**CAMECO RESOURCES**
**CROW BUTTE OPERATION**

**86 Crow Butte Road**
**P.O. Box 169**
**Crawford, Nebraska 69339-0169**

**(308) 665-2215**
**(308) 665-2341 – FAX**

January 9, 2019

Attn: Document Control Desk, Director
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Quarterly Excursion Monitoring Report
Source Materials License No. SUA-1534, Docket No. 40-8943

Dear Sir or Madam:

Enclosed please find one copy of the Excursion Monitoring Report for the Crow Butte Uranium Project. The report is provided in accordance with License Condition 11.1(A) of Source Materials License SUA-1534. This report covers the fourth quarter of 2018.

If you have any questions concerning the report, please feel free to call me at (308) 665-2215 ext. 117.

Sincerely,
CAMECO RESOURCES
CROW BUTTE OPERATION

Walter D. Nelson
SHEQ Coordinator

cc: Deputy Director, Division of Decommissioning
Uranium Recovery and Waste Programs
Office of Nuclear Material Safety and Safeguards
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# CROW BUTTE URANIUM PROJECT

# EXCURSION MONITORING REPORT

for

## FOURTH QUARTER, 2018

USNRC Source Materials License SUA 1534

**CAMECO RESOURCES**
**CROW BUTTE OPERATION**

**86 Crow Butte Road**
**P.O. Box 169** **(308) 665-2215**
**Crawford, Nebraska 69339-0169** **(308) 665-2341 – FAX**

## Excursion Monitoring and Corrective Actions

On November 29, 2018, well CM11-11 was placed on excursion status when the results of a confirmation sample exceeded the upper control limits. The well remained on excursion status at the end of the quarter, however, the last weekly sample collected during the quarter (December 26, 2018) was below the excursion criteria.

A summary of the weekly excursion indicator parameters and laboratory reports are included in Appendix A and Appendix B respectively.

# Appendix A

## Summary of

## Weekly Excursion Indicator Parameter Values

## Fourth Quarter, 2018

Submitted by:
Crow Butte Resources, Inc.
P.O. Box 169
Crawford, NE 69339

Permit No. SUA-1534

NRC
Excursion Monitoring Report
Quarter 4 of 2018

Submitted to:
Document Control Desk, Director
Office of Nuclear Material Safety & Safeguards
U.S.Nuclear Regulatory Commission
Washington, DC 20555-0001

| Well ID | Alkalinity | | | Conductivity | | | Chloride | | |
|---|---|---|---|---|---|---|---|---|---|
| | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean |
| BOW96-001 | 224 | 226 | 225 | 487 | 512 | 500 | 7.3 | 8.1 | 7.6 |
| CM02-005 | 367 | 388 | 377 | 2106 | 2210 | 2164 | 215 | 220 | 217.7 |
| CM02-006 | 259 | 264 | 262 | 905 | 944 | 928 | 60 | 63 | 61 |
| CM02-007 | 259 | 266 | 263 | 1020 | 1044 | 1030 | 71 | 75 | 73.7 |
| CM03-005 | 302 | 307 | 304 | 1901 | 1920 | 1909 | 185 | 194 | 188.9 |
| CM03-006 | 299 | 305 | 301 | 1894 | 1910 | 1899 | 184 | 192 | 187.1 |
| CM04-001 | 305 | 315 | 310 | 1777 | 1802 | 1793 | 177 | 183 | 180.6 |
| CM04-002 | 311 | 316 | 313 | 1804 | 1837 | 1824 | 181 | 185 | 183.1 |
| CM04-003 | 306 | 335 | 313 | 1750 | 1837 | 1812 | 179 | 184 | 181.1 |
| CM04-004 | 323 | 338 | 331 | 1858 | 1920 | 1898 | 185 | 188 | 186.7 |
| CM05-001 | 316 | 321 | 318 | 1731 | 1781 | 1760 | 162 | 168 | 164.8 |
| CM05-002 | 306 | 312 | 308 | 1796 | 1822 | 1808 | 178 | 184 | 180 |
| CM05-003 | 309 | 317 | 313 | 1794 | 1818 | 1808 | 178 | 181 | 179.7 |
| CM05-004 | 312 | 317 | 314 | 1818 | 1833 | 1823 | 179 | 184 | 180.8 |
| CM05-005 | 306 | 311 | 308 | 1796 | 1823 | 1811 | 178 | 181 | 179.2 |
| CM05-006 | 307 | 311 | 309 | 1795 | 1826 | 1816 | 178 | 181 | 179.2 |
| CM05-007 | 305 | 310 | 308 | 1794 | 1827 | 1815 | 179 | 180 | 179.8 |
| CM05-008 | 310 | 315 | 313 | 1838 | 1857 | 1845 | 179 | 183 | 181.2 |
| CM05-009 | 305 | 310 | 307 | 1815 | 1840 | 1830 | 179 | 180 | 179.7 |
| CM05-010 | 298 | 302 | 300 | 1840 | 1860 | 1850 | 173 | 179 | 177.3 |
| CM05-011 | 311 | 315 | 312 | 1866 | 1886 | 1877 | 179 | 184 | 181 |
| CM05-012 | 297 | 304 | 301 | 1836 | 1863 | 1853 | 181 | 186 | 183.3 |
| CM05-013 | 296 | 305 | 300 | 1846 | 1864 | 1855 | 180 | 184 | 181.7 |
| CM05-018 | 301 | 309 | 304 | 1864 | 1888 | 1877 | 182 | 189 | 185.7 |
| CM05-019 | 301 | 312 | 306 | 1743 | 1789 | 1759 | 163 | 173 | 165.9 |
| CM05-020 | 314 | 349 | 332 | 1907 | 2091 | 1999 | 186 | 211 | 197.6 |
| CM05-021 | 303 | 308 | 306 | 1872 | 1906 | 1888 | 182 | 186 | 184 |
| CM05-022 | 302 | 307 | 304 | 1869 | 1898 | 1885 | 182 | 187 | 184 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **CM05-023** | 298 | 305 | 301 | 1864 | 1888 | 1875 | 182 | 185 | 183.9 |
| **CM05-024** | 301 | 306 | 304 | 1892 | 1910 | 1899 | 182 | 187 | 184.4 |
| **CM05-025** | 295 | 299 | 297 | 1880 | 1908 | 1891 | 173 | 178 | 175.3 |
| **CM05-026** | 301 | 305 | 303 | 1896 | 1918 | 1904 | 183 | 188 | 185.4 |
| **CM05-027** | 303 | 307 | 306 | 1905 | 1927 | 1918 | 186 | 189 | 187 |
| **CM06-001** | 294 | 299 | 297 | 1814 | 1830 | 1823 | 177 | 181 | 178.3 |
| **CM06-002** | 295 | 300 | 299 | 1863 | 1884 | 1872 | 178 | 186 | 181.5 |
| **CM06-003** | 294 | 298 | 297 | 1862 | 1876 | 1869 | 178 | 181 | 179.5 |
| **CM06-004** | 297 | 304 | 301 | 1866 | 1880 | 1875 | 176 | 183 | 180 |
| **CM06-005** | 287 | 293 | 291 | 1888 | 1912 | 1904 | 179 | 183 | 180.5 |
| **CM06-006** | 298 | 305 | 301 | 1882 | 1893 | 1886 | 178 | 182 | 179.8 |
| **CM06-007** | 281 | 285 | 283 | 1912 | 1928 | 1918 | 179 | 182 | 180.5 |
| **CM06-008** | 290 | 297 | 294 | 1872 | 1895 | 1885 | 177 | 180 | 179 |
| **CM06-009** | 286 | 302 | 295 | 1866 | 1903 | 1886 | 176 | 186 | 180.3 |
| **CM06-010** | 290 | 302 | 296 | 1880 | 1917 | 1896 | 179 | 181 | 180.6 |
| **CM06-012** | 303 | 308 | 307 | 1874 | 1893 | 1885 | 179 | 188 | 184.6 |
| **CM06-013** | 302 | 310 | 306 | 1874 | 1893 | 1886 | 180 | 188 | 184.3 |
| **CM06-014** | 298 | 305 | 302 | 1877 | 1895 | 1885 | 179 | 186 | 183.3 |
| **CM06-015** | 297 | 303 | 300 | 1882 | 1898 | 1889 | 177 | 184 | 181.7 |
| **CM06-016A** | 297 | 304 | 301 | 1869 | 1887 | 1879 | 178 | 184 | 181.3 |
| **CM06-017** | 303 | 310 | 307 | 1870 | 1885 | 1876 | 181 | 184 | 183.3 |
| **CM06-018** | 306 | 310 | 308 | 1854 | 1882 | 1868 | 179 | 184 | 181.6 |
| **CM06-019** | 308 | 311 | 310 | 1846 | 1879 | 1861 | 179 | 184 | 181.7 |
| **CM06-025** | 305 | 313 | 308 | 1833 | 1866 | 1848 | 182 | 186 | 183.1 |
| **CM06-026** | 308 | 316 | 310 | 1831 | 1856 | 1842 | 180 | 185 | 182 |
| **CM06-028** | 319 | 326 | 322 | 1763 | 1795 | 1780 | 173 | 177 | 174.7 |
| **CM06-029** | 309 | 316 | 312 | 1837 | 1863 | 1850 | 180 | 185 | 181.6 |
| **CM06-030** | 316 | 322 | 319 | 1794 | 1814 | 1805 | 175 | 181 | 177.6 |
| **CM06-031** | 318 | 327 | 321 | 1814 | 1835 | 1824 | 175 | 180 | 177.3 |
| **CM06-032** | 317 | 324 | 320 | 1826 | 1841 | 1833 | 176 | 180 | 178.4 |
| **CM07-010** | 296 | 303 | 300 | 1831 | 1859 | 1844 | 186 | 191 | 187.5 |
| **CM07-011** | 296 | 301 | 298 | 1857 | 1871 | 1864 | 185 | 190 | 187.5 |
| **CM07-012** | 294 | 301 | 297 | 1860 | 1870 | 1864 | 186 | 192 | 187.7 |
| **CM07-013** | 291 | 299 | 296 | 1871 | 1890 | 1879 | 184 | 187 | 185.3 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **CM07-014** | 292 | 301 | 297 | 1886 | 1904 | 1898 | 184 | 186 | 185 |
| **CM07-015** | 300 | 305 | 302 | 1891 | 1911 | 1899 | 186 | 190 | 187.5 |
| **CM07-016** | 303 | 329 | 310 | 1907 | 2007 | 1936 | 185 | 205 | 190.3 |
| **CM08-001** | 287 | 296 | 291 | 1885 | 1928 | 1906 | 177 | 182 | 178.9 |
| **CM08-002** | 281 | 286 | 283 | 1869 | 1904 | 1884 | 176 | 181 | 178.6 |
| **CM08-003** | 281 | 290 | 287 | 1856 | 1905 | 1875 | 178 | 183 | 179.3 |
| **CM08-004** | 291 | 301 | 297 | 1856 | 1895 | 1870 | 179 | 183 | 180.7 |
| **CM08-005** | 284 | 292 | 289 | 1848 | 1881 | 1862 | 179 | 183 | 181 |
| **CM08-006** | 293 | 303 | 299 | 1859 | 1893 | 1870 | 180 | 183 | 181 |
| **CM08-007** | 310 | 316 | 313 | 1855 | 1898 | 1874 | 179 | 185 | 183 |
| **CM08-008** | 313 | 324 | 320 | 1864 | 1898 | 1882 | 183 | 187 | 184.9 |
| **CM08-009** | 312 | 320 | 317 | 1811 | 1849 | 1831 | 175 | 178 | 176.7 |
| **CM08-010** | 315 | 321 | 317 | 1793 | 1824 | 1806 | 173 | 181 | 178.1 |
| **CM08-011** | 315 | 320 | 318 | 1791 | 1831 | 1810 | 170 | 178 | 175.4 |
| **CM08-012** | 320 | 326 | 322 | 1812 | 1840 | 1826 | 172 | 180 | 175.1 |
| **CM08-019** | 317 | 327 | 321 | 1758 | 1791 | 1781 | 170 | 173 | 171.3 |
| **CM08-020** | 318 | 323 | 320 | 1765 | 1781 | 1777 | 171 | 177 | 173.3 |
| **CM08-021** | 321 | 326 | 323 | 1773 | 1792 | 1785 | 169 | 174 | 171.7 |
| **CM08-022** | 318 | 331 | 324 | 1778 | 1796 | 1790 | 170 | 173 | 171.7 |
| **CM08-026** | 315 | 320 | 318 | 1775 | 1794 | 1787 | 170 | 175 | 173.5 |
| **CM08-027** | 317 | 327 | 321 | 1782 | 1808 | 1792 | 172 | 176 | 173.7 |
| **CM08-028** | 321 | 328 | 324 | 1776 | 1800 | 1788 | 172 | 178 | 174.1 |
| **CM09-008** | 298 | 301 | 300 | 1756 | 1786 | 1769 | 176 | 183 | 179 |
| **CM09-009** | 304 | 308 | 306 | 1745 | 1763 | 1756 | 177 | 183 | 179.9 |
| **CM09-010** | 303 | 306 | 305 | 1729 | 1749 | 1740 | 178 | 184 | 179.4 |
| **CM09-011** | 301 | 308 | 305 | 1747 | 1770 | 1760 | 179 | 183 | 180.3 |
| **CM09-012** | 303 | 307 | 305 | 1765 | 1781 | 1770 | 179 | 185 | 181.8 |
| **CM09-013** | 297 | 302 | 300 | 1764 | 1782 | 1770 | 178 | 182 | 180 |
| **CM09-014** | 304 | 307 | 306 | 1778 | 1800 | 1785 | 180 | 185 | 183 |
| **CM09-015** | 303 | 305 | 304 | 1781 | 1813 | 1795 | 180 | 183 | 181.2 |
| **CM09-016** | 302 | 309 | 306 | 1786 | 1801 | 1793 | 181 | 184 | 182.7 |
| **CM09-017** | 304 | 308 | 306 | 1789 | 1806 | 1796 | 181 | 183 | 181.8 |
| **CM09-018** | 302 | 306 | 305 | 1786 | 1806 | 1794 | 181 | 184 | 182.2 |
| **CM09-019** | 301 | 307 | 304 | 1801 | 1813 | 1805 | 181 | 185 | 184 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **CM09-020** | 294 | 302 | 299 | 1813 | 1830 | 1819 | 182 | 186 | 183.7 |
| **CM10-001** | 316 | 328 | 322 | 1805 | 1847 | 1822 | 173 | 177 | 175.1 |
| **CM10-002** | 317 | 322 | 319 | 1793 | 1835 | 1816 | 172 | 175 | 173.6 |
| **CM10-003** | 313 | 320 | 316 | 1806 | 1838 | 1821 | 175 | 182 | 177.9 |
| **CM10-004** | 319 | 327 | 323 | 1837 | 1868 | 1850 | 176 | 185 | 181.1 |
| **CM10-005** | 339 | 347 | 343 | 1940 | 1996 | 1966 | 199 | 208 | 202.3 |
| **CM10-006** | 317 | 323 | 320 | 1793 | 1823 | 1809 | 169 | 175 | 172.4 |
| **CM10-007** | 316 | 322 | 319 | 1778 | 1822 | 1805 | 168 | 173 | 170.7 |
| **CM10-008** | 322 | 330 | 325 | 1798 | 1818 | 1811 | 174 | 178 | 176.2 |
| **CM10-009** | 318 | 324 | 321 | 1789 | 1808 | 1800 | 170 | 176 | 173.2 |
| **CM10-010** | 368 | 385 | 377 | 1999 | 2082 | 2042 | 197 | 209 | 202.3 |
| **CM10-011** | 326 | 332 | 328 | 1772 | 1796 | 1783 | 166 | 171 | 168.7 |
| **CM10-012** | 343 | 355 | 347 | 1803 | 1824 | 1816 | 172 | 178 | 174.5 |
| **CM10-013** | 354 | 359 | 356 | 1727 | 1752 | 1737 | 167 | 173 | 170 |
| **CM10-014** | 352 | 357 | 354 | 1705 | 1733 | 1719 | 166 | 169 | 167.5 |
| **CM10-015** | 332 | 338 | 335 | 1745 | 1772 | 1757 | 162 | 165 | 164 |
| **CM10-016** | 311 | 319 | 316 | 1793 | 1820 | 1805 | 161 | 165 | 163.2 |
| **CM10-017** | 324 | 331 | 327 | 1796 | 1831 | 1814 | 162 | 166 | 164.7 |
| **CM10-020** | 322 | 337 | 332 | 1776 | 1801 | 1790 | 165 | 174 | 169.9 |
| **CM10-021** | 319 | 326 | 322 | 1774 | 1796 | 1786 | 165 | 170 | 167.9 |
| **CM10-022** | 324 | 331 | 327 | 1779 | 1802 | 1793 | 163 | 171 | 166.7 |
| **CM10-023** | 324 | 331 | 328 | 1775 | 1809 | 1793 | 163 | 169 | 167 |
| **CM10-024** | 326 | 332 | 328 | 1788 | 1821 | 1806 | 168 | 171 | 169.4 |
| **CM10-025** | 325 | 331 | 327 | 1783 | 1807 | 1798 | 168 | 172 | 169.9 |
| **CM10-026** | 322 | 325 | 324 | 1778 | 1802 | 1788 | 165 | 171 | 168.3 |
| **CM10-027** | 318 | 323 | 320 | 1790 | 1814 | 1800 | 170 | 177 | 172.6 |
| **CM10-028** | 317 | 323 | 319 | 1787 | 1799 | 1794 | 169 | 174 | 171.8 |
| **CM10-029** | 316 | 325 | 320 | 1782 | 1804 | 1796 | 170 | 173 | 172 |
| **CM10-030** | 322 | 326 | 323 | 1789 | 1806 | 1799 | 169 | 173 | 171.5 |
| **CM10-031** | 316 | 323 | 319 | 1779 | 1799 | 1791 | 168 | 173 | 170.3 |
| **CM10-032** | 318 | 322 | 320 | 1812 | 1830 | 1819 | 160 | 166 | 162.7 |
| **CM10-033** | 339 | 346 | 343 | 1746 | 1768 | 1760 | 166 | 168 | 167 |
| **CM10-034** | 341 | 350 | 345 | 1780 | 1799 | 1789 | 171 | 180 | 174.7 |
| **CM11-001** | 299 | 305 | 303 | 1796 | 1823 | 1808 | 178 | 181 | 179.3 |

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|---|---|---|---|---|---|---|---|---|---|
| **CM11-002A** | 299 | 306 | 302 | 1795 | 1818 | 1803 | 179 | 180 | 179.7 |
| **CM11-003** | 316 | 326 | 321 | 1852 | 1884 | 1868 | 182 | 185 | 183.6 |
| **CM11-004** | 297 | 306 | 302 | 1784 | 1804 | 1792 | 175 | 178 | 176.4 |
| **CM11-005** | 299 | 308 | 304 | 1786 | 1801 | 1792 | 177 | 179 | 178.1 |
| **CM11-006** | 304 | 351 | 329 | 1787 | 1947 | 1880 | 178 | 193 | 185.9 |
| **CM11-007** | 296 | 306 | 301 | 1776 | 1794 | 1783 | 175 | 179 | 176.3 |
| **CM11-008** | 301 | 309 | 305 | 1797 | 1824 | 1816 | 178 | 180 | 179 |
| **CM11-009** | 293 | 302 | 298 | 1781 | 1795 | 1785 | 172 | 175 | 173.4 |
| **CM11-010** | 300 | 308 | 304 | 1772 | 1806 | 1793 | 173 | 177 | 175 |
| **CM11-011** | 0 | 487 | 375 | 0 | 2483 | 2000 | 0 | 233 | 189.4 |
| **CM11-012** | 301 | 307 | 304 | 1751 | 1769 | 1761 | 173 | 178 | 174.6 |
| **CM11-013** | 302 | 306 | 304 | 1745 | 1771 | 1756 | 173 | 179 | 176.1 |
| **CM11-014** | 302 | 308 | 304 | 1745 | 1766 | 1754 | 176 | 180 | 177.1 |
| **CM11-015** | 278 | 300 | 292 | 1715 | 1763 | 1742 | 174 | 201 | 182.4 |
| **CM11-016** | 301 | 306 | 304 | 1727 | 1750 | 1740 | 173 | 179 | 175.7 |
| **CM11-017** | 301 | 308 | 304 | 1726 | 1754 | 1742 | 173 | 179 | 176.1 |
| **CM11-018** | 307 | 311 | 309 | 1738 | 1761 | 1748 | 176 | 181 | 178 |
| **CM11-019** | 301 | 308 | 305 | 1736 | 1761 | 1749 | 173 | 180 | 176.4 |
| **IJ013P** | 322 | 331 | 325 | 1270 | 1307 | 1286 | 103 | 108 | 105 |
| **PR008** | 323 | 331 | 328 | 1246 | 1268 | 1255 | 94 | 98 | 96.5 |
| **PR015** | 288 | 295 | 291 | 1087 | 1098 | 1092 | 81 | 83 | 82 |
| **SM02-001** | 189 | 192 | 191 | 508 | 520 | 515 | 14 | 15 | 14.2 |
| **SM02-002** | 167 | 171 | 169 | 443 | 456 | 451 | 11 | 11 | 11 |
| **SM02-003** | 197 | 200 | 198 | 525 | 542 | 536 | 16 | 16 | 16 |
| **SM03-001** | 206 | 208 | 207 | 643 | 651 | 649 | 12 | 12 | 12 |
| **SM03-002** | 178 | 181 | 180 | 433 | 435 | 434 | 3.4 | 3.7 | 3.6 |
| **SM03-003** | 177 | 179 | 178 | 441 | 444 | 443 | 5.4 | 5.9 | 5.7 |
| **SM04-001** | 156 | 158 | 157 | 353 | 359 | 356 | 2.2 | 3.3 | 2.7 |
| **SM04-002** | 194 | 200 | 197 | 606 | 617 | 612 | 15 | 16 | 15.4 |
| **SM04-003** | 186 | 188 | 187 | 599 | 605 | 602 | 12 | 13 | 12.3 |
| **SM04-004** | 207 | 211 | 209 | 605 | 610 | 608 | 13 | 13 | 13 |
| **SM04-005A** | 197 | 199 | 198 | 520 | 527 | 523 | 11 | 12 | 11.7 |
| **SM04-006** | 268 | 271 | 269 | 623 | 644 | 635 | 14 | 14 | 14 |
| **SM04-007** | 178 | 182 | 180 | 501 | 510 | 505 | 17 | 18 | 17.9 |

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|---|---|---|---|---|---|---|---|---|---|
| **SM04-008** | 286 | 290 | 288 | 652 | 679 | 665 | 12 | 12 | 12 |
| **SM04-009** | 275 | 279 | 276 | 644 | 652 | 648 | 12 | 13 | 12.1 |
| **SM04-010A** | 296 | 299 | 297 | 684 | 692 | 690 | 12 | 12 | 12 |
| **SM04-011A** | 287 | 291 | 289 | 668 | 681 | 676 | 11 | 11 | 11 |
| **SM05-001** | 232 | 236 | 234 | 573 | 592 | 584 | 12 | 12 | 12 |
| **SM05-002** | 192 | 195 | 194 | 428 | 443 | 438 | 5 | 5.7 | 5.4 |
| **SM05-003** | 227 | 228 | 228 | 554 | 578 | 569 | 12 | 12 | 12 |
| **SM05-004** | 209 | 212 | 211 | 535 | 551 | 544 | 16 | 16 | 16 |
| **SM05-005** | 235 | 238 | 237 | 570 | 593 | 581 | 11 | 12 | 11.2 |
| **SM05-006** | 208 | 211 | 210 | 547 | 563 | 556 | 13 | 13 | 13 |
| **SM05-007** | 212 | 215 | 213 | 543 | 560 | 552 | 9.7 | 9.9 | 9.8 |
| **SM05-008** | 207 | 210 | 209 | 530 | 546 | 540 | 12 | 13 | 12.3 |
| **SM05-009** | 206 | 210 | 207 | 531 | 539 | 535 | 11 | 12 | 11.6 |
| **SM05-010** | 209 | 213 | 211 | 536 | 542 | 540 | 10 | 11 | 10.6 |
| **SM05-011** | 215 | 219 | 218 | 555 | 561 | 557 | 10 | 11 | 10.9 |
| **SM05-012** | 210 | 213 | 211 | 538 | 546 | 543 | 10 | 11 | 10.7 |
| **SM05-013** | 200 | 203 | 201 | 533 | 539 | 535 | 13 | 13 | 13 |
| **SM05-014** | 183 | 186 | 184 | 473 | 478 | 475 | 8.4 | 9.1 | 8.8 |
| **SM05-015** | 203 | 207 | 205 | 528 | 534 | 531 | 12 | 12 | 12 |
| **SM05-016** | 182 | 185 | 184 | 438 | 446 | 442 | 5.4 | 5.7 | 5.6 |
| **SM05-017** | 167 | 171 | 169 | 401 | 408 | 404 | 1.5 | 2.5 | 2.0 |
| **SM05-018** | 172 | 175 | 174 | 417 | 425 | 423 | 3 | 3.2 | 3.1 |
| **SM05-019** | 182 | 187 | 185 | 462 | 470 | 467 | 4.6 | 5.1 | 4.8 |
| **SM05-020** | 178 | 181 | 179 | 460 | 470 | 466 | 5.2 | 5.7 | 5.4 |
| **SM05-021** | 181 | 186 | 183 | 450 | 458 | 454 | 4.7 | 5.1 | 4.9 |
| **SM05-022** | 183 | 186 | 184 | 451 | 456 | 453 | 3.6 | 4 | 3.7 |
| **SM05-023** | 182 | 185 | 184 | 449 | 454 | 451 | 3.6 | 3.8 | 3.7 |
| **SM05-024** | 172 | 176 | 174 | 427 | 432 | 431 | 5.2 | 5.5 | 5.4 |
| **SM05-025** | 172 | 174 | 173 | 445 | 452 | 448 | 6 | 6.3 | 6.2 |
| **SM06-001** | 210 | 214 | 212 | 521 | 530 | 525 | 7.2 | 8.1 | 7.6 |
| **SM06-002** | 207 | 210 | 209 | 530 | 538 | 534 | 10 | 11 | 10.5 |
| **SM06-003** | 202 | 205 | 204 | 520 | 528 | 526 | 9.6 | 9.9 | 9.8 |
| **SM06-004** | 207 | 213 | 210 | 509 | 516 | 513 | 8.2 | 8.5 | 8.4 |
| **SM06-005** | 214 | 217 | 216 | 503 | 508 | 505 | 7.2 | 7.5 | 7.4 |

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|---|---|---|---|---|---|---|---|---|---|
| **SM06-006** | 223 | 227 | 225 | 456 | 464 | 461 | 3.3 | 3.7 | 3.5 |
| **SM06-007** | 224 | 228 | 226 | 481 | 488 | 484 | 6.8 | 7.2 | 7.0 |
| **SM06-008** | 208 | 211 | 210 | 484 | 489 | 486 | 8.9 | 9.1 | 9.0 |
| **SM06-009** | 221 | 225 | 223 | 468 | 475 | 472 | 5.8 | 6.1 | 6.0 |
| **SM06-010** | 203 | 208 | 206 | 482 | 492 | 486 | 8.4 | 9.1 | 8.8 |
| **SM06-011** | 213 | 216 | 214 | 506 | 517 | 511 | 12 | 13 | 12.4 |
| **SM06-012** | 234 | 238 | 236 | 498 | 506 | 502 | 7.3 | 7.6 | 7.4 |
| **SM06-013** | 242 | 245 | 244 | 503 | 508 | 506 | 6 | 6.5 | 6.4 |
| **SM06-014** | 204 | 209 | 207 | 531 | 540 | 536 | 12 | 13 | 12.9 |
| **SM06-015** | 207 | 210 | 208 | 518 | 525 | 522 | 10 | 11 | 10.9 |
| **SM06-016** | 209 | 212 | 211 | 432 | 440 | 436 | 3.9 | 4.3 | 4.1 |
| **SM06-017** | 235 | 239 | 237 | 470 | 477 | 472 | 3.9 | 4.4 | 4.1 |
| **SM06-018** | 199 | 202 | 201 | 532 | 541 | 537 | 15 | 16 | 15.3 |
| **SM06-019** | 207 | 210 | 209 | 477 | 488 | 482 | 9.4 | 10 | 9.7 |
| **SM06-020** | 211 | 213 | 212 | 498 | 521 | 508 | 11 | 12 | 11.1 |
| **SM06-021** | 219 | 222 | 221 | 518 | 538 | 527 | 12 | 13 | 12.1 |
| **SM06-022** | 208 | 211 | 210 | 460 | 468 | 464 | 7.2 | 7.6 | 7.4 |
| **SM06-023** | 251 | 266 | 259 | 536 | 550 | 542 | 7.1 | 8 | 7.4 |
| **SM06-024** | 240 | 242 | 241 | 527 | 532 | 529 | 7.9 | 8.3 | 8.1 |
| **SM06-025** | 217 | 220 | 219 | 522 | 530 | 525 | 12 | 13 | 12.1 |
| **SM06-026** | 205 | 208 | 207 | 465 | 467 | 466 | 8 | 8.4 | 8.2 |
| **SM06-027** | 226 | 233 | 229 | 497 | 502 | 499 | 7.7 | 8.1 | 7.9 |
| **SM06-028** | 274 | 281 | 279 | 636 | 642 | 638 | 11 | 12 | 11.1 |
| **SM07-001** | 177 | 183 | 179 | 423 | 445 | 432 | 3.7 | 4.7 | 4.1 |
| **SM07-002** | 165 | 167 | 167 | 390 | 396 | 393 | 3.2 | 3.4 | 3.3 |
| **SM07-003** | 171 | 173 | 172 | 418 | 425 | 423 | 4.2 | 4.7 | 4.4 |
| **SM07-004** | 163 | 166 | 165 | 388 | 392 | 390 | 3.8 | 4 | 3.9 |
| **SM07-005** | 168 | 171 | 170 | 413 | 420 | 415 | 4.3 | 4.5 | 4.4 |
| **SM07-006** | 154 | 156 | 155 | 360 | 365 | 362 | 4.8 | 5.3 | 5 |
| **SM07-007** | 169 | 171 | 171 | 419 | 424 | 421 | 4.5 | 4.7 | 4.6 |
| **SM07-008** | 167 | 171 | 170 | 459 | 467 | 463 | 8.4 | 8.9 | 8.6 |
| **SM07-009** | 169 | 171 | 170 | 409 | 413 | 411 | 4.2 | 4.5 | 4.4 |
| **SM07-010** | 168 | 171 | 170 | 424 | 428 | 426 | 4 | 4.4 | 4.1 |
| **SM07-011** | 142 | 145 | 144 | 333 | 335 | 334 | 3.1 | 3.4 | 3.2 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **SM07-012** | 167 | 170 | 169 | 429 | 444 | 434 | 3.8 | 4.6 | 4.1 |
| **SM07-013** | 152 | 155 | 153 | 357 | 370 | 362 | 4 | 5.1 | 4.7 |
| **SM07-014** | 136 | 139 | 138 | 323 | 329 | 327 | 3.8 | 4.1 | 4.0 |
| **SM07-015** | 141 | 145 | 142 | 318 | 320 | 319 | 3.3 | 3.6 | 3.4 |
| **SM07-016** | 140 | 143 | 142 | 320 | 324 | 322 | 2.9 | 3.2 | 3.1 |
| **SM07-017** | 174 | 186 | 181 | 383 | 409 | 398 | 3.3 | 4.2 | 3.9 |
| **SM07-018** | 139 | 140 | 140 | 325 | 329 | 326 | 2.8 | 3.2 | 3.0 |
| **SM07-019** | 142 | 145 | 144 | 337 | 341 | 339 | 3.6 | 4 | 3.7 |
| **SM07-020** | 143 | 149 | 147 | 330 | 338 | 332 | 1.5 | 2.1 | 1.9 |
| **SM07-021** | 143 | 146 | 145 | 331 | 332 | 331 | 2.4 | 2.8 | 2.6 |
| **SM07-022** | 146 | 150 | 149 | 332 | 336 | 334 | 2 | 2.8 | 2.5 |
| **SM07-023** | 178 | 180 | 179 | 443 | 446 | 445 | 3.9 | 4.2 | 4.1 |
| **SM07-024** | 187 | 191 | 188 | 536 | 564 | 556 | 7.6 | 8.3 | 8.0 |
| **SM07-025** | 156 | 158 | 157 | 350 | 352 | 351 | 3.3 | 3.5 | 3.4 |
| **SM08-001** | 234 | 241 | 236 | 491 | 505 | 496 | 6.1 | 6.8 | 6.6 |
| **SM08-002** | 236 | 243 | 241 | 494 | 511 | 505 | 6.1 | 6.5 | 6.3 |
| **SM08-003** | 230 | 233 | 231 | 494 | 502 | 497 | 7.4 | 7.5 | 7.4 |
| **SM08-004** | 223 | 224 | 224 | 503 | 511 | 506 | 9.5 | 10 | 9.7 |
| **SM08-005** | 246 | 252 | 250 | 542 | 550 | 547 | 8.1 | 8.8 | 8.6 |
| **SM08-006** | 243 | 253 | 250 | 547 | 580 | 565 | 8.7 | 9.8 | 9.2 |
| **SM08-007** | 246 | 252 | 250 | 554 | 565 | 560 | 9.1 | 9.3 | 9.2 |
| **SM08-008** | 241 | 244 | 243 | 501 | 508 | 504 | 6.2 | 6.5 | 6.3 |
| **SM08-009** | 240 | 242 | 241 | 506 | 515 | 510 | 6.2 | 6.9 | 6.7 |
| **SM08-010** | 239 | 248 | 244 | 539 | 552 | 544 | 8.7 | 9.2 | 9.0 |
| **SM08-011** | 234 | 237 | 235 | 520 | 535 | 529 | 8.4 | 8.8 | 8.6 |
| **SM08-012** | 243 | 246 | 245 | 548 | 559 | 554 | 8.8 | 9.1 | 8.9 |
| **SM08-013** | 229 | 232 | 231 | 522 | 531 | 525 | 10 | 11 | 10.1 |
| **SM08-014** | 234 | 237 | 235 | 528 | 540 | 534 | 9 | 9.3 | 9.1 |
| **SM08-015** | 223 | 227 | 225 | 518 | 528 | 521 | 8.2 | 8.6 | 8.4 |
| **SM08-016** | 230 | 232 | 231 | 541 | 555 | 544 | 8.5 | 8.7 | 8.6 |
| **SM08-017** | 243 | 246 | 245 | 549 | 563 | 556 | 8.9 | 9.2 | 9.1 |
| **SM08-018** | 234 | 236 | 235 | 529 | 543 | 538 | 10 | 10 | 10 |
| **SM08-019** | 239 | 241 | 240 | 531 | 545 | 539 | 8.4 | 8.8 | 8.6 |
| **SM08-020** | 226 | 228 | 227 | 525 | 540 | 533 | 8.4 | 8.7 | 8.5 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **SM08-021** | 228 | 230 | 229 | 525 | 541 | 533 | 8.5 | 9.3 | 8.8 |
| **SM08-022** | 240 | 242 | 241 | 565 | 584 | 575 | 8.7 | 9.1 | 8.9 |
| **SM08-023** | 227 | 230 | 228 | 520 | 533 | 528 | 8.5 | 8.8 | 8.7 |
| **SM08-024** | 226 | 232 | 229 | 524 | 539 | 531 | 9.1 | 9.4 | 9.2 |
| **SM08-025** | 250 | 252 | 251 | 595 | 613 | 605 | 10 | 11 | 10.3 |
| **SM08-026** | 225 | 233 | 230 | 515 | 523 | 518 | 8.8 | 9.3 | 9.0 |
| **SM08-027** | 228 | 237 | 234 | 495 | 506 | 500 | 6.8 | 7.3 | 7.0 |
| **SM08-028** | 236 | 246 | 242 | 526 | 564 | 542 | 7.1 | 7.7 | 7.3 |
| **SM08-029** | 259 | 263 | 261 | 612 | 628 | 616 | 12 | 12 | 12 |
| **SM08-030** | 194 | 198 | 197 | 436 | 441 | 439 | 11 | 11 | 11 |
| **SM08-031** | 233 | 237 | 235 | 499 | 504 | 502 | 6.2 | 6.9 | 6.6 |
| **SM09-001** | 169 | 172 | 171 | 400 | 411 | 407 | 3.6 | 4 | 3.8 |
| **SM09-002** | 160 | 165 | 163 | 367 | 376 | 371 | 3.3 | 3.5 | 3.4 |
| **SM09-003** | 163 | 165 | 164 | 364 | 372 | 368 | 1.4 | 3.4 | 3.0 |
| **SM09-004** | 147 | 150 | 149 | 354 | 358 | 356 | 4.1 | 4.4 | 4.2 |
| **SM09-005** | 144 | 145 | 144 | 302 | 310 | 307 | 2.1 | 3.1 | 2.7 |
| **SM09-006** | 142 | 145 | 144 | 295 | 299 | 297 | 1.6 | 2.3 | 2.0 |
| **SM09-007** | 162 | 165 | 164 | 386 | 388 | 387 | 3.5 | 3.7 | 3.6 |
| **SM09-008** | 162 | 165 | 164 | 380 | 384 | 383 | 2.5 | 3 | 2.8 |
| **SM09-009** | 152 | 155 | 154 | 358 | 361 | 360 | 3.2 | 3.4 | 3.3 |
| **SM09-010** | 146 | 149 | 148 | 336 | 339 | 338 | 2.6 | 2.9 | 2.8 |
| **SM09-011** | 147 | 150 | 149 | 343 | 345 | 344 | 2.7 | 3 | 2.8 |
| **SM09-012** | 161 | 164 | 163 | 378 | 382 | 381 | 2.6 | 2.8 | 2.7 |
| **SM09-013** | 145 | 147 | 146 | 329 | 331 | 330 | 3 | 3.3 | 3.1 |
| **SM09-014** | 141 | 143 | 142 | 311 | 313 | 312 | 1.7 | 2.3 | 2 |
| **SM09-015** | 141 | 144 | 143 | 312 | 315 | 314 | 1.6 | 2.1 | 1.9 |
| **SM09-016** | 142 | 144 | 143 | 293 | 296 | 295 | 1.2 | 1.8 | 1.6 |
| **SM09-017** | 141 | 143 | 143 | 312 | 316 | 314 | 2.8 | 3.2 | 3.1 |
| **SM09-018** | 142 | 145 | 144 | 307 | 311 | 310 | 1.3 | 1.8 | 1.6 |
| **SM09-019** | 136 | 139 | 138 | 301 | 304 | 303 | 2.7 | 3.1 | 2.8 |
| **SM09-020** | 139 | 143 | 141 | 305 | 308 | 306 | 1.6 | 2.4 | 2.0 |
| **SM10-001** | 299 | 312 | 307 | 693 | 721 | 707 | 14 | 14 | 14 |
| **SM10-002** | 230 | 235 | 233 | 519 | 528 | 523 | 8.3 | 8.5 | 8.4 |
| **SM10-003** | 248 | 251 | 250 | 538 | 547 | 542 | 7.7 | 8.3 | 8.1 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **SM10-004** | 238 | 241 | 240 | 515 | 522 | 519 | 7.1 | 7.4 | 7.2 |
| **SM10-005** | 238 | 242 | 240 | 511 | 521 | 517 | 6.8 | 7.1 | 6.9 |
| **SM10-006** | 328 | 353 | 344 | 732 | 771 | 754 | 13 | 14 | 13.3 |
| **SM10-007** | 305 | 321 | 314 | 693 | 717 | 705 | 13 | 14 | 13.6 |
| **SM10-008** | 264 | 293 | 278 | 599 | 666 | 631 | 11 | 15 | 12.9 |
| **SM10-009** | 239 | 245 | 242 | 519 | 544 | 530 | 8.3 | 8.8 | 8.5 |
| **SM10-010** | 237 | 240 | 239 | 519 | 529 | 524 | 8 | 8.3 | 8.2 |
| **SM10-011** | 250 | 260 | 255 | 572 | 592 | 581 | 10 | 11 | 10.1 |
| **SM10-012** | 266 | 274 | 270 | 607 | 623 | 615 | 11 | 11 | 11 |
| **SM10-013** | 237 | 241 | 239 | 530 | 540 | 535 | 9.1 | 9.4 | 9.2 |
| **SM10-014A** | 247 | 255 | 251 | 565 | 573 | 569 | 9.9 | 10 | 10.0 |
| **SM10-015** | 241 | 243 | 242 | 535 | 542 | 538 | 9.1 | 9.4 | 9.3 |
| **SM10-016** | 249 | 253 | 251 | 568 | 575 | 571 | 12 | 12 | 12 |
| **SM10-017** | 244 | 247 | 246 | 541 | 548 | 544 | 11 | 11 | 11 |
| **SM10-018** | 240 | 242 | 241 | 527 | 532 | 529 | 8.7 | 9.4 | 9.1 |
| **SM10-019** | 250 | 253 | 251 | 549 | 559 | 555 | 9.2 | 9.9 | 9.5 |
| **SM10-020** | 235 | 238 | 237 | 553 | 563 | 558 | 17 | 19 | 18 |
| **SM10-021** | 240 | 243 | 242 | 570 | 575 | 573 | 17 | 18 | 17.7 |
| **SM10-022** | 242 | 245 | 243 | 537 | 546 | 541 | 11 | 11 | 11 |
| **SM10-023** | 236 | 239 | 238 | 539 | 550 | 545 | 14 | 15 | 14.9 |
| **SM10-024** | 229 | 233 | 231 | 523 | 530 | 525 | 9.9 | 11 | 10.7 |
| **SM10-025** | 226 | 233 | 229 | 516 | 525 | 521 | 10 | 11 | 10.9 |
| **SM10-026** | 246 | 249 | 248 | 561 | 572 | 569 | 14 | 15 | 14.9 |
| **SM10-027** | 246 | 263 | 254 | 539 | 579 | 555 | 9.1 | 10 | 9.7 |
| **SM10-028A** | 234 | 261 | 248 | 580 | 620 | 602 | 25 | 26 | 25.4 |
| **SM10-029A** | 254 | 267 | 260 | 567 | 591 | 578 | 12 | 13 | 12.7 |
| **SM10-030** | 241 | 243 | 242 | 515 | 530 | 521 | 7.2 | 7.5 | 7.4 |
| **SM10-031** | 240 | 242 | 241 | 524 | 538 | 532 | 7.5 | 7.8 | 7.7 |
| **SM10-032** | 241 | 243 | 242 | 512 | 526 | 519 | 6.3 | 7.2 | 6.8 |
| **SM11-001** | 163 | 165 | 164 | 395 | 401 | 398 | 5.1 | 5.4 | 5.3 |
| **SM11-002** | 140 | 143 | 142 | 311 | 316 | 313 | 3.1 | 3.5 | 3.4 |
| **SM11-003** | 143 | 146 | 145 | 313 | 320 | 317 | 2 | 2.3 | 2.2 |
| **SM11-004** | 140 | 143 | 141 | 297 | 303 | 300 | 1.2 | 2.3 | 1.9 |
| **SM11-005** | 139 | 142 | 140 | 309 | 314 | 312 | 3.8 | 4.2 | 3.9 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **SM11-006** | 142 | 145 | 144 | 308 | 315 | 312 | 3.2 | 3.8 | 3.4 |
| **SM11-007** | 142 | 145 | 144 | 297 | 303 | 299 | 2.5 | 2.9 | 2.8 |
| **SM11-009** | 151 | 155 | 153 | 299 | 303 | 301 | 1 | 1.5 | 1.2 |
| **SM11-010** | 156 | 159 | 158 | 311 | 314 | 312 | 1.7 | 2.3 | 2.1 |
| **SM11-011** | 148 | 150 | 149 | 337 | 342 | 339 | 3.1 | 3.4 | 3.2 |
| **SM11-012** | 145 | 147 | 146 | 322 | 325 | 324 | 3.1 | 3.6 | 3.4 |
| **SM11-013** | 141 | 144 | 143 | 288 | 292 | 289 | 1.2 | 1.8 | 1.4 |
| **SM11-014** | 136 | 140 | 139 | 284 | 290 | 287 | 1.6 | 2.2 | 1.9 |
| **SM11-015** | 137 | 140 | 139 | 298 | 302 | 300 | 2.1 | 2.8 | 2.3 |
| **SM11-016** | 143 | 148 | 145 | 294 | 298 | 295 | 2.3 | 2.6 | 2.5 |
| **SM11-017** | 142 | 145 | 144 | 286 | 290 | 288 | 2.5 | 2.9 | 2.8 |
| **SM11-018** | 139 | 142 | 141 | 297 | 301 | 299 | 4.4 | 4.9 | 4.7 |
| **SM11-019** | 141 | 144 | 143 | 304 | 310 | 306 | 1.4 | 2 | 1.7 |
| **SM11-020** | 162 | 165 | 163 | 395 | 400 | 397 | 5.2 | 5.8 | 5.6 |
| **SM11-022** | 168 | 171 | 169 | 447 | 453 | 450 | 6.9 | 7.1 | 7 |
| **SM11-023** | 167 | 171 | 170 | 394 | 398 | 396 | 5.1 | 5.5 | 5.2 |
| **SM11-024** | 156 | 159 | 157 | 392 | 400 | 395 | 4.6 | 5.5 | 5.1 |
| **SM11-025** | 160 | 162 | 162 | 398 | 401 | 400 | 3.2 | 3.6 | 3.4 |
| **SM11-026** | 149 | 152 | 151 | 331 | 348 | 344 | 2.2 | 3.1 | 2.8 |

# Appendix B

## Monitor Well Laboratory Reports

## Fourth Quarter, 2018

Cameco

# *Crow Butte Project*

## *Monitor Well Laboratory Report*

**Sample Date:** 12/26/2018

**Analysis Date:** 12/26/2018

| Well ID | Alkalinity (mg/L) | Alk SCL | Alk MCL | Conductivity (µMho/cm) | Cond SCL | Cond MCL | Chloride (mg/L) | Cl SCL | Cl MCL |
|---|---|---|---|---|---|---|---|---|---|
| CM03-005 | 304 | 433 | 361 | 1901 | 2814 | 2345 | 194 | 318 | 265 |
| CM03-006 | 303 | 441 | 367 | 1896 | 2799 | 2333 | 192 | 300 | 250 |
| CM05-018 | 307 | 441 | 367 | 1875 | 2916 | 2430 | 187 | 315 | 263 |
| CM05-019 | 308 | 425 | 354 | 1789 | 2916 | 2430 | 173 | 320 | 266 |
| CM05-020 | 346 | 445 | 371 | 2040 | 2929 | 2441 | 208 | 310 | 258 |
| CM05-021 | 306 | 441 | 367 | 1880 | 2910 | 2425 | 186 | 275 | 229 |
| CM05-022 | 307 | 435 | 362 | 1877 | 2903 | 2419 | 187 | 302 | 252 |
| CM05-023 | 304 | 433 | 361 | 1869 | 2916 | 2430 | 185 | 317 | 264 |
| CM05-024 | 305 | 383 | 319 | 1892 | 2887 | 2406 | 184 | 317 | 264 |
| CM05-025 | 297 | 438 | 365 | 1889 | 2982 | 2485 | 174 | 314 | 262 |
| CM05-026 | 305 | 433 | 361 | 1896 | 2900 | 2417 | 188 | 302 | 252 |
| CM05-027 | 306 | 445 | 371 | 1905 | 2974 | 2478 | 187 | 320 | 266 |
| CM06-012 | 308 | 436 | 364 | 1886 | 2794 | 2328 | 185 | 279 | 233 |
| CM06-013 | 306 | 446 | 372 | 1886 | 2866 | 2388 | 188 | 285 | 238 |
| CM06-014 | 298 | 436 | 364 | 1879 | 2909 | 2424 | 184 | 297 | 247 |
| CM06-015 | 303 | 444 | 370 | 1898 | 2779 | 2316 | 184 | 287 | 239 |
| CM06-016A | 302 | 418 | 348 | 1881 | 3082 | 2568 | 183 | 338 | 282 |
| CM06-017 | 308 | 442 | 368 | 1882 | 2779 | 2316 | 184 | 275 | 229 |
| CM06-018 | 308 | 442 | 368 | 1875 | 2909 | 2424 | 184 | 302 | 252 |
| CM06-019 | 310 | 452 | 377 | 1865 | 2880 | 2400 | 184 | 295 | 246 |
| CM11-011 | 422 | 433 | 361 | 2225 | 2736 | 2280 | 210 | 278 | 232 |
| SM05-009 | 207 | 314 | 262 | 531 | 870 | 726 | 12 | 36 | 30 |
| SM05-010 | 210 | 324 | 270 | 536 | 901 | 751 | 10 | 36 | 30 |
| SM05-011 | 219 | 341 | 284 | 555 | 942 | 785 | 11 | 41 | 34 |
| SM05-012 | 212 | 327 | 272 | 541 | 920 | 767 | 11 | 43 | 36 |
| SM05-013 | 202 | 314 | 262 | 533 | 880 | 733 | 13 | 39 | 32 |
| SM05-014 | 186 | 304 | 253 | 474 | 854 | 712 | 9.1 | 31 | 26 |
| SM05-015 | 206 | 311 | 259 | 530 | 973 | 811 | 12 | 60 | 50 |
| SM05-016 | 185 | 285 | 238 | 438 | 732 | 610 | 5.5 | 30 | 25 |
| SM05-017 | 169 | 264 | 220 | 401 | 694 | 578 | 1.5 | 27 | 23 |
| SM05-018 | 175 | 259 | 216 | 417 | 707 | 589 | 3.2 | 31 | 26 |
| SM05-019 | 187 | 285 | 238 | 466 | 757 | 631 | 4.8 | 27 | 22 |

WD

Cameco

# *Crow Butte Project*

## *Monitor Well Laboratory Report*

**Sample Date:** 12/19/2018

**Analysis Date:** 12/19/2018

| Well ID | Alkalinity (mg/L) | Alk SCL | Alk MCL | Conductivity (µMho/cm) | Cond SCL | Cond MCL | Chloride (mg/L) | Cl SCL | Cl MCL |
|---|---|---|---|---|---|---|---|---|---|
| BOW96-001 | 225 | 314 | 262 | 498 | 791 | 659 | 7.5 | 24 | 20 |
| CM05-001 | 318 | 462 | 385 | 1755 | 2884 | 2404 | 168 | 304 | 253 |
| CM05-002 | 309 | 448 | 373 | 1803 | 2860 | 2383 | 184 | 297 | 247 |
| CM05-003 | 309 | 449 | 374 | 1806 | 2949 | 2458 | 180 | 324 | 270 |
| CM05-004 | 313 | 454 | 378 | 1821 | 2896 | 2413 | 181 | 305 | 254 |
| CM05-005 | 309 | 455 | 379 | 1802 | 2880 | 2400 | 179 | 297 | 247 |
| CM05-006 | 307 | 458 | 382 | 1818 | 2844 | 2370 | 181 | 292 | 244 |
| CM05-007 | 309 | 433 | 361 | 1812 | 2870 | 2392 | 180 | 288 | 240 |
| CM05-008 | 311 | 448 | 373 | 1838 | 2876 | 2396 | 181 | 289 | 241 |
| CM05-009 | 306 | 433 | 361 | 1825 | 2864 | 2387 | 179 | 289 | 241 |
| CM05-010 | 298 | 403 | 336 | 1849 | 2943 | 2453 | 178 | 333 | 277 |
| CM05-011 | 312 | 438 | 365 | 1876 | 2897 | 2414 | 181 | 307 | 256 |
| CM08-019 | 318 | 461 | 384 | 1758 | 2909 | 2424 | 172 | 278 | 232 |
| CM08-020 | 319 | 467 | 389 | 1765 | 3038 | 2532 | 177 | 305 | 254 |
| CM08-021 | 321 | 449 | 374 | 1773 | 2952 | 2460 | 174 | 261 | 217 |
| CM08-022 | 321 | 461 | 384 | 1778 | 2966 | 2472 | 173 | 266 | 222 |
| CM08-026 | 318 | 467 | 389 | 1775 | 2650 | 2208 | 175 | 266 | 222 |
| CM10-028 | 319 | 461 | 384 | 1787 | 2736 | 2280 | 174 | 265 | 221 |
| CM10-029 | 317 | 461 | 384 | 1782 | 2808 | 2340 | 173 | 281 | 234 |
| CM10-030 | 322 | 454 | 378 | 1789 | 2678 | 2232 | 173 | 253 | 211 |
| CM10-031 | 319 | 446 | 372 | 1779 | 2678 | 2232 | 171 | 253 | 211 |
| CM11-011 | 442 | 433 | 361 | 2333 | 2736 | 2280 | 216 | 278 | 232 |
| SM02-001 | 191 | 305 | 254 | 520 | 865 | 721 | 14 | 56 | 47 |
| SM02-002 | 171 | 314 | 262 | 455 | 1210 | 1008 | 11 | 63 | 53 |
| SM02-003 | 200 | 344 | 287 | 542 | 969 | 808 | 16 | 37 | 31 |
| SM04-006 | 271 | 361 | 301 | 643 | 1103 | 919 | 14 | 34 | 28 |
| SM04-008 | 286 | 389 | 324 | 669 | 1109 | 924 | 12 | 27 | 23 |
| SM05-001 | 236 | 363 | 302 | 589 | 1032 | 860 | 12 | 57 | 47 |
| SM05-002 | 195 | 287 | 239 | 443 | 714 | 595 | 5.5 | 27 | 22 |
| SM05-003 | 228 | 351 | 293 | 576 | 1048 | 874 | 12 | 81 | 68 |
| SM05-004 | 212 | 327 | 272 | 551 | 973 | 811 | 16 | 66 | 55 |
| SM05-005 | 238 | 367 | 306 | 593 | 1041 | 868 | 12 | 65 | 54 |

Cameco

# *Crow Butte Project*

## *Monitor Well Laboratory Report*

**Sample Date:** 12/12/2018

**Analysis Date:** 12/12/2018

| Well ID | Alkalinity (mg/L) | Alk SCL | Alk MCL | Conductivity (µMho/cm) | Cond SCL | Cond MCL | Chloride (mg/L) | Cl SCL | Cl MCL |
|---|---|---|---|---|---|---|---|---|---|
| CM08-010 | 316 | 441 | 367 | 1796 | 3038 | 2532 | 180 | 315 | 263 |
| CM08-011 | 319 | 446 | 372 | 1800 | 3053 | 2544 | 176 | 325 | 271 |
| CM08-012 | 324 | 461 | 384 | 1820 | 3038 | 2532 | 174 | 305 | 254 |
| CM10-001 | 321 | 469 | 391 | 1805 | 2822 | 2352 | 176 | 305 | 254 |
| CM10-002 | 321 | 474 | 395 | 1807 | 2707 | 2256 | 174 | 262 | 218 |
| CM10-003 | 317 | 474 | 395 | 1810 | 2736 | 2280 | 175 | 266 | 222 |
| CM10-004 | 325 | 468 | 390 | 1837 | 2794 | 2328 | 184 | 288 | 240 |
| CM10-005 | 345 | 464 | 386 | 1941 | 3082 | 2568 | 201 | 389 | 324 |
| CM10-006 | 323 | 482 | 402 | 1805 | 2750 | 2292 | 173 | 281 | 234 |
| CM10-007 | 318 | 482 | 402 | 1785 | 2765 | 2304 | 170 | 278 | 232 |
| CM11-001 | 305 | 438 | 365 | 1805 | 2808 | 2340 | 181 | 297 | 247 |
| CM11-002A | 303 | 442 | 368 | 1797 | 2794 | 2328 | 180 | 285 | 238 |
| CM11-003 | 323 | 439 | 366 | 1865 | 2693 | 2244 | 184 | 272 | 227 |
| CM11-004 | 303 | 464 | 386 | 1787 | 2678 | 2232 | 176 | 268 | 223 |
| CM11-005 | 305 | 451 | 376 | 1786 | 2664 | 2220 | 177 | 274 | 228 |
| CM11-006 | 351 | 436 | 364 | 1947 | 2707 | 2256 | 193 | 269 | 224 |
| CM11-007 | 303 | 432 | 360 | 1781 | 2707 | 2256 | 177 | 272 | 227 |
| CM11-008 | 308 | 462 | 385 | 1824 | 2678 | 2232 | 180 | 274 | 228 |
| CM11-009 | 301 | 439 | 366 | 1785 | 2765 | 2304 | 174 | 276 | 230 |
| CM11-010 | 305 | 436 | 364 | 1786 | 2707 | 2256 | 175 | 284 | 236 |
| CM11-011 | 456 | 433 | 361 | 2415 | 2736 | 2280 | 224 | 278 | 232 |
| SM04-003 | 186 | 361 | 301 | 599 | 1251 | 1043 | 12 | 38 | 32 |
| SM04-004 | 210 | 266 | 222 | 607 | 1099 | 916 | 13 | 62 | 52 |
| SM10-001 | 312 | 469 | 391 | 715 | 994 | 828 | 14 | 37 | 31 |
| SM10-002 | 235 | 338 | 282 | 527 | 763 | 636 | 8.3 | 24 | 20 |
| SM10-003 | 248 | 386 | 322 | 541 | 821 | 684 | 8.2 | 24 | 20 |
| SM10-004 | 241 | 346 | 288 | 519 | 778 | 648 | 7.2 | 24 | 20 |
| SM10-005 | 241 | 350 | 292 | 515 | 763 | 636 | 6.9 | 23 | 19 |
| SM10-006 | 353 | 501 | 418 | 770 | 1123 | 936 | 14 | 33 | 28 |
| SM10-007 | 318 | 403 | 336 | 717 | 965 | 804 | 14 | 33 | 27 |
| SM10-008 | 291 | 403 | 336 | 662 | 907 | 756 | 14 | 31 | 26 |
| SM10-009 | 240 | 389 | 324 | 525 | 835 | 696 | 8.4 | 28 | 23 |

Cameco

# *Crow Butte Project*

## *Monitor Well Laboratory Report*

**Sample Date:** 12/05/2018

**Analysis Date:** 12/05/2018

| Well ID | Alkalinity (mg/L) | Alk SCL | Alk MCL | Conductivity (µMho/cm) | Cond SCL | Cond MCL | Chloride (mg/L) | Cl SCL | Cl MCL |
|---|---|---|---|---|---|---|---|---|---|
| BOW96-001 | 225 | 314 | 262 | 502 | 791 | 659 | 7.6 | 24 | 20 |
| CM05-001 | 316 | 462 | 385 | 1731 | 2884 | 2404 | 163 | 304 | 253 |
| CM05-002 | 312 | 448 | 373 | 1796 | 2860 | 2383 | 178 | 297 | 247 |
| CM05-003 | 317 | 449 | 374 | 1794 | 2949 | 2458 | 181 | 324 | 270 |
| CM05-004 | 317 | 454 | 378 | 1818 | 2896 | 2413 | 181 | 305 | 254 |
| CM05-005 | 308 | 455 | 379 | 1796 | 2880 | 2400 | 179 | 297 | 247 |
| CM05-006 | 311 | 458 | 382 | 1795 | 2844 | 2370 | 179 | 292 | 244 |
| CM05-007 | 310 | 433 | 361 | 1794 | 2870 | 2392 | 180 | 288 | 240 |
| CM05-008 | 315 | 448 | 373 | 1843 | 2876 | 2396 | 182 | 289 | 241 |
| CM05-009 | 310 | 433 | 361 | 1815 | 2864 | 2387 | 180 | 289 | 241 |
| CM05-010 | 302 | 403 | 336 | 1840 | 2943 | 2453 | 179 | 333 | 277 |
| CM05-011 | 315 | 438 | 365 | 1866 | 2897 | 2414 | 180 | 307 | 256 |
| CM08-019 | 327 | 461 | 384 | 1791 | 2909 | 2424 | 172 | 278 | 232 |
| CM08-020 | 322 | 467 | 389 | 1781 | 3038 | 2532 | 173 | 305 | 254 |
| CM08-021 | 325 | 449 | 374 | 1790 | 2952 | 2460 | 173 | 261 | 217 |
| CM08-022 | 331 | 461 | 384 | 1791 | 2966 | 2472 | 173 | 266 | 222 |
| CM08-026 | 320 | 467 | 389 | 1789 | 2650 | 2208 | 174 | 266 | 222 |
| CM10-028 | 323 | 461 | 384 | 1794 | 2736 | 2280 | 174 | 265 | 221 |
| CM10-029 | 325 | 461 | 384 | 1789 | 2808 | 2340 | 173 | 281 | 234 |
| CM10-030 | 326 | 454 | 378 | 1800 | 2678 | 2232 | 173 | 253 | 211 |
| CM10-031 | 323 | 446 | 372 | 1790 | 2678 | 2232 | 173 | 253 | 211 |
| CM11-011 | 487 | 433 | 361 | 2483 | 2736 | 2280 | 233 | 278 | 232 |
| SM02-001 | 191 | 305 | 254 | 515 | 865 | 721 | 14 | 56 | 47 |
| SM02-002 | 169 | 314 | 262 | 454 | 1210 | 1008 | 11 | 63 | 53 |
| SM02-003 | 198 | 344 | 287 | 537 | 969 | 808 | 16 | 37 | 31 |
| SM04-006 | 269 | 361 | 301 | 638 | 1103 | 919 | 14 | 34 | 28 |
| SM04-008 | 288 | 389 | 324 | 667 | 1109 | 924 | 12 | 27 | 23 |
| SM05-001 | 235 | 363 | 302 | 584 | 1032 | 860 | 12 | 57 | 47 |
| SM05-002 | 195 | 287 | 239 | 440 | 714 | 595 | 5.4 | 27 | 22 |
| SM05-003 | 228 | 351 | 293 | 571 | 1048 | 874 | 12 | 81 | 68 |
| SM05-004 | 212 | 327 | 272 | 545 | 973 | 811 | 16 | 66 | 55 |
| SM05-005 | 238 | 367 | 306 | 582 | 1041 | 868 | 11 | 65 | 54 |

Cameco

# *Crow Butte Project*

## *Monitor Well Laboratory Report*

**Sample Date:** 11/29/2018

**Analysis Date:** 11/29/2018

| Well ID | Alkalinity (mg/L) | Alk SCL | Alk MCL | Conductivity (µMho/cm) | Cond SCL | Cond MCL | Chloride (mg/L) | Cl SCL | Cl MCL |
|---|---|---|---|---|---|---|---|---|---|
| CM06-025 | 313 | 433 | 361 | 1851 | 2952 | 2460 | 186 | 317 | 264 |
| CM06-026 | 311 | 448 | 373 | 1845 | 2952 | 2460 | 185 | 338 | 282 |
| CM06-028 | 326 | 449 | 374 | 1782 | 2894 | 2412 | 177 | 307 | 256 |
| CM06-029 | 316 | 448 | 373 | 1856 | 3024 | 2520 | 185 | 321 | 268 |
| CM06-030 | 319 | 459 | 383 | 1809 | 2952 | 2460 | 178 | 328 | 274 |
| CM06-031 | 327 | 464 | 386 | 1824 | 2851 | 2376 | 179 | 301 | 251 |
| CM06-032 | 324 | 461 | 384 | 1836 | 2981 | 2484 | 180 | 292 | 244 |
| CM08-027 | 327 | 475 | 396 | 1797 | 2794 | 2328 | 174 | 314 | 262 |
| CM08-028 | 328 | 480 | 400 | 1790 | 2650 | 2208 | 174 | 264 | 220 |
| CM11-011 | 482 | 433 | 361 | 2445 | 2736 | 2280 | 228 | 278 | 232 |
| SM06-023 | 262 | 314 | 262 | 544 | 691 | 576 | 7.5 | 23 | 19 |
| SM06-024 | 242 | 310 | 258 | 528 | 672 | 560 | 8.3 | 24 | 20 |
| SM06-025 | 220 | 324 | 270 | 523 | 696 | 580 | 12 | 24 | 20 |
| SM06-026 | 207 | 308 | 257 | 466 | 726 | 605 | 8.4 | 24 | 20 |
| SM06-027 | 229 | 317 | 264 | 499 | 677 | 564 | 7.9 | 23 | 20 |
| SM06-028 | 281 | 351 | 293 | 637 | 778 | 648 | 11 | 24 | 20 |
| SM08-026 | 231 | 317 | 264 | 516 | 720 | 600 | 9.2 | 24 | 20 |
| SM08-027 | 235 | 353 | 294 | 500 | 706 | 588 | 7 | 22 | 19 |
| SM08-028 | 242 | 328 | 274 | 540 | 801 | 667 | 7.1 | 24 | 20 |
| SM08-029 | 262 | 338 | 282 | 612 | 763 | 636 | 12 | 26 | 22 |
| SM08-030 | 198 | 284 | 236 | 439 | 672 | 560 | 11 | 38 | 32 |
| SM08-031 | 236 | 350 | 292 | 502 | 750 | 625 | 6.8 | 28 | 23 |
| SM11-016 | 145 | 213 | 178 | 294 | 461 | 384 | 2.5 | 23 | 19 |
| SM11-017 | 144 | 210 | 175 | 287 | 432 | 360 | 2.7 | 21 | 17 |
| SM11-018 | 141 | 207 | 173 | 299 | 475 | 396 | 4.8 | 28 | 23 |
| SM11-019 | 143 | 204 | 170 | 305 | 533 | 444 | 2 | 35 | 29 |
| SM11-020 | 164 | 235 | 196 | 398 | 590 | 492 | 5.7 | 23 | 19 |
| SM11-022 | 171 | 288 | 240 | 451 | 773 | 644 | 7 | 32 | 27 |
| SM11-023 | 170 | 246 | 205 | 395 | 662 | 552 | 5.1 | 32 | 27 |
| SM11-024 | 157 | 233 | 194 | 392 | 619 | 516 | 5.2 | 26 | 21 |
| SM11-025 | 162 | 235 | 196 | 399 | 590 | 492 | 3.4 | 21 | 18 |
| SM11-026 | 151 | 228 | 190 | 345 | 547 | 456 | 2.9 | 22 | 18 |

Cameco

# *Crow Butte Project*

## *Monitor Well Laboratory Report*

**Sample Date:** 11/28/2018

**Analysis Date:** 11/28/2018

| Well ID | Alkalinity (mg/L) | Alk SCL | Alk MCL | Conductivity (µMho/cm) | Cond SCL | Cond MCL | Chloride (mg/L) | Cl SCL | Cl MCL |
|---|---|---|---|---|---|---|---|---|---|
| CM08-010 | 318 | 441 | 367 | 1793 | 3038 | 2532 | 180 | 315 | 263 |
| CM08-011 | 315 | 446 | 372 | 1791 | 3053 | 2544 | 177 | 325 | 271 |
| CM08-012 | 320 | 461 | 384 | 1812 | 3038 | 2532 | 177 | 305 | 254 |
| CM10-001 | 328 | 469 | 391 | 1807 | 2822 | 2352 | 177 | 305 | 254 |
| CM10-002 | 318 | 474 | 395 | 1793 | 2707 | 2256 | 173 | 262 | 218 |
| CM10-003 | 316 | 474 | 395 | 1806 | 2736 | 2280 | 178 | 266 | 222 |
| CM10-004 | 327 | 468 | 390 | 1846 | 2794 | 2328 | 185 | 288 | 240 |
| CM10-005 | 340 | 464 | 386 | 1940 | 3082 | 2568 | 201 | 389 | 324 |
| CM10-006 | 321 | 482 | 402 | 1793 | 2750 | 2292 | 173 | 281 | 234 |
| CM10-007 | 320 | 482 | 402 | 1778 | 2765 | 2304 | 171 | 278 | 232 |
| CM11-001 | 305 | 438 | 365 | 1812 | 2808 | 2340 | 178 | 297 | 247 |
| CM11-002A | 306 | 442 | 368 | 1809 | 2794 | 2328 | 179 | 285 | 238 |
| CM11-003 | 326 | 439 | 366 | 1871 | 2693 | 2244 | 184 | 272 | 227 |
| CM11-004 | 306 | 464 | 386 | 1794 | 2678 | 2232 | 178 | 268 | 223 |
| CM11-005 | 308 | 451 | 376 | 1796 | 2664 | 2220 | 179 | 274 | 228 |
| CM11-006 | 334 | 436 | 364 | 1890 | 2707 | 2256 | 188 | 269 | 224 |
| CM11-007 | 306 | 432 | 360 | 1779 | 2707 | 2256 | 177 | 272 | 227 |
| CM11-008 | 309 | 462 | 385 | 1824 | 2678 | 2232 | 180 | 274 | 228 |
| CM11-009 | 302 | 439 | 366 | 1786 | 2765 | 2304 | 175 | 276 | 230 |
| CM11-010 | 308 | 436 | 364 | 1794 | 2707 | 2256 | 177 | 284 | 236 |
| CM11-011 | 482 | 433 | 361 | 2462 | 2736 | 2280 | 229 | 278 | 232 |
| SM04-003 | 187 | 361 | 301 | 600 | 1251 | 1043 | 12 | 38 | 32 |
| SM04-004 | 208 | 266 | 222 | 605 | 1099 | 916 | 13 | 62 | 52 |
| SM10-001 | 311 | 469 | 391 | 711 | 994 | 828 | 14 | 37 | 31 |
| SM10-002 | 234 | 338 | 282 | 526 | 763 | 636 | 8.5 | 24 | 20 |
| SM10-003 | 249 | 386 | 322 | 542 | 821 | 684 | 8.3 | 24 | 20 |
| SM10-004 | 239 | 346 | 288 | 517 | 778 | 648 | 7.3 | 24 | 20 |
| SM10-005 | 242 | 350 | 292 | 511 | 763 | 636 | 7 | 23 | 19 |
| SM10-006 | 352 | 501 | 418 | 771 | 1123 | 936 | 13 | 33 | 28 |
| SM10-007 | 317 | 403 | 336 | 712 | 965 | 804 | 14 | 33 | 27 |
| SM10-008 | 281 | 403 | 336 | 633 | 907 | 756 | 13 | 31 | 26 |
| SM10-009 | 240 | 389 | 324 | 519 | 835 | 696 | 8.3 | 28 | 23 |