PART A
SURFACE WATER SAMPLING PROCEDURES
FOR NPDES DISCHARGES

Permit Section 4.8.5.1 presents Trapper's surface water monitoring program. Table 4.8-11 lists the surface water monitoring schedule while Table 4.8-12 lists the parameters to be monitored. The following discussion provides the guidelines to be followed for obtaining required surface water information.

I. Flow Measurements

A. All discharge sites are monitored with Parshall Flumes with throat widths of one foot. Instantaneous readings are obtained by reading water level heights off the staff gauges. Water level readings are converted to cubic feet per second (CFS) from the appropriate discharge tables. The CFS value is converted to gallons per minute by multiplying by 448.8.

B. Stevens Graph Recorders may be installed on those sites showing continuous discharges. These recorders graph flows versus time over the sampling period. Graphs are changed or reset weekly. During the cold weather months, the distilling wells of the Parshall flumes freeze requiring removal of the recorders.

II. Monitoring

A. In-situ measurements. Temperature, pH and specific conductance (SPCO) are taken on site in the outfall flow or flowing water sections of the discharge. Since these measurements are taken in place, there is no holding time for sample analysis.

B. Visual Measurements. Visual inspections are made of the outfall for oil and grease contamination. If a sheen or floating material is observed, then a grab sample is taken for analysis at the laboratory.

C. Grab Samples. After in-situ measurements are taken, grab samples are taken from the discharge. These samples are obtained for lab analysis of parameters outlined on permit Table 4.8-12.

Samples are refrigerated until shipment to the lab. During shipment, samples are "iced" and shipped in coolers. To meet recommended EPA holding times, the lab must receive samples within 24 hours of the time the samples were taken.

Guidelines as outlined by the lab are followed as to the number of bottles to be filled, samples to be preserved, storage, etc. Chain of Custody forms provided by the lab are filled out and handling instructions followed.

D. WET Tests. WET (Whole Effluent Toxicity) tests are conducted on a quarterly basis on those drainages designated by the NPDES permit for "mine water" discharges. Acute, two species tests are conducted.

Samples are collected with bottles provided by the lab. Samples are kept chilled or refrigerated prior to shipping. Handling procedures and shipping instructions provided by the lab are followed to insure samples reach the lab in good condition and at the required temperature. The Chain of Custody form is completed and shipped with the sample. Samples need to be received by the lab within 24 hours of being collected.

III. Monitoring Equipment

A. A single combination meter and or dedicated meters may be used for the following observations.

B. pH meter. pH is taken at each discharge with a portable pH meter. The meter is typically calibrated monthly or when repairs to the meter are made or when the batteries are replaced or as needed. The instructions for calibration procedures are provided with the meter.

C. Specific Conductance (SPCO) Meter. SPCO is also taken at each discharge site with a portable meter. The meter is typically calibrated monthly or when repairs to the meter are made or when the batteries are replaced or as needed. The instructions for calibration procedures are provided with the meter.

D. Thermometer. Whenever water samples are taken the temperature is recorded. The combination pH/SPCO meter is also used to record the temperature. Calibrations are done as needed.

IV. Sampling Schedule

The monitoring schedules for the NPDES sites are presented by Table 4.8-12 with sample locations shown on Map M52. The monitoring frequency is specified by NPDES permit CO-0032115. In accordance with the most recent NPDES permit, a monthly monitoring interval has been specified for most outfalls. Outfalls designated for “mine water” require twice monthly sampling. Sampling will typically be conducted during the first full week of each month or as needed depending on the sampling interval requirements of the outfall.

Typically, not all sample sites are active (discharging) during the scheduled sampling period. Inactive sites may not be directly visited the first week of the month or at all due to inaccessibility during inclement weather. Monthly parameters will be taken during the first week of each month. Also, the parameters required on a quarterly frequency are collected during the first month of each quarter.

Most of the drainages at Trapper discharge only under spring runoff conditions or under major precipitation events. When discharges do occur during the sampling period, the complete suite of parameters (list A-4 of Table 4.8-12) is taken to insure NPDES and CDRMS sampling requirements are met. Sample schedules are monitored to insure necessary samples are obtained and sample frequencies are met.

The following parameters or conditions shall be monitored monthly during monthly sampling:

1) Flow
2) In-situ pH
3) In-situ SPCO
4) Oil and Grease. If no sheen is present, then no sample is required. If a sheen is present, then a grab sample must be taken.
5) In-situ temperature

Appendix Q, Section XXXI, Part B discusses spring and seep monitoring and analysis.