

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-201X-XXXX
FOR

CALIFORNIA NATURAL RESOURCES CORPORATION,
AND
MAURICE ALTSHULER AND BARTLETT BURNAP,

MINING, PROCESSING, AND RECLAMATION
FRENCH CORRAL MINE
NEVADA COUNTY

This monitoring and reporting program (MRP) is issued pursuant to Water Code section 13267. This MRP contains requirements for groundwater monitoring, surface water monitoring, facility monitoring, maintenance, and reporting; requires the submittal of periodic updates regarding the financial assurance mechanisms required by Waste Discharge Requirements (WDRs) Order R5-201X-XXXX; and includes requirements related to the implementation of the Standard Provisions and Reporting Requirements (SPRRs) dated February 2009. The Discharger shall not implement any changes to this MRP unless a revised MRP is issued by the Central Valley Water Board or the Executive Officer.

A. MONITORING

The Discharger shall comply with the detection monitoring program provisions contained in California Code of Regulations, title 27 ("Title 27") for groundwater and surface water in accordance with Standard Monitoring Specifications in Section I of the SPRRs and the Monitoring Specifications in Section C of the WDRs. All monitoring shall be conducted in accordance with the approved *Sample Collection and Analysis Plan*, (Holdrege & Kull, 15 March 2012) which includes quality assurance/quality control standards.

All compliance monitoring wells established for the detection monitoring program shall constitute the monitoring points for the groundwater Water Quality Protection Standard. All detection monitoring program groundwater monitoring wells and surface water monitoring points shall be sampled and analyzed for monitoring parameters and constituents of concern (COCs) as indicated and listed in Tables I through III.

The Discharger may use alternative analytical test methods, including new USEPA approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this Monitoring and Reporting Program, and are identified in the approved Sample Collection and Analysis Plan.

The monitoring program of this MRP includes:

<u>Section</u>	<u>Monitoring Program</u>
A.1	Groundwater Monitoring
A.2	Surface Water Monitoring
A.3	Facility Monitoring

1. **Groundwater Monitoring**

The Discharger shall operate and maintain a groundwater detection monitoring system. The detection monitoring system shall be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27. The current groundwater detection monitoring system meets the applicable requirements of Title 27.

The current groundwater monitoring network shall consist of the following:

<u>Well</u>	<u>Status</u>	<u>Units Being Monitored</u>
MW-1	Background	Mining Units 1 through 4

<u>Well</u>	<u>Status</u>	<u>Units Being Monitored</u>
MW-4	Detection	Mining Units 1 through 4
MW-5	Detection	Mining Units 1 through 4

Groundwater samples shall be collected from the background wells, detection monitoring wells, and any additional wells added as part of the approved groundwater monitoring system. The collected samples shall be analyzed for the parameters and constituents listed in Table I in accordance with the specified methods and frequencies. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan.

Once per quarter, the Discharger shall measure the groundwater elevation in each well and determine the groundwater flow direction. The results shall be reported semiannually, including the times of expected highest and lowest elevations of the water levels in the wells, pursuant to Title 27, section 20415(e)(15).

Samples collected for the COC monitoring specified in Table I shall be collected and analyzed in accordance with the methods listed in Table III every five years. Five-year COCs were last monitored in 2011 and shall be monitored again in 2016. The results shall be reported in the Annual Monitoring Report for the year in which the samples were collected.

2. Surface Water Monitoring

The Discharger shall operate a surface water monitoring system for any mining unit where runoff from the mining unit flows or could flow to waters of the United States. At the French Corral Mine, runoff from the mining units flows to detention basins that periodically discharge to the French Corral surface water drainage course. The surface water monitoring system shall be

consistent with the applicable requirements of Water Quality Order 97-03-DWQ (General Industrial Permit).

At this time, Matthews Pond represents the upgradient background surface water conditions. Once Matthews Pond is dewatered, there will be no upgradient surface water monitoring point. The surface water monitoring points for the French Corral Mine are:

<u>Mon Pt.</u>	<u>Status</u>
DC-1	French Corral drainage course
DB-1	Detention Basin 1 discharge location
DB-2	Detention Basin 2 discharge location

For surface water detection monitoring, a sample shall be collected at each monitoring point location and analyzed for the monitoring parameters and constituents in accordance with the frequency specified in Table II and the methods specified in Table III. All surface water monitoring samples shall be collected and analyzed for the 5-year COCs specified in Table III every five years, beginning again in 2016.

3. Facility Monitoring

a. Annual Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess repair and maintenance needed for drainage control systems, cover systems, and groundwater monitoring wells; and shall assess preparedness for winter conditions (including but not limited to erosion and sedimentation control). The Discharger shall take photos of any problems areas before and after repairs. Any necessary

construction, maintenance, or repairs shall be completed by **31 October**. Annual facility inspection reporting shall be submitted as required in Section B.4 of this MRP.

b. **Major Storm Events**

The Discharger shall inspect all precipitation, diversion, and drainage facilities and all mining unit side slopes for damage **within 7 days** following major storm events capable of causing damage or significant erosion. The Discharger shall take photos of any problems areas before and after repairs. Necessary repairs shall be completed **within 30 days** of the inspection. Notification and reporting requirements for major storm events shall be conducted as required in Section B.4 of this MRP.

c. **Standard Observations**

The Discharger shall conduct Standard Observations at the facility in accordance with this section of the MRP. Standard observations shall be conducted in accordance with the following schedule:

<u>Mining Unit Type</u>	<u>Frequency</u>	<u>Season</u>
Active	Weekly	Wet: 1 October to 30 April
Active	Monthly	Dry: 1 May to 30 September
Inactive/Closed	Monthly	Wet: 1 October to 30 April
Inactive/Closed	Quarterly	Dry: 1 May to 30 September

The Standard Observations for the mining units shall include:

- 1) Signs of erosion along the slopes or perimeter (show affected area on map):
- 2) For receiving waters:
 - a) Floating and suspended materials of waste origin - presence or absence, source, and size of affected area; and
 - b) Discoloration and turbidity - description of color, source, and size of affected area.

Results of Standard Observations shall be submitted in the semiannual monitoring reports required in Section B.1 of this MRP.

B. REPORTING

The Discharger shall submit the following reports in accordance with the required schedule:

Reporting Schedule

<u>Section</u>	<u>Report</u>	<u>End of Reporting Period</u>	<u>Due Date</u>
B.1	Semiannual Monitoring Report	30 June, 31 December	1 August, 1 February
B.2	Annual Monitoring Report	31 December	1 February
B.3	Annual Facility Inspection Report	31 October	15 November
B.4	Major Storm Event Reporting	Continuous	7 days from damage discovery
B.5	Financial Assurances Report	31 December	1 June
B.6	Waste Characterization Report		1 August

Reporting Requirements

The Discharger shall submit monitoring reports **semiannually** with the data and information as required in this Monitoring and Reporting Program and as required in WDRs Order R5-201X-XXX and the Standard Provisions and Reporting Requirements (particularly Section IX: "Provisions for Monitoring" and Section X: "Response to a Release"). In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge

requirements or the lack thereof. Data shall also be submitted in a digital format, such as a computer disk.

Field and laboratory tests shall be reported in each monitoring report. Semiannual and annual monitoring reports shall be submitted to the Central Valley Water Board in accordance with the above schedule for the calendar period in which samples were taken or observations made.

The results of **all monitoring** conducted at the site shall be reported to the Central Valley Water Board in accordance with the reporting schedule above for the calendar period in which samples were taken or observations made.

The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained throughout the life of the facility including the post-closure period. Such records shall be legible and shall show the following for each sample:

- a) Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;
- b) Date, time, and manner of sampling;
- c) Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;
- d) Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
- e) Calculation of results; and

- f) Results of analyses, and the MDL and PQL for each analysis. All peaks shall be reported.

Required Reports

1. **Semiannual Monitoring Report:** Monitoring reports shall be submitted semiannually and are due on **1 August** and **1 February**. Each semiannual monitoring report shall contain at least the following:
 - a) For each groundwater monitoring point addressed by the report, a description of:
 - 1) The time of water level measurement;
 - 2) The type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;
 - 3) The method of purging used to stabilize water in the well bore before the sample is taken including the pumping rate; the equipment and methods used to monitor field pH, temperature, and conductivity during purging; results of pH, temperature, conductivity, and turbidity testing; and the method of disposing of the purge water;
 - 4) The type of pump - or other device - used for sampling, if different than the pump or device used for purging; and
 - 5) A statement that the sampling procedure was conducted in accordance with the approved Sample Collection and Analysis Plan.
 - b) A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.
 - c) The estimated quarterly groundwater direction, based upon water level elevations taken prior to the collection of the water quality data submitted in the report, as per Title 27, section 20415(e)(15).

- d) Cumulative tabulated monitoring data for all monitoring points and constituents for groundwater and surface water. Concentrations below the laboratory reporting limit shall not be reported as “ND” unless the reporting limit is also given in the table. Otherwise they shall be reported “<” the reporting limit (e.g., <0.10). Units shall be as required in Tables I through III unless specific justification is given to report in other units. Refer to the SPRRs Section IX “Provisions for Monitoring” for requirements regarding MDLs and PQLs.
 - e) Laboratory statements of results of all analyses evaluating compliance with requirements.
 - f) An evaluation of the concentration of each monitoring parameter (or 5-year COC when five year COC sampling is conducted) as compared to the current concentration limits, and the results of any required verification testing for constituents exceeding a concentration limit. Report any actions taken under Section X: Response to a Release for verified exceedances of a concentration limit.
 - g) An evaluation of the effectiveness of monitoring and control facilities, and of the run-off/run-on control facilities.
 - h) A summary of all Standard Observations for the reporting period required in Section A.3.c of this MRP.
 - i) A summary of inspection and revegetation activities of any closed mining units in accordance with the approved final Closure and Post-Closure Maintenance Plan (Reclamation Plan, RP-92-003) as required by SPRRs Section XI.D. “Closure” and XI.E. “Post-Closure.”
2. **Annual Monitoring Report:** The Discharger shall submit an Annual Monitoring Report to the Central Valley Water Board by **1 February** covering the reporting period of the previous monitoring year. If desired, the Annual Monitoring Report may be combined with the second semiannual report, but if so, shall clearly state

that it is both a semi-annual and annual monitoring report in its title. Each Annual Monitoring Report shall contain the following information:

- a) All monitoring parameters shall be graphed to show historical trends at each monitoring point and background monitoring point, for all samples taken within at least the previous five calendar years. If a 5-year COC event was performed, then these parameters shall also be graphically presented. Each such graph shall plot the concentration of one or more constituents for the period of record for a given monitoring point or background monitoring point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. Graphical analysis of monitoring data may be used to provide significant evidence of a release.
- b) An evaluation of the monitoring parameters with regards to the cation/anion balance, and a graphical presentation using a Stiff diagram, a Piper graph, or a Schoeller plot.
- c) All historical monitoring data for which there are detectable results, including data for the previous year, shall be submitted in tabular form in a digital file format such as a computer disk. The Central Valley Water Board regards the submittal of data in hard copy and in digital format as necessary for conducting the periodic review and analysis required by Title 27. (Cal. Code Regs., tit. 27, § 20420(h).)
- d) Hydrographs of each well showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well shall be prepared quarterly and submitted annually.
- e) A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.

- f) A map showing the area and elevations in which filling has been completed during the previous calendar year and a comparison to final closure design contours, and include a projection of the year in which each discrete mining unit will be filled.
 - g) A written summary of the monitoring results, indicating any changes made or observed since the previous Annual Monitoring Report.
 - h) Updated concentration limits for each monitoring parameter at each monitoring well based on the new data set.
3. **Annual Facility Inspection Reporting:** By **15 November** of each year, the Discharger shall submit a report describing the results of the inspection and the repair measures implemented, preparations for winter, and include photographs of any problem areas and the repairs. Refer to Section A.3.a of this MRP, above.
4. **Major Storm Event Reporting:** Following major storm events capable of causing damage or significant erosion, the Discharger **immediately** shall notify Central Valley Water Board staff of any damage or significant erosion upon discovery and report subsequent repairs within **14 days** of completion of the repairs, including photographs of the problem and the repairs. Refer to Section A.3.b of this MRP, above.
5. **Financial Assurances Report:** By **1 June** of each year, the Discharger shall submit a copy of the annual financial assurances report due to Nevada County that updates the financial assurances for reclamation. Refer to Financial Assurances Specifications D.1 through D.2 of the WDRs.
6. **Waste Characterization Report:** To ensure that Group C Classification remains appropriate, ongoing sampling and characterization of the mining waste in accordance with Water Code section 13260(k) is required. Ongoing characterization of the mining waste shall be at the frequency of one sample for every 50,000 cubic yards of mining waste discharged or at least one sample per

calendar year. Waste characterization reports shall be submitted annually and are due on **1 August**.

C. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD

1. Water Quality Protection Standard Report

The Discharger shall submit a Water Quality Protection Standard Report **by 7 June 2013**. The Water Quality Protection Standard Report shall include the information described in Sections 1.a through 1.e below.

For each waste management unit, the Water Quality Protection Standard shall consist of all COCs, the concentration limit for each constituent of concern, the verification retesting procedure to confirm measurably significant evidence of a release, the point of compliance, and all water quality monitoring points for each monitored medium.

The Water Quality Protection Standard for naturally occurring waste constituents consists of the COCs, the concentration limits, and the point of compliance and all monitoring points. Any proposed changes to the Water Quality Protection Standard other than annual update of the concentration limits shall be submitted in a report for review and approval.

The report shall:

- a. Identify **all distinct bodies of surface and ground water** that could be affected in the event of a release from a waste management unit or portion of a unit. This list shall include at least the uppermost aquifer and any permanent or ephemeral zones of perched groundwater underlying the facility.
- b. Include a map showing the monitoring points and background monitoring points for the surface water monitoring program and groundwater monitoring program. The map shall include the point of compliance in accordance with Title 27, section 20405.
- c. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).
- d. Include a proposed statistical method for calculating concentration limits for monitoring parameters and constituents of concern that are detected in 10% or greater of the background data (naturally-occurring constituents) using a statistical procedure from Title 27, section 20415(e)(8)(A-D) or section 20415(e)(8)(E).
- e. Include a retesting procedure to confirm or deny measurably significant evidence of a release pursuant to Title 27, section 20415(e)(8)(E) and section 20420(j)(1-3).

The Water Quality Protection Standard shall be certified by a California-registered civil engineer or geologist as meeting the requirements of Title 27. If subsequent sampling of the background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other

reasons unrelated to waste management activities at the site, the Discharger may request modification of the Water Quality Protection Standard.

The Water Quality Protection Standard shall be updated annually for each monitoring well using new and historical monitoring data.

2. Monitoring Parameters

Monitoring parameters are a select group of constituents that are monitored during each monitoring event that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a waste management unit. The monitoring parameters for all waste management units are those listed in Tables I through III for the specified monitored medium.

3. Constituents of Concern (COCs)

The COCs include a larger group of waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the waste management unit, and are required to be monitored every five years (Cal. Code Regs, tit. 27, § 20395 and 20420(g)). The COCs for all mining units at the facility are those listed in Tables I through II for the specified monitored medium, and Table III. The Discharger shall monitor all COCs every five years, or more frequently as required in accordance with a Corrective Action Program. The last 5-year COC report was submitted to the Central Valley Water Board in the *Final Report of Waste Characterization* (Holdrege & Kull, 29 December 2011) and 5-year COCs are due to be monitored again in 2016.

4. Concentration Limits

For a naturally occurring constituent of concern, the concentration limit for each constituent of concern shall be determined as follows:

- a. By calculation in accordance with a statistical method pursuant to Title 27, section 20415(e)(8); or
- b. By an alternate statistical method meeting the requirements of Title 27, section 20415(e)(8)(E).

The methods for calculating concentration limits shall be included in the *Water Quality Protection Standard Report* discussed in Section C.1 above.

5. Retesting Procedures for Confirming Evidence of a Release

If monitoring results indicate measurably significant evidence of a release, as described in Section IX "Provisions for Monitoring, B.12.b" of the SPRRs, then:

- a. **Immediately** notify the Central Valley Water Board about any constituent or constituents verified to be present at the monitoring point, and follow up with written notification submitted by certified mail **within seven days** of validation; and.
- b. Comply with section **X.A.b** of this document, **Response to a Release**, if any constituent or constituents were verified to be present.
- c. Any analyte that triggers a discrete retest per this method shall be added to the monitoring parameter list such that it is monitored during each regular monitoring event.

6. Point of Compliance

The point of compliance for the water standard at each waste management unit is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the unit. The following are monitoring locations at the point of compliance:

<u>Cell or Module</u>	<u>Point of Compliance Monitoring Wells</u>
Mining Units 1 through 4	MW-4 and MW-5

7. Compliance Period

The compliance period for each waste management unit shall be the number of years equal to the active life of the unit plus the closure period. The compliance period is the minimum period during which the Discharger shall conduct a water quality monitoring program subsequent to a release from the waste management unit. The compliance period shall begin anew each time the Discharger initiates an evaluation monitoring program. (Cal. Code Regs., tit. 27, § 20410.)

8. Monitoring Points

A monitoring point is a well, device, or location specified in the waste discharge requirements, which monitoring is conducted and at which the water quality protection standard applies. The monitoring points for each monitored medium are listed in Section A of this MRP.

D. TRANSMITTAL LETTER FOR ALL REPORTS

A transmittal letter explaining the essential points shall accompany each report. At a minimum, the transmittal letter shall identify any violations found since the last report was submitted, and if the violations were corrected. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter. The transmittal letter shall also state that a discussion of any violations found since the last report was submitted, and a description of the actions taken or planned for correcting those violations, including any references to previously submitted time schedules, is contained in the accompanying report. The transmittal letter shall contain a statement by the discharger, or the discharger's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate, and complete.

The Discharger shall implement the above monitoring program on the effective date of this Program.

Ordered by: _____

PAMELA C. CREEDON, Executive Officer

(Date)

VJI/JSH

TABLE I
GROUNDWATER DETECTION MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Field Parameters			
Groundwater Elevation	Ft. & 100ths, M.S.L.	Quarterly	Semiannual
Temperature	°F	Semiannual	Semiannual
Electrical Conductivity	umhos/cm	Semiannual	Semiannual
pH	pH units	Semiannual	Semiannual
Turbidity	Turbidity units	Semiannual	Semiannual
Monitoring Parameters			
General Minerals			
Total Dissolved Solids (TDS)	mg/L ¹	Semiannual	Semiannual
Total Alkalinity, dissolved	mg/L	Semiannual	Semiannual
Chloride, dissolved	mg/L	Semiannual	Semiannual
Carbonate, dissolved	mg/L	Semiannual	Semiannual
Bicarbonate, dissolved	mg/L	Semiannual	Semiannual
Nitrate/Nitrite (as N), dissolved	mg/L	Semiannual	Semiannual
Sulfate (as SO ₄), dissolved	mg/L	Semiannual	Semiannual
Calcium, dissolved	mg/L	Semiannual	Semiannual
Magnesium, dissolved	mg/L	Semiannual	Semiannual
Potassium, dissolved	mg/L	Semiannual	Semiannual
Sodium, dissolved	mg/L	Semiannual	Semiannual
Metals			
Antimony, dissolved	ug/L ²	Semiannual	Semiannual
Arsenic, dissolved	ug/L	Semiannual	Semiannual
Iron, dissolved	ug/L	Semiannual	Semiannual
Manganese, dissolved	ug/L	Semiannual	Semiannual
Mercury, dissolved	ug/L	Semiannual	Semiannual
Thallium, dissolved	ug/L	Semiannual	Semiannual

5-Year Constituents of Concern (see Table III)

¹ Milligrams per liter
² Micrograms per liter

TABLE II
SURFACE WATER DETECTION MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Sampling Frequency</u> ¹	<u>Reporting Frequency</u>
Field Parameters			
Electrical Conductivity	umhos/cm	Semiannual	Semiannual
pH	pH units	Semiannual	Semiannual
Turbidity	Turbidity units	Semiannual	Semiannual
Flow to Waters of U.S.	Yes or No	Semiannual	Semiannual
Monitoring Parameters			
General Minerals			
Total Suspended Solids (TSS)	mg/L	Semiannual	Semiannual
Total Settleable Solids	mg/L	Semiannual	Semiannual
Chloride, total	mg/L	Semiannual	Semiannual
Carbonate, total	mg/L	Semiannual	Semiannual
Bicarbonate, total	mg/L	Semiannual	Semiannual
Nitrate/Nitrite (as N), total	mg/L	Semiannual	Semiannual
Sulfate (as SO ₄), total	mg/L	Semiannual	Semiannual
Calcium, total	mg/L	Semiannual	Semiannual
Magnesium, total	mg/L	Semiannual	Semiannual
Potassium, total	mg/L	Semiannual	Semiannual
Sodium, total	mg/L	Semiannual	Semiannual
Metals			
Antimony, dissolved	ug/L	Semiannual	Semiannual
Arsenic, dissolved	ug/L	Semiannual	Semiannual
Iron, dissolved	ug/L	Semiannual	Semiannual
Manganese, dissolved	ug/L	Semiannual	Semiannual
Mercury, dissolved	ug/L	Semiannual	Semiannual
Thallium, dissolved	ug/L	Semiannual	Semiannual
Oil and Grease	ug/L	Semiannual	Semiannual

5-Year Constituents of Concern (see Table III)

¹ Semiannual surface water monitoring is required twice per year when there is water present at the designated surface water monitoring point any time during the reporting period (1 January to 30 June or 1 July to 31 December). Reporting shall include whether there was flow from the facility to waters of the U.S. when the samples were collected.

TABLE III
5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

<u>Groundwater (dissolved):</u>	<u>USEPA Method</u>
Aluminum	6010B
Antimony	6020
Arsenic	6020
Barium	6020
Cadmium	6020
Chromium	6020
Cobalt	6020
Copper	6020
Iron	6010B
Lead	6020
Manganese	6020
Mercury	7470A
Nickel	6020
Selenium	7742
Silver	6020
Thallium	6020
Vanadium	6020
Zinc	6020

<u>Surface Water (total):</u>	<u>USEPA Method</u>
Aluminum	6020
Antimony	6020
Arsenic	6020
Barium	6020
Cadmium	6020
Chromium	6020
Cobalt	6020
Copper	6020
Iron	6020
Lead	6020
Manganese	6020
Mercury	7470A
Nickel	6020
Selenium	7742
Silver	6020
Thallium	6020
Vanadium	6020
Zinc	6020