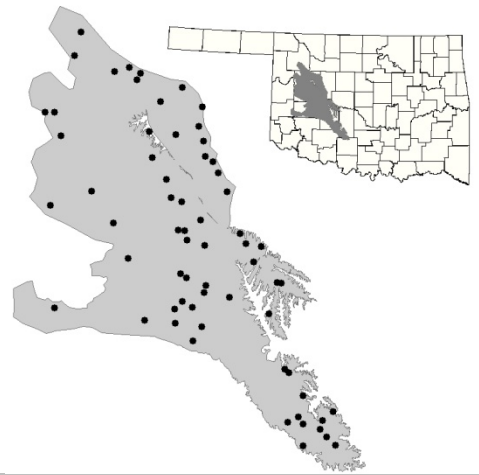


Rush Springs Aquifer



| Baseline Sample Period | | Sampling Sites | Water Level Sites |
|------------------------|-------------------------|--|-------------------|
| September-October 2013 | | 64 | 107 |
| General | Location | West Central Oklahoma | |
| | Area (km ²) | 6,297 | |
| | Storage (acre-feet) | 80,000,000 | |
| | Primary Uses | Municipal & Domestic Supply; Irrigation; Agriculture; Oil & Gas Production; Industrial | |
| | Category | Bedrock - Sandstone | |

| Parameters | General Field | Parameter | Mean | SEM | Minimum | 25% | Median | 75% | Maximum | Comments |
|-------------------------------|---------------|-------------------------------|------|-------|---------|-------|--------|--------------------|---------|----------------------|
| | | Well Depth (ft) | 221 | 10.6 | 30 | 138 | 200 | 292 | 800 | N=123 |
| | | Depth to Water (ft) | 62.4 | 3.43 | 7.75 | 37.00 | 58.88 | 82.64 | 196.60 | Below ground surface |
| | | Temperature (°C) | 19.6 | 0.182 | 15.22 | 18.79 | 19.56 | 20.32 | 23.87 | |
| | | Specific Conductance (µS/cm) | 1070 | 121 | 102 | 457 | 660 | 1450 | 5866 | |
| | | Dissolved Oxygen (mg/L) | 6.91 | 0.289 | 0.17 | 6.09 | 7.55 | 8.34 | 10.77 | |
| | | pH (units) | 7.19 | 0.028 | 6.46 | 7.05 | 7.18 | 7.30 | 7.72 | |
| | | Alkalinity (mg/L) | 188 | 8.34 | 25.0 | 150 | 183 | 219 | 384 | |
| | | Hardness (mg/L) | 558 | 68.9 | 139 | 201 | 302 | 625 | 1998 | N=63 |
| | | Calculated Bicarbonate (mg/L) | 231 | 10.3 | 30.5 | 185 | 225 | 270 | 473 | |
| Total Dissolved Solids (mg/L) | 866 | 115 | 178 | 274 | 427 | 1130 | 4680 | SMCL: 500; 26 over | | |

| Parameters | Nutrient Constituents | Parameter | Mean | SEM | Minimum | 25% | Median | 75% | Maximum | Comments | |
|------------|-----------------------|-----------------------------------|----------------------------------|--------|---------|--------|--------|--------|---------|------------------|--|
| | | Ammonia (mg/L) | All Values <0.1, except 1 (0.17) | | | | | | | | |
| | | Nitrate & Nitrite (mg/L) | 7.17 | 1.21 | 0.24 | 1.79 | 4.46 | 8.23 | 59.2 | MCL: 10; 12 over | |
| | | Total Dissolved Phosphorus (mg/L) | 0.015 | 0.0044 | <0.005 | <0.005 | <0.005 | 0.0093 | 0.217 | | |

| Parameters | Mineral Constituents | Parameter | Mean | SEM | Minimum | 25% | Median | 75% | Maximum | Comments |
|------------|----------------------|----------------------------|-------|-------|---------|------|--------|------|---------|--------------------|
| | | Bromide (µg/L) | 288 | 20.6 | 121 | 196 | 249 | 320 | 1200 | |
| | | dissolved Calcium (mg/L) | 173 | 22.1 | 31.2 | 53.1 | 78.5 | 232 | 556 | |
| | | Chloride (mg/L) | 31.6 | 12.7 | <10 | <10 | 11.8 | 25.8 | 812 | SMCL: 250; 1 over |
| | | Fluoride (mg/L) | 0.211 | 0.016 | <0.2 | <0.2 | 0.22 | 0.26 | 0.52 | MCL: 4; 0 over |
| | | dissolved Magnesium (mg/L) | 29.1 | 3.29 | <5 | 13.3 | 18.6 | 29.1 | 128 | |
| | | dissolved Potassium (mg/L) | 1.49 | 0.122 | <0.5 | 0.9 | 1.25 | 1.6 | 6 | |
| | | dissolved Silica (mg/L) | 27.9 | 0.76 | 11.4 | 25.2 | 27.5 | 30.2 | 48.4 | |
| | | dissolved Sodium (mg/L) | 44.6 | 13.7 | 8.4 | 18.6 | 25.4 | 35.5 | 890 | |
| | | Sulfate (mg/L) | 401 | 75.7 | <10 | 16.6 | 61.4 | 627 | 2300 | SMCL: 250; 20 over |

| Parameters Metal & Trace Element Constituents | Parameter | Mean | SEM | Minimum | 25% | Median | 75% | Maximum | Comments |
|---|-----------------------------------|--|------|---------|-------------------------------|--------|------|--------------------------------------|-------------------|
| | dissolved Arsenic (µg/L) | All Values <10, except 4 (10.7,12.8,13.1,16.5) | | | | | | | MCL: 10; 4 over |
| | dissolved Barium (µg/L) | 150 | 21.9 | <10 | 16.5 | 105 | 189 | 859 | MCL: 2000; 0 over |
| | dissolved Boron (µg/L) | 120 | 28.1 | <50 | <50 | 53.9 | 129 | 1710 | HA: 6000; 0 over |
| | dissolved Chromium (µg/L) | All Values <5, except 8 (5.2,5.5,5.5,5.8,6.2,11.8,16.1,23.7) | | | | | | | MCL: 100; 0 over |
| | dissolved Copper (µg/L) | All Values <5, except 7 (5.5,6.3,8.1,8.3,9.5,15.1,15.5) | | | | | | | MCL: 1300; 0 over |
| | dissolved Iron (µg/L) | All Values <50, except 6 (84.2,111,117,126,298,435) | | | | | | | SMCL: 300; 1 over |
| | dissolved Lead (µg/L) | All Values <10, except 1 (19.7) | | | | | | | MCL: 15; 1 over |
| | dissolved Molybdenum (µg/L) | All Values <10, except 1 (26) | | | | | | | HA: 40; 0 over |
| | dissolved Uranium (µg/L) | 4.47 | 0.66 | <1 | 1.2 | 2.6 | 5.8 | 27.2 | MCL: 30; 0 over |
| | dissolved Vanadium (µg/L) | 14.4 | 1.11 | <10 | <10 | 13.4 | 17.7 | 40.2 | |
| dissolved Zinc (µg/L) | 21.2 | 5.15 | <10 | <10 | <10 | 17.6 | 299 | SMCL: 5000; 0 over. HA: 2000; 0 over | |
| Parameters Parameters Below Detectable Limits | Aluminum Antimony Beryllium | Cadmium Cobalt Manganese | | | Mercury Nickel Selenium | | | Silver Thallium | |

SEM = Standard Error of the Mean

MCL = EPA's Maximum Contaminant Level – enforced for public drinking water systems

SMCL = EPA's Secondary MCL – guidelines not enforced

HA = EPA's Health Advisory

Note: Groundwater samples collected for GMAP were filtered in the field, resulting in dissolved concentrations of constituents. The total concentration for any given constituent might be higher for an unfiltered sample from the same source.