CO ₃):	72.0	1.2
Potassium (K):	2.0	0.1	Fluoride (F) :	1.5	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	845
Calculated (HCO ₃ = CO ₃)	792
Total Hardness (as Ca CO ₃)	2
Total Alkalinity (as Ca CO ₃)	711

OTHER ANALYSES

Resistivity	7.690 ohm.m @ 25 °C
Conductivity (E.C)	1300.0 µS/cm @ 25 °C
Reaction - pH	8.9

TOTAL AND BALANCE

Cations	14
Anions	14
Ion Balance (Diff*100/sum)	-0.062
Sodium Adsorption Ratio	89.6
Difference (Anions - Cations)	-0.02
Sum (Anions + Cations)	28.4

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-48
Sampling Time and Date: 2/4/2003 at 9:15 hrs

ADDITIONAL ITEMS

Cations

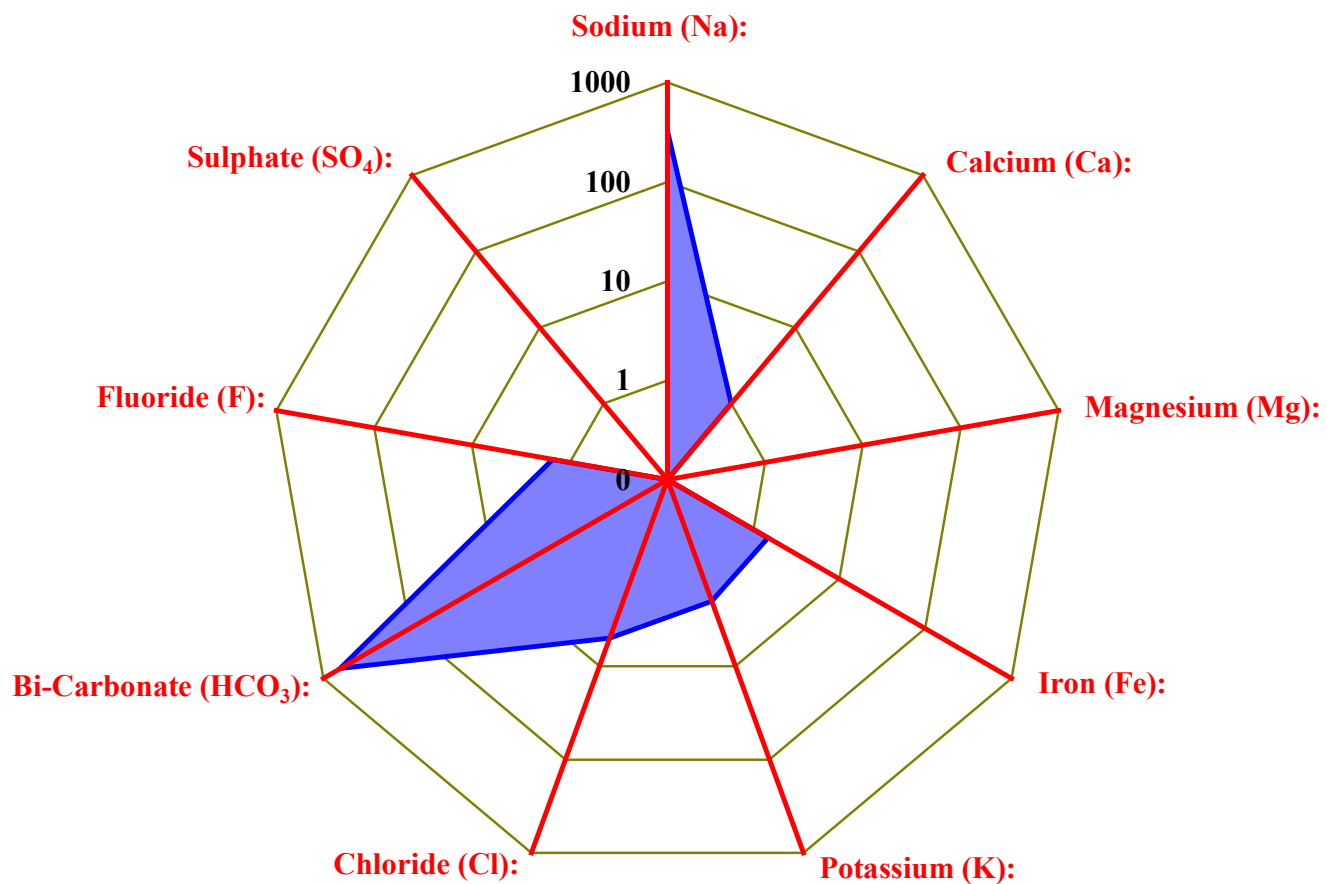
	mg/L
Aluminium (Al) :	0.20
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.05
Nickel (Ni) :	0.01
Zinc (Zn) :	0.32
Beryllium (Be) :	<0.01
Lead (Pb) :	0.04
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0007
Boron (B) :	0.30
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.03
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.09
Selenium (Se) :	<0.01
Ammonia as N :	0.31
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-48



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-49
Sampling Time and Date: 3/4/2003 at 8:45 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	488.0	21.2	Chloride (Cl):	80.0	2.3
Calcium (Ca):	2.0	0.1	Bi-Carbonate (HCO ₃):	893.0	17.8
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	0.5	0.0	Carbonate (CO ₃):	77.0	1.3
Potassium (K):	2.0	0.1	Fluoride (F) :	2.0	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1200
Calculated (HCO ₃ = CO ₃)	1200
Total Hardness (as Ca CO ₃)	5
Total Alkalinity (as Ca CO ₃)	969

OTHER ANALYSES

Resistivity	5.430 ohm.m @ 25 °C
Conductivity (E.C)	1840.0 µS/cm @ 25 °C
Reaction - pH	8.8

TOTAL AND BALANCE

Cations	21
Anions	21
Ion Balance (Diff*100/sum)	0.202
Sodium Adsorption Ratio	90.4
Difference (Anions - Cations)	0.09
Sum (Anions + Cations)	42.9

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-49
Sampling Time and Date: 3/4/2003 at 8:45 hrs

ADDITIONAL ITEMS

Cations

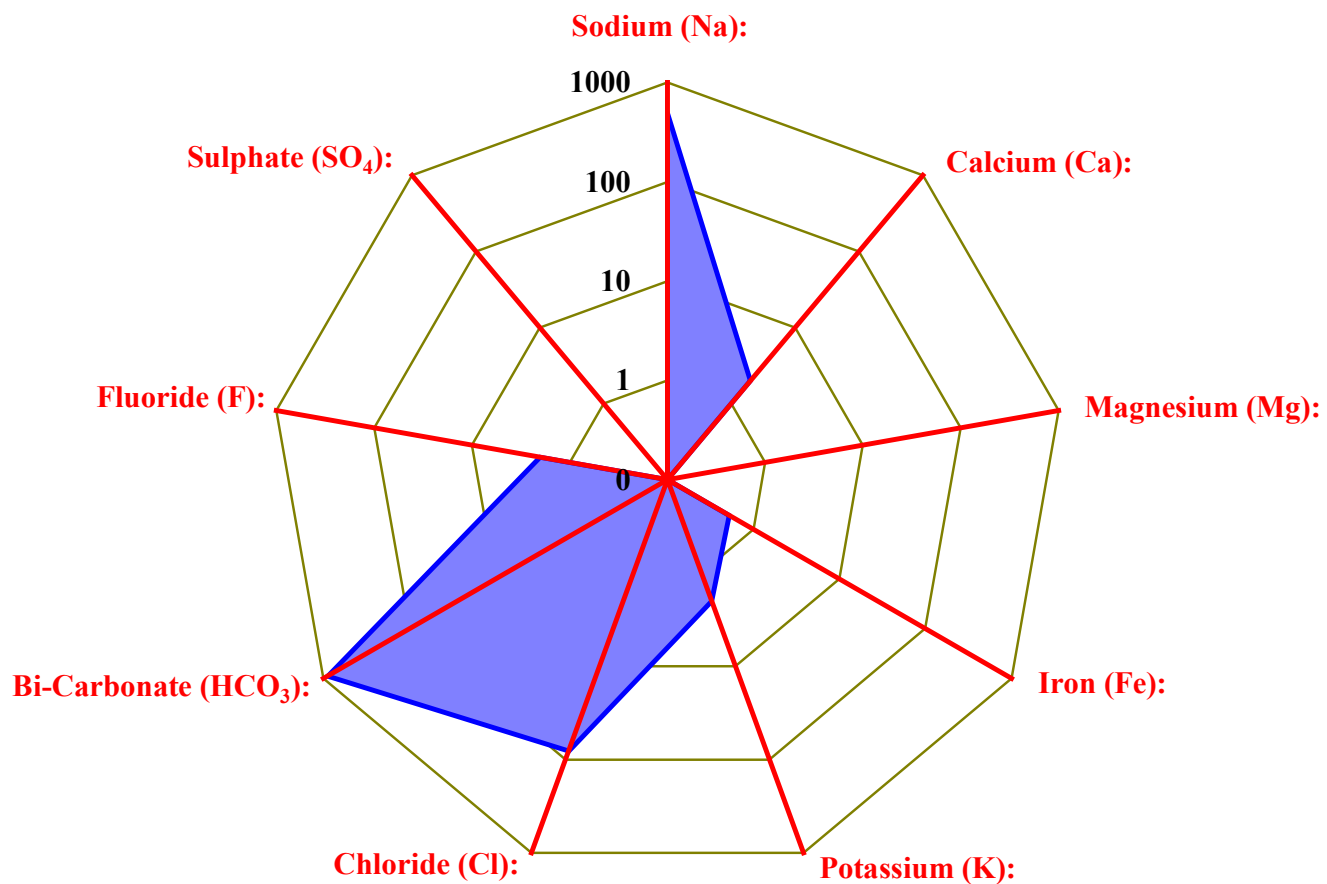
	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.03
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.02
Beryllium (Be) :	<0.01
Lead (Pb) :	0.02
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0058
Boron (B) :	0.70
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.01
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	<0.01
Selenium (Se) :	<0.01
Ammonia as N :	0.27
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-49



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-50
Sampling Time and Date: 3/4/2003 at 9:05 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	553.0	24.1	Chloride (Cl):	78.0	2.2
Calcium (Ca):	2.0	0.1	Bi-Carbonate (HCO ₃):	1040.0	20.8
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	3.9	0.1	Carbonate (CO ₃):	71.0	1.2
Potassium (K):	3.0	0.1	Fluoride (F) :	3.1	0.2
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1360
Calculated (HCO ₃ = CO ₃)	1360
Total Hardness (as Ca CO ₃)	6
Total Alkalinity (as Ca CO ₃)	1110

OTHER ANALYSES

Resistivity	4.780 ohm.m @ 25 °C
Conductivity (E.C)	2090.0 µS/cm @ 25 °C
Reaction - pH	8.7

TOTAL AND BALANCE

Cations	24
Anions	24
Ion Balance (Diff*100/sum)	-0.103
Sodium Adsorption Ratio	90.3
Difference (Anions - Cations)	-0.05
Sum (Anions + Cations)	48.7

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-50
Sampling Time and Date: 3/4/2003 at 9:05 hrs

ADDITIONAL ITEMS

Cations

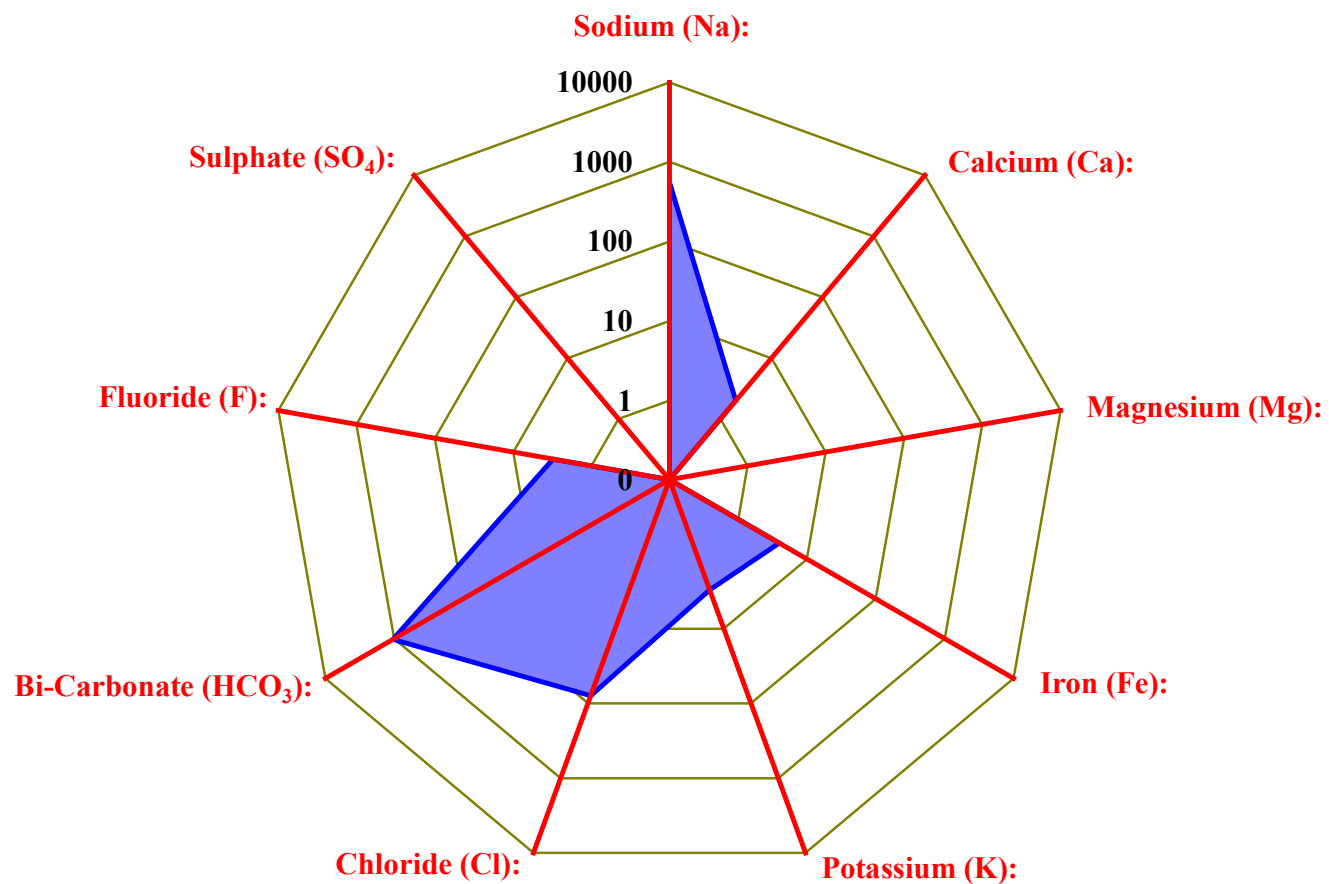
	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	<0.01
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.60
Beryllium (Be) :	<0.01
Lead (Pb) :	0.01
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0015
Boron (B) :	1.00
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.04
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	<0.01
Selenium (Se) :	<0.01
Ammonia as N :	0.22
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-50



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-51
Sampling Time and Date: 3/4/2003 at 10:45 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	480.0	20.9	Chloride (Cl):	93.0	2.6
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	888.0	17.7
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	0.6	0.0	Carbonate (CO ₃):	45.0	0.8
Potassium (K):	2.0	0.1	Fluoride (F) :	1.8	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1150
Calculated (HCO ₃ = CO ₃)	1180
Total Hardness (as Ca CO ₃)	4
Total Alkalinity (as Ca CO ₃)	934

OTHER ANALYSES

Resistivity	5.650 ohm.m @ 25 °C
Conductivity (E.C)	1770.0 µS/cm @ 25 °C
Reaction - pH	8.6

TOTAL AND BALANCE

Cations	21
Anions	21
Ion Balance (Diff*100/sum)	0.481
Sodium Adsorption Ratio	92.6
Difference (Anions - Cations)	0.20
Sum (Anions + Cations)	42.2

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-51
Sampling Time and Date: 3/4/2003 at 10:45 hrs

ADDITIONAL ITEMS

Cations

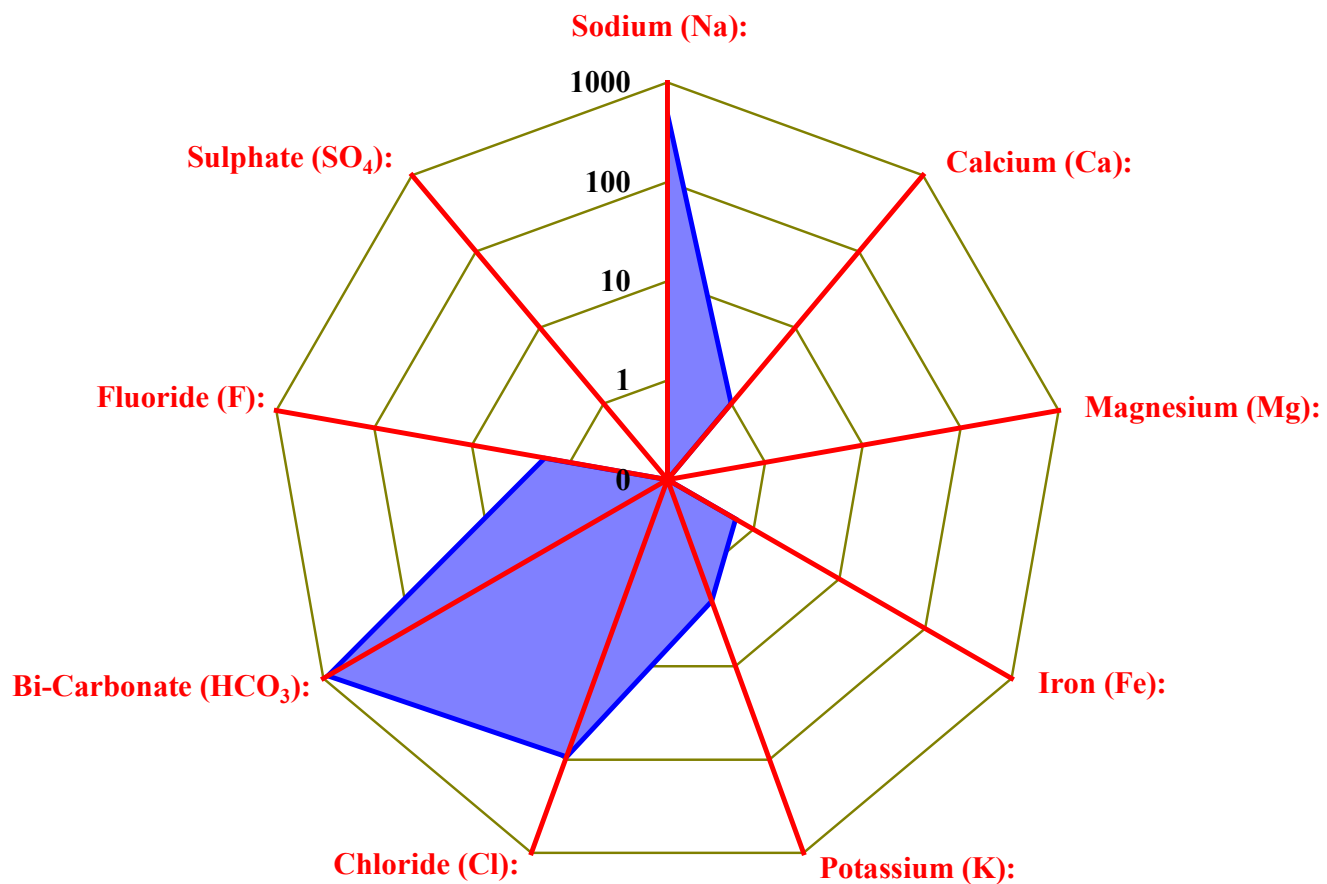
	mg/L
Aluminium (Al) :	0.30
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.13
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.05
Beryllium (Be) :	<0.01
Lead (Pb) :	0.07
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0007
Boron (B) :	0.70
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.01
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.02
Selenium (Se) :	<0.01
Ammonia as N :	0.39
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-51



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-52
Sampling Time and Date: 3/4/2003 at 11:30 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	398.0	17.3	Chloride (Cl):	10.0	0.3
Calcium (Ca):	1.0	0.0	Bi-Carbonate (HCO ₃):	801.0	16.0
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	1.0	0.0	Carbonate (CO ₃):	39.0	0.7
Potassium (K):	2.0	0.1	Fluoride (F) :	1.5	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1080
Calculated (HCO ₃ = CO ₃)	956
Total Hardness (as Ca CO ₃)	3
Total Alkalinity (as Ca CO ₃)	840

OTHER ANALYSES

Resistivity	5.990 ohm.m @ 25 °C
Conductivity (E.C)	1670.0 µS/cm @ 25 °C
Reaction - pH	8.7

TOTAL AND BALANCE

Cations	17
Anions	17
Ion Balance (Diff*100/sum)	-1.258
Sodium Adsorption Ratio	106.0
Difference (Anions - Cations)	-0.43
Sum (Anions + Cations)	34.5

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-52
Sampling Time and Date: 3/4/2003 at 11:30 hrs

ADDITIONAL ITEMS

Cations

	mg/L
Aluminium (Al) :	0.10
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.03
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.04
Beryllium (Be) :	<0.01
Lead (Pb) :	0.20
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0005
Boron (B) :	0.50
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.02
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

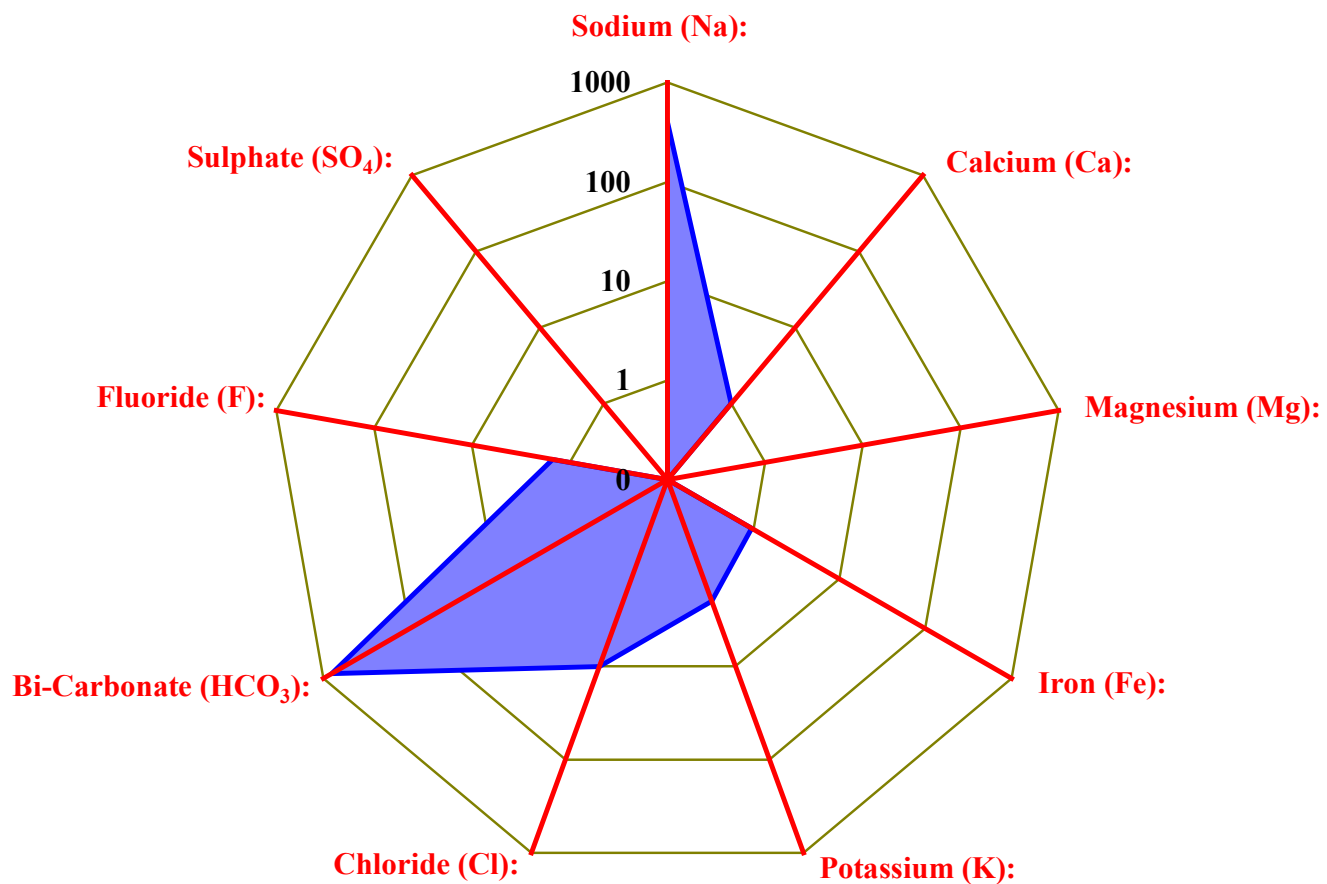
Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.01
Selenium (Se) :	<0.01
Ammonia as N :	0.43
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd

Well: Fairview-52



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-53
Sampling Time and Date: 3/4/2003 at 9:50 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	528.0	23.0	Chloride (Cl):	38.0	1.1
Calcium (Ca):	2.0	0.1	Bi-Carbonate (HCO ₃):	964.0	19.3
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	0.4	0.0	Carbonate (CO ₃):	151.0	2.5
Potassium (K):	3.0	0.1	Fluoride (F) :	3.1	0.2
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1460
Calculated (HCO ₃ = CO ₃)	1300
Total Hardness (as Ca CO ₃)	5
Total Alkalinity (as Ca CO ₃)	1120

OTHER ANALYSES

Resistivity	4.440 ohm.m @ 25 °C
Conductivity (E.C)	2250.0 µS/cm @ 25 °C
Reaction - pH	9.0

TOTAL AND BALANCE

Cations	23
Anions	23
Ion Balance (Diff*100/sum)	-0.321
Sodium Adsorption Ratio	104.0
Difference (Anions - Cations)	-0.15
Sum (Anions + Cations)	46.2

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-53
Sampling Time and Date: 3/4/2003 at 9:50 hrs

ADDITIONAL ITEMS

Cations

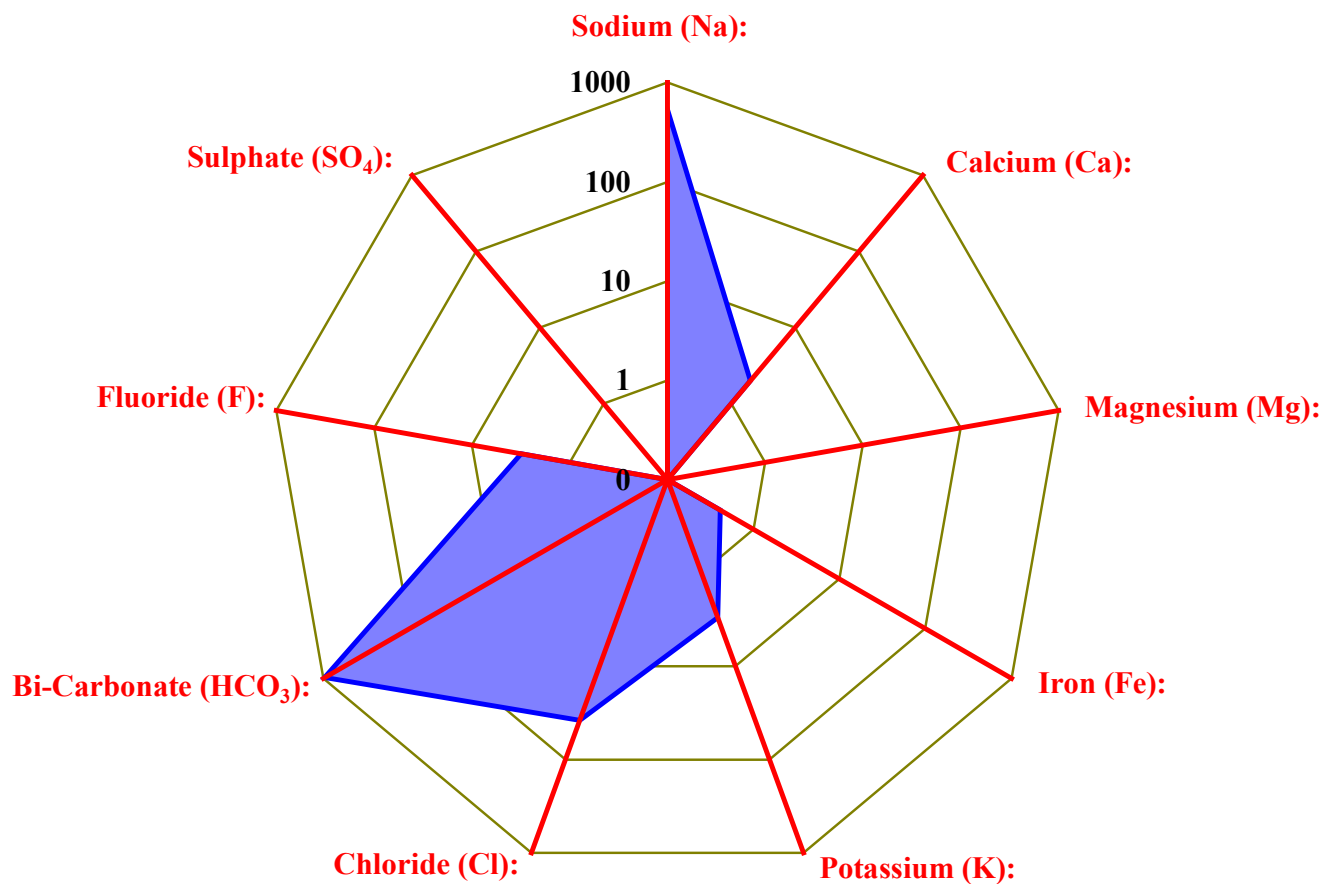
	mg/L
Aluminium (Al) :	0.10
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.02
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.02
Beryllium (Be) :	<0.01
Lead (Pb) :	0.09
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0006
Boron (B) :	1.00
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.02
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.02
Selenium (Se) :	<0.01
Ammonia as N :	0.42
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-53



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-57
Sampling Time and Date: 2/4/2003 at 12:35 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	868.0	37.8	Chloride (Cl):	330.0	9.3
Calcium (Ca):	3.0	0.1	Bi-Carbonate (HCO ₃):	1340.0	26.8
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	1.0	0.0	Carbonate (CO ₃):	131.0	2.2
Potassium (K):	9.0	0.2	Fluoride (F) :	3.4	0.2
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	2220
Calculated (HCO ₃ = CO ₃)	2170
Total Hardness (as Ca CO ₃)	11
Total Alkalinity (as Ca CO ₃)	1470

OTHER ANALYSES

Resistivity	2.930 ohm.m @ 25 °C
Conductivity (E.C)	3410.0 µS/cm @ 25 °C
Reaction - pH	8.8

TOTAL AND BALANCE

Cations	38
Anions	38
Ion Balance (Diff*100/sum)	0.335
Sodium Adsorption Ratio	104.0
Difference (Anions - Cations)	0.26
Sum (Anions + Cations)	76.6

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-57
Sampling Time and Date: 2/4/2003 at 12:35 hrs

ADDITIONAL ITEMS

Cations

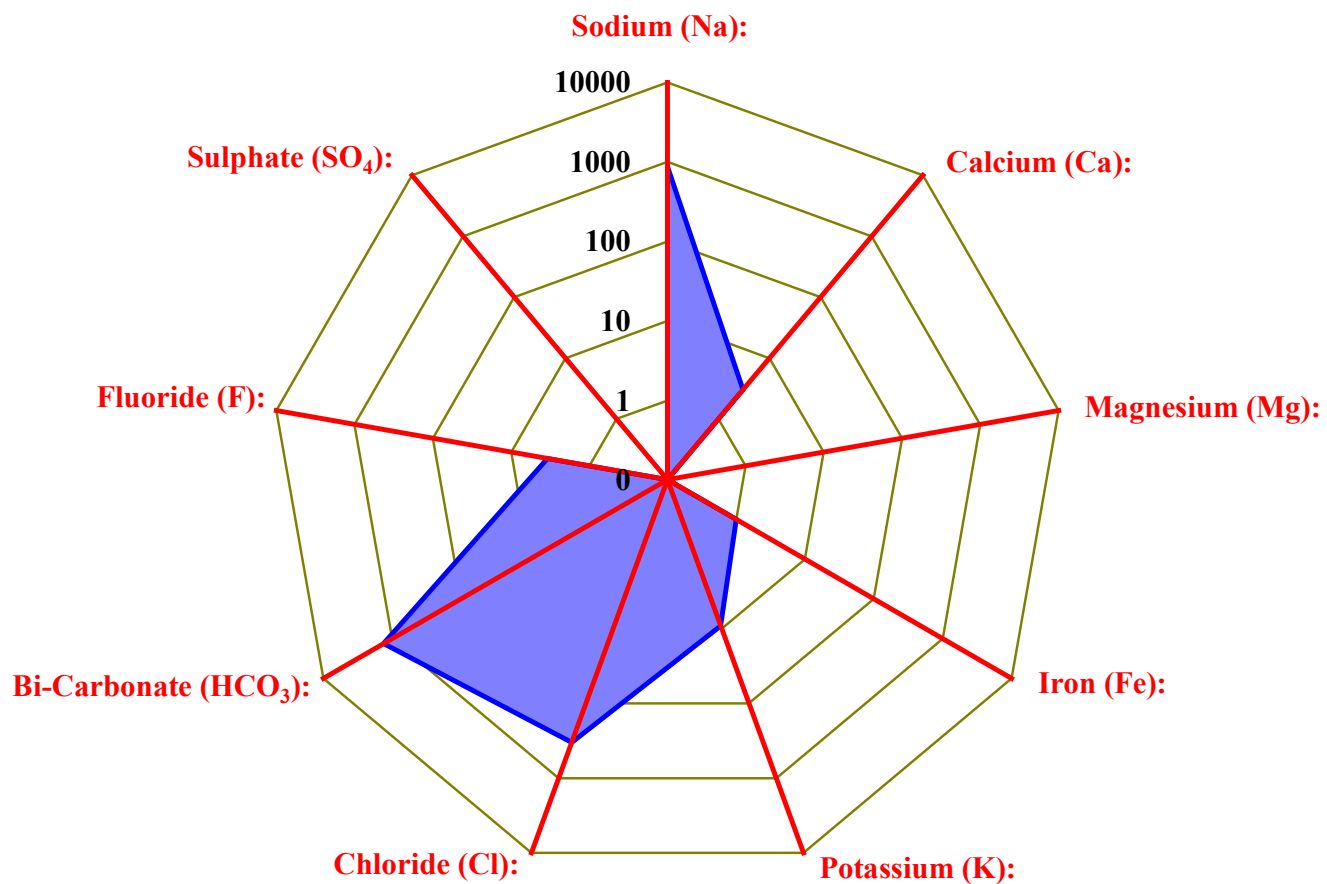
	mg/L
Aluminium (Al) :	<0.1
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.02
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.05
Beryllium (Be) :	<0.01
Lead (Pb) :	0.06
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0004
Boron (B) :	1.30
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.02
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	<0.01
Selenium (Se) :	<0.01
Ammonia as N :	0.63
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-57



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-58
Sampling Time and Date: 2/4/2003 at 12:15 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	820.0	35.7	Chloride (Cl):	631.0	17.8
Calcium (Ca):	3.0	0.1	Bi-Carbonate (HCO ₃):	801.0	16.0
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	0.7	0.0	Carbonate (CO ₃):	104.0	1.7
Potassium (K):	5.0	0.1	Fluoride (F) :	3.4	0.2
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	2360
Calculated (HCO ₃ = CO ₃)	2050
Total Hardness (as Ca CO ₃)	11
Total Alkalinity (as Ca CO ₃)	905

OTHER ANALYSES

Resistivity	2.750 ohm.m @ 25 °C
Conductivity (E.C)	3630.0 µS/cm @ 25 °C
Reaction - pH	8.8

TOTAL AND BALANCE

Cations	36
Anions	36
Ion Balance (Diff*100/sum)	-0.395
Sodium Adsorption Ratio	108.0
Difference (Anions - Cations)	-0.28
Sum (Anions + Cations)	71.7

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-58
Sampling Time and Date: 2/4/2003 at 12:15 hrs

ADDITIONAL ITEMS

Cations

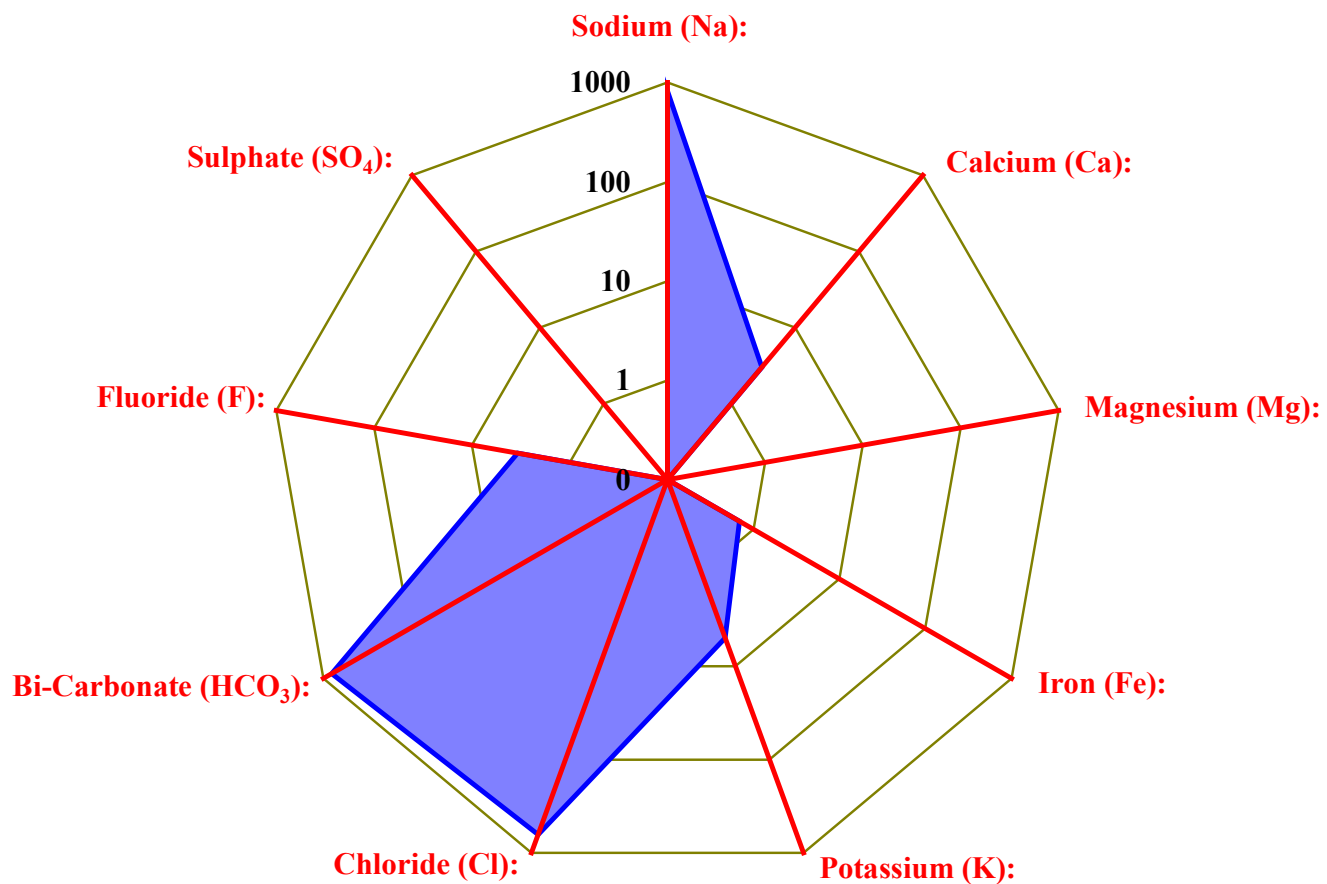
	mg/L
Aluminium (Al) :	0.20
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.06
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.09
Beryllium (Be) :	<0.01
Lead (Pb) :	0.03
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0003
Boron (B) :	1.20
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.01
Molybdenum (Mo) :	<0.01
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.02
Selenium (Se) :	<0.01
Ammonia as N :	0.50
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-58



WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-59
Sampling Time and Date: 1/4/2003 at 12:10 hrs

CHEMICAL COMPOSITION

	Cations			Anions	
	mg/L	meq/L		mg/L	meq/L
Sodium (Na):	471.0	20.5	Chloride (Cl):	32.0	0.9
Calcium (Ca):	2.0	0.1	Bi-Carbonate (HCO ₃):	928.0	18.5
Magnesium (Mg):	<1.0	0.0	Sulphate (SO ₄):	<1.0	0.0
Iron (Fe):	8.8	0.3	Carbonate (CO ₃):	51.0	0.9
Potassium (K):	5.0	0.1	Fluoride (F) :	1.6	0.1
			Hydroxide (OH):	<1.0	0.0

Note: Bi-Carbonate, Carbonate and Hydroxide ions measured as CaCO₃

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	1250
Calculated (HCO ₃ = CO ₃)	1150
Total Hardness (as Ca CO ₃)	7
Total Alkalinity (as Ca CO ₃)	979

OTHER ANALYSES

Resistivity	5.180 ohm.m @ 25 °C
Conductivity (E.C)	1930.0 µS/cm @ 25 °C
Reaction - pH	8.6

TOTAL AND BALANCE

Cations	21
Anions	20
Ion Balance (Diff*100/sum)	-1.579
Sodium Adsorption Ratio	78.0
Difference (Anions - Cations)	-0.65
Sum (Anions + Cations)	41.4

WATER ANALYSIS

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-59
Sampling Time and Date: 1/4/2003 at 12:10 hrs

ADDITIONAL ITEMS

Cations

	mg/L
Aluminium (Al) :	2.20
Cadmium (Cd) :	<0.005
Chromium (Cr) :	<0.01
Copper (Cu) :	0.09
Nickel (Ni) :	<0.01
Zinc (Zn) :	0.15
Beryllium (Be) :	<0.01
Lead (Pb) :	0.26
Vanadium (V) :	<0.01
Mercury (Hg) :	0.0005
Boron (B) :	0.70
Cobalt (Co) :	<0.01
Manganese (Mn) :	0.15
Molybdenum (Mo) :	0.06
Uranium (U) :	<0.001

Anions

	mg/L
Nitrate as N :	<0.01
Phosphorus as P :	0.49
Selenium (Se) :	<0.01
Ammonia as N :	0.19
Arsenic (As) :	<0.01

WATER ANALYSIS (mg/L)

Client : Tipperary Oil & Gas (Australia) Pty Ltd
Well: Fairview-59

