MONTANA DEPARTMENT OF TRANSPORTATION
MAINTENANCE FACILITY PLAINS, MT
2019 ANNUAL GROUNDWATER MONITORING REPORT

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Introduction

This is the 2019 Annual Groundwater Monitoring Report for the Montana department of Transportation (MDT) Plains Maintenance Facility. This report describes the 2019 groundwater sampling efforts, presents the water quality data, and provides comparisons of current year results to historical data to document long-term trends and conditions.

Contracted by the MDT, Northern Rockies Engineering, Inc. (NRE) conducted four groundwater monitoring events in 2019 to monitor groundwater contamination in a shallow alluvial aquifer sourced from leaching of sodium chloride road salt stored at the MDT facility. Previous outside storage of road salt used for winter highway maintenance has resulted in a groundwater salinity plume in the shallow aquifer. MDT constructed a storage building for road salt in November 2018.

Monitoring was performed in May, July, September, and December 2019, ensuring a presumed seasonal high and low groundwater event. The implemented monitoring plan consisted of collecting groundwater samples from 33 wells (six deep and 27 shallow). Samples were collected from hydrants closest to the active water wells or from residential fixtures. Water quality field parameters specific conductivity (SC), pH, temperature (T), and dissolved oxygen (DO)) were taken and recorded during well purging. Samples were collected and delivered to Energy Laboratories, Inc. (Helena, MT) for analysis of the requested analytes, fulfilling the scope of work.

Site Background and Description

Oriented on flat to gently sloping topography underlain by alluvial gravel associated with the Clark Fork River, located 1.5 miles to the west, the MDT Plains facility sits approximately 1 mile northwest of Plains, MT. Adjacent properties are comprised of commercial offices, private residences, and agricultural land. Locations of the wells associated with the monitoring plan are shown in Appendix 1.

Historical monitoring of the site described in reports by WET (2014) and Hydrometrics (2016, 2017, 2018) has documented a dissolved chloride and salinity plume extending from the MDT facility boundary towards the north and northwest. In an effort to further delineate the extent of the plume, a network of 27 wells associated with the shallow aquifer have been identified to monitor. The hydrostratigraphy of the area consists of a shallow aquifer composed of alluvial gravel, sand, and silt that extends to approximately 30 feet below ground surface (bgs); a thick aquitard composed of glacial lake silt and clay that extends from the base of the shallow aquifer to a depth of approximately 150 feet bgs; and below the aquitard a deep aquifer with silt, sand, and gravel layers of unknown thickness and lateral extent.

Given the diffusion path of the chloride plume, resulting in contamination of shallow wells, six deep replacement wells, Weeks (D), Haun (D), Reviere (formerly Leichtnam), Abrams (D), Anthony (D), and Abrams-USDA (D) were completed in 2018. These wells were completed in the deep sand and gravel aquifer in effort to provide an alternate water supply for residence wells with the highest levels of contamination in the shallow aquifer. The deep aquifer expressed low levels of chloride, total dissolved solids (TDS), and SC, consistent with the water chemistry of the non-impacted shallow aquifer.

After completion of the deep wells, the discovery of naturally occurring arsenic exceeding the EPA drinking water standard of 0.01 mg/L and elevated concentration levels of iron and manganese (summarized in Table 2) prompted MDT to install water treatment systems to reduce levels so that the water is safe for human consumption. The treatment trains consist of a sediment filter followed by an arsenic ion exchange unit with a final water softener ion exchange unit to remove iron and manganese. External irrigation water is not processed through the treatment systems. The treatment systems reduce arsenic concentrations to <0.001 to 0.001 mg/L. The treatment systems also reduce iron and manganese

concentrations below the EPA secondary maximum contaminant levels of 0.3 mg/L for iron and 0.05 mg/L for manganese.

Test Methods and Quality Control

Methods

The 2019 field effort was conducted in four events, May, July, September, and December. A total of 27 shallow wells are included in the shallow aquifer monitoring plan. The number of wells sampled during each event varied as a result of access issues or frozen systems during the winter monitoring event.

Shallow wells were sampled at the outside tap or yard hydrant closest to the well if available. Six of the wells do not have permanent pumps and were sampled using a portable Grundfos submerged VFD pumping system or a peristaltic pump. NRE personnel collected a sample for each well at the conclusion of the targeted purging of three well bore volumes or until field parameters had stabilized. Field parameters SC, DO, T, and pH are summarized in Table 3. Water quality meters were calibrated prior to collecting data. Unfiltered samples were collected in bottles provided by Energy Laboratories consisting of a non-preserved 1 liter, 500mL, and 250mL acid-preserved bottle. The samples were analyzed for the following analytes: pH, TDS, SC, and total calcium, magnesium, chloride, and sodium.

Monitoring of the six replacement wells associated with the isolated deep aquifer was also conducted coinciding with the dates listed above. Field parameters SC, DO, T, and pH were recorded prior to sampling. An unfiltered first draw sample was taken from a designated tap inside residence's homes and commercial offices. First draw samples were taken to quantify the effectiveness of the water treatment and softener systems installed; attaining an accurate representation of water being used for human consumption. Samples were collected in a non-preserved 1 liter, 500mL, and 250mL acid-preserved bottle. Samples were analyzed for the following analytes: SC, TDS, and total arsenic, iron, and manganese.

Samples from all wells were preserved on ice in coolers provided by Energy Laboratories and delivered under proper chain-of-custody protocols to the laboratory. Energy Laboratories is a Montana Department of Public Health and Human Services and U.S. EPA Region VIII certified drinking water laboratory and is accredited by the National Environmental Laboratory Accreditation Program (NELAP).

Concentration trends for chloride, TDS and SC in the shallow aquifer wells were evaluated using the GSI Mann-Kendall Toolkit (GSI Environmental 2012). Both long term concentration trends due to plume movement and dissipation and seasonal concentration trends are apparent. The goal of the Mann-Kendall analysis is to evaluate long term trend using the most recent one or two year period, depending on data availability. To limit the effects of seasonal trends on the Mann-Kendall analysis, data were restricted to the most recent period for each well having data from the beginning to end of the one or two year period. This means the data period begins and ends with the same seasonal sampling event; for instance, October 2017 to September 2019 (fall 2017 to fall 2019). Duplicate samples were excluded from this data set and raw (untreated) samples were used. The Mann-Kendall Trend analysis is provided in Appendix 2. The sampling date shown in Appendix 2 is the date of the start of the sampling event.

QA/QC Evaluation

Quality assurance and quality control (QA/QC) consisted of three duplicate samples per sampling event. A duplicate sample consists of a secondary sample taken from the same location as the original to ascertain sampling precision. Parameters (excluding Abrams (D) for July) analyzed in the duplicates reported equal values (within analytical tolerance values) to the original. Abrams (D) reported a value 1.8 times greater for manganese in the duplicate compared to the original. The increased level may be a

result of deposited manganese being flushed from the piping system in the house following the first sample taken. The analytical laboratory reports include a full set of analytical QA/QC to meet certification standards for their methods. The laboratory QA/QC shows the analysis met all method requirements.

Analytical Results

Two concentration data tables are included at the end of this report. Table 2 provides an abbreviated list of analytes focusing on the contaminants and parameters of interest or concern. Table 3 provides all analytical data taken to date. Regulatory criteria exceedances are denoted in bold values and are described at the bottom of Tables 2 & 3. Deep aquifer wells are denoted with a (D), and shallow aquifer wells (S) (e.g. Abrams (S)). Laboratory reports and data validation reports are provided in Appendix 5.

Maps of TDS, chloride, and SC concentration for the four 2019 sampling events are illustrated in Appendix 1. Ground water in the Clark Fork alluvium is classified as Class I (groundwaters with natural SC less than 1,000 microSiemens per centimeter (µS/cm) in the Montana water quality standards (17.30.1006 ARM). Regulatory criteria include SC greater than 1,000 µS/cm, the federal secondary drinking water standard (secondary maximum contaminant level (SMCL) of 250 mg/L for chloride, and TDS greater than 500 mg/L. Wells which exceed these criteria are summarized below. Shallow wells which exceed regulatory criteria are also identified in Table 2.

Chloride Exceedances

In the July and September 2019 sampling event, Haun (S) was the only well exceeding the federal secondary drinking water standard for chloride (250mg/L). Historical data indicated a rise in the number of wells exceeding the secondary drinking water standard; however, the 2019 monitoring data indicate that chloride concentrations in the shallow aquifer have appeared to stabilize and the number of wells exceeding the standard has declined.

Specific Conductivity (SC) Exceedances

Wells exceeding the Class I groundwater limit of 1,000 µS/cm include:

- May: Abrams-USDA (S), Abrams-USDA (D), Anthony (S), County Fire, DNRC, Joner, Weeks (S).
- July: Abrams-USDA (S), Abrams-USDA (D), Joner, Haun (S), Leichtnam (S).
- September: Abrams (S), Abrams-USDA (D), DNRC, Joner, Haun (S), MDT.
- December: Abrams (S), Joner, Abrams-USDA (D).

In September of 2019 Abrams (D) and Anthony (D) wells were taken offline, reconnecting the residence to their original shallow wells: Abrams (S) and Anthony (S). MDT requested continued monitoring of treated and raw samples to observe the effectiveness of the water treatment and softener systems installed in the residence to address elevated TDS and hardness issues. SC exceedances were reported in both raw and treated samples for Abrams (S). SC exceedances were also reported in all monitoring events for the Abrams-USDA (D) well.

Total Dissolved Solids (TDS) Exceedances

Wells identified exceeding the federal secondary drinking water standard for TDS (500 mg/L):

- May: Abrams (S), Abrams-USDA (S), Abrams-USDA (D), Anthony (S), County Fire, DNRC, Joner, Weeks (S).
- July: Anthony (S), Abrams-USDA (S), Abrams-USDA (D), Collett, DNRC, Joner, Herring, Haun (S), Leichtnam (S), MDT.

- September: Abrams (S) treated and raw, Abrams-USDA (D), Anthony (S) treated and raw, County Fire, DNRC, Herring (S), Joner, Haun (S), MDT.
- December: Abrams (S), Abrams-USDA (D), DNRC, Joner, MDT.

Abrams-USDA (D) reported exceedances in all four monitoring events.

Observations and Trends

Coinciding with historical trends, the groundwater concentration data suggests continual northwest to west-northwest migration of the plume from the source. Monitoring continues to indicate the chloride plume boundary may continue downgradient beyond the sampling area and there is variation in the width of the plume seasonally.

Delineation of the northeast plume boundary appears to be characterized by low chloride concentrations in the Meredith, Sears, Vanderwall, Welch, and Dryers wells. The noted wells reported concentrations slightly above or below the background levels of approximately 30 mg/L and are significantly lower than wells within the chloride plume. Located upgradient of the MDT facility, to the south, a steady increase in chloride concentrations has been observed in the Wood well. Currently, the chloride concentrations do not exceed screening levels in the Wood well.

The west/northwest and southeast boundaries of the plume is not well defined and is presumed to be open given that data is not available in these locations. Observed fluctuations in historical data collected, including the 2019 monitoring period, suggests seasonal variations and heterogeneities in the aquifer have an influence on the plume boundaries.

Graphs of the wells historically exhibiting elevated chloride, TDS, and SC are provided in Appendix 3.

Mann-Kendall test results are summarized in Table 1 and the statistical analysis is provided in appendix 2. The Mann-Kendall tests for Cl reported a decreasing concentration trend, with a confidence factor >95%, in 10 of the 27 shallow wells. One well was probably decreasing with a confidence factor >90%. Two wells were increasing with a confidence factor >95%. Eleven wells reported stable or no trend. Three wells had insufficient data for the Mann-Kendall test, because they lack a full year of sample data for analysis. The trend analyses suggest that Cl concentrations are likely stable or declining across most of the plume, with the exception of the south end of the plume near Gary's Glass & Auto and the Wood well.

The Mann-Kendall tests for SC reported a decreasing trend, with a confidence factor >95%, in 7 of the 27 shallow wells. Three wells were probably decreasing with a confidence factor >90%. Two wells were increasing with a confidence factor >95%. Twelve wells reported stable or no trend. Three wells had insufficient data for the Mann-Kendall test, because they lack a full year of sample data for analysis. The trend analyses suggest that SC values are likely stable or declining across most of the plume, with the exception of the south end of the plume near Gary's Glass & Auto and the Wood well.

The Mann-Kendall tests for TDS reported a decreasing concentration trend, with a confidence factor >95%, in 6 of the 27 shallow wells. Two of the wells were probably decreasing with a confidence factor >90%. Two wells were increasing with a confidence factor >95%. One well was probably increasing with a confidence factor >90%. Thirteen wells were stable or no trend. The trend analyses suggest that SC values are likely stable or declining across most of the plume, with the exception of the southern portion of the plume near Davis, Gary's Glass & Auto and the Wood well.

Collectively, the overall trends suggest that natural attenuation, dilution, and movement of the plume is reducing concentrations of Cl, SC, and TDS over much of the plume. This is likely associated with the removal of the stockpiled sand/salt leaching source at the MDT facility in the Fall of 2018. The causes of the apparent increase in concentrations at the southern end of the plume, nearest to the MDT facility are unknown.

References

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Table 1.

Shallow well Mann-Kendall Trend test results and CL, SC, TDS exceedances

Table 1. Shallow well Mann-Kendall Trend test results and CL, SC, and TDS exceedances

Site	Parameter	Regulatory criteria exceedance during May-Dec 2019	Trend
Abrams (S)	Chloride	Yes	Stable
	Specific Conductivity	Yes	Stable
	TDS	Yes	Stable
Abrams-USDA (S)	Chloride	Yes	Decreasing
	Specific Conductivity	Yes	Decreasing
	TDS	Yes	Decreasing
Anthony (S)	Chloride		Decreasing
	Specific Conductivity	Yes	Decreasing
	TDS	Yes	Decreasing
Baker	Chloride		Stable
	Specific Conductivity		Probably Decreasing
	TDS		Stable
Collett	Chloride		Insufficient data, lacks a full year for analysis
	Specific Conductivity		
	TDS	Yes	
County Fire	Chloride		Decreasing
	Specific Conductivity	Yes	Decreasing
	TDS	Yes	Stable
Davis	Chloride		No Trend
	Specific Conductivity		No Trend
	TDS		Increasing
DNRC	Chloride		Decreasing
	Specific Conductivity	Yes	Decreasing
	TDS	Yes	Stable
Dryers	Chloride		Stable
	Specific Conductivity		No Trend
	TDS		Stable
Ford Dealership	Chloride		Decreasing
	Specific Conductivity		Decreasing
	TDS		Decreasing
Gary's Glass & Auto	Chloride		Increasing
	Specific Conductivity		Increasing
	TDS		Probably Increasing
Haun (S)	Chloride	Yes	Decreasing
	Specific Conductivity	Yes	Decreasing
	TDS	Yes	Decreasing
Herring	Chloride		Decreasing
	Specific Conductivity		Stable
	TDS	Yes	Stable
Joner	Chloride		No trend
	Specific Conductivity	Yes	No trend
	TDS	Yes	No trend

Table 1. Shallow well Mann-Kendall Trend test results and CL, SC, and TDS exceedances

Site	Parameter	Regulatory criteria exceedance during May-Dec 2019	Trend
Leichtnam (S)	Chloride		Decreasing
	Specific Conductivity	Yes	Probably Decreasing
	TDS	Yes	Stable
Madden	Chloride		Stable
	Specific Conductivity		Stable
	TDS		Decreasing
Meredith	Chloride		No Trend
	Specific Conductivity		Stable
	TDS		No Trend
Milne	Chloride		Insufficient data, lacks a full year for analysis
	Specific Conductivity		
	TDS		
MDT	Chloride		Probably Decreasing
	Specific Conductivity	Yes	Probably Decreasing
	TDS	Yes	Probably Decreasing
Newman	Chloride		No trend
	Specific Conductivity		Stable
	TDS		Stable
Revier	Chloride		Stable
	Specific Conductivity		Stable
	TDS		Stable
Sears	Chloride		Stable
	Specific Conductivity		Stable
	TDS		Stable
State Farm	Chloride		Insufficient data, lacks a full year for analysis
	Specific Conductivity		
	TDS		
Vanderwall	Chloride		No trend
	Specific Conductivity		Stable
	TDS		Stable
Welch	Chloride		Decreasing
	Specific Conductivity		Stable
	TDS		Probably Decreasing
Weeks (S)	Chloride		Decreasing
	Specific Conductivity	Yes	Decreasing
	TDS	Yes	Decreasing
Wood	Chloride		Increasing
	Specific Conductivity		Increasing
	TDS		Increasing

Table 2.

Laboratory results summary

TABLE 2. LABORATORY RESULTS SUMMARY: MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Collection Date	Notes	Conductivity @ 25 C (umhos/cm)	Solids, Total Dissolved TDS @ 180 C (mg/L)	Chloride (mg/L)	Arsenic DIS (mg/L)	Arsenic Total (mg/L)	Arsenic acid-soluble (mg/L)	Iron DIS (mg/L)	Iron Total (mg/L)	Iron acid-soluble (mg/L)	Magnesium Total (mg/L)	Manganese DIS (mg/L)	Manganese Total (mg/L)	Manganese acid-soluble (mg/L)	Sodium DIS (mg/L)	Sodium Total (mg/L)	Sodium acid-soluble (mg/L)
Abrams (D)	11/1/2018	Treated	416	204	2	0.010	--	--	2.1	--	4.1	--	**0.334**	--	--	--	--	21
Abrams (D)	1/10/2019	Treated	384	228	--	--	--	**0.051**	--	--	0.02	--	--	--	0.01	--	--	--
Abrams (D)	1/28/2019	Treated	399	--	--	--	--	**0.053**	--	--	0.02	--	--	--	0.014	--	--	--
Abrams (D)	1/28/2019	Raw	393	--	--	--	--	**0.020**	--	--	2.87	--	--	--	**0.266**	--	--	--
Abrams (D)	2/27/2019	Treated	385	242	3	--	--	<0.001	--	--	<0.02	--	--	--	**<0.001**	--	--	92
Abrams (D)	2/27/2019	Raw	391	229	3	--	--	**0.022**	--	--	2.14	--	--	--	**0.275**	--	--	22
Abrams (D)	5/7/2019	Treated	375	233	--	--	<0.001	--	--	0.03	--	--	--	0.002	--	--	--	--
Abrams (D)	7/15/2019	Treated	334	217	--	--	**0.027**	--	--	**<0.02**	--	--	--	0.017	--	--	--	--
Abrams (D)	7/15/2019	Treated Duplicate	334	219	--	--	**0.023**	--	--	**<0.02**	--	--	--	0.031	--	--	--	--
Abrams (S)	3/27/2013	--	**1020**	**512**	140	--	--	--	--	--	--	--	--	--	--	79	--	--
Abrams (S)	6/11/2013	--	**1010**	496	160	--	--	--	--	--	--	--	--	--	--	81	--	--
Abrams (S)	9/26/2013	--	986	**532**	150	0.002	--	--	**<0.03**	--	--	--	--	--	--	90	--	--
Abrams (S)	12/18/2013	--	**1080**	**551**	140	0.003	--	--	0.04	--	--	--	--	--	--	89	--	--
Abrams (S)	10/16/2014	--	**1190**	**650**	200	--	--	--	--	--	--	--	--	--	--	85	--	--
Abrams (S)	1/21/2015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Abrams (S)	4/28/2015	--	**1220**	**694**	223	--	--	--	--	--	--	--	--	--	--	90	--	--
Abrams (S)	8/20/2015	--	**1100**	**596**	179	--	--	--	--	--	--	--	--	--	--	95	--	--
Abrams (S)	11/12/2015	--	**1220**	**687**	198	--	--	--	--	--	--	--	--	--	--	105	--	--
Abrams (S)	4/19/2016	--	934	**524**	157	--	--	--	--	--	--	--	--	--	--	88	--	--
Abrams (S)	12/1/2016	--	**1020**	**587**	140	--	--	--	--	--	--	--	--	--	--	92	--	--
Abrams (S)	5/24/2017	--	**1510**	**948**	**300**	--	--	--	--	--	--	--	--	--	--	115	--	--
Abrams (S)	10/3/2017	--	**1570**	**917**	**333**	--	--	--	--	--	--	--	--	--	--	150	--	--
Abrams (S)	1/9/2018	--	**1480**	**809**	**272**	--	--	--	--	--	--	--	--	--	--	132	--	--
Abrams (S)	4/25/2018	--	**1040**	**575**	144	--	--	--	--	--	--	--	--	--	--	101	--	--
Abrams (S)	7/10/2018	--	845	464	110	--	--	--	--	--	--	--	--	--	--	97	--	--
Abrams (S)	10/24/2018	--	**1150**	**596**	181	--	--	--	--	--	--	--	--	--	--	115	--	--
Abrams (S)	1/10/2019	--	**1030**	**535**	160	--	--	--	--	--	--	--	--	--	--	106	--	--
Abrams (S)	5/7/2019	--	978	**513**	144	--	--	--	--		--	23	--	--	--	--	98	--
Abrams (S)	5/7/2019	Duplicate	974	**520**	146	--	--	--	--		--	23	--	--	--	--	96	--
Abrams (S)	7/15/2019	--	892	499	118	--	--	--	--		--	21	--	--	--	--	93	--
Abrams (S)	9/18/2019	Raw	**1010**	**557**	126	--	--	--	--	--	--	27	--	--	--	--	83	--
Abrams (S)	9/18/2019	Treated	**1030**	**595**	127	--	--	--	--	--	--	2	--	--	--	--	223	--
Abrams (S)	12/18/2019	Raw	**1020**	**550**	128	--	--	--	--	--	--	28	--	--	--	--	84	--
Abrams (S)	12/18/2019	Treated	**1040**	**552**	128	--	--	--	--	--	--	3	--	--	--	--	215	--
Abrams-USDA (D)	1/10/2019	Treated	978	**534**	47	--	--	**0.105**	--	--	8.1	--	--	--	**1.32**	85	--	--
Abrams-USDA (D)	1/28/2019	Treated	**1090**	--	--	--	--	0.003	--	--	1.51	--	--	--	**0.167**	--	--	--
Abrams-USDA (D)	5/7/2019	Treated	**1290**	**787**	--	--	0.001	--	--	**0.77**	--	--	--	**0.072**	--	--	--	--
Abrams-USDA (D)	7/15/2019	Treated	**1180**	**747**	--	--	0.003	--	--	**2.15**	--	--	--	**0.072**	--	--	--	--
Abrams-USDA (D)	9/18/2019	Treated	**1190**	**737**	--	--	0.003	--	--	**1.53**	--	--	--	**0.054**	--	--	--	--
Abrams-USDA (D)	9/18/2019	Treated Duplicate	**1200**	**736**	--	--	0.003	--	--	**1.55**	--	--	--	**0.056**	--	--	--	--
Abrams-USDA (D)	12/18/2019	Raw	**1220**	**761**	--	--	**0.012**	--	--	**2.09**	--	--	--	0.027	--	--	--	--
Abrams-USDA (D)	12/18/2019	Raw Duplicate	**1230**	**765**	--	--	**0.011**	--	--	**2.09**	--	--	--	0.028	--	--	--	--
Abrams-USDA (D)	12/18/2019	Treated	**1230**	**748**	--	--	0.009	--	--	**2.29**	--	--	--	0.038	--	--	--	--
Abrams-USDA (D)	12/18/2019	Treated Duplicate	**1230**	**764**	--	--	0.009	--	--	**2.31**	--	--	--	0.038	--	--	--	--
Abrams-USDA (S)	3/27/2013	--	911	421	130	--	--	--	--	--	--	--	--	--	--	86	--	--
Abrams-USDA (S)	6/11/2013	--	952	446	160	--	--	--	--	--	--	--	--	--	--	93	--	--
Abrams-USDA (S)	9/26/2013	--	865	464	140	0.001	--	--	0.09	--	--	--	--	--	--	77	--	--
Abrams-USDA (S)	12/18/2013	--	856	428	120	0.002	--	--	0.19	--	--	--	--	--	--	76	--	--
Abrams-USDA (S)	10/17/2014	--	**1180**	**651**	230	--	--	--	--	--	--	--	--	--	--	87	--	--
Abrams-USDA (S)	1/20/2015	--	**1260**	**697**	247	--	--	--	--	--	--	--	--	--	--	120	--	--
Abrams-USDA (S)	4/28/2015	--	**1460**	**505**	**316**	--	--	--	--	--	--	--	--	--	--	141	--	--
Abrams-USDA (S)	8/20/2015	--	921	500	147	--	--	--	--	--	--	--	--	--	--	82	--	--
Abrams-USDA (S)	11/12/2015	--	875	493	139	--	--	--	--	--	--	--	--	--	--	78	--	--
Abrams-USDA (S)	4/19/2016	--	968	**536**	168	--	--	--	--	--	--	--	--	--	--	97	--	--
Abrams-USDA (S)	12/2/2016	--	**1370**	**750**	**290**	--	--	--	--	--	--	--	--	--	--	150	--	--
Abrams-USDA (S)	5/24/2017	--	**1710**	**1020**	**360**	--	--	--	--	--	--	--	--	--	--	178	--	--
Abrams-USDA (S)	10/3/2017	--	**1240**	**706**	237	--	--	--	--	--	--	--	--	--	--	93	--	--
Abrams-USDA (S)	10/3/2017	Duplicate	**1240**	**713**	238	--	--	--	--	--	--	--	--	--	--	91	--	--
Abrams-USDA (S)	1/9/2018	--	**1270**	**675**	243	--	--	--	--	--	--	--	--	--	--	117	--	--
Abrams-USDA (S)	4/25/2018	--	**1500**	**851**	**327**	--	--	--	--	--	--	--	--	--	--	168	--	--
Abrams-USDA (S)	7/10/2018	--	**1510**	**798**	**309**	--	--	--	--	--	--	--	--	--	--	183	--	--
Abrams-USDA (S)	1/9/2019	--	871	445	122	--	--	--	--	--	--	--	--	--	--	72	--	--
Abrams-USDA (S)	5/7/2019	--	**1030**	**549**	188	--	--	--	--	--	--	24	--	--	--	--	90	--
Abrams-USDA (S)	7/15/2019	--	**1040**	**569**	169	--	--	--	--	--	--	26	--	--	--	--	97	--
Abrams-USDA (S)	9/18/2019	--	815	446	104	--	--	--	--	--	--	23	--	--	--	--	56	--
Abrams-USDA (S)	12/19/2019	--	673	358	89	--	--	--	--	--	--	19	--	--	--	--	53	--
Anthony (D)	11/2/2018	Treated	385	218	2	**0.023**	--	--	0.03	--	22.6	--	**0.207**	--	--	--	--	25
Anthony (D)	1/10/2019	Treated	379	213	--	--	--	<0.001	--	--	<0.02	--	--	--	0.001	--	--	--

Bold values exceed the following DEQ-7 Maximum Contaminant Levels (MCLs) or EPA Secondary Maximum Contaminant Levels (SMCLs): Chloride (250mg/L), SC (1,000 µS/cm), TDS (500 mg/L), Sulfate (250mg/L), Iron (0.3mg/L), Manganese (0.05 mg/L), Arsenic (0.010 mg/L)

TABLE 2. LABORATORY RESULTS SUMMARY: MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Collection Date	Notes	Conductivity @ 25 C (umhos/cm)	Solids, Total Dissolved TDS @ 180 C (mg/L)	Chloride (mg/L)	Arsenic DIS (mg/L)	Arsenic Total (mg/L)	Arsenic acid-soluble (mg/L)	Iron DIS (mg/L)	Iron Total (mg/L)	Iron acid-soluble (mg/L)	Magnesium Total (mg/L)	Manganese DIS (mg/L)	Manganese Total (mg/L)	Manganese acid-soluble (mg/L)	Sodium DIS (mg/L)	Sodium Total (mg/L)	Sodium acid-soluble (mg/L)
Anthony (D)	5/7/2019	Treated	343	219	--	--	<0.001	--	--	0.12	--	--	--	0.035	--	--	--	--
Anthony (D)	7/15/2019	Treated	310	211		--	**0.025**	--	--	0.05	--	--	--	0.015	--	--	--	--
Anthony (S)	3/27/2013	--	**1050**	**509**	150	--	--	--	--	--	--	--	--	--	--	77	--	--
Anthony (S)	6/11/2013	--	**1040**	**504**	170	--	--	--	--	--	--	--	--	--	--	83	--	--
Anthony (S)	9/26/2013	--	964	**520**	140	0.001	--	--	0.07	--	--	--	--	--	--	82	--	--
Anthony (S)	12/18/2013	--	**1070**	**543**	140	0.002	--	--	**<0.03**	--	--	--	--	--	--	78	--	--
Anthony (S)	10/17/2014	--	**1040**	**561**	160	--	--	--	--	--	--	--	--	--	--	81	--	--
Anthony (S)	1/21/2015	--	**1080**	**594**	173	--	--	--	--	--	--	--	--	--	--	82	--	--
Anthony (S)	4/28/2015	--	**1140**	**628**	189	--	--	--	--	--	--	--	--	--	--	86	--	--
Anthony (S)	8/20/2015	--	**1120**	**619**	181	--	--	--	--	--	--	--	--	--	--	87	--	--
Anthony (S)	11/12/2015	--	**1180**	**677**	205	--	--	--	--	--	--	--	--	--	--	91	--	--
Anthony (S)	4/19/2016	--	**1030**	**590**	136	--	--	--	--	--	--	--	--	--	--	83	--	--
Anthony (S)	12/1/2016	--	**1090**	**636**	170	--	--	--	--	--	--	--	--	--	--	94	--	--
Anthony (S)	5/24/2017	--	**1230**	**726**	210	--	--	--	--	--	--	--	--	--	--	96	--	--
Anthony (S)	10/3/2017	--	**1540**	**934**	**334**	--	--	--	--	--	--	--	--	--	--	135	--	--
Anthony (S)	1/9/2018	--	**1470**	**806**	**290**	--	--	--	--	--	--	--	--	--	--	123	--	--
Anthony (S)	4/25/2018	--	**1230**	**676**	217	--	--	--	--	--	--	--	--	--	--	119	--	--
Anthony (S)	7/10/2018	--	938	**525**	135	--	--	--	--	--	--	--	--	--	--	102	--	--
Anthony (S)	10/24/2018	--	**1090**	**566**	169	--	--	--	--	--	--	--	--	--	--	108	--	--
Anthony (S)	5/7/2019	--	**1010**	**544**	162	--	--	--	--		--	23	--	--	--	--	92	--
Anthony (S)	7/15/2019	--	996	**547**	147	--	--	--	--	--	--	22	--	--	--	--	100	--
Anthony (S)	1/10/2019	--	892	459	121	--	--	--	--	--	--	--	--	--	--	97	--	--
Anthony (S)	9/18/2019	Raw	924	**507**	115	--	--	--	--	--	--	23	--	--	--	--	82	--
Anthony (S)	9/18/2019	Treated	935	**540**	115	--	--	--	--	--	--	ND	--	--	--	--	210	--
Anthony (S)	12/18/2019	Raw	866	471	102	--	--	--	--	--	--	22	--	--	--	--	77	--
Anthony (S)	12/18/2019	Treated	880	482	104	--	--	--	--	--	--	<1	--	--	--	--	194	--
Baker	10/4/2017	--	496	303	23	--	--	--	--	--	--	--	--	--	--	23	--	--
Baker	1/9/2018	--	399	225	10	--	--	--	--	--	--	--	--	--	--	17	--	--
Baker	4/25/2018	--	390	227	10	--	--	--	--	--	--	--	--	--	--	17	--	--
Baker	7/10/2018	--	560	336	22	--	--	--	--	--	--	--	--	--	--	27	--	--
Baker	10/25/2018	--	445	245	17	--	--	--	--	--	--	--	--	--	--	20	--	--
Baker	1/9/2019	--	395	218	11	--	--	--	--	--	--	--	--	--	--	18	--	--
Baker	5/8/2019	--	387	221	10	--	--	--	--	--	--	11	--	--	--	--	15	--
Baker	5/8/2019	Duplicate	390	219	10	--	--	--	--	--	--	12	--	--	--	--	16	--
Baker	7/15/2019	--	412	250	11	--	--	--	--	--	--	13	--	--	--	--	17	--
Baker	9/18/2019	--	389	223	10	--	--	--	--	--	--	11	--	--	--	--	16	--
Baker	12/18/2019	--	387	220	10	--	--	--	--	--	--	12	--	--	--	--	15	--
Blank	1/21/2015	--	3	**ND**	**ND**	--	--	--	--	--	--	--	--	--	--	ND	--	--
Clark Fork Valley Hospital	10/23/2012	--	493	266	31	0.006	--	--	**5.01**	--	--	--	--	--	--	35	--	--
Collett	5/6/2019	--	869	498	102	--	--	--	--	--	--	23	--	--	--	--	47	--
Collett	7/15/2019	--	886	**524**	99	--	--	--	--	--	--	25	--	--	--	--	48	--
Collett	9/18/2019	--	858	491	87	--	--	--	--	--	--	25	--	--	--	--	50	--
Collett	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
County Airport	9/27/2012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
County Fire	10/24/2018	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
County Fire	10/24/2018	--	**1010**	**533**	142	--	--	--	--	--	--	--	--	--	--	79	--	--
County Fire	1/10/2019	--	**1050**	**547**	184	--	--	--	--	--	--	--	--	--	--	81	--	--
County Fire	5/7/2019	--	**1040**	**554**	185	--	--	--	--	--	--	23	--	--	--	--	95	--
County Fire	7/15/2019	--	892	492	138	--	--	--	--	--	--	20	--	--	--	--	77	--
County Fire	9/18/2019	--	938	**509**	136	--	--	--	--	--	--	20	--	--	--	--	81	--
County Fire	12/19/2019	--	890	484	127	--	--	--	--	--	--	20	--	--	--	--	85	--
County Fire	12/19/2019	Duplicate	891	481	127	--	--	--	--	--	--	20	--	--	--	--	82	--
County Roads Plain	10/24/2018	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Davis	10/23/2012	--	619	329	60	0.002	--	--	0.09	--	--	--	--	--	--	49	--	--
Davis	9/26/2013	--	561	306	43	0.001	--	--	0.05	--	--	--	--	--	--	34	--	--
Davis	12/18/2013	--	599	309	41	0.002	--	--	0.03	--	--	--	--	--	--	31	--	--
Davis	10/16/2014	--	734	407	96	--	--	--	--	--	--	--	--	--	--	37	--	--
Davis	1/20/2015	--	606	337	49	--	--	--	--	--	--	--	--	--	--	30	--	--
Davis	12/1/2016	--	602	351	47	--	--	--	--	--	--	--	--	--	--	28	--	--
Davis	5/24/2017	--	603	351	44	--	--	--	--	--	--	--	--	--	--	27	--	--
Davis	10/3/2017	--	628	363	62	--	--	--	--	--	--	--	--	--	--	34	--	--
Davis	1/9/2018	--	580	318	42	--	--	--	--	--	--	--	--	--	--	28	--	--
Davis	4/25/2018	--	583	338	48	--	--	--	--	--	--	--	--	--	--	29	--	--
Davis	7/10/2018	--	654	355	63	--	--	--	--	--	--	--	--	--	--	33	--	--
Davis	10/24/2018	--	704	366	78	--	--	--	--	--	--	--	--	--	--	37	--	--
Davis	1/9/2019	--	653	344	60	--	--	--	--	--	--	--	--	--	--	35	--	--
Davis	5/8/2019	--	650	357	63	--	--	--	--	--	--	19	--	--	--	--	29	--
Davis	7/15/2019	--	659	373	65	--	--	--	--	--	--	20	--	--	--	--	31	--
Davis	9/19/2019	--	656	368	59	--	--	--	--	--	--	18	--	--	--	--	29	--

Bold values exceed the following DEQ-7 Maximum Contaminant Levels (MCLs) or EPA Secondary Maximum Contaminant Levels (SMCLs): Chloride (250mg/L), SC (1,000 µS/cm), TDS (500 mg/L), Sulfate (250mg/L), Iron (0.3mg/L), Manganese (0.05 mg/L), Arsenic (0.010 mg/L)

TABLE 2. LABORATORY RESULTS SUMMARY: MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Collection Date	Notes	Conductivity @ 25 C (umhos/cm)	Solids, Total Dissolved TDS @ 180 C (mg/L)	Chloride (mg/L)	Arsenic DIS (mg/L)	Arsenic Total (mg/L)	Arsenic acid-soluble (mg/L)	Iron DIS (mg/L)	Iron Total (mg/L)	Iron acid-soluble (mg/L)	Magnesium Total (mg/L)	Manganese DIS (mg/L)	Manganese Total (mg/L)	Manganese acid-soluble (mg/L)	Sodium DIS (mg/L)	Sodium Total (mg/L)	Sodium acid-soluble (mg/L)
Davis	12/19/2019	--	632	347	55	--	--	--	--	--	--	19	--	--	--	--	30	--
DNRC	10/24/2018	--	1000	**532**	138	--	--	--	--	--	--	--	--	--	--	79	--	--
DNRC	10/25/2018	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DNRC	1/10/2019	--	**1090**	**568**	178	--	--	--	--	--	--	--	--	--	--	86	--	--
DNRC	1/10/2019	Duplicate	**1090**	**570**	178	--	--	--	--	--	--	--	--	--	--	86	--	--
DNRC	5/7/2019	--	**1070**	**564**	185	--	--	--	--	--	--	27	--	--	--	--	89	--
DNRC	7/16/2019	--	992	**549**	157	--	--	--	--	--	--	23	--	--	--	--	91	--
DNRC	9/18/2019	--	**1050**	**579**	145	--	--	--	--	--	--	26	--	--	--	--	87	--
DNRC	12/19/2019	--	979	**524**	139	--	--	--	--	--	--	24	--	--	--	--	85	--
Dryers	10/4/2017	--	666	401	41	--	--	--	--	--	--	--	--	--	--	33	--	--
Dryers	1/9/2018	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dryers	4/25/2018	--	532	316	20	--	--	--	--	--	--	--	--	--	--	28	--	--
Dryers	7/10/2018	--	762	440	48	--	--	--	--	--	--	--	--	--	--	38	--	--
Dryers	10/25/2018	--	629	347	38	--	--	--	--	--	--	--	--	--	--	31	--	--
Dryers	1/9/2019	--	488	267	19	--	--	--	--	--	--	--	--	--	--	25	--	--
Dryers	5/8/2019	--	479	272	18	--	--	--	--	--	--	14	--	--	--	--	22	--
Dryers	7/15/2019	--	577	337	25	--	--	--	--	--	--	18	--	--	--	--	28	--
Dryers	9/18/2019	--	523	297	18	--	--	--	--	--	--	15	--	--	--	--	26	--
Dryers	12/18/2019	--	512	293	18	--	--	--	--	--	--	16	--	--	--	--	26	--
Eldridge	9/26/2013	--	436	256	17	0.002	--	--	0.11	--	--	--	--	--	--	18	--	--
Eldridge	12/18/2013	--	394	211	8	0.002	--	--	**<0.03**	--	--	--	--	--	--	14	--	--
Eldridge	10/17/2014	--	633	349	50	--	--	--	--	--	--	--	--	--	--	33	--	--
Eldridge	1/20/2015	--	423	248	12	--	--	--	--	--	--	--	--	--	--	20	--	--
Eldridge	4/28/2015	--	404	230	9	--	--	--	--	--	--	--	--	--	--	17	--	--
Eldridge	8/20/2015	--	445	250	13	--	--	--	--	--	--	--	--	--	--	20	--	--
Eldridge	11/12/2015	--	377	221	7	--	--	--	--	--	--	--	--	--	--	16	--	--
Eldridge	4/19/2016	--	380	226	6	--	--	--	--	--	--	--	--	--	--	15	--	--
Eldridge	4/19/2016	Duplicate	380	229	6	--	--	--	--	--	--	--	--	--	--	15	--	--
Eldridge	12/1/2016	--	421	255	10	--	--	--	--	--	--	--	--	--	--	18	--	--
Eldridge	5/24/2017	--	682	407	33	--	--	--	--	--	--	--	--	--	--	28	--	--
First Security Bank	10/23/2012	--	397	217	9	<0.001	--	--	**<0.03**	--	--	--	--	--	--	7	--	--
Ford Dealership	10/4/2017	--	689	406	53	--	--	--	--	--	--	--	--	--	--	34	--	--
Ford Dealership	1/9/2018	--	696	384	61	--	--	--	--	--	--	--	--	--	--	33	--	--
Ford Dealership	4/25/2018	--	689	408	64	--	--	--	--	--	--	--	--	--	--	34	--	--
Ford Dealership	4/25/2018	Duplicate	689	402	64	--	--	--	--	--	--	--	--	--	--	35	--	--
Ford Dealership	7/10/2018	--	**1070**	**616**	126	--	--	--	--	--	--	--	--	--	--	57	--	--
Ford Dealership	10/24/2018	--	849	455	92	--	--	--	--	--	--	--	--	--	--	43	--	--
Ford Dealership	1/9/2019	--	805	429	84	--	--	--	--	--	--	--	--	--	--	43	--	--
Ford Dealership	5/7/2019	--	677	362	57	--	--	--	--	--	--	17	--	--	--	--	38	--
Ford Dealership	7/15/2019	--	663	381	50	--	--	--	--	--	--	18	--	--	--	--	39	--
Ford Dealership	9/18/2019	--	643	365	44	--	--	--	--	--	--	17	--	--	--	--	38	--
Ford Dealership	12/18/2019	--	585	329	34	--	--	--	--	--	--	16	--	--	--	--	37	--
Gary's Glass and Auto	9/27/2012	--	533	293	34	<0.001	--	--	**<0.03**	--	--	--	--	--	--	23	--	--
Gary's Glass and Auto	3/27/2013	--	560	291	37	--	--	--	--	--	--	--	--	--	--	21	--	--
Gary's Glass and Auto	10/16/2014	--	572	322	50	--	--	--	--	--	--	--	--	--	--	18	--	--
Gary's Glass and Auto	1/21/2015	--	563	320	42	--	--	--	--	--	--	--	--	--	--	21	--	--
Gary's Glass and Auto	4/28/2015	--	646	360	70	--	--	--	--	--	--	--	--	--	--	24	--	--
Gary's Glass and Auto	8/20/2015	--	613	346	55	--	--	--	--	--	--	--	--	--	--	25	--	--
Gary's Glass and Auto	11/12/2015	--	638	369	54	--	--	--	--	--	--	--	--	--	--	27	--	--
Gary's Glass and Auto	4/19/2016	--	793	487	117	--	--	--	--	--	--	--	--	--	--	35	--	--
Gary's Glass and Auto	12/1/2016	--	635	386	70	--	--	--	--	--	--	--	--	--	--	27	--	--
Gary's Glass and Auto	5/24/2017	--	807	**516**	110	--	--	--	--	--	--	--	--	--	--	32	--	--
Gary's Glass and Auto	5/24/2017	Duplicate	811	**524**	110	--	--	--	--	--	--	--	--	--	--	32	--	--
Gary's Glass and Auto	10/3/2017	--	641	376	63	--	--	--	--	--	--	--	--	--	--	31	--	--
Gary's Glass and Auto	10/4/2017	--	676	417	43	--	--	--	--	--	--	--	--	--	--	35	--	--
Gary's Glass and Auto	1/9/2018	--	594	340	24	--	--	--	--	--	--	--	--	--	--	25	--	--
Gary's Glass and Auto	4/25/2018	--	665	384	77	--	--	--	--	--	--	--	--	--	--	29	--	--
Gary's Glass and Auto	7/10/2018	--	671	385	69	--	--	--	--	--	--	--	--	--	--	29	--	--
Gary's Glass and Auto	10/24/2018	--	646	344	62	--	--	--	--	--	--	--	--	--	--	27	--	--
Gary's Glass and Auto	10/24/2018	Duplicate	640	338	61	--	--	--	--	--	--	--	--	--	--	27	--	--
Gary's Glass and Auto	1/10/2019	--	616	324	58	--	--	--	--	--	--	--	--	--	--	27	--	--
Gary's Glass and Auto	5/7/2019	--	688	376	78	--	--	--	--	--	--	21	--	--	--	--	28	--
Gary's Glass and Auto	7/15/2019	--	715	466	85	--	--	--	--	--	--	21	--	--	--	--	31	--
Gary's Glass and Auto	9/18/2019	--	830	478	114	--	--	--	--	--	--	25	--	--	--	--	33	--
Gary's Glass and Auto	9/18/2019	Duplicate	832	476	113	--	--	--	--	--	--	25	--	--	--	--	33	--
Gary's Glass and Auto	12/19/2019	--	766	420	91	--	--	--	--	--	--	23	--	--	--	--	35	--
Haun (D)	4/26/2018	Treated	428	248	3	--	--	--	--	--	--	--	--	--	--	35	--	--
Haun (D)	5/15/2018	Treated	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Haun (D)	6/27/2018	Treated	472	279	4	**0.038**	--	--	**0.71**	--	--	--	**0.327**	--	--	43	--	--

Bold values exceed the following DEQ-7 Maximum Contaminant Levels (MCLs) or EPA Secondary Maximum Contaminant Levels (SMCLs): Chloride (250mg/L), SC (1,000 µS/cm), TDS (500 mg/L), Sulfate (250mg/L), Iron (0.3mg/L), Manganese (0.05 mg/L), Arsenic (0.010 mg/L)

TABLE 2. LABORATORY RESULTS SUMMARY: MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Collection Date	Notes	Conductivity @ 25 C (umhos/cm)	Solids, Total Dissolved TDS @ 180 C (mg/L)	Chloride (mg/L)	Arsenic DIS (mg/L)	Arsenic Total (mg/L)	Arsenic acid-soluble (mg/L)	Iron DIS (mg/L)	Iron Total (mg/L)	Iron acid-soluble (mg/L)	Magnesium Total (mg/L)	Manganese DIS (mg/L)	Manganese Total (mg/L)	Manganese acid-soluble (mg/L)	Sodium DIS (mg/L)	Sodium Total (mg/L)	Sodium acid-soluble (mg/L)
Haun (D)	7/10/2018	Treated	526	294	16	--	--	--	--	--	--	--	--	--	--	51	--	--
Haun (D)	9/21/2018	Raw	472	266	4	0.010	--	--	**5.38**	--	--	--	**0.36**	--	--	41	--	--
Haun (D)	9/21/2018	Treated	529	298	5	<0.001	--	--	0.01	--	--	--	0.005	--	--	122	--	--
Haun (D)	1/9/2019	Treated	462	268	--	--	--	<0.001	--	--	<0.02	--	--	--	0.001	--	--	--
Haun (D)	5/8/2019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Haun (D)	7/16/2019	Treated	471	305	--	--	<0.001	--	--	0.22	--	--	--	0.006	--	--	--	--
Haun (D)	9/19/2019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Haun (D)	12/19/2019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Haun (S)	3/27/2013	--	**1140**	**579**	190	--	--	--	--	--	--	--	--	--	--	118	--	--
Haun (S)	6/11/2013	--	**1050**	**533**	190	--	--	--	--	--	--	--	--	--	--	113	--	--
Haun (S)	9/26/2013	--	**1090**	**588**	200	0.001	--	--	**<0.03**	--	--	--	--	--	--	117	--	--
Haun (S)	12/18/2013	--	**1320**	**652**	**260**	0.001	--	--	0.06	--	--	--	--	--	--	109	--	--
Haun (S)	10/16/2014	--	**3130**	**1800**	**870**	--	--	--	--	--	--	--	--	--	--	332	--	--
Haun (S)	1/21/2015	--	**2280**	**1260**	**586**	--	--	--	--	--	--	--	--	--	--	259	--	--
Haun (S)	4/28/2015	--	**3250**	**1810**	**881**	--	--	--	--	--	--	--	--	--	--	370	--	--
Haun (S)	8/20/2015	--	**2810**	**1510**	**730**	--	--	--	--	--	--	--	--	--	--	368	--	--
Haun (S)	11/12/2015	--	**1760**	**939**	**404**	--	--	--	--	--	--	--	--	--	--	286	--	--
Haun (S)	4/19/2016	--	**1400**	**749**	**297**	--	--	--	--	--	--	--	--	--	--	224	--	--
Haun (S)	12/1/2016	--	**2300**	**1320**	**550**	--	--	--	--	--	--	--	--	--	--	310	--	--
Haun (S)	5/24/2017	--	**3090**	**1730**	**760**	--	--	--	--	--	--	--	--	--	--	399	--	--
Haun (S)	10/3/2017	--	**3550**	**2020**	**981**	--	--	--	--	--	--	--	--	--	--	497	--	--
Haun (S)	1/9/2018	--	**2220**	**1140**	**511**	--	--	--	--	--	--	--	--	--	--	351	--	--
Haun (S)	10/25/2018	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Haun (S)	1/9/2019	--	**2060**	**1060**	**464**	--	--	--	--	--	--	--	--	--	--	299	--	--
Haun (S)	5/8/2019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Haun (S)	7/16/2019	--	**1470**	**793**	**316**	--	--	--	--	--	--	18	--	--	--	--	215	--
Haun (S)	9/19/2019	--	**1310**	**706**	250	--	--	--	--	--	--	15	--	--	--	--	184	--
Haun (S)	12/19/2019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Herring	10/25/2018	--	**1240**	**658**	197	--	--	--	--	--	--	--	--	--	--	95	--	--
Herring	1/9/2019	--	**1100**	**565**	165	--	--	--	--	--	--	--	--	--	--	90	--	--
Herring	5/8/2019	--	895	482	124	--	--	--	--	--	--	21	--	--	--	--	75	--
Herring	7/15/2019	--	946	**530**	128	--	--	--	--	--	--	23	--	--	--	--	84	--
Herring	9/18/2019	--	924	**520**	121	--	--	--	--	--	--	22	--	--	--	--	79	--
Herring	12/18/2019	--	799	433	86	--	--	--	--	--	--	20	--	--	--	--	73	--
Joner	3/27/2013	--	832	428	100	--	--	--	--	--	--	--	--	--	--	51	--	--
Joner	6/11/2013	--	844	445	110	--	--	--	--	--	--	--	--	--	--	52	--	--
Joner	10/17/2014	--	905	495	130	--	--	--	--	--	--	--	--	--	--	56	--	--
Joner	1/21/2015	--	885	486	120	--	--	--	--	--	--	--	--	--	--	55	--	--
Joner	4/28/2015	--	857	464	108	--	--	--	--	--	--	--	--	--	--	55	--	--
Joner	8/20/2015	--	887	487	121	--	--	--	--	--	--	--	--	--	--	58	--	--
Joner	11/12/2015	--	892	**507**	128	--	--	--	--	--	--	--	--	--	--	65	--	--
Joner	4/19/2016	--	946	**549**	146	--	--	--	--	--	--	--	--	--	--	66	--	--
Joner	12/1/2016	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Joner	5/24/2017	--	951	**539**	120	--	--	--	--	--	--	--	--	--	--	69	--	--
Joner	10/3/2017	--	968	**563**	139	--	--	--	--	--	--	--	--	--	--	75	--	--
Joner	1/9/2018	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Joner	4/25/2018	--	946	**528**	146	--	--	--	--	--	--	--	--	--	--	73	--	--
Joner	7/10/2018	--	**1240**	**767**	209	--	--	--	--	--	--	--	--	--	--	92	--	--
Joner	10/24/2018	--	**1240**	**711**	214	--	--	--	--	--	--	--	--	--	--	87	--	--
Joner	10/25/2018	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Joner	1/9/2019	--	**1250**	**636**	212	--	--	--	--	--	--	--	--	--	--	90	--	--
Joner	5/7/2019	--	**1110**	**626**	190	--	--	--	--	--	--	26	--	--	--	--	81	--
Joner	7/15/2019	--	**1150**	**684**	195	--	--	--	--	--	--	28	--	--	--	--	84	--
Joner	9/18/2019	--	**1150**	**689**	195	--	--	--	--	--	--	27	--	--	--	--	91	--
Joner	12/18/2019	--	**1080**	**575**	160	--	--	--	--	--	--	24	--	--	--	--	89	--
Leichtnam (D)	6/14/2018	Treated	361	209	7	**0.030**	--	--	0.12	--	--	--	**0.194**	--	--	14	--	--
Leichtnam (D)	7/10/2018	Treated	350	238	7	--	--	--	--	--	--	--	--	--	--	14	--	--
Leichtnam (D)	9/21/2018	Raw	353	201	7	**0.027**	--	--	0.04	--	--	--	0.047	--	--	13	--	--
Leichtnam (D)	9/21/2018	Treated	355	216	7	<0.001	--	--	0.01	--	--	--	**<0.005**	--	--	81	--	--
Leichtnam (D)	1/9/2019	Treated	369	224	--	--	--	<0.001	--	--	0.02	--	--	--	0.007	--	--	--
Leichtnam (D)	5/7/2019	Treated	362	214	--	--	<0.001	--	--	0.03	--	--	--	0.008	--	--	--	--
Leichtnam (D)	7/16/2019	Treated	353	232	--	--	0.003	--	--	**<0.02**	--	--	--	0.004	--	--	--	--
Leichtnam (D)	9/19/2019	Treated	346	222	--	--	0.001	--	--	0.04	--	--	--	0.006	--	--	--	--
Leichtnam (D)	12/18/2019	Treated	363	231	--	--	<0.001	--	--	0.03	--	--	--	0.003	--	--	--	--
Leichtnam (S)	11/6/2017	--	**3070**	**1740**	**794**	--	--	--	--	--	--	--	--	--	--	345	--	--
Leichtnam (S)	1/9/2018	--	**2110**	**1140**	**479**	--	--	--	--	--	--	--	--	--	--	225	--	--
Leichtnam (S)	1/9/2019	--	938	486	132	--	--	--	--	--	--	--	--	--	--	77	--	--
Leichtnam (S)	5/7/2019	--	770	399	90	--	--	--	--	--	--	25	--	--	--	--	52	--
Leichtnam (S)	7/16/2019	--	**1010**	**594**	170	--	--	--	--	--	--	30	--	--	--	--	66	--

Bold values exceed the following DEQ-7 Maximum Contaminant Levels (MCLs) or EPA Secondary Maximum Contaminant Levels (SMCLs): Chloride (250mg/L), SC (1,000 µS/cm), TDS (500 mg/L), Sulfate (250mg/L), Iron (0.3mg/L), Manganese (0.05 mg/L), Arsenic (0.010 mg/L)

TABLE 2. LABORATORY RESULTS SUMMARY: MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Collection Date	Notes	Conductivity @ 25 C (umhos/cm)	Solids, Total Dissolved TDS @ 180 C (mg/L)	Chloride (mg/L)	Arsenic DIS (mg/L)	Arsenic Total (mg/L)	Arsenic acid-soluble (mg/L)	Iron DIS (mg/L)	Iron Total (mg/L)	Iron acid-soluble (mg/L)	Magnesium Total (mg/L)	Manganese DIS (mg/L)	Manganese Total (mg/L)	Manganese acid-soluble (mg/L)	Sodium DIS (mg/L)	Sodium Total (mg/L)	Sodium acid-soluble (mg/L)
Leichtnam (S)	9/19/2019	--	840	462	83	--	--	--	--	--	--	21	--	--	--	--	80	--
Leichtnam (S)	12/19/2019	--	747	403	64	--	--	--	--	--	--	24	--	--	--	--	64	--
Madden	10/4/2017	--	550	331	21	--	--	--	--	--	--	--	--	--	--	22	--	--
Madden	1/9/2018	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Madden	4/25/2018	--	453	262	13	--	--	--	--	--	--	--	--	--	--	17	--	--
Madden	7/10/2018	--	420	254	11	--	--	--	--	--	--	--	--	--	--	18	--	--
Madden	7/10/2018	--	420	254	11	--	--	--	--	--	--	--	--	--	--	17	--	--
Madden	10/25/2018	--	450	253	13	--	--	--	--	--	--	--	--	--	--	18	--	--
Madden	1/9/2019	--	402	222	11	--	--	--	--	--	--	--	--	--	--	16	--	--
Madden	5/7/2019	--	389	225	10	--	--	--	--	--	--	13	--	--	--	--	15	--
Madden	7/15/2019	--	415	252	12	--	--	--	--	--	--	14	--	--	--	--	17	--
Madden	9/18/2019	--	406	229	10	--	--	--	--	--	--	13	--	--	--	--	15	--
Madden	12/18/2019	--	382	222	10	--	--	--	--	--	--	14	--	--	--	--	15	--
MDT	11/27/1996	--	435	221	12	--	--	--	<0.03	--	--	--	--	--	--	17	--	--
MDT	7/16/2012	--	**1250**	**688**	**260**	0.003	--	--	1.32	--	--	--	--	--	--	204	--	--
MDT	9/27/2012	--	**1660**	**911**	**400**	<0.001	--	--	0.16	--	--	--	--	--	--	221	--	--
MDT	3/27/2013	--	**2050**	**876**	**490**	--	--	--	--	--	--	--	--	--	--	283	--	--
MDT	6/11/2013	--	**4550**	**2440**	**1400**	--	--	--	--	--	--	--	--	--	--	613	--	--
MDT	9/26/2013	--	**2730**	**1460**	**770**	<0.001	--	--	0.38	--	--	--	--	--	--	425	--	--
MDT	12/18/2013	--	**2910**	**1430**	**760**	0.001	--	--	0.17	--	--	--	--	--	--	433	--	--
MDT	10/16/2014	--	**2000**	**1050**	**500**	--	--	--	--	--	--	--	--	--	--	288	--	--
MDT	1/20/2015	--	**1350**	**711**	**261**	--	--	--	--	--	--	--	--	--	--	205	--	--
MDT	4/28/2015	--	**1440**	**738**	**307**	--	--	--	--	--	--	--	--	--	--	211	--	--
MDT	8/20/2015	--	**1630**	**871**	**369**	--	--	--	--	--	--	--	--	--	--	235	--	--
MDT	11/12/2015	--	**1340**	**720**	**297**	--	--	--	--	--	--	--	--	--	--	198	--	--
MDT	4/19/2016	--	**1220**	**659**	243	--	--	--	--	--	--	--	--	--	--	166	--	--
MDT	12/1/2016	--	**1460**	**802**	**300**	--	--	--	--	--	--	--	--	--	--	197	--	--
MDT	5/24/2017	--	**2290**	**1420**	**540**	--	--	--	--	--	--	--	--	--	--	252	--	--
MDT	10/3/2017	--	**1960**	**1060**	**470**	--	--	--	--	--	--	--	--	--	--	252	--	--
MDT	1/9/2018	--	**1340**	**697**	**259**	--	--	--	--	--	--	--	--	--	--	184	--	--
MDT	4/25/2018	--	1000	**549**	167	--	--	--	--	--	--	--	--	--	--	143	--	--
MDT	7/10/2018	--	**1480**	**784**	**302**	--	--	--	--	--	--	--	--	--	--	193	--	--
MDT	10/24/2018	--	**1310**	**676**	**260**	--	--	--	--	--	--	--	--	--	--	188	--	--
MDT	1/9/2019	--	**1010**	**527**	165	--	--	--	--	--	--	--	--	--	--	130	--	--
MDT	5/7/2019	--	865	433	129	--	--	--	--	--	--	17	--	--	--	--	97	--
MDT	7/16/2019	--	936	**515**	151	--	--	--	--	--	--	21	--	--	--	--	96	--
MDT	7/16/2019	Duplicate	935	**510**	152	--	--	--	--	--	--	21	--	--	--	--	97	--
MDT	9/19/2019	--	**1080**	**608**	193	--	--	--	--	--	--	26	--	--	--	--	93	--
MDT	9/19/2019	Duplicate	**1080**	**613**	193	--	--	--	--	--	--	26	--	--	--	--	92	--
MDT	12/18/2019	--	997	**530**	163	--	--	--	--	--	--	24	--	--	--	--	87	--
Meredith	3/27/2013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Meredith	6/11/2013	--	**1280**	**641**	**270**	--	--	--	--	--	--	--	--	--	--	112	--	--
Meredith	9/26/2013	--	641	356	58	0.006	--	--	**<0.03**	--	--	--	--	--	--	62	--	--
Meredith	12/18/2013	--	600	308	29	0.006	--	--	**<0.03**	--	--	--	--	--	--	37	--	--
Meredith	10/17/2014	--	989	**525**	160	--	--	--	--	--	--	--	--	--	--	97	--	--
Meredith	10/17/2014	Duplicate	989	**519**	160	--	--	--	--	--	--	--	--	--	--	99	--	--
Meredith	1/21/2015	--	557	316	27	--	--	--	--	--	--	--	--	--	--	38	--	--
Meredith	1/21/2015	--	557	318	27	--	--	--	--	--	--	--	--	--	--	38	--	--
Meredith	4/28/2015	--	961	**526**	156	--	--	--	--	--	--	--	--	--	--	73	--	--
Meredith	8/20/2015	--	595	340	40	--	--	--	--	--	--	--	--	--	--	41	--	--
Meredith	11/12/2015	--	557	320	27	--	--	--	--	--	--	--	--	--	--	31	--	--
Meredith	11/12/2015	--	557	317	27	--	--	--	--	--	--	--	--	--	--	31	--	--
Meredith	4/19/2016	--	517	299	21	--	--	--	--	--	--	--	--	--	--	26	--	--
Meredith	12/1/2016	--	636	376	56	--	--	--	--	--	--	--	--	--	--	37	--	--
Meredith	5/24/2017	--	**1400**	**871**	**270**	--	--	--	--	--	--	--	--	--	--	111	--	--
Meredith	10/3/2017	--	827	451	111	--	--	--	--	--	--	--	--	--	--	73	--	--
Meredith	1/9/2018	--	588	320	34	--	--	--	--	--	--	--	--	--	--	33	--	--
Meredith	4/25/2018	--	515	289	30	--	--	--	--	--	--	--	--	--	--	26	--	--
Meredith	6/14/2018	--	**1230**	**686**	229	<0.005	--	--	0.01	--	--	--	**<0.005**	--	--	120	--	--
Meredith	7/10/2018	--	**1230**	**722**	230	--	--	--	--	--	--	--	--	--	--	121	--	--
Meredith	10/24/2018	--	711	373	73	--	--	--	--	--	--	--	--	--	--	56	--	--
Meredith	1/9/2019	--	604	321	38	--	--	--	--	--	--	--	--	--	--	38	--	--
Meredith	5/8/2019	--	586	322	36	--	--	--	--	--	--	18	--	--	--	--	31	--
Meredith	7/15/2019	--	702	408	74	--	--	--	--	--	--	19	--	--	--	--	40	--
Meredith	9/18/2019	--	586	330	35	--	--	--	--	--	--	17	--	--	--	--	28	--
Meredith	12/18/2019	--	592	325	36	--	--	--	--	--	--	18	--	--	--	--	27	--
Milne	10/25/2018	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Milne	1/9/2019	--	686	362	62	--	--	--	--	--	--	--	--	--	--	44	--	--
Milne	5/8/2019	--	692	369	69	--	--	--	--	--	--	25	--	--	--	--	41	--

Bold values exceed the following DEQ-7 Maximum Contaminant Levels (MCLs) or EPA Secondary Maximum Contaminant Levels (SMCLs): Chloride (250mg/L), SC (1,000 µS/cm), TDS (500 mg/L), Sulfate (250mg/L), Iron (0.3mg/L), Manganese (0.05 mg/L), Arsenic (0.010 mg/L)

TABLE 2. LABORATORY RESULTS SUMMARY: MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Collection Date	Notes	Conductivity @ 25 C (umhos/cm)	Solids, Total Dissolved TDS @ 180 C (mg/L)	Chloride (mg/L)	Arsenic DIS (mg/L)	Arsenic Total (mg/L)	Arsenic acid-soluble (mg/L)	Iron DIS (mg/L)	Iron Total (mg/L)	Iron acid-soluble (mg/L)	Magnesium Total (mg/L)	Manganese DIS (mg/L)	Manganese Total (mg/L)	Manganese acid-soluble (mg/L)	Sodium DIS (mg/L)	Sodium Total (mg/L)	Sodium acid-soluble (mg/L)
Milne	7/15/2019	--	671	380	57	--	--	--	--	--	--	26	--	--	--	--	45	--
Milne	9/18/2019	--	654	362	51	--	--	--	--	--	--	23	--	--	--	--	39	--
Milne	12/18/2019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Newman	10/3/2017	--	527	315	26	--	--	--	--	--	--	--	--	--	--	33	--	--
Newman	1/9/2018	--	415	232	10	--	--	--	--	--	--	--	--	--	--	19	--	--
Newman	1/9/2018	Duplicate	412	231	10	--	--	--	--	--	--	--	--	--	--	19	--	--
Newman	4/25/2018	--	420	242	13	--	--	--	--	--	--	--	--	--	--	20	--	--
Newman	7/10/2018	--	561	330	32	--	--	--	--	--	--	--	--	--	--	29	--	--
Newman	10/24/2018	--	457	252	18	--	--	--	--	--	--	--	--	--	--	27	--	--
Newman	1/9/2019	--	408	231	11	--	--	--	--	--	--	--	--	--	--	19	--	--
Newman	5/8/2019	--	417	229	12	--	--	--	--	--	--	12	--	--	--	--	18	--
Newman	7/15/2019	--	489	286	19	--	--	--	--	--	--	**15**	--	--	--	--	21	--
Newman	9/19/2019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Newman	12/18/2019	--	411	233	11	--	--	--	--	--	--	13	--	--	--	--	**17**	--
Revier	4/25/2018	--	626	385	29	--	--	--	--	--	--	--	--	--	--	31	--	--
Revier	7/10/2018	--	**1080**	**638**	143	--	--	--	--	--	--	--	--	--	--	65	--	--
Revier	10/24/2018	--	669	372	42	--	--	--	--	--	--	--	--	--	--	35	--	--
Revier	1/10/2019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Revier	5/7/2019	--	552	310	26	--	--	--	--	--	--	16	--	--	--	--	28	--
Revier	7/15/2019	--	704	410	55	--	--	--	--	--	--	20	--	--	--	--	38	--
Revier	9/18/2019	--	543	316	22	--	--	--	--	--	--	16	--	--	--	--	27	--
Revier	12/18/2019	--	457	264	13	--	--	--	--	--	--	14	--	--	--	--	20	--
RTI, Inc.	9/27/2012	--	603	340	44	0.002	--	--	**<0.03**	--	--	--	--	--	--	32	--	--
Sears	9/26/2013	--	613	346	43	0.001	--	--	**<0.03**	--	--	--	--	--	--	36	--	--
Sears	12/18/2013	--	642	326	37	0.001	--	--	**<0.03**	--	--	--	--	--	--	34	--	--
Sears	10/16/2014	--	700	388	70	--	--	--	--	--	--	--	--	--	--	36	--	--
Sears	1/20/2015	--	645	363	49	--	--	--	--	--	--	--	--	--	--	35	--	--
Sears	4/28/2015	--	740	410	69	--	--	--	--	--	--	--	--	--	--	38	--	--
Sears	4/28/2015	--	739	398	69	--	--	--	--	--	--	--	--	--	--	37	--	--
Sears	8/20/2015	--	626	347	42	--	--	--	--	--	--	--	--	--	--	35	--	--
Sears	8/20/2015	Duplicate	629	346	43	--	--	--	--	--	--	--	--	--	--	34	--	--
Sears	11/12/2015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sears	4/19/2016	--	572	324	28	--	--	--	--	--	--	--	--	--	--	30	--	--
Sears	12/1/2016	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sears	5/24/2017	--	908	**533**	98	--	--	--	--	--	--	--	--	--	--	44	--	--
Sears	10/3/2017	--	582	331	33	--	--	--	--	--	--	--	--	--	--	30	--	--
Sears	1/9/2018	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sears	4/25/2018	--	591	327	40	--	--	--	--	--	--	--	--	--	--	31	--	--
Sears	7/10/2018	--	**1150**	**680**	178	--	--	--	--	--	--	--	--	--	--	80	--	--
Sears	10/24/2018	--	576	303	31	--	--	--	--	--	--	--	--	--	--	29	--	--
Sears	1/9/2019	--	573	300	30	--	--	--	--	--	--	--	--	--	--	29	--	--
Sears	5/8/2019	--	580	316	36	--	--	--	--	--	--	17	--	--	--	--	30	--
Sears	7/15/2019	--	688	392	58	--	--	--	--	--	--	21	--	--	--	--	36	--
Sears	9/18/2019	--	541	297	29	--	--	--	--	--	--	16	--	--	--	--	26	--
Sears	12/18/2019	--	567	307	32	--	--	--	--	--	--	17	--	--	--	--	27	--
State Farm	10/24/2018	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
State Farm	5/7/2019	--	782	420	86	--	--	--	--	--	--	20	--	--	--	--	38	--
State Farm	7/15/2019	--	742	423	64	--	--	--	--	--	--	20	--	--	--	--	37	--
State Farm	9/18/2019	--	776	453	76	--	--	--	--	--	--	21	--	--	--	--	38	--
State Farm	12/18/2019	--	734	407	66	--	--	--	--	--	--	20	--	--	--	--	38	--
USDA	10/17/2014	--	**1180**	**651**	230	--	--	--	--	--	--	--	--	--	--	87	--	--
USDA	1/20/2015	--	**1260**	**697**	247	--	--	--	--	--	--	--	--	--	--	120	--	--
USDA	4/28/2015	--	**1460**	**505**	**316**	--	--	--	--	--	--	--	--	--	--	141	--	--
USDA	8/20/2015	--	921	500	147	--	--	--	--	--	--	--	--	--	--	82	--	--
USDA	11/12/2015	--	875	493	139	--	--	--	--	--	--	--	--	--	--	78	--	--
USDA	4/19/2016	--	968	**536**	168	--	--	--	--	--	--	--	--	--	--	97	--	--
USDA	12/1/2016	--	**1370**	**750**	**290**	--	--	--	--	--	--	--	--	--	--	150	--	--
USDA	5/24/2017	--	**1710**	**1020**	**360**	--	--	--	--	--	--	--	--	--	--	178	--	--
USDA	10/24/2018	--	**1050**	**542**	164	--	--	--	--	--	--	--	--	--	--	82	--	--
USDA	10/24/2018	Duplicate	**1060**	**563**	163	--	--	--	--	--	--	--	--	--	--	85	--	--
Vanderwall	3/27/2013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanderwall	6/11/2013	--	746	392	77	--	--	--	--	--	--	--	--	--	--	40	--	--
Vanderwall	9/26/2013	--	660	380	62	0.001	--	--	0.07	--	--	--	--	--	--	40	--	--
Vanderwall	12/18/2013	--	532	272	19	0.002	--	--	<0.03	--	--	--	--	--	--	27	--	--
Vanderwall	10/17/2014	--	737	399	77	--	--	--	--	--	--	--	--	--	--	47	--	--
Vanderwall	1/20/2015	--	480	270	17	--	--	--	--	--	--	--	--	--	--	27	--	--
Vanderwall	4/28/2015	--	905	**502**	113	--	--	--	--	--	--	--	--	--	--	55	--	--
Vanderwall	8/20/2015	--	776	88	88	--	--	--	--	--	--	--	--	--	--	46	--	--
Vanderwall	11/12/2015	--	499	291	19	--	--	--	--	--	--	--	--	--	--	28	--	--

Bold values exceed the following DEQ-7 Maximum Contaminant Levels (MCLs) or EPA Secondary Maximum Contaminant Levels (SMCLs): Chloride (250mg/L), SC (1,000 µS/cm), TDS (500 mg/L), Sulfate (250mg/L), Iron (0.3mg/L), Manganese (0.05 mg/L), Arsenic (0.010 mg/L)

TABLE 2. LABORATORY RESULTS SUMMARY: MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Collection Date	Notes	Conductivity @ 25 C (umhos/cm)	Solids, Total Dissolved TDS @ 180 C (mg/L)	Chloride (mg/L)	Arsenic DIS (mg/L)	Arsenic Total (mg/L)	Arsenic acid-soluble (mg/L)	Iron DIS (mg/L)	Iron Total (mg/L)	Iron acid-soluble (mg/L)	Magnesium Total (mg/L)	Manganese DIS (mg/L)	Manganese Total (mg/L)	Manganese acid-soluble (mg/L)	Sodium DIS (mg/L)	Sodium Total (mg/L)	Sodium acid-soluble (mg/L)
Vanderwall	4/19/2016	--	508	295	19	--	--	--	--	--	--	--	--	--	--	24	--	--
Vanderwall	12/1/2016	--	666	382	54	--	--	--	--	--	--	--	--	--	--	40	--	--
Vanderwall	5/24/2017	--	961	**546**	100	--	--	--	--	--	--	--	--	--	--	60	--	--
Vanderwall	10/3/2017	--	537	308	31	--	--	--	--	--	--	--	--	--	--	37	--	--
Vanderwall	1/9/2018	--	456	248	15	--	--	--	--	--	--	--	--	--	--	23	--	--
Vanderwall	4/25/2018	--	475	266	21	--	--	--	--	--	--	--	--	--	--	24	--	--
Vanderwall	7/10/2018	--	991	**547**	127	--	--	--	--	--	--	--	--	--	--	63	--	--
Vanderwall	10/25/2018	--	542	293	32	--	--	--	--	--	--	--	--	--	--	32	--	--
Vanderwall	1/9/2019	--	479	252	17	--	--	--	--	--	--	--	--	--	--	24	--	--
Vanderwall	5/8/2019	--	463	254	18	--	--	--	--	--	--	14	--	--	--	--	21	--
Vanderwall	7/15/2019	--	549	311	35	--	--	--	--	--	--	16	--	--	--	--	28	--
Vanderwall	9/18/2019	--	430	238	14	--	--	--	--	--	--	13	--	--	--	--	20	--
Vanderwall	12/18/2019	--	456	246	15	--	--	--	--	--	--	14	--	--	--	--	19	--
Weeks (D)	4/26/2018	Treated	623	364	10	--	--	--	--	--	--	--	--	--	--	45	--	--
Weeks (D)	6/14/2018	Treated	557	321	11	**0.162**	--	--	0.54	--	--	--	0.218	--	--	39	--	--
Weeks (D)	7/10/2018	Treated	526	319	11	--	--	--	--	--	--	--	--	--	--	36	--	--
Weeks (D)	9/21/2018	Raw	452	252	10	**0.097**	--	--	2.23	--	--	--	0.204	--	--	26	--	--
Weeks (D)	9/21/2018	Treated	492	276	11	0.001	--	--	<0.01	--	--	--	<0.005	--	--	112	--	--
Weeks (D)	1/9/2019	Treated	444	254	--	--	--	<0.001	--	--	<0.02	--	--	--	<0.001	--	--	--
Weekd (D)	7/16/2019	Treated	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Weeks (D)	5/8/2019	Treated	496	257	--	--	0.001	--	--	**<0.02**	--	--	--	0.048	--	--	--	--
Weeks (D)	5/8/2019	Treated Duplicate	497	259	--	--	<0.001	--	--	**<0.02**	--	--	--	0.051	--	--	--	--
Weeks (D)	9/19/2019	Treated	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Weeks (D)	12/18/2019	Treated	622	387	--	--	0.004	--	--	0.03	--	--	--	0.021	--	--	--	--
Weeks (S)	10/23/2012	--	988	496	180	0.002	--	--	0.04	--	--	--	--	--	--	103	--	--
Weeks (S)	3/27/2013	--	978	**505**	160	--	--	--	--	--	--	--	--	--	--	92	--	--
Weeks (S)	6/11/2013	--	982	483	170	--	--	--	--	--	--	--	--	--	--	94	--	--
Weeks (S)	9/26/2013	--	912	466	150	0.002	--	--	<0.03	--	--	--	--	--	--	89	--	--
Weeks (S)	12/18/2013	--	905	453	130	0.002	--	--	0.11	--	--	--	--	--	--	75	--	--
Weeks (S)	10/16/2014	--	**1840**	**1030**	**460**	--	--	--	--	--	--	--	--	--	--	178	--	--
Weeks (S)	1/20/2015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Weeks (S)	4/28/2015	--	**2250**	**1250**	**580**	--	--	--	--	--	--	--	--	--	--	223	--	--
Weeks (S)	8/20/2015	--	**1580**	**885**	**358**	--	--	--	--	--	--	--	--	--	--	164	--	--
Weeks (S)	11/12/2015	--	**1220**	**666**	**255**	--	--	--	--	--	--	--	--	--	--	142	--	--
Weeks (S)	4/29/2016	--	**1280**	**715**	**266**	--	--	--	--	--	--	--	--	--	--	149	--	--
Weeks (S)	12/1/2016	--	**1650**	**979**	**370**	--	--	--	--	--	--	--	--	--	--	194	--	--
Weeks (S)	5/24/2017	--	**3760**	**2300**	**1200**	--	--	--	--	--	--	--	--	--	--	420	--	--
Weeks (S)	8/25/2017	--	**3260**	**1860**	**829**	<0.005	--	--	0.52	--	--	--	--	--	--	386	--	--
Weeks (S)	1/9/2018	--	**2370**	**1310**	**576**	--	--	--	--	--	--	--	--	--	--	306	--	--
Weeks (S)	10/25/2018	--	**1620**	**834**	**324**	--	--	--	--	--	--	--	--	--	--	207	--	--
Weeks (S)	1/9/2019	--	**1190**	**607**	219	--	--	--	--	--	--	--	--	--	--	147	--	--
Weeks (S)	5/7/2019	--	**1100**	**563**	204	--	--	--	--	--	--	19	--	--	--	--	116	--
Weeks (S)	7/16/2019	--	949	498	155	--	--	--	--	--	--	19	--	--	--	--	102	--
Weeks (S)	9/18/2019	--	893	487	128	--	--	--	--	--	--	18	--	--	--	--	90	--
Weeks (S)	12/19/2019	--	826	448	113	--	--	--	--	--	--	18	--	--	--	--	86	--
Welch	10/4/2017	--	826	483	102	--	--	--	--	--	--	--	--	--	--	46	--	--
Welch	1/9/2018	--	630	338	54	--	--	--	--	--	--	--	--	--	--	38	--	--
Welch	4/25/2018	--	501	276	29	--	--	--	--	--	--	--	--	--	--	29	--	--
Welch	7/10/2018	--	660	371	58	--	--	--	--	--	--	--	--	--	--	35	--	--
Welch	10/25/2018	--	753	410	78	--	--	--	--	--	--	--	--	--	--	43	--	--
Welch	1/9/2019	--	603	321	46	--	--	--	--	--	--	--	--	--	--	36	--	--
Welch	1/9/2019	Duplicate	605	318	46	--	--	--	--	--	--	--	--	--	--	37	--	--
Welch	5/8/2019	--	512	275	29	--	--	--	--	--	--	15	--	--	--	--	27	--
Welch	7/15/2019	--	518	295	26	--	--	--	--	--	--	15	--	--	--	--	28	--
Welch	9/18/2019	--	522	285	32	--	--	--	--	--	--	15	--	--	--	--	29	--
Welch	12/18/2019	--	484	261	24	--	--	--	--	--	--	14	--	--	--	--	28	--
Wood	9/27/2012	--	466	273	25	<0.001	--	--	0.1	--	--	--	--	--	--	16	--	--
Wood	3/27/2013	--	265	265	31	--	--	--	--	--	--	--	--	--	--	17	--	--
Wood	6/11/2013	--	523	266	35	--	--	--	--	--	--	--	--	--	--	17	--	--
Wood	9/26/2013	--	490	270	31	<0.001	--	--	<0.03	--	--	--	--	--	--	17	--	--
Wood	10/16/2014	--	463	264	24	--	--	--	--	--	--	--	--	--	--	18	--	--
Wood	1/21/2015	--	467	265	23	--	--	--	--	--	--	--	--	--	--	17	--	--
Wood	4/28/2015	--	518	289	34	--	--	--	--	--	--	--	--	--	--	17	--	--
Wood	8/20/2015	--	511	295	33	--	--	--	--	--	--	--	--	--	--	17	--	--
Wood	11/12/2015	--	554	320	43	--	--	--	--	--	--	--	--	--	--	23	--	--
Wood	4/19/2016	--	558	322	40	--	--	--	--	--	--	--	--	--	--	22	--	--
Wood	12/1/2016	--	489	292	29	--	--	--	--	--	--	--	--	--	--	19	--	--
Wood	12/1/2016	--	490	292	29	--	--	--	--	--	--	--	--	--	--	19	--	--
Wood	5/24/2017	--	488	279	29	--	--	--	--	--	--	--	--	--	--	17	--	--

Bold values exceed the following DEQ-7 Maximum Contaminant Levels (MCLs) or EPA Secondary Maximum Contaminant Levels (SMCLs): Chloride (250mg/L), SC (1,000 µS/cm), TDS (500 mg/L), Sulfate (250mg/L), Iron (0.3mg/L), Manganese (0.05 mg/L), Arsenic (0.010 mg/L)

TABLE 2. LABORATORY RESULTS SUMMARY: MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Collection Date	Notes	Conductivity @ 25 C (umhos/cm)	Solids, Total Dissolved TDS @ 180 C (mg/L)	Chloride (mg/L)	Arsenic DIS (mg/L)	Arsenic Total (mg/L)	Arsenic acid-soluble (mg/L)	Iron DIS (mg/L)	Iron Total (mg/L)	Iron acid-soluble (mg/L)	Magnesium Total (mg/L)	Manganese DIS (mg/L)	Manganese Total (mg/L)	Manganese acid-soluble (mg/L)	Sodium DIS (mg/L)	Sodium Total (mg/L)	Sodium acid-soluble (mg/L)
Wood	10/3/2017	--	483	292	27	--	--	--	--	--	--	--	--	--	--	18	--	--
Wood	1/9/2018	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Wood	4/25/2018	--	592	346	55	--	--	--	--	--	--	--	--	--	--	22	--	--
Wood	7/10/2018	--	533	298	37	--	--	--	--	--	--	--	--	--	--	20	--	--
Wood	7/10/2018	--	532	291	37	--	--	--	--	--	--	--	--	--	--	19	--	--
Wood	10/24/2018	--	584	306	51	--	--	--	--	--	--	--	--	--	--	21	--	--
Wood	1/9/2019	--	620	320	56	--	--	--	--	--	--	--	--	--	--	26	--	--
Wood	5/7/2019	--	690	389	80	--	--	--	--	--	--	20	--	--	--	--	27	--
Wood	7/15/2019	--	712	417	78	--	--	--	--	--	--	21	--	--	--	--	32	--
Wood	7/15/2019	Duplicate	707	430	79	--	--	--	--	--	--	20	--	--	--	--	33	--
Wood	9/18/2019	--	748	422	79	--	--	--	--	--	--	22	--	--	--	--	32	--
Wood	12/18/2019	--	796	424	97	--	--	--	--	--	--	22	--	--	--	--	36	--

Bold values exceede the below control levels
Chloride levels for federal Secondary Maximum Contaiminant Levels (SMCLs) are 250mg/L
Class I waters are defined as having a specific conductance of less than 1,000 microSiemens/cm (equivalent to umhos/cm)
Total Dissolved Solids levels for federal Secondary Maximum Contaminant Levels (SMCLs) are 500 mg/L
Sulfate levels for federal Secondary Maximum Contaiminant Levels (SMCLs) are 250mg/L
Iron levels for federal Secondary Maximum Contaiminant Levels (SMCLs) are 0.3mg/L
Manganese levels for federal Secondary Maximum Contaiminant Levels (SMCLs) are 0.05 mg/L
Arsenic levels for federal Maximum Contaiminant Levels (MCLs) are 0.010 mg/L

"DIS" designates dissolved
Deep wells are denoted with a (D), and shallow (S) (e.g. Abrams (S))

Table 3.

Water quality sampling summary

TABLE 3. FIELD AND ANALYTICAL RESULTS
MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Site Address	Sample ID	Lab Sample ID	Collection Date	Notes	Static Water Levels (feet)	Field ORP (mV)	Field DO (mg/L)	Field PH (s.u.)	Field SC (umhos/cm)	Field Turbidity	Field Temp (°C)	Conductivity @ 25 C (umhos/cm)	Solids, Total Dis TDS @ 180 C (mg/L)	Alkalinity (mg/L)	Bicarbonate (mg/L)	Carbonate (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Fluoride (mg/L)	Hardness (mg/L)	Nitrate+ Nitrite (mg/L)	Nitrate as N (mg/L)	Nitrite as N (mg/L)
Abrams (D)	4 Howells Ln.	PLN-1118-01	H18110026-001	11/1/2018	--	--	--	--	--	--	--	--	416	204	170	210	<4	2	8	1	139	0.24	--	--
Abrams (D)	4 Howells Ln.	PLN-0119-24	H19010176-024	1/10/2019	--	--	146.6	3.83	8.24	426.9	Clear	8.8	384	228	--	--	--	--	--	--	--	--	--	--
Abrams (D)	4 Howells Ln.	PLN-0119-34	H19010389-002	1/28/2019	Treated	--	--	--	--	--	--	--	399	--	--	--	--	--	--	--	--	--	--	--
Abrams (D)	4 Howells Ln.	PLN-0119-35	H19010389-003	1/28/2019	Raw	--	--	--	--	--	--	--	393	--	--	--	--	--	--	--	--	--	--	--
Abrams (D)	4 Howells Ln.	PLN-0219-01	H19020385-001	2/27/2019	Treated	--	--	--	--	--	--	--	385	242	--	--	--	3	--	--	--	--	--	--
Abrams (D)	4 Howells Ln.	PLN-0219-02	H19020385-002	2/27/2019	Raw	--	--	--	--	--	--	--	391	229	--	--	--	3	--	--	--	--	--	--
Abrams (D)	4 Howells Ln.	MDT-0507-103	H19050268-004	5/7/2019	--	--	--	3.81	7.61	348.1	Clear	12.7	375	233	--	--	--	--	--	--	--	--	--	--
Abrams (D)	4 Howells Ln.	MDT-0715-118	H19070340-018	7/15/2019	--	--	--	1.82	7.33	321	Clear	19.7	334	217	--	--	--	--	--	--	--	--	--	--
Abrams (D)	4 Howells Ln.	MDT-0715-119	H19070340-019	7/15/2019	Duplicate	--	--	--	--	--	--	--	334	219	--	--	--	--	--	--	--	--	--	--
Abrams (S)	4 Howells Ln.	--	--	3/27/2013	--	--	--	5.58	7.12	967	--	10.47	**1020**	**512**	260	320	<4	140	27	--	310	5	--	--
Abrams (S)	4 Howells Ln.	--	--	6/11/2013	--	--	--	4.86	7.05	958	--	13.69	**1010**	496	240	290	<4	160	24	--	303	6	--	--
Abrams (S)	4 Howells Ln.	--	--	9/26/2013	--	--	--	5.39	7.08	967	--	13.79	986	**532**	260	320	<4	150	22	--	301	5	--	--
Abrams (S)	4 Howells Ln.	--	--	12/18/2013	--	--	--	6.2	6.74	1018	--	12.14	**1080**	**551**	290	350	<4	140	25	--	323	6	--	--
Abrams (S)	4 Howells Ln.	PDT1410-110	--	10/16/2014	--	--	--	--	--	--	--	--	**1190**	**650**	--	--	--	200	--	--	--	--	--	--
Abrams (S)	4 Howells Ln.	No Sample	--	1/21/2015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Abrams (S)	4 Howells Ln.	PDT0415-112	--	4/28/2015	--	--	--	--	--	--	--	--	**1220**	**694**	--	--	--	223	--	--	364	--	--	--
Abrams (S)	4 Howells Ln.	PMDT0820-13	--	8/20/2015	--	--	--	--	--	--	--	--	**1100**	**596**	--	--	--	179	--	--	293	--	--	--
Abrams (S)	4 Howells Ln.	PMDT1112-13	--	11/12/2015	--	--	--	--	--	--	--	--	**1220**	**687**	--	--	--	198	--	--	364	--	--	--
Abrams (S)	4 Howells Ln.	PMDT0419-05	--	4/19/2016	--	--	--	--	--	--	--	--	934	**524**	--	--	--	157	--	--	250	--	--	--
Abrams (S)	4 Howells Ln.	Pln-1216-11	H16120037-011	12/1/2016	--	--	147	7.48	7.36	949	Clear	11.92	**1020**	**587**	--	--	--	140	--	--	324	--	--	--
Abrams (S)	4 Howells Ln.	Pln-0517-10	H17050519-010	5/24/2017	--	--	63.4	8.22	7.39	1320	Clear	8.97	**1510**	**948**	--	--	--	**300**	--	--	445	--	--	--
Abrams (S)	4 Howells Ln.	PLN-1017-06	H17100097-006	10/3/2017	--	18.02	21.5	8.72	7.37	1499	Clear	13.82	**1570**	**917**	--	--	--	**333**	--	--	--	--	--	--
Abrams (S)	4 Howells Ln.	PLN-0118-12	H18010171-012	1/9/2018	--	--	100.6	7.68	7.41	1466	Clear	12	**1480**	**809**	--	--	--	**272**	--	--	--	--	--	--
Abrams (S)	4 Howells Ln.	PLN-0418-09	H18040490-009	4/25/2018	--	--	181	6.54	7.35	1032	Clear	10.63	**1040**	**575**	--	--	--	144	--	--	--	--	--	--
Abrams (S)	4 Howells Ln.	PLN-0718-13	H18070256-013	7/10/2018	--	30.34	87.7	6.25	7.4	836	Clear	15.1	845	464	--	--	--	110	--	--	--	--	--	--
Abrams (S)	4 Howells Ln.	PLN-1018-12	H181100625-012	10/24/2018	--	--	167.9	9.12	7.62	1145	Clear	13.2	**1150**	**596**	--	--	--	181	--	--	--	--	--	--
Abrams (S)	4 Howells Ln.	PLN-0119-25	H19010176-025	1/10/2019	--	17.66	-8.3	7.13	7.61	1015	Clear	12	**1030**	**535**	--	--	--	160	--	--	--	--	--	--
Abrams (S)	4 Howells Ln.	MDT-0507-104	H19050268-005	5/7/2019	--	--	--	4.44	7.46	898	Moderate	10.8	978	**513**	--	--	--	144	--	--	--	--	--	--
Abrams (S)	4 Howells Ln.	MDT-0507-105	H19050268-006	5/7/2019	Duplicate	--	--	--	--	--	--	--	974	**520**	--	--	--	146	--	--	--	--	--	--
Abrams (S)	4 Howells Ln.	MDT-0715-120	H19070340-020	7/15/2019	--	--	--	2.1	7.62	860	Slightly Cloudy	12	892	499	--	--	--	118	--	--	--	--	--	--
Abrams (S)	4 Howells Ln.	MDT-0918-110	H19090497-010	9/18/2019	Raw	--	--	5.33	7.27	920	Clear	14.8	**1010**	**557**	--	--	--	126	--	--	--	--	--	--
Abrams (S)	4 Howells Ln.	MDT-0918-109	H19090497-009	9/18/2019	Treated	--	--	4.54	7.31	943	Clear	16.1	**1030**	**595**	--	--	--	127	--	--	--	--	--	--
Abrams (S)	4 Howells Ln.	MDT-1218-105	H19120474-005	12/18/2019	Raw	--	--	4.11	7.21	921	Clear	11.4	**1020**	**550**	--	--	--	128	--	--	--	--	--	--
Abrams (S)	4 Howells Ln.	MDT-1218-104	H19120474-004	12/18/2019	Treated	--	--	2.89	7.17	910	Clear	10.7	**1040**	**552**	--	--	--	128	--	--	--	--	--	--
Abrams-USDA (D)	7485 MT Highway 200	PLN-0119-28	H19010176-028	1/10/2019	--	16.91	-176.2	4.77	7.66	983	Clear	11.8	978	**534**	460	560	<4	47	9	0.2	311	0.03	--	--
Abrams-USDA (D)	7485 MT Highway 200	PLN-0119-33	H19010389-001	1/28/2019	Treated	--	--	--	--	--	--	--	**1090**	--	--	--	--	--	--	--	--	--	--	--
Abrams-USDA (D)	7485 MT Highway 200	MDT-0507-109	H19050268-009	5/7/2019	--	--	--	0.67	7.79	1220	Clear	13.8	**1290**	**787**	--	--	--	--	--	--	--	--	--	--
Abrams-USDA (D)	7485 MT Highway 200	MDT-0715-121	H19070340-021	7/15/2019	--	--	--	0.52	7.75	1107	Clear	19.9	**1180**	**747**	--	--	--	--	--	--	--	--	--	--
Abrams-USDA (D)	7485 MT Highway 200	MDT-0918-122	H19090497-022	9/18/2019	--	--	--	1.08	8.06	1088	Clear	17.6	**1190**	**737**	--	--	--	--	--	--	--	--	--	--
Abrams-USDA (D)	7485 MT Highway 200	MDT-0918-123	H19090497-023	9/18/2019	Duplicate	--	--	--	--	--	--	--	**1200**	**736**	--	--	--	--	--	--	--	--	--	--
Abrams-USDA (D)	7485 MT Highway 200	MDT-1218-114	H19120474-014	12/18/2019	Raw	--	--	3.01	8.22	1120	Clear	8.5	**1220**	**761**	--	--	--	--	--	--	--	--	--	--
Abrams-USDA (D)	7485 MT Highway 200	MDT-1218-115	H19120474-015	12/18/2019	Raw Duplicate	--	--	--	--	--	--	--	**1230**	**765**	--	--	--	--	--	--	--	--	--	--
Abrams-USDA (D)	7485 MT Highway 200	MDT-1218-112	H19120474-012	12/18/2019	Treated	--	--	3.01	8	1077	Clear	12.7	**1230**	**748**	--	--	--	--	--	--	--	--	--	--
Abrams-USDA (D)	7485 MT Highway 200	MDT-1218-113	H19120474-013	12/18/2019	Treated Duplicate	--	--	--	--	--	--	--	**1230**	**764**	--	--	--	--	--	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	3/27/2013	--	--	--	6.51	7.34	829	--	11.31	911	421	210	250	<4	130	18	--	226	3	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	6/11/2013	--	--	--	7.01	7.14	913	--	11.12	952	446	220	260	<4	160	19	--	245	4	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	9/26/2013	--	--	--	6.22	7.23	848	--	13.59	865	464	210	250	<4	140	19	--	262	4	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	12/18/2013	--	--	--	6.36	7.12	799	--	11.53	856	428	220	270	<4	120	19	--	229	4	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	10/17/2014	--	--	--	--	--	--	--	--	**1180**	**651**	--	--	--	230	--	--	352	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	1/20/2015	--	--	--	--	--	--	--	--	**1260**	**697**	--	--	--	247	--	--	293	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	4/28/2015	--	--	--	--	--	--	--	--	**1460**	**505**	--	--	--	**316**	--	--	341	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	8/20/2015	--	--	--	--	--	--	--	--	921	500	--	--	--	147	--	--	233	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	11/12/2015	--	--	--	--	--	--	--	--	875	493	--	--	--	139	--	--	240	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	4/19/2016	--	--	--	--	--	--	--	--	968	**536**	--	--	--	168	--	--	240	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	12/2/2016	--	--	--	--	--	--	--	--	**1370**	**750**	--	--	--	**290**	--	--	323	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	5/24/2017	--	--	--	--	--	--	--	--	**1710**	**1020**	--	--	--	**360**	--	--	399	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	PLN-1017-04	H17100097-004	10/3/2017	--	19.31	1.4	7.55	7.37	1188	Clear	13.41	**1240**	**706**	--	--	--	237	--	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	PLN-1017-05	H17100097-005	10/3/2017	Duplicate	--	--	--	--	--	--	--	**1240**	**713**	--	--	--	238	--	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	PLN-0118-14	H18010171-014	1/9/2018	--	--	59.2	7.74	7.6	1258	Clear	11.9	**1270**	**675**	--	--	--	243	--	--	380	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	PLN-0418-08	H18040490-008	4/25/2018	--	--	181.4	7.13	7.3	1510	Clear	11.18	**1500**	**851**	--	--	--	**327**	--	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	PLN-0718-12	H18070256-012	7/10/2018	--	30.61	76.3	7.94	7.33	1466	Clear	12.2	**1510**	**798**	--	--	--	**309**	--	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	PLN-0119-16	H19010176-016	1/9/2019	--	16.99	-6.9	8.5	7.68	848	Clear	12	871	445	--	--	--	122	--	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	MDT-0507-108	H19050268-010	5/7/2019	--	--	--	4.20	7.49	952	Clear	11.2	**1030**	**549**	--	--	--	188	--	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	MDT-0715-122	H19070340-022	7/15/2019	--	--	--	4.12	7.28	944	Clear	11.2	**1040**	**569**	--	--	--	169	--	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	MDT-0918-124	H19090497-024	9/18/2019	--	--	--	3.98	7.36	734	Clear	12.1	815	446	--	--	--	104	--	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	MDT-1219-129	H19120474-030	12/19/2019	--	--	--	4.01	7.75	627	Slightly Cloudy	9.9	673	358	--	--	--	89	--	--	--	--	--	--
Anthony (D)	3 Howells Ln.	PLN-1118-02	H18110111-001	11/2/2018	--	--	--	--	--	--	--	--	385	218	500	610	<4	2	10	1.1	684	0.06	--	--
Anthony (D)	3 Howells Ln.	PLN-0119-26	H19010176-026	1/10/2019	--	--	13.3	3.43	7.96	374.2	Clear	9	379	213	--	--	--	--	--	--	--	--	--	--
Anthony (D)	3 Howells Ln.	MDT-0507-106	H19050268-007	5/7/2019	--	--	--	3.01	7.86	313.7	Clear	12.9	343	219	--	--	--	--	--	--	--	--	--	--
Anthony (D)	3 Howells Ln.	MDT-0715-116	H19070340-016	7/15/2019	--	--	--	1.94	7.39	260.5	Clear	19.6	310	211	--	--	--		--	--	--	--	--	--
Anthony (S)	3 Howells Ln.	--	--	3/27/2013	--	--	--	7.38	7.2	990	--	10.45	**1050**	**509**	270	330	<4	150	24	--	328	4	--	--
Anthony (S)	3 Howells Ln.	--	--	6/11/2013	--	--	--	5.45	7.02	988	--	10.9	**1040**	**504**	250	310	<4	170	25	--	315	5	--	--
Anthony (S)	3 Howells Ln.	--	--	9/26/2013	--	--	--	6.45	7.22	952	--	13.79	964	**520**	270	330	<4	140	23	--	326	4	--	--
Anthony (S)	3 Howells Ln.	--	--	12/18/2013	--	--	--	6.13	6.51	1010	--	9.79	**1070**	**543**	300	370	<4	140	23	--	329	4	--	--
Anthony (S)	3 Howells Ln.	PDT1410-109	--	10/17/2014	--	--	--	--	--	--	--	--	**1040**	**561**	--	--	--	160	--	--	333	--	--	--

TABLE 3. FIELD AND ANALYTICAL RESULTS
MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Site Address	Sample ID	Lab Sample ID	Collection Date	Arsenic DIS (mg/L)	Arsenic Total (mg/L)	Arsenic acid-soluble (mg/L)	Calcium DIS (mg/L)	CalciumTotal (mg/L)	Calcium acid-soluble (mg/L)	Iron DIS (mg/L)	Iron Total (mg/L)	Iron acid-soluble (mg/L)	Lead DIS (mg/L)	Magnesium DIS (mg/L)	Magnesium Total (mg/L)	Magnesium acid-soluble (mg/L)	Manganese DIS (mg/L)	Manganese Total (mg/L)	Manganese acid-soluble (mg/L)	Potassium DIS (mg/L)	Potassium acid-soluble (mg/L)	Sodium DIS (mg/L)	Sodium Total (mg/L)	Sodium acid-soluble (mg/L)	Groundwater Elevation (ft)	E-Coli Coliform (per 100ml)	Total Coliform (per 100ml)
Abrams (D)	4 Howells Ln.	PLN-1118-01	H18110026-001	11/1/2018	0.010		--	--	--	39	2.1	--	4.1	--	--	--	10	**0.334**	--	--	--	5	--	--	21	--	--	--
Abrams (D)	4 Howells Ln.	PLN-0119-24	H19010176-024	1/10/2019	--		**0.051**	--	--	--	--	--	0.02	--	--	--	--	--	--	0.01	--	--	--	--	--	--	<1	<1
Abrams (D)	4 Howells Ln.	PLN-0119-34	H19010389-002	1/28/2019	--		**0.053**	--	--	--	--	--	0.02	--	--	--	--	--	--	0.014	--	--	--	--	--	--	--	--
Abrams (D)	4 Howells Ln.	PLN-0119-35	H19010389-003	1/28/2019	--		**0.020**	--	--	--	--	--	2.87	--	--	--	--	--	--	**0.266**	--	--	--	--	--	--	--	--
Abrams (D)	4 Howells Ln.	PLN-0219-01	H19020385-001	2/27/2019	--		<0.001	--	--	<1	--	--	<0.02	--	--	--	<1	--	--	**<0.001**	--	--	--	--	92	--	--	--
Abrams (D)	4 Howells Ln.	PLN-0219-02	H19020385-002	2/27/2019	--		**0.022**	--	--	43	--	--	2.14	--	--	--	11	--	--	**0.275**	--	--	--	--	22	--	--	--
Abrams (D)	4 Howells Ln.	MDT-0507-103	H19050268-004	5/7/2019	--	<0.001	--	--		--	--	0.03	--	--	--	--	--	--	0.002	--	--	--	--	--	--	--	--	--
Abrams (D)	4 Howells Ln.	MDT-0715-118	H19070340-018	7/15/2019	--	**0.027**	--	--	--	--	--	**<0.02**	--	--	--	--	--	--	0.017	--	--	--	--	--	--	--	--	--
Abrams (D)	4 Howells Ln.	MDT-0715-119	H19070340-019	7/15/2019	--	**0.023**	--	--	--	--	--	**<0.02**	--	--	--	--	--	--	0.031	--	--	--	--	--	--	--	--	--
Abrams (S)	4 Howells Ln.	--	--	3/27/2013	--		--	83	--	--	--	--	--	--	25	--	--	--	--	--	3	--	79	--	--	--	--	--
Abrams (S)	4 Howells Ln.	--	--	6/11/2013	--		--	82	--	--	--	--	--	--	24	--	--	--	--	--	3	--	81	--	--	--	--	--
Abrams (S)	4 Howells Ln.	--	--	9/26/2013	0.002		--	81	--	--	**<0.03**	--	--	<0.001	24	--	--	--	--	--	3	--	90	--	--	--	--	--
Abrams (S)	4 Howells Ln.	--	--	12/18/2013	0.003		--	88	--	--	0.04	--	--	0.002	25	--	--	--	--	--	3	--	89	--	--	--	--	--
Abrams (S)	4 Howells Ln.	PDT1410-110	--	10/16/2014	--		--	101	--	--	--	--	--	--	29	--	--	--	--	--	--	--	85	--	--	--	--	--
Abrams (S)	4 Howells Ln.	No Sample	--	1/21/2015	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2446.1	--	--
Abrams (S)	4 Howells Ln.	PDT0415-112	--	4/28/2015	--		--	98	--	--	--	--	--	--	29	--	--	--	--	--	--	--	90	--	--	2447.439	--	--
Abrams (S)	4 Howells Ln.	PMDT0820-13	--	8/20/2015	--		--	78	--	--	--	--	--	--	24	--	--	--	--	--	--	--	95	--	--	2445.179	--	--
Abrams (S)	4 Howells Ln.	PMDT1112-13	--	11/12/2015	--		--	98	--	--	--	--	--	--	29	--	--	--	--	--	--	--	105	--	--	2444.029	--	--
Abrams (S)	4 Howells Ln.	PMDT0419-05	--	4/19/2016	--		--	67	--	--	--	--	--	--	20	--	--	--	--	--	--	--	88	--	--	--	--	--
Abrams (S)	4 Howells Ln.	Pln-1216-11	H16120037-011	12/1/2016	--		--	87	--	--	--	--	--	--	26	--	--	--	--	--	--	--	92	--	--	--	--	--
Abrams (S)	4 Howells Ln.	Pln-0517-10	H17050519-010	5/24/2017	--		--	119	--	--	--	--	--	--	36	--	--	--	--	--	--	--	115	--	--	--	--	--
Abrams (S)	4 Howells Ln.	PLN-1017-06	H17100097-006	10/3/2017	--		--	102	--	--	--	--	--	--	31	--	--	--	--	--	--	--	150	--	--	--	--	--
Abrams (S)	4 Howells Ln.	PLN-0118-12	H18010171-012	1/9/2018	--		--	101	--	--	--	--	--	--	31	--	--	--	--	--	--	--	132	--	--	--	--	--
Abrams (S)	4 Howells Ln.	PLN-0418-09	H18040490-009	4/25/2018	--		--	75	--	--	--	--	--	--	23	--	--	--	--	--	--	--	101	--	--	--	--	--
Abrams (S)	4 Howells Ln.	PLN-0718-13	H18070256-013	7/10/2018	--		--	50	--	--	--	--	--	--	16	--	--	--	--	--	--	--	97	--	--	--	--	--
Abrams (S)	4 Howells Ln.	PLN-1018-12	H181100625-012	10/24/2018	--		--	74	--	--	--	--	--	--	22	--	--	--	--	--	--	--	115	--	--	--	--	--
Abrams (S)	4 Howells Ln.	PLN-0119-25	H19010176-025	1/10/2019	--		--	73	--	--	--	--	--	--	23	--	--	--	--	--	--	--	106	--	--	--	--	--
Abrams (S)	4 Howells Ln.	MDT-0507-104	H19050268-005	5/7/2019	--	--	--	--	70	--	--		--	--	--	23	--	--	--	--	--	--	--	98	--	--	--	--
Abrams (S)	4 Howells Ln.	MDT-0507-105	H19050268-006	5/7/2019	--	--	--	--	71	--	--		--	--	--	23	--	--	--	--	--	--	--	96	--	--	--	--
Abrams (S)	4 Howells Ln.	MDT-0715-120	H19070340-020	7/15/2019	--	--	--	--	68	--	--		--	--	--	21	--	--	--	--	--	--	--	93	--	--	--	--
Abrams (S)	4 Howells Ln.	MDT-0918-110	H19090497-010	9/18/2019	--	--	--	--	86	--	--	--	--	--	--	27	--	--	--	--	--	--	--	83	--	--	--	--
Abrams (S)	4 Howells Ln.	MDT-0918-109	H19090497-009	9/18/2019	--	--	--	--	6	--	--	--	--	--	--	2	--	--	--	--	--	--	--	223	--	--	--	--
Abrams (S)	4 Howells Ln.	MDT-1218-105	H19120474-005	12/18/2019	--	--	--	--	87	--	--	--	--	--	--	28	--	--	--	--	--	--	--	84	--	--	--	--
Abrams (S)	4 Howells Ln.	MDT-1218-104	H19120474-004	12/18/2019	--	--	--	--	9	--	--	--	--	--	--	3	--	--	--	--	--	--	--	215	--	--	--	--
Abrams-USDA (D)	7485 MT Highway 200	PLN-0119-28	H19010176-028	1/10/2019	--		**0.105**	87	--	--	--	--	8.1	--	23	--	--	--	--	**1.32**	10	--	85	--	--	--	<1	**26.5**
Abrams-USDA (D)	7485 MT Highway 200	PLN-0119-33	H19010389-001	1/28/2019	--		0.003	--	--	--	--	--	1.51	--	--	--	--	--	--	**0.167**	--	--	--	--	--	--	--	--
Abrams-USDA (D)	7485 MT Highway 200	MDT-0507-109	H19050268-009	5/7/2019	--	0.001	--	--		--	--	**0.77**	--	--	--	--	--	--	**0.072**	--	--	--	--	--	--	--	--	--
Abrams-USDA (D)	7485 MT Highway 200	MDT-0715-121	H19070340-021	7/15/2019	--	0.003	--	--	--	--	--	**2.15**	--	--	--	--	--	--	**0.072**	--	--	--	--	--	--	--	--	--
Abrams-USDA (D)	7485 MT Highway 200	MDT-0918-122	H19090497-022	9/18/2019	--	0.003	--	--	--	--	--	**1.53**	--	--	--	--	--	--	**0.054**	--	--	--	--	--	--	--	--	--
Abrams-USDA (D)	7485 MT Highway 200	MDT-0918-123	H19090497-023	9/18/2019	--	0.003	--	--	--	--	--	**1.55**	--	--	--	--	--	--	**0.056**	--	--	--	--	--	--	--	--	--
Abrams-USDA (D)	7485 MT Highway 200	MDT-1218-114	H19120474-014	12/18/2019	--	**0.012**	--	--	--	--	--	**2.09**	--	--	--	--	--	--	0.027	--	--	--	--	--	--	--	--	--
Abrams-USDA (D)	7485 MT Highway 200	MDT-1218-115	H19120474-015	12/18/2019	--	**0.011**	--	--	--	--	--	**2.09**	--	--	--	--	--	--	0.028	--	--	--	--	--	--	--	--	--
Abrams-USDA (D)	7485 MT Highway 200	MDT-1218-112	H19120474-012	12/18/2019	--	0.009	--	--	--	--	--	**2.29**	--	--	--	--	--	--	0.038	--	--	--	--	--	--	--	--	--
Abrams-USDA (D)	7485 MT Highway 200	MDT-1218-113	H19120474-013	12/18/2019	--	0.009	--	--	--	--	--	**2.31**	--	--	--	--	--	--	0.038	--	--	--	--	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	3/27/2013	--		--	60	--	--	--	--	--	--	18	--	--	--	--	--	3	--	86	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	6/11/2013	--		--	65	--	--	--	--	--	--	20	--	--	--	--	--	3	--	93	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	9/26/2013	0.001		--	70	--	--	0.09	--	--	<0.001	21	--	--	--	--	--	3	--	77	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	12/18/2013	0.002		--	62	--	--	0.19	--	--	0.001	18	--	--	--	--	--	3	--	76	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	10/17/2014	--		--	95	--	--	--	--	--	--	28	--	--	--	--	--	--	--	87	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	1/20/2015	--		--	78	--	--	--	--	--	--	24	--	--	--	--	--	--	--	120	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	4/28/2015	--		--	89	--	--	--	--	--	--	29	--	--	--	--	--	--	--	141	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	8/20/2015	--		--	62	--	--	--	--	--	--	19	--	--	--	--	--	--	--	82	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	11/12/2015	--		--	65	--	--	--	--	--	--	19	--	--	--	--	--	--	--	78	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	4/19/2016	--		--	63	--	--	--	--	--	--	20	--	--	--	--	--	--	--	97	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	12/2/2016	--		--	85	--	--	--	--	--	--	27	--	--	--	--	--	--	--	150	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	--	--	5/24/2017	--		--	104	--	--	--	--	--	--	34	--	--	--	--	--	--	--	178	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	PLN-1017-04	H17100097-004	10/3/2017	--		--	97	--	--	--	--	--	--	31	--	--	--	--	--	--	--	93	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	PLN-1017-05	H17100097-005	10/3/2017	--		--	99	--	--	--	--	--	--	31	--	--	--	--	--	--	--	91	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	PLN-0118-14	H18010171-014	1/9/2018	--		--	83	--	--	--	--	--	--	26	--	--	--	--	--	--	--	117	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	PLN-0418-08	H18040490-008	4/25/2018	--		--	86	--	--	--	--	--	--	27	--	--	--	--	--	--	--	168	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	PLN-0718-12	H18070256-012	7/10/2018	--		--	76	--	--	--	--	--	--	25	--	--	--	--	--	--	--	183	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	PLN-0119-16	H19010176-016	1/9/2019	--		--	65	--	--	--	--	--	--	21	--	--	--	--	--	--	--	72	--	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	MDT-0507-108	H19050268-010	5/7/2019	--	--	--	--	78	--	--	--	--	--	--	24	--	--	--	--	--	--	--	90	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	MDT-0715-122	H19070340-022	7/15/2019	--	--	--	--	84	--	--	--	--	--	--	26	--	--	--	--	--	--	--	97	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	MDT-0918-124	H19090497-024	9/18/2019	--	--	--	--	74	--	--	--	--	--	--	23	--	--	--	--	--	--	--	56	--	--	--	--
Abrams-USDA (S)	7485 MT Highway 200	MDT-1219-129	H19120474-030	12/19/2019	--	--	--	--	58	--	--	--	--	--	--	19	--	--	--	--	--	--	--	53	--	--	--	--
Anthony (D)	3 Howells Ln.	PLN-1118-02	H18110111-001	11/2/2018	**0.023**		--	--	--	203	0.03	--	22.6	--	--	--	43	**0.207**	--	--	--	6	--	--	25	--	--	--
Anthony (D)	3 Howells Ln.	PLN-0119-26	H19010176-026	1/10/2019	--		<0.001	--	--	--	--	--	<0.02	--	--	--	--	--	--	0.001	--	--	--	--	--	--	<1	<1
Anthony (D)	3 Howells Ln.	MDT-0507-106	H19050268-007	5/7/2019	--	<0.001	--	--		--	--	0.12	--	--	--	--	--	--	0.035	--	--	--	--	--	--	--	--	--
Anthony (D)	3 Howells Ln.	MDT-0715-116	H19070340-016	7/15/2019	--	**0.025**	--	--	--	--	--	0.05	--	--	--	--	--	--	0.015	--	--	--	--	--	--	--	--	--
Anthony (S)	3 Howells Ln.	--	--	3/27/2013	--		--	87	--	--	--	--	--	--	27	--	--	--	--	--	3	--	77	--	--	--	--	--
Anthony (S)	3 Howells Ln.	--	--	6/11/2013	--		--	85	--	--	--	--	--	--	25	--	--	--	--	--	3	--	83	--	--	--	--	--
Anthony (S)	3 Howells Ln.	--	--	9/26/2013	0.001		--	86	--	--	0.07	--	--	<0.001	27	--	--	--	--	--	3	--	82	--	--	--	--	--
Anthony (S)	3 Howells Ln.	--	--	12/18/2013	0.002		--	89	--	--	**<0.03**	--	--	<0.001	26	--	--	--	--	--	3	--	78	--	--	--	--	--
Anthony (S)	3 Howells Ln.	PDT1410-109	--	10/17/2014	--		--	89	--	--	--	--	--	--	27	--	--	--	--	--	--	--	81	--	--	2446.57	--	--

TABLE 3. FIELD AND ANALYTICAL RESULTS
MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Site Address	Sample ID	Lab Sample ID	Collection Date	Notes	Static Water Levels (feet)	Field ORP (mV)	Field DO (mg/L)	Field PH (s.u.)	Field SC (umhos/cm)	Field Turbidity	Field Temp (°C)	Conductivity @ 25 C (umhos/cm)	Solids, Total Dis TDS @ 180 C (mg/L)	Alkalinity (mg/L)	Bicarbonate (mg/L)	Carbonate (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Fluoride (mg/L)	Hardness (mg/L)	Nitrate+ Nitrite (mg/L)	Nitrate as N (mg/L)	Nitrite as N (mg/L)
Anthony (S)	3 Howells Ln.	PDT1501-107	--	1/21/2015	--	--	--	--	--	--	--	--	**1080**	**594**	--	--	--	173	--	--	324	--	--	--
Anthony (S)	3 Howells Ln.	PDT0415-113	--	4/28/2015	--	--	--	--	--	--	--	--	**1140**	**628**	--	--	--	189	--	--	263	--	--	--
Anthony (S)	3 Howells Ln.	PMDT0820-014	--	8/20/2015	--	--	--	--	--	--	--	--	**1120**	**619**	--	--	--	181	--	--	318	--	--	--
Anthony (S)	3 Howells Ln.	PMDT1112-12	--	11/12/2015	--	--	--	--	--	--	--	--	**1180**	**677**	--	--	--	205	--	--	370	--	--	--
Anthony (S)	3 Howells Ln.	PMDT0419-14	--	4/19/2016	--	--	--	--	--	--	--	--	**1030**	**590**	--	--	--	136	--	--	317	--	--	--
Anthony (S)	3 Howells Ln.	Pln-1216-10	H16120037-010	12/1/2016	--	--	147.1	6.9	7.35	1011	Clear	11.94	**1090**	**636**	--	--	--	170	--	--	340	--	--	--
Anthony (S)	3 Howells Ln.	Pln-0517-11	H17050519-011	5/24/2017	--	--	69.9	6.64	7.39	1071	Clear	8.82	**1230**	**726**	--	--	--	210	--	--	361	--	--	--
Anthony (S)	3 Howells Ln.	PLN-1017-07	H17100097-007	10/3/2017	--	16.65	4.3	8.49	7.35	1480	Clear	12.69	**1540**	**934**	--	--	--	**334**	--	--	--	--	--	--
Anthony (S)	3 Howells Ln.	PLN-0118-13	H18010171-013	1/9/2018	--	--	88.9	8.2	7.55	1458	Clear	10.6	**1470**	**806**	--	--	--	**290**	--	--	--	--	--	--
Anthony (S)	3 Howells Ln.	PLN-0418-10	H18040490-010	4/25/2018	--	--	181.9	6.02	7.35	1240	Clear	10.44	**1230**	**676**	--	--	--	217	--	--	--	--	--	--
Anthony (S)	3 Howells Ln.	PLN-0718-14	H18070256-014	7/10/2018	--	27.81	102.9	7.04	7.33	918	Clear	12.1	938	**525**	--	--	--	135	--	--	--	--	--	--
Anthony (S)	3 Howells Ln.	PLN-1018-13	H181100625-013	10/24/2018	--	--	163.9	9.11	7.68	1068	Clear	12.3	**1090**	**566**	--	--	--	169	--	--	--	--	--	--
Anthony (S)	3 Howells Ln.	MDT-0507-107	H19050268-008	5/7/2019	--	--	--	3.57	7.49	930	Clear	10.7	**1010**	**544**	--	--	--	162	--	--	--	--	--	--
Anthony (S)	3 Howells Ln.	MDT-0715-117	H19070340-017	7/15/2019	--	--	--	5.11	7.29	923	Moderate	11.6	996	**547**	--	--	--	147	--	--	--	--	--	--
Anthony (S)	3 Howells Ln.	PLN-0119-27	H19010176-027	1/10/2019	--	17.01	-12.9	9.62	7.74	870	Clear	11	892	459	--	--	--	121	--	--	--	--	--	--
Anthony (S)	3 Howells Ln.	MDT-0918-112	H19090497-012	9/18/2019	Raw	--	--	4.01	7.41	841	Clear	14.2	924	**507**	--	--	--	115	--	--	--	--	--	--
Anthony (S)	3 Howells Ln.	MDT-0918-111	H19090497-011	9/18/2019	Treated	--	--	4.11	7.2	862	Clear	17.8	935	**540**	--	--	--	115	--	--	--	--	--	--
Anthony (S)	3 Howells Ln.	MDT-1218-107	H19120474-007	12/18/2019	Raw	--	--	4.15	7.48	776	Clear	10.1	866	471	--	--	--	102	--	--	--	--	--	--
Anthony (S)	3 Howells Ln.	MDT-1218-106	H19120474-006	12/18/2019	Treated	--	--	3	7.33	792	Clear	11.3	880	482	--	--	--	104	--	--	--	--	--	--
Baker	6 Isabell	PLN-1017-18	H17100097-018	10/4/2017	--	16.84	145.5	5.58	7.7	459	Clear	13.27	496	303	--	--	--	23	--	--	--	--	--	--
Baker	6 Isabell	PLN-0118-10	H18010171-010	1/9/2018	--	--	146.9	6.47	7.74	392.3	Clear	10.7	399	225	--	--	--	10	--	--	--	--	--	--
Baker	6 Isabell	PLN-0418-12	H18040490-012	4/25/2018	--	--	184.2	4.99	7.49	384	Clear	11.08	390	227	--	--	--	10	--	--	--	--	--	--
Baker	6 Isabell	PLN-0718-23	H18070256-023	7/10/2018	--	28.73	97.9	6.09	7.21	544.9	Clear	12.9	560	336	--	--	--	22	--	--	--	--	--	--
Baker	6 Isabell	PLN-1018-20	H181100625-020	10/25/2018	--	--	169.8	5.26	7.74	429.8	Clear	12.1	445	245	--	--	--	17	--	--	--	--	--	--
Baker	6 Isabell	PLN-0119-11	H19010176-011	1/9/2019	--	--	153.9	9.98	7.84	379.5	Clear	10.3	395	218	--	--	--	11	--	--	--	--	--	--
Baker	6 Isabell	MDT-0508-130	H19050268-031	5/8/2019	--	--	--	4.03	7.60	347.4	Clear	10.5	387	221	--	--	--	10	--	--	--	--	--	--
Baker	6 Isabell	MDT-0508-131	H19050268-032	5/8/2019	Duplicate	--	--	--	--	--	--	--	390	219	--	--	--	10	--	--	--	--	--	--
Baker	6 Isabell	MDT-0715-110	H19070340-010	7/15/2019	--	--	--	3.93	7.46	374.1	Clear	12.4	412	250	--	--	--	11	--	--	--	--	--	--
Baker	6 Isabell	MDT-0918-113	H19090497-013	9/18/2019	--	--	--	3.21	7.61	351.4	Clear	12.3	389	223	--	--	--	10	--	--	--	--	--	--
Baker	6 Isabell	MDT-1218-117	H19120474-018	12/18/2019	--	--	--	4.38	7.68	348.1	Clear	9.9	387	220	--	--	--	10	--	--	--	--	--	--
Blank	--	PDT1501-114	--	1/21/2015	--	--	--	--	--	--	--	--	3	**ND**	--	--	--	**ND**	--	--	--	--	--	--
Clark Fork Valley Hospital	--	--	--	10/23/2012	--	--	--	--	--	486	--	--	493	266	190	230	<4	31	14	--	172	2	--	--
Collett	12 Diehl Ranch Rd.	MDT-0506-100	H19050268-001	5/6/2019	--	--	--	6.43	7.36	807	Clear	10.6	869	498	--	--	--	102	--	--	--	--	--	--
Collett	12 Diehl Ranch Rd.	MDT-0715-115	H19070340-015	7/15/2019	--	--	--	6.61	7.27	811	Clear	11.5	886	**524**	--	--	--	99	--	--	--	--	--	--
Collett	12 Diehl Ranch Rd.	MDT-0918-116	H19090497-016	9/18/2019	--	--	--	4.97	7.38	785	Clear	11.6	858	491	--	--	--	87	--	--	--	--	--	--
Collett	12 Diehl Ranch Rd.	--	--	--	Frozen	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
County Airport	--	--	--	9/27/2012	--	--	--	--	--	380	--	--	--	--	--	--	--	--	--	--	--	--	--	--
County Fire	20 Old Airport Rd.	--	--	10/24/2018	--	--	167.5	6.56	7.57	972	Clear	14	--	--	--	--	--	--	--	--	--	--	--	--
County Fire	20 Old Airport Rd.	PLN-1018-17	H181100625-017	10/24/2018	--	--	166.7	8.2	7.67	989	Clear	12.9	**1010**	**533**	--	--	--	142	--	--	--	--	--	--
County Fire	20 Old Airport Rd.	PLN-0119-31	H19010176-031	1/10/2019	--	--	83.5	6.25	7.57	1044	Clear	12.2	**1050**	**547**	--	--	--	184	--	--	--	--	--	--
County Fire	20 Old Airport Rd.	MDT-0507-119	H19050268-020	5/7/2019	--	--	--	4.76	7.46	956	Clear	11.0	**1040**	**554**	--	--	--	185	--	--	--	--	--	--
County Fire	20 Old Airport Rd.	MDT-0715-127	H19070340-027	7/15/2019	--	--	--	4.31	7.33	827	Clear	11.2	892	492	--	--	--	138	--	--	--	--	--	--
County Fire	20 Old Airport Rd.	MDT-0918-125	H19090497-025	9/18/2019	--	--	--	6.72	7.52	849	Clear	12.5	938	**509**	--	--	--	136	--	--	--	--	--	--
County Fire	20 Old Airport Rd.	MDT-1219-126	H19120474-027	12/19/2019	--	--	--	4.23	7.35	809	Clear	10.1	890	484	--	--	--	127	--	--	--	--	--	--
County Fire	20 Old Airport Rd.	MDT-1219-127	H19120474-028	12/19/2019	Duplicate	--	--	--	--	--	--	--	891	481	--	--	--	127	--	--	--	--	--	--
County Roads Plain	--	--	--	10/24/2018	--	--	161.4	6.56	7.75	440.8	Clear	13.5	--	--	--	--	--	--	--	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	--	--	10/23/2012	--	--	--	--	--	602	--	--	619	329	210	250	<4	60	13	--	197	3	--	--
Davis	12 Lower Lynch Creek Rd.	--	--	9/26/2013	--	--	--	5.93	7.28	543	--	12.72	561	306	230	270	<4	43	18	--	231	3	--	--
Davis	12 Lower Lynch Creek Rd.	--	--	12/18/2013	--	--	--	5.61	6.84	560	--	9.25	599	309	220	260	<4	41	18	--	227	4	--	--
Davis	12 Lower Lynch Creek Rd.	PDT1410-106	--	10/16/2014	--	--	--	--	--	--	--	--	734	407	--	--	--	96	--	--	262	--	--	--
Davis	12 Lower Lynch Creek Rd.	PDT1501-102	--	1/20/2015	--	--	--	--	--	--	--	--	606	337	--	--	--	49	--	--	218	--	--	--
Davis	12 Lower Lynch Creek Rd.	Pln-1216-13	H16120037-013	12/1/2016	--	--	147.3	7.63	7.48	552	Clear	11.34	602	351	--	--	--	47	--	--	241	--	--	--
Davis	12 Lower Lynch Creek Rd.	Pln-0517-05	H17050519-005	5/24/2017	--	--	89.8	7.1	7.44	525	Clear	9.03	603	351	--	--	--	44	--	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	PLN-1017-13	H17100097-013	10/3/2017	--	19.1	185.8	7.45	9.51	604	Clear	12.26	628	363	--	--	--	62	--	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	PLN-0118-04	H18010171-004	1/9/2018	--	--	124.8	6.68	7.69	574	Clear	11.4	580	318	--	--	--	42	--	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	PLN-0418-07	H18040490-007	4/25/2018	--	--	196.8	7.01	7.39	584	Clear	11.32	583	338	--	--	--	48	--	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	PLN-0718-10	H18070256-010	7/10/2018	No Access	--	121	7.15	7.4	632.7	Clear	12.1	654	355	--	--	--	63	--	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	PLN-1018-07	H181100625-007	10/24/2018	--	--	151.7	9.52	7.7	682	Clear	12.1	704	366	--	--	--	78	--	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	PLN-0119-08	H19010176-008	1/9/2019	--	--	155	7.54	7.73	630.1	Clear	11.3	653	344	--	--	--	60	--	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	MDT-0508-121	H19050268-022	5/8/2019	--	--	--	5.61	7.47	588	Clear	11.4	650	357	--	--	--	63	--	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	MDT-0715-126	H19070340-026	7/15/2019	--	--	--	5.01	7.36	607	Clear	12.2	659	373	--	--	--	65	--	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	MDT-0918-132	H19090497-032	9/19/2019	--	--	--	3.72	7.4	610	Clear	13.5	656	368	--	--	--	59	--	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	MDT-1219-132	H19120474-033	12/19/2019	--	--	--	4.63	7.4	582	Clear	9.9	632	347	--	--	--	55	--	--	--	--	--	--
DNRC	14 Airport Rd.	PLN-1018-16	H181100625-016	10/24/2018	--	--	147.1	7.36	7.62	978	Clear	12.8	1000	**532**	--	--	--	138	--	--	--	--	--	--
DNRC	14 Airport Rd.	--	--	10/25/2018	--	--	153.3	10.01	7.64	945	Clear	13.2	--	--	--	--	--	--	--	--	--	--	--	--
DNRC	14 Airport Rd.	PLN-0119-29	H19010176-029	1/10/2019	--	--	86.1	6.39	771	1070	Clear	12	**1090**	**568**	--	--	--	178	--	--	--	--	--	--
DNRC	14 Airport Rd.	PLN-0119-30	H19010176-030	1/10/2019	Duplicate	--	--	--	--	--	--	--	**1090**	**570**	--	--	--	178	--	--	--	--	--	--
DNRC	14 Airport Rd.	MDT-0507-118	H19050268-019	5/7/2019	--	--	--	4.47	7.44	982	Clear	11.7	**1070**	**564**	--	--	--	185	--	--	--	--	--	--
DNRC	14 Airport Rd.	MDT-0716-132	H19070340-032	7/16/2019	--	--	--	4.52	7.33	920	Clear	12.1	992	**549**	--	--	--	157	--	--	--	--	--	--
DNRC	14 Airport Rd.	MDT-0918-126	H19090497-026	9/18/2019	--	--	--	4.21	7.41	951	Clear	12.9	**1050**	**579**	--	--	--	145	--	--	--	--	--	--
DNRC	14 Airport Rd.	MDT-1219-128	H19120474-029	12/19/2019	--	--	--	4.11	7.32	896	Clear	11.7	979	**524**	--	--	--	139	--	--	--	--	--	--
Dryers	7 Lyla Ln.	PLN-1017-17	H17100097-017	10/4/2017	--	17.86	146.9	8.8	7.59	620	Clear	12.17	666	401	--	--	--	41	--	--	--	--	--	--
Dryers	7 Lyla Ln.	--	--	1/9/2018	Frozen	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dryers	7 Lyla Ln.	PLN-0418-14	H18040490-014	4/25/2018	--	--	207.8	5.57	7.33	534	Clear	10.81	532	316	--	--	--	20	--	--	--	--	--	--
Dryers	7 Lyla Ln.	PLN-0718-07	H18070256-007	7/10/2018	No Access	--	183	7.41	7.31	741	Clear	11.3	762	440	--	--	--	48	--	--	--	--	--	--

TABLE 3. FIELD AND ANALYTICAL RESULTS
MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Site Address	Sample ID	Lab Sample ID	Collection Date	Arsenic DIS (mg/L)	Arsenic Total (mg/L)	Arsenic acid-soluble (mg/L)	Calcium DIS (mg/L)	CalciumTotal (mg/L)	Calcium acid-soluble (mg/L)	Iron DIS (mg/L)	Iron Total (mg/L)	Iron acid-soluble (mg/L)	Lead DIS (mg/L)	Magnesium DIS (mg/L)	Magnesium Total (mg/L)	Magnesium acid-soluble (mg/L)	Manganese DIS (mg/L)	Manganese Total (mg/L)	Manganese acid-soluble (mg/L)	Potassium DIS (mg/L)	Potassium acid-soluble (mg/L)	Sodium DIS (mg/L)	Sodium Total (mg/L)	Sodium acid-soluble (mg/L)	Groundwater Elevation (ft)	E-Coli Coliform (per 100ml)	Total Coliform (per 100ml)
Anthony (S)	3 Howells Ln.	PDT1501-107	--	1/21/2015	--		--	87	--	--	--	--	--	--	26	--	--	--	--	--	--	--	82	--	--	2446.6	--	--
Anthony (S)	3 Howells Ln.	PDT0415-113	--	4/28/2015	--		--	61	--	--	--	--	--	--	27	--	--	--	--	--	--	--	86	--	--	2447.76	--	--
Anthony (S)	3 Howells Ln.	PMDT0820-014	--	8/20/2015	--		--	83	--	--	--	--	--	--	27	--	--	--	--	--	--	--	87	--	--	2445.49	--	--
Anthony (S)	3 Howells Ln.	PMDT1112-12	--	11/12/2015	--		--	97	--	--	--	--	--	--	31	--	--	--	--	--	--	--	91	--	--	2444.99	--	--
Anthony (S)	3 Howells Ln.	PMDT0419-14	--	4/19/2016	--		--	84	--	--	--	--	--	--	26	--	--	--	--	--	--	--	83	--	--	2445.85	--	--
Anthony (S)	3 Howells Ln.	Pln-1216-10	H16120037-010	12/1/2016	--		--	90	--	--	--	--	--	--	28	--	--	--	--	--	--	--	94	--	--	--	--	--
Anthony (S)	3 Howells Ln.	Pln-0517-11	H17050519-011	5/24/2017	--		--	97	--	--	--	--	--	--	29	--	--	--	--	--	--	--	96	--	--	--	--	--
Anthony (S)	3 Howells Ln.	PLN-1017-07	H17100097-007	10/3/2017	--		--	105	--	--	--	--	--	--	33	--	--	--	--	--	--	--	135	--	--	--	--	--
Anthony (S)	3 Howells Ln.	PLN-0118-13	H18010171-013	1/9/2018	--		--	103	--	--	--	--	--	--	33	--	--	--	--	--	--	--	123	--	--	--	--	--
Anthony (S)	3 Howells Ln.	PLN-0418-10	H18040490-010	4/25/2018	--		--	86	--	--	--	--	--	--	27	--	--	--	--	--	--	--	119	--	--	--	--	--
Anthony (S)	3 Howells Ln.	PLN-0718-14	H18070256-014	7/10/2018	--		--	58	--	--	--	--	--	--	17	--	--	--	--	--	--	--	102	--	--	--	--	--
Anthony (S)	3 Howells Ln.	PLN-1018-13	H181100625-013	10/24/2018	--		--	72	--	--	--	--	--	--	22	--	--	--	--	--	--	--	108	--	--	--	--	--
Anthony (S)	3 Howells Ln.	MDT-0507-107	H19050268-008	5/7/2019	--	--	--	--	73	--	--		--	--	--	23	--	--	--	--	--	--	--	92	--	--	--	--	--
Anthony (S)	3 Howells Ln.	MDT-0715-117	H19070340-017	7/15/2019	--	--	--	--	73	--	--	--	--	--	--	22	--	--	--	--	--	--	--	100	--	--	--	--	--
Anthony (S)	3 Howells Ln.	PLN-0119-27	H19010176-027	1/10/2019	--		--	60	--	--	--	--	--	--	19	--	--	--	--	--	--	--	97	--	--	--	--	--
Anthony (S)	3 Howells Ln.	MDT-0918-112	H19090497-012	9/18/2019	--	--	--	--	73	--	--	--	--	--	--	23	--	--	--	--	--	--	--	82	--	--	--	--	--
Anthony (S)	3 Howells Ln.	MDT-0918-111	H19090497-011	9/18/2019	--	--	--	--	2	--	--	--	--	--	--	ND	--	--	--	--	--	--	--	210	--	--	--	--	--
Anthony (S)	3 Howells Ln.	MDT-1218-107	H19120474-007	12/18/2019	--	--	--	--	69	--	--	--	--	--	--	22	--	--	--	--	--	--	--	77	--	--	--	--	--
Anthony (S)	3 Howells Ln.	MDT-1218-106	H19120474-006	12/18/2019	--	--	--	--	2	--	--	--	--	--	--	<1	--	--	--	--	--	--	--	194	--	--	--	--	--
Baker	6 Isabell	PLN-1017-18	H17100097-018	10/4/2017	--		--	54	--	--	--	--	--	--	14	--	--	--	--	--	--	--	23	--	--	--	--	--
Baker	6 Isabell	PLN-0118-10	H18010171-010	1/9/2018	--		--	45	--	--	--	--	--	--	11	--	--	--	--	--	--	--	17	--	--	--	--	--
Baker	6 Isabell	PLN-0418-12	H18040490-012	4/25/2018	--		--	45	--	--	--	--	--	--	11	--	--	--	--	--	--	--	17	--	--	--	--	--
Baker	6 Isabell	PLN-0718-23	H18070256-023	7/10/2018	--		--	60	--	--	--	--	--	--	15	--	--	--	--	--	--	--	27	--	--	--	--	--
Baker	6 Isabell	PLN-1018-20	H181100625-020	10/25/2018	--		--	52	--	--	--	--	--	--	13	--	--	--	--	--	--	--	20	--	--	--	--	--
Baker	6 Isabell	PLN-0119-11	H19010176-011	1/9/2019	--		--	43	--	--	--	--	--	--	11	--	--	--	--	--	--	--	18	--	--	--	--	--
Baker	6 Isabell	MDT-0508-130	H19050268-031	5/8/2019	--	--	--	--	47	--	--	--	--	--	--	11	--	--	--	--	--	--	--	15	--	--	--	--	--
Baker	6 Isabell	MDT-0508-131	H19050268-032	5/8/2019	--	--	--	--	48	--	--	--	--	--	--	12	--	--	--	--	--	--	--	16	--	--	--	--	--
Baker	6 Isabell	MDT-0715-110	H19070340-010	7/15/2019	--	--	--	--	50	--	--	--	--	--	--	13	--	--	--	--	--	--	--	17	--	--	--	--	--
Baker	6 Isabell	MDT-0918-113	H19090497-013	9/18/2019	--	--	--	--	47	--	--	--	--	--	--	11	--	--	--	--	--	--	--	16	--	--	--	--	--
Baker	6 Isabell	MDT-1218-117	H19120474-018	12/18/2019	--	--	--	--	46	--	--	--	--	--	--	12	--	--	--	--	--	--	--	15	--	--	--	--	--
Blank	--	PDT1501-114	--	1/21/2015	--		--	ND	--	--	--	--	--	--	ND	--	--	--	--	--	--	--	ND	--	--	--	--	--
Clark Fork Valley Hospital	--	--	--	10/23/2012	0.006		--	46	--	--	**5.01**	--	--	0.004	14	--	--	--	--	--	2	--	35	--	--	--	--	--
Collett	12 Diehl Ranch Rd.	MDT-0506-100	H19050268-001	5/6/2019	--	--	--	--	88	--	--	--	--	--	--	23	--	--	--	--	--	--	--	47	--	--	--	--	--
Collett	12 Diehl Ranch Rd.	MDT-0715-115	H19070340-015	7/15/2019	--	--	--	--	98	--	--	--	--	--	--	25	--	--	--	--	--	--	--	48	--	--	--	--	--
Collett	12 Diehl Ranch Rd.	MDT-0918-116	H19090497-016	9/18/2019	--	--	--	--	90	--	--	--	--	--	--	25	--	--	--	--	--	--	--	50	--	--	--	--	--
Collett	12 Diehl Ranch Rd.	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
County Airport	--	--	--	9/27/2012	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
County Fire	20 Old Airport Rd.	--	--	10/24/2018	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
County Fire	20 Old Airport Rd.	PLN-1018-17	H181100625-017	10/24/2018	--		--	79	--	--	--	--	--	--	25	--	--	--	--	--	--	--	79	--	--	--	--	--
County Fire	20 Old Airport Rd.	PLN-0119-31	H19010176-031	1/10/2019	--		--	89	--	--	--	--	--	--	25	--	--	--	--	--	--	--	81	--	--	--	--	--
County Fire	20 Old Airport Rd.	MDT-0507-119	H19050268-020	5/7/2019	--	--	--	--	84	--	--	--	--	--	--	23	--	--	--	--	--	--	--	95	--	--	--	--	--
County Fire	20 Old Airport Rd.	MDT-0715-127	H19070340-027	7/15/2019	--	--	--	--	75	--	--	--	--	--	--	20	--	--	--	--	--	--	--	77	--	--	--	--	--
County Fire	20 Old Airport Rd.	MDT-0918-125	H19090497-025	9/18/2019	--	--	--	--	75	--	--	--	--	--	--	20	--	--	--	--	--	--	--	81	--	--	--	--	--
County Fire	20 Old Airport Rd.	MDT-1219-126	H19120474-027	12/19/2019	--	--	--	--	73	--	--	--	--	--	--	20	--	--	--	--	--	--	--	85	--	--	--	--	--
County Fire	20 Old Airport Rd.	MDT-1219-127	H19120474-028	12/19/2019	--	--	--	--	71	--	--	--	--	--	--	20	--	--	--	--	--	--	--	82	--	--	--	--	--
County Roads Plain	--	--	--	10/24/2018	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	--	--	10/23/2012	0.002		--	54	--	--	0.09	--	--	<0.001	15	--	--	--	--	--	2	--	49	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	--	--	9/26/2013	0.001		--	63	--	--	0.05	--	--	<0.001	18	--	--	--	--	--	2	--	34	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	--	--	12/18/2013	0.002		--	63	--	--	0.03	--	--	<0.001	17	--	--	--	--	--	2	--	31	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	PDT1410-106	--	10/16/2014	--		--	72	--	--	--	--	--	--	20	--	--	--	--	--	--	--	37	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	PDT1501-102	--	1/20/2015	--		--	61	--	--	--	--	--	--	16	--	--	--	--	--	--	--	30	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	Pln-1216-13	H16120037-013	12/1/2016	--		--	67	--	--	--	--	--	--	18	--	--	--	--	--	--	--	28	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	Pln-0517-05	H17050519-005	5/24/2017	--		--	67	--	--	--	--	--	--	18	--	--	--	--	--	--	--	27	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	PLN-1017-13	H17100097-013	10/3/2017	--		--	61	--	--	--	--	--	--	17	--	--	--	--	--	--	--	34	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	PLN-0118-04	H18010171-004	1/9/2018	--		--	61	--	--	--	--	--	--	17	--	--	--	--	--	--	--	28	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	PLN-0418-07	H18040490-007	4/25/2018	--		--	61	--	--	--	--	--	--	17	--	--	--	--	--	--	--	29	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	PLN-0718-10	H18070256-010	7/10/2018	--		--	68	--	--	--	--	--	--	18	--	--	--	--	--	--	--	33	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	PLN-1018-07	H181100625-007	10/24/2018	--		--	72	--	--	--	--	--	--	20	--	--	--	--	--	--	--	37	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	PLN-0119-08	H19010176-008	1/9/2019	--		--	63	--	--	--	--	--	--	17	--	--	--	--	--	--	--	35	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	MDT-0508-121	H19050268-022	5/8/2019	--	--	--	--	73	--	--	--	--	--	--	19	--	--	--	--	--	--	--	29	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	MDT-0715-126	H19070340-026	7/15/2019	--	--	--	--	75	--	--	--	--	--	--	20	--	--	--	--	--	--	--	31	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	MDT-0918-132	H19090497-032	9/19/2019	--	--	--	--	68	--	--	--	--	--	--	18	--	--	--	--	--	--	--	29	--	--	--	--	--
Davis	12 Lower Lynch Creek Rd.	MDT-1219-132	H19120474-033	12/19/2019	--	--	--	--	71	--	--	--	--	--	--	19	--	--	--	--	--	--	--	30	--	--	--	--	--
DNRC	14 Airport Rd.	PLN-1018-16	H181100625-016	10/24/2018	--		--	81	--	--	--	--	--	--	26	--	--	--	--	--	--	--	79	--	--	--	--	--
DNRC	14 Airport Rd.	--	--	10/25/2018	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DNRC	14 Airport Rd.	PLN-0119-29	H19010176-029	1/10/2019	--		--	90	--	--	--	--	--	--	28	--	--	--	--	--	--	--	86	--	--	--	--	--
DNRC	14 Airport Rd.	PLN-0119-30	H19010176-030	1/10/2019	--		--	90	--	--	--	--	--	--	28	--	--	--	--	--	--	--	86	--	--	--	--	--
DNRC	14 Airport Rd.	MDT-0507-118	H19050268-019	5/7/2019	--	--	--	--	88	--	--	--	--	--	--	27	--	--	--	--	--	--	--	89	--	--	--	--	--
DNRC	14 Airport Rd.	MDT-0716-132	H19070340-032	7/16/2019	--	--	--	--	74	--	--	--	--	--	--	23	--	--	--	--	--	--	--	91	--	--	--	--	--
DNRC	14 Airport Rd.	MDT-0918-126	H19090497-026	9/18/2019	--	--	--	--	85	--	--	--	--	--	--	26	--	--	--	--	--	--	--	87	--	--	--	--	--
DNRC	14 Airport Rd.	MDT-1219-128	H19120474-029	12/19/2019	--	--	--	--	80	--	--	--	--	--	--	24	--	--	--	--	--	--	--	85	--	--	--	--	--
Dryers	7 Lyla Ln.	PLN-1017-17	H17100097-017	10/4/2017	--		--	69	--	--	--	--	--	--	18	--	--	--	--	--	--	--	33	--	--	--	--	--
Dryers	7 Lyla Ln.	--	--	1/9/2018	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dryers	7 Lyla Ln.	PLN-0418-14	H18040490-014	4/25/2018	--		--	60	--	--	--	--	--	--	16	--	--	--	--	--	--	--	28	--	--	--	--	--
Dryers	7 Lyla Ln.	PLN-0718-07	H18070256-007	7/10/2018	--		--	82	--	--	--	--	--	--	21	--	--	--	--	--	--	--	38	--	--	--	--	--

TABLE 3. FIELD AND ANALYTICAL RESULTS
MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Site Address	Sample ID	Lab Sample ID	Collection Date	Notes	Static Water Levels (feet)	Field ORP (mV)	Field DO (mg/L)	Field PH (s.u.)	Field SC (umhos/cm)	Field Turbidity	Field Temp (°C)	Conductivity @ 25 C (umhos/cm)	Solids, Total Dis TDS @ 180 C (mg/L)	Alkalinity (mg/L)	Bicarbonate (mg/L)	Carbonate (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Fluoride (mg/L)	Hardness (mg/L)	Nitrate+ Nitrite (mg/L)	Nitrate as N (mg/L)	Nitrite as N (mg/L)
Dryers	7 Lyla Ln.	PLN-1018-21	H181100625-021	10/25/2018	--	--	173.8	7.77	7.6	610.3	Clear	12	629	347	--	--	--	38	--	--	--	--	--	--
Dryers	7 Lyla Ln.	PLN-0119-10	H19010176-010	1/9/2019	--	--	142.7	7.02	7.76	468.8	Clear	11.4	488	267	--	--	--	19	--	--	--	--	--	--
Dryers	7 Lyla Ln.	MDT-0508-129	H19050268-030	5/8/2019	--	--	--	4.37	7.45	431	Clear	10.3	479	272	--	--	--	18	--	--	--	--	--	--
Dryers	7 Lyla Ln.	MDT-0715-111	H19070340-011	7/15/2019	--	--	--	4.56	7.36	526	Clear	12.1	577	337	--	--	--	25	--	--	--	--	--	--
Dryers	7 Lyla Ln.	MDT-0918-114	H19090497-014	9/18/2019	--	--	--	3.98	7.39	474.2	Clear	12	523	297	--	--	--	18	--	--	--	--	--	--
Dryers	7 Lyla Ln.	MDT-1218-116	H19120474-017	12/18/2019	--	--	--	4.02	7.49	407.3	Clear	10.5	512	293	--	--	--	18	--	--	--	--	--	--
Eldridge	22 Lyla Ln.	--	--	9/26/2013	--	--	--	4.61	7.52	420	--	15.66	436	256	190	220	<4	17	23	--	195	2	--	--
Eldridge	22 Lyla Ln.	--	--	12/18/2013	--	--	--	3.79	7.2	367	--	12.17	394	211	160	200	<4	8	22	--	163	2	--	--
Eldridge	22 Lyla Ln.	PDT1410-114	--	10/17/2014	--	--	--	--	--	--	--	--	633	349	--	--	--	50	--	--	242	--	--	--
Eldridge	22 Lyla Ln.	PDT1501-104	--	1/20/2015	--	--	--	--	--	--	--	--	423	248	--	--	--	12	--	--	167	--	--	--
Eldridge	22 Lyla Ln.	PDT0415-105	--	4/28/2015	--	--	--	--	--	--	--	--	404	230	--	--	--	9	--	--	167	--	--	--
Eldridge	22 Lyla Ln.	PMDT0820-11	--	8/20/2015	--	--	--	--	--	--	--	--	445	250	--	--	--	13	--	--	176	--	--	--
Eldridge	22 Lyla Ln.	PMDT1112-08	--	11/12/2015	--	--	--	--	--	--	--	--	377	221	--	--	--	7	--	--	164	--	--	--
Eldridge	22 Lyla Ln.	PMDT0419-09	--	4/19/2016	--	--	--	--	--	--	--	--	380	226	--	--	--	6	--	--	--	--	--	--
Eldridge	22 Lyla Ln.	PMDT0419-10	--	4/19/2016	Duplicate	--	--	--	--	--	--	--	380	229	--	--	--	6	--	--	--	--	--	--
Eldridge	22 Lyla Ln.	Pln-1216-08	H16120037-008	12/1/2016	--	--	149.2	7.34	7.50	386	Clear	11.89	421	255	--	--	--	10	--	--	186	--	--	--
Eldridge	22 Lyla Ln.	Pln-0517-13	H17050519-013	5/24/2017	--	--	91.9	8	7.55	595	Clear	8.31	682	407	--	--	--	33	--	--	--	--	--	--
First Security Bank	--	--	--	10/23/2012	--	--	--	--	--	328	--	--	397	217	180	210	7	9	9	--	186	2	--	--
Ford Dealership	7467 Highway 200	PLN-1017-19	H17100097-019	10/4/2017	--	18.11	136.1	7.03	7.53	639	Clear	14.3	689	406	--	--	--	53	--	--	--	--	--	--
Ford Dealership	7467 Highway 200	PLN-0118-11	H18010171-011	1/9/2018	--	--	153.2	8.11	7.68	687	Clear	12.8	696	384	--	--	--	61	--	--	--	--	--	--
Ford Dealership	7467 Highway 200	PLN-0418-04	H18040490-004	4/25/2018	--	--	190.8	7.66	7.21	695	Clear	10.77	689	408	--	--	--	64	--	--	--	--	--	--
Ford Dealership	7467 Highway 200	PLN-0418-05	H18040490-005	4/25/2018	Duplicate	--	--	--	--	--	--	--	689	402	--	--	--	64	--	--	--	--	--	--
Ford Dealership	7467 Highway 200	PLN-0718-05	H18070256-005	7/10/2018	--	29.15	168.3	7.61	7.15	1038	Clear	12.3	**1070**	**616**	--	--	--	126	--	--	--	--	--	--
Ford Dealership	7467 Highway 200	PLN-1018-06	H181100625-006	10/24/2018	--	--	159.5	8.76	7.61	829	Clear	14.3	849	455	--	--	--	92	--	--	--	--	--	--
Ford Dealership	7467 Highway 200	PLN-0119-09	H19010176-009	1/9/2019	--	--	153.8	8.3	7.65	786	Clear	12.9	805	429	--	--	--	84	--	--	--	--	--	--
Ford Dealership	7467 Highway 200	MDT-0507-116	H19050268-017	5/7/2019	--	--	--	5.47	7.63	619	Clear	11.1	677	362	--	--	--	57	--	--	--	--	--	--
Ford Dealership	7467 Highway 200	MDT-0715-112	H19070340-012	7/15/2019	--	--	--	4.08	7.49	611	Clear	12.1	663	381	--	--	--	50	--	--	--	--	--	--
Ford Dealership	7467 Highway 200	MDT-0918-117	H19090497-017	9/18/2019	--	--	--	5.42	7.48	590	Clear	13.5	643	365	--	--	--	44	--	--	--	--	--	--
Ford Dealership	7467 Highway 200	MDT-1218-123	H19120474-024	12/18/2019	--	--	--	4.15	7.63	535	Clear	12	585	329	--	--	--	34	--	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	--	--	9/27/2012	--	--	--	--	--	526	--	--	533	293	200	240	<4	34	12	--	216	4	--	--
Gary's Glass and Auto	7493 Hwy 200	--	--	3/27/2013	--	--	--	7.88	7.14	527	--	10.25	560	291	200	240	<4	37	16	--	216	4	--	--
Gary's Glass and Auto	7493 Hwy 200	--	--	10/16/2014	--	--	--	--	--	--	--	--	572	322	--	--	--	50	--	--	150	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PDT1501-110	--	1/21/2015	--	--	--	--	--	--	--	--	563	320	--	--	--	42	--	--	225	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PDT0415-102	--	4/28/2015	--	--	--	--	--	--	--	--	646	360	--	--	--	70	--	--	248	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PMDT0820-03	--	8/20/2015	--	--	--	--	--	--	--	--	613	346	--	--	--	55	--	--	235	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PMDT1112-03	--	11/12/2015	--	--	--	--	--	--	--	--	638	369	--	--	--	54	--	--	180	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PMDT0419-02	--	4/19/2016	--	--	--	--	--	--	--	--	793	487	--	--	--	117	--	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	Pln-1216-02	H16120037-002	12/1/2016	No Access	--	152.1	7.87	6.98	585	Clear	14.11	635	386	--	--	--	70	--	--	258	--	--	--
Gary's Glass and Auto	7493 Hwy 200	Pln-0517-02	H17050519-002	5/24/2017	--	--	75.9	9.58	7.13	709	Clear	8.17	807	**516**	--	--	--	110	--	--	318	--	--	--
Gary's Glass and Auto	7493 Hwy 200	Pln-0517-03	H17050519-003	5/24/2017	Duplicate	--	--	--	--	--	--	--	811	**524**	--	--	--	110	--	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PLN-1017-02	H17100097-002	10/3/2017	No Access	--	29.8	8.22	7.38	613	Clear	15.28	641	376	--	--	--	63	--	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PLN-1017-15	H17100097-015	10/4/2017	--	17.9	179.2	7.83	7.45	627	Clear	13.75	676	417	--	--	--	43	--	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PLN-0118-15	H18010171-015	1/9/2018	--	--	121.3	7.66	7.62	585	Clear	10.9	594	340	--	--	--	24	--	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PLN-0418-02	H18040490-002	4/25/2018	--	--	182.7	7.63	6.82	668	Clear	9.82	665	384	--	--	--	77	--	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PLN-0718-02	H18070256-002	7/10/2018	No Access	--	102.8	6.81	7.04	643.5	Clear	12.9	671	385	--	--	--	69	--	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PLN-1018-02	H181100625-002	10/24/2018	--	--	138.7	5.89	7.51	624	Clear	14.5	646	344	--	--	--	62	--	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PLN-1018-03	H181100625-003	10/24/2018	Duplicate	--	--	--	--	--	--	--	640	338	--	--	--	61	--	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PLN-0119-32	H19010176-032	1/10/2019	--	--	88.1	8.01	7.76	603	Clear	12	616	324	--	--	--	58	--	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	MDT-0507-115	H19050268-016	5/7/2019	--	--	--	5.34	7.41	626	Clear	9.7	688	376	--	--	--	78	--	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	MDT-0715-103	H19070340-003	7/15/2019	--	--	--	4.25	7.22	660	Clear	13.9	715	466	--	--	--	85	--	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	MDT-0918-102	H19090497-002	9/18/2019	--	--	--	3.61	6.93	770	Clear	15.9	830	478	--	--	--	114	--	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	MDT-0918-103	H19090497-003	9/18/2019	Duplicate	--	--	--	--	--	--	--	832	476	--	--	--	113	--	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	MDT-1219-125	H19120474-026	12/19/2019	--	--	--	4.12	7.22	701	Clear	10.1	766	420	--	--	--	91	--	--	--	--	--	--
Haun (D)	7491 MT Highway 200	PLN-0418-21	H18040490-021	4/26/2018	--	--	44	6.27	7.01	428	Clear	14.85	428	248	--	--	--	3	--	--	--	<0.01	<0.01	0.01
Haun (D)	7491 MT Highway 200	PLN-0518-01	H18050357-001	5/15/2018	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Haun (D)	7491 MT Highway 200	PLN-0118-01	H18060796-001	6/27/2018	--	--	--	--	--	--	--	--	472	279	230	280	<4	4	7	1	157	<0.01	--	--
Haun (D)	7491 MT Highway 200	PLN-0718-11	H18070256-011	7/10/2018	--	25.99	-172.8	2.73	7.22	528.5	Clear	15.3	526	294	--	--	--	16	--	--	--	--	--	--
Haun (D)	7491 MT Highway 200	MDTP-Haun-Raw	H18090525-005	9/21/2018	Raw	--	--	--	--	--	--	--	472	266	240	290	<4	4	6	1	151	0.02	--	--
Haun (D)	7491 MT Highway 200	MDTP-Haun-Treated	H18090525-001	9/21/2018	Treated	--	--	--	--	--	--	--	529	298	270	320	<4	5	6	0.9	15	<0.01	--	--
Haun (D)	7491 MT Highway 200	PLN-0119-20	H19010176-020	1/9/2019	--	--	42.4	3.37	8.21	451.3	Clear	7.9	462	268	--	--	--	--	--	--	--	--	--	--
Haun (D)	7491 MT Highway 200	--	--	5/8/2019	No Access	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Haun (D)	7491 MT Highway 200	MDT-0716-128	H19070340-028	7/16/2019	--	--	--	1.41	7.59	445.1	Clear	20.1	471	305	--	--	--	--	--	--	--	--	--	--
Haun (D)	7491 MT Highway 200	--	--	9/19/2019	No Access	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Haun (D)	7491 MT Highway 200	--	--	12/19/2019	No Access	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Haun (S)	7491 MT Highway 200	--	--	3/27/2013	--	--	--	6.26	7.22	1077	--	9.7	**1140**	**579**	230	270	<4	190	17	--	251	4	--	--
Haun (S)	7491 MT Highway 200	--	--	6/11/2013	--	--	--	6.44	7.13	1000	--	10.55	**1050**	**533**	230	280	<4	190	19	--	252	4	--	--
Haun (S)	7491 MT Highway 200	--	--	9/26/2013	--	--	--	4.19	7.03	1062	--	13.63	**1090**	**588**	230	290	<4	200	19	--	282	4	--	--
Haun (S)	7491 MT Highway 200	--	--	12/18/2013	--	--	--	5.48	6.8	1240	--	9.9	**1320**	**652**	230	280	<4	**260**	20	--	341	4	--	--
Haun (S)	7491 MT Highway 200	PDT1410-104	--	10/16/2014	--	--	--	--	--	--	--	--	**3130**	**1800**	--	--	--	**870**	--	--	650	--	--	--
Haun (S)	7491 MT Highway 200	PDT1501-111	--	1/21/2015	--	--	--	--	--	--	--	--	**2280**	**1260**	--	--	--	**586**	--	--	443	--	--	--
Haun (S)	7491 MT Highway 200	PDT0415-110	--	4/28/2015	--	--	--	--	--	--	--	--	**3250**	**1810**	--	--	--	**881**	--	--	576	--	--	--
Haun (S)	7491 MT Highway 200	PMDT0820-06	--	8/20/2015	--	--	--	--	--	--	--	--	**2810**	**1510**	--	--	--	**730**	--	--	432	--	--	--
Haun (S)	7491 MT Highway 200	PMDT1112-04	--	11/12/2015	--	--	--	--	--	--	--	--	**1760**	**939**	--	--	--	**404**	--	--	196	--	--	--
Haun (S)	7491 MT Highway 200	PMDT0419-04	--	4/19/2016	--	--	--	--	--	--	--	--	**1400**	**749**	--	--	--	**297**	--	--	161	--	--	--
Haun (S)	7491 MT Highway 200	Pln-1216-05	H16120037-005	12/1/2016	No Access	--	145.5	5.53	7.22	2134	Clear	12.30	**2300**	**1320**	--	--	--	**550**	--	--	405	--	--	--

TABLE 3. FIELD AND ANALYTICAL RESULTS
MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Site Address	Sample ID	Lab Sample ID	Collection Date	Arsenic DIS (mg/L)	Arsenic Total (mg/L)	Arsenic acid-soluble (mg/L)	Calcium DIS (mg/L)	CalciumTotal (mg/L)	Calcium acid-soluble (mg/L)	Iron DIS (mg/L)	Iron Total (mg/L)	Iron acid-soluble (mg/L)	Lead DIS (mg/L)	Magnesium DIS (mg/L)	Magnesium Total (mg/L)	Magnesium acid-soluble (mg/L)	Manganese DIS (mg/L)	Manganese Total (mg/L)	Manganese acid-soluble (mg/L)	Potassium DIS (mg/L)	Potassium acid-soluble (mg/L)	Sodium DIS (mg/L)	Sodium Total (mg/L)	Sodium acid-soluble (mg/L)	Groundwater Elevation (ft)	E-Coli Coliform (per 100ml)	Total Coliform (per 100ml)
Dryers	7 Lyla Ln.	PLN-1018-21	H181100625-021	10/25/2018	--		--	72	--	--	--	--	--	--	19	--	--	--	--	--	--	--	31	--	--	--	--	--
Dryers	7 Lyla Ln.	PLN-0119-10	H19010176-010	1/9/2019	--		--	53	--	--	--	--	--	--	14	--	--	--	--	--	--	--	25	--	--	--	--	--
Dryers	7 Lyla Ln.	MDT-0508-129	H19050268-030	5/8/2019	--	--	--	--	56	--	--	--	--	--	--	14	--	--	--	--	--	--	--	22	--	--	--	--
Dryers	7 Lyla Ln.	MDT-0715-111	H19070340-011	7/15/2019	--	--	--	--	68	--	--	--	--	--	--	18	--	--	--	--	--	--	--	28	--	--	--	--
Dryers	7 Lyla Ln.	MDT-0918-114	H19090497-014	9/18/2019	--	--	--	--	58	--	--	--	--	--	--	15	--	--	--	--	--	--	--	26	--	--	--	--
Dryers	7 Lyla Ln.	MDT-1218-116	H19120474-017	12/18/2019	--	--	--	--	61	--	--	--	--	--	--	16	--	--	--	--	--	--	--	26	--	--	--	--
Eldridge	22 Lyla Ln.	--	--	9/26/2013	0.002		--	55	--	--	0.11	--	--	0.001	14	--	--	--	--	--	2	--	18	--	--	--	--	--
Eldridge	22 Lyla Ln.	--	--	12/18/2013	0.002		--	47	--	--	**<0.03**	--	--	<0.001	11	--	--	--	--	--	2	--	14	--	--	--	--	--
Eldridge	22 Lyla Ln.	PDT1410-114	--	10/17/2014	--		--	69	--	--	--	--	--	--	17	--	--	--	--	--	--	--	33	--	--	2446.69	--	--
Eldridge	22 Lyla Ln.	PDT1501-104	--	1/20/2015	--		--	47	--	--	--	--	--	--	12	--	--	--	--	--	--	--	20	--	--	2446.43	--	--
Eldridge	22 Lyla Ln.	PDT0415-105	--	4/28/2015	--		--	47	--	--	--	--	--	--	12	--	--	--	--	--	--	--	17	--	--	2447.76	--	--
Eldridge	22 Lyla Ln.	PMDT0820-11	--	8/20/2015	--		--	49	--	--	--	--	--	--	13	--	--	--	--	--	--	--	20	--	--	2444.99	--	--
Eldridge	22 Lyla Ln.	PMDT1112-08	--	11/12/2015	--		--	46	--	--	--	--	--	--	12	--	--	--	--	--	--	--	16	--	--	2447.76	--	--
Eldridge	22 Lyla Ln.	PMDT0419-09	--	4/19/2016	--		--	45	--	--	--	--	--	--	11	--	--	--	--	--	--	--	15	--	--	2444.99	--	--
Eldridge	22 Lyla Ln.	PMDT0419-10	--	4/19/2016	--		--	45	--	--	--	--	--	--	12	--	--	--	--	--	--	--	15	--	--	--	--	--
Eldridge	22 Lyla Ln.	Pln-1216-08	H16120037-008	12/1/2016	--		--	53	--	--	--	--	--	--	13	--	--	--	--	--	--	--	18	--	--	--	--	--
Eldridge	22 Lyla Ln.	Pln-0517-13	H17050519-013	5/24/2017	--		--	84	--	--	--	--	--	--	21	--	--	--	--	--	--	--	28	--	--	--	--	--
First Security Bank	--	--	--	10/23/2012	<0.001		--	556	--	--	**<0.03**	--	--	<0.001	11	--	--	--	--	--	2	--	7	--	--	--	--	--
Ford Dealership	7467 Highway 200	PLN-1017-19	H17100097-019	10/4/2017	--		--	72	--	--	--	--	--	--	18	--	--	--	--	--	--	--	34	--	--	--	--	--
Ford Dealership	7467 Highway 200	PLN-0118-11	H18010171-011	1/9/2018	--		--	76	--	--	--	--	--	--	18	--	--	--	--	--	--	--	33	--	--	--	--	--
Ford Dealership	7467 Highway 200	PLN-0418-04	H18040490-004	4/25/2018	--		--	76	--	--	--	--	--	--	19	--	--	--	--	--	--	--	34	--	--	--	--	--
Ford Dealership	7467 Highway 200	PLN-0418-05	H18040490-005	4/25/2018	--		--	75	--	--	--	--	--	--	18	--	--	--	--	--	--	--	35	--	--	--	--	--
Ford Dealership	7467 Highway 200	PLN-0718-05	H18070256-005	7/10/2018	--		--	109	--	--	--	--	--	--	27	--	--	--	--	--	--	--	57	--	--	--	--	--
Ford Dealership	7467 Highway 200	PLN-1018-06	H181100625-006	10/24/2018	--		--	93	--	--	--	--	--	--	23	--	--	--	--	--	--	--	43	--	--	--	--	--
Ford Dealership	7467 Highway 200	PLN-0119-09	H19010176-009	1/9/2019	--		--	85	--	--	--	--	--	--	21	--	--	--	--	--	--	--	43	--	--	--	--	--
Ford Dealership	7467 Highway 200	MDT-0507-116	H19050268-017	5/7/2019	--	--	--	--	71	--	--	--	--	--	--	17	--	--	--	--	--	--	--	38	--	--	--	--
Ford Dealership	7467 Highway 200	MDT-0715-112	H19070340-012	7/15/2019	--	--	--	--	76	--	--	--	--	--	--	18	--	--	--	--	--	--	--	39	--	--	--	--
Ford Dealership	7467 Highway 200	MDT-0918-117	H19090497-017	9/18/2019	--	--	--	--	73	--	--	--	--	--	--	17	--	--	--	--	--	--	--	38	--	--	--	--
Ford Dealership	7467 Highway 200	MDT-1218-123	H19120474-024	12/18/2019	--	--	--	--	62	--	--	--	--	--	--	16	--	--	--	--	--	--	--	37	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	--	--	9/27/2012	<0.001		--	60	--	--	**<0.03**	--	--	<0.001	16	--	--	--	--	--	2	--	23	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	--	--	3/27/2013	--		--	60	--	--	--	--	--	--	16	--	--	--	--	--	2	--	21	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	--	--	10/16/2014	--		--	42	--	--	--	--	--	--	11	--	--	--	--	--	--	--	18	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PDT1501-110	--	1/21/2015	--		--	62	--	--	--	--	--	--	17	--	--	--	--	--	--	--	21	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PDT0415-102	--	4/28/2015	--		--	68	--	--	--	--	--	--	19	--	--	--	--	--	--	--	24	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PMDT0820-03	--	8/20/2015	--		--	66	--	--	--	--	--	--	17	--	--	--	--	--	--	--	25	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PMDT1112-03	--	11/12/2015	--		--	72	--	--	--	--	--	--	20	--	--	--	--	--	--	--	27	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PMDT0419-02	--	4/19/2016	--		--	85	--	--	--	--	--	--	23	--	--	--	--	--	--	--	35	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	Pln-1216-02	H16120037-002	12/1/2016	--		--	72	--	--	--	--	--	--	19	--	--	--	--	--	--	--	27	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	Pln-0517-02	H17050519-002	5/24/2017	--		--	88	--	--	--	--	--	--	24	--	--	--	--	--	--	--	32	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	Pln-0517-03	H17050519-003	5/24/2017	--		--	87	--	--	--	--	--	--	24	--	--	--	--	--	--	--	32	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PLN-1017-02	H17100097-002	10/3/2017	--		--	66	--	--	--	--	--	--	18	--	--	--	--	--	--	--	31	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PLN-1017-15	H17100097-015	10/4/2017	--		--	71	--	--	--	--	--	--	19	--	--	--	--	--	--	--	35	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PLN-0118-15	H18010171-015	1/9/2018	--		--	68	--	--	--	--	--	--	18	--	--	--	--	--	--	--	25	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PLN-0418-02	H18040490-002	4/25/2018	--		--	70	--	--	--	--	--	--	19	--	--	--	--	--	--	--	29	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PLN-0718-02	H18070256-002	7/10/2018	--		--	68	--	--	--	--	--	--	19	--	--	--	--	--	--	--	29	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PLN-1018-02	H181100625-002	10/24/2018	--		--	71	--	--	--	--	--	--	20	--	--	--	--	--	--	--	27	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PLN-1018-03	H181100625-003	10/24/2018	--		--	69	--	--	--	--	--	--	19	--	--	--	--	--	--	--	27	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	PLN-0119-32	H19010176-032	1/10/2019	--		--	69	--	--	--	--	--	--	19	--	--	--	--	--	--	--	27	--	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	MDT-0507-115	H19050268-016	5/7/2019	--	--	--	--	75	--	--	--	--	--	--	21	--	--	--	--	--	--	--	28	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	MDT-0715-103	H19070340-003	7/15/2019	--	--	--	--	78	--	--	--	--	--	--	21	--	--	--	--	--	--	--	31	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	MDT-0918-102	H19090497-002	9/18/2019	--	--	--	--	94	--	--	--	--	--	--	25	--	--	--	--	--	--	--	33	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	MDT-0918-103	H19090497-003	9/18/2019	--	--	--	--	93	--	--	--	--	--	--	25	--	--	--	--	--	--	--	33	--	--	--	--
Gary's Glass and Auto	7493 Hwy 200	MDT-1219-125	H19120474-026	12/19/2019	--	--	--	--	86	--	--	--	--	--	--	23	--	--	--	--	--	--	--	35	--	--	--	--
Haun (D)	7491 MT Highway 200	PLN-0418-21	H18040490-021	4/26/2018	--		--	42	--	--	--	--	--	--	10	--	--	--	--	--	--	--	35	--	--	--	Absent	**Present**
Haun (D)	7491 MT Highway 200	PLN-0518-01	H18050357-001	5/15/2018	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Absent	**Present**
Haun (D)	7491 MT Highway 200	PLN-0118-01	H18060796-001	6/27/2018	**0.038**		--	45	--	--	**0.71**	--	--	<0.001	11	--	--	**0.327**	--	--	4	--	43	--	--	--	--	--
Haun (D)	7491 MT Highway 200	PLN-0718-11	H18070256-011	7/10/2018	--		--	45	--	--	--	--	--	--	11	--	--	--	--	--	--	--	51	--	--	--	--	--
Haun (D)	7491 MT Highway 200	MDTP-Haun-Raw	H18090525-005	9/21/2018	0.010		--	44	--	--	**5.38**	--	--	--	10	--	--	**0.36**	--	--	4	--	41	--	--	--	--	--
Haun (D)	7491 MT Highway 200	MDTP-Haun-Treated	H18090525-001	9/21/2018	<0.001		--	5	--	--	0.01	--	--	--	<1	--	--	0.005	--	--	<1	--	122	--	--	--	--	--
Haun (D)	7491 MT Highway 200	PLN-0119-20	H19010176-020	1/9/2019	--		<0.001	--	--	--	--	--	<0.02	--	--	--	--	--	--	0.001	--	--	--	--	--	--	--	--
Haun (D)	7491 MT Highway 200	--	--	5/8/2019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Haun (D)	7491 MT Highway 200	MDT-0716-128	H19070340-028	7/16/2019	--	<0.001	--	--	--	--	--	0.22	--	--	--	--	--	--	0.006	--	--	--	--	--	--	--	--	--
Haun (D)	7491 MT Highway 200	--	--	9/19/2019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Haun (D)	7491 MT Highway 200	--	--	12/19/2019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Haun (S)	7491 MT Highway 200	--	--	3/27/2013	--		--	66	--	--	--	--	--	--	21	--	--	--	--	--	3	--	118	--	--	--	--	--
Haun (S)	7491 MT Highway 200	--	--	6/11/2013	--		--	68	--	--	--	--	--	--	20	--	--	--	--	--	3	--	113	--	--	--	--	--
Haun (S)	7491 MT Highway 200	--	--	9/26/2013	0.001		--	75	--	--	**<0.03**	--	--	<0.001	23	--	--	--	--	--	3	--	117	--	--	--	--	--
Haun (S)	7491 MT Highway 200	--	--	12/18/2013	0.001		--	92	--	--	0.06	--	--	0.002	27	--	--	--	--	--	3	--	109	--	--	--	--	--
Haun (S)	7491 MT Highway 200	PDT1410-104	--	10/16/2014	--		--	173	--	--	--	--	--	--	53	--	--	--	--	--	--	--	332	--	--	--	--	--
Haun (S)	7491 MT Highway 200	PDT1501-111	--	1/21/2015	--		--	118	--	--	--	--	--	--	36	--	--	--	--	--	--	--	259	--	--	--	--	--
Haun (S)	7491 MT Highway 200	PDT0415-110	--	4/28/2015	--		--	150	--	--	--	--	--	--	49	--	--	--	--	--	--	--	370	--	--	--	--	--
Haun (S)	7491 MT Highway 200	PMDT0820-06	--	8/20/2015	--		--	117	--	--	--	--	--	--	34	--	--	--	--	--	--	--	368	--	--	--	--	--
Haun (S)	7491 MT Highway 200	PMDT1112-04	--	11/12/2015	--		--	52	--	--	--	--	--	--	16	--	--	--	--	--	--	--	286	--	--	--	--	--
Haun (S)	7491 MT Highway 200	PMDT0419-04	--	4/19/2016	--		--	43	--	--	--	--	--	--	13	--	--	--	--	--	--	--	224	--	--	--	--	--
Haun (S)	7491 MT Highway 200	Pln-1216-05	H16120037-005	12/1/2016	--		--	108	--	--	--	--	--	--	33	--	--	--	--	--	--	--	310	--	--	--	--	--

TABLE 3. FIELD AND ANALYTICAL RESULTS
MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Site Address	Sample ID	Lab Sample ID	Collection Date	Notes	Static Water Levels (feet)	Field ORP (mV)	Field DO (mg/L)	Field PH (s.u.)	Field SC (umhos/cm)	Field Turbidity	Field Temp (°C)	Conductivity @ 25 C (umhos/cm)	Solids, Total Dis TDS @ 180 C (mg/L)	Alkalinity (mg/L)	Bicarbonate (mg/L)	Carbonate (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Fluoride (mg/L)	Hardness (mg/L)	Nitrate+ Nitrite (mg/L)	Nitrate as N (mg/L)	Nitrite as N (mg/L)
Haun (S)	7491 MT Highway 200	Pln-0517-06	H17050519-006	5/24/2017	--	--	89.1	6	7.06	2730	Clear	8.99	**3090**	**1730**	--	--	--	**760**	--	--	551	--	--	--
Haun (S)	7491 MT Highway 200	PLN-1017-14	H17100097-014	10/3/2017	No Access	--	114.9	6.94	7.31	3412	Clear	14.06	**3550**	**2020**	--	--	--	**981**	--	--	510	--	--	--
Haun (S)	7491 MT Highway 200	PLN-0118-02	H18010171-002	1/9/2018	--	--	154.6	7.58	7.63	222	Clear	10.3	**2220**	**1140**	--	--	--	**511**	--	--	230	--	--	--
Haun (S)	7491 MT Highway 200	--	--	10/25/2018	No Access	--	--	--	--	--	--	--	**--**	**--**	--	--	--	**--**	--	--	--	--	--	--
Haun (S)	7491 MT Highway 200	PLN-0119-21	H19010176-021	1/9/2019	--	15.99	146	8.39	8	2028	Clear	9.5	**2060**	**1060**	--	--	--	**464**	--	--	--	--	--	--
Haun (S)	7491 MT Highway 200	--	--	5/8/2019	No Access	--	--	--	--	--	--	--	**--**	**--**	--	--	--	**--**	--	--	--	--	--	--
Haun (S)	7491 MT Highway 200	MDT-0716-129	H19070340-029	7/16/2019	--	--	--	0.76	7.19	1353	Clear	13.1	**1470**	**793**	--	--	--	**316**	--	--	--	--	--	--
Haun (S)	7491 MT Highway 200	MDT-0918-133	H19090497-033	9/19/2019	--	--	--	3.75	7.69	1185	High	14.2	**1310**	**706**	--	--	--	250	--	--	--	--	--	--
Haun (S)	7491 MT Highway 200	--	--	12/19/2019	Frozen	--	--	--	--	--	--	--	**--**	**--**	--	--	--	**--**	--	--	--	--	--	--
Herring	7473 Hwy 200	PLN-1018-23	H181100625-023	10/25/2018	--	--	169.2	10.82	7.61	1212	Clear	12	**1240**	**658**	--	--	--	197	--	--	--	--	--	--
Herring	7473 Hwy 200	PLN-0119-15	H19010176-015	1/9/2019	--	--	103.1	5.92	7.68	1064	Clear	11.5	**1100**	**565**	--	--	--	165	--	--	**--**	--	--	--
Herring	7473 Hwy 200	MDT-0508-128	H19050268-029	5/8/2019	--	--	--	5.15	7.56	813	Clear	10.5	895	482	--	--	--	124	--	--	--	--	--	--
Herring	7473 Hwy 200	MDT-0715-125	H19070340-025	7/15/2019	--	--	--	4.32	7.36	879	Clear	10.9	946	**530**	--	--	--	128	--	--	--	--	--	--
Herring	7473 Hwy 200	MDT-0918-120	H19090497-020	9/18/2019	--	--	--	4.12	7.41	850	Clear	12.8	924	**520**	--	--	--	121	--	--	**--**	--	--	--
Herring	7473 Hwy 200	MDT-1218-122	H19120474-023	12/18/2019	--	--	--	4.36	7.64	740	Clear	9	799	433	--	--	--	86	--	--	**--**	--	--	--
Joner	7479 MT Highway 200	--	--	3/27/2013	--	--	--	6.7	7.36	787	--	10.63	832	428	230	280	<4	100	22	--	**278**	5	--	--
Joner	7479 MT Highway 200	--	--	6/11/2013	--	--	--	6.18	7.04	802	--	10.66	844	445	230	270	<4	110	24	--	298	5	--	--
Joner	7479 MT Highway 200	PDT1410-111	--	10/17/2014	--	--	--	--	--	--	--	--	905	495	--	--	--	130	--	--	308	--	--	--
Joner	7479 MT Highway 200	PDT1501-113	--	1/21/2015	--	--	--	--	--	--	--	--	885	486	--	--	--	120	--	--	291	--	--	--
Joner	7479 MT Highway 200	PDT0415-111	--	4/28/2015	--	--	--	--	--	--	--	--	857	464	--	--	--	108	--	--	286	--	--	--
Joner	7479 MT Highway 200	PMDT0820-015	--	8/20/2015	--	--	--	--	--	--	--	--	887	487	--	--	--	121	--	--	290	--	--	--
Joner	7479 MT Highway 200	PMDT1112-10	--	11/12/2015	--	--	--	--	--	--	--	--	892	**507**	--	--	--	128	--	--	291	--	--	--
Joner	7479 MT Highway 200	PMDT0419-13	--	4/19/2016	--	--	--	--	--	--	--	--	946	**549**	--	--	--	146	--	--	--	--	--	--
Joner	7479 MT Highway 200	--	--	12/1/2016	No Access	--	--	--	--	--	--	--	**--**	**--**	--	--	--	**--**	--	--	--	--	--	--
Joner	7479 MT Highway 200	Pln-0517-12	H17050519-012	5/24/2017	--	--	65.2	7.86	7.53	833	Clear	8.2	951	**539**	--	--	--	120	--	--	309	--	--	--
Joner	7479 MT Highway 200	PLN-1017-08	H17100097-008	10/3/2017	No Access	--	81.6	7.9	7.54	923	Clear	13.06	968	**563**	--	--	--	139	--	--	--	--	--	--
Joner	7479 MT Highway 200	--	--	1/9/2018	Water Shut Off	--	--	--	--	--	--	--	**--**	**--**	--	--	--	**--**	--	--	--	--	--	--
Joner	7479 MT Highway 200	PLN-0418-11	H18040490-011	4/25/2018	--	--	191.3	602	7.53	955	Clear	11	946	**528**	--	--	--	146	--	--	--	--	--	--
Joner	7479 MT Highway 200	PLN-0718-15	H18070256-015	7/10/2018	No Access	--	101.6	5.64	7.2	1210	Clear	11.5	**1240**	**767**	--	--	--	209	--	--	--	--	--	--
Joner	7479 MT Highway 200	PLN-1018-11	H181100625-011	10/24/2018	--	--	172	7	7.74	1218	Clear	13.4	**1240**	**711**	--	--	--	214	--	--	--	--	--	--
Joner	7479 MT Highway 200	--	--	10/25/2018	Original well caved ir	--	--	--	--	--	--	--	**--**	**--**	--	--	--	**--**	--	--	--	--	--	--
Joner	7479 MT Highway 200	PLN-0119-14	H19010176-014	1/9/2019	--	--	54.2	7.57	7.69	1209	Clear	11.8	**1250**	**636**	--	--	--	212	--	--	--	--	--	--
Joner	7479 MT Highway 200	MDT-0507-110	H19050268-011	5/7/2019	--	--	--	5.50	7.54	1022	Clear	11.0	**1110**	**626**	--	--	--	190	--	--	--	--	--	--
Joner	7479 MT Highway 200	MDT-0715-123	H19070340-023	7/15/2019	--	--	--	4.15	7.36	1066	Clear	12.9	**1150**	**684**	--	--	--	195	--	--	--	--	--	--
Joner	7479 MT Highway 200	MDT-0918-121	H19090497-021	9/18/2019	--	--	--	4.91	7.49	1071	Clear	12.9	**1150**	**689**	--	--	--	195	--	--	--	--	--	--
Joner	7479 MT Highway 200	MDT-1218-108	H19120474-008	12/18/2019	--	--	--	4.02	7.58	974	Clear	12	**1080**	**575**	--	--	--	160	--	--	--	--	--	--
Leichtnam (D)	23 Lower Lynch	Leichtnam-1	H18060366-002	6/14/2018	--	--	--	--	--	--	--	--	361	209	150	180	<4	7	10	0.3	142	1.95	--	--
Leichtnam (D)	23 Lower Lynch	PLN-0718-18	H18070256-018	7/10/2018	--	31.16	112.5	2.22	7.5	342.2	Clear	13.6	350	238	--	--	--	7	--	--	--	--	--	--
Leichtnam (D)	23 Lower Lynch	MDTP-Leichtram-Raw	H18090525-006	9/21/2018	Raw	--	--	--	--	--	--	--	353	201	150	180	<4	7	12	0.3	138	2.79	--	--
Leichtnam (D)	23 Lower Lynch	MDTP-Leichtnam-Treated	H18090525-004	9/21/2018	Treated	--	--	--	--	--	--	--	355	216	150	180	<4	7	12	0.3	1	2.77	--	--
Leichtnam (D)	23 Lower Lynch	PLN-0119-18	H19010176-018	1/9/2019	--	--	-130.7	3.98	8.02	361.9	Clear	17	369	224	--	--	--	**--**	--	--	--	--	--	--
Leichtnam (D)	23 Lower Lynch	MDT-0507-111	H19050268-012	5/7/2019	--	--	--	2.60	7.64	335.5	Clear	15.1	362	214	--	--	--	**--**	--	--	--	--	--	--
Leichtnam (D)	23 Lower Lynch	MDT-0716-133	H19070340-033	7/16/2019	--	--	--	2.81	7.23	350.1	Clear	16.9	353	232	--	--	--	**--**	--	--	--	--	--	--
Leichtnam (D)	23 Lower Lynch	MDT-0918-130	H19090497-030	9/19/2019	--	--	--	2.35	7.46	320.7	Clear	19.5	346	222	--	--	--	**--**	--	--	--	--	--	--
Leichtnam (D)	23 Lower Lynch	MDT-1218-120	H19120474-021	12/18/2019	--	--	--	3.01	7.7	330.6	Clear	15.4	363	231	--	--	--	**--**	--	--	--	--	--	--
Leichtnam (S)	23 Lower Lynch	PLN-1117-01	H17110101-001	11/6/2017	--	--	82.1	5.66	7.07	2955	--	13.03	**3070**	**1740**	--	--	--	**794**	--	--	**--**	--	--	--
Leichtnam (S)	23 Lower Lynch	PLN-0118-16	H18010171-016	1/9/2018	--	--	55.1	6.31	7.5	2070	Clear	12.1	**2110**	**1140**	--	--	--	**479**	--	--	--	--	--	--
Leichtnam (S)	23 Lower Lynch	PLN-0119-17	H19010176-017	1/9/2019	--	16.4	23.2	9.6	7.7	907	Clear	11.9	938	486	--	--	--	132	--	--	--	--	--	--
Leichtnam (S)	23 Lower Lynch	MDT-0507-112	H19050268-013	5/7/2019	--	--	--	2.29	7.48	701	Clear	11.4	770	399	--	--	--	90	--	--	**--**	--	--	--
Leichtnam (S)	23 Lower Lynch	MDT-0716-134	H19070340-034	7/16/2019	--	--	--	4.62	7.38	950	Clear	12.3	**1010**	**594**	--	--	--	170	--	--	**--**	--	--	--
Leichtnam (S)	23 Lower Lynch	MDT-0918-131	H19090497-031	9/19/2019	--	--	--	4.26	7.37	734	Clear	12.9	840	462	--	--	--	83	--	--	**--**	--	--	--
Leichtnam (S)	23 Lower Lynch	MDT-1219-130	H19120474-031	12/19/2019	--	--	--	4.52	7.76	681	Slightly Cloudy	10.8	747	403	--	--	--	64	--	--	**--**	--	--	--
Madden	11 Sully Ln.	PLN-1017-20	H17100097-020	10/4/2017	--	19.61	128.7	7.27	7.66	508	Clear	13.08	550	331	--	--	--	21	--	--	--	--	--	--
Madden	11 Sully Ln.	--	--	1/9/2018	Frozen	--	--	--	--	--	--	--	**--**	**--**	--	--	--	**--**	--	--	--	--	--	--
Madden	11 Sully Ln.	PLN-0418-13	H18040490-013	4/25/2018	--	--	194.6	6.11	7.54	454	Clear	11.02	453	262	--	--	--	13	--	--	--	--	--	--
Madden	11 Sully Ln.	PLN-0718-21	H18070256-021	7/10/2018	--	34.78	95	4.25	7.42	407.5	Clear	11.3	420	254	--	--	--	11	--	--	--	--	--	--
Madden	11 Sully Ln.	PLN-0718-22	H18070256-022	7/10/2018	--	--	--	--	--	--	--	--	420	254	--	--	--	11	--	--	--	--	--	--
Madden	11 Sully Ln.	PLN-1018-19	H181100625-019	10/25/2018	--	--	161.5	7.15	7.86	438.7	Clear	12.3	450	253	--	--	--	13	--	--	--	--	--	--
Madden	11 Sully Ln.	PLN-0119-12	H19010176-012	1/9/2019	--	--	156.5	6.02	7.92	384.5	Clear	11.7	402	222	--	--	--	11	--	--	--	--	--	--
Madden	11 Sully Ln.	MDT-0507-102	H19050268-003	5/7/2019	--	--	--	4	7.71	354.9	Clear	9.9	389	225	--	--	--	10	--	--	--	--	--	--
Madden	11 Sully Ln.	MDT-0715-109	H19070340-009	7/15/2019	--	--	--	3.62	7.54	374.8	Clear	10.6	415	252	--	--	--	12	--	--	--	--	--	--
Madden	11 Sully Ln.	MDT-0918-108	H19090497-008	9/18/2019	--	--	--	4.23	7.64	366.5	Clear	12.5	406	229	--	--	--	10	--	--	--	--	--	--
Madden	11 Sully Ln.	MDT-1218-118	H19120474-019	12/18/2019	--	--	--	3.98	7.77	344.1	Clear	10.4	382	222	--	--	--	10	--	--	--	--	--	--
MDT	2 Lower Lynch	--	--	11/27/1996	--	--	--	--	--	--	--	--	435	221	185	226	--	12	18	--	176	3	--	--
MDT	2 Lower Lynch	--	--	7/16/2012	--	--	--	--	--	1227	--	--	**1250**	**688**	220	--	--	**260**	12	--	139	4	--	--
MDT	2 Lower Lynch	--	--	9/27/2012	--	--	--	--	--	1207	--	--	**1660**	**911**	200	240	<4	**400**	16	--	276	4	--	--
MDT	2 Lower Lynch	--	--	3/27/2013	--	--	--	6.78	7.14	1939	--	10.78	**2050**	**876**	210	260	<4	**490**	21	--	273	4	--	--
MDT	2 Lower Lynch	--	--	6/11/2013	--	--	--	6.58	6.72	4317	--	12.06	**4550**	**2440**	220	260	<4	**1400**	25	--	715	6	--	--
MDT	2 Lower Lynch	--	--	9/26/2013	--	--	--	6.31	6.72	2621	--	13.89	**2730**	**1460**	220	270	<4	**770**	24	--	320	4	--	--
MDT	2 Lower Lynch	--	--	12/18/2013	--	--	--	5.57	6.89	2782	--	12	**2910**	**1430**	230	280	<4	**760**	31	--	308	4	--	--
MDT	2 Lower Lynch	PDT1410-102	--	10/16/2014	--	--	--	--	--	--	--	--	**2000**	**1050**	--	--	--	**500**	--	--	249	--	--	--
MDT	2 Lower Lynch	PDT1501-101	--	1/20/2015	--	--	--	--	--	--	--	--	**1350**	**711**	--	--	--	**261**	--	--	151	--	--	--
MDT	2 Lower Lynch	PDT04115-101	--	4/28/2015	--	--	--	--	--	--	--	--	**1440**	**738**	--	--	--	**307**	--	--	190	--	--	--
MDT	2 Lower Lynch	PMDT0820-01	--	8/20/2015	--	--	--	--	--	--	--	--	**1630**	**871**	--	--	--	**369**	--	--	186	--	--	--
MDT	2 Lower Lynch	PMDT1112-01	--	11/12/2015	--	--	--	--	--	--	--	--	**1340**	**720**	--	--	--	**297**	--	--	192	--	--	--

TABLE 3. FIELD AND ANALYTICAL RESULTS
MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Site Address	Sample ID	Lab Sample ID	Collection Date	Arsenic DIS (mg/L)	Arsenic Total (mg/L)	Arsenic acid-soluble (mg/L)	Calcium DIS (mg/L)	CalciumTotal (mg/L)	Calcium acid-soluble (mg/L)	Iron DIS (mg/L)	Iron Total (mg/L)	Iron acid-soluble (mg/L)	Lead DIS (mg/L)	Magnesium DIS (mg/L)	Magnesium Total (mg/L)	Magnesium acid-soluble (mg/L)	Manganese DIS (mg/L)	Manganese Total (mg/L)	Manganese acid-soluble (mg/L)	Potassium DIS (mg/L)	Potassium acid-soluble (mg/L)	Sodium DIS (mg/L)	Sodium Total (mg/L)	Sodium acid-soluble (mg/L)	Groundwater Elevation (ft)	E-Coli Coliform (per 100ml)	Total Coliform (per 100ml)
Haun (S)	7491 MT Highway 200	Pln-0517-06	H17050519-006	5/24/2017	--		--	145	--	--	--	--	--	--	46	--	--	--	--	--	--	--	399	--	--	--	--	--
Haun (S)	7491 MT Highway 200	PLN-1017-14	H17100097-014	10/3/2017	--		--	135	--	--	--	--	--	--	42	--	--	--	--	--	--	--	497	--	--	--	--	--
Haun (S)	7491 MT Highway 200	PLN-0118-02	H18010171-002	1/9/2018	--		--	61	--	--	--	--	--	--	19	--	--	--	--	--	--	--	351	--	--	--	--	--
Haun (S)	7491 MT Highway 200	--	--	10/25/2018	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Haun (S)	7491 MT Highway 200	PLN-0119-21	H19010176-021	1/9/2019	--		--	93	--	--	--	--	--	--	28	--	--	--	--	--	--	--	299	--	--	--	--	--
Haun (S)	7491 MT Highway 200	--	--	5/8/2019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Haun (S)	7491 MT Highway 200	MDT-0716-129	H19070340-029	7/16/2019	--	--	--	--	67	--	--	--	--	--	--	18	--	--	--	--	--	--	--	215	--	--	--	--
Haun (S)	7491 MT Highway 200	MDT-0918-133	H19090497-033	9/19/2019	--	--	--	--	54	--	--	--	--	--	--	15	--	--	--	--	--	--	--	184	--	--	--	--
Haun (S)	7491 MT Highway 200	--	--	12/19/2019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Herring	7473 Hwy 200	PLN-1018-23	H181100625-023	10/25/2018	--		--	104	--	--	--	--	--	--	31	--	--	--	--	--	--	--	95	--	--	--	--	--
Herring	7473 Hwy 200	PLN-0119-15	H19010176-015	1/9/2019	--		--	86	--	--	--	--	--	--	26	--	--	--	--	--	--	--	90	--	--	--	--	--
Herring	7473 Hwy 200	MDT-0508-128	H19050268-029	5/8/2019	--	--	--	--	74	--	--	--	--	--	--	21	--	--	--	--	--	--	--	75	--	--	--	--
Herring	7473 Hwy 200	MDT-0715-125	H19070340-025	7/15/2019	--	--	--	--	80	--	--	--	--	--	--	23	--	--	--	--	--	--	--	84	--	--	--	--
Herring	7473 Hwy 200	MDT-0918-120	H19090497-020	9/18/2019	--	--	--	--	79	--	--	--	--	--	--	22	--	--	--	--	--	--	--	79	--	--	--	--
Herring	7473 Hwy 200	MDT-1218-122	H19120474-023	12/18/2019	--	--	--	--	68	--	--	--	--	--	--	20	--	--	--	--	--	--	--	73	--	--	--	--
Joner	7479 MT Highway 200	--	--	3/27/2013	--		--	77	--	--	--	--	--	--	21	--	--	--	--	--	3	--	51	--	--	--	--	--
Joner	7479 MT Highway 200	--	--	6/11/2013	--		--	83	--	--	--	--	--	--	22	--	--	--	--	--	3	--	52	--	--	--	--	--
Joner	7479 MT Highway 200	PDT1410-111	--	10/17/2014	--		--	87	--	--	--	--	--	--	22	--	--	--	--	--	--	--	56	--	--	--	--	--
Joner	7479 MT Highway 200	PDT1501-113	--	1/21/2015	--		--	82	--	--	--	--	--	--	21	--	--	--	--	--	--	--	55	--	--	--	--	--
Joner	7479 MT Highway 200	PDT0415-111	--	4/28/2015	--		--	80	--	--	--	--	--	--	21	--	--	--	--	--	--	--	55	--	--	--	--	--
Joner	7479 MT Highway 200	PMDT0820-015	--	8/20/2015	--		--	80	--	--	--	--	--	--	22	--	--	--	--	--	--	--	58	--	--	--	--	--
Joner	7479 MT Highway 200	PMDT1112-10	--	11/12/2015	--		--	82	--	--	--	--	--	--	21	--	--	--	--	--	--	--	65	--	--	--	--	--
Joner	7479 MT Highway 200	PMDT0419-13	--	4/19/2016	--		--	85	--	--	--	--	--	--	22	--	--	--	--	--	--	--	66	--	--	--	--	--
Joner	7479 MT Highway 200	--	--	12/1/2016	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Joner	7479 MT Highway 200	Pln-0517-12	H17050519-012	5/24/2017	--		--	86	--	--	--	--	--	--	23	--	--	--	--	--	--	--	69	--	--	--	--	--
Joner	7479 MT Highway 200	PLN-1017-08	H17100097-008	10/3/2017	--		--	79	--	--	--	--	--	--	21	--	--	--	--	--	--	--	75	--	--	--	--	--
Joner	7479 MT Highway 200	--	--	1/9/2018	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Joner	7479 MT Highway 200	PLN-0418-11	H18040490-011	4/25/2018	--		--	83	--	--	--	--	--	--	23	--	--	--	--	--	--	--	73	--	--	--	--	--
Joner	7479 MT Highway 200	PLN-0718-15	H18070256-015	7/10/2018	--		--	101	--	--	--	--	--	--	29	--	--	--	--	--	--	--	92	--	--	--	--	--
Joner	7479 MT Highway 200	PLN-1018-11	H181100625-011	10/24/2018	--		--	107	--	--	--	--	--	--	29	--	--	--	--	--	--	--	87	--	--	--	--	--
Joner	7479 MT Highway 200	--	--	10/25/2018	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Joner	7479 MT Highway 200	PLN-0119-14	H19010176-014	1/9/2019	--		--	105	--	--	--	--	--	--	28	--	--	--	--	--	--	--	90	--	--	--	--	--
Joner	7479 MT Highway 200	MDT-0507-110	H19050268-011	5/7/2019	--	--	--	--	97	--	--	--	--	--	--	26	--	--	--	--	--	--	--	81	--	--	--	--
Joner	7479 MT Highway 200	MDT-0715-123	H19070340-023	7/15/2019	--	--	--	--	106	--	--	--	--	--	--	28	--	--	--	--	--	--	--	84	--	--	--	--
Joner	7479 MT Highway 200	MDT-0918-121	H19090497-021	9/18/2019	--	--	--	--	106	--	--	--	--	--	--	27	--	--	--	--	--	--	--	91	--	--	--	--
Joner	7479 MT Highway 200	MDT-1218-108	H19120474-008	12/18/2019	--	--	--	--	92	--	--	--	--	--	--	24	--	--	--	--	--	--	--	89	--	--	--	--
Leichtnam (D)	23 Lower Lynch	Leichtnam-1	H18060366-002	6/14/2018	**0.030**		--	42	--	--	0.12	--	--	<0.001	9	--	--	**0.194**	--	--	7	--	14	--	--	--	Absent	Absent
Leichtnam (D)	23 Lower Lynch	PLN-0718-18	H18070256-018	7/10/2018	--		--	38	--	--	--	--	--	--	8	--	--	--	--	--	--	--	14	--	--	--	--	--
Leichtnam (D)	23 Lower Lynch	MDTP-Leichtram-Raw	H18090525-006	9/21/2018	**0.027**		--	41	--	--	0.04	--	--	--	9	--	--	0.047	--	--	6	--	13	--	--	--	--	--
Leichtnam (D)	23 Lower Lynch	MDTP-Leichtnam-Treated	H18090525-004	9/21/2018	<0.001		--	<1	--	--	0.01	--	--	--	<1	--	--	**<0.005**	--	--	<1	--	81	--	--	--	--	--
Leichtnam (D)	23 Lower Lynch	PLN-0119-18	H19010176-018	1/9/2019	--		<0.001	--	--	--	--	--	0.02	--	--	--	--	--	--	0.007	--	--	--	--	--	--	--	--
Leichtnam (D)	23 Lower Lynch	MDT-0507-111	H19050268-012	5/7/2019	--	<0.001	--	--		--	--	0.03	--	--	--	--	--	--	0.008	--	--	--	--	--	--	--	--	--
Leichtnam (D)	23 Lower Lynch	MDT-0716-133	H19070340-033	7/16/2019	--	0.003	--	--	--	--	--	**<0.02**	--	--	--	--	--	--	0.004	--	--	--	--	--	--	--	--	--
Leichtnam (D)	23 Lower Lynch	MDT-0918-130	H19090497-030	9/19/2019	--	0.001	--	--	--	--	--	0.04	--	--	--	--	--	--	0.006	--	--	--	--	--	--	--	--	--
Leichtnam (D)	23 Lower Lynch	MDT-1218-120	H19120474-021	12/18/2019	--	<0.001	--	--	--	--	--	0.03	--	--	--	--	--	--	0.003	--	--	--	--	--	--	--	--	--
Leichtnam (S)	23 Lower Lynch	PLN-1117-01	H17110101-001	11/6/2017	--		--	154	--	--	--	--	--	--	52	--	--	--	--	--	--	--	345	--	--	--	--	--
Leichtnam (S)	23 Lower Lynch	PLN-0118-16	H18010171-016	1/9/2018	--		--	107	--	--	--	--	--	--	41	--	--	--	--	--	--	--	225	--	--	--	--	--
Leichtnam (S)	23 Lower Lynch	PLN-0119-17	H19010176-017	1/9/2019	--		--	71	--	--	--	--	--	--	26	--	--	--	--	--	--	--	77	--	--	--	--	--
Leichtnam (S)	23 Lower Lynch	MDT-0507-112	H19050268-013	5/7/2019	--	--	--	--	69	--	--	--	--	--	--	25	--	--	--	--	--	--	--	52	--	--	--	--
Leichtnam (S)	23 Lower Lynch	MDT-0716-134	H19070340-034	7/16/2019	--	--	--	--	84	--	--	--	--	--	--	30	--	--	--	--	--	--	--	66	--	--	--	--
Leichtnam (S)	23 Lower Lynch	MDT-0918-131	H19090497-031	9/19/2019	--	--	--	--	61	--	--	--	--	--	--	21	--	--	--	--	--	--	--	80	--	--	--	--
Leichtnam (S)	23 Lower Lynch	MDT-1219-130	H19120474-031	12/19/2019	--	--	--	--	65	--	--	--	--	--	--	24	--	--	--	--	--	--	--	64	--	--	--	--
Madden	11 Sully Ln.	PLN-1017-20	H17100097-020	10/4/2017	--		--	60	--	--	--	--	--	--	18	--	--	--	--	--	--	--	22	--	--	--	--	--
Madden	11 Sully Ln.	--	--	1/9/2018	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Madden	11 Sully Ln.	PLN-0418-13	H18040490-013	4/25/2018	--		--	53	--	--	--	--	--	--	16	--	--	--	--	--	--	--	17	--	--	--	--	--
Madden	11 Sully Ln.	PLN-0718-21	H18070256-021	7/10/2018	--		--	45	--	--	--	--	--	--	13	--	--	--	--	--	--	--	18	--	--	--	--	--
Madden	11 Sully Ln.	PLN-0718-22	H18070256-022	7/10/2018	--		--	46	--	--	--	--	--	--	13	--	--	--	--	--	--	--	17	--	--	--	--	--
Madden	11 Sully Ln.	PLN-1018-19	H181100625-019	10/25/2018	--		--	53	--	--	--	--	--	--	16	--	--	--	--	--	--	--	18	--	--	--	--	--
Madden	11 Sully Ln.	PLN-0119-12	H19010176-012	1/9/2019	--		--	44	--	--	--	--	--	--	13	--	--	--	--	--	--	--	16	--	--	--	--	--
Madden	11 Sully Ln.	MDT-0507-102	H19050268-003	5/7/2019	--	--	--	--	44	--	--	--	--	--	--	13	--	--	--	--	--	--	--	15	--	--	--	--
Madden	11 Sully Ln.	MDT-0715-109	H19070340-009	7/15/2019	--	--	--	--	49	--	--	--	--	--	--	14	--	--	--	--	--	--	--	17	--	--	--	--
Madden	11 Sully Ln.	MDT-0918-108	H19090497-008	9/18/2019	--	--	--	--	46	--	--	--	--	--	--	13	--	--	--	--	--	--	--	15	--	--	--	--
Madden	11 Sully Ln.	MDT-1218-118	H19120474-019	12/18/2019	--	--	--	--	45	--	--	--	--	--	--	14	--	--	--	--	--	--	--	15	--	--	--	--
MDT	2 Lower Lynch	--	--	11/27/1996	--		--	--	--	--	<0.03	--	--	--	14	--	--	--	--	--	2	--	17	--	--	--	--	--
MDT	2 Lower Lynch	--	--	7/16/2012	0.003		--	36	--	--	1.32	--	--	0.005	12	--	--	--	--	--	2	--	204	--	--	--	--	--
MDT	2 Lower Lynch	--	--	9/27/2012	<0.001		--	71	--	--	0.16	--	--	0.001	24	--	--	--	--	--	3	--	221	--	--	--	--	--
MDT	2 Lower Lynch	--	--	3/27/2013	--		--	70	--	--	--	--	--	--	24	--	--	--	--	--	3	--	283	--	--	--	--	--
MDT	2 Lower Lynch	--	--	6/11/2013	--		--	181	--	--	--	--	--	--	64	--	--	--	--	--	4	--	613	--	--	--	--	--
MDT	2 Lower Lynch	--	--	9/26/2013	<0.001		--	82	--	--	0.38	--	--	<0.001	28	--	--	--	--	--	3	--	425	--	--	--	--	--
MDT	2 Lower Lynch	--	--	12/18/2013	0.001		--	79	--	--	0.17	--	--	<0.001	27	--	--	--	--	--	3	--	433	--	--	--	--	--
MDT	2 Lower Lynch	PDT1410-102	--	10/16/2014	--		--	65	--	--	--	--	--	--	21	--	--	--	--	--	--	--	288	--	--	2446.91	--	--
MDT	2 Lower Lynch	PDT1501-101	--	1/20/2015	--		--	39	--	--	--	--	--	--	13	--	--	--	--	--	--	--	205	--	--	2444.49	--	--
MDT	2 Lower Lynch	PDT04115-101	--	4/28/2015	--		--	48	--	--	--	--	--	--	17	--	--	--	--	--	--	--	211	--	--	2448.09	--	--
MDT	2 Lower Lynch	PMDT0820-01	--	8/20/2015	--		--	48	--	--	--	--	--	--	16	--	--	--	--	--	--	--	235	--	--	--	--	--
MDT	2 Lower Lynch	PMDT1112-01	--	11/12/2015	--		--	49	--	--	--	--	--	--	17	--	--	--	--	--	--	--	198	--	--	--	--	--

TABLE 3. FIELD AND ANALYTICAL RESULTS
MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Site Address	Sample ID	Lab Sample ID	Collection Date	Notes	Static Water Levels (feet)	Field ORP (mV)	Field DO (mg/L)	Field PH (s.u.)	Field SC (umhos/cm)	Field Turbidity	Field Temp (°C)	Conductivity @ 25 C (umhos/cm)	Solids, Total Dis TDS @ 180 C (mg/L)	Alkalinity (mg/L)	Bicarbonate (mg/L)	Carbonate (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Fluoride (mg/L)	Hardness (mg/L)	Nitrate+ Nitrite (mg/L)	Nitrate as N (mg/L)	Nitrite as N (mg/L)
MDT	2 Lower Lynch	PMDT0419-01	--	4/19/2016	--	--	--	--	--	--	--	--	**1220**	**659**	--	--	--	243	--	--	210	--	--	--
MDT	2 Lower Lynch	Pln-1216-01	H16120037-001	12/1/2016	--	--	151.4	6.65	6.76	1361	Clear	13.26	**1460**	**802**	--	--	--	**300**	--	--	**268**	--	--	--
MDT	2 Lower Lynch	Pln-0517-01	H17050519-001	5/24/2017	--	--	106.7	8.23	6.69	2026	Clear	9.07	**2290**	**1420**	--	--	--	**540**	--	--	494	--	--	--
MDT	2 Lower Lynch	PLN-1017-01	H17100097-001	10/3/2017	--	16.7	71.1	7.33	7.02	1876	Clear	13.7	**1960**	**1060**	--	--	--	**470**	--	--	317	--	--	--
MDT	2 Lower Lynch	PLN-0118-01	H18010171-001	1/9/2018	--	--	191.8	7.21	7.44	1339	Clear	12.5	**1340**	**697**	--	--	--	**259**	--	--	209	--	--	--
MDT	2 Lower Lynch	PLN-0418-01	H18040490-001	4/25/2018	--	--	191.2	6.42	6.67	1003	Clear	11.45	1000	**549**	--	--	--	167	--	--	--	--	--	--
MDT	2 Lower Lynch	PLN-0718-01	H18070256-001	7/10/2018	--	27.47	169.6	6.62	6.8	1450	Clear	12	**1480**	**784**	--	--	--	**302**	--	--	--	--	--	--
MDT	2 Lower Lynch	PLN-1018-01	H181100625-001	10/24/2018	--	--	167.6	6.35	7.46	1270	Clear	13	**1310**	**676**	--	--	--	**260**	--	--	--	--	--	--
MDT	2 Lower Lynch	PLN-0119-01	H19010176-001	1/9/2019	--	--	105.3	7.11	7.58	984	Clear	12.6	**1010**	**527**	--	--	--	165	--	--	--	--	--	--
MDT	2 Lower Lynch	MDT-0507-114	H19050268-015	5/7/2019	--	--	--	5.52	7.34	784	Clear	11.8	865	433	--	--	--	129	--	--	--	--	--	--
MDT	2 Lower Lynch	MDT-0716-130	H19070340-030	7/16/2019	--	--	--	3.16	7.14	861	Clear	12.7	936	**515**	--	--	--	151	--	--	--	--	--	--
MDT	2 Lower Lynch	MDT-0716-131	H19070340-031	7/16/2019	Duplicate	--	--	--	--	--	--	--	935	**510**	--	--	--	152	--	--	--	--	--	--
MDT	2 Lower Lynch	MDT-0918-128	H19090497-028	9/19/2019	--	--	--	4.22	7.11	991	Clear	15.5	**1080**	**608**	--	--	--	193	--	--	--	--	--	--
MDT	2 Lower Lynch	MDT-0919-129	H19090497-029	9/19/2019	Duplicate	--	--	--	--	--	--	--	**1080**	**613**	--	--	--	193	--	--	--	--	--	--
MDT	2 Lower Lynch	MDT-1218-102	H19120474-002	12/18/2019	--	--	--	4.11	7.07	893	Clear	11.5	997	**530**	--	--	--	163	--	--	--	--	--	--
Meredith	27 Lower Lynch	--	--	3/27/2013	--	--	--	6.51	7.34	829	--	11.31	--	--	--	--	--	--	--	--	--	--	--	--
Meredith	27 Lower Lynch	--	--	6/11/2013	--	--	--	5.36	7.23	1227	--	11.21	**1280**	**641**	220	260	<4	**270**	22	--	344	4	--	--
Meredith	27 Lower Lynch	--	--	9/26/2013	--	--	--	2.12	7.25	623	--	12.41	641	356	230	270	6	58	25	--	199	3	--	--
Meredith	27 Lower Lynch	--	--	12/18/2013	--	--	--	0.69	7.19	561	--	11.58	600	308	230	290	<4	29	26	--	217	3	--	--
Meredith	27 Lower Lynch	PDT1410-112	--	10/17/2014	--	--	--	--	--	--	--	--	989	**525**	--	--	--	160	--	--	250	--	--	--
Meredith	27 Lower Lynch	PDT1410-113	--	10/17/2014	Duplicate	--	--	--	--	--	--	--	989	**519**	--	--	--	160	--	--	--	--	--	--
Meredith	27 Lower Lynch	PDT1501-108	--	1/21/2015	--	--	--	--	--	--	--	--	557	316	--	--	--	27	--	--	185	--	--	--
Meredith	27 Lower Lynch	PDT1501-109	--	1/21/2015	--	--	--	--	--	--	--	--	557	318	--	--	--	27	--	--	192	--	--	--
Meredith	27 Lower Lynch	PDT0415-108	--	4/28/2015	--	--	--	--	--	--	--	--	961	**526**	--	--	--	156	--	--	280	--	--	--
Meredith	27 Lower Lynch	PMDT0820-08	--	8/20/2015	--	--	--	--	--	--	--	--	595	340	--	--	--	40	--	--	198	--	--	--
Meredith	27 Lower Lynch	PMDT1112-06	--	11/12/2015	--	--	--	--	--	--	--	--	557	320	--	--	--	27	--	--	217	--	--	--
Meredith	27 Lower Lynch	PMDT1112-07	--	11/12/2015	--	--	--	--	--	--	--	--	557	317	--	--	--	27	--	--	--	--	--	--
Meredith	27 Lower Lynch	PMDT0419-07	--	4/19/2016	--	--	--	--	--	--	--	--	517	299	--	--	--	21	--	--	206	--	--	--
Meredith	27 Lower Lynch	Pln-1216-07	H16120037-007	12/1/2016	No Access	--	149.3	5.5	7.42	585	Clear	12.00	636	376	--	--	--	56	--	--	248	--	--	--
Meredith	27 Lower Lynch	Pln-0517-08	H17050519-008	5/24/2017	--	--	73.2	7.44	7.48	1224	Clear	8.97	**1400**	**871**	--	--	--	**270**	--	--	407	--	--	--
Meredith	27 Lower Lynch	PLN-1017-12	H17100097-012	10/3/2017	No Access	--	209.7	3.91	7.55	793	Clear	12.15	827	451	--	--	--	111	--	--	--	--	--	--
Meredith	27 Lower Lynch	PLN-0118-05	H18010171-005	1/9/2018	--	--	138.9	3.13	7.69	584	Clear	11.8	588	320	--	--	--	34	--	--	--	--	--	--
Meredith	27 Lower Lynch	PLN-0418-18	H18040490-018	4/25/2018	--	--	270.3	4.15	7.47	514	Clear	11.96	515	289	--	--	--	30	--	--	--	--	--	--
Meredith	27 Lower Lynch	Meridith-1	H18060366-001	6/14/2018	--	--	--	--	--	--	--	--	**1230**	**686**	210	250	<4	229	19	<0.1	309	3.7	--	--
Meredith	27 Lower Lynch	PLN-0718-19	H18070256-019	7/10/2018	No Access	--	126	7.31	7.47	1203	Clear	12.6	**1230**	**722**	--	--	--	230	--	--	--	--	--	--
Meredith	27 Lower Lynch	PLN-1018-08	H181100625-008	10/24/2018	--	--	168.2	7.23	7.75	690	Clear	12.3	711	373	--	--	--	73	--	--	--	--	--	--
Meredith	27 Lower Lynch	PLN-0119-07	H19010176-007	1/9/2019	--	--	182.7	8.58	7.83	581.5	Clear	11.8	604	321	--	--	--	38	--	--	--	--	--	--
Meredith	27 Lower Lynch	MDT-0508-122	H19050268-023	5/8/2019	--	--	--	2.02	7.53	527	Clear	11.1	586	322	--	--	--	36	--	--	--	--	--	--
Meredith	27 Lower Lynch	MDT-0715-104	H19070340-004	7/15/2019	--	--	--	3.15	7.43	643	Clear	11.5	702	408	--	--	--	74	--	--	--	--	--	--
Meredith	27 Lower Lynch	MDT-0918-104	H19090497-004	9/18/2019	--	--	--	3.78	7.22	533	Clear	12	586	330	--	--	--	35	--	--	--	--	--	--
Meredith	27 Lower Lynch	MDT-1218-103	H19120474-003	12/18/2019	--	--	--	4.21	7.29	531	Clear	11.1	592	325	--	--	--	36	--	--	--	--	--	--
Milne	7471 Hwy 200	--	--	10/25/2018	--	--	171.8	11.31	7.67	882	Clear	12.4	--	--	--	--	--	--	--	--	--	--	--	--
Milne	7471 Hwy 200	PLN-0119-02	H19010176-002	1/9/2019	--	--	97.2	8.19	7.88	657.5	Clear	11.6	686	362	--	--	--	62	--	--	--	--	--	--
Milne	7471 Hwy 200	MDT-0508-127	H19050268-028	5/8/2019	--	--	--	5.72	7.54	631	Clear	10.3	692	369	--	--	--	69	--	--	--	--	--	--
Milne	7471 Hwy 200	MDT-0715-124	H19070340-024	7/15/2019	--	--	--	4.55	7.44	625	Clear	10.8	671	380	--	--	--	57	--	--	--	--	--	--
Milne	7471 Hwy 200	MDT-0918-119	H19090497-019	9/18/2019	--	--	--	4.82	7.59	601	Clear	11.7	654	362	--	--	--	51	--	--	--	--	--	--
Milne	7471 Hwy 200	--	--	12/18/2019	Frozen	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Newman	22 Lyla Ln.	PLN-1017-09	H17100097-009	10/3/2017	--	18.61	106.1	6.51	7.55	506	Clear	12.54	527	315	--	--	--	26	--	--	--	--	--	--
Newman	22 Lyla Ln.	PLN-0118-06	H18010171-006	1/9/2018	--	--	148	6.12	7.73	407.6	Clear	11.8	415	232	--	--	--	10	--	--	--	--	--	--
Newman	22 Lyla Ln.	PLN-0118-07	H18010171-007	1/9/2018	Duplicate	--	--	--	--	--	--	--	412	231	--	--	--	10	--	--	--	--	--	--
Newman	22 Lyla Ln.	PLN-0418-15	H18040490-015	4/25/2018	--	--	210.2	5.77	7.51	426	Clear	10.85	420	242	--	--	--	13	--	--	--	--	--	--
Newman	22 Lyla Ln.	PLN-0718-16	H18070256-016	7/10/2018	No Access	--	112.1	6.06	7.33	538.9	Clear	11.6	561	330	--	--	--	32	--	--	--	--	--	--
Newman	22 Lyla Ln.	PLN-1018-10	H181100625-010	10/24/2018	--	--	174.2	5.41	7.71	441.6	Clear	13.1	457	252	--	--	--	18	--	--	--	--	--	--
Newman	22 Lyla Ln.	PLN-0119-19	H19010176-019	1/9/2019	--	--	55.1	9.09	7.83	394	Clear	12.1	408	231	--	--	--	11	--	--	--	--	--	--
Newman	22 Lyla Ln.	MDT-0508-124	H19050268-025	5/8/2019	--	--	--	4.21	7.60	374.1	Clear	10.2	417	229	--	--	--	12	--	--	--	--	--	--
Newman	22 Lyla Ln.	MDT-0715-106	H19070340-006	7/15/2019	--	--	--	3.74	7.46	441.7	Clear	11	489	286	--	--	--	19	--	--	--	--	--	--
Newman	22 Lyla Ln.	--	--	9/19/2019	No Access	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Newman	22 Lyla Ln.	MDT-1218-119	H19120474-020	12/18/2019	--	--	--	3.98	7.57	372.5	Clear	10.9	411	233	--	--	--	11	--	--	--	--	--	--
Revier	7493 Hwy 200	PLN-0418-06	H18040490-006	4/25/2018	--	--	189.5	6.74	7.26	631	Clear	10.52	626	385	--	--	--	29	--	--	--	--	--	--
Revier	7493 Hwy 200	PLN-0718-06	H18070256-006	7/10/2018	--	28.88	182.1	7.31	7.22	1052	Clear	12.5	**1080**	**638**	--	--	--	143	--	--	--	--	--	--
Revier	7493 Hwy 200	PLN-1018-04	H181100625-004	10/24/2018	--	--	161.2	7.43	7.62	644.7	Clear	13.2	669	372	--	--	--	42	--	--	--	--	--	--
Revier	7461 Hwy 200	--	--	1/10/2019	No Access	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Revier	7461 Hwy 200	MDT-0507-120	H19050268-021	5/7/2019	--	--	--	5.01	7.53	504	Clear	10.2	552	310	--	--	--	26	--	--	--	--	--	--
Revier	7461 Hwy 200	MDT-0715-114	H19070340-014	7/15/2019	--	--	--	5.13	7.36	642	Clear	11.9	704	410	--	--	--	55	--	--	--	--	--	--
Revier	7461 Hwy 200	MDT-0918-115	H19090497-015	9/18/2019	--	--	--	4.11	7.42	495.4	Clear	14	543	316	--	--	--	22	--	--	--	--	--	--
Revier	7461 Hwy 200	MDT-1218-116-2	H19120474-016	12/18/2019	--	--	--	4.07	7.48	469.8	Clear	11.1	457	264	--	--	--	13	--	--	--	--	--	--
RTI, Inc.	--	--	--	9/27/2012	--	--	--	--	--	968	--	--	603	340	220	270	<4	44	14	--	230	3	--	--
Sears	131 Lower Lynch Creek Rd.	--	--	9/26/2013	--	--	--	1.42	7.04	594	--	11.8	613	346	240	280	4	43	26	--	243	3	--	--
Sears	131 Lower Lynch Creek Rd.	--	--	12/18/2013	--	--	--	1.02	6.86	606	--	11.05	642	326	240	300	<4	37	26	--	240	3	--	--
Sears	131 Lower Lynch Creek Rd.	PDT1410-107	--	10/16/2014	--	--	--	--	--	--	--	--	700	388	--	--	--	70	--	--	267	--	--	--
Sears	131 Lower Lynch Creek Rd.	PDT1501-103	--	1/20/2015	--	--	--	--	--	--	--	--	645	363	--	--	--	49	--	--	232	--	--	--
Sears	131 Lower Lynch Creek Rd.	PDT0415-106	--	4/28/2015	--	--	--	--	--	--	--	--	740	410	--	--	--	69	--	--	284	--	--	--
Sears	131 Lower Lynch Creek Rd.	PDT0415-107	--	4/28/2015	--	--	--	--	--	--	--	--	739	398	--	--	--	69	--	--	280	--	--	--
Sears	131 Lower Lynch Creek Rd.	PMDT0820-09	--	8/20/2015	--	--	--	--	--	--	--	--	626	347	--	--	--	42	--	--	234	--	--	--
Sears	131 Lower Lynch Creek Rd.	PMDT0820-010	--	8/20/2015	Duplicate	--	--	--	--	--	--	--	629	346	--	--	--	43	--	--	231	--	--	--

TABLE 3. FIELD AND ANALYTICAL RESULTS
MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Site Address	Sample ID	Lab Sample ID	Collection Date	Arsenic DIS (mg/L)	Arsenic Total (mg/L)	Arsenic acid-soluble (mg/L)	Calcium DIS (mg/L)	CalciumTotal (mg/L)	Calcium acid-soluble (mg/L)	Iron DIS (mg/L)	Iron Total (mg/L)	Iron acid-soluble (mg/L)	Lead DIS (mg/L)	Magnesium DIS (mg/L)	Magnesium Total (mg/L)	Magnesium acid-soluble (mg/L)	Manganese DIS (mg/L)	Manganese Total (mg/L)	Manganese acid-soluble (mg/L)	Potassium DIS (mg/L)	Potassium acid-soluble (mg/L)	Sodium DIS (mg/L)	Sodium Total (mg/L)	Sodium acid-soluble (mg/L)	Groundwater Elevation (ft)	E-Coli Coliform (per 100ml)	Total Coliform (per 100ml)
MDT	2 Lower Lynch	PMDT0419-01	--	4/19/2016	--		--	53	--	--	--	--	--	--	19	--	--	--	--	--	--	--	166	--	--	--	--	--
MDT	2 Lower Lynch	Pln-1216-01	H16120037-001	12/1/2016	--		--	68	--	--	--	--	--	--	24	--	--	--	--	--	--	--	197	--	--	--	--	--
MDT	2 Lower Lynch	Pln-0517-01	H17050519-001	5/24/2017	--		--	127	--	--	--	--	--	--	43	--	--	--	--	--	--	--	252	--	--	--	--	--
MDT	2 Lower Lynch	PLN-1017-01	H17100097-001	10/3/2017	--		--	81	--	--	--	--	--	--	28	--	--	--	--	--	--	--	252	--	--	--	--	--
MDT	2 Lower Lynch	PLN-0118-01	H18010171-001	1/9/2018	--		--	54	--	--	--	--	--	--	18	--	--	--	--	--	--	--	184	--	--	--	--	--
MDT	2 Lower Lynch	PLN-0418-01	H18040490-001	4/25/2018	--		--	43	--	--	--	--	--	--	14	--	--	--	--	--	--	--	143	--	--	--	--	--
MDT	2 Lower Lynch	PLN-0718-01	H18070256-001	7/10/2018	--		--	66	--	--	--	--	--	--	23	--	--	--	--	--	--	--	193	--	--	--	--	--
MDT	2 Lower Lynch	PLN-1018-01	H181100625-001	10/24/2018	--		--	50	--	--	--	--	--	--	17	--	--	--	--	--	--	--	188	--	--	--	--	--
MDT	2 Lower Lynch	PLN-0119-01	H19010176-001	1/9/2019	--		--	50	--	--	--	--	--	--	17	--	--	--	--	--	--	--	130	--	--	--	--	--
MDT	2 Lower Lynch	MDT-0507-114	H19050268-015	5/7/2019	--	--	--	--	51	--	--	--	--	--	--	17	--	--	--	--	--	--	--	97	--	--	--	--
MDT	2 Lower Lynch	MDT-0716-130	H19070340-030	7/16/2019	--	--	--	--	60	--	--	--	--	--	--	21	--	--	--	--	--	--	--	96	--	--	--	--
MDT	2 Lower Lynch	MDT-0716-131	H19070340-031	7/16/2019	--	--	--	--	61	--	--	--	--	--	--	21	--	--	--	--	--	--	--	97	--	--	--	--
MDT	2 Lower Lynch	MDT-0918-128	H19090497-028	9/19/2019	--	--	--	--	84	--	--	--	--	--	--	26	--	--	--	--	--	--	--	93	--	--	--	--
MDT	2 Lower Lynch	MDT-0919-129	H19090497-029	9/19/2019	--	--	--	--	78	--	--	--	--	--	--	26	--	--	--	--	--	--	--	92	--	--	--	--
MDT	2 Lower Lynch	MDT-1218-102	H19120474-002	12/18/2019	--	--	--	--	73	--	--	--	--	--	--	24	--	--	--	--	--	--	--	87	--	--	--	--
Meredith	27 Lower Lynch	--	--	3/27/2013	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Meredith	27 Lower Lynch	--	--	6/11/2013	--		--	94	--	--	--	--	--	--	27	--	--	--	--	--	3	--	112	--	--	--	--	--
Meredith	27 Lower Lynch	--	--	9/26/2013	0.006		--	54	--	--	**<0.03**	--	--	<0.001	15	--	--	--	--	--	3	--	62	--	--	--	--	--
Meredith	27 Lower Lynch	--	--	12/18/2013	0.006		--	60	--	--	**<0.03**	--	--	<0.001	16	--	--	--	--	--	2	--	37	--	--	--	--	--
Meredith	27 Lower Lynch	PDT1410-112	--	10/17/2014	--		--	69	--	--	--	--	--	--	19	--	--	--	--	--	--	--	97	--	--	--	--	--
Meredith	27 Lower Lynch	PDT1410-113	--	10/17/2014	--		--	68	--	--	--	--	--	--	19	--	--	--	--	--	--	--	99	--	--	--	--	--
Meredith	27 Lower Lynch	PDT1501-108	--	1/21/2015	--		--	51	--	--	--	--	--	--	14	--	--	--	--	--	--	--	38	--	--	--	--	--
Meredith	27 Lower Lynch	PDT1501-109	--	1/21/2015	--		--	52	--	--	--	--	--	--	15	--	--	--	--	--	--	--	38	--	--	--	--	--
Meredith	27 Lower Lynch	PDT0415-108	--	4/28/2015	--		--	76	--	--	--	--	--	--	22	--	--	--	--	--	--	--	73	--	--	--	--	--
Meredith	27 Lower Lynch	PMDT0820-08	--	8/20/2015	--		--	53	--	--	--	--	--	--	16	--	--	--	--	--	--	--	41	--	--	--	--	--
Meredith	27 Lower Lynch	PMDT1112-06	--	11/12/2015	--		--	59	--	--	--	--	--	--	17	--	--	--	--	--	--	--	31	--	--	--	--	--
Meredith	27 Lower Lynch	PMDT1112-07	--	11/12/2015	--		--	59	--	--	--	--	--	--	16	--	--	--	--	--	--	--	31	--	--	--	--	--
Meredith	27 Lower Lynch	PMDT0419-07	--	4/19/2016	--		--	56	--	--	--	--	--	--	16	--	--	--	--	--	--	--	26	--	--	--	--	--
Meredith	27 Lower Lynch	Pln-1216-07	H16120037-007	12/1/2016	--		--	68	--	--	--	--	--	--	19	--	--	--	--	--	--	--	37	--	--	--	--	--
Meredith	27 Lower Lynch	Pln-0517-08	H17050519-008	5/24/2017	--		--	107	--	--	--	--	--	--	34	--	--	--	--	--	--	--	111	--	--	--	--	--
Meredith	27 Lower Lynch	PLN-1017-12	H17100097-012	10/3/2017	--		--	62	--	--	--	--	--	--	18	--	--	--	--	--	--	--	73	--	--	--	--	--
Meredith	27 Lower Lynch	PLN-0118-05	H18010171-005	1/9/2018	--		--	59	--	--	--	--	--	--	17	--	--	--	--	--	--	--	33	--	--	--	--	--
Meredith	27 Lower Lynch	PLN-0418-18	H18040490-018	4/25/2018	--		--	56	--	--	--	--	--	--	16	--	--	--	--	--	--	--	26	--	--	--	--	--
Meredith	27 Lower Lynch	Meridith-1	H18060366-001	6/14/2018	<0.005		--	80	--	--	0.01	--	--	<0.001	27	--	--	**<0.005**	--	--	3	--	120	--	--	--	--	--
Meredith	27 Lower Lynch	PLN-0718-19	H18070256-019	7/10/2018	--		--	81	--	--	--	--	--	--	26	--	--	--	--	--	--	--	121	--	--	--	--	--
Meredith	27 Lower Lynch	PLN-1018-08	H181100625-008	10/24/2018	--		--	62	--	--	--	--	--	--	18	--	--	--	--	--	--	--	56	--	--	--	--	--
Meredith	27 Lower Lynch	PLN-0119-07	H19010176-007	1/9/2019	--		--	56	--	--	--	--	--	--	16	--	--	--	--	--	--	--	38	--	--	--	--	--
Meredith	27 Lower Lynch	MDT-0508-122	H19050268-023	5/8/2019	--	--	--	--	64	--	--	--	--	--	--	18	--	--	--	--	--	--	--	31	--	--	--	--
Meredith	27 Lower Lynch	MDT-0715-104	H19070340-004	7/15/2019	--	--	--	--	69	--	--	--	--	--	--	19	--	--	--	--	--	--	--	40	--	--	--	--
Meredith	27 Lower Lynch	MDT-0918-104	H19090497-004	9/18/2019	--	--	--	--	65	--	--	--	--	--	--	17	--	--	--	--	--	--	--	28	--	--	--	--
Meredith	27 Lower Lynch	MDT-1218-103	H19120474-003	12/18/2019	--	--	--	--	66	--	--	--	--	--	--	18	--	--	--	--	--	--	--	27	--	--	--	--
Milne	7471 Hwy 200	--	--	10/25/2018	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Milne	7471 Hwy 200	PLN-0119-02	H19010176-002	1/9/2019	--		--	63	--	--	--	--	--	--	21	--	--	--	--	--	--	--	44	--	--	--	--	--
Milne	7471 Hwy 200	MDT-0508-127	H19050268-028	5/8/2019	--	--	--	--	61	--	--	--	--	--	--	25	--	--	--	--	--	--	--	41	--	--	--	--
Milne	7471 Hwy 200	MDT-0715-124	H19070340-024	7/15/2019	--	--	--	--	60	--	--	--	--	--	--	26	--	--	--	--	--	--	--	45	--	--	--	--
Milne	7471 Hwy 200	MDT-0918-119	H19090497-019	9/18/2019	--	--	--	--	66	--	--	--	--	--	--	23	--	--	--	--	--	--	--	39	--	--	--	--
Milne	7471 Hwy 200	--	--	12/18/2019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Newman	22 Lyla Ln.	PLN-1017-09	H17100097-009	10/3/2017	--		--	53	--	--	--	--	--	--	13	--	--	--	--	--	--	--	33	--	--	--	--	--
Newman	22 Lyla Ln.	PLN-0118-06	H18010171-006	1/9/2018	--		--	46	--	--	--	--	--	--	**11**	--	--	--	--	--	--	--	19	--	--	--	--	--
Newman	22 Lyla Ln.	PLN-0118-07	H18010171-007	1/9/2018	--		--	46	--	--	--	--	--	--	**12**	--	--	--	--	--	--	--	19	--	--	--	--	--
Newman	22 Lyla Ln.	PLN-0418-15	H18040490-015	4/25/2018	--		--	47	--	--	--	--	--	--	12	--	--	--	--	--	--	--	20	--	--	--	--	--
Newman	22 Lyla Ln.	PLN-0718-16	H18070256-016	7/10/2018	--		--	59	--	--	--	--	--	--	**15**	--	--	--	--	--	--	--	29	--	--	--	--	--
Newman	22 Lyla Ln.	PLN-1018-10	H181100625-010	10/24/2018	--		--	47	--	--	--	--	--	--	12	--	--	--	--	--	--	--	27	--	--	--	--	--
Newman	22 Lyla Ln.	PLN-0119-19	H19010176-019	1/9/2019	--		--	48	--	--	--	--	--	--	**12**	--	--	--	--	--	--	--	19	--	--	--	--	--
Newman	22 Lyla Ln.	MDT-0508-124	H19050268-025	5/8/2019	--	--	--	--	48	--	--	--	--	--	--	12	--	--	--	--	--	--	--	18	--	--	--	--
Newman	22 Lyla Ln.	MDT-0715-106	H19070340-006	7/15/2019	--	--	--	--	58	--	--	--	--	--	--	**15**	--	--	--	--	--	--	--	21	--	--	--	--
Newman	22 Lyla Ln.	--	--	9/19/2019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Newman	22 Lyla Ln.	MDT-1218-119	H19120474-020	12/18/2019	--	--	--	--	51	--	--	--	--	--	--	13	--	--	--	--	--	--	--	**17**	--	--	--	--
Revier	7493 Hwy 200	PLN-0418-06	H18040490-006	4/25/2018	--		--	71	--	--	--	--	--	--	**18**	--	--	--	--	--	--	--	31	--	--	--	--	--
Revier	7493 Hwy 200	PLN-0718-06	H18070256-006	7/10/2018	--		--	100	--	--	--	--	--	--	**28**	--	--	--	--	--	--	--	65	--	--	--	--	--
Revier	7493 Hwy 200	PLN-1018-04	H181100625-004	10/24/2018	--		--	74	--	--	--	--	--	--	**20**	--	--	--	--	--	--	--	35	--	--	--	--	--
Revier	7461 Hwy 200	--	--	1/10/2019	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Revier	7461 Hwy 200	MDT-0507-120	H19050268-021	5/7/2019	--	--	--	--	63	--	--	--	--	--	--	16	--	--	--	--	--	--	--	28	--	--	--	--
Revier	7461 Hwy 200	MDT-0715-114	H19070340-014	7/15/2019	--	--	--	--	79	--	--	--	--	--	--	20	--	--	--	--	--	--	--	38	--	--	--	--
Revier	7461 Hwy 200	MDT-0918-115	H19090497-015	9/18/2019	--	--	--	--	64	--	--	--	--	--	--	16	--	--	--	--	--	--	--	27	--	--	--	--
Revier	7461 Hwy 200	MDT-1218-116-2	H19120474-016	12/18/2019	--	--	--	--	55	--	--	--	--	--	--	14	--	--	--	--	--	--	--	20	--	--	--	--
RTI, Inc.	--	--	--	9/27/2012	0.002		--	63	--	--	**<0.03**	--	--	<0.001	17	--	--	--	--	--	3	--	32	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	--	--	9/26/2013	0.001		--	67	--	--	**<0.03**	--	--	**<0.001**	**18**	--	--	--	--	--	3	--	36	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	--	--	12/18/2013	0.001		--	68	--	--	**<0.03**	--	--	<0.001	17	--	--	--	--	--	3	--	34	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	PDT1410-107	--	10/16/2014	--		--	74	--	--	--	--	--	--	**20**	--	--	--	--	--	--	--	36	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	PDT1501-103	--	1/20/2015	--		--	65	--	--	--	--	--	--	17	--	--	--	--	--	--	--	35	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	PDT0415-106	--	4/28/2015	--		--	76	--	--	--	--	--	--	**23**	--	--	--	--	--	--	--	38	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	PDT0415-107	--	4/28/2015	--		--	76	--	--	--	--	--	--	22	--	--	--	--	--	--	--	37	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	PMDT0820-09	--	8/20/2015	--		--	64	--	--	--	--	--	--	**18**	--	--	--	--	--	--	--	35	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	PMDT0820-010	--	8/20/2015	--		--	63	--	--	--	--	--	--	**18**	--	--	--	--	--	--	--	34	--	--	--	--	--

TABLE 3. FIELD AND ANALYTICAL RESULTS
MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Site Address	Sample ID	Lab Sample ID	Collection Date	Notes	Static Water Levels (feet)	Field ORP (mV)	Field DO (mg/L)	Field PH (s.u.)	Field SC (umhos/cm)	Field Turbidity	Field Temp (°C)	Conductivity @ 25 C (umhos/cm)	Solids, Total Dis TDS @ 180 C (mg/L)	Alkalinity (mg/L)	Bicarbonate (mg/L)	Carbonate (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Fluoride (mg/L)	Hardness (mg/L)	Nitrate+ Nitrite (mg/L)	Nitrate as N (mg/L)	Nitrite as N (mg/L)
Sears	131 Lower Lynch Creek Rd.	System off	--	11/12/2015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	PMDT0419-08	--	4/19/2016	--	--	--	--	--	--	--	--	572	324	--	--	--	28	--	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	--	--	12/1/2016	No Access	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	Pln-0517-15	H17050519-015	5/24/2017	--	--	102.5	5.72	7.45	795	Clear	8.24	908	**533**	--	--	--	98	--	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	PLN-1017-11	H17100097-011	10/3/2017	No Access	--	161.5	6.39	7.53	560	Clear	12.31	582	331	--	--	--	33	--	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	--	--	1/9/2018	Water Shut Off	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	PLN-0418-19	H18040490-019	4/25/2018	--	--	225.4	320	7.4	597	Clear	11.45	591	327	--	--	--	40	--	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	PLN-0718-17	H18070256-017	7/10/2018	No Access	--	128.4	8.7	7.39	1126	Clear	11.7	**1150**	**680**	--	--	--	178	--	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	PLN-1018-09	H181100625-009	10/24/2018	--	--	172.3	4.97	7.75	560.5	Clear	13	576	303	--	--	--	31	--	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	PLN-0119-06	H19010176-006	1/9/2019	--	--	169.8	4.41	7.81	549.9	Clear	11.7	573	300	--	--	--	30	--	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	MDT-0508-123	H19050268-024	5/8/2019	--	--	--	3.57	7.60	522	Clear	11.0	580	316	--	--	--	36	--	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	MDT-0715-105	H19070340-005	7/15/2019	--	--	--	2.6	7.43	627	Clear	11.3	688	392	--	--	--	58	--	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	MDT-0918-105	H19090497-005	9/18/2019	--	--	--	3.02	7.32	496.7	Clear	12.1	541	297	--	--	--	29	--	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	MDT-1218-109	H19120474-009	12/18/2019	--	--	--	4.01	7.37	520	Clear	8.5	567	307	--	--	--	32	--	--	--	--	--	--
State Farm	7465 Mt Hwy 200	--	--	10/24/2018	--	--	138	8.03	7.61	837	Clear	13	--	--	--	--	--	--	--	--	--	--	--	--
State Farm	7465 Mt Hwy 200	MDT-0507-117	H19050268-018	5/7/2019	--	--	--	5.91	7.53	711	Clear	11.7	782	420	--	--	--	86	--	--	--	--	--	--
State Farm	7465 Mt Hwy 200	MDT-0715-113	H19070340-013	7/15/2019	--	--	--	4.71	7.29	675	Clear	12.1	742	423	--	--	--	64	--	--	--	--	--	--
State Farm	7465 Mt Hwy 200	MDT-0918-118	H19090497-018	9/18/2019	--	--	--	5.48	7.44	711	Clear	12.7	776	453	--	--	--	76	--	--	--	--	--	--
State Farm	7465 Mt Hwy 200	MDT-1218-124	H19120474-025	12/18/2019	--	--	--	3.82	7.66	664	Clear	12.4	734	407	--	--	--	66	--	--	--	--	--	--
USDA	--	PDT1410-108	--	10/17/2014	--	--	--	--	--	--	--	--	**1180**	**651**	--	--	--	230	--	--	--	--	--	--
USDA	--	PDT1501-106	--	1/20/2015	--	--	--	--	--	--	--	--	**1260**	**697**	--	--	--	247	--	--	--	--	--	--
USDA	--	PT0415-114	--	4/28/2015	--	--	--	--	--	--	--	--	**1460**	**505**	--	--	--	**316**	--	--	--	--	--	--
USDA	--	PMDT0820-05	--	8/20/2015	--	--	--	--	--	--	--	--	921	500	--	--	--	147	--	--	--	--	--	--
USDA	--	PMDT1112-11	--	11/12/2015	--	--	--	--	--	--	--	--	875	493	--	--	--	139	--	--	--	--	--	--
USDA	--	PMDT0419-12	--	4/19/2016	--	--	--	--	--	--	--	--	968	**536**	--	--	--	168	--	--	--	--	--	--
USDA	--	Pln-1216-12	H16120037-012	12/1/2016	--	--	143.3	6.77	7.38	1265	Slightly Cloudy	12.23	**1370**	**750**	--	--	--	**290**	--	--	--	--	--	--
USDA	--	Pln-0517-09	H17050519-009	5/24/2017	--	--	-1.9	8.04	7.39	1503	Clear	9.07	**1710**	**1020**	--	--	--	**360**	--	--	--	--	--	--
USDA	--	PLN-1018-14	H181100625-014	10/24/2018	--	--	101.4	5.91	7.61	1026	Clear	13.3	**1050**	**542**	--	--	--	164	--	--	--	--	--	--
USDA	--	PLN-1018-15	H181100625-015	10/24/2018	Duplicate	--	--	--	--	--	--	--	**1060**	**563**	--	--	--	163	--	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	--	--	3/27/2013	--	--	--	6.51	7.34	829	--	11.31	--	--	--	--	--	--	--	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	--	--	6/11/2013	--	--	--	4.57	5.88	705	--	10.77	746	392	240	290	<4	77	29	--	288	3	--	--
Vanderwall	11 Smiling Tree Ln.	--	--	9/26/2013	--	--	--	3.49	7.34	646	--	13.97	660	380	230	290	<4	62	27	--	261	3	--	--
Vanderwall	11 Smiling Tree Ln.	--	--	12/18/2013	--	--	--	2.66	6.81	499	--	10.84	532	272	220	260	<4	19	26	--	208	2	--	--
Vanderwall	11 Smiling Tree Ln.	PDT1410-115	--	10/17/2014	--	--	--	--	--	--	--	--	737	399	--	--	--	77	--	--	258	--	--	--
Vanderwall	11 Smiling Tree Ln.	PDT1501-105	--	1/20/2015	--	--	--	--	--	--	--	--	480	270	--	--	--	17	--	--	176	--	--	--
Vanderwall	11 Smiling Tree Ln.	PDT0415-104	--	4/28/2015	--	--	--	--	--	--	--	--	905	**502**	--	--	--	113	--	--	311	--	--	--
Vanderwall	11 Smiling Tree Ln.	PMDT0820-012	--	8/20/2015	--	--	--	--	--	--	--	--	776	88	--	--	--	88	--	--	262	--	--	--
Vanderwall	11 Smiling Tree Ln.	PMDT1112-09	--	11/12/2015	--	--	--	--	--	--	--	--	499	291	--	--	--	19	--	--	202	--	--	--
Vanderwall	11 Smiling Tree Ln.	PMDT0419-11	--	4/19/2016	--	--	--	--	--	--	--	--	508	295	--	--	--	19	--	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	Pln-1216-09	H16120037-009	12/1/2016	--	--	150.2	4.57	7.41	612	Clear	11.47	666	382	--	--	--	54	--	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	Pln-0517-14	H17050519-014	5/24/2017	--	--	97	6.9	7.33	843	Clear	8.48	961	**546**	--	--	--	100	--	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	PLN-1017-10	H17100097-010	10/3/2017	--	18.6	96.7	6.27	7.56	515	Clear	12.41	537	308	--	--	--	31	--	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	PLN-0118-09	H18010171-009	1/9/2018	--	--	132.7	5.66	7.79	454.7	Clear	10.1	456	248	--	--	--	15	--	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	PLN-0418-17	H18040490-017	4/25/2018	--	--	217.6	5.99	7.49	477	Clear	10.56	475	266	--	--	--	21	--	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	PLN-0718-09	H18070256-009	7/10/2018	--	32.06	185.8	5.64	7.2	966	Clear	11.2	991	**547**	--	--	--	127	--	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	PLN-1018-22	H181100625-022	10/25/2018	--	--	174.6	5.82	7.81	527.1	Clear	11.6	542	293	--	--	--	32	--	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	PLN-0119-05	H19010176-005	1/9/2019	--	--	143.3	8.16	7.93	457.8	Clear	11	479	252	--	--	--	17	--	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	MDT-0508-125	H19050268-026	5/8/2019	--	--	--	4.51	7.64	415.3	Clear	11.2	463	254	--	--	--	18	--	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	MDT-0715-107	H19070340-007	7/15/2019	--	--	--	3.01	7.46	504	Clear	12	549	311	--	--	--	35	--	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	MDT-0918-106	H19090497-006	9/18/2019	--	--	--	3.37	7.35	390.2	Clear	11.9	430	238	--	--	--	14	--	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	MDT-1218-110	H19120474-010	12/18/2019	--	--	--	4.05	7.7	408.2	Clear	9.7	456	246	--	--	--	15	--	--	--	--	--	--
Weeks (D)	15 Lower Lynch	PLN-0418-20	H18040490-020	4/26/2018	--	--	77.1	3.13	6.74	622	Clear	14.29	623	364	--	--	--	10	--	--	--	0.65	0.65	<0.01
Weeks (D)	15 Lower Lynch	Weeks-1	H18060366-003	6/14/2018	--	--	--	--	--	--	--	--	557	321	260	320	<4	11	12	0.3	204	<0.01	--	--
Weeks (D)	15 Lower Lynch	PLN-0718-20	H18070256-020	7/10/2018	--	34.6	-94.2	2.7	7.42	477.6	Clear	14.7	526	319	--	--	--	11	--	--	--	--	--	--
Weeks (D)	15 Lower Lynch	MDTP-Weeks-Raw	H18090525-002	9/21/2018	Raw	--	--	--	--	--	--	--	452	252	210	250	<4	10	15	0.4	162	<0.01	--	--
Weeks (D)	15 Lower Lynch	MDTP-Weeks-Treated	H18090525-003	9/21/2018	Treated	--	--	--	--	--	--	--	492	276	230	280	<4	11	15	0.4	11	<0.01	--	--
Weeks (D)	15 Lower Lynch	PLN-0119-22	H19010176-022	1/9/2019	--	--	79.5	5.18	8.43	443.9	Clear	16.3	444	254	--	--	--	--	--	--	--	--	--	--
Weekd (D)	15 Lower Lynch	--	--	7/16/2019	No Access	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Weeks (D)	15 Lower Lynch	MDT-0508-132	H19050268-033	5/8/2019	--	--	--	1.62	7.37	356.6	Clear	14.0	496	257	--	--	--	--	--	--	--	--	--	--
Weeks (D)	15 Lower Lynch	MDT-0508-133	H19050268-034	5/8/2019	Duplicate	--	--	--	--	--	--	--	497	259	--	--	--	--	--	--	--	--	--	--
Weeks (D)	15 Lower Lynch	--	--	9/19/2019	No Access	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Weeks (D)	15 Lower Lynch	MDT-1218-121	H19120474-022	12/18/2019	--	--	--	2.98	7.98	570	Clear	10.4	622	387	--	--	--	--	--	--	--	--	--	--
Weeks (S)	15 Lower Lynch	--	--	10/23/2012	--	--	--	--	--	--	--	--	988	496	220	270	<4	180	14	--	241	4	--	--
Weeks (S)	15 Lower Lynch	--	--	3/27/2013	--	--	--	6.46	7.22	924	--	10.86	978	**505**	210	260	<4	160	18	--	248	4	--	--
Weeks (S)	15 Lower Lynch	--	--	6/11/2013	--	--	--	6.24	7.01	933	--	10.68	982	483	210	260	<4	170	19	--	261	4	--	--
Weeks (S)	15 Lower Lynch	--	--	9/26/2013	--	--	--	5.12	6.97	884	--	12.34	912	466	210	260	<4	150	18	--	260	4	--	--
Weeks (S)	15 Lower Lynch	--	--	12/18/2013	--	--	--	5.6	7.09	849	--	10.35	905	453	220	260	<4	130	21	--	249	4	--	--
Weeks (S)	15 Lower Lynch	PDT1410-105	--	10/16/2014	--	--	--	--	--	--	--	--	**1840**	**1030**	--	--	--	**460**	--	--	423	--	--	--
Weeks (S)	15 Lower Lynch	No Sample	--	1/20/2015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Weeks (S)	15 Lower Lynch	PDT0415-109	--	4/28/2015	--	--	--	--	--	--	--	--	**2250**	**1250**	--	--	--	**580**	--	--	462	--	--	--
Weeks (S)	15 Lower Lynch	PMDT0820-07	--	8/20/2015	--	--	--	--	--	--	--	--	**1580**	**885**	--	--	--	**358**	--	--	324	--	--	--
Weeks (S)	15 Lower Lynch	PMDT1112-05	--	11/12/2015	--	--	--	--	--	--	--	--	**1220**	**666**	--	--	--	**255**	--	--	265	--	--	--
Weeks (S)	15 Lower Lynch	PMDT0419-06	--	4/29/2016	--	--	--	--	--	--	--	--	**1280**	**715**	--	--	--	**266**	--	--	268	--	--	--
Weeks (S)	15 Lower Lynch	Pln-1216-06	H16120037-006	12/1/2016	--	--	143.5	6.51	7.28	1517	Clear	12.12	**1650**	**979**	--	--	--	**370**	--	--	366	--	--	--
Weeks (S)	15 Lower Lynch	Pln-0517-07	H17050519-007	5/24/2017	--	--	67.9	8.54	7.14	3303	Clear	8.59	**3760**	**2300**	--	--	--	**1200**	--	--	761	--	--	--

TABLE 3. FIELD AND ANALYTICAL RESULTS
MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Site Address	Sample ID	Lab Sample ID	Collection Date	Arsenic DIS (mg/L)	Arsenic Total (mg/L)	Arsenic acid-soluble (mg/L)	Calcium DIS (mg/L)	CalciumTotal (mg/L)	Calcium acid-soluble (mg/L)	Iron DIS (mg/L)	Iron Total (mg/L)	Iron acid-soluble (mg/L)	Lead DIS (mg/L)	Magnesium DIS (mg/L)	Magnesium Total (mg/L)	Magnesium acid-soluble (mg/L)	Manganese DIS (mg/L)	Manganese Total (mg/L)	Manganese acid-soluble (mg/L)	Potassium DIS (mg/L)	Potassium acid-soluble (mg/L)	Sodium DIS (mg/L)	Sodium Total (mg/L)	Sodium acid-soluble (mg/L)	Groundwater Elevation (ft)	E-Coli Coliform (per 100ml)	Total Coliform (per 100ml)
Sears	131 Lower Lynch Creek Rd.	System off	--	11/12/2015	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	PMDT0419-08	--	4/19/2016	--		--	62	--	--	--	--	--	--	**17**	--	--	--	--	--	--	--	30	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	--	--	12/1/2016	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	Pln-0517-15	H17050519-015	5/24/2017	--		--	97	--	--	--	--	--	--	**29**	--	--	--	--	--	--	--	44	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	PLN-1017-11	H17100097-011	10/3/2017	--		--	61	--	--	--	--	--	--	17	--	--	--	--	--	--	--	30	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	--	--	1/9/2018	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	PLN-0418-19	H18040490-019	4/25/2018	--		--	64	--	--	--	--	--	--	18	--	--	--	--	--	--	--	31	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	PLN-0718-17	H18070256-017	7/10/2018	--		--	98	--	--	--	--	--	--	**30**	--	--	--	--	--	--	--	80	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	PLN-1018-09	H181100625-009	10/24/2018	--		--	65	--	--	--	--	--	--	18	--	--	--	--	--	--	--	29	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	PLN-0119-06	H19010176-006	1/9/2019	--		--	62	--	--	--	--	--	--	17	--	--	--	--	--	--	--	29	--	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	MDT-0508-123	H19050268-024	5/8/2019	--	--	--	--	63	--	--	--	--	--	--	17	--	--	--	--	--	--	--	30	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	MDT-0715-105	H19070340-005	7/15/2019	--	--	--	--	74	--	--	--	--	--	--	21	--	--	--	--	--	--	--	36	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	MDT-0918-105	H19090497-005	9/18/2019	--	--	--	--	62	--	--	--	--	--	--	16	--	--	--	--	--	--	--	26	--	--	--	--
Sears	131 Lower Lynch Creek Rd.	MDT-1218-109	H19120474-009	12/18/2019	--	--	--	--	63	--	--	--	--	--	--	17	--	--	--	--	--	--	--	27	--	--	--	--
State Farm	7465 Mt Hwy 200	--	--	10/24/2018	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
State Farm	7465 Mt Hwy 200	MDT-0507-117	H19050268-018	5/7/2019	--	--	--	--	85	--	--	--	--	--	--	20	--	--	--	--	--	--	--	38	--	--	--	--
State Farm	7465 Mt Hwy 200	MDT-0715-113	H19070340-013	7/15/2019	--	--	--	--	84	--	--	--	--	--	--	20	--	--	--	--	--	--	--	37	--	--	--	--
State Farm	7465 Mt Hwy 200	MDT-0918-118	H19090497-018	9/18/2019	--	--	--	--	90	--	--	--	--	--	--	21	--	--	--	--	--	--	--	38	--	--	--	--
State Farm	7465 Mt Hwy 200	MDT-1218-124	H19120474-025	12/18/2019	--	--	--	--	85	--	--	--	--	--	--	20	--	--	--	--	--	--	--	38	--	--	--	--
USDA	--	PDT1410-108	--	10/17/2014	--		--	95	--	--	--	--	--	--	28	--	--	--	--	--	--	--	87	--	--	--	--	--
USDA	--	PDT1501-106	--	1/20/2015	--		--	78	--	--	--	--	--	--	24	--	--	--	--	--	--	--	120	--	--	--	--	--
USDA	--	PT0415-114	--	4/28/2015	--		--	89	--	--	--	--	--	--	29	--	--	--	--	--	--	--	141	--	--	--	--	--
USDA	--	PMDT0820-05	--	8/20/2015	--		--	62	--	--	--	--	--	--	19	--	--	--	--	--	--	--	82	--	--	--	--	--
USDA	--	PMDT1112-11	--	11/12/2015	--		--	65	--	--	--	--	--	--	19	--	--	--	--	--	--	--	78	--	--	--	--	--
USDA	--	PMDT0419-12	--	4/19/2016	--		--	63	--	--	--	--	--	--	20	--	--	--	--	--	--	--	97	--	--	--	--	--
USDA	--	Pln-1216-12	H16120037-012	12/1/2016	--		--	85	--	--	--	--	--	--	27	--	--	--	--	--	--	--	150	--	--	--	--	--
USDA	--	Pln-0517-09	H17050519-009	5/24/2017	--		--	104	--	--	--	--	--	--	34	--	--	--	--	--	--	--	178	--	--	--	--	--
USDA	--	PLN-1018-14	H181100625-014	10/24/2018	--		--	83	--	--	--	--	--	--	27	--	--	--	--	--	--	--	82	--	--	--	--	--
USDA	--	PLN-1018-15	H181100625-015	10/24/2018	--		--	85	--	--	--	--	--	--	27	--	--	--	--	--	--	--	85	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	--	--	3/27/2013	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	--	--	6/11/2013	--		--	80	--	--	--	--	--	--	22	--	--	--	--	--	3	--	40	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	--	--	9/26/2013	0.001		--	72	--	--	0.07	--	--	<0.001	20	--	--	--	--	--	3	--	40	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	--	--	12/18/2013	0.002		--	59	--	--	<0.03	--	--	<0.001	15	--	--	--	--	--	2	--	27	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	PDT1410-115	--	10/17/2014	--		--	72	--	--	--	--	--	--	19	--	--	--	--	--	--	--	47	--	--	2446.65	--	--
Vanderwall	11 Smiling Tree Ln.	PDT1501-105	--	1/20/2015	--		--	49	--	--	--	--	--	--	13	--	--	--	--	--	--	--	27	--	--	2446.61	--	--
Vanderwall	11 Smiling Tree Ln.	PDT0415-104	--	4/28/2015	--		--	85	--	--	--	--	--	--	24	--	--	--	--	--	--	--	55	--	--	2447.26	--	--
Vanderwall	11 Smiling Tree Ln.	PMDT0820-012	--	8/20/2015	--		--	72	--	--	--	--	--	--	20	--	--	--	--	--	--	--	46	--	--	2445.39	--	--
Vanderwall	11 Smiling Tree Ln.	PMDT1112-09	--	11/12/2015	--		--	56	--	--	--	--	--	--	15	--	--	--	--	--	--	--	28	--	--	2444.9	--	--
Vanderwall	11 Smiling Tree Ln.	PMDT0419-11	--	4/19/2016	--		--	57	--	--	--	--	--	--	15	--	--	--	--	--	--	--	24	--	--	2445.36	--	--
Vanderwall	11 Smiling Tree Ln.	Pln-1216-09	H16120037-009	12/1/2016	--		--	73	--	--	--	--	--	--	20	--	--	--	--	--	--	--	40	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	Pln-0517-14	H17050519-014	5/24/2017	--		--	98	--	--	--	--	--	--	29	--	--	--	--	--	--	--	60	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	PLN-1017-10	H17100097-010	10/3/2017	--		--	51	--	--	--	--	--	--	14	--	--	--	--	--	--	--	37	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	PLN-0118-09	H18010171-009	1/9/2018	--		--	49	--	--	--	--	--	--	13	--	--	--	--	--	--	--	23	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	PLN-0418-17	H18040490-017	4/25/2018	--		--	53	--	--	--	--	--	--	14	--	--	--	--	--	--	--	24	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	PLN-0718-09	H18070256-009	7/10/2018	--		--	95	--	--	--	--	--	--	26	--	--	--	--	--	--	--	63	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	PLN-1018-22	H181100625-022	10/25/2018	--		--	57	--	--	--	--	--	--	16	--	--	--	--	--	--	--	32	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	PLN-0119-05	H19010176-005	1/9/2019	--		--	52	--	--	--	--	--	--	14	--	--	--	--	--	--	--	24	--	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	MDT-0508-125	H19050268-026	5/8/2019	--	--	--	--	55	--	--	--	--	--	--	14	--	--	--	--	--	--	--	21	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	MDT-0715-107	H19070340-007	7/15/2019	--	--	--	--	62	--	--	--	--	--	--	16	--	--	--	--	--	--	--	28	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	MDT-0918-106	H19090497-006	9/18/2019	--	--	--	--	51	--	--	--	--	--	--	13	--	--	--	--	--	--	--	20	--	--	--	--
Vanderwall	11 Smiling Tree Ln.	MDT-1218-110	H19120474-010	12/18/2019	--	--	--	--	54	--	--	--	--	--	--	14	--	--	--	--	--	--	--	19	--	--	--	--
Weeks (D)	15 Lower Lynch	PLN-0418-20	H18040490-020	4/26/2018	--		--	62	--	--	--	--	--	--	16	--	--	--	--	--	--	--	45	--	--	--	Absent	Absent
Weeks (D)	15 Lower Lynch	Weeks-1	H18060366-003	6/14/2018	**0.162**		--	58	--	--	0.54	--	--	<0.001	14	--	--	0.218	--	--	7	--	39	--	--	--	--	--
Weeks (D)	15 Lower Lynch	PLN-0718-20	H18070256-020	7/10/2018	--		--	52	--	--	--	--	--	--	13	--	--	--	--	--	--	--	36	--	--	--	--	--
Weeks (D)	15 Lower Lynch	MDTP-Weeks-Raw	H18090525-002	9/21/2018	**0.097**		--	46	--	--	2.23	--	--	--	11	--	--	0.204	--	--	6	--	26	--	--	--	--	--
Weeks (D)	15 Lower Lynch	MDTP-Weeks-Treated	H18090525-003	9/21/2018	0.001		--	4	--	--	<0.01	--	--	--	<1	--	--	<0.005	--	--	<1	--	112	--	--	--	--	--
Weeks (D)	15 Lower Lynch	PLN-0119-22	H19010176-022	1/9/2019	--		<0.001	--	--	--	--	--	<0.02	--	--	--	--	--	--	<0.001	--	--	--	--	--	--	--	--
Weekd (D)	15 Lower Lynch	--	--	7/16/2019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Weeks (D)	15 Lower Lynch	MDT-0508-132	H19050268-033	5/8/2019	--	0.001	--	--	--	--	--	**<0.02**	--	--	--	--	--	--	0.048	--	--	--	--	--	--	--	--	--
Weeks (D)	15 Lower Lynch	MDT-0508-133	H19050268-034	5/8/2019	--	<0.001	--	--	--	--	--	**<0.02**	--	--	--	--	--	--	0.051	--	--	--	--	--	--	--	--	--
Weeks (D)	15 Lower Lynch	--	--	9/19/2019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Weeks (D)	15 Lower Lynch	MDT-1218-121	H19120474-022	12/18/2019	--	0.004	--	--	--	--	--	0.03	--	--	--	--	--	--	0.021	--	--	--	--	--	--	--	--	--
Weeks (S)	15 Lower Lynch	--	--	10/23/2012	0.002		--	63	--	--	0.04	--	--	<0.001	20	--	--	--	--	--	3	--	103	--	--	--	--	--
Weeks (S)	15 Lower Lynch	--	--	3/27/2013	--		--	65	--	--	--	--	--	--	21	--	--	--	--	--	3	--	92	--	--	--	--	--
Weeks (S)	15 Lower Lynch	--	--	6/11/2013	--		--	67	--	--	--	--	--	--	23	--	--	--	--	--	3	--	94	--	--	--	--	--
Weeks (S)	15 Lower Lynch	--	--	9/26/2013	0.002		--	68	--	--	<0.03	--	--	<0.001	22	--	--	--	--	--	3	--	89	--	--	--	--	--
Weeks (S)	15 Lower Lynch	--	--	12/18/2013	0.002		--	66	--	--	0.11	--	--	<0.001	20	--	--	--	--	--	2	--	75	--	--	--	--	--
Weeks (S)	15 Lower Lynch	PDT1410-105	--	10/16/2014	--		--	110	--	--	--	--	--	--	36	--	--	--	--	--	--	--	178	--	--	2447.1	--	--
Weeks (S)	15 Lower Lynch	No Sample	--	1/20/2015	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Weeks (S)	15 Lower Lynch	PDT0415-109	--	4/28/2015	--		--	116	--	--	--	--	--	--	42	--	--	--	--	--	--	--	223	--	--	2446.57	--	--
Weeks (S)	15 Lower Lynch	PMDT0820-07	--	8/20/2015	--		--	87	--	--	--	--	--	--	26	--	--	--	--	--	--	--	164	--	--	2447.6	--	--
Weeks (S)	15 Lower Lynch	PMDT1112-05	--	11/12/2015	--		--	70	--	--	--	--	--	--	22	--	--	--	--	--	--	--	142	--	--	2445.36	--	--
Weeks (S)	15 Lower Lynch	PMDT0419-06	--	4/29/2016	--		--	71	--	--	--	--	--	--	22	--	--	--	--	--	--	--	149	--	--	2444.83	--	--
Weeks (S)	15 Lower Lynch	Pln-1216-06	H16120037-006	12/1/2016	--		--	97	--	--	--	--	--	--	30	--	--	--	--	--	--	--	194	--	--	--	--	--
Weeks (S)	15 Lower Lynch	Pln-0517-07	H17050519-007	5/24/2017	--		--	183	--	--	--	--	--	--	74	--	--	--	--	--	--	--	420	--	--	--	--	--

TABLE 3. FIELD AND ANALYTICAL RESULTS
MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Site Address	Sample ID	Lab Sample ID	Collection Date	Notes	Static Water Levels (feet)	Field ORP (mV)	Field DO (mg/L)	Field PH (s.u.)	Field SC (umhos/cm)	Field Turbidity	Field Temp (°C)	Conductivity @ 25 C (umhos/cm)	Solids, Total Dis TDS @ 180 C (mg/L)	Alkalinity (mg/L)	Bicarbonate (mg/L)	Carbonate (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Fluoride (mg/L)	Hardness (mg/L)	Nitrate+ Nitrite (mg/L)	Nitrate as N (mg/L)	Nitrite as N (mg/L)
Weeks (S)	15 Lower Lynch	--	--	8/25/2017	--	--	--	--	--	--	--	--	**3260**	**1860**	200	250	<4	**829**	27	--	626	5	--	--
Weeks (S)	15 Lower Lynch	PLN-0118-03	H18010171-003	1/9/2018	--	--	118.9	8.1	7.59	2339	Clear	11.4	**2370**	**1310**	--	--	--	**576**	--	--	403	--	--	--
Weeks (S)	15 Lower Lynch	PLN-1018-24	H181100625-024	10/25/2018	--	--	73.8	7.07	7.56	1581	Clear	12.8	**1620**	**834**	--	--	--	**324**	--	--	--	--	--	--
Weeks (S)	15 Lower Lynch	PLN-0119-23	H19010176-023	1/9/2019	--	16.38	20	6.54	7.63	1161	Clear	11.5	**1190**	**607**	--	--	--	219	--	--	--	--	--	--
Weeks (S)	15 Lower Lynch	MDT-0507-113	H19050268-014	5/7/2019	--	--	--	4.72	7.46	1014	Clear	11.0	**1100**	**563**	--	--	--	204	--	--	--	--	--	--
Weeks (S)	15 Lower Lynch	MDT-0716-135	H19070340-035	7/16/2019	--	--	--	4.12	7.35	905	Clear	12.1	949	498	--	--	--	155	--	--	--	--	--	--
Weeks (S)	15 Lower Lynch	MDT-0918-127	H19090497-027	9/18/2019	--	--	--	4.65	7.32	805	Clear	12.3	893	487	--	--	--	128	--	--	--	--	--	--
Weeks (S)	15 Lower Lynch	MDT-1219-131	H19120474-032	12/19/2019	--	--	--	4.44	7.47	767	Slightly Cloudy	10.1	826	448	--	--	--	113	--	--	--	--	--	--
Welch	18 Lyla Ln.	PLN-1017-16	H17100097-016	10/4/2017	--	18.55	159.9	7.51	7.67	765	Clear	12.84	826	483	--	--	--	102	--	--	--	--	--	--
Welch	18 Lyla Ln.	PLN-0118-08	H18010171-008	1/9/2018	--	--	133.9	6.01	7.75	627	Clear	10.2	630	338	--	--	--	54	--	--	--	--	--	--
Welch	18 Lyla Ln.	PLN-0418-16	H18040490-016	4/25/2018	--	--	213.9	7.1	7.63	503	Clear	11.2	501	276	--	--	--	29	--	--	--	--	--	--
Welch	18 Lyla Ln.	PLN-0718-08	H18070256-008	7/10/2018	--	30.7	157.3	7.31	7.17	626.2	Clear	11.9	660	371	--	--	--	58	--	--	--	--	--	--
Welch	18 Lyla Ln.	PLN-1018-18	H181100625-018	10/25/2018	--	--	158.9	6.83	7.72	738	Clear	12	753	410	--	--	--	78	--	--	--	--	--	--
Welch	18 Lyla Ln.	PLN-0119-03	H19010176-003	1/9/2019	--	--	163.9	6.67	7.83	579.9	Clear	11.3	603	321	--	--	--	46	--	--	--	--	--	--
Welch	18 Lyla Ln.	PLN-0119-04	H19010176-004	1/9/2019	Duplicate	--	--	--	--	--	--	--	605	318	--	--	--	46	--	--	--	--	--	--
Welch	18 Lyla Ln.	MDT-0508-126	H19050268-027	5/8/2019	--	--	--	5.38	7.69	460.2	Clear	10.5	512	275	--	--	--	29	--	--	--	--	--	--
Welch	18 Lyla Ln.	MDT-0715-108	H19070340-008	7/15/2019	--	--	--	4.53	7.51	354.2	Clear	12.2	518	295	--	--	--	26	--	--	--	--	--	--
Welch	18 Lyla Ln.	MDT-0918-107	H19090497-007	9/18/2019	--	--	--	3.82	7.54	475.4	Clear	12	522	285	--	--	--	32	--	--	--	--	--	--
Welch	18 Lyla Ln.	MDT-1218-111	H19120474-011	12/18/2019	--	--	--	3.91	7.8	438.2	Clear	9	484	261	--	--	--	24	--	--	--	--	--	--
Wood	16 Kruger Rd.	--	--	9/27/2012	--	--	--	--	--	462	--	--	466	273	180	210	<4	25	12	--	198	3	--	--
Wood	16 Kruger Rd.	--	--	3/27/2013	--	--	--	5.87	7.28	484	--	11.22	265	265	190	220	<4	31	17	--	208	3	--	--
Wood	16 Kruger Rd.	--	--	6/11/2013	--	--	--	6.33	7.08	500	--	10.63	523	266	200	240	<4	35	18	--	226	4	--	--
Wood	16 Kruger Rd.	--	--	9/26/2013	--	--	--	5.41	6.95	476	--	12.69	490	270	210	250	<4	31	17	--	221	3	--	--
Wood	16 Kruger Rd.	PDT1410-101	--	10/16/2014	--	--	--	--	--	--	--	--	463	264	--	--	--	24	--	--	183	--	--	--
Wood	16 Kruger Rd.	PDT1501-112	--	1/21/2015	--	--	--	--	--	--	--	--	467	265	--	--	--	23	--	--	192	--	--	--
Wood	16 Kruger Rd.	PDT0415-103	--	4/28/2015	--	--	--	--	--	--	--	--	518	289	--	--	--	34	--	--	212	--	--	--
Wood	16 Kruger Rd.	PMDT0820-02	--	8/20/2015	--	--	--	--	--	--	--	--	511	295	--	--	--	33	--	--	205	--	--	--
Wood	16 Kruger Rd.	PMDT1112-02	--	11/12/2015	--	--	--	--	--	--	--	--	554	320	--	--	--	43	--	--	228	--	--	--
Wood	16 Kruger Rd.	PMDT0419-03	--	4/19/2016	--	--	--	--	--	--	--	--	558	322	--	--	--	40	--	--	--	--	--	--
Wood	16 Kruger Rd.	Pln-1216-03	H16120037-003	12/1/2016	--	--	158.7	5.98	7.03	451	Clear	11.96	489	292	--	--	--	29	--	--	212	--	--	--
Wood	16 Kruger Rd.	Pln-1216-04	H16120037-004	12/1/2016	--	--	--	--	--	--	--	--	490	292	--	--	--	29	--	--	204	--	--	--
Wood	16 Kruger Rd.	Pln-0517-04	H17050519-004	5/24/2017	--	--	83.5	7.51	7.32	425	Clear	8.86	488	279	--	--	--	29	--	--	--	--	--	--
Wood	16 Kruger Rd.	PLN-1017-03	H17100097-003	10/3/2017	--	18.37	62.3	6.27	7.52	459	Clear	12.28	483	292	--	--	--	27	--	--	--	--	--	--
Wood	16 Kruger Rd.	--	--	1/9/2018	Frozen	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Wood	16 Kruger Rd.	PLN-0418-03	H18040490-003	4/25/2018	--	--	187.1	7.09	7.05	595	Clear	11.09	592	346	--	--	--	55	--	--	--	--	--	--
Wood	16 Kruger Rd.	PLN-0718-03	H18070256-003	7/10/2018	--	28.72	161.5	6.15	7.22	510.3	Clear	11.4	533	298	--	--	--	37	--	--	--	--	--	--
Wood	16 Kruger Rd.	PLN-0718-04	H18070256-004	7/10/2018	--	--	--	--	--	--	--	--	532	291	--	--	--	37	--	--	--	--	--	--
Wood	16 Kruger Rd.	PLN-1018-05	H181100625-005	10/24/2018	--	--	152.4	6.37	7.63	565.8	Clear	12.4	584	306	--	--	--	51	--	--	--	--	--	--
Wood	16 Kruger Rd.	PLN-0119-13	H19010176-013	1/9/2019	--	--	125.1	5.67	7.64	597.8	Clear	12.2	620	320	--	--	--	56	--	--	--	--	--	--
Wood	16 Kruger Rd.	MDT-0507-101	H19050268-002	5/7/2019	--	--	--	5.55	7.48	635	Clear	10.6	690	389	--	--	--	80	--	--	--	--	--	--
Wood	16 Kruger Rd.	MDT-0715-101	H19070340-001	7/15/2019	--	--	--	4.26	7.3	645	Clear	11.1	712	417	--	--	--	78	--	--	--	--	--	--
Wood	16 Kruger Rd.	MDT-0715-102	H19070340-002	7/15/2019	Duplicate	--	--	--	--	--	--	--	707	430	--	--	--	79	--	--	--	--	--	--
Wood	16 Kruger Rd.	MDT-0918-101	H19090497-001	9/18/2019	--	--	--	3.98	6.83	686	Clear	11.3	748	422	--	--	--	79	--	--	--	--	--	--
Wood	16 Kruger Rd.	MDT-1218-101	H19120474-001	12/18/2019	--	--	--	4.03	7.32	717	Clear	11.1	796	424	--	--	--	97	--	--	--	--	--	--

Bold values exceede the below control levels
Chloride levels for federal Secondary Maximum Contaiminant Levels (SMCLs) are 250mg/L
Class I waters are defined as having a specific conductance of less than 1,000 microSiemens/cm (equivalent to umhos/cm)
Total Dissolved Solids levels for federal Secondary Maximum Contaminant Levels (SMCLs) are 500 mg/L
Sulfate levels for federal Secondary Maximum Contaiminant Levels (SMCLs) are 250mg/L
Iron levels for federal Secondary Maximum Contaiminant Levels (SMCLs) are 0.3mg/L
Manganese levels for federal Secondary Maximum Contaiminant Levels (SMCLs) are 0.05 mg/L
Arsenic levels for federal Maximum Contaiminant Levels (MCLs) are 0.010 mg/L

"DIS" designates dissolved
Deep wells are denoted with a (D), and shallow (S) (e.g. Abrams (S))

TABLE 3. FIELD AND ANALYTICAL RESULTS
MDT MAINTENANCE FACILITY - PLAINS, MT

Site Location	Site Address	Sample ID	Lab Sample ID	Collection Date	Arsenic DIS (mg/L)	Arsenic Total (mg/L)	Arsenic acid-soluble (mg/L)	Calcium DIS (mg/L)	CalciumTotal (mg/L)	Calcium acid-soluble (mg/L)	Iron DIS (mg/L)	Iron Total (mg/L)	Iron acid-soluble (mg/L)	Lead DIS (mg/L)	Magnesium DIS (mg/L)	Magnesium Total (mg/L)	Magnesium acid-soluble (mg/L)	Manganese DIS (mg/L)	Manganese Total (mg/L)	Manganese acid-soluble (mg/L)	Potassium DIS (mg/L)	Potassium acid-soluble (mg/L)	Sodium DIS (mg/L)	Sodium Total (mg/L)	Sodium acid-soluble (mg/L)	Groundwater Elevation (ft)	E-Coli Coliform (per 100ml)	Total Coliform (per 100ml)
Weeks (S)	15 Lower Lynch	--	--	8/25/2017	<0.005		--	160	--	--	0.52	--	--	--	55	--	--	--	--	--	5	--	386	--	--	--	--	--
Weeks (S)	15 Lower Lynch	PLN-0118-03	H18010171-003	1/9/2018	--		--	107	--	--	--	--	--	--	33	--	--	--	--	--	--	--	306	--	--	--	--	--
Weeks (S)	15 Lower Lynch	PLN-1018-24	H181100625-024	10/25/2018	--		--	81	--	--	--	--	--	--	24	--	--	--	--	--	--	--	207	--	--	--	--	--
Weeks (S)	15 Lower Lynch	PLN-0119-23	H19010176-023	1/9/2019	--		--	65	--	--	--	--	--	--	20	--	--	--	--	--	--	--	147	--	--	--	--	--
Weeks (S)	15 Lower Lynch	MDT-0507-113	H19050268-014	5/7/2019	--	--	--	--	64	--	--	--	--	--	--	19	--	--	--	--	--	--	--	116	--	--	--	--
Weeks (S)	15 Lower Lynch	MDT-0716-135	H19070340-035	7/16/2019	--	--	--	--	61	--	--	--	--	--	--	19	--	--	--	--	--	--	--	102	--	--	--	--
Weeks (S)	15 Lower Lynch	MDT-0918-127	H19090497-027	9/18/2019	--	--	--	--	65	--	--	--	--	--	--	18	--	--	--	--	--	--	--	90	--	--	--	--
Weeks (S)	15 Lower Lynch	MDT-1219-131	H19120474-032	12/19/2019	--	--	--	--	64	--	--	--	--	--	--	18	--	--	--	--	--	--	--	86	--	--	--	--
Welch	18 Lyla Ln.	PLN-1017-16	H17100097-016	10/4/2017	--		--	79	--	--	--	--	--	--	21	--	--	--	--	--	--	--	46	--	--	--	--	--
Welch	18 Lyla Ln.	PLN-0118-08	H18010171-008	1/9/2018	--		--	64	--	--	--	--	--	--	16	--	--	--	--	--	--	--	38	--	--	--	--	--
Welch	18 Lyla Ln.	PLN-0418-16	H18040490-016	4/25/2018	--		--	53	--	--	--	--	--	--	14	--	--	--	--	--	--	--	29	--	--	--	--	--
Welch	18 Lyla Ln.	PLN-0718-08	H18070256-008	7/10/2018	--		--	69	--	--	--	--	--	--	18	--	--	--	--	--	--	--	35	--	--	--	--	--
Welch	18 Lyla Ln.	PLN-1018-18	H181100625-018	10/25/2018	--		--	75	--	--	--	--	--	--	20	--	--	--	--	--	--	--	43	--	--	--	--	--
Welch	18 Lyla Ln.	PLN-0119-03	H19010176-003	1/9/2019	--		--	62	--	--	--	--	--	--	16	--	--	--	--	--	--	--	36	--	--	--	--	--
Welch	18 Lyla Ln.	PLN-0119-04	H19010176-004	1/9/2019	--		--	62	--	--	--	--	--	--	16	--	--	--	--	--	--	--	37	--	--	--	--	--
Welch	18 Lyla Ln.	MDT-0508-126	H19050268-027	5/8/2019	--	--	--	--	58	--	--	--	--	--	--	15	--	--	--	--	--	--	--	27	--	--	--	--
Welch	18 Lyla Ln.	MDT-0715-108	H19070340-008	7/15/2019	--	--	--	--	60	--	--	--	--	--	--	15	--	--	--	--	--	--	--	28	--	--	--	--
Welch	18 Lyla Ln.	MDT-0918-107	H19090497-007	9/18/2019	--	--	--	--	59	--	--	--	--	--	--	15	--	--	--	--	--	--	--	29	--	--	--	--
Welch	18 Lyla Ln.	MDT-1218-111	H19120474-011	12/18/2019	--	--	--	--	53	--	--	--	--	--	--	14	--	--	--	--	--	--	--	28	--	--	--	--
Wood	16 Kruger Rd.	--	--	9/27/2012	<0.001		--	56	--	--	0.1	--	--	<0.001	14	--	--	--	--	--	2	--	16	--	--	--	--	--
Wood	16 Kruger Rd.	--	--	3/27/2013	--		--	58	--	--	--	--	--	--	15	--	--	--	--	--	2	--	17	--	--	--	--	--
Wood	16 Kruger Rd.	--	--	6/11/2013	--		--	64	--	--	--	--	--	--	16	--	--	--	--	--	2	--	17	--	--	--	--	--
Wood	16 Kruger Rd.	--	--	9/26/2013	<0.001		--	62	--	--	<0.03	--	--	<0.001	16	--	--	--	--	--	2	--	17	--	--	--	--	--
Wood	16 Kruger Rd.	PDT1410-101	--	10/16/2014	--		--	52	--	--	--	--	--	--	13	--	--	--	--	--	--	--	18	--	--	2447.07	--	--
Wood	16 Kruger Rd.	PDT1501-112	--	1/21/2015	--		--	54	--	--	--	--	--	--	14	--	--	--	--	--	--	--	17	--	--	2447.67	--	--
Wood	16 Kruger Rd.	PDT0415-103	--	4/28/2015	--		--	60	--	--	--	--	--	--	15	--	--	--	--	--	--	--	17	--	--	2448.41	--	--
Wood	16 Kruger Rd.	PMDT0820-02	--	8/20/2015	--		--	59	--	--	--	--	--	--	14	--	--	--	--	--	--	--	17	--	--	2445.92	--	--
Wood	16 Kruger Rd.	PMDT1112-02	--	11/12/2015	--		--	65	--	--	--	--	--	--	16	--	--	--	--	--	--	--	23	--	--	2445.154	--	--
Wood	16 Kruger Rd.	PMDT0419-03	--	4/19/2016	--		--	63	--	--	--	--	--	--	16	--	--	--	--	--	--	--	22	--	--	2446.49	--	--
Wood	16 Kruger Rd.	Pln-1216-03	H16120037-003	12/1/2016	--		--	60	--	--	--	--	--	--	15	--	--	--	--	--	--	--	19	--	--	--	--	--
Wood	16 Kruger Rd.	Pln-1216-04	H16120037-004	12/1/2016	--		--	60	--	--	--	--	--	--	15	--	--	--	--	--	--	--	19	--	--	--	--	--
Wood	16 Kruger Rd.	Pln-0517-04	H17050519-004	5/24/2017	--		--	57	--	--	--	--	--	--	15	--	--	--	--	--	--	--	17	--	--	--	--	--
Wood	16 Kruger Rd.	PLN-1017-03	H17100097-003	10/3/2017	--		--	54	--	--	--	--	--	--	14	--	--	--	--	--	--	--	18	--	--	--	--	--
Wood	16 Kruger Rd.	--	--	1/9/2018	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Wood	16 Kruger Rd.	PLN-0418-03	H18040490-003	4/25/2018	--		--	68	--	--	--	--	--	--	17	--	--	--	--	--	--	--	22	--	--	--	--	--
Wood	16 Kruger Rd.	PLN-0718-03	H18070256-003	7/10/2018	--		--	58	--	--	--	--	--	--	15	--	--	--	--	--	--	--	20	--	--	--	--	--
Wood	16 Kruger Rd.	PLN-0718-04	H18070256-004	7/10/2018	--		--	58	--	--	--	--	--	--	15	--	--	--	--	--	--	--	19	--	--	--	--	--
Wood	16 Kruger Rd.	PLN-1018-05	H181100625-005	10/24/2018	--		--	68	--	--	--	--	--	--	18	--	--	--	--	--	--	--	21	--	--	--	--	--
Wood	16 Kruger Rd.	PLN-0119-13	H19010176-013	1/9/2019	--		--	67	--	--	--	--	--	--	17	--	--	--	--	--	--	--	26	--	--	--	--	--
Wood	16 Kruger Rd.	MDT-0507-101	H19050268-002	5/7/2019	--	--	--	--	77	--	--	--	--	--	--	20	--	--	--	--	--	--	--	27	--	--	--	--
Wood	16 Kruger Rd.	MDT-0715-101	H19070340-001	7/15/2019	--	--	--	--	84	--	--	--	--	--	--	21	--	--	--	--	--	--	--	32	--	--	--	--
Wood	16 Kruger Rd.	MDT-0715-102	H19070340-002	7/15/2019	--	--	--	--	80	--	--	--	--	--	--	20	--	--	--	--	--	--	--	33	--	--	--	--
Wood	16 Kruger Rd.	MDT-0918-101	H19090497-001	9/18/2019	--	--	--	--	88	--	--	--	--	--	--	22	--	--	--	--	--	--	--	32	--	--	--	--
Wood	16 Kruger Rd.	MDT-1218-101	H19120474-001	12/18/2019	--	--	--	--	87	--	--	--	--	--	--	22	--	--	--	--	--	--	--	36	--	--	--	--

Bold values exceede the below control levels
Chloride levels for federal Secondary Maximum Contaiminant Levels (SMCLs) are 250mg/L
Class I waters are defined as having a specific conductance of less than 1,000 microSiemens/cm (equivalent to umhos/cm)
Total Dissolved Solids levels for federal Secondary Maximum Contaminant Levels (SMCLs) are 500 mg/L
Sulfate levels for federal Secondary Maximum Contaiminant Levels (SMCLs) are 250mg/L
Iron levels for federal Secondary Maximum Contaiminant Levels (SMCLs) are 0.3mg/L
Manganese levels for federal Secondary Maximum Contaiminant Levels (SMCLs) are 0.05 mg/L
Arsenic levels for federal Maximum Contaiminant Levels (MCLs) are 0.010 mg/L

"DIS" designates dissolved
Deep wells are denoted with a (D), and shallow (S) (e.g. Abrams (S))

Appendix 1.

Maps of well locations and concentration values of chloride, TDS, and SC

MDT Plains

Well Locations

0 0.125 0.25 Miles

Northern Rockies Engineering, Inc.

Designed By:	Ian Magruder
Checked by:	Ben Osborn
Sheet No. 1	Date: 5/14/2019
	Other info:

MDT Plains Maintenance Facility

Chloride May 2019

0 250 500 1,000 Feet

Northern Rockies Engineering, Inc.

Designed By:	Ian Magruder
Checked by:	Ben Osborn
Sheet No.	1
Date:	1/13/2020
Other info:	

MDT Plains Maintenance Facility

Specific Conductivity May 2019

0 250 500 1,000 Feet

Northern Rockies Engineering, Inc.

Sheet No. 1

Designed By: Ian Magruder

Checked by: Ben Osborn

Date: 1/14/2020

Other info:

MDT Plains Maintenance Facility

Total Dissolved Solids May 2019

0 250 500 1,000 Feet

Northern Rockies Engineering, Inc.

Designed By:	Ian Magruder
Checked by:	Ben Osborn
Sheet No.	1
Date:	1/14/2020
Other info:	

MDT Plains Maintenance Facility

Chloride July 2019

0 250 500 1,000 Feet

Northern Rockies Engineering, Inc.

Designed By:	Ian Magruder
Checked by:	Ben Osborn
Sheet No.	1
Date:	1/13/2020
Other info:	

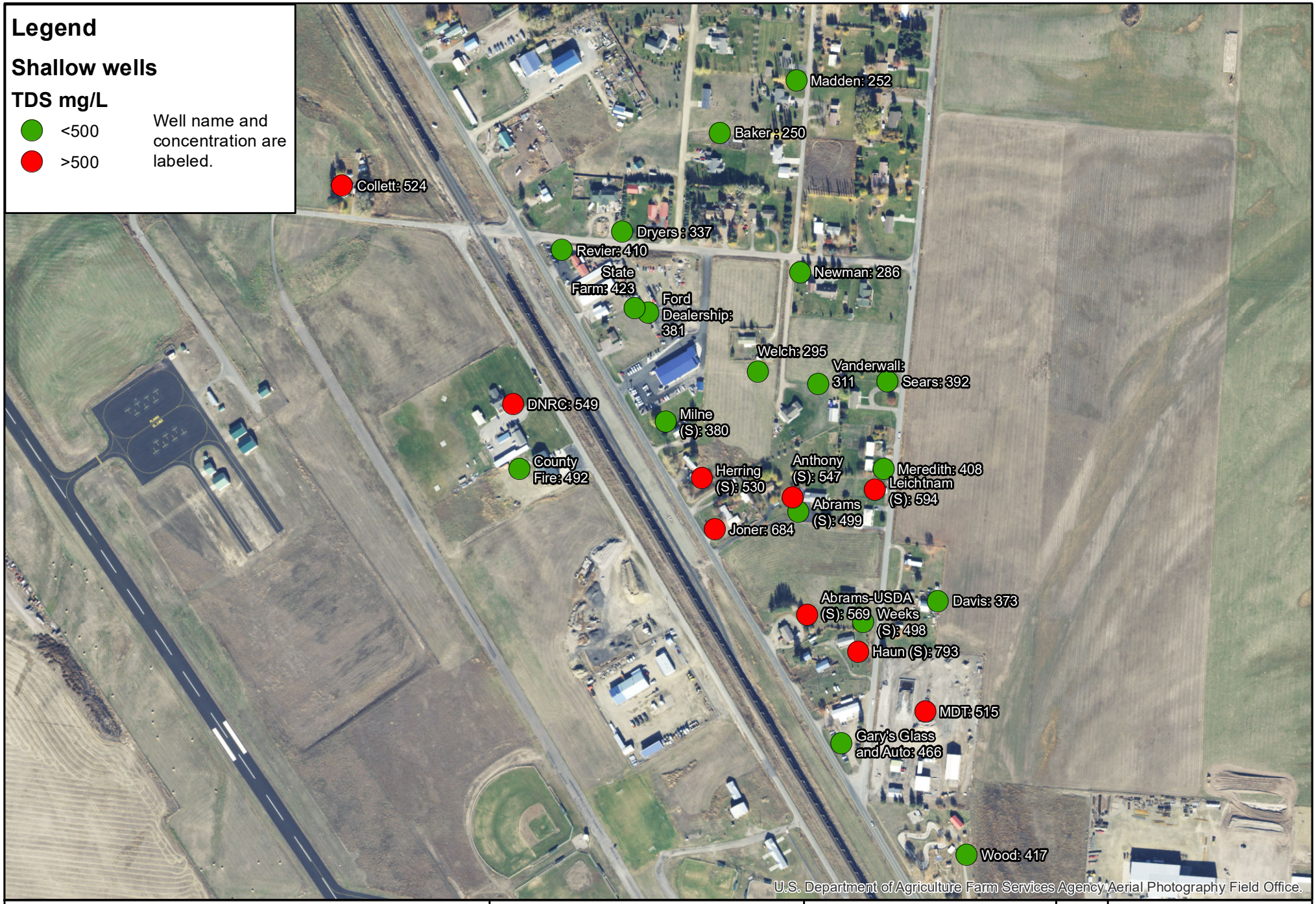
MDT Plains Maintenance Facility

Specific Conductivity July 2019

0 250 500 1,000 Feet

Northern Rockies Engineering, Inc.

Designed By:	Ian Magruder
Checked by:	Ben Osborn
Sheet No. 1	Date: 1/14/2020
	Other info:



MDT Plains Maintenance Facility

Total Dissolved Solids July 2019

0 250 500 1,000 Feet

Northern Rockies Engineering, Inc.

Designed By:	Ian Magruder
Checked by:	Ben Osborn
Sheet No. 1	Date: 1/14/2020
	Other info:

MDT Plains Maintenance Facility

Chloride September 2019

0 250 500 1,000 Feet

Northern Rockies Engineering, Inc.

Designed By:	Ian Magruder
Checked by:	Ben Osborn
Sheet No. 1	Date: 1/13/2020
	Other info:

MDT Plains Maintenance Facility

Specific Conductivity September 2019

0 250 500 1,000 Feet

Northern Rockies Engineering, Inc.

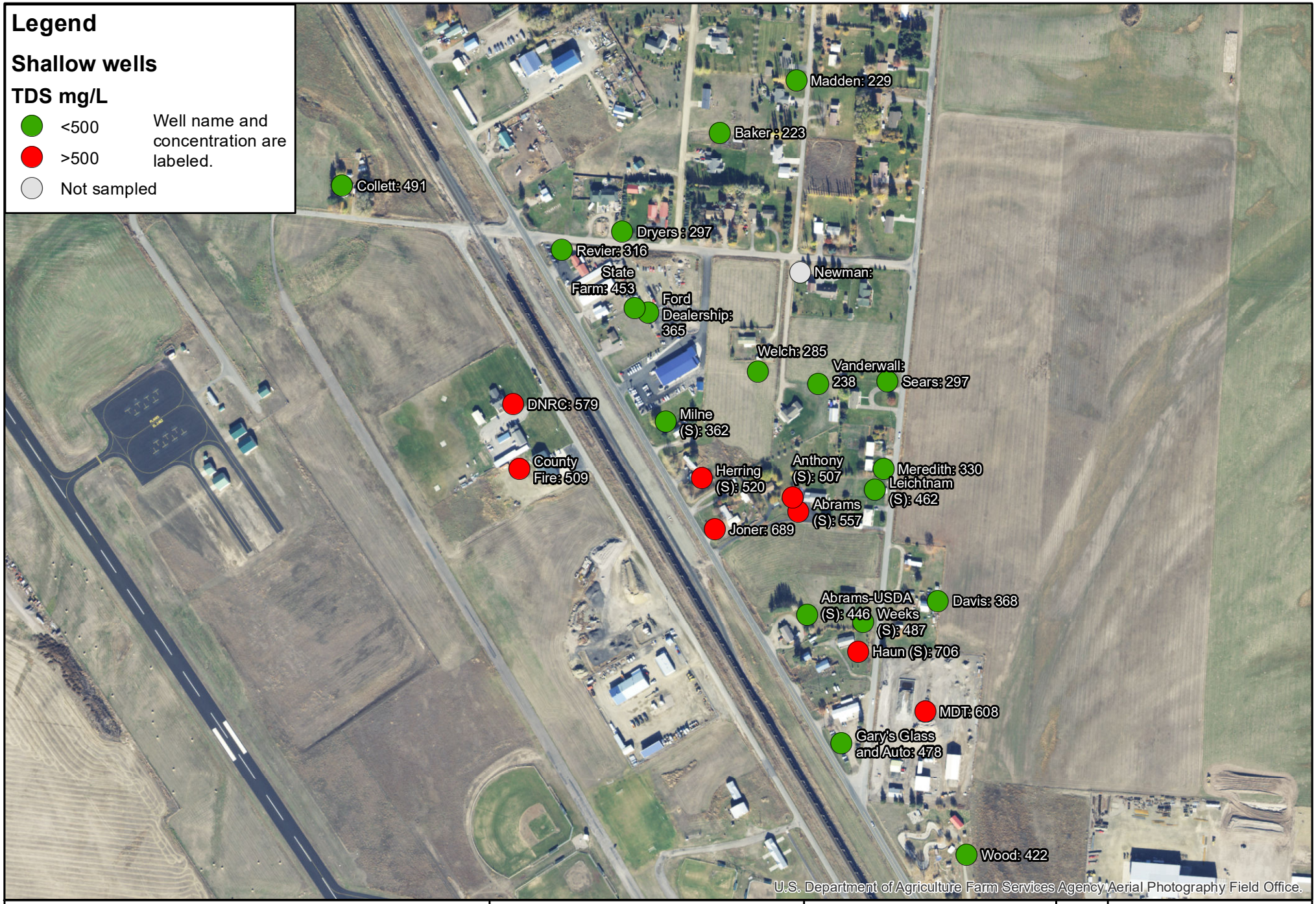
Sheet No. 1

Designed By: Ian Magruder

Checked by: Ben Osborn

Date: 1/14/2020

Other info:



MDT Plains Maintenance Facility

Total Dissolved Solids September 2019

0 250 500 1,000 Feet

Northern Rockies Engineering, Inc.

Designed By:	Ian Magruder
Checked by:	Ben Osborn
Sheet No.	1
Date:	1/14/2020
Other info:	

MDT Plains Maintenance Facility

Chloride December 2019

0 250 500 1,000 Feet

Northern Rockies Engineering, Inc.

Designed By:	Ian Magruder
Checked by:	Ben Osborn
Sheet No. 1	Date: 1/13/2020
	Other info:

MDT Plains Maintenance Facility

Specific Conductivity December 2019

0 250 500 1,000 Feet

Northern Rockies Engineering, Inc.

Designed By:	Ian Magruder
Checked by:	Ben Osborn
Sheet No.	1
Date:	1/14/2020
Other info:	

MDT Plains Maintenance Facility

Total Dissolved Solids December 2019

0 250 500 1,000 Feet

Northern Rockies Engineering, Inc.

Sheet No. 1

Designed By: Ian Magruder

Checked by: Ben Osborn

Date: 1/14/2020

Other info:

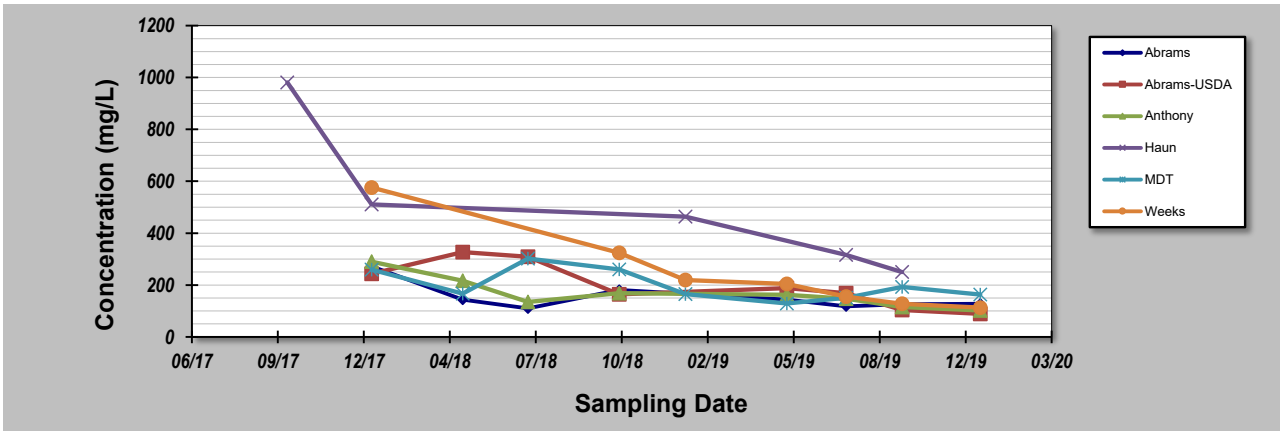
Appendix 2.

Mann-Kendall Trend analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	14-Jan-20	Job ID:	NA
Facility Name:	MDT Plains	Constituent:	Chloride
Conducted By:	Ian Magruder	Concentration Units:	mg/L

Sampling Point ID:		Abrams	Abrams-USDA	Anthony	Haun	MDT	Weeks
Sampling Event	Sampling Date	CHLORIDE CONCENTRATION (mg/L)					
1	3-Oct-17				**981**		
2	9-Jan-18	**272**	243	**290**	**511**	**259**	**576**
3	25-Apr-18	144	**327**	217		167	
4	10-Jul-18	110	**309**	135		**302**	
5	24-Oct-18	181	164	169		**260**	**324**
6	9-Jan-19				**464**	165	219
7	7-May-19	144	188	162		129	204
8	15-Jul-19	118	169	147	316	151	155
9	18-Sep-19	126	104	115	250	193	128
10	18-Dec-19	128	89	102		163	113
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
Coefficient of Variation:		0.35	0.44	0.36	0.57	0.30	0.66
Mann-Kendall Statistic (S):		-9	-20	-22	-10	-14	-21
Confidence Factor:		83.2%	99.3%	99.8%	99.2%	91.0%	100.0%
Concentration Trend:		Stable	Decreasing	Decreasing	Decreasing	Prob. Decreasing	Decreasing



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

DISCLAIMER: *The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.*

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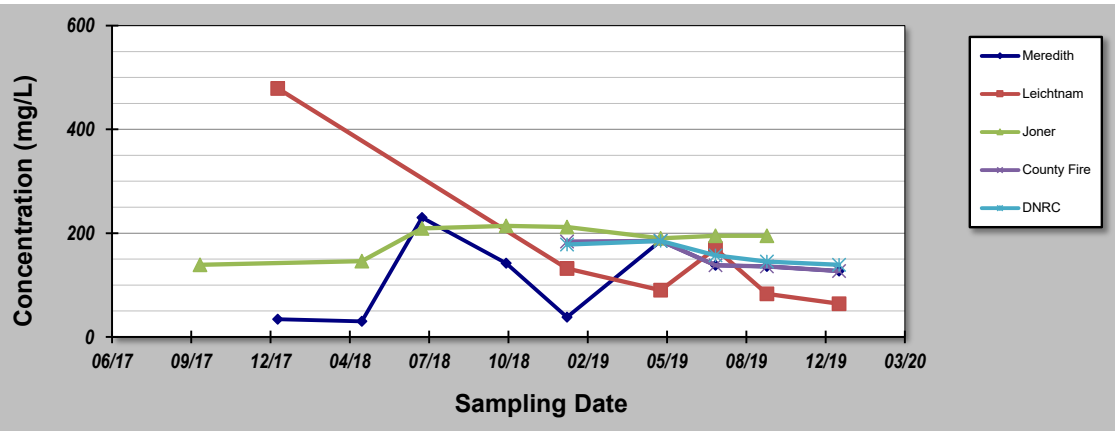
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	14-Jan-20	Job ID:	NA
Facility Name:	MDT Plains	Constituent:	Chloride
Conducted By:	Ian Magruder	Concentration Units:	mg/L

Sampling Point ID:		Meredith	Leichtnam	Joner	County Fire	DNRC		
Sampling Event	Sampling Date	CHLORIDE CONCENTRATION (mg/L)						
1	3-Oct-17			139				
2	6-Nov-17							
3	9-Jan-18	34	**479**					
4	25-Apr-18	30		146				
5	10-Jul-18	230		209				
6	24-Oct-18	142		214				
7	9-Jan-19	38	132	212	184	178		
8	7-May-19	185	90	190	185	185		
9	15-Jul-19	138	170	195	138	157		
10	18-Sep-19	136	83	195	136	145		
11	18-Dec-19	127	64		127	139		
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.60	0.92	0.16	0.18	0.13		
Mann-Kendall Statistic (S):		2	-11	7	-8	-8		
Confidence Factor:		54.0%	97.2%	76.4%	95.8%	95.8%		
Concentration Trend:		No Trend	Decreasing	No Trend	Decreasing	Decreasing		



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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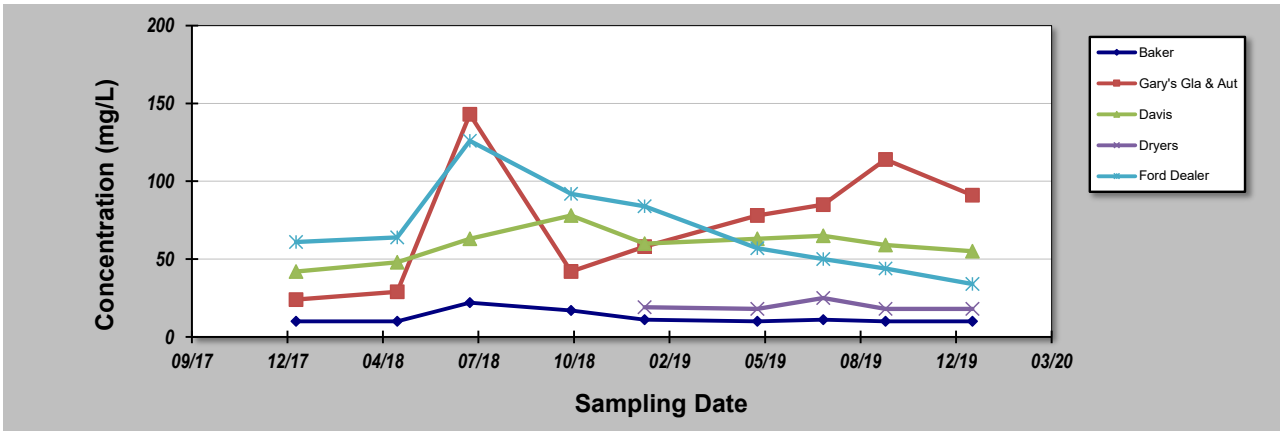
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	14-Jan-20	Job ID:	NA
Facility Name:	MDT Plains	Constituent:	Chloride
Conducted By:	Ian Magruder	Concentration Units:	mg/L

Sampling Point ID:		Baker	Gary's Gla & Aut	Davis	Dryers	Ford Dealer		
Sampling Event	Sampling Date	CHLORIDE CONCENTRATION (mg/L)						
1	9-Jan-18	10	**24**	**42**		**61**		
2	25-Apr-18	10	29	48		64		
3	10-Jul-18	22	143	63		126		
4	24-Oct-18	17	42	78		92		
5	9-Jan-19	11	58	60	19	84		
6	7-May-19	10	78	63	18	57		
7	15-Jul-19	11	85	65	25	50		
8	18-Sep-19	10	114	59	18	44		
9	18-Dec-19	10	91	55	18	34		
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.35	0.54	0.17	0.16	0.42		
Mann-Kendall Statistic (S):		-7	22	5	-3	-22		
Confidence Factor:		72.8%	98.8%	65.7%	67.5%	98.8%		
Concentration Trend:		Stable	Increasing	No Trend	Stable	Decreasing		



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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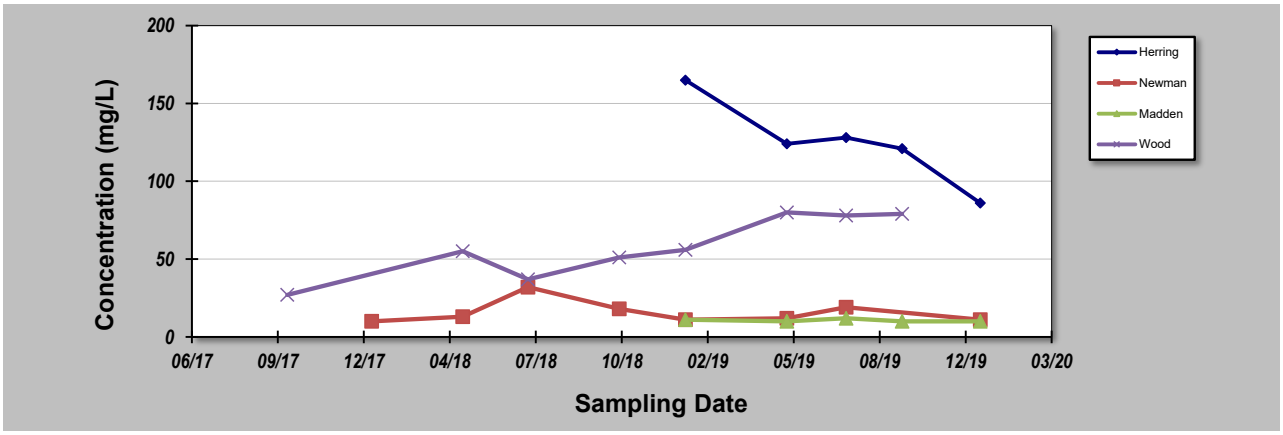
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	14-Jan-20	Job ID:	NA
Facility Name:	MDT Plains	Constituent:	Chloride
Conducted By:	Ian Magruder	Concentration Units:	mg/L

Sampling Point ID:	Herring	Newman	Madden	Wood			
Sampling Event	**Sampling Date**	**CHLORIDE CONCENTRATION (mg/L)**					
1	3-Oct-17				27		
2	9-Jan-18		10				
3	25-Apr-18		13		55		
4	10-Jul-18		32		37		
5	24-Oct-18		18		51		
6	9-Jan-19	165	11	11	56		
7	7-May-19	124	12	10	80		
8	15-Jul-19	128	19	12	78		
9	18-Sep-19	121		10	79		
10	18-Dec-19	86	11	10			
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
Coefficient of Variation:		0.22	0.47	0.08	0.34		
Mann-Kendall Statistic (S):		-8	1	-3	20		
Confidence Factor:		95.8%	50.0%	67.5%	99.3%		
Concentration Trend:		Decreasing	No Trend	Stable	Increasing		



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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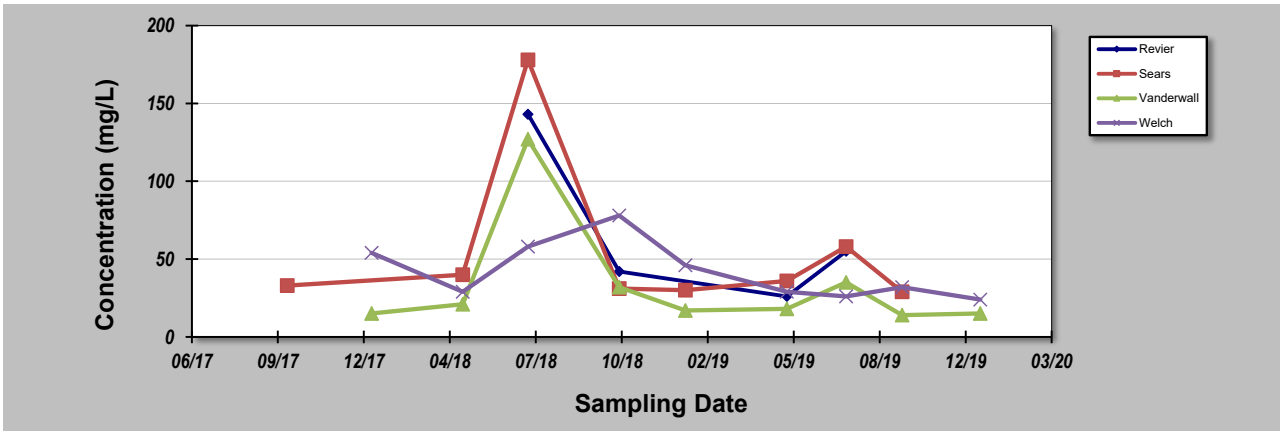
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	14-Jan-20	Job ID:	NA
Facility Name:	MDT Plains	Constituent:	Chloride
Conducted By:	Ian Magruder	Concentration Units:	mg/L

Sampling Point ID:		Revier	Sears	Vanderwall	Welch			
Sampling Event	Sampling Date	CHLORIDE CONCENTRATION (mg/L)						
1	3-Oct-17		33					
2	9-Jan-18			15	54			
3	25-Apr-18		40	21	29			
4	10-Jul-18	143	178	127	58			
5	24-Oct-18	42	31	32	78			
6	9-Jan-19		30	17	46			
7	7-May-19	26	36	18	29			
8	15-Jul-19	55	58	35	26			
9	18-Sep-19		29	14	32			
10	18-Dec-19			15	24			
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.79	0.93	1.11	0.44			
Mann-Kendall Statistic (S):		-2	-6	-7	-17			
Confidence Factor:		62.5%	72.6%	72.8%	95.1%			
Concentration Trend:		Stable	Stable	No Trend	Decreasing			



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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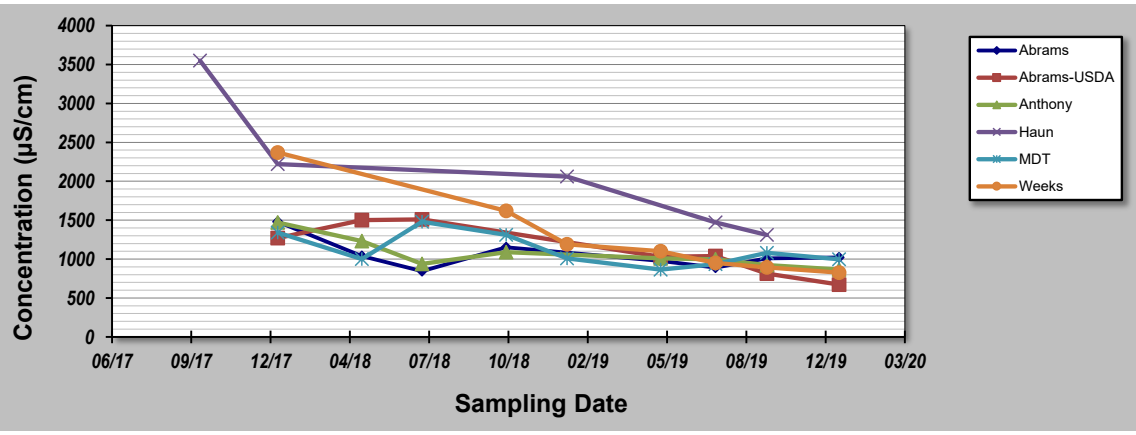
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	14-Jan-20	Job ID:	NA
Facility Name:	MDT Plains	Constituent:	SC
Conducted By:	Ian Magruder	Concentration Units:	µS/cm

Sampling Point ID:		Abrams	Abrams-USDA	Anthony	Haun	MDT	Weeks	
Sampling Event	Sampling Date	SC CONCENTRATION (µS/cm)						
1	3-Oct-17				3550			
2	9-Jan-18	1480	1270	1470	2220	1340	2370	
3	25-Apr-18	1040	1500	1230		1000		
4	10-Jul-18	845	1510	938		1480		
5	24-Oct-18	1150		1090		1310	1620	
6	9-Jan-19				2060	1010	1190	
7	7-May-19	978	1030	1010		865	1100	
8	15-Jul-19	892	1040	996	1470	936	949	
9	18-Sep-19	1010	815	924	1310	1080	893	
10	18-Dec-19	1020	673	866		997	826	
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.19	0.29	0.19	0.42	0.19	0.43	
Mann-Kendall Statistic (S):		-6	-13	-22	-10	-14	-21	
Confidence Factor:		72.6%	96.5%	99.8%	99.2%	91.0%	100.0%	
Concentration Trend:		Stable	Decreasing	Decreasing	Decreasing	Prob. Decreasing	Decreasing	



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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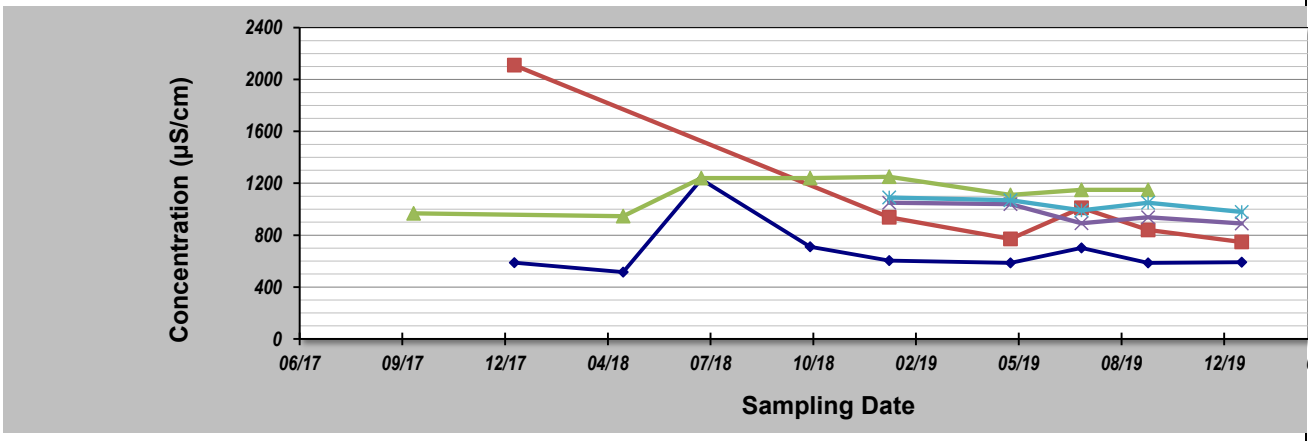
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	14-Jan-20	Job ID:	NA
Facility Name:	MDT Plains	Constituent:	SC
Conducted By:	Ian Magruder	Concentration Units:	µS/cm

Sampling Point ID:		Meredith	Leichtnam	Joner	County Fire	DNRC		
Sampling Event	Sampling Date	SC CONCENTRATION (µS/cm)						
1	3-Oct-17			968				
2	6-Nov-17							
3	9-Jan-18	588	**2110**					
4	25-Apr-18	515		946				
5	10-Jul-18	**1230**		**1240**				
6	24-Oct-18	711		**1240**				
7	9-Jan-19	604	938	**1250**	**1050**	**1090**		
8	7-May-19	586	770	**1110**	**1040**	**1070**		
9	15-Jul-19	702	**1010**	**1150**	892	992		
10	18-Sep-19	586	840	**1150**	938	**1050**		
11	18-Dec-19	592	747		890	979		
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.32	0.49	0.11	0.08	0.05		
Mann-Kendall Statistic (S):		-3	-9	6	-8	-8		
Confidence Factor:		58.0%	93.2%	72.6%	95.8%	95.8%		
Concentration Trend:		Stable	Prob. Decreasing	No Trend	Decreasing	Decreasing		



Notes:

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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	14-Jan-20	Job ID:	NA
Facility Name:	MDT Plains	Constituent:	SC
Conducted By:	Ian Magruder	Concentration Units:	µS/cm

Sampling Point ID:		Baker	Gary's Gla & Aut	Davis	Dryers	Ford Dealer		
Sampling Event	Sampling Date	SC CONCENTRATION (µS/cm)						
1	9-Jan-18	399	594	580		696		
2	25-Apr-18	390	665	583		689		
3	10-Jul-18	560	671	654		**1070**		
4	24-Oct-18	445	646	704		849		
5	9-Jan-19	395	616	653	488	805		
6	7-May-19	387	688	650	479	677		
7	15-Jul-19	412	715	659	577	663		
8	18-Sep-19	389	830	656	523	643		
9	18-Dec-19	387	766	632	512	585		
10								
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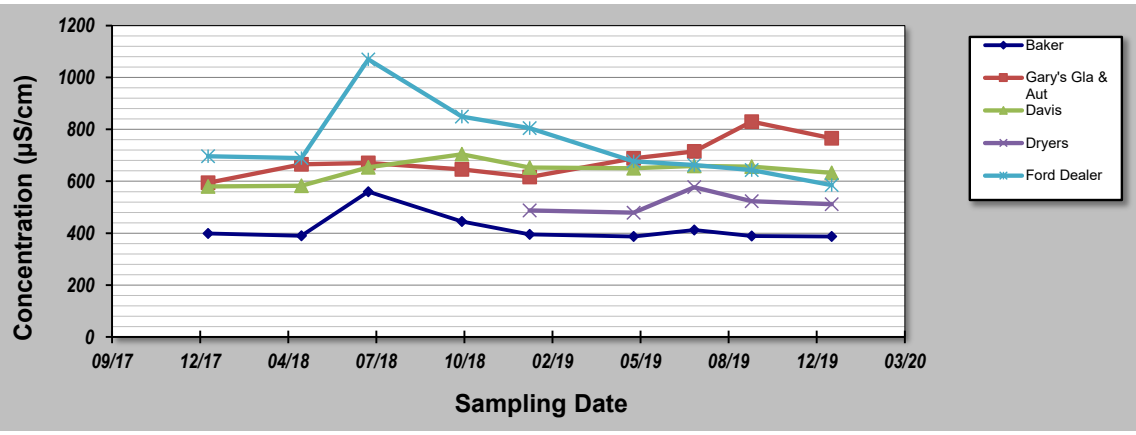
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.13	0.11	0.06	0.07	0.20		
Mann-Kendall Statistic (S):		-15	24	8	2	-24		
Confidence Factor:		92.5%	99.4%	76.2%	59.2%	99.4%		
Concentration Trend:		Prob. Decreasing	Increasing	No Trend	No Trend	Decreasing		



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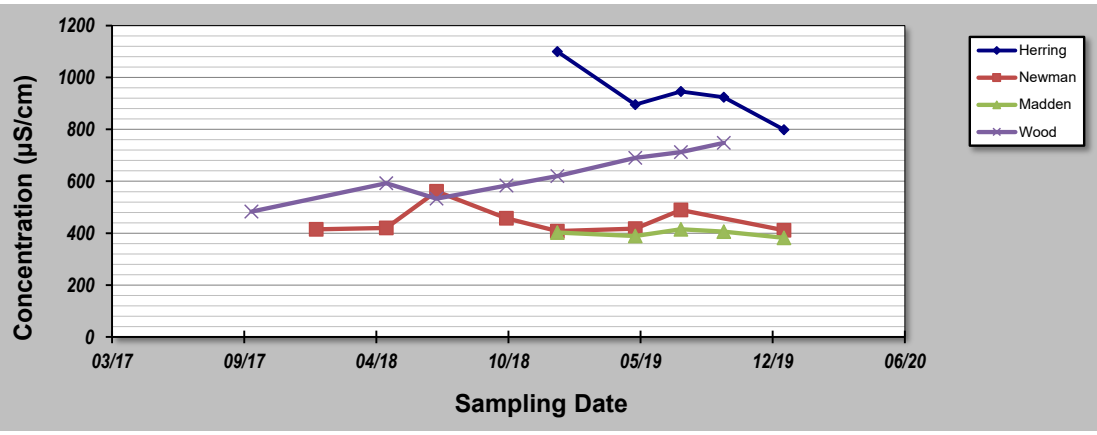
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	14-Jan-20	Job ID:	NA
Facility Name:	MDT Plains	Constituent:	SC
Conducted By:	Ian Magruder	Concentration Units:	µS/cm

Sampling Point ID:		Herring	Newman	Madden	Wood			
Sampling Event	Sampling Date	SC CONCENTRATION (µS/cm)						
1	24-May-17							
2	3-Oct-17				483			
3	9-Jan-18		415					
4	25-Apr-18		420		592			
5	10-Jul-18		561		533			
6	24-Oct-18		457		584			
7	9-Jan-19	**1100**	408	402	620			
8	7-May-19	895	417	389	690			
9	15-Jul-19	946	489	415	712			
10	18-Sep-19	924		406	748			
11	18-Dec-19	799	411	382				
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.12	0.12	0.03	0.15			
Mann-Kendall Statistic (S):		-6	-2	-2	24			
Confidence Factor:		88.3%	54.8%	59.2%	99.9%			
Concentration Trend:		Stable	Stable	Stable	Increasing			



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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	14-Jan-20	Job ID:	NA
Facility Name:	MDT Plains	Constituent:	SC
Conducted By:	Ian Magruder	Concentration Units:	µS/cm

Sampling Point ID:		Revier	Sears	Vanderwall	Welch			
Sampling Event	Sampling Date	SC CONCENTRATION (µS/cm)						
1	3-Oct-17		582					
2	9-Jan-18			456	630			
3	25-Apr-18		591	475	501			
4	10-Jul-18		**1150**	991	660			
5	24-Oct-18	669	576	542	753			
6	9-Jan-19		573	479	603			
7	7-May-19	552	580	463	512			
8	15-Jul-19	704	688	549	518			
9	18-Sep-19	543	541	430	522			
10	18-Dec-19			456	484			
11								
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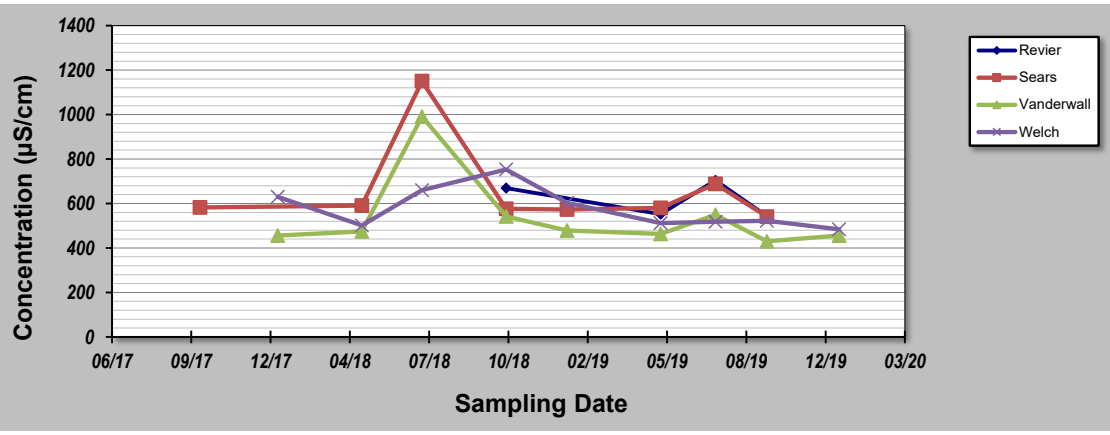
20								
Coefficient of Variation:		0.13	0.31	0.32	0.16			
Mann-Kendall Statistic (S):		-2	-8	-7	-12			
Confidence Factor:		62.5%	80.1%	72.8%	87.0%			
Concentration Trend:		Stable	Stable	Stable	Stable			



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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	14-Jan-20	Job ID:	NA
Facility Name:	MDT Plains	Constituent:	TDS
Conducted By:	Ian Magruder	Concentration Units:	mg/L

Sampling Point ID:		Abrams	Abrams-USDA	Anthony	Haun	MDT	Weeks	
Sampling Event	Sampling Date	TDS CONCENTRATION (mg/L)						
1	3-Oct-17				2020			
2	9-Jan-18	809	675	806	1140	697	1310	
3	25-Apr-18	575	851	676		549		
4	10-Jul-18	464	798	525		784		
5	24-Oct-18	596		566		676	834	
6	9-Jan-19				1060	527	607	
7	7-May-19	513	549	544		433	563	
8	15-Jul-19	499	569	547	793	515	498	
9	18-Sep-19	557	446	507	706	608	487	
10	18-Dec-19	550	358	471		530	448	
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16								
17								
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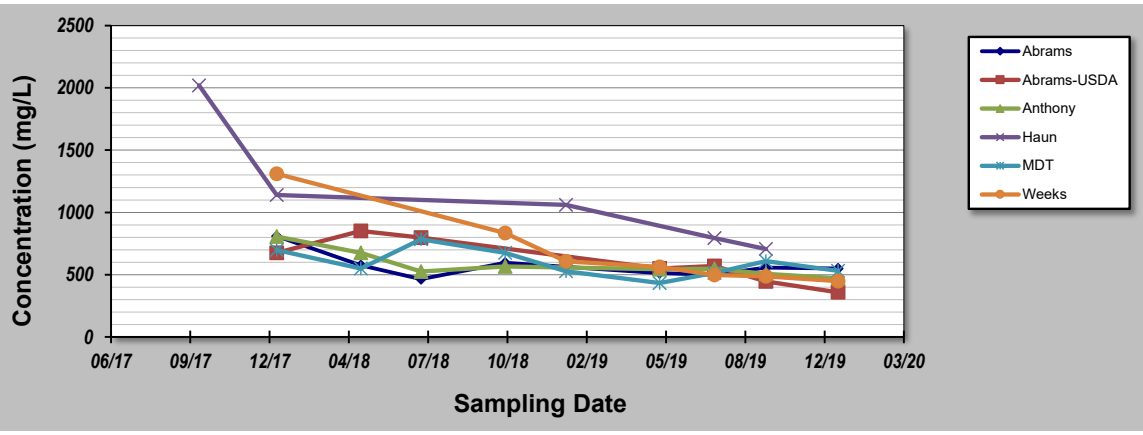
19								
20								
Coefficient of Variation:		0.18	0.30	0.19	0.46	0.19	0.45	
Mann-Kendall Statistic (S):		-8	-15	-20	-10	-14	-21	
Confidence Factor:		80.1%	98.5%	99.3%	99.2%	91.0%	100.0%	
Concentration Trend:		Stable	Decreasing	Decreasing	Decreasing	Prob. Decreasing	Decreasing	



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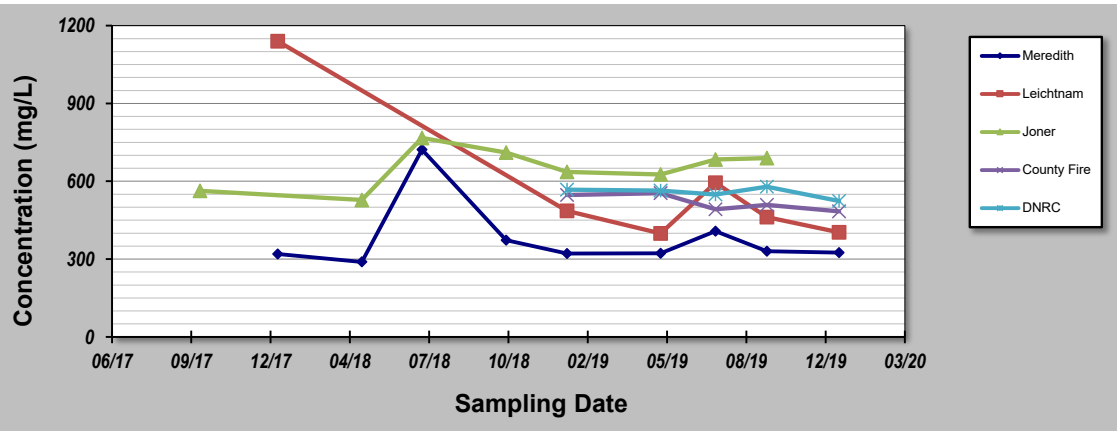
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	14-Jan-20	Job ID:	NA
Facility Name:	MDT Plains	Constituent:	TDS
Conducted By:	Ian Magruder	Concentration Units:	mg/L

Sampling Point ID:		Meredith	Leichtnam	Joner	County Fire	DNRC		
Sampling Event	Sampling Date	TDS CONCENTRATION (mg/L)						
1	3-Oct-17			**563**				
2	6-Nov-17							
3	9-Jan-18	320	**1140**					
4	25-Apr-18	289		**528**				
5	10-Jul-18	**722**		**767**				
6	24-Oct-18	373		**711**				
7	9-Jan-19	321	486	**636**	**547**	**568**		
8	7-May-19	322	399	**626**	**554**	**564**		
9	15-Jul-19	408	**594**	**684**	492	**549**		
10	18-Sep-19	330	462	**689**	**509**	**579**		
11	18-Dec-19	325	403		484	**524**		
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.35	0.49	0.12	0.06	0.04		
Mann-Kendall Statistic (S):		8	-7	6	-6	-4		
Confidence Factor:		76.2%	86.4%	72.6%	88.3%	75.8%		
Concentration Trend:		No Trend	Stable	No Trend	Stable	Stable		



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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	14-Jan-20	Job ID:	NA
Facility Name:	MDT Plains	Constituent:	TDS
Conducted By:	Ian Magruder	Concentration Units:	mg/L

Sampling Point ID:		Baker	Gary's Gla & Aut	Davis	Dryers	Ford Dealer		
Sampling Event	Sampling Date	TDS CONCENTRATION (mg/L)						
1	3-Oct-17				401			
2	9-Jan-18	227	340	318		384		
3	25-Apr-18	336	384	338	316	408		
4	10-Jul-18	245	385	355	440	**616**		
5	24-Oct-18	218	344	366	347	455		
6	9-Jan-19		324	344	267	429		
7	7-May-19	221	376	357	272	362		
8	15-Jul-19	250	466	373	337	381		
9	18-Sep-19	223	478	368	297	365		
10	18-Dec-19	220	420	347		329		
11								
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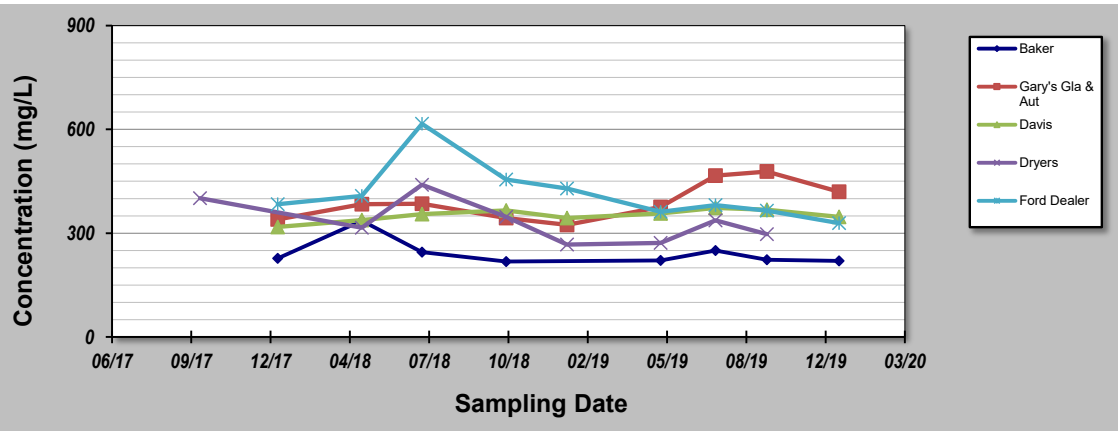
18								
19								
20								
Coefficient of Variation:		0.16	0.14	0.05	0.18	0.20		
Mann-Kendall Statistic (S):		-8	16	18	-10	-18		
Confidence Factor:		80.1%	94.0%	96.2%	86.2%	96.2%		
Concentration Trend:		Stable	Prob. Increasing	Increasing	Stable	Decreasing		



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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	14-Jan-20	Job ID:	NA
Facility Name:	MDT Plains	Constituent:	TDS
Conducted By:	Ian Magruder	Concentration Units:	mg/L

Sampling Point ID:		Herring	Newman	Madden	Wood			
Sampling Event	Sampling Date	TDS CONCENTRATION (mg/L)						
1	3-Oct-17			331	292			
2	9-Jan-18		232					
3	25-Apr-18		242	262	346			
4	10-Jul-18		330	254	291			
5	24-Oct-18		252	253	306			
6	9-Jan-19	**565**	231	222	320			
7	7-May-19	482	229	225	389			
8	15-Jul-19	**530**	286	252	417			
9	18-Sep-19	**520**		229	422			
10	18-Dec-19	433	233					
11								
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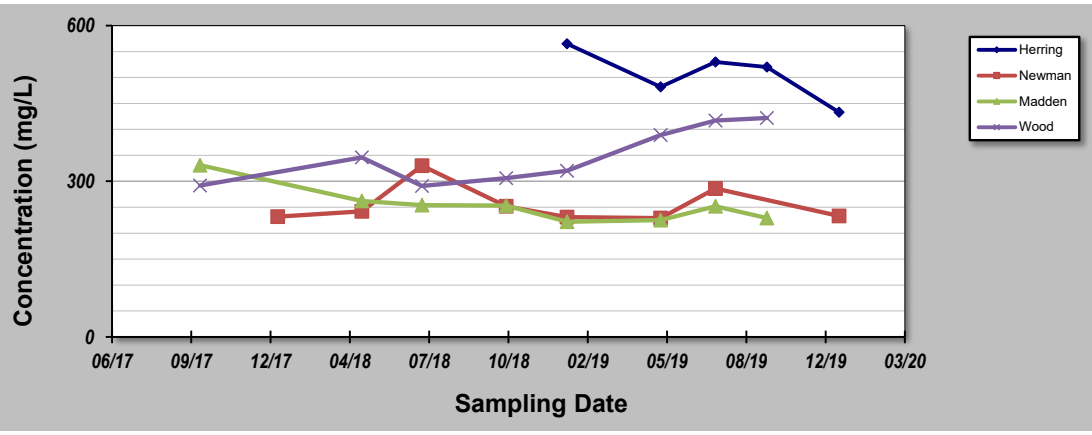
18								
19								
20								
Coefficient of Variation:		0.10	0.14	0.14	0.16			
Mann-Kendall Statistic (S):		-6	-2	-18	20			
Confidence Factor:		88.3%	54.8%	98.4%	99.3%			
Concentration Trend:		Stable	Stable	Decreasing	Increasing			



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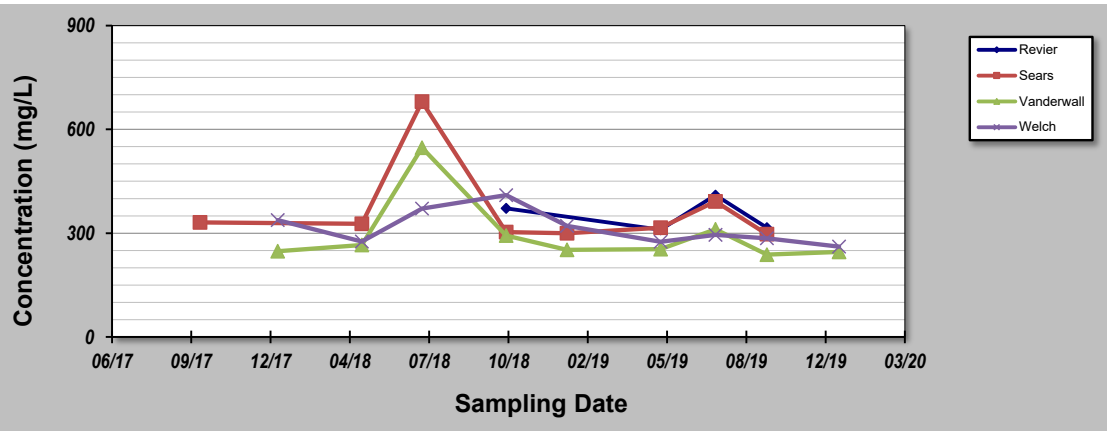
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	14-Jan-20	Job ID:	NA
Facility Name:	MDT Plains	Constituent:	TDS
Conducted By:	Ian Magruder	Concentration Units:	mg/L

Sampling Point ID:		Revier	Sears	Vanderwall	Welch			
Sampling Event	Sampling Date	TDS CONCENTRATION (mg/L)						
1	3-Oct-17		331					
2	9-Jan-18			248	338			
3	25-Apr-18		327	266	276			
4	10-Jul-18		**680**	**547**	371			
5	24-Oct-18	372	303	293	410			
6	9-Jan-19		300	252	321			
7	7-May-19	310	316	254	275			
8	15-Jul-19	410	392	311	295			
9	18-Sep-19	316	297	238	285			
10	18-Dec-19			246	261			
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.14	0.35	0.33	0.16			
Mann-Kendall Statistic (S):		0	-10	-8	-16			
Confidence Factor:		37.5%	86.2%	76.2%	94.0%			
Concentration Trend:		Stable	Stable	Stable	Prob. Decreasing			



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3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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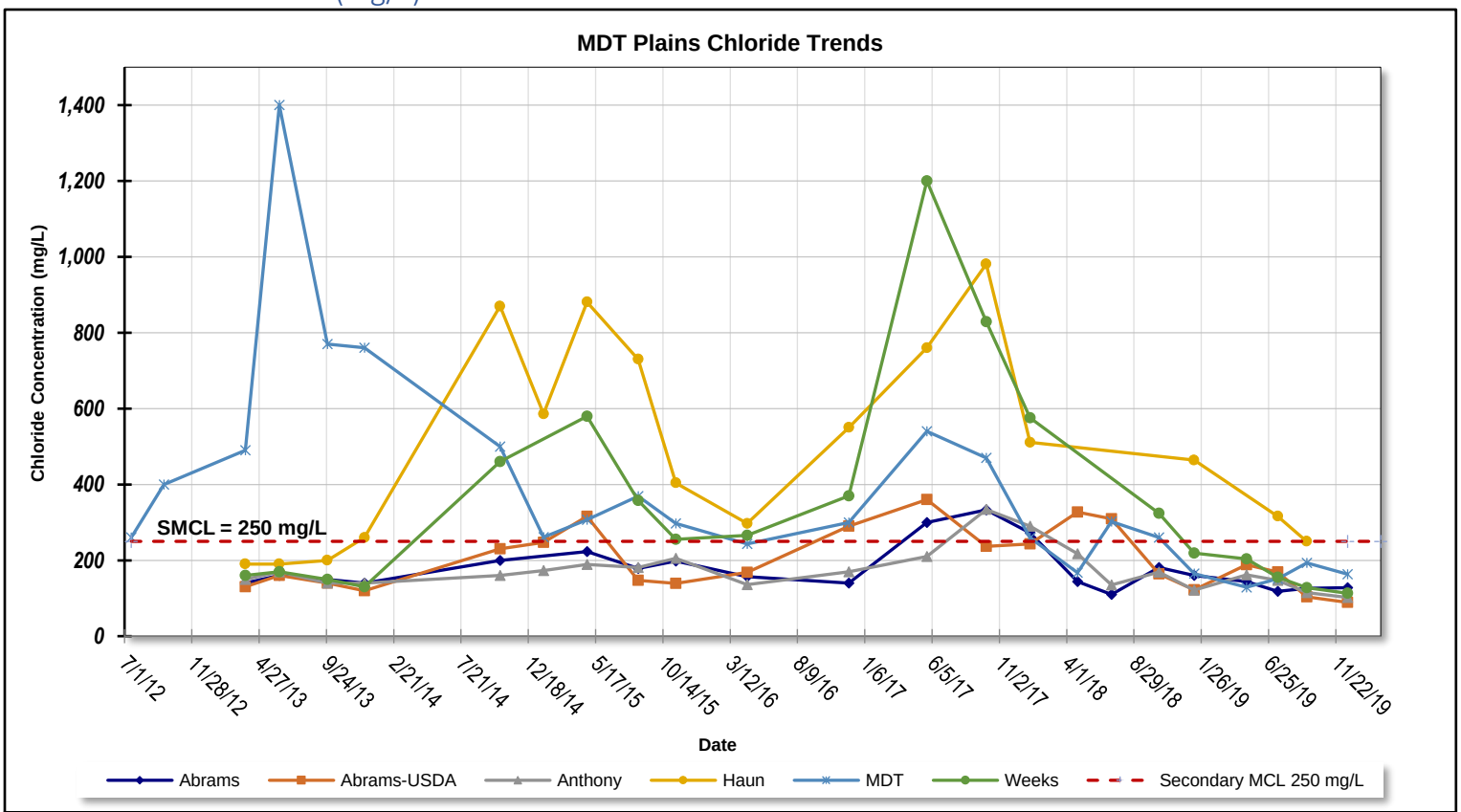
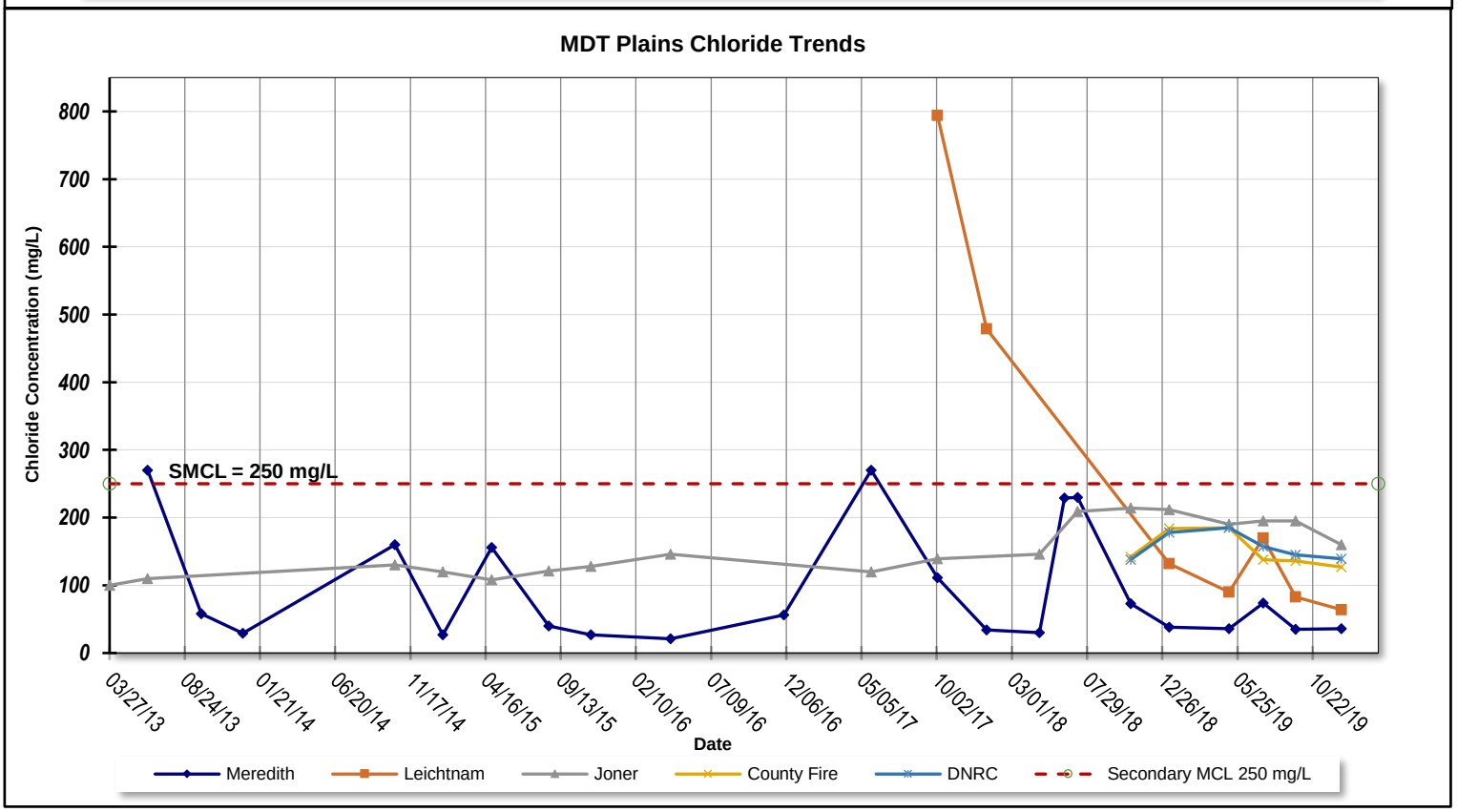
Appendix 3.

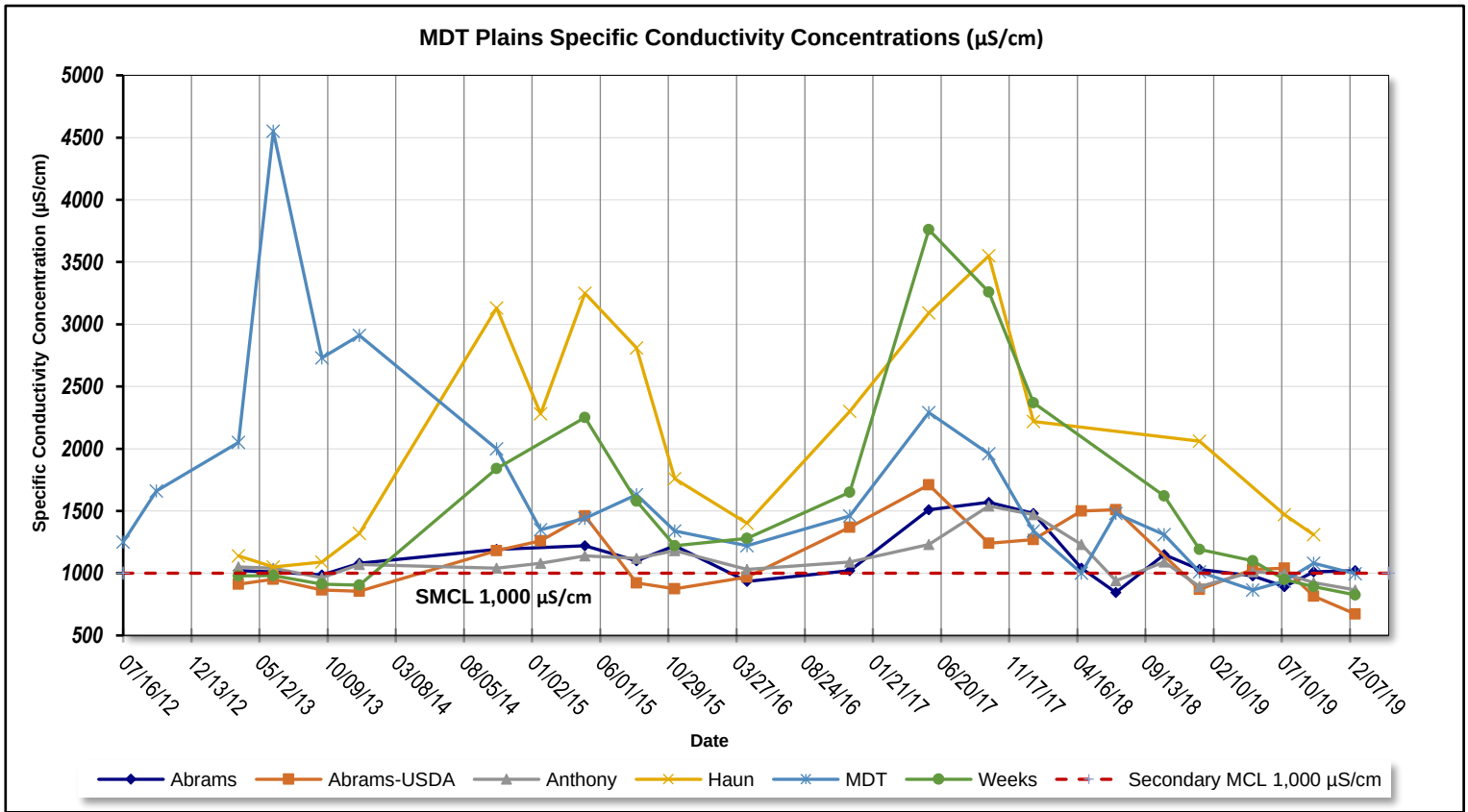
Graphs of wells historically exhibiting elevated levels of chloride, TDS, and SC

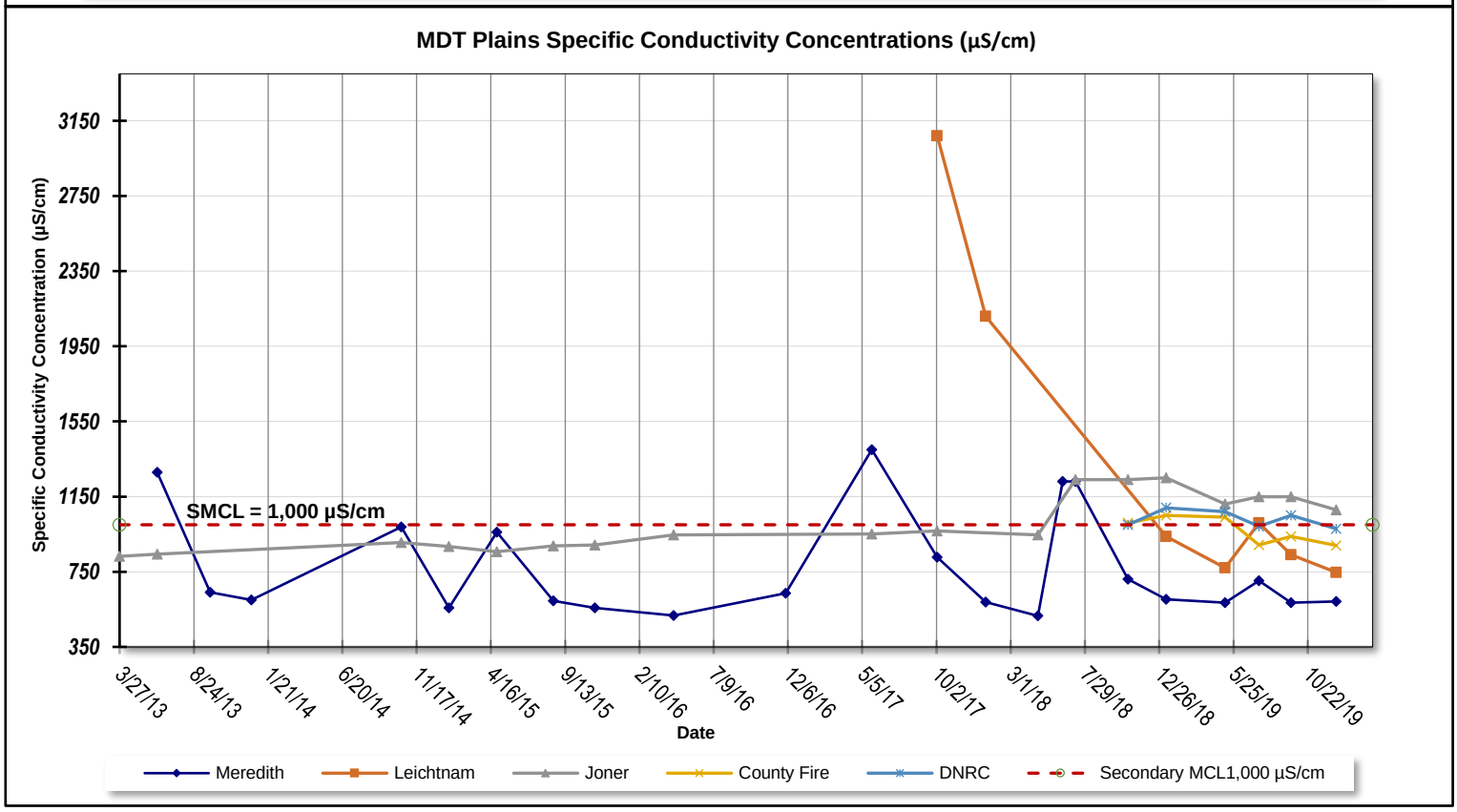
Chloride Concentrations (mg/L)



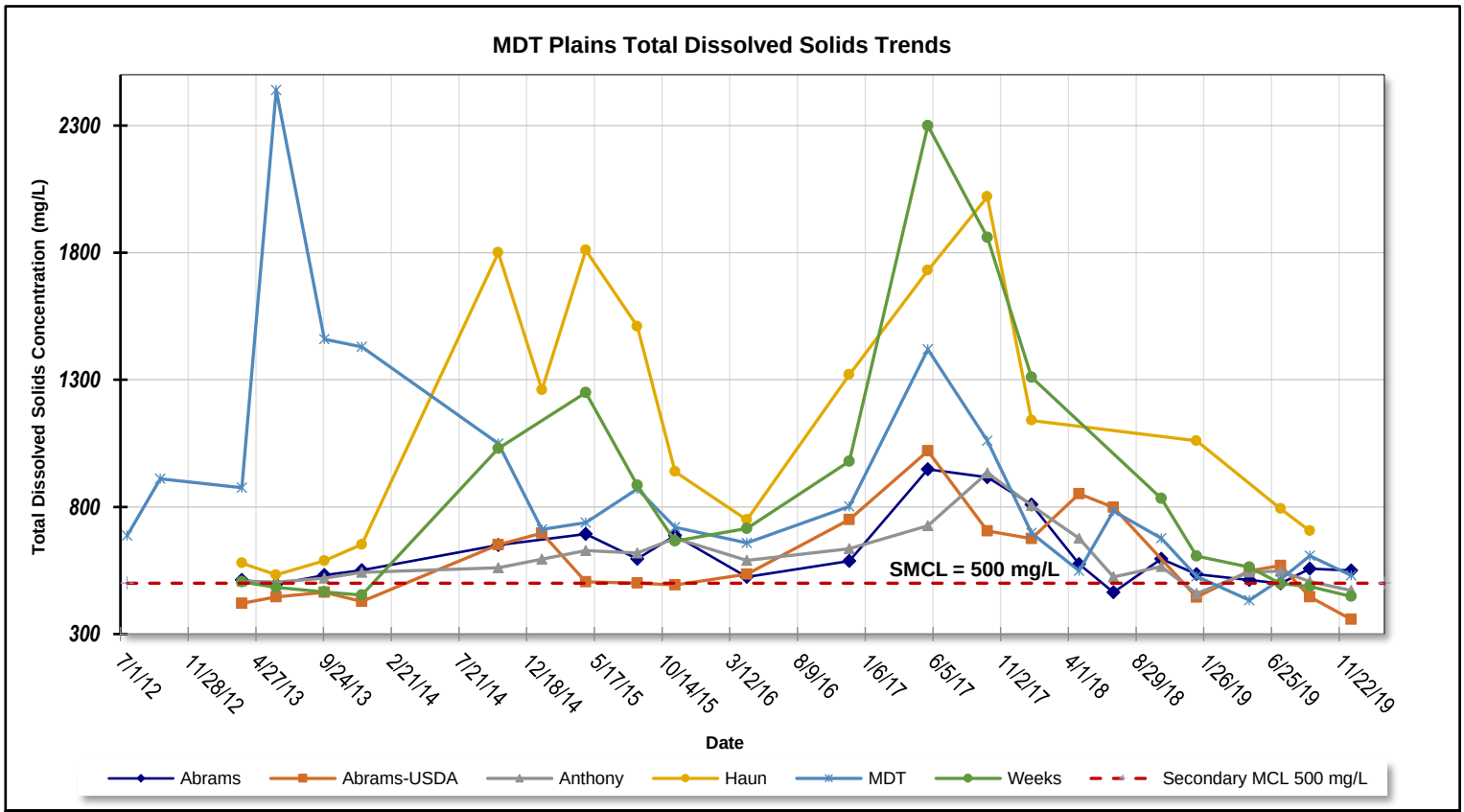


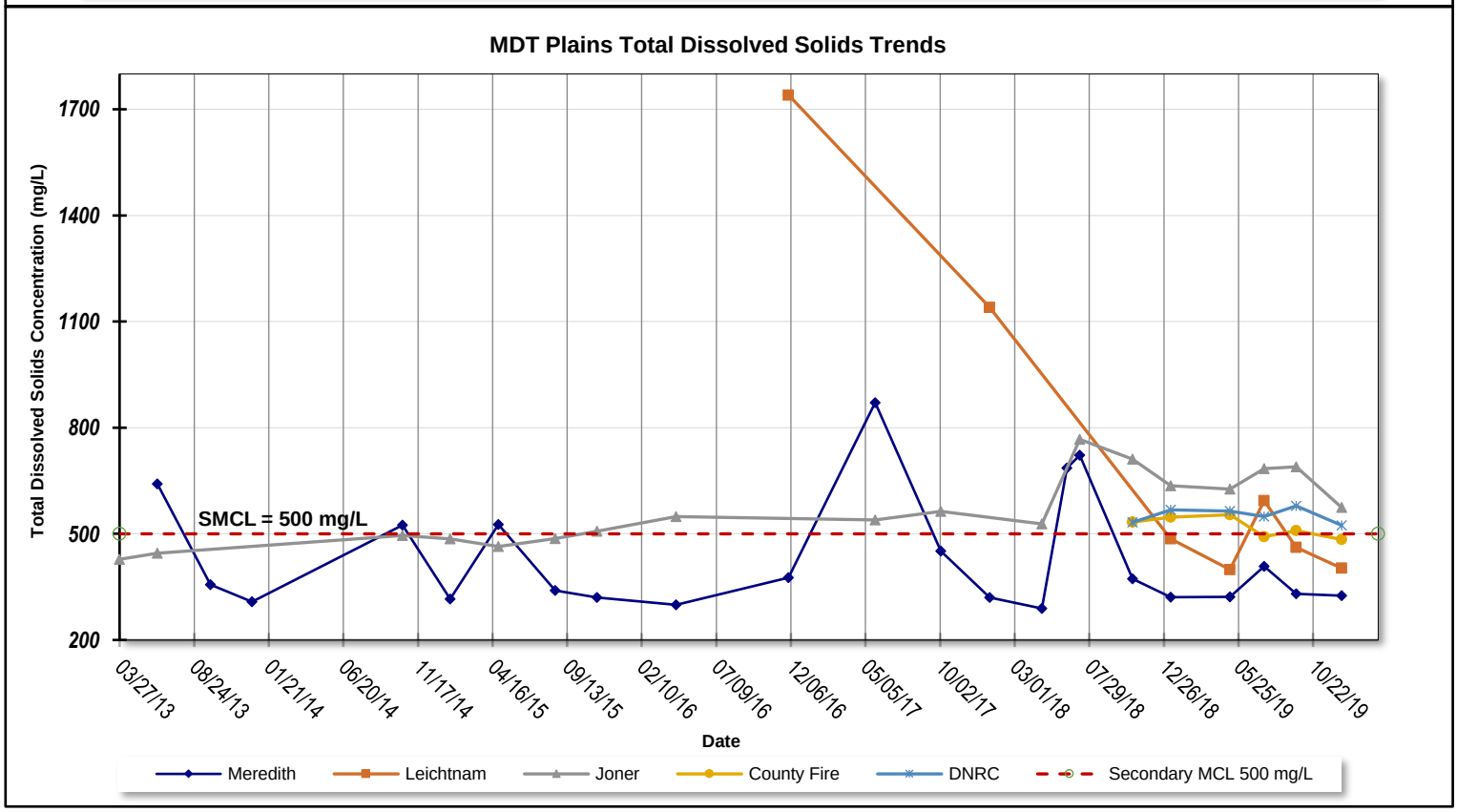
Specific Conductivity (µS/cm) @ 25°C





Total Dissolved Solids (mg/L)





Appendix 4.

Field sampling data sheets

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: ABIGAIL COLLETT		SITE LOCATION: PLAINS, MT	
WELL NO: COLLET WP 13	SAMPLE ID: MDT-0506-100		DATE: 5-6-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): ~75

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	5	5	5		7.25	11.3	789	6.35	CLR	CLR	NONE
6	30	35			7.32	10.7	810	6.01	|	|	|
12	25	60			7.37	10.6	809	6.502	|	|	|
15	15	75			7.36	10.6	807	6.34	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: B = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 16:35
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: TEMP WELL, HAD TO SAMPLE FROM HOSE CLEAR DAY ~55°F

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: WOOD, LESLEE & BEVERLY		SITE LOCATION: PLAINS, MT	~~WP: 001~~
WELL NO: WOOD WP 022	SAMPLE ID: MDT-0507-101		DATE: 5-7-14

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): ~88

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
3 Min	24	24	8	NA	7.35	10.1	639	5.22	Clr.	Clr.	~~NA~~ None
6 MIN		48			7.45	10.5	637	5.55	|	|	|
9 MIN		72			7.45	10.6	636	5.41	|	|	|
11 MIN		88			7.48	10.6	635	5.55	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 8:00	SAMPLING ENDED AT: 8:22 ~~8:00~~
JAMES OSBORN			
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:
OVERCAST 55°F

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: MADDEN, MATTHEW	SITE LOCATION: PLAINS, MT
WELL NO: MADDEN WP036	SAMPLE ID: MOT-0507-102
	DATE: 5-7-14

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 180

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.05	10.7	355.7	5.43	CLR	CLR	NONE
5	40	50			7.05	10.1	355.6	4.03	|	|	|
12	70	120			7.71	9.9	355.7	3.41	|	|	|
18	60	180			7.71	9.9	354.9	4.0	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 8:51
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: OVERCAST 56°F

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: ABRAMS, MIKE		SITE LOCATION: PLACNS, MT	
WELL NO: ABRAMS (D) "INSIDE"	SAMPLE ID: MOT-0507-103		DATE: 5-7-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): ~2

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
9:33	2	2		NA	7.61	12.7	3481	3.81	CLR.	CLR.	NONE

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 9:33
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: DUPLICATE & RAW TAKEN BY LUARA ALVEY OF DEQ "SPLIT" SAMPLE TAKEN FROM BATHROOM TAP

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: ABRAMS, MEKE		SITE LOCATION: PLAINS, MT	
WELL NO: ABRAMS (S)	SAMPLE ID: MDT-0507-104		DATE: 5-7-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 45

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	2.25	2.25	2.25	46.86	7.70	10.5	918	1.72	VERY	RUST	NONE
4		9			7.51	10.6	907	2.04	|	|	|
7		~16			7.49	10.6	899	4.01	|	|	|
10		22.5			7.46	10.6	899	3.75	|		|
13		~29			7.46	10.6	899	5.66	MOD	LT. RUST	|
16		36			7.46	10.7	899	6.21	|	|	|
20		~45			7.46	10.8	898	4.44	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0005; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S): [signature]	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 10:10
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: (Y) N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: DUPLICATE TAKEN: MDT-0507-105

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: ANTHONY, JACK	SITE LOCATION: PLACNS, MT
WELL NO: ANTHONY (D) "INSIDE"	SAMPLE ID: MDT-0507-106
DATE: 5-7-19	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = . gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): ~2

TIME 45	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
10:37	2				7.86	12.9	313.7	3.01	CLEAR	CLEAR	NONE

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S): [signature]	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 10:45
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: "SPLIT" DUPLICATE TAKEN BY DEQ: LUARA ALVEY ALSO DEQ TOOK RAW

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: ANTHONY, JACK	SITE LOCATION: PLACNS, MT
WELL NO: ANTHONY (S)	SAMPLE ID: MDT-0507-107
DATE: 5-7-19	

PURGING DATA

WELL DIAMETER (inches): 6	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): ~45

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
	30	30	Bucket	15	7.47	11.3	~~686~~	3.67	clr.	clr	None
~~58~~	~~5~~	~~35~~	"		~~7.49~~	~~10.6~~	~~930~~				
	5	35	"	NA	7.49	10.6	932	3.56	"	"	"
	5	40	"	NA	7.49	10.6	933	3.55	"	"	"
11:10	5	45	"	NA	7.49	10.7	930	3.57			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 11:10
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: started rusty 0-20 gal. ~ cleared up to clear

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: ABRAMS USDA BUILDING		SITE LOCATION: PLACNS, MT	
WELL NO: ABRAMS USDA (D)	SAMPLE ID: MOT-0507-104		DATE: 5-7-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): ~2

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
12:20		2			7.79	13.8	1220	.67	CLR	CLR	NONE

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 12:20
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: 1 DUP TAKEN BY DEQ SAMPLED IN MEN'S RESTROOM TAP

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: ABRAMS USDA BUILDING	SITE LOCATION: PLAINS, MT
WELL NO: ABRAMS USDA (S)	SAMPLE ID: MOT-0507-108
DATE: 5-7-19	

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 50

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
17min	35	35	~2		7.22	11.9	954	4.23	CLR	CLR	NONE
20	5	40			7.44	11.2	953	4.01			
22	5	~45			7.45	11.1	952	4.12			
12:05	5	50			7.49	11.2	952	4.20			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 12:05
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: SOLVER		SITE LOCATION: PLAINS, MT	
WELL NO: SOLVER	SAMPLE ID: MOT-0507-110		DATE: 5-7-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 120

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1250	30	30	10		7.48	11.7	1027	5.10	CLR	CLR	NON
1253	20	60			7.41	11.1	1021	5.35	↑	↑	↑
1256	20	80			7.54	11.6	1025	5.80			
1259		120			7.54	11.0	1022	5.50			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 12:59
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: LEICHTANAM DUPLEX	SITE LOCATION: PLACNS, MT
WELL NO: LEICHTNAM (D)	SAMPLE ID: MOT-0507-111
	DATE: 5-7-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): ~2

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	2	2			7.64	15.1	335.5	2.60			

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1320
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: SAMPLE TAKEN FROM KITCHEN TAP

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

LECHTANAM DUPLEX (S)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: ~~WEEKS, JIM & JULIE~~	SITE LOCATION: PLAINS, MT
WELL NO: WEEKS(S)	SAMPLE ID: MDT-0507-112
DATE: 5-7-19	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 41

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
13:30	5	5			7.52	14.9	702	2.83	CLOUDY	LIGHT BROWN	NONE
13:33	5	10			7.53	11.6	686	2.97	CLR	CLR	NONE
13:37	6	16			7.51	11.4	693	2.58	CLR	CLR	|
13:40	5	20			7.51	11.5	691	2.22	CLR	CLR	|
13:43	5	25			7.49	11.5	692	2.30	|	|	|
13:46	5	30			7.49	11.4	701	2.27			
13:50	5	35			7.49	11.4	702	2.31			
13:53	6	41			7.48	11.4	701	2.29			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 13:53
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: WEEKS		SITE LOCATION: PLAINS, MT	
WELL NO: WEEKS (S)	SAMPLE ID: MDT-0507-113		DATE: 5-7-14

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 32

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
14:20		2		19.11	7.33	13.2	856	5.91	MED	LGT BROWN	NONE
14:25		7			7.43	11.4	905	5.63	LIGHT	CLR	
14:31		14			7.44	11.0	985	5.01	CLR		
14:36		20			7.46	11.1	1022	4.86			
14:41		25			7.45	11.0	1026	4.65			
14:48		32			7.46	11.0	1014	4.72			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 14:48
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: MOT - PIAENS		SITE LOCATION: PIAENS, MT	
WELL NO: MOT	SAMPLE ID: MOT-0507-11H		DATE: 5-7-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 105

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		7.10	12.8	802	6.02	CLOUDY	LtBROWN	NONE
3		45			7.36	11.8	792	5.45	" "	" "	
5		75			7.41	11.7	783	5.42	CLR	CLR	
7		105			7.34	11.8	784	5.52	" "	" "	

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: CEBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: IRON TINT → CLEARED AS PURGED. SAND DEPOSIT IN PURGE BUCKET

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: GARY'S GLASS & AUTO		SITE LOCATION: PLAINS, MT	
WELL NO: GARY'S GLASS	SAMPLE ID: MOT-0507-115		DATE: 5-7-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 155

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1540	5	5	~~5~~ 10		7.09	11.2	634	5.77	CLR	CLR	NONE
1545 ~~44~~	20	50 ~~2550~~			7.37	9.7	630	5.62	|	|	|
1550 ~~1555~~		~~3550~~			7.40	9.6	629	5.09	|	|	|
1555		155			7.41	9.7	626	5.34	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1555
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: FORD DEALERSHIP		SITE LOCATION: PLAINS, MT	
WELL NO: FORD DEALERSHIP	SAMPLE ID: MOT-0507-116		DATE: 5-7-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): ~228

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
16:00		12	12		7.5	12.1	643	5.62	CLR	CLR	NONE
16:05		60			7.62	11.2	625	5.46			
16:~~13~~		156			7.60	11.1	623	5.50			
16:18		228			7.63	11.1	619	5.47			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 16:18
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: STATE FARM		SITE LOCATION: PLAINS, MT	
WELL NO: STATE FARM	SAMPLE ID: MOT-0507-117		DATE: 5-7-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 182

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
16:30		13	13		7.56	11.8	714	5.93	MELO	LIGHT BROWN	NONE
16:34	52	52-65			7.53	11.7	715	6.01			
16:38		117			7.53	11.7	715	5.71			
16:42		182			7.53	11.7	711	5.91	CLR	CLR	

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 16:42
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:
MELO IRON TINT → CLEARED WITH PURGE ~ 100 GAL

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: ~~FORD DEALERSHIP~~ DNRC	SITE LOCATION: RAINS, MT
WELL NO: ~~FORD DEALERSHIP~~ DNRC	SAMPLE ID: MOT-0507-118
	DATE: 5-7-19

PURGING DATA

WELL DIAMETER (inches): 8"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
16:50	10	10	10		7.29	12.0	985	5.00	MCLD	LIGHT RUST	NONE
16:53	30	45 40			7.32	12.0	984	5.12	CLR	CLR	/
16:58	50	90			7.43	11.4	982	5.36	CLEAR	CLEAR	/
MOB ~~17:08~~	80	170			7.44	11.7	982	4.47	/	/	/

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 17:08
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: ~~HAUN, WILLIAM~~ COUNTY FIRE		SITE LOCATION: PLAINS, MT	
WELL NO: ~~HAUN, CST~~ COUNTY FIRE	SAMPLE ID: MOT-0507-119		DATE: 5-7-19

PURGING DATA

WELL DIAMETER (inches): 8"	TUBING DIAMETER (inches): 8"	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
5:20		13	13		7.31	14.5	958	4.61	CLR	CLR	CLR
5:25	65	78			7.44	11.2	961	4.59			
5:28		107			7.47	11.3	959	4.72			
5:31		146			7.45	11.1	957	4.61			
5:34		185			7.46	11.0	956	4.76			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 17:35
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: REUCER, GARY & RENNE		SITE LOCATION: PLAINS, MT	
WELL NO: REUCER	SAMPLE ID: MOT-0507-120		DATE: 5-7-19

PURGING DATA

WELL DIAMETER (inches): 6	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
6:00		9	9		7.31	10.7	509	5.08	CLR	CLR	NONE
6:05	45	54			7.49	10.2	504	4.97			
6:10		99			7.50	10.7	507	4.97			
6:15		144			7.53	10.2	504	5.01			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES CEBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 18:15
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: DAVES, GREG		SITE LOCATION: PLACNS, MT	
WELL NO: DAVES	SAMPLE ID: MOT- 0508-121		DATE: 5-8-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.25	11.4	582	5.56	CLR	CLR	NONE
5	40	50			7.45	11.5	585	5.49			
7	20	70			7.46	11.4	587	5.63			
9	20	90			7.47	11.4	588	5.61			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
JAMES OEBORN			8:35

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: MERCOETH, STAN & PATSY		SITE LOCATION: PLAINS, MT	WP
WELL NO: MERCOETH	SAMPLE ID: MOT-0508-122		DATE: 5-8-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 90

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.04	10.4	528	4.44	CLR	CLR	NONE
3	20	30			7.49	11.0	527	1.83	|	|	|
6	30	60			7.50	11.2	527	2.05	|	|	|
9	30	90			7.53	11.2	527	2.02	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016
PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 0900
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS:
END 9:00

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: SEARS, LYLA		SITE LOCATION: PLAINS, MT	
WELL NO: SEARS	SAMPLE ID: MOT-0508-123		DATE: 5-8-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		7.2	10.9	528	4.34	CLR	CLR	NON
3	30	45			7.54	11.0	525	4.52			
5	30	75			7.6	11.0	523	3.97			
8		120			7.6	11.0	522	3.57			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016
PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 0425
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:
END SAMP 4:25

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: NEWMAN, BELL		SITE LOCATION: PLAINS, MT	
WELL NO: NEWMAN	SAMPLE ID: MOT-0508-124		DATE: 5-8-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches): 1/2"	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		6.67	10.4	380.4	4.80	CLR	CLR	NONE
3	30	45			7.46	10.2	373.6	4.52			
6	30	75			7.58	10.2	373.4	4.01			
8		120			7.6	10.2	374.1	4.21			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 0950
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: VANDERNALL, ZACH	SITE LOCATION: PLAINS, MT
WELL NO: VANDERNALL	SAMPLE ID: MOT-0508-175
DATE: 5-8-19	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		7.75	11.1	417.9	4.39	CLR	CLR	NONE
3	30	45			7.59	11.1	413.4	4.21			
6	3025	7570			7.64	11.1	415.3	4.56			
7		105			7.64	11.2	415.3	4.51			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1010
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:
FINAL SAMP 10:10

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: WELCH, ISABELL		SITE LOCATION: PLACNS, MT	
WELL NO: WELCH	SAMPLE ID: MDT-0508-1216		DATE: 5-8-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	20	20	20		7.22	10.10	477.7	5.17	CLR	CLR	NONE
3.5	50	70			7.58	10.4	462.9	5.20			
36.5	20	90			7.7	10.4	461.6	5.26			
8		160			7.71	10.4	461.2	5.86			
9		180			7.69	10.5	460.2	5.38			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1035
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS:
FENAL SAMP 10:35

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: ~~LECHTNAM DUPLEX~~ MCINE		SITE LOCATION: PLAINS, MT	
WELL NO: ~~LECHTNAM(S)~~	SAMPLE ID: MOT-0508-127		DATE: 5-8-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.11	10.3	642	5.46	CLR	CLR	NONE
3.5	25	35			~~7.21~~ 7.18	10.3	650	5.55	↓	↓	↓
5.5	25	60			7.53	10.2	640	5.4			
7.5	20	80			7.54	10.3	634	5.78			
10	20	100			7.54	10.3	631	5.72	↓	↓	↓

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016
PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 11:10
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: FINAL SAMP 11:10

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: ~~LEICHTNAM DUPLEX~~ HERRING		SITE LOCATION: PLACNS, MT	
WELL NO: ~~LEICHTNAM(O)~~ HERRING	SAMPLE ID: MOT-0508-128		DATE: 5-8-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		7.54	11.5	816	6.31	CLR	CLR	NON
4		60			7.57	10.8	812	6.02	|	|	|
5		75	~10		7.57	10.5	812	5.64	|	|	|
7		95			7.56	10.5	813	5.15	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES CEBORN	SAMPLER(S) SIGNATURE(S): [signature]	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1130
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS:
FSAMPLE 11:30

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: DRYERS		SITE LOCATION: PLACNS, MT	
WELL NO: DRYERS	SAMPLE ID: MOT-0508-129		DATE: 5-8-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		7.14	11.4	437.1	5.02	CLR	CLR	NONE
3		45	10		7.38	10.5	430.2	4.82			
6		~~60~~ 75	~~8~~		7.43	10.4	430.7	4.06			
9		105			7.45	10.3	431.0	4.37			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1205
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: FLOW RATE BACKED OFF

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: BAKER, KEITH & SUSAN	SITE LOCATION: PLAINS, MT
WELL NO: BAKER	SAMPLE ID: MDT-0508-130
DATE: 5-8-19	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		7.15	10.9	352.0	4.82	CLR	CLR	NONE
2		30			7.57	10.5	348.2	4.62			
5		75			7.56	10.5	347.6	4.71			
7		105			7.60	10.5	347.4	4.03			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1245
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: FINAL SAMP 12:45 DUP @ 13:05

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: ~~HAUN, WILLIAM~~ WEEKS	SITE LOCATION: PLAINS, MT
WELL NO: ~~HAUN(O)~~ WEEKS(O)	SAMPLE ID: MOT-0508-~~133~~ 132
DATE: 5-8-14	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1		2			7.37	14	356.6	1.62	CLR	CLR	NONE

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1330
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: (Y) N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:
FINAL 13:30 GARAGE SINK DUPLICATE MOT-0508-~~134~~-133 @ 1:45

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MDT	SITE LOCATION: PLAINS, MT
WELL NO: WOOD	SAMPLE ID: MDT-0715-101
	DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 100

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.22	14.3	608	4.25	CLR	CLR	CLR
5	40	50			7.26	11.9	646	4.22			
7	30	70			7.29	11.0	645	4.23			
10	30	100			7.30	11.1	645	4.26			

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 8:00
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS: CLEAR DAY 53°F DUP @ 8:20 MDT-0715-102

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MOT	SITE LOCATION: PLAINS, MT
WELL NO: GARY'S GLASS & AUTO	SAMPLE ID: MOT - 0715 - 103
	DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): ~200

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or mS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.13	16.4	660	4.76	CLR	CLR	NONE
5	40	50			7.25	14.0	663	3.8	|	|	|
15	100	150			7.25	13.7	660	4.01	|	|	|
20	50	200			7.22	13.9	660	4.25	|	|	|

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 0900
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MDT
SITE LOCATION: PLAINS, MT
WELL NO: MEREDETH
SAMPLE ID: MDT-0715-104
DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches):
TUBING DIAMETER (inches):
WELL SCREEN INTERVAL DEPTH: feet to feet
STATIC DEPTH TO WATER (feet):
PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):
FINAL PUMP OR TUBING DEPTH IN WELL (feet):
PURGING INITIATED AT:
PURGING ENDED AT:
TOTAL VOLUME PURGED (gallons): 96

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or mS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	8	8	8		7.35	21.6	642	3.05	CLR	CLR	NONE
3	16	24			7.46	13.0	638	3.50			
10	56	80			7.44	11.7	628	3.24			
12	30	96			7.43	11.5	634	3.15			

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN
SAMPLER(S) SIGNATURE(S):
SAMPLING INITIATED AT:
SAMPLING ENDED AT: 9:30
PUMP OR TUBING DEPTH IN WELL (feet):
TUBING MATERIAL CODE:
FIELD-FILTERED: Y N
Filtration Equipment Type:
FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced)
DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS: CLR DAY 63°F

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MDT		SITE LOCATION: PLAINS, MT	
WELL NO: SEARS	SAMPLE ID: MDT-0715-105		DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 120

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.24	12.1	628	3.43	CLR	CLR	NONE
5	40	50			7.40	11.3	628	2.61			
10	50	100			7.43	11.4	626	2.55			
12	20	120			7.43	11.3	627	2.60			

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 9:50
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS: CLR OAT 68°F

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 4):
pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLACNS MDT		SITE LOCATION: PLACNS, MT	
WELL NO: NEWMAN	SAMPLE ID: MDT-0715-106		DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 120

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	12	12	12		7.31	11.2	441.1	4.53	CLR	CLR	NONE
4	36	48			7.45	10.9	438.9	3.62	|	|	|
8	48	96			7.45	11.0	443.0	3.81	|	|	|
10	24	120			7.46	11.0	441.7	3.74	|	|	|

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./FT.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 10:15
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS: CLEAR DAY 69°F

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS, MDT	SITE LOCATION: PLAINS MT
WELL NO: VANDERWALL	SAMPLE ID: MDT-0715-107
	DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 120

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.45	12.5	506	4.00	CLR	CLR	NONE
5	40	50			7.48	11.9	502	3.67	|	|	|
10	50	100			7.47	12.0	504	2.58	|	|	|
12	20	120			7.46	12.0	504	3.01	|	|	|

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 10:35
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MOT		SITE LOCATION: PLAINS, MT	
WELL NO: WELCH	SAMPLE ID: MOT-0715-10R		DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 130

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.45	11.2	346.0	4.82	NONE	CLR	NONE
6	50	60			7.49	12.0	357.2	4.01			
10	40	100			7.50	12.1	353.0	3.82			
13	30	130			7.51	12.2	354.2	4.53			

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 10:50
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS: CLR DAY 72°F

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MOT	SITE LOCATION: PLAINS, MT
WELL NO: MADDEN	SAMPLE ID: MOT-0715-109
	DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 155

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		7.38	11.5	380.0	4.79	CLR	CLR	NONE
6	50	65	10		7.52	10.6	380.0	4.8	|	|	|
10	40	105			7.57	10.6	376.9	4.00	|	|	|
15	50	155			7.54	10.6	374.8	3.67	|	|	|

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 11:25
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS: 73°F CLEAR

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MDT		SITE LOCATION: PLAINS, MT	
WELL NO: BAKER	SAMPLE ID: MDT-0715-110		DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) ÷ FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 180

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		7.28	12.2	377.9	4.02	CLR	CLR	NONE
5	60	75			7.47	12.5	374.7	4.32	|	|	|
10	75	150			7.49	12.3	373.4	3.82	|	|	|
12	30	180			7.46	12.4	374.1	3.93	|	|	|

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 11:45
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS: CLOUDS MOVING IN 78°F SAMP TAKEN FROM PVC FITTING ON FF

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MOT
SITE LOCATION: PLAINS MT
WELL NO: DRYERS
SAMPLE ID: MOT-0715-111
DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 6"
TUBING DIAMETER (inches):
WELL SCREEN INTERVAL DEPTH: feet to feet
STATIC DEPTH TO WATER (feet):
PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):
FINAL PUMP OR TUBING DEPTH IN WELL (feet):
PURGING INITIATED AT:
PURGING ENDED AT:
TOTAL VOLUME PURGED (gallons): 120

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.26	16.2	528	4.82	CLR	CLR	NONE
6	50	60			7.31	12.6	527	4.30			
9	30	90			7.37	12.0	526	4.49			
12	30	120			7.36	12.1	526	4.56			

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN
SAMPLER(S) SIGNATURE(S):
SAMPLING INITIATED AT:
SAMPLING ENDED AT: 12:10
PUMP OR TUBING DEPTH IN WELL (feet):
TUBING MATERIAL CODE:
FIELD-FILTERED: Y N
Filtration Equipment Type:
FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced)
DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: OVERCAST 78°F

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MDT		SITE LOCATION: PLAINS MT	
WELL NO: FORD DEALERSHIP	SAMPLE ID: MDT-0715-112		DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 180

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		7.23	14.1	644	5.01	CLR	CLR	NONE
5	60	75			7.42	12.6	616	5.44			
10	75	150			7.47	12.4	602	5.40			
12	30	180			7.49	12.1	601	4.6108			

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 12:35
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MOT		SITE LOCATION: PLAINS MT	
WELL NO: STATE FARM	SAMPLE ID: MOT-0715-113		DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 120

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.19	13.6	683	5.67	CLR	CLR	NONE
5	40	50			7.26	12.3	681	4.48			
8	30	80			7.30	12.1	675	5.51			
12	40	120			7.29	12.1	675	4.71			

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 12:55
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLACNS MOT
SITE LOCATION: PLACNS MT
WELL NO: REVCER
SAMPLE ID: MOT-0715-114
DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 6"
TUBING DIAMETER (inches):
WELL SCREEN INTERVAL DEPTH: feet to feet
STATIC DEPTH TO WATER (feet):
PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):
FINAL PUMP OR TUBING DEPTH IN WELL (feet):
PURGING INITIATED AT:
PURGING ENDED AT:
TOTAL VOLUME PURGED (gallons): 150

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.20	20.6	650	6.83	CLR	CLR	NONE
5	40	50			7.31	12.5	634	5.02			
12	70	120			7.34	11.9	639	4.81			
15	30	150			7.36	11.9	642	5.13			

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN
SAMPLER(S) SIGNATURE(S):
SAMPLING INITIATED AT:
SAMPLING ENDED AT: 13:15
PUMP OR TUBING DEPTH IN WELL (feet):
TUBING MATERIAL CODE:
FIELD-FILTERED: Y N
Filtration Equipment Type:
FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced)
DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLACNS MOT		SITE LOCATION: PLACNS MT	
WELL NO: COLLETT	SAMPLE ID: MOT-0715-115		DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 104

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	8	8	8		7.10	15.1	813	6.80	CLR	CLR	NONE
5	32	40			7.21	11.7	812	5.21	|	|	|
12	64	96			7.23	11.4	813	4.82	|	|	|
13	8	104			7.27	11.5	811	6.61	|	|	|

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 13:35
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS: SAMPLE COLLECTED FROM HOSE. COULD NOT BE REMOVED

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: A PLAINS MDT
SITE LOCATION: PLAINS MT
WELL NO: ANTHONY (D)
SAMPLE ID: MDT-0715-116
DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 4"
TUBING DIAMETER (inches):
WELL SCREEN INTERVAL DEPTH: feet to feet
STATIC DEPTH TO WATER (feet):
PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):
FINAL PUMP OR TUBING DEPTH IN WELL (feet):
PURGING INITIATED AT:
PURGING ENDED AT:
TOTAL VOLUME PURGED (gallons): 1.5

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	1.5		NA		7.39	19.6	260.5	1.94	CLR	CLR	NONE

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN
SAMPLER(S) SIGNATURE(S):
SAMPLING INITIATED AT:
SAMPLING ENDED AT: 14:30
PUMP OR TUBING DEPTH IN WELL (feet):
TUBING MATERIAL CODE:
FIELD-FILTERED: Y N
Filtration Equipment Type:
FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced)
DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MOT
SITE LOCATION: PLAINS MT
WELL NO: ANTHONY (5)
SAMPLE ID: MOT-0715-117
DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 6"
TUBING DIAMETER (inches):
WELL SCREEN INTERVAL DEPTH: feet to feet
STATIC DEPTH TO WATER (feet):
PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):
FINAL PUMP OR TUBING DEPTH IN WELL (feet):
PURGING INITIATED AT:
PURGING ENDED AT:
TOTAL VOLUME PURGED (gallons): 45

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
5		10	2	15.13'	7.46	14.8	891	7.63	MED	REDISH	NONE
12		~24			7.35	11.8	929	5.02	|	|	|
18		36			7.31	11.6	924	3.98	|	|	|
22		~45			7.29	11.6	923	5.11	SLIGHT	LT RUST	|

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN
SAMPLER(S) SIGNATURE(S):
SAMPLING INITIATED AT:
SAMPLING ENDED AT: 14:45
PUMP OR TUBING DEPTH IN WELL (feet):
TUBING MATERIAL CODE:
FIELD-FILTERED: Y N
Filtration Equipment Type:
FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced)
DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: ~78°F OVERCAST MED TURB CLEARED AS PURGED ~28-20GAL

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MDT		SITE LOCATION: PLAINS MT	
WELL NO: ABRAMS (01	SAMPLE ID: MDT-0715-118		DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 1.5

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1		1.5			7.33	19.7	321.0	1.82	CLR	CLR	NONE

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 15:00
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: (Y) N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: BATHROOM SINK (SAMPLE) DUP MDT-0715-119 @ 15:15

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MOT		SITE LOCATION: PLAINS MT	
WELL NO: ABRAMS (S)	SAMPLE ID: MOT-0715-120		DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 50

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	2.25	2.25	2.25		7.42	18.5	878	3.36	HEAVY	RUST	NONE
7		~16			7.68	13.0	873	1.75			
16		36			7.69	11.8	862	1.11			
22		~50			7.62	12.0	860	2.10	SLIGHT	HEAVY RUST	

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 15:45
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: HEAVY TURB CLEARED SOME AS PURGED CONVERTING BACK TO SHALLOW WELL FROM DEEP

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME:	SITE LOCATION:

WELL NO: ABRAMS USDA (D)	SAMPLE ID: MOT-0715-121	DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 1.5

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
	1.5				7.75	19.9	1107	.52	CLR	CLR	NONE

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 16:20
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MOT		SITE LOCATION: PLAINS MT	
WELL NO: ABRAMS USDA 5	SAMPLE ID: MOT-0715-122		DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 50

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	2	2	2	17.71'	7.32	13.9	876	4.01	SLIGHT	RED	NONE
10	18	20			7.32	11.6	907	3.82	" "	" "	
15	10	30			7.28	11.3	936	4.62	CLR	CLR	
25	20	50			7.28	11.2	944	4.12	" "	" "	

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 16:45 ~~14:45~~
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: SLIGHT IRON → CLEARED AS PURGED

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MDT		SITE LOCATION: PLAINS MT	
WELL NO: LONER	SAMPLE ID: MDT-0715-123		DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 120

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.08	14.7	1086	5.37	CLR	CLR	NONE
5	40	50			7.34	12.9	1078	4.35	|	|	|
10	50	100			7.35	12.4	1068	4.12	|	|	|
12	20	120			7.36	12.9	1066	4.2+15	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 17:30
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MOT		SITE LOCATION: PLAINS MT	
WELL NO: MILNE	SAMPLE ID: MOT-0715-124		DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 180

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		7.13	14.2	705	5.44	CLR	CLR	NONE
6	75	90			7.44	11.2	629	4.01			
10	60	150			7.45	10.9	624	4.12			
12	30	180			7.44	10.8	625	4.55			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 18:00
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIRENS MDT		SITE LOCATION: PIRENS, MT	
WELL NO: HERRENG	SAMPLE ID: MDT-HZ 0715-125		DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 150

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.34	11.1	864	4.52	CLR	CLR	NONE
5	40	50			7.35	10.9	874	4.12			
10	50	100			7.36	10.9	878	4.01			
15	50	150			7.36	10.9	879	4.32			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 18:30
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS, MDT		SITE LOCATION: PLAINS, MT	
WELL NO: DAVIES	SAMPLE ID: MDT-126-0715-126		DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 88

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	8	8	8		7.25	11.5	615	5.82	CLR	CLR	NONE
5	32	40			7.35	12.5	609	4.31			
9	32	72			7.38	12.2	606	4.52			
11	16	88			7.36	12.2	607	5.01			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 19:00
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MOT		SITE LOCATION: PLAINS MT	
WELL NO: COUNTY FERF	SAMPLE ID: MOT-~~OS~~-0715-127		DATE: 7-15-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		7.20	12.1	836	5.56	CIR	CIR	NONE
5					7.32	11.5	828	4.81			
10					7.33	11.3	827	4.66			
15					7.33	11.2	827	4.31			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 19:30
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MDT		SITE LOCATION: PLAINS MT	
WELL NO: HAUN (O)	SAMPLE ID: MDT-0716-128		DATE: 7-16-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 1.5

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
8:00		1.5			7.59	20.1	445.1	1.41	CLR	CLR	NONE

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 8:00
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: SAMPLE TAKEN FROM KITCHEN SINK

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: ~~Hi~~ PLAINS MDT		SITE LOCATION: PLAINS, MT	
WELL NO: HAUN (S)	SAMPLE ID: MDT-0716-129		DATE: 7-16-19

PURGING DATA

WELL DIAMETER (inches): 1"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
~5	.25	.25			7.13	13.5	1347	3.21	CIR	CIR	NONE
8	1				7.15	13.2	1353	1.12	|	|	|
12	1.25				7.19	13.1	1353	.76			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 8:30
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: NOT ABLE TO PROPERLY PURGE 3 WELL BORE VOLUMES WITH PP

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MOT		SITE LOCATION: PLAINS MT	
WELL NO: P MOT	SAMPLE ID: MOT-0716-130		DATE: 7-16-19

PURGING DATA

WELL DIAMETER (inches): 4"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): ~160

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		7.13	20.1	865	4.77	SLIGHT	IRON	NONE
5	40	455	10		7.04	12.4	863	4.01	|	|	|
10	50	105			7.13	12.5	857	4.44	CLR	CLR	CLR
15	55	~160			7.14	12.7	861	3.16	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 9:00
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: (Y) N 9:30	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: DUPLICATE MOT-0716-131

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAENS MOT		SITE LOCATION: PIAENS MT	
WELL NO: DNRC	SAMPLE ID: MOT-0716-132		DATE: 7-16-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.70	16.1	924	5.00	HEAVY	BROWN	NONE
5	40	50			7.33	12.2	921	4.81	CLR	CLR	|
10	50	100			7.32	12.1	919	4.86	|	|	|
15	50	150			7.33	12.1	920	4.52	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 10:00
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: HAD NEW PUMP INSTALLED → DEALING WITH HARDNESS ISSUES

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MOT		SITE LOCATION:	
WELL NO: LEICHTNAM DUPLEX (O)	SAMPLE ID: MOT-0716-133		DATE: 7-16-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 1.5

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1		1.5			7.23	16.9	350.1	2.81	CLR	CLR	NONE

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 10:30
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIRENS MOT		SITE LOCATION: PIRENS MT	
WELL NO: LEICHTNAM DUPLEX (S)	SAMPLE ID: MOT-0716-134		DATE: 7-16-19

PURGING DATA

WELL DIAMETER (inches): 6"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 45 GAL

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	2.5	2.5			7.33	15.2	907	5.78	CLR	CLR	NONE
6					7.35	12.4	1013	4.52	|	|	|
15					7.37	12.2	958	4.11	|	|	|
20		~45			7.38	12.3	950	4.62	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1100
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLACNS MOT		SITE LOCATION: PLACNS MT	
WELL NO: WEEKS (S)	SAMPLE ID: MOT-0716-135		DATE: 7-16-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 45

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1		2.5	2.5	18.81'	7.17	16.1	826	5.21	SLIGHT	BROWN	NONE
8					7.30	12.6	823	4.81	1	1	1
15					7.33	12.1	826	4.73	CLR	CLR	NONE
20		45			7.35	12.1	905	4.12	1	1	1

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 12:00
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAENS MDT		SITE LOCATION: PIAENS, MT	
WELL NO: WOOD	SAMPLE ID: MDT-0918-101		DATE: 4-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15			6.83	12.1	521682	4.23	NONE	N.CLR	NONE
5	75	75			6.83	11.4	687	4.21			
10	75	150			6.83	11.3	686	3.48			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
JAMES OSBORN		8:00	8:20

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: LIGHT RAIN ~50°F

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: MDT Plains	SITE LOCATION: Plains, MT
WELL NO: Gary's Glass & Auto	SAMPLE ID: MDT-0418-102
DATE: 4-18-19	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		6.93	14	771	3.15	None	Clr	None
5	40	50			6.93	16.6	769	3.30			
15	100	150			6.93	15.9	770	3.61			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: James Osborn	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 8:30	SAMPLING ENDED AT: 9:00
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: Dup MDT-0418-103

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: MDT PLAINS	SITE LOCATION: PLAINS, MDT
WELL NO: MEREDETH	SAMPLE ID: MDT-0918-104
DATE: 9-18-19	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		6.80	14.4	533	4.01	NONE	CLR	NONE
5	40	50			7.22	13.0	536	3.68			
12	70	120			7.22	12.5	534	3.41			
15	30	150			7.22	12.0	533	3.78			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 9:10	SAMPLING ENDED AT: 9:30
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: MDT PLAINS		SITE LOCATION: PLAINS, MT	
WELL NO: SEARS	SAMPLE ID: MDT-0918-105		DATE: 9-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		7.32	12.8	507.1	2.59	NONE	CLR	NONE
5	60	75			7.32	12.8	497.7	3.42			
10	75	150			7.32	12.1	496.7	3.02			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 9:30	SAMPLING ENDED AT: 10:00
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MOT	SITE LOCATION: PLAINS, MT	
WELL NO: VANDERWALL	SAMPLE ID: MOT-0418-106	DATE: 4-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		7.35	14.4	392.5	3.07	(NONE)	CLR	NONE
5	60	75			7.35	13.5	393.3	4.09			
10	75	150			7.35	12.0	390 391.0	4.69			
15	75	225			7.35	11.9	390.2	3.37			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016
PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 10:00	SAMPLING ENDED AT: 10:30
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: Plains MOT		SITE LOCATION: Plains, MT	
WELL NO: Welch	SAMPLE ID: MOT-0918-107		DATE: 9-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	8	8	8		7.14	14.9	494.6	4.39	None	Clr	None
6	40	48			7.48	~~12.1~~ 12.1	486.1	5.01			
12	48	96			7.50	14.3	478.9	4.02			
16	32	128			7.54	12.0	475.4	3.82			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016
PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: James Osborn	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 10:30	SAMPLING ENDED AT: 11:00
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLACNS MDT	SITE LOCATION: PLACNS, MT
WELL NO: MADDEN	SAMPLE ID: MDT-0418-108
DATE: 4-18-14	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		6.90	15.1	366.6	4.92	Lt Brown	→	None
5	60	75			7.60	12.0	364.0	3.53	None	Clr	
10	75	150			7.63	11.8	367.2	3.41			
13	45	195			7.64	12.5	366.5	4.23			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016
PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 11:00	SAMPLING ENDED AT: 11:30
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: Light Brown Discharge on Purge(s) Cleared After

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MDT		SITE LOCATION: PLAINS, MT	
WELL NO: ABRAM(S) TAP / TREAT	SAMPLE ID: MDT-0918-109		DATE: 9-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	2	2	~1		7.31	16.1	~~44.3~~ 943	4.54	NONE	CLR.	NONE

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 11:30	SAMPLING ENDED AT: 12:00
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS: WELL CONVERTED BACK TO SHALLOW SAMPLE TAKEN FROM BATHROOM TAP

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAENS, MOT		SITE LOCATION: PIAENS, MT	
WELL NO: ABRAMS(S) HOOE BEB	SAMPLE ID: MOT-0918-110		DATE: 4-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		7.19	15.7	923	5.41	NONE	CLR	NONE
6	75	90			7.28	14.0	922	4.81	|	|	|
10	60	150			7.27	14.8	920	5.33			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 12:00	SAMPLING ENDED AT: 12:30
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: SHALLOW WELL BACK ON LINE TAKEN AT FROST-FREE BY WELL *RAW

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MDT		SITE LOCATION: PLAINS, MT	
WELL NO: ANTHONY (S) TAP/TREAT	SAMPLE ID: MDT-0418-111		DATE: 9-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	2	2	2		7.20	17.8	862	4.11	NONE	CLR	NONE
8											

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
JAMES OSBORN	James Osborn	12:30	13:00

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: BACK ON SHALLOW WELL SAMPLE FROM KITCHEN SINK

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: Plains MDT	SITE LOCATION: Plains, MT
WELL NO: Anthony (S) Hose Bib	SAMPLE ID: MDT
DATE: 4-18-14	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.34	16.2	852	2.60	None	Clr	Clr
8	70	80			7.41	14.5	851	2.82			
13	50	130			7.41	14.2	841	4.01			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
James Osborn	[signature]	13:00	13:30

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: Frost Free Closest To Shallow Well * Raw

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIRENS MDT	SITE LOCATION: PIRENS, MT
WELL NO: BAKER	SAMPLE ID: MDT-0418-113 / DATE: 9-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	~12	12	10		7.31	14.5	357.9	4.21	NONE	CLR	NONE
8		80			7.57	12.2	356.4	4.23	|	|	|
12		120			7.60	12.7	354.8	3.81	|	|	|
15		150			7.61	12.3	351.4	3.21	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 13:30	SAMPLING ENDED AT: 14:00
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N / Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME:	SITE LOCATION:

WELL NO: DRYERS	SAMPLE ID: MDT-0918-114	DATE: 9-18-14

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.31	14.1	454.3	4.50	CIR	CIR	NONE
9	80	90			7.43	12.4	471.1	4.34			
12	30	120			7.44	12.1	474.1	4.11			
15	30	150			7.39	12.0	474.2	3.98			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 14:00	SAMPLING ENDED AT: 14:30
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAENS MDT		SITE LOCATION: PIAENS, MT	
WELL NO: GARY REUCER	SAMPLE ID: MDT-0418-115		DATE: 4-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.34	18.8	497.2	3.67	NONE	CLR	NONE
7	60	70			7.43	14.4	491.9	4.02			
12	50	120			7.40	14.4	492.8	4.07			
15	30	150			7.42	14.0	495.4	4.11			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
JAMES OSBORN		14:45	15:00

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLENS MOT		SITE LOCATION: PLENS, MT	
WELL NO: COLLETT	SAMPLE ID: MOT-0418-116		DATE: 4-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		7.24	15.3	788	5.16	NONE	CLR	NONE
10		150			7.37	11.9	787	4.82	|	|	|
15		225			7.38	11.60	785	4.97	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 15:15	SAMPLING ENDED AT: 15:30
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: COULD NOT DESCONNECT HOSE. SAMPLED FROM HOSE

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MOT		SITE LOCATION: PLAINS, MT	
WELL NO: FORD DEALERSHIP	SAMPLE ID: MOT-0918-117		DATE: 9-18-14

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		7.30	14.5	647	5.10	NONE	CLR	NONE
10		150			7.46	13.6	595	4.62	|	|	|
12		180			7.48	13.5	590	5.42	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 16:00
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: Plains MDT		SITE LOCATION: Plains, MT	
WELL NO: State Farm	SAMPLE ID: MDT-0418-118		DATE: 4-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.34	13.3	712	5.46	None	Clr	None
8	70	80			7.45	12.7	711	5.11			
15	70	150			7.44	12.7	711	5.48			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: James Osborn	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 16:30
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAENS MOT		SITE LOCATION: PIAENS, MT	
WELL NO: MI2NE	SAMPLE ID: MOT-0918-119		DATE: 9-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		7.31	15.2	634	4.64	NONE	CLR	NONE
10		150			7.55	11.9	613	4.44			
12		180			7.61	11.8	604	5.02			
					7.59	11.7	601	4.82			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 17:00
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIONS MOT		SITE LOCATION: PIONS, MT	
WELL NO: HERRENCI	SAMPLE ID: MOT-0418-120		DATE: 4-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.37	13.5	849	4.42	N	CLR	N
10		100			7.40	12.9	852	4.36	|	|	|
15		150			7.41	12.8	850	4.12	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 17:50
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MDT		SITE LOCATION: PLAINS, MT	
WELL NO: ONE	SAMPLE ID: MDT-0918-121		DATE: 9-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.31	14.1	1073	7.62	N	CLR	NONE
8	70	80			7.41	13.2	1070	5.02	|	|	|
15	70	150			7.49	12.9	1071	4.91			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 18:00
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: Plains, MOT		SITE LOCATION: Plains, MT	
WELL NO: ABRAMS USDA (O)	SAMPLE ID: MOT-0918-122		DATE: 4-18-14

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	2	2			8.06	17.6	1088	1.08	NONE	CLR	NONE

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 18:20
JAMES OSBORN			

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: (Y) N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: Dup MOT-0918-123 @ 18:40

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS, MOT		SITE LOCATION: PLAINS, MT	
WELL NO: ABRAMS (S) USDA	SAMPLE ID: MDT-0918-124		DATE: 9-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	2	2	2.5		7.00	13.0	679	3.01	SLIGHT	LT BROWN	NONE
8	14	16			7.38	12.2	722	4.01	NONE	CLR	
16		32			7.37	12.1	731	3.61			
20		40			7.38	12.1	736	4.22			
25		50			7.36	12.1	734	3.98			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 19:00
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: LIGHT BROWN @ PURGE(E) CLEARED WELL PURGE #10 PURGE(F)

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAENS MOT		SITE LOCATION: PIAENS MT	
WELL NO: COUNTY FERE	SAMPLE ID: MOT-0918-125		DATE: 9-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		7.50	18.2	850	4.20	CLR	CLR	NONE
5		75			7.50	12.9	849	5.21			
10		150			7.51	12.6	847	4.63			
15		225			7.52	12.5	849	6.72			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 19:20
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: Plains MDT		SITE LOCATION: Plains, MT	
WELL NO: DNRC	SAMPLE ID: MDT-0918-126		DATE: 9-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		7.21	18.1	943	4.05	None	CLR	None
5		75			7.41	12.8	958	4.65			
10		150			7.40	13.3	953	5.23			
15		225			7.41	12.9	951	4.21			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: James Osborn	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 14:19:40
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLACENS MOT		SITE LOCATION: PLACENS, MT	
WELL NO: WEEKS (2)(S)	SAMPLE ID: MOT-0918-127		DATE: 9-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	4	4	3		7.35	13.4	806	4.18	SLIGHT	LT BR	NONE
10		30			7.35	12.6	809	4.56	|	|	|
15		45			7.40	12.4	807	5.12	|	|	|
20		60			7.33	12.1	802	4.13	CLR	CLR	N.
22		66			7.32	12.3	805	4.65	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 20:00
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: LIGHT BROWN AT INITIAL, CLEARED WITH PURGE

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLACENS MDT		SITE LOCATION: PLACENS, MT	
WELL NO: MDT	SAMPLE ID: MDT-0919-128		DATE: 9-19-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	15	15	15		7.15	16.2	994	4.62	NONE	CLR	NONE
10		150			7.09	15.6	992	3.61			
15		225			7.11	15.5	991	4.22			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 8:00
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: SLIGHT RUST COLOR AT FIRST PURGE. CLEARED DUPLICATE TAKEN @ 8:30 MDT-0919-129

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLACNS MOT		SITE LOCATION: PLACNS, MT	
WELL NO: LEECHTNAM (O)	SAMPLE ID: MOT-0919-130		DATE: 9-19-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
01		~2			7.46	19.5	320.7	2.35	CLR	CLR	NONE

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 9:00
JAMES OSBORN			
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAENS MOT		SITE LOCATION: PIAENS, MT	
WELL NO: LECCHINAM(S)	SAMPLE ID: MOT-0919-131		DATE: 9-19-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1		2	~2		7.22	12.6	502	3.66	SLIGHT	LIGHT BROWN	NONE
5	8	10			7.40	12.8	576	4.02			
10	10	20			7.40	12.9	633	4.21			
15	12	32			7.37	12.7	702	4.83			
20	13	~45			7.37	12.9	734	~~7.~~ 4.26			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 9:30
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: SLIGHT BROWN AT PE, CLEARED WITH PURGE

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAENS MOT		SITE LOCATION: PIAENS. MT	
WELL NO: DAUES	SAMPLE ID: MOT-0419-132		DATE: 4-19-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1		10			7.32	14.6	592	4.07	CLR	CLR	NONE
5	40	50			7.36	13.8	601	4.02	|	|	|
10	50	100			7.40	13.5	610	3.76			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 10:00
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: _____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAENS, MOT		SITE LOCATION: PIAENS, MT	
WELL NO: HUN HAUN (S)	SAMPLE ID: MOT-0919-133		DATE: 9-19-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
5		2.5			7.64	14.2	1185	3.75	HEAVY	BROWN	NONE

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 10:30
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: PURGED WITH PP CANT PURGE PROPERLY HEAVY TURBIDITY

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAENS MOT		SITE LOCATION: PIAENS, MT	
WELL NO: WOOD	SAMPLE ID: MOT-121B-101		DATE: 12-18-14

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 150

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	10	10	10		7.08	7.6	729	5.02	HIGH	BROWN	NONE
5	40	50			7.24	10.5	715	4.21	CLEAR	CLR	|
10		100			7.30	11.0	719	3.99	|	|	|
15		150			7.32	11.1	717	4.03			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 0800
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: BROWN ON INITIAL PURGE → CLEARED LT SNOW 15°F

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MDT	SITE LOCATION: PLAINS, MT	
WELL NO: MDT	SAMPLE ID: MDT-1218-102	DATE: 12-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 225

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1			15		6.91	5.7	895	5.76	CLR	CLR	NON
5					7.04	10.4	879	4.31			
10					7.03	10.9	889	4.01			
15		225			7.07	11.5	893	4.11			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 0815
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAENS MOT	SITE LOCATION: PIAENS, MT

WELL NO: MEREDITH	SAMPLE ID: MOT-1218-103	DATE: 12-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 100

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1			10		7.12	11.9	530	5.71	CLR	CLR	CLR
5					7.25	11.0	531	4.01	|	|	|
10		100			7.29	11.1	531	4.21			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 0830
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: HOSE FROZEN TO HOUSE. HAD TO SAMPLE FROM HOSE

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAENS MDT		SITE LOCATION: PIAENS, MT	
WELL NO: ABRAMS(S) ~~FROST FREE~~ TAP	SAMPLE ID: MDT-1218-104		DATE: 12-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): ~2

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1		2			7.17	10.7	910	2.89	CLR	CLR	NONE

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 0845
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: "TREATED" BATHROOM TAP

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MOT		SITE LOCATION: PLAINS, MT	
WELL NO: ABRAMS (5) FROST FREE	SAMPLE ID: MDT-12/8-105		DATE: 12-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 225

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1		15	15		7.12	5.4	916	5.56	CLR	CLR	NONE
5		~~75~~ 45			7.18	9.7	911	3.91	|	|	|
10		150			7.23	11.4	911	4.01	|	|	|
15		225	~~22~~		7.21	11.4	921	4.11	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 0900
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: "RAN" FROST FREE CLOSEST TO WELL

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: Plains MDT	SITE LOCATION: Plains, MT
WELL NO: Anthony (S) Tap	SAMPLE ID: MDT-1218-106 / DATE: 12-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): -2

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1	2				7.33	11.3	792	3.00	CLR	CLR	NON

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: James Osborn	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 0915
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N / Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: "TREATED" SAMPLED FROM KITCHEN SINK

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIENS MDT	SITE LOCATION: PIENS, MT	
WELL NO: ANTHONY (S) FROST FREE	SAMPLE ID: MDT-1218-107	DATE: 12-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 225

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1			15		7.22	5.2	789	4.01	CLR	CLR	NONE
5					7.35	9.1	778	4.62			
10					7.43	10	779	3.98			
15			225		7.48	10.1	776	4.15			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 0930
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: RAW FF CLOSEST TO WELL

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS, MOT		SITE LOCATION: PLAINS, MT	
WELL NO: JONER	SAMPLE ID: MOT-1218-108		DATE: 12-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 225

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1			15		7.24	6.5	1010	5.61	CLR	CLR	NONE
~~105~~					7.55	11.5	986	4.32	|	|	|
10					7.58	11.9	974	4.15	|	|	|
~15		225			7.58	12.0	974	4.02	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S): [signature]	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 0945
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: TYPICAL SAMPLE HOSE BIB FROZEN (CLOSEST TO WELL) SAMPLED FROST FREE ON NE SIDE OF HOUSE

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MOT		SITE LOCATION: PLAINS, MT	
WELL NO: SEARS	SAMPLE ID: MOT-1218-109		DATE: 121819

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 100

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1		10	10		7.37	7.5	517	5.63	CLR	CLR	NONE
5		50			7.36	8.2	522	4.12	|	|	|
10		100			7.37	8.5	520	4.01	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1000
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: _____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: NORMAL SAMPLE PORT FROZEN (OFF PUMP HOUSE). COLLECTED FROM HOSE BIB OFF HOUSE, LEFT-SIDE OF MAIN DOOR (FRONT)

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIRENS MDT		SITE LOCATION: PIRENS, MT	
WELL NO: VANDERWALL	SAMPLE ID: MDT-121B-110		DATE: 12-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 156

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1			~~15~~10		7.31	8.0	404.5	5.63	CLR	CLR	NONE
5					7.68	8.4	412.9	3.98	|	|	|
10					7.72	9.5	406.9	4.10	|	|	|
15			150		7.70	9.7	408.2	4.05	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1015
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: 17°F Cloudy → Sight Snow

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAENS MDT		SITE LOCATION: PIAENS, MT	
WELL NO: WELCH	SAMPLE ID: MDT-121B-111		DATE: 12-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 150

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1			10		7.24	6.3	447.5	5.55	CLR	CLR	NONE
5					7.77	10.0	436.8	4.69			
10					7.83	8.6	437.7	4.26			
15		150			7.80	9.0	438.2	3.91			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1030
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: 19°F Clouds Rolling In Heavy

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAINS MDT		SITE LOCATION: PIAINS, MT	
WELL NO: ABRAMS (USDA) (O)	SAMPLE ID: MDT-1218-112		DATE: 12-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): ~2

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1		2			8.00	12.7	1077	3.01	CLR	CLR	NONE

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1045
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: (Y) N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: MEN'S RESTROOM DUPLICATE TAKEN MDT-1218-113 @ 1100

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAGNS MOT		SITE LOCATION: PIAGNS, MT	
WELL NO: ABRAMS-USDA(O) RAW	SAMPLE ID: MOT-1218-114		DATE: 12-18-14

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 75

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1		~~25~~	~~2.5~~ 5		7.90	10.4	1018	5.55	CIR	CIR	NONE
5					8.21	8.1	1123	4.83	|	|	|
15		~~35~~ 75			8.22	8.5	1120	3.01	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1115
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: (Y) N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: DUP TAKEN @ 1130. MOT-1218-115 – OUTSIDE HOSE BIB NE CORNER OF BUILDING

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAENS MOT REVEER	SITE LOCATION: PIAENS, MT
WELL NO: GARY'S GLASS & AUTO REVEER	SAMPLE ID: MOT-1218-116-2
DATE: 12-18-19	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1			15		6.77	6.3	468.1	5.72	CLR	CLR	NONE
5					7.51	11.5	468.7	3.98	|	|	|
10		150			7.48	11.1	469.8	4.07			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1145
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MDT		SITE LOCATION: PLAINS, MT	
WELL NO: ~~SEARS~~ ~~DYRERS~~ DRYERS	SAMPLE ID: MDT-1218-116		DATE: 12-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 150

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1			10		6.92	4.1	403.5	4.98	CLR	CLR	NONE
5					7.46	11.0	407.2	3.73	|	|	|
10					7.53	10.7	406.9	4.11	|	|	|
15		150			7.49	10.5	407.3	4.02	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1200
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAENS MOT		SITE LOCATION: PIAENS, MT	
WELL NO: BAKER	SAMPLE ID: MOT-1218-117		DATE: 12-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 100

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1			10		6.91	9.3	347.7	5.93	CIR	CIR	NONE
5					7.38	9.6	347.9	4.61	|	|	|
10		100			7.68	9.9	~~351.2~~	4.38	|	|	|
							348.1				

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1215
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MOT	SITE LOCATION: PLAINS, MT
WELL NO: MADDEN	SAMPLE ID: MOT-1218-118
DATE: 12-18-19	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 225

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1			15		7.10	6.2	345.1	5.66	CLR	CLR	NONE
5					7.67	10.4	342.5	3.89	|	|	|
10					7.71	10.4	343.0	4.21	|	|	|
15		225			7.77	10.4	344.1	3.98	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1230
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAINS MOT		SITE LOCATION: PIAINS MT	
WELL NO: NEWMAN	SAMPLE ID: MDT-1218-119		DATE: 12-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 150

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1			10		6.83	9.1	367.3	4.11	CIR	CIR	NONE
5					7.55	10.4	366.0	4.00			
10					7.62	10.6	367.2	3.89			
15		150			7.57	10.9	372.5	3.98			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1245
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAENS MOT	SITE LOCATION: PIAENS, MT
WELL NO: LEICHTNAM (D)	SAMPLE ID: MOT-1218-120
DATE: 12-18-19	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1		2			7.70	15.4	330.6	~~4.01~~ 301	CIR	CIR	NONE

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1300
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: SAMPLE TAKEN @ KITCHEN SINK

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAINS MOT	SITE LOCATION: PIAINS, MT
WELL NO: WEEKS(O)	SAMPLE ID: MDT-121B-121
DATE: 12-18-19	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1		2			7.98	10.4	570	2.98	CIR	CIR	NONE

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1315
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: SAMPLE TAKEN FROM GARAGE SINK (UTELETI)

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MOT		SITE LOCATION: PLAINS, MT	
WELL NO: ~~MEINE~~ HERRING	SAMPLE ID: MOT-1218-122		DATE: 121819

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 100

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1			10		7.07	8.8	744	5.02	CIR	CIR	NONE
5					7.61	9.4	739	4.22	|	|	|
10		100			7.64	9.0	740	4.36	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1330
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MOT		SITE LOCATION: PLAINS MT	
WELL NO: FORD DEALERSHIP	SAMPLE ID: MOT-1218-123		DATE: 12-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 150

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1			15		7.48	10	544	5.59	SLIGHT	RUST	NONE
5					7.61	11.6	539	4.62	CLR	CLR	|
10		150			7.63	12.0	535	4.15	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1345
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: SLIGHT RUST COLOR UPON INITIAL PURGE CLEARED @ 1 GAL

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MOT		SITE LOCATION: PLAINS MT	
WELL NO: STATE FARM	SAMPLE ID: MOT-1218-124		DATE: 12-18-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 150

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1			15		7.74	12.3	6058	5.23	SLIGHT	LT BROWN	NONE
5					6.69	12.3	6065	3.70	CIR	CIR	|
10		150			7.666	12.4	6064	3.82	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 1400
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: SLIGHT RUST COLOR @ P. → CLEARED AFTER 5 GAL

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MDT		SITE LOCATION: PLAINS, MT	
WELL NO: GARY'S GLASS & AUTO	SAMPLE ID: MDT-1214-125		DATE: 12-19-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 150

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1			15		7.13	10	694	5.11	CLR	CLR	NONE
5					7.35	9.8	705	4.06	|	|	|
10		150			7.22	10.1	701	4.12	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 0800
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: 15°F PARTLY CLOUDY SNOW FORCASTED

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAENS MDT		SITE LOCATION: PIAENS, MT	
WELL NO: COUNTY FERR	SAMPLE ID: MDT-1219-126		DATE: 12-19-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 150

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1			15		7.32	10.5	816	4.98	CIR	CIR	NONE
5					7.38	10.0	807	4.52			
10		150			7.35	10.1	809	4.23			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 0815
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: (Y) N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: DUP @ 0830 MDT-1219-127

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAENS MDT	SITE LOCATION: PIAENS, MT
WELL NO: DNRC	SAMPLE ID: MDT-1219-128 / DATE: 12-19-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 100

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1			10		7.29	11.9	891	5.55	CIR	CIR	NONE
5					7.31	11.8	894	4.62			
10		100			7.32	11.7	896	4.11			

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 0845
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N / Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: HAD TO TAKE SAMPLE FROM SE CORNER, NORMAL PORT FROZEN

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MDT		SITE LOCATION: PLAINS MT	
WELL NO: ABRAMS-USDA(S)	SAMPLE ID: MDT-1219-129		DATE: 12-19-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): 19.46'	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 45

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1			~3		7.74	10.7	607	4.87	HEAVY	RUST	NONE
5		15			7.73	10.5	613	4.31			
10		30			7.75	10.1	625	4.44	MOD		
15		45			7.75	9.9	627	4.01	SLIGHT		

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 0900
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: HEAVY TURB @ FIRST PURGE → CLEARED WITH PURGE

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MOT	SITE LOCATION: PLAINS, MT	
WELL NO: LEICHTNAM (S)	SAMPLE ID: MDT-1219-130	DATE: 12-19-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 45

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1			~3		7.71	12.1	671	5.40	HEAVY	RUST	NONE
5					7.75	10.9	682	5.31	1		
10					7.76	11.1	680	4.98	SLIGHT		
15		45			7.76	10.8	681	4.52	1		

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 0915
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: HEAVY TURB INITIAL → CLEARED WITH PURGE

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PIAENS MOT		SITE LOCATION: PIAENS MT	
WELL NO: WEEKS (S)	SAMPLE ID: MOT-1219-131		DATE: 12-19-19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 45

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1			~3		7.45	10.5	753	5.02	HEAVY	RUST	NONE
5					7.46	10.1	762	4.51	MOD	LT RUST	|
10					7.45	10.0	768	4.32	SLIGHT	|	|
15		45			7.47	10.1	767	4.44	|	|	

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 0930
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: HEAVY TURB → CLEARED WITH PURGE

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Northern Rockies Engineering, Inc. GROUNDWATER SAMPLING LOG

SITE NAME: PLAINS MDT		SITE LOCATION: PLAINS MT	
WELL NO: DAVIS	SAMPLE ID: MDT-1214-132		DATE: 12-14-A

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 150

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1			15		7.23	10.2	571	5.22	CLR	CLR	NONE
5					7.33	10.1	574	4.51	|	|	|
10		150			7.40	9.9	582	4.63	|	|	|

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: JAMES OSBORN	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: 0945
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

REMARKS: * DAVIS REQUEST
SAMPLED FROM NORTH SIDE OF HOUSE, NOT NORMAL FF TYPICALLY USED CLOSEST TO WELL

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Appendix 5.

Laboratory and data validation reports

ANALYTICAL SUMMARY REPORT

May 23, 2019

MT Dept of Transportation
PO Box 201001
Helena, MT 59620-1001

Work Order: H19050268 Quote ID: H1750

Project Name: MDT Plains

Energy Laboratories Inc Helena MT received the following 34 samples for MT Dept of Transportation on 5/8/2019 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H19050268-001	MDT-0506-100	05/06/19 16:35	05/08/19	Aqueous	Metals by ICP/ICPMS, Total Conductivity Anions by Ion Chromatography pH Metals Digestion by E200.2 Solids, Total Dissolved
H19050268-002	MDT-0507-101	05/07/19 8:22	05/08/19	Aqueous	Same As Above
H19050268-003	MDT-0507-102	05/07/19 8:51	05/08/19	Aqueous	Same As Above
H19050268-004	MDT-0507-103	05/07/19 9:33	05/08/19	Aqueous	Metals by ICP/ICPMS, Total Conductivity Metals Digestion by E200.2 Solids, Total Dissolved
H19050268-005	MDT-0507-104	05/07/19 10:10	05/08/19	Aqueous	Metals by ICP/ICPMS, Total Conductivity Anions by Ion Chromatography pH Metals Digestion by E200.2 Solids, Total Dissolved
H19050268-006	MDT-0507-105	05/07/19 10:25	05/08/19	Aqueous	Same As Above
H19050268-007	MDT-0507-106	05/07/19 10:45	05/08/19	Aqueous	Metals by ICP/ICPMS, Total Conductivity Metals Digestion by E200.2 Solids, Total Dissolved
H19050268-008	MDT-0507-107	05/07/19 11:10	05/08/19	Aqueous	Metals by ICP/ICPMS, Total Conductivity Anions by Ion Chromatography pH Metals Digestion by E200.2 Solids, Total Dissolved
H19050268-009	MDT-0507-109	05/07/19 12:20	05/08/19	Aqueous	Metals by ICP/ICPMS, Total Conductivity Metals Digestion by E200.2 Solids, Total Dissolved
H19050268-010	MDT-0507-108	05/07/19 12:05	05/08/19	Aqueous	Metals by ICP/ICPMS, Total Conductivity Anions by Ion Chromatography pH Metals Digestion by E200.2 Solids, Total Dissolved
H19050268-011	MDT-0507-110	05/07/19 12:59	05/08/19	Aqueous	Same As Above

ANALYTICAL SUMMARY REPORT

H19050268-012	MDT-0507-111	05/07/19 13:20	05/08/19	Aqueous	Metals by ICP/ICPMS, Total Conductivity Metals Digestion by E200.2 Solids, Total Dissolved
H19050268-013	MDT-0507-112	05/07/19 13:53	05/08/19	Aqueous	Metals by ICP/ICPMS, Total Conductivity Anions by Ion Chromatography pH Metals Digestion by E200.2 Solids, Total Dissolved
H19050268-014	MDT-0507-113	05/07/19 14:48	05/08/19	Aqueous	Same As Above
H19050268-015	MDT-0507-114	05/07/19 15:19	05/08/19	Aqueous	Same As Above
H19050268-016	MDT-0507-115	05/07/19 15:55	05/08/19	Aqueous	Same As Above
H19050268-017	MDT-0507-116	05/07/19 16:18	05/08/19	Aqueous	Same As Above
H19050268-018	MDT-0507-117	05/07/19 16:42	05/08/19	Aqueous	Same As Above
H19050268-019	MDT-0507-118	05/07/19 17:08	05/08/19	Aqueous	Same As Above
H19050268-020	MDT-0507-119	05/07/19 17:34	05/08/19	Aqueous	Same As Above
H19050268-021	MDT-0507-120	05/07/19 18:15	05/08/19	Aqueous	Same As Above
H19050268-022	MDT-0508-121	05/08/19 8:35	05/08/19	Aqueous	Same As Above
H19050268-023	MDT-0508-122	05/08/19 9:00	05/08/19	Aqueous	Same As Above
H19050268-024	MDT-0508-123	05/08/19 9:25	05/08/19	Aqueous	Same As Above
H19050268-025	MDT-0508-124	05/08/19 9:50	05/08/19	Aqueous	Same As Above
H19050268-026	MDT-0508-125	05/08/19 10:10	05/08/19	Aqueous	Same As Above
H19050268-027	MDT-0508-126	05/08/19 10:35	05/08/19	Aqueous	Same As Above
H19050268-028	MDT-0508-127	05/08/19 11:10	05/08/19	Aqueous	Same As Above
H19050268-029	MDT-0508-128	05/08/19 11:30	05/08/19	Aqueous	Same As Above
H19050268-030	MDT-0508-129	05/08/19 12:05	05/08/19	Aqueous	Same As Above
H19050268-031	MDT-0508-130	05/08/19 12:45	05/08/19	Aqueous	Same As Above
H19050268-032	MDT-0508-131	05/08/19 13:05	05/08/19	Aqueous	Same As Above
H19050268-033	MDT-0508-132	05/08/19 13:30	05/08/19	Aqueous	Metals by ICP/ICPMS, Total Conductivity Metals Digestion by E200.2 Solids, Total Dissolved
H19050268-034	MDT-0508-133	05/08/19 13:45	05/08/19	Aqueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

ANALYTICAL SUMMARY REPORT

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-001
Client Sample ID: MDT-0506-100

Report Date: 05/23/19
Collection Date: 05/06/19 16:35
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	05/09/19 13:01 / SRW
pH Measurement Temp	15.1	°C				A4500-H B	05/09/19 13:01 / SRW
Conductivity @ 25 C	869	umhos/cm		1		A2510 B	05/09/19 13:01 / SRW
Solids, Total Dissolved TDS @ 180 C	498	mg/L		10		A2540 C	05/09/19 12:26 / cmm
INORGANICS							
Chloride	102	mg/L		1		E300.0	05/10/19 16:25 / SRW
METALS, TOTAL							
Calcium	88	mg/L		1		E200.7	05/14/19 03:02 / sld
Magnesium	23	mg/L		1		E200.7	05/14/19 03:02 / sld
Sodium	47	mg/L		1		E200.7	05/14/19 03:02 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-002
Client Sample ID: MDT-0507-101

Report Date: 05/23/19
Collection Date: 05/07/19 08:22
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	05/09/19 13:06 / SRW
pH Measurement Temp	13.9	°C				A4500-H B	05/09/19 13:06 / SRW
Conductivity @ 25 C	690	umhos/cm		1		A2510 B	05/09/19 13:06 / SRW
Solids, Total Dissolved TDS @ 180 C	389	mg/L		10		A2540 C	05/09/19 12:26 / cmm
INORGANICS							
Chloride	80	mg/L		1		E300.0	05/10/19 16:39 / SRW
METALS, TOTAL							
Calcium	77	mg/L		1		E200.7	05/14/19 03:06 / sld
Magnesium	20	mg/L		1		E200.7	05/14/19 03:06 / sld
Sodium	27	mg/L		1		E200.7	05/14/19 03:06 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-003
Client Sample ID: MDT-0507-102

Report Date: 05/23/19
Collection Date: 05/07/19 08:51
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	05/09/19 13:08 / SRW
pH Measurement Temp	13.8	°C				A4500-H B	05/09/19 13:08 / SRW
Conductivity @ 25 C	389	umhos/cm		1		A2510 B	05/09/19 13:08 / SRW
Solids, Total Dissolved TDS @ 180 C	225	mg/L		10		A2540 C	05/09/19 12:27 / cmm
INORGANICS							
Chloride	10	mg/L		1		E300.0	05/10/19 16:53 / SRW
METALS, TOTAL							
Calcium	44	mg/L		1		E200.7	05/14/19 03:10 / sld
Magnesium	13	mg/L		1		E200.7	05/14/19 03:10 / sld
Sodium	15	mg/L		1		E200.7	05/14/19 03:10 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-004
Client Sample ID: MDT-0507-103

Report Date: 05/23/19
Collection Date: 05/07/19 09:33
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Conductivity @ 25 C	375	umhos/cm		1		A2510 B	05/09/19 13:10 / SRW
Solids, Total Dissolved TDS @ 180 C	233	mg/L		10		A2540 C	05/09/19 12:27 / cmm
METALS, TOTAL							
Arsenic	ND	mg/L		0.001		E200.8	05/14/19 01:00 / dck
Iron	0.03	mg/L		0.02		E200.8	05/14/19 17:17 / dck
Manganese	0.002	mg/L		0.001		E200.8	05/14/19 17:17 / dck

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-005
Client Sample ID: MDT-0507-104

Report Date: 05/23/19
Collection Date: 05/07/19 10:10
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	05/09/19 13:13 / SRW
pH Measurement Temp	13.8	°C				A4500-H B	05/09/19 13:13 / SRW
Conductivity @ 25 C	978	umhos/cm		1		A2510 B	05/09/19 13:13 / SRW
Solids, Total Dissolved TDS @ 180 C	513	mg/L		10		A2540 C	05/09/19 12:27 / cmm
INORGANICS							
Chloride	144	mg/L		1		E300.0	05/10/19 17:07 / SRW
METALS, TOTAL							
Calcium	70	mg/L		1		E200.7	05/14/19 03:19 / sld
Magnesium	23	mg/L		1		E200.7	05/14/19 03:19 / sld
Sodium	98	mg/L		1		E200.7	05/14/19 03:19 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-006
Client Sample ID: MDT-0507-105

Report Date: 05/23/19
Collection Date: 05/07/19 10:25
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	05/09/19 13:15 / SRW
pH Measurement Temp	14.2	°C				A4500-H B	05/09/19 13:15 / SRW
Conductivity @ 25 C	974	umhos/cm		1		A2510 B	05/09/19 13:15 / SRW
Solids, Total Dissolved TDS @ 180 C	520	mg/L		10		A2540 C	05/09/19 12:27 / cmm
INORGANICS							
Chloride	146	mg/L		1		E300.0	05/10/19 17:21 / SRW
METALS, TOTAL							
Calcium	71	mg/L		1		E200.7	05/14/19 03:23 / sld
Magnesium	23	mg/L		1		E200.7	05/14/19 03:23 / sld
Sodium	96	mg/L		1		E200.7	05/14/19 03:23 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-007
Client Sample ID: MDT-0507-106

Report Date: 05/23/19
Collection Date: 05/07/19 10:45
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Conductivity @ 25 C	343	umhos/cm		1		A2510 B	05/09/19 13:17 / SRW
Solids, Total Dissolved TDS @ 180 C	219	mg/L		10		A2540 C	05/09/19 12:27 / cmm
METALS, TOTAL							
Arsenic	ND	mg/L		0.001		E200.8	05/14/19 01:02 / dck
Iron	0.12	mg/L		0.02		E200.8	05/14/19 01:02 / dck
Manganese	0.035	mg/L		0.001		E200.8	05/14/19 01:02 / dck

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-008
Client Sample ID: MDT-0507-107

Report Date: 05/23/19
Collection Date: 05/07/19 11:10
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	05/09/19 13:19 / SRW
pH Measurement Temp	14.9	°C				A4500-H B	05/09/19 13:19 / SRW
Conductivity @ 25 C	1010	umhos/cm		1		A2510 B	05/09/19 13:19 / SRW
Solids, Total Dissolved TDS @ 180 C	544	mg/L		10		A2540 C	05/09/19 12:31 / cmm
INORGANICS							
Chloride	162	mg/L		1		E300.0	05/10/19 17:35 / SRW
METALS, TOTAL							
Calcium	73	mg/L		1		E200.7	05/14/19 03:31 / sld
Magnesium	23	mg/L		1		E200.7	05/14/19 03:31 / sld
Sodium	92	mg/L		1		E200.7	05/14/19 03:31 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-009
Client Sample ID: MDT-0507-109

Report Date: 05/23/19
Collection Date: 05/07/19 12:20
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Conductivity @ 25 C	1290	umhos/cm		1		A2510 B	05/09/19 13:22 / SRW
Solids, Total Dissolved TDS @ 180 C	787	mg/L		10		A2540 C	05/09/19 12:31 / cmm
METALS, TOTAL							
Arsenic	0.001	mg/L		0.001		E200.8	05/14/19 01:04 / dck
Iron	0.77	mg/L		0.02		E200.7	05/14/19 03:43 / sld
Manganese	0.072	mg/L		0.001		E200.8	05/14/19 01:04 / dck

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-010
Client Sample ID: MDT-0507-108

Report Date: 05/23/19
Collection Date: 05/07/19 12:05
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	05/09/19 13:24 / SRW
pH Measurement Temp	15.2	°C				A4500-H B	05/09/19 13:24 / SRW
Conductivity @ 25 C	1030	umhos/cm		1		A2510 B	05/09/19 13:24 / SRW
Solids, Total Dissolved TDS @ 180 C	549	mg/L		10		A2540 C	05/09/19 12:32 / cmm
INORGANICS							
Chloride	188	mg/L		1		E300.0	05/10/19 17:49 / SRW
METALS, TOTAL							
Calcium	78	mg/L		1		E200.7	05/14/19 04:04 / sld
Magnesium	24	mg/L		1		E200.7	05/14/19 04:04 / sld
Sodium	90	mg/L		1		E200.7	05/14/19 04:04 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-011
Client Sample ID: MDT-0507-110

Report Date: 05/23/19
Collection Date: 05/07/19 12:59
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	05/09/19 13:26 / SRW
pH Measurement Temp	14.6	°C				A4500-H B	05/09/19 13:26 / SRW
Conductivity @ 25 C	1110	umhos/cm		1		A2510 B	05/09/19 13:26 / SRW
Solids, Total Dissolved TDS @ 180 C	626	mg/L		10		A2540 C	05/09/19 12:32 / cmm
INORGANICS							
Chloride	190	mg/L		1		E300.0	05/10/19 19:14 / SRW
METALS, TOTAL							
Calcium	97	mg/L		1		E200.7	05/14/19 04:08 / sld
Magnesium	26	mg/L		1		E200.7	05/14/19 04:08 / sld
Sodium	81	mg/L		1		E200.7	05/14/19 04:08 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-012
Client Sample ID: MDT-0507-111

Report Date: 05/23/19
Collection Date: 05/07/19 13:20
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Conductivity @ 25 C	362	umhos/cm		1		A2510 B	05/09/19 13:28 / SRW
Solids, Total Dissolved TDS @ 180 C	214	mg/L		10		A2540 C	05/09/19 12:32 / cmm
METALS, TOTAL							
Arsenic	ND	mg/L		0.001		E200.8	05/14/19 01:06 / dck
Iron	0.03	mg/L		0.02		E200.8	05/14/19 17:20 / dck
Manganese	0.008	mg/L		0.001		E200.8	05/14/19 01:06 / dck

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-013
Client Sample ID: MDT-0507-112

Report Date: 05/23/19
Collection Date: 05/07/19 13:53
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	05/09/19 13:31 / SRW
pH Measurement Temp	14.0	°C				A4500-H B	05/09/19 13:31 / SRW
Conductivity @ 25 C	770	umhos/cm		1		A2510 B	05/09/19 13:31 / SRW
Solids, Total Dissolved TDS @ 180 C	399	mg/L		10		A2540 C	05/09/19 12:32 / cmm
INORGANICS							
Chloride	90	mg/L		1		E300.0	05/10/19 19:28 / SRW
METALS, TOTAL							
Calcium	69	mg/L		1		E200.7	05/14/19 04:16 / sld
Magnesium	25	mg/L		1		E200.7	05/14/19 04:16 / sld
Sodium	52	mg/L		1		E200.7	05/14/19 04:16 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-014
Client Sample ID: MDT-0507-113

Report Date: 05/23/19
Collection Date: 05/07/19 14:48
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	05/09/19 13:33 / SRW
pH Measurement Temp	14.2	°C				A4500-H B	05/09/19 13:33 / SRW
Conductivity @ 25 C	1100	umhos/cm		1		A2510 B	05/09/19 13:33 / SRW
Solids, Total Dissolved TDS @ 180 C	563	mg/L		10		A2540 C	05/09/19 12:32 / cmm
INORGANICS							
Chloride	204	mg/L		1		E300.0	05/10/19 19:42 / SRW
METALS, TOTAL							
Calcium	64	mg/L		1		E200.7	05/14/19 04:20 / sld
Magnesium	19	mg/L		1		E200.7	05/14/19 04:20 / sld
Sodium	116	mg/L		1		E200.7	05/14/19 04:20 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-015
Client Sample ID: MDT-0507-114

Report Date: 05/23/19
Collection Date: 05/07/19 15:19
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	05/09/19 13:35 / SRW
pH Measurement Temp	14.4	°C				A4500-H B	05/09/19 13:35 / SRW
Conductivity @ 25 C	865	umhos/cm		1		A2510 B	05/09/19 13:35 / SRW
Solids, Total Dissolved TDS @ 180 C	433	mg/L		10		A2540 C	05/09/19 12:32 / cmm
INORGANICS							
Chloride	129	mg/L		1		E300.0	05/10/19 19:56 / SRW
METALS, TOTAL							
Calcium	51	mg/L		1		E200.7	05/14/19 04:32 / sld
Magnesium	17	mg/L		1		E200.7	05/14/19 04:32 / sld
Sodium	97	mg/L		1		E200.7	05/14/19 04:32 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-016
Client Sample ID: MDT-0507-115

Report Date: 05/23/19
Collection Date: 05/07/19 15:55
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	05/09/19 13:38 / SRW
pH Measurement Temp	14.7	°C				A4500-H B	05/09/19 13:38 / SRW
Conductivity @ 25 C	688	umhos/cm		1		A2510 B	05/09/19 13:38 / SRW
Solids, Total Dissolved TDS @ 180 C	376	mg/L		10		A2540 C	05/09/19 12:33 / cmm
INORGANICS							
Chloride	78	mg/L		1		E300.0	05/10/19 20:10 / SRW
METALS, TOTAL							
Calcium	75	mg/L		1		E200.7	05/14/19 04:36 / sld
Magnesium	21	mg/L		1		E200.7	05/14/19 04:36 / sld
Sodium	28	mg/L		1		E200.7	05/14/19 04:36 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-017
Client Sample ID: MDT-0507-116

Report Date: 05/23/19
Collection Date: 05/07/19 16:18
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	05/09/19 13:40 / SRW
pH Measurement Temp	15.0	°C				A4500-H B	05/09/19 13:40 / SRW
Conductivity @ 25 C	677	umhos/cm		1		A2510 B	05/09/19 13:40 / SRW
Solids, Total Dissolved TDS @ 180 C	362	mg/L		10		A2540 C	05/09/19 12:33 / cmm
INORGANICS							
Chloride	57	mg/L		1		E300.0	05/10/19 20:24 / SRW
METALS, TOTAL							
Calcium	71	mg/L		1		E200.7	05/14/19 04:41 / sld
Magnesium	17	mg/L		1		E200.7	05/14/19 04:41 / sld
Sodium	38	mg/L		1		E200.7	05/14/19 04:41 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-018
Client Sample ID: MDT-0507-117

Report Date: 05/23/19
Collection Date: 05/07/19 16:42
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	05/09/19 13:42 / SRW
pH Measurement Temp	15.7	°C				A4500-H B	05/09/19 13:42 / SRW
Conductivity @ 25 C	782	umhos/cm		1		A2510 B	05/09/19 13:42 / SRW
Solids, Total Dissolved TDS @ 180 C	420	mg/L		10		A2540 C	05/09/19 12:33 / cmm
INORGANICS							
Chloride	86	mg/L		1		E300.0	05/10/19 20:38 / SRW
METALS, TOTAL							
Calcium	85	mg/L		1		E200.7	05/14/19 04:53 / sld
Magnesium	20	mg/L		1		E200.7	05/14/19 04:53 / sld
Sodium	38	mg/L		1		E200.7	05/14/19 04:53 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-019
Client Sample ID: MDT-0507-118

Report Date: 05/23/19
Collection Date: 05/07/19 17:08
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	05/09/19 13:44 / SRW
pH Measurement Temp	16.3	°C				A4500-H B	05/09/19 13:44 / SRW
Conductivity @ 25 C	1070	umhos/cm		1		A2510 B	05/09/19 13:44 / SRW
Solids, Total Dissolved TDS @ 180 C	564	mg/L		10		A2540 C	05/09/19 12:33 / cmm
INORGANICS							
Chloride	185	mg/L		1		E300.0	05/10/19 20:52 / SRW
METALS, TOTAL							
Calcium	88	mg/L		1		E200.7	05/14/19 04:57 / sld
Magnesium	27	mg/L		1		E200.7	05/14/19 04:57 / sld
Sodium	89	mg/L		1		E200.7	05/14/19 04:57 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-020
Client Sample ID: MDT-0507-119

Report Date: 05/23/19
Collection Date: 05/07/19 17:34
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	05/09/19 13:47 / SRW
pH Measurement Temp	16.1	°C				A4500-H B	05/09/19 13:47 / SRW
Conductivity @ 25 C	1040	umhos/cm		1		A2510 B	05/09/19 13:47 / SRW
Solids, Total Dissolved TDS @ 180 C	554	mg/L		10		A2540 C	05/09/19 12:33 / cmm
INORGANICS							
Chloride	185	mg/L		1		E300.0	05/10/19 21:06 / SRW
METALS, TOTAL							
Calcium	84	mg/L		1		E200.7	05/14/19 05:25 / sld
Magnesium	23	mg/L		1		E200.7	05/14/19 05:25 / sld
Sodium	95	mg/L		1		E200.7	05/14/19 05:25 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-021
Client Sample ID: MDT-0507-120

Report Date: 05/23/19
Collection Date: 05/07/19 18:15
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	05/09/19 13:59 / SRW
pH Measurement Temp	16.7	°C				A4500-H B	05/09/19 13:59 / SRW
Conductivity @ 25 C	552	umhos/cm		1		A2510 B	05/09/19 13:59 / SRW
Solids, Total Dissolved TDS @ 180 C	310	mg/L		10		A2540 C	05/09/19 12:34 / cmm
INORGANICS							
Chloride	26	mg/L		1		E300.0	05/10/19 21:21 / SRW
METALS, TOTAL							
Calcium	63	mg/L		1		E200.7	05/14/19 05:29 / sld
Magnesium	16	mg/L		1		E200.7	05/14/19 05:29 / sld
Sodium	28	mg/L		1		E200.7	05/14/19 05:29 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-022
Client Sample ID: MDT-0508-121

Report Date: 05/23/19
Collection Date: 05/08/19 08:35
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	05/09/19 14:04 / SRW
pH Measurement Temp	15.9	°C				A4500-H B	05/09/19 14:04 / SRW
Conductivity @ 25 C	650	umhos/cm		1		A2510 B	05/09/19 14:04 / SRW
Solids, Total Dissolved TDS @ 180 C	357	mg/L		10		A2540 C	05/09/19 12:34 / cmm
INORGANICS							
Chloride	63	mg/L		1		E300.0	05/10/19 22:45 / SRW
METALS, TOTAL							
Calcium	73	mg/L		1		E200.7	05/14/19 05:33 / sld
Magnesium	19	mg/L		1		E200.7	05/14/19 05:33 / sld
Sodium	29	mg/L		1		E200.7	05/14/19 05:33 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-023
Client Sample ID: MDT-0508-122

Report Date: 05/23/19
Collection Date: 05/08/19 09:00
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	05/09/19 14:06 / SRW
pH Measurement Temp	15.5	°C				A4500-H B	05/09/19 14:06 / SRW
Conductivity @ 25 C	586	umhos/cm		1		A2510 B	05/09/19 14:06 / SRW
Solids, Total Dissolved TDS @ 180 C	322	mg/L		10		A2540 C	05/09/19 12:34 / cmm
INORGANICS							
Chloride	36	mg/L		1		E300.0	05/10/19 22:59 / SRW
METALS, TOTAL							
Calcium	64	mg/L		1		E200.7	05/14/19 05:37 / sld
Magnesium	18	mg/L		1		E200.7	05/14/19 05:37 / sld
Sodium	31	mg/L		1		E200.7	05/14/19 05:37 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-024
Client Sample ID: MDT-0508-123

Report Date: 05/23/19
Collection Date: 05/08/19 09:25
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	05/09/19 14:08 / SRW
pH Measurement Temp	15.7	°C				A4500-H B	05/09/19 14:08 / SRW
Conductivity @ 25 C	580	umhos/cm		1		A2510 B	05/09/19 14:08 / SRW
Solids, Total Dissolved TDS @ 180 C	316	mg/L		10		A2540 C	05/09/19 12:34 / cmm
INORGANICS							
Chloride	36	mg/L		1		E300.0	05/10/19 23:13 / SRW
METALS, TOTAL							
Calcium	63	mg/L		1		E200.7	05/14/19 05:41 / sld
Magnesium	17	mg/L		1		E200.7	05/14/19 05:41 / sld
Sodium	30	mg/L		1		E200.7	05/14/19 05:41 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-025
Client Sample ID: MDT-0508-124

Report Date: 05/23/19
Collection Date: 05/08/19 09:50
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	05/09/19 14:11 / SRW
pH Measurement Temp	15.7	°C				A4500-H B	05/09/19 14:11 / SRW
Conductivity @ 25 C	417	umhos/cm		1		A2510 B	05/09/19 14:11 / SRW
Solids, Total Dissolved TDS @ 180 C	229	mg/L		10		A2540 C	05/09/19 12:34 / cmm
INORGANICS							
Chloride	12	mg/L		1		E300.0	05/10/19 23:27 / SRW
METALS, TOTAL							
Calcium	48	mg/L		1		E200.7	05/14/19 05:45 / sld
Magnesium	12	mg/L		1		E200.7	05/14/19 05:45 / sld
Sodium	18	mg/L		1		E200.7	05/14/19 05:45 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-026
Client Sample ID: MDT-0508-125

Report Date: 05/23/19
Collection Date: 05/08/19 10:10
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	05/09/19 14:13 / SRW
pH Measurement Temp	16.0	°C				A4500-H B	05/09/19 14:13 / SRW
Conductivity @ 25 C	463	umhos/cm		1		A2510 B	05/09/19 14:13 / SRW
Solids, Total Dissolved TDS @ 180 C	254	mg/L		10		A2540 C	05/09/19 12:35 / cmm
INORGANICS							
Chloride	18	mg/L		1		E300.0	05/10/19 23:42 / SRW
METALS, TOTAL							
Calcium	55	mg/L		1		E200.7	05/14/19 05:50 / sld
Magnesium	14	mg/L		1		E200.7	05/14/19 05:50 / sld
Sodium	21	mg/L		1		E200.7	05/14/19 05:50 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-027
Client Sample ID: MDT-0508-126

Report Date: 05/23/19
Collection Date: 05/08/19 10:35
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	05/09/19 14:15 / SRW
pH Measurement Temp	16.3	°C				A4500-H B	05/09/19 14:15 / SRW
Conductivity @ 25 C	512	umhos/cm		1		A2510 B	05/09/19 14:15 / SRW
Solids, Total Dissolved TDS @ 180 C	275	mg/L		10		A2540 C	05/09/19 12:35 / cmm
INORGANICS							
Chloride	29	mg/L		1		E300.0	05/10/19 23:56 / SRW
METALS, TOTAL							
Calcium	58	mg/L		1		E200.7	05/14/19 05:54 / sld
Magnesium	15	mg/L		1		E200.7	05/14/19 05:54 / sld
Sodium	27	mg/L		1		E200.7	05/14/19 05:54 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-028
Client Sample ID: MDT-0508-127

Report Date: 05/23/19
Collection Date: 05/08/19 11:10
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	05/09/19 14:17 / SRW
pH Measurement Temp	16.7	°C				A4500-H B	05/09/19 14:17 / SRW
Conductivity @ 25 C	692	umhos/cm		1		A2510 B	05/09/19 14:17 / SRW
Solids, Total Dissolved TDS @ 180 C	369	mg/L		10		A2540 C	05/09/19 12:39 / cmm
INORGANICS							
Chloride	69	mg/L		1		E300.0	05/11/19 00:10 / SRW
METALS, TOTAL							
Calcium	61	mg/L		1		E200.7	05/14/19 05:58 / sld
Magnesium	25	mg/L		1		E200.7	05/14/19 05:58 / sld
Sodium	41	mg/L		1		E200.7	05/14/19 05:58 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-029
Client Sample ID: MDT-0508-128

Report Date: 05/23/19
Collection Date: 05/08/19 11:30
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	05/09/19 14:20 / SRW
pH Measurement Temp	16.9	°C				A4500-H B	05/09/19 14:20 / SRW
Conductivity @ 25 C	895	umhos/cm		1		A2510 B	05/09/19 14:20 / SRW
Solids, Total Dissolved TDS @ 180 C	482	mg/L		10		A2540 C	05/09/19 12:39 / cmm
INORGANICS							
Chloride	124	mg/L		1		E300.0	05/11/19 00:24 / SRW
METALS, TOTAL							
Calcium	74	mg/L		1		E200.7	05/14/19 06:26 / sld
Magnesium	21	mg/L		1		E200.7	05/14/19 06:26 / sld
Sodium	75	mg/L		1		E200.7	05/14/19 06:26 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-030
Client Sample ID: MDT-0508-129

Report Date: 05/23/19
Collection Date: 05/08/19 12:05
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	05/09/19 14:22 / SRW
pH Measurement Temp	17.1	°C				A4500-H B	05/09/19 14:22 / SRW
Conductivity @ 25 C	479	umhos/cm		1		A2510 B	05/09/19 14:22 / SRW
Solids, Total Dissolved TDS @ 180 C	272	mg/L		10		A2540 C	05/09/19 12:39 / cmm
INORGANICS							
Chloride	18	mg/L		1		E300.0	05/11/19 00:38 / SRW
METALS, TOTAL							
Calcium	56	mg/L		1		E200.7	05/14/19 06:30 / sld
Magnesium	14	mg/L		1		E200.7	05/14/19 06:30 / sld
Sodium	22	mg/L		1		E200.7	05/14/19 06:30 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-031
Client Sample ID: MDT-0508-130

Report Date: 05/23/19
Collection Date: 05/08/19 12:45
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	05/09/19 14:24 / SRW
pH Measurement Temp	17.9	°C				A4500-H B	05/09/19 14:24 / SRW
Conductivity @ 25 C	387	umhos/cm		1		A2510 B	05/09/19 14:24 / SRW
Solids, Total Dissolved TDS @ 180 C	221	mg/L		10		A2540 C	05/09/19 12:40 / cmm
INORGANICS							
Chloride	10	mg/L		1		E300.0	05/11/19 00:52 / SRW
METALS, TOTAL							
Calcium	47	mg/L		1		E200.7	05/14/19 06:34 / sld
Magnesium	11	mg/L		1		E200.7	05/14/19 06:34 / sld
Sodium	15	mg/L		1		E200.7	05/14/19 06:34 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-032
Client Sample ID: MDT-0508-131

Report Date: 05/23/19
Collection Date: 05/08/19 13:05
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	05/09/19 14:26 / SRW
pH Measurement Temp	17.8	°C				A4500-H B	05/09/19 14:26 / SRW
Conductivity @ 25 C	390	umhos/cm		1		A2510 B	05/09/19 14:26 / SRW
Solids, Total Dissolved TDS @ 180 C	219	mg/L		10		A2540 C	05/09/19 12:40 / cmm
INORGANICS							
Chloride	10	mg/L		1		E300.0	05/11/19 02:17 / SRW
METALS, TOTAL							
Calcium	48	mg/L		1		E200.7	05/14/19 06:38 / sld
Magnesium	12	mg/L		1		E200.7	05/14/19 06:38 / sld
Sodium	16	mg/L		1		E200.7	05/14/19 06:38 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-033
Client Sample ID: MDT-0508-132

Report Date: 05/23/19
Collection Date: 05/08/19 13:30
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Conductivity @ 25 C	496	umhos/cm		1		A2510 B	05/09/19 14:29 / SRW
Solids, Total Dissolved TDS @ 180 C	257	mg/L		10		A2540 C	05/09/19 12:40 / cmm
METALS, TOTAL							
Arsenic	0.001	mg/L		0.001		E200.8	05/14/19 01:33 / dck
Iron	ND	mg/L		0.02		E200.8	05/14/19 01:33 / dck
Manganese	0.048	mg/L		0.001		E200.8	05/14/19 01:33 / dck

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19050268-034
Client Sample ID: MDT-0508-133

Report Date: 05/23/19
Collection Date: 05/08/19 13:45
DateReceived: 05/08/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Conductivity @ 25 C	497	umhos/cm		1		A2510 B	05/09/19 14:31 / SRW
Solids, Total Dissolved TDS @ 180 C	259	mg/L		10		A2540 C	05/09/19 12:40 / cmm
METALS, TOTAL							
Arsenic	ND	mg/L		0.001		E200.8	05/14/19 01:35 / dck
Iron	ND	mg/L		0.02		E200.8	05/14/19 01:35 / dck
Manganese	0.051	mg/L		0.001		E200.8	05/14/19 01:35 / dck

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

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19050268 **Report Date:** 05/23/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2510 B								Analytical Run: PHSC_101-H_190509A		
Lab ID: SC 150		Initial Calibration Verification Standard							05/09/19 09:52	
Conductivity @ 25 C		158	umhos/cm	1.0	105	90	110			
Lab ID: SC 20000		Initial Calibration Verification Standard							05/09/19 09:55	
Conductivity @ 25 C		19100	umhos/cm	1.0	95	90	110			
Lab ID: SC 5000		Initial Calibration Verification Standard							05/09/19 09:57	
Conductivity @ 25 C		5000	umhos/cm	1.0	100	90	110			
Lab ID: CCV - SC 1413		Continuing Calibration Verification Standard							05/09/19 12:07	
Conductivity @ 25 C		1420	umhos/cm	1.0	100	90	110			
Lab ID: CCV - SC 1413		Continuing Calibration Verification Standard							05/09/19 13:54	
Conductivity @ 25 C		1420	umhos/cm	1.0	100	90	110			
Method: A2510 B									Batch: R144072	
Lab ID: SC 1000		Laboratory Control Sample				Run: PHSC_101-H_190509A			05/09/19 09:59	
Conductivity @ 25 C		1020	umhos/cm	1.0	102	90	110			
Lab ID: H19050268-001ADUP		Sample Duplicate				Run: PHSC_101-H_190509A			05/09/19 13:04	
Conductivity @ 25 C		869	umhos/cm	1.0				0.0	10	
Lab ID: H19050268-020ADUP		Sample Duplicate				Run: PHSC_101-H_190509A			05/09/19 13:49	
Conductivity @ 25 C		1040	umhos/cm	1.0				0.1	10	
Lab ID: H19050268-021ADUP		Sample Duplicate				Run: PHSC_101-H_190509A			05/09/19 14:02	
Conductivity @ 25 C		552	umhos/cm	1.0				0.1	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19050268 **Report Date:** 05/23/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: TDS190509A
Lab ID: MB-25_190509A		Method Blank				Run: ACCU-124 (14410200)_19050			05/09/19 12:31	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-26_190509A		Laboratory Control Sample				Run: ACCU-124 (14410200)_19050			05/09/19 12:31	
Solids, Total Dissolved TDS @ 180 C		1920	mg/L	20	96	90	110			
Lab ID: H19050268-008A DUP		Sample Duplicate				Run: ACCU-124 (14410200)_19050			05/09/19 12:31	
Solids, Total Dissolved TDS @ 180 C		535	mg/L	10				1.7	5	
Lab ID: H19050268-018A DUP		Sample Duplicate				Run: ACCU-124 (14410200)_19050			05/09/19 12:33	
Solids, Total Dissolved TDS @ 180 C		415	mg/L	10				1.2	5	
Lab ID: MB-49_190509A		Method Blank				Run: ACCU-124 (14410200)_19050			05/09/19 12:39	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-50_190509A		Laboratory Control Sample				Run: ACCU-124 (14410200)_19050			05/09/19 12:39	
Solids, Total Dissolved TDS @ 180 C		1900	mg/L	20	95	90	110			
Lab ID: H19050268-028A DUP		Sample Duplicate				Run: ACCU-124 (14410200)_19050			05/09/19 12:39	
Solids, Total Dissolved TDS @ 180 C		372	mg/L	10				0.8	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19050268 **Report Date:** 05/23/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B								Analytical Run: PHSC_101-H_190509A		
Lab ID: pH 7	2	Initial Calibration Verification Standard							05/09/19 08:48	
pH		7.0	s.u.	0.1	99	98	102			
pH Measurement Temp		20.6	°C			0	0			
Lab ID: CCV - pH 7	2	Continuing Calibration Verification Standard							05/09/19 10:45	
pH		7.0	s.u.	0.1	100	98	102			
pH Measurement Temp		20.3	°C			0	0			
Lab ID: CCV - pH 7	2	Continuing Calibration Verification Standard							05/09/19 13:51	
pH		7.0	s.u.	0.1	100	98	102			
pH Measurement Temp		19.2	°C			0	0			
Method: A4500-H B									Batch: R144072	
Lab ID: H19050268-001ADUP	2	Sample Duplicate				Run: PHSC_101-H_190509A			05/09/19 13:04	
pH		7.5	s.u.	0.1				0.0	3	
pH Measurement Temp		14.9	°C							
Lab ID: H19050268-020ADUP	2	Sample Duplicate				Run: PHSC_101-H_190509A			05/09/19 13:49	
pH		7.6	s.u.	0.1				0.0	3	
pH Measurement Temp		16.1	°C							
Lab ID: H19050268-021ADUP	2	Sample Duplicate				Run: PHSC_101-H_190509A			05/09/19 14:02	
pH		7.6	s.u.	0.1				0.1	3	
pH Measurement Temp		16.4	°C							

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19050268 **Report Date:** 05/23/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP2-HE_190513B	
Lab ID: ICV	4	Initial Calibration Verification Standard							05/13/19 13:02	
Calcium		38.4	mg/L	1.0	96	95	105			
Iron		3.82	mg/L	0.020	95	95	105			
Magnesium		38.0	mg/L	1.0	95	95	105			
Sodium		39.3	mg/L	1.0	98	95	105			
Lab ID: ICV	4	Initial Calibration Verification Standard							05/13/19 13:07	
Calcium		38.4	mg/L	1.0	96	95	105			
Iron		3.80	mg/L	0.020	95	95	105			
Magnesium		38.0	mg/L	1.0	95	95	105			
Sodium		39.0	mg/L	1.0	97	95	105			
Lab ID: CCV-1	4	Continuing Calibration Verification Standard							05/13/19 13:11	
Calcium		24.8	mg/L	1.0	99	95	105			
Iron		2.46	mg/L	0.020	98	95	105			
Magnesium		24.3	mg/L	1.0	97	95	105			
Sodium		24.1	mg/L	1.0	96	95	105			
Lab ID: ICSA	4	Interference Check Sample A							05/13/19 13:23	
Calcium		456	mg/L	1.0	91	80	120			
Iron		178	mg/L	0.020	89	80	120			
Magnesium		510	mg/L	1.0	102	80	120			
Sodium		0.0287	mg/L	1.0		0	0			
Lab ID: ICSAB	4	Interference Check Sample AB							05/13/19 13:28	
Calcium		475	mg/L	1.0	95	80	120			
Iron		185	mg/L	0.020	92	80	120			
Magnesium		530	mg/L	1.0	106	80	120			
Sodium		20.2	mg/L	1.0	101	80	120			
Lab ID: CCV	4	Continuing Calibration Verification Standard							05/14/19 02:46	
Calcium		25.4	mg/L	1.0	102	90	110			
Iron		2.51	mg/L	0.020	100	90	110			
Magnesium		24.9	mg/L	1.0	100	90	110			
Sodium		24.6	mg/L	1.0	98	90	110			
Lab ID: CCV	4	Continuing Calibration Verification Standard							05/14/19 03:35	
Calcium		24.9	mg/L	1.0	100	90	110			
Iron		2.47	mg/L	0.020	99	90	110			
Magnesium		24.2	mg/L	1.0	97	90	110			
Sodium		24.8	mg/L	1.0	99	90	110			
Lab ID: CCV	4	Continuing Calibration Verification Standard							05/14/19 04:24	
Calcium		26.1	mg/L	1.0	104	90	110			
Iron		2.56	mg/L	0.020	102	90	110			
Magnesium		25.2	mg/L	1.0	101	90	110			
Sodium		24.3	mg/L	1.0	97	90	110			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19050268 **Report Date:** 05/23/19

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E200.7**									Analytical Run: ICP2-HE_190513B	
Lab ID:	**CCV**	4	Continuing Calibration Verification Standard							05/14/19 05:13	
Calcium			25.7	mg/L	1.0	103	90	110			
Iron			2.53	mg/L	0.020	101	90	110			
Magnesium			24.7	mg/L	1.0	99	90	110			
Sodium			25.8	mg/L	1.0	103	90	110			
Lab ID:	**CCV**	4	Continuing Calibration Verification Standard							05/14/19 06:02	
Calcium			26.1	mg/L	1.0	105	90	110			
Iron			2.56	mg/L	0.020	102	90	110			
Magnesium			24.9	mg/L	1.0	100	90	110			
Sodium			25.0	mg/L	1.0	100	90	110			
Method:	**E200.7**									Batch: 45600	
Lab ID:	**MB-45600**	4	Method Blank				Run: ICP2-HE_190513B			05/14/19 01:45	
Calcium			ND	mg/L	0.09						
Iron			ND	mg/L	0.006						
Magnesium			ND	mg/L	0.009						
Sodium			ND	mg/L	0.03						
Lab ID:	**LCS-45600**	4	Laboratory Control Sample				Run: ICP2-HE_190513B			05/14/19 01:49	
Calcium			23.0	mg/L	1.0	92	85	115			
Iron			2.30	mg/L	0.020	92	85	115			
Magnesium			23.3	mg/L	1.0	93	85	115			
Sodium			23.5	mg/L	1.0	94	85	115			
Lab ID:	**H19050267-001BDIL**	4	Serial Dilution				Run: ICP2-HE_190513B			05/14/19 02:02	
Calcium			162	mg/L	1.0		0	0	1.4	10	
Iron			ND	mg/L	0.029		0	0		10	
Magnesium			86.7	mg/L	1.0		0	0	5.9	10	
Sodium			68.3	mg/L	1.0		0	0	3.7	10	
Lab ID:	**H19050267-001BMS3**	4	Sample Matrix Spike				Run: ICP2-HE_190513B			05/14/19 02:10	
Calcium			189	mg/L	1.0		70	130			A
Iron			2.40	mg/L	0.020	96	70	130			
Magnesium			118	mg/L	1.0	105	70	130			
Sodium			92.6	mg/L	1.0	87	70	130			
Lab ID:	**H19050267-001BMSD**	4	Sample Matrix Spike Duplicate				Run: ICP2-HE_190513B			05/14/19 02:14	
Calcium			187	mg/L	1.0		70	130	1.2	20	A
Iron			2.37	mg/L	0.020	95	70	130	1.3	20	
Magnesium			117	mg/L	1.0	100	70	130	1.1	20	
Sodium			95.2	mg/L	1.0	98	70	130	2.8	20	
Lab ID:	**H19050268-009BDIL**	4	Serial Dilution				Run: ICP2-HE_190513B			05/14/19 03:47	
Calcium			1.55	mg/L	1.0		0	0		10	N
Iron			0.745	mg/L	0.029		0	0	3.8	10	
Magnesium			ND	mg/L	1.0		0	0		10	
Sodium			307	mg/L	1.0		0	0	8.5	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19050268 **Report Date:** 05/23/19

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E200.7**										Batch: 45600
Lab ID:	**H19050268-009BMS3**	4	Sample Matrix Spike				Run: ICP2-HE_190513B			05/14/19 03:56	
Calcium			24.8	mg/L	1.0	96	70	130			
Iron			3.12	mg/L	0.020	94	70	130			
Magnesium			23.6	mg/L	1.0	94	70	130			
Sodium			341	mg/L	1.0		70	130			A
Lab ID:	**H19050268-009BMSD**	4	Sample Matrix Spike Duplicate				Run: ICP2-HE_190513B			05/14/19 04:00	
Calcium			25.9	mg/L	1.0	100	70	130	4.4	20	
Iron			3.24	mg/L	0.020	99	70	130	3.9	20	
Magnesium			24.9	mg/L	1.0	99	70	130	5.4	20	
Sodium			343	mg/L	1.0		70	130	0.8	20	A
Method:	**E200.7**										Batch: 45602
Lab ID:	**MB-45602**	3	Method Blank				Run: ICP2-HE_190513B			05/14/19 04:45	
Calcium			ND	mg/L	0.09						
Magnesium			ND	mg/L	0.009						
Sodium			ND	mg/L	0.03						
Lab ID:	**LCS-45602**	3	Laboratory Control Sample				Run: ICP2-HE_190513B			05/14/19 04:49	
Calcium			25.7	mg/L	1.0	103	85	115			
Magnesium			24.8	mg/L	1.0	99	85	115			
Sodium			24.2	mg/L	1.0	97	85	115			
Lab ID:	**H19050268-019BDIL**	3	Serial Dilution				Run: ICP2-HE_190513B			05/14/19 05:01	
Calcium			93.9	mg/L	1.0		0	0	6.4	10	
Magnesium			27.6	mg/L	1.0		0	0	3.7	10	
Sodium			86.1	mg/L	1.0		0	0	3.3	10	
Lab ID:	**H19050268-019BMS3**	3	Sample Matrix Spike				Run: ICP2-HE_190513B			05/14/19 05:09	
Calcium			113	mg/L	1.0	98	70	130			
Magnesium			51.7	mg/L	1.0	100	70	130			
Sodium			113	mg/L	1.0	95	70	130			
Lab ID:	**H19050268-019BMSD**	3	Sample Matrix Spike Duplicate				Run: ICP2-HE_190513B			05/14/19 05:21	
Calcium			111	mg/L	1.0	93	70	130	1.2	20	
Magnesium			51.4	mg/L	1.0	99	70	130	0.6	20	
Sodium			108	mg/L	1.0	77	70	130	4.2	20	
Lab ID:	**H19050268-028BDIL**	3	Serial Dilution				Run: ICP2-HE_190513B			05/14/19 06:10	
Calcium			66.1	mg/L	1.0		0	0	7.4	10	
Magnesium			26.7	mg/L	1.0		0	0	5.1	10	
Sodium			41.2	mg/L	1.0		0	0	0.5	10	
Lab ID:	**H19050268-028BMS3**	3	Sample Matrix Spike				Run: ICP2-HE_190513B			05/14/19 06:18	
Calcium			88.5	mg/L	1.0	109	70	130			
Magnesium			51.6	mg/L	1.0	105	70	130			
Sodium			67.0	mg/L	1.0	102	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19050268 **Report Date:** 05/23/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Batch: 45602
Lab ID: H19050268-028BMSD	3	Sample Matrix Spike Duplicate				Run: ICP2-HE_190513B			05/14/19 06:22	
Calcium		89.3	mg/L	1.0	112	70	130	0.8	20	
Magnesium		52.1	mg/L	1.0	107	70	130	0.9	20	
Sodium		63.6	mg/L	1.0	89	70	130	5.2	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19050268 **Report Date:** 05/23/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS205-H_190513B	
Lab ID: ICV	3	Initial Calibration Verification Standard							05/13/19 23:23	
Arsenic		0.0592	mg/L	0.0050	99	90	110			
Iron		0.299	mg/L	0.020	100	90	110			
Manganese		0.300	mg/L	0.010	100	90	110			
Lab ID: ICSA	3	Interference Check Sample A							05/13/19 23:25	
Arsenic		8.15E-06	mg/L	0.0050						
Iron		107	mg/L	0.020	107	70	130			
Manganese		0.000220	mg/L	0.010						
Lab ID: ICSAB	3	Interference Check Sample AB							05/13/19 23:28	
Arsenic		0.0109	mg/L	0.0050	109	70	130			
Iron		108	mg/L	0.020	108	70	130			
Manganese		0.0214	mg/L	0.010	107	70	130			
Method: E200.8										Batch: 45600
Lab ID: MB-45600	3	Method Blank				Run: ICPMS205-H_190513B			05/14/19 00:51	
Arsenic		ND	mg/L	4E-05						
Iron		ND	mg/L	0.004						
Manganese		ND	mg/L	0.0003						
Lab ID: LCS-45600	3	Laboratory Control Sample				Run: ICPMS205-H_190513B			05/14/19 01:08	
Arsenic		0.468	mg/L	0.0010	94	85	115			
Iron		2.42	mg/L	0.020	97	85	115			
Manganese		2.43	mg/L	0.0010	97	85	115			
Lab ID: H19050267-001BMS3	3	Sample Matrix Spike				Run: ICPMS205-H_190513B			05/14/19 01:10	
Arsenic		0.480	mg/L	0.0010	96	70	130			
Iron		2.47	mg/L	0.020	99	70	130			
Manganese		2.50	mg/L	0.0010	99	70	130			
Lab ID: H19050267-001BMSD	3	Sample Matrix Spike Duplicate				Run: ICPMS205-H_190513B			05/14/19 01:12	
Arsenic		0.473	mg/L	0.0010	95	70	130	1.5	20	
Iron		2.44	mg/L	0.020	98	70	130	1.1	20	
Manganese		2.46	mg/L	0.0010	98	70	130	1.6	20	
Lab ID: H19050268-009BMS3	3	Sample Matrix Spike				Run: ICPMS205-H_190513B			05/14/19 01:17	
Arsenic		0.470	mg/L	0.0010	94	70	130			
Iron		3.19	mg/L	0.020	97	70	130			
Manganese		2.50	mg/L	0.0010	97	70	130			
Lab ID: H19050268-009BMSD	3	Sample Matrix Spike Duplicate				Run: ICPMS205-H_190513B			05/14/19 01:19	
Arsenic		0.470	mg/L	0.0010	94	70	130	0.1	20	
Iron		3.19	mg/L	0.020	97	70	130	0.1	20	
Manganese		2.49	mg/L	0.0010	97	70	130	0.1	20	
Method: E200.8										Batch: 45602
Lab ID: MB-45602	3	Method Blank				Run: ICPMS205-H_190513B			05/14/19 01:29	
Arsenic		ND	mg/L	4E-05						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19050268 **Report Date:** 05/23/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 45602
Lab ID: MB-45602	3	Method Blank				Run: ICPMS205-H_190513B				05/14/19 01:29
Iron		ND	mg/L	0.004						
Manganese		ND	mg/L	0.0003						
Lab ID: LCS-45602	3	Laboratory Control Sample				Run: ICPMS205-H_190513B				05/14/19 01:46
Arsenic		0.478	mg/L	0.0010	96	85	115			
Iron		2.48	mg/L	0.020	99	85	115			
Manganese		2.48	mg/L	0.0010	99	85	115			
Lab ID: H19050268-028BMS3	3	Sample Matrix Spike				Run: ICPMS205-H_190513B				05/14/19 01:48
Arsenic		0.475	mg/L	0.0010	95	70	130			
Iron		2.42	mg/L	0.020	97	70	130			
Manganese		2.42	mg/L	0.0010	97	70	130			
Lab ID: H19050268-028BMSD	3	Sample Matrix Spike Duplicate				Run: ICPMS205-H_190513B				05/14/19 01:50
Arsenic		0.477	mg/L	0.0010	95	70	130	0.4	20	
Iron		2.44	mg/L	0.020	97	70	130	0.7	20	
Manganese		2.43	mg/L	0.0010	97	70	130	0.6	20	
Method: E200.8										Analytical Run: ICPMS205-H_190514C
Lab ID: ICV	2	Initial Calibration Verification Standard								05/14/19 15:30
Iron		0.297	mg/L	0.020	99	90	110			
Manganese		0.295	mg/L	0.010	98	90	110			
Lab ID: ICSA	2	Interference Check Sample A								05/14/19 15:32
Iron		107	mg/L	0.020	107	70	130			
Manganese		0.000276	mg/L	0.010						
Lab ID: ICSAB	2	Interference Check Sample AB								05/14/19 15:34
Iron		108	mg/L	0.020	108	70	130			
Manganese		0.0211	mg/L	0.010	106	70	130			
Method: E200.8										Batch: 45600
Lab ID: MB-45600	3	Method Blank				Run: ICPMS205-H_190514C				05/14/19 17:09
Arsenic		ND	mg/L	4E-05						
Iron		ND	mg/L	0.004						
Manganese		ND	mg/L	0.0003						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19050268 **Report Date:** 05/23/19

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E300.0**								Analytical Run: IC METROHM_190508A		
Lab ID:	**ICV**	Initial Calibration Verification Standard								05/08/19 09:09	
Chloride			101	mg/L	1.0	101	90	110			
Lab ID:	**CCV**	Continuing Calibration Verification Standard								05/10/19 15:00	
Chloride			54.0	mg/L	1.0	108	90	110			
Lab ID:	**CCV**	Continuing Calibration Verification Standard								05/10/19 18:32	
Chloride			53.9	mg/L	1.0	108	90	110			
Lab ID:	**CCV**	Continuing Calibration Verification Standard								05/10/19 22:03	
Chloride			54.6	mg/L	1.0	109	90	110			
Lab ID:	**CCV**	Continuing Calibration Verification Standard								05/11/19 01:35	
Chloride			54.7	mg/L	1.0	109	90	110			
Method:	**E300.0**									Batch: R144073	
Lab ID:	**ICB**	Method Blank					Run: IC METROHM_190508A			05/08/19 08:55	
Chloride			ND	mg/L	0.02						
Lab ID:	**LFB**	Laboratory Fortified Blank					Run: IC METROHM_190508A			05/08/19 09:23	
Chloride			24.9	mg/L	1.0	100	90	110			
Lab ID:	**H19050240-002BMS**	Sample Matrix Spike					Run: IC METROHM_190508A			05/10/19 14:32	
Chloride			56.8	mg/L	1.0	107	90	110			
Lab ID:	**H19050240-002BMSD**	Sample Matrix Spike Duplicate					Run: IC METROHM_190508A			05/10/19 14:46	
Chloride			57.0	mg/L	1.0	108	90	110	0.3	20	
Lab ID:	**H19050268-010AMS**	Sample Matrix Spike					Run: IC METROHM_190508A			05/10/19 18:04	
Chloride			239	mg/L	1.0	101	90	110			
Lab ID:	**H19050268-010AMSD**	Sample Matrix Spike Duplicate					Run: IC METROHM_190508A			05/10/19 18:18	
Chloride			239	mg/L	1.0	101	90	110	0.0	20	
Lab ID:	**H19050268-021AMS**	Sample Matrix Spike					Run: IC METROHM_190508A			05/10/19 21:35	
Chloride			53.1	mg/L	1.0	107	90	110			
Lab ID:	**H19050268-021AMSD**	Sample Matrix Spike Duplicate					Run: IC METROHM_190508A			05/10/19 21:49	
Chloride			53.2	mg/L	1.0	108	90	110	0.2	20	
Lab ID:	**H19050268-031AMS**	Sample Matrix Spike					Run: IC METROHM_190508A			05/11/19 01:07	
Chloride			37.5	mg/L	1.0	108	90	110			
Lab ID:	**H19050268-031AMSD**	Sample Matrix Spike Duplicate					Run: IC METROHM_190508A			05/11/19 01:21	
Chloride			37.5	mg/L	1.0	108	90	110	0.1	20	
Lab ID:	**H19050317-001ADUP**	Sample Duplicate					Run: IC METROHM_190508A			05/11/19 18:45	
Chloride			105	mg/L	1.0				0.2	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

MT Dept of Transportation

H19050268

Login completed by:	Jessica C. Smith	Date Received:	5/8/2019
Reviewed by:	BL2000\tlorash	Received by:	TLL
Reviewed Date:	5/10/2019	Carrier name:	Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C See Comments		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Cooler 1 was received at 0.7 °C, Cooler 2 at 1.2 °, and Cooler 3 at 0.5 °C. Samples were received on ice .
All bottles for metals were marked not filtered. Emailed client for verification. Per Scott, all metals are totals. JCS 05/09/19

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Page 1 of 4

Account Information (Billing information)

Company/Name: MDT ENVIRONMENTAL SERVICES
Contact: BRIAN GOODMAN
Phone: 406 444-7632
Mailing Address: 2701 PROSPECT AVE.
City, State, Zip: HELENA, MT 59620
Email: bgoodman@mt.gov
Receive Invoice: ☒ Hard Copy ☐ Email | Receive Report: ☐ Hard Copy ☐ Email
Purchase Order: | Quote: | Bottle Order: 30353

Report Information (if different than Account Information)

Company/Name: KIRK ENGINEERING & NATURAL RESOURCES, INC.
Contact: SCOTT PAYNE
Phone: 406 431-1345
Mailing Address: PO BOX 636
City, State, Zip: SHERIDAN, MT 59749
Email: SCOTT.PAYNE@NREMONTANA.COM
Receive Report: ☒ Hard Copy ☒ Email EXCEL
Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other

Comments

Project Information

Project Name, PWSID, Permit, etc.: MDT PLACNS
Sampler Name: JAMES OSBORN | Sampler Phone: 406 595-1145
Sample Origin State: MONTANA | EPA/State Compliance: ☐ Yes ☐ No
MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Dissolved: Ca, Mg, Na	Cl⁻, pH, TDS, SC	SC, TDS Domestic Water	As, Fe, Mn	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
C1	1 MDT-0506-100	5-6-19	16:35	2	W	✓	✓					H19050268
C1	2 MDT-0507-101	5-7-19	8:22	2	W	✓	✓					
C1	3 MDT-0507-102	5-7-19	8:51	2	W	✓	✓					
C1	4 MDT-0507-103	5-7-19	9:33	2	W			✓	✓			
C1	5 MDT-0507-104	5-7-19	10:10	2	W	✓	✓					
C1	6 MDT-0507-105	5-7-19	10:25	2	W	✓	✓					
C1	7 MDT-0507-106	5-7-19	10:45	2	W			✓	✓			
C1	8 MDT-0507-107	5-7-19	11:10	2	W	✓	✓					
C1	9 MDT-0507-109	5-7-19	12:20	2	W			✓	✓			
C1	10 MDT-0507-108	5-7-19	12:05	2	W	✓	✓					

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	JAMES OSBORN	16:55 / 5-8-19				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Tracy Grant	5/8/19 16:55	Tracy Grant

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
Hand	7	Y (N) C B	Y N	C1=0.7 °C C2=1.2 C3=0.5	Y N	(Y) N	CC Cash Check	$	

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

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Account Information (Billing information)

Company/Name	MDT ENVIRONMENTAL SERVICES
Contact	BRIAN GOODMAN
Phone	406 444-7632
Mailing Address	2701 PROSPECT AVE.
City, State, Zip	HELENA, MT
Email	bgoodman@mt.gov
Receive Invoice	☒ Hard Copy ☐ Email
Receive Report	☐ Hard Copy ☐ Email
Purchase Order	
Quote	
Bottle Order	30353

Report Information (if different than Account Information)

Company/Name	KIRK ENGENEERING & NATURAL RESOURCES, INC.
Contact	SCOTT PAYNE
Phone	406 431-1345
Mailing Address	PO BOX 1636
City, State, Zip	SHERIDAN, MT 59749
Email	SCOTT.PAYNE@NREMONTANA.COM
Receive Report	☒ Hard Copy ☒ Email EXCEL
Special Report/Formats:	☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other

Comments

Project Information

Project Name, PWSID, Permit, etc.	MDT PLAINS
Sampler Name	JAMES OSBORN
Sampler Phone	406 595-1145
Sample Origin State	MONTANA
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	DISSOLVED: Ca, Mg, Na	Cl⁻, pH, TDS, SC	SC, TDS	As, Fe, Mn						See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
C3 1	MDT-0507-110	5-7-19	12:59	2	W	✓	✓										H19050268
C3 2	MDT-0507-111	5-7-19	1320	2	W			✓	✓								
C3 3	MDT-0507-112	5-7-19	1353	2	W	✓	✓										
C3 4	MDT-0507-113	5-7-19	1448	2	W	✓	✓										
C3 5	MDT-0507-114	5-7-19	~~1448~~ 1514	2	W	✓	✓										
C3 6	MDT-0507-115	5-7-19	1555	2	W	✓	✓										
C3 7	MDT-0507-116	5-7-19	1618	2	W	✓	✓										
C3 8	MDT-0507-117	5-7-19	1642	2	W	✓	✓										
C3 9	MDT-0507-118	5-7-19	1708	2	W	✓	✓										
C3 10	MDT-0507-119	5-7-19	1734	2	W	✓	✓										

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	JAMES OSBORN	5-8-19/16 55				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time 5/8/19 16:55	Signature

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
Hand	4	Y N C B	Y N	C1=0.7°C C2=1.2 C3=0.5	Y N	Y N	CC Cash Check	$	

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

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Chain of Custody & Analytical Request Record

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Account Information (Billing information)

Company/Name	MDT ENVIRONMENTAL SERVICES
Contact	BRIAN GOODMAN
Phone	406 444-7632
Mailing Address	2701 PROSPECT AVE.
City, State, Zip	HELENA, MT 59620
Email	bgoodman@mt.gov
Receive Invoice	☒ Hard Copy ☐ Email
Receive Report	☐ Hard Copy ☐ Email
Purchase Order	
Quote	
Bottle Order	30353

Report Information (if different than Account Information)

Company/Name	KERK ENGINEERING & NATURAL RESOURCES, INC.
Contact	SCOTT PAYNE
Phone	406 431-1345
Mailing Address	PO BOX 636
City, State, Zip	SHERIDAN, MT 59749
Email	SCOTT.PAYNE@NREMONTANA.COM
Receive Report	☒ Hard Copy ☒ Email EXCEL

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

Project Information

Project Name, PWSID, Permit, etc.	MDT PLACNS
Sampler Name	JAMES OSBORN
Sampler Phone	406 595-1145
Sample Origin State	MONTANA
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	DISSOLVED: Ca, Mg, Na	Cl⁻, pH, TDS, SC	SC, TDS	As, Fe, Mn						See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
C1	1 MDT-0508-120	5-7-19	1815	2	W	✓	✓										H19050268
C2	2 MDT-0508-121	5-8-19	8:35	2	W	✓	✓										
C2	3 MDT-0508-122	5-8-19	9:00	2	W	✓	✓										
C2	4 MDT-0508-123	5-8-19	9:25	2	W	✓	✓										
C2	5 MDT-0508-124	5-8-19	9:50	2	W	✓	✓										
C2	6 MDT-0508-125	5-8-19	10:10	2	W	✓	✓										
C2	7 MDT-0508-126	5-8-19	10:35	2	W	✓	✓										
C2	8 MDT-0508-127	5-8-19	11:10	2	W	✓	✓										
C2	9 MDT-0508-128	5-8-19	11:30	2	W	✓	✓										
C2	10 MDT-0508-129	5-8-19	12:05	2	W	✓	✓										

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	JAMES OSBORN	5-8-19 / 1655	[signature]			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				[signature]	5/8/19 16:55	[signature]

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
Hand	Y	Y (N) C B	Y N	C1=0.7 °C C2=1.2 C3=0.5	(Y) N	(Y) N	CC Cash Check_____	$	

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	MDT ENVIRONMENTAL SERVICES
Contact	BRIAN GOODMAN
Phone	406-444-7632
Mailing Address	2701 PROSPECT AVE.
City, State, Zip	HELENA, MT 59620
Email	bgoodman@mt.gov
Receive Invoice	☒ Hard Copy ☐ Email
Receive Report	☐ Hard Copy ☐ Email
Purchase Order	
Quote	
Bottle Order	30353

Report Information (if different than Account Information)

Company/Name	KERK ENGINEERING & NATURAL RESOURCES, INC.
Contact	SCOTT PAYNE
Phone	406 431-1345
Mailing Address	PO BOX 636
City, State, Zip	SHERIDAN, MT 59749
Email	SCOTT.PAYNE@NREMONTANA.COM
Receive Report	☒ Hard Copy ☒ Email EXCEL

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other _____

Comments

Project Information

Project Name, PWSID, Permit, etc.	MDT PLAINS
Sampler Name	JAMES OSBORN
Sampler Phone	406 595-1145
Sample Origin State	MONTANA
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
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Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	DISSOLVED: Ca, Mg, Na	Cl, pH, TDS, SC	SC, TDS	As, Fe, Mn						See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
C2 1	MDT-0508-130	5-8-19	12:45	2	W	✓	✓										H19050268
C2 2	MDT-0508-131	5-8-19	1305	2	W	✓	✓										
C2 3	MDT-0508-132	5-8-19	1330	2	W			✓	✓								
C2 4	MDT-0508-133	5-8-19	1345	2	W			✓	✓								
5																	
6																	
7																	
8																	
9																	
10																	

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	JAMES OSBORN	5-8-19/1655				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print) Tracy Lovas	Date/Time 5/8/19 16:55	Signature

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
Hand	4	Y (N) C B	Y N	C1=0.7°C C2=1.2 C3=0.5	(Y) N	(Y) N	CC Cash Check_____	$	

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

Montana DEQ - Waste Management and Remediation Division

Data Validation Summary Form (Version 1.3.0, Revised 1/26/18)

Please fill out the information below, using one form for each lab batch (one form can be used for multiple analytical methods). The form will grow and adjust, based on your responses. Please include a discussion regarding the sampling event in the report that is sent to DEQ with this form. For additional instructions, please click the Open Complete Instructions button.

Open Complete Instructions

Basic Questions View example (Note: example optimized for viewing in Chrome browser)

1. Site/Facility name	MDT Plain Maintenance Facility
2. Site code or facility ID (if applicable)	
3. Release ID (if applicable)	
4. Sample delivery group	H19050268
5. Name of DEQ-approved sampling plan	NA
6. Date DEQ approved the sampling plan	M/D/YY
7. Name of data validator	Ian Magruder, Northern Rockies Engineering
8. Phone	406-439-0049
9. Date validated	8/6/2019 M/D/YY

Field Collection Questions View example (Note: example optimized for viewing in Chrome browser)

10. Sample matrix	☐ Soil ☐ Sediment ☐ Surface water ☒ Groundwater ☐ Tap water ☐ Air (including soil gas) ☐ Other
11. Sample collection start date	5/6/2019 M/D/YY
12. Sample collection end date	5/8/2019 M/D/YY

13. Analytical methods used

Use Add Method button to list multiple methods. Enter any other methods in the field manually.

Add Method	Analytical Method(s)
Delete Method	A4500-H B: pH
Delete Method	A2510 B: conductivity
Delete Method	A2540 C: TDS
Delete Method	E300.0: chloride
Delete Method	E200.7: metals total
Delete Method	E200.8: metals total

Laboratory-related Questions View example (Note: example optimized for viewing in Chrome browser)

14. Laboratory name and location	Energy Laboratories, Helena, MT
15. Laboratory project ID	MDT Plains

	Yes	No	See Below	Comments
16. Were samples received in good condition and at appropriate temperature, chain-of-custody forms complete, and all samples analyzed within holding times?	○	●	○	see note under 16c regarding pH holding times.
16a. Were chain-of-custody forms complete?	●	○		
16b. Were samples received in good condition, preserved, and at appropriate temperature (VOA no headspace, appropriate pH, temperature 4° C +/- 2° for most samples)?	●	○		
16c. Were the samples analyzed within method-specified or technical holding times?	○	●		

If no, explain

pH analyzed outside of hold time. Field pH was measured and will be used in project reporting.

	Yes	No	See Below	Comments
17. Were all laboratory quality control procedures complied with and is data validated without qualifiers?	●	○	○	
18. Were the total number of lab method blanks at least 5% of the total number of samples, or as required by the method?	●	○		
19. Were the total number of lab matrix spike samples prepared at least 5% of the total number of samples, or as required by the method?	●	○		

20. Please list any project samples used for matrix spike/matrix spike duplicates.

Add Sample	Lab ID	Field Sample ID	Comments
Delete Sample	H19050268-019	MDT-0507-118	
Delete Sample	H19050268-009	MDT-0507-109	
Delete Sample	H19050268-028	MDT-0508-127	
Delete Sample	H19050268-010	MDT-0507-108	
Delete Sample	H19050268-021	MDT-0507-120	
Delete Sample	H19050268-031	MDT-0508-130	

	Yes	No	Comments
21. Is the total number of laboratory control samples at least 5% of the total number of samples?	○	●	

If no, explain

A2510 B conductivity: 1 LCS for 34 samples; A4500-H B pH: no LCS; E300.0 chloride: 1 LFB. These are all appropriate for the methods.

Consultant/Validator Questions View example (Note: example optimized for viewing in Chrome browser)

	Yes	No	Comments
22. Are the detection limits appropriate for the project (i.e. at or below screening levels)?	●	○	

23. Are the reported units appropriate for the sample matrix (i.e. water results in ug/L, not mg/kg)?	Yes ●	No ○		Comments
24. Do the analytical methods comply with project requirements (e.g. in the SAP, work plan, or QAPP)?	Yes ●	No ○		Comments
25. Do the laboratory reports include all constituents requested to be analyzed on the chain-of-custody or under the sampling plan or other applicable document?	Yes ●	No ○		Comments
26. Is the number of sample blanks (e.g. equipment, trip, or field blanks) equal to at least 10% of the total number of samples, or as otherwise required?	Yes ●	No ○		Comments Not required per scope of work.
27. Are field blanks free from contamination, duplicates collected as required, and field duplicate percent differences within data validation quality control limits?	Yes ●	No ○	See Below ○	Comments

28. Please provide an Excel or CSV file to the DEQ project manager (via e-mail or CD) that lists all samples evaluated in this summary and lists any qualified data.
Please use the following format:

Lab ID	Field Sample ID	Qualifiers	Comments (indicate whether the issue biases the results high or low)
Example 48310-2.31E	Example GW-1	R	Sample dropped in lab and unrecoverable
Example 48310-2.32D	Example GW-2		

Please use the following format for qualifiers. See EPA's National Functional Guidelines for more information on qualifiers for unique samples such as dioxins.

Qualifier	Explanation
C	Pesticide and Arochlor results confirmed with GC/MS
J-	Estimated value, may be biased low
J	Analyte identified, but concentration is estimated
J+	Estimated value, may be biased high
NJ	Tentatively identified compound
R	Sample result rejected
U	Analyte analyzed for, but not detected above quantitation limit
UJ	Analyte not detected above CRQL, but CRQL may be inaccurate
X	Pesticide and Arochlor results attempted using GC/MS, but unsuccessful

If you wish to manually enter qualified sample results, please use the table below.

Add Sample	Lab ID	Field Sample ID	Qualifiers	Comments (indicate whether the issue biases the results high or low)
Delete Sample				

29. What is the percent completeness (samples planned versus valid samples collected)?	94%	Comments 31/33
30. Was the completeness goal met?	Yes ● No ○	Comments Not required per scope of work.

31. Does all data conform to analytical methods and data quality objectives specified for this project?	Yes ●	No ○	Comments
32. Other general comments or observations?			
NA			

Split Samples

33. Did DEQ collect split samples?	Yes ●	No ○	Comments

If yes, explain how those results compare to these results, by explaining the percent difference between the samples collected as part of the project vs. samples DEQ collected and note any significant differences.

DEQ will perform split analysis. We do not have the data.

Print Form | Save As | Open Instructions | Hide Instructions

Montana Department of Environmental Quality
Data Validation Guidelines for Evaluating Analytical Data
(updated January 26, 2018)

This document was assembled by the Montana Department of Environmental Quality Contaminated Site Cleanup Bureau (DEQ) to formalize technical direction for conducting data validation. Data validation is a standardized review process for judging the analytical quality and usefulness of a discrete set of chemical data and is necessary to ensure that data of known and documented quality are used in making environmental decisions.

While these guidelines are generally used by DEQ, there may be circumstances that warrant a higher level of data validation review and DEQ reserves the right to require additional validation. For investigations where x-ray fluorescence (XRF) or other field screening equipment is used, provide an evaluation including the comparison and correlation of field screening data to laboratory confirmation data in the data validation discussion (please see DEQ's frequently asked questions at http://deq.mt.gov/Land/StateSuperfund/FrequentlyAskedQuestions for specifics associated with the use of XRF equipment and data collection/evaluation).

Please complete a separate data validation report for each sample batch as determined by the laboratory (Note: large data collection events may result in multiple batches). A brief summary of this validation report and the acceptability and usability of the data should be included in the text of the project report with the validation report included as an appendix. The data validation should include an assessment of data using the precision, accuracy, representativeness, comparability, and completeness (PARCC) parameters:

Precision: The degree of mutual agreement between individual measurements of the same property under similar conditions.

Combined field and laboratory precision is evaluated by collecting and analyzing field duplicates and then calculating the variance between the samples, typically as a relative percent difference (RPD). Laboratory analytical precision is evaluated by analyzing matrix spike/matrix spike duplicate (MS/MSD) samples and using the results to calculate an RPD.

Accuracy: The degree of agreement between an analytical measurement and a reference accepted as a true value.

The accuracy of a measurement system can be affected by errors introduced by field contamination, sample preservation, sample handling, sample preparation, and analytical techniques. Analysis of matrix spike/matrix spike duplicate (MS/MSD) samples, laboratory control spikes (LCS) or blank spikes, surrogate standards, and method blanks are typically used to calculate the percent recovery (%R) for evaluating accuracy.

Please note that some methods, such as EPH and VPH, require calibration data. For such methods, please provide and verify

the calibration data.

Representativeness: The degree to which sample data accurately and precisely represent the characteristics of a population, variations in a parameter at a sampling point, or an environmental condition that they are intended to represent.

Typically, representative data will be obtained through careful selection of sampling locations and analytical parameters; proper collection and handling of samples; and through use and consistent application of established field and laboratory procedures. Evaluation of field and laboratory blank samples for presence of contaminants can be useful in evaluating representativeness of sample results.

Completeness: A measure of the percentage of project-specific data that is valid.

Valid data are obtained when samples are collected and analyzed in accordance with quality control (QC) procedures outlined in the sampling and analysis plan (SAP), and when none of the QC criteria that affect data usability are exceeded. Once data validation is complete, the number of usable sample results is divided by the total number of sample results planned for the investigation to determine the percent completeness. A completeness goal should be developed for each project (i.e., 100% completeness for residential samples to ensure that all properties requiring sampling are sampled). A discussion of completeness must also examine the number of samples called for in the SAP compared to the number of samples actually collected. Variance between the planned and collected sample numbers should be explained.

Comparability: Expression of the confidence with which one data set can be compared with another.

Comparability of data is achieved by consistently following standard field and laboratory procedures and by using standard measurement units in reporting analytical data.

For complete information regarding data validation, please see the EPA National Functional Guidelines at http://www2.epa.gov/clp/contract-laboratory-program-national-functional-guidelines-data-review

Determination of Data Usability Qualifiers

Step 1: Review QC Parameter and Document Finding	Step 2: Determine Which Samples to Qualify	Step 3: Determine Which Results to Qualify	Step 4: Apply Qualifier and Bias Code
Lab Receipt of Samples			
Preservative (including sample temperature) outside of specifications.	Affected samples and professional judgment	Detected Results Non-detected Results	J- UJ or R
Samples not accounted for on Chain-of-Custody	Affected samples	All samples	R
Samples analyzed outside of method specified or technical holding time.	Affected samples	Detected Results Non-detected Results	J- R (UJ for SVOC, pesticides, aroclors)
Samples analyzed grossly outside of method specified or technical holding time.	Affected samples	Detected Results Non-detected Results	J- R
Lab Quality Control			
Calibration verification results outside of acceptable limits.	Samples associated with initial and/or continuing calibration verification	Detected Results Non-detected Results	J UJ

Step 1: Review QC Parameter and Document Finding	Step 2: Determine Which Samples to Qualify	Step 3: Determine Which Results to Qualify	Step 4: Apply Qualifier and Bias Code
Analyte detected in Method Blank (MB) at concentration less than Contract Required Quantitation Limit (CRQL)[1] (i.e. , J-flag)	Samples in preparation batch	Detected Results <=CRQL Detected Results >CRQL	U J (use professional judgment)
Analyte detected in Method Blank (MB) at concentration greater than or equal to CRQL	Samples in preparation batch	Detected Results < Blank Concentration Detected Results >= Blank Concentration	U Use professional judgment
Matrix Spike:			
%Recovery above specifications	Sample and professional judgment for samples in preparation batch from same matrix.	Detected Results Non-detected Results	J+ No qualifier
%Recovery below specifications and greater than 20% (30% for inorganics)	Sample and professional judgment for samples in preparation batch from same matrix.	Detected Results Non-detected Results	J- UJ
%Recovery below 20% (30% for inorganics)	Sample and professional judgment for samples in preparation batch from same matrix.	Detected Results Non-detected Results	J- R
Note: If the spiking amount is less than four times the result in the unspiked parent sample, the MS/MSD data may not represent the matrix effect. Professional judgment should be use in evaluating and qualifying the data.			
Laboratory Control Sample:			
%Recovery above specifications	Samples in preparation batch.	Detected Results Non-detected Results	J+ No qualifier
%Recovery below specifications and greater than 20% (40% for inorganics; see NFG for pesticides and Aroclors; 10% for dioxins)	Samples in preparation batch.	Detected Results Non-detected Results	J- UJ
%Recovery below 20% (40% for inorganics; see NFG for pesticides and Aroclors; 10% for dioxins)	Samples in preparation batch.	Detected Results Non-detected Results	J- R
Laboratory Duplicate Samples (including LCSD and MSD):			
Relative Percent Difference outside specifications	Samples in preparation batch.	Detected Results	J
Surrogate Recoveries:			
Surrogate Recovery greater than Upper Acceptance Limit	Target analytes in sample	Detected Results Non-detected Results	J+ No qualification (UJ for dioxins)
Surrogate Recovery less than Lower Acceptance Limit and greater than 10%	Target analytes in sample	Detected Results Non-detected Results	J- UJ
Surrogate Recovery less than 10%	Target analytes in sample	Detected Results Non-detected Results	J- R (see NFG for dioxins)

Step 1: Review QC Parameter and Document Finding	Step 2: Determine Which Samples to Qualify	Step 3: Determine Which Results to Qualify	Step 4: Apply Qualifier and Bias Code
Field QC Samples			
Blanks			
Analyte detected in Field Blank, Equipment Blank, and/or Trip Blank at concentration less than Contract Required Quantitation Limit (CRQL)1 (i.e. , J-flag)	Associated samples	Detected Results <CRQL Detected Results >=CRQL	U Use professional judgment
Analyte detected in Field Blank, Equipment Blank, and/or Trip Blank at concentration greater than or equal to CRQL	Associated samples	Detected Results < Blank Concentration Detected Results >= Blank Concentration	U Use professional judgment
Duplicates			
Field Duplicate Relative Percent Difference outside specifications and analyte concentration >=5x CRQL	Associated samples	Detected Results	J
Field Duplicate Relative Percent Difference outside specifications and analyte concentrations <5x CRQL with absolute difference between sample and duplicate > CRQL	Associated samples	Detected Results Non-detected Results	J UJ
Field Duplicate Relative Percent Difference outside specifications and analyte concentrations <5x CRQL with absolute difference between sample and duplicate <= CRQL	Associated samples	Detected Results Non-detected Results	No qualification No qualification
Consultant/Validator Questions			
Reported Units not appropriate for sample matrix	Affected samples	All results	Inquire, document, and use professional judgment
Analytical methods do not comply with project requirements. And/Or Detection Limits not appropriate for the project.	Affected samples	Detected Results Non-detected Results	Use professional judgment Use professional judgment, if Reporting Limits > Screening Levels; results may not be usable
QC Sample Frequency			
Method Blanks analyzed less than 5% of total samples	Use professional judgment	Use professional judgment	Inquire, document, and use professional judgment
Matrix Spike samples analyzed less than 5% of total samples	Use professional judgment	Use professional judgment	Inquire, document, and use professional judgment
Laboratory Control Samples analyzed less than 5% of total samples	Use professional judgment	Use professional judgment	Inquire, document, and use professional judgment
Field, equipment, or trip blanks analyzed less than required	Use professional judgment	Use professional judgment	Inquire, document, and use professional judgment

Step 1: Review QC Parameter and Document Finding	Step 2: Determine Which Samples to Qualify	Step 3: Determine Which Results to Qualify	Step 4: Apply Qualifier and Bias Code
Notes:			
1. See the National Functional Guidelines (NFG) for contract required quantitation limit (CRQL) or blank results of common laboratory contaminants, including: methylene chloride, acetone, and 2-butanone.			
2. Screening Levels (SLs) is a generic term which may include Risk Based Screening Levels, Regional Screening Levels, and/or site specific screening levels.			

ANALYTICAL SUMMARY REPORT

July 25, 2019

MT Dept of Transportation
PO Box 201001
Helena, MT 59620-1001

Work Order: H19070340 Quote ID: H1750

Project Name: MDT Plains

Energy Laboratories Inc Helena MT received the following 35 samples for MT Dept of Transportation on 7/16/2019 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H19070340-001	MDT-0715-101	07/15/19 8:00	07/16/19	Aqueous	Metals by ICP/ICPMS, Total Conductivity Anions by Ion Chromatography pH Metals Digestion by E200.2 Solids, Total Dissolved
H19070340-002	MDT-0715-102	07/15/19 8:20	07/16/19	Aqueous	Same As Above
H19070340-003	MDT-0715-103	07/15/19 9:00	07/16/19	Aqueous	Same As Above
H19070340-004	MDT-0715-104	07/15/19 9:30	07/16/19	Aqueous	Same As Above
H19070340-005	MDT-0715-105	07/15/19 9:50	07/16/19	Aqueous	Same As Above
H19070340-006	MDT-0715-106	07/15/19 10:15	07/16/19	Aqueous	Same As Above
H19070340-007	MDT-0715-107	07/15/19 10:35	07/16/19	Aqueous	Same As Above
H19070340-008	MDT-0715-108	07/15/19 10:50	07/16/19	Aqueous	Same As Above
H19070340-009	MDT-0715-109	07/15/19 11:25	07/16/19	Aqueous	Same As Above
H19070340-010	MDT-0715-110	07/15/19 11:45	07/16/19	Aqueous	Same As Above
H19070340-011	MDT-0715-111	07/15/19 12:10	07/16/19	Aqueous	Same As Above
H19070340-012	MDT-0715-112	07/15/19 12:35	07/16/19	Aqueous	Same As Above
H19070340-013	MDT-0715-113	07/15/19 12:55	07/16/19	Aqueous	Same As Above
H19070340-014	MDT-0715-114	07/15/19 13:15	07/16/19	Aqueous	Same As Above
H19070340-015	MDT-0715-115	07/15/19 13:35	07/16/19	Aqueous	Same As Above
H19070340-016	MDT-0715-116	07/15/19 14:30	07/16/19	Aqueous	Metals by ICP/ICPMS, Total Conductivity Metals Digestion by E200.2 Solids, Total Dissolved
H19070340-017	MDT-0715-117	07/15/19 14:45	07/16/19	Aqueous	Metals by ICP/ICPMS, Total Conductivity Anions by Ion Chromatography pH Metals Digestion by E200.2 Solids, Total Dissolved
H19070340-018	MDT-0715-118	07/15/19 15:00	07/16/19	Aqueous	Metals by ICP/ICPMS, Total Conductivity Metals Digestion by E200.2 Solids, Total Dissolved
H19070340-019	MDT-0715-119	07/15/19 15:15	07/16/19	Aqueous	Same As Above

ANALYTICAL SUMMARY REPORT

H19070340-020	MDT-0715-120	07/15/19 15:45	07/16/19	Aqueous	Metals by ICP/ICPMS, Total Conductivity Anions by Ion Chromatography pH Metals Digestion by E200.2 Solids, Total Dissolved
H19070340-021	MDT-0715-121	07/15/19 16:20	07/16/19	Aqueous	Metals by ICP/ICPMS, Total Conductivity Metals Digestion by E200.2 Solids, Total Dissolved
H19070340-022	MDT-0715-122	07/15/19 16:45	07/16/19	Aqueous	Metals by ICP/ICPMS, Total Conductivity Anions by Ion Chromatography pH Metals Digestion by E200.2 Solids, Total Dissolved
H19070340-023	MDT-0715-123	07/15/19 17:30	07/16/19	Aqueous	Same As Above
H19070340-024	MDT-0715-124	07/15/19 18:00	07/16/19	Aqueous	Same As Above
H19070340-025	MDT-0715-125	07/15/19 18:30	07/16/19	Aqueous	Same As Above
H19070340-026	MDT-0715-126	07/15/19 19:00	07/16/19	Aqueous	Same As Above
H19070340-027	MDT-0715-127	07/15/19 19:30	07/16/19	Aqueous	Same As Above
H19070340-028	MDT-0716-128	07/16/19 8:00	07/16/19	Aqueous	Metals by ICP/ICPMS, Total Conductivity Metals Digestion by E200.2 Solids, Total Dissolved
H19070340-029	MDT-0716-129	07/16/19 8:30	07/16/19	Aqueous	Metals by ICP/ICPMS, Total Conductivity Anions by Ion Chromatography pH Metals Digestion by E200.2 Solids, Total Dissolved
H19070340-030	MDT-0716-130	07/16/19 9:00	07/16/19	Aqueous	Same As Above
H19070340-031	MDT-0716-131	07/16/19 9:30	07/16/19	Aqueous	Same As Above
H19070340-032	MDT-0716-132	07/16/19 10:00	07/16/19	Aqueous	Same As Above
H19070340-033	MDT-0716-133	07/16/19 10:30	07/16/19	Aqueous	Metals by ICP/ICPMS, Total Conductivity Metals Digestion by E200.2 Solids, Total Dissolved
H19070340-034	MDT-0716-134	07/16/19 11:00	07/16/19	Aqueous	Metals by ICP/ICPMS, Total Conductivity Anions by Ion Chromatography pH Metals Digestion by E200.2 Solids, Total Dissolved
H19070340-035	MDT-0716-135	07/16/19 12:00	07/16/19	Aqueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

ANALYTICAL SUMMARY REPORT

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-001
Client Sample ID: MDT-0715-101

Report Date: 07/25/19
Collection Date: 07/15/19 08:00
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	07/17/19 09:26 / SRW
pH Measurement Temp	13.7	°C				A4500-H B	07/17/19 09:26 / SRW
Conductivity @ 25 C	712	umhos/cm		1		A2510 B	07/17/19 09:26 / SRW
Solids, Total Dissolved TDS @ 180 C	417	mg/L		10		A2540 C	07/17/19 13:23 / RAT
INORGANICS							
Chloride	78	mg/L		1		E300.0	07/17/19 22:40 / SRW
METALS, TOTAL							
Calcium	84	mg/L		1		E200.7	07/22/19 14:08 / sld
Magnesium	21	mg/L		1		E200.7	07/22/19 14:08 / sld
Sodium	32	mg/L		1		E200.7	07/22/19 14:08 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-002
Client Sample ID: MDT-0715-102

Report Date: 07/25/19
Collection Date: 07/15/19 08:20
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	07/17/19 09:28 / SRW
pH Measurement Temp	13.7	°C				A4500-H B	07/17/19 09:28 / SRW
Conductivity @ 25 C	707	umhos/cm		1		A2510 B	07/17/19 09:28 / SRW
Solids, Total Dissolved TDS @ 180 C	430	mg/L		10		A2540 C	07/17/19 13:23 / RAT
INORGANICS							
Chloride	79	mg/L		1		E300.0	07/17/19 22:55 / SRW
METALS, TOTAL							
Calcium	80	mg/L		1		E200.7	07/22/19 14:27 / sld
Magnesium	20	mg/L		1		E200.7	07/22/19 14:27 / sld
Sodium	33	mg/L		1		E200.7	07/22/19 14:27 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-003
Client Sample ID: MDT-0715-103

Report Date: 07/25/19
Collection Date: 07/15/19 09:00
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	07/17/19 09:30 / SRW
pH Measurement Temp	13.9	°C				A4500-H B	07/17/19 09:30 / SRW
Conductivity @ 25 C	715	umhos/cm		1		A2510 B	07/17/19 09:30 / SRW
Solids, Total Dissolved TDS @ 180 C	466	mg/L		10		A2540 C	07/17/19 13:23 / RAT
INORGANICS							
Chloride	85	mg/L		1		E300.0	07/17/19 23:09 / SRW
METALS, TOTAL							
Calcium	78	mg/L		1		E200.7	07/22/19 14:31 / sld
Magnesium	21	mg/L		1		E200.7	07/22/19 14:31 / sld
Sodium	31	mg/L		1		E200.7	07/22/19 14:31 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-004
Client Sample ID: MDT-0715-104

Report Date: 07/25/19
Collection Date: 07/15/19 09:30
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	07/17/19 09:33 / SRW
pH Measurement Temp	14.0	°C				A4500-H B	07/17/19 09:33 / SRW
Conductivity @ 25 C	702	umhos/cm		1		A2510 B	07/17/19 09:33 / SRW
Solids, Total Dissolved TDS @ 180 C	408	mg/L		10		A2540 C	07/17/19 13:23 / RAT
INORGANICS							
Chloride	74	mg/L		1		E300.0	07/17/19 23:24 / SRW
METALS, TOTAL							
Calcium	69	mg/L		1		E200.7	07/22/19 14:35 / sld
Magnesium	19	mg/L		1		E200.7	07/22/19 14:35 / sld
Sodium	40	mg/L		1		E200.7	07/22/19 14:35 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-005
Client Sample ID: MDT-0715-105

Report Date: 07/25/19
Collection Date: 07/15/19 09:50
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	07/17/19 09:35 / SRW
pH Measurement Temp	14.0	°C				A4500-H B	07/17/19 09:35 / SRW
Conductivity @ 25 C	688	umhos/cm		1		A2510 B	07/17/19 09:35 / SRW
Solids, Total Dissolved TDS @ 180 C	392	mg/L		10		A2540 C	07/17/19 13:24 / RAT
INORGANICS							
Chloride	58	mg/L		1		E300.0	07/17/19 23:38 / SRW
METALS, TOTAL							
Calcium	74	mg/L		1		E200.7	07/22/19 14:46 / sld
Magnesium	21	mg/L		1		E200.7	07/22/19 14:46 / sld
Sodium	36	mg/L		1		E200.7	07/22/19 14:46 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-006
Client Sample ID: MDT-0715-106

Report Date: 07/25/19
Collection Date: 07/15/19 10:15
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	07/17/19 09:37 / SRW
pH Measurement Temp	14.2	°C				A4500-H B	07/17/19 09:37 / SRW
Conductivity @ 25 C	489	umhos/cm		1		A2510 B	07/17/19 09:37 / SRW
Solids, Total Dissolved TDS @ 180 C	286	mg/L		10		A2540 C	07/17/19 13:24 / RAT
INORGANICS							
Chloride	19	mg/L		1		E300.0	07/18/19 01:05 / SRW
METALS, TOTAL							
Calcium	58	mg/L		1		E200.7	07/22/19 14:50 / sld
Magnesium	15	mg/L		1		E200.7	07/22/19 14:50 / sld
Sodium	21	mg/L		1		E200.7	07/22/19 14:50 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-007
Client Sample ID: MDT-0715-107

Report Date: 07/25/19
Collection Date: 07/15/19 10:35
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	07/17/19 09:39 / SRW
pH Measurement Temp	14.1	°C				A4500-H B	07/17/19 09:39 / SRW
Conductivity @ 25 C	549	umhos/cm		1		A2510 B	07/17/19 09:39 / SRW
Solids, Total Dissolved TDS @ 180 C	311	mg/L		10		A2540 C	07/17/19 13:24 / RAT
INORGANICS							
Chloride	35	mg/L		1		E300.0	07/18/19 01:20 / SRW
METALS, TOTAL							
Calcium	62	mg/L		1		E200.7	07/22/19 14:54 / sld
Magnesium	16	mg/L		1		E200.7	07/22/19 14:54 / sld
Sodium	28	mg/L		1		E200.7	07/22/19 14:54 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-008
Client Sample ID: MDT-0715-108

Report Date: 07/25/19
Collection Date: 07/15/19 10:50
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	07/17/19 09:42 / SRW
pH Measurement Temp	14.3	°C				A4500-H B	07/17/19 09:42 / SRW
Conductivity @ 25 C	518	umhos/cm		1		A2510 B	07/17/19 09:42 / SRW
Solids, Total Dissolved TDS @ 180 C	295	mg/L		10		A2540 C	07/17/19 13:24 / RAT
INORGANICS							
Chloride	26	mg/L		1		E300.0	07/18/19 01:35 / SRW
METALS, TOTAL							
Calcium	60	mg/L		1		E200.7	07/22/19 14:57 / sld
Magnesium	15	mg/L		1		E200.7	07/22/19 14:57 / sld
Sodium	28	mg/L		1		E200.7	07/22/19 14:57 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-009
Client Sample ID: MDT-0715-109

Report Date: 07/25/19
Collection Date: 07/15/19 11:25
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	07/17/19 09:44 / SRW
pH Measurement Temp	14.7	°C				A4500-H B	07/17/19 09:44 / SRW
Conductivity @ 25 C	415	umhos/cm		1		A2510 B	07/17/19 09:44 / SRW
Solids, Total Dissolved TDS @ 180 C	252	mg/L		10		A2540 C	07/17/19 13:24 / RAT
INORGANICS							
Chloride	12	mg/L		1		E300.0	07/18/19 01:49 / SRW
METALS, TOTAL							
Calcium	49	mg/L		1		E200.7	07/22/19 15:01 / sld
Magnesium	14	mg/L		1		E200.7	07/22/19 15:01 / sld
Sodium	17	mg/L		1		E200.7	07/22/19 15:01 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-010
Client Sample ID: MDT-0715-110

Report Date: 07/25/19
Collection Date: 07/15/19 11:45
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	07/17/19 09:46 / SRW
pH Measurement Temp	14.0	°C				A4500-H B	07/17/19 09:46 / SRW
Conductivity @ 25 C	412	umhos/cm		1		A2510 B	07/17/19 09:46 / SRW
Solids, Total Dissolved TDS @ 180 C	250	mg/L		10		A2540 C	07/17/19 13:25 / RAT
INORGANICS							
Chloride	11	mg/L		1		E300.0	07/18/19 02:04 / SRW
METALS, TOTAL							
Calcium	50	mg/L		1		E200.7	07/22/19 15:05 / sld
Magnesium	13	mg/L		1		E200.7	07/22/19 15:05 / sld
Sodium	17	mg/L		1		E200.7	07/22/19 15:05 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-011
Client Sample ID: MDT-0715-111

Report Date: 07/25/19
Collection Date: 07/15/19 12:10
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	07/17/19 09:49 / SRW
pH Measurement Temp	14.1	°C				A4500-H B	07/17/19 09:49 / SRW
Conductivity @ 25 C	577	umhos/cm		1		A2510 B	07/17/19 09:49 / SRW
Solids, Total Dissolved TDS @ 180 C	337	mg/L		10		A2540 C	07/17/19 13:25 / RAT
INORGANICS							
Chloride	25	mg/L		1		E300.0	07/18/19 02:18 / SRW
METALS, TOTAL							
Calcium	68	mg/L		1		E200.7	07/22/19 15:09 / sld
Magnesium	18	mg/L		1		E200.7	07/22/19 15:09 / sld
Sodium	28	mg/L		1		E200.7	07/22/19 15:09 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-012
Client Sample ID: MDT-0715-112

Report Date: 07/25/19
Collection Date: 07/15/19 12:35
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	8.0	s.u.	H	0.1		A4500-H B	07/17/19 09:51 / SRW
pH Measurement Temp	14.4	°C				A4500-H B	07/17/19 09:51 / SRW
Conductivity @ 25 C	663	umhos/cm		1		A2510 B	07/17/19 09:51 / SRW
Solids, Total Dissolved TDS @ 180 C	381	mg/L		10		A2540 C	07/17/19 13:25 / RAT
INORGANICS							
Chloride	50	mg/L		1		E300.0	07/18/19 02:33 / SRW
METALS, TOTAL							
Calcium	76	mg/L		1		E200.7	07/22/19 15:35 / sld
Magnesium	18	mg/L		1		E200.7	07/22/19 15:35 / sld
Sodium	39	mg/L		1		E200.7	07/22/19 15:35 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-013
Client Sample ID: MDT-0715-113

Report Date: 07/25/19
Collection Date: 07/15/19 12:55
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	07/17/19 09:53 / SRW
pH Measurement Temp	14.4	°C				A4500-H B	07/17/19 09:53 / SRW
Conductivity @ 25 C	742	umhos/cm		1		A2510 B	07/17/19 09:53 / SRW
Solids, Total Dissolved TDS @ 180 C	423	mg/L		10		A2540 C	07/17/19 13:26 / RAT
INORGANICS							
Chloride	64	mg/L		1		E300.0	07/18/19 02:47 / SRW
METALS, TOTAL							
Calcium	84	mg/L		1		E200.7	07/22/19 15:39 / sld
Magnesium	20	mg/L		1		E200.7	07/22/19 15:39 / sld
Sodium	37	mg/L		1		E200.7	07/22/19 15:39 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-014
Client Sample ID: MDT-0715-114

Report Date: 07/25/19
Collection Date: 07/15/19 13:15
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	07/17/19 09:55 / SRW
pH Measurement Temp	14.7	°C				A4500-H B	07/17/19 09:55 / SRW
Conductivity @ 25 C	704	umhos/cm		1		A2510 B	07/17/19 09:55 / SRW
Solids, Total Dissolved TDS @ 180 C	410	mg/L		10		A2540 C	07/17/19 13:26 / RAT
INORGANICS							
Chloride	55	mg/L		1		E300.0	07/18/19 03:02 / SRW
METALS, TOTAL							
Calcium	79	mg/L		1		E200.7	07/22/19 15:43 / sld
Magnesium	20	mg/L		1		E200.7	07/22/19 15:43 / sld
Sodium	38	mg/L		1		E200.7	07/22/19 15:43 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-015
Client Sample ID: MDT-0715-115

Report Date: 07/25/19
Collection Date: 07/15/19 13:35
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	07/17/19 09:58 / SRW
pH Measurement Temp	14.8	°C				A4500-H B	07/17/19 09:58 / SRW
Conductivity @ 25 C	886	umhos/cm		1		A2510 B	07/17/19 09:58 / SRW
Solids, Total Dissolved TDS @ 180 C	524	mg/L		10		A2540 C	07/17/19 13:26 / RAT
INORGANICS							
Chloride	99	mg/L		1		E300.0	07/18/19 03:16 / SRW
METALS, TOTAL							
Calcium	98	mg/L		1		E200.7	07/22/19 15:46 / sld
Magnesium	25	mg/L		1		E200.7	07/22/19 15:46 / sld
Sodium	48	mg/L		1		E200.7	07/22/19 15:46 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-016
Client Sample ID: MDT-0715-116

Report Date: 07/25/19
Collection Date: 07/15/19 14:30
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Conductivity @ 25 C	310	umhos/cm		1		A2510 B	07/17/19 10:00 / SRW
Solids, Total Dissolved TDS @ 180 C	211	mg/L		10		A2540 C	07/17/19 13:26 / RAT
METALS, TOTAL							
Arsenic	0.025	mg/L		0.001		E200.8	07/23/19 16:31 / dck
Iron	0.05	mg/L		0.02		E200.8	07/23/19 16:31 / dck
Manganese	0.015	mg/L		0.001		E200.8	07/23/19 16:31 / dck

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-017
Client Sample ID: MDT-0715-117

Report Date: 07/25/19
Collection Date: 07/15/19 14:45
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	07/17/19 10:02 / SRW
pH Measurement Temp	15.9	°C				A4500-H B	07/17/19 10:02 / SRW
Conductivity @ 25 C	996	umhos/cm		1		A2510 B	07/17/19 10:02 / SRW
Solids, Total Dissolved TDS @ 180 C	547	mg/L		10		A2540 C	07/17/19 13:27 / RAT
INORGANICS							
Chloride	147	mg/L		1		E300.0	07/18/19 04:43 / SRW
METALS, TOTAL							
Calcium	73	mg/L		1		E200.7	07/22/19 15:50 / sld
Magnesium	22	mg/L		1		E200.7	07/22/19 15:50 / sld
Sodium	100	mg/L		1		E200.7	07/22/19 15:50 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-018
Client Sample ID: MDT-0715-118

Report Date: 07/25/19
Collection Date: 07/15/19 15:00
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Conductivity @ 25 C	334	umhos/cm		1		A2510 B	07/17/19 10:07 / SRW
Solids, Total Dissolved TDS @ 180 C	217	mg/L		10		A2540 C	07/17/19 13:27 / RAT
METALS, TOTAL							
Arsenic	0.027	mg/L		0.001		E200.8	07/23/19 16:34 / dck
Iron	ND	mg/L		0.02		E200.8	07/23/19 16:34 / dck
Manganese	0.017	mg/L		0.001		E200.8	07/23/19 16:34 / dck

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-019
Client Sample ID: MDT-0715-119

Report Date: 07/25/19
Collection Date: 07/15/19 15:15
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Conductivity @ 25 C	334	umhos/cm		1		A2510 B	07/17/19 10:17 / SRW
Solids, Total Dissolved TDS @ 180 C	219	mg/L		10		A2540 C	07/17/19 13:27 / RAT
METALS, TOTAL							
Arsenic	0.023	mg/L		0.001		E200.8	07/23/19 16:37 / dck
Iron	ND	mg/L		0.02		E200.8	07/23/19 16:37 / dck
Manganese	0.031	mg/L		0.001		E200.8	07/23/19 16:37 / dck

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-020
Client Sample ID: MDT-0715-120

Report Date: 07/25/19
Collection Date: 07/15/19 15:45
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	07/17/19 10:19 / SRW
pH Measurement Temp	16.6	°C				A4500-H B	07/17/19 10:19 / SRW
Conductivity @ 25 C	892	umhos/cm		1		A2510 B	07/17/19 10:19 / SRW
Solids, Total Dissolved TDS @ 180 C	499	mg/L		10		A2540 C	07/17/19 13:28 / RAT
INORGANICS							
Chloride	118	mg/L		1		E300.0	07/18/19 04:58 / SRW
METALS, TOTAL							
Calcium	68	mg/L		1		E200.7	07/22/19 16:02 / sld
Magnesium	21	mg/L		1		E200.7	07/22/19 16:02 / sld
Sodium	93	mg/L		1		E200.7	07/22/19 16:02 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-021
Client Sample ID: MDT-0715-121

Report Date: 07/25/19
Collection Date: 07/15/19 16:20
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Conductivity @ 25 C	1180	umhos/cm		1		A2510 B	07/17/19 10:24 / SRW
Solids, Total Dissolved TDS @ 180 C	747	mg/L		10		A2540 C	07/17/19 13:28 / RAT
METALS, TOTAL							
Arsenic	0.003	mg/L		0.001		E200.8	07/18/19 19:05 / sld
Iron	2.15	mg/L		0.02		E200.8	07/18/19 19:05 / sld
Manganese	0.072	mg/L		0.001		E200.8	07/18/19 19:05 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-022
Client Sample ID: MDT-0715-122

Report Date: 07/25/19
Collection Date: 07/15/19 16:45
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	07/17/19 10:26 / SRW
pH Measurement Temp	15.7	°C				A4500-H B	07/17/19 10:26 / SRW
Conductivity @ 25 C	1040	umhos/cm		1		A2510 B	07/17/19 10:26 / SRW
Solids, Total Dissolved TDS @ 180 C	569	mg/L		10		A2540 C	07/17/19 13:28 / RAT
INORGANICS							
Chloride	169	mg/L		1		E300.0	07/18/19 05:13 / SRW
METALS, TOTAL							
Calcium	84	mg/L		1		E200.7	07/22/19 16:05 / sld
Magnesium	26	mg/L		1		E200.7	07/22/19 16:05 / sld
Sodium	97	mg/L		1		E200.7	07/22/19 16:05 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-023
Client Sample ID: MDT-0715-123

Report Date: 07/25/19
Collection Date: 07/15/19 17:30
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	07/17/19 10:29 / SRW
pH Measurement Temp	15.8	°C				A4500-H B	07/17/19 10:29 / SRW
Conductivity @ 25 C	1150	umhos/cm		1		A2510 B	07/17/19 10:29 / SRW
Solids, Total Dissolved TDS @ 180 C	684	mg/L		10		A2540 C	07/17/19 13:28 / RAT
INORGANICS							
Chloride	195	mg/L		1		E300.0	07/18/19 05:27 / SRW
METALS, TOTAL							
Calcium	106	mg/L		1		E200.7	07/22/19 16:32 / sld
Magnesium	28	mg/L		1		E200.7	07/22/19 16:32 / sld
Sodium	84	mg/L		1		E200.7	07/22/19 16:32 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-024
Client Sample ID: MDT-0715-124

Report Date: 07/25/19
Collection Date: 07/15/19 18:00
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	07/17/19 10:31 / SRW
pH Measurement Temp	16.1	°C				A4500-H B	07/17/19 10:31 / SRW
Conductivity @ 25 C	671	umhos/cm		1		A2510 B	07/17/19 10:31 / SRW
Solids, Total Dissolved TDS @ 180 C	380	mg/L		10		A2540 C	07/17/19 13:29 / RAT
INORGANICS							
Chloride	57	mg/L		1		E300.0	07/18/19 05:42 / SRW
METALS, TOTAL							
Calcium	60	mg/L		1		E200.7	07/22/19 16:36 / sld
Magnesium	26	mg/L		1		E200.7	07/22/19 16:36 / sld
Sodium	45	mg/L		1		E200.7	07/22/19 16:36 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-025
Client Sample ID: MDT-0715-125

Report Date: 07/25/19
Collection Date: 07/15/19 18:30
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	07/17/19 10:33 / SRW
pH Measurement Temp	16.3	°C				A4500-H B	07/17/19 10:33 / SRW
Conductivity @ 25 C	946	umhos/cm		1		A2510 B	07/17/19 10:33 / SRW
Solids, Total Dissolved TDS @ 180 C	530	mg/L		10		A2540 C	07/17/19 13:29 / RAT
INORGANICS							
Chloride	128	mg/L		1		E300.0	07/18/19 05:56 / SRW
METALS, TOTAL							
Calcium	80	mg/L		1		E200.7	07/22/19 16:39 / sld
Magnesium	23	mg/L		1		E200.7	07/22/19 16:39 / sld
Sodium	84	mg/L		1		E200.7	07/22/19 16:39 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-026
Client Sample ID: MDT-0715-126

Report Date: 07/25/19
Collection Date: 07/15/19 19:00
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	07/17/19 10:35 / SRW
pH Measurement Temp	16.4	°C				A4500-H B	07/17/19 10:35 / SRW
Conductivity @ 25 C	659	umhos/cm		1		A2510 B	07/17/19 10:35 / SRW
Solids, Total Dissolved TDS @ 180 C	373	mg/L		10		A2540 C	07/17/19 13:29 / RAT
INORGANICS							
Chloride	65	mg/L		1		E300.0	07/18/19 06:11 / SRW
METALS, TOTAL							
Calcium	75	mg/L		1		E200.7	07/22/19 16:43 / sld
Magnesium	20	mg/L		1		E200.7	07/22/19 16:43 / sld
Sodium	31	mg/L		1		E200.7	07/22/19 16:43 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-027
Client Sample ID: MDT-0715-127

Report Date: 07/25/19
Collection Date: 07/15/19 19:30
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	07/17/19 10:38 / SRW
pH Measurement Temp	16.4	°C				A4500-H B	07/17/19 10:38 / SRW
Conductivity @ 25 C	892	umhos/cm		1		A2510 B	07/17/19 10:38 / SRW
Solids, Total Dissolved TDS @ 180 C	492	mg/L		10		A2540 C	07/17/19 13:29 / RAT
INORGANICS							
Chloride	138	mg/L		1		E300.0	07/18/19 06:25 / SRW
METALS, TOTAL							
Calcium	75	mg/L		1		E200.7	07/22/19 16:47 / sld
Magnesium	20	mg/L		1		E200.7	07/22/19 16:47 / sld
Sodium	77	mg/L		1		E200.7	07/22/19 16:47 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-028
Client Sample ID: MDT-0716-128

Report Date: 07/25/19
Collection Date: 07/16/19 08:00
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Conductivity @ 25 C	471	umhos/cm		1		A2510 B	07/17/19 10:40 / SRW
Solids, Total Dissolved TDS @ 180 C	305	mg/L		10		A2540 C	07/17/19 13:29 / RAT
METALS, TOTAL							
Arsenic	ND	mg/L		0.001		E200.8	07/18/19 19:09 / sld
Iron	0.22	mg/L		0.02		E200.8	07/18/19 19:09 / sld
Manganese	0.006	mg/L		0.001		E200.8	07/18/19 19:09 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-029
Client Sample ID: MDT-0716-129

Report Date: 07/25/19
Collection Date: 07/16/19 08:30
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.9	s.u.	H	0.1		A4500-H B	07/17/19 10:42 / SRW
pH Measurement Temp	17.6	°C				A4500-H B	07/17/19 10:42 / SRW
Conductivity @ 25 C	1470	umhos/cm		1		A2510 B	07/17/19 10:42 / SRW
Solids, Total Dissolved TDS @ 180 C	793	mg/L		10		A2540 C	07/17/19 13:30 / RAT
INORGANICS							
Chloride	316	mg/L		1		E300.0	07/18/19 06:40 / SRW
METALS, TOTAL							
Calcium	67	mg/L		1		E200.7	07/22/19 16:51 / sld
Magnesium	18	mg/L		1		E200.7	07/22/19 16:51 / sld
Sodium	215	mg/L		1		E200.7	07/22/19 16:51 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-030
Client Sample ID: MDT-0716-130

Report Date: 07/25/19
Collection Date: 07/16/19 09:00
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	07/17/19 10:45 / SRW
pH Measurement Temp	17.7	°C				A4500-H B	07/17/19 10:45 / SRW
Conductivity @ 25 C	936	umhos/cm		1		A2510 B	07/17/19 10:45 / SRW
Solids, Total Dissolved TDS @ 180 C	515	mg/L		10		A2540 C	07/17/19 13:30 / RAT
INORGANICS							
Chloride	151	mg/L		1		E300.0	07/18/19 06:54 / SRW
METALS, TOTAL							
Calcium	60	mg/L		1		E200.7	07/22/19 17:33 / sld
Magnesium	21	mg/L		1		E200.7	07/22/19 17:33 / sld
Sodium	96	mg/L		1		E200.7	07/22/19 17:33 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-031
Client Sample ID: MDT-0716-131

Report Date: 07/25/19
Collection Date: 07/16/19 09:30
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.4	s.u.	H	0.1		A4500-H B	07/17/19 10:47 / SRW
pH Measurement Temp	17.9	°C				A4500-H B	07/17/19 10:47 / SRW
Conductivity @ 25 C	935	umhos/cm		1		A2510 B	07/17/19 10:47 / SRW
Solids, Total Dissolved TDS @ 180 C	510	mg/L		10		A2540 C	07/17/19 13:30 / RAT
INORGANICS							
Chloride	152	mg/L		1		E300.0	07/18/19 08:21 / SRW
METALS, TOTAL							
Calcium	61	mg/L		1		E200.7	07/22/19 17:52 / sld
Magnesium	21	mg/L		1		E200.7	07/22/19 17:52 / sld
Sodium	97	mg/L		1		E200.7	07/22/19 17:52 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-032
Client Sample ID: MDT-0716-132

Report Date: 07/25/19
Collection Date: 07/16/19 10:00
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	07/17/19 10:49 / SRW
pH Measurement Temp	17.9	°C				A4500-H B	07/17/19 10:49 / SRW
Conductivity @ 25 C	992	umhos/cm		1		A2510 B	07/17/19 10:49 / SRW
Solids, Total Dissolved TDS @ 180 C	549	mg/L		10		A2540 C	07/17/19 13:31 / RAT
INORGANICS							
Chloride	157	mg/L		1		E300.0	07/18/19 08:36 / SRW
METALS, TOTAL							
Calcium	74	mg/L		1		E200.7	07/22/19 17:55 / sld
Magnesium	23	mg/L		1		E200.7	07/22/19 17:55 / sld
Sodium	91	mg/L		1		E200.7	07/22/19 17:55 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-033
Client Sample ID: MDT-0716-133

Report Date: 07/25/19
Collection Date: 07/16/19 10:30
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Conductivity @ 25 C	353	umhos/cm		1		A2510 B	07/17/19 10:51 / SRW
Solids, Total Dissolved TDS @ 180 C	232	mg/L		10		A2540 C	07/17/19 13:31 / RAT
METALS, TOTAL							
Arsenic	0.003	mg/L		0.001		E200.8	07/18/19 19:11 / sld
Iron	ND	mg/L		0.02		E200.8	07/18/19 19:11 / sld
Manganese	0.004	mg/L		0.001		E200.8	07/18/19 19:11 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-034
Client Sample ID: MDT-0716-134

Report Date: 07/25/19
Collection Date: 07/16/19 11:00
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	07/17/19 10:54 / SRW
pH Measurement Temp	18.2	°C				A4500-H B	07/17/19 10:54 / SRW
Conductivity @ 25 C	1010	umhos/cm		1		A2510 B	07/17/19 10:54 / SRW
Solids, Total Dissolved TDS @ 180 C	594	mg/L		10		A2540 C	07/17/19 13:31 / RAT
INORGANICS							
Chloride	170	mg/L		1		E300.0	07/18/19 08:50 / SRW
METALS, TOTAL							
Calcium	84	mg/L		1		E200.7	07/22/19 17:59 / sld
Magnesium	30	mg/L		1		E200.7	07/22/19 17:59 / sld
Sodium	66	mg/L		1		E200.7	07/22/19 17:59 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19070340-035
Client Sample ID: MDT-0716-135

Report Date: 07/25/19
Collection Date: 07/16/19 12:00
DateReceived: 07/16/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	07/17/19 10:56 / SRW
pH Measurement Temp	18.0	°C				A4500-H B	07/17/19 10:56 / SRW
Conductivity @ 25 C	949	umhos/cm		1		A2510 B	07/17/19 10:56 / SRW
Solids, Total Dissolved TDS @ 180 C	498	mg/L		10		A2540 C	07/17/19 13:31 / RAT
INORGANICS							
Chloride	155	mg/L		1		E300.0	07/18/19 09:05 / SRW
METALS, TOTAL							
Calcium	61	mg/L		1		E200.7	07/22/19 18:03 / sld
Magnesium	19	mg/L		1		E200.7	07/22/19 18:03 / sld
Sodium	102	mg/L		1		E200.7	07/22/19 18:03 / sld

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

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19070340 **Report Date:** 07/25/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2510 B								Analytical Run: PHSC_101-H_190717A		
Lab ID: SC 150		Initial Calibration Verification Standard							07/17/19 09:05	
Conductivity @ 25 C		155	umhos/cm	1.0	103	90	110			
Lab ID: SC 20000		Initial Calibration Verification Standard							07/17/19 09:07	
Conductivity @ 25 C		19200	umhos/cm	1.0	96	90	110			
Lab ID: SC 5000		Initial Calibration Verification Standard							07/17/19 09:09	
Conductivity @ 25 C		4910	umhos/cm	1.0	98	90	110			
Lab ID: CCV - SC 1413		Continuing Calibration Verification Standard							07/17/19 10:12	
Conductivity @ 25 C		1420	umhos/cm	1.0	101	90	110			
Method: A2510 B										Batch: R145932
Lab ID: SC 1000		Laboratory Control Sample				Run: PHSC_101-H_190717A			07/17/19 09:12	
Conductivity @ 25 C		991	umhos/cm	1.0	99	90	110			
Lab ID: H19070340-017BDUP		Sample Duplicate				Run: PHSC_101-H_190717A			07/17/19 10:04	
Conductivity @ 25 C		993	umhos/cm	1.0				0.3	10	
Lab ID: H19070340-020BDUP		Sample Duplicate				Run: PHSC_101-H_190717A			07/17/19 10:22	
Conductivity @ 25 C		879	umhos/cm	1.0				1.4	10	
Lab ID: H19070340-035BDUP		Sample Duplicate				Run: PHSC_101-H_190717A			07/17/19 10:58	
Conductivity @ 25 C		950	umhos/cm	1.0				0.1	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19070340 **Report Date:** 07/25/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C									Batch: TDS190717A	
Lab ID: MB-1_190717A		Method Blank				Run: ACCU-124 (14410200)_19071			07/17/19 13:22	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-2_190717A		Laboratory Control Sample				Run: ACCU-124 (14410200)_19071			07/17/19 13:22	
Solids, Total Dissolved TDS @ 180 C		1910	mg/L	20	96	90	110			
Lab ID: H19070339-001A DUP		Sample Duplicate				Run: ACCU-124 (14410200)_19071			07/17/19 13:22	
Solids, Total Dissolved TDS @ 180 C		499	mg/L	10				0.2	5	
Lab ID: H19070340-010A DUP		Sample Duplicate				Run: ACCU-124 (14410200)_19071			07/17/19 13:25	
Solids, Total Dissolved TDS @ 180 C		249	mg/L	10				0.4	5	
Lab ID: MB-25_190717A		Method Blank				Run: ACCU-124 (14410200)_19071			07/17/19 13:27	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-26_190717A		Laboratory Control Sample				Run: ACCU-124 (14410200)_19071			07/17/19 13:27	
Solids, Total Dissolved TDS @ 180 C		1960	mg/L	20	98	90	110			
Lab ID: H19070340-020A DUP		Sample Duplicate				Run: ACCU-124 (14410200)_19071			07/17/19 13:28	
Solids, Total Dissolved TDS @ 180 C		493	mg/L	10				1.2	5	
Lab ID: H19070340-030A DUP		Sample Duplicate				Run: ACCU-124 (14410200)_19071			07/17/19 13:30	
Solids, Total Dissolved TDS @ 180 C		515	mg/L	10				0.0	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19070340 **Report Date:** 07/25/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B								Analytical Run: PHSC_101-H_190717A		
Lab ID: pH 7	2	Initial Calibration Verification Standard							07/17/19 08:38	
pH		7.0	s.u.	0.1	100	98	102			
pH Measurement Temp		20.5	°C			0	0			
Lab ID: CCV - pH 7	2	Continuing Calibration Verification Standard							07/17/19 10:09	
pH		7.0	s.u.	0.1	100	98	102			
pH Measurement Temp		18.9	°C			0	0			
Method: A4500-H B									Batch: R145932	
Lab ID: H19070340-017BDUP	2	Sample Duplicate				Run: PHSC_101-H_190717A			07/17/19 10:04	
pH		7.7	s.u.	0.1				0.0	3	
pH Measurement Temp		16.2	°C							
Lab ID: H19070340-020BDUP	2	Sample Duplicate				Run: PHSC_101-H_190717A			07/17/19 10:22	
pH		7.7	s.u.	0.1				0.0	3	
pH Measurement Temp		16.0	°C							
Lab ID: H19070340-035BDUP	2	Sample Duplicate				Run: PHSC_101-H_190717A			07/17/19 10:58	
pH		7.6	s.u.	0.1				0.0	3	
pH Measurement Temp		18.1	°C							

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19070340 **Report Date:** 07/25/19

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E200.7**									Analytical Run: ICP2-HE_190722A	
Lab ID:	**ICV**	3	Initial Calibration Verification Standard							07/22/19 13:03	
Calcium			40.8	mg/L	1.0	102	95	105			
Magnesium			40.1	mg/L	1.0	100	95	105			
Sodium			39.0	mg/L	1.0	98	95	105			
Lab ID:	**CCV-1**	3	Continuing Calibration Verification Standard							07/22/19 13:07	
Calcium			26.0	mg/L	1.0	104	95	105			
Magnesium			25.2	mg/L	1.0	101	95	105			
Sodium			24.9	mg/L	1.0	99	95	105			
Lab ID:	**ICSA**	3	Interference Check Sample A							07/22/19 13:19	
Calcium			470	mg/L	1.0	94	80	120			
Magnesium			522	mg/L	1.0	104	80	120			
Sodium			0.0350	mg/L	1.0		0	0			
Lab ID:	**ICSAB**	3	Interference Check Sample AB							07/22/19 13:22	
Calcium			470	mg/L	1.0	94	80	120			
Magnesium			520	mg/L	1.0	104	80	120			
Sodium			20.5	mg/L	1.0	102	80	120			
Lab ID:	**CCV**	3	Continuing Calibration Verification Standard							07/22/19 13:53	
Calcium			24.6	mg/L	1.0	98	90	110			
Magnesium			23.8	mg/L	1.0	95	90	110			
Sodium			26.3	mg/L	1.0	105	90	110			
Lab ID:	**CCV**	3	Continuing Calibration Verification Standard							07/22/19 14:38	
Calcium			25.4	mg/L	1.0	102	90	110			
Magnesium			24.4	mg/L	1.0	97	90	110			
Sodium			26.0	mg/L	1.0	104	90	110			
Lab ID:	**CCV**	3	Continuing Calibration Verification Standard							07/22/19 15:24	
Calcium			26.3	mg/L	1.0	105	90	110			
Magnesium			25.1	mg/L	1.0	101	90	110			
Sodium			24.6	mg/L	1.0	98	90	110			
Lab ID:	**CCV**	3	Continuing Calibration Verification Standard							07/22/19 16:09	
Calcium			27.0	mg/L	1.0	108	90	110			
Magnesium			25.7	mg/L	1.0	103	90	110			
Sodium			24.3	mg/L	1.0	97	90	110			
Lab ID:	**CCV**	3	Continuing Calibration Verification Standard							07/22/19 17:21	
Calcium			24.9	mg/L	1.0	100	90	110			
Magnesium			24.6	mg/L	1.0	98	90	110			
Sodium			24.8	mg/L	1.0	99	90	110			
Method:	**E200.7**									Batch: 46612	
Lab ID:	**MB-46612**	3	Method Blank				Run: ICP2-HE_190722A			07/22/19 14:01	
Calcium			ND	mg/L	0.09						
Magnesium			ND	mg/L	0.009						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19070340 **Report Date:** 07/25/19

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E200.7**										Batch: 46612
Lab ID:	**MB-46612**	3	Method Blank				Run: ICP2-HE_190722A				07/22/19 14:01
Sodium			ND	mg/L	0.03						
Lab ID:	**LCS-46612**	3	Laboratory Control Sample				Run: ICP2-HE_190722A				07/22/19 14:05
Calcium			25.0	mg/L	1.0	100	85	115			
Magnesium			24.3	mg/L	1.0	97	85	115			
Sodium			27.0	mg/L	1.0	108	85	115			
Lab ID:	**H19070340-001CMS3**	3	Sample Matrix Spike				Run: ICP2-HE_190722A				07/22/19 14:20
Calcium			102	mg/L	1.0	72	70	130			
Magnesium			43.8	mg/L	1.0	90	70	130			
Sodium			57.9	mg/L	1.0	105	70	130			
Lab ID:	**H19070340-001CMSD**	3	Sample Matrix Spike Duplicate				Run: ICP2-HE_190722A				07/22/19 14:23
Calcium			102	mg/L	1.0	72	70	130	0.0	20	
Magnesium			44.1	mg/L	1.0	91	70	130	0.7	20	
Sodium			58.3	mg/L	1.0	107	70	130	0.8	20	
Method:	**E200.7**										Batch: 46613
Lab ID:	**MB-46613**	3	Method Blank				Run: ICP2-HE_190722A				07/22/19 15:54
Calcium			ND	mg/L	0.09						
Magnesium			ND	mg/L	0.009						
Sodium			ND	mg/L	0.03						
Lab ID:	**LCS-46613**	3	Laboratory Control Sample				Run: ICP2-HE_190722A				07/22/19 15:58
Calcium			26.3	mg/L	1.0	105	85	115			
Magnesium			25.0	mg/L	1.0	100	85	115			
Sodium			24.8	mg/L	1.0	99	85	115			
Lab ID:	**H19070340-022CMS3**	3	Sample Matrix Spike				Run: ICP2-HE_190722A				07/22/19 16:24
Calcium			104	mg/L	1.0	79	70	130			
Magnesium			49.4	mg/L	1.0	94	70	130			
Sodium			123	mg/L	1.0	106	70	130			
Lab ID:	**H19070340-022CMSD**	3	Sample Matrix Spike Duplicate				Run: ICP2-HE_190722A				07/22/19 16:28
Calcium			104	mg/L	1.0	78	70	130	0.3	20	
Magnesium			49.2	mg/L	1.0	94	70	130	0.4	20	
Sodium			122	mg/L	1.0	100	70	130	1.2	20	
Lab ID:	**H19070340-030CMS3**	3	Sample Matrix Spike				Run: ICP2-HE_190722A				07/22/19 17:44
Calcium			85.3	mg/L	1.0	99	70	130			
Magnesium			46.5	mg/L	1.0	101	70	130			
Sodium			125	mg/L	1.0	116	70	130			
Lab ID:	**H19070340-030CMSD**	3	Sample Matrix Spike Duplicate				Run: ICP2-HE_190722A				07/22/19 17:48
Calcium			81.8	mg/L	1.0	86	70	130	4.1	20	
Magnesium			43.9	mg/L	1.0	90	70	130	5.8	20	
Sodium			121	mg/L	1.0	99	70	130	3.5	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19070340 **Report Date:** 07/25/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS205-H_190718B	
Lab ID: ICV	3	Initial Calibration Verification Standard							07/18/19 15:05	
Arsenic		0.0606	mg/L	0.0050	101	90	110			
Iron		0.300	mg/L	0.020	100	90	110			
Manganese		0.308	mg/L	0.010	103	90	110			
Lab ID: ICSA	3	Interference Check Sample A							07/18/19 15:07	
Arsenic		3.33E-05	mg/L	0.0050						
Iron		111	mg/L	0.020	111	70	130			
Manganese		0.000272	mg/L	0.010						
Lab ID: ICSAB	3	Interference Check Sample AB							07/18/19 15:09	
Arsenic		0.0110	mg/L	0.0050	109	70	130			
Iron		110	mg/L	0.020	109	70	130			
Manganese		0.0220	mg/L	0.010	110	70	130			
Method: E200.8										Batch: 46613
Lab ID: MB-46613	3	Method Blank				Run: ICPMS205-H_190718B			07/18/19 19:01	
Arsenic		ND	mg/L	4E-05						
Iron		ND	mg/L	0.004						
Manganese		ND	mg/L	0.0003						
Lab ID: LCS-46613	3	Laboratory Control Sample				Run: ICPMS205-H_190718B			07/18/19 19:16	
Arsenic		0.472	mg/L	0.0010	94	85	115			
Iron		2.41	mg/L	0.020	96	85	115			
Manganese		2.51	mg/L	0.0010	101	85	115			
Lab ID: H19070340-030CMS3	3	Sample Matrix Spike				Run: ICPMS205-H_190718B			07/18/19 19:18	
Arsenic		0.475	mg/L	0.0010	95	70	130			
Iron		2.93	mg/L	0.020	94	70	130			
Manganese		2.48	mg/L	0.0010	99	70	130			
Lab ID: H19070340-030CMSD	3	Sample Matrix Spike Duplicate				Run: ICPMS205-H_190718B			07/18/19 19:20	
Arsenic		0.443	mg/L	0.0010	88	70	130	6.9	20	
Iron		2.80	mg/L	0.020	88	70	130	4.7	20	
Manganese		2.32	mg/L	0.0010	93	70	130	6.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19070340 **Report Date:** 07/25/19

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E200.8**							Analytical Run: ICPMS205-H_190723A			
Lab ID:	**ICV**	3	Initial Calibration Verification Standard							07/23/19 13:54	
Arsenic			0.0592	mg/L	0.0050	99	90	110			
Iron			0.291	mg/L	0.020	97	90	110			
Manganese			0.299	mg/L	0.010	100	90	110			
Lab ID:	**ICSA**	3	Interference Check Sample A							07/23/19 13:57	
Arsenic			4.53E-05	mg/L	0.0050						
Iron			100	mg/L	0.020	100	70	130			
Manganese			0.000417	mg/L	0.010						
Lab ID:	**ICSAB**	3	Interference Check Sample AB							07/23/19 14:00	
Arsenic			0.0109	mg/L	0.0050	109	70	130			
Iron			108	mg/L	0.020	108	70	130			
Manganese			0.0217	mg/L	0.010	109	70	130			
Method:	**E200.8**										Batch: 46612
Lab ID:	**MB-46612**	3	Method Blank				Run: ICPMS205-H_190723A			07/23/19 16:19	
Arsenic			ND	mg/L	4E-05						
Iron			ND	mg/L	0.004						
Manganese			ND	mg/L	0.0003						
Lab ID:	**LCS-46612**	3	Laboratory Control Sample				Run: ICPMS205-H_190723A			07/23/19 16:43	
Arsenic			0.475	mg/L	0.0010	95	85	115			
Iron			2.45	mg/L	0.020	98	85	115			
Manganese			2.53	mg/L	0.0010	101	85	115			
Lab ID:	**H19070340-001CMS3**	3	Sample Matrix Spike				Run: ICPMS205-H_190723A			07/23/19 16:46	
Arsenic			0.482	mg/L	0.0010	96	70	130			
Iron			2.47	mg/L	0.020	98	70	130			
Manganese			2.54	mg/L	0.0010	101	70	130			
Lab ID:	**H19070340-001CMSD**	3	Sample Matrix Spike Duplicate				Run: ICPMS205-H_190723A			07/23/19 16:49	
Arsenic			0.478	mg/L	0.0010	95	70	130	0.8	20	
Iron			2.45	mg/L	0.020	98	70	130	0.7	20	
Manganese			2.53	mg/L	0.0010	101	70	130	0.2	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19070340 **Report Date:** 07/25/19

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E300.0**								Analytical Run: IC METROHM_190717B		
Lab ID:	**ICV**	Initial Calibration Verification Standard								07/17/19 19:47	
Chloride			99.4	mg/L	1.0	99	90	110			
Lab ID:	**CCV**	Continuing Calibration Verification Standard								07/17/19 20:30	
Chloride			52.8	mg/L	1.0	106	90	110			
Lab ID:	**CCV**	Continuing Calibration Verification Standard								07/18/19 00:22	
Chloride			52.4	mg/L	1.0	105	90	110			
Lab ID:	**CCV**	Continuing Calibration Verification Standard								07/18/19 04:00	
Chloride			52.8	mg/L	1.0	106	90	110			
Lab ID:	**CCV**	Continuing Calibration Verification Standard								07/18/19 07:38	
Chloride			53.5	mg/L	1.0	107	90	110			
Method:	**E300.0**										Batch: R146010
Lab ID:	**ICB**	Method Blank					Run: IC METROHM_190717B			07/17/19 19:32	
Chloride			ND	mg/L	0.02						
Lab ID:	**LFB**	Laboratory Fortified Blank					Run: IC METROHM_190717B			07/17/19 20:01	
Chloride			25.1	mg/L	1.0	100	90	110			
Lab ID:	**LFBD**	Laboratory Fortified Blank					Run: IC METROHM_190717B			07/17/19 20:16	
Chloride			26.3	mg/L	1.0	105	90	110			
Lab ID:	**H19070203-001ADUP**	Sample Duplicate					Run: IC METROHM_190717B			07/17/19 22:11	
Chloride			9.34	mg/L	1.0				4.4	20	
Lab ID:	**H19070340-005BMS**	Sample Matrix Spike					Run: IC METROHM_190717B			07/17/19 23:53	
Chloride			82.4	mg/L	1.0	100	90	110			
Lab ID:	**H19070340-005BMSD**	Sample Matrix Spike Duplicate					Run: IC METROHM_190717B			07/18/19 00:07	
Chloride			81.3	mg/L	1.0	95	90	110	1.4	20	
Lab ID:	**H19070340-015BMS**	Sample Matrix Spike					Run: IC METROHM_190717B			07/18/19 03:31	
Chloride			124	mg/L	1.0	98	90	110			
Lab ID:	**H19070340-015BMSD**	Sample Matrix Spike Duplicate					Run: IC METROHM_190717B			07/18/19 03:46	
Chloride			124	mg/L	1.0	99	90	110	0.3	20	
Lab ID:	**H19070340-030BMS**	Sample Matrix Spike					Run: IC METROHM_190717B			07/18/19 07:09	
Chloride			199	mg/L	1.0	96	90	110			
Lab ID:	**H19070340-030BMSD**	Sample Matrix Spike Duplicate					Run: IC METROHM_190717B			07/18/19 07:23	
Chloride			200	mg/L	1.0	98	90	110	0.4	20	
Lab ID:	**H19070346-003AMS**	Sample Matrix Spike					Run: IC METROHM_190717B			07/18/19 10:02	
Chloride			1240	mg/L	1.3	99	90	110			
Lab ID:	**H19070346-003AMSD**	Sample Matrix Spike Duplicate					Run: IC METROHM_190717B			07/18/19 10:17	
Chloride			1240	mg/L	1.3	99	90	110	0.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

MT Dept of Transportation

H19070340

Login completed by:	Jessica C. Smith	Date Received:	7/16/2019
Reviewed by:	BL2000\rtooke	Received by:	RAT
Reviewed Date:	7/19/2019	Carrier name:	Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C See Comments		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Cooler 1 was received at 0.1 °C, Cooler 2 at 0.1 °C, Cooler 3 at 0.4 °C, Cooler 4 at 0.2 °C, and Cooler 5 at 0.3 °C. On Ice. JCS 07/16/19

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Chain of Custody & Analytical Request Record

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Account Information (Billing information)

Company/Name	MDT ENVIRONMENTAL SERVICES
Contact	BRIAN GOODMAN
Phone	406 444-7632
Mailing Address	2701 PROSPECT AVE.
City, State, Zip	HELENA, MT 59620
Email	bgoodman@mt.gov
Receive Invoice	☒ Hard Copy ☒ Email
Receive Report	☐ Hard Copy ☒ Email
Purchase Order	
Quote	
Bottle Order	31020

Report Information (if different than Account Information)

Company/Name	KERK ENGINEERING & NATURAL RESOURCES
Contact	SCOTT PAYNE
Phone	406 431-1345
Mailing Address	P.O. BOX 6316
City, State, Zip	SHERIDAN, MT 59749
Email	SCOTT.PAYNE@NREMONTANA.COM
Receive Report	☐ Hard Copy ☒ Email EXCEL

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other _____

Comments

SEND ALSO TO,
BEN.OSBORN@NREMONTANA.COM
C1 0.1
C2 0.1
C3 0.4
C4 0.2
C5 0.3

Project Information

Project Name, PWSID, Permit, etc.	MDT PLAINS
Sampler Name	JAMES OSBORN
Sampler Phone	406 595-1145
Sample Origin State	MT
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	A2540C TDS	A4500-H B pH	A2510B Conductivity	Anions E300.0 Cl	Ca, Mg, Na Total E200.7-8 Metals					See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
C1	1 MDT-0715-101	7-15-19	8:00	3	W	✓	✓	✓	✓	✓							H19070340
C1	2 MDT-0715-102	7-15-19	8:20	3	W	✓	✓	✓	✓	✓							
C1	3 MDT-0715-103	7-15-19	9:00	3	W	✓	✓	✓	✓	✓							
C1	4 MDT-0715-104	7-15-19	9:30	3	W	✓	✓	✓	✓	✓							
C3	5 MDT-0715-105	7-15-19	9:50	3	W	✓	✓	✓	✓	✓							
C1	6 MDT-0715-106	7-15-19	10:15	3	W	✓	✓	✓	✓	✓							
C1	7 MDT-0715-107	7-15-19	10:35	3	W	✓	✓	✓	✓	✓							
C1	8 MDT-0715-108	7-15-19	10:50	3	W	✓	✓	✓	✓	✓							
C4	9 MDT-0715-109	7-15-19	11:25	3	W	✓	✓	✓	✓	✓							
C4	10 MDT-0715-110	7-15-19	11:45	3	W	✓	✓	✓	✓	✓							

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	JAMES OSBORN	7-16-19 15:34	[signature]			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print) Rebecca Tooke	Date/Time 7/16/19 1534	Signature [signature]

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
hand	639, 385, 609, 371, 112	Y N C B	Y N	See com °C	Y N	Y N	CC Cash Check_____	$	

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

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Account Information *(Billing information)*

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Invoice ☐Hard Copy ☐Email	Receive Report ☐Hard Copy ☐Email
Purchase Order	Quote / Bottle Order: 31020

Report Information *(if different than Account Information)*

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report ☐Hard Copy ☐Email	
Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other_____	

Comments

C1 0.1
C2 0.1
C3 0.4
C4 0.2
C5 0.3

Project Information

Project Name, PWSID, Permit, etc.	
Sampler Name	Sampler Phone
Sample Origin State	EPA/State Compliance ☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W- Water
S - Soils/ Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

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Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	A2540C TDS	A4500-H B pH	A2510B Conductivity	E300.0 Cl-	Ca, Mg, Na E200.7-8 Total Metals	A2540C TDS	A2510B Conductivity	As, Fe, Mn E200.7-8 Total Metals		See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
C2	1 MDT-0715-111	7-15-19	12:10	3	W	✓	✓	✓	✓	✓							H19070340
C2	2 MDT-0715-112	7-15-19	12:35	3	W	✓	✓	✓	✓	✓							
C4	3 MDT-0715-113	7-15-19	12:55	3	W	✓	✓	✓	✓	✓							
C2	4 MDT-0715-114	7-15-19	13:15	3	W	✓	✓	✓	✓	✓							
C2	5 MDT-0715-115	7-15-19	13:35	3	W	✓	✓	✓	✓	✓							
C2	6 MDT-0715-116	7-15-19	14:30	3	W						✓	✓	✓				
C2	7 MDT-0715-117	7-15-19	14:45	3	W	✓	✓	✓	✓	✓							
C4	8 MDT-0715-118	7-15-19	15:00	3	W						✓	✓	✓				
C3	9 MDT-0715-119	7-15-19	15:15	3	W						✓	✓	✓				
C4	10 MDT-0715-120	7-15-19	15:45	3	W	✓	✓	✓	✓	✓							

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	JAMES OSBORN	7-16-19 15:34				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print): Rebecca Tooke	Date/Time: 7/16/19 1534	Signature

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number *(cash/check only)*
hand	639, 385, 609 371, 112	Y (N) C B	Y N	see com °C	(Y) N	(Y) N	CC Cash Check_____	$	

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Account Information *(Billing information)*

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Invoice ☐Hard Copy ☐Email	Receive Report ☐Hard Copy ☐Email
Purchase Order	Quote / Bottle Order: 31020

Report Information *(if different than Account Information)*

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report ☐Hard Copy ☐Email	
Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other_____	

Comments

C1 0.1
C2 0.1
C3 0.4
C4 0.2
C5 0.3

Project Information

Project Name, PWSID, Permit, etc.	
Sampler Name	Sampler Phone
Sample Origin State	EPA/State Compliance ☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

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A - Air
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S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

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Analysis Requested

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	A2540C TDS	A4500-H+B pH	A2510B Conductivity	Cl⁻ E300.0 Anions	Ca, Mg, Na E200.7-8 Total Metals	A2540C TDS	A2510B Conductivity	As, Fe, Mn E200.7-8 Total Metals		See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
C4	1 MOT-0715-121	7-15-19	16:20	3	W						✓	✓	✓				H19070340
C3	2 MOT-0715-122	7-15-19	16:46	3	W	✓	✓	✓	✓	✓							
C4	3 MOT-0715-123	7-15-19	17:30	3	W	✓	✓	✓	✓	✓							
C3	4 MOT-0715-124	7-15-19	18:00	3	W	✓	✓	✓	✓	✓							
C3	5 MOT-0715-125	7-15-19	18:30	3	W	✓	✓	✓	✓	✓							
C3	6 MOT-0715-126	7-15-19	19:00	3	W	✓	✓	✓	✓	✓							
C3	7 MOT-0715-127	7-15-19	19:30	3	W	✓	✓	✓	✓	✓							
C5	8 MOT-0716-128	7-16-19	8:00	3	W						✓	✓	✓				
C5	9 MOT-0716-129	7-16-19	8:30	3	W	✓	✓	✓	✓	✓							
C5	10 MOT-0716-130	7-16-19	9:00	3	W	✓	✓	✓	✓	✓							

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	JAMES OSBORN	7-16-19 15:34	[signature]			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print): Rebecca Mohr	Date/Time: 7/16/19 1534	Signature: [signature]

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number *(cash/check only)*
hand	639, 383, 609, 371, 112	Y (N) C B	Y N	see com °C	(Y) N	(Y) N	CC Cash Check_____	$	

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Account Information *(Billing information)*

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Invoice ☐Hard Copy ☐Email	Receive Report ☐Hard Copy ☐Email
Purchase Order	Quote / Bottle Order: 31020

Report Information *(if different than Account Information)*

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report ☐Hard Copy ☐Email	
Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other_____	

Comments

C1 0.1
C2 0.1
C3 0.4
C4 0.2
C5 0.3

Project Information

Project Name, PWSID, Permit, etc.	
Sampler Name	Sampler Phone
Sample Origin State	EPA/State Compliance ☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

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Analysis Requested

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	A2540C TDS	A4500-H B pH	A2510B Conductivity	E300.0 Cl⁻ Anions	E200.7-8 Ca, Mg, Na Total Metals	A2540C TDS	A2510B Conductivity	E200.7-8 As, Fe, Mn Total Metals		See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
C5 1	MDT-0716-131	7-16-19	9:30	3	W	✓	✓	✓	✓	✓							H19070340
C5 2	MDT-0716-132	7-16-19	10:00	3	W	✓	✓	✓	✓	✓							
C5 3	MDT-0716-133	7-16-19	10:30	3	W						✓	✓	✓				
C4 4	MDT-0716-134	7-16-19	11:00	3	W	✓	✓	✓	✓	✓							
C4 5	MDT-0716-135	7-16-19	12:00	3	W	✓	✓	✓	✓	✓							
6																	
7																	
8																	
9																	
10																	

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	JAMES OSBORN	7-16-19 15:34				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print): Rebecca Tooke	Date/Time: 7/16/19 1534	Signature: Rebecca Tooke

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number *(cash/check only)*
hand	639, 385, 608, 311, 112	Y N C B	Y N	see low °C	Y N	Y N	CC Cash Check_____	$	

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

Montana DEQ - Waste Management and Remediation Division

Data Validation Summary Form (Version 1.3.0, Revised 1/26/18)

Please fill out the information below, using one form for each lab batch (one form can be used for multiple analytical methods). The form will grow and adjust, based on your responses. Please include a discussion regarding the sampling event in the report that is sent to DEQ with this form. For additional instructions, please click the Open Complete Instructions button.

Open Complete Instructions

Basic Questions View example (Note: example optimized for viewing in Chrome browser)

1. Site/Facility name	MDT Plain Maintenance Facility
2. Site code or facility ID (if applicable)	
3. Release ID (if applicable)	
4. Sample delivery group	H19070340
5. Name of DEQ-approved sampling plan	NA
6. Date DEQ approved the sampling plan	M/D/YY
7. Name of data validator	Ian Magruder, Northern Rockies Engineering
8. Phone	406-439-0049
9. Date validated	8/12/2019 M/D/YY

Field Collection Questions View example (Note: example optimized for viewing in Chrome browser)

10. Sample matrix	☐ Soil ☐ Sediment ☐ Surface water ☒ Groundwater ☐ Tap water ☐ Air (including soil gas) ☐ Other
11. Sample collection start date	7/15/2019 M/D/YY
12. Sample collection end date	7/16/2019 M/D/YY

13. Analytical methods used

Use Add Method button to list multiple methods. Enter any other methods in the field manually.

Add Method	Analytical Method(s)
Delete Method	A4500-H B: pH
Delete Method	A2510 B: conductivity
Delete Method	A2540 C: TDS
Delete Method	E300.0: chloride
Delete Method	E200.7: metals total
Delete Method	E200.8: metals total

Laboratory-related Questions View example (Note: example optimized for viewing in Chrome browser)

14. Laboratory name and location	Energy Laboratories, Helena, MT
15. Laboratory project ID	MDT Plains

	Yes	No	See Below	Comments
16. Were samples received in good condition and at appropriate temperature, chain-of-custody forms complete, and all samples analyzed within holding times?	○	●	○	see note under 16c regarding pH holding times.
16a. Were chain-of-custody forms complete?	●	○		
16b. Were samples received in good condition, preserved, and at appropriate temperature (VOA no headspace, appropriate pH, temperature 4° C +/- 2° for most samples)?	●	○		
16c. Were the samples analyzed within method-specified or technical holding times?	○	●		

If no, explain

pH analyzed outside of hold time. Field pH was measured and will be used in project reporting.

	Yes	No	See Below	Comments
17. Were all laboratory quality control procedures complied with and is data validated without qualifiers?	●	○	○	
18. Were the total number of lab method blanks at least 5% of the total number of samples, or as required by the method?	●	○		
19. Were the total number of lab matrix spike samples prepared at least 5% of the total number of samples, or as required by the method?	●	○		

20. Please list any project samples used for matrix spike/matrix spike duplicates.

Add Sample	Lab ID	Field Sample ID	Comments
Delete Sample	H19070340-001	MDT-0715-101	
Delete Sample	H19070340-022	MDT-0715-122	
Delete Sample	H19070340-030	MDT-0716-130	
Delete Sample	H19070340-005	MDT-0715-105	
Delete Sample	H19070340-015	MDT-0715-115	

	Yes	No	Comments
21. Is the total number of laboratory control samples at least 5% of the total number of samples?	○	●	

If no, explain

A2510 B conductivity: 1 LCS for 35 samples; A4500-H B pH: no LCS. These are all appropriate for the methods.

Consultant/Validator Questions View example (Note: example optimized for viewing in Chrome browser)

	Yes	No	Comments
22. Are the detection limits appropriate for the project (i.e. at or below screening levels)?	●	○	
23. Are the reported units appropriate for the sample matrix (i.e. water results in ug/L, not mg/kg)?	●	○	

24. Do the analytical methods comply with project requirements (e.g. in the SAP, work plan, or QAPP)?	Yes ●	No ○		Comments
25. Do the laboratory reports include all constituents requested to be analyzed on the chain-of-custody or under the sampling plan or other applicable document?	Yes ●	No ○		Comments
26. Is the number of sample blanks (e.g. equipment, trip, or field blanks) equal to at least 10% of the total number of samples, or as otherwise required?	Yes ●	No ○		Comments Not required per scope of work.
27. Are field blanks free from contamination, duplicates collected as required, and field duplicate percent differences within data validation quality control limits?	Yes ●	No ○	See Below ○	Comments

28. Please provide an Excel or CSV file to the DEQ project manager (via e-mail or CD) that lists all samples evaluated in this summary and lists any qualified data.
Please use the following format:

Lab ID	Field Sample ID	Qualifiers	Comments (indicate whether the issue biases the results high or low)
Example 48310-2.31E	Example GW-1	R	Sample dropped in lab and unrecoverable
Example 48310-2.32D	Example GW-2		

Please use the following format for qualifiers. See EPA's National Functional Guidelines for more information on qualifiers for unique samples such as dioxins.

Qualifier	Explanation
C	Pesticide and Arochlor results confirmed with GC/MS
J-	Estimated value, may be biased low
J	Analyte identified, but concentration is estimated
J+	Estimated value, may be biased high
NJ	Tentatively identified compound
R	Sample result rejected
U	Analyte analyzed for, but not detected above quantitation limit
UJ	Analyte not detected above CRQL, but CRQL may be inaccurate
X	Pesticide and Arochlor results attempted using GC/MS, but unsuccessful

If you wish to manually enter qualified sample results, please use the table below.

Add Sample	Lab ID	Field Sample ID	Qualifiers	Comments (indicate whether the issue biases the results high or low)
Delete Sample				

29. What is the percent completeness (samples planned versus valid samples collected)?	97%		Comments 32/33
30. Was the completeness goal met?	Yes ●	No ○	Comments Not required per scope of work.

31. Does all data conform to analytical methods and data quality objectives specified for this project?	Yes ●	No ○	Comments
32. Other general comments or observations?			
NA			

Split Samples

33. Did DEQ collect split samples?	Yes ○	No ●	Comments

Print Form | Save As | Open Instructions | Hide Instructions

Montana Department of Environmental Quality
Data Validation Guidelines for Evaluating Analytical Data
(updated January 26, 2018)

This document was assembled by the Montana Department of Environmental Quality Contaminated Site Cleanup Bureau (DEQ) to formalize technical direction for conducting data validation. Data validation is a standardized review process for judging the analytical quality and usefulness of a discrete set of chemical data and is necessary to ensure that data of known and documented quality are used in making environmental decisions.

While these guidelines are generally used by DEQ, there may be circumstances that warrant a higher level of data validation review and DEQ reserves the right to require additional validation. For investigations where x-ray fluorescence (XRF) or other field screening equipment is used, provide an evaluation including the comparison and correlation of field screening data to laboratory confirmation data in the data validation discussion (please see DEQ's frequently asked questions at http://deq.mt.gov/Land/StateSuperfund/FrequentlyAskedQuestions for specifics associated with the use of XRF equipment and data collection/evaluation).

Please complete a separate data validation report for each sample batch as determined by the laboratory (Note: large data collection events may result in multiple batches). A brief summary of this validation report and the acceptability and usability of the data should be included in the text of the project report with the validation report included as an appendix. The data validation should include an assessment of data using the precision, accuracy, representativeness, comparability, and completeness (PARCC) parameters:

Precision: The degree of mutual agreement between individual measurements of the same property under similar conditions.

> Combined field and laboratory precision is evaluated by collecting and analyzing field duplicates and then calculating the variance between the samples, typically as a relative percent difference (RPD). Laboratory analytical precision is evaluated by analyzing matrix spike/matrix spike duplicate (MS/MSD) samples and using the results to calculate an RPD.

Accuracy: The degree of agreement between an analytical measurement and a reference accepted as a true value.

> The accuracy of a measurement system can be affected by errors introduced by field contamination, sample preservation, sample handling, sample preparation, and analytical techniques. Analysis of matrix spike/matrix spike duplicate (MS/MSD) samples, laboratory control spikes (LCS) or blank spikes, surrogate standards, and method blanks are typically used to calculate the percent recovery (%R) for evaluating accuracy.
>
> Please note that some methods, such as EPH and VPH, require calibration data. For such methods, please provide and verify the calibration data.

Representativeness: The degree to which sample data accurately and precisely represent the characteristics of a population, variations in a parameter at a sampling point, or an environmental condition that they are intended to represent.

Typically, representative data will be obtained through careful selection of sampling locations and analytical parameters; proper collection and handling of samples; and through use and consistent application of established field and laboratory procedures. Evaluation of field and laboratory blank samples for presence of contaminants can be useful in evaluating representativeness of sample results.

Completeness: A measure of the percentage of project-specific data that is valid.

Valid data are obtained when samples are collected and analyzed in accordance with quality control (QC) procedures outlined in the sampling and analysis plan (SAP), and when none of the QC criteria that affect data usability are exceeded. Once data validation is complete, the number of usable sample results is divided by the total number of sample results planned for the investigation to determine the percent completeness. A completeness goal should be developed for each project (i.e., 100% completeness for residential samples to ensure that all properties requiring sampling are sampled). A discussion of completeness must also examine the number of samples called for in the SAP compared to the number of samples actually collected. Variance between the planned and collected sample numbers should be explained.

Comparability: Expression of the confidence with which one data set can be compared with another.

Comparability of data is achieved by consistently following standard field and laboratory procedures and by using standard measurement units in reporting analytical data.

For complete information regarding data validation, please see the EPA National Functional Guidelines at http://www2.epa.gov/clp/contract-laboratory-program-national-functional-guidelines-data-review

Determination of Data Usability Qualifiers

Step 1: Review QC Parameter and Document Finding	Step 2: Determine Which Samples to Qualify	Step 3: Determine Which Results to Qualify	Step 4: Apply Qualifier and Bias Code
Lab Receipt of Samples			
Preservative (including sample temperature) outside of specifications.	Affected samples and professional judgment	Detected Results Non-detected Results	J- UJ or R
Samples not accounted for on Chain-of-Custody	Affected samples	All samples	R
Samples analyzed outside of method specified or technical holding time.	Affected samples	Detected Results Non-detected Results	J- R (UJ for SVOC, pesticides, aroclors)
Samples analyzed grossly outside of method specified or technical holding time.	Affected samples	Detected Results Non-detected Results	J- R
Lab Quality Control			
Calibration verification results outside of acceptable limits.	Samples associated with initial and/or continuing calibration verification	Detected Results Non-detected Results	J UJ
Analyte detected in Method Blank (MB) at concentration less than Contract Required Quantitation Limit (CRQL)[1] (i.e. , J-flag)	Samples in preparation batch	Detected Results <=CRQL Detected Results >CRQL	U J (use professional judgment)

Step 1: Review QC Parameter and Document Finding	Step 2: Determine Which Samples to Qualify	Step 3: Determine Which Results to Qualify	Step 4: Apply Qualifier and Bias Code
Analyte detected in Method Blank (MB) at concentration greater than or equal to CRQL	Samples in preparation batch	Detected Results < Blank Concentration Detected Results >= Blank Concentration	U Use professional judgment
Matrix Spike:			
%Recovery above specifications	Sample and professional judgment for samples in preparation batch from same matrix.	Detected Results Non-detected Results	J+ No qualifier
%Recovery below specifications and greater than 20% (30% for inorganics)	Sample and professional judgment for samples in preparation batch from same matrix.	Detected Results Non-detected Results	J- UJ
%Recovery below 20% (30% for inorganics)	Sample and professional judgment for samples in preparation batch from same matrix.	Detected Results Non-detected Results	J- R
Note: If the spiking amount is less than four times the result in the unspiked parent sample, the MS/MSD data may not represent the matrix effect. Professional judgment should be use in evaluating and qualifying the data.			
Laboratory Control Sample:			
%Recovery above specifications	Samples in preparation batch.	Detected Results Non-detected Results	J+ No qualifier
%Recovery below specifications and greater than 20% (40% for inorganics; see NFG for pesticides and Aroclors; 10% for dioxins)	Samples in preparation batch.	Detected Results Non-detected Results	J- UJ
%Recovery below 20% (40% for inorganics; see NFG for pesticides and Aroclors; 10% for dioxins)	Samples in preparation batch.	Detected Results Non-detected Results	J- R
Laboratory Duplicate Samples (including LCSD and MSD):			
Relative Percent Difference outside specifications	Samples in preparation batch.	Detected Results	J
Surrogate Recoveries:			
Surrogate Recovery greater than Upper Acceptance Limit	Target analytes in sample	Detected Results Non-detected Results	J+ No qualification (UJ for dioxins)
Surrogate Recovery less than Lower Acceptance Limit and greater than 10%	Target analytes in sample	Detected Results Non-detected Results	J- UJ
Surrogate Recovery less than 10%	Target analytes in sample	Detected Results Non-detected Results	J- R (see NFG for dioxins)
Field QC Samples			
Blanks			

Step 1: Review QC Parameter and Document Finding	Step 2: Determine Which Samples to Qualify	Step 3: Determine Which Results to Qualify	Step 4: Apply Qualifier and Bias Code
Analyte detected in Field Blank, Equipment Blank, and/or Trip Blank at concentration less than Contract Required Quantitation Limit (CRQL)1 (i.e. , J-flag)	Associated samples	Detected Results <CRQL Detected Results >=CRQL	U Use professional judgment
Analyte detected in Field Blank, Equipment Blank, and/or Trip Blank at concentration greater than or equal to CRQL	Associated samples	Detected Results < Blank Concentration Detected Results >= Blank Concentration	U Use professional judgment
Duplicates			
Field Duplicate Relative Percent Difference outside specifications and analyte concentration >=5x CRQL	Associated samples	Detected Results	J
Field Duplicate Relative Percent Difference outside specifications and analyte concentrations <5x CRQL with absolute difference between sample and duplicate > CRQL	Associated samples	Detected Results Non-detected Results	J UJ
Field Duplicate Relative Percent Difference outside specifications and analyte concentrations <5x CRQL with absolute difference between sample and duplicate <= CRQL	Associated samples	Detected Results Non-detected Results	No qualification No qualification
Consultant/Validator Questions			
Reported Units not appropriate for sample matrix	Affected samples	All results	Inquire, document, and use professional judgment
Analytical methods do not comply with project requirements. And/Or Detection Limits not appropriate for the project.	Affected samples	Detected Results Non-detected Results	Use professional judgment Use professional judgment, if Reporting Limits > Screening Levels; results may not be usable
QC Sample Frequency			
Method Blanks analyzed less than 5% of total samples	Use professional judgment	Use professional judgment	Inquire, document, and use professional judgment
Matrix Spike samples analyzed less than 5% of total samples	Use professional judgment	Use professional judgment	Inquire, document, and use professional judgment
Laboratory Control Samples analyzed less than 5% of total samples	Use professional judgment	Use professional judgment	Inquire, document, and use professional judgment
Field, equipment, or trip blanks analyzed less than required	Use professional judgment	Use professional judgment	Inquire, document, and use professional judgment
Notes:			

Step 1: Review QC Parameter and Document Finding	Step 2: Determine Which Samples to Qualify	Step 3: Determine Which Results to Qualify	Step 4: Apply Qualifier and Bias Code
1. See the National Functional Guidelines (NFG) for contract required quantitation limit (CRQL) or blank results of common laboratory contaminants, including: methylene chloride, acetone, and 2-butanone.			
2. Screening Levels (SLs) is a generic term which may include Risk Based Screening Levels, Regional Screening Levels, and/or site specific screening levels.			

ANALYTICAL SUMMARY REPORT

October 01, 2019

MT Dept of Transportation
PO Box 201001
Helena, MT 59620-1001

Work Order: H19090497 Quote ID: H1750

Project Name: MDT Plains

Energy Laboratories Inc Helena MT received the following 33 samples for MT Dept of Transportation on 9/19/2019 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H19090497-001	MDT-0918-101	09/18/19 8:00	09/19/19	Groundwater	Metals by ICP/ICPMS, Total Conductivity Anions by Ion Chromatography pH Metals Digestion by E200.2 Solids, Total Dissolved
H19090497-002	MDT-0918-102	09/18/19 8:30	09/19/19	Groundwater	Same As Above
H19090497-003	MDT-0918-103	09/18/19 9:00	09/19/19	Groundwater	Same As Above
H19090497-004	MDT-0918-104	09/18/19 9:30	09/19/19	Groundwater	Same As Above
H19090497-005	MDT-0918-105	09/18/19 10:00	09/19/19	Groundwater	Same As Above
H19090497-006	MDT-0918-106	09/18/19 10:30	09/19/19	Groundwater	Same As Above
H19090497-007	MDT-0918-107	09/18/19 11:00	09/19/19	Groundwater	Same As Above
H19090497-008	MDT-0918-108	09/18/19 11:30	09/19/19	Groundwater	Same As Above
H19090497-009	MDT-0918-109	09/18/19 12:00	09/19/19	Groundwater	Same As Above
H19090497-010	MDT-0918-110	09/18/19 12:30	09/19/19	Groundwater	Same As Above
H19090497-011	MDT-0918-111	09/18/19 13:00	09/19/19	Groundwater	Same As Above
H19090497-012	MDT-0918-112	09/18/19 13:30	09/19/19	Groundwater	Same As Above
H19090497-013	MDT-0918-113	09/18/19 14:00	09/19/19	Groundwater	Same As Above
H19090497-014	MDT-0918-114	09/18/19 14:30	09/19/19	Groundwater	Same As Above
H19090497-015	MDT-0918-115	09/18/19 15:00	09/19/19	Groundwater	Same As Above
H19090497-016	MDT-0918-116	09/18/19 15:30	09/19/19	Groundwater	Same As Above
H19090497-017	MDT-0918-117	09/18/19 16:00	09/19/19	Groundwater	Same As Above
H19090497-018	MDT-0918-118	09/18/19 16:30	09/19/19	Groundwater	Same As Above
H19090497-019	MDT-0918-119	09/18/19 17:00	09/19/19	Groundwater	Same As Above
H19090497-020	MDT-0918-120	09/18/19 17:30	09/19/19	Groundwater	Same As Above
H19090497-021	MDT-0918-121	09/18/19 18:00	09/19/19	Groundwater	Same As Above
H19090497-022	MDT-0918-122	09/18/19 18:20	09/19/19	Groundwater	Metals by ICP/ICPMS, Total Conductivity Metals Digestion by E200.2 Solids, Total Dissolved
H19090497-023	MDT-0918-123	09/18/19 18:40	09/19/19	Groundwater	Same As Above

ANALYTICAL SUMMARY REPORT

H19090497-024	MDT-0918-124	09/18/19 19:00	09/19/19	Groundwater	Metals by ICP/ICPMS, Total Conductivity Anions by Ion Chromatography pH Metals Digestion by E200.2 Solids, Total Dissolved
H19090497-025	MDT-0918-125	09/18/19 19:20	09/19/19	Groundwater	Same As Above
H19090497-026	MDT-0918-126	09/18/19 19:40	09/19/19	Groundwater	Same As Above
H19090497-027	MDT-0918-127	09/18/19 20:00	09/19/19	Groundwater	Same As Above
H19090497-028	MDT-0919-128	09/19/19 8:00	09/19/19	Groundwater	Same As Above
H19090497-029	MDT-0919-129	09/19/19 8:30	09/19/19	Groundwater	Same As Above
H19090497-030	MDT-0919-130	09/19/19 9:00	09/19/19	Groundwater	Metals by ICP/ICPMS, Total Conductivity Metals Digestion by E200.2 Solids, Total Dissolved
H19090497-031	MDT-0919-131	09/19/19 9:30	09/19/19	Groundwater	Metals by ICP/ICPMS, Total Conductivity Anions by Ion Chromatography pH Metals Digestion by E200.2 Solids, Total Dissolved
H19090497-032	MDT-0919-132	09/19/19 10:00	09/19/19	Groundwater	Same As Above
H19090497-033	MDT-0919-133	09/19/19 10:30	09/19/19	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-001
Client Sample ID: MDT-0918-101

Report Date: 10/01/19
Collection Date: 09/18/19 08:00
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	09/20/19 13:56 / SRW
pH Measurement Temp	15.9	°C				A4500-H B	09/20/19 13:56 / SRW
Conductivity @ 25 C	748	umhos/cm		1		A2510 B	09/20/19 13:56 / SRW
Solids, Total Dissolved TDS @ 180 C	422	mg/L		10		A2540 C	09/20/19 15:51 / SRW
INORGANICS							
Chloride	79	mg/L		1		E300.0	09/21/19 00:39 / SRW
METALS, TOTAL							
Calcium	88	mg/L		1		E200.7	09/25/19 09:15 / sld
Magnesium	22	mg/L		1		E200.7	09/25/19 09:15 / sld
Sodium	32	mg/L		1		E200.7	09/25/19 09:15 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-002
Client Sample ID: MDT-0918-102

Report Date: 10/01/19
Collection Date: 09/18/19 08:30
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.4	s.u.	H	0.1		A4500-H B	09/20/19 14:01 / SRW
pH Measurement Temp	16.0	°C				A4500-H B	09/20/19 14:01 / SRW
Conductivity @ 25 C	830	umhos/cm		1		A2510 B	09/20/19 14:01 / SRW
Solids, Total Dissolved TDS @ 180 C	478	mg/L		10		A2540 C	09/20/19 15:51 / SRW
INORGANICS							
Chloride	114	mg/L		1		E300.0	09/21/19 02:06 / SRW
METALS, TOTAL							
Calcium	94	mg/L		1		E200.7	09/25/19 09:19 / sld
Magnesium	25	mg/L		1		E200.7	09/25/19 09:19 / sld
Sodium	33	mg/L		1		E200.7	09/25/19 09:19 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-003
Client Sample ID: MDT-0918-103

Report Date: 10/01/19
Collection Date: 09/18/19 09:00
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.4	s.u.	H	0.1		A4500-H B	09/20/19 14:03 / SRW
pH Measurement Temp	15.8	°C				A4500-H B	09/20/19 14:03 / SRW
Conductivity @ 25 C	832	umhos/cm		1		A2510 B	09/20/19 14:03 / SRW
Solids, Total Dissolved TDS @ 180 C	476	mg/L		10		A2540 C	09/20/19 15:51 / SRW
INORGANICS							
Chloride	113	mg/L		1		E300.0	09/21/19 02:20 / SRW
METALS, TOTAL							
Calcium	93	mg/L		1		E200.7	09/25/19 09:45 / sld
Magnesium	25	mg/L		1		E200.7	09/25/19 09:45 / sld
Sodium	33	mg/L		1		E200.7	09/25/19 09:45 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-004
Client Sample ID: MDT-0918-104

Report Date: 10/01/19
Collection Date: 09/18/19 09:30
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	09/20/19 14:06 / SRW
pH Measurement Temp	15.3	°C				A4500-H B	09/20/19 14:06 / SRW
Conductivity @ 25 C	586	umhos/cm		1		A2510 B	09/20/19 14:06 / SRW
Solids, Total Dissolved TDS @ 180 C	330	mg/L		10		A2540 C	09/20/19 15:52 / SRW
INORGANICS							
Chloride	35	mg/L		1		E300.0	09/21/19 02:35 / SRW
METALS, TOTAL							
Calcium	65	mg/L		1		E200.7	09/25/19 09:48 / sld
Magnesium	17	mg/L		1		E200.7	09/25/19 09:48 / sld
Sodium	28	mg/L		1		E200.7	09/25/19 09:48 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-005
Client Sample ID: MDT-0918-105

Report Date: 10/01/19
Collection Date: 09/18/19 10:00
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	09/20/19 14:08 / SRW
pH Measurement Temp	15.2	°C				A4500-H B	09/20/19 14:08 / SRW
Conductivity @ 25 C	541	umhos/cm		1		A2510 B	09/20/19 14:08 / SRW
Solids, Total Dissolved TDS @ 180 C	297	mg/L		10		A2540 C	09/20/19 15:52 / SRW
INORGANICS							
Chloride	29	mg/L		1		E300.0	09/21/19 02:49 / SRW
METALS, TOTAL							
Calcium	62	mg/L		1		E200.7	09/25/19 09:52 / sld
Magnesium	16	mg/L		1		E200.7	09/25/19 09:52 / sld
Sodium	26	mg/L		1		E200.7	09/25/19 09:52 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-006
Client Sample ID: MDT-0918-106

Report Date: 10/01/19
Collection Date: 09/18/19 10:30
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	09/20/19 14:10 / SRW
pH Measurement Temp	15.3	°C				A4500-H B	09/20/19 14:10 / SRW
Conductivity @ 25 C	430	umhos/cm		1		A2510 B	09/20/19 14:10 / SRW
Solids, Total Dissolved TDS @ 180 C	238	mg/L		10		A2540 C	09/20/19 15:52 / SRW
INORGANICS							
Chloride	14	mg/L		1		E300.0	09/21/19 03:04 / SRW
METALS, TOTAL							
Calcium	51	mg/L		1		E200.7	09/25/19 09:56 / sld
Magnesium	13	mg/L		1		E200.7	09/25/19 09:56 / sld
Sodium	20	mg/L		1		E200.7	09/25/19 09:56 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-007
Client Sample ID: MDT-0918-107

Report Date: 10/01/19
Collection Date: 09/18/19 11:00
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	09/20/19 14:12 / SRW
pH Measurement Temp	15.5	°C				A4500-H B	09/20/19 14:12 / SRW
Conductivity @ 25 C	522	umhos/cm		1		A2510 B	09/20/19 14:12 / SRW
Solids, Total Dissolved TDS @ 180 C	285	mg/L		10		A2540 C	09/20/19 15:53 / SRW
INORGANICS							
Chloride	32	mg/L		1		E300.0	09/21/19 03:18 / SRW
METALS, TOTAL							
Calcium	59	mg/L		1		E200.7	09/25/19 10:00 / sld
Magnesium	15	mg/L		1		E200.7	09/25/19 10:00 / sld
Sodium	29	mg/L		1		E200.7	09/25/19 10:00 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-008
Client Sample ID: MDT-0918-108

Report Date: 10/01/19
Collection Date: 09/18/19 11:30
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	09/20/19 14:15 / SRW
pH Measurement Temp	15.5	°C				A4500-H B	09/20/19 14:15 / SRW
Conductivity @ 25 C	406	umhos/cm		1		A2510 B	09/20/19 14:15 / SRW
Solids, Total Dissolved TDS @ 180 C	229	mg/L		10		A2540 C	09/20/19 15:53 / SRW
INORGANICS							
Chloride	10	mg/L		1		E300.0	09/21/19 03:33 / SRW
METALS, TOTAL							
Calcium	46	mg/L		1		E200.7	09/25/19 10:03 / sld
Magnesium	13	mg/L		1		E200.7	09/25/19 10:03 / sld
Sodium	15	mg/L		1		E200.7	09/25/19 10:03 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-009
Client Sample ID: MDT-0918-109

Report Date: 10/01/19
Collection Date: 09/18/19 12:00
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	09/20/19 14:17 / SRW
pH Measurement Temp	15.6	°C				A4500-H B	09/20/19 14:17 / SRW
Conductivity @ 25 C	1030	umhos/cm		1		A2510 B	09/20/19 14:17 / SRW
Solids, Total Dissolved TDS @ 180 C	595	mg/L		10		A2540 C	09/20/19 15:53 / SRW
INORGANICS							
Chloride	127	mg/L		1		E300.0	09/21/19 03:48 / SRW
METALS, TOTAL							
Calcium	6	mg/L		1		E200.7	09/25/19 10:14 / sld
Magnesium	2	mg/L		1		E200.7	09/25/19 10:14 / sld
Sodium	223	mg/L		1		E200.7	09/25/19 10:14 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-010
Client Sample ID: MDT-0918-110

Report Date: 10/01/19
Collection Date: 09/18/19 12:30
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.4	s.u.	H	0.1		A4500-H B	09/20/19 14:19 / SRW
pH Measurement Temp	15.7	°C				A4500-H B	09/20/19 14:19 / SRW
Conductivity @ 25 C	1010	umhos/cm		1		A2510 B	09/20/19 14:19 / SRW
Solids, Total Dissolved TDS @ 180 C	557	mg/L		10		A2540 C	09/20/19 15:54 / SRW
INORGANICS							
Chloride	126	mg/L		1		E300.0	09/21/19 04:02 / SRW
METALS, TOTAL							
Calcium	86	mg/L		1		E200.7	09/25/19 10:18 / sld
Magnesium	27	mg/L		1		E200.7	09/25/19 10:18 / sld
Sodium	83	mg/L		1		E200.7	09/25/19 10:18 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-011
Client Sample ID: MDT-0918-111

Report Date: 10/01/19
Collection Date: 09/18/19 13:00
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	09/20/19 14:21 / SRW
pH Measurement Temp	16.3	°C				A4500-H B	09/20/19 14:21 / SRW
Conductivity @ 25 C	935	umhos/cm		1		A2510 B	09/20/19 14:21 / SRW
Solids, Total Dissolved TDS @ 180 C	540	mg/L		10		A2540 C	09/20/19 15:54 / SRW
INORGANICS							
Chloride	115	mg/L		1		E300.0	09/21/19 04:17 / SRW
METALS, TOTAL							
Calcium	2	mg/L		1		E200.7	09/25/19 10:22 / sld
Magnesium	ND	mg/L		1		E200.7	09/25/19 10:22 / sld
Sodium	210	mg/L		1		E200.7	09/25/19 10:22 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-012
Client Sample ID: MDT-0918-112

Report Date: 10/01/19
Collection Date: 09/18/19 13:30
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	09/20/19 14:24 / SRW
pH Measurement Temp	15.8	°C				A4500-H B	09/20/19 14:24 / SRW
Conductivity @ 25 C	924	umhos/cm		1		A2510 B	09/20/19 14:24 / SRW
Solids, Total Dissolved TDS @ 180 C	507	mg/L		10		A2540 C	09/20/19 15:54 / SRW
INORGANICS							
Chloride	115	mg/L		1		E300.0	09/21/19 05:44 / SRW
METALS, TOTAL							
Calcium	73	mg/L		1		E200.7	09/25/19 10:41 / sld
Magnesium	23	mg/L		1		E200.7	09/25/19 10:41 / sld
Sodium	82	mg/L		1		E200.7	09/25/19 10:41 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-013
Client Sample ID: MDT-0918-113

Report Date: 10/01/19
Collection Date: 09/18/19 14:00
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	09/20/19 14:26 / SRW
pH Measurement Temp	15.4	°C				A4500-H B	09/20/19 14:26 / SRW
Conductivity @ 25 C	389	umhos/cm		1		A2510 B	09/20/19 14:26 / SRW
Solids, Total Dissolved TDS @ 180 C	223	mg/L		10		A2540 C	09/20/19 15:54 / SRW
INORGANICS							
Chloride	10	mg/L		1		E300.0	09/21/19 05:58 / SRW
METALS, TOTAL							
Calcium	47	mg/L		1		E200.7	09/25/19 10:45 / sld
Magnesium	11	mg/L		1		E200.7	09/25/19 10:45 / sld
Sodium	16	mg/L		1		E200.7	09/25/19 10:45 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-014
Client Sample ID: MDT-0918-114

Report Date: 10/01/19
Collection Date: 09/18/19 14:30
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	09/20/19 14:28 / SRW
pH Measurement Temp	15.4	°C				A4500-H B	09/20/19 14:28 / SRW
Conductivity @ 25 C	523	umhos/cm		1		A2510 B	09/20/19 14:28 / SRW
Solids, Total Dissolved TDS @ 180 C	297	mg/L		10		A2540 C	09/20/19 15:54 / SRW
INORGANICS							
Chloride	18	mg/L		1		E300.0	09/21/19 06:13 / SRW
METALS, TOTAL							
Calcium	58	mg/L		1		E200.7	09/25/19 10:49 / sld
Magnesium	15	mg/L		1		E200.7	09/25/19 10:49 / sld
Sodium	26	mg/L		1		E200.7	09/25/19 10:49 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-015
Client Sample ID: MDT-0918-115

Report Date: 10/01/19
Collection Date: 09/18/19 15:00
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	09/20/19 14:31 / SRW
pH Measurement Temp	15.6	°C				A4500-H B	09/20/19 14:31 / SRW
Conductivity @ 25 C	543	umhos/cm		1		A2510 B	09/20/19 14:31 / SRW
Solids, Total Dissolved TDS @ 180 C	316	mg/L		10		A2540 C	09/20/19 15:54 / SRW
INORGANICS							
Chloride	22	mg/L		1		E300.0	09/21/19 06:27 / SRW
METALS, TOTAL							
Calcium	64	mg/L		1		E200.7	09/25/19 11:00 / sld
Magnesium	16	mg/L		1		E200.7	09/25/19 11:00 / sld
Sodium	27	mg/L		1		E200.7	09/25/19 11:00 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-016
Client Sample ID: MDT-0918-116

Report Date: 10/01/19
Collection Date: 09/18/19 15:30
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	09/20/19 14:33 / SRW
pH Measurement Temp	15.8	°C				A4500-H B	09/20/19 14:33 / SRW
Conductivity @ 25 C	858	umhos/cm		1		A2510 B	09/20/19 14:33 / SRW
Solids, Total Dissolved TDS @ 180 C	491	mg/L		10		A2540 C	09/20/19 15:55 / SRW
INORGANICS							
Chloride	87	mg/L		1		E300.0	09/21/19 06:42 / SRW
METALS, TOTAL							
Calcium	90	mg/L		1		E200.7	09/25/19 11:04 / sld
Magnesium	25	mg/L		1		E200.7	09/25/19 11:04 / sld
Sodium	50	mg/L		1		E200.7	09/25/19 11:04 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-017
Client Sample ID: MDT-0918-117

Report Date: 10/01/19
Collection Date: 09/18/19 16:00
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	09/20/19 14:35 / SRW
pH Measurement Temp	15.9	°C				A4500-H B	09/20/19 14:35 / SRW
Conductivity @ 25 C	643	umhos/cm		1		A2510 B	09/20/19 14:35 / SRW
Solids, Total Dissolved TDS @ 180 C	365	mg/L		10		A2540 C	09/20/19 15:55 / SRW
INORGANICS							
Chloride	44	mg/L		1		E300.0	09/21/19 06:57 / SRW
METALS, TOTAL							
Calcium	73	mg/L		1		E200.7	09/25/19 11:08 / sld
Magnesium	17	mg/L		1		E200.7	09/25/19 11:08 / sld
Sodium	38	mg/L		1		E200.7	09/25/19 11:08 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-018
Client Sample ID: MDT-0918-118

Report Date: 10/01/19
Collection Date: 09/18/19 16:30
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	09/20/19 14:37 / SRW
pH Measurement Temp	15.9	°C				A4500-H B	09/20/19 14:37 / SRW
Conductivity @ 25 C	776	umhos/cm		1		A2510 B	09/20/19 14:37 / SRW
Solids, Total Dissolved TDS @ 180 C	453	mg/L		10		A2540 C	09/20/19 15:55 / SRW
INORGANICS							
Chloride	76	mg/L		1		E300.0	09/21/19 07:11 / SRW
METALS, TOTAL							
Calcium	90	mg/L		1		E200.7	09/25/19 11:11 / sld
Magnesium	21	mg/L		1		E200.7	09/25/19 11:11 / sld
Sodium	38	mg/L		1		E200.7	09/25/19 11:11 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-019
Client Sample ID: MDT-0918-119

Report Date: 10/01/19
Collection Date: 09/18/19 17:00
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	09/20/19 14:40 / SRW
pH Measurement Temp	16.4	°C				A4500-H B	09/20/19 14:40 / SRW
Conductivity @ 25 C	654	umhos/cm		1		A2510 B	09/20/19 14:40 / SRW
Solids, Total Dissolved TDS @ 180 C	362	mg/L		10		A2540 C	09/20/19 15:55 / SRW
INORGANICS							
Chloride	51	mg/L		1		E300.0	09/21/19 07:26 / SRW
METALS, TOTAL							
Calcium	66	mg/L		1		E200.7	09/25/19 11:15 / sld
Magnesium	23	mg/L		1		E200.7	09/25/19 11:15 / sld
Sodium	39	mg/L		1		E200.7	09/25/19 11:15 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-020
Client Sample ID: MDT-0918-120

Report Date: 10/01/19
Collection Date: 09/18/19 17:30
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	09/20/19 14:42 / SRW
pH Measurement Temp	16.8	°C				A4500-H B	09/20/19 14:42 / SRW
Conductivity @ 25 C	924	umhos/cm		1		A2510 B	09/20/19 14:42 / SRW
Solids, Total Dissolved TDS @ 180 C	520	mg/L		10		A2540 C	09/20/19 15:56 / SRW
INORGANICS							
Chloride	121	mg/L		1		E300.0	09/21/19 07:40 / SRW
METALS, TOTAL							
Calcium	79	mg/L		1		E200.7	09/25/19 11:19 / sld
Magnesium	22	mg/L		1		E200.7	09/25/19 11:19 / sld
Sodium	79	mg/L		1		E200.7	09/25/19 11:19 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-021
Client Sample ID: MDT-0918-121

Report Date: 10/01/19
Collection Date: 09/18/19 18:00
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	09/20/19 14:55 / SRW
pH Measurement Temp	17.7	°C				A4500-H B	09/20/19 14:55 / SRW
Conductivity @ 25 C	1150	umhos/cm		1		A2510 B	09/20/19 14:55 / SRW
Solids, Total Dissolved TDS @ 180 C	689	mg/L		10		A2540 C	09/20/19 15:56 / SRW
INORGANICS							
Chloride	195	mg/L		1		E300.0	09/21/19 07:55 / SRW
METALS, TOTAL							
Calcium	106	mg/L		1		E200.7	09/25/19 11:30 / sld
Magnesium	27	mg/L		1		E200.7	09/25/19 11:30 / sld
Sodium	91	mg/L		1		E200.7	09/25/19 11:30 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-022
Client Sample ID: MDT-0918-122

Report Date: 10/01/19
Collection Date: 09/18/19 18:20
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Conductivity @ 25 C	1190	umhos/cm		1		A2510 B	09/20/19 14:59 / SRW
Solids, Total Dissolved TDS @ 180 C	737	mg/L		10		A2540 C	09/20/19 15:57 / SRW
METALS, TOTAL							
Arsenic	0.003	mg/L		0.001		E200.8	09/26/19 17:18 / dck
Iron	1.53	mg/L		0.02		E200.7	09/25/19 11:56 / sld
Manganese	0.054	mg/L		0.001		E200.8	09/27/19 14:55 / dck

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-023
Client Sample ID: MDT-0918-123

Report Date: 10/01/19
Collection Date: 09/18/19 18:40
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Conductivity @ 25 C	1200	umhos/cm		1		A2510 B	09/20/19 15:02 / SRW
Solids, Total Dissolved TDS @ 180 C	736	mg/L		10		A2540 C	09/20/19 15:57 / SRW
METALS, TOTAL							
Arsenic	0.003	mg/L		0.001		E200.8	09/26/19 17:20 / dck
Iron	1.55	mg/L		0.02		E200.7	09/25/19 12:00 / sld
Manganese	0.056	mg/L		0.001		E200.8	09/27/19 14:57 / dck

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-024
Client Sample ID: MDT-0918-124

Report Date: 10/01/19
Collection Date: 09/18/19 19:00
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	09/20/19 15:04 / SRW
pH Measurement Temp	16.2	°C				A4500-H B	09/20/19 15:04 / SRW
Conductivity @ 25 C	815	umhos/cm		1		A2510 B	09/20/19 15:04 / SRW
Solids, Total Dissolved TDS @ 180 C	446	mg/L		10		A2540 C	09/20/19 15:57 / SRW
INORGANICS							
Chloride	104	mg/L		1		E300.0	09/21/19 09:22 / SRW
METALS, TOTAL							
Calcium	74	mg/L		1		E200.7	09/25/19 12:04 / sld
Magnesium	23	mg/L		1		E200.7	09/25/19 12:04 / sld
Sodium	56	mg/L		1		E200.7	09/25/19 12:04 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-025
Client Sample ID: MDT-0918-125

Report Date: 10/01/19
Collection Date: 09/18/19 19:20
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	09/20/19 15:06 / SRW
pH Measurement Temp	16.4	°C				A4500-H B	09/20/19 15:06 / SRW
Conductivity @ 25 C	938	umhos/cm		1		A2510 B	09/20/19 15:06 / SRW
Solids, Total Dissolved TDS @ 180 C	509	mg/L		10		A2540 C	09/20/19 15:57 / SRW
INORGANICS							
Chloride	136	mg/L		1		E300.0	09/21/19 09:36 / SRW
METALS, TOTAL							
Calcium	75	mg/L		1		E200.7	09/25/19 12:08 / sld
Magnesium	20	mg/L		1		E200.7	09/25/19 12:08 / sld
Sodium	81	mg/L		1		E200.7	09/25/19 12:08 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-026
Client Sample ID: MDT-0918-126

Report Date: 10/01/19
Collection Date: 09/18/19 19:40
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	09/20/19 15:09 / SRW
pH Measurement Temp	16.5	°C				A4500-H B	09/20/19 15:09 / SRW
Conductivity @ 25 C	1050	umhos/cm		1		A2510 B	09/20/19 15:09 / SRW
Solids, Total Dissolved TDS @ 180 C	579	mg/L		10		A2540 C	09/20/19 15:58 / SRW
INORGANICS							
Chloride	145	mg/L		1		E300.0	09/21/19 09:51 / SRW
METALS, TOTAL							
Calcium	85	mg/L		1		E200.7	09/25/19 12:12 / sld
Magnesium	26	mg/L		1		E200.7	09/25/19 12:12 / sld
Sodium	87	mg/L		1		E200.7	09/25/19 12:12 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-027
Client Sample ID: MDT-0918-127

Report Date: 10/01/19
Collection Date: 09/18/19 20:00
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	09/20/19 15:11 / SRW
pH Measurement Temp	16.7	°C				A4500-H B	09/20/19 15:11 / SRW
Conductivity @ 25 C	893	umhos/cm		1		A2510 B	09/20/19 15:11 / SRW
Solids, Total Dissolved TDS @ 180 C	487	mg/L		10		A2540 C	09/20/19 15:58 / SRW
INORGANICS							
Chloride	128	mg/L		1		E300.0	09/21/19 10:05 / SRW
METALS, TOTAL							
Calcium	65	mg/L		1		E200.7	09/25/19 12:15 / sld
Magnesium	18	mg/L		1		E200.7	09/25/19 12:15 / sld
Sodium	90	mg/L		1		E200.7	09/25/19 12:15 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-028
Client Sample ID: MDT-0919-128

Report Date: 10/01/19
Collection Date: 09/19/19 08:00
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.4	s.u.	H	0.1		A4500-H B	09/20/19 15:13 / SRW
pH Measurement Temp	17.0	°C				A4500-H B	09/20/19 15:13 / SRW
Conductivity @ 25 C	1080	umhos/cm		1		A2510 B	09/20/19 15:13 / SRW
Solids, Total Dissolved TDS @ 180 C	608	mg/L		10		A2540 C	09/20/19 15:58 / SRW
INORGANICS							
Chloride	193	mg/L		1		E300.0	09/21/19 10:20 / SRW
METALS, TOTAL							
Calcium	84	mg/L		1		E200.7	09/25/19 12:19 / sld
Magnesium	26	mg/L		1		E200.7	09/25/19 12:19 / sld
Sodium	93	mg/L		1		E200.7	09/25/19 12:19 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-029
Client Sample ID: MDT-0919-129

Report Date: 10/01/19
Collection Date: 09/19/19 08:30
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.4	s.u.	H	0.1		A4500-H B	09/20/19 15:15 / SRW
pH Measurement Temp	17.2	°C				A4500-H B	09/20/19 15:15 / SRW
Conductivity @ 25 C	1080	umhos/cm		1		A2510 B	09/20/19 15:15 / SRW
Solids, Total Dissolved TDS @ 180 C	613	mg/L		10		A2540 C	09/20/19 15:58 / SRW
INORGANICS							
Chloride	193	mg/L		1		E300.0	09/21/19 10:34 / SRW
METALS, TOTAL							
Calcium	78	mg/L		1		E200.7	09/25/19 13:08 / sld
Magnesium	26	mg/L		1		E200.7	09/25/19 13:08 / sld
Sodium	92	mg/L		1		E200.7	09/25/19 13:08 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-030
Client Sample ID: MDT-0919-130

Report Date: 10/01/19
Collection Date: 09/19/19 09:00
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Conductivity @ 25 C	346	umhos/cm		1		A2510 B	09/20/19 15:18 / SRW
Solids, Total Dissolved TDS @ 180 C	222	mg/L		10		A2540 C	09/20/19 15:59 / SRW
METALS, TOTAL							
Arsenic	0.001	mg/L		0.001		E200.8	09/26/19 17:23 / dck
Iron	0.04	mg/L		0.02		E200.8	09/26/19 17:23 / dck
Manganese	0.006	mg/L		0.001		E200.8	09/27/19 15:00 / dck

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-031
Client Sample ID: MDT-0919-131

Report Date: 10/01/19
Collection Date: 09/19/19 09:30
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	09/20/19 15:20 / SRW
pH Measurement Temp	17.8	°C				A4500-H B	09/20/19 15:20 / SRW
Conductivity @ 25 C	840	umhos/cm		1		A2510 B	09/20/19 15:20 / SRW
Solids, Total Dissolved TDS @ 180 C	462	mg/L		10		A2540 C	09/20/19 15:59 / SRW
INORGANICS							
Chloride	83	mg/L		1		E300.0	09/21/19 10:49 / SRW
METALS, TOTAL							
Calcium	61	mg/L		1		E200.7	09/25/19 13:16 / sld
Magnesium	21	mg/L		1		E200.7	09/25/19 13:16 / sld
Sodium	80	mg/L		1		E200.7	09/25/19 13:16 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-032
Client Sample ID: MDT-0919-132

Report Date: 10/01/19
Collection Date: 09/19/19 10:00
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	09/20/19 15:22 / SRW
pH Measurement Temp	17.8	°C				A4500-H B	09/20/19 15:22 / SRW
Conductivity @ 25 C	656	umhos/cm		1		A2510 B	09/20/19 15:22 / SRW
Solids, Total Dissolved TDS @ 180 C	368	mg/L		10		A2540 C	09/20/19 16:28 / SRW
INORGANICS							
Chloride	59	mg/L		1		E300.0	09/21/19 11:03 / SRW
METALS, TOTAL							
Calcium	68	mg/L		1		E200.7	09/25/19 13:34 / sld
Magnesium	18	mg/L		1		E200.7	09/25/19 13:34 / sld
Sodium	29	mg/L		1		E200.7	09/25/19 13:34 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19090497-033
Client Sample ID: MDT-0919-133

Report Date: 10/01/19
Collection Date: 09/19/19 10:30
DateReceived: 09/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	09/20/19 15:25 / SRW
pH Measurement Temp	17.7	°C				A4500-H B	09/20/19 15:25 / SRW
Conductivity @ 25 C	1310	umhos/cm		1		A2510 B	09/20/19 15:25 / SRW
Solids, Total Dissolved TDS @ 180 C	706	mg/L		10		A2540 C	09/20/19 16:28 / SRW
INORGANICS							
Chloride	250	mg/L		1		E300.0	09/21/19 11:18 / SRW
METALS, TOTAL							
Calcium	54	mg/L		1		E200.7	09/25/19 13:38 / sld
Magnesium	15	mg/L		1		E200.7	09/25/19 13:38 / sld
Sodium	184	mg/L		1		E200.7	09/25/19 13:38 / sld

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

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19090497 **Report Date:** 10/01/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2510 B									Analytical Run: PHSC_101-H_190920A	
Lab ID: SC 150		Initial Calibration Verification Standard							09/20/19 09:12	
Conductivity @ 25 C		159	umhos/cm	1.0	106	90	110			
Lab ID: SC 20000		Initial Calibration Verification Standard							09/20/19 09:14	
Conductivity @ 25 C		20100	umhos/cm	1.0	100	90	110			
Lab ID: SC 5000		Initial Calibration Verification Standard							09/20/19 09:17	
Conductivity @ 25 C		5070	umhos/cm	1.0	101	90	110			
Lab ID: CCV - SC 1413		Continuing Calibration Verification Standard							09/20/19 14:49	
Conductivity @ 25 C		1450	umhos/cm	1.0	103	90	110			
Method: A2510 B										Batch: R147954
Lab ID: SC 1000		Laboratory Control Sample				Run: PHSC_101-H_190920A			09/20/19 09:19	
Conductivity @ 25 C		1030	umhos/cm	1.0	103	90	110			
Lab ID: H19090497-001ADUP		Sample Duplicate				Run: PHSC_101-H_190920A			09/20/19 13:59	
Conductivity @ 25 C		757	umhos/cm	1.0				1.3	10	
Lab ID: H19090497-020ADUP		Sample Duplicate				Run: PHSC_101-H_190920A			09/20/19 14:44	
Conductivity @ 25 C		920	umhos/cm	1.0				0.4	10	
Lab ID: H19090497-021ADUP		Sample Duplicate				Run: PHSC_101-H_190920A			09/20/19 14:57	
Conductivity @ 25 C		1180	umhos/cm	1.0				2.4	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19090497 **Report Date:** 10/01/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: TDS190920A
Lab ID: MB-49_190920A		Method Blank				Run: ACCU-124 (14410200)_19092			09/20/19 15:47	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-50_190920A		Laboratory Control Sample				Run: ACCU-124 (14410200)_19092			09/20/19 15:47	
Solids, Total Dissolved TDS @ 180 C		1990	mg/L	20	100	90	110			
Lab ID: H19090458-003A DUP		Sample Duplicate				Run: ACCU-124 (14410200)_19092			09/20/19 15:48	
Solids, Total Dissolved TDS @ 180 C		6610	mg/L	100				0.5	5	
Lab ID: H19090493-019A DUP		Sample Duplicate				Run: ACCU-124 (14410200)_19092			09/20/19 15:50	
Solids, Total Dissolved TDS @ 180 C		1030	mg/L	20				0.8	5	
Lab ID: MB-73_190920A		Method Blank				Run: ACCU-124 (14410200)_19092			09/20/19 15:52	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-74_190920A		Laboratory Control Sample				Run: ACCU-124 (14410200)_19092			09/20/19 15:52	
Solids, Total Dissolved TDS @ 180 C		2000	mg/L	20	100	90	110			
Lab ID: H19090497-006A DUP		Sample Duplicate				Run: ACCU-124 (14410200)_19092			09/20/19 15:53	
Solids, Total Dissolved TDS @ 180 C		239	mg/L	10				0.4	5	
Lab ID: H19090497-016A DUP		Sample Duplicate				Run: ACCU-124 (14410200)_19092			09/20/19 15:55	
Solids, Total Dissolved TDS @ 180 C		493	mg/L	10				0.4	5	
Lab ID: MB-97_190920A		Method Blank				Run: ACCU-124 (14410200)_19092			09/20/19 15:57	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-98_190920A		Laboratory Control Sample				Run: ACCU-124 (14410200)_19092			09/20/19 15:57	
Solids, Total Dissolved TDS @ 180 C		2010	mg/L	20	100	90	110			
Lab ID: H19090497-026A DUP		Sample Duplicate				Run: ACCU-124 (14410200)_19092			09/20/19 15:58	
Solids, Total Dissolved TDS @ 180 C		577	mg/L	10				0.3	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19090497 **Report Date:** 10/01/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B									Analytical Run: PHSC_101-H_190920A	
Lab ID: pH 7	2	Initial Calibration Verification Standard							09/20/19 09:07	
pH		7.0	s.u.	0.1	100	98	102			
pH Measurement Temp		20.5	°C			0	0			
Lab ID: CCV - pH 7	2	Continuing Calibration Verification Standard							09/20/19 14:47	
pH		7.0	s.u.	0.1	100	98	102			
pH Measurement Temp		18.9	°C			0	0			
Method: A4500-H B										Batch: R147954
Lab ID: H19090497-001ADUP	2	Sample Duplicate				Run: PHSC_101-H_190920A			09/20/19 13:59	
pH		7.5	s.u.	0.1				0.1	3	
pH Measurement Temp		15.7	°C							
Lab ID: H19090497-020ADUP	2	Sample Duplicate				Run: PHSC_101-H_190920A			09/20/19 14:44	
pH		7.6	s.u.	0.1				0.1	3	
pH Measurement Temp		16.9	°C							
Lab ID: H19090497-021ADUP	2	Sample Duplicate				Run: PHSC_101-H_190920A			09/20/19 14:57	
pH		7.6	s.u.	0.1				0.3	3	
pH Measurement Temp		17.3	°C							

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19090497 **Report Date:** 10/01/19

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E200.7**									Analytical Run: ICP2-HE_190925A	
Lab ID:	**ICV**	4	Initial Calibration Verification Standard								09/25/19 08:29
Calcium			40.3	mg/L	1.0	101	95	105			
Iron			3.98	mg/L	0.020	99	95	105			
Magnesium			39.1	mg/L	1.0	98	95	105			
Sodium			39.8	mg/L	1.0	99	95	105			
Lab ID:	**CCV-1**	4	Continuing Calibration Verification Standard								09/25/19 08:33
Calcium			25.6	mg/L	1.0	103	95	105			
Iron			2.50	mg/L	0.020	100	95	105			
Magnesium			24.5	mg/L	1.0	98	95	105			
Sodium			24.5	mg/L	1.0	98	95	105			
Lab ID:	**ICSA**	4	Interference Check Sample A								09/25/19 08:48
Calcium			491	mg/L	1.0	98	80	120			
Iron			187	mg/L	0.020	94	80	120			
Magnesium			528	mg/L	1.0	106	80	120			
Sodium			0.0225	mg/L	1.0		0	0			
Lab ID:	**ICSAB**	4	Interference Check Sample AB								09/25/19 08:52
Calcium			496	mg/L	1.0	99	80	120			
Iron			188	mg/L	0.020	94	80	120			
Magnesium			529	mg/L	1.0	106	80	120			
Sodium			20.5	mg/L	1.0	103	80	120			
Lab ID:	**CCV**	4	Continuing Calibration Verification Standard								09/25/19 09:22
Calcium			26.2	mg/L	1.0	105	90	110			
Iron			2.54	mg/L	0.020	102	90	110			
Magnesium			24.6	mg/L	1.0	98	90	110			
Sodium			24.7	mg/L	1.0	99	90	110			
Lab ID:	**CCV**	4	Continuing Calibration Verification Standard								09/25/19 10:07
Calcium			26.0	mg/L	1.0	104	90	110			
Iron			2.53	mg/L	0.020	101	90	110			
Magnesium			24.3	mg/L	1.0	97	90	110			
Sodium			25.0	mg/L	1.0	100	90	110			
Lab ID:	**CCV**	4	Continuing Calibration Verification Standard								09/25/19 10:53
Calcium			26.4	mg/L	1.0	105	90	110			
Iron			2.56	mg/L	0.020	102	90	110			
Magnesium			24.7	mg/L	1.0	99	90	110			
Sodium			24.7	mg/L	1.0	99	90	110			
Lab ID:	**CCV**	4	Continuing Calibration Verification Standard								09/25/19 11:38
Calcium			26.7	mg/L	1.0	107	90	110			
Iron			2.58	mg/L	0.020	103	90	110			
Magnesium			25.0	mg/L	1.0	100	90	110			
Sodium			25.8	mg/L	1.0	103	90	110			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19090497 **Report Date:** 10/01/19

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E200.7**									Analytical Run: ICP2-HE_190925A	
Lab ID:	**CCV**	4	Continuing Calibration Verification Standard							09/25/19 12:49	
Calcium			24.4	mg/L	1.0	98	90	110			
Iron			2.43	mg/L	0.020	97	90	110			
Magnesium			24.0	mg/L	1.0	96	90	110			
Sodium			24.4	mg/L	1.0	98	90	110			
Method:	**E200.7**									Batch: 47916	
Lab ID:	**MB-47916**	3	Method Blank				Run: ICP2-HE_190925A			09/25/19 09:07	
Calcium			ND	mg/L	0.09						
Magnesium			ND	mg/L	0.03						
Sodium			ND	mg/L	0.06						
Lab ID:	**LCS-47916**	3	Laboratory Control Sample				Run: ICP2-HE_190925A			09/25/19 09:11	
Calcium			25.9	mg/L	1.0	104	85	115			
Magnesium			24.4	mg/L	1.0	98	85	115			
Sodium			25.7	mg/L	1.0	103	85	115			
Lab ID:	**H19090497-002BMS3**	3	Sample Matrix Spike				Run: ICP2-HE_190925A			09/25/19 09:37	
Calcium			116	mg/L	1.0	91	70	130			
Magnesium			48.5	mg/L	1.0	95	70	130			
Sodium			57.2	mg/L	1.0	97	70	130			
Lab ID:	**H19090497-002BMSD**	3	Sample Matrix Spike Duplicate				Run: ICP2-HE_190925A			09/25/19 09:41	
Calcium			116	mg/L	1.0	87	70	130	0.8	20	
Magnesium			48.6	mg/L	1.0	96	70	130	0.2	20	
Sodium			57.9	mg/L	1.0	100	70	130	1.2	20	
Lab ID:	**H19090497-011BMS3**	3	Sample Matrix Spike				Run: ICP2-HE_190925A			09/25/19 10:34	
Calcium			28.1	mg/L	1.0	104	70	130			
Magnesium			25.1	mg/L	1.0	98	70	130			
Sodium			230	mg/L	1.0		70	130			A
Lab ID:	**H19090497-011BMSD**	3	Sample Matrix Spike Duplicate				Run: ICP2-HE_190925A			09/25/19 10:38	
Calcium			28.4	mg/L	1.0	105	70	130	0.9	20	
Magnesium			25.4	mg/L	1.0	99	70	130	0.8	20	
Sodium			235	mg/L	1.0		70	130	1.9	20	A
Method:	**E200.7**									Batch: 47917	
Lab ID:	**MB-47917**	4	Method Blank				Run: ICP2-HE_190925A			09/25/19 11:23	
Calcium			ND	mg/L	0.09						
Iron			ND	mg/L	0.01						
Magnesium			ND	mg/L	0.03						
Sodium			ND	mg/L	0.06						
Lab ID:	**LCS-47917**	4	Laboratory Control Sample				Run: ICP2-HE_190925A			09/25/19 11:27	
Calcium			25.9	mg/L	1.0	104	85	115			
Iron			2.50	mg/L	0.020	100	85	115			
Magnesium			24.2	mg/L	1.0	97	85	115			
Sodium			24.9	mg/L	1.0	100	85	115			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19090497 **Report Date:** 10/01/19

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E200.7**										Batch: 47917
Lab ID:	**LCS-47917**	4	Laboratory Control Sample				Run: ICP2-HE_190925A			09/25/19 11:27	
Lab ID:	**H19090497-021BMS3**	4	Sample Matrix Spike				Run: ICP2-HE_190925A			09/25/19 11:49	
Calcium			131	mg/L	1.0		70	130			A
Iron			2.68	mg/L	0.020	101	70	130			
Magnesium			51.5	mg/L	1.0	98	70	130			
Sodium			115	mg/L	1.0	98	70	130			
Lab ID:	**H19090497-021BMSD**	4	Sample Matrix Spike Duplicate				Run: ICP2-HE_190925A			09/25/19 11:52	
Calcium			132	mg/L	1.0		70	130	0.5	20	A
Iron			2.70	mg/L	0.020	101	70	130	0.5	20	
Magnesium			51.7	mg/L	1.0	99	70	130	0.5	20	
Sodium			115	mg/L	1.0	98	70	130	0.1	20	
Lab ID:	**H19090497-031BMS3**	4	Sample Matrix Spike				Run: ICP2-HE_190925A			09/25/19 13:27	
Calcium			84.7	mg/L	1.0	94	70	130			
Iron			2.43	mg/L	0.020	95	70	130			
Magnesium			45.2	mg/L	1.0	96	70	130			
Sodium			104	mg/L	1.0	98	70	130			
Lab ID:	**H19090497-031BMSD**	4	Sample Matrix Spike Duplicate				Run: ICP2-HE_190925A			09/25/19 13:30	
Calcium			84.1	mg/L	1.0	92	70	130	0.8	20	
Iron			2.42	mg/L	0.020	95	70	130	0.4	20	
Magnesium			44.8	mg/L	1.0	94	70	130	0.8	20	
Sodium			106	mg/L	1.0	104	70	130	1.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19090497 **Report Date:** 10/01/19

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E200.8**								Analytical Run: ICPMS205-H_190926B		
Lab ID:	**ICV**	2	Initial Calibration Verification Standard							09/26/19 15:32	
Arsenic			0.0634	mg/L	0.0050	106	90	110			
Iron			0.330	mg/L	0.020	110	90	110			
Lab ID:	**ICSA**	2	Interference Check Sample A							09/26/19 15:34	
Arsenic			2.43E-05	mg/L	0.0050						
Iron			101	mg/L	0.020	101	70	130			
Lab ID:	**ICSAB**	2	Interference Check Sample AB							09/26/19 15:37	
Arsenic			0.0102	mg/L	0.0050	102	70	130			
Iron			101	mg/L	0.020	101	70	130			
Method:	**E200.8**										Batch: 47917
Lab ID:	**MB-47917**	3	Method Blank				Run: ICPMS205-H_190926B			09/26/19 17:11	
Arsenic			ND	mg/L	4E-05						
Iron			ND	mg/L	0.004						
Manganese			ND	mg/L	0.0003						
Lab ID:	**LCS-47917**	3	Laboratory Control Sample				Run: ICPMS205-H_190926B			09/26/19 17:30	
Arsenic			0.469	mg/L	0.0010	94	85	115			
Iron			2.43	mg/L	0.020	97	85	115			
Manganese			2.41	mg/L	0.0010	96	85	115			
Lab ID:	**H19090497-021BMS3**	3	Sample Matrix Spike				Run: ICPMS205-H_190926B			09/26/19 17:32	
Arsenic			0.475	mg/L	0.0010	95	70	130			
Iron			2.61	mg/L	0.020	98	70	130			
Manganese			2.43	mg/L	0.0010	97	70	130			
Lab ID:	**H19090497-021BMSD**	3	Sample Matrix Spike Duplicate				Run: ICPMS205-H_190926B			09/26/19 17:35	
Arsenic			0.473	mg/L	0.0010	94	70	130	0.5	20	
Iron			2.60	mg/L	0.020	97	70	130	0.4	20	
Manganese			2.42	mg/L	0.0010	97	70	130	0.5	20	
Lab ID:	**H19090497-031BMS3**	3	Sample Matrix Spike				Run: ICPMS205-H_190926B			09/26/19 18:01	
Arsenic			0.460	mg/L	0.0010	92	70	130			
Iron			2.39	mg/L	0.020	94	70	130			
Manganese			2.40	mg/L	0.0010	94	70	130			
Lab ID:	**H19090497-031BMSD**	3	Sample Matrix Spike Duplicate				Run: ICPMS205-H_190926B			09/26/19 18:03	
Arsenic			0.467	mg/L	0.0010	93	70	130	1.6	20	
Iron			2.42	mg/L	0.020	95	70	130	1.2	20	
Manganese			2.43	mg/L	0.0010	95	70	130	1.2	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19090497 **Report Date:** 10/01/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS205-H_190927C		
Lab ID: ICV		Initial Calibration Verification Standard								09/27/19 13:32
Manganese		0.300	mg/L	0.010	100	90	110			
Lab ID: ICSA		Interference Check Sample A								09/27/19 13:34
Manganese		0.000289	mg/L	0.010						
Lab ID: ICSAB		Interference Check Sample AB								09/27/19 13:36
Manganese		0.0206	mg/L	0.010	103	70	130			
Method: E200.8										Batch: 47917
Lab ID: MB-47917	3	Method Blank				Run: ICPMS205-H_190927C				09/27/19 14:46
Arsenic		ND	mg/L	4E-05						
Iron		ND	mg/L	0.004						
Manganese		ND	mg/L	0.0003						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19090497 **Report Date:** 10/01/19

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E300.0**							Analytical Run: IC METROHM_190920A			
Lab ID:	**ICV**	Initial Calibration Verification Standard								09/20/19 09:55	
Chloride			96.4	mg/L	1.0	96	90	110			
Lab ID:	**CCV**	Continuing Calibration Verification Standard								09/20/19 21:31	
Chloride			47.9	mg/L	1.0	96	90	110			
Lab ID:	**CCV**	Continuing Calibration Verification Standard								09/21/19 01:23	
Chloride			52.3	mg/L	1.0	105	90	110			
Lab ID:	**CCV**	Continuing Calibration Verification Standard								09/21/19 05:00	
Chloride			53.1	mg/L	1.0	106	90	110			
Lab ID:	**CCV**	Continuing Calibration Verification Standard								09/21/19 08:38	
Chloride			52.8	mg/L	1.0	106	90	110			
Method:	**E300.0**										Batch: R148004
Lab ID:	**ICB**	Method Blank					Run: IC METROHM_190920A			09/20/19 09:40	
Chloride			ND	mg/L	0.02						
Lab ID:	**LFB**	Laboratory Fortified Blank					Run: IC METROHM_190920A			09/20/19 10:09	
Chloride			23.6	mg/L	1.0	95	90	110			
Lab ID:	**H19090497-001AMS**	Sample Matrix Spike					Run: IC METROHM_190920A			09/21/19 00:54	
Chloride			114	mg/L	1.0	142	90	110			S
Lab ID:	**H19090497-001AMSD**	Sample Matrix Spike Duplicate					Run: IC METROHM_190920A			09/21/19 01:08	
Chloride			113	mg/L	1.0	138	90	110	0.8	20	S
Lab ID:	**H19090497-011AMS**	Sample Matrix Spike					Run: IC METROHM_190920A			09/21/19 04:31	
Chloride			139	mg/L	1.0		90	110			A
Lab ID:	**H19090497-011AMSD**	Sample Matrix Spike Duplicate					Run: IC METROHM_190920A			09/21/19 04:46	
Chloride			141	mg/L	1.0		90	110	0.9	20	A
Lab ID:	**H19090497-021AMS**	Sample Matrix Spike					Run: IC METROHM_190920A			09/21/19 08:09	
Chloride			245	mg/L	1.0	100	90	110			
Lab ID:	**H19090497-021AMSD**	Sample Matrix Spike Duplicate					Run: IC METROHM_190920A			09/21/19 08:24	
Chloride			246	mg/L	1.0	101	90	110	0.4	20	
Lab ID:	**H19090512-001BMS**	Sample Matrix Spike					Run: IC METROHM_190920A			09/21/19 11:47	
Chloride			33.2	mg/L	1.0	101	90	110			
Lab ID:	**H19090512-001BMSD**	Sample Matrix Spike Duplicate					Run: IC METROHM_190920A			09/21/19 12:01	
Chloride			32.9	mg/L	1.0	100	90	110	0.8	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

S - Spike recovery outside of advisory limits.

Work Order Receipt Checklist

MT Dept of Transportation

H19090497

Login completed by: Jessica C. Smith

Date Received: 9/19/2019

Reviewed by: BL2000\rtooke

Received by: wjj

Reviewed Date: 9/23/2019

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C See Comments		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Cooler 1 was received at 0.8 °C, Cooler 2 at 0.4 °C, Cooler 3 at 0.7 °C, and Cooler 4 at 0.2 °C. On Ice. Time on metals sample for MDT-0918-127 is 18:00 -Time on COC is 20.00. Used time from COC. JCS 09/20/19

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Account Information (Billing information)

Company/Name	MOT ENVIRONMENTAL SERVICES
Contact	BRIAN GOODMAN
Phone	406 444-7632
Mailing Address	2701 PROSPECT AVE.
City, State, Zip	HELENA, MT 59620
Email	bgoodman@mt.gov
Receive Invoice	☐Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	
Bottle Order	31715

Report Information (if different than Account Information)

Company/Name	KERK ENGINEERING & NATURAL RESOURCES
Contact	BEN OSBORN
Phone	406 595-1145
Mailing Address	1709 PARK VIEW PL.
City, State, Zip	BOZEMAN, MT 59715
Email	BEN.OSBORN@NREMONTANA.COM
Receive Report	☐Hard Copy ☒Email EXCEL

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

Project Information

Project Name, PWSID, Permit, etc.	MOT PLAINS
Sampler Name	JAMES OSBORN
Sampler Phone	406 595-1145
Sample Origin State	MT
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	A2540C TDS	A4500-HB pH	A2510B Conductivity	E300.0 Anions Cl	E200.7-8 Ca, Mg, Na Total Metals					See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	MOT-0918-101	9-18-19	8:00	2	W	✓	✓	✓	✓	✓							H19090497
2	MOT-0918-102	9-18-19	8:30	2	W	✓	✓	✓	✓	✓							
3	MOT-0918-103	9-18-19	9:00	2	W	✓	✓	✓	✓	✓							
4	MOT-0918-104	9-18-19	9:30	2	W	✓	✓	✓	✓	✓							
5	MOT-0918-105	9-18-19	10:00	2	W	✓	✓	✓	✓	✓							
6	MOT-0918-106	9-18-19	10:30	2	W	✓	✓	✓	✓	✓							
7	MOT-0918-107	9-18-19	11:00	2	W	✓	✓	✓	✓	✓							
8	MOT-0918-108	9-18-19	~~12:00~~ 11:30	2	W	✓	✓	✓	✓	✓							
9	MOT-0918-109	9-18-19	~~12:30~~ 12:00	2	W	✓	✓	✓	✓	✓							
10	MOT-0918-110	9-18-19	~~13:00~~ 12:30	2	W	✓	✓	✓	✓	✓							

C1

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	JAMES OSBORN	9-19-19 14:44				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print) Wanda Sm	Date/Time 9-19-19 14	Signature

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
hand del	y	Y N C B	Y N	C1-6.8°C C2-0.4 C-3 0.7 C-4-0.2	Y N	Y N	CC Cash Check_____	$	

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

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Account Information (Billing information)

Company/Name	
Contact	
Phone	SAME
Mailing Address	
City, State, Zip	
Email	
Receive Invoice ☐Hard Copy ☐Email	Receive Report ☐Hard Copy ☐Email
Purchase Order	Quote / Bottle Order

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	SAME
Mailing Address	
City, State, Zip	
Email	
Receive Report ☐Hard Copy ☐Email	
Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other	

Comments

Project Information

Project Name, PWSID, Permit, etc.	SAME
Sampler Name	Sampler Phone
Sample Origin State	EPA/State Compliance ☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

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B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	A2540C TDS	CONDUCTIVITY A4500-H+B pH	A300.0 ANIONS CL	E200.7-B Ca, Mg, Na TOTAL METALS	E200.7-B As, Fe, Mn TOTAL METALS	A2510B CONDUCTIVITY				See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
C2	1 MOT-0918-111	9-18-19	13:00	2	W	✓	✓	✓	✓		✓						
	2 MOT-0918-112	9-18-19	13:30	2	W	✓	✓	✓	✓		✓						H19090497
	3 MOT-0918-113	9-18-19	14:00	2	W	✓	✓	✓	✓		✓						
C3	4 MOT-0918-114	9-18-19	14:30	2	W	✓	✓	✓	✓		✓						
C2	5 MOT-0918-115	9-18-19	15:00	2	W	✓	✓	✓	✓		✓						
	6 MOT-0918-116	9-18-19	15:30	2	W	✓	✓	✓	✓		✓						
C3	7 MOT-0918-117	9-18-19	16:00	2	W	✓	✓	✓	✓		✓						
C2	8 MOT-0918-118	9-18-19	16:30	2	W	✓	✓	✓	✓		✓						
	9 MOT-0918-119	9-18-19	17:00	2	W	✓	✓	✓	✓		✓						
	10 MOT-0918-120	9-18-19	17:30	2	W	✓	✓	✓	✓		✓						

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	JAMES OSBORN	9-19-19 14:45				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Wanda Jones	9-19-19 14	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
hand del	Y	Y N C B	Y N	C1-0.8°C C2-0.4 C3-0.7 C4-0.2	N	N	CC Cash Check	$	

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Account Information (Billing information)

Company/Name
Contact SAME
Phone
Mailing Address
City, State, Zip
Email
Receive Invoice ☐Hard Copy ☐Email | Receive Report ☐Hard Copy ☐Email
Purchase Order | Quote | Bottle Order

Report Information (if different than Account Information)

Company/Name
Contact SAME
Phone
Mailing Address
City, State, Zip
Email
Receive Report ☐Hard Copy ☐Email
Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other

Comments

Project Information

Project Name, PWSID, Permit, etc. SAME
Sampler Name | Sampler Phone
Sample Origin State | EPA/State Compliance ☐ Yes ☐ No
MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	A2540C TDS	A4500-H+B pH	Anions Cl E300.0	Ca, Mg, Na E200.7-B Total Metals	A2510B Conductivity	As, Fe, Mn E200.7-B Total Metals	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	MDT-0918-121	9-18-19	18:00	2	W	✓	✓	✓	✓	✓				H19090497
2	MDT-0918-122	9-18-19	18:20	2	W	✓				✓	✓			
3	MDT-0918-123	9-18-19	18:40	2	W	✓				✓	✓			
4	MDT-0918-124	9-18-19	19:00	2	W	✓	✓	✓	✓	✓				
5	MDT-0918-125	9-18-19	19:20	2	W	✓	✓	✓	✓	✓				
6	MDT-0918-126	9-18-19	19:40	2	W	✓	✓	✓	✓	✓				
7	MDT-0918-127	9-18-19	20:00	2	W	✓	✓	✓	✓	✓				
8	MDT-0919-128	9-19-19	8:00	2	W	✓	✓	✓	✓	✓				
9	MDT-0919-129	9-19-19	8:30	2	W	✓	✓	✓	✓	✓				
10	MDT-0919-130	9-19-19	9:00	2	W	✓				✓	✓			

C2 C4 C4 C3

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	JAMES OSBORN	9-19-19 14:45				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Wanda	9-19-19 14	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
hand del	1	Y N C B	Y N	C1-0.8°C C2-0.4 C3-0.7 C4-0.2	Y N	Y N	CC Cash Check	$	

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Account Information *(Billing information)*

Company/Name	
Contact	SAME
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Invoice ☐Hard Copy ☐Email	Receive Report ☐Hard Copy ☐Email
Purchase Order	Quote / Bottle Order

Report Information *(if different than Account Information)*

Company/Name	
Contact	SAME
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report ☐Hard Copy ☐Email	
Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other_____	

Comments

Project Information

Project Name, PWSID, Permit, etc.	SAME
Sampler Name	Sampler Phone
Sample Origin State	EPA/State Compliance ☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	A254/oc TDS	A4500-HB pH	Anions E300.0 Cl	Ca, Mg, Na E200.7-8 total metals	A2320B conductivity	As, Fe, Mn E200.7-8 total metals					See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
C3 1	MOT-0919-131	9-19-19	9:30	2	W	✓	✓	✓	✓	✓								H19090497
2	MOT-0919-132	9-19-19	10:00	2	W	✓	✓	✓	✓	✓								
3	MOT-0919-133	9-19-19	10:30	2	W	✓	✓	✓	✓	✓								
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	JAMES OSBORN	9-19-19 14:45	[signature]			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				[signature]	9-19-19 14:45	[signature]

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number *(cash/check only)*
hand del	4	Y N C B	Y N	C1-0.8 °C C2-0.7 C3-0.7 C4-0.2	Y N	Y N	CC Cash Check_____	$	

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-12/16 v.1

Montana DEQ - Waste Management and Remediation Division

Data Validation Summary Form (Version 1.3.0, Revised 1/26/18)

Please fill out the information below, using one form for each lab batch (one form can be used for multiple analytical methods). The form will grow and adjust, based on your responses. Please include a discussion regarding the sampling event in the report that is sent to DEQ with this form. For additional instructions, please click the Open Complete Instructions button.

Open Complete Instructions

Basic Questions View example (Note: example optimized for viewing in Chrome browser)

1. Site/Facility name	MDT Plain Maintenance Facility
2. Site code or facility ID (if applicable)	
3. Release ID (if applicable)	
4. Sample delivery group	H19090497
5. Name of DEQ-approved sampling plan	NA
6. Date DEQ approved the sampling plan	M/D/YY
7. Name of data validator	Ian Magruder, Northern Rockies Engineering
8. Phone	406-439-0049
9. Date validated	1/8/2019 M/D/YY

Field Collection Questions View example (Note: example optimized for viewing in Chrome browser)

10. Sample matrix	☐ Soil ☐ Sediment ☐ Surface water ☒ Groundwater ☐ Tap water ☐ Air (including soil gas) ☐ Other
11. Sample collection start date	9/18/2019 M/D/YY
12. Sample collection end date	9/19/2019 M/D/YY

13. Analytical methods used

Use Add Method button to list multiple methods. Enter any other methods in the field manually.

Add Method	Analytical Method(s)
Delete Method	A4500-H B: pH
Delete Method	A2510 B: conductivity
Delete Method	A2540 C: TDS
Delete Method	E300.0: chloride
Delete Method	E200.7: metals total
Delete Method	E200.8: metals total

Laboratory-related Questions View example (Note: example optimized for viewing in Chrome browser)

14. Laboratory name and location	Energy Laboratories, Helena, MT
15. Laboratory project ID	MDT Plains

	Yes	No	See Below	Comments
16. Were samples received in good condition and at appropriate temperature, chain-of-custody forms complete, and all samples analyzed within holding times?	○	●	○	see note under 16c regarding pH holding times.
16a. Were chain-of-custody forms complete?	●	○		
16b. Were samples received in good condition, preserved, and at appropriate temperature (VOA no headspace, appropriate pH, temperature 4° C +/- 2° for most samples)?	●	○		
16c. Were the samples analyzed within method-specified or technical holding times?	○	●		

If no, explain

pH analyzed outside of hold time. Field pH was measured and will be used in project reporting.

	Yes	No	See Below	Comments
17. Were all laboratory quality control procedures complied with and is data validated without qualifiers?	○	○	●	

Please explain

	Yes	No	Comments
17a. Were all calibration verification results within acceptable limits?	●	○	
17b. Were laboratory (method) blank samples free of contamination?	●	○	
17c. Are the percent recoveries and relative percent differences of matrix spike and matrix spike duplicates within quality control limits?	○	●	

If no, explain

H19090497-001AMS and H19090497-001AMSD Spike recovery outside of advisory limits.
H19090497-011AMS and H19090497-011AMSD The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

	Yes	No	Comments
17d. Are the laboratory control samples the same matrix as the samples and prepared the same as associated samples?	●	○	
17e. Were laboratory control samples and laboratory control sample duplicate percent recoveries and relative percent differences within laboratory control limits?	●	○	
17f. Were surrogate recoveries within laboratory quality control limits?	○	○	NA

	Yes	No	Comments
17g. Were the laboratory duplicate relative percent differences within data validation quality control limits?	●	○	
18. Were the total number of lab method blanks at least 5% of the total number of samples, or as required by the method?	●	○	
19. Were the total number of lab matrix spike samples prepared at least 5% of the total number of samples, or as required by the method?	●	○	

20. Please list any project samples used for matrix spike/matrix spike duplicates.

Add Sample	Lab ID	Field Sample ID	Comments
Delete Sample	H19090497-002	MDT-0918-102	
Delete Sample	H19090497-011	MDT-0918-111	
Delete Sample	H19090497-021	MDT-0918-121	
Delete Sample	H19090497-031	MDT-0919-131	
Delete Sample	H19090497-001	MDT-0918-101	

	Yes	No	Comments
21. Is the total number of laboratory control samples at least 5% of the total number of samples?	○	●	

If no, explain

A2510 B conductivity: 1 LCS for 33 samples; A2540 C 3 LCS for 33 samples; A4500-H B pH: no LCS; E300.0 chloride: 1 LFB; E200.7 and E200.8 1 LCS per batch. These are all appropriate for the methods.

Consultant/Validator Questions View example (Note: example optimized for viewing in Chrome browser)

	Yes	No	Comments
22. Are the detection limits appropriate for the project (i.e. at or below screening levels)?	●	○	
23. Are the reported units appropriate for the sample matrix (i.e. water results in ug/L, not mg/kg)?	●	○	
24. Do the analytical methods comply with project requirements (e.g. in the SAP, work plan, or QAPP)?	●	○	
25. Do the laboratory reports include all constituents requested to be analyzed on the chain-of-custody or under the sampling plan or other applicable document?	●	○	
26. Is the number of sample blanks (e.g. equipment, trip, or field blanks) equal to at least 10% of the total number of samples, or as otherwise required?	●	○	Not required per scope of work.

27. Are field blanks free from contamination, duplicates collected as required, and field duplicate percent differences within data validation quality control limits?	Yes ●	No ○	See Below ○	Comments

28. Please provide an Excel or CSV file to the DEQ project manager (via e-mail or CD) that lists all samples evaluated in this summary and lists any qualified data.
Please use the following format:

Lab ID	Field Sample ID	Qualifiers	Comments (indicate whether the issue biases the results high or low)
Example 48310-2.31E	Example GW-1	R	Sample dropped in lab and unrecoverable
Example 48310-2.32D	Example GW-2		

Please use the following format for qualifiers. See EPA's National Functional Guidelines for more information on qualifiers for unique samples such as dioxins.

Qualifier	Explanation
C	Pesticide and Arochlor results confirmed with GC/MS
J-	Estimated value, may be biased low
J	Analyte identified, but concentration is estimated
J+	Estimated value, may be biased high
NJ	Tentatively identified compound
R	Sample result rejected
U	Analyte analyzed for, but not detected above quantitation limit
UJ	Analyte not detected above CRQL, but CRQL may be inaccurate
X	Pesticide and Arochlor results attempted using GC/MS, but unsuccessful

If you wish to manually enter qualified sample results, please use the table below.

Add Sample	Lab ID	Field Sample ID	Qualifiers	Comments (indicate whether the issue biases the results high or low)
Delete Sample				

29. What is the percent completeness (samples planned versus valid samples collected)?	91%	Comments: 30/33
30. Was the completeness goal met?	Yes ● No ○	Comments: Not required per scope of work.
31. Does all data conform to analytical methods and data quality objectives specified for this project?	Yes ● No ○	Comments:

32. Other general comments or observations?

NA

Split Samples

33. Did DEQ collect split samples?	Yes ○ No ●	Comments:

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This document was assembled by the Montana Department of Environmental Quality Contaminated Site Cleanup Bureau (DEQ) to formalize technical direction for conducting data validation. Data validation is a standardized review process for judging the analytical quality and usefulness of a discrete set of chemical data and is necessary to ensure that data of known and documented quality are used in making environmental decisions.

While these guidelines are generally used by DEQ, there may be circumstances that warrant a higher level of data validation review and DEQ reserves the right to require additional validation. For investigations where x-ray fluorescence (XRF) or other field screening equipment is used, provide an evaluation including the comparison and correlation of field screening data to laboratory confirmation data in the data validation discussion (please see DEQ's frequently asked questions at http://deq.mt.gov/Land/StateSuperfund/FrequentlyAskedQuestions for specifics associated with the use of XRF equipment and data collection/evaluation).

Please complete a separate data validation report for each sample batch as determined by the laboratory (Note: large data collection events may result in multiple batches). A brief summary of this validation report and the acceptability and usability of the data should be included in the text of the project report with the validation report included as an appendix. The data validation should include an assessment of data using the precision, accuracy, representativeness, comparability, and completeness (PARCC) parameters:

Precision: The degree of mutual agreement between individual measurements of the same property under similar conditions.

> Combined field and laboratory precision is evaluated by collecting and analyzing field duplicates and then calculating the variance between the samples, typically as a relative percent difference (RPD). Laboratory analytical precision is evaluated by analyzing matrix spike/matrix spike duplicate (MS/MSD) samples and using the results to calculate an RPD.

Accuracy: The degree of agreement between an analytical measurement and a reference accepted as a true value.

> The accuracy of a measurement system can be affected by errors introduced by field contamination, sample preservation, sample handling, sample preparation, and analytical techniques. Analysis of matrix spike/matrix spike duplicate (MS/MSD) samples, laboratory control spikes (LCS) or blank spikes, surrogate standards, and method blanks are typically used to calculate the percent recovery (%R) for evaluating accuracy.
>
> Please note that some methods, such as EPH and VPH, require calibration data. For such methods, please provide and verify the calibration data.

Representativeness: The degree to which sample data accurately and precisely represent the characteristics of a population, variations in a parameter at a sampling point, or an environmental condition that they are intended to represent.

> Typically, representative data will be obtained through careful selection of sampling locations and analytical parameters; proper collection and handling of samples; and through use and consistent application of established field and laboratory procedures. Evaluation of field and laboratory blank samples for presence of contaminants can be useful in evaluating representativeness of sample results.

Completeness: A measure of the percentage of project-specific data that is valid.

> Valid data are obtained when samples are collected and analyzed in accordance with quality control (QC) procedures outlined in the sampling and analysis plan (SAP), and when none of the QC criteria that affect data usability are exceeded. Once data validation is complete, the number of usable sample results is divided by the total number of sample results planned for the investigation to determine the percent completeness. A completeness goal should be developed for each project (i.e., 100% completeness for residential samples to ensure that all properties requiring sampling are sampled). A discussion of completeness must also examine the number of samples called for in the SAP compared to the number of samples actually collected. Variance between the planned and collected sample numbers should be explained.

Comparability: Expression of the confidence with which one data set can be compared with another.

Comparability of data is achieved by consistently following standard field and laboratory procedures and by using standard measurement units in reporting analytical data.

For complete information regarding data validation, please see the EPA National Functional Guidelines at http://www2.epa.gov/clp/contract-laboratory-program-national-functional-guidelines-data-review

Determination of Data Usability Qualifiers

Step 1: Review QC Parameter and Document Finding	Step 2: Determine Which Samples to Qualify	Step 3: Determine Which Results to Qualify	Step 4: Apply Qualifier and Bias Code
Lab Receipt of Samples			
Preservative (including sample temperature) outside of specifications.	Affected samples and professional judgment	Detected Results Non-detected Results	J- UJ or R
Samples not accounted for on Chain-of-Custody	Affected samples	All samples	R
Samples analyzed outside of method specified or technical holding time.	Affected samples	Detected Results Non-detected Results	J- R (UJ for SVOC, pesticides, aroclors)
Samples analyzed grossly outside of method specified or technical holding time.	Affected samples	Detected Results Non-detected Results	J- R
Lab Quality Control			
Calibration verification results outside of acceptable limits.	Samples associated with initial and/or continuing calibration verification	Detected Results Non-detected Results	J UJ
Analyte detected in Method Blank (MB) at concentration less than Contract Required Quantitation Limit (CRQL)[1] (i.e. , J-flag)	Samples in preparation batch	Detected Results <=CRQL Detected Results >CRQL	U J (use professional judgment)
Analyte detected in Method Blank (MB) at concentration greater than or equal to CRQL	Samples in preparation batch	Detected Results < Blank Concentration Detected Results >= Blank Concentration	U Use professional judgment
Matrix Spike:			
%Recovery above specifications	Sample and professional judgment for samples in preparation batch from same matrix.	Detected Results Non-detected Results	J+ No qualifier
%Recovery below specifications and greater than 20% (30% for inorganics)	Sample and professional judgment for samples in preparation batch from same matrix.	Detected Results Non-detected Results	J- UJ
%Recovery below 20% (30% for inorganics)	Sample and professional judgment for samples in preparation batch from same matrix.	Detected Results Non-detected Results	J- R

Step 1: Review QC Parameter and Document Finding	Step 2: Determine Which Samples to Qualify	Step 3: Determine Which Results to Qualify	Step 4: Apply Qualifier and Bias Code
Note: If the spiking amount is less than four times the result in the unspiked parent sample, the MS/MSD data may not represent the matrix effect. Professional judgment should be use in evaluating and qualifying the data.			
Laboratory Control Sample:			
%Recovery above specifications	Samples in preparation batch.	Detected Results Non-detected Results	J+ No qualifier
%Recovery below specifications and greater than 20% (40% for inorganics; see NFG for pesticides and Aroclors; 10% for dioxins)	Samples in preparation batch.	Detected Results Non-detected Results	J- UJ
%Recovery below 20% (40% for inorganics; see NFG for pesticides and Aroclors; 10% for dioxins)	Samples in preparation batch.	Detected Results Non-detected Results	J- R
Laboratory Duplicate Samples (including LCSD and MSD):			
Relative Percent Difference outside specifications	Samples in preparation batch.	Detected Results	J
Surrogate Recoveries:			
Surrogate Recovery greater than Upper Acceptance Limit	Target analytes in sample	Detected Results Non-detected Results	J+ No qualification (UJ for dioxins)
Surrogate Recovery less than Lower Acceptance Limit and greater than 10%	Target analytes in sample	Detected Results Non-detected Results	J- UJ
Surrogate Recovery less than 10%	Target analytes in sample	Detected Results Non-detected Results	J- R (see NFG for dioxins)
Field QC Samples			
Blanks			
Analyte detected in Field Blank, Equipment Blank, and/or Trip Blank at concentration less than Contract Required Quantitation Limit (CRQL)1 (i.e. , J-flag)	Associated samples	Detected Results <CRQL Detected Results >=CRQL	U Use professional judgment
Analyte detected in Field Blank, Equipment Blank, and/or Trip Blank at concentration greater than or equal to CRQL	Associated samples	Detected Results < Blank Concentration Detected Results >= Blank Concentration	U Use professional judgment
Duplicates			
Field Duplicate Relative Percent Difference outside specifications and analyte concentration >=5x CRQL	Associated samples	Detected Results	J
Field Duplicate Relative Percent Difference outside specifications and analyte concentrations <5x CRQL with absolute difference between sample and duplicate > CRQL	Associated samples	Detected Results Non-detected Results	J UJ

Step 1: Review QC Parameter and Document Finding	Step 2: Determine Which Samples to Qualify	Step 3: Determine Which Results to Qualify	Step 4: Apply Qualifier and Bias Code
Field Duplicate Relative Percent Difference outside specifications and analyte concentrations <5x CRQL with absolute difference between sample and duplicate <= CRQL	Associated samples	Detected Results Non-detected Results	No qualification No qualification
Consultant/Validator Questions			
Reported Units not appropriate for sample matrix	Affected samples	All results	Inquire, document, and use professional judgment
Analytical methods do not comply with project requirements. And/Or Detection Limits not appropriate for the project.	Affected samples	Detected Results Non-detected Results	Use professional judgment Use professional judgment, if Reporting Limits > Screening Levels; results may not be usable
QC Sample Frequency			
Method Blanks analyzed less than 5% of total samples	Use professional judgment	Use professional judgment	Inquire, document, and use professional judgment
Matrix Spike samples analyzed less than 5% of total samples	Use professional judgment	Use professional judgment	Inquire, document, and use professional judgment
Laboratory Control Samples analyzed less than 5% of total samples	Use professional judgment	Use professional judgment	Inquire, document, and use professional judgment
Field, equipment, or trip blanks analyzed less than required	Use professional judgment	Use professional judgment	Inquire, document, and use professional judgment

Notes:

1. See the National Functional Guidelines (NFG) for contract required quantitation limit (CRQL) or blank results of common laboratory contaminants, including: methylene chloride, acetone, and 2-butanone.

2. Screening Levels (SLs) is a generic term which may include Risk Based Screening Levels, Regional Screening Levels, and/or site specific screening levels.

ANALYTICAL SUMMARY REPORT

December 31, 2019

MT Dept of Transportation
PO Box 201001
Helena, MT 59620-1001

Work Order: H19120474 Quote ID: H1750

Project Name: MDT Plains

Energy Laboratories Inc Helena MT received the following 33 samples for MT Dept of Transportation on 12/19/2019 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H19120474-001	MDT-1218-101	12/18/19 8:00	12/19/19	Groundwater	Metals by ICP/ICPMS, Total Conductivity Anions by Ion Chromatography pH Metals Digestion by E200.2 Solids, Total Dissolved
H19120474-002	MDT-1218-102	12/18/19 8:15	12/19/19	Groundwater	Same As Above
H19120474-003	MDT-1218-103	12/18/19 8:30	12/19/19	Groundwater	Same As Above
H19120474-004	MDT-1218-104	12/18/19 8:45	12/19/19	Groundwater	Same As Above
H19120474-005	MDT-1218-105	12/18/19 9:00	12/19/19	Groundwater	Same As Above
H19120474-006	MDT-1218-106	12/18/19 9:15	12/19/19	Groundwater	Same As Above
H19120474-007	MDT-1218-107	12/18/19 9:30	12/19/19	Groundwater	Same As Above
H19120474-008	MDT-1218-108	12/18/19 9:45	12/19/19	Groundwater	Same As Above
H19120474-009	MDT-1218-109	12/18/19 10:00	12/19/19	Groundwater	Same As Above
H19120474-010	MDT-1218-110	12/18/19 10:15	12/19/19	Groundwater	Same As Above
H19120474-011	MDT-1218-111	12/18/19 10:30	12/19/19	Groundwater	Same As Above
H19120474-012	MDT-1218-112	12/18/19 10:45	12/19/19	Groundwater	Metals by ICP/ICPMS, Total Conductivity Metals Digestion by E200.2 Solids, Total Dissolved
H19120474-013	MDT-1218-113	12/18/19 11:00	12/19/19	Groundwater	Same As Above
H19120474-014	MDT-1218-114	12/18/19 11:15	12/19/19	Groundwater	Same As Above
H19120474-015	MDT-1218-115	12/18/19 11:30	12/19/19	Groundwater	Same As Above
H19120474-016	MDT-1218-116-2	12/18/19 11:45	12/19/19	Groundwater	Metals by ICP/ICPMS, Total Conductivity Anions by Ion Chromatography pH Metals Digestion by E200.2 Solids, Total Dissolved
H19120474-017	MDT-1218-116	12/18/19 12:00	12/19/19	Groundwater	Same As Above
H19120474-018	MDT-1218-117	12/18/19 12:15	12/19/19	Groundwater	Same As Above
H19120474-019	MDT-1218-118	12/18/19 12:30	12/19/19	Groundwater	Same As Above
H19120474-020	MDT-1218-119	12/18/19 12:45	12/19/19	Groundwater	Same As Above

ANALYTICAL SUMMARY REPORT

H19120474-021	MDT-1218-120	12/18/19 13:00	12/19/19	Groundwater	Metals by ICP/ICPMS, Total Conductivity Metals Digestion by E200.2 Solids, Total Dissolved
H19120474-022	MDT-1218-121	12/18/19 13:15	12/19/19	Groundwater	Same As Above
H19120474-023	MDT-1218-122	12/18/19 13:30	12/19/19	Groundwater	Metals by ICP/ICPMS, Total Conductivity Anions by Ion Chromatography pH Metals Digestion by E200.2 Solids, Total Dissolved
H19120474-024	MDT-1218-123	12/18/19 13:45	12/19/19	Groundwater	Same As Above
H19120474-025	MDT-1218-124	12/18/19 14:00	12/19/19	Groundwater	Same As Above
H19120474-026	MDT-1219-125	12/19/19 8:00	12/19/19	Groundwater	Same As Above
H19120474-027	MDT-1219-126	12/19/19 8:15	12/19/19	Groundwater	Same As Above
H19120474-028	MDT-1219-127	12/19/19 8:30	12/19/19	Groundwater	Same As Above
H19120474-029	MDT-1219-128	12/19/19 8:45	12/19/19	Groundwater	Same As Above
H19120474-030	MDT-1219-129	12/19/19 9:00	12/19/19	Groundwater	Same As Above
H19120474-031	MDT-1219-130	12/19/19 9:15	12/19/19	Groundwater	Same As Above
H19120474-032	MDT-1219-131	12/19/19 9:30	12/19/19	Groundwater	Same As Above
H19120474-033	MDT-1219-132	12/19/19 9:45	12/19/19	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-001
Client Sample ID: MDT-1218-101

Report Date: 12/31/19
Collection Date: 12/18/19 08:00
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	12/20/19 10:30 / SRW
pH Measurement Temp	11.5	°C				A4500-H B	12/20/19 10:30 / SRW
Conductivity @ 25 C	796	umhos/cm		1		A2510 B	12/20/19 10:30 / SRW
Solids, Total Dissolved TDS @ 180 C	424	mg/L		10		A2540 C	12/20/19 14:19 / sbf
INORGANICS							
Chloride	97	mg/L		1		E300.0	12/20/19 12:14 / SRW
METALS, TOTAL							
Calcium	87	mg/L		1		E200.7	12/26/19 15:21 / sld
Magnesium	22	mg/L		1		E200.7	12/26/19 15:21 / sld
Sodium	36	mg/L		1		E200.7	12/26/19 15:21 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-002
Client Sample ID: MDT-1218-102

Report Date: 12/31/19
Collection Date: 12/18/19 08:15
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.4	s.u.	H	0.1		A4500-H B	12/20/19 10:32 / SRW
pH Measurement Temp	10.4	°C				A4500-H B	12/20/19 10:32 / SRW
Conductivity @ 25 C	997	umhos/cm		1		A2510 B	12/20/19 10:32 / SRW
Solids, Total Dissolved TDS @ 180 C	530	mg/L		10		A2540 C	12/20/19 14:19 / sbf
INORGANICS							
Chloride	163	mg/L		1		E300.0	12/20/19 12:28 / SRW
METALS, TOTAL							
Calcium	73	mg/L		1		E200.7	12/26/19 15:24 / sld
Magnesium	24	mg/L		1		E200.7	12/26/19 15:24 / sld
Sodium	87	mg/L		1		E200.7	12/26/19 15:24 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-003
Client Sample ID: MDT-1218-103

Report Date: 12/31/19
Collection Date: 12/18/19 08:30
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	12/20/19 10:37 / SRW
pH Measurement Temp	11.0	°C				A4500-H B	12/20/19 10:37 / SRW
Conductivity @ 25 C	592	umhos/cm		1		A2510 B	12/20/19 10:37 / SRW
Solids, Total Dissolved TDS @ 180 C	325	mg/L		10		A2540 C	12/20/19 14:20 / sbf
INORGANICS							
Chloride	36	mg/L		1		E300.0	12/20/19 12:43 / SRW
METALS, TOTAL							
Calcium	66	mg/L		1		E200.7	12/26/19 15:50 / sld
Magnesium	18	mg/L		1		E200.7	12/26/19 15:50 / sld
Sodium	27	mg/L		1		E200.7	12/26/19 15:50 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-004
Client Sample ID: MDT-1218-104

Report Date: 12/31/19
Collection Date: 12/18/19 08:45
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	12/20/19 10:39 / SRW
pH Measurement Temp	11.0	°C				A4500-H B	12/20/19 10:39 / SRW
Conductivity @ 25 C	1040	umhos/cm		1		A2510 B	12/20/19 10:39 / SRW
Solids, Total Dissolved TDS @ 180 C	552	mg/L		10		A2540 C	12/20/19 14:20 / sbf
INORGANICS							
Chloride	128	mg/L		1		E300.0	12/20/19 12:57 / SRW
METALS, TOTAL							
Calcium	9	mg/L		1		E200.7	12/26/19 15:54 / sld
Magnesium	3	mg/L		1		E200.7	12/26/19 15:54 / sld
Sodium	215	mg/L		1		E200.7	12/26/19 15:54 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-005
Client Sample ID: MDT-1218-105

Report Date: 12/31/19
Collection Date: 12/18/19 09:00
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.4	s.u.	H	0.1		A4500-H B	12/20/19 10:41 / SRW
pH Measurement Temp	11.4	°C				A4500-H B	12/20/19 10:41 / SRW
Conductivity @ 25 C	1020	umhos/cm		1		A2510 B	12/20/19 10:41 / SRW
Solids, Total Dissolved TDS @ 180 C	550	mg/L		10		A2540 C	12/20/19 14:20 / sbf
INORGANICS							
Chloride	128	mg/L		1		E300.0	12/20/19 13:12 / SRW
METALS, TOTAL							
Calcium	87	mg/L		1		E200.7	12/26/19 15:58 / sld
Magnesium	28	mg/L		1		E200.7	12/26/19 15:58 / sld
Sodium	84	mg/L		1		E200.7	12/26/19 15:58 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-006
Client Sample ID: MDT-1218-106

Report Date: 12/31/19
Collection Date: 12/18/19 09:15
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	12/20/19 10:44 / SRW
pH Measurement Temp	11.6	°C				A4500-H B	12/20/19 10:44 / SRW
Conductivity @ 25 C	880	umhos/cm		1		A2510 B	12/20/19 10:44 / SRW
Solids, Total Dissolved TDS @ 180 C	482	mg/L		10		A2540 C	12/20/19 14:21 / sbf
INORGANICS							
Chloride	104	mg/L		1		E300.0	12/20/19 13:26 / SRW
METALS, TOTAL							
Calcium	2	mg/L		1		E200.7	12/26/19 16:02 / sld
Magnesium	ND	mg/L		1		E200.7	12/26/19 16:02 / sld
Sodium	194	mg/L		1		E200.7	12/26/19 16:02 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-007
Client Sample ID: MDT-1218-107

Report Date: 12/31/19
Collection Date: 12/18/19 09:30
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	12/20/19 10:46 / SRW
pH Measurement Temp	11.7	°C				A4500-H B	12/20/19 10:46 / SRW
Conductivity @ 25 C	866	umhos/cm		1		A2510 B	12/20/19 10:46 / SRW
Solids, Total Dissolved TDS @ 180 C	471	mg/L		10		A2540 C	12/20/19 14:21 / sbf
INORGANICS							
Chloride	102	mg/L		1		E300.0	12/20/19 13:41 / SRW
METALS, TOTAL							
Calcium	69	mg/L		1		E200.7	12/26/19 16:06 / sld
Magnesium	22	mg/L		1		E200.7	12/26/19 16:06 / sld
Sodium	77	mg/L		1		E200.7	12/26/19 16:06 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-008
Client Sample ID: MDT-1218-108

Report Date: 12/31/19
Collection Date: 12/18/19 09:45
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	12/20/19 10:48 / SRW
pH Measurement Temp	12.0	°C				A4500-H B	12/20/19 10:48 / SRW
Conductivity @ 25 C	1080	umhos/cm		1		A2510 B	12/20/19 10:48 / SRW
Solids, Total Dissolved TDS @ 180 C	575	mg/L		10		A2540 C	12/20/19 14:21 / sbf
INORGANICS							
Chloride	160	mg/L		1		E300.0	12/20/19 13:55 / SRW
METALS, TOTAL							
Calcium	92	mg/L		1		E200.8	12/24/19 13:27 / dck
Magnesium	24	mg/L		1		E200.7	12/26/19 16:10 / sld
Sodium	89	mg/L		1		E200.7	12/26/19 16:10 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-009
Client Sample ID: MDT-1218-109

Report Date: 12/31/19
Collection Date: 12/18/19 10:00
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	12/20/19 10:50 / SRW
pH Measurement Temp	12.6	°C				A4500-H B	12/20/19 10:50 / SRW
Conductivity @ 25 C	567	umhos/cm		1		A2510 B	12/20/19 10:50 / SRW
Solids, Total Dissolved TDS @ 180 C	307	mg/L		10		A2540 C	12/20/19 14:21 / sbf
INORGANICS							
Chloride	32	mg/L		1		E300.0	12/20/19 14:10 / SRW
METALS, TOTAL							
Calcium	63	mg/L		1		E200.7	12/26/19 16:35 / sld
Magnesium	17	mg/L		1		E200.7	12/26/19 16:35 / sld
Sodium	27	mg/L		1		E200.7	12/26/19 16:35 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-010
Client Sample ID: MDT-1218-110

Report Date: 12/31/19
Collection Date: 12/18/19 10:15
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	12/20/19 10:53 / SRW
pH Measurement Temp	12.5	°C				A4500-H B	12/20/19 10:53 / SRW
Conductivity @ 25 C	456	umhos/cm		1		A2510 B	12/20/19 10:53 / SRW
Solids, Total Dissolved TDS @ 180 C	246	mg/L		10		A2540 C	12/20/19 14:22 / sbf
INORGANICS							
Chloride	15	mg/L		1		E300.0	12/20/19 14:24 / SRW
METALS, TOTAL							
Calcium	54	mg/L		1		E200.7	12/26/19 16:39 / sld
Magnesium	14	mg/L		1		E200.7	12/26/19 16:39 / sld
Sodium	19	mg/L		1		E200.7	12/26/19 16:39 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-011
Client Sample ID: MDT-1218-111

Report Date: 12/31/19
Collection Date: 12/18/19 10:30
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	12/20/19 10:55 / SRW
pH Measurement Temp	12.0	°C				A4500-H B	12/20/19 10:55 / SRW
Conductivity @ 25 C	484	umhos/cm		1		A2510 B	12/20/19 10:55 / SRW
Solids, Total Dissolved TDS @ 180 C	261	mg/L		10		A2540 C	12/20/19 14:22 / sbf
INORGANICS							
Chloride	24	mg/L		1		E300.0	12/20/19 20:40 / SRW
METALS, TOTAL							
Calcium	53	mg/L		1		E200.7	12/26/19 16:43 / sld
Magnesium	14	mg/L		1		E200.7	12/26/19 16:43 / sld
Sodium	28	mg/L		1		E200.7	12/26/19 16:43 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-012
Client Sample ID: MDT-1218-112

Report Date: 12/31/19
Collection Date: 12/18/19 10:45
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Conductivity @ 25 C	1230	umhos/cm		1		A2510 B	12/20/19 10:57 / SRW
Solids, Total Dissolved TDS @ 180 C	748	mg/L		10		A2540 C	12/20/19 14:23 / sbf
METALS, TOTAL							
Arsenic	0.009	mg/L		0.001		E200.8	12/24/19 13:20 / dck
Iron	2.29	mg/L		0.02		E200.8	12/24/19 13:20 / dck
Manganese	0.038	mg/L		0.001		E200.8	12/24/19 13:20 / dck

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-013
Client Sample ID: MDT-1218-113

Report Date: 12/31/19
Collection Date: 12/18/19 11:00
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Conductivity @ 25 C	1230	umhos/cm		1		A2510 B	12/20/19 11:00 / SRW
Solids, Total Dissolved TDS @ 180 C	764	mg/L		10		A2540 C	12/20/19 14:23 / sbf
METALS, TOTAL							
Arsenic	0.009	mg/L		0.001		E200.8	12/24/19 13:22 / dck
Iron	2.31	mg/L		0.02		E200.8	12/24/19 13:22 / dck
Manganese	0.038	mg/L		0.001		E200.8	12/24/19 13:22 / dck

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-014
Client Sample ID: MDT-1218-114

Report Date: 12/31/19
Collection Date: 12/18/19 11:15
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Conductivity @ 25 C	1220	umhos/cm		1		A2510 B	12/20/19 11:02 / SRW
Solids, Total Dissolved TDS @ 180 C	761	mg/L		10		A2540 C	12/20/19 14:24 / sbf
METALS, TOTAL							
Arsenic	0.012	mg/L		0.001		E200.8	12/24/19 13:25 / dck
Iron	2.09	mg/L		0.02		E200.8	12/24/19 13:25 / dck
Manganese	0.027	mg/L		0.001		E200.8	12/24/19 13:25 / dck

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-015
Client Sample ID: MDT-1218-115

Report Date: 12/31/19
Collection Date: 12/18/19 11:30
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Conductivity @ 25 C	1230	umhos/cm		1		A2510 B	12/20/19 11:04 / SRW
Solids, Total Dissolved TDS @ 180 C	765	mg/L		10		A2540 C	12/20/19 14:25 / sbf
METALS, TOTAL							
Arsenic	0.011	mg/L		0.001		E200.8	12/24/19 13:55 / dck
Iron	2.09	mg/L		0.02		E200.8	12/24/19 13:55 / dck
Manganese	0.028	mg/L		0.001		E200.8	12/24/19 13:55 / dck

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-016
Client Sample ID: MDT-1218-116-2

Report Date: 12/31/19
Collection Date: 12/18/19 11:45
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	12/20/19 11:06 / SRW
pH Measurement Temp	12.5	°C				A4500-H B	12/20/19 11:06 / SRW
Conductivity @ 25 C	457	umhos/cm		1		A2510 B	12/20/19 11:06 / SRW
Solids, Total Dissolved TDS @ 180 C	264	mg/L		10		A2540 C	12/20/19 14:25 / sbf
INORGANICS							
Chloride	13	mg/L		1		E300.0	12/20/19 20:55 / SRW
METALS, TOTAL							
Calcium	55	mg/L		1		E200.7	12/26/19 18:22 / sld
Magnesium	14	mg/L		1		E200.7	12/26/19 18:22 / sld
Sodium	20	mg/L		1		E200.7	12/26/19 18:22 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-017
Client Sample ID: MDT-1218-116

Report Date: 12/31/19
Collection Date: 12/18/19 12:00
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	12/20/19 11:09 / SRW
pH Measurement Temp	12.7	°C				A4500-H B	12/20/19 11:09 / SRW
Conductivity @ 25 C	512	umhos/cm		1		A2510 B	12/20/19 11:09 / SRW
Solids, Total Dissolved TDS @ 180 C	293	mg/L		10		A2540 C	12/20/19 14:25 / sbf
INORGANICS							
Chloride	18	mg/L		1		E300.0	12/20/19 21:09 / SRW
METALS, TOTAL							
Calcium	61	mg/L		1		E200.7	12/26/19 18:26 / sld
Magnesium	16	mg/L		1		E200.7	12/26/19 18:26 / sld
Sodium	26	mg/L		1		E200.7	12/26/19 18:26 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-018
Client Sample ID: MDT-1218-117

Report Date: 12/31/19
Collection Date: 12/18/19 12:15
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	12/20/19 11:11 / SRW
pH Measurement Temp	13.6	°C				A4500-H B	12/20/19 11:11 / SRW
Conductivity @ 25 C	387	umhos/cm		1		A2510 B	12/20/19 11:11 / SRW
Solids, Total Dissolved TDS @ 180 C	220	mg/L		10		A2540 C	12/20/19 14:25 / sbf
INORGANICS							
Chloride	10	mg/L		1		E300.0	12/20/19 21:24 / SRW
METALS, TOTAL							
Calcium	46	mg/L		1		E200.7	12/26/19 18:30 / sld
Magnesium	12	mg/L		1		E200.7	12/26/19 18:30 / sld
Sodium	15	mg/L		1		E200.7	12/26/19 18:30 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-019
Client Sample ID: MDT-1218-118

Report Date: 12/31/19
Collection Date: 12/18/19 12:30
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	12/20/19 11:13 / SRW
pH Measurement Temp	13.9	°C				A4500-H B	12/20/19 11:13 / SRW
Conductivity @ 25 C	382	umhos/cm		1		A2510 B	12/20/19 11:13 / SRW
Solids, Total Dissolved TDS @ 180 C	222	mg/L		10		A2540 C	12/20/19 14:26 / sbf
INORGANICS							
Chloride	10	mg/L		1		E300.0	12/20/19 21:39 / SRW
METALS, TOTAL							
Calcium	45	mg/L		1		E200.7	12/26/19 18:33 / sld
Magnesium	14	mg/L		1		E200.7	12/26/19 18:33 / sld
Sodium	15	mg/L		1		E200.7	12/26/19 18:33 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-020
Client Sample ID: MDT-1218-119

Report Date: 12/31/19
Collection Date: 12/18/19 12:45
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	12/20/19 11:15 / SRW
pH Measurement Temp	13.7	°C				A4500-H B	12/20/19 11:15 / SRW
Conductivity @ 25 C	411	umhos/cm		1		A2510 B	12/20/19 11:15 / SRW
Solids, Total Dissolved TDS @ 180 C	233	mg/L		10		A2540 C	12/20/19 14:26 / sbf
INORGANICS							
Chloride	11	mg/L		1		E300.0	12/20/19 21:53 / SRW
METALS, TOTAL							
Calcium	51	mg/L		1		E200.7	12/26/19 18:37 / sld
Magnesium	13	mg/L		1		E200.7	12/26/19 18:37 / sld
Sodium	17	mg/L		1		E200.7	12/26/19 18:37 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-021
Client Sample ID: MDT-1218-120

Report Date: 12/31/19
Collection Date: 12/18/19 13:00
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Conductivity @ 25 C	363	umhos/cm		1		A2510 B	12/20/19 11:28 / SRW
Solids, Total Dissolved TDS @ 180 C	231	mg/L		10		A2540 C	12/20/19 14:27 / sbf
METALS, TOTAL							
Arsenic	ND	mg/L		0.001		E200.8	12/24/19 13:57 / dck
Iron	0.03	mg/L		0.02		E200.8	12/24/19 13:57 / dck
Manganese	0.003	mg/L		0.001		E200.8	12/24/19 13:57 / dck

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-022
Client Sample ID: MDT-1218-121

Report Date: 12/31/19
Collection Date: 12/18/19 13:15
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Conductivity @ 25 C	622	umhos/cm		1		A2510 B	12/20/19 11:31 / SRW
Solids, Total Dissolved TDS @ 180 C	387	mg/L		10		A2540 C	12/20/19 14:28 / sbf
METALS, TOTAL							
Arsenic	0.004	mg/L		0.001		E200.8	12/24/19 14:00 / dck
Iron	0.03	mg/L		0.02		E200.8	12/24/19 14:00 / dck
Manganese	0.021	mg/L		0.001		E200.8	12/24/19 14:00 / dck

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-023
Client Sample ID: MDT-1218-122

Report Date: 12/31/19
Collection Date: 12/18/19 13:30
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	12/20/19 11:35 / SRW
pH Measurement Temp	14.5	°C				A4500-H B	12/20/19 11:35 / SRW
Conductivity @ 25 C	799	umhos/cm		1		A2510 B	12/20/19 11:35 / SRW
Solids, Total Dissolved TDS @ 180 C	433	mg/L		10		A2540 C	12/20/19 14:28 / sbf
INORGANICS							
Chloride	86	mg/L		1		E300.0	12/20/19 22:08 / SRW
METALS, TOTAL							
Calcium	68	mg/L		1		E200.7	12/26/19 18:49 / sld
Magnesium	20	mg/L		1		E200.7	12/26/19 18:49 / sld
Sodium	73	mg/L		1		E200.7	12/26/19 18:49 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-024
Client Sample ID: MDT-1218-123

Report Date: 12/31/19
Collection Date: 12/18/19 13:45
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	12/20/19 11:37 / SRW
pH Measurement Temp	14.9	°C				A4500-H B	12/20/19 11:37 / SRW
Conductivity @ 25 C	585	umhos/cm		1		A2510 B	12/20/19 11:37 / SRW
Solids, Total Dissolved TDS @ 180 C	329	mg/L		10		A2540 C	12/20/19 14:29 / sbf
INORGANICS							
Chloride	34	mg/L		1		E300.0	12/20/19 22:22 / SRW
METALS, TOTAL							
Calcium	62	mg/L		1		E200.8	12/24/19 14:02 / dck
Magnesium	16	mg/L		1		E200.7	12/26/19 18:52 / sld
Sodium	37	mg/L		1		E200.7	12/26/19 18:52 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-025
Client Sample ID: MDT-1218-124

Report Date: 12/31/19
Collection Date: 12/18/19 14:00
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	12/20/19 11:40 / SRW
pH Measurement Temp	15.3	°C				A4500-H B	12/20/19 11:40 / SRW
Conductivity @ 25 C	734	umhos/cm		1		A2510 B	12/20/19 11:40 / SRW
Solids, Total Dissolved TDS @ 180 C	407	mg/L		10		A2540 C	12/20/19 14:29 / sbf
INORGANICS							
Chloride	66	mg/L		1		E300.0	12/20/19 22:37 / SRW
METALS, TOTAL							
Calcium	85	mg/L		1		E200.7	12/26/19 19:18 / sld
Magnesium	20	mg/L		1		E200.7	12/26/19 19:18 / sld
Sodium	38	mg/L		1		E200.7	12/26/19 19:18 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-026
Client Sample ID: MDT-1219-125

Report Date: 12/31/19
Collection Date: 12/19/19 08:00
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	12/20/19 11:42 / SRW
pH Measurement Temp	15.1	°C				A4500-H B	12/20/19 11:42 / SRW
Conductivity @ 25 C	766	umhos/cm		1		A2510 B	12/20/19 11:42 / SRW
Solids, Total Dissolved TDS @ 180 C	420	mg/L		10		A2540 C	12/20/19 14:29 / sbf
INORGANICS							
Chloride	91	mg/L		1		E300.0	12/20/19 22:51 / SRW
METALS, TOTAL							
Calcium	86	mg/L		1		E200.7	12/26/19 19:22 / sld
Magnesium	23	mg/L		1		E200.7	12/26/19 19:22 / sld
Sodium	35	mg/L		1		E200.7	12/26/19 19:22 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-027
Client Sample ID: MDT-1219-126

Report Date: 12/31/19
Collection Date: 12/19/19 08:15
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	12/20/19 11:44 / SRW
pH Measurement Temp	15.1	°C				A4500-H B	12/20/19 11:44 / SRW
Conductivity @ 25 C	890	umhos/cm		1		A2510 B	12/20/19 11:44 / SRW
Solids, Total Dissolved TDS @ 180 C	484	mg/L		10		A2540 C	12/20/19 14:29 / sbf
INORGANICS							
Chloride	127	mg/L		1		E300.0	12/21/19 00:18 / SRW
METALS, TOTAL							
Calcium	73	mg/L		1		E200.7	12/26/19 19:26 / sld
Magnesium	20	mg/L		1		E200.7	12/26/19 19:26 / sld
Sodium	85	mg/L		1		E200.7	12/26/19 19:26 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-028
Client Sample ID: MDT-1219-127

Report Date: 12/31/19
Collection Date: 12/19/19 08:30
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	12/20/19 11:47 / SRW
pH Measurement Temp	15.2	°C				A4500-H B	12/20/19 11:47 / SRW
Conductivity @ 25 C	891	umhos/cm		1		A2510 B	12/20/19 11:47 / SRW
Solids, Total Dissolved TDS @ 180 C	481	mg/L		10		A2540 C	12/20/19 14:30 / sbf
INORGANICS							
Chloride	127	mg/L		1		E300.0	12/21/19 00:33 / SRW
METALS, TOTAL							
Calcium	71	mg/L		1		E200.7	12/26/19 19:30 / sld
Magnesium	20	mg/L		1		E200.7	12/26/19 19:30 / sld
Sodium	82	mg/L		1		E200.7	12/26/19 19:30 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-029
Client Sample ID: MDT-1219-128

Report Date: 12/31/19
Collection Date: 12/19/19 08:45
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	12/20/19 11:49 / SRW
pH Measurement Temp	15.3	°C				A4500-H B	12/20/19 11:49 / SRW
Conductivity @ 25 C	979	umhos/cm		1		A2510 B	12/20/19 11:49 / SRW
Solids, Total Dissolved TDS @ 180 C	524	mg/L		10		A2540 C	12/20/19 14:30 / sbf
INORGANICS							
Chloride	139	mg/L		1		E300.0	12/21/19 00:47 / SRW
METALS, TOTAL							
Calcium	80	mg/L		1		E200.7	12/26/19 19:33 / sld
Magnesium	24	mg/L		1		E200.7	12/26/19 19:33 / sld
Sodium	85	mg/L		1		E200.7	12/26/19 19:33 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-030
Client Sample ID: MDT-1219-129

Report Date: 12/31/19
Collection Date: 12/19/19 09:00
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	12/20/19 11:51 / SRW
pH Measurement Temp	15.6	°C				A4500-H B	12/20/19 11:51 / SRW
Conductivity @ 25 C	673	umhos/cm		1		A2510 B	12/20/19 11:51 / SRW
Solids, Total Dissolved TDS @ 180 C	358	mg/L		10		A2540 C	12/20/19 14:30 / sbf
INORGANICS							
Chloride	89	mg/L		1		E300.0	12/21/19 01:02 / SRW
METALS, TOTAL							
Calcium	58	mg/L		1		E200.7	12/27/19 10:42 / sld
Magnesium	19	mg/L		1		E200.7	12/27/19 10:42 / sld
Sodium	53	mg/L		1		E200.7	12/27/19 10:42 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-031
Client Sample ID: MDT-1219-130

Report Date: 12/31/19
Collection Date: 12/19/19 09:15
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	12/20/19 11:53 / SRW
pH Measurement Temp	17.3	°C				A4500-H B	12/20/19 11:53 / SRW
Conductivity @ 25 C	747	umhos/cm		1		A2510 B	12/20/19 11:53 / SRW
Solids, Total Dissolved TDS @ 180 C	403	mg/L		10		A2540 C	12/20/19 14:30 / sbf
INORGANICS							
Chloride	64	mg/L		1		E300.0	12/21/19 01:17 / SRW
METALS, TOTAL							
Calcium	65	mg/L		1		E200.7	12/27/19 10:46 / sld
Magnesium	24	mg/L		1		E200.7	12/27/19 10:46 / sld
Sodium	64	mg/L		1		E200.7	12/27/19 10:46 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-032
Client Sample ID: MDT-1219-131

Report Date: 12/31/19
Collection Date: 12/19/19 09:30
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	12/20/19 11:56 / SRW
pH Measurement Temp	17.4	°C				A4500-H B	12/20/19 11:56 / SRW
Conductivity @ 25 C	826	umhos/cm		1		A2510 B	12/20/19 11:56 / SRW
Solids, Total Dissolved TDS @ 180 C	448	mg/L		10		A2540 C	12/20/19 14:31 / sbf
INORGANICS							
Chloride	113	mg/L		1		E300.0	12/21/19 01:31 / SRW
METALS, TOTAL							
Calcium	64	mg/L		1		E200.7	12/27/19 11:12 / sld
Magnesium	18	mg/L		1		E200.7	12/27/19 11:12 / sld
Sodium	86	mg/L		1		E200.7	12/27/19 11:12 / sld

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT Dept of Transportation
Project: MDT Plains
Lab ID: H19120474-033
Client Sample ID: MDT-1219-132

Report Date: 12/31/19
Collection Date: 12/19/19 09:45
DateReceived: 12/19/19
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	12/20/19 12:00 / SRW
pH Measurement Temp	17.8	°C				A4500-H B	12/20/19 12:00 / SRW
Conductivity @ 25 C	632	umhos/cm		1		A2510 B	12/20/19 12:00 / SRW
Solids, Total Dissolved TDS @ 180 C	347	mg/L		10		A2540 C	12/20/19 14:31 / sbf
INORGANICS							
Chloride	55	mg/L		1		E300.0	12/21/19 01:46 / SRW
METALS, TOTAL							
Calcium	71	mg/L		1		E200.7	12/26/19 19:37 / sld
Magnesium	19	mg/L		1		E200.7	12/26/19 19:37 / sld
Sodium	30	mg/L		1		E200.7	12/26/19 19:37 / sld

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

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19120474 **Report Date:** 12/31/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2510 B								Analytical Run: PHSC_101-H_191220A		
Lab ID: SC 150		Initial Calibration Verification Standard							12/20/19 09:08	
Conductivity @ 25 C		152	umhos/cm	1.0	102	90	110			
Lab ID: SC 20000		Initial Calibration Verification Standard							12/20/19 09:10	
Conductivity @ 25 C		19400	umhos/cm	1.0	97	90	110			
Lab ID: SC 5000		Initial Calibration Verification Standard							12/20/19 09:12	
Conductivity @ 25 C		4960	umhos/cm	1.0	99	90	110			
Lab ID: CCV - SC 1413		Continuing Calibration Verification Standard							12/20/19 09:34	
Conductivity @ 25 C		1410	umhos/cm	1.0	100	90	110			
Lab ID: CCV - SC 1413		Continuing Calibration Verification Standard							12/20/19 11:23	
Conductivity @ 25 C		1420	umhos/cm	1.0	100	90	110			
Method: A2510 B										Batch: R150665
Lab ID: SC 1000		Laboratory Control Sample				Run: PHSC_101-H_191220A			12/20/19 09:15	
Conductivity @ 25 C		996	umhos/cm	1.0	100	90	110			
Lab ID: H19120474-002ADUP		Sample Duplicate				Run: PHSC_101-H_191220A			12/20/19 10:35	
Conductivity @ 25 C		992	umhos/cm	1.0				0.4	10	
Lab ID: H19120474-020ADUP		Sample Duplicate				Run: PHSC_101-H_191220A			12/20/19 11:18	
Conductivity @ 25 C		410	umhos/cm	1.0				0.2	10	
Lab ID: H19120474-022ADUP		Sample Duplicate				Run: PHSC_101-H_191220A			12/20/19 11:33	
Conductivity @ 25 C		622	umhos/cm	1.0				0.1	10	
Lab ID: H19120474-032ADUP		Sample Duplicate				Run: PHSC_101-H_191220A			12/20/19 11:58	
Conductivity @ 25 C		826	umhos/cm	1.0				0.0	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19120474 **Report Date:** 12/31/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: TDS191220A
Lab ID: MB-1_191220A		Method Blank				Run: ACCU-124 (14410200)_19122			12/20/19 14:18	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-2_191220A		Laboratory Control Sample				Run: ACCU-124 (14410200)_19122			12/20/19 14:19	
Solids, Total Dissolved TDS @ 180 C		1990	mg/L	20	99	90	110			
Lab ID: H19120474-001A DUP		Sample Duplicate				Run: ACCU-124 (14410200)_19122			12/20/19 14:19	
Solids, Total Dissolved TDS @ 180 C		420	mg/L	10				0.9	5	
Lab ID: H19120474-011A DUP		Sample Duplicate				Run: ACCU-124 (14410200)_19122			12/20/19 14:22	
Solids, Total Dissolved TDS @ 180 C		261	mg/L	10				0.0	5	
Lab ID: MB-25_191220A		Method Blank				Run: ACCU-124 (14410200)_19122			12/20/19 14:27	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-26_191220A		Laboratory Control Sample				Run: ACCU-124 (14410200)_19122			12/20/19 14:27	
Solids, Total Dissolved TDS @ 180 C		1990	mg/L	20	99	90	110			
Lab ID: H19120474-021A DUP		Sample Duplicate				Run: ACCU-124 (14410200)_19122			12/20/19 14:28	
Solids, Total Dissolved TDS @ 180 C		226	mg/L	10				2.2	5	
Lab ID: H19120474-031A DUP		Sample Duplicate				Run: ACCU-124 (14410200)_19122			12/20/19 14:31	
Solids, Total Dissolved TDS @ 180 C		403	mg/L	10				0.0	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19120474 **Report Date:** 12/31/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B									Analytical Run: PHSC_101-H_191220A	
Lab ID: pH 7	2	Initial Calibration Verification Standard							12/20/19 09:03	
pH		6.9	s.u.	0.1	99	98	102			
pH Measurement Temp		20.9	°C			0	0			
Lab ID: CCV - pH 7	2	Continuing Calibration Verification Standard							12/20/19 09:31	
pH		7.0	s.u.	0.1	100	98	102			
pH Measurement Temp		20.3	°C			0	0			
Lab ID: CCV - pH 7	2	Continuing Calibration Verification Standard							12/20/19 11:20	
pH		7.0	s.u.	0.1	100	98	102			
pH Measurement Temp		18.8	°C			0	0			
Method: A4500-H B										Batch: R150665
Lab ID: H19120474-002ADUP	2	Sample Duplicate				Run: PHSC_101-H_191220A			12/20/19 10:35	
pH		7.4	s.u.	0.1				0.0	3	
pH Measurement Temp		10.7	°C							
Lab ID: H19120474-020ADUP	2	Sample Duplicate				Run: PHSC_101-H_191220A			12/20/19 11:18	
pH		7.7	s.u.	0.1				0.1	3	
pH Measurement Temp		13.7	°C							
Lab ID: H19120474-032ADUP	2	Sample Duplicate				Run: PHSC_101-H_191220A			12/20/19 11:58	
pH		7.5	s.u.	0.1				0.0	3	
pH Measurement Temp		17.4	°C							

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19120474 **Report Date:** 12/31/19

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E200.7**									Analytical Run: ICP2-HE_191226B	
Lab ID:	**ICV**	3	Initial Calibration Verification Standard								12/26/19 09:42
Calcium			39.8	mg/L	1.0	100	95	105			
Magnesium			39.8	mg/L	1.0	100	95	105			
Sodium			39.4	mg/L	1.0	99	95	105			
Lab ID:	**CCV-1**	3	Continuing Calibration Verification Standard								12/26/19 09:46
Calcium			25.3	mg/L	1.0	101	95	105			
Magnesium			25.0	mg/L	1.0	100	95	105			
Sodium			24.4	mg/L	1.0	98	95	105			
Lab ID:	**ICSA**	3	Interference Check Sample A								12/26/19 09:58
Calcium			484	mg/L	1.0	97	80	120			
Magnesium			530	mg/L	1.0	106	80	120			
Sodium			0.0155	mg/L	1.0		0	0			
Lab ID:	**ICSAB**	3	Interference Check Sample AB								12/26/19 10:02
Calcium			481	mg/L	1.0	96	80	120			
Magnesium			530	mg/L	1.0	106	80	120			
Sodium			19.9	mg/L	1.0	99	80	120			
Lab ID:	**CCV**	3	Continuing Calibration Verification Standard								12/26/19 14:44
Calcium			25.8	mg/L	1.0	103	90	110			
Magnesium			25.2	mg/L	1.0	101	90	110			
Sodium			23.9	mg/L	1.0	96	90	110			
Lab ID:	**CCV**	3	Continuing Calibration Verification Standard								12/26/19 15:28
Calcium			25.0	mg/L	1.0	100	90	110			
Magnesium			24.2	mg/L	1.0	97	90	110			
Sodium			25.1	mg/L	1.0	100	90	110			
Lab ID:	**CCV**	3	Continuing Calibration Verification Standard								12/26/19 16:13
Calcium			25.1	mg/L	1.0	101	90	110			
Magnesium			24.5	mg/L	1.0	98	90	110			
Sodium			24.4	mg/L	1.0	98	90	110			
Lab ID:	**CCV**	3	Continuing Calibration Verification Standard								12/26/19 16:59
Calcium			25.2	mg/L	1.0	101	90	110			
Magnesium			24.4	mg/L	1.0	98	90	110			
Sodium			25.1	mg/L	1.0	100	90	110			
Lab ID:	**CCV**	3	Continuing Calibration Verification Standard								12/26/19 18:11
Calcium			24.8	mg/L	1.0	99	90	110			
Magnesium			24.1	mg/L	1.0	96	90	110			
Sodium			25.4	mg/L	1.0	102	90	110			
Lab ID:	**CCV**	3	Continuing Calibration Verification Standard								12/26/19 18:56
Calcium			25.5	mg/L	1.0	102	90	110			
Magnesium			24.8	mg/L	1.0	99	90	110			
Sodium			25.1	mg/L	1.0	100	90	110			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19120474 **Report Date:** 12/31/19

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E200.7**										Batch: 49475
Lab ID:	**MB-49475**	3	Method Blank				Run: ICP2-HE_191226B				12/26/19 14:58
Calcium			ND	mg/L	0.09						
Magnesium			ND	mg/L	0.03						
Sodium			ND	mg/L	0.06						
Lab ID:	**LCS-49475**	3	Laboratory Control Sample				Run: ICP2-HE_191226B				12/26/19 15:02
Calcium			24.6	mg/L	1.0	98	85	115			
Magnesium			23.9	mg/L	1.0	96	85	115			
Sodium			24.5	mg/L	1.0	98	85	115			
Lab ID:	**H19120474-002BMS3**	3	Sample Matrix Spike				Run: ICP2-HE_191226B				12/26/19 15:43
Calcium			99.0	mg/L	1.0	103	70	130			
Magnesium			49.0	mg/L	1.0	100	70	130			
Sodium			110	mg/L	1.0	95	70	130			
Lab ID:	**H19120474-002BMSD**	3	Sample Matrix Spike Duplicate				Run: ICP2-HE_191226B				12/26/19 15:47
Calcium			97.0	mg/L	1.0	95	70	130	2.1	20	
Magnesium			48.1	mg/L	1.0	97	70	130	1.8	20	
Sodium			112	mg/L	1.0	100	70	130	1.2	20	
Lab ID:	**H19120474-008BMS3**	3	Sample Matrix Spike				Run: ICP2-HE_191226B				12/26/19 16:28
Calcium			112	mg/L	1.0	86	70	130			
Magnesium			47.8	mg/L	1.0	95	70	130			
Sodium			116	mg/L	1.0	108	70	130			
Lab ID:	**H19120474-008BMSD**	3	Sample Matrix Spike Duplicate				Run: ICP2-HE_191226B				12/26/19 16:32
Calcium			114	mg/L	1.0	90	70	130	1.0	20	
Magnesium			48.4	mg/L	1.0	98	70	130	1.4	20	
Sodium			113	mg/L	1.0	96	70	130	2.6	20	
Method:	**E200.7**										Batch: 49476
Lab ID:	**MB-49476**	3	Method Blank				Run: ICP2-HE_191226B				12/26/19 17:18
Calcium			ND	mg/L	0.09						
Magnesium			ND	mg/L	0.03						
Sodium			ND	mg/L	0.06						
Lab ID:	**LCS-49476**	3	Laboratory Control Sample				Run: ICP2-HE_191226B				12/26/19 17:21
Calcium			25.1	mg/L	1.0	100	85	115			
Magnesium			24.3	mg/L	1.0	97	85	115			
Sodium			24.4	mg/L	1.0	98	85	115			
Lab ID:	**H19120474-015BMS3**	3	Sample Matrix Spike				Run: ICP2-HE_191226B				12/26/19 17:37
Calcium			26.4	mg/L	1.0	97	70	130			
Magnesium			24.4	mg/L	1.0	97	70	130			
Sodium			325	mg/L	1.0		70	130			A
Lab ID:	**H19120474-015BMSD**	3	Sample Matrix Spike Duplicate				Run: ICP2-HE_191226B				12/26/19 17:41
Calcium			26.8	mg/L	1.0	99	70	130	1.2	20	
Magnesium			24.4	mg/L	1.0	96	70	130	0.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19120474 **Report Date:** 12/31/19

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E200.7**										Batch: 49476
Lab ID:	**H19120474-015BMSD**	3	Sample Matrix Spike Duplicate				Run: ICP2-HE_191226B			12/26/19 17:41	
Sodium			344	mg/L	1.0		70	130	5.5	20	A
Lab ID:	**H19120474-024BMS3**	3	Sample Matrix Spike				Run: ICP2-HE_191226B			12/26/19 19:11	
Calcium			89.7	mg/L	1.0	100	70	130			
Magnesium			41.0	mg/L	1.0	100	70	130			
Sodium			63.5	mg/L	1.0	107	70	130			
Lab ID:	**H19120474-024BMSD**	3	Sample Matrix Spike Duplicate				Run: ICP2-HE_191226B			12/26/19 19:15	
Calcium			88.2	mg/L	1.0	94	70	130	1.7	20	
Magnesium			40.5	mg/L	1.0	98	70	130	1.3	20	
Sodium			61.6	mg/L	1.0	99	70	130	3.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19120474 **Report Date:** 12/31/19

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E200.7**									Analytical Run: ICP2-HE_191227A	
Lab ID:	**ICV**	3	Initial Calibration Verification Standard							12/27/19 09:15	
Calcium			39.4	mg/L	1.0	98	95	105			
Magnesium			38.7	mg/L	1.0	97	95	105			
Sodium			40.3	mg/L	1.0	101	95	105			
Lab ID:	**CCV-1**	3	Continuing Calibration Verification Standard							12/27/19 09:19	
Calcium			25.0	mg/L	1.0	100	95	105			
Magnesium			24.2	mg/L	1.0	97	95	105			
Sodium			25.2	mg/L	1.0	101	95	105			
Lab ID:	**ICSA**	3	Interference Check Sample A							12/27/19 09:30	
Calcium			485	mg/L	1.0	97	80	120			
Magnesium			527	mg/L	1.0	105	80	120			
Sodium			0.00236	mg/L	1.0		0	0			
Lab ID:	**ICSAB**	3	Interference Check Sample AB							12/27/19 09:34	
Calcium			494	mg/L	1.0	99	80	120			
Magnesium			538	mg/L	1.0	108	80	120			
Sodium			20.3	mg/L	1.0	101	80	120			
Lab ID:	**CCV**	3	Continuing Calibration Verification Standard							12/27/19 10:05	
Calcium			24.5	mg/L	1.0	98	90	110			
Magnesium			23.5	mg/L	1.0	94	90	110			
Sodium			25.6	mg/L	1.0	103	90	110			
Lab ID:	**CCV**	3	Continuing Calibration Verification Standard							12/27/19 10:50	
Calcium			25.3	mg/L	1.0	101	90	110			
Magnesium			24.3	mg/L	1.0	97	90	110			
Sodium			26.2	mg/L	1.0	105	90	110			
Method:	**E200.7**									Batch: 49501	
Lab ID:	**MB-49501**	3	Method Blank				Run: ICP2-HE_191227A			12/27/19 10:35	
Calcium			ND	mg/L	0.09						
Magnesium			ND	mg/L	0.03						
Sodium			ND	mg/L	0.06						
Lab ID:	**LCS-49501**	3	Laboratory Control Sample				Run: ICP2-HE_191227A			12/27/19 10:38	
Calcium			24.7	mg/L	1.0	99	85	115			
Magnesium			23.6	mg/L	1.0	94	85	115			
Sodium			25.7	mg/L	1.0	103	85	115			
Lab ID:	**H19120474-031BMS3**	3	Sample Matrix Spike				Run: ICP2-HE_191227A			12/27/19 11:04	
Calcium			182	mg/L	1.0	94	70	130			
Magnesium			141	mg/L	1.0	93	70	130			
Sodium			190	mg/L	1.0	101	70	130			
Lab ID:	**H19120474-031BMSD**	3	Sample Matrix Spike Duplicate				Run: ICP2-HE_191227A			12/27/19 11:08	
Calcium			184	mg/L	1.0	95	70	130	0.9	20	
Magnesium			142	mg/L	1.0	94	70	130	1.2	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19120474 **Report Date:** 12/31/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**										Batch: 49501
Lab ID: **H19120474-031BMSD**	3	Sample Matrix Spike Duplicate				Run: ICP2-HE_191227A				12/27/19 11:08
Sodium		198	mg/L	1.0	107	70	130	4.2	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19120474 **Report Date:** 12/31/19

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E200.8**							Analytical Run: ICPMS205-H_191224C			
Lab ID:	**ICV**	4	Initial Calibration Verification Standard							12/24/19 11:39	
Arsenic			0.0619	mg/L	0.0050	103	90	110			
Calcium			3.01	mg/L	0.50	100	90	110			
Iron			0.308	mg/L	0.020	103	90	110			
Manganese			0.303	mg/L	0.010	101	90	110			
Lab ID:	**ICSA**	4	Interference Check Sample A							12/24/19 11:41	
Arsenic			6.17E-06	mg/L	0.0050						
Calcium			136	mg/L	0.50	113	70	130			
Iron			104	mg/L	0.020	104	70	130			
Manganese			0.000366	mg/L	0.010						
Lab ID:	**ICSAB**	4	Interference Check Sample AB							12/24/19 11:44	
Arsenic			0.0104	mg/L	0.0050	104	70	130			
Calcium			128	mg/L	0.50	107	70	130			
Iron			102	mg/L	0.020	102	70	130			
Manganese			0.0201	mg/L	0.010	100	70	130			
Method:	**E200.8**									Batch: 49475	
Lab ID:	**MB-49475**	4	Method Blank				Run: ICPMS205-H_191224C			12/24/19 13:09	
Arsenic			ND	mg/L	0.0001						
Calcium			ND	mg/L	0.09						
Iron			ND	mg/L	0.005						
Manganese			0.0002	mg/L	0.0001						
Lab ID:	**LCS-49475**	4	Laboratory Control Sample				Run: ICPMS205-H_191224C			12/24/19 13:38	
Arsenic			0.476	mg/L	0.0010	95	85	115			
Calcium			24.3	mg/L	1.0	97	85	115			
Iron			2.49	mg/L	0.020	100	85	115			
Manganese			2.47	mg/L	0.0010	99	85	115			
Lab ID:	**H19120474-008BMS3**	4	Sample Matrix Spike				Run: ICPMS205-H_191224C			12/24/19 13:40	
Arsenic			0.487	mg/L	0.0010	97	70	130			
Calcium			114	mg/L	1.0	90	70	130			
Iron			2.57	mg/L	0.020	100	70	130			
Manganese			2.48	mg/L	0.0010	99	70	130			
Lab ID:	**H19120474-008BMSD**	4	Sample Matrix Spike Duplicate				Run: ICPMS205-H_191224C			12/24/19 13:42	
Arsenic			0.494	mg/L	0.0010	99	70	130	1.5	20	
Calcium			114	mg/L	1.0	87	70	130	0.7	20	
Iron			2.56	mg/L	0.020	100	70	130	0.3	20	
Manganese			2.49	mg/L	0.0010	99	70	130	0.4	20	
Method:	**E200.8**									Batch: 49476	
Lab ID:	**MB-49476**	4	Method Blank				Run: ICPMS205-H_191224C			12/24/19 13:53	
Arsenic			ND	mg/L	0.0001						
Calcium			ND	mg/L	0.09						
Iron			0.006	mg/L	0.005						
Manganese			0.0003	mg/L	0.0001						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19120474 **Report Date:** 12/31/19

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E200.8**										Batch: 49476
Lab ID:	**MB-49476**	4	Method Blank				Run: ICPMS205-H_191224C				12/24/19 13:53
Lab ID:	**LCS-49476**	4	Laboratory Control Sample				Run: ICPMS205-H_191224C				12/24/19 14:04
Arsenic			0.480	mg/L	0.0010	96	85	115			
Calcium			25.1	mg/L	1.0	100	85	115			
Iron			2.52	mg/L	0.020	101	85	115			
Manganese			2.51	mg/L	0.0010	100	85	115			
Lab ID:	**H19120474-015BMS3**	4	Sample Matrix Spike				Run: ICPMS205-H_191224C				12/24/19 14:06
Arsenic			0.487	mg/L	0.0010	95	70	130			
Calcium			26.4	mg/L	1.0	98	70	130			
Iron			4.56	mg/L	0.020	98	70	130			
Manganese			2.48	mg/L	0.0010	98	70	130			
Lab ID:	**H19120474-015BMSD**	4	Sample Matrix Spike Duplicate				Run: ICPMS205-H_191224C				12/24/19 14:08
Arsenic			0.497	mg/L	0.0010	97	70	130	1.9	20	
Calcium			27.4	mg/L	1.0	102	70	130	3.8	20	
Iron			4.66	mg/L	0.020	102	70	130	2.2	20	
Manganese			2.55	mg/L	0.0010	101	70	130	2.8	20	
Lab ID:	**H19120474-024BMS3**	4	Sample Matrix Spike				Run: ICPMS205-H_191224C				12/24/19 14:13
Arsenic			0.491	mg/L	0.0010	98	70	130			
Calcium			103	mg/L	1.0	161	70	130			S
Iron			2.53	mg/L	0.020	100	70	130			
Manganese			2.49	mg/L	0.0010	99	70	130			
Lab ID:	**H19120474-024BMSD**	4	Sample Matrix Spike Duplicate				Run: ICPMS205-H_191224C				12/24/19 14:15
Arsenic			0.489	mg/L	0.0010	97	70	130	0.5	20	
Calcium			87.8	mg/L	1.0	101	70	130	16	20	
Iron			2.56	mg/L	0.020	101	70	130	1.2	20	
Manganese			2.53	mg/L	0.0010	101	70	130	1.8	20	
Method:	**E200.8**										Batch: 49475
Lab ID:	**H19120474-002BMS3**	4	Sample Matrix Spike				Run: ICPMS205-H_191227A				12/27/19 17:06
Arsenic			0.484	mg/L	0.0010	97	70	130			
Calcium			97.4	mg/L	1.0	112	70	130			
Iron			2.58	mg/L	0.020	101	70	130			
Manganese			2.53	mg/L	0.0010	101	70	130			
Lab ID:	**H19120474-002BMSD**	4	Sample Matrix Spike Duplicate				Run: ICPMS205-H_191227A				12/27/19 17:08
Arsenic			0.479	mg/L	0.0010	96	70	130	1.1	20	
Calcium			93.4	mg/L	1.0	96	70	130	4.2	20	
Iron			2.54	mg/L	0.020	100	70	130	1.7	20	
Manganese			2.49	mg/L	0.0010	100	70	130	1.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT Dept of Transportation **Work Order:** H19120474 **Report Date:** 12/31/19

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E300.0**							Analytical Run: IC METROHM_191220A			
Lab ID:	**ICV**		Initial Calibration Verification Standard							12/20/19 11:02	
Chloride			103	mg/L	1.0	103	90	110			
Lab ID:	**CCV**		Continuing Calibration Verification Standard							12/20/19 11:31	
Chloride			50.7	mg/L	1.0	101	90	110			
Lab ID:	**ICV**		Initial Calibration Verification Standard							12/20/19 15:08	
Chloride			101	mg/L	1.0	101	90	110			
Lab ID:	**CCV**		Continuing Calibration Verification Standard							12/20/19 19:57	
Chloride			49.8	mg/L	1.0	100	90	110			
Lab ID:	**CCV**		Continuing Calibration Verification Standard							12/20/19 23:35	
Chloride			49.8	mg/L	1.0	100	90	110			
Method:	**E300.0**										Batch: R150704
Lab ID:	**ICB**		Method Blank				Run: IC METROHM_191220A			12/20/19 10:47	
Chloride			ND	mg/L	0.02						
Lab ID:	**LFB**		Laboratory Fortified Blank				Run: IC METROHM_191220A			12/20/19 11:16	
Chloride			26.3	mg/L	1.0	105	90	110			
Lab ID:	**H19120474-010AMS**		Sample Matrix Spike				Run: IC METROHM_191220A			12/20/19 14:39	
Chloride			41.4	mg/L	1.0	106	90	110			
Lab ID:	**H19120474-010AMSD**		Sample Matrix Spike Duplicate				Run: IC METROHM_191220A			12/20/19 14:53	
Chloride			41.1	mg/L	1.0	105	90	110	0.6	20	
Lab ID:	**LFB**		Laboratory Fortified Blank				Run: IC METROHM_191220A			12/20/19 15:22	
Chloride			26.1	mg/L	1.0	104	90	110			
Lab ID:	**H19120481-002AMS**		Sample Matrix Spike				Run: IC METROHM_191220A			12/20/19 18:45	
Chloride			2070	mg/L	1.3	103	90	110			
Lab ID:	**H19120481-002AMSD**		Sample Matrix Spike Duplicate				Run: IC METROHM_191220A			12/20/19 18:59	
Chloride			2060	mg/L	1.3	102	90	110	0.7	20	
Lab ID:	**H19120474-026AMS**		Sample Matrix Spike				Run: IC METROHM_191220A			12/20/19 23:06	
Chloride			118	mg/L	1.0	106	90	110			
Lab ID:	**H19120474-026AMSD**		Sample Matrix Spike Duplicate				Run: IC METROHM_191220A			12/20/19 23:20	
Chloride			117	mg/L	1.0	104	90	110	0.5	20	
Lab ID:	**H19120474-033AMS**		Sample Matrix Spike				Run: IC METROHM_191220A			12/21/19 02:00	
Chloride			80.3	mg/L	1.0	100	90	110			
Lab ID:	**H19120474-033AMSD**		Sample Matrix Spike Duplicate				Run: IC METROHM_191220A			12/21/19 02:15	
Chloride			81.1	mg/L	1.0	103	90	110	0.9	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

MT Dept of Transportation

H19120474

Login completed by: Jessica C. Smith
Date Received: 12/19/2019
Reviewed by: BL2000\rtooke
Received by: wjj
Reviewed Date: 12/20/2019
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C See Comments		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Cooler 1 was received at 1.7 °C, Cooler 2 at 0.5 °C, and Cooler 3 at 0.2 °C. On Ice. JCS 12/20/19

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Chain of Custody & Analytical Request Record

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Page 1 of 4

Account Information (Billing information)

Company/Name	MDT ENVIRONMENTAL SERVICES
Contact	BRIAN GOODMAN
Phone	406 444-7632
Mailing Address	2701 PROSPECT AVE.
City, State, Zip	HELENA, MT 59620
Email	bgoodman@mt.gov
Receive Invoice	☐Hard Copy ☒Email
Receive Report	☐Hard Copy ☐Email
Purchase Order	
Quote	
Bottle Order	32499

Report Information (if different than Account Information)

Company/Name	KERK ENGINEERING & NATURAL RES.
Contact	BEN OSBORN
Phone	406 595-1145
Mailing Address	1709 PARK VIEW PLACE
City, State, Zip	BOZEMAN, MT 59715
Email	BEN.OSBORN@NREMONTANA.COM
Receive Report	☐Hard Copy ☒Email EXCEL

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other

Comments

Project Information

Project Name, PWSID, Permit, etc.	MDT PIACENS
Sampler Name	JAMES OSBORN
Sampler Phone	406 595 1145
Sample Origin State	MT
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	A2540C TDS	A4500-H+B pH	Conductivity A4500 A2510B	Anions E300.0 Cl	Ca, Mg, Na Total E200.7-8 Metals					See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
CL	1 MDT-1218-101	12-18-19	0800	2	W	✓	✓	✓	✓	✓							H19120474
CL	2 MDT-1218-102	12-18-19	0815	2	W	✓	✓	✓	✓	✓							
CL	3 MDT-1218-103	12-18-19	0830	2	W	✓	✓	✓	✓	✓							
CL	4 MDT-1218-104	12-18-19	0845	2	W	✓	✓	✓	✓	✓							
CL	5 MDT-1218-105	12-18-19	0900	2	W	✓	✓	✓	✓	✓							
CL	6 MDT-1218-106	12-18-19	0915	2	W	✓	✓	✓	✓	✓							
↓	7 MDT-1218-107	12-18-19	0930	2	W	✓	✓	✓	✓	✓							
	8 MDT-1218-108	12-18-19	0945	2	W	✓	✓	✓	✓	✓							
CL	9 MDT-1218-109	12-18-19	1000	2	W	✓	✓	✓	✓	✓							
↓	10 MDT-1218-110	12-18-19	1015	2	W	✓	✓	✓	✓	✓							

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	JAMES OSBORN	12-19-19 1645				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Wandinton	12-19-19 16:45	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
hand del	Y	Y N C B	Y N	C-1 - 1.7°C	Y N	Y N	CC Cash Check	$	
				C-2 - 0.5					

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

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Page 2 of 4

Account Information (Billing information)

Company/Name
Contact
Phone
Mailing Address SAME
City, State, Zip
Email
Receive Invoice ☐Hard Copy ☐Email | Receive Report ☐Hard Copy ☐Email
Purchase Order | Quote | Bottle Order

Report Information (if different than Account Information)

Company/Name
Contact
Phone
Mailing Address SAME
City, State, Zip
Email
Receive Report ☐Hard Copy ☐Email
Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

Project Information

Project Name, PWSID, Permit, etc.
Sampler Name SAME | Sampler Phone
Sample Origin State | EPA/State Compliance ☐ Yes ☐ No
MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	A2540C TDS	CANDUCTIVITY A2510B	ANIONS E300.0 Cl	Ca, Mg, Na TOTAL E200.7-8 METALS	CONDUCTIVITY A2510B	As, Fe, Mn E200.7-8 TOTAL METALS				See Attached	RUSH TAT	ELI LAB ID Laboratory Use Only
C2 1	MDT-12-18-111	12-18-19	1030	2	W	✓	✓	✓	✓	✓							
C3 2	MDT-1218-112	12-18-19	1045	2	W	✓				✓	✓						H19120474
3	MDT-1218-113	12-18-19	1100	2	W	✓				✓	✓						
4	MDT-1218-114	12-18-19	1115	2	W	✓				✓	✓						
5	MDT-1218-115	12-18-19	1130	2	W	✓				✓	✓						
6	MDT-1218-116-2	12-18-19	1145	2	W	✓	✓	✓	✓	✓							
7	MDT-1218-~~117~~-116	12-18-19	1200	2	W	✓	✓	✓	✓	✓							
8	MDT-1218-~~118~~-117	12-18-19	1215	2	W	✓	✓	✓	✓	✓							
9	MDT-1218-~~119~~-118	12-18-19	1230	2	W	✓	✓	✓	✓	✓							
10	MDT-1218-120-119	12-18-19	1245	2	W	✓	✓	✓	✓	✓							

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	JAMES OSBORN	12-19-19 1645				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Wanda Dr	12-19-19 16 45	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
hand del	Y	Y N C B	Y N	C-1 1.7°C C2 0.5 C3-0.2	Y N	Y N	CC Cash Check_____	$	

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Page 3 of 4

Account Information (Billing information)

Company/Name
Contact
Phone
Mailing Address SAME
City, State, Zip
Email
Receive Invoice ☐Hard Copy ☐Email | Receive Report ☐Hard Copy ☐Email
Purchase Order | Quote | Bottle Order

Report Information (if different than Account Information)

Company/Name
Contact
Phone
Mailing Address SAME
City, State, Zip
Email
Receive Report ☐Hard Copy ☐Email
Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other

Comments

Project Information

Project Name, PWSID, Permit, etc.
Sampler Name SAME | Sampler Phone
Sample Origin State | EPA/State Compliance ☐ Yes ☐ No
MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

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Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Arsenic TOS	Anions Cl E300.0	Ca, Mg, Na Total E200.7B	Conductivity A2510B	As, Fe, Mn Total E200.7-8	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
C3	1 MOT-1218-120	12-18-19	1300	2	W	✓			✓	✓			H19120474
↓	2 MOT-1218-121	12-18-19	1315	2	W	✓			✓	✓			
C1	3 MOT-1218-122	12-18-19	1330	2	W	✓	✓	✓	✓	✓			
C1	4 MOT-1218-123	12-18-19	1345	2	W	✓	✓	✓	✓	✓			
C1	5 MOT-1218-124	12-18-19	1400	2	W	✓	✓	✓	✓	✓			
C1	6 MOT-1219-125	12-18-19	0800	2	W	✓	✓	✓	✓	✓			
C1	7 MOT-1219-126	12-19-19	0815	2	W	✓	✓	✓	✓	✓			
C1	8 MOT-1219-127	12-19-19	0830	2	W	✓	✓	✓	✓	✓			
↓	9 MOT-1219-128	12-19-19	0845	2	W	✓	✓	✓	✓	✓			
↓	10 MOT-1219-129	12-19-19	0900	2	W	✓	✓	✓	✓	✓			

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	JAMES OSBORN	12-19-19 1645				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print) Washington	Date/Time 12-19-19 1645	Signature

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
hand del	Y	Y (N) C B	Y N	C1-1.1C C2-0.5 C3-0.2	(Y) N	(Y) N	CC Cash Check	$	

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Account Information *(Billing information)*

Company/Name	
Contact	
Phone	
Mailing Address	SAME
City, State, Zip	
Email	
Receive Invoice ☐Hard Copy ☐Email	Receive Report ☐Hard Copy ☐Email
Purchase Order	Quote / Bottle Order

Report Information *(if different than Account Information)*

Company/Name	
Contact	
Phone	
Mailing Address	SAME
City, State, Zip	
Email	
Receive Report ☐Hard Copy ☐Email	
Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other_____	

Comments

Project Information

Project Name, PWSID, Permit, etc.	
Sampler Name SAME	Sampler Phone
Sample Origin State	EPA/State Compliance ☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W- Water
S - Soils/ Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Analysis Requested: AZSNC TDS	AH150 - HB pH	Anions Cl E300.0	Ca, Mg, Na, Total Metals E200.7-8	Conductivity A2510B					See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
C1 1	MOT-1219-130	12-19-19	0915	2	W	✓	✓	✓	✓	✓							H19120474
↓ 2	MOT-1219-131	12-19-19	~~0915~~ 0920	2	W	✓	✓	✓	✓	✓							
C1 3	MOT-1219-132	12-19-19	0945	2	W	✓	✓	✓	✓	✓							
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	JAMES OSBORN	12-19-19 1645				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Wandi Sorm	12/19/19 16	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number *(cash/check only)*
hand del	4	Y N C B	Y N	C-1-17C 2-0.5	Y N	Y N	CC Cash Check_____	$	

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Montana DEQ - Waste Management and Remediation Division

Data Validation Summary Form (Version 1.3.0, Revised 1/26/18)

Please fill out the information below, using one form for each lab batch (one form can be used for multiple analytical methods). The form will grow and adjust, based on your responses. Please include a discussion regarding the sampling event in the report that is sent to DEQ with this form. For additional instructions, please click the Open Complete Instructions button.

Open Complete Instructions

Basic Questions View example (Note: example optimized for viewing in Chrome browser)

1. Site/Facility name	MDT Plain Maintenance Facility
2. Site code or facility ID (if applicable)	
3. Release ID (if applicable)	
4. Sample delivery group	H19120474
5. Name of DEQ-approved sampling plan	NA
6. Date DEQ approved the sampling plan	M/D/YY
7. Name of data validator	Ian Magruder, Northern Rockies Engineering
8. Phone	406-439-0049
9. Date validated	1/15/2020 M/D/YY

Field Collection Questions View example (Note: example optimized for viewing in Chrome browser)

10. Sample matrix	☐ Soil ☐ Sediment ☐ Surface water ☒ Groundwater ☐ Tap water ☐ Air (including soil gas) ☐ Other
11. Sample collection start date	12/18/2019 M/D/YY
12. Sample collection end date	12/19/2019 M/D/YY

13. Analytical methods used

Use Add Method button to list multiple methods. Enter any other methods in the field manually.

Add Method	Analytical Method(s)
Delete Method	A4500-H B: pH
Delete Method	A2510 B: conductivity
Delete Method	A2540 C: TDS
Delete Method	E300.0: chloride
Delete Method	E200.7: metals total
Delete Method	E200.8: metals total

Laboratory-related Questions View example (Note: example optimized for viewing in Chrome browser)

14. Laboratory name and location	Energy Laboratories, Helena, MT
15. Laboratory project ID	MDT Plains

	Yes	No	See Below	Comments
16. Were samples received in good condition and at appropriate temperature, chain-of-custody forms complete, and all samples analyzed within holding times?	○	●	○	see note under 16c regarding pH holding times.
16a. Were chain-of-custody forms complete?	●	○		
16b. Were samples received in good condition, preserved, and at appropriate temperature (VOA no headspace, appropriate pH, temperature 4° C +/- 2° for most samples)?	●	○		
16c. Were the samples analyzed within method-specified or technical holding times?	○	●		

If no, explain

pH analyzed outside of hold time. Field pH was measured and will be used in project reporting.

	Yes	No	See Below	Comments
17. Were all laboratory quality control procedures complied with and is data validated without qualifiers?	○	○	●	

Please explain

	Yes	No	Comments
17a. Were all calibration verification results within acceptable limits?	●	○	
17b. Were laboratory (method) blank samples free of contamination?	○	●	Levels of analyte in the blank below 10% of the level of the analyte.

If no, explain

200.8 Method Blank MB-49475 Mn is 2x RL, Method Blank MB-49476 Fe > RL and Mn is 3x RL.

	Yes	No	Comments
17c. Are the percent recoveries and relative percent differences of matrix spike and matrix spike duplicates within quality control limits?	○	●	

If no, explain

Matrix Spike H19120474-024BMS3 Ca spike recovery outside of advisory limits.

	Yes	No	Comments
17d. Are the laboratory control samples the same matrix as the samples and prepared the same as associated samples?	●	○	
17e. Were laboratory control samples and laboratory control sample duplicate percent recoveries and relative percent differences within laboratory control limits?	●	○	
17f. Were surrogate recoveries within laboratory quality control limits?	○	○	NA

	Yes	No	Comments
17g. Were the laboratory duplicate relative percent differences within data validation quality control limits?	●	○	
18. Were the total number of lab method blanks at least 5% of the total number of samples, or as required by the method?	●	○	
19. Were the total number of lab matrix spike samples prepared at least 5% of the total number of samples, or as required by the method?	●	○	

20. Please list any project samples used for matrix spike/matrix spike duplicates.

Add Sample	Lab ID	Field Sample ID	Comments
Delete Sample	H19120474-002	MDT-1218-102	
Delete Sample	H19120474-008	MDT-1218-108	
Delete Sample	H19120474-015	MDT-1218-115	
Delete Sample	H19120474-024	MDT-1218-124	
Delete Sample	H19120474-031	MDT-1219-130	
Delete Sample	H19120474-010	MDT-1218-110	
Delete Sample	H19120474-026	MDT-1219-125	
Delete Sample	H19120474-033	MDT-1219-132	

	Yes	No	Comments
21. Is the total number of laboratory control samples at least 5% of the total number of samples?	○	●	

If no, explain

A2510 B conductivity: 1 LCS for 33 samples; A2540 C TDS 2 LCS for 33 samples; A4500-H B pH: no LCS; E300.0 chloride: 2 LFB for 27 samples; E200.7 and E200.8 1 LCS per batch. These are all appropriate for the methods.

Consultant/Validator Questions View example (Note: example optimized for viewing in Chrome browser)

	Yes	No	Comments
22. Are the detection limits appropriate for the project (i.e. at or below screening levels)?	●	○	
23. Are the reported units appropriate for the sample matrix (i.e. water results in ug/L, not mg/kg)?	●	○	
24. Do the analytical methods comply with project requirements (e.g. in the SAP, work plan, or QAPP)?	●	○	
25. Do the laboratory reports include all constituents requested to be analyzed on the chain-of-custody or under the sampling plan or other applicable document?	●	○	

26. Is the number of sample blanks (e.g. equipment, trip, or field blanks) equal to at least 10% of the total number of samples, or as otherwise required?	Yes ●	No ○		Comments: Not required per scope of work.
27. Are field blanks free from contamination, duplicates collected as required, and field duplicate percent differences within data validation quality control limits?	Yes ●	No ○	See Below ○	Comments:

28. Please provide an Excel or CSV file to the DEQ project manager (via e-mail or CD) that lists all samples evaluated in this summary and lists any qualified data.
Please use the following format:

Lab ID	Field Sample ID	Qualifiers	Comments (indicate whether the issue biases the results high or low)
Example 48310-2.31E	Example GW-1	R	Sample dropped in lab and unrecoverable
Example 48310-2.32D	Example GW-2		

Please use the following format for qualifiers. See EPA's National Functional Guidelines for more information on qualifiers for unique samples such as dioxins.

Qualifier	Explanation
C	Pesticide and Arochlor results confirmed with GC/MS
J-	Estimated value, may be biased low
J	Analyte identified, but concentration is estimated
J+	Estimated value, may be biased high
NJ	Tentatively identified compound
R	Sample result rejected
U	Analyte analyzed for, but not detected above quantitation limit
UJ	Analyte not detected above CRQL, but CRQL may be inaccurate
X	Pesticide and Arochlor results attempted using GC/MS, but unsuccessful

If you wish to manually enter qualified sample results, please use the table below.

Add Sample	Lab ID	Field Sample ID	Qualifiers	Comments (indicate whether the issue biases the results high or low)
Delete Sample				

29. What is the percent completeness (samples planned versus valid samples collected)?	88%			Comments: 29/33
30. Was the completeness goal met?	Yes ●	No ○		Comments: Not required per scope of work.
31. Does all data conform to analytical methods and data quality objectives specified for this project?	Yes ●	No ○		Comments:

32. Other general comments or observations?

NA

Split Samples

33. Did DEQ collect split samples?	Yes ○	No ●		Comments:

Print Form | Save As | Open Instructions | Hide Instructions

Montana Department of Environmental Quality
Data Validation Guidelines for Evaluating Analytical Data
(updated January 26, 2018)

This document was assembled by the Montana Department of Environmental Quality Contaminated Site Cleanup Bureau (DEQ) to formalize technical direction for conducting data validation. Data validation is a standardized review process for judging the analytical quality and usefulness of a discrete set of chemical data and is necessary to ensure that data of known and documented quality are used in making environmental decisions.

While these guidelines are generally used by DEQ, there may be circumstances that warrant a higher level of data validation review and DEQ reserves the right to require additional validation. For investigations where x-ray fluorescence (XRF) or other field screening equipment is used, provide an evaluation including the comparison and correlation of field screening data to laboratory confirmation data in the data validation discussion (please see DEQ's frequently asked questions at http://deq.mt.gov/Land/StateSuperfund/FrequentlyAskedQuestions for specifics associated with the use of XRF equipment and data collection/evaluation).

Please complete a separate data validation report for each sample batch as determined by the laboratory (Note: large data collection events may result in multiple batches). A brief summary of this validation report and the acceptability and usability of the data should be included in the text of the project report with the validation report included as an appendix. The data validation should include an assessment of data using the precision, accuracy, representativeness, comparability, and completeness (PARCC) parameters:

Precision: The degree of mutual agreement between individual measurements of the same property under similar conditions.

> Combined field and laboratory precision is evaluated by collecting and analyzing field duplicates and then calculating the variance between the samples, typically as a relative percent difference (RPD). Laboratory analytical precision is evaluated by analyzing matrix spike/matrix spike duplicate (MS/MSD) samples and using the results to calculate an RPD.

Accuracy: The degree of agreement between an analytical measurement and a reference accepted as a true value.

> The accuracy of a measurement system can be affected by errors introduced by field contamination, sample preservation, sample handling, sample preparation, and analytical techniques. Analysis of matrix spike/matrix spike duplicate (MS/MSD) samples, laboratory control spikes (LCS) or blank spikes, surrogate standards, and method blanks are typically used to calculate the percent recovery (%R) for evaluating accuracy.
>
> Please note that some methods, such as EPH and VPH, require calibration data. For such methods, please provide and verify the calibration data.

Representativeness: The degree to which sample data accurately and precisely represent the characteristics of a population, variations in a parameter at a sampling point, or an environmental condition that they are intended to represent.

> Typically, representative data will be obtained through careful selection of sampling locations and analytical parameters; proper collection and handling of samples; and through use and consistent application of established field and laboratory procedures. Evaluation of field and laboratory blank samples for presence of contaminants can be useful in evaluating representativeness of sample results.

Completeness: A measure of the percentage of project-specific data that is valid.

> Valid data are obtained when samples are collected and analyzed in accordance with quality control (QC) procedures outlined in the sampling and analysis plan (SAP), and when none of the QC criteria that affect data usability are exceeded. Once data validation is complete, the number of usable sample results is divided by the total number of sample results planned for the investigation to determine the percent completeness. A completeness goal should be developed for each

project (i.e., 100% completeness for residential samples to ensure that all properties requiring sampling are sampled). A discussion of completeness must also examine the number of samples called for in the SAP compared to the number of samples actually collected. Variance between the planned and collected sample numbers should be explained.

Comparability: Expression of the confidence with which one data set can be compared with another.

Comparability of data is achieved by consistently following standard field and laboratory procedures and by using standard measurement units in reporting analytical data.

For complete information regarding data validation, please see the EPA National Functional Guidelines at http://www2.epa.gov/clp/contract-laboratory-program-national-functional-guidelines-data-review

Determination of Data Usability Qualifiers

Step 1: Review QC Parameter and Document Finding	Step 2: Determine Which Samples to Qualify	Step 3: Determine Which Results to Qualify	Step 4: Apply Qualifier and Bias Code
Lab Receipt of Samples			
Preservative (including sample temperature) outside of specifications.	Affected samples and professional judgment	Detected Results Non-detected Results	J- UJ or R
Samples not accounted for on Chain-of-Custody	Affected samples	All samples	R
Samples analyzed outside of method specified or technical holding time.	Affected samples	Detected Results Non-detected Results	J- R (UJ for SVOC, pesticides, aroclors)
Samples analyzed grossly outside of method specified or technical holding time.	Affected samples	Detected Results Non-detected Results	J- R
Lab Quality Control			
Calibration verification results outside of acceptable limits.	Samples associated with initial and/or continuing calibration verification	Detected Results Non-detected Results	J UJ
Analyte detected in Method Blank (MB) at concentration less than Contract Required Quantitation Limit (CRQL)[1] (i.e. , J-flag)	Samples in preparation batch	Detected Results <=CRQL Detected Results >CRQL	U J (use professional judgment)
Analyte detected in Method Blank (MB) at concentration greater than or equal to CRQL	Samples in preparation batch	Detected Results < Blank Concentration Detected Results >= Blank Concentration	U Use professional judgment
Matrix Spike:			
%Recovery above specifications	Sample and professional judgment for samples in preparation batch from same matrix.	Detected Results Non-detected Results	J+ No qualifier
%Recovery below specifications and greater than 20% (30% for inorganics)	Sample and professional judgment for samples in preparation batch from same matrix.	Detected Results Non-detected Results	J- UJ

Step 1: Review QC Parameter and Document Finding	Step 2: Determine Which Samples to Qualify	Step 3: Determine Which Results to Qualify	Step 4: Apply Qualifier and Bias Code
%Recovery below 20% (30% for inorganics)	Sample and professional judgment for samples in preparation batch from same matrix.	Detected Results Non-detected Results	J- R
Note: If the spiking amount is less than four times the result in the unspiked parent sample, the MS/MSD data may not represent the matrix effect. Professional judgment should be use in evaluating and qualifying the data.			
Laboratory Control Sample:			
%Recovery above specifications	Samples in preparation batch.	Detected Results Non-detected Results	J+ No qualifier
%Recovery below specifications and greater than 20% (40% for inorganics; see NFG for pesticides and Aroclors; 10% for dioxins)	Samples in preparation batch.	Detected Results Non-detected Results	J- UJ
%Recovery below 20% (40% for inorganics; see NFG for pesticides and Aroclors; 10% for dioxins)	Samples in preparation batch.	Detected Results Non-detected Results	J- R
Laboratory Duplicate Samples (including LCSD and MSD):			
Relative Percent Difference outside specifications	Samples in preparation batch.	Detected Results	J
Surrogate Recoveries:			
Surrogate Recovery greater than Upper Acceptance Limit	Target analytes in sample	Detected Results Non-detected Results	J+ No qualification (UJ for dioxins)
Surrogate Recovery less than Lower Acceptance Limit and greater than 10%	Target analytes in sample	Detected Results Non-detected Results	J- UJ
Surrogate Recovery less than 10%	Target analytes in sample	Detected Results Non-detected Results	J- R (see NFG for dioxins)
Field QC Samples			
Blanks			
Analyte detected in Field Blank, Equipment Blank, and/or Trip Blank at concentration less than Contract Required Quantitation Limit (CRQL)1 (i.e. , J-flag)	Associated samples	Detected Results <CRQL Detected Results >=CRQL	U Use professional judgment
Analyte detected in Field Blank, Equipment Blank, and/or Trip Blank at concentration greater than or equal to CRQL	Associated samples	Detected Results < Blank Concentration Detected Results >= Blank Concentration	U Use professional judgment
Duplicates			
Field Duplicate Relative Percent Difference outside specifications and analyte concentration >=5x CRQL	Associated samples	Detected Results	J

Step 1: Review QC Parameter and Document Finding	Step 2: Determine Which Samples to Qualify	Step 3: Determine Which Results to Qualify	Step 4: Apply Qualifier and Bias Code
Field Duplicate Relative Percent Difference outside specifications and analyte concentrations <5x CRQL with absolute difference between sample and duplicate > CRQL	Associated samples	Detected Results Non-detected Results	J UJ
Field Duplicate Relative Percent Difference outside specifications and analyte concentrations <5x CRQL with absolute difference between sample and duplicate <= CRQL	Associated samples	Detected Results Non-detected Results	No qualification No qualification
Consultant/Validator Questions			
Reported Units not appropriate for sample matrix	Affected samples	All results	Inquire, document, and use professional judgment
Analytical methods do not comply with project requirements. And/Or Detection Limits not appropriate for the project.	Affected samples	Detected Results Non-detected Results	Use professional judgment Use professional judgment, if Reporting Limits > Screening Levels; results may not be usable
QC Sample Frequency			
Method Blanks analyzed less than 5% of total samples	Use professional judgment	Use professional judgment	Inquire, document, and use professional judgment
Matrix Spike samples analyzed less than 5% of total samples	Use professional judgment	Use professional judgment	Inquire, document, and use professional judgment
Laboratory Control Samples analyzed less than 5% of total samples	Use professional judgment	Use professional judgment	Inquire, document, and use professional judgment
Field, equipment, or trip blanks analyzed less than required	Use professional judgment	Use professional judgment	Inquire, document, and use professional judgment

Notes:

1. See the National Functional Guidelines (NFG) for contract required quantitation limit (CRQL) or blank results of common laboratory contaminants, including: methylene chloride, acetone, and 2-butanone.

2. Screening Levels (SLs) is a generic term which may include Risk Based Screening Levels, Regional Screening Levels, and/or site specific screening levels.