May 12, 2008
H:\14\B805101\Reporting\March 2008 \March 2008 Report.doc

HKM ENGINEERING
920 Technology Boulevard
Suite A
Bozeman, MT 59718
Phone: 406.586.8834
Fax: 406.586.1730
www.hkminc.com

Mr. Michael Jacobs, P.G.
Pioneer Natural Resources USA, Inc.
303 W. Wall St., Suite 101
Midland, TX 79701

RE: March 2008 Groundwater Monitoring Data Report – Revised Tables
Pioneer Natural Resources USA, Inc.
Biere 1-22 Well Site
East Poplar Oil Well Field
Poplar, Montana

Dear Mr. Jacobs:

Pursuant to the United States Environmental Protection Agency, Emergency Administrative Order Upon Consent (EAOC), Pioneer Natural Resources USA, Inc. (Pioneer) conducted quarterly groundwater monitoring and sampling in the vicinity of the Biere 1-22 oil well. The investigation was performed during March 2008 and included groundwater monitoring and sampling. This letter serves as a quarterly groundwater monitoring and sampling report under the EAOC.

During March 25th through March 28th, 2008, monitor wells and selected available existing domestic wells were sampled. The locations of the monitor and domestic wells are shown on the figure provided in Appendix A. Wells were gauged using an electronic interface probe capable of detecting water and light non-aqueous phase liquid (LNAPL) with a precision of 0.01 feet. Prior to sample collection, wells were purged by use of a decontaminated submersible electric pump or disposable bailers.

To ensure representative groundwater samples were collected from the aquifer, water quality parameters were monitored and allowed to stabilize during the purging process prior to sample collection. Conductivity, temperature, and pH of the purged groundwater were monitored. Once at least three well volumes had been purged and the parameters had stabilized, samples were collected in the appropriate laboratory containers and preserved as directed by the laboratory. Samples were labeled and packaged on ice to maintain a temperature near 4 degrees Celsius. Tabulated water level elevations and depth to fluid data, water quality parameter readings, and inorganic and organic water chemistry results are presented in Tables 1, 2, and 3, respectively.

All groundwater samples were hand delivered to Energy Laboratories, Inc., in Billings, Montana for laboratory analysis. Appendix B contains chain of custody information, laboratory analytical reports, and laboratory quality assurance/quality control (QA/QC) data for these samples.

Please do not hesitate to call us if you have any questions regarding this report or the data contained herein.

Sincerely,
HKM Engineering Inc.

Christopher Leibli
Staff Geologist

Table 1 Depth to Water and LNAPL in Monitor Wells and Domestic Wells
Table 2 Inorganic Water Chemistry Data
Table 3 BTEX and TPH Analytical Results

Appendix A: Well Location Map
Appendix B: Laboratory Analytical Reports

cc: Mr. Ed Hance, Pioneer Natural Resources USA, Inc., 5205 N. O'Connor Blvd., Irving, TX 75039-3746

Table 1

Depth to Water and Product in Monitor Wells and Domestic Wells

Table 1 - Depth to Water and LNAPL in Monitor Wells and Domestic Wells

Pioneer Natural Resources, USA, Inc.

Biere 1-22 Investigation

HKM Job No.: 14B805.101

Well Location and Elevation					Fluid Levels				
Well Name	Northing	Easting	Ground Surface Elev. (ft)	Measure Pt. Elev. (ft)	Gauging Date	Depth to LNAPL (ft bmp)	Depth to Water (ft bmp)	LNAPL Thickness (ft)	Groundwater Elev.* (ft)
LAW-M01					12/5/2006		57.63		
					10/2/2007		58.00		
LAW-M03				1988.63	12/15/2006		31.47		1957.16
					3/13/2007		39.99		1948.64
					10/2/2007		31.76		1956.87
					3/25/2008		31.38		1957.25
LAW-M04				1976.85	12/15/2006		23.14		1953.71
LAW-M05				2048.90	12/15/2006		98.58		1950.32
LAW-M06				2023.68	12/15/2006		76.18		1947.50
LAW-M08				2010.58	12/15/2006		62.40		1948.18
M-18	125151.8	72649.9	2047.10	2048.13	11/6/2001		80.80		1967.33
					2/19/2002		80.25		1967.88
					5/20/2002		80.60		1967.53
					8/19/2002		80.60		1967.53
					3/5/2003		79.60		1968.53
					5/12/2003		79.00		1969.13
					8/12/2003		80.46		1967.67
					3/18/2004		80.47		1967.66
					6/13/2004		80.30		1967.83
					3/2/2005		80.70		1967.43
					8/18/2005		80.60		1967.53
					8/22/2006		80.76		1967.37
					12/5/2006		80.57		1967.56
					10/2/2007		80.86		1967.27
M-25	125325.8	69631.8	2031.70	2033.33	11/9/2001		67.30		1966.03
M-27	122331.8	71238.71	2029.92	2031.19	8/13/2001		67.15		1964.04
					9/5/2001		67.28		1963.91
					11/6/2001		67.61		1963.58
					2/19/2002		67.07		1964.12
					5/20/2002		67.04		1964.15
					8/19/2002		67.74		1963.45
					11/4/2002		67.70		1963.49
					3/5/2003		68.88		1962.31
					5/12/2003		66.60		1964.59
					8/12/2003		67.30		1963.89
					11/9/2003		68.00		1963.19
					3/18/2004		67.39		1963.80
					6/7/2004		66.05		1965.14
					9/13/2004		67.12		1964.07
					11/18/2004		67.42		1963.77
					3/1/2005		67.19		1964.00
					5/24/2005		67.24		1963.95
					8/16/2005		67.50		1963.69
					11/15/2005		67.66		1963.53
					2/7/2006		67.42		1963.77
					5/23/2006		66.88		1964.31
					8/22/2006		67.81		1963.38
					12/5/2006		67.66		1963.53
					3/12/2007		67.29		1963.90
					10/2/2007		67.80		1963.39
					3/25/2008		67.56		1963.63
M-28	118433.6	76557.04	2102.82	2096.63	5/31/2001		49.23		2047.40
					8/13/2001		48.85		2047.78
					9/5/2001		48.61		2048.02
					11/6/2001		49.06		2047.57
					2/19/2002		49.00		2047.63
					5/20/2002		49.10		2047.53
					8/19/2002		49.62		2047.01
					11/6/2002		49.73		2046.90
					3/5/2003		49.39		2047.24
					5/12/2003		50.50		2046.13

Table 1 - Depth to Water and LNAPL in Monitor Wells and Domestic Wells

Pioneer Natural Resources, USA, Inc.

Biere 1-22 Investigation

HKM Job No.: 14B805.101

Well Location and Elevation					Fluid Levels				
Well Name	Northing	Easting	Ground Surface Elev. (ft)	Measure Pt. Elev. (ft)	Gauging Date	Depth to LNAPL (ft bmp)	Depth to Water (ft bmp)	LNAPL Thickness (ft)	Groundwater Elev.* (ft)
					8/12/2003		49.92		2046.71
					11/5/2003		50.28		2046.35
					3/16/2004		50.01		2046.62
					6/7/2004		50.04		2046.59
					9/15/2004		49.85		2046.78
					11/19/2004		49.73		2046.90
					3/1/2005		49.78		2046.85
					5/24/2005		50.31		2046.32
					8/16/2005		50.11		2046.52
					11/15/2005		50.66		2045.97
					2/7/2006		50.58		2046.05
					5/23/2006		49.88		2046.75
					8/22/2006		50.28		2046.35
					12/5/2006		50.33		2046.30
					3/12/2007		50.25		2046.38
					10/2/2007		50.10		2046.53
					3/25/2008		50.45		2046.18
M-31	118180.7	75212.43	2085.00	2087.17	5/31/2001		40.37		2046.80
					8/13/2001		40.26		2046.91
					9/5/2001		40.15		2047.02
					11/6/2001		40.33		2046.84
					2/19/2002		40.42		2046.75
					5/20/2002		40.77		2046.40
					8/19/2002		41.22		2045.95
					11/4/2002		41.18		2045.99
					3/5/2003		41.30		2045.87
					5/12/2003		40.87		2046.30
					8/12/2003		41.62		2045.55
					11/5/2003		41.86		2045.31
					3/16/2004		41.65		2045.52
					6/7/2004		41.85		2045.32
					9/13/2004		41.65		2045.52
					11/18/2004		41.52		2045.65
					3/1/2005		41.65		2045.52
					5/24/2005		41.91		2045.26
					8/16/2005		41.07		2046.10
					11/15/2005		41.27		2045.90
					2/7/2006		41.34		2045.83
					5/23/2006		41.20		2045.97
					8/22/2006		41.36		2045.81
					12/5/2006		41.71		2045.46
					3/12/2007		41.80		2045.37
					10/2/2007		41.82		2045.35
					3/25/2008		42.05		2045.12
M-39	110253.5	70939.4	2049.10	2050.63	11/6/2001		100.68		1949.95
					12/5/2006		100.60		1950.03
M-41					12/5/2006		42.24		
MOC- 1B	121916.3	75090.2	2077.05	2079.51	11/6/2001		28.25		2051.26
					11/4/2002		28.66		2050.85
					6/7/2004		28.48		2051.03
					12/5/2006		30.40		2049.11
					3/12/2007		30.41		2049.10
					10/2/2007		28.58		2050.93
					3/25/2008		30.29		2049.22
MOC- 2	123531.9	72439.8	2036.10	2038.91	11/9/2001		73.50		1965.41
					12/5/2006		73.60		1965.31
					3/12/2007		73.01		1965.90
					10/2/2007		73.80		1965.11
					3/25/2008		73.50		1965.41
MOC- 3				2010.56	12/5/2006		53.01		1957.55
					3/12/2007		53.93		1956.63
					10/2/2007		52.46		1958.10
					3/25/2008		52.93		1957.63
MOC- 4				1966.63	12/5/2006		76.15		1890.48

Table 1 - Depth to Water and LNAPL in Monitor Wells and Domestic Wells

Pioneer Natural Resources, USA, Inc.

Biere 1-22 Investigation

HKM Job No.: 14B805.101

Well Location and Elevation					Fluid Levels				
Well Name	Northing	Easting	Ground Surface Elev. (ft)	Measure Pt. Elev. (ft)	Gauging Date	Depth to LNAPL (ft bmp)	Depth to Water (ft bmp)	LNAPL Thickness (ft)	Groundwater Elev.* (ft)
					3/13/2007		75.62		1891.01
					10/2/2007		74.92		1891.71
					3/25/2008		74.57		1892.06
MOC- 5				2055.86	12/5/2006		17.74		2038.12
					10/2/2007		15.66		2040.20
MOC- 7				2051.96	12/5/2006		34.74		2017.22
					10/2/2007		33.16		2018.80
MOC- 8				1969.92	12/5/2006		75.17		1894.75
					10/2/2007		75.37		1894.55
MOC- 9				2051.83	12/5/2006		27.45		2024.38
					10/2/2007		25.92		2025.91
MOC-10				2052.66	12/5/2006		31.54		2021.12
					10/2/2007		30.38		2022.28
MOC-11				1974.04	12/5/2006		76.20		1897.84
					10/2/2007		74.87		1899.17
MOC-12				2053.25	12/5/2006		55.39		1997.86
					10/2/2007		54.25		1999.00
MOC-13					12/5/2006		35.59		
					10/2/2007		35.48		
MOC-14				2052.26	12/5/2006		35.13		2017.13
					10/2/2007		33.95		2018.31
MOC-16				2049.02	12/5/2006		30.40		2018.62
					10/2/2007		29.54		2019.48
MOC-17				2063.19	12/5/2006		31.92		2031.27
					10/2/2007		31.82		2031.37
MOC-18				2055.13	12/5/2006		33.03		2022.10
					10/2/2007		32.89		2022.24
MOC-19				1971.24	12/5/2006		75.29		1895.95
					10/2/2007		75.48		1895.76
MOC-20A				1991.89	12/5/2006		17.73		1974.16
					3/12/2007		19.66		1972.23
					10/2/2007		16.16		1975.73
					3/25/2008		16.66		1975.23
MOC-20B				1926.46	12/5/2006		73.18		1853.28
					3/12/2007		72.60		1853.86
					10/2/2007		73.37		1853.09
					3/25/2008		73.07		1853.39
MOC-23				2042.56	12/5/2006		25.78		2016.78
					10/2/2007		25.40		2017.16
PNR- 4	120239.6	75663.23	2080.86	2084.21	8/13/2001	27.38	56.31	28.93	2048.15
					9/4/2001	27.08	69.88	42.80	2044.28
					11/6/2001	29.01	69.88	40.87	2042.93
PNR- 5	119992.6	75218.06	2082.64	2085.56	5/31/2000		37.17		2048.39
					8/13/2001		37.04		2048.52
					9/5/2001		36.99		2048.57
					11/6/2001		37.05		2048.51
					2/19/2002		37.22		2048.34
					5/20/2002		38.25		2047.31
					8/19/2002		38.76		2046.80
					11/4/2002		38.81		2046.75
					3/5/2003		38.70		2046.86
					5/12/2003		38.53		2047.03
					8/12/2003		39.15		2046.41

Table 1 - Depth to Water and LNAPL in Monitor Wells and Domestic Wells

Pioneer Natural Resources, USA, Inc.

Biere 1-22 Investigation

HKM Job No.: 14B805.101

Well Location and Elevation					Fluid Levels				
Well Name	Northing	Easting	Ground Surface Elev. (ft)	Measure Pt. Elev. (ft)	Gauging Date	Depth to LNAPL (ft bmp)	Depth to Water (ft bmp)	LNAPL Thickness (ft)	Groundwater Elev.* (ft)
					11/4/2003		39.39		2046.17
					3/16/2004		39.58		2045.98
					6/7/2004		39.54		2046.02
					9/13/2004		39.18		2046.38
					11/17/2004		39.27		2046.29
					3/2/2005		39.50		2046.06
					5/25/2005		39.53		2046.03
					8/17/2005		39.35		2046.21
					11/16/2005		39.24		2046.32
					2/9/2006		39.67		2045.89
					5/25/2006		39.67		2045.89
					8/22/2006		39.78		2045.78
					12/5/2006		39.91		2045.65
					3/12/2007		39.83		2045.73
					10/2/2007		39.47		2046.09
PNR- 6	119552.8	77716.9	2116.53	2119.07	5/31/2000		20.33		2098.74
					8/13/2001		20.55		2098.52
					9/5/2001		20.51		2098.55
					11/6/2001		21.02		2098.04
					2/19/2002		21.39		2097.68
					5/20/2002		21.65		2097.42
					8/19/2002		21.06		2098.01
					11/4/2002		21.23		2097.84
					3/4/2003		20.50		2098.57
					5/12/2003		22.12		2096.94
					8/12/2003		21.04		2098.02
					11/4/2003		21.60		2097.46
					3/16/2004		22.16		2096.91
					6/7/2004		20.32		2098.75
					9/13/2004		20.05		2099.02
					11/17/2004		20.78		2098.28
					2/28/2005		21.55		2097.52
					5/23/2005		21.88		2097.19
					8/16/2005		21.93		2097.13
					11/15/2005		22.47		2096.60
					2/7/2006		22.66		2096.41
					5/23/2006		22.35		2096.71
					8/22/2006		21.61		2097.45
					12/5/2006		20.96		2098.11
					3/12/2007		21.13		2097.94
					10/2/2007		19.24		2099.83
					3/25/2008		21.18		2097.89
PNR- 7	120878.4	73768.46	2069.59	2072.22	5/31/2000		25.50		2046.72
					8/13/2001		25.19		2047.03
					9/5/2001		25.08		2047.14
					11/6/2001		25.47		2046.75
					2/19/2002		25.72		2046.50
					5/20/2002		26.20		2046.02
					8/19/2002		26.17		2046.05
					11/4/2002		26.54		2045.68
					3/4/2003		27.50		2044.72
					5/12/2003		27.39		2044.83
					8/12/2003		27.05		2045.17
					11/4/2003		27.40		2044.82
					3/16/2004		27.55		2044.67
					6/7/2004		27.32		2044.90
					9/13/2004		26.98		2045.24
					11/17/2004		27.35		2044.87
					3/1/2005		27.15		2045.07
					5/25/2005		27.90		2044.32
					8/17/2005		27.28		2044.94
					11/16/2005		27.78		2044.44
					2/9/2006		27.88		2044.34
					5/24/2006		28.09		2044.13
					8/22/2006		28.02		2044.20
					12/5/2006		27.92		2044.30
					3/12/2007		27.97		2044.25
					10/4/2007		28.07		2044.15
					3/25/2008		28.12		2044.10

Table 1 - Depth to Water and LNAPL in Monitor Wells and Domestic Wells

Pioneer Natural Resources, USA, Inc.

Biere 1-22 Investigation

HKM Job No.: 14B805.101

Well Location and Elevation					Fluid Levels				
Well Name	Northing	Easting	Ground Surface Elev. (ft)	Measure Pt. Elev. (ft)	Gauging Date	Depth to LNAPL (ft bmp)	Depth to Water (ft bmp)	LNAPL Thickness (ft)	Groundwater Elev.* (ft)
PNR- 8	118196.1	73316.85	2060.21	2062.99	5/31/2000		63.64		1999.35
					8/13/2001		63.53		1999.46
					9/5/2001		63.84		1999.15
					11/6/2001		64.54		1998.45
					2/19/2002		64.21		1998.78
					5/20/2002		64.40		1998.59
					8/19/2002		64.61		1998.38
					11/4/2002		64.56		1998.43
					3/4/2003		64.00		1998.99
					5/12/2003		64.84		1998.15
					8/12/2003		64.94		1998.05
					11/4/2003		68.50		1994.49
					3/16/2004		65.41		1997.58
					6/7/2004		64.98		1998.01
					9/13/2004		65.16		1997.83
					11/16/2004		65.61		1997.38
					3/2/2005		65.64		1997.35
					5/26/2005		65.94		1997.05
					8/18/2005		65.75		1997.24
					11/17/2005		66.26		1996.73
					2/9/2006		66.09		1996.90
					5/24/2006		65.77		1997.22
					8/22/2006		66.11		1996.88
					12/5/2006		66.09		1996.90
					3/12/2007		66.13		1996.86
					10/2/2007		66.41		1996.58
					3/25/2008		66.32		1996.67
PNR- 9	119459.5	69844.36	2014.11	2017.26	5/31/2000		56.46		1960.80
					8/13/2001		57.29		1959.97
					9/5/2001		57.28		1959.98
					11/6/2001		57.61		1959.65
					2/19/2002		57.12		1960.14
					5/20/2002		57.08		1960.18
					8/19/2002		57.90		1959.36
					11/4/2002		57.29		1959.97
					3/4/2003		57.11		1960.15
					5/12/2003		56.47		1960.79
					8/12/2003		57.33		1959.93
					11/4/2003		57.40		1959.86
					3/18/2004		57.31		1959.95
					6/7/2004		56.04		1961.22
					9/13/2004		57.12		1960.14
					11/16/2004		57.26		1960.00
					3/1/2005		57.12		1960.14
					5/24/2005		57.19		1960.07
					8/16/2005		57.38		1959.88
					11/15/2005		57.74		1959.52
					2/9/2006		57.24		1960.02
					5/23/2006		56.69		1960.57
					8/22/2006		57.67		1959.59
					12/5/2006		57.39		1959.87
					3/12/2007		59.96		1957.30
					10/2/2007		57.73		1959.53
					3/25/2008		57.35		1959.91
PNR-10	117193.4	69833.02	2009.17	2011.69	5/31/2000		53.93		1957.76
					8/13/2001		53.93		1957.76
					9/5/2001		54.03		1957.66
					11/6/2001		54.37		1957.32
					2/19/2002		53.88		1957.81
					5/20/2002		53.79		1957.90
					8/19/2002		54.27		1957.42
					11/4/2002		54.04		1957.65
					3/4/2003		53.84		1957.85
					5/12/2003		53.17		1958.52
					8/12/2003		54.11		1957.58
					11/4/2003		54.30		1957.39
					3/18/2004		53.99		1957.70
					6/7/2004		52.74		1958.95

Table 1 - Depth to Water and LNAPL in Monitor Wells and Domestic Wells

Pioneer Natural Resources, USA, Inc.

Biere 1-22 Investigation

HKM Job No.: 14B805.101

Well Location and Elevation					Fluid Levels				
Well Name	Northing	Easting	Ground Surface Elev. (ft)	Measure Pt. Elev. (ft)	Gauging Date	Depth to LNAPL (ft bmp)	Depth to Water (ft bmp)	LNAPL Thickness (ft)	Groundwater Elev.* (ft)
					9/13/2004		53.85		1957.84
					11/16/2004		53.99		1957.70
					3/1/2005		53.80		1957.89
					5/24/2005		53.94		1957.75
					8/16/2005		54.11		1957.58
					11/15/2005		54.48		1957.21
					2/7/2006		54.03		1957.66
					5/23/2006		53.38		1958.31
					8/22/2006		54.42		1957.27
					12/5/2006		54.11		1957.58
					3/12/2007		53.55		1958.14
					10/2/2007		54.41		1957.28
					3/25/2008		54.03		1957.66
PNR-12	120894.2	77696.47	2098.44	2101.23	5/31/2000		51.10		2050.13
					8/13/2001		49.90		2051.33
					9/5/2001		49.67		2051.56
					11/6/2001		50.52		2050.71
					2/19/2002		50.80		2050.43
					5/20/2002		51.40		2049.83
					8/19/2002		51.20		2050.03
					11/4/2002		50.86		2050.37
					3/4/2003		51.79		2049.44
					5/12/2003		51.95		2049.28
					8/12/2003		50.80		2050.43
					11/4/2003		54.10		2047.13
					3/16/2004		51.75		2049.48
					6/7/2004		51.01		2050.22
					9/13/2004		50.51		2050.72
					11/16/2004		51.05		2050.18
					2/28/2005		51.52		2049.71
					5/23/2005		51.74		2049.49
					8/15/2005		51.05		2050.18
					11/15/2005		51.98		2049.25
					2/7/2006		52.12		2049.11
					5/23/2006		51.54		2049.69
					8/22/2006		52.00		2049.23
					12/5/2006		52.00		2049.23
					3/12/2007		51.92		2049.31
					10/2/2007		51.20		2050.03
					3/25/2008		51.99		2049.24
PNR-13	120919.1	75568.22	2079.38	2081.12	8/13/2001		30.44		2050.68
					9/5/2001		30.19		2050.93
					11/6/2001		30.46		2050.66
					2/19/2002		31.48		2049.64
					5/20/2002		32.05		2049.07
					8/19/2002		32.32		2048.80
					11/4/2002		32.34		2048.78
					3/4/2003		32.96		2048.16
					5/12/2003		33.01		2048.11
					8/12/2003		32.50		2048.62
					11/4/2003		32.87		2048.25
					3/16/2004		33.20		2047.92
					6/7/2004		32.93		2048.19
					9/13/2004		32.48		2048.64
					11/16/2004		32.27		2048.85
					3/1/2005		32.92		2048.20
					5/24/2005		33.26		2047.86
					8/17/2005		36.33		2044.79
					11/16/2005		34.33		2046.79
					2/8/2006		33.29		2047.83
					5/24/2006		33.49		2047.63
					8/22/2006		33.58		2047.54
					12/5/2006		33.63		2047.49
					3/12/2007		33.62		2047.50
					10/2/2007		33.04		2048.08
					3/25/2008		33.56		2047.56
PNR-14	120383.7	75564.46	2079.82	2082.11	8/13/2001		32.50		2049.61
					9/4/2001		32.27		2049.84

Table 1 - Depth to Water and LNAPL in Monitor Wells and Domestic Wells

Pioneer Natural Resources, USA, Inc.

Biere 1-22 Investigation

HKM Job No.: 14B805.101

Well Location and Elevation					Fluid Levels				
Well Name	Northing	Easting	Ground Surface Elev. (ft)	Measure Pt. Elev. (ft)	Gauging Date	Depth to LNAPL (ft bmp)	Depth to Water (ft bmp)	LNAPL Thickness (ft)	Groundwater Elev.* (ft)
					11/6/2001		32.30		2049.81
					2/19/2002		33.42		2048.69
					5/20/2002		33.77		2048.34
					8/19/2002		34.33		2047.78
					11/4/2002		34.27		2047.84
					3/4/2003		34.67		2047.44
					5/12/2003		34.71		2047.40
					8/12/2003		34.48		2047.63
					11/5/2003		34.75		2047.36
					3/16/2004		34.80		2047.31
					6/7/2004		34.71		2047.40
					9/13/2004		34.23		2047.88
					11/17/2004		34.43		2047.68
					3/2/2005		34.55		2047.56
					5/25/2005		34.78		2047.33
					8/17/2005		34.41		2047.70
					11/16/2005		34.64		2047.47
					2/9/2006		34.90		2047.21
					5/24/2006		34.96		2047.15
					8/22/2006		34.94		2047.17
					12/5/2006		35.10		2047.01
					3/12/2007		35.05		2047.06
					10/2/2007		34.57		2047.54
					3/25/2008		35.03		2047.08
PNR-15	120382.2	75856.48	2081.92	2084.10	8/13/2001		33.86		2050.24
					9/4/2001		33.84		2050.26
					11/6/2001		34.30		2049.80
					2/19/2002		35.36		2048.74
					5/20/2002		35.87		2048.23
					8/19/2002		36.20		2047.90
					11/4/2002		36.22		2047.88
					3/5/2003	36.20	36.22	0.02	2047.89
					5/12/2003		36.81		2047.29
					8/12/2003		36.20		2047.90
					11/5/2003		36.26		2047.84
					3/16/2004		36.44		2047.66
					6/7/2004		36.31		2047.79
					9/15/2004		35.72		2048.38
					11/17/2004		36.00		2048.10
					3/2/2005		36.12		2047.98
					5/25/2005		36.39		2047.71
					8/17/2005		35.88		2048.22
					11/16/2005		36.17		2047.93
					2/8/2006		36.25		2047.85
					5/24/2006		36.48		2047.62
					8/22/2006		36.49		2047.61
					12/5/2006		36.65		2047.45
					3/12/2007		36.55		2047.55
					10/2/2007		35.98		2048.12
					3/25/2008		36.46		2047.64
PNR-16	119667.9	72830.79	2053.88	2056.80	8/13/2001		13.83		2042.97
					9/5/2001		12.70		2044.10
					11/6/2001		14.50		2042.30
					2/19/2002		14.76		2042.04
					5/20/2002		13.76		2043.04
					8/19/2002		9.47		2047.33
					11/4/2002		11.69		2045.11
					3/4/2003		15.20		2041.60
					5/12/2003		10.21		2046.59
					8/12/2003		13.41		2043.39
					11/4/2003		15.42		2041.38
					3/16/2004		17.25		2039.55
					6/7/2004		7.49		2049.31
					9/13/2004		10.07		2046.73
					11/16/2004		11.90		2044.90
					3/1/2005		14.08		2042.72
					5/24/2005		12.67		2044.13
					8/17/2005		13.24		2043.56
					11/15/2005		15.89		2040.91

Table 1 - Depth to Water and LNAPL in Monitor Wells and Domestic Wells

Pioneer Natural Resources, USA, Inc.

Biere 1-22 Investigation

HKM Job No.: 14B805.101

Well Location and Elevation					Fluid Levels				
Well Name	Northing	Easting	Ground Surface Elev. (ft)	Measure Pt. Elev. (ft)	Gauging Date	Depth to LNAPL (ft bmp)	Depth to Water (ft bmp)	LNAPL Thickness (ft)	Groundwater Elev.* (ft)
					2/7/2006		17.04		2039.76
					5/24/2006		13.54		2043.26
					8/22/2006		14.67		2042.13
					12/5/2006		14.36		2042.44
					3/12/2007		15.67		2041.13
					10/2/2007		16.20		2040.60
					3/25/2008		18.27		2038.53
PNR-17	120093.5	75846.65	2084.06	2086.14	8/13/2001	30.40	55.62	25.22	2048.17
					9/4/2001	30.42	55.86	25.44	2048.09
					11/6/2001	30.98	55.86	24.88	2047.70
					2/19/2002	32.04	55.77	23.73	2046.98
					5/20/2002	32.75	NM	NM	NM
					8/19/2002	33.62	NM	NM	NM
					11/4/2002	37.68	40.43	2.75	2047.63
					3/4/2003	38.37	40.31	1.94	2047.19
					5/12/2003	38.55	40.42	1.87	2047.03
					8/12/2003	38.22	40.04	1.82	2047.37
					11/6/2003	38.28	41.11	2.83	2047.01
					3/16/2004	37.95	43.46	5.51	2046.54
					6/7/2004	37.83	43.33	5.50	2046.66
					9/16/2004	37.38	42.71	5.33	2047.16
					11/17/2004	38.19	40.65	2.46	2047.21
					3/2/2005	38.47	39.28	0.81	2047.43
					5/25/2005	38.55	40.15	1.60	2047.11
					8/17/2005	38.23	39.12	0.89	2047.64
					11/16/2005	38.54	38.64	0.10	2047.57
					2/8/2006	38.50	38.59	0.09	2047.61
					5/24/2006	38.78	39.02	0.24	2047.29
					8/22/2006	38.69	38.82	0.13	2047.41
					12/5/2006	39.87	39.96	0.09	2046.24
					3/12/2007	38.83	38.86	0.03	2047.30
					10/2/2007	38.32	38.35	0.03	2047.81
					3/25/2008	38.75	38.78	0.03	2047.38
PNR-18	119551	77712.15	2116.21	2118.16	8/13/2001		68.90		2049.26
					9/5/2001		68.58		2049.58
					11/6/2001		69.08		2049.08
					2/19/2002		69.11		2049.05
					5/20/2002		70.10		2048.06
					8/19/2002		69.71		2048.45
					11/4/2002		69.36		2048.80
					3/4/2003		70.02		2048.14
					5/12/2003		70.38		2047.78
					8/12/2003		69.65		2048.51
					11/4/2003		70.30		2047.86
					3/16/2004		70.10		2048.06
					6/7/2004		69.44		2048.72
					9/13/2004		69.39		2048.77
					11/16/2004		69.71		2048.45
					2/28/2005		69.96		2048.20
					5/23/2005		70.13		2048.03
					8/15/2005		69.92		2048.24
					11/15/2005		70.61		2047.55
					2/7/2006		70.63		2047.53
					5/23/2006		69.96		2048.20
					8/22/2006		70.40		2047.76
					12/5/2006		70.44		2047.72
					3/12/2007		70.24		2047.92
					10/2/2007		70.05		2048.11
					3/25/2008		70.40		2047.76
PNR-19	118844.2	73751.07	2071.26	2073.23	8/13/2001		25.75		2047.48
					9/5/2001		25.68		2047.55
					11/6/2001		25.98		2047.25
					2/19/2002		26.00		2047.23
					5/20/2002		26.37		2046.86
					8/19/2002		26.75		2046.48
					11/4/2002		26.86		2046.37
					3/4/2003		27.30		2045.93
					5/12/2003		27.52		2045.71

Table 1 - Depth to Water and LNAPL in Monitor Wells and Domestic Wells

Pioneer Natural Resources, USA, Inc.

Biere 1-22 Investigation

HKM Job No.: 14B805.101

Well Location and Elevation					Fluid Levels				
Well Name	Northing	Easting	Ground Surface Elev. (ft)	Measure Pt. Elev. (ft)	Gauging Date	Depth to LNAPL (ft bmp)	Depth to Water (ft bmp)	LNAPL Thickness (ft)	Groundwater Elev.[a] (ft)
					8/12/2003		27.44		2045.79
					11/4/2003		27.58		2045.65
					3/16/2004		27.77		2045.46
					6/7/2004		27.67		2045.56
					9/13/2004		27.38		2045.85
					11/16/2004		27.46		2045.77
					3/1/2005		27.51		2045.72
					5/25/2005		27.90		2045.33
					8/17/2005		27.69		2045.54
					11/16/2005		27.85		2045.38
					2/8/2006		27.87		2045.36
					5/24/2006		28.13		2045.10
					8/22/2006		28.14		2045.09
					12/5/2006		28.29		2044.94
					3/13/2007		28.47		2044.76
					10/2/2007		28.22		2045.01
					3/25/2008		28.36		2044.87
PNR-20	117277.4	75018.84	2084.55	2087.16	8/18/2001		41.20		2045.96
					9/5/2001		41.05		2046.11
					11/6/2001		41.58		2045.58
					2/19/2002		41.41		2045.75
					5/20/2002		41.60		2045.56
					8/19/2002		41.91		2045.25
					11/4/2002		41.78		2045.38
					3/4/2003		42.30		2044.86
					5/12/2003		42.41		2044.75
					8/12/2003		42.39		2044.77
					11/4/2003		45.20		2041.96
					3/16/2004		42.56		2044.60
					6/7/2004		42.57		2044.59
					9/13/2004		42.37		2044.79
					11/17/2004		42.61		2044.55
					3/1/2005		42.37		2044.79
					5/24/2005		42.71		2044.45
					8/16/2005		42.56		2044.60
					11/15/2005		43.59		2043.57
					2/9/2006		42.72		2044.44
					5/23/2006		42.57		2044.59
					8/22/2006		42.82		2044.34
					12/5/2006		42.81		2044.35
					3/12/2007		42.80		2044.36
					10/2/2007		43.05		2044.11
					3/25/2008		43.10		2044.06
PNR-21	116715.5	75819.76	2099.04	2101.59	8/13/2001		58.80		2042.79
					9/5/2001		58.68		2042.91
					11/6/2001		59.12		2042.47
					2/19/2002		58.81		2042.78
					5/20/2002		58.80		2042.79
					8/19/2002		59.02		2042.57
					11/4/2002		58.89		2042.70
					3/5/2003		58.78		2042.81
					5/12/2003		58.80		2042.79
					8/12/2003		59.32		2042.27
					11/5/2003		59.70		2041.89
					3/16/2004		59.46		2042.13
					6/7/2004		59.43		2042.16
					9/13/2004		59.31		2042.28
					11/17/2004		59.46		2042.13
					3/1/2005		59.23		2042.36
					5/24/2005		59.43		2042.16
					8/16/2005		59.35		2042.24
					11/15/2005		59.82		2041.77
					2/9/2006		59.64		2041.95
					5/23/2006		59.60		2041.99
					8/22/2006		59.53		2042.06
					12/5/2006		59.57		2042.02
					3/12/2007		59.46		2042.13
					10/2/2007		59.84		2041.75
					3/25/2008		59.82		2041.77

Table 1 - Depth to Water and LNAPL in Monitor Wells and Domestic Wells

Pioneer Natural Resources, USA, Inc.

Biere 1-22 Investigation

HKM Job No.: 14B805.101

Well Location and Elevation					Fluid Levels				
Well Name	Northing	Easting	Ground Surface Elev. (ft)	Measure Pt. Elev. (ft)	Gauging Date	Depth to LNAPL (ft bmp)	Depth to Water (ft bmp)	LNAPL Thickness (ft)	Groundwater Elev.* (ft)
PNR-22	118350.3	77714.35	2127.38	2129.43	8/13/2001		81.50		2047.93
					9/5/2001		81.21		2048.22
					11/6/2001		81.66		2047.77
					2/19/2002		81.48		2047.95
					5/20/2002		81.90		2047.53
					8/19/2002		82.11		2047.32
					11/4/2002		81.75		2047.68
					3/4/2003		82.41		2047.02
					5/12/2003		82.62		2046.81
					8/12/2003		82.22		2047.21
					11/5/2003		82.60		2046.83
					3/16/2004		82.47		2046.96
					6/7/2004		82.24		2047.19
					9/13/2004		81.98		2047.45
					11/18/2004		82.15		2047.28
					3/1/2005		82.22		2047.21
					5/24/2005		82.65		2046.78
					8/16/2005		82.52		2046.91
					11/15/2005		83.07		2046.36
					2/7/2006		83.08		2046.35
					5/25/2006		82.58		2046.85
					8/22/2006		82.78		2046.65
					12/5/2006		82.80		2046.63
					3/12/2007		82.60		2046.83
					10/2/2007		82.66		2046.77
					3/25/2008		82.82		2046.61
PNR-23	120090.1	75562.18	2083.00	2085.27	8/13/2001		35.85		2049.42
					9/4/2001		35.90		2049.37
					11/6/2001		36.03		2049.24
					2/19/2002		36.88		2048.39
					5/20/2002		37.35		2047.92
					8/19/2002		37.78		2047.49
					11/4/2002		37.81		2047.46
					3/4/2003		38.26		2047.01
					5/12/2003		38.34		2046.93
					8/12/2003		38.13		2047.14
					11/6/2003		38.36		2046.91
					3/16/2004		38.62		2046.65
					6/7/2004		38.51		2046.76
					9/15/2004		38.10		2047.17
					11/17/2004		38.35		2046.92
					3/2/2005		38.51		2046.76
					5/25/2005		38.78		2046.49
					8/17/2005		38.44		2046.83
					11/16/2005		38.57		2046.70
					2/9/2006		38.79		2046.48
					5/25/2006		38.67		2046.60
					8/22/2006		38.75		2046.52
					12/5/2006		38.90		2046.37
					3/12/2007		38.85		2046.42
					10/2/2007		38.36		2046.91
					3/25/2008		38.73		2046.54
PNR-24	120093	75563.95	2083.00	2085.68	8/13/2001		36.30		2049.38
					9/4/2001		36.31		2049.37
					11/6/2001		36.45		2049.23
					2/19/2002		37.17		2048.51
					5/20/2002		37.52		2048.16
					8/19/2002		37.88		2047.80
					11/4/2002	37.90	39.68	1.78	2047.25
					3/4/2003	38.38	40.05	1.67	2046.80
					5/12/2003	38.48	38.48	0.00	2047.20
					8/12/2003	38.39	39.35	0.96	2047.00
					11/6/2003	38.53	39.90	1.37	2046.74
					3/16/2004	38.70	44.30	5.60	2045.30
					6/7/2004	38.65	39.98	1.33	2046.63
					9/15/2004	38.33	38.51	0.18	2047.30
					11/17/2004	38.51	39.21	0.70	2046.96
					3/2/2005	38.61	39.50	0.89	2046.80

Table 1 - Depth to Water and LNAPL in Monitor Wells and Domestic Wells

Pioneer Natural Resources, USA, Inc.

Biere 1-22 Investigation

HKM Job No.: 14B805.101

Well Location and Elevation					Fluid Levels				
Well Name	Northing	Easting	Ground Surface Elev. (ft)	Measure Pt. Elev. (ft)	Gauging Date	Depth to LNAPL (ft bmp)	Depth to Water (ft bmp)	LNAPL Thickness (ft)	Groundwater Elev.* (ft)
					5/25/2005	38.74	39.91	1.17	2046.59
					8/17/2005	38.54	38.89	0.35	2047.03
					11/16/2005	38.65	39.09	0.44	2046.90
					2/8/2006	38.63	39.24	0.61	2046.87
					5/24/2006	38.90	39.87	0.97	2046.49
					8/22/2006	38.86	39.85	0.99	2046.52
					12/5/2006	39.12	39.75	0.63	2046.37
					3/12/2007	39.06	39.26	0.20	2046.56
					10/2/2007		38.65		2047.03
					3/25/2008		39.05		2046.63
PNR-25	120376.3	75850.35	2081.92	2084.03	8/13/2001	33.78	34.08	0.30	2050.16
					9/4/2001		33.73		2050.30
					11/6/2001		34.09		2049.94
					2/19/2002	34.98	36.63	1.65	2048.56
					5/20/2002	35.36	NM	NM	NM
					8/19/2002	35.64	NM	NM	NM
					11/4/2002	35.55	37.48	1.93	2047.90
					3/4/2003	35.91	38.04	2.13	2047.48
					5/12/2003	36.02	38.04	2.02	2047.40
					8/12/2003	35.62	37.03	1.41	2047.99
					11/5/2003	35.15	37.50	2.35	2048.17
					3/16/2004	35.93	38.00	2.07	2047.48
					6/7/2004	35.86	37.53	1.67	2047.67
					9/15/2004	35.37	36.58	1.21	2048.30
					11/17/2004	35.60	37.08	1.48	2047.99
					3/2/2005	35.66	37.35	1.69	2047.86
					5/25/2005	35.90	37.86	1.96	2047.54
					8/17/2005	35.55	37.03	1.48	2048.04
					11/16/2005	35.77	37.51	1.74	2047.74
					2/8/2006	35.82	37.88	2.06	2047.59
					5/24/2006	36.01	38.12	2.11	2047.39
					8/22/2006	36.04	38.19	2.15	2047.34
					12/5/2006	36.15	38.30	2.15	2047.23
					3/12/2007	36.12	38.23	2.11	2047.28
					10/2/2007	35.65	37.02	1.37	2047.97
					3/25/2008	36.05	37.89	1.84	2047.43
PNR-26	120096.8	75842.87	2084.06	2086.15	8/13/2001	34.65	36.85	2.20	2050.84
					9/4/2001	35.96	37.12	1.16	2049.84
					11/6/2001	36.24	37.12	0.88	2049.65
					2/19/2002	36.98	39.30	2.32	2048.47
					5/20/2002	37.43	NM	NM	NM
					8/19/2002	37.78	NM	NM	NM
					11/4/2002	37.76	40.15	2.39	2047.67
					3/4/2003	38.11	40.07	1.96	2047.45
					5/12/2003	38.20	40.09	1.89	2047.38
					8/12/2003	37.82	39.98	2.16	2047.68
					11/6/2003	37.93	39.99	2.06	2047.60
					3/16/2004	38.80	40.01	1.21	2046.99
					6/7/2004	38.02	40.02	2.00	2047.53
					9/16/2004	37.60	39.73	2.13	2047.91
					11/17/2004	37.79	39.98	2.19	2047.70
					3/2/2005	37.87	40.00	2.13	2047.64
					5/25/2005	38.01	39.92	1.91	2047.57
					8/17/2005	37.78	40.00	2.22	2047.70
					11/16/2005	37.92	40.00	2.08	2047.61
					2/8/2006	37.90	40.01	2.11	2047.62
					5/24/2006	38.23	40.05	1.82	2047.37
					8/22/2006	38.18	40.04	1.86	2047.41
					12/5/2006	38.35	40.05	1.70	2047.29
					3/12/2007	38.34	40.03	1.69	2047.30
					10/2/2007	37.94	40.03	2.09	2047.58
					3/25/2008	38.24	39.99	1.75	2047.39
PNR-27	115617	75023.06	2092.86	2095.30	9/5/2001		67.28		2028.02
					11/6/2001		55.68		2039.62
					2/19/2002		55.32		2039.98
					5/20/2002		55.25		2040.05
					8/19/2002		55.34		2039.96
					11/4/2002		55.25		2040.05

Table 1 - Depth to Water and LNAPL in Monitor Wells and Domestic Wells

Pioneer Natural Resources, USA, Inc.

Biere 1-22 Investigation

HKM Job No.: 14B805.101

Well Location and Elevation					Fluid Levels				
Well Name	Northing	Easting	Ground Surface Elev. (ft)	Measure Pt. Elev. (ft)	Gauging Date	Depth to LNAPL (ft bmp)	Depth to Water (ft bmp)	LNAPL Thickness (ft)	Groundwater Elev.* (ft)
					3/5/2003		55.17		2040.13
					5/12/2003		55.62		2039.68
					8/12/2003		55.67		2039.63
					11/5/2003		56.20		2039.10
					6/7/2004		56.80		2038.50
					9/13/2004		55.73		2039.57
					11/17/2004		55.91		2039.39
					3/2/2005		55.63		2039.67
					5/24/2005		55.79		2039.51
					8/16/2005		55.64		2039.66
					11/15/2005		56.04		2039.26
					2/8/2006		55.65		2039.65
					5/23/2006		55.66		2039.64
					8/22/2006		55.85		2039.45
					12/5/2006		55.92		2039.38
					3/12/2007		55.79		2039.51
					10/2/2007		56.23		2039.07
					3/25/2008		56.20		2039.10
PNR-28	115394.9	73020.13	2079.64	2078.44	9/5/2001		46.38		2032.06
					11/6/2001		44.85		2033.59
					2/19/2002		44.67		2033.77
					5/20/2002		44.45		2033.99
					8/19/2002		44.59		2033.85
					11/4/2002		44.55		2033.89
					3/5/2003		44.49		2033.95
					5/12/2003		44.40		2034.04
					8/12/2003		44.89		2033.55
					11/5/2003		46.20		2032.24
					6/7/2004		45.24		2033.20
					9/15/2004		45.19		2033.25
					11/17/2004		45.28		2033.16
					3/1/2005		45.06		2033.38
					5/25/2005		45.23		2033.21
					8/16/2005		45.02		2033.42
					11/15/2005		45.61		2032.83
					2/8/2006		45.17		2033.27
					5/23/2006		45.17		2033.27
					8/22/2006		45.21		2033.23
					12/5/2006		45.37		2033.07
					3/12/2007		45.24		2033.20
					10/2/2007		45.65		2032.79
					3/25/2008		45.55		2032.89
PNR-29	113949.1	73049.79	2073.76	2072.64	9/5/2001		41.86		2030.78
					11/6/2001		40.28		2032.36
					2/19/2002		40.03		2032.61
					5/20/2002		39.80		2032.84
					8/19/2002		39.96		2032.68
					11/4/2002		39.82		2032.82
					3/5/2003		39.70		2032.94
					5/12/2003		40.17		2032.47
					8/12/2003		40.21		2032.43
					11/4/2003		40.70		2031.94
					6/15/2004		40.54		2032.10
					9/15/2004		40.54		2032.10
					11/17/2004		40.64		2032.00
					3/1/2005		40.39		2032.25
					5/25/2005		40.68		2031.96
					8/16/2005		40.42		2032.22
					11/15/2005		41.03		2031.61
					2/8/2006		40.45		2032.19
					5/23/2006		40.47		2032.17
					8/22/2006		40.60		2032.04
					12/5/2006		40.63		2032.01
					3/12/2007		40.68		2031.96
					10/2/2007		40.95		2031.69
					3/25/2008		40.83		2031.81
PNR-30-06				2083.55	10/19/2006		37.91		2045.64
					12/5/2006	37.50	40.70	3.20	2045.09

Table 1 - Depth to Water and LNAPL in Monitor Wells and Domestic Wells

Pioneer Natural Resources, USA, Inc.

Biere 1-22 Investigation

HKM Job No.: 14B805.101

Well Location and Elevation					Fluid Levels				
Well Name	Northing	Easting	Ground Surface Elev. (ft)	Measure Pt. Elev. (ft)	Gauging Date	Depth to LNAPL (ft bmp)	Depth to Water (ft bmp)	LNAPL Thickness (ft)	Groundwater Elev.* (ft)
					3/12/2007	37.39	40.86	3.47	2045.12
PNR-31-06				2100.98	10/19/2006		58.69		2042.29
					12/5/2006		58.85		2042.13
					3/12/2007		58.59		2042.39
					10/2/2007		58.95		2042.03
					3/25/2008		58.86		2042.12
PNR-32-06				2100.01	10/19/2006		57.87		2042.14
					12/5/2006		58.00		2042.01
					3/12/2007		57.80		2042.21
					10/2/2007		58.16		2041.85
					3/25/2008		58.14		2041.87
PNR-33-06				2144.53	10/19/2006		102.50		2042.03
					12/5/2006		100.76		2043.77
					3/12/2007		102.35		2042.18
					10/2/2007		102.81		2041.72
					3/25/2008		102.89		2041.64
PNR-34-07				2052.14	3/12/2007		93.84		1958.30
					10/2/2007		94.31		1957.83
					3/25/2008		94.20		1957.94
PNR-35-07				2059.75	3/12/2007		71.15		1988.60
					10/2/2007		71.55		1988.20
					3/25/2008		71.37		1988.38
PNR-36-07				2107.00	3/12/2007		54.74		2052.26
					10/2/2007		53.88		2053.12
					3/25/2008		54.76		2052.24
PNR-37-07					10/2/2007		50.41		
					3/25/2008		51.18		
PNR-38-08					3/25/2008		86.52		
USGS-06-7					10/4/2007		62.45		
USGS-06-8					10/4/2007		61.79		
USGS-06-9					10/4/2007		16.79		
USGS 92-12	123453.5	75096.38	2063.92	2065.92	5/31/2001		15.10		2050.82
					8/13/2001		10.70		2055.22
					9/5/2001		12.12		2053.80
					11/6/2001		13.11		2052.81
					2/19/2002		13.85		2052.07
					5/20/2002		13.65		2052.27
					8/19/2002		12.68		2053.24
					11/4/2002		12.77		2053.15
					3/4/2003		14.20		2051.72
					5/12/2003		12.58		2053.34
					8/12/2003		11.99		2053.93
					11/5/2003		17.10		2048.82
					6/7/2004		10.75		2055.17
					9/14/2004		10.70		2055.22
					11/16/2004		12.35		2053.57
					3/1/2005		13.28		2052.64
					5/25/2005		12.02		2053.90
					8/17/2005		11.00		2054.92
					11/15/2005		12.50		2053.42
					2/7/2006		13.08		2052.84
					5/24/2006		12.22		2053.70
					8/22/2006		14.04		2051.88
					12/5/2006		14.90		2051.02
					3/12/2007		14.97		2050.95
					10/2/2007		12.84		2053.08
					3/25/2008		14.47		2051.45
USGS 93-3	119878.7	75070.93	2082.10	2083.46	5/31/2001		35.07		2048.39

Table 1 - Depth to Water and LNAPL in Monitor Wells and Domestic Wells

Pioneer Natural Resources, USA, Inc.

Biere 1-22 Investigation

HKM Job No.: 14B805.101

Well Location and Elevation					Fluid Levels				
Well Name	Northing	Easting	Ground Surface Elev. (ft)	Measure Pt. Elev. (ft)	Gauging Date	Depth to LNAPL (ft bmp)	Depth to Water (ft bmp)	LNAPL Thickness (ft)	Groundwater Elev.* (ft)
					11/6/2001		35.22		2048.24
					2/19/2002		35.72		2047.74
					5/20/2002		36.30		2047.16
					8/19/2002		36.75		2046.71
					11/4/2002		36.81		2046.65
					3/4/2003		37.20		2046.26
					5/12/2003		37.23		2046.23
					8/12/2003		37.16		2046.30
					11/4/2003		37.32		2046.14
					3/16/2004		39.58		2043.88
					6/7/2004		37.47		2045.99
					9/14/2004		37.07		2046.39
					11/17/2004		37.25		2046.21
					3/1/2005		37.26		2046.20
					5/25/2005		37.52		2045.94
					8/17/2005		37.35		2046.11
					11/16/2005		37.41		2046.05
					2/9/2006		37.75		2045.71
					5/24/2006		37.90		2045.56
					8/22/2006		37.92		2045.54
					12/5/2006		38.00		2045.46
					3/12/2007		38.02		2045.44
					10/2/2007		37.72		2045.74
					3/25/2008		38.04		2045.42
USGS 93-3a	119884.1	75079.3	2081.97	2083.23	8/13/2001		35.15		2048.08
					9/5/2001		35.11		2048.12
					11/6/2001		34.96		2048.27
					5/20/2002		36.05		2047.18
					8/19/2002		36.62		2046.61
					11/4/2002		36.59		2046.64
					8/12/2003		36.94		2046.29
					11/5/2003		37.89		2045.34
					6/7/2004		37.28		2045.95
					11/17/2004		37.25		2045.98
					3/1/2005		37.26		2045.97
					5/25/2005		37.52		2045.71
Whitmer	116848.4	69257.85	1980.41	1981.44	5/31/2001		23.82		1957.62
					11/6/2001		24.30		1957.14
					2/19/2002		24.30		1957.14
					5/20/2002		24.10		1957.34
					8/19/2002		24.20		1957.24
					11/4/2002		24.30		1957.14
					3/4/2003		24.30		1957.14
					5/12/2003		24.20		1957.24
					8/12/2003		25.00		1956.44
					3/18/2004		24.10		1957.34
					6/7/2004		22.09		1959.35
					9/16/2004		23.90		1957.54
					11/18/2004		24.20		1957.24
					3/2/2005		24.10		1957.34
					5/24/2005		24.20		1957.24
					8/16/2005		24.03		1957.41
					11/17/2005		24.22		1957.22
					2/9/2006		23.84		1957.60
					5/25/2006		23.58		1957.86
					8/22/2006		24.40		1957.04
					12/5/2006		24.07		1957.37
					3/12/2007		23.51		1957.93
					10/2/2007		24.30		1957.14
					3/25/2008		23.98		1957.46

Notes:

* = Groundwater elevation corrected for LNAPL thickness; Corrected Depth to Water = Depth to Water - .7 x Accum. LNAPL.

All elevations are provided in feet above mean sea level (MSL).

Accronyms/Abbreviations:

ft	feet
ft bmp	feet below measure point
LNAPL	light non-aqueous phase liquid

Table 2

Inorganic Water Chemistry Data

Inorganic Water Chemistry Data
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Field SC mS	Field Temp. °C	Field Temp. °F	Field pH S.U.	Alkalinity as $CaCO_3$ mg/l	Bicarbonate mg/l	Calcium mg/l	Carbonate mg/l	Chloride mg/l	Hardness, Total as $CaCO_3$ mg/l	Magnesium mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate plus Nitrite mg/l	Lab pH S.U.	Potassium mg/l	Silica, Dissolved mg/l	Silica, Total mg/l	Sodium mg/l	Total Dissolved Solids @ 180° C mg/l	Specific Conductance @ 25° C mS	Sulfate mg/l	Iron mg/l	Flouride mg/l
Hendrikson	11/9/2001 9:00	3.1	7.2	45.0	7.20	321	392	134	< 1	621	701	89	0.3	< 0.05	7.5	9		14.5	416	1890	3.3	172		
LAW-M03	3/13/07 17:40	6.1	9.7	49.5	7.25	429	524	396	< 4	1370	1960	237	2.0	< 0.05	7.1	14	32.2		690	4270	6.4	1100		0.22
LAW-M03	3/27/08 10:30	6.8	9.7	49.5	7.12	419	511	416	< 4	1560	2070	250	1.7	<0.05	7.1	9	23.4	25.7	705	4560	7.0	1120		0.20
M-18	11/8/2001 15:30	nm	17.2	63.0	nm	111	135	669	< 1	5190	2920	303	37.5	<0.05	5.9	32		<3	1630	8600	13.5	25		
M-18	8/23/2006 10:30	17.5	10.4	50.7	7.38	258	315	730	<4	5620	3580	426	9.7	<0.05	6.8	25	15.1	18.4	2790	11800	18.0	1000		0.20
M-18	12/6/2006 12:25	16.8	9.2	48.6	6.96	141	172	435	<4	5470	2810	418	29.1	<0.05	7.1	28	5.9	8.0	2740	10300	17.4	621		< 0.1
M-27	8/16/2001 14:35	13.5	11.3	52.3	9.30	14	17	687	< 1	5280	3940	540	1.8	< 0.05	8.8	19	<1		1640	10400	13.1	160		
M-27	8/16/2001 14:45	13.5	11.3	52.3	9.30	12	15	681	< 1	5380	3920	538	4.0	< 0.05	7.7	19	<1		1610	10900	13.2	156		
M-27	11/8/2001 8:50	11.4	10.0	50.0	8.30	4	5	710	< 1	5650	4050	553	4.3	< 0.05	6.7	23		<3	1670	9920	14.2	433		
M-27	2/20/2002 15:42	10.9	10.6	51.1	7.88	389	475	917	< 4	5710	4450	524	2.7	< 0.05	6.7	42	17.0		1700	10500	16.6	814		
M-27	5/21/2002 15:05	17.2	13.1	55.6	7.28	211	258	839	< 4	7110	4130	494	2.7	< 0.05	6.9	20	20.0		1620	12000	16.8	1160		0.15
M-27	8/20/2002 17:45	14.9	12.8	55.0	8.10	4	5	707	< 4	5750	3740	479	4.2	< 0.05	5.7	19	< 2	< 2	1560	12200	16.0	664		< 0.1
M-27	11/6/2002 9:00	16.4	11.6	52.9	8.55	< 4	4	732	< 4	5100	3990	526	2.6	< 0.05	6.0	23	< 2	< 2	1730	10500	17.0	619		< 0.1
M-27	3/5/2003 13:20	14.9	10.3	50.5	7.78	14	17	790	< 4	5640	4230	547	2.6	< 0.05	6.5	24	2.0	< 2	1830	10300	16.7	649		< 0.1
M-27	5/28/2003 10:30	14.4	11.6	52.9	7.96	5	6	771	< 4	5590	4250	565	2.6	< 0.05	5.9	25	< 2	< 2	1730	10300	15.6	525		< 0.1
M-27	8/13/2003 11:10	15.6	13.5	56.3	8.02	11	14	746	< 1	6460	4070	536	3.8	< 0.05	6.1	25	< 2	2.0	1690	11000	13.3	481		< 0.1
M-27	11/6/2003 10:00	16.3	8.7	47.7	8.01	5	6	732	< 4	6390	4070	545	5.6	< 0.05	6.5	27	< 2	< 4	1800	10300	14.9	418		< 0.1
M-27	March 2004	Not Sampled																						
M-27	6/8/2004 15:15	mnw	12.7	54.9	7.91	30	36	725	< 4	5970	4050	544	7.2	< 0.05	6.7	24	2.7	2.7	1890	11600	14.4	564		0.11
M-27	9/15/2004 12:25	16.4	14.9	58.8	7.16	214	261	1000	< 4	5920	4870	576	3.0	< 0.05	6.7	24	17.8	19.0	1870	13900	17.5	919		0.14
M-27	11/18/2004 15:35	16.7	12.3	54.1	7.19	< 4	< 4	812	< 4	6050	4380	571	3.0	< 0.05	6.2	24	3.1	3.3	2090	11700	17.5	981		< 0.1
M-27	3/1/2005 12:05	18.1	13.4	56.1	6.81	< 4	< 4	767	< 4	5980	4240	565	2.7	< 0.05	5.8	30	3.0	2.0	2100	11700	17.0	835		< 0.1
M-27	5/24/2005 11:20	17.5	13.1	55.6	7.00	< 4	< 4	797	< 4	5790	4160	528	3.8	< 0.05	5.8	19	< 0.4	1.9	2310	11300	16.6	737		< 0.1
M-27	8/16/2005 9:30	17.8	15.7	60.3	6.75	< 4	< 4	776	< 4	5790	4210	553	2.8	< 0.05	5.7	18	1.0	< 0.9	1980	12200	17.4	801		< 0.1
M-27	11/15/2005 14:28	12.7	9.8	49.6	6.42	< 4	< 4	758	< 4	5270	4050	525	3.4	< 0.05	5.8	21	1.1	1.1	2150	10000	15.6	721		< 0.1
M-27	2/7/2006 13:10	13.9	9.9	49.8	7.19	< 4	< 4	800	< 4	5250	4060	500	3.4	< 0.05	6.2	26	5.6	6.3	2120	9820	15.9	712		< 0.1
M-27	5/23/2006 14:00	16.5	16.6	61.9	7.65	< 4	< 4	865	< 4	6520	4670	608	2.8	< 0.05	5.5	27	1.8	2.0	2400	11200	17.9	853		< 0.1
M-27	8/22/2006 14:30	18.4	9.8	49.7	7.33	<4	<4	884	<4	6040	4600	581	3.0	<0.05	6.2	26	3.5	6.9	2420	12400	18.3	793		<0.1
M-27	12/6/2006 13:40	18.1	9.4	48.9	7.09	<4	<4	844	<4	6170	4500	582	3.2	<0.05	5.3	27	1.2	< 0.9	2400	11600	18.7	868		<0.1
M-27	3/14/07 17:30	16.6	9.8	49.6	6.68	4 ND	4 ND	805	< 4	6200 D	4330	564	2.8	< 0.05	4.4	29	38 D		2330 D	12300	18.5	806 D		< 0.1
M-27	10/4/07 12:30	17.5	11.0	51.8	7.10	33	<4	912	< 4	6520	4570	557	3.3	< 0.05	6.6	23	12	13	2260	13100	19.8	1070		< 0.1
M-27	3/27/08 16:00	18.0	8.2	46.8	7.66	<4	<4	779	< 4	6140	4110	526	3.1	< 0.05	5.6	19	<2	<0.9	2210	11000	18.1	1340		< 0.1
M-28	6/1/2000 0:00	60.5	12.0	53.6	7.00	600	732	1530	< 1	25800	6920	749		20.9	7.1	62			14200	44700	58.9	1910	8.6	
M-28	8/9/2001 12:15	57.7	11.5	52.7	6.90	676	825	1210	< 1	23800	5600	628	4.0	27.9	6.9	57	17.3		11300	40500	53.5	1880		
M-28	8/16/2001 17:00	54.9	11.1	52.0	7.10	616	751	1340	< 1	22600	6130	677	5.4	24.6	7.0	62	19.3		12800	41000	48.8	2260		
M-28	11/8/2001 12:00	nm	17.8	64.0	nm	761	929	217	< 1	1410	1240	169	0.4	31.3	7.3	13		29.0	873	3950	60.9	687		
M-28	2/21/2002 8:40	59.3	10.2	50.4	6.63	633	772	1250	< 4	25900	5620	607	6.9	15.0	7.0	77	17.0		13300	43800	47.4	1400		
M-28	5/23/2002 9:30	66.1	12.0	53.6	5.20	598	730	1220	< 4	31000	5080	491	8.8	8.4	6.8	87	20.0		15600	50700	57.7	1920		0.13
M-28	8/21/2002 10:00	61.1	12.6	54.7	6.50	609	742	1240	< 4	25500	5620	614	8.0	12.9	6.8	51	18.0	18.0	9540	45900	51.8	1700		0.15
M-28	11/6/2002 11:20	62.6	11.3	52.3	6.90	612	746	1210	< 4	22400	5330	582	6.7	17.0	6.9	71	< 20	< 10	12600	43100	44.0	1840		0.15
M-28	3/5/2003 15:30	54.6	10.7	51.3	6.80	606	739	1190	< 4	22400	5140	528	6.6	19.7	6.8	62	18.0	22.0	11200	40500	32.9	2330		0.20
M-28	5/13/2003 16:45	52.4	12.0	53.6	7.27	603	736	1180	< 4	24300	5220	551	6.7	16.9	6.7	93	16.0	19.0	13800	43800	65.0	1700		0.16
M-28	8/13/2003 15:35	55.2	13.0	55.4	7.61	627	765	1130	< 1	21900	5150	564	6.0	22.7	6.7	113	21.0	22.0	11400	38600	51.5	1220		0.20
M-28	11/5/2003 10:30	51.8	11.5	52.7	5.15	635	775	978	< 4	23000	4440	484	6.5	23.7	6.8	76	17.0	< 20	10300	38700	32.8	1370		0.26
M-28	3/16/2004 17:34	48.8	8.8	47.8	6.30	695	848	1030	< 1	13800	5240	645	3.3	37.6	6.9	61	24.0	24.0	7520	25900	37.5	1590		0.15
M-28	6/8/2004 17:18	mnw	11.9	53.4	7.02	667	814	1030	< 4	19200	4850	551	5.6	23.3	6.9	77	20.0	21.0	9940	16900	34.3	2020		0.21
M-28	9/15/2004 14:00	49.9	13.7	56.7	6.66	669	816	1040	< 4	20500	4860	549	6.7	23.3	7.0	94	19.0	25.0	10800	35600	52.1	1820		0.28
M-28	11/19/2004 8:36	51.3	10.8	51.4	7.06	662	808	1070	< 4	16000	5040	576	4.5	27.2	6.8	82	23.0	24.0	9280	32000	47.8	1730		0.18
M-28	3/1/2005 15:45	55.1	13.0	55.4	6.63	703	857	1040	< 4	17600	4980	579	5.3	22.5	6.9	94	21.0	23.0	10900	32800	47.9	1700		0.18
M-28	5/24/2005 13:10	mnw	11.9	53.4	6.95	605	738	936	< 4	14900	4610	552	4.8	27.9	7.0	68	16.0	22.0	8890	28400	42.0	1940		0.19
M-28	8/16/2005 13:15	48.5	15.8	60.4	6.74	703	858	899	< 4	17700	4320	504	5.3	22.3	7.3	62	22.0	21.0	9980	30200	45.8	1570		0.23
M-28	11/15/2005 16:35	41.3	10.3	50.5	6.48	630	769	990	< 4	16200	4870	584	5.1	20.1	7.0	79	23.0	22.0	9880	26600	42.8	1740		0.18
M-28	2/7/2006 16:30	45.2	9.8	49.6	7.01	679	829	972	< 4	16000	4630	534	5.1	19.8	6.9	73	21.0	19.0	9450	28600	44.6	1730		0.17
M-28	5/23/2006 16:20	39.1	11.8	53.2	6.69	656	800	954	< 4	16300	4530	522	4.5	19.4	7.5	65	22.0	22.0	9010	24500	42.7	1850		0.17
M-28	8/22/2006 16:45	41.0	10.5	50.9	7.30	627	765	872	<4	14200	4260	505	4.1	9.8	6.8	56	23.0	22.0	8080	25600	40.4	1780		0.20
M-28	12/6/2006 14:40	37.2	9.9	39.4	6.80	634	774	877	<4	14300	4260	503	4.2	22.6	6.9	67	23.0	53.0	8480	26600	42.0	1800		0.20
M-28	3/15/07 10:15	29.1	9.9	49.7	6.48	662	808	816	< 4	11200 D	4290	548	3.5	23.6	6.9	57	169 D		6280 D	21200	32.5	1770 D		0.18
M-28	10/3/07 16:40	30.7	10.3	50.5	6.51	647	789	733	< 4	10900	3800	479	3.0	18.0	6.8	47	22.0	22.0	5820	20700	34.2	1830		0.20
M-28	3/27/08 9:50	32.9	14.5	58.1	6.92	673	821	775	< 4	9600	4120	531	3.2	14.5	6.9	45	26.0	70.0	5900	18400	29.4	1730		0.20
M-30	6/1/2000 0:00	2.6	9.8	49.6	9.20	1020	1240	126	< 1	36	801	118		< 0.05	8.0	7			325	1740	2.4	501	5.63	
M-30	2/22/2002 13:00	2.9	5.6	42.1	7.64	905	1100	113	<4	43	735	110	4.0	< 0.05	7.5	7	27.5		325	1790	2.6	549		
M-30	5/22/2002 17:10	2.6	7.0	44.6	7.53	916	1120	111	< 1	34	700	103	5.6	< 0.05	7.6	6	31.5		291	1730	2.6	539		0.29
M-30	8/21/2002 10:40	2.1	14.2	57.6	7.30	931	1140	114	< 4	42	733	109	5.8	< 0.05	7.7	6	26.7	23.5	257	1650	2.5	528		0.33
M-30	11/19/2004 8:15	2.7	10.5	50.9	7.71	818	998	121	< 1	46	735	105	4.7	< 0.05	7.4	8	27.7	26.6	254	1550	2.3	459		0.38
M-30	3/2/2005 17:50	mnw	mnw	mnw	mnw	995	1210	129	< 4	58	825	122	4.2	< 0.05	7.5	8	28.3	28.4	331	1770	2.5	537		0.36
M-31	6/1/2000 0:00	87.2	11.0	51.8	7.60	461	562	1760	< 1	36000	7610	783		0.2	7.1	122			20200	60800	80.5	1690	9.5	
M-31	8/9/2001 11:05	88.5	10.7	51.3	6.90	515	628	1540	< 1	35900	6530	649	6.6	< 0.05	6.9	150	15.6		19800	63800	74.2	1220		
M-31	8/16/2001 17:30	84.3	11.2	52.2	7.00	516	630	1640	< 1	37200	6820	659	6.9	< 0.05	6.9	150	15.8		21900	63300	68.3	2120		
M-31	11/8/2001 16:00	51.4	11.7	53.0	6.80	6	8	1170	< 1	28300	7350	1070	11.3	0.1	6.0	110		<5	15700	50200	39.8	840		
M-31	2/21/2002 9:45	81.4	10.3	50.5	6.58	464	566	1570	< 4	38600	6510	630	7.5	< 0.05	7.0	207	17.0		20800	63000	58.4	1690		

Inorganic Water Chemistry Data
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Field SC mS	Field Temp. °C	Field Temp. °F	Field pH S.U.	Alkalinity as $CaCO_3$ mg/l	Bicarbonate mg/l	Calcium mg/l	Carbonate mg/l	Chloride mg/l	Hardness, Total as $CaCO_3$ mg/l	Magnesium mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate plus Nitrite mg/l	Lab pH S.U.	Potassium mg/l	Silica, Dissolved mg/l	Silica, Total mg/l	Sodium mg/l	Total Dissolved Solids @ 180° C mg/l	Specific Conductance @ 25° C mS	Sulfate mg/l	Iron mg/l	Flouride mg/l
M-31	5/22/2002 15:45	94.4	11.8	53.2	6.75	513	626	1440	< 4	39700	5950	571	7.7	< 0.05	6.8	162	24.0		20000	63700	64.7	2210		0.12
M-31	8/21/2002 10:45	83.5	12.1	53.8	6.50	504	615	1530	< 4	39200	6390	626	8.4	< 0.05	6.8	136	16.0	14.0	18600	67100	67.5	1780		0.12
M-31	11/6/2002 10:35	89.2	10.8	51.4	6.84	510	622	1520	< 4	33600	6280	601	8.1	< 0.05	6.8	177	17.0	< 10	19100	62800	55.0	1650		0.13
M-31	3/5/2003 14:10	81.9	10.2	50.4	6.72	353	430	1540	< 4	39200	6210	574	7.6	< 0.05	6.7	169	16.0	15.0	19300	62600	43.2	1740		0.10
M-31	5/13/2003 16:00	79.1	11.3	52.3	7.21	505	616	1500	< 4	36100	6180	588	8.1	< 0.05	6.7	238	13.0	15.0	22200	63500	85.0	1530		0.13
M-31	8/13/2003 14:40	88.1	12.7	54.9	7.49	503	613	1480	< 1	37300	6070	577	8.0	< 0.05	6.6	229	16.0	18.0	20400	63900	81.9	1050		0.13
M-31	11/5/2003 11:35	83.0	11.1	52.0	nm	502	612	1020	< 4	37700	4400	450	8.4	< 0.05	6.7	206	16.0	< 20	16900	62100	42.1	1140		0.15
M-31	3/18/2004 16:00	68.8	9.3	48.7	6.10	503	614	1570	< 1	42000	6110	604	9.5	< 0.05	6.7	214	16.8	17.3	20200	62900	87.1	1330		0.11
M-31	6/8/2004 16:40	mnw	11.4	52.5	6.94	506	618	1450	< 4	39400	5930	559	9.2	< 0.05	6.8	182	15.0	16.0	18800	62100	89.1	1700		0.17
M-31	9/15/2004 15:00	88.5	14.5	58.1	6.58	518	632	1510	< 4	39500	6150	577	9.9	< 0.05	6.9	227	17.0	17.0	20900	64800	90.5	1560		0.20
M-31	11/18/2004 17:00	86.1	10.7	51.3	6.84	503	613	1590	< 4	37000	6390	590	8.8	< 0.05	6.7	274	18.0	18.0	20700	62700	91.4	1510		0.14
M-31	3/1/2005 13:45	98.0	12.5	54.5	6.48	550	671	1560	< 4	40300	6380	603	8.8	< 0.05	6.8	264	21.0	31.0	23000	62800	89.9	1560		0.13
M-31	5/24/2005 15:05	mnw	11.0	51.8	6.82	465	568	1420	< 4	37700	5770	540	9.1	0.1	6.7	251	7.0	14.0	22800	61800	89.6	1620		0.17
M-31	8/16/2005 11:30	95.5	17.5	63.5	6.49	550	671	1530	< 4	35300	6260	592	10.1	< 0.05	6.9	185	17.0	20.0	20700	61400	90.0	1310		0.14
M-31	11/15/2005 15:30	89.0	9.1	48.4	6.40	461	562	1630	< 4	39700	6700	637	9.1	< 0.05	7.0	218	28.0	44.0	23600	57700	91.9	12		0.12
M-31	2/7/2006 14:00	93.5	8.9	48.0	6.92	526	645	1560	< 4	37300	6180	558	10.0	< 0.05	7.1	262	17.0	17.0	22400	61200	90.4	1460		0.11
M-31	5/23/2006 17:20	88.0	11.3	52.3	6.53	510	622	1560	< 4	39700	6040	523	10.1	< 0.05	7.4	305	19.0	22.0	22500	57200	91.3	1510		0.12
M-31	8/23/2006 13:30	93.6	10.3	50.5	6.70	483	589	1550	<4	37600	6090	542	4.3	<0.05	6.6	220	23.0	23.0	23000	59800	94.3	1500		0.10
M-31	12/6/2006 15:45	92.2	9.2	48.6	6.44	499	609	1450	<4	39400	5780	527	11.5	<0.05	6.8	239	19.0	19.0	22700	62900	95.2	1550		0.10
M-31	3/15/07 11:30	88.9	9.4	48.9	6.31	497	607	1570	< 4	40800 D	6380	595	11.9	< 0.05	6.7	259 D	58 D		24100 D	64000	93.6	1490 D		0.12
M-31	10/4/07 14:30	89.1	9.9	49.9	6.77	498	607	1550	< 4	40800	6160	558	13.2	< 0.05	6.6	239	21.0	19.0	22300	63300	99.1	1620		0.10
M-31	3/27/08 10:30	89.2	10.5	50.9	6.83	399	487	1720	< 4	41200	6850	620	10.9	< 0.05	6.6	276	29.0	27.0	25100	62000	94.7	1420		0.10
M-36	9/5/2001 15:55	3.8	10.9	51.6	7.60	661	807	206	< 1	259	1160	156	1.1	< 0.05	6.6	7	21.3		458	2920	3.5	1230		
M-36	11/9/2001 11:05	2.7	9.8	49.3	7.40	649	792	215	< 1	313	1210	163	1.0	0.1	7.2	8		27.9	478	2960	3.8	1220		
M-38	9/5/2001 16:25	3.5	13.5	56.3	7.80	654	798	212	< 1	174	1080	132	1.0	< 0.05	6.6	7	21.3		434	2750	3.3	1230		
M-38	11/9/2001 11:40	2.4	10.2	50.4	7.60	648	791	208	< 1	183	1080	135	1.0	0.1	7.3	8		27.4	436	2690	3.5	1240		
M-39	11/7/2001 15:45	nm	9.4	49.0	nm	401	413	10	38	34	1020	241	8.8	< 0.05	8.9	8		1.7	289	2150	2.6	1260		
MOC-1B	3/14/07 12:55	4.1	9.7	49.4	7.22	433	528	363	< 4	75	2150	301	< 0.1	30.6	7.2	11	31.8		384	4070	4.5	2220		0.19
MOC-1B	10/3/07 10:35	4.4	9.8	49.7	6.99	426	520	358	< 4	74	2080	289	< 0.1	32.2	7.2	9	23.4	25.3	367	3920	4.6	2280		0.20
MOC-1B	3/25/08 18:30	4.4	9.6	49.3	6.92	438	535	356	< 4	74	2090	292	< 0.1	36.8	7.2	8	22.7	23.0	370	3810	4.4	2240		0.20
MOC-2	3/13/07 17:00	20.3	9.7	49.5	6.46	321	391	1060	< 4	7050 D	4990	571	3.6	< 0.05	6.8	26	76.9 D		2750 D	13800	20.6	1730		0.17
MOC-2	10/5/07 14:30	21.0	9.7	49.4	6.85	270	330	1060	< 4	7110	4950	556	4.0	< 0.05	6.8	25	20.0	26.0	2840	14600	21.2	1540		0.2
MOC-2	3/26/08 17:30	21.0	9.7	49.5	7.18	283	345	1090	< 4	7200	5000	555	3.6	< 0.05	6.7	27	23.0	25.0	3060	13700	21.3	1460		0.2
MOC-3	3/14/07 11:50	3.6	9.7	49.4	7.19	360	439	318	< 4	74	1090	218	< 0.1	13.4	7.3	12	43.1		400	3500	4.0	1890		0.47
MOC-3	10/2/07 19:00	3.8	9.7	49.5	6.94	359	438	299	< 4	76	1580	202	< 0.1	15.2	7.1	10	19.3	30.3	379	3370	4.1	1890		0.50
MOC-3	3/25/08 16:50	3.9	9.9	49.8	6.92	364	444	314	< 4	73	1670	216	< 0.1	17.9	7.3	11	19.4	20.7	385	3260	3.9	1890		0.50
MOC-4	10/17/06 13:30					333	406	435	< 4	2680	2200	271	1.2	< 0.05	7.3	17	17.1	18.9	1170	5700	9.4	789		0.20
MOC-4	10/4/07 11:00	9.2	9.9	49.7	7.24	330	403	446	< 4	2580	2290	286	1.3	< 0.05	7.1	15	17.9	20.1	1230	5550	9.6	817		0.20
MOC-4	3/26/08 16:30	9.1	9.6	49.3	7.47	342	417	403	< 4	2590	2080	261	1.2	< 0.05	7.1	14	15.6	17.0	1130	5440	9.1	779		0.20
MOC-20A	3/13/07 13:40	5.4	9.2	48.6	6.63	343	419	503	< 4	128	3020	429	0.9	41.7 D	7.2	24	37.9		464	5480	5.78	3220		0.39
MOC-20A	10/3/07 17:00	5.5	10.0	50.0	7.27	311	379	473	< 4	125	2860	408	0.3	22.0	7.2	23	40.1	106	462	5370	5.89	3290		0.40
MOC-20A	3/26/08 15:00	5.5	10.1	50.1	7.46	315	385	473	< 4	119	2870	411	0.6	19.7	7.0	22	30.8	302	425	5260	5.49	3290		0.40
MOC-20B	3/13/07 15:00	4.3	9.7	49.4	6.52	400	488	340	< 4	163	1880	202	1.3	< 0.05	7.1	9	29.7		513	3790	4.46	2020		0.32
MOC-20B	10/3/07 13:30	4.4	10.0	50.1	6.95	402	490	323	< 4	181	1600	192	1.2	< 0.05	7.0	9	25.9	30.6	490	3800	4.68	2050		0.30
MOC-20B	3/26/08 14:30	4.4	9.6	49.3	7.55	409	499	330	< 4	176	1640	199	1.1	< 0.05	7.0	8	26.0	28.3	481	3640	4.39	2040		0.30
PNR-4	6/1/2000 0:00		60.0	140.0																				
PNR-4	8/10/2001 13:15	102.6	67.7	153.9	6.80	176	215	839	< 1	44700	2610	125	14.1	< 0.05	7.0	534	55.7		24800	71200	75.1	1800		
PNR-4	8/10/2001 13:20	102.6	67.7	153.9	6.80	190	232	793	< 1	44600	2480	121	14.4	< 0.05	7.0	500	52.3		24000	71200	78.2	1900		
PNR-4	11/8/2001 15:00	nm	94.4	202.0	nm	122	149	1210	< 1	31800	3210	43	15.1	0.1	7.9	453		237.0	20700	61400	49.2	1310		
PNR-4	Plugged and abandoned																							
PNR-5	6/1/2000 0:00	96.6	41.6	106.9	7.30	267	325	1170	< 1	38900	3810	213		< 0.05	7.4	396			22600	65200	85.1	1690	0.2	
PNR-5	8/8/2001 11:00	98.0	40.8	105.4	6.60	319	390	1100	< 1	40700	3850	284	16.8	< 0.05	6.7	436	36.8		23400	68600	79.5	1400		
PNR-5	8/15/2001 11:00	mnw	38.6	101.5	6.80	299	365	1210	< 1	41200	4140	271	17.9	< 0.05	6.9	460	40.6		23800	68000	72.8	1520		
PNR-5	11/7/2001 11:10	or	43.3	110.0	5.80	335	409	1030	< 1	33700	3540	234	17.9	< 0.05	6.5	368		36.7	21500	67200	52.7	1290		
PNR-5	2/20/2002 10:02	92.2	41.7	107.1	6.27	449	548	1100	< 4	44500	3770	248	17.3	< 0.05	6.7	432	30.0		23500	67700	61.3	1270		
PNR-5	5/22/2002 10:40	93.6	41.1	106.0	6.42	335	409	975	< 4	43500	3310	212	16.4	< 0.05	6.7	377	39.0		21800	68800	68.4	1870		0.35
PNR-5	8/20/2002 17:10	93.3	39.2	102.6	6.30	323	394	1040	< 4	42600	3590	241	15.9	< 0.05	6.6	297	36.0	37.0	23700	69700	71.9	1570		0.33
PNR-5	11/6/2002 11:10	102.1	40.0	104.0	6.37	325	397	1140	< 4	42800	3870	250	16.3	< 0.05	6.7	446	29.0	46.0	22800	68100	61.3	1730		0.33
PNR-5	3/4/2003 16:30	103.2	35.1	95.2	6.60	320	391	1070	< 4	42100	3570	218	16.1	< 0.05	6.6	413	34.0	52.0	22100	67800	50.5	1880		0.30
PNR-5	5/28/2003 12:35	97.0	41.6	106.9	6.39	329	401	1020	< 1	39600	3490	228	15.6	< 0.05	6.5	473	32.0	41.0	23000	69300	95.2	1480		0.36
PNR-5	8/13/2003 14:59	89.3	40.6	105.1	6.64	328	400	1110	< 1	42000	3530	256	17.0	< 0.05	6.7	450	38.0	40.0	23100	69700	90.2	1170		0.36
PNR-5	11/4/2003 15:30	nm	37.4	99.3	6.29	324	395	654	< 4	42200	2400	186	16.7	< 0.05	6.6	359	27.0	27.0	19300	68400	48.9	1200		0.36
PNR-5	3/17/2004 10:15	102.0	40.3	104.5	6.42	327	399	1170	< 1	44300	3960	256	16.7	< 0.05	6.8	507	38.0	35.0	25000	68500	94.8	1170		0.32
PNR-5	6/9/2004 9:40	94.8	39.1	102.4	6.59	311	379	1030	< 4	42900	3520	228	16.4	< 0.05	6.8	400	36.0	35.0	22400	65800	97.1	1720		0.35
PNR-5	9/14/2004 16:20	100.3	38.1	100.6	7.68	330	403	1140	< 4	43400	3890	253	17.8	< 0.05	6.8	446	39.0	44.0	24000	69700	98.1	1590		0.34

Inorganic Water Chemistry Data
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Field SC mS	Field Temp. °C	Field Temp. °F	Field pH S.U.	Alkalinity as $CaCO_3$ mg/l	Bicarbonate mg/l	Calcium mg/l	Carbonate mg/l	Chloride mg/l	Hardness, Total as $CaCO_3$ mg/l	Magnesium mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate plus Nitrite mg/l	Lab pH S.U.	Potassium mg/l	Silica, Dissolved mg/l	Silica, Total mg/l	Sodium mg/l	Total Dissolved Solids @ 180° C mg/l	Specific Conductance @ 25° C mS	Sulfate mg/l	Iron mg/l	Flouride mg/l
PNR-5	11/17/2004 13:50	107.5	35.8	96.4	6.58	300	366	1070	< 4	42800	3640	233	15.5	< 0.05	6.6	445	30.0	43.0	24300	67600	94.9	1560		0.34
PNR-5	3/2/2005 12:15	97.2	38.1	100.6	6.41	326	398	1150	< 4	43700	3950	259	17.3	< 0.05	6.7	501	39.0	34.0	27200	67200	96.7	1590		0.37
PNR-5	5/25/2005 17:20	100.0	36.2	97.2	6.26	278	339	1190	< 4	43100	4130	279	16.2	< 0.05	6.6	446	34.0	31.0	26400	68400	95.6	1910		0.43
PNR-5	8/17/2005 11:00	99.7	48.4	119.1	6.28	315	385	1090	< 4	35400	3800	261	16.8	< 0.05	6.8	464	31.0	42.0	23300	65300	94.8	1300		0.35
PNR-5	11/16/2005 13:00	104.8	34.2	93.6	6.81	273	334	1170	< 4	40900	4110	286	14.9	< 0.05	6.7	420	32.0	33.0	25500	58700	95.8	1330		0.32
PNR-5	2/9/2006 15:20	103.6	34.7	94.5	6.56	317	387	1010	< 4	38500	3410	217	15.4	< 0.05	6.8	430	35.0	35.0	23000	59400	91.6	1400		0.34
PNR-5	5/25/2006 10:30	85.5	35.5	95.8	6.53	321	392	990	< 4	37700	3380	220	18.0	< 0.05	7.4	382	37.0	34.0	23000	49400	89.0	1270		0.35
PNR-5	8/23/2006 15:40	87.2	36.1	97.0	6.31	326	398	837	<4	32900	2850	185	14.0	<0.05	6.6	310	41.0	37.0	19900	56400	87.6	1090		0.40
PNR-5	12/7/2006 13:25	84.7	33.8	92.8	6.27	380	464	796	<4	32400	2740	182	15.2	<0.05	6.8	332	37.0	37.0	19800	53100	83.8	1040		0.40
PNR-5	3/14/07 14:14	92.9	33.2	91.8	6.51	416	507	811	< 4	32800 D	2910	215	13.0	< 0.05	6.8	329 D	537 D		20000 D	50800	79.8	892 D		0.38
PNR-5	10/5/07 11:40	73.7	29.7	85.5	6.11	495	604	684	<4	27900	2440	177	13.0	<0.05	6.8	278	37.0	34.0	17100	46400	73.1	913		0.40
PNR-5	3/27/08 16:30	68.2	33.3	91.9	6.90	652	796	482	<4	23500	1710	124	9.5	<0.05	6.8	228	39.0	39.0	14100	38300	61.2	689		0.50
PNR-6	5/31/2000 0:00	1.2	9.4	48.9	5.90	511	624	109	< 1	14	587	77		0.1	8.0	6			75	649	1.2	229	0.09	
PNR-6	8/7/2001 9:55	1.7	10.4	50.7	6.70	555	677	111	< 1	31	724	108	0.3	0.3	7.1	6	21.2		124	1350	1.8	559		
PNR-6	8/15/2001 15:30	mnw	9.2	48.6	7.60	534	652	126	< 1	30	835	126	0.2	0.3	7.3	7	23.0		143	1280	1.7	530		
PNR-6	11/7/2001 8:55	0.8	7.8	46.0	7.50	534	651	109	< 1	30	690	101	0.2	0.3	7.3	6		35.8	117	1210	1.6	437		
PNR-6	2/19/2002 13:30	2.1	10.3	50.5	7.22	481	587	151	< 4	49	966	143	0.3	0.5	7.0	7	40.6		121	1740	2.3	869		
PNR-6	5/21/2002 12:15	2.4	11.7	53.1	7.43	513	626	142	< 4	35	837	117	0.3	0.4	7.5	7	30.9		123	1370	1.9	831		0.48
PNR-6	8/19/2002 16:35	1.4	10.3	50.5	7.10	514	627	112	< 4	23	710	104	0.5	0.3	7.4	5	22.5	43.5	91	1180	1.7	450		0.44
PNR-6	11/5/2002 11:25	1.3	9.3	48.7	7.27	530	647	100	< 4	19	589	82	0.4	0.2	7.5	6	21.2	27.0	97	1000	1.5	341		0.47
PNR-6	3/4/2003 10:40	1.2	8.3	46.9	6.79	530	646	94	< 4	31	567	81	0.3	0.1	7.6	6	21.9	30.3	120	897	1.3	276		0.50
PNR-6	5/13/2003 11:30	0.8	11.5	52.7	7.78	545	665	94	< 4	16	573	82	0.2	0.2	7.2	7	21.3	51.8	99	918	1.4	265		0.58
PNR-6	8/13/2003 8:16	1.1	9.6	49.3	7.99	521	635	95	< 1	16	594	86	0.3	0.3	7.4	6	22.0	42.8	95	955	1.4	323		0.48
PNR-6	11/4/2003 13:30	1.1	8.3	46.9	7.13	535	652	100	< 4	26	643	95	0.2	0.3	7.6	7	23.1	40.1	114	1140	1.5	460		0.53
PNR-6	March 2004	Not Sampled																						
PNR-6	6/8/2004 10:20	mnw	10.3	50.5	7.57	478	583	241	< 4	126	1990	337	< 0.1	2.5	7.4	10	22.2	32.2	283	3740	3.8	2180		0.47
PNR-6	9/14/2004 9:15	2.6	9.8	49.6	7.55	535	653	155	< 4	56	1230	205	< 0.1	1.2	7.6	7	23.6	26.9	183	2240	2.7	1120		0.48
PNR-6	11/16/2004 10:17	2.3	9.6	49.3	7.42	526	642	123	< 4	34	901	144	< 0.1	0.6	7.4	7	25.1	26.1	124	1370	1.9	605		0.50
PNR-6	2/28/2005 17:30	1.9	9.5	49.1	7.08	541	660	136	< 4	31	865	128	0.2	0.4	7.3	7	23.8	26.6	98	1340	1.8	541		0.48
PNR-6	5/23/2005 18:00	1.4	9.9	49.8	7.40	454	553	140	< 4	28	852	122	0.5	0.4	7.2	7	23.2	26.4	92	1320	1.7	501		0.49
PNR-6	8/16/2005 9:35	1.6	10.1	50.2	7.19	535	653	139	< 4	27	856	124	0.3	0.3	7.5	6	21.7	1.1	94	1270	1.7	482		0.49
PNR-6	11/15/2005 10:00	1.6	7.6	45.7	7.19	497	606	118	< 4	25	755	112	0.2	0.2	7.5	8	23.8	33.3	95	1190	1.7	487		0.96
PNR-6	2/7/2006 10:47	1.2	7.9	46.2	7.23	558	681	104	< 4	17	651	95	0.3	0.1	7.1	7	40.3	215.0	97	993	1.5	332		0.50
PNR-6	5/23/2006 10:30	1.4	12.8	55.0	7.29	520	635	108	< 4	20	655	93	0.3	0.2	8.0	7	44.7	115.0	103	924	1.5	330		0.52
PNR-6	8/22/2006 10:45	1.4	9.4	48.9	7.26	506	616	88	<4	12	557	82	0.3	0.1	7.2	7	22.9	27.4	93	820	1.3	214		0.49
PNR-6	12/5/2006 13:40	1.4	8.8	47.8	7.11	509	621	91	<4	16	594	89	0.2	0.1	7.2	6	22.7	30.5	99	914	1.5	274		0.50
PNR-6	3/14/07 10:15	1.2	9.4	48.9	6.96	503	613	97	< 4	14	596	86	0.4	0.17	7.5	6	25.8		93	919	1.4	262		0.50
PNR-6	10/2/07 18:55	2.8	10.9	51.6	7.29	481	587	130	<4	37	933	148	0.5	0.66	7.6	6	24.7	36.8	132	1520	2.2	701		0.50
PNR-6	3/26/08 11:50	1.4	9.2	48.6	7.09	505	616	95	<4	19	616	92	0.4	0.21	7.5	5	22.5	27.2	91	946	1.5	315		0.50
PNR-7	5/31/2000 0:00	52.4	10.0	50.0	6.60	343	418	2770	< 1	21700	15700	2130		4.1	7.2	55			6800	35300	48.2	1540	2.6	
PNR-7	8/7/2001 17:20	53.1	9.6	49.3	6.90	368	449	2480	< 1	23300	13800	1850	0.3	4.8	6.7	52	17.0		6740	39300	49.4	1370		
PNR-7	8/15/2001 17:55	33.4	9.6	49.3	7.00	347	423	2600	< 1	23000	15700	2220	0.4	3.9	6.9	57	19.9		7910	40600	44.9	1590		
PNR-7	11/7/2001 11:50	or	8.9	48.0	6.60	351	428	2630	< 1	22100	14600	1960	0.4	4.1	6.6	52		20.2	7060	40600	34.7	1440		
PNR-7	2/19/2002 17:05	50.4	9.4	48.9	6.49	351	429	2700	< 4	23700	14800	1960	0.3	4.2	6.7	57	17.0		7550	36200	41.0	1390		
PNR-7	5/22/2002 13:10	57.7	9.5	49.1	6.66	356	435	2490	< 4	23500	13900	1860	0.3	3.9	6.6	60	29.0		7450	39800	45.1	1650		0.25
PNR-7	8/20/2002 15:07	49.8	10.9	51.6	6.60	353	431	2510	< 4	23900	14400	1990	0.4	3.6	6.7	47	17.0	26.0	8200	42100	45.9	1460		0.25
PNR-7	11/5/2002 14:50	55.0	10.1	50.2	6.72	356	434	2660	< 4	24100	14500	1900	0.4	3.9	6.8	57	14.0	19.0	7690	44500	37.4	1580		0.24
PNR-7	3/4/2003 15:05	51.6	9.1	48.4	6.57	346	422	2600	< 4	22900	14200	1880	0.4	3.9	6.6	72	17.0	17.0	8650	39800	29.0	1500		0.30
PNR-7	May 2003	Not Sampled																						
PNR-7	8/12/2003 12:20	59.5	11.6	52.9	6.35	354	432	2730	< 1	24300	3050	1950	0.3	3.2	6.5	69	20.0	18.0	8460	45100	56.0	964		< 0.1
PNR-7	11/4/2003 14:30	49.7	8.1	46.6	6.31	359	438	2090	< 4	24900	11400	1490	0.4	3.6	6.8	55	14.0	22.0	6880	40200	23.7	1110		< 0.73
PNR-7	3/17/2004 17:10	48.5	12.7	54.9	6.75	367	447	2870	< 1	25300	15400	2010	0.4	3.7	6.6	68	20.0	18.0	9040	41200	56.9	1100		0.23
PNR-7	6/8/2004 18:40	51.8	10.1	50.2	6.75	367	448	2530	< 4	25800	13600	1770	0.4	3.7	6.6	69	18.0	23.0	8850	46400	60.0	1570		0.28
PNR-7	9/14/2004 18:00	57.2	10.2	50.4	7.13	382	466	2630	< 4	25000	14100	1840	0.4	3.7	6.8	88	22.0	23.0	9390	46100	60.8	1350		0.25
PNR-7	11/17/2004 13:40	66.2	10.2	50.4	6.91	365	446	2670	< 1	25500	14200	1830	0.4	3.9	6.6	71	21.0	20.0	9700	43000	61.3	1580		0.26
PNR-7	3/1/2005 17:30	53.8	9.6	49.3	6.49	370	452	2560	< 4	25400	13700	1780	0.4	3.6	6.6	72	22.0	23.0	9940	42100	60.6	1450		0.27
PNR-7	5/25/2005 13:47	63.5	10.2	50.4	6.42	345	421	2640	< 4	25300	14000	1800	0.4	3.8	6.6	49	17.0	16.0	10600	44100	59.7	1700		0.30
PNR-7	8/17/2005 10:52	62.7	10.6	51.1	6.51	399	487	2840	< 4	26100	15100	1940	0.4	3.6	6.7	71	18.0	22.0	10500	45400	61.9	1590		0.24
PNR-7	11/16/2005 14:00	66.7	8.4	47.1	6.77	350	427	2800	< 4	26800	14900	1920	0.4	3.6	6.8	66	25.0	25.0	10700	43300	63.0	1480		0.25
PNR-7	2/9/2006 14:15	60.2	8.0	46.4	6.83	395	482	2840	< 4	25100	14600	1820	0.5	3.7	6.8	98	18.0	19.0	11000	41200	61.9	1450		0.22
PNR-7	5/24/2006 16:10	50.2	10.2	50.4	6.56	384	468	2560	< 4	26200	13600	1750	0.5	3.6	7.3	76	18.0	20.0	11500	42300	62.9	1470		0.24
PNR-7	8/24/2006 10:24	52.4	9.2	48.6	6.59	363	442	2520	<4	26600	13200	1660	0.4	3.7	6.5	67	22.0	22.0	10800	44400	66.1	1450		0.20
PNR-7	12/8/2006 10:15	64.1	8.6	47.5	6.71	369	450	2460	<4	23800	12600	1580	0.5	3.4	6.7	57	19.0	21.0	10400	43100	66.7	1410		0.20
PNR-7	3/15/07 12:15	60.5	8.7	47.7	6.65	371	452	2670	< 4	27600 D	13900	1750	0.5	3.4	6.5	105 D	194 D		11700 D	45400	66.3	1350 D		< 10 D
PNR-7	10/4/07 19:00	65.5	8.9	48.0	6.35	372	453	2560	<4	26500	13100	1630	0.5	3.8	6.4	72	19.0	24.0	11000	45400	70.1	1510		0.20
PNR-7	3/28/08 10:30	69.5	8.9	48.0	6.37	381	465	2600	<4	27200	13100	1630	0.6	3.7	6.6	66	20.0	20.0	11300	42100	63.7	2600		0.20
PNR-8	5/31/2000 0:00	5.6	9.7	49.5	5.60	464	566	272	< 1	380	1500	200		< 0.05	7.8	12			420	2350	4.1	738	25.2	
PNR-8	8/7/2001 13:50	4.3	9.9	49.8	7.50	459	560	266	< 1	764	1470	196	0.4	< 0.05	7.1	10	20.7		406	3460	4.4	1210		
PNR-8	8/16/2001 18:10	4.6	10.0	50.0	7.50	<1	<1	254	< 1	647	1420	191	0.3	< 0.05	2.3	8	26.1		406	4460	12.8	2990		
PNR-8	11/6/2001 16:30	or	7.8	46.0	7.10	457	557	327	< 1	1020	1820	243	0.4	0.2	7.2	14		31.3	480	3940	5.0	1150		
PNR-8	2/22/2002 16:00	5.9	11.5	52.7	7.58	489	596	307	< 4	888	1680	222	0.3	< 0.05	7.2	15	462.0		481	3640	4.9	1180		
PNR-8	5/21/2002 17:45	5.8	9.0	48.2	7.34	424	517	290	< 4	1310	1610	215	0.3	0.1	7.4	12	159.0		463	4020	5.6	1190		0.38
PNR-8	8/21/2002 10:10	4.2	10.3	50.5	7.30	404	492	320	< 4	1180	1810	246	0.5	0.1	7.3	11	20.0	140.0	435	4240	5.8	1290		0.35

Inorganic Water Chemistry Data
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Field SC mS	Field Temp. °C	Field Temp. °F	Field pH S.U.	Alkalinity as $CaCO_3$ mg/l	Bicarbonate mg/l	Calcium mg/l	Carbonate mg/l	Chloride mg/l	Hardness, Total as $CaCO_3$ mg/l	Magnesium mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate plus Nitrite mg/l	Lab pH S.U.	Potassium mg/l	Silica, Dissolved mg/l	Silica, Total mg/l	Sodium mg/l	Total Dissolved Solids @ 180° C mg/l	Specific Conductance @ 25° C mS	Sulfate mg/l	Iron mg/l	Flouride mg/l
PNR-8	11/5/2002 15:25	5.4	10.3	50.5	7.15	445	543	340	< 4	1140	1850	242	0.4	< 0.05	7.2	12	21.0	294.0	485	3880	5.6	1260		0.30
PNR-8	3/4/2003 12:10	5.0	9.9	49.8	7.58	433	529	336	< 4	1170	1860	247	0.3	< 0.05	7.1	13	22.0	95.0	528	3960	5.5	1280		0.30
PNR-8	5/13/2003 17:00	6.1	10.4	50.7	7.22	445	543	350	< 4	1090	1920	254	0.4	0.1	7.2	13	21.0	181.0	552	3910	5.2	1150		0.33
PNR-8	8/12/2003 9:46	4.2	10.6	51.1	7.18	445	543	367	< 1	1170	2020	268	0.3	< 0.05	7.1	12	23.0	80.0	584	4640	5.7	1090		0.31
PNR-8	11/4/2003 12:00	3.9	8.0	46.4	5.62	462	564	321	< 4	1060	1770	234	0.4	< 0.05	7.4	12	23.5	31.8	452	3700	4.7	1190		0.33
PNR-8	3/18/2004 11:30	7.8	9.9	49.8	7.25	465	567	348	< 1	1120	1930	258	0.3	0.1	7.2	12	25.7	64.3	491	3890	5.0	1060		0.34
PNR-8	6/8/2004 18:40	5.2	10.5	50.9	7.35	469	572	352	< 4	1240	1940	256	0.5	0.1	7.3	13	18.8	25.8	530	4250	5.7	1240		0.37
PNR-8	9/14/2004 17:05	4.5	12.1	53.8	7.70	440	537	360	< 4	1070	1960	256	0.5	0.1	7.3	13	23.7	38.1	514	4120	5.7	1080		0.34
PNR-8	11/16/2004 16:15	6.3	12.6	54.7	7.15	448	547	375	< 4	1230	2020	264	0.4	0.1	7.2	14	25.2	48.8	527	4130	5.9	1180		0.34
PNR-8	3/2/2005 15:30	5.6	9.2	48.6	7.27	474	579	383	< 4	1400	2150	290	0.5	< 0.05	7.3	17	25.5	35.1	650	4390	6.2	1210		0.36
PNR-8	5/26/2005 10:46	5.9	10.5	50.9	7.19	391	477	433	< 4	1540	2390	319	0.5	< 0.05	7.2	11	25.7	67.5	681	4820	6.5	1150		0.39
PNR-8	8/18/2005 11:50	6.3	12.4	54.3	7.45	287	350	400	< 4	1420	2230	299	0.4	< 0.05	7.3	12	20.1	47.8	594	4600	6.4	1170		0.35
PNR-8	11/17/2005 9:45	7.3	9.5	49.1	6.96	412	503	449	< 4	1610	2510	337	0.4	< 0.05	7.2	12	24.2	70.1	703	4530	6.8	1180		0.30
PNR-8	2/9/2006 9:45	6.8	9.9	49.8	7.68	465	568	417	< 4	1590	2310	309	0.5	< 0.05	7.3	16	24.7	63.3	707	4780	7.0	1180		0.29
PNR-8	5/24/2006 17:50	5.3	9.8	49.6	7.11	451	551	424	< 4	1630	2340	312	0.5	< 0.05	7.9	16	23.4	40.8	664	4230	6.9	1200		0.32
PNR-8	8/24/2006 12:30	7.8	10.1	50.2	7.22	422	515	434	<4	1620	2410	322	0.5	0.1	7.0	16	21.8	61.7	724	4960	7.3	1170		0.30
PNR-8	12/7/2006 11:30	7.0	8.5	47.3	7.31	419	512	435	<4	1810	2450	331	0.4	< 0.05	7.2	15	23.6	89.0	763	5130	7.9	1170		0.30
PNR-8	3/14/07 13:25	7.8	9.4	48.9	7.23	427	520	495	< 4	2210 D	2760	369	0.5	0.2	7.1	19	36.3		899	5430	8.3	1070 D		0.31
PNR-8	10/4/07 14:35	9.0	10.7	51.3	6.98	423	517	461	<4	1970	2570	345	0.5	0.36	7.1	15	23	40.6	810	5370	8.5	1200		0.30
PNR-8	3/26/08 11:30	7.3	9.2	48.5	7.02	421	513	502	<4	2270	2800	375	0.5	0.18	7.2	15	23	38.2	953	5700	8.8	1150		0.30
PNR-9	6/1/2000 0:00	9.7	11.4	52.5	9.10	263	321	583	< 1	3060	2920	355		< 0.05	7.3	16			887	5700	9.3	809	35.4	
PNR-9	8/9/2001 9:35	10.1	10.5	50.9	7.40	305	372	637	< 1	3360	3150	378	1.6	< 0.05	7.1	18	17.3		985	7940	9.7	760		
PNR-9	8/16/2001 13:45	mnw	10.9	51.6	7.60	274	334	663	< 1	3620	3350	412	1.2	< 0.05	7.2	17	15.8		1050	8020	9.9	639		
PNR-9	11/7/2001 14:30	4.5	9.4	49.0	7.70	263	321	691	< 1	3640	3450	420	1.7	< 0.05	7.0	20		29.2	1060	7630	10.3	740		
PNR-9	2/20/2002 14:50	10.2	10.7	51.3	7.24	281	343	689	< 4	3700	3420	413	1.8	< 0.05	6.8	30	32.0		1110	7300	11.7	629		
PNR-9	5/22/2002 10:15	11.9	12.6	54.7	7.32	274	334	607	< 4	4330	3060	375	1.8	< 0.05	7.0	18	25.0		1030	8580	11.3	510		0.17
PNR-9	8/20/2002 16:20	11.1	12.7	54.9	7.20	251	306	670	< 4	4060	3460	434	1.8	< 0.05	7.0	16	15.0	24.0	1000	9120	11.9	690		0.18
PNR-9	11/5/2002 14:05	11.5	10.9	51.6	7.50	270	330	704	< 4	4000	3470	417	1.9	< 0.05	7.1	18	14.0	25.0	1030	8340	12.1	757		0.19
PNR-9	3/4/2003 16:00	11.2	9.3	48.7	7.37	252	308	756	< 4	3920	3620	421	1.9	< 0.05	6.8	20	16.0	36.0	1110	7880	12.8	720		0.20
PNR-9	5/27/2003 18:15	10.5	12.7	54.9	7.16	271	330	735	< 1	3790	3620	434	1.8	< 0.05	6.9	19	16.0	54.0	1070	8530	13.0	711		0.22
PNR-9	8/13/2003 10:35	11.7	14.9	58.8	7.82	257	314	718	< 1	4580	3530	421	1.9	< 0.05	6.8	19	16.0	22.0	1110	8850	10.9	571		0.17
PNR-9	11/4/2003 14:35	10.1	10.0	50.0	6.93	262	319	696	< 4	4700	3720	480	1.9	< 0.05	7.0	21	15.0	22.0	1210	8280	11.6	663		0.22
PNR-9	March 2004	Not Sampled																						
PNR-9	6/8/2004 13:35	mnw	11.5	52.7	7.56	1030	1260	783	< 4	4340	3880	467	2.1	< 0.05	7.1	20	16.3	19.1	1350	9660	12.2	842		0.21
PNR-9	9/14/2004 11:00	12.0	11.3	52.3	7.67	276	337	835	< 4	4210	4070	483	2.3	< 0.05	7.0	20	17.5	21.4	1220	10600	13.3	752		0.26
PNR-9	11/16/2004 16:12	17.3	10.0	50.0	7.36	254	310	848	< 4	4480	4110	485	2.1	< 0.05	6.9	23	18.8	19.9	1270	9140	13.6	769		0.28
PNR-9	3/1/2005 12:10	13.0	9.3	48.7	7.33	280	341	827	< 4	4450	4080	490	2.1	< 0.05	7.1	24	19.0	19.0	1430	9590	13.4	767		0.22
PNR-9	5/24/2005 17:25	13.8	10.2	50.4	7.23	237	289	886	< 4	4580	4390	528	2.2	< 0.05	7.0	19	21.6	21.7	1490	10200	13.6	908		0.32
PNR-9	8/16/2005 12:00	13.6	9.9	49.8	7.27	274	334	852	< 4	4540	4190	502	2.1	< 0.05	7.1	16	17.4	17.4	1300	10300	13.9	779		0.26
PNR-9	11/15/2005 15:55	14.5	10.1	50.2	7.28	250	305	930	< 4	4600	4620	557	2.1	< 0.05	7.2	20	18.1	21.2	1550	9990	14.2	766		0.12
PNR-9	2/8/2006 12:00	14.2	8.2	46.8	7.54	263	320	925	< 4	4490	4540	542	2.2	< 0.05	7.1	25	19.5	20.7	1550	8850	14.2	761		0.24
PNR-9	5/23/2006 13:15	12.0	10.0	50.0	7.32	252	307	863	< 4	4990	4260	511	2.3	< 0.05	7.4	24	18.0	22.0	1520	9800	14.5	831		0.17
PNR-9	8/23/2006 9:40	16.1	10.2	50.4	7.29	246	300	904	<4	4760	4480	539	2.2	<0.05	6.8	22	19.0	20.4	1550	10800	15.1	823		0.15
PNR-9	12/6/2006 15:00	14.1	9.1	48.4	7.47	253	308	895	<4	4620	4420	530	2.5	<0.05	7.0	23	17.3	23.2	1600	10000	15.2	855		0.20
PNR-9	3/13/07 16:35	14.5	9.5	49.2	7.24	247	302	890	< 4	4570 D	4360	520	2.5	< 0.05	6.9	29	80 D		1590 D	10700	15.3	699 D		0.17
PNR-9	10/4/07 10:40	18.2	10.7	51.3	7.20	248	303	919	<4	5200	4510	539	3.0	<0.05	6.8	21	17.0	51.0	1670	11300	16.2	889		0.20
PNR-9	3/27/08 13:40	15.1	9.5	49.1	7.13	260	318	869	<4	5040	4230	501	2.3	<0.05	7.0	18	18.0	19.6	1640	9620	15.3	860		0.20
PNR-10	6/1/2000 0:00	3.2	10.5	50.9	8.90	528	645	208	< 1	147	978	111		< 0.05	7.6	8			435	2480	3.1	1210	12.1	
PNR-10	8/8/2001 18:50	3.7	11.4	52.5	7.40	571	697	230	< 1	245	1090	127	1.2	< 0.05	7.2	8	24.3		449	2890	3.5	1260		
PNR-10	8/16/2001 13:15	mnw	11.3	52.3	7.70	550	672	229	< 1	263	1100	128	1.2	< 0.05	7.2	8	28.3		482	2900	3.5	1320		
PNR-10	11/7/2001 12:30	nm	9.4	49.0	nm	528	644	217	< 1	196	1040	121	1.2	0.1	7.4	10		38.9	443	2690	3.2	1220		
PNR-10	2/20/2002 13:38	2.4	10.3	50.5	7.27	578	705	230	< 4	304	1110	131	1.2	< 0.05	7.0	8	30.1		448	2920	3.9	1340		
PNR-10	5/21/2002 13:35	3.8	11.6	52.9	7.31	535	653	214	< 4	415	1040	124	1.3	< 0.05	7.2	8	30.6		430	2810	3.8	1680		0.22
PNR-10	8/20/2002 12:20	3.4	13.1	55.6	7.20	512	624	230	< 4	351	1150	139	1.3	0.1	7.2	7	23.4	31.2	407	3090	4.0	1350		0.25
PNR-10	11/5/2002 13:30	3.9	11.0	51.8	7.47	524	639	263	< 4	384	1250	145	1.4	< 0.05	7.2	11	24.0	30.7	581	3130	4.1	1380		0.25
PNR-10	3/4/2003 16:50	3.8	9.2	48.6	7.34	540	658	268	< 4	426	1270	150	1.3	< 0.05	7.0	9	23.8	51.9	470	3180	4.3	1340		0.30
PNR-10	5/27/2003 17:45	3.6	12.4	54.3	7.30	516	630	268	< 1	434	1310	155	1.2	< 0.05	7.1	9	24.8	29.2	476	3230	4.4	1350		0.28
PNR-10	8/13/2003 10:00	3.9	13.3	55.9	7.97	512	624	263	< 1	457	1270	149	1.2	< 0.05	6.9	9	24.1	45.0	444	3270	4.2	1340		0.25
PNR-10	11/4/2003 13:45	3.6	10.2	50.4	7.87	512	624	240	< 4	512	1270	162	1.4	< 0.05	7.2	9	24.5	28.3	466	3310	3.9	1420		0.28
PNR-10	March 2004	Not Sampled																						
PNR-10	6/8/2004 14:10	mnw	11.5	52.7	7.51	493	602	284	< 4	561	1410	170	1.4	< 0.05	7.2	9	23.9	56.0	524	3390	4.2	1410		0.27
PNR-10	9/14/2004 11:40	4.0	11.5	52.7	7.51	519	633	300	< 4	607	1490	180	1.6	< 0.05	7.2	10	25.6	31.0	508	3510	4.6	1350		0.27
PNR-10	11/16/2004 11:28	5.7	10.6	51.1	7.30	504	615	316	< 4	602	1540	181	1.5	< 0.05	7.2	10	26.2	29.1	502	3430	4.6	1360		0.28
PNR-10	3/1/2005 11:06	4.5	9.6	49.3	7.28	524	640	315	< 4	653	1570	191	1.4	< 0.05	7.1	12	26.7	28.3	571	3560	4.7	1370		0.27
PNR-10	5/24/2005 15:50	4.8	10.8	51.4	7.16	442	540	300	< 4	645	1500	181	1.6	< 0.05	7.2	11	25.4	25.3	558	3810	4.8	1200		0.31
PNR-10	8/16/2005 10:48	4.6	9.9	49.8	7.17	522	637	327	< 4	688	1630	197	1.4	< 0.05	7.2	7	25.2	26.4	495	3660	4.9	1360		0.26
PNR-10	11/15/2005 11:45	4.9	8.9	48.0	6.35	460	561	356	< 4	758	1800	220	1.4	< 0.05	7.2	8	25.9	28.0	585	3730	5.1	1400		0.24
PNR-10	2/7/2006 14:00	4.6	10.2	50.4	7.22	498	607	355	< 4	708	1740	208	1.5	< 0.05	7.1	11	27.9	29.4	582	3730	5.1	1300		0.25
PNR-10	5/23/2006 12:15	4.2	10.0	50.0	7.23	480	585	352	< 4	834	1740	209	1.7	< 0.05	7.8	11	26.7	32.2	597	3790	5.1	1430		0.24
PNR-10	8/23/2006 10:35	5.6	10.1	50.2	7.20	452	551	354	<4	811	1740	208	1.5	<0.05	7.0	11	26.8	29.6	598	3820	5.5	1370		0.20
PNR-10	12/6/2006 14:30	5.3	9.2	48.6	7.40	458	559	366	<4	790	1770	208	1.8	<0.05	7.0	12	27.2	29.6	633	3890	14.9	1340		0.20
PNR-10	3/13/07 15:20	5.3	9.8	49.7	7.26	450	550	376	< 4	922	1870	225	1.9	< 0.05	7.1	11	40.9		620	4050	5.6	1390		0.23
PNR-10	10/3/07 16:30	5.8	10.1	50.3	7.08	442	540	388	<4	984	1840	225	1.7	<0.05	7.0	10	26.1	32.2	612	4130	6.1	1400		0.20
PNR-10	3/27/08 11:45	5.9	9.7	49.5	7.08	446	545	375	<4	1090	1880	230	1.6	<0.05	7.1	9	26.6	29.1	629	4300	6.0	1410		0.20

Inorganic Water Chemistry Data
Pioneer Natural Resources USA, Inc. - Blere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Field SC mS	Field Temp. °C	Field Temp. °F	Field pH S.U.	Alkalinity as $CaCO_3$ mg/l	Bicarbonate mg/l	Calcium mg/l	Carbonate mg/l	Chloride mg/l	Hardness, Total as $CaCO_3$ mg/l	Magnesium mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate plus Nitrite mg/l	Lab pH S.U.	Potassium mg/l	Silica, Dissolved mg/l	Silica, Total mg/l	Sodium mg/l	Total Dissolved Solids @ 180° C mg/l	Specific Conductance @ 25° C mS	Sulfate mg/l	Iron mg/l	Flouride mg/l
PNR-12	5/31/2000 0:00	4.5	12.1	53.8	6.00	699	853	425	< 1	78	2410	328		95.7	7.6	17			362	1020	4.6	2030	39.3	
PNR-12	8/8/2001 15:00	4.9	12.8	55.0	7.30	537	655	421	< 1	74	2390	325	0.3	139.0	7.3	15	19.1		397	4720	4.8	2130		
PNR-12	8/15/2001 16:00	mnw	13.4	56.1	7.40	738	900	444	< 1	72	2570	356	0.3	138.0	7.3	16	21.1		381	4610	4.6	2050		
PNR-12	11/6/2001 16:20	4.1	10.0	50.0	7.70	739	901	425	< 1	72	2430	333	0.4	105.0	7.2	15		64.5	336	4590	4.7	2040		
PNR-12	2/20/2002 11:55	4.6	10.8	51.4	7.14	735	897	375	< 4	67	2370	349	0.2	145.0	7.2	14	36.0		373	4700	5.1	2170		
PNR-12	5/21/2002 11:00	4.9	14.0	57.2	7.22	666	812	409	< 4	56	2360	324	< 0.1	142.0	7.3	12	22.0		342	4630	5.1	2250		0.23
PNR-12	8/19/2002 16:05	4.6	12.3	54.1	8.80	744	908	328	< 4	68	2070	304	1.1	82.9	7.4	11	20.5	88.4	298	3990	4.5	1830		0.30
PNR-12	11/5/2002 11:15	4.8	11.0	51.8	7.31	700	854	442	< 4	76	2470	331	< 0.1	130.0	7.2	12	19.0	69.0	328	4660	5.1	2200		0.21
PNR-12	3/4/2003 13:10	4.6	9.6	49.3	7.53	684	834	407	< 4	148	2420	340	< 0.1	128.0	7.2	15	19.0	139.0	361	4590	4.8	2200		0.20
PNR-12	5/27/2003 17:00	4.3	13.5	56.3	7.46	656	801	393	< 1	80	2280	316	< 0.1	112.0	7.2	13	17.0	181.0	323	4540	5.3	2200		0.28
PNR-12	8/13/2003 8:05	4.0	15.6	60.1	8.21	685	835	415	< 1	58	2440	341	< 0.1	133.0	7.1	11	19.9	33.1	314	4600	4.9	2180		0.22
PNR-12	11/4/2003 12:35	3.3	10.2	50.4	5.38	681	831	370	< 4	64	2380	354	< 0.1	135.0	7.2	12	20.6	46.8	331	4590	4.4	2240		0.22
PNR-12	March 2004	Not Sampled																						
PNR-12	6/8/2004 9:15	mnw	12.9	55.2	7.27	691	843	402	< 4	72	2410	342	< 0.1	337.0	7.2	11	19.4	33.8	389	4540	4.6	2120		0.27
PNR-12	9/14/2004 10:00	4.5	12.9	55.2	7.43	695	847	424	< 4	75	2540	359	< 0.1	104.0	7.1	12	21.0	17.1	345	4580	4.9	2080		0.24
PNR-12	11/16/2004 9:35	6.1	10.2	50.4	7.12	649	792	453	< 4	70	2640	366	< 0.1	135.0	7.4	12	21.8	33.8	340	4550	5.0	2100		0.25
PNR-12	2/28/2005 17:10	4.5	9.5	49.1	7.09	697	850	416	< 4	66	2530	363	< 0.1	126.0	7.1	12	21.8	25.4	361	4620	4.9	2100		0.25
PNR-12	5/23/2005 18:50	4.8	10.3	50.5	6.94	586	716	404	< 4	65	2420	342	< 0.1	130.0	6.9	11	20.4	24.1	354	4540	4.8	1980		0.27
PNR-12	8/15/2005 6:00	4.7	10.3	50.5	6.95	687	838	440	< 4	63	2630	372	< 0.1	163.0	7.2	9	21.7	20.9	335	4600	4.9	2060		0.23
PNR-12	11/15/2005 9:45	4.8	9.7	49.5	7.08	617	752	444	< 4	71	2690	384	< 0.1	155.0	7.1	9	20.3	38.5	376	4520	5.0	2170		0.21
PNR-12	2/7/2006 13:00	4.7	10.3	50.5	6.97	669	816	435	< 4	66	2670	385	< 0.1	204.0	7.0	11	22.8	27.6	374	4550	5.0	2100		0.20
PNR-12	5/23/2006 10:50	4.3	10.4	50.7	7.00	645	787	445	< 4	72	2710	388	< 0.1	197.0	7.9	11	21.9	26.1	376	4400	5.0	2200		0.21
PNR-12	8/22/2006 16:10	4.1	10.5	50.9	7.02	609	743	436	<4	68	2660	381	<0.1	185.0	6.9	11	22.3	32.1	361	4540	5.1	2070		0.20
PNR-12	12/5/2006 15:45	5.0	9.5	49.1	6.92	615	750	450	<4	69	2650	370	<0.1	187.0	7.0	11	22.1	30.1	361	4700	5.3	2120		0.20
PNR-12	3/14/07 12:15	4.6	9.9	49.7	6.74	615	751	451	< 4	71	2690	380	< 0.1	202 D	7.2	13	37.4		367	4710	5.23	1970		0.2
PNR-12	10/3/07 13:00	5.9	11.3	52.3	7.15	587	716	409	<4	63	2460	349	<0.1	144	7.3	8	22	45.3	321	4450	5.21	2060		0.2
PNR-12	3/26/08 10:45	4.9	9.7	49.4	6.84	540	659	415	<4	58	2500	355	<0.1	166	7.1	9	21.5	22.2	333	4450	4.89	2100		0.2
PNR-13	8/15/2001 18:15	21.3	14.5	58.1	7.50	372	453	1050	< 1	12300	4870	546	6.0	1.1	7.3	31	18.9		6050	22200	27.3	862		
PNR-13	8/15/2001 19:00	21.3	14.5	58.1	7.50	375	457	984	< 1	11500	4480	492	5.1	1.5	7.2	42	20.1		5710	21200	25.6	841		
PNR-13	11/7/2001 13:35	or	9.4	49.0	7.40	424	517	529	< 1	3420	2540	296	2.1	0.4	7.1	26		26.4	1610	7780	10.9	1360		
PNR-13	2/19/2002 16:30	7.7	9.5	49.1	7.09	559	682	474	< 4	2220	2310	273	1.2	< 0.05	7.0	17	32.0		1250	6720	9.4	1810		
PNR-13	5/22/2002 14:00	6.8	11.0	51.8	7.20	508	619	418	< 4	1040	2070	249	1.2	< 0.05	7.4	14	29.0		680	5120	6.3	2270		0.32
PNR-13	8/20/2002 15:45	4.4	13.3	55.9	6.90	444	541	408	< 4	679	2080	257	1.4	< 0.05	7.2	12	24.0	30.0	588	4530	5.6	2000		0.36
PNR-13	11/5/2002 15:10	4.9	9.9	49.8	7.09	511	623	386	< 4	769	1900	227	1.3	< 0.05	7.2	14	22.0	30.0	493	4110	5.3	1730		0.37
PNR-13	3/4/2003 11:15	4.4	9.3	48.7	7.48	485	592	384	< 4	592	1880	224	1.2	< 0.05	7.1	11	22.9	37.0	437	3950	4.7	1810		0.40
PNR-13	5/28/2003 10:05	4.6	12.2	54.0	7.10	501	612	386	< 1	517	1910	230	1.1	< 0.05	7.2	14	24.0	28.0	471	3940	5.1	1770		0.49
PNR-13	8/13/2003 10:20	3.4	11.1	52.0	7.37	518	632	305	< 1	690	1550	193	1.1	< 0.05	7.1	11	23.3	29.3	374	3570	4.3	1180		0.33
PNR-13	11/4/2003 14:15	6.8	10.1	50.2	7.27	541	661	322	< 4	1200	1720	223	1.5	< 0.05	7.2	14	23.7	26.0	772	4630	5.6	1600		0.35
PNR-13	March 2004	Not Sampled																						
PNR-13	6/8/2004 15:30	3.7	11.0	51.8	7.37	560	683	316	< 4	860	1620	201	1.6	< 0.05	7.1	11	23.1	27.4	667	4190	5.6	1580		0.37
PNR-13	9/14/2004 10:00	3.6	11.1	52.0	7.67	542	662	307	< 4	565	1550	190	1.4	0.05	7.2	11	25.8	25.9	350	3150	4.1	1160		0.36
PNR-13	11/16/2004 15:30	4.9	12.9	55.2	7.13	532	649	326	< 4	624	1650	202	1.3	< 0.05	7.2	13	25.2	30.8	520	3480	4.7	1360		0.35
PNR-13	3/1/2005 13:25	3.8	10.0	50.0	7.16	537	655	306	< 4	447	1570	196	1.1	< 0.05	7.1	12	27.0	28.1	370	3110	3.9	1270		0.37
PNR-13	5/24/2005 12:00	4.6	11.4	52.5	7.08	476	581	292	< 4	470	1510	189	1.3	< 0.05	7.1	12	24.0	29.7	488	3610	4.5	1410		0.39
PNR-13	8/17/2005 9:40	4.1	14.4	57.9	7.01	489	597	303	< 4	541	1550	193	1.2	0.39	7.3	9	25.5	62.6	383	3440	4.5	1330		0.36
PNR-13	11/16/2005 10:50	4.8	9.7	49.5	6.68	507	618	337	< 4	500	1780	227	1.2	<0.05	7.3	10	26.8	55.3	565	3840	4.7	1690		0.34
PNR-13	2/8/2006 10:40	5.0	9.3	48.7	7.32	539	657	321	< 4	410	1690	216	1.3	<0.05	7.3	11	27.9	29.0	535	3750	4.6	1620		0.33
PNR-13	5/24/2006 13:15	3.1	16.5	61.7	7.08	510	623	318	< 4	385	1680	215	1.2	< 0.05	7.9	11	27.7	31.1	480	3240	4.3	1630		0.34
PNR-13	8/22/2006 14:25	4.3	11.8	53.2	7.15	502	612	325	<4	437	1760	231	1.3	<0.05	7.0	11	24.9	29.1	620	3880	5.1	1770		0.33
PNR-13	12/6/2006 11:30	5.0	7.0	44.6	7.40	508	619	334	<4	769	1800	235	1.4	<0.05	7.3	11	23.8	29.6	723	4430	6.1	1780		0.30
PNR-13	3/14/07 16:20	3.8	9.4	48.9	7.37	504	615	318	< 4	407	1700	220	1.5	< 0.05	7.2	10	37.8		546	3790	4.82	1670		0.32
PNR-13	10/7/08 17:30	4.1	10.2	50.3	7.02	499	608	308	<4	347	1630	210	1.2	<0.05	7.2	9	25.6	36.5	495	3750	4.81	1740		0.30
PNR-13	3/27/08 15:00	4.1	9.7	49.4	7.05	485	592	313	<4	319	1630	206	1.2	<0.05	6.9	10	27.3	30.0	423	3430	4.21	1630		0.30
PNR-14	8/9/2001 16:00	96.6	42.6	108.7	6.40	321	391	1390	< 1	44200	5110	397	23.8	< 0.05	6.5	327	30.7		23100	70000	80.5	1460		
PNR-14	8/14/2001 9:45	96.9	39.7	103.5	6.60	294	358	1430	< 1	44300	5190	394	24.0	< 0.05	6.6	310	30.8		23200	69700	74.3	1330		
PNR-14	11/7/2001 14:35	or	45.6	114.0	6.40	340	415	1690	< 1	40900	6370	519	28.1	< 0.05	6.3	170		37.3	22200	67400	51.1	1490		
PNR-14	2/21/2002 11:30	91.4	41.2	106.2	6.09	372	454	1570	< 4	43100	5910	483	29.8	< 0.05	6.6	249	25.0		22700	64200	60.4	1300		
PNR-14	5/22/2002 12:05	90.2	42.5	108.5	6.26	338	412	1260	< 4	39700	4630	358	22.2	< 0.05	6.4	282	42.0		22000	67200	66.7	1730		0.35
PNR-14	8/20/2002 17:45	87.8	40.0	104.0	6.10	325	397	1250	< 4	39900	4800	407	18.5	< 0.05	6.5	133	30.0	29.0	21200	66300	68.5	1510		0.32
PNR-14	11/6/2002 11:28	105.5	40.9	105.6	6.30	295	360	1410	< 4	35300	5210	412	18.4	< 0.05	6.6	368	22.0	33.0	21500	65400	57.5	1590		0.30
PNR-14	3/4/2003 17:15	91.8	35.7	96.3	6.42	281	343	1390	< 4	40200	5050	384	17.5	< 0.05	6.4	355	29.0	42.0	20800	65200	47.4	1650		0.30
PNR-14	5/28/2003 11:45	64.7	40.2	104.4	6.44	314	383	1280	< 1	33300	4940	426	15.1	< 0.05	6.5	343	29.0	30.0	19300	60600	84.1	1460		0.34
PNR-14	8/13/2003 15:43	78.2	39.7	103.5	6.36	306	373	1300	< 1	37400	4860	394	17.0	< 0.05	6.4	370	30.0	31.0	20700	62800	82.2	1030		0.30
PNR-14	11/5/2003 11:45	83.3	38.5	101.3	5.79	331	404	1170	< 4	26400	5370	596	8.3	< 0.05	6.5	214	39.0	46.0	12400	43300	31.0	1210		0.38
PNR-14	3/17/2004 10:45	96.8	38.8	101.8	6.05	377	460	1110	< 1	30300	4400	397	12.7	< 0.05	6.7	314	35.0	32.0	16800	49300	70.4	1080		0.36
PNR-14	6/9/2004 10:40	66.4	38.2	100.8	6.62	384	469	827	< 4	28100	3230	283	11.8	< 0.05	6.6	241	27.0	30.0	14500	45500	68.5	1400		0.41
PNR-14	9/14/2004 15:35	62.5	36.4	97.5	7.80	412	503	748	< 4	25000	3000	275	11.1	< 0.05	6.8	263	34.0	34.0	13800	39800	60.0	1300		0.40
PNR-14	11/17/2004 15:30	65.5	36.0	96.8	6.88	405	495	741	< 4	19300	2970	271	9.1	< 0.05	6.7	242	30.0	32.0	11700	36200	55.6	1140		0.43
PNR-14	3/2/2005 10:50	42.5	40.7	105.3	6.59	472	576	617	< 4	16500	2600	257	7.7	< 0.05	6.8	175	31.0	30.0	10400	29700	45.5	1460		0.45
PNR-14	5/25/2005 9:46	41.2	34.5	94.1	6.63	453	553	568	< 4	13600	2440	248	6.8	< 0.05	6.9	178	30.0	67.0	8840	25200	38.1	2110		0.53
PNR-14	8/17/2005 15:18	34.9	33.5	92.3	6.72	591	721	528	< 4	11100	2390	260	6.2	< 0.05	7.0	125	30.0	28.0	6900	21400	33.0	2270		0.50
PNR-14	11/16/2005 11:05	43.1	31.9	89.4	6.66	541	660	663	< 4	10800	3170	388	5.6	< 0.05	7.1	173	37.0	37.0	6850	20100	31.7	2040		0.36
PNR-14	2/9/2006 14:35	31.6	30.8	87.4	6.73	624	761	568	< 4	9060	2730	321	5.4	< 0.05	7.0	145	34.0	32.0	5650	18700	28.6	2140		0.34

Inorganic Water Chemistry Data
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Field SC mS	Field Temp. °C	Field Temp. °F	Field pH S.U.	Alkalinity as $CaCO_3$ mg/l	Bicarbonate mg/l	Calcium mg/l	Carbonate mg/l	Chloride mg/l	Hardness, Total as $CaCO_3$ mg/l	Magnesium mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate plus Nitrite mg/l	Lab pH S.U.	Potassium mg/l	Silica, Dissolved mg/l	Silica, Total mg/l	Sodium mg/l	Total Dissolved Solids @ 180° C mg/l	Specific Conductance @ 25° C mS	Sulfate mg/l	Iron mg/l	Flouride mg/l
PNR-14	5/24/2006 17:00	25.7	32.0	89.6	6.49	615	751	570	< 4	9220	2790	331	6.1	< 0.05	7.6	121	34.0	35.0	5530	17600	27.4	2080		0.42
PNR-14	8/23/2006 16:20	26.1	32.0	89.7	6.44	605	738	525	<4	8220	2640	322	4.3	<0.05	6.9	105	34.0	35.0	4930	16700	26.9	2060		0.40
PNR-14	12/7/2006 15:30	19.2	27.9	82.2	7.06	633	772	523	<4	7230	2640	324	4.4	<0.05	6.9	91	32.0	32.0	4530	15600	24.5	2060		0.40
PNR-14	3/14/07 10:45	26.1	28.4	83.1	6.59	643	785	514	< 4	6590 D	2780	362	4.0	< 0.05	6.8	96	96.8 D		4440 D	14600	23.2	1890 D		0.40
PNR-14	10/4/07 16:50	20.2	28.7	83.7	6.53	673	821	478	< 4	6290	2640	351	3.1	< 0.05	6.7	76	30.0	35.0	3560	13500	21.7	2100		0.40
PNR-14	3/27/08 13:15	19.2	28.6	83.5	6.76	693	846	475	< 4	5880	2650	356	2.9	< 0.05	6.8	70	33.0	30.8	3530	12800	20.0	1930		0.40
PNR-15	8/10/2001 8:15	94.6	80.1	176.2	7.40	162	197	950	< 1	43500	3370	243	14.4	< 0.05	7.4	440	41.9		22700	66100	79.3	1470		
PNR-15	8/14/2001 13:00	97.2	80.1	176.2	7.10	288	351	1170	< 1	40800	4060	277	15.4	< 0.05	7.0	480	47.6		25200	66000	72.9	1650		
PNR-15	11/8/2001 9:10	102.0	81.7	179.0	6.20	369	450	950	< 1	37400	3340	237	15.6	0.1	6.7	382		50.1	21300	62400	49.4	1430		
PNR-15	2/21/2002 14:54	104.5	84.7	148.5	6.24	336	412	991	< 4	45500	3430	232	15.7	0.1	6.8	462	70.0		22700	68100	62.4	1420		
PNR-15	5/22/2002 14:55	106.9	67.2	153.0	6.41	330	402	951	< 4	43000	3300	226	14.9	< 0.05	6.6	398	61.0		21900	68800	69.1	2300		0.33
PNR-15	8/21/2002 14:00	101.7	60.5	140.9	6.40	346	423	1110	< 4	46200	3800	250	15.4	0.1	6.8	385	38.0	43.0	22100	70100	72.7	1840		0.38
PNR-15	11/6/2002 14:35	112.6	56.5	133.7	6.43	325	396	1010	< 4	37400	3480	235	15.4	< 0.05	6.8	420	27.0	42.0	21700	67800	60.4	1750		0.31
PNR-15	3/5/2003 12:30	107.0	55.5	131.9	7.17	324	395	1090	< 4	39300	3680	278	14.2	< 0.05	6.6	403	35.0	34.0	24800	64600	46.8	1730		0.40
PNR-15	5/28/2003 15:35	90.9	52.7	126.9	6.42	331	403	1060	< 1	38600	3810	282	13.1	< 0.05	6.7	432	32.0	33.0	22200	65400	90.1	1380		0.39
PNR-15	8/14/2003 9:58	78.9	53.2	127.8	6.50	336	410	1030	< 1	35900	3710	278	12.9	< 0.05	6.6	378	33.0	37.0	19800	59600	78.3	1020		0.37
PNR-15	11/5/2003 14:30	81.6	53.7	128.7	5.92	371	453	914	< 4	31800	3380	267	10.5	< 0.05	6.7	386	39.0	39.0	18700	51800	37.8	1100		0.38
PNR-15	3/17/2004 13:35	84.0	45.9	114.8	6.42	402	490	827	< 1	27600	3110	253	10.1	< 0.05	6.1	286	35.0	43.0	15800	45800	66.3	1160		0.35
PNR-15	6/8/2004 12:45	56.3	37.8	100.0	7.01	422	515	652	< 4	24700	2490	209	9.0	< 0.05	7.0	241	30.0	36.0	13900	37100	60.5	1530		0.48
PNR-15	9/15/2004 16:30	62.2	43.1	109.6	6.74	423	516	753	< 4	23300	2920	252	9.4	< 0.05	7.0	235	36.0	40.0	13200	39000	58.9	1310		0.44
PNR-15	11/18/2004 9:05	58.9	40.4	104.7	6.88	384	469	668	< 4	21300	2660	239	7.7	< 0.05	6.8	253	27.0	30.0	12000	35200	54.7	1310		0.49
PNR-15	3/2/2005 12:20	47.6	38.2	100.8	6.72	467	570	660	< 4	19600	2640	242	7.4	< 0.05	7.0	191	31.0	39.0	11800	33000	50.2	1290		0.54
PNR-15	5/25/2005 10:40	44.0	35.3	95.5	6.95	453	553	498	< 4	14700	2040	194	5.9	< 0.05	7.2	175	29.0	38.0	9080	28100	40.0	1650		0.71
PNR-15	8/17/2005 16:45	43.7	36.6	97.9	6.93	504	615	510	< 4	12700	2090	199	6.2	< 0.05	7.2	128	26.0	29.0	8400	27300	42.2	1200		0.59
PNR-15	11/16/2005 11:35	44.2	33.4	92.1	7.02	494	603	555	< 4	13800	2270	214	5.5	< 0.05	7.1	177	33.0	39.0	8830	22800	37.7	1420		0.6
PNR-15	2/8/2006 10:45	33.1	31.7	89.1	7.17	575	701	392	< 4	10400	1580	148	4.6	< 0.05	7.2	115	30.0	35.0	6920	19500	31.6	1560		0.68
PNR-15	5/24/2006 11:15	19.2	30.3	86.5	7.25	604	737	255	< 4	7470	1010	91	3.5	< 0.05	7.9	90	29.0	33.0	5310	14200	24.3	1840		0.86
PNR-15	8/23/2006 17:15	28.2	31.8	89.2	6.80	562	686	312	<4	8720	1230	111	3.9	<0.05	7.2	93	27.0	27.0	5950	16900	28.2	1670		0.70
PNR-15	12/7/2006 16:30	22.0	28.5	83.3	7.08	575	701	310	<4	8790	1250	115	4.3	<0.05	7.3	85	26.0	28.0	5720	17100	28.1	1650		0.80
PNR-15	3/14/07 11:40	31.8	26.1	79.0	7.00	572	697	352	< 4	9290 D	1470	142	4.9	< 0.05	7.3	100	158 D		6260 D	17600	28.7	1840 D		0.73
PNR-15	10/4/07 18:00	26.1	26.1	79.0	7.05	578	705	328	< 4	9050	1340	126	4.6	< 0.05	7.2	96	28	36.0	6390	16800	28.0	1810		0.60
PNR-15	3/27/08 15:20	22.7	26.9	80.4	7.30	604	737	269	< 4	7720	1130	113	3.7	< 0.05	7.3	81	24	35.0	5390	15100	25.0	1580		0.60
PNR-16	8/10/2001 15:15	4.3	10.1	50.2	7.80	508	620	359	< 1	33	2300	340	0.3	20.2	7.4	19	22.1		282	4260	4.2	2480		
PNR-16	8/16/2001 18:35	4.6	11.1	52.0	7.80	485	592	396	< 1	33	2460	357	0.1	19.0	7.2	20	22.6		299	4260	4.1	2380		
PNR-16	11/6/2001 16:05	1.9	11.1	52.0	6.90	526	642	458	< 1	26	2570	347	2.0	8.6	7.1	21		158.0	337	4650	4.6	2780		
PNR-16	2/21/2002 10:20	4.6	9.1	48.4	7.04	635	774	469	< 4	28	2850	408	1.4	13.3	7.1	26	39.0		427	4960	5.1	3180		
PNR-16	5/21/2002 15:50	4.9	11.6	52.9	7.50	488	595	390	< 4	16	2650	407	0.2	16.5	7.3	20	39.9		289	5090	5.0	3460		0.45
PNR-16	8/20/2002 11:40	4.2	11.2	52.2	6.80	494	603	399	< 4	26	2860	452	< 0.1	17.7	7.3	14	24.2	42.1	371	5060	5.0	3270		0.46
PNR-16	11/5/2002 14:04	4.9	10.4	50.7	7.10	498	608	422	< 4	24	2810	428	< 0.1	18.2	7.2	21	22.0	30.0	286	5110	5.2	3210		0.47
PNR-16	3/4/2003 13:00	4.5	8.1	46.6	7.30	474	578	426	< 4	22	2770	460	0.5	18.4	7.1	20	23.8	103.0	361	5050	4.9	3190		0.40
PNR-16	5/27/2003 18:30	4.8	11.0	51.8	7.01	518	632	416	< 1	28	2760	419	< 0.1	18.7	7.1	19	24.0	26.0	285	4990	5.4	3090		0.52
PNR-16	8/13/2003 9:10	3.7	10.5	50.9	7.55	499	609	405	< 1	17	2730	417	0.2	18.2	7.1	20	23.7	36.8	302	5060	4.7	3120		0.44
PNR-16	11/4/2003 12:30	5.4	8.2	46.8	7.53	494	603	384	< 4	17	2790	446	0.5	17.8	7.3	23	25.4	33.2	312	5030	4.5	3260		0.44
PNR-16	3/17/2004 16:09	6.6	14.0	57.2	8.65	509	622	454	< 1	19	3010	457	0.4	16.3	7.0	22	26.7	35.1	320	5110	4.9	3250		0.47
PNR-16	6/8/2004 12:30	4.2	9.6	49.3	7.24	514	627	397	< 4	9	2740	425	< 0.1	19.3	7.1	20	23.9	33.0	301	4940	4.9	3070		0.58
PNR-16	9/14/2004 12:40	4.7	13.8	56.8	7.35	513	626	436	< 4	22	2960	454	< 0.1	18.8	7.3	22	26.6	41.1	294	4920	4.9	2990		0.53
PNR-16	11/16/2004 12:30	5.4	13.3	55.9	7.26	486	593	422	< 4	24	2750	412	0.2	19.0	7.3	21	24.3	245.0	282	4840	4.9	2930		0.55
PNR-16	3/1/2005 14:30	4.5	9.5	49.1	6.97	515	628	440	< 4	21	2980	458	< 0.1	18.2	7.1	22	27.3	34.5	339	4960	4.9	2890		0.53
PNR-16	5/24/2005 13:58	4.9	11.4	52.5	6.99	425	519	423	< 4	19	2750	411	1.0	17.1	7.0	24	25.9	53.5	342	5000	4.9	2950		0.52
PNR-16	8/17/2005 9:30	4.8	10.6	51.1	7.04	506	617	427	< 4	18	2920	450	< 0.1	22.1	7.4	22	25.0	37.4	291	4960	5.0	2940		0.34
PNR-16	11/15/2005 15:15	5.0	8.4	47.1	7.05	460	562	466	< 4	20	3140	480	0.1	20.4	7.2	19	25.9	88.9	341	4960	5.0	3120		0.46
PNR-16	2/7/2006 16:47	4.6	4.9	40.8	7.16	490	597	456	< 4	20	2950	440	0.3	19.7	7.0	21	25.5	61.4	341	5000	5.1	3020		0.43
PNR-16	5/24/2006 12:25	3.9	10.4	50.7	7.00	486	592	432	< 4	23	3080	488	0.2	25.7	7.9	22	27.7	43.8	349	4780	5.1	3200		0.51
PNR-16	8/22/2006 13:20	5.3	11.2	52.2	6.97	462	564	437	<4	19	2970	456	<0.1	18.3	6.9	22	26.0	45.3	346	4860	5.2	2950		0.46
PNR-16	12/6/2006 13:00	4.9	5.4	41.7	7.28	466	569	450	<4	20	2990	454	<0.1	20.9	7.4	22	27.0	29.4	324	4970	5.3	3000		0.50
PNR-16	3/13/07 12:45	5.0	8.8	47.8	6.52	460	561	463	< 4	20	3060	483	< 0.1	21.0	7.2	21	40.0		330	5050	5.3	3120		0.46
PNR-16	10/3/07 10:55	6.2	13.2	55.8	7.03	445	543	453	< 4	18	2950	443	0.8	15.1	7.2	24	36.7	42.4	403	5030	5.6	3150		0.40
PNR-16	3/26/08 14:30	6.9	10.3	50.5	6.90	473	577	444	< 4	32	2910	436	0.6	19.3	7.1	20	25.5	92.4	341	5110	5.2	3160		0.50
PNR-17	8/22/2001 12:35	98.7	75.0	167.0	nm	220	269	1440	< 1	42500	5450	449	21.8	< 0.05	7.4	372	55.2		22900	68800	65.4	1520		
PNR-17	8/22/2001 13:30	97.4	76.0	168.8	nm	219	267	1420	< 1	44200	5490	468	22.3	< 0.05	7.3	367	55.0		22900	68700	66.4	1440		
PNR-17	11/8/2001 11:30	nm	88.9	192.0	nm	178	217	2380	< 1	40300	10300	1070	31.5	0.1	7.1	289		153.0	20800	61800	47.8	1490		
PNR-17	2/21/2002 17:00	94.6	83.1	181.6	6.26	237	289	1850	< 4	41500	7120	608	29.9	< 0.05	6.8	291	111.0		21200	65900	59.1	1120		
PNR-17	5/23/2002 10:50	106.8	82.2	180.0	6.62	262	319	1360	< 4	42300	4990	386	22.9	< 0.05	6.8	289	76.0		21000	62800	67.0	1480		0.43
PNR-17	8/21/2002 15:15	103.7	71.5	160.7	6.50	358	437	1220	< 4	41000	4420	334	19.3	< 0.05	6.8	316	40.0	104.0	15400	70000	53.1	1490		0.44
PNR-17	11/6/2002 15:40	114.6	68.7	155.7	6.59	291	355	1360	< 4	36300	4870	358	19.1	< 0.05	6.8	405	34.0	88.0	23500	67100	58.3	1630		0.38
PNR-17	3/5/2003 13:30	113.5	71.3	160.3	7.08	301	367	1190	< 4	40600	4220	303	16.8	< 0.05	6.8	342	36.0	70.0	24000	65400	46.2	1580		0.40
PNR-17	5/28/2003 10:00	96.0	68.6	155.5	6.50	327	400	1100	< 1	38300	3920	288	15.7	< 0.05	6.7	383	33.0	58.0	22000	66400	91.6	1320		0.40
PNR-17	8/14/2003 11:05	106.5	60.0	140.0	6.41	331	404	942	< 1	39700	9060	248	16.5	< 0.05	6.7	288	29.0	47.0	17600	65900	85.9	1020		0.36
PNR-17	11/6/2003 11:30	104.9	53.5	128.3	6.54	389	474	914	< 4	38600	3360	262	15.2	< 0.05	6.8	378	30.0	31.0	20500	62000	41.8	783		0.33
PNR-17	3/17/2004 15:10	70.0	58.8	137.8	6.00	453	553	900	< 1	36900	3490	302	12.9	< 0.05	6.7	326	32.0	35.0	20200	58100	83.2	536		0.31
PNR-17	6/9/2004 15:45	81.7	48.6	119.5	6.85	488	595	770	< 4	35600	3070	277	12.4	< 0.05	6.7	274	30.0	54.0	18700	54700	81.4	692		0.40
PNR-17	9/16/2004 9:35	76.8	52.9	127.2	6.65	556	678	689	< 4	31300	2820	268	12.0	< 0.05	6.9	271	32.0	48.0	17500	50000	74.5	579		0.36
PNR-17	11/18/2004 12:20	70.8	48.0	118.4	6.92	652	796	498	< 4	22200	2160	224	9.2	0.2	7.1	269	29.0	41.0	15000	43200	66.6	311		0.46

Inorganic Water Chemistry Data
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Field SC mS	Field Temp. °C	Field Temp. °F	Field pH S.U.	Alkalinity as $CaCO_3$ mg/l	Bicarbonate mg/l	Calcium mg/l	Carbonate mg/l	Chloride mg/l	Hardness, Total as $CaCO_3$ mg/l	Magnesium mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate plus Nitrite mg/l	Lab pH S.U.	Potassium mg/l	Silica, Dissolved mg/l	Silica, Total mg/l	Sodium mg/l	Total Dissolved Solids @ 180° C mg/l	Specific Conductance @ 25° C mS	Sulfate mg/l	Iron mg/l	Flouride mg/l
PNR-17	3/2/2005 15:30	49.2	51.2	124.2	6.72	833	1020	366	< 4	20500	1650	179	7.2	< 0.05	7.2	209	33.0	41.0	13400	35400	54.9	506		0.86
PNR-17	5/25/2005 14:25	46.0	44.9	112.8	6.49	778	949	252	< 4	17300	1250	151	6.6	< 0.05	7.2	176	30.0	35.0	11200	30500	47.2	757		0.88
PNR-17	8/17/2005 17:25	36.6	41.8	107.2	6.79	1010	1230	166	< 4	12000	877	112	5.3	< 0.05	7.4	100	27.0	30.0	8330	25700	41.3	583		0.65
PNR-17	11/16/2005 14:01	37.3	44.1	111.4	7.43	1040	1260	113	< 4	11400	644	88	3.6	< 0.05	7.6	74	27.0	31.0	7670	18600	31.5	755		0.97
PNR-17	2/8/2006 14:05	26.2	41.0	105.8	7.61	1160	1420	80	< 4	8080	397	48	3.6	< 0.05	7.9	93	26.0	24.0	5970	15700	25.9	614		1.07
PNR-17	5/24/2006 13:50	22.0	37.2	99.0	7.36	1050	1280	60	< 4	7200	311	39	3.4	< 0.05	8.0	69	24.0	34.0	5240	12800	22.6	1070		0.78
PNR-17	8/24/2006 12:45	18.7	39.6	103.3	6.56	994	1210	48	<4	5500	254	32	2.4	<0.05	7.9	59	22.7	25.7	4710	11300	19.6	1180		1.10
PNR-17	12/8/2006 12:30	13.5	37.9	100.2	7.56	947	1160	43	<4	4620	221	28	10.4	<0.05	8.1	51	21.2	21.0	3990	10500	17.4	1290		1.10
PNR-17	3/15/07 11:49	14.7	38.1	100.6	7.86	936	1140	42 B	< 4	4250 D	225	29	2.2	< 0.05	8.1	50	72.6 D		3660 D	9400	15.5	1430 D		1.18
PNR-18	8/8/2001 16:00	3.0	11.4	52.5	7.40	616	751	276	< 1	57	1580	215	2.4	< 0.05	7.3	12	19.9		193	2740	2.9	1470		
PNR-18	8/16/2001 11:00	mnw	12.2	54.0	7.50	558	681	264	< 1	56	1630	235	2.3	< 0.05	7.3	11	23.6		203	2900	3.0	1520		
PNR-18	11/7/2001 10:20	nm	12.2	54.0	nm	696	849	256	< 1	84	1470	200	1.4	0.1	7.5	10		30.8	184	2650	2.9	1220		
PNR-18	2/20/2002 11:24		10.5	3.3	7.30	671	819	310	< 4	70	1750	238	2.2	< 0.05	7.3	10	26.0		241	2950	3.5	1600		
PNR-18	5/21/2002 10:30	3.5	13.1	55.6	7.22	624	761	283	< 4	42	1600	217	2.8	< 0.05	7.4	7	27.9		172	2960	3.4	1900		0.26
PNR-18	8/19/2002 16:50	3.2	12.3	54.1	7.00	576	703	299	< 4	57	1800	256	2.5	0.1	7.1	7	23.5	31.7	152	3130	3.5	1690		0.26
PNR-18	11/5/2002 11:55	3.5	12.0	53.6	7.41	613	748	328	< 4	60	1800	240	2.4	< 0.05	7.2	8	22.8	29.6	184	3210	3.6	1790		0.27
PNR-18	3/4/2003 14:35	3.2	10.8	51.4	7.23	583	712	332	< 4	67	1820	241	2.4	< 0.05	7.0	8	24.1	36.5	180	3140	3.6	1760		0.30
PNR-18	5/13/2003 11:45	3.2	12.3	54.1	7.97	623	760	325	< 4	60	1860	254	2.6	< 0.05	7.0	8	22.9	32.7	200	3150	3.4	1690		0.30
PNR-18	8/14/2003 8:40	2.9	14.2	57.6	7.97	616	752	312	< 1	45	1750	235	2.2	< 0.05	6.9	7	24.1	143.0	196	3200	3.5	1710		0.25
PNR-18	11/4/2003 16:00	3.1	10.3	50.5	7.60	650	793	264	< 4	52	1790	264	2.3	< 0.05	7.2	8	25.9	32.4	234	3250	3.2	1820		0.27
PNR-18	March 2004	Not Sampled																						
PNR-18	6/8/2004 9:55	mnw	12.4	54.3	7.41	677	826	353	< 4	60	2040	280	2.8	< 0.05	7.2	8	27.0	114.0	261	3210	3.4	1640		0.29
PNR-18	9/14/2004 8:55	3.3	10.6	51.1	7.45	737	899	327	< 4	52	1860	254	2.8	0.1	7.2	8	25.3	27.7	263	3280	3.7	1740		0.25
PNR-18	11/18/2004 14:25	3.8	10.9	51.6	7.07	715	872	332	< 4	57	1870	254	2.5	< 0.05	7.1	8	26.4	28.2	272	3350	3.8	1710		0.27
PNR-18	2/28/2005 17:50	3.5	10.9	51.6	6.75	712	869	318	< 4	53	1870	262	3.2	< 0.05	7.0	8	27.5	34.3	247	3240	3.6	1660		0.23
PNR-18	5/25/2005 17:30	2.8	12.2	54.0	7.11	594	724	314	< 4	57	1840	256	3.9	< 0.05	7.0	8	26.3	32.3	236	3150	3.5	1620		0.25
PNR-18	8/15/2005 18:00	3.4	21.9	71.4	7.05	752	918	332	< 4	55	1940	270	2.9	< 0.05	7.2	7	24.7	24.6	274	3330	3.6	1600		0.23
PNR-18	11/15/2005 10:30	3.5	8.8	47.8	7.07	675	824	330	< 4	60	1970	278	2.6	< 0.05	7.2	6	25.4	27.1	298	3300	3.8	1700		0.25
PNR-18	2/7/2006 11:30	3.5	7.9	46.2	7.08	743	906	307	< 4	61	1850	262	2.9	< 0.05	7.0	8	27.1	30.2	300	3270	3.8	1660		0.21
PNR-18	5/23/2006 11:15	3.5	12.6	54.6	7.02	716	874	310	< 4	69	1840	259	2.6	< 0.05	7.8	9	27.6	29.8	326	3030	3.8	1770		0.24
PNR-18	8/22/2006 17:17	3.3	10.4	50.7	7.11	708	863	317	<4	73	1870	261	2.3	<0.05	7.0	9	27.2	28.2	346	3360	4.0	1670		0.22
PNR-18	12/5/2006 14:45	3.9	9.6	49.3	6.97	688	840	312	<4	74	1830	256	2.7	<0.05	7.0	8	27.0	28.6	310	3420	4.0	1670		0.20
PNR-18	3/14/07 11:10	3.6	9.7	49.5	6.83	719	877	316	< 4	86	1850	256	3.2	< 0.05	7.2	7	41.9		360	3480	4.1	1720		0.22
PNR-18	10/2/07 17:20	4.7	9.9	49.8	7.31	740	903	308	< 4	86	1810	252	3.0	< 0.05	7.2	6	26.9	28.9	360	3490	4.4	1730		0.20
PNR-18	3/26/08 13:30	4.1	9.9	49.9	6.94	746	910	298	< 4	93	1760	247	2.3	< 0.05	7.2	7	26.4	28.2	375	3570	4.1	1670		0.20
PNR-19	8/7/2001 14:50	11.3	9.9	49.8	7.30	354	432	724	< 1	3820	4410	631	<0.1	18.0	7.0	19	21.4		819	8810	10.6	1160		
PNR-19	8/15/2001 16:40	mnw	13.5	56.3	7.40	344	420	702	< 1	3180	4260	610	<0.1	13.8	7.2	20	22.5		745	8260	9.5	1120		
PNR-19	11/6/2001 15:20	or	8.3	47.0	6.80	343	418	792	< 1	3770	4760	675	<0.1	20.2	7.1	20		25.4	861	8650	11.4	1270		
PNR-19	2/19/2002 15:05	12.3	10.5	50.9	6.96	326	398	971	< 4	4410	5710	799	<0.1	23.0	7.0	26	26.0		1130	9380	14.1	1400		
PNR-19	5/22/2002 14:55	16.2	10.0	50.0	7.01	352	430	927	< 4	6080	5570	791	<0.1	23.8	7.1	25	26.0		1300	11300	15.6	1160		0.24
PNR-19	8/20/2002 12:30	11.5	12.9	55.2	6.90	360	439	908	< 4	5070	5510	787	< 0.1	22.1	7.0	20	21.0	27.0	1210	11300	15.1	1470		0.28
PNR-19	11/5/2002 13:17	15.9	10.0	50.0	7.02	359	438	943	< 4	4960	5460	755	< 0.1	23.3	7.1	22	19.0	25.0	1220	11400	16.2	1380		0.28
PNR-19	3/4/2003 12:20	16.0	8.8	47.8	6.88	345	420	1020	< 4	5520	5910	818	< 0.1	25.7	7.0	25	21.0	24.0	1450	11500	16.6	1560		0.30
PNR-19	5/27/2003 17:20	17.1	12.2	54.0	6.94	360	440	1020	< 1	5880	5890	813	< 0.1	24.4	6.9	26	21.0	23.0	1470	12900	18.9	1420		0.30
PNR-19	8/13/2003 8:55	13.8	10.1	50.2	7.36	350	427	1020	< 1	6210	5880	810	< 0.1	24.6	7.0	24	20.0	31.0	1570	13000	12.4	1130		0.29
PNR-19	11/4/2003 10:50	13.1	9.1	48.4	6.91	354	431	946	< 4	6820	5800	834	< 0.1	28.7	7.0	30	22.0	25.0	1680	12200	15.8	1390		0.28
PNR-19	3/17/2004 16:40	10.8	13.0	55.4	8.75	364	444	1280	< 1	7970	7210	976	< 0.1	24.8	7.0	33	24.0	28.0	2140	14700	20.0	1390		0.25
PNR-19	6/8/2004 13:55	16.9	10.4	50.7	7.13	358	437	1070	< 4	6860	6060	825	< 0.1	25.0	7.0	30	20.8	25.3	2110	15200	19.3	1560		0.31
PNR-19	9/14/2004 14:15	15.6	11.3	52.3	7.48	345	421	912	< 4	5580	5120	691	< 0.1	24.6	7.1	34	23.7	24.5	1870	12600	17.1	1110		0.33
PNR-19	11/16/2004 13:45	21.0	10.6	51.1	7.23	335	409	1010	< 4	6270	5600	745	< 0.1	27.2	7.0	30	22.4	22.5	1990	13000	18.6	1250		0.32
PNR-19	3/1/2005 15:35	18.6	10.1	50.2	6.89	368	449	1140	< 4	7590	6460	877	< 0.1	28.3	7.0	34	24.0	23.0	2680	15700	21.8	1380		0.32
PNR-19	5/25/2005 12:36	22.2	10.0	50.0	6.80	318	388	1100	< 4	7370	6130	824	< 0.1	28.3	7.0	35	21.6	20.3	2570	16700	22.1	1540		0.31
PNR-19	8/17/2005 12:23	20.3	10.7	51.3	6.93	353	431	1040	< 4	6970	5830	782	< 0.1	18.1	7.1	28	21.0	19.8	2380	15600	20.8	1410		0.29
PNR-19	11/16/2005 12:00	22.2	8.6	47.5	6.69	325	397	1200	< 4	8620	6850	888	< 0.1	27.4	7.1	42	22.1	22.0	3050	16600	24.1	1350		0.25
PNR-19	2/8/2006 12:55	24.4	8.8	47.8	7.37	356	437	1320	< 4	8450	7290	968	< 0.1	28.2	7.1	40	23.0	23.0	3340	18100	24.9	1530		0.25
PNR-19	5/24/2006 15:20	20.6	11.1	52.0	6.85	347	423	1230	< 4	9690	6850	921	< 0.1	25.4	7.6	45	22.0	24.0	3660	16500	26.4	1430		0.27
PNR-19	8/23/2006 14:05	22.9	10.5	50.9	6.86	330	403	1300	<4	9690	6990	905	<0.1	21.3	6.8	40	27.0	27.0	3830	19300	28.6	1350		0.30
PNR-19	12/7/2006 15:30	29.3	9.0	48.2	6.60	349	425	1560	<4	13300	8350	1080	<0.1	21.4	7.0	40	22.0	31.0	5220	24700	37.9	1510		0.20
PNR-19	3/14/07 15:00	25.5	9.3	48.7	6.98	331	404	1270	< 4	10400 D	6830	891	< 0.1	20.7	7.0	53	224 D		4260 D	20000	30.0	1040 D		0.25
PNR-19	10/3/07 14:50	28.2	9.9	49.8	6.32	333	407	1150	< 4	11200	6010	762	< 0.1	26.2	6.9	38	23	25	4370	20000	31.4	1350		0.30
PNR-19	3/27/08 16:30	32.0	9.4	48.9	6.72	347	423	1460	< 4	13100	7560	647	< 0.1	18.7	6.6	42	26	24	5940	24000	36.3	1290		0.20
PNR-20	8/8/2001 9:50	39.0	11.2	52.2	7.20	413	504	1750	< 1	16100	9420	1230	<0.1	11.2	7.2	42	18.5		5180	29000	38.1	1190		
PNR-20	8/15/2001 17:15	mnw	10.4	50.7	7.30	412	502	1800	< 1	12900	9710	1270	<0.1	10.4	7.1	46	24.2		4800	25400	29.6	1420		
PNR-20	11/8/2001 10:00	nm	11.1	52.0	nm	508	620	1610	< 1	10600	8940	1200	0.2	4.3	6.9	37		68.4	3480	19900	26.8	1460		
PNR-20	2/19/2002 15:40	34.8	10.0	50.0	6.70	391	477	1830	< 4	15400	9840	1280	<0.1	10.8	6.8	43	26.0		5460	25200	32.7	1180		
PNR-20	5/22/2002 11:00	40.2	11.2	52.2	6.78	398	486	1580	< 4	17400	8540	1110	<0.1	11.4	7.0	40	36.0		5050	29600	36.4	1030		0.16
PNR-20	8/20/2002 13:25	37.4	12.3	54.1	6.60	425	519	1800	< 4	17100	10000	1350	< 0.1	9.5	6.8	35	21.0	45.0	6840	31400	36.8	1390		0.17
PNR-20	11/5/2002 16:05	43.9	10.3	50.5	6.92	427	521	1930	< 4	18400	10000	1260	< 0.1	11.0	6.9	44	16.0	27.0	6790	33600	33.3	1500		0.16
PNR-20	3/4/2003 14:15	37.4	9.2	48.6	6.70	417	509	1790	< 4	17400	9330	1180	< 0.1	10.6	6.8	47	19.0	34.0	6840	30200	25.6	1650		0.20
PNR-20	5/28/2003 11:00	42.5	11.8	53.2	6.72	438	534	1950	< 1	17300	10100	1270	< 0.1	11.6	6.8	50	21.0	21.0	7300	32800	43.8	1270		0.26
PNR-20	8/13/2003 11:35	34.3	10.6	51.1	6.98	431	526	1740	< 1	18100	9060	1150	< 0.1	11.7	6.6	42	21.0	40.0	6260	32000	40.4	1130		0.17
PNR-20	11/5/2003 12:50	28.9	9.6	49.1	7.15	427	521	1980	< 4	21300	10100	1260	< 0.1	9.2	6.8	62	24.0	84.0	8580	35700	27.5	1030		0.18
PNR-20	3/18/2004 12:50	16.2	9.6	49.3	nm	434	529	1770	< 1	16700	9250	1170	< 0.1	12.7	6.8	46	22.0	50.0	6240	28600	39.8	1110		0.15

Inorganic Water Chemistry Data
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Field SC	Field Temp.		Field pH	Alkalinity as $CaCO_3$	Bicarbonate	Calcium	Carbonate	Chloride	Hardness, Total as $CaCO_3$	Magnesium	Nitrogen, Ammonia	Nitrogen, Nitrate plus Nitrite	Lab pH	Potassium	Silica, Dissolved	Silica, Total	Sodium	Total Dissolved Solids @ 180° C	Specific Conductance @ 25° C	Sulfate	Iron	Flouride
		mS	°C	°F	S.U.	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	S.U.	mg/l	mg/l	mg/l	mg/l	mg/l	mS	mg/l	mg/l	mg/l
PNR-20	6/8/2004 12:15	mnw	11.1	52.0	7.00	445	543	1700	< 4	19700	8710	1080	< 0.1	10.7	6.8	57	20.0	35.0	8600	34800	49.6	1580		0.21
PNR-20	9/14/2004 13:42	41.0	11.2	52.2	7.75	451	550	1630	< 4	15700	8330	1030	< 0.1	12.8	6.9	58	23.0	27.0	8970	31500	43.4	1410		0.18
PNR-20	11/17/2004 10:40	56.1	10.4	50.7	6.98	435	531	1880	< 4	20000	9180	1090	< 0.1	10.3	6.8	91	22.0	24.0	9100	35800	52.8	1510		0.19
PNR-20	3/1/2005 16:25	41.7	9.9	49.8	6.73	472	576	1640	< 4	18600	8200	998	< 0.1	11.5	6.8	56	26.0	28.0	8570	32400	48.1	1410		0.43
PNR-20	5/24/2005 17:35	mnw	10.5	50.9	6.89	401	489	1570	< 4	15600	8100	1020	< 0.1	15.0	6.9	50	22.0	27.0	7180	29700	40.9	1360		0.20
PNR-20	8/16/2005 15:45	49.7	19.6	67.3	6.58	482	588	1600	< 4	15600	8070	988	< 0.1	15.9	7.1	36	19.0	19.0	8140	34300	47.2	1160		0.19
PNR-20	11/15/2005 12:15	52.7	10.2	50.4	6.75	425	518	1620	< 4	19500	8070	975	< 0.1	11.8	6.9	57	22.0	21.0	9580	33700	49.1	1360		0.17
PNR-20	2/9/2006 10:50	39.7	10.2	50.4	6.97	467	570	1580	< 4	15300	7950	972	< 0.1	15.4	6.9	82	22.0	21.0	7580	26700	41.2	1420		0.18
PNR-20	5/23/2006 17:55	45.4	9.9	49.8	6.76	457	557	1600	< 4	21300	7780	917	0.1	10.9	7.5	61	21.0	21.0	10500	35500	53.1	1480		0.16
PNR-20	8/23/2006 15:50	42.1	10.1	50.2	6.75	438	534	1630	<4	20600	7750	891	0.1	11.9	6.7	53	30.0	26.0	10100	35600	54.4	1500		0.20
PNR-20	12/7/2006 16:10	44.3	8.9	48.0	6.80	435	531	1360	<4	18400	6780	824	< 0.1	14.4	6.9	36	20.0	21.0	7630	29800	45.7	1490		0.20
PNR-20	3/15/07 10:18	52.2	9.2	48.6	6.68	439	536	1640	< 4	20800 D	7950	934	0.2	11.4	6.7	101 D	334 D		11100 D	35800	53.8	1390 D		0.17
PNR-20	10/4/07 10:25	48.9	9.6	49.2	6.57	442	539	1460	< 4	20000	7050	823	0.2	12.3	6.7	51	22	29.0	9060	33600	52.4	1610		0.20
PNR-20	3/27/08 17:40	51.5	10.3	50.5	7.13	455	555	1600	< 4	20100	7630	884	0.2	13.5	6.8	49	27	24.0	10900	34500	52.0	1410		0.20
PNR-21	8/9/2001 10:15	65.5	11.0	51.8	6.80	501	611	2060	< 1	26500	9670	1100	2.0	8.2	6.8	63	16.0		12500	47000	58.5	1450		
PNR-21	8/16/2001 16:40	62.0	11.4	52.5	7.00	548	669	2140	< 1	26900	10200	1170	4.2	< 0.05	6.9	61	17.0		13200	47000	53.4	1510		
PNR-21	11/8/2001 11:00	60.3	14.4	58.0	7.10	538	656	2090	< 1	27900	9930	1140	2.4	8.5	6.7	68		38.7	13100	45300	40.4	1630		
PNR-21	2/21/2002 9:15	60.3	10.4	50.7	6.53	562	685	1970	< 4	28300	9280	1060	2.1	7.5	6.9	66	27.0		12900	45800	48.1	1410		
PNR-21	5/22/2002 11:55	70.5	11.8	53.2	6.67	544	663	1800	< 4	28600	8440	959	2.5	7.8	6.8	60	27.0		12600	47400	53.2	1560		0.14
PNR-21	8/21/2002 9:00	63.1	12.7	54.9	6.60	553	675	1820	< 4	29200	8580	980	2.8	7.5	6.8	74	15.0	18.0	12900	51200	54.2	1690		0.15
PNR-21	11/5/2002 15:30	66.3	10.8	51.4	6.78	559	682	2000	< 4	28600	9180	1020	2.8	8.0	6.8	61	11.0	< 20	13000	49600	44.6	1700		0.15
PNR-21	3/5/2003 14:50	62.2	10.7	51.3	6.69	546	666	1900	< 4	27000	8450	897	3.2	7.6	6.7	56	13.0	36.0	12200	46400	33.6	2070		0.30
PNR-21	5/28/2003 11:50	49.1	14.5	58.1	6.63	531	647	1940	< 1	27100	8860	978	2.7	7.9	6.7	73	16.0	44.0	13200	49100	67.1	1460		0.19
PNR-21	8/13/2003 14:05	62.8	14.1	57.4	7.40	560	683	1800	< 1	28600	217	928	3.0	7.7	6.6	70	16.0	38.0	13000	48800	68.6	1160		0.15
PNR-21	11/5/2003 15:30	28.1	9.6	49.3	7.23	537	655	1450	< 4	28100	6670	738	3.2	8.1	6.8	57	12.0	27.0	10600	46300	34.0	1170		0.17
PNR-21	March 2004	Not Sampled																						
PNR-21	6/8/2004 12:55	mnw	11.9	53.4	6.87	580	708	1700	< 4	28100	7880	881	3.4	7.9	6.8	87	15.0	43.0	13200	47800	66.7	1690		0.20
PNR-21	9/14/2004 14:15	63.0	12.0	53.6	7.60	560	683	1860	< 4	27800	8530	942	3.5	9.1	6.8	74	23.0	25.0	13600	48400	66.8	1620		0.17
PNR-21	11/17/2004 12:40	74.4	11.5	52.7	6.89	561	685	1940	< 4	25600	8730	942	3.5	8.7	6.7	76	19.0	23.0	13400	45800	68.4	1530		0.18
PNR-21	3/1/2005 16:32	65.3	9.6	49.3	6.64	611	745	1870	< 4	26400	8550	939	3.2	8.6	6.7	78	20.0	23.0	14600	46900	66.0	1470		0.18
PNR-21	5/24/2005 18:25	68.1	10.3	50.5	6.88	518	631	1770	< 4	26600	8030	876	3.4	10.2	6.7	70	15.0	17.0	13800	47000	65.2	1640		0.20
PNR-21	8/16/2005 16:20	67.9	17.3	63.1	6.45	603	735	1770	< 4	22600	8130	899	3.6	9.8	7.0	50	16.0	11.0	12600	47000	65.2	1350		0.18
PNR-21	11/15/2005 13:21	69.4	10.7	51.3	6.64	516	629	1740	< 4	27700	7930	869	3.3	10.0	6.8	68	17.0	19.0	14200	45600	66.9	1480		0.17
PNR-21	2/9/2006 11:45	62.8	9.2	48.6	6.88	604	737	1880	< 4	25200	8360	889	6.3	12.0	6.9	107	16.0	17.0	14100	42800	64.7	1530		0.14
PNR-21	5/24/2006 17:20	51.6	11.1	52.0	6.63	579	706	1690	< 4	26300	7600	820	4.1	13.7	7.5	82	18.0	21.0	13600	42600	64.2	1690		0.17
PNR-21	8/23/2006 17:00	54.2	10.3	50.5	6.62	554	676	1710	<4	26000	7620	816	3.5	11.9	6.6	66	23.0	21.0	13900	42100	67.4	1600		0.20
PNR-21	12/7/2006 14:45	62.4	9.5	49.1	6.77	565	689	1620	<4	24600	7220	773	3.4	12.9	6.8	59	18.0	17.0	12800	42500	65.5	1700		0.20
PNR-21	3/15/07 11:15	58.2	9.4	49.0	6.71	567	691	1690	< 4	25200 D	7740	853	3.4	16.9	6.7	94 D	227 D		13600 D	43100	63.6	1560 D		0.17
PNR-21	10/4/07 11:40	59.6	10.0	50.0	6.53	559	681	1640	< 4	25300	7410	804	3.9	15.4	6.6	62	21	24.0	13100	42000	64.8	1730		0.20
PNR-21	3/27/08 18:20	59.6	9.6	49.3	6.62	589	718	1600	< 4	24100	7240	786	3.1	16.7	6.7	54	20	33.0	13500	39700	61.6	1590		0.20
PNR-22	8/8/2001 17:10	3.9	11.9	53.4	7.30	869	1060	205	< 1	467	1250	180	3.5	< 0.05	7.2	9	22.2		434	2900	3.8	989		
PNR-22	8/16/2001 11:35	11.2	11.3	52.3	7.40	853	1040	218	< 1	463	1340	193	4.0	< 0.05	7.2	9	26.0		464	2920	3.8	959		
PNR-22	11/7/2001 9:10	3.6	12.2	54.0	7.60	815	994	207	< 1	548	1290	188	4.1	0.1	7.4	8		33.2	421	2870	3.9	833		
PNR-22	2/20/2002 14:10	3.4	11.3	52.3	7.11	790	964	205	< 4	523	1310	195	3.8	< 0.05	6.9	9	27.2		467	2960	4.3	943		
PNR-22	5/21/2002 12:15	4.5	12.8	55.0	7.13	777	948	203	< 4	635	1260	182	5.0	< 0.05	7.4	9	30.3		542	3040	4.3	824		0.26
PNR-22	8/20/2002 15:35	3.4	11.3	52.3	7.20	785	958	217	< 4	676	1420	213	5.2	0.1	7.2	7	26.8	33.1	407	3150	4.6	924		0.25
PNR-22	11/5/2002 12:50	4.6	12.2	54.0	7.28	784	956	248	< 4	790	1490	213	4.3	< 0.05	7.2	9	25.7	30.6	462	3300	4.8	935		0.24
PNR-22	3/4/2003 15:10	4.6	11.2	52.2	7.14	753	918	258	< 4	857	1540	218	5.6	< 0.05	7.0	10	23.0	29.0	487	3430	5.1	942		0.30
PNR-22	5/13/2003 12:45	4.4	12.5	54.5	7.78	771	941	250	< 4	925	1550	225	5.3	< 0.05	7.0	9	25.9	29.1	474	3480	4.9	890		0.28
PNR-22	8/13/2003 9:15	4.6	14.1	57.4	7.66	758	924	262	< 1	977	1590	228	5.2	< 0.05	6.8	9	27.0	37.0	487	3640	5.1	766		0.25
PNR-22	11/5/2003 12:25	4.7	12.0	53.6	nm	754	920	244	< 4	1100	1650	252	5.5	< 0.05	7.2	10	27.7	39.8	510	3640	4.7	904		0.26
PNR-22	March 2004	Not Sampled																						
PNR-22	6/8/2004 16:10	mnw	13.0	55.4	7.31	760	927	292	< 4	1150	1800	259	5.9	< 0.05	7.1	10	26.6	34.4	489	3910	5.2	993		0.29
PNR-22	9/15/2004 8:50	5.3	15.2	59.4	7.03	762	930	306	< 4	1100	1880	270	6.3	< 0.05	7.2	10	28.5	33.1	525	3810	5.6	873		0.26
PNR-22	11/18/2004 14:35	5.2	12.1	53.8	7.31	743	907	319	< 4	1150	1920	274	5.4	< 0.05	7.0	11	30.6	43.4	524	3840	5.7	906		0.26
PNR-22	3/1/2005 11:00	5.9	13.2	55.8	7.01	778	949	313	< 4	1160	1960	290	5.8	< 0.05	7.0	11	31.4	31.3	586	3890	5.7	902		0.27
PNR-22	5/24/2005 10:07	6.0	13.0	55.4	6.99	647	789	303	< 4	1130	1880	274	6.2	< 0.05	6.9	11	27.0	36.8	557	3960	5.6	837		0.27
PNR-22	8/16/2005 9:30	5.2	15.2	59.4	6.90	773	943	327	< 4	1150	2030	294	6.3	< 0.05	7.2	8	28.9	26.4	547	3890	5.7	918		0.26
PNR-22	11/15/2005 13:40	5.6	10.4	50.7	6.38	687	838	340	< 4	1180	2130	310	5.2	< 0.05	7.2	7	29.4	30.0	588	3760	5.7	923		0.25
PNR-22	2/7/2006 10:30	5.5	11.9	53.4	7.13	754	920	323	< 4	1080	2000	290	6.3	< 0.05	7.0	10	29.8	34.9	565	3790	5.6	864		0.22
PNR-22	5/23/2006 13:05	5.4	13.3	55.9	6.96	729	890	312	< 4	1150	1960	287	5.5	< 0.05	7.8	11	29.6	48.4	576	3450	5.7	938		0.24
PNR-22	8/22/2006 18:00	5.8	10.7	51.3	7.31	698	852	333	<4	1110	2050	295	5.8	<0.05	7.0	11	30.4	33.0	580	3970	5.9	945		0.20
PNR-22	12/6/2006 9:55	5.6	9.9	49.8	7.07	708	864	324	<4	1080	1960	280	5.8	<0.05	7.0	10	29.4	31.1	546	3830	5.9	961		0.20
PNR-22	3/13/07 15:25	4.9	10.3	50.5	6.86	707	862	317	< 4	1010	1970	287	6.4	< 0.05	7.1	10	34.4		563	3800	5.74	875		0.22
PNR-22	10/3/07 16:45	6.6	11.6	52.9	7.20	712	769	301	< 4	994	1850	267	6.6	< 0.05	7.0	9	29.3	31.7	505	3780	5.81	982		0.20
PNR-22	3/26/08 17:45	5.5	10.3	50.5	6.91	729	890	294	< 4	932	1820	263	6.2	< 0.05	7.1	8	29.5	32.2	544	3690	5.46	965		0.20
PNR-23	8/9/2001 17:30	90.5	80.1	176.2	7.30	<1	<1	850	< 1	41300	3270	275	14.1	< 0.05	3.7	411	59.1		20300	62400	77.3	1480		
PNR-23	8/14/2001 10:30	98.6	80.4	176.7	6.50	192	234	1030	< 1	45000	3730	282	15.9	< 0.05	6.5	480	68.2		23800	68000	74.2	1600		
PNR-23	11/8/2001 13:15	88.7	85.6	186.0	nm	271	331	2110	< 1	33600	8520	789	22.9	3.8	6.4	312		114.0	18200	62600	47.0	1450		
PNR-23	2/21/2002 12:25	100.1	72.1	161.8	5.86	214	262	1770	< 4	41500	6780	572	24.5	0.1	6.6	313	73.0		20400	63700	58.7	1180		
PNR-23	5/23/2002 11:15	112.9	82.2	180.0	6.14	188	229	1210	< 4	42200	4570	376	18.8	< 0.05	6.4	348	95.0		21100	68200	68.3	1490		2.13
PNR-23	8/21/2002 12:55	102.9	70.2	158.4	6.10	180	219	1220	< 4	43300	4670	392	18.1	< 0.05	6.6	293	58.0	78.0	18000	70100	68.5	1710		2.26
PNR-23	11/6/2002 12:15	115.5	71.2	160.2	6.10	195	238	1180	< 4	36800	4290	324	17.4	< 0.05	6.5	410	63.0	71.0	22100	67300	60.2	1670		2.20

Inorganic Water Chemistry Data
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Field SC mS	Field Temp. °C	Field Temp. °F	Field pH S.U.	Alkalinity as $CaCO_3$ mg/l	Bicarbonate mg/l	Calcium mg/l	Carbonate mg/l	Chloride mg/l	Hardness, Total as $CaCO_3$ mg/l	Magnesium mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate plus Nitrite mg/l	Lab pH S.U.	Potassium mg/l	Silica, Dissolved mg/l	Silica, Total mg/l	Sodium mg/l	Total Dissolved Solids @ 180° C mg/l	Specific Conductance @ 25° C mS	Sulfate mg/l	Iron mg/l	Flouride mg/l
PNR-23	3/5/2003 11:20	115.0	72.5	162.5	6.94	198	242	1120	< 4	37400	3930	276	15.9	< 0.05	6.6	373	55.0	54.0	21700	66600	48.5	1830		2.40
PNR-23	5/28/2003 14:40	102.4	72.0	161.6	6.28	209	255	1080	< 1	40900	3920	296	15.0	< 0.05	6.4	474	54.0	73.0	23800	68100	93.8	1420		2.56
PNR-23	8/14/2003 8:43	98.3	70.1	158.2	6.14	215	263	1130	< 1	39900	4120	314	17.0	0.1	6.6	433	54.0	63.0	22100	66300	87.6	1030		2.43
PNR-23	11/6/2003 10:10	107.0	73.2	163.8	5.60	209	255	938	< 4	40900	3450	270	17.6	< 0.05	6.5	408	46.0	51.0	19500	65700	42.2	1140		2.27
PNR-23	3/17/2004 11:40	143.0	67.8	154.0	5.57	224	273	1260	< 1	42600	4630	364	16.8	< 0.05	6.6	460	56.0	60.0	23700	66000	91.7	1080		2.34
PNR-23	6/9/2004 14:10	99.9	58.3	136.9	6.40	230	281	1170	< 4	41800	4340	344	16.4	< 0.05	6.7	446	51.0	53.0	23900	63900	93.3	1610		3.30
PNR-23	9/15/2004 17:40	110.3	60.9	141.6	6.34	245	299	1250	< 4	41800	4710	386	18.1	< 0.05	6.8	403	52.0	60.0	21900	66100	92.6	1530		2.82
PNR-23	11/18/2004 11:00	99.0	59.6	139.3	6.47	242	295	1150	< 4	35800	4390	368	15.7	0.1	6.5	451	49.0	52.0	21800	63200	92.2	1250		2.76
PNR-23	3/2/2005 11:35	90.0	64.8	148.6	6.18	278	339	1240	< 4	38800	4700	392	16.6	0.1	6.5	399	60.0	45.0	23800	64700	92.4	1330		2.64
PNR-23	5/25/2005 13:00	93.5	61.0	141.8	6.09	244	298	1220	< 4	39800	4600	377	17.5	< 0.05	6.5	444	49.0	47.0	23800	62500	91.1	2600		2.64
PNR-23	8/17/2005 15:20	100.1	60.4	140.7	6.04	287	350	1140	< 4	38800	4370	368	17.3	< 0.05	6.6	313	41.0	47.0	20200	62000	91.1	1360		2.46
PNR-23	11/16/2005 12:15	89.7	59.2	138.6	6.29	258	315	1230	< 4	39400	4660	385	17.3	< 0.05	6.7	478	53.0	50.0	24900	59600	31.5	1240		2.34
PNR-23	2/9/2006 16:00	102.2	55.6	132.1	6.43	307	375	978	< 4	35300	3620	285	15.7	< 0.05	6.7	346	49.0	49.0	21300	53800	85.3	1180		2.40
PNR-23	5/25/2006 11:15	79.9	56.6	133.9	6.40	310	378	1050	< 4	35400	3940	320	16.3	< 0.05	7.4	326	51.0	52.0	21600	55000	83.8	1120		2.05
PNR-23	8/24/2006 10:18	97.8	54.2	129.6	6.82	308	376	914	< 4	33600	3420	276	14.0	<0.05	6.6	298	49.0	49.0	20200	53500	85.2	1070		2.10
PNR-23	12/8/2006 10:10	65.5	53.7	128.7	6.55	341	416	816	< 4	31800	3130	266	16.0	<0.05	6.7	274	48.0	49.0	18800	51500	80.0	1050		2.60
PNR-23	3/14/07 15:00	25.5	50.6	123.1	6.98	397	485	802	< 4	28300 D	3210	293	13.9	< 0.05	6.6	290 D	206 D		18400 D	46500	73.4	889 D		2.54
PNR-23	10/5/07 12:30	64.1	46.4	115.5	6.06	514	627	649	< 4	25300	2620	242	10.2	< 0.05	6.8	201	50	46.0	14100	39700	62.1	1080		2.60
PNR-23	3/27/08 16:05	55.8	49.6	121.3	6.99	583	711	524	< 4	21100	2100	192	8.6	< 0.05	6.8	174	47	49.0	12600	35100	55.9	994		3.40
PNR-24	8/14/2001 12:00	97.5	73.4	164.1	6.50	237	289	997	< 1	41100	3240	180	14.8	< 0.05	6.6	470	73.2		24900	67700	73.8	1730		
PNR-24	8/14/2001 18:20	101.8	80.3	176.5	6.60	231	282	1040	< 1	43400	3450	206	14.9	< 0.05	6.8	500	65.0		23900	67000	51.3	1730		
PNR-24	11/8/2001 13:40	84.5	84.4	184.0	nm	479	584	1090	< 1	34600	3750	248	14.5	< 0.05	6.5	379		320.0	19400	61000	49.2	1690		
PNR-24	2/21/2002 13:55	120.4	67.1	152.8	6.24	235	287	1020	< 4	44700	3160	150	17.2	< 0.05	6.8	498	163.0		23500	68500	62.6	1450		
PNR-24	5/23/2002 11:50	113.3	78.3	172.9	6.43	258	315	842	< 4	44700	2760	159	14.5	< 0.05	6.7	404	207.0		21300	69000	71.2	1940		3.71
PNR-24	8/21/2002 13:10	104.6	70.0	158.0	6.30	175	214	1070	< 4	44400	3360	170	16.0	< 0.05	6.7	435	59.0	199.0	21600	72200	73.9	1470		3.67
PNR-24	11/8/2002 12:32	113.5	69.0	156.2	6.55	171	208	1120	< 4	36900	3700	219	17.0	< 0.05	6.7	452	50.0	225.0	22100	68300	61.1	1670		3.53
PNR-24	3/5/2003 11:40	114.0	68.5	155.3	7.03	195	238	1210	< 4	41300	4190	283	16.8	0.1	6.6	401	62.0	219.0	22500	68200	47.3	1740		3.50
PNR-24	5/28/2003 14:50	103.5	69.4	156.9	6.58	198	242	1170	< 1	40800	4190	306	17.9	< 0.05	6.9	438	55.0	132.0	23300	68400	94.0	1440		3.26
PNR-24	8/14/2003 13:08	96.2	65.2	149.4	6.49	228	278	1180	< 1	41300	11300	313	17.8	< 0.05	6.8	402	58.0	76.0	22000	68100	88.6	1130		3.13
PNR-24	11/6/2003 11:00	108.6	69.5	157.1	5.85	187	228	948	< 4	40900	3410	254	19.3	< 0.05	6.8	385	47.0	89.0	19500	64700	41.9	1080		3.26
PNR-24	3/17/2004 12:10	130.0	63.3	145.9	5.67	210	257	995	< 1	36900	3570	256	14.4	< 0.05	6.8	371	56.0	142.0	20000	56200	80.1	956		3.84
PNR-24	6/9/2004 14:20	mnw	56.9	134.4	6.69	303	369	751	< 4	32500	2760	213	12.7	< 0.05	6.9	311	52.0	110.0	18000	49700	75.8	1160		4.32
PNR-24	9/15/2004 18:05	68.5	55.0	131.0	6.48	707	862	476	< 4	25100	1890	171	10.2	< 0.05	7.0	235	57.0	125.0	14200	40200	61.4	407		4.56
PNR-24	11/18/2004 11:05	54.5	59.6	139.3	6.88	869	1060	332	< 4	22000	1360	129	7.7	0.1	6.9	254	64.0	73.0	12400	34400	55.0	273		4.62
PNR-24	3/2/2005 13:25	40.2	60.0	140.0	6.65	1050	1280	248	< 4	18500	1100	117	6.9	0.1	7.1	174	59.0	63.0	11800	29800	46.5	211		4.86
PNR-24	5/25/2005 13:45	38.4	56.6	133.9	6.38	1010	1230	181	< 4	14900	840	94	5.1	< 0.05	7.0	164	55.0	80.0	9960	24000	41.0	106		5.04
PNR-24	8/17/2005 16:05	37.7	55.6	132.1	6.59	1250	1520	121	< 4	12600	583	68	4.8	< 0.05	7.2	93	52.0	70.0	7910	22100	38.2	43		5.56
PNR-24	11/16/2005 18:15	34.4	52.7	126.9	7.02	1310	1600	90	< 4	10600	450	55	3.3	< 0.05	7.2	120	60.0	101.0	7410	17600	29.7	9		7.08
PNR-24	2/8/2006 13:30	27.2	50.0	122.0	7.10	1440	1760	72	< 4	8610	309	32	3.7	< 0.05	7.1	109	57.0	57.0	6220	15200	26.1	12		8.76
PNR-24	5/24/2006 12:55	26.0	49.8	121.6	7.08	1430	1750	41	< 4	7840	191	22	2.5	< 0.05	7.9	67	50.0	53.0	5330	12800	22.8	14		10.8
PNR-24	8/24/2006 11:22	21.7	51.1	124.0	7.95	1490	1820	29	< 4	6700	135	15	2.5	<0.05	7.4	61	48.0	46.0	4850	11800	21.5	18		14.2
PNR-24	12/8/2006 10:50	15.5	49.4	120.9	7.32	1450	1770	24	< 4	5660	109	12	2.3	0.06	7.6	52	45.4	44.0	4350	10900	19.0	53		17.0
PNR-24	3/14/07 15:40	21.8	47.9	118.2	7.23	1550	1880	30 B	< 4	5110 D	127	12	2	< 0.05	7.8	59	78.1 D		4080 D	9920	17.1	62 D		15 D
PNR-25	8/14/2001 13:15	102.9	76.7	170.1	6.60	255	311	924	< 1	39900	2890	140	15.8	< 0.05	6.8	510	68.6		24000	70500	75.6	1730		
PNR-25	8/14/2001 19:05	99.2	81.1	178.0	6.80	246	301	1020	< 1	45400	3180	180	15.8	< 0.05	6.8	560	65.3		26600	70300	76.8	1550		
PNR-25	11/8/2001 10:15		84.4	184.0	nm	528	644	1680	< 1	38300	6000	448	18.5	< 0.05	6.5	433		276.0	21200	65600	48.5	2260		
PNR-25	2/21/2002 15:30	103.1	72.6	162.7	6.05	237	289	2430	< 4	40100	9350	797	25.6	< 0.05	6.7	278	200.0		18700	64500	57.9	1280		
PNR-25	5/22/2002 16:50	34.8	71.1	160.0	6.80	930	1130	452	< 4	11500	1770	156	10.4	< 0.05	7.0	78	243.0		5600	18700	28.9	756		4.20
PNR-25	8/21/2002 14:40	11.8	61.4	142.5	7.10	1040	1270	70	< 4	3580	384	51	1.4	< 0.05	7.4	31	59.0	312.0	2040	6790	11.9	< 30		6.52
PNR-25	11/6/2002 14:55	14.5	56.7	134.1	7.14	877	1070	48	< 4	3110	298	43	0.9	< 0.05	7.5	33	45.0	123.0	2140	6330	13.0	< 10		8.00
PNR-25	3/5/2003 12:45	13.1	55.0	131.0	7.91	585	713	47	< 4	3590	245	31	1.0	< 0.05	7.4	32	37.0	285.0	2340	6800	12.2	6		9.20
PNR-25	5/28/2003 15:25	11.7	53.6	128.5	7.19	506	618	39	< 1	3600	226	31	0.8	< 0.05	7.5	32	30.0	301.0	2200	6400	11.8	< 3		11.40
PNR-25	8/14/2003 10:00	11.0	50.6	123.1	7.32	459	560	36	< 1	4510	2200	31	0.9	< 0.05	7.6	26	31.0	80.0	2140	6590	10.4	< 10		11.20
PNR-25	11/5/2003 15:15	12.5	52.2	126.0	6.72	513	626	42	< 4	4610	256	37	1.6	< 0.05	7.5	35	27.0	47.0	2360	7090	11.6	14		9.30
PNR-25	3/17/2004 14:15	15.0	43.6	110.5	6.50	461	562	49	< 1	4760	264	34	1.4	< 0.05	7.4	33	27.0	53.0	2480	7130	12.2	4		9.36
PNR-25	6/8/2004 13:00	11.7	38.9	102.0	7.53	601	733	45	< 4	4090	254	34	1.4	< 0.05	7.7	38	26.4	50.0	3040	7490	12.4	167		9.18
PNR-25	9/15/2004 16:45	13.0	40.4	104.7	7.55	562	685	52	< 4	3980	323	47	1.6	< 0.05	7.7	34	23.3	46.0	2440	8880	12.0	79		7.44
PNR-25	11/18/2004 9:00	12.3	37.3	99.1	7.69	554	676	49	< 4	3750	322	48	1.5	0.1	7.7	37	23.2	26.9	2360	6590	12.0	39		7.56
PNR-25	3/2/2005 13:00	9.7	37.1	98.8	7.53	676	824	39	< 4	3570	262	40	1.3	0.3	7.9	29	22.0	23.0	2510	6630	11.5	106		7.80
PNR-25	5/25/2005 11:15	9.7	34.7	94.5	7.50	487	588	44	< 4	4250	311	49	1.5	< 0.05	7.9	22	25.7	28.8	2400	6270	10.8	821		8.28
PNR-25	8/17/2005 18:20	10.4	33.3	91.9	7.71	522	637	40	< 4	2960	289	46	1.2	< 0.05	7.8	23	17.3	18.8	1980	5550	10.0	27		7.92
PNR-25	11/16/2005 13:25	11.6	32.5	90.5	7.96	492	586	36	7	2890	287	48	1.2	< 0.05	7.9	21	19.8	19.6	2010	4910	9.2	46		7.2
PNR-25	2/8/2006 11:15	8.0	29.9	85.8	7.85	545	665	36	< 4	2530	239	36	1.2	< 0.05	7.7	25	19.9	39.5	1860	4780	8.5	10		7.32
PNR-25	5/24/2006 11:45	8.3	29.9	85.8	7.88	622	759	28	< 4	2450	182	27	1.0	0.1	8.2	22	19.7	47.2	1790	4200	8.3	81		7.15
PNR-25	8/24/2006 12:00	6.8	29.7	85.5	8.33	527	643	26	< 4	2180	191	30	1.2	<0.05	8.0	23	18.4	18.8	1600	4190	7.9	55		6.32
PNR-25	12/8/2006 11:30	5.3	29.2	84.6	7.36	547	667	34	< 4	2060	239	38	1.2	<0.05	8.0	23	18.6	18.0	1500	4180	7.7	117		5.90
PNR-25	3/15/07 10:53	6.1	29.2	84.6	7.81	513	626	49 B	< 4	2090	368	59	1.4	< 0.05	7.7	26	21.3		1430	3820	7.07	26		4.87
PNR-26	8/14/2001 18:00	nm	79.2	174.6	nm	144	176	910	< 1	45000	2820	133	14.4	< 0.05	7.2	517	63.1		23800	68700	74.7	1660		
PNR-26	8/22/2001 10:00	98.0	75.0	167.0	nm	159	194	803	< 1	42800	2490	118	13.6	< 0.05	7.5	499	61.9		23400	68600	65.8	1670		
PNR-26	11/8/2001 14:15	nm	83.3	182.0	nm	640	781	1070	< 1	40900	3740	259	16.4	0.2	7.5	437		168.0	22800	67200	51.6	1170		
PNR-26	2/21/2002 16:00	125.0	65.0	149.0	6.42	234	285	1310	< 4	40800	4380	269	18.4	< 0.05	6.9	453	100.0		22300	67000	61.2	1080		
PNR-26	5/23/2002 11:15	105.7	75.6	168.1	6.68	177	215	1220	< 4	42400	4210	284	18.4	< 0.05	6.9	392	87.0		20800	67400	67.2	1530		2.72
PNR-26	8/21/2002 16:00	100.3	67.4	153.3	6.40	301	367	1360	< 4	40600	4880	361	17.5	< 0.05	6.7	403	59.0	167.0	15300	69100	50.7	1340		2.65

Inorganic Water Chemistry Data

Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation

Last update: 5/12/2008

Well No.	Date & Time	Field SC mS	Field Temp. °C	Field Temp. °F	Field pH S.U.	Alkalinity as $CaCO_3$ mg/l	Bicarbonate mg/l	Calcium mg/l	Carbonate mg/l	Chloride mg/l	Hardness, Total as $CaCO_3$ mg/l	Magnesium mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate plus Nitrite mg/l	Lab pH S.U.	Potassium mg/l	Silica, Dissolved mg/l	Silica, Total mg/l	Sodium mg/l	Total Dissolved Solids @ 180° C mg/l	Specific Conductance @ 25° C mS	Sulfate mg/l	Iron mg/l	Flouride mg/l
PNR-26	11/6/2002 16:20	107.2	62.7	144.9	6.35	181	221	1450	< 4	36000	5080	356	16.8	< 0.05	6.7	509	53.0	101.0	22900	65300	57.5	1610		2.57
PNR-26	3/5/2003 14:00	33.0	64.0	147.2	7.60	1470	1800	108	< 4	8400	546	67	3.8	< 0.05	7.4	72	58.0	109.0	5290	15600	27.4	19		5.50
PNR-26	5/28/2003 16:35	27.6	61.2	142.2	7.09	1500	1830	62	< 1	8060	464	75	2.3	< 0.05	7.4	74	57.0	85.0	4990	14800	25.6	< 5		6.80
PNR-26	8/14/2003 10:45	27.2	56.8	134.2	6.86	876	1070	36	< 1	8960	3810	51	3.0	0.1	7.4	49	45.0	101.0	4650	14300	18.9	< 10		10.50
PNR-26	11/6/2003 12:30	37.5	63.7	146.7	7.33	1480	1800	17	< 4	7010	151	26	2.9	0.2	7.8	48	45.0	56.0	4450	11700	18.5	< 1		10.30
PNR-26	3/17/2004 14:15	40.0	49.1	120.4	6.90	1490	1710	11	53	6110	82	13	1.8	< 0.05	7.7	32	36.0	52.0	3620	10000	16.0	< 1		14.40
PNR-26	6/9/2004 16:00	mnw	44.3	111.7	7.76	1310	1590	12	< 4	4710	67	9	1.7	< 0.05	7.9	34	29.1	32.0	3750	9140	14.2	< 50		11.20
PNR-26	9/16/2004 9:50	13.5	45.7	114.3	7.52	1350	1610	7	23	3880	45	6	1.5	< 0.05	8.0	27	25.4	33.0	3020	7860	13.4	< 3		8.90
PNR-26	11/18/2004 12:25	12.9	43.2	109.8	7.99	1130	1370	8	< 4	3690	47	7	1.6	0.3	8.0	29	26.2	128.0	2730	7250	12.6	< 1		9.30
PNR-26	3/2/2005 16:10	12.1	42.5	108.5	7.89	1230	1490	5	5	3280	32	5	1.8	0.1	8.0	22	23.0	26.0	2660	6630	11.3	< 1		9.10
PNR-26	5/25/2005 15:15	6.3	38.7	101.7	7.38	990	1200	12	5	3000	53	5	1.6	< 0.05	8.2	19	19.3	23.6	2230	6170	10.2	< 1		9.80
PNR-26	8/17/2005 18:00	9.3	40.1	104.2	7.25	1090	1330	13	< 4	2900	54	5	1.2	< 0.05	8.0	18	19.6	21.0	2200	5990	10.3	2		9.4
PNR-26	11/16/2005 14:55	5.5	34.7	94.5	7.71	884	1080	10	< 4	2780	53	7	1.6	< 0.05	7.6	14	22.5	38.3	2270	5510	10.4	2		9.1
PNR-26	2/8/2006 15:10	4.0	31.8	89.2	7.47	877	1070	14	< 4	2640	59	6	1.2	< 0.05	7.1	17	20.1	107.0	2070	5280	9.4	13		8.90
PNR-26	5/24/2006 14:10	nm	nm	nm	nm	986	1200	49	< 4	6310	252	31	2.4	< 0.05	8.0	58	23.0	35.0	4530	11100	19.9	845		2.71
PNR-26	8/24/2006 13:30	nm	32.2	90.0	7.87	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm
PNR-27	8/21/2001 15:35	27.6	10.7	51.3	nm	592	722	1790	< 1	10300	9790	1290	<0.1	28.8	7.1	37	24.4		2440	21600	23.1	2020		
PNR-27	9/5/2001 15:15	25.9	12.3	54.1	7.00	594	725	1990	< 1	10000	10600	1370	<0.1	27.5	6.8	39	20.9		2700	20400	25.0	1940		
PNR-27	11/6/2001 15:30	28.1	10.0	50.0	7.10	569	694	1960	< 1	10900	10700	1400	<0.1	29.7	6.7	40		43.0	2840	21200	27.1	1750		
PNR-27	2/20/2002 17:02	27.5	10.5	50.9	6.66	628	767	1970	< 4	11400	10600	1390	<0.1	27.2	6.8	54	27.0		3130	21000	27.1	1530		
PNR-27	5/21/2002 18:12	32.1	13.7	56.7	6.65	589	719	1790	< 4	12000	9650	1260	<0.1	34.2	6.8	40	35.0		2990	23800	29.9	1940		0.17
PNR-27	8/20/2002 19:20	29.8	14.5	58.1	6.90	580	708	1900	< 4	12600	9710	1210	< 0.1	31.7	6.9	32	26.0	38.0	2850	25600	28.2	1850		0.17
PNR-27	11/6/2002 9:55	32.7	11.3	52.3	6.84	583	712	2090	< 4	11200	11000	1400	< 0.1	31.2	6.8	42	22.0	30.0	3450	24200	26.0	1820		0.17
PNR-27	3/5/2003 11:15	30.3	10.1	50.2	6.73	567	691	2060	< 4	12900	10800	1370	< 0.1	33.5	6.6	43	26.0	25.0	3740	22400	19.5	2080		0.20
PNR-27	5/28/2003 11:00	25.4	14.4	57.9	6.60	589	718	1990	< 1	12200	10400	1330	< 0.1	34.0	6.7	57	26.0	33.0	3640	25500	34.1	1620		0.20
PNR-27	8/13/2003 13:35	32.7	15.1	59.2	7.50	577	705	1900	< 1	13000	10200	1320	< 0.1	32.5	6.6	54	26.0	27.0	3660	24400	31.7	1280		0.17
PNR-27	11/5/2003 11:45	41.7	9.1	48.4	7.43	568	693	1760	< 4	13100	10000	1370	< 0.1	35.1	6.8	53	24.0	48.0	3760	23300	19.6	1430		0.18
PNR-27	March 2004	Not Sampled																						
PNR-27	6/8/2004 11:50	mnw	11.5	52.7	6.91	577	704	1930	< 4	14000	10400	1340	< 0.1	30.7	6.7	46	26.0	30.0	4480	26200	36.7	1920		0.21
PNR-27	9/14/2004 13:05	33.9	11.7	53.1	7.65	525	640	1990	< 4	13100	10500	1340	< 0.1	30.9	6.8	58	29.0	31.0	4320	27500	36.5	1760		0.26
PNR-27	11/17/2004 10:38	39.5	10.6	51.1	6.80	575	701	2010	< 4	14600	10600	1360	< 0.1	30.8	6.6	56	32.0	35.0	4630	24800	37.3	1830		0.20
PNR-27	3/1/2005 15:33	38.7	9.5	49.1	6.67	612	747	2090	< 4	14700	11100	1420	< 0.1	30.0	6.8	48	28.0	33.0	5060	28200	36.7	1770		0.19
PNR-27	5/24/2005 15:33	24.1	10.4	50.7	6.75	519	633	1980	< 4	13500	10200	1280	< 0.1	33.3	6.7	50	22.0	23.0	4920	28400	37.6	1840		0.22
PNR-27	8/16/2005 17:08	38.3	10.7	51.3	6.62	600	732	2080	< 4	14300	11000	1400	< 0.1	39.6	6.7	39	29.0	28.0	4850	28000	37.9	1810		0.19
PNR-27	11/15/2005 16:35	41.6	10.0	50.0	6.61	526	642	2290	< 4	15200	12100	1550	< 0.1	35.4	6.8	67	31.0	28.0	6000	27200	39.0	1790		0.18
PNR-27	2/8/2006 17:10	38.0	9.0	48.2	7.19	597	729	2160	< 4	13900	11300	1440	< 0.1	30.6	6.9	64	28.0	27.0	5460	25200	47.0	1740		0.14
PNR-27	5/23/2006 16:57	36.2	9.8	49.6	6.68	575	701	2030	< 4	15200	10800	1400	< 0.1	39.4	7.4	70	27.0	29.0	5580	27900	39.1	1770		0.18
PNR-27	8/23/2006 15:01	24.7	11.0	51.8	6.63	550	671	2070	<4	15000	10800	1370	< 0.1	29.3	6.6	47	31.0	28.0	5390	29500	41.2	1780		0.20
PNR-27	12/7/2006 14:15	39.1	9.4	48.9	6.89	565	690	2100	<4	14200	10800	1350	< 0.1	34.4	6.8	47	27.0	28.0	5490	27900	41.6	1730		0.20
PNR-27	3/14/07 16:50	39.0	9.2	48.6	6.75	559	682	2060	< 4	14700 D	10800	1370	< 0.1	33.2	6.6	51	247 D		5660 D	28700	40.1	1680 D		0.17
PNR-27	10/3/07 12:50	38.4	10.4	50.7	6.22	562	686	1920	< 4	15100	10000	1270	< 0.1	31.8	6.6	46	28	32.0	5410	27300	41.7	1900		0.20
PNR-27	3/27/08 17:10	39.7	9.4	48.9	6.55	579	707	2000	< 4	15500	10400	1310	< 0.1	32.9	6.5	53	32	29.0	5900	27200	41.2	1690		0.20
PNR-28	8/21/2001 16:45	31.4	10.3	50.5	nm	501	612	1910	< 1	11700	10800	1460	< 0.1	23.1	7.2	39	21.1		3090	25200	26.2	1480		
PNR-28	9/5/2001 14:35	28.4	13.0	55.4	7.00	493	601	2020	< 1	12300	11100	1470	< 0.1	21.2	6.9	36	18.3		3200	22600	27.0			
PNR-28	11/6/2001 14:40	29.7	12.2	54.0	7.10	519	633	1880	< 1	10500	10400	1380	< 0.1	20.2	6.7	34		37.3	3070	24700	24.4	1660		
PNR-28	2/20/2002 16:30	31.9	10.6	51.1	6.88	522	637	2060	< 4	13700	11300	1490	< 0.1	21.6	6.8	82	23.0		3850	23000	30.6	1430		
PNR-28	5/21/2002 17:15	38.8	12.4	54.3	6.67	450	549	1990	< 4	14700	10900	1430	< 0.1	23.3	6.8	43	33.0		3910	27400	33.9	1820		0.17
PNR-28	8/20/2002 18:30	34.2	14.4	57.9	6.80	510	622	2090	< 4	15200	10800	1340	< 0.1	22.9	6.8	39	23.0	30.0	3510	31200	32.8	1590		0.15
PNR-28	11/5/2002 13:20	36.4	10.2	50.4	6.53	516	630	2340	< 4	15700	12600	1640	< 0.1	22.7	6.8	46	20.0	36.0	4850	29700	28.9	1740		0.17
PNR-28	3/5/2003 10:25	36.4	10.2	50.4	6.71	503	614	2260	< 4	15700	11700	1480	< 0.1	23.6	6.6	45	22.0	23.0	4930	26700	22.4	1880		0.20
PNR-28	5/28/2003 10:30	32.8	13.1	55.6	6.53	519	633	2130	< 1	15100	11300	1450	< 0.1	22.4	6.7	63	22.0	38.0	4900	30200	40.8	1460		0.21
PNR-28	8/13/2003 13:00	40.3	14.4	57.9	7.56	517	631	2140	< 1	16800	11300	1440	< 0.1	21.8	6.5	53	22.0	31.0	5200	29500	38.8	1270		0.15
PNR-28	11/5/2003 14:30	4.6	9.2	48.6	7.30	484	591	2180	< 4	17300	11700	1520	< 0.1	22.0	6.9	58	23.0	28.0	6010	29100	23.0	1350		0.16
PNR-28	March 2004	Not Sampled																						
PNR-28	6/8/2004 11:15	mnw	11.4	52.5	6.90	528	644	2090	< 4	17400	11000	1400	< 0.1	21.7	6.7	51	20.0	36.0	5720	32900	44.5	1740		0.21
PNR-28	9/15/2004 10:30	42.9	13.5	56.3	6.61	542	661	2230	< 4	18300	11700	1490	< 0.1	20.6	6.8	62	28.0	32.0	6490	33700	45.3	1630		0.24
PNR-28	11/17/2004 9:30	49.7	10.1	50.2	6.92	529	646	2310	< 4	17800	11800	1470	< 0.1	21.3	6.8	68	25.0	24.0	6480	32500	45.8	1660		0.18
PNR-28	3/1/2005 14:39	45.2	9.5	49.1	6.65	560	684	2170	< 4	17500	11400	1440	< 0.1	20.0	6.7	58	25.0	29.0	7370	34300	45.5	1510		0.17
PNR-28	5/25/2005 11:07	48.2	9.9	49.8	6.49	472	575	2150	< 4	17800	11100	1400	< 0.1	21.5	6.7	59	22.0	21.0	7440	34200	45.7	1770		0.21
PNR-28	8/16/2005 16:00	46.5	10.8	51.4	6.60	571	697	2190	< 4	17900	11400	1430	< 0.1	21.8	6.9	43	24.0	21.0	7050	33500	46.3	1670		0.18
PNR-28	11/15/2005 11:35	51.2	10.1	50.2	6.63	497	606	2240	< 4	19200	11600	1470	< 0.1	20.2	6.9	42	23.0	24.0	7700	32500	47.5	1600		0.16
PNR-28	2/8/2006 14:40	46.9	9.1	48.4	7.22	557	680	2200	< 4	18000	11300	1420	< 0.1	23.0	6.9	66	24.0	23.0	7970	31500	47.0	1630		0.13
PNR-28	5/23/2006 13:55	43.7	9.8	49.6	6.69	539	658	2080	< 4	18800	10800	1350	< 0.1	23.1	7.4	60	24.0	25.0	7970	32500	47.7	1630		0.16
PNR-28	8/23/2006 12:35	39.8	10.5	50.9	6.66	518	632	2140	< 4	18300	10700	1310	< 0.1	21.3	6.6	55	27.0	25.0	7930	34700	49.8	1600		0.20
PNR-28	12/6/2006 16:30	47.4	8.8	47.8	6.93	526	642	1990	< 4	18400	10100	1250	< 0.1	28.3	6.8	44	23.0	23.0	7690	33600	49.5	1680		0.20
PNR-28	3/13/07 18:00	47.7	9.4	48.9	6.14	523	638	2010	< 4	18400 D	10200	1270	< 0.1	21.6	6.7	61	92 D		8180 D	33300	49.3	1370 D		0.15
PNR-28	10/4/07 16:30	48.9	9.9	49.9	6.53	529	645	1910	< 4	19500	9550	1160	< 0.1	23.2	6.5	43	21	30	7950	33200	51.9	1720		0.10
PNR-28	3/26/08 18:30	48.6	9.5	49.0	6.77	548	668	2040	< 4	19000	10300	1280	< 0.1	24.4	6.6	50	25	24	8610	31900	48.6	1560		0.20
PNR-29	8/21/2001 17:45	5.1	10.1	50.2	nm	606	740	390	< 1	129	2170	290	< 0.1	174.0	7.2	14	25.0		480	4760	5.0	1940		
PNR-29	9/5/2001 14:00	4.9	12.8	55.0	7.40	695	847	393	< 1	104	2180	291	< 0.1	162.0	6.5	11	22.4		483	4760	4.8			
PNR-29	11/6/2001 12:50	4.9	11.7	53.0	7.50	691	843	400	< 1	99	2180	286	< 0.1	158.0	7.1	11		30.1	469	4650	5.0	1880		
PNR-29	2/20/2002 13:03	4.8	10.1	50.2	7.01	623	760	399	< 4	106	2200	292	< 0.1	160.0	6.9	13	28.0		501	4640	5.4	2070		
PNR-29	5/21/2002 16:30	5.4	11.9	53.4	7.00	662	807	359	< 4	83	1980	262	< 0.1	169.0	7.3	11	31.0		449	4640	5.3	2080		0.24

Inorganic Water Chemistry Data

Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation

Last update: 5/12/2008

Well No.	Date & Time	Field SC	Field Temp.		Field pH	Alkalinity as $CaCO_3$	Bicarbonate	Calcium	Carbonate	Chloride	Hardness, Total as $CaCO_3$	Magnesium	Nitrogen, Ammonia	Nitrogen, Nitrate plus Nitrite	Lab pH	Potassium	Silica, Dissolved	Silica, Total	Sodium	Total Dissolved Solids @ 180° C	Specific Conductance @ 25° C	Sulfate	Iron	Flouride
		mS	°C	°F	S.U.	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	S.U.	mg/l	mg/l	mg/l	mg/l	mg/l	mS	mg/l	mg/l	mg/l
PNR-29	8/20/2002 11:20	4.3	13.3	55.9	7.00	669	816	376	< 4	113	2130	290	< 0.1	163.0	7.2	10	25.0	35.0	431	4780	5.4	2030		0.27
PNR-29	11/5/2002 12:42	4.9	9.9	49.8	6.93	680	830	403	< 4	117	2200	290	< 0.1	167.0	7.1	12	25.0	31.0	469	4770	5.5	2070		0.28
PNR-29	3/5/2003 10:30	4.8	9.2	48.6	6.66	661	807	410	< 4	181	2230	292	< 0.1	175.0	7.2	13	6.0	22.0	550	4730	5.5	2060		0.20
PNR-29	5/28/2003 10:00	4.4	12.1	53.8	6.87	677	826	416	< 1	116	2230	292	< 0.1	172.0	7.1	13	25.0	35.0	489	4790	5.6	2030		0.32
PNR-29	8/13/2003 13:08	4.0	11.5	52.7	7.48	674	822	404	< 1	88	2200	288	< 0.1	181.0	7.0	11	25.0	61.0	460	4800	5.3	1920		0.25
PNR-29	11/4/2003 16:45	4.6	9.8	49.6	7.11	684	835	362	< 4	104	2160	305	< 0.1	178.0	7.1	13	26.9	29.8	482	4760	4.7	2120		0.27
PNR-29	March 2004	Not Sampled																						
PNR-29	6/8/2004 10:45	mnw	11.2	52.2	7.26	702	856	403	< 4	119	2260	304	< 0.1	176.0	7.1	12	25.3	35.1	492	4770	4.9	2030		0.31
PNR-29	9/15/2004 9:40	5.0	12.7	54.9	7.00	717	875	441	< 4	99	2350	303	< 0.1	174.0	7.2	12	26.8	26.2	468	4780	5.3	2040		0.28
PNR-29	11/17/2004 9:31	5.4	9.6	49.3	7.15	693	846	416	< 4	111	2270	299	< 0.1	171.0	6.9	13	27.3	29.0	505	4660	5.3	2010		0.29
PNR-29	3/1/2005 13:36	5.0	9.4	48.9	7.08	727	887	426	< 4	112	2340	309	< 0.1	170.0	7.1	14	28.5	26.8	549	4800	5.3	2030		0.30
PNR-29	5/25/2005 9:48	5.2	9.8	49.6	6.90	611	745	419	< 4	98	2290	301	< 0.1	180.0	7.2	14	27.0	28.9	524	4720	5.3	1860		0.30
PNR-29	8/16/2005 14:48	5.1	10.6	51.1	6.98	657	802	437	< 4	102	2400	317	< 0.1	177.0	7.3	11	25.7	23.3	498	4790	5.3	1930		0.28
PNR-29	11/15/2005 10:50	5.5	9.7	49.5	7.01	656	800	461	< 4	107	2520	332	< 0.1	180.0	7.1	10	27.5	26.3	536	4810	5.4	2020		0.26
PNR-29	2/8/2006 16:15	5.1	8.7	47.7	7.43	720	876	468	< 4	106	2530	332	< 0.1	180.0	7.2	13	29.5	29.7	564	4700	5.4	1980		0.23
PNR-29	5/23/2006 14:35	4.8	10.2	50.4	7.02	695	848	421	< 4	106	2350	316	< 0.1	256.0	7.9	13	28.2	31.8	555	4520	5.4	2050		0.27
PNR-29	8/23/2006 11:37	4.1	9.9	49.8	7.00	663	808	445	<4	103	2410	315	<0.1	259.0	7.0	14	29.2	26.9	545	4820	5.6	1970		0.30
PNR-29	12/6/2006 16:00	5.3	8.7	47.7	7.22	672	820	426	<4	96	2350	313	<0.1	223.0	7.2	15	29.0	27.9	544	4830	5.7	2010		0.30
PNR-29	3/13/07 17:50	5.5	9.1	48.4	6.83	664	811	446	< 4	106	2410	315	< 0.1	235 D	7.1	13	38.0		538	4740	5.5	1880		0.25
PNR-29	10/2/07 18:40	5.4	9.5	49.2	7.06	668	815	420	< 4	96	2280	299	< 0.1	243	7.1	11	27.7	30.5	487	4660	5.8	1960		0.30
PNR-29	3/26/08 12:10	5.3	9.6	49.3	7.19	689	840	426	< 4	92	2320	306	< 0.1	260	7.1	10	26.7	27.7	489	4660	5.5	1990		0.30
PNR-33-06	10/24/2006 18:25					607	741	474	<4	101	3020	447	0.5	38.8	7.0	20	28.9	38.4	286	4890	5.3	2700		0.22
PNR-33-06	12/6/2006 11:00	4.6	9.4	48.9	7.03	464	566	467	<4	85	2740	381	0.1	53.4	7.0	16	25.3	26.4	264	4450	4.9	2490		0.20
PNR-33-06	3/13/07 13:45	4.7	10.0	50.0	6.89	411	502	467	< 4	73	2490	321	0.2	45.4	7.2	15	33.7		269	4170	4.6	2390		0.24
PNR-33-06	10/3/07 15:35	5.6	11.4	52.5	7.22	396	483	483	< 4	104	2600	340	0.1	43.6	7.1	16	24.8	27.3	276	4480	5.0	2510		0.30
PNR-33-06	3/26/08 0:00	4.6	11.8	53.2	7.15	395	482	464	< 4	107	2540	336	0.1	53.8	7.2	16	25.5	30.1	270	4550	4.9	2550		0.30
PNR-34-07	3/14/07 13:15	34.5	9.9	49.9	6.51	469	573	2330	< 4	15600 D	13200	1800	0.6	6.3	6.8	50	330 D		4480 D	29400	40.3	1630 D		0.14
PNR-34-07	10/5/07 15:40	39.3	9.7	49.5	6.56	477	582	2220	< 4	15700	12700	1730	0.4	2.8	6.8	45	16.0	28.0	4390	28700	40.1	1700		0.30
PNR-34-07	3/27/08 18:00	41.4	9.8	49.6	6.64	515	629	2150	< 4	15900	11900	1590	0.2	9.4	6.7	38	17.0	17.0	5290	26900	41.3	1430		0.30
PNR-35-07	3/13/07 11:15	3.8	9.9	49.8	6.54	679	828	240	< 4	84	1300	171	0.9	< 0.05	7.2	8	31.3		518	3220	4.0	1560		0.39
PNR-35-07	10/2/07 16:05	4.6	10.2	50.3	6.96	670	818	234	< 4	89	1290	172	0.4	< 0.05	7.2	8	21.5	34.2	509	3150	4.2	1580		0.40
PNR-35-07	3/26/08 10:40	3.8	10.1	50.1	7.17	686	837	236	< 4	87	1310	176	0.4	< 0.05	7.2	8	21.7	46.7	513	3120	4.0	1580		0.40
PNR-36-07	3/13/07 11:40	3.2	9.5	49.1	7.07	417	509	284	< 4	209	1470	185	< 0.1	77.7 D	7.1	12	25.2		272	2690	3.5	1010		< 0.1
PNR-36-07	10/3/07 16:50	3.2	9.7	49.5	6.96	425	518	271	< 4	139	1400	176	< 0.1	68.4	7.1	9	17.8	29.9	242	2700	3.6	1200		0.30
PNR-36-07	3/26/08 0:00	3.1	9.4	49.0	6.87	412	503	268	< 4	138	1350	166	< 0.1	56.4	7.2	10	17.2	19.6	208	2450	3.1	1050		0.30
PNR-38-08	3/26/08 18:30	6.2	11.5	52.7	7.29	508	620	348	< 4	854	1690	200	< 0.1	0.07	7.2	12	28.7	42.3	584	3630	5.2	1130		0.20
PNR-RW-1	1/9/08 14:33	69.5	9.3	48.8	6.73	492	600	1380 D	<4	28000 D	6020	627 D	NA	NA	6.7	81 D	23 D	NA	15400 D	45800	71.2	1760 D		NA
PNR-RW-2	1/9/08 12:20	57.0	9.5	49.0	6.69	476	581	1480 D	<4	22400 D	6810	760 D	NA	NA	6.7	62 D	24 D	NA	11600 D	37200	59.7	1750 D		NA
PNR-RW-3	1/8/08 16:08	71.2	9.5	49.1	6.66	531	648	1960 D	<4	31800 D	8920	984 D	NA	NA	6.7	71 D	22 D	NA	16000 D	49800	76.8	1660 D		NA
PNR-RW-4	1/8/08 14:10	61.5	9.6	49.2	6.66	574	700	1600 D	<4	24400 D	7240	787 D	NA	NA	6.7	58 D	22 D	NA	12900 D	40600	63.6	1760 D		NA
PNR-RW-5	1/8/08 11:47	40.6	9.6	49.3	6.67	614	750	1540 D	<4	15000 D	7670	927 D	NA	NA	6.7	42 D	24 D	NA	6680 D	26900	42.4	1760 D		NA
USGS-92-12	6/1/2000 0:00	2.7	10.8	51.4	6.50	389	474	240	< 1	11	1670	260		3.9	7.9	14			95	2330	2.6	1410	12.1	
USGS-92-12	8/7/2001 11:35	2.2	9.8	49.6	6.70	422	515	203	< 1	7	1420	222	<0.1	4.4	7.2	12	25.1		92	2520	2.6	1360		
USGS-92-12	8/15/2001 14:40	mnw	9.3	48.7	7.70	422	515	220	< 1	8	1520	235	<0.1	4.3	7.4	13	28.3		94	2310	2.4	1450		
USGS-92-12	11/6/2001 14:30	1.7	10.0	50.0	7.10	420	512	197	< 1	6	1370	212	<0.1	5.0	7.4	13		32.1	83	2150	2.3	1200		
USGS-92-12	2/20/2002 14:25	2.3	10.0	50.0	7.38	458	558	171	< 4	6	1270	205	<0.1	5.1	7.3	11	29.1		84	2140	2.5	1220		
USGS 92-12	5/21/2002 14:05	2.6	12.7	54.9	7.57	403	491	174	< 4	<10	1220	191	<0.1	5.0	7.6	11	26.8		85	2040	2.3	1250		0.43
USGS 92-12	8/19/2002 16:00	2.4	9.7	49.5	7.20	413	504	197	< 4	6	1520	249	< 0.1	5.5	7.4	12	24.4	22.2	90	2420	2.7	1400		0.41
USGS-92-12	11/5/2002 12:00	2.6	9.8	49.6	7.31	422	514	226	< 4	6	1540	237	< 0.1	6.1	7.4	14	25.8	30.3	97	2560	2.9	1480		0.43
USGS-92-12	3/4/2003 11:30	2.3	8.4	47.1	7.22	404	493	190	< 4	10	1360	216	< 0.1	6.3	7.5	13	26.0	27.0	97	2190	2.4	1190		0.40
USGS-92-12	5/13/2003 14:15	2.0	8.8	47.8	8.04	415	507	187	< 4	7	1330	211	< 0.1	6.2	7.4	13	24.3	24.9	89	2030	2.3	1170		0.44
USGS-92-12	8/13/2003 7:46	2.0	10.1	50.2	8.10	415	507	203	< 1	4	1440	226	< 0.1	5.5	7.4	13	25.8	29.8	101	2450	2.6	1370		0.40
USGS-92-12	11/5/2003 10:00	3.1	9.2	48.6	7.97	410	500	152	< 4	4	1140	184	< 0.1	6.8	7.6	15	26.7	32.0	79	1820	2.0	924		0.41
USGS-92-12	March 2004	Not Sampled																						
USGS-92-12	6/8/2004 9:15	2.3	9.7	49.5	7.60	402	490	203	< 4	4	1450	230	< 0.1	5.3	7.4	13	23.4	37.6	117	2500	2.8	1390		0.46
USGS-92-12	9/14/2004 11:08	3.0	11.5	52.7	7.76	418	510	280	< 4	6	1990	314	< 0.1	7.1	7.5	19	28.6	30.7	133	3160	3.3	1840		0.44
USGS-92-12	11/16/2004 9:20	3.1	10.3	50.5	7.18	407	496	256	< 4	6	1800	282	< 0.1	8.3	7.4	19	29.1	29.0	129	2760	3.1	1670		0.45
USGS-92-12	3/1/2005 12:40	2.5	9.3	48.7	7.37	425	518	191	< 4	4	1410	226	< 0.1	8.6	7.4	15	26.8	26.9	117	2260	2.5	1250		0.44
USGS-92-12	5/24/2005 10:43	2.3	9.0	48.2	7.39	356	434	177	< 4	4	1280	203	< 0.1	9.1	7.5	15	24.4	22.9	110	2260	2.6	1120		0.43
USGS-92-12	8/17/2005 9:10	2.9	11.3	52.3	7.26	434	529	250	< 4	5	1780	282	< 0.1	5.0	7.5	18	27.1	41.6	136	2930	3.2	1680		0.42
USGS-92-12	11/15/2005 14:41	2.7	9.4	48.9	7.50	392	478	226	< 4	5	1650	263	< 0.1	6.0	7.6	16	28.1	56.3	125	2440	2.8	1420		0.40
USGS-92-12	2/7/2006 15:32	2.2	9.1	48.4	7.43	426	520	193	< 4	4	1420	227	< 0.1	7.6	7.5	15	27.9	27.8	117	2160	2.5	1180		0.40
USGS-92-12	5/24/2006 10:55	1.6	9.3	48.7	7.41	401	490	169	< 4	4	1270	205	< 0.1	7.5	8.2	14	27.6	29.2	109	1860	2.3	1070		0.41
USGS-92-12	8/22/2006 11:45	1.6	8.8	47.8	7.47	368	448	154	<4	3	1150	187	<0.1	9.0	7.4	14	28.5	31.4	102	1780	2.3	943		0.43
USGS-92-12	12/6/2006 10:30	1.9	7.0	44.6	7.60	365	446	136	<4	3	1010	162	<0.1	8.5	7.8	13	27.9	28.8	94	1630	2.1	856		0.50

Inorganic Water Chemistry Data
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Field SC mS	Field Temp. °C	Field Temp. °F	Field pH S.U.	Alkalinity as $CaCO_3$ mg/l	Bicarbonate mg/l	Calcium mg/l	Carbonate mg/l	Chloride mg/l	Hardness, Total as $CaCO_3$ mg/l	Magnesium mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate plus Nitrite mg/l	Lab pH S.U.	Potassium mg/l	Silica, Dissolved mg/l	Silica, Total mg/l	Sodium mg/l	Total Dissolved Solids @ 180° C mg/l	Specific Conductance @ 25° C mS	Sulfate mg/l	Iron mg/l	Flouride mg/l
USGS-92-12	3/13/07 12:55	1.8	9.7	49.5	7.12	353	430	135	< 4	3	990	158	< 0.1	9.15	7.8	13	27.6		92	1510	2.0	772		0.48
USGS-92-12	10/2/07 17:10	2.5	12.1	53.8	7.30	380	464	208	< 4	4	1410	215	< 0.1	9.19	7.6	13	16.9	92.1	106	2220	2.8	1240		0.50
USGS-92-12	3/25/08 15:30	2.1	9.3	48.7	7.20	364	445	145	< 4	3	1040	166	< 0.1	11.3	7.6	10	26.5	30.1	86	1610	2.1	912		0.50
USGS 93-3	6/1/2000 0:00	97.6	24.8	76.6	6.50	396	483	1080	< 1	39800	3770	257		< 0.05	7.1	403			23400	67000	87.0	1730	<0.1	
USGS 93-3	8/7/2001 18:55	94.9	25.2	77.4	6.80	456	556	960	< 1	41600	3390	241	15.0	< 0.05	6.9	425	19.4		22600	68200	79.2	100		
USGS 93-3	8/15/2001 19:10	79.3	24.7	76.5	6.90	418	510	960	< 1	41800	3450	257	15.7	< 0.05	7.0	430	22.1		25300	68400	73.9	2320		
USGS 93-3	11/7/2001 10:05	or	24.4	76.0	6.10	472	576	930	< 1	39700	3290	236	15.6	< 0.05	6.7	383		21.5	23600	62300	52.3	1270		
USGS-93-3	2/20/2002 9:00	92.0	24.8	76.6	6.46	395	482	929	< 4	42300	3310	241	15.9	< 0.05	6.8	422	15.0		22500	67200	61.2	888		
USGS 93-3	5/22/2002 9:30	92.1	23.9	75.0	6.62	434	529	916	< 4	42100	3150	210	14.9	< 0.05	6.8	386	22.0		22800	68100	69.3	1670		0.19
USGS 93-3	8/20/2002 16:25	90.0	24.5	76.1	6.40	463	565	897	< 4	42400	3230	242	14.9	< 0.05	6.8	284	20.0	20.0	22800	68000	71.7	1170		0.17
USGS-93-3	11/5/2002 16:10	99.4	24.0	75.2	6.56	469	572	981	< 4	38400	3420	236	14.9	< 0.05	6.8	439	12.0	20.0	22800	67700	61.7	1240		0.18
USGS-93-3	3/4/2003 15:45	95.0	23.5	74.3	6.50	458	559	900	< 4	41000	3130	215	14.3	< 0.05	6.8	416	19.0	19.0	23900	67600	51.5	1180		0.20
USGS-93-3	5/28/2003 13:15	90.8	24.6	76.3	6.62	512	625	886	< 1	40200	3130	222	14.0	< 0.05	6.7	486	20.0	20.0	24100	68100	93.5	967		0.22
USGS-93-3	8/14/2003 14:08	81.3	25.0	77.0	6.81	517	631	867	< 1	41800	3050	216	15.3	< 0.05	6.7	446	22.0	24.0	22900	68600	88.6	791		0.19
USGS-93-3	11/4/2003 16:45	86.7	23.2	73.8	6.45	510	622	606	< 4	41900	2210	168	15.7	< 0.05	6.8	427	17.0	20.0	19600	67500	50.4	859		0.21
USGS-93-3	March 2004	Not Sampled																						
USGS-93-3	6/8/2004 19:05	90.6	23.9	75.0	6.76	488	571	911	< 4	40000	3130	208	15.2	< 0.05	6.8	416	23.0	26.0	22400	66500	96.7	1330		0.15
USGS-93-3	9/14/2004 16:25	99.6	24.5	76.1	7.12	464	566	991	< 4	43300	3440	234	16.6	< 0.05	6.9	467	25.0	27.0	24700	68300	98.6	1360		0.20
USGS-93-3	11/17/2004 12:15	107.6	22.9	73.2	6.75	438	534	922	< 4	35800	3200	220	14.7	< 0.05	6.7	538	19.0	20.0	23700	66900	98.6	1100		0.20
USGS-93-3	3/2/2005 11:05	98.1	23.0	73.4	6.55	466	568	1010	< 4	43300	3470	230	15.9	< 0.05	6.8	500	22.0	22.0	27100	66700	97.6	1300		0.23
USGS-93-3	5/25/2005 15:52	101.5	23.3	73.9	6.43	399	487	1040	< 4	42500	3580	241	15.8	< 0.05	6.7	569	20.0	18.0	27200	64600	95.5	1400		0.25
USGS-93-3	8/17/2005 12:55	101.2	25.7	78.3	6.45	449	548	990	< 4	37900	3390	224	14.0	0.5	6.9	421	14.0	23.0	24700	65800	97.3	1250		0.21
USGS-93-3	11/16/2005 16:40	106.2	22.0	71.6	6.75	384	468	1130	< 4	42700	3900	263	15.8	<0.05	6.8	472	20.0	19.0	27600	63600	98.5	1270		0.20
USGS-93-3	2/9/2006 15:20	98.9	20.0	68.0	6.81	431	525	977	< 4	40700	3210	188	21.3	<0.05	6.9	521	23.0	22.0	24700	64100	96.7	1350		0.17
USGS-93-3	5/24/2006 18:20	89.9	23.0	73.4	6.53	409	499	1020	< 4	42900	3360	200	18.7	< 0.05	7.4	470	22.0	21.0	25100	56600	97.1	1340		0.18
USGS-93-3	8/23/2006 14:50	97.9	23.2	73.8	6.49	390	476	964	<4	40900	3170	186	14.6	<0.05	6.7	403	24.0	34.0	24200	63100	99.8	1330		0.20
USGS-93-3	12/7/2006 12:05	95.2	21.6	70.9	6.45	400	488	947	<4	41100	3190	199	16.3	<0.05	6.9	445	24.0	21.0	23800	64300	99.5	1320		0.20
USGS-93-3	3/15/07 13:30	90.8	22.4	72.4	6.41	401	489	1040	< 4	41900 D	3590	240	17.1	< 0.05	6.8	468 D	138 D		26000 D	64700	96.7	1240 D		0.18
USGS-93-3	10/3/07 11:50	89.3	22.6	72.6	6.92	396	483	936	< 4	40300	3170	201	15.6	< 0.05	6.7	375	23.0	26.0	21800	61600	98.6	1330		0.20
USGS-93-3	3/27/08 11:15	82.8	24.0	75.2	6.83	434	529	846	< 4	37300	2950	202	13.0	< 0.05	6.8	386	22.0	67.0	21200	55700	85.6	2440		0.20
USGS-06-1	1/10/08 12:53	3.1	9.7	49.4	6.99	394	481	257	<4	200	1390	182	NA	NA	7.3	9	21.4 D	NA	166	2340	3.04	1040		0.20
USGS-06-7	10/4/07 17:50	1.1	9.6	49.3	8.18	441	530	20	<4	13	90	10	0.6	2.65	8	3	15.6	17.1	240	748	1.27	172		0.40
Whitmer	5/31/2000 0:00	3.3	10.1	50.2	9.20	353	429	133	< 1	794	695	88		< 0.05	8.2	8			432	1970	3.2	279	4.82	
Whitmer	8/10/2001 10:00	3.9	10.8	51.4	7.70	368	447	168	< 1	1020	893	115	0.6	< 0.05	7.4	10	14.2		524	2520	3.9	287		
Whitmer	8/22/2001 15:30	3.4	11.1	52.0	nm	360	439	155	< 1	1020	820	105	0.7	< 0.05	7.5	8	13.5		445	2470	3.8	270		
Whitmer	11/9/2001 10:20	3.5	9.7	49.5	7.60	343	418	168	< 1	1060	879	111	0.8	< 0.05	7.5	9		16.4	484	2410	4.0	285		
Whitmer	2/22/2002 14:45	4.7	10.7	51.3	7.76	353	430	165	< 4	1110	865	110	0.8	< 0.05	7.6	8	15.0		472	2530	4.2	288		
Whitmer	5/22/2002 16:35	4.4	10.2	50.4	7.63	339	414	164	< 4	1290	870	112	0.7	< 0.05	7.6	9	16.5		457	2650	4.3	222		0.21
Whitmer	8/21/2002 9:35	3.8	10.8	51.4	7.50	331	404	187	< 4	1240	918	110	0.8	< 0.05	7.6	9	12.3	10.2	512	2710	4.4	296		0.21
Whitmer	11/5/2002 14:20	4.3	10.3	50.5	7.66	334	407	197	< 4	1250	1020	129	0.9	< 0.05	7.5	10	13.4	16.9	509	2670	4.7	309		0.23
Whitmer	3/4/2003 14:10	4.2	9.9	49.8	8.10	318	388	215	< 4	1310	1020	151	0.8	< 0.05	7.3	10	13.6	16.0	619	2720	5.0	320		0.20
Whitmer	5/13/2003 17:00	5.0	11.0	51.8	7.48	329	402	216	< 4	1330	1130	144	0.9	< 0.05	7.4	12	14.0	15.0	531	2760	4.5	306		0.23
Whitmer	8/14/2003 12:10	4.0	11.2	52.2	7.45	326	398	221	< 1	1350	1130	141	0.7	< 0.05	7.5	11	13.8	16.3	538	2950	4.6	267		0.25
Whitmer	11/4/2003 16:00	4.6	11.0	51.8	7.27	323	395	224	< 4	1490	1170	148	1.0	< 0.05	7.5	12	14.4	16.2	548	2940	4.7	248		0.23
Whitmer	3/18/2004 13:05	6.7	14.6	58.3	7.95	326	398	246	< 1	1530	1280	161	1.0	< 0.05	7.4	11	15.4	15.7	547	3130	4.9	267		0.21
Whitmer	6/9/2004 8:45	5.2	10.8	51.4	7.74	327	399	239	< 4	1570	1240	156	1.0	< 0.05	7.5	13	13.8	16.3	634	3500	5.5	359		0.25
Whitmer	9/16/2004 11:20	4.6	12.5	54.5	7.92	330	403	262	< 4	1510	1350	168	0.9	< 0.05	7.6	12	14.9	16.5	593	3520	5.5	320		0.22
Whitmer	11/18/2004 18:00	5.9	10.6	51.1	7.35	297	362	269	< 1	1610	1400	177	1.0	< 0.05	7.3	11	15.4	16.5	608	3420	5.7	327		0.24
Whitmer	3/2/2005 16:44	5.4	9.2	48.6	7.54	328	400	277	< 4	1670	1470	188	1.1	0.1	7.5	13	15.4	15.9	676	3470	5.7	324		0.25
Whitmer	8/16/2005 15:00	5.8	15.7	60.3	7.40	322	393	283	< 4	1610	1500	192	1.1	< 0.05	7.7	11	15.2	14.6	636	3800	5.8	329		0.22
Whitmer	11/17/2005 10:25	6.5	10.5	50.9	7.48	289	352	315	< 4	1790	1670	214	1.1	< 0.05	7.5	11	15.8	16.3	687	3660	6.0	323		0.21
Whitmer	2/9/2006 11:15	6.2	9.8	49.6	8.10	316	386	278	< 4	1690	1440	182	1.2	< 0.05	7.4	15	15.4	17.0	650	3460	6.0	379		0.21
Whitmer	5/25/2006 11:21	5.0	10.6	51.1	7.50	302	369	307	< 4	1820	1600	204	1.2	< 0.05	7.9	14	16.0	17.6	708	3630	6.2	348		0.21
Whitmer	8/24/2006 11:45	5.5	10.1	50.2	7.52	284	346	316	<4	1810	1630	204	1.2	<0.05	7.2	14	16.0	17.1	687	4240	6.6	342		0.20
Whitmer	12/7/2006 13:30	6.4	9.0	48.2	7.66	286	349	321	<4	1840	1640	203	1.3	<0.05	7.3	12	14.8	16.6	684	4010	6.8	351		0.20
Whitmer	3/14/07 16:55	6.2	9.3	48.8	7.53	284	347	339	< 4	1930	1770	225	1.3	< 0.05	7.4	13	19.7		732	4300	6.9	340		0.20
Whitmer	10/5/07 18:00	6.9	9.3	48.7	7.33	274	335	347	< 4	1980	1820	231	1.4	< 0.05	7.2	14	15.4	16.9	731	4520	7.1	365		0.20
Whitmer	3/27/08 11:10	7.2	9.6	49.4	7.61	284	346	367	< 4	2100	1930	246	1.3	< 0.05	7.2	13	15.5	16.9	743	4320	7.2	344		0.20
Whitmer (city)	5/26/2005 10:20	1.7	8.5	47.3	7.48	433	529	55	< 4	149	255	29	0.2	< 0.05	7.7	6	18.0	17.6	302	1150	1.8	237		0.49
Lockman (city)	5/26/2005 11:05	2.4	9.3	48.7	7.58	432	521	58	< 4	173	273	31	< 0.1	< 0.05	7.6	5	19.1	17.2	312	1170	1.8	235		0.45

Notes:
B =
D =
nm = Not measured
mnw = Meter failure, reading recorded in field notes but not used
or = Over range of meter, SC>2.0 mS
< # = Not detected, number shown is reporting limit

Table 3

BTEX and TPH Analytical Results

Table 3
BTEX and TPH Analyses
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	Total Xylenes µg/l	Total Petroleum Hydrocarbons mg/l
LAW-M03	3/13/07 17:40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1 H
LAW-M03	3/27/08 10:30	< 0.5	< 0.5	< 0.5	< 1.0	< 0.1
M-18	11/8/2001 15:30	53	21	1.8	10	0.2
M-18	8/23/2006 10:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-18	12/6/2006 12:25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	8/16/2001 14:35	< 0.5	0.32(J)	< 0.5	< 0.5	< 0.1
M-27	8/16/2001 14:45	< 0.5	0.28(J)	< 0.5	< 0.5	< 0.1
M-27	11/8/2001 8:50	< 0.5	< 0.5	< 0.5	< 1.0	< 0.1
M-27	2/20/2002 15:42	< 0.5	< 0.5	< 0.5	< 0.5	1.5
M-27	5/21/2002 15:05	< 0.5	< 0.5	< 0.5	< 0.5	1.3
M-27	8/20/2002 17:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	11/6/2002 9:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	3/5/2003 13:20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	5/13/2003 15:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	8/13/2003 11:10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	11/6/2003 10:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	March-04	Not sampled				
M-27	6/8/2004 15:15	0.77	< 0.5	< 0.5	0.52	< 0.1
M-27	11/18/2004 15:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	3/1/2005 12:05	< 0.5	< 0.5	< 0.5	0.48	< 0.1
M-27	5/24/2005 11:20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	8/16/2005 10:20	< 0.5	< 0.5	0.49	0.45	< 0.1
M-27	11/15/2005 14:28	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	2/7/2006 13:10	< 0.5	0.50	< 0.5	0.49 (J)	< 0.1
M-27	5/23/2006 14:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	8/22/2006 14:30	< 0.5	0.41(J)	< 0.5	< 0.5	0.5
M-27	12/6/2006 13:40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	3/14/07 17:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1 H
M-27	10/4/07 12:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	3/27/08 16:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-28	6/1/2000	14	2.8	< 0.5	< 0.5	N.T.
M-28	8/9/2001 12:15	19	< 0.5(J)	< 0.5	< 1.0	< 0.1
M-28	8/16/2001 17:00	19	< 0.5	< 0.5	< 0.5	< 0.1
M-28	11/8/2001 12:00	< 0.5	< 0.5	< 0.5	< 1.0	< 0.1
M-28	2/21/2002 8:40	20	< 0.5	< 0.5	< 0.5	2.7
M-28	5/23/2002 9:30	21	< 0.5	< 0.5	< 0.5	< 0.1
M-28 (Dup.)	5/23/2002 9:30	23	< 0.5	< 0.5	< 0.5	nm
M-28	8/21/2002 10:00	23	< 0.5	< 0.5	< 0.5	< 0.1
M-28	11/6/2002 11:20	22	< 0.5	< 0.5	< 0.5	< 0.1
M-28	3/5/2003 15:30	20	< 0.5	< 0.5	< 0.5	< 0.1
M-28	5/13/2003 16:45	23	< 0.5	< 0.5	< 0.5	< 0.1
M-28	8/13/2003 15:35	21	< 0.5	< 0.5	< 0.5	< 0.1
M-28	11/5/2003 10:30	19	< 0.5	< 0.5	< 0.5	< 0.1
M-28	3/16/2004 17:30	12	< 0.5	< 0.5	< 0.5	< 0.1
M-28	6/8/2004 17:18	22	< 0.5	< 0.5	0.91	< 0.1
M-28	11/19/2004 8:36	18	< 0.5	< 0.5	< 0.5	< 0.1
M-28	3/1/2005 15:45	19	< 0.5	< 0.5	< 0.5	< 0.1
M-28	5/24/2005 13:10	16	< 0.5	< 0.5	< 0.5	< 0.1
M-28	8/16/2005 13:15	16	< 0.5	< 0.5	< 0.5	< 0.1
M-28	11/15/2005 16:35	18	< 0.5	< 0.5	< 0.5	< 0.1
M-28	2/7/2006 16:30	19	< 0.5	< 0.5	< 0.5	< 0.1
M-28	5/23/2006 16:20	18	< 0.5	< 0.5	< 0.5	< 0.1
M-28	8/22/2006 16:45	20	< 0.5	< 0.5	< 0.5	< 0.1
M-28	12/6/2006 14:40	19	< 0.5	< 0.5	< 0.5	< 0.1
M-28	3/15/07 10:15	19	< 0.5	< 0.5	< 0.5	< 0.1 H
M-28	10/3/07 16:40	19	< 0.5	< 0.5	< 0.5	< 0.1
M-28	3/27/08 9:50	15	< 0.5	< 0.5	< 0.5	< 0.1
M-30	6/1/2000	< 0.5	< 0.5	< 0.5	< 0.5	N.T.
M-30	2/22/2002 13:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1

Table 3
BTEX and TPH Analyses
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	Total Xylenes µg/l	Total Petroleum Hydrocarbons mg/l
M-30	5/22/2002 17:10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-30	8/21/2002 10:40	< 0.5	0.49	< 0.5	< 0.5	< 0.1
M-30	11/19/2004 8:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-30	3/2/2005 17:50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-31	6/1/2000	41	0.88	< 0.5	< 0.5	N.T.
M-31	8/9/2001 11:05	47	< 0.5	< 0.5	< 1.0	< 0.1
M-31	8/16/2001 17:30	38	< 0.5	< 0.5	< 0.5	< 0.1
M-31	11/8/2001 16:00	24	< 0.5	< 0.5	< 1.0	< 0.1
M-31	2/21/2002 9:45	42	< 0.5	< 0.5	< 0.5	3.4
M-31	5/22/2002 15:45	38	< 0.5	< 0.5	< 0.5	< 0.1
M-31	8/21/2002 10:45	41	< 0.5	< 0.5	< 0.5	< 0.1
M-31	11/6/2002 10:35	23	< 0.5	< 0.5	< 0.5	< 0.1
M-31	3/5/2003 14:10	38	< 0.5	< 0.5	< 0.5	< 0.1
M-31	5/13/2003 16:00	37	< 0.5	< 0.5	< 0.5	< 0.1
M-31	8/13/2003 14:40	35	< 0.5	< 0.5	< 0.5	< 0.1
M-31	11/5/2003 11:35	30	< 0.5	< 0.5	< 0.5	< 0.1
M-31	3/16/2004 16:00	32	< 0.5	< 0.5	< 0.5	< 0.1
M-31	6/8/2004 16:40	35	< 0.5	< 0.5	< 0.5	< 0.1
M-31	11/18/2004 17:00	32	< 0.5	< 0.5	< 0.5	< 0.1
M-31	3/1/2005 13:45	32	< 0.5	< 0.5	< 0.5	< 0.1
M-31	5/24/2005 15:05	28	< 0.5	< 0.5	< 0.5	< 0.1
M-31	8/16/2005 11:30	29	< 0.5	< 0.5	< 0.5	< 0.1
M-31	11/15/2005 15:30	29	< 0.5	< 0.5	< 0.5	< 0.1
M-31	2/7/2006 14:00	30	< 0.5	< 0.5	< 0.5	< 0.1
M-31	5/23/2006 17:20	27	< 0.5	< 0.5	< 0.5	< 0.1
M-31	8/23/2006 13:30	29	< 0.5	< 0.5	< 0.5	< 0.1
M-31	12/6/2006 15:45	28	< 0.5	< 0.5	< 0.5	< 0.1
M-31	3/15/07 11:30	30	< 0.5	< 0.5	< 0.5	< 0.1 H
M-31	10/4/07 14:30	30	< 0.5	< 0.5	0.66	< 0.1
M-31	3/27/08 10:30	24	< 0.5	< 0.5	0.66	< 0.1
M-32	11/9/2001 9:00	< 0.5	< 0.5	< 0.5	< 1.0	< 0.1
M-36	9/5/2001 15:55	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-36	11/9/2001 11:00	< 0.5	< 0.5	< 0.5	< 1.0	
M-38	9/5/2001 16:25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-38	11/9/2001 11:40	< 0.5	< 0.5	< 0.5	< 0.1	
M-39	11/7/2001 15:45	< 0.5	< 0.5	< 0.5	< 1.0	< 0.1
MOC-1B	10/16/06 15:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-1B	3/14/07 12:55	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1 H
MOC-1B	10/3/07 10:35	< 0.5	< 0.5	< 0.5	< 1.0	< 0.1
MOC-1B	3/25/08 18:30	< 0.5	< 0.5	< 0.5	< 1.0	< 0.1
MOC-2	10/16/06 17:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-2	3/13/07 17:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-2	10/5/07 14:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-2	3/26/08 17:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-3	10/17/06 12:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-3	3/14/07 11:50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1 H
MOC-3	10/2/07 19:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-3	3/25/08 16:50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-4	10/17/06 13:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-4	10/4/07 11:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-4	3/26/08 16:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-20A	10/16/06 11:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-20A	3/13/07 13:40	< 0.5	0.67	< 0.5	< 0.5	< 0.1
MOC-20A	10/3/07 17:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1

Table 3
BTEX and TPH Analyses
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	Total Xylenes µg/l	Total Petroleum Hydrocarbons mg/l
MOC-20A	3/26/08 15:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-20B	10/16/06 16:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-20B	3/13/07 15:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-20B	10/3/07 13:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-20B	3/26/08 14:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-4	8/10/2001 13:15	422	885(T)	233	594	628
PNR-4	8/10/2001 13:20	375	835(T)	123	349	635
PNR-4	11/8/2001 15:00	437	2040	1280	3850	992
PNR-4	Plugged and abandoned					
PNR-5	6/1/2000 0:00	1.2	0.75	6.7	4.2	< 0.1
PNR-5	8/8/2001 11:00	0.9	1.6	3.9	< 1.0	< 0.1
PNR-5	8/15/2001 11:00	2.1	8.8	2.6	8.1	1.4
PNR-5	11/7/2001 11:10	< 0.5	< 10	< 5.0	<5.0	< 0.1
PNR-5	2/20/2002 10:02	1.2	0.98	4.3	0.68	< 0.1
PNR-5	5/22/2002 10:40	1.0	1.2	8.5	0.85	< 0.1
PNR-5	8/20/2002 17:10	0.9	0.37	6.2	0.62	1.3
PNR-5	11/6/2002 11:10	1.4	0.93	6.9	0.57	< 0.1
PNR-5	3/4/2003 16:30	0.9	< 0.5	5.8	< 0.5	< 0.1
PNR-5	5/28/2003 12:35	0.7	0.61	9.6	0.87	< 0.1
PNR-5	8/13/2003 14:59	0.86	< 0.5	4.5	0.72	< 0.1
PNR-5	11/4/2003 15:30	1.3	1.0	10.0	1.1	< 0.1
PNR-5	3/17/2004 10:15	0.74	1.3	14	1.1	< 0.1
PNR-5	6/9/2004 9:40	1.4	< 0.5	23	< 0.5	< 0.1
PNR-5	9/14/2004 16:20	1.1	25	1.3	< 0.5	< 0.1
PNR-5	11/17/2004 13:50	0.99	25	< 0.5	1.1	< 0.1
PNR-5	3/2/2005 12:15	1.1	36	1.3	< 0.5	< 0.1
PNR-5	5/25/2005 17:20	0.9	30	0.71	< 0.5	1
PNR-5	8/17/2005 11:00	0.8	40	0.46	< 0.5	< 0.1
PNR-5	11/16/2005 13:00	1.1	1.1	65	< 0.5	< 0.1
PNR-5	2/9/2006 15:20	0.43 (J)	< 0.5	73	0.38 (J)	< 0.1
PNR-5	5/25/2006 10:30	0.46 (J)	< 0.5	60	< 0.5	< 0.1
PNR-5	8/23/2006 15:40	0.7	< 0.5	64	< 0.5	< 0.1
PNR-5	12/7/2006 13:25	0.8	< 0.5	58	< 0.5	< 0.1
PNR-5	3/14/07 14:14	0.75	1.2	85	< 0.5	< 0.1
PNR-5	10/5/07 11:40	< 0.5	< 0.5	0.43	0.76	< 0.1
PNR-5	3/27/08 16:30	< 0.5	< 0.5	< 0.5	< 1	< 0.1
PNR-6	5/31/2000 0:00	< 0.5	< 0.5	< 0.5	< 0.5	N.T.
PNR-6	8/7/2001 9:55	< 0.5	0.88	< 0.5	< 1.0	< 0.1
PNR-6	8/15/2001 15:30	< 0.5	0.3(J)	< 0.5	< 0.5	< 0.1
PNR-6	11/7/2001 8:55	< 0.5	0.56	< 0.5	< 1.0	< 0.1
PNR-6	2/19/2002 13:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-6	5/21/2002 12:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-6	8/19/2002 16:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-6	11/5/2002 11:25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-6	3/4/2003 10:40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-6	5/13/2003 11:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-6	8/13/2003 8:16	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-6	11/4/2003 13:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-6	March 2004		Not sampled			
PNR-6	6/8/2004 10:20	< 0.5	0.46	< 0.5	0.53	< 0.1
PNR-6	9/14/2004 9:15	< 0.5	< 0.5	< 0.5	< 0.5	0.5
PNR-6	11/16/2004 10:17	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-6	2/28/2005 17:30	< 0.5	< 0.5	0.51	< 0.5	< 0.1
PNR-6	5/23/2005 18:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-6	8/16/2005 9:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-6	11/15/2005 10:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-6	2/7/2006 10:47	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-6	5/23/2006 10:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-6	8/22/2006 10:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-6	12/5/2006 13:40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1

Table 3
BTEX and TPH Analyses
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	Total Xylenes µg/l	Total Petroleum Hydrocarbons mg/l
PNR-6	3/14/07 10:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-6	10/2/07 18:55	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-6	3/26/08 11:50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	5/31/2000 0:00	27	< 0.5	< 0.5	< 0.5	N.T.
PNR-7	8/7/2001 17:20	35	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	8/15/2001 17:55	20	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	11/7/2001 11:50	40	< 0.5	< 0.5	< 1.0	< 0.1
PNR-7	2/19/2002 17:05	39	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	5/22/2002 13:10	39	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	8/20/2002 15:07	41	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	11/5/2002 14:50	39	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	3/4/2003 15:05	43	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	May 2003		Not sampled			
PNR-7	8/12/2003 12:20	39	< 0.5	< 0.5	< 0.5	0.28
PNR-7	11/4/2003 14:30	38	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	3/17/2004 17:10	39	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	6/8/2004 18:40	47	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	9/14/2004 18:00	41	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	11/17/2004 13:40	44	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	3/1/2005 17:30	40	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	5/25/2005 13:47	38	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	8/17/2005 10:52	39	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	11/16/2005 14:00	44	< 0.5	2.2	< 0.5	< 0.1
PNR-7	2/9/2006 14:15	38	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	5/24/2006 16:10	35	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	8/24/2006 10:24	39	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	12/8/2006 10:15	32	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	3/15/07 12:15	40	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	10/4/07 19:00	43	< 0.5	< 0.5	< 0.5	< 0.1
PNR-7	3/28/08 10:30	37	< 0.5	< 0.5	< 0.5	< 0.1
PNR-8	5/31/2000 0:00	< 0.5	< 0.5	< 0.5	< 0.5	N.T.
PNR-8	8/7/2001 13:50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-8	8/16/2001 18:10	< 0.5	0.55	< 0.5	0.54	< 0.1
PNR-8	11/6/2001 16:30	< 0.5	< 0.5J	< 0.5	< 1.0	0.5
PNR-8	2/22/2002 16:00	< 0.5	< 0.5J	< 0.5	< 0.5	< 0.1
PNR-8	5/21/2002 17:45	< 0.5	< 0.5J	< 0.5	< 0.5	< 0.1
PNR-8	8/21/2002 10:10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-8	11/5/2002 15:25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-8	3/4/2003 12:10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-8	5/13/2003 17:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-8	8/12/2003 9:46	1.1	< 0.5	< 0.5	< 0.5	< 0.1
PNR-8	11/4/2003 12:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-8	3/18/2004 11:30	< 0.5	< 0.5	< 0.5	< 0.5	2.7
PNR-8	6/8/2004 18:40	< 0.5	< 0.5	< 0.5	< 0.5	0.69
PNR-8	9/14/2004 17:05	< 0.5	< 0.5	< 0.5	< 0.5	0.4
PNR-8	11/16/2004 16:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-8	3/2/2005 15:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-8	5/26/2005 10:46	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-8	8/18/2005 11:50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-8	11/17/2005 9:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-8	2/9/2006 9:45	0.42 (J)	< 0.5	< 0.5	< 0.5	< 0.1
PNR-8	5/24/2006 17:50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-8	8/24/2006 12:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-8	12/7/2006 11:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-8	3/14/07 13:25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1 H
PNR-8	10/4/07 14:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-8	3/28/08 11:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	6/1/2000 0:00	< 0.5	0.86	< 0.5	< 0.5	N.T.
PNR-9	8/9/2001 9:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	8/16/2001 13:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	11/7/2001 14:30	< 0.5	< 0.5	< 0.5	< 1.0	0.9

Table 3
BTEX and TPH Analyses
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	Total Xylenes µg/l	Total Petroleum Hydrocarbons mg/l
PNR-9	2/20/2002 14:50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	5/22/2002 10:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	8/20/2002 16:20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	11/5/2002 14:05	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	3/4/2003 16:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	5/27/2003 18:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	8/13/2003 10:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	11/4/2003 14:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	March 2004		Not sampled			
PNR-9	6/8/2004 13:35	1.8	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	9/14/2004 11:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	11/16/2004 16:12	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	3/1/2005 12:10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	5/24/2005 17:25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	8/16/2005 12:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	11/15/2005 15:55	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	2/8/2006 12:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	5/23/2006 13:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	8/23/2006 9:40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	12/6/2006 15:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	3/13/07 16:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1 H
PNR-9	10/4/07 10:40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-9	3/27/08 13:40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	6/1/2000 0:00	< 0.5	< 0.5	< 0.5	< 0.5	N.T.
PNR-10	8/8/2001 18:50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	8/16/2001 13:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	11/7/2001 12:30	< 0.5	< 0.5	< 0.5	< 1.0	0.6
PNR-10	2/20/2002 13:38	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	5/21/2002 13:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	8/20/2002 12:20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	11/5/2002 13:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	3/4/2003 16:50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	5/27/2003 17:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	8/13/2003 10:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	11/4/2003 13:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	March 2004		Not sampled			
PNR-10	6/8/2004 14:10	0.43	0.59	< 0.5	0.88	< 0.1
PNR-10	9/14/2004 11:40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	11/16/2004 11:28	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	3/1/2005 11:06	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	5/24/2005 15:50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	8/16/2005 10:48	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	11/15/2005 11:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	2/7/2006 14:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	5/23/2006 12:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	8/23/2006 10:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	12/6/2006 14:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	3/13/07 15:20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1 H
PNR-10	10/3/07 16:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-10	3/27/08 11:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-12	5/31/2000 0:00	< 0.5	< 0.5	< 0.5	< 0.5	N.T.
PNR-12	8/8/2001 15:00	< 0.5	< 0.5	< 0.5	< 1.0	< 0.1
PNR-12	8/15/2001 16:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-12	11/6/2001 16:20	< 0.5	< 0.5	< 0.5	< 1.0	< 0.1
PNR-12	2/20/2002 11:55	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-12	5/21/2002 11:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-12	8/19/2002 16:05	< 0.5	0.43	< 0.5	< 0.5	< 0.1
PNR-12	11/5/2002 11:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-12	3/4/2003 13:10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-12	5/27/2003 17:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-12	8/13/2003 8:05	0.65	< 0.5	< 0.5	< 0.5	< 0.1
PNR-12	11/4/2003 12:35	< 0.5	0.59	< 0.5	< 0.5	< 0.1

Table 3
BTEX and TPH Analyses
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	Total Xylenes µg/l	Total Petroleum Hydrocarbons mg/l
PNR-12	March 2004		Not sampled			
PNR-12	6/8/2004 9:15	< 0.5	1.4	< 0.5	< 0.5	< 0.1
PNR-12	9/14/2004 10:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-12	11/16/2004 9:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-12	2/28/2005 17:10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-12	5/23/2005 18:50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-12	8/15/2005 6:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-12	11/15/2005 9:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-12	2/7/2006 13:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-12	5/23/2006 10:50	0.50 (J)	< 0.5	< 0.5	< 0.5	< 0.1
PNR-12	8/23/2006 16:10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-12	12/5/2006 15:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-12	3/14/07 12:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-12	10/3/07 13:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-12	3/26/08 10:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-13	8/15/2001 18:15	19	0.8	< 0.5	< 0.5	< 0.1
PNR-13	8/15/2001 19:00	32	1.1	< 0.5	0.49(J)	< 0.1
PNR-13	11/7/2001 13:35	8.2	< 0.5	< 0.5	< 1.0	5.4
PNR-13	2/19/2002 16:30	6.4	< 0.5	< 0.5	< 0.5	< 0.1
PNR-13	5/22/2002 14:00	4.3	< 0.5	< 0.5	< 0.5	< 0.1
PNR-13	8/20/2002 15:45	3.5	0.4	< 0.5	< 0.5	< 0.1
PNR-13	11/5/2002 15:30	2.1	0.9	< 0.5	< 0.5	< 0.1
PNR-13	3/4/2003 11:15	1.2	< 0.5	< 0.5	< 0.5	< 0.1
PNR-13	5/28/2003 10:05	1.0	0.7	< 0.5	< 0.5	< 0.1
PNR-13	8/13/2003 10:20	0.85	< 0.5	< 0.5	< 0.5	< 0.1
PNR-13	11/4/2003 14:15	2.4	0.71	< 0.5	< 0.5	< 0.1
PNR-13	March 2004		Not sampled			
PNR-13	6/8/2004 15:30	2.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-13	9/14/2004 10:00	0.62	< 0.5	0.74	0.49	< 0.1
PNR-13	11/16/2004 15:30	1.3	< 0.5	< 0.5	< 0.5	< 0.1
PNR-13	3/1/2005 13:25	0.78	< 0.5	1.3	< 0.5	< 0.1
PNR-13	5/24/2005 12:00	0.65	< 0.5	< 0.5	< 0.5	< 0.1
PNR-13	8/17/2005 9:40	1.0	< 0.5	0.86	< 0.5	< 0.1
PNR-13	11/16/2005 10:50	1.2	< 0.5	< 0.5	< 0.5	< 0.1
PNR-13	2/8/2006 10:40	1.3	< 0.5	< 0.5	< 0.5	< 0.1
PNR-13	5/24/2006 13:15	0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-13	8/22/2006 14:25	0.9	< 0.5	< 0.5	< 0.5	< 0.1
PNR-13	12/6/2006 11:30	1.8	< 0.5	< 0.5	< 0.5	< 0.1
PNR-13	3/14/07 16:20	0.81	< 0.5	< 0.5	< 0.5	< 0.1
PNR-13	10/4/07 17:30	0.43	< 0.5	< 0.5	< 0.5	< 0.1
PNR-13	3/27/08 15:00	0.63	< 0.5	< 0.5	< 0.5	< 0.1
PNR-14	8/9/2001 16:00	4.1	0.6	55	1.9	< 0.1
PNR-14	8/14/2001 9:45	3.5	1.1	34(D)	0.38(J)	< 0.1
PNR-14	11/7/2001 14:35	18.0	< 0.5J	9.7	<1.0	< 0.1
PNR-14	2/21/2002 11:30	0.9	< 0.5	14	0.68	< 0.1
PNR-14	5/22/2002 12:05	1.1	0.6	41	1.8	< 0.1
PNR-14	8/20/2002 17:45	1.0	0.5	32	0.93	< 0.1
PNR-14	11/6/2002 11:28	0.8	< 0.5	36	0.7	< 0.1
PNR-14	3/4/2003 17:15	0.9	< 0.5	31	0.5	< 0.1
PNR-14	5/28/2003 11:45	0.7	0.8	22	0.45	< 0.1
PNR-14	8/13/2003 15:43	0.64	< 0.5	22	< 0.5	< 0.1
PNR-14	11/5/2003 11:45	0.62	< 0.5	23	< 0.5	< 0.1
PNR-14	3/17/2004 10:45	0.33	0.87	12	0.59	0.53
PNR-14	6/9/2004 10:40	0.9	0.65	17	< 0.5	< 0.1
PNR-14	9/14/2004 15:35	0.89	7.9	0.58	0.65	< 0.1
PNR-14	11/17/2004 15:30	0.76	5.9	< 0.5	< 0.5	< 0.1
PNR-14	3/2/2005 10:50	0.55	3.7	< 0.5	< 0.5	< 0.1
PNR-14	5/25/2005 9:46	< 0.5	2.2	< 0.5	< 0.5	< 0.1
PNR-14	8/17/2005 15:18	< 0.5	1.2	0.45	< 0.5	1.6
PNR-14	11/16/2005 11:05	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-14	2/9/2006 14:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-14	5/24/2006 17:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1

Table 3
BTEX and TPH Analyses
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	Total Xylenes µg/l	Total Petroleum Hydrocarbons mg/l
PNR-14	8/23/2006 16:20	< 0.5	< 0.5	4.1	< 0.5	< 0.1
PNR-14	12/7/2006 15:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-14	3/14/07 10:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-14	10/4/07 16:50	0.54	0.64	< 0.5	< 0.5	< 0.1
PNR-14	3/27/08 13:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-15	8/10/2001 8:15	3.6	6.6	4.5	7.4	< 0.1
PNR-15	8/14/2001 13:00	3.3	4.8	3.8	4.4	0.5
PNR-15	11/8/2001 9:10	4.8	6.6	24	<5.0	2.7
PNR-15	2/21/2002 14:54	1.8	<0.50	24	5.7	1.5
PNR-15	5/22/2002 14:55	2.3	0.7	18	1.4	3.4
PNR-15	8/21/2002 14:00	2.5	3.8	14	19	1.1
PNR-15	11/6/2002 14:35	2.8	< 0.5	11	8.5	2.0
PNR-15	3/5/2003 12:30	6.3	< 0.5	21	230	68
PNR-15	5/28/2003 15:35	4.2	1.2	16	34	4.4
PNR-15	8/14/2003 9:58	20	32	13	13	0.28
PNR-15	11/5/2003 14:30	1.9	1.2	12	9.3	1.2
PNR-15	3/17/2004 13:35	0.77	< 0.5	7.7	0.79	1.2
PNR-15	6/8/2004 12:45	1.0	< 0.5	9.6	< 0.5	1.1
PNR-15	9/15/2004 16:30	0.93	8.5	0.79	0.71	< 0.1
PNR-15	11/18/2004 9:05	0.74	9.4	0.78	0.93	< 0.1
PNR-15	3/2/2005 12:20	14	12	1.3	6.9	< 0.1
PNR-15	5/25/2005 10:40	0.45	5.4	< 0.5	< 0.5	< 0.1
PNR-15	8/17/2005 16:45	0.44	7.4	0.56	< 0.5	< 0.1
PNR-15	11/16/2005 11:35	< 0.5	< 0.5	4.7	< 0.5	< 0.1
PNR-15	2/8/2006 10:45	< 0.5	< 0.5	3.6	0.67	< 0.1
PNR-15	5/24/2006 11:15	< 0.5	0.74	1.5	1.3	3.5
PNR-15	8/23/2006 17:15	< 0.5	0.66	1.5	0.6	< 0.1
PNR-15	12/7/2006 16:30	< 0.5	< 0.5	2.4	< 0.5	< 0.1
PNR-15	3/14/07 11:40	0.63	< 0.5	2	0.56	< 0.1
PNR-15	10/4/07 18:00	0.63	< 0.5	0.76	< 0.5	< 0.1
PNR-15	3/27/08 15:20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-16	8/10/2001 15:15	0.32(J)	1.00(J)	0.42(J)	1.0	14.0
PNR-16	8/16/2001 18:35	< 0.5	0.37(J)	< 0.5	0.34(J)	< 0.1
PNR-16	11/6/2001 16:05	< 0.5	< 0.5J	< 0.5	< 1.0	< 0.1
PNR-16	2/21/2002 10:20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-16	5/21/2002 15:50	< 0.5	0.83	< 0.5	2.0	< 0.1
PNR-16	8/20/2002 11:40	< 0.5	0.52	< 0.5	<0.50	< 0.1
PNR-16	11/5/2002 14:04	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-16	3/4/2003 13:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-16	5/27/2003 18:30	< 0.5	0.5	< 0.5	< 0.5	< 0.1
PNR-16	8/13/2003 9:10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-16	11/4/2003 12:30	0.75	1.9	< 0.5	0.85	< 0.1
PNR-16	3/17/2004 16:09	< 0.5	0.53	0.59	< 0.5	0.43
PNR-16	6/8/2004 12:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-16	9/14/2004 12:40	< 0.5	< 0.5	0.78	< 0.5	< 0.1
PNR-16	11/16/2004 12:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-16	3/1/2005 14:30	< 0.5	< 0.5	0.76	< 0.5	< 0.1
PNR-16	5/24/2005 13:58	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-16	8/17/2005 9:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-16	11/15/2005 15:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-16	2/7/2006 16:47	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-16	5/24/2006 12:25	< 0.5	0.46 (J)	< 0.5	< 0.5	< 0.1
PNR-16	8/22/2006 13:20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-16	12/6/2006 13:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-16	3/13/07 12:45	< 0.5	0.44 J	< 0.5	< 0.5	< 0.1
PNR-16	10/3/07 10:55	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-16	3/26/08 14:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-17	8/22/2001 12:35	309	640	135	377	16
PNR-17	8/22/2001 13:30	206	342	75	214	31
PNR-17	11/8/2001 11:30	301	1220	582	1720	806
PNR-17	2/21/2002 17:00	341	682	191	511	62

Table 3
BTEX and TPH Analyses
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	Total Xylenes µg/l	Total Petroleum Hydrocarbons mg/l
PNR-17	5/23/2002 10:50	386	877	225	620	53
PNR-17	8/21/2002 15:15	230	438	98	261	140
PNR-17	11/6/2002 15:40	97	195	69	181	200
PNR-17	3/5/2003 13:30	90	245	105	277	82
PNR-17	5/28/2003 10:00	76	202	118	305	41
PNR-17	8/14/2003 11:05	64	119	82	190	180
PNR-17	11/6/2003 11:30	74	75	120	200	150
PNR-17	3/17/2004 15:10	47	12	89	87	56
PNR-17	6/9/2004 15:45	45	1.9	85	13	31
PNR-17	9/16/2004 9:35	33	63	1.7	5.4	10
PNR-17	11/18/2004 12:20	23	56	< 0.5	6.4	120
PNR-17	3/2/2005 15:30	15	34	3.4	18	26
PNR-17	5/25/2005 14:25	15	69	3.6	15	77
PNR-17	8/17/2005 17:25	7.7	39	0.53	5.3	180
PNR-17	11/16/2005 14:01	15	2.3	37	49	98
PNR-17	2/8/2006 14:05	3.7	9.7	20	29	1.8
PNR-17	5/24/2006 13:50	0.76	2.9	8.3	11	1200
PNR-17	8/24/2006 12:45	1.8	5.0	28	51	12
PNR-17	12/8/2006 12:30	0.66	4.4	23	40	5
PNR-17	3/15/07 11:49	< 1	3.3	17	45	14 H
PNR-18	8/8/2001 16:00	< 0.5	0.81	< 0.5	< 1.0	< 0.1
PNR-18	8/16/2001 11:00	< 0.5	0.78	< 0.5	< 0.5	< 0.1
PNR-18	11/7/2001 10:20	< 0.5	0.66	< 0.5	< 1.0	0.9
PNR-18	2/20/2002 11:24	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-18	5/21/2002 10:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-18	8/19/2002 16:50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-18	11/5/2002 11:55	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-18	3/4/2003 14:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-18	5/13/2003 11:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-18	8/14/2003 8:40	0.82	< 0.5	< 0.5	< 0.5	< 0.1
PNR-18	11/4/2003 16:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-18	March 2004		Not sampled			
PNR-18	6/8/2004 9:55	0.75	0.52	< 0.5	0.63	< 0.1
PNR-18	9/14/2004 8:55	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-18	11/18/2004 14:25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-18	2/28/2005 17:50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-18	5/25/2005 17:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-18	8/15/2005 18:00	< 0.5	< 0.5	0.75	0.64	< 0.1
PNR-18	11/15/2005 10:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-18	2/7/2006 11:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-18	5/23/2006 11:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-18	8/22/2006 17:17	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-18	12/5/2006 14:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-18	3/14/07 11:10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-18	10/2/07 17:20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-18	3/28/08 13:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-19	8/7/2001 14:50	1.1	< 0.5	< 0.5	< 1.0	< 0.1
PNR-19	8/15/2001 16:40	0.35(J)	0.41(J)	< 0.5	< 0.5	< 0.1
PNR-19	11/6/2001 15:20	1.4	< 0.5	< 0.5	< 1.0	< 0.1
PNR-19	2/19/2002 15:05	2.3	< 0.5	< 0.5	< 0.5	< 0.1
PNR-19	5/22/2002 14:55	3.2	< 0.5	< 0.5	< 0.5	< 0.1
PNR-19	8/20/2002 12:30	3.3	< 0.5	< 0.5	< 0.5	< 0.1
PNR-19	11/5/2002 13:17	3.7	< 0.5	< 0.5	< 0.5	< 0.1
PNR-19	3/4/2003 12:20	5.1	< 0.5	< 0.5	< 0.5	0.9
PNR-19	5/27/2003 17:20	5.7	< 0.5	< 0.5	< 0.5	< 0.1
PNR-19	8/13/2003 8:55	5.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-19	11/4/2003 10:50	5.4	< 0.5	< 0.5	< 0.5	< 0.1
PNR-19	3/17/2004 16:40	6.6	< 0.5	0.46	< 0.5	< 0.1
PNR-19	6/8/2004 13:55	8.7	< 0.5	< 0.5	< 0.5	< 0.1
PNR-19	9/14/2004 14:15	6.3	< 0.5	< 0.5	< 0.5	< 0.1
PNR-19	11/16/2004 13:45	7.8	< 0.5	< 0.5	< 0.5	< 0.1
PNR-19	3/1/2005 15:35	7.7	< 0.5	< 0.5	< 0.5	< 0.1

Table 3
BTEX and TPH Analyses
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	Total Xylenes µg/l	Total Petroleum Hydrocarbons mg/l
PNR-19	5/25/2005 12:36	7.7	< 0.5	< 0.5	< 0.5	< 0.1
PNR-19	8/17/2005 12:23	7.9	< 0.5	< 0.5	< 0.5	< 0.1
PNR-19	11/16/2005 12:00	8.9	< 0.5	< 0.5	< 0.5	< 0.1
PNR-19	2/8/2006 12:55	11	< 0.5	< 0.5	< 0.5	< 0.1
PNR-19	5/24/2006 15:20	9.7	< 0.5	< 0.5	< 0.5	< 0.1
PNR-19	8/23/2006 14:05	11	< 0.5	< 0.5	< 0.5	< 0.1
PNR-19	12/7/2006 15:30	12	< 0.5	< 0.5	< 0.5	< 0.1
PNR-19	3/14/07 15:00	12	< 0.5	< 0.5	< 0.5	< 0.1
PNR-19	10/3/07 14:50	11	< 0.5	< 0.5	< 0.5	< 0.1
PNR-19	3/27/08 16:30	11	< 0.5	< 0.5	< 0.5	< 0.1
PNR-20	8/8/2001 9:50	5.4	< 0.5	< 0.5	< 1.0	< 0.1
PNR-20	8/15/2001 17:15	5.7	< 0.5	< 0.5	< 0.5	< 0.1
PNR-20	11/8/2001 10:00	1.4	< 0.5	< 0.5	< 1.0	< 0.1
PNR-20	2/19/2002 15:40	11	< 0.5	< 0.5	< 0.5	< 0.1
PNR-20	5/22/2002 11:00	10	< 0.5	< 0.5	< 0.5	< 0.1
PNR-20	8/20/2002 13:25	13	< 0.5	< 0.5	< 0.5	< 0.1
PNR-20	11/5/2002 16:05	17	< 0.5	< 0.5	< 0.5	< 0.1
PNR-20	3/4/2003 14:15	15	< 0.5	< 0.5	< 0.5	< 0.1
PNR-20	5/28/2003 11:00	13	< 0.5	< 0.5	< 0.5	< 0.1
PNR-20	8/13/2003 11:35	13	< 0.5	< 0.5	< 0.5	< 0.1
PNR-20	11/5/2003 12:50	15	0.51	< 0.5	< 0.5	< 0.1
PNR-20	3/18/2004 12:50	11	< 0.5	< 0.5	< 0.5	< 0.1
PNR-20	6/8/2004 12:15	14	< 0.5	< 0.5	< 0.5	< 0.1
PNR-20	9/14/2004 13:42	13	< 0.5	< 0.5	< 0.5	< 0.1
PNR-20	11/17/2004 10:40	18	< 0.5	< 0.5	< 0.5	< 0.1
PNR-20	3/1/2005 16:25	15	< 0.5	0.57	< 0.5	< 0.1
PNR-20	5/24/2005 17:35	11	< 0.5	< 0.5	< 0.5	< 0.1
PNR-20	8/16/2005 15:45	16	< 0.5	< 0.5	< 0.5	< 0.1
PNR-20	11/15/2005 12:15	16	< 0.5	< 0.5	< 0.5	< 0.1
PNR-20	2/9/2006 10:50	14	< 0.5	< 0.5	< 0.5	< 0.1
PNR-20	5/23/2006 17:55	16	< 0.5	< 0.5	< 0.5	< 0.1
PNR-20	8/23/2006 15:50	17	< 0.5	< 0.5	< 0.5	< 0.1
PNR-20	12/7/2006 16:10	13	< 0.5	< 0.5	< 0.5	< 0.1
PNR-20	3/15/07 10:18	20	< 0.5	< 0.5	< 0.5	< 0.1 H
PNR-20	10/4/07 10:25	17	< 0.5	< 0.5	< 0.5	< 0.1 H
PNR-20	3/27/08 17:40	16	< 0.5	< 0.5	< 0.5	< 0.1
PNR-21	8/9/2001 10:15	28	< 0.5	< 0.5	< 1.0	< 0.1
PNR-21	8/16/2001 16:40	26	< 0.5	< 0.5	< 0.5	< 0.1
PNR-21	11/8/2001 11:00	32	< 0.5	< 0.5	< 1.0	< 0.1
PNR-21	2/21/2002 9:15	32	< 0.5	< 0.5	< 0.5	2.2
PNR-21	5/22/2002 11:55	33	< 0.5	< 0.5	< 0.5	< 0.1
PNR-21	8/21/2002 9:00	35	< 0.5	< 0.5	< 0.5	< 0.1
PNR-21	11/5/2002 15:30	37	< 0.5	< 0.5	< 0.5	< 0.1
PNR-21	3/5/2003 14:50	36	< 0.5	< 0.5	< 0.5	< 0.1
PNR-21	5/28/2003 11:50	32	< 0.5	< 0.5	< 0.5	< 0.1
PNR-21	8/13/2003 14:05	25	< 0.5	< 0.5	< 0.5	< 0.1
PNR-21	11/5/2003 15:30	29	< 0.5	< 0.5	< 0.5	< 0.1
PNR-21	March 2004		Not sampled			
PNR-21	6/8/2004 12:55	34	< 0.5	< 0.5	< 0.5	< 0.1
PNR-21	9/14/2004 14:15	37	< 0.5	< 0.5	< 0.5	< 0.1
PNR-21	11/17/2004 12:40	31	< 0.5	< 0.5	< 0.5	< 0.1
PNR-21	3/1/2005 16:32	29	< 0.5	< 0.5	< 0.5	< 0.1
PNR-21	5/24/2005 18:25	28	< 0.5	< 0.5	< 0.5	< 0.1
PNR-21	8/16/2005 16:20	28	< 0.5	< 0.5	< 0.5	< 0.1
PNR-21	11/15/2005 13:21	28	< 0.5	< 0.5	< 0.5	< 0.1
PNR-21	2/9/2006 11:45	27	< 0.5	< 0.5	< 0.5	< 0.1
PNR-21	5/24/2006 17:20	24	< 0.5	< 0.5	< 0.5	< 0.1
PNR-21	8/23/2006 17:00	28	< 0.5	< 0.5	< 0.5	< 0.1
PNR-21	12/7/2006 14:45	22	< 0.5	< 0.5	< 0.5	< 0.1
PNR-21	3/15/07 11:15	25	< 0.5	< 0.5	< 0.5	< 0.1 H
PNR-21	10/4/07 11:40	21	< 0.5	< 0.5	< 0.5	< 0.1
PNR-21	3/27/08 18:20	19	< 0.5	< 0.5	< 0.5	< 0.1

Table 3
BTEX and TPH Analyses
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	Total Xylenes µg/l	Total Petroleum Hydrocarbons mg/l
PNR-22	8/8/2001 17:10	< 0.5	< 0.5	< 0.5	< 1.0	< 0.1
PNR-22	8/16/2001 11:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-22	11/7/2001 9:10	< 0.5	< 0.5	< 0.5	< 1.0	< 0.1
PNR-22	2/20/2002 14:10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-22	5/21/2002 12:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-22	8/20/2002 15:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-22	11/5/2002 12:50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-22	3/4/2003 15:10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-22	5/13/2003 12:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-22	8/13/2003 9:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-22	11/5/2003 12:25	1.2	< 0.5	< 0.5	< 0.5	< 0.1
PNR-22	March 2004		Not sampled			
PNR-22	6/8/2004 16:10	< 0.5	< 0.5	< 0.5	1.2	< 0.1
PNR-22	9/15/2004 8:50	< 0.5	< 0.5	0.62	< 0.5	< 0.1
PNR-22	11/18/2004 14:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-22	3/1/2005 11:00	< 0.5	< 0.5	0.51	< 0.5	< 0.1
PNR-22	5/24/2005 10:07	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-22	8/16/2005 9:30	< 0.5	< 0.5	0.57	0.54	< 0.1
PNR-22	11/15/2005 13:40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-22	2/7/2006 10:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-22	5/23/2006 13:05	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-22	8/22/2006 18:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-22	12/6/2006 9:55	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-22	3/13/07 15:25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-22	10/3/07 16:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-22	3/26/08 17:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-23	8/9/2001 17:30	58	94	17	49	< 0.1
PNR-23	8/14/2001 10:30	195	338	68	189	< 0.1
PNR-23	11/8/2001 13:15	215	269	51	127	56.2
PNR-23	2/21/2002 12:25	220	224	27	84	11.0
PNR-23	5/23/2002 11:15	417	575	78	245	3.6
PNR-23	8/21/2002 12:55	465	666	92	283	1.4
PNR-23	11/6/2002 12:15	401	573	70	219	0.6
PNR-23	3/5/2003 11:20	419	664	90	271	0.7
PNR-23	5/28/2003 14:40	433	759	137	413	1.5
PNR-23	8/14/2003 8:43	161	236	38	112	0.62
PNR-23	11/6/2003 10:10	357	700	143	399	2.1
PNR-23	3/17/2004 11:40	288	277	94	203	0.78
PNR-23	6/9/2004 14:10	331	73	116	179	0.57
PNR-23	9/15/2004 17:40	200	74	9.3	103	0.8
PNR-23	11/18/2004 11:00	268	115	8.8	166	0.7
PNR-23	3/2/2005 11:35	199	77	5.6	99	< 0.1
PNR-23	5/25/2005 13:00	126	56	3.5	62	< 0.1
PNR-23	8/17/2005 15:20	114	42	4.2	44	2.8
PNR-23	11/16/2005 12:15	121	2.6	41	31	0.2
PNR-23	2/9/2006 16:00	100	3.4	31	14	< 0.1
PNR-23	5/25/2006 11:15	83	1.7	16	5.9	< 0.1
PNR-23	8/24/2006 10:18	101	1.6	7.7	2.1	0.4
PNR-23	12/8/2006 10:10	88	1.7	4.7	1.7	< 0.1
PNR-23	3/14/07 15:00	74	1.5	4.5	1.7	< 0.1
PNR-23	10/5/07 12:30	53	<0.5	2.7	<0.5	<0.1
PNR-23	3/27/08 16:05	12	<0.5	0.48 J	<0.5	<0.1
PNR-24	8/14/2001 12:00	195	320	66	198	75
PNR-24	8/14/2001 18:20	346	594	123	344	970
PNR-24	11/8/2001 13:40	422	601	102	316	50
PNR-24	2/21/2002 13:55	569	974	198	623	110
PNR-24	5/23/2002 11:50	294	633	117	455	29
PNR-24	8/21/2002 13:10	321	653	110	392	360
PNR-24	11/6/2002 12:32	292	543	77	286	170
PNR-24	3/5/2003 11:40	358	783	131	472	160
PNR-24	5/28/2003 14:50	150	290	65	257	36

Table 3
BTEX and TPH Analyses
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	Total Xylenes µg/l	Total Petroleum Hydrocarbons mg/l
PNR-24	8/14/2003 13:08	149	347	72	283	53
PNR-24	11/6/2003 11:00	234	501	78	296	84
PNR-24	3/17/2004 12:10	125	265	57	204	44
PNR-24	6/9/2004 14:20	157	343	60	233	82
PNR-24	9/15/2004 18:05	170	109	484	349	130
PNR-24	11/18/2004 11:05	128	88	317	271	97
PNR-24	3/2/2005 13:25	88	51	85	80	76
PNR-24	5/25/2005 13:45	50	42	76	59	47
PNR-24	8/17/2005 16:05	28	39	68	61	180
PNR-24	11/16/2005 16:15	18	137	43	70	450
PNR-24	2/8/2006 13:30	7.7	92	54	107	28
PNR-24	5/24/2006 12:55	2.1	42	26	65	26
PNR-24	8/24/2006 11:22	3.7	31	30	61	43
PNR-24	12/8/2006 10:50	2.8	54	66	104	28
PNR-24	3/14/07 15:40	1.8	26	46	74	3
PNR-25	8/14/2001 13:15	164	161	18.0	156(D)	93
PNR-25	8/14/2001 19:05	216	224	32.0	266	156
PNR-25	11/8/2001 10:15	229	219	22.0	237	0.1
PNR-25	2/21/2002 15:30	225	541	121.0	495	75
PNR-25	5/22/2002 16:50	147	497	104.0	624	100
PNR-25	8/21/2002 14:40	6.2	48	7.8	233	500
PNR-25	11/6/2002 14:55	1.7	2.1	2.2	337	390
PNR-25	3/5/2003 12:45	2.7	9.2	12.0	286	140
PNR-25	5/28/2003 15:25	2.7	20	36.0	260	58
PNR-25	8/14/2003 10:00	2.2	12	24.0	152	96
PNR-25	11/5/2003 15:15	3.5	9.2	30.0	184	41
PNR-25	3/17/2004 14:15	1.3	13	79.0	212	130
PNR-25	6/8/2004 13:00	1.2	18	98.0	252	81
PNR-25	9/15/2004 16:45	2.3	80	8.1	203	160
PNR-25	11/18/2004 9:00	1.4	84	6.2	210	75
PNR-25	3/2/2005 13:00	5.5	133	20.0	295	80
PNR-25	5/25/2005 11:15	2.6	82	14.0	205	21
PNR-25	8/17/2005 18:20	1.0	28	6.3	65	21
PNR-25	11/16/2005 13:25	3.2	37	259.0	564	660
PNR-25	2/8/2006 11:15	< 5	36	193.0	495	210
PNR-25	5/24/2006 11:45	4.0	63	163.0	339	370
PNR-25	8/24/2006 12:00	7.9	104	249.0	472	900
PNR-25	12/8/2006 11:30	8.9	97	191.0	346	510
PNR-25	3/15/07 10:53	11	125	269	707	300
PNR-26	8/14/2001 18:00	124	270	80	232	2490
PNR-26	8/22/2001 10:00	188	404	105	336	55
PNR-26	11/8/2001 14:15	365	1920	908	2590	1160
PNR-26	2/21/2002 16:00	514	1140	225	636	76
PNR-26	5/23/2002 11:15	365	998	200	610	150
PNR-26	8/21/2002 16:00	328	632	116	377	220
PNR-26	11/6/2002 16:20	398	685	91	335	66
PNR-26	3/5/2003 14:00	333	1090	237	884	400
PNR-26	5/28/2003 16:35	447	912	179	666	80
PNR-26	8/14/2003 10:45	319	946	206	725	250
PNR-26	11/6/2003 12:30	462	1270	256	845	32
PNR-26	3/17/2004 14:15	364	1030	200	670	46
PNR-26	6/9/2004 16:00	450	1260	211	703	16
PNR-26	9/16/2004 9:50	278	177	946	576	250
PNR-26	11/18/2004 12:25	282	224	915	810	59
PNR-26	3/2/2005 16:10	435	300	1290	946	270
PNR-26	5/25/2005 15:15	264	339	1140	1250	78
PNR-26	8/17/2005 18:00	292	223	1030	857	540
PNR-26	11/16/2005 14:55	427	1550	458	1710	410
PNR-26	2/8/2006 15:10	326	1170	278	991	220
PNR-26	5/24/2006 14:10	118	313	75	240	20000
PNR-27	8/21/2001 15:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-27	9/5/2001 15:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1

Table 3
BTEX and TPH Analyses
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	Total Xylenes µg/l	Total Petroleum Hydrocarbons mg/l
PNR-27	11/6/2001 15:30	< 0.5	< 0.5	< 0.5	< 1.0	0.4
PNR-27	2/20/2002 17:02	< 0.5	< 0.5	< 0.5	< 0.5	1.0
PNR-27	5/21/2002 18:12	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-27	8/20/2002 19:20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-27	11/6/2002 9:55	0.49 (J)	< 0.5	< 0.5	< 0.5	< 0.1
PNR-27	3/5/2003 11:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-27	5/28/2003 11:00	0.42	< 0.5	< 0.5	< 0.5	< 0.1
PNR-27	8/13/2003 13:35	0.81	< 0.5	< 0.5	< 0.5	< 0.1
PNR-27	11/5/2003 11:45	0.66	1.0	< 0.5	< 0.5	< 0.1
PNR-27	March 2004		Not sampled			
PNR-27	6/8/2004 11:50	1.3	0.43	< 0.5	0.57	< 0.1
PNR-27	9/14/2004 13:05	1.2	< 0.5	< 0.5	< 0.5	< 0.1
PNR-27	11/17/2004 10:38	1.7	< 0.5	< 0.5	< 0.5	< 0.1
PNR-27	3/1/2005 15:33	1.7	< 0.5	< 0.5	< 0.5	< 0.1
PNR-27	5/24/2005 15:33	1.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-27	8/16/2005 17:08	1.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-27	11/15/2005 16:35	1.6	< 0.5	< 0.5	< 0.5	< 0.1
PNR-27	2/8/2006 17:10	1.6	< 0.5	< 0.5	< 0.5	< 0.1
PNR-27	5/23/2006 16:57	1.6	< 0.5	< 0.5	< 0.5	< 0.1
PNR-27	8/23/2006 15:01	1.6	< 0.5	< 0.5	< 0.5	< 0.1
PNR-27	12/7/2006 14:15	2.0	< 0.5	< 0.5	< 0.5	< 0.1
PNR-27	3/14/07 16:50	2.1	< 0.5	< 0.5	< 0.5	< 0.1 H
PNR-27	10/3/07 12:50	1.7	< 0.5	< 0.5	< 0.5	< 0.1
PNR-27	3/27/08 17:10	2.3	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	8/21/2001 16:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	9/5/2001 14:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	11/6/2001 14:40	< 0.5	< 0.5	< 0.5	< 1.0	< 0.1
PNR-28	2/20/2002 16:30	< 0.5	< 0.5	< 0.5	< 0.5	1.2
PNR-28	5/21/2002 17:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	8/20/2002 18:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	11/5/2002 13:20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	3/5/2003 10:25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	5/28/2003 10:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	8/13/2003 13:00	0.51	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	11/5/2003 14:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	March 2004		Not sampled			
PNR-28	6/8/2004 11:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	9/15/2004 10:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	11/17/2004 9:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	3/1/2005 14:39	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	5/25/2005 11:07	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	8/16/2005 16:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	11/15/2005 11:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	2/8/2006 14:40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	5/23/2006 13:55	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	8/23/2006 12:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	12/6/2006 16:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	3/13/07 18:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	10/4/07 16:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-28	3/26/08 18:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	8/21/2001 17:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	9/5/2001 14:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	11/6/2001 12:50	< 0.5	0.69	< 0.5	< 1.0	< 0.1
PNR-29	2/20/2002 13:03	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	5/21/2002 16:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	8/20/2002 11:20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	11/5/2002 12:42	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	3/5/2003 10:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	5/28/2003 10:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	8/13/2003 13:08	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	11/4/2003 16:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	March 2004	Not sampled				

Table 3
BTEX and TPH Analyses
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	Total Xylenes µg/l	Total Petroleum Hydrocarbons mg/l
PNR-29	6/8/2004 10:45	< 0.5	0.59	< 0.5	0.53	< 0.1
PNR-29	9/15/2004 9:40	< 0.5	< 0.5	0.52	< 0.5	< 0.1
PNR-29	11/17/2004 9:31	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	3/1/2005 13:36	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	5/25/2005 9:46	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	8/16/2005 14:48	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	11/15/2005 10:50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	2/8/2006 16:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	5/23/2006 14:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	8/23/2006 11:37	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	12/6/2006 16:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	3/13/07 17:50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	10/2/07 18:40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-29	3/26/08 12:10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-33-06	12/6/06 11:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-33-06	3/13/07 13:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-33-06	10/3/07 15:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-33-06	3/26/08 17:15	< 0.5	< 0.5	< 0.5	1.4	< 0.1
PNR-34-07	3/14/07 13:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1 H
PNR-34-07	10/5/07 15:40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-34-07	3/27/08 18:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-35-07	3/13/07 11:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-35-07	10/2/07 16:05	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-35-07	3/26/08 10:40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-36-07	3/13/07 11:40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1 H
PNR-36-07	10/3/07 14:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-36-07	3/26/08 16:50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
PNR-38-08	3/26/08 18:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS-92-12	6/1/2000 0:00	< 0.5	< 0.5	< 0.5	< 0.5	N.T.
USGS-92-12	8/7/2001 11:35	< 0.5	< 0.5	< 0.5	< 1.0	< 0.1
USGS-92-12	8/15/2001 14:40	< 0.5	0.36(J)	< 0.5	0.29(J)	0.7
USGS-92-12	11/6/2001 14:30	< 0.5	< 0.5J	< 0.5	< 1.0	2.9
USGS-92-12	2/20/2002 14:25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS-92-12	5/21/2002 14:05	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS-92-12	8/19/2002 16:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS-92-12	11/5/2002 12:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS-92-12	3/4/2003 11:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS-92-12	5/13/2003 14:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS-92-12	8/13/2003 7:48	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS-92-12	11/5/2003 10:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS-92-12	March 2004		Not sampled			
USGS-92-12	6/8/2004 9:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS-92-12	9/14/2004 11:08	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS-92-12	11/16/2004 9:20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS92-12	3/1/2005 12:40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS 92-12	5/24/2005 10:43	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS 92-12	8/17/2005 9:10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS 92-12	11/15/2005 14:41	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS 92-12	2/7/2006 15:32	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS 92-12	5/24/2006 10:55	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS-92-12	8/22/2006 11:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS-92-12	12/6/2006 10:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS-92-12	3/13/07 12:55	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1 H
USGS-92-12	10/2/07 17:10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS-92-12	3/25/08 15:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS-93-3	6/1/2000 0:00	4.4	< 0.5	< 0.5	< 0.5	N.T.
USGS-93-3	8/7/2001 18:55	3.0	< 0.5	< 0.5	< 1.0	< 0.1

Table 3
BTEX and TPH Analyses
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	Total Xylenes µg/l	Total Petroleum Hydrocarbons mg/l
USGS-93-3	8/15/2001 19:10	3.4	< 0.5	< 0.5	< 0.5	< 0.1
USGS-93-3	11/7/2001 10:05	3.0	< 0.5	< 0.5	< 1.0J	0.3
USGS-93-3	2/20/2002 9:00	2.7	< 0.5	< 0.5	< 0.5	< 0.1
USGS-93-3	5/22/2002 9:30	2.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS-93-3	8/20/2002 16:25	3.0	< 0.5	< 0.5	< 0.5	< 0.1
USGS-93-3	11/5/2002 16:10	3.8	0.49 (J)	< 0.5	< 0.5	< 0.1
USGS-93-3	3/4/2003 15:45	3.4	< 0.5	< 0.5	< 0.5	< 0.1
USGS-93-3	5/28/2003 13:15	2.9	< 0.5	< 0.5	< 0.5	< 0.1
USGS-93-3	8/14/2003 14:08	2.6	< 0.5	< 0.5	< 0.5	< 0.1
USGS-93-3	11/4/2003 16:45	2.4	< 0.5	< 0.5	< 0.5	< 0.1
USGS-93-3	March 2004		Not sampled			
USGS-93-3	6/8/2004 19:05	3.1	< 0.5	< 0.5	< 0.5	< 0.1
USGS-93-3	9/14/2004 16:25	2.1	< 0.5	< 0.5	< 0.5	< 0.1
USGS-93-3	11/17/2004 12:15	2.3	< 0.5	< 0.5	< 0.5	< 0.1
USGS93-3	3/2/2005 11:05	2.0	< 0.5	< 0.5	< 0.5	1.1
USGS 93-3	5/25/2005 15:52	2.1	< 0.5	< 0.5	< 0.5	< 0.1
USGS 93-3	8/17/2005 12:55	1.9	1.9	< 0.5	< 0.5	< 0.1
USGS 93-3	11/16/2005 16:40	1.9	< 0.5	1.9	< 0.5	0.8
USGS 93-3	2/9/2006 15:20	1.4	< 0.5	< 0.5	< 0.5	< 0.1
USGS 93-3	5/24/2006 18:20	1.6	0.48 (J)	< 0.5	< 0.5	< 0.1
USGS 93-3	8/23/2006 14:50	1.7	< 0.5	< 0.5	< 0.5	< 0.1
USGS-93-3	12/7/2006 12:05	1.7	< 0.5	< 0.5	< 0.5	< 0.1
USGS-93-3	3/15/07 13:30	1.9	< 0.5	< 0.5	< 0.5	< 0.1 H
USGS-93-3	10/3/07 11:50	1.4	< 0.5	< 0.5	< 0.5	< 0.1
USGS-93-3	3/27/08 11:15	2.2	< 0.5	< 0.5	0.51	< 0.1
USGS-06-1	1/10/08 12:53	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
USGS-06-7	10/4/07 17:50	< 0.5	< 0.5	0.75	< 0.5	< 0.1
USGS-06-7	11/14/07 16:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
LAW-M03	3/13/07 17:40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1 H
LAW-M03	3/27/08 10:30	< 0.5	< 0.5	< 0.5	< 1.0	< 0.1
M-18	11/8/2001 15:30	53	21	1.8	10	0.2
M-18	8/23/2006 10:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-18	12/6/2006 12:25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	8/16/2001 14:35	< 0.5	0.32(J)	< 0.5	< 0.5	< 0.1
M-27	8/16/2001 14:45	< 0.5	0.28(J)	< 0.5	< 0.5	< 0.1
M-27	11/8/2001 8:50	< 0.5	< 0.5	< 0.5	< 1.0	< 0.1
M-27	2/20/2002 15:42	< 0.5	< 0.5	< 0.5	< 0.5	1.5
M-27	5/21/2002 15:05	< 0.5	< 0.5	< 0.5	< 0.5	1.3
M-27	8/20/2002 17:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	11/6/2002 9:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	3/5/2003 13:20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	5/13/2003 15:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	8/13/2003 11:10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	11/6/2003 10:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	March-04	Not sampled				
M-27	6/8/2004 15:15	0.77	< 0.5	< 0.5	0.52	< 0.1
M-27	11/18/2004 15:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	3/1/2005 12:05	< 0.5	< 0.5	< 0.5	0.48	< 0.1
M-27	5/24/2005 11:20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	8/16/2005 10:20	< 0.5	< 0.5	0.49	0.45	< 0.1
M-27	11/15/2005 14:28	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	2/7/2006 13:10	< 0.5	0.50	< 0.5	0.49 (J)	< 0.1
M-27	5/23/2006 14:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	8/22/2006 14:30	< 0.5	0.41(J)	< 0.5	< 0.5	0.5
M-27	12/6/2006 13:40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-27	3/14/07 17:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1 H
M-27	3/27/08 16:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-28	6/1/2000	14	2.8	< 0.5	< 0.5	N.T.

Table 3
BTEX and TPH Analyses
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	Total Xylenes µg/l	Total Petroleum Hydrocarbons mg/l
M-28	8/9/2001 12:15	19	< 0.5(J)	< 0.5	< 1.0	< 0.1
M-28	8/16/2001 17:00	19	< 0.5	< 0.5	< 0.5	< 0.1
M-28	11/8/2001 12:00	< 0.5	< 0.5	< 0.5	< 1.0	< 0.1
M-28	2/21/2002 8:40	20	< 0.5	< 0.5	< 0.5	2.7
M-28	5/23/2002 9:30	21	< 0.5	< 0.5	< 0.5	< 0.1
M-28 (Dup.)	5/23/2002 9:30	23	< 0.5	< 0.5	< 0.5	nm
M-28	8/21/2002 10:00	23	< 0.5	< 0.5	< 0.5	< 0.1
M-28	11/6/2002 11:20	22	< 0.5	< 0.5	< 0.5	< 0.1
M-28	3/5/2003 15:30	20	< 0.5	< 0.5	< 0.5	< 0.1
M-28	5/13/2003 16:45	23	< 0.5	< 0.5	< 0.5	< 0.1
M-28	8/13/2003 15:35	21	< 0.5	< 0.5	< 0.5	< 0.1
M-28	11/5/2003 10:30	19	< 0.5	< 0.5	< 0.5	< 0.1
M-28	3/16/2004 17:30	12	< 0.5	< 0.5	< 0.5	< 0.1
M-28	6/8/2004 17:18	22	< 0.5	< 0.5	0.91	< 0.1
M-28	11/19/2004 8:36	18	< 0.5	< 0.5	< 0.5	< 0.1
M-28	3/1/2005 15:45	19	< 0.5	< 0.5	< 0.5	< 0.1
M-28	5/24/2005 13:10	16	< 0.5	< 0.5	< 0.5	< 0.1
M-28	8/16/2005 13:15	16	< 0.5	< 0.5	< 0.5	< 0.1
M-28	11/15/2005 16:35	18	< 0.5	< 0.5	< 0.5	< 0.1
M-28	2/7/2006 16:30	19	< 0.5	< 0.5	< 0.5	< 0.1
M-28	5/23/2006 16:20	18	< 0.5	< 0.5	< 0.5	< 0.1
M-28	8/22/2006 16:45	20	< 0.5	< 0.5	< 0.5	< 0.1
M-28	12/6/2006 14:40	19	< 0.5	< 0.5	< 0.5	< 0.1
M-28	3/15/07 10:15	19	< 0.5	< 0.5	< 0.5	< 0.1 H
M-28	3/27/08 9:50	15	< 0.5	< 0.5	< 0.5	< 0.1
M-30	6/1/2000	< 0.5	< 0.5	< 0.5	< 0.5	N.T.
M-30	2/22/2002 13:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-30	5/22/2002 17:10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-30	8/21/2002 10:40	< 0.5	0.49	< 0.5	< 0.5	< 0.1
M-30	11/19/2004 8:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-30	3/2/2005 17:50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-31	6/1/2000	41	0.88	< 0.5	< 0.5	N.T.
M-31	8/9/2001 11:05	47	< 0.5	< 0.5	< 1.0	< 0.1
M-31	8/16/2001 17:30	38	< 0.5	< 0.5	< 0.5	< 0.1
M-31	11/8/2001 16:00	24	< 0.5	< 0.5	< 1.0	< 0.1
M-31	2/21/2002 9:45	42	< 0.5	< 0.5	< 0.5	3.4
M-31	5/22/2002 15:45	38	< 0.5	< 0.5	< 0.5	< 0.1
M-31	8/21/2002 10:45	41	< 0.5	< 0.5	< 0.5	< 0.1
M-31	11/6/2002 10:35	23	< 0.5	< 0.5	< 0.5	< 0.1
M-31	3/5/2003 14:10	38	< 0.5	< 0.5	< 0.5	< 0.1
M-31	5/13/2003 16:00	37	< 0.5	< 0.5	< 0.5	< 0.1
M-31	8/13/2003 14:40	35	< 0.5	< 0.5	< 0.5	< 0.1
M-31	11/5/2003 11:35	30	< 0.5	< 0.5	< 0.5	< 0.1
M-31	3/16/2004 16:00	32	< 0.5	< 0.5	< 0.5	< 0.1
M-31	6/8/2004 16:40	35	< 0.5	< 0.5	< 0.5	< 0.1
M-31	11/18/2004 17:00	32	< 0.5	< 0.5	< 0.5	< 0.1
M-31	3/1/2005 13:45	32	< 0.5	< 0.5	< 0.5	< 0.1
M-31	5/24/2005 15:05	28	< 0.5	< 0.5	< 0.5	< 0.1
M-31	8/16/2005 11:30	29	< 0.5	< 0.5	< 0.5	< 0.1
M-31	11/15/2005 15:30	29	< 0.5	< 0.5	< 0.5	< 0.1
M-31	2/7/2006 14:00	30	< 0.5	< 0.5	< 0.5	< 0.1
M-31	5/23/2006 17:20	27	< 0.5	< 0.5	< 0.5	< 0.1
M-31	8/23/2006 13:30	29	< 0.5	< 0.5	< 0.5	< 0.1
M-31	12/6/2006 15:45	28	< 0.5	< 0.5	< 0.5	< 0.1
M-31	3/15/07 11:30	30	< 0.5	< 0.5	< 0.5	< 0.1 H
M-31	3/27/08 10:30	24	< 0.5	< 0.5	0.66	< 0.1
M-32	11/9/2001 9:00	< 0.5	< 0.5	< 0.5	< 1.0	< 0.1
M-36	9/5/2001 15:55	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-36	11/9/2001 11:00	< 0.5	< 0.5	< 0.5	< 1.0	

Table 3
BTEX and TPH Analyses
Pioneer Natural Resources USA, Inc. - Biere 1-22 Investigation
Last update: 5/12/2008

Well No.	Date & Time	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	Total Xylenes µg/l	Total Petroleum Hydrocarbons mg/l
M-38	9/5/2001 16:25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
M-38	11/9/2001 11:40	< 0.5	< 0.5	< 0.5	< 0.1	
M-39	11/7/2001 15:45	< 0.5	< 0.5	< 0.5	< 1.0	< 0.1
MOC-1B	3/14/07 12:55	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1 H
MOC-1B	3/25/08 18:30	< 0.5	< 0.5	< 0.5	< 1.0	< 0.1
MOC-2	3/13/07 17:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-2	3/26/08 17:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-3	3/14/07 11:50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1 H
MOC-3	3/25/08 16:50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-4	3/26/08 16:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-20A	3/13/07 13:40	< 0.5	0.67	< 0.5	< 0.5	< 0.1
MOC-20A	3/26/08 15:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-20B	3/13/07 15:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
MOC-20B	3/26/08 14:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer	5/31/2000	< 0.5	< 0.5	< 0.5	< 0.5	N.T.
Whitmer	8/10/2001 10:00	< 0.5	< 0.5	< 0.5	< 1.0	< 0.1
Whitmer	8/22/2001 15:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer	11/9/2001 10:20	< 0.5	< 0.5	< 0.5	< 1.0	
Whitmer	2/22/2002 14:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer	5/22/2002 16:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer	8/21/2002 9:35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer	11/5/2002 14:20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whittmer	3/4/2003 14:10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer	5/13/2003 17:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer	8/14/2003 12:10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer	11/4/2003 16:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer	3/18/2004 13:05	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer	6/9/2004 8:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer	9/16/2004 11:20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer	11/18/2004 16:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer	3/2/2005 16:44	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer	8/16/2005 16:20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer	11/17/2005 10:25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer	2/9/2006 11:15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer	5/25/2006 11:21	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer	8/24/2006 11:45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer	12/7/2006 13:30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer	3/14/07 16:55	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1 H
Whitmer	10/5/07 18:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer	3/27/08 11:10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Whitmer (city)	5/26/2005 10:20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Lockman (city)	5/26/2005 11:05	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1

Notes
< # = Analyte not detected, number shown is reporting limit
J = Estimated value. Present but less than the limit of quantitation.
H = Analysis performed past recommended holding time.
N.M. = Not measured.
N.T. = Not tested.
T = This target analyte was found in the associated trip blank as well as the sample.

APPENDIX A

WELL LOCATION MAP

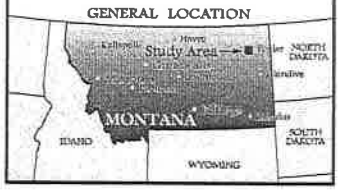
Well Location Map

Biere 1-22 Well Site

Poplar, Montana

Pioneer
National Resources
USA Inc.

GENERAL LOCATION



LEGEND

- ● Pioneer Wells
- ▽ Pioneer GW Recovery Wells
- ▼ Pioneer Product Recovery Wells
- ▲ LAW Wells
- ■ MOC Wells

Basemap:
U.S. Farm Services Agency National Agricultural Imagery Program, 2005 (NAIP), 1-meter resolution

HKM ENGINEERING

APPENDIX B

LABORATORY ANALYTICAL REPORTS

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-013
Client Sample ID: PNR-5

Report Date: 04/22/08
Collection Date: 03/27/08 16:30
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	6.8	s.u.		0.1		A4500 H	03/28/08 18:23 / kak
Conductivity	61200	umhos/cm		1		A2510 B	03/28/08 18:05 / kak
Solids, Total Dissolved TDS @ 180 C	38300	mg/L		10		A2540 C	03/31/08 10:15 / afb
INORGANICS							
Alkalinity, Total as CaCO3	652	mg/L		4		A2320 B	03/31/08 18:54 / kh
Bicarbonate as HCO3	796	mg/L		4		A2320 B	03/31/08 18:54 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 18:54 / kh
Chloride	23500	mg/L	D	5		E300.0	04/03/08 21:04 / qed
Sulfate	689	mg/L	D	10		E300.0	04/03/08 21:04 / qed
Fluoride	0.5	mg/L		0.1		A4500-F C	03/31/08 18:54 / kh
Hardness as CaCO3	1710	mg/L		1		A2340 B	04/01/08 00:08 / car
NUTRIENTS							
Nitrogen, Ammonia as N	9.5	mg/L		0.1		E350.1	04/03/08 13:08 / bls
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	04/07/08 12:21 / bls
METALS, DISSOLVED							
Calcium	482	mg/L	D	20		E200.7	04/01/08 00:08 / rlh
Magnesium	124	mg/L	D	10		E200.7	04/01/08 00:08 / rlh
Potassium	228	mg/L	D	7		E200.7	04/01/08 00:08 / rlh
Silica	39	mg/L	D	9		E200.7	04/01/08 00:08 / rlh
Sodium	14100	mg/L	D	20		E200.7	04/01/08 00:08 / rlh
METALS, TOTAL							
Silica	39	mg/L	D	4		E200.7	04/03/08 22:43 / rlh
QUALITY CONTROL							
A/C Balance Sigma	3.34					Calculation	04/04/08 17:01 / car
Anions	691	meq/L		0.01		Calculation	04/04/08 17:01 / car
Cations	655	meq/L		0.01		Calculation	04/04/08 17:01 / car
A/C Balance	-2.69	%				Calculation	04/04/08 17:01 / car
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/03/08 06:03 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/03/08 06:03 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/03/08 06:03 / bw
Ethylbenzene	40	ug/L		0.50		SW8021B	04/03/08 06:03 / bw
m+p-Xylenes	ND	ug/L	D	1.0		SW8021B	04/03/08 06:03 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/03/08 06:03 / bw
Xylenes, Total	ND	ug/L	D	1.0		SW8021B	04/03/08 06:03 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-013
Client Sample ID: PNR-5

Report Date: 04/22/08
Collection Date: 03/27/08 16:30
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	90.0	%REC		80-120		SW8021B	04/03/08 06:03 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/01/08 08:40 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-016
Client Sample ID: PNR-6

Report Date: 04/22/08
Collection Date: 03/26/08 11:50
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.		0.1		A4500 H	03/28/08 18:24 / kak
Conductivity	1450	umhos/cm		1		A2510 B	03/28/08 18:07 / kak
Solids, Total Dissolved TDS @ 180 C	948	mg/L		10		A2540 C	03/31/08 10:21 / afb
INORGANICS							
Alkalinity, Total as CaCO3	505	mg/L		4		A2320 B	03/31/08 19:20 / kh
Bicarbonate as HCO3	616	mg/L		4		A2320 B	03/31/08 19:20 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 19:20 / kh
Chloride	19	mg/L		1		E300.0	04/03/08 22:25 / qed
Sulfate	315	mg/L		1		E300.0	04/03/08 22:25 / qed
Fluoride	0.5	mg/L		0.1		A4500-F C	03/31/08 19:20 / kh
Hardness as CaCO3	616	mg/L		1		A2340 B	04/01/08 00:58 / car
NUTRIENTS							
Nitrogen, Ammonia as N	0.4	mg/L		0.1		E350.1	04/03/08 13:48 / bls
Nitrogen, Nitrate+Nitrite as N	0.21	mg/L		0.05		E353.2	04/07/08 13:59 / bls
METALS, DISSOLVED							
Calcium	95	mg/L		1		E200.7	04/01/08 00:58 / rlh
Magnesium	92	mg/L		1		E200.7	04/01/08 00:58 / rlh
Potassium	5	mg/L		1		E200.7	04/01/08 00:58 / rlh
Silica	22.5	mg/L		0.2		E200.7	04/01/08 00:58 / rlh
Sodium	91	mg/L		1		E200.7	04/01/08 00:58 / rlh
METALS, TOTAL							
Silica	27.2	mg/L		0.2		E200.7	04/03/08 23:02 / rlh
QUALITY CONTROL							
A/C Balance Sigma	1.99					Calculation	04/04/08 17:01 / car
Anions	17.2	meq/L		0.01		Calculation	04/04/08 17:01 / car
Cations	16.4	meq/L		0.01		Calculation	04/04/08 17:01 / car
A/C Balance	-2.20	%				Calculation	04/04/08 17:01 / car
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/02/08 00:45 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/02/08 00:45 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/02/08 00:45 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/02/08 00:45 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/02/08 00:45 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/02/08 00:45 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/02/08 00:45 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-023
Client Sample ID: PNR-9

Report Date: 04/22/08
Collection Date: 03/27/08 13:40
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	98.0	%REC		80-120		SW8021B	04/02/08 13:19 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/02/08 07:40 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-022
Client Sample ID: PNR-10

Report Date: 04/22/08
Collection Date: 03/27/08 11:45
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.1	s.u.		0.1		A4500 H	03/28/08 18:29 / kak
Conductivity	6000	umhos/cm		1		A2510 B	03/28/08 18:13 / kak
Solids, Total Dissolved TDS @ 180 C	4300	mg/L		10		A2540 C	03/31/08 10:33 / afb
INORGANICS							
Alkalinity, Total as CaCO3	446	mg/L		4		A2320 B	03/31/08 20:51 / kh
Bicarbonate as HCO3	545	mg/L		4		A2320 B	03/31/08 20:51 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 20:51 / kh
Chloride	1090	mg/L		1		E300.0	04/04/08 02:41 / qed
Sulfate	1410	mg/L		1		E300.0	04/04/08 02:41 / qed
Fluoride	0.2	mg/L		0.1		A4500-F C	03/31/08 20:51 / kh
Hardness as CaCO3	1880	mg/L		1		A2340 B	04/01/08 01:21 / car
NUTRIENTS							
Nitrogen, Ammonia as N	1.6	mg/L		0.1		E350.1	04/03/08 14:46 / bls
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	04/07/08 14:09 / bls
METALS, DISSOLVED							
Calcium	375	mg/L	D	2		E200.7	04/01/08 01:21 / rlh
Magnesium	230	mg/L		1		E200.7	04/01/08 01:21 / rlh
Potassium	9	mg/L		1		E200.7	04/01/08 01:21 / rlh
Silica	26.6	mg/L	D	0.9		E200.7	04/01/08 01:21 / rlh
Sodium	629	mg/L	D	2		E200.7	04/01/08 01:21 / rlh
METALS, TOTAL							
Silica	29.1	mg/L	D	0.4		E200.7	04/03/08 23:43 / rlh
QUALITY CONTROL							
A/C Balance Sigma	3.15					Calculation	04/04/08 17:02 / car
Anions	69.1	meq/L		0.01		Calculation	04/04/08 17:02 / car
Cations	65.4	meq/L		0.01		Calculation	04/04/08 17:02 / car
A/C Balance	-2.76	%				Calculation	04/04/08 17:02 / car
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/02/08 12:46 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/02/08 12:46 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/02/08 12:46 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/02/08 12:46 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/02/08 12:46 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/02/08 12:46 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/02/08 12:46 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-022
Client Sample ID: PNR-10

Report Date: 04/22/08
Collection Date: 03/27/08 11:45
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	97.0	%REC		80-120		SW8021B	04/02/08 12:46 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/02/08 07:30 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-015
Client Sample ID: PNR-12

Report Date: 04/22/08
Collection Date: 03/26/08 10:45
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.1	s.u.		0.1		A4500 H	03/28/08 18:24 / kak
Conductivity	4890	umhos/cm		1		A2510 B	03/28/08 18:06 / kak
Solids, Total Dissolved TDS @ 180 C	4450	mg/L		10		A2540 C	03/31/08 10:19 / afb
INORGANICS							
Alkalinity, Total as CaCO3	540	mg/L	H	4		A2320 B	04/14/08 19:23 / kh
Bicarbonate as HCO3	659	mg/L	H	4		A2320 B	04/14/08 19:23 / kh
Carbonate as CO3	ND	mg/L	H	4		A2320 B	04/14/08 19:23 / kh
Chloride	58	mg/L		1		E300.0	04/11/08 09:14 / qed
Sulfate	2110	mg/L		1		E300.0	04/03/08 21:51 / qed
Fluoride	0.2	mg/L		0.1		A4500-F C	03/31/08 19:11 / kh
Hardness as CaCO3	2500	mg/L		1		A2340 B	04/11/08 13:50 / car
NUTRIENTS							
Nitrogen, Ammonia as N	ND	mg/L		0.1		E350.1	04/03/08 13:43 / bls
Nitrogen, Nitrate+Nitrite as N	166	mg/L	D	0.2		E353.2	04/07/08 12:24 / bls
METALS, DISSOLVED							
Calcium	415	mg/L		1		E200.7	04/01/08 00:54 / rlh
Magnesium	355	mg/L		1		E200.7	04/01/08 00:54 / rlh
Potassium	9	mg/L		1		E200.7	04/01/08 00:54 / rlh
Silica	21.5	mg/L	D	0.4		E200.7	04/01/08 00:54 / rlh
Sodium	333	mg/L		1		E200.7	04/01/08 00:54 / rlh
METALS, TOTAL							
Silica	22.2	mg/L	D	0.4		E200.7	04/03/08 22:50 / rlh
QUALITY CONTROL							
A/C Balance Sigma	3.21					Calculation	04/16/08 14:32 / klc
Anions	68.3	meq/L		0.01		Calculation	04/16/08 14:32 / klc
Cations	64.6	meq/L		0.01		Calculation	04/16/08 14:32 / klc
A/C Balance	-2.81	%				Calculation	04/16/08 14:32 / klc
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/03/08 04:56 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/03/08 04:56 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/03/08 04:56 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/03/08 04:56 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/03/08 04:56 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/03/08 04:56 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/03/08 04:56 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-015
Client Sample ID: PNR-12

Report Date: 04/22/08
Collection Date: 03/26/08 10:45
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	90.0	%REC		80-120		SW8021B	04/03/08 04:56 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/01/08 09:10 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-001
Client Sample ID: PNR-13

Report Date: 04/22/08
Collection Date: 03/27/08 15:00
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	6.9	s.u.		0.1		A4500 H	03/28/08 17:52 / kak
Conductivity	4210	umhos/cm		1		A2510 B	03/28/08 17:43 / kak
Solids, Total Dissolved TDS @ 180 C	3430	mg/L		10		A2540 C	03/31/08 09:37 / afb
INORGANICS							
Alkalinity, Total as CaCO3	485	mg/L		4		A2320 B	03/31/08 16:25 / kh
Bicarbonate as HCO3	592	mg/L		4		A2320 B	03/31/08 16:25 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 16:25 / kh
Chloride	319	mg/L		1		E300.0	04/03/08 17:58 / qed
Sulfate	1630	mg/L		1		E300.0	04/03/08 17:58 / qed
Fluoride	0.3	mg/L		0.1		A4500-F C	03/31/08 16:25 / kh
Hardness as CaCO3	1630	mg/L		1		A2340 B	04/07/08 15:39 / klc
NUTRIENTS							
Nitrogen, Ammonia as N	1.2	mg/L		0.1		E350.1	04/03/08 13:31 / bls
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	04/07/08 11:44 / bls
METALS, DISSOLVED							
Calcium	313	mg/L		1		E200.7	04/07/08 15:39 / rlh
Magnesium	206	mg/L		1		E200.7	04/07/08 15:39 / rlh
Potassium	10	mg/L		1		E200.7	04/07/08 15:39 / rlh
Silica	27.3	mg/L	D	0.4		E200.7	04/07/08 15:39 / rlh
Sodium	423	mg/L		1		E200.7	04/07/08 15:39 / rlh
METALS, TOTAL							
Silica	30.0	mg/L		0.2		E200.7	04/03/08 21:15 / rlh
QUALITY CONTROL							
A/C Balance Sigma	1.58					Calculation	04/09/08 16:57 / klc
Anions	52.7	meq/L		0.01		Calculation	04/09/08 16:57 / klc
Cations	51.3	meq/L		0.01		Calculation	04/09/08 16:57 / klc
A/C Balance	-1.40	%				Calculation	04/09/08 16:57 / klc
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	03/31/08 21:40 / bw
Benzene	0.63	ug/L		0.50		SW8021B	03/31/08 21:40 / bw
Toluene	ND	ug/L		0.50		SW8021B	03/31/08 21:40 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	03/31/08 21:40 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	03/31/08 21:40 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	03/31/08 21:40 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	03/31/08 21:40 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-001
Client Sample ID: PNR-13

Report Date: 04/22/08
Collection Date: 03/27/08 15:00
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	90.0	%REC		80-120		SW8021B	03/31/08 21:40 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	03/31/08 09:00 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-010
Client Sample ID: PNR-14

Report Date: 04/22/08
Collection Date: 03/27/08 13:15
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	6.8	s.u.		0.1		A4500 H	03/28/08 18:21 / kak
Conductivity	20000	umhos/cm		1		A2510 B	03/28/08 18:01 / kak
Solids, Total Dissolved TDS @ 180 C	12800	mg/L		10		A2540 C	03/31/08 09:55 / afb
INORGANICS							
Alkalinity, Total as CaCO3	693	mg/L		4		A2320 B	03/31/08 18:07 / kh
Bicarbonate as HCO3	846	mg/L		4		A2320 B	03/31/08 18:07 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 18:07 / kh
Chloride	5880	mg/L	D	3		E300.0	04/03/08 20:29 / qed
Sulfate	1930	mg/L	D	6		E300.0	04/03/08 20:29 / qed
Fluoride	0.4	mg/L		0.1		A4500-F C	03/31/08 18:07 / kh
Hardness as CaCO3	2650	mg/L		1		A2340 B	03/31/08 23:56 / car
NUTRIENTS							
Nitrogen, Ammonia as N	2.9	mg/L		0.1		E350.1	04/03/08 13:04 / bls
Nitrogen, Nitrate+Nitrite as N	0.69	mg/L		0.05		E353.2	04/07/08 12:18 / bls
METALS, DISSOLVED							
Calcium	475	mg/L	D	5		E200.7	03/31/08 23:56 / rlh
Magnesium	356	mg/L	D	3		E200.7	03/31/08 23:56 / rlh
Potassium	70	mg/L	D	2		E200.7	03/31/08 23:56 / rlh
Silica	33	mg/L	D	2		E200.7	03/31/08 23:56 / rlh
Sodium	3530	mg/L	D	5		E200.7	03/31/08 23:56 / rlh
METALS, TOTAL							
Silica	30.8	mg/L	D	0.9		E200.7	04/03/08 22:24 / rlh
QUALITY CONTROL							
A/C Balance Sigma	3.24					Calculation	04/04/08 17:00 / car
Anions	220	meq/L		0.01		Calculation	04/04/08 17:00 / car
Cations	208	meq/L		0.01		Calculation	04/04/08 17:00 / car
A/C Balance	-2.66	%				Calculation	04/04/08 17:00 / car
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/03/08 02:07 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/03/08 02:07 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/03/08 02:07 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/03/08 02:07 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/03/08 02:07 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/03/08 02:07 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/03/08 02:07 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-010
Client Sample ID: PNR-14

Report Date: 04/22/08
Collection Date: 03/27/08 13:15
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	94.0	%REC		80-120		SW8021B	04/03/08 02:07 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/01/08 08:00 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-011
Client Sample ID: PNR-15

Report Date: 04/22/08
Collection Date: 03/27/08 15:20
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.3	s.u.		0.1		A4500 H	03/28/08 18:21 / kak
Conductivity	25000	umhos/cm		1		A2510 B	03/28/08 18:03 / kak
Solids, Total Dissolved TDS @ 180 C	15100	mg/L		10		A2540 C	03/31/08 09:56 / afb
INORGANICS							
Alkalinity, Total as CaCO3	604	mg/L		4		A2320 B	03/31/08 18:36 / kh
Bicarbonate as HCO3	737	mg/L		4		A2320 B	03/31/08 18:36 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 18:36 / kh
Chloride	7720	mg/L	D	5		E300.0	04/03/08 20:41 / qed
Sulfate	1580	mg/L	D	10		E300.0	04/03/08 20:41 / qed
Fluoride	0.6	mg/L		0.1		A4500-F C	03/31/08 18:36 / kh
Hardness as CaCO3	1130	mg/L		1		A2340 B	04/01/08 00:00 / car
NUTRIENTS							
Nitrogen, Ammonia as N	3.7	mg/L		0.1		E350.1	04/03/08 13:05 / bls
Nitrogen, Nitrate+Nitrite as N	0.06	mg/L		0.05		E353.2	04/07/08 12:19 / bls
METALS, DISSOLVED							
Calcium	269	mg/L	D	5		E200.7	04/01/08 00:00 / rlh
Magnesium	113	mg/L	D	3		E200.7	04/01/08 00:00 / rlh
Potassium	81	mg/L	D	2		E200.7	04/01/08 00:00 / rlh
Silica	24	mg/L	D	2		E200.7	04/01/08 00:00 / rlh
Sodium	5390	mg/L	D	5		E200.7	04/01/08 00:00 / rlh
METALS, TOTAL							
Silica	35	mg/L	D	2		E200.7	04/03/08 22:35 / rlh
QUALITY CONTROL							
A/C Balance Sigma	0.80					Calculation	04/04/08 17:01 / car
Anions	263	meq/L		0.01		Calculation	04/04/08 17:01 / car
Cations	260	meq/L		0.01		Calculation	04/04/08 17:01 / car
A/C Balance	-0.64	%				Calculation	04/04/08 17:01 / car
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/01/08 05:30 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/01/08 05:30 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/01/08 05:30 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/01/08 05:30 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/01/08 05:30 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/01/08 05:30 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/01/08 05:30 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-011
Client Sample ID: PNR-15

Report Date: 04/22/08
Collection Date: 03/27/08 15:20
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	86.0	%REC		80-120		SW8021B	04/01/08 05:30 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/01/08 08:10 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * ell@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-018
Client Sample ID: PNR-16

Report Date: 04/22/08
Collection Date: 03/26/08 14:30
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.1	s.u.		0.1		A4500 H	03/28/08 18:26 / kak
Conductivity	5230	umhos/cm		1		A2510 B	03/28/08 18:09 / kak
Solids, Total Dissolved TDS @ 180 C	5110	mg/L		10		A2540 C	03/31/08 10:25 / afb
INORGANICS							
Alkalinity, Total as CaCO3	473	mg/L		4		A2320 B	03/31/08 19:45 / kh
Bicarbonate as HCO3	577	mg/L		4		A2320 B	03/31/08 19:45 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 19:45 / kh
Chloride	32	mg/L		1		E300.0	04/11/08 10:23 / qed
Sulfate	3160	mg/L		1		E300.0	04/03/08 22:49 / qed
Fluoride	0.5	mg/L		0.1		A4500-F C	03/31/08 19:45 / kh
Hardness as CaCO3	2910	mg/L		1		A2340 B	04/11/08 13:50 / car
NUTRIENTS							
Nitrogen, Ammonia as N	0.6	mg/L		0.1		E350.1	04/03/08 13:50 / bls
Nitrogen, Nitrate+Nitrite as N	19.3	mg/L		0.05		E353.2	04/07/08 14:04 / bls
METALS, DISSOLVED							
Calcium	444	mg/L	D	2		E200.7	04/01/08 01:06 / rlh
Magnesium	436	mg/L		1		E200.7	04/01/08 01:06 / rlh
Potassium	20	mg/L		1		E200.7	04/01/08 01:06 / rlh
Silica	25.5	mg/L	D	0.9		E200.7	04/01/08 01:06 / rlh
Sodium	341	mg/L	D	2		E200.7	04/01/08 01:06 / rlh
METALS, TOTAL							
Silica	92.4	mg/L	D	0.4		E200.7	04/03/08 23:28 / rlh
QUALITY CONTROL							
A/C Balance Sigma	3.06					Calculation	04/14/08 14:48 / klc
Anions	77.4	meq/L		0.01		Calculation	04/14/08 14:48 / klc
Cations	73.5	meq/L		0.01		Calculation	04/14/08 14:48 / klc
A/C Balance	-2.65	%				Calculation	04/14/08 14:48 / klc
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/02/08 02:26 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/02/08 02:26 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/02/08 02:26 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/02/08 02:26 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/02/08 02:26 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/02/08 02:26 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/02/08 02:26 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-018
Client Sample ID: PNR-16

Report Date: 04/22/08
Collection Date: 03/26/08 14:30
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	94.0	%REC		80-120		SW8021B	04/02/08 02:26 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/01/08 10:00 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-017
Client Sample ID: PNR-18

Report Date: 04/22/08
Collection Date: 03/26/08 13:30
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.2	s.u.		0.1		A4500 H	03/28/08 18:25 / kak
Conductivity	4070	umhos/cm		1		A2510 B	03/28/08 18:08 / kak
Solids, Total Dissolved TDS @ 180 C	3570	mg/L		10		A2540 C	03/31/08 10:23 / afb
INORGANICS							
Alkalinity, Total as CaCO3	746	mg/L		4		A2320 B	03/31/08 19:29 / kh
Bicarbonate as HCO3	910	mg/L		4		A2320 B	03/31/08 19:29 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 19:29 / kh
Chloride	93	mg/L		1		E300.0	04/11/08 09:25 / qed
Sulfate	1670	mg/L		1		E300.0	04/03/08 22:37 / qed
Fluoride	0.2	mg/L		0.1		A4500-F C	03/31/08 19:29 / kh
Hardness as CaCO3	1760	mg/L		1		A2340 B	04/11/08 13:50 / car
NUTRIENTS							
Nitrogen, Ammonia as N	2.3	mg/L		0.1		E350.1	04/03/08 13:49 / bls
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	04/07/08 14:03 / bls
METALS, DISSOLVED							
Calcium	298	mg/L		1		E200.7	04/01/08 01:02 / rlh
Magnesium	247	mg/L		1		E200.7	04/01/08 01:02 / rlh
Potassium	7	mg/L		1		E200.7	04/01/08 01:02 / rlh
Silica	26.4	mg/L	D	0.4		E200.7	04/01/08 01:02 / rlh
Sodium	375	mg/L		1		E200.7	04/01/08 01:02 / rlh
METALS, TOTAL							
Silica	28.2	mg/L		0.2		E200.7	04/03/08 23:21 / rlh
QUALITY CONTROL							
A/C Balance Sigma	0.57					Calculation	04/14/08 14:48 / klc
Anions	52.3	meq/L		0.01		Calculation	04/14/08 14:48 / klc
Cations	51.8	meq/L		0.01		Calculation	04/14/08 14:48 / klc
A/C Balance	-0.50	%				Calculation	04/14/08 14:48 / klc
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/02/08 01:19 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/02/08 01:19 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/02/08 01:19 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/02/08 01:19 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/02/08 01:19 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/02/08 01:19 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/02/08 01:19 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-017
Client Sample ID: PNR-18

Report Date: 04/22/08
Collection Date: 03/26/08 13:30
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	95.0	%REC		80-120		SW8021B	04/02/08 01:19 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/01/08 09:40 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-002
Client Sample ID: PNR-19

Report Date: 04/22/08
Collection Date: 03/27/08 16:30
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	6.6	s.u.		0.1		A4500 H	03/28/08 17:53 / kak
Conductivity	36300	umhos/cm		1		A2510 B	03/28/08 17:44 / kak
Solids, Total Dissolved TDS @ 180 C	24000	mg/L		10		A2540 C	03/31/08 09:41 / afb
INORGANICS							
Alkalinity, Total as CaCO3	347	mg/L		4		A2320 B	03/31/08 16:39 / kh
Bicarbonate as HCO3	423	mg/L		4		A2320 B	03/31/08 16:39 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 16:39 / kh
Chloride	13100	mg/L	D	5		E300.0	04/03/08 18:10 / qed
Sulfate	1290	mg/L	D	10		E300.0	04/03/08 18:10 / qed
Fluoride	0.2	mg/L		0.1		A4500-F C	03/31/08 16:39 / kh
Hardness as CaCO3	7560	mg/L		1		A2340 B	03/31/08 23:07 / car
NUTRIENTS							
Nitrogen, Ammonia as N	ND	mg/L		0.1		E350.1	04/03/08 13:28 / bls
Nitrogen, Nitrate+Nitrite as N	18.7	mg/L		0.05		E353.2	04/07/08 11:46 / bls
METALS, DISSOLVED							
Calcium	1460	mg/L	D	10		E200.7	03/31/08 23:07 / rlh
Magnesium	947	mg/L	D	7		E200.7	03/31/08 23:07 / rlh
Potassium	42	mg/L	D	3		E200.7	03/31/08 23:07 / rlh
Silica	26	mg/L	D	4		E200.7	03/31/08 23:07 / rlh
Sodium	5940	mg/L	D	9		E200.7	03/31/08 23:07 / rlh
METALS, TOTAL							
Silica	24	mg/L	D	2		E200.7	04/03/08 21:54 / rlh
QUALITY CONTROL							
A/C Balance Sigma	-1.32					Calculation	04/04/08 16:59 / car
Anions	402	meq/L		0.01		Calculation	04/04/08 16:59 / car
Cations	411	meq/L		0.01		Calculation	04/04/08 16:59 / car
A/C Balance	1.03	%				Calculation	04/04/08 16:59 / car
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	03/31/08 22:14 / bw
Benzene	11	ug/L		0.50		SW8021B	03/31/08 22:14 / bw
Toluene	ND	ug/L		0.50		SW8021B	03/31/08 22:14 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	03/31/08 22:14 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	03/31/08 22:14 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	03/31/08 22:14 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	03/31/08 22:14 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-020
Client Sample ID: PNR-22

Report Date: 04/22/08
Collection Date: 03/26/08 17:45
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	92.0	%REC		80-120		SW8021B	04/02/08 04:06 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/01/08 10:30 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-012
Client Sample ID: PNR-23

Report Date: 04/22/08
Collection Date: 03/27/08 16:05
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	6.8	s.u.		0.1		A4500 H	03/28/08 18:22 / kak
Conductivity	55900	umhos/cm		1		A2510 B	03/28/08 18:04 / kak
Solids, Total Dissolved TDS @ 180 C	35100	mg/L		10		A2540 C	03/31/08 10:11 / afb
INORGANICS							
Alkalinity, Total as CaCO3	583	mg/L		4		A2320 B	03/31/08 18:45 / kh
Bicarbonate as HCO3	711	mg/L		4		A2320 B	03/31/08 18:45 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 18:45 / kh
Chloride	21100	mg/L	D	5		E300.0	04/03/08 20:52 / qed
Sulfate	994	mg/L	D	10		E300.0	04/03/08 20:52 / qed
Fluoride	3.4	mg/L		0.1		A4500-F C	03/31/08 18:45 / kh
Hardness as CaCO3	2100	mg/L		1		A2340 B	04/01/08 00:04 / car
NUTRIENTS							
Nitrogen, Ammonia as N	8.6	mg/L		0.1		E350.1	04/03/08 13:06 / bls
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	04/07/08 12:20 / bls
METALS, DISSOLVED							
Calcium	524	mg/L	D	20		E200.7	04/01/08 00:04 / rlh
Magnesium	192	mg/L	D	10		E200.7	04/01/08 00:04 / rlh
Potassium	174	mg/L	D	7		E200.7	04/01/08 00:04 / rlh
Silica	47	mg/L	D	9		E200.7	04/01/08 00:04 / rlh
Sodium	12600	mg/L	D	20		E200.7	04/01/08 00:04 / rlh
METALS, TOTAL							
Silica	49	mg/L	D	4		E200.7	04/03/08 22:39 / rlh
QUALITY CONTROL							
A/C Balance Sigma	3.60					Calculation	04/04/08 17:01 / car
Anions	628	meq/L		0.01		Calculation	04/04/08 17:01 / car
Cations	593	meq/L		0.01		Calculation	04/04/08 17:01 / car
A/C Balance	-2.90	%				Calculation	04/04/08 17:01 / car
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/03/08 05:29 / bw
Benzene	12	ug/L		0.50		SW8021B	04/03/08 05:29 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/03/08 05:29 / bw
Ethylbenzene	0.48	ug/L	J	0.50		SW8021B	04/03/08 05:29 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/03/08 05:29 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/03/08 05:29 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/03/08 05:29 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-012
Client Sample ID: PNR-23

Report Date: 04/22/08
Collection Date: 03/27/08 16:05
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	89.0	%REC		80-120		SW8021B	04/03/08 05:29 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/01/08 08:30 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-003
Client Sample ID: PNR-27

Report Date: 04/22/08
Collection Date: 03/27/08 17:10
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	6.5	s.u.		0.1		A4500 H	03/28/08 17:54 / kak
Conductivity	41200	umhos/cm		1		A2510 B	03/28/08 17:45 / kak
Solids, Total Dissolved TDS @ 180 C	27200	mg/L		10		A2540 C	03/31/08 09:43 / afb
INORGANICS							
Alkalinity, Total as CaCO3	579	mg/L		4		A2320 B	03/31/08 16:48 / kh
Bicarbonate as HCO3	707	mg/L		4		A2320 B	03/31/08 16:48 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 16:48 / kh
Chloride	15500	mg/L	D	5		E300.0	04/03/08 18:21 / qed
Sulfate	1690	mg/L	D	10		E300.0	04/03/08 18:21 / qed
Fluoride	0.2	mg/L		0.1		A4500-F C	03/31/08 16:48 / kh
Hardness as CaCO3	10400	mg/L		1		A2340 B	04/07/08 15:43 / klc
NUTRIENTS							
Nitrogen, Ammonia as N	ND	mg/L		0.1		E350.1	04/03/08 13:33 / bls
Nitrogen, Nitrate+Nitrite as N	32.9	mg/L		0.05		E353.2	04/07/08 11:47 / bls
METALS, DISSOLVED							
Calcium	2000	mg/L	D	10		E200.7	04/07/08 15:43 / rlh
Magnesium	1310	mg/L	D	7		E200.7	04/07/08 15:43 / rlh
Potassium	53	mg/L	D	3		E200.7	04/07/08 15:43 / rlh
Silica	32	mg/L	D	4		E200.7	04/07/08 15:43 / rlh
Sodium	5900	mg/L	D	9		E200.7	04/07/08 15:43 / rlh
METALS, TOTAL							
Silica	29	mg/L	D	2		E200.7	04/03/08 21:57 / rlh
QUALITY CONTROL							
A/C Balance Sigma	2.77					Calculation	04/09/08 16:59 / klc
Anions	486	meq/L		0.01		Calculation	04/09/08 16:59 / klc
Cations	465	meq/L		0.01		Calculation	04/09/08 16:59 / klc
A/C Balance	-2.22	%				Calculation	04/09/08 16:59 / klc
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	03/31/08 23:21 / bw
Benzene	2.3	ug/L		0.50		SW8021B	03/31/08 23:21 / bw
Toluene	ND	ug/L		0.50		SW8021B	03/31/08 23:21 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	03/31/08 23:21 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	03/31/08 23:21 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	03/31/08 23:21 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	03/31/08 23:21 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-003
Client Sample ID: PNR-27

Report Date: 04/22/08
Collection Date: 03/27/08 17:10
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	88.0	%REC		80-120		SW8021B	03/31/08 23:21 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	03/31/08 09:30 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-033
Client Sample ID: PNR-28

Report Date: 04/22/08
Collection Date: 03/26/08 18:30
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	6.6	s.u.		0.1		A4500 H	03/28/08 18:47 / kak
Conductivity	48600	umhos/cm		1		A2510 B	03/28/08 18:38 / kak
Solids, Total Dissolved TDS @ 180 C	31900	mg/L		10		A2540 C	03/31/08 13:50 / afb
INORGANICS							
Alkalinity, Total as CaCO3	548	mg/L		4		A2320 B	03/31/08 22:50 / kh
Bicarbonate as HCO3	668	mg/L		4		A2320 B	03/31/08 22:50 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 22:50 / kh
Chloride	19000	mg/L	D	5		E300.0	04/04/08 05:35 / qed
Sulfate	1560	mg/L	D	10		E300.0	04/04/08 05:35 / qed
Fluoride	0.2	mg/L		0.1		A4500-F C	03/31/08 22:50 / kh
Hardness as CaCO3	10300	mg/L		1		A2340 B	04/01/08 02:30 / car
NUTRIENTS							
Nitrogen, Ammonia as N	ND	mg/L		0.1		E350.1	04/03/08 15:04 / bls
Nitrogen, Nitrate+Nitrite as N	24.4	mg/L		0.05		E353.2	04/07/08 14:25 / bls
METALS, DISSOLVED							
Calcium	2040	mg/L	D	10		E200.7	04/01/08 02:30 / rlh
Magnesium	1280	mg/L	D	7		E200.7	04/01/08 02:30 / rlh
Potassium	50	mg/L	D	3		E200.7	04/01/08 02:30 / rlh
Silica	25	mg/L	D	4		E200.7	04/01/08 02:30 / rlh
Sodium	8610	mg/L	D	9		E200.7	04/01/08 02:30 / rlh
METALS, TOTAL							
Silica	24	mg/L	D	2		E200.7	04/04/08 00:29 / rlh
QUALITY CONTROL							
A/C Balance Sigma	-0.29					Calculation	04/04/08 17:04 / car
Anions	580	meq/L		0.01		Calculation	04/04/08 17:04 / car
Cations	583	meq/L		0.01		Calculation	04/04/08 17:04 / car
A/C Balance	0.23	%				Calculation	04/04/08 17:04 / car
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/02/08 19:56 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/02/08 19:56 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/02/08 19:56 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/02/08 19:56 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/02/08 19:56 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/02/08 19:56 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/02/08 19:56 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-033
Client Sample ID: PNR-28

Report Date: 04/22/08
Collection Date: 03/26/08 18:30
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	96.0	%REC		80-120		SW8021B	04/02/08 19:56 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/07/08 07:10 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-028
Client Sample ID: PNR-29

Report Date: 04/22/08
Collection Date: 03/26/08 12:10
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.1	s.u.		0.1		A4500 H	03/28/08 18:33 / kak
Conductivity	5460	umhos/cm		1		A2510 B	03/28/08 18:18 / kak
Solids, Total Dissolved TDS @ 180 C	4660	mg/L		10		A2540 C	03/31/08 13:31 / afb
INORGANICS							
Alkalinity, Total as CaCO3	689	mg/L		4		A2320 B	03/31/08 21:50 / kh
Bicarbonate as HCO3	840	mg/L		4		A2320 B	03/31/08 21:50 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 21:50 / kh
Chloride	92	mg/L		1		E300.0	04/10/08 05:22 / qed
Sulfate	1990	mg/L		1		E300.0	04/10/08 05:22 / qed
Fluoride	0.3	mg/L		0.1		A4500-F C	03/31/08 21:50 / kh
Hardness as CaCO3	2320	mg/L		1		A2340 B	04/11/08 13:50 / car
NUTRIENTS							
Nitrogen, Ammonia as N	ND	mg/L		0.1		E350.1	04/03/08 14:52 / bls
Nitrogen, Nitrate+Nitrite as N	260	mg/L	D	0.2		E353.2	04/07/08 14:19 / bls
METALS, DISSOLVED							
Calcium	426	mg/L	D	2		E200.7	04/01/08 02:03 / rlh
Magnesium	306	mg/L		1		E200.7	04/01/08 02:03 / rlh
Potassium	10	mg/L		1		E200.7	04/01/08 02:03 / rlh
Silica	26.7	mg/L	D	0.9		E200.7	04/01/08 02:03 / rlh
Sodium	489	mg/L	D	2		E200.7	04/01/08 02:03 / rlh
METALS, TOTAL							
Silica	27.7	mg/L	D	0.4		E200.7	04/04/08 00:10 / rlh
QUALITY CONTROL							
A/C Balance Sigma	6.63					Calculation	04/21/08 13:44 / car
Anions	76.5	meq/L		0.01		Calculation	04/21/08 13:44 / car
Cations	68.0	meq/L		0.01		Calculation	04/21/08 13:44 / car
A/C Balance	-5.93	%				Calculation	04/21/08 13:44 / car
- The Balance was confirmed by re-analysis of anions, cations, and alkalinity.							
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/02/08 16:29 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/02/08 16:29 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/02/08 16:29 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/02/08 16:29 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/02/08 16:29 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/02/08 16:29 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-028
Client Sample ID: PNR-29

Report Date: 04/22/08
Collection Date: 03/26/08 12:10
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/02/08 16:29 / bw
Surr: Trifluorotoluene	96.0	%REC		80-120		SW8021B	04/02/08 16:29 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/02/08 09:00 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-005
Client Sample ID: PNR-33-06

Report Date: 04/22/08
Collection Date: 03/26/08 17:15
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.2	s.u.		0.1		A4500 H	03/28/08 17:55 / kak
Conductivity	4880	umhos/cm		1		A2510 B	03/28/08 17:47 / kak
Solids, Total Dissolved TDS @ 180 C	4550	mg/L		10		A2540 C	03/31/08 09:46 / afb
INORGANICS							
Alkalinity, Total as CaCO3	395	mg/L		4		A2320 B	03/31/08 17:05 / kh
Bicarbonate as HCO3	482	mg/L		4		A2320 B	03/31/08 17:05 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 17:05 / kh
Chloride	107	mg/L		1		E300.0	04/03/08 18:45 / qed
Sulfate	2550	mg/L		1		E300.0	04/03/08 18:45 / qed
Fluoride	0.3	mg/L		0.1		A4500-F C	03/31/08 17:05 / kh
Hardness as CaCO3	2540	mg/L		1		A2340 B	03/31/08 23:29 / car
NUTRIENTS							
Nitrogen, Ammonia as N	ND	mg/L		0.1		E350.1	04/03/08 13:35 / bls
Nitrogen, Nitrate+Nitrite as N	53.8	mg/L	D	0.2		E353.2	04/07/08 11:49 / bls
METALS, DISSOLVED							
Calcium	464	mg/L		1		E200.7	03/31/08 23:29 / rlh
Magnesium	336	mg/L		1		E200.7	03/31/08 23:29 / rlh
Potassium	16	mg/L		1		E200.7	03/31/08 23:29 / rlh
Silica	25.5	mg/L	D	0.4		E200.7	03/31/08 23:29 / rlh
Sodium	270	mg/L		1		E200.7	03/31/08 23:29 / rlh
METALS, TOTAL							
Silica	30.1	mg/L		0.2		E200.7	04/03/08 22:05 / rlh
QUALITY CONTROL							
A/C Balance Sigma	1.02					Calculation	04/04/08 17:00 / car
Anions	64.1	meq/L		0.01		Calculation	04/04/08 17:00 / car
Cations	63.0	meq/L		0.01		Calculation	04/04/08 17:00 / car
A/C Balance	-0.88	%				Calculation	04/04/08 17:00 / car
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/01/08 01:02 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/01/08 01:02 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/01/08 01:02 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/01/08 01:02 / bw
m+p-Xylenes	1.4	ug/L		0.50		SW8021B	04/01/08 01:02 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/01/08 01:02 / bw
Xylenes, Total	1.4	ug/L		0.50		SW8021B	04/01/08 01:02 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-005
Client Sample ID: PNR-33-06

Report Date: 04/22/08
Collection Date: 03/26/08 17:15
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	90.0	%REC		80-120		SW8021B	04/01/08 01:02 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	03/31/08 09:50 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-036
Client Sample ID: PNR-34-07

Report Date: 04/22/08
Collection Date: 03/27/08 18:00
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	6.7	s.u.		0.1		A4500 H	03/28/08 18:48 / kak
Conductivity	41300	umhos/cm		1		A2510 B	03/28/08 18:40 / kak
Solids, Total Dissolved TDS @ 180 C	26900	mg/L		10		A2540 C	03/31/08 14:11 / afb
INORGANICS							
Alkalinity, Total as CaCO3	515	mg/L		4		A2320 B	03/31/08 23:19 / kh
Bicarbonate as HCO3	629	mg/L		4		A2320 B	03/31/08 23:19 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 23:19 / kh
Chloride	15900	mg/L	D	5		E300.0	04/04/08 06:57 / qed
Sulfate	1430	mg/L	D	10		E300.0	04/04/08 06:57 / qed
Fluoride	0.1	mg/L		0.1		A4500-F C	03/31/08 23:19 / kh
Hardness as CaCO3	11900	mg/L		1		A2340 B	04/01/08 02:49 / klc
NUTRIENTS							
Nitrogen, Ammonia as N	0.2	mg/L		0.1		E350.1	04/03/08 13:22 / bls
Nitrogen, Nitrate+Nitrite as N	9.39	mg/L		0.05		E353.2	04/07/08 14:28 / bls
METALS, DISSOLVED							
Calcium	2150	mg/L	D	10		E200.7	04/01/08 02:49 / rlh
Magnesium	1590	mg/L	D	7		E200.7	04/01/08 02:49 / rlh
Potassium	38	mg/L	D	3		E200.7	04/01/08 02:49 / rlh
Silica	17	mg/L	D	4		E200.7	04/01/08 02:49 / rlh
Sodium	5270	mg/L	D	9		E200.7	04/01/08 02:49 / rlh
METALS, TOTAL							
Silica	17	mg/L	D	2		E200.7	04/04/08 00:40 / rlh
QUALITY CONTROL							
A/C Balance Sigma	2.69					Calculation	04/09/08 17:17 / klc
Anions	490	meq/L		0.01		Calculation	04/09/08 17:17 / klc
Cations	469	meq/L		0.01		Calculation	04/09/08 17:17 / klc
A/C Balance	-2.16	%				Calculation	04/09/08 17:17 / klc
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/02/08 21:38 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/02/08 21:38 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/02/08 21:38 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/02/08 21:38 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/02/08 21:38 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/02/08 21:38 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/02/08 21:38 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-036
Client Sample ID: PNR-34-07

Report Date: 04/22/08
Collection Date: 03/27/08 18:00
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	93.0	%REC		80-120		SW8021B	04/02/08 21:38 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/07/08 07:50 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-027
Client Sample ID: PNR-35-07

Report Date: 04/22/08
Collection Date: 03/26/08 10:40
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.2	s.u.		0.1		A4500 H	03/28/08 18:33 / kak
Conductivity	3950	umhos/cm		1		A2510 B	03/28/08 18:17 / kak
Solids, Total Dissolved TDS @ 180 C	3120	mg/L		10		A2540 C	03/31/08 13:29 / afb
INORGANICS							
Alkalinity, Total as CaCO3	686	mg/L		4		A2320 B	03/31/08 21:41 / kh
Bicarbonate as HCO3	837	mg/L		4		A2320 B	03/31/08 21:41 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 21:41 / kh
Chloride	87	mg/L		1		E300.0	04/11/08 10:58 / qed
Sulfate	1580	mg/L		1		E300.0	04/04/08 04:26 / qed
Fluoride	0.4	mg/L		0.1		A4500-F C	03/31/08 21:41 / kh
Hardness as CaCO3	1310	mg/L		1		A2340 B	04/11/08 13:50 / car
NUTRIENTS							
Nitrogen, Ammonia as N	0.4	mg/L		0.1		E350.1	04/03/08 14:51 / bls
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	04/07/08 14:18 / bls
METALS, DISSOLVED							
Calcium	236	mg/L		1		E200.7	04/01/08 01:59 / rlh
Magnesium	176	mg/L		1		E200.7	04/01/08 01:59 / rlh
Potassium	8	mg/L		1		E200.7	04/01/08 01:59 / rlh
Silica	21.7	mg/L	D	0.4		E200.7	04/01/08 01:59 / rlh
Sodium	513	mg/L		1		E200.7	04/01/08 01:59 / rlh
METALS, TOTAL							
Silica	46.7	mg/L		0.2		E200.7	04/04/08 00:06 / rlh
QUALITY CONTROL							
A/C Balance Sigma	0.35					Calculation	04/14/08 14:48 / klc
Anions	49.1	meq/L		0.01		Calculation	04/14/08 14:48 / klc
Cations	48.8	meq/L		0.01		Calculation	04/14/08 14:48 / klc
A/C Balance	-0.31	%				Calculation	04/14/08 14:48 / klc
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/02/08 15:46 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/02/08 15:46 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/02/08 15:46 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/02/08 15:46 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/02/08 15:46 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/02/08 15:46 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/02/08 15:46 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-027
Client Sample ID: PNR-35-07

Report Date: 04/22/08
Collection Date: 03/26/08 10:40
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	96.0	%REC		80-120		SW8021B	04/02/08 15:46 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/02/08 08:40 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-019
Client Sample ID: PNR-36-07

Report Date: 04/22/08
Collection Date: 03/26/08 16:50
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.2	s.u.		0.1		A4500 H	03/28/08 18:27 / kak
Conductivity	3090	umhos/cm		1		A2510 B	03/28/08 18:11 / kak
Solids, Total Dissolved TDS @ 180 C	2450	mg/L		10		A2540 C	03/31/08 10:27 / afb
INORGANICS							
Alkalinity, Total as CaCO3	412	mg/L		4		A2320 B	03/31/08 19:53 / kh
Bicarbonate as HCO3	503	mg/L		4		A2320 B	03/31/08 19:53 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 19:53 / kh
Chloride	138	mg/L		1		E300.0	04/03/08 23:00 / qed
Sulfate	1050	mg/L		1		E300.0	04/03/08 23:00 / qed
Fluoride	0.3	mg/L		0.1		A4500-F C	03/31/08 19:53 / kh
Hardness as CaCO3	1350	mg/L		1		A2340 B	04/01/08 01:09 / klc
NUTRIENTS							
Nitrogen, Ammonia as N	ND	mg/L		0.1		E350.1	04/03/08 13:52 / bls
Nitrogen, Nitrate+Nitrite as N	56.4	mg/L	D	0.2		E353.2	04/07/08 14:05 / bls
METALS, DISSOLVED							
Calcium	268	mg/L		1		E200.7	04/01/08 01:09 / rlh
Magnesium	166	mg/L		1		E200.7	04/01/08 01:09 / rlh
Potassium	10	mg/L		1		E200.7	04/01/08 01:09 / rlh
Silica	17.2	mg/L	D	0.4		E200.7	04/01/08 01:09 / rlh
Sodium	208	mg/L		1		E200.7	04/01/08 01:09 / rlh
METALS, TOTAL							
Silica	19.6	mg/L		0.2		E200.7	04/03/08 23:32 / rlh
QUALITY CONTROL							
A/C Balance Sigma	2.49					Calculation	04/21/08 10:24 / klc
Anions	38.1	meq/L		0.01		Calculation	04/21/08 10:24 / klc
Cations	36.4	meq/L		0.01		Calculation	04/21/08 10:24 / klc
A/C Balance	-2.33	%				Calculation	04/21/08 10:24 / klc
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/02/08 02:59 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/02/08 02:59 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/02/08 02:59 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/02/08 02:59 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/02/08 02:59 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/02/08 02:59 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/02/08 02:59 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-019
Client Sample ID: PNR-36-07

Report Date: 04/22/08
Collection Date: 03/26/08 16:50
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	94.0	%REC		80-120		SW8021B	04/02/08 02:59 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/01/08 10:00 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-006
Client Sample ID: PNR-38-08

Report Date: 04/22/08
Collection Date: 03/26/08 18:30
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.2	s.u.		0.1		A4500 H	03/28/08 17:56 / kak
Conductivity	5220	umhos/cm		1		A2510 B	03/28/08 17:48 / kak
Solids, Total Dissolved TDS @ 180 C	3630	mg/L		10		A2540 C	03/31/08 09:48 / afb
INORGANICS							
Alkalinity, Total as CaCO3	508	mg/L		4		A2320 B	03/31/08 17:26 / kh
Bicarbonate as HCO3	620	mg/L		4		A2320 B	03/31/08 17:26 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 17:26 / kh
Chloride	854	mg/L		1		E300.0	04/03/08 19:43 / qed
Sulfate	1130	mg/L		1		E300.0	04/03/08 19:43 / qed
Fluoride	0.2	mg/L		0.1		A4500-F C	03/31/08 17:26 / kh
Hardness as CaCO3	1690	mg/L		1		A2340 B	04/07/08 16:01 / klc
NUTRIENTS							
Nitrogen, Ammonia as N	1.3	mg/L		0.1		E350.1	04/03/08 13:36 / bls
Nitrogen, Nitrate+Nitrite as N	0.07	mg/L		0.05		E353.2	04/07/08 11:50 / bls
METALS, DISSOLVED							
Calcium	348	mg/L	D	2		E200.7	04/07/08 16:01 / rlh
Magnesium	200	mg/L		1		E200.7	04/07/08 16:01 / rlh
Potassium	12	mg/L		1		E200.7	04/07/08 16:01 / rlh
Silica	28.7	mg/L	D	0.9		E200.7	04/07/08 16:01 / rlh
Sodium	584	mg/L	D	2		E200.7	04/07/08 16:01 / rlh
METALS, TOTAL							
Silica	42.3	mg/L	D	0.4		E200.7	04/03/08 22:09 / rlh
QUALITY CONTROL							
A/C Balance Sigma	-0.93					Calculation	04/09/08 17:01 / klc
Anions	58.7	meq/L		0.01		Calculation	04/09/08 17:01 / klc
Cations	59.7	meq/L		0.01		Calculation	04/09/08 17:01 / klc
A/C Balance	0.80	%				Calculation	04/09/08 17:01 / klc
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/01/08 01:36 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/01/08 01:36 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/01/08 01:36 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/01/08 01:36 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/01/08 01:36 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/01/08 01:36 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/01/08 01:36 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-035
Client Sample ID: M-27

Report Date: 04/22/08
Collection Date: 03/27/08 16:00
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/02/08 21:04 / bw
Surr: Trifluorotoluene	96.0	%REC		80-120		SW8021B	04/02/08 21:04 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/07/08 07:40 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-007
Client Sample ID: M-28

Report Date: 04/22/08
Collection Date: 03/27/08 09:50
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	6.9	s.u.		0.1		A4500 H	03/28/08 17:56 / kak
Conductivity	29400	umhos/cm		1		A2510 B	03/28/08 17:49 / kak
Solids, Total Dissolved TDS @ 180 C	18400	mg/L		10		A2540 C	03/31/08 09:50 / afb
INORGANICS							
Alkalinity, Total as CaCO3	673	mg/L		4		A2320 B	03/31/08 17:35 / kh
Bicarbonate as HCO3	821	mg/L		4		A2320 B	03/31/08 17:35 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 17:35 / kh
Chloride	9600	mg/L	D	5		E300.0	04/03/08 19:54 / qed
Sulfate	1730	mg/L	D	10		E300.0	04/03/08 19:54 / qed
Fluoride	0.2	mg/L		0.1		A4500-F C	03/31/08 17:35 / kh
Hardness as CaCO3	4120	mg/L		1		A2340 B	03/31/08 23:45 / klc
NUTRIENTS							
Nitrogen, Ammonia as N	3.2	mg/L		0.1		E350.1	04/03/08 13:37 / bls
Nitrogen, Nitrate+Nitrite as N	14.5	mg/L		0.05		E353.2	04/07/08 12:12 / bls
METALS, DISSOLVED							
Calcium	775	mg/L	D	10		E200.7	03/31/08 23:45 / rlh
Magnesium	531	mg/L	D	7		E200.7	03/31/08 23:45 / rlh
Potassium	45	mg/L	D	3		E200.7	03/31/08 23:45 / rlh
Silica	26	mg/L	D	4		E200.7	03/31/08 23:45 / rlh
Sodium	5900	mg/L	D	9		E200.7	03/31/08 23:45 / rlh
METALS, TOTAL							
Silica	70	mg/L	D	5		E200.7	04/03/08 22:13 / rlh
QUALITY CONTROL							
A/C Balance Sigma	-3.74					Calculation	04/09/08 17:02 / klc
Anions	321	meq/L		0.01		Calculation	04/09/08 17:02 / klc
Cations	340	meq/L		0.01		Calculation	04/09/08 17:02 / klc
A/C Balance	2.88	%				Calculation	04/09/08 17:02 / klc
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/03/08 03:48 / bw
Benzene	15	ug/L		0.50		SW8021B	04/03/08 03:48 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/03/08 03:48 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/03/08 03:48 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/03/08 03:48 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/03/08 03:48 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/03/08 03:48 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-007
Client Sample ID: M-28

Report Date: 04/22/08
Collection Date: 03/27/08 09:50
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	90.0	%REC		80-120		SW8021B	04/03/08 03:48 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	03/31/08 10:20 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-008
Client Sample ID: M-31

Report Date: 04/22/08
Collection Date: 03/27/08 10:30
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	6.6	s.u.		0.1		A4500 H	03/28/08 17:57 / kak
Conductivity	94700	umhos/cm		1		A2510 B	03/28/08 17:49 / kak
Solids, Total Dissolved TDS @ 180 C	62000	mg/L		10		A2540 C	03/31/08 09:51 / afb
INORGANICS							
Alkalinity, Total as CaCO3	399	mg/L		4		A2320 B	04/07/08 19:07 / kh
Bicarbonate as HCO3	487	mg/L		4		A2320 B	04/07/08 19:07 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	04/07/08 19:07 / kh
Chloride	41200	mg/L	D	5		E300.0	04/03/08 20:06 / qed
Sulfate	1420	mg/L	D	10		E300.0	04/03/08 20:06 / qed
Fluoride	0.1	mg/L		0.1		A4500-F C	03/31/08 17:43 / kh
Hardness as CaCO3	6850	mg/L		1		A2340 B	04/07/08 16:05 / klc
NUTRIENTS							
Nitrogen, Ammonia as N	10.9	mg/L		0.1		E350.1	04/03/08 13:38 / bls
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	04/07/08 12:15 / bls
METALS, DISSOLVED							
Calcium	1720	mg/L	D	20		E200.7	04/07/08 16:05 / rlh
Magnesium	620	mg/L	D	10		E200.7	04/07/08 16:05 / rlh
Potassium	276	mg/L	D	7		E200.7	04/07/08 16:05 / rlh
Silica	29	mg/L	D	9		E200.7	04/07/08 16:05 / rlh
Sodium	25100	mg/L	D	20		E200.7	04/07/08 16:05 / rlh
METALS, TOTAL							
Silica	27	mg/L	D	4		E200.7	04/03/08 22:16 / rlh
QUALITY CONTROL							
A/C Balance Sigma	-1.96					Calculation	04/09/08 17:04 / klc
Anions	1200	meq/L		0.01		Calculation	04/09/08 17:04 / klc
Cations	1240	meq/L		0.01		Calculation	04/09/08 17:04 / klc
A/C Balance	1.50	%				Calculation	04/09/08 17:04 / klc
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/03/08 03:14 / bw
Benzene	24	ug/L		0.50		SW8021B	04/03/08 03:14 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/03/08 03:14 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/03/08 03:14 / bw
m+p-Xylenes	0.66	ug/L		0.50		SW8021B	04/03/08 03:14 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/03/08 03:14 / bw
Xylenes, Total	0.66	ug/L		0.50		SW8021B	04/03/08 03:14 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-008
Client Sample ID: M-31

Report Date: 04/22/08
Collection Date: 03/27/08 10:30
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	86.0	%REC		80-120		SW8021B	04/03/08 03:14 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	03/31/08 10:40 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-026
Client Sample ID: MOC-1B

Report Date: 04/22/08
Collection Date: 03/25/08 18:30
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.2	s.u.		0.1		A4500 H	03/28/08 18:32 / kak
Conductivity	4430	umhos/cm		1		A2510 B	03/28/08 18:16 / kak
Solids, Total Dissolved TDS @ 180 C	3810	mg/L		10		A2540 C	03/31/08 13:27 / afb
INORGANICS							
Alkalinity, Total as CaCO3	438	mg/L		4		A2320 B	03/31/08 21:31 / kh
Bicarbonate as HCO3	535	mg/L		4		A2320 B	03/31/08 21:31 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 21:31 / kh
Chloride	74	mg/L		1		E300.0	04/11/08 10:47 / qed
Sulfate	2240	mg/L		1		E300.0	04/04/08 04:14 / qed
Fluoride	0.2	mg/L		0.1		A4500-F C	03/31/08 21:31 / kh
Hardness as CaCO3	2090	mg/L		1		A2340 B	04/11/08 13:50 / car
NUTRIENTS							
Nitrogen, Ammonia as N	ND	mg/L		0.1		E350.1	04/03/08 14:50 / bls
Nitrogen, Nitrate+Nitrite as N	36.8	mg/L		0.05		E353.2	04/07/08 13:53 / bls
METALS, DISSOLVED							
Calcium	356	mg/L		1		E200.7	04/01/08 01:55 / rlh
Magnesium	292	mg/L		1		E200.7	04/01/08 01:55 / rlh
Potassium	8	mg/L		1		E200.7	04/01/08 01:55 / rlh
Silica	22.7	mg/L	D	0.4		E200.7	04/01/08 01:55 / rlh
Sodium	370	mg/L		1		E200.7	04/01/08 01:55 / rlh
METALS, TOTAL							
Silica	23.0	mg/L		0.2		E200.7	04/01/08 05:27 / rlh
QUALITY CONTROL							
A/C Balance Sigma	2.27					Calculation	04/14/08 14:48 / klc
Anions	60.5	meq/L		0.01		Calculation	04/14/08 14:48 / klc
Cations	58.2	meq/L		0.01		Calculation	04/14/08 14:48 / klc
A/C Balance	-2.00	%				Calculation	04/14/08 14:48 / klc
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/02/08 15:09 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/02/08 15:09 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/02/08 15:09 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/02/08 15:09 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/02/08 15:09 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/02/08 15:09 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/02/08 15:09 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-026
Client Sample ID: MOC-1B

Report Date: 04/22/08
Collection Date: 03/25/08 18:30
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	97.0	%REC		80-120		SW8021B	04/02/08 15:09 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/02/08 08:30 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-032
Client Sample ID: MOC-2

Report Date: 04/22/08
Collection Date: 03/26/08 17:30
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	6.7	s.u.		0.1		A4500 H	03/28/08 18:46 / kak
Conductivity	21300	umhos/cm		1		A2510 B	03/28/08 18:37 / kak
Solids, Total Dissolved TDS @ 180 C	13700	mg/L		10		A2540 C	03/31/08 13:47 / afb
INORGANICS							
Alkalinity, Total as CaCO3	283	mg/L		4		A2320 B	03/31/08 22:41 / kh
Bicarbonate as HCO3	345	mg/L		4		A2320 B	03/31/08 22:41 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 22:41 / kh
Chloride	7200	mg/L	D	3		E300.0	04/04/08 05:24 / qed
Sulfate	1460	mg/L	D	6		E300.0	04/04/08 05:24 / qed
Fluoride	0.2	mg/L		0.1		A4500-F C	03/31/08 22:41 / kh
Hardness as CaCO3	5000	mg/L		1		A2340 B	04/07/08 16:13 / klc
NUTRIENTS							
Nitrogen, Ammonia as N	3.6	mg/L		0.1		E350.1	04/03/08 15:03 / bls
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	04/07/08 14:24 / bls
METALS, DISSOLVED							
Calcium	1090	mg/L	D	5		E200.7	04/07/08 16:13 / rlh
Magnesium	555	mg/L	D	3		E200.7	04/07/08 16:13 / rlh
Potassium	27	mg/L	D	2		E200.7	04/07/08 16:13 / rlh
Silica	23	mg/L	D	2		E200.7	04/07/08 16:13 / rlh
Sodium	3060	mg/L	D	5		E200.7	04/07/08 16:13 / rlh
METALS, TOTAL							
Silica	25	mg/L	D	1		E200.7	04/04/08 00:25 / rlh
QUALITY CONTROL							
A/C Balance Sigma	1.38					Calculation	04/09/08 17:15 / klc
Anions	239	meq/L		0.01		Calculation	04/09/08 17:15 / klc
Cations	234	meq/L		0.01		Calculation	04/09/08 17:15 / klc
A/C Balance	-1.11	%				Calculation	04/09/08 17:15 / klc
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/02/08 19:23 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/02/08 19:23 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/02/08 19:23 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/02/08 19:23 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/02/08 19:23 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/02/08 19:23 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/02/08 19:23 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-032
Client Sample ID: MOC-2

Report Date: 04/22/08
Collection Date: 03/26/08 17:30
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	95.0	%REC		80-120		SW8021B	04/02/08 19:23 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/07/08 06:50 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * ell@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-025
Client Sample ID: MOC-3

Report Date: 04/22/08
Collection Date: 03/25/08 16:50
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.3	s.u.		0.1		A4500 H	03/28/08 18:32 / kak
Conductivity	3910	umhos/cm		1		A2510 B	03/28/08 18:15 / kak
Solids, Total Dissolved TDS @ 180 C	3260	mg/L		10		A2540 C	03/31/08 13:23 / afb
INORGANICS							
Alkalinity, Total as CaCO3	364	mg/L		4		A2320 B	03/31/08 21:17 / kh
Bicarbonate as HCO3	444	mg/L		4		A2320 B	03/31/08 21:17 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 21:17 / kh
Chloride	73	mg/L		1		E300.0	04/11/08 10:35 / qed
Sulfate	1890	mg/L		1		E300.0	04/04/08 03:16 / qed
Fluoride	0.5	mg/L		0.1		A4500-F C	03/31/08 21:17 / kh
Hardness as CaCO3	1670	mg/L		1		A2340 B	04/11/08 13:50 / car
NUTRIENTS							
Nitrogen, Ammonia as N	ND	mg/L		0.1		E350.1	04/03/08 14:49 / bls
Nitrogen, Nitrate+Nitrite as N	17.9	mg/L		0.05		E353.2	04/07/08 13:52 / bls
METALS, DISSOLVED							
Calcium	314	mg/L		1		E200.7	04/01/08 01:51 / rlh
Magnesium	216	mg/L		1		E200.7	04/01/08 01:51 / rlh
Potassium	11	mg/L		1		E200.7	04/01/08 01:51 / rlh
Silica	19.4	mg/L	D	0.4		E200.7	04/01/08 01:51 / rlh
Sodium	385	mg/L		1		E200.7	04/01/08 01:51 / rlh
METALS, TOTAL							
Silica	20.7	mg/L		0.2		E200.7	04/03/08 23:55 / rlh
QUALITY CONTROL							
A/C Balance Sigma	-0.51					Calculation	04/14/08 14:48 / klc
Anions	50.0	meq/L		0.01		Calculation	04/14/08 14:48 / klc
Cations	50.4	meq/L		0.01		Calculation	04/14/08 14:48 / klc
A/C Balance	0.45	%				Calculation	04/14/08 14:48 / klc
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/02/08 14:34 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/02/08 14:34 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/02/08 14:34 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/02/08 14:34 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/02/08 14:34 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/02/08 14:34 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/02/08 14:34 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-025
Client Sample ID: MOC-3

Report Date: 04/22/08
Collection Date: 03/25/08 16:50
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	95.0	%REC		80-120		SW8021B	04/02/08 14:34 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/02/08 08:10 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * ell@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-031
Client Sample ID: MOC-4

Report Date: 04/22/08
Collection Date: 03/26/08 16:30
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.1	s.u.		0.1		A4500 H	03/28/08 18:45 / kak
Conductivity	9090	umhos/cm		1		A2510 B	03/28/08 18:37 / kak
Solids, Total Dissolved TDS @ 180 C	5440	mg/L		10		A2540 C	03/31/08 13:45 / afb
INORGANICS							
Alkalinity, Total as CaCO3	342	mg/L		4		A2320 B	03/31/08 22:33 / kh
Bicarbonate as HCO3	417	mg/L		4		A2320 B	03/31/08 22:33 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 22:33 / kh
Chloride	2590	mg/L		1		E300.0	04/04/08 05:12 / qed
Sulfate	779	mg/L	D	3		E300.0	04/04/08 05:12 / qed
Fluoride	0.2	mg/L		0.1		A4500-F C	03/31/08 22:33 / kh
Hardness as CaCO3	2080	mg/L		1		A2340 B	04/01/08 02:14 / car
NUTRIENTS							
Nitrogen, Ammonia as N	1.2	mg/L		0.1		E350.1	04/03/08 15:02 / bls
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	04/07/08 14:23 / bls
METALS, DISSOLVED							
Calcium	403	mg/L	D	2		E200.7	04/01/08 02:14 / rlh
Magnesium	261	mg/L		1		E200.7	04/01/08 02:14 / rlh
Potassium	14	mg/L		1		E200.7	04/01/08 02:14 / rlh
Silica	15.6	mg/L	D	0.9		E200.7	04/01/08 02:14 / rlh
Sodium	1130	mg/L	D	2		E200.7	04/01/08 02:14 / rlh
METALS, TOTAL							
Silica	17.0	mg/L	D	0.4		E200.7	04/04/08 00:21 / rlh
QUALITY CONTROL							
A/C Balance Sigma	3.14					Calculation	04/04/08 17:04 / car
Anions	96.0	meq/L		0.01		Calculation	04/04/08 17:04 / car
Cations	91.0	meq/L		0.01		Calculation	04/04/08 17:04 / car
A/C Balance	-2.68	%				Calculation	04/04/08 17:04 / car
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/02/08 18:49 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/02/08 18:49 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/02/08 18:49 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/02/08 18:49 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/02/08 18:49 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/02/08 18:49 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/02/08 18:49 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-031
Client Sample ID: MOC-4

Report Date: 04/22/08
Collection Date: 03/26/08 16:30
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	95.0	%REC		80-120		SW8021B	04/02/08 18:49 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/07/08 06:40 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-029
Client Sample ID: MOC-20A

Report Date: 04/22/08
Collection Date: 03/26/08 15:00
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.0	s.u.		0.1		A4500 H	03/28/08 18:43 / kak
Conductivity	5490	umhos/cm		1		A2510 B	03/28/08 18:35 / kak
Solids, Total Dissolved TDS @ 180 C	5260	mg/L		10		A2540 C	03/31/08 13:32 / afb
INORGANICS							
Alkalinity, Total as CaCO3	315	mg/L		4		A2320 B	03/31/08 21:59 / kh
Bicarbonate as HCO3	385	mg/L		4		A2320 B	03/31/08 21:59 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 21:59 / kh
Chloride	119	mg/L		1		E300.0	04/04/08 04:49 / qed
Sulfate	3290	mg/L		1		E300.0	04/04/08 04:49 / qed
Fluoride	0.4	mg/L		0.1		A4500-F C	03/31/08 21:59 / kh
Hardness as CaCO3	2870	mg/L		1		A2340 B	04/01/08 02:07 / car
NUTRIENTS							
Nitrogen, Ammonia as N	0.6	mg/L		0.1		E350.1	04/03/08 14:53 / bls
Nitrogen, Nitrate+Nitrite as N	19.7	mg/L		0.05		E353.2	04/07/08 14:20 / bls
METALS, DISSOLVED							
Calcium	473	mg/L	D	2		E200.7	04/01/08 02:07 / rlh
Magnesium	411	mg/L		1		E200.7	04/01/08 02:07 / rlh
Potassium	22	mg/L		1		E200.7	04/01/08 02:07 / rlh
Silica	30.8	mg/L	D	0.9		E200.7	04/01/08 02:07 / rlh
Sodium	425	mg/L	D	2		E200.7	04/01/08 02:07 / rlh
METALS, TOTAL							
Silica	302	mg/L	D	0.4		E200.7	04/04/08 00:14 / rlh
QUALITY CONTROL							
A/C Balance Sigma	1.34					Calculation	04/04/08 17:03 / car
Anions	78.2	meq/L		0.01		Calculation	04/04/08 17:03 / car
Cations	76.5	meq/L		0.01		Calculation	04/04/08 17:03 / car
A/C Balance	-1.14	%				Calculation	04/04/08 17:03 / car
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/02/08 17:03 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/02/08 17:03 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/02/08 17:03 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/02/08 17:03 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/02/08 17:03 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/02/08 17:03 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/02/08 17:03 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * ell@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-029
Client Sample ID: MOC-20A

Report Date: 04/22/08
Collection Date: 03/26/08 15:00
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	94.0	%REC		80-120		SW8021B	04/02/08 17:03 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/02/08 09:10 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-030
Client Sample ID: MOC-20B

Report Date: 04/22/08
Collection Date: 03/26/08 14:30
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.0	s.u.		0.1		A4500 H	03/28/08 18:44 / kak
Conductivity	4390	umhos/cm		1		A2510 B	03/28/08 18:36 / kak
Solids, Total Dissolved TDS @ 180 C	3640	mg/L		10		A2540 C	03/31/08 13:43 / afb
INORGANICS							
Alkalinity, Total as CaCO3	409	mg/L		4		A2320 B	03/31/08 22:07 / kh
Bicarbonate as HCO3	499	mg/L		4		A2320 B	03/31/08 22:07 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 22:07 / kh
Chloride	176	mg/L		1		E300.0	04/04/08 05:00 / qed
Sulfate	2040	mg/L		1		E300.0	04/04/08 05:00 / qed
Fluoride	0.3	mg/L		0.1		A4500-F C	03/31/08 22:07 / kh
Hardness as CaCO3	1640	mg/L		1		A2340 B	04/01/08 02:11 / car
NUTRIENTS							
Nitrogen, Ammonia as N	1.1	mg/L		0.1		E350.1	04/03/08 14:54 / bls
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	04/07/08 14:22 / bls
METALS, DISSOLVED							
Calcium	330	mg/L		1		E200.7	04/01/08 02:11 / rlh
Magnesium	199	mg/L		1		E200.7	04/01/08 02:11 / rlh
Potassium	8	mg/L		1		E200.7	04/01/08 02:11 / rlh
Silica	26.0	mg/L	D	0.4		E200.7	04/01/08 02:11 / rlh
Sodium	481	mg/L		1		E200.7	04/01/08 02:11 / rlh
METALS, TOTAL							
Silica	28.3	mg/L		0.2		E200.7	04/04/08 00:17 / rlh
QUALITY CONTROL							
A/C Balance Sigma	1.62					Calculation	04/04/08 17:03 / car
Anions	55.6	meq/L		0.01		Calculation	04/04/08 17:03 / car
Cations	54.0	meq/L		0.01		Calculation	04/04/08 17:03 / car
A/C Balance	-1.43	%				Calculation	04/04/08 17:03 / car
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/02/08 17:41 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/02/08 17:41 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/02/08 17:41 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/02/08 17:41 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/02/08 17:41 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/02/08 17:41 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/02/08 17:41 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-030
Client Sample ID: MOC-20B

Report Date: 04/22/08
Collection Date: 03/26/08 14:30
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	100	%REC		80-120		SW8021B	04/02/08 17:41 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/02/08 09:30 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-034
Client Sample ID: Whitmer

Report Date: 04/22/08
Collection Date: 03/27/08 11:10
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.2	s.u.		0.1		A4500 H	03/28/08 18:47 / kak
Conductivity	7200	umhos/cm		1		A2510 B	03/28/08 18:39 / kak
Solids, Total Dissolved TDS @ 180 C	4320	mg/L		10		A2540 C	03/31/08 14:03 / afb
INORGANICS							
Alkalinity, Total as CaCO3	284	mg/L		4		A2320 B	03/31/08 23:05 / kh
Bicarbonate as HCO3	346	mg/L		4		A2320 B	03/31/08 23:05 / kh
Carbonate as CO3	ND	mg/L		4		A2320 B	03/31/08 23:05 / kh
Chloride	2100	mg/L		1		E300.0	04/04/08 05:47 / qed
Sulfate	344	mg/L	D	3		E300.0	04/04/08 05:47 / qed
Fluoride	0.2	mg/L		0.1		A4500-F C	03/31/08 23:05 / kh
Hardness as CaCO3	1930	mg/L		1		A2340 B	04/01/08 02:41 / car
NUTRIENTS							
Nitrogen, Ammonia as N	1.3	mg/L		0.1		E350.1	04/03/08 15:05 / bls
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	04/07/08 14:15 / bls
METALS, DISSOLVED							
Calcium	367	mg/L	D	2		E200.7	04/01/08 02:41 / rlh
Magnesium	246	mg/L		1		E200.7	04/01/08 02:41 / rlh
Potassium	13	mg/L		1		E200.7	04/01/08 02:41 / rlh
Silica	15.5	mg/L	D	0.9		E200.7	04/01/08 02:41 / rlh
Sodium	743	mg/L	D	2		E200.7	04/01/08 02:41 / rlh
METALS, TOTAL							
Silica	16.9	mg/L	D	0.4		E200.7	04/04/08 00:33 / rlh
QUALITY CONTROL							
A/C Balance Sigma	0.60					Calculation	04/04/08 17:04 / car
Anions	72.1	meq/L		0.01		Calculation	04/04/08 17:04 / car
Cations	71.3	meq/L		0.01		Calculation	04/04/08 17:04 / car
A/C Balance	-0.51	%				Calculation	04/04/08 17:04 / car
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/02/08 20:30 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/02/08 20:30 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/02/08 20:30 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/02/08 20:30 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/02/08 20:30 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/02/08 20:30 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/02/08 20:30 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-034
Client Sample ID: Whitmer

Report Date: 04/22/08
Collection Date: 03/27/08 11:10
DateReceived: 03/28/08
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Surr: Trifluorotoluene	95.0	%REC		80-120		SW8021B	04/02/08 20:30 / bw
ORGANIC CHARACTERISTICS							
Total Petroleum Hydrocarbons	ND	mg/L		0.10		E418.1	04/07/08 07:20 / bdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-039
Client Sample ID: Trip Blank 1 Lot031408 B-L. Cadreau SHP0233

Report Date: 04/22/08
Collection Date: 03/27/08 15:00
DateReceived: 03/28/08
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/03/08 22:54 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/03/08 22:54 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/03/08 22:54 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/03/08 22:54 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/03/08 22:54 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/03/08 22:54 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/03/08 22:54 / bw
Surr: Trifluorotoluene	92.0	%REC		80-120		SW8021B	04/03/08 22:54 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-040
Client Sample ID: Trip Blank 2 Lot031408 B-L. Cadreau SHP0233

Report Date: 04/22/08
Collection Date: 03/27/08 16:30
DateReceived: 03/28/08
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/03/08 23:28 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/03/08 23:28 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/03/08 23:28 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/03/08 23:28 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/03/08 23:28 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/03/08 23:28 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/03/08 23:28 / bw
Surr: Trifluorotoluene	95.0	%REC		80-120		SW8021B	04/03/08 23:28 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-041
Client Sample ID: Trip Blank 3 Lot010708 B-L. Cadreau SHP0233

Report Date: 04/22/08
Collection Date: 03/26/08 17:15
DateReceived: 03/28/08
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/04/08 00:02 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/04/08 00:02 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/04/08 00:02 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/04/08 00:02 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/04/08 00:02 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/04/08 00:02 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/04/08 00:02 / bw
Surr: Trifluorotoluene	92.0	%REC		80-120		SW8021B	04/04/08 00:02 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * ell@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-042
Client Sample ID: Trip Blank 4 Lot031408 B-L. Cadreau SHP0233

Report Date: 04/22/08
Collection Date: 03/25/08 15:30
DateReceived: 03/28/08
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/04/08 00:36 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/04/08 00:36 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/04/08 00:36 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/04/08 00:36 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/04/08 00:36 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/04/08 00:36 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/04/08 00:36 / bw
Surr: Trifluorotoluene	92.0	%REC		80-120		SW8021B	04/04/08 00:36 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-043
Client Sample ID: Trip Blank 5 Lot031408 B-L. Cadreau SHP0233

Report Date: 04/22/08
Collection Date: 03/27/08 11:10
DateReceived: 03/28/08
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/04/08 01:10 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/04/08 01:10 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/04/08 01:10 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/04/08 01:10 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/04/08 01:10 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/04/08 01:10 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/04/08 01:10 / bw
Surr: Trifluorotoluene	89.0	%REC		80-120		SW8021B	04/04/08 01:10 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-044
Client Sample ID: Trip Blank 6 Lot031408 B-L. Cadreau SHP0233

Report Date: 04/22/08
Collection Date: 03/26/08 10:40
DateReceived: 03/28/08
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/04/08 01:43 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/04/08 01:43 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/04/08 01:43 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/04/08 01:43 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/04/08 01:43 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/04/08 01:43 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/04/08 01:43 / bw
Surr: Trifluorotoluene	89.0	%REC		80-120		SW8021B	04/04/08 01:43 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-045
Client Sample ID: Trip Blank 7 Lot031408 B-L. Cadreau SHP0233

Report Date: 04/22/08
Collection Date: 03/26/08 10:45
DateReceived: 03/28/08
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/04/08 02:17 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/04/08 02:17 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/04/08 02:17 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/04/08 02:17 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/04/08 02:17 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/04/08 02:17 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/04/08 02:17 / bw
Surr: Trifluorotoluene	93.0	%REC		80-120		SW8021B	04/04/08 02:17 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-046
Client Sample ID: Trip Blank 8 Lot031408 B-L. Cadreau SHP0233

Report Date: 04/22/08
Collection Date: 03/27/08 10:30
DateReceived: 03/28/08
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/04/08 02:51 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/04/08 02:51 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/04/08 02:51 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/04/08 02:51 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/04/08 02:51 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/04/08 02:51 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/04/08 02:51 / bw
Surr: Trifluorotoluene	92.0	%REC		80-120		SW8021B	04/04/08 02:51 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-047
Client Sample ID: Trip Blank 9 Lot031408 B-L. Cadreau SHP0233

Report Date: 04/22/08
Collection Date: 03/26/08 14:30
DateReceived: 03/28/08
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/04/08 03:25 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/04/08 03:25 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/04/08 03:25 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/04/08 03:25 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/04/08 03:25 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/04/08 03:25 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/04/08 03:25 / bw
Surr: Trifluorotoluene	91.0	%REC		80-120		SW8021B	04/04/08 03:25 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-048
Client Sample ID: Trip Blank 10 Lot031408 B-L. Cadreau SHP0233

Report Date: 04/22/08
Collection Date: 03/27/08 13:15
DateReceived: 03/28/08
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/04/08 03:59 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/04/08 03:59 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/04/08 03:59 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/04/08 03:59 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/04/08 03:59 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/04/08 03:59 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/04/08 03:59 / bw
Surr: Trifluorotoluene	90.0	%REC		80-120		SW8021B	04/04/08 03:59 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-049
Client Sample ID: Trip Blank 11 Lot031408 B-L. Cadreau SHP0233

Report Date: 04/22/08
Collection Date: 03/28/08 10:30
DateReceived: 03/28/08
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/04/08 04:33 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/04/08 04:33 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/04/08 04:33 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/04/08 04:33 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/04/08 04:33 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/04/08 04:33 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/04/08 04:33 / bw
Surr: Trifluorotoluene	90.0	%REC		80-120		SW8021B	04/04/08 04:33 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: HKM Engineering Inc
Project: Biere I-22 Well Site Pioneer National Resources
Lab ID: B08032141-050
Client Sample ID: Trip Blank 12 Lot031408 B-L. Cadreau SHP0233

Report Date: 04/22/08
Collection Date: 03/27/08 09:50
DateReceived: 03/28/08
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8021B	04/04/08 05:06 / bw
Benzene	ND	ug/L		0.50		SW8021B	04/04/08 05:06 / bw
Toluene	ND	ug/L		0.50		SW8021B	04/04/08 05:06 / bw
Ethylbenzene	ND	ug/L		0.50		SW8021B	04/04/08 05:06 / bw
m+p-Xylenes	ND	ug/L		0.50		SW8021B	04/04/08 05:06 / bw
o-Xylene	ND	ug/L		0.50		SW8021B	04/04/08 05:06 / bw
Xylenes, Total	ND	ug/L		0.50		SW8021B	04/04/08 05:06 / bw
Surr: Trifluorotoluene	90.0	%REC		80-120		SW8021B	04/04/08 05:06 / bw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.