The protection of water resources is one of the primary goals of the permanent regulatory program. Permittees are required to conduct extensive monitoring of surface and ground water systems from the premining stages of a proposed mining operation through final reclamation.

The purpose of this RAM is to provide a brief summary of the various types of monitoring which are currently required and how the results of such data collection are to be presented to the Department.

Attached is a document entitled *Summary of Surface and Ground Water Monitoring Requirements* and two cabinet approved monitoring report forms which are to be used to report monitoring results.

When submitting water quality data to the department, permittees must ensure that the correct forms are used as outlined in the summary and that they are presented in a well organized manner.

The Department prefers that during mining data for each permit be submitted as an individual package with a cover letter identifying the permit number, company name, and type of data being submitted. It is very important that data submitted in response to a special permit condition such as baseline ground water data be clearly identified so it can be forwarded to the proper individuals for review.

This document is for informational purposes only and is not intended to modify or supersede any regulation or permit condition.

If you have any questions on any of this information, please contact Jim Adamson at (502) 564-2377.
SUMMARY OF SURFACE AND GROUND WATER MONITORING REQUIREMENTS

August, 1986

I. SURFACE WATER MONITORING

1. Baseline Surface Water Data:

Sample Frequency: One (1) per month for a minimum of six (6) months.

Location: As approved by Department

Parameters:
- Discharge
- pH
- Acidity
- Alkalinity
- Sulfate
- Total Iron
- Total Manganese
- Total Suspended Solids
- Total Dissolved Solids or Specific Conductance corrected to 25°C

Report Requirements:
A minimum of six (6) months of data submitted within each permit application. (Water Quality Data Entry forms with lab reports).

2. In Stream Monitoring (during-mining and reclamation):

Note: Permits issued by DSMRE prior to May 7, 1985 should continue monitoring in accordance with the monitoring plan approved in the permit application. In stream monitoring requirements will be implemented for these operations through the Department's mid-term review procedures or in the first major revision/amendment to the permit after that date.

Sample Frequency:
One (1) per three (3) months until final bond release.

Location:
Baseline surface water monitoring stations or other approved locations.

Parameters:
- Discharge
- pH
- Acidity
- Alkalinity
- Sulfate
- Total Iron
- Total Manganese
- Total Suspended Solids
- Total Dissolved Solids or Specific Conductance corrected to 25°C

Report Requirements:
One (1) copy of data submitted to DSMRE Regional offices within one (1) month of data collection. Water Quality Data Entry forms must be used.
3. Pond Monitoring (KPDES General Permit)

(a) Active Mining to Phase I Bond Release

Sample Frequency: Two (2) per month.

Location:
All sediment ponds, except those in series where only the furthest downstream pond needs to be sampled. All other point source discharges from the permit area.

Parameters:
- Discharge
- pH
- Acidity
- Alkalinity
- Total Iron
- Total Manganese
- Total Suspended Solids

Report Requirements:
One (1) copy of data must be submitted to the DSMRE Regional Office quarterly and reported on a KPDES "Coal Only" Discharge Monitoring Report Form (DMR). One DMR form is required per pond for each month.

(b) Pond Monitoring after Phase I Bond Release

Note: Any pond which receives drainage or pumpage from underground mine workings must continue the active monitoring requirements outlined in Part(a) until final bond release or pond removal.

Sample Frequency:
One (1) per month for first six (6) months, one (1) per three (3) months thereafter, if no water quality problems observed.

Location: All point source discharges monitored during active mining.

Parameters:
- Discharge
- pH
- Acidity
- Alkalinity
- Settleable Solids

Report Requirements:
One (1) copy of data must be submitted to DSMRE Regional Office quarterly and reported on a KPDES "Coal Only" Discharge Monitoring Report (DMR).
(c) **Effluent Limitations for Point Source Discharges**

The following effluent limitations represent a summary of typical values which apply to most, but not all, operations. Permittees must reference the KPDES permit issued for their specific operation to determine the actual parameters and limitations which apply.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Monthly Average</th>
<th>Daily Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese, Total</td>
<td>2.0 mg/l</td>
<td>4.0 mg/l</td>
</tr>
<tr>
<td>Iron, Total (New Source)*</td>
<td>3.0 mg/l</td>
<td>6.0 mg/l</td>
</tr>
<tr>
<td>Iron, Total (Existing Source)</td>
<td>3.5 mg/l</td>
<td>7.0 mg/l</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>35.0 mg/l</td>
<td>70.0 mg/l</td>
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<tr>
<td>Settleable Solids</td>
<td>0.5 ml/l</td>
<td>0.5 ml/l</td>
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<tr>
<td>pH</td>
<td>6.0 - 9.0 at all times.</td>
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<tr>
<td>Acidity</td>
<td>Less than alkalinity.</td>
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<tr>
<td>Alkalinity</td>
<td>Greater than acidity.</td>
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</tbody>
</table>

*A New Source is a mine for which construction was started after May 29, 1981 or one prior to that date which has had a major alteration as defined in the KPDES General Permit Part I, F.20.

II. **GROUND WATER MONITORING**

1. **Baseline Ground Water Data:**

Sample Frequency: One (1) per month for a minimum of six (6) months.

Location: As approved by Department.

Parameters:
- Water level
- pH
- Acidity
- Alkalinity
- Sulfate
- Dissolved Iron
- Dissolved Manganese
- Total Dissolved Solids
- Specific Conductance corrected to 25°C

Report Requirements:
A minimum of six (6) months of baseline data must be submitted with each permit application. (Water Quality Data Entry forms with lab reports attached).

Note: Total iron and total manganese may be used in place of dissolved if data was collected prior to August 13, 1985.
2. **During Mining and Reclamation**

Sample Frequency:
- One (1) per three (3) months until final bond release.

Location:
- Baseline ground water monitoring stations or other approved locations.

Parameters:
- Water Level
- pH
- Acidity
- Alkalinity
- Sulfate
- Dissolved Iron
- Dissolved Manganese
- Total Dissolved Solids or
- Specific Conductance corrected to 25°C

Report Requirements:
- One (1) copy of data submitted to DSMRE Regional office within one (1) month of sample collection. Water Quality Data Entry forms must be used.
WATER QUALITY DATA ENTRY FORMS: Part 1

STATION INFORMATION

PERMIT #: ________________________ STATION #: ________________________ SOAP PERMITTEE #: ________________________

*COUNTRY #: ________________________ *BASIN #: ________________________ QUAD NAME: ________________________

STATION TYPE (check): [01] Spring [04] Well
[02] Stream [05] Sediment Pond/Influent
[03] Lake [06] Sediment Pond/Discharge

FOR WELLS ONLY

DEPTH (ft): ________________________ CASING DIAMETER (in): ________________________ AQUIFER DESCRIPTION: ________________________
TOP OF AQUIFER (MSL): ________________________ AQUIFER THICKNESS (ft): ________________________ TOP OF WELL ELEVATION (MSL): ________________________

WATERSHED DESCRIPTION: ________________________ DRAINAGE AREA (acres): ________________________

LATITUDE (DMS): ________________________ LONGITUDE (DMS): ________________________

UTM ZONE: ________________________ 16 West of 84° Longitude UTM EASTING: ____________ UTM NORTTHING: ____________
[02] Stream 17 East of 84° Longitude

LOCAL STREAM NAME: ________________________

COAL COMPANY NAME: ________________________

COLLECTING FIRM NAME: ________________________

ANALYZING FIRM NAME: ________________________

COMMENTS: ________________________

* Refer to Coding Instructions for list of codes.
### Sample Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Date (MM/DD/YY)</th>
<th>Temp (F)</th>
<th>Discharge (cfs)</th>
<th>Conductivity (umhos)</th>
<th>pH (Std Units)</th>
<th>Acidity (mg/l)</th>
<th>Alkalinity (mg/l)</th>
<th>TSS (mg/l)</th>
<th>TDS (mg/l)</th>
<th>Sett. Solids (ml/l)</th>
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