

**Bureau of Mining Regulation and Reclamation****Analyte List for Profile IV (Profile I and modified Profile III)**

(Saturated Conditions Characterization Analytical Profile – Not for compliance monitoring)

General Chemistry Parameters

Constituent/Parameter	Field Filter	Analytical Method ⁽¹⁾	Reporting Limit ⁽³⁾	Reporting Units
Acidity ⁽⁴⁾	No	SM2310B	1	mg/L
Alkalinity, Bicarbonate (as CaCO ₃) ⁽⁵⁾	No	SM2320B	1	mg/L
Alkalinity, Total (as CaCO ₃) ⁽⁵⁾	No	SM2320B	1	mg/L
Chloride	No	EPA 300.0	1	mg/L
Fluoride	No	EPA 300.0	0.1	mg/L
Nitrate + Nitrite (as N)	No	EPA 353.2	0.4	mg/L
Nitrogen, Total (as N)	No	EPA 351.2	0.4	mg/L
pH (± 0.1 SU)	No	SM4500-H ⁺ -B	0.1	SU
Phosphorus ⁽⁶⁾	No	EPA 200.7	0.5	mg/L
Sulfate	No	EPA 300.0	1.5	mg/L
Total Dissolved Solids	No	SM2540C	10	mg/L
WAD Cyanide (as applicable)	No	EPA 4500-CN-I, E	0.01	mg/L

Dissolved Metals⁽⁷⁾

Constituent/Parameter	Field Filter	Analytical Method ⁽¹⁾	Reporting Limit ⁽³⁾	Reporting Units
Aluminum	Yes	EPA 200.7	0.05	mg/L
Antimony	Yes	EPA 200.8	0.003	mg/L
Arsenic	Yes	EPA 200.8	0.005	mg/L
Barium	Yes	EPA 200.7	0.02	mg/L
Beryllium	Yes	EPA 200.8	0.001	mg/L
Cadmium	Yes	EPA 200.8	0.001	mg/L
Calcium	Yes	EPA 200.7	2	mg/L
Chromium	Yes	EPA 200.7	0.005	mg/L
Copper	Yes	EPA 200.7	0.04	mg/L
Iron	Yes	EPA 200.7	0.1	mg/L
Lead	Yes	EPA 200.8	0.0025	mg/L
Magnesium	Yes	EPA 200.7	0.5	mg/L
Manganese	Yes	EPA 200.7	0.01	mg/L
Mercury	Yes	EPA 245.1	0.0002	mg/L
Potassium	Yes	EPA 200.7	1	mg/L
Selenium	Yes	EPA 200.8	0.005	mg/L
Silver	Yes	EPA 200.8	0.005	mg/L
Sodium	Yes	EPA 200.7	2	mg/L
Thallium	Yes	EPA 200.8	0.001	mg/L
Zinc	Yes	EPA 200.7	0.02	mg/L

Radiological

Constituent/Parameter	Field Filter	Analytical Method ⁽¹⁾	Reporting Limit ⁽³⁾	Reporting Units
Uranium ⁽⁸⁾	No	EPA 200.8	0.005	mg/L

Total Metals⁽⁹⁾

Constituent/Parameter	Field Filter	Analytical Method ⁽¹⁾	Reporting Limit ⁽³⁾	Reporting Units
Aluminum	No	EPA 200.7	0.05	mg/L
Antimony	No	EPA 200.8	0.003	mg/L
Arsenic	No	EPA 200.8	0.005	mg/L
Barium	No	EPA 200.7	0.02	mg/L
Beryllium	No	EPA 200.8	0.001	mg/L
Boron	No	EPA 200.7	0.1	mg/L
Cadmium	No	EPA 200.8	0.001	mg/L
Calcium	No	EPA 200.7	2	mg/L
Chromium	No	EPA 200.7	0.005	mg/L
Copper	No	EPA 200.7	0.04	mg/L
Iron	No	EPA 200.7	0.1	mg/L
Lead	No	EPA 200.8	0.0025	mg/L
Lithium	No	EPA 200.7	0.1	mg/L
Magnesium	No	EPA 200.7	0.5	mg/L
Manganese	No	EPA 200.7	0.01	mg/L
Mercury	No	EPA 245.1	0.0002	mg/L
Molybdenum	No	EPA 200.7	0.02	mg/L
Nickel	No	EPA 200.7	0.03	mg/L
Potassium	No	EPA 200.7	1	mg/L
Selenium	No	EPA 200.8	0.005	mg/L
Sodium	No	EPA 200.7	2	mg/L
Strontium	No	EPA 200.7	5	mg/L
Thallium	No	EPA 200.8	0.001	mg/L
Tin	No	EPA 200.7	5	mg/L
Vanadium	No	EPA 200.8	0.01	mg/L
Zinc	No	EPA 200.7	0.02	mg/L

Footnotes:

- (1) The provided list is the most common analytical methods used for the constituents. A full list of methods can be found in 40 CFR Part 136 Table 1B. Verify if the method is certified by the State of Nevada, Bureau of Safe Drinking Water, Lab Certification Program.
- (2) Prior to commencing analysis, the entire extract must be pre-filtered using a coarse filter paper, having an approximate 8 - 12 µm retention. In the context of extract analyses, the Division defines the lixiviant from the pre-filtration as “raw, unfiltered” for the purpose of analyses. (The term pre-filtered is fully interchangeable with ‘raw, unfiltered’.)
- (3) Recommended Reporting Limit – All results shall be reported at their respective practical quantitation limit (PQL). Samples requiring dilution may result in higher reporting limits for the respective parameter.
- (4) Acidity shall be analyzed when pH is less than or equal to ($\leq$)5 standard units (SU).
- (5) Alkalinity (Bicarbonate and Total) shall be analyzed when pH is greater than or equal to ($\geq$)4.5 SU.
- (6) Phosphorus is part of Profile III and is not required for Profile I.

- (7) Dissolved metal samples shall be filtered using a 0.45 µm (micron) filter within 12 hours of sample collection. Filters are to be used for one sample only, and filters cannot be used for multiple samples. Filtration conducted prior to shipment to the sub-contract laboratory shall be documented on the chain of custody. Filtration conducted at the laboratory shall be documented in the analytical report. As per 40 CFR Part 136 requirements for metal preservation and digestion, no sooner than 24 hours following preservation, digest and analyze for the dissolved metals content.
- (8) If total uranium is greater than or equal to 0.03 mg/L then the Division will require an Profile R analysis, regardless of ultimate pit depth. If there is enough solution left from the original test analyze for Profile R, if not then a new extraction will be required and analyzed for Profile IV and R. Please refer to Division's website for specific analytical requirements and reporting which can be found on the Division's website at: <https://ndep.nv.gov/land/mining>. Uranium is required for initial characterization and per the issued Water Pollution Control Permit.
- (9) Total metals: An example of when analysis for total metals is required includes, but is not limited to, sites which have conditions that have or may result in the formation of saturated conditions (i.e. pit lake or pit lakes and flooded underground workings). Within 12 hours of coarse filtration, collect a sub-sample and preserve with HNO₃ to pH <2 S.U. As per 40 CFR Part 136 requirements for metal preservation and digestion, no sooner than 24 hours following preservation, digest, and analyze for the total metals content.

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