Ohio Department of Natural Resources
Division of Mineral Resources Management

****Procedure Directive****

Inspection & Enforcement 2009-01

SUBJECT: Evaluating Post-mining Discharges

EFFECTIVE: March 2, 2009

AUTHORITY: ORC 1513.02; 1513.16; OAC 1501:13-4-04; 1501:13-4-05; 1501:13-9-04; 1501:13-4-14

PURPOSE: To establish criteria and thresholds for evaluating untreated discharges from reclamation, or post-mining areas, with respect to whether pollution of surface and subsurface water is occurring; the potential for long-term pollution concerns; and performance security and financial responsibility.

Ohio Administrative Code (OAC) 1501:13-9-04 (A), states:

> "Mining shall be planned and conducted to minimize disturbance to the prevailing hydrologic balance in both the permit and adjacent areas, to prevent material damage to the hydrologic balance outside the permit area, to assure the protection or replacement of water rights, and to support approved post-mining land uses in accordance with the terms and conditions of the approved permit and the requirements of these rules".

This procedure directive provides guidance in the identification and monitoring of post-mining discharges; when it would be necessary to promulgate corrective actions that may be needed to prevent or mitigate post-mining discharges; and to address the costs of reclamation for performance security determinations.

SCOPE AND APPLICABILITY: The provisions herein are applicable to discharges from post-mining areas prior to performance security release evaluations.

<u>DEFINITIONS</u>:

As used in this procedure directive:

"Acid drainage" - water with a pH of less than 6.0 and in which total acidity exceeds total alkalinity, discharged from an active, inactive or abandoned coal

mine and reclamation operation or from an area affected by coal mining and reclamation operations. (OAC 1501:13-1-02)

"Effluent limitations" - a specific, numeric, measurable set of limits on the amount of various pollutants that are placed on point source discharges through the discharge permit program (NPDES).

"Ephemeral stream" - a stream, which flows only in direct response to precipitation in the immediate watershed or in response to the melting of a cover of snow and ice, and which has a channel bottom that is always above the local water table. (OAC 1501:13-1-02)

"Grab sample" - a single "dip and take" sample so as to be representative of the parameter being monitored.

"Hydrologic balance" - the relationship between the quality and quantity of inflow to, outflow from, and storage in a hydrologic unit such as a drainage basin, aquifer, soil zone, lake, or reservoir. It encompasses the quantity and quality relationships between precipitation, runoff, evaporation, and the change in ground and surface water storage. (OAC 1501:13-1-02)

"Instantaneous Maximum Limit" - the maximum allowable concentration of a pollutant determined from the analysis of any discrete or composite sample collected, independent of the flow rate and the duration of the sampling event.

"Intermittent stream" - a stream that is below the local water table and flows for at least some part of the year, and obtains its flow from both surface runoff and ground water discharge. (OAC 1501:13-1-02)

"Mine drainage" - any water that runs off or flows through an active mining area or a post-mining area, including surface and subsurface (groundwater) flow.

"Mixing zone" - a defined area or volume of the receiving water surrounding or adjacent to a discharge where the receiving water, as a result of the discharge, may not meet all applicable water quality criteria or standards. It is considered the place where the initial dilution of the discharge occurs.

"National Pollutant Discharge Elimination System (NPDES)" - the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and enforcing pretreatment requirements, under Sections 307, 402, 318, and 405 of the CWA.

"New Source Performance Standards" or "NSPS" - the pollution control standards issued by the USEPA under the Clean Water Act (CWA) for discharges from new industrial facilities.

"Non-point discharge" – is the introduction of impurities that may occur naturally or are manmade into a surface-water body or an aquifer, usually through a non-direct route from sources that are diffuse in nature

"Passive treatment system" - any constructed water treatment system that utilizes common geochemical reactions and biological processes that naturally decrease metal concentrations and neutralize acidity and functions without human intervention for long periods of time.

"Perennial stream" - a stream or a part of a stream that flows continuously during all of the calendar year as a result of ground water discharge or surface runoff. The term does not include intermittent or ephemeral stream. (OAC 1501:13-1-02)

"Point source discharge" - any discernible, confined or discrete conveyance from which a pollutant is, or may be discharged to the waters of the state

"Pollution" - placing any sediments, solids, or waterborne mining related wastes, including, but not limited to, acids, metallic cations, or their salts, in excess of amounts prescribed by the chief into any waters of the state or affecting the properties of any waters of the state in a manner that renders those waters harmful or inimical to the public health, or to animal or aquatic life, or to the use of the waters for domestic water supply, industrial or agricultural purposes, or recreation. (ORC 1513.01)

"Post-mining area" - the surface areas of a coal mining operation that have been returned to the required contour and on which seeding and planting has been completed, and which permanent vegetation has been established.

"Receiving water" - the water body into which point and non-point sources flow.

"Reclamation area" - the surface areas or a coal mining operation that have been returned to the required contour and on which seeding and planting work has commenced.

"Total maximum daily load" or "TMDL" - the sum of the existing and/or projected point source, non-point source, and background loads for a pollutant to a specified watershed, water body, or water body segment. A TMDL sets and allocates the maximum amount of a pollutant that may be introduced into the water and still ensures attainment and maintenance of water quality standards.

"Toxic mine drainage" - water that is discharged from active or abandoned mines and other areas affected by coal mining operations and which contains a substance which, through chemical action or physical effects, is likely to kill, injure, or impair biota commonly present in the area that might be exposed to it. (OAC 1501:13-1-02)

"Waters of the state" - all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and other bodies or accumulations of water, surface or underground, natural or artificial, regardless of the depth of the strata in which underground water is located, that are situated wholly or partially within, or border upon, this state, or are within its jurisdiction. (ORC 1513.01)

"Water quality standards" - the standards set forth in Chapter 3745-1 of the Administrative Code. Water quality standards define the goals for a waterbody by designating its uses, setting criteria to protect those uses, and establishing provisions to protect water quality from pollutants.

INTRODUCTION

Pursuant to OAC 1501:13-4-04 (C), 1501:13-4-05 (E), 1501:13-4-13 (C), 1501:13-4-14 (E), and 1501-13-9-04, it is the Division's responsibility to establish permitting, inspection and regulatory processes that ensure surface and underground coal mining operations are designed, conducted and enforced to minimize disturbances to the hydrologic balance and protect surface and ground water systems both during and after mining and reclamation operations. Acid or toxic mine drainage is a possible undesired consequence of surface and underground disturbance in areas that contain potentially acid-producing materials, despite the use of best available technology.

As such, identifying and documenting mine drainage issues, or the potential for mine drainage issues on a site, both during active mining and following reclamation are critical. Therefore, inspection staff must be aware of pre-mining discharges and associated water quality parameters on the site.

During each inspection, it is important to observe and document the status of water on the permit, including, although not limited to: accumulations of water in pits or impoundments, influent to ponds, seeps, highwall water flows, new discharges outside of the affected limits, etc. It is important to identify, characterize and document water resources on the permit area, which include the quality, quantity, and frequency of the discharges. This information, along with additional field analyses and data collected, such as field pH and other parameters, physical location (GPS), and photographs must be documented on inspection reports.

In addition, it is important for inspection staff to complete a comprehensive review of both monthly surface and quarterly monitoring reports (QMR) for consistency with site observations and for modifications or impacts with respect to permit baseline data. Required monitoring data must be reviewed and evaluated for compliance with the approved plan on a regular basis. Any inconsistencies with submitted data or field observations should be brought to the

attention of a field hydrologist as early as possible during the mining and reclamation process.

A. DETERMINING COMPLIANCE WITH APPLICABLE REGULATIONS

The initial step in evaluating discharges from a coal mine site is to determine if the untreated discharge meets applicable state and federal water quality laws and regulations. On most permits, the distinction between discharges during various phases of a mining operation are based on the following:

- Active surface coal mines, which includes coal preparation facilities and associated areas, coal waste disposal areas, underground mines, and active remining areas;
- Reclamation areas; and
- Post-mining areas, or "other" discharges

Active mining areas are those areas, on or beneath the land, used or disturbed in activity related to the extraction, removal or recovery of coal from natural deposits. As described in OAC 1501:13-9-04 (B), all surface drainage from the disturbed area, including disturbed areas that have been graded, seeded, or planted, shall be passed through a sedimentation pond or a series of sedimentation ponds before leaving the permit area until vegetation is established. Discharges from sedimentation structures are point source discharges that must meet applicable state and federal effluent limitations and water quality standards, as specified by the Clean Water Act (CWA) and as part of the OhioEPA NPDES (National Pollution Discharge Elimination System) permitting requirement.

NPDES effluent limitations for discharges from sediment control structures/ponds or outfalls are based on federal and state rules and laws regulating concentrations of total iron, total manganese, suspended solids, settleable solids and pH from coal mining operations to the waters of the state. The current New Source Performance Standards (NSPS) established by the OEPA under the General NPDES Permit, effective March 1, 2009, are listed in **Tables 1** through **3**. Individual NPDES permits may have alternative effluent limitations and the specifications contained in the approved permit should be addressed individually in those instances. Surface (NPDES) reports are submitted to the Division for review and evaluation on a monthly basis.

TABLE 1

Effluent Limitations for Point Source Discharges on Active Mining Areas

Parameter	*30-day Average*	*Daily Maximum*
Iron (total)	3.0 mg/L	6.0 mg/L
Manganese (total)	2.0 mg/L	4.0 mg/L
T. Suspended Solids	35.0 mg/L	70.0 mg/L
pH	Greater than 6.5; less than 9.0 at all times	

mg/L = milligrams per liter pH = standard units

Exceptions to the above numerical criteria for effluent concentrations may occur following certain precipitation events. These alternate effluent requirements **(Table 2)** apply to discharges that are a result of a precipitation event less than or equal to a 2-year, 24-hour event.

TABLE 2

Alternate Effluent Limitations for Point Source Discharges following Precipitation Events

Parameter	*Daily Maximum*
Settleable Solids	0.5 ml/L
Iron (total)	7.0 mg/L
pH	Greater than 6.5; less than 9.0 at all times

ml/L = milliliter per liter mg/L = milligrams per liter pH = standard units

A third tier of effluent limitations (**Table 3**) is enforced when discharges are the result of a precipitation event greater than or equal to a 10-year, 24-hour event. In this instance, only the settleable solids effluent limitation (≤ 0.5. ml/L) applies. In any instance, the pH must remain between 6.5 and 9.0.

Once the disturbed area has been reclaimed, or is considered a **reclamation *area*,** certain effluent (NPDES) limitations (iron, manganese and total suspended solids) may no longer apply at those outfalls. During this period of time when vegetation may not be fully established and erosion may be prevalent, effluent limitations are designed to reduce sediment loads. **Table 3** also reflects the reduced effluent limitations as prescribed by federal and state rules and laws once an area has been revegetated. As a note, when a sediment control structure/pond receives drainage from both reclaimed and unreclaimed areas, the more stringent standard (**Table 1**) applies as effluent at the outfall.

TABLE 3

Effluent Limitations for Point Source Discharges following Reclamation

Parameter	*Daily Maximum*
Settleable Solids	0.5 ml/L
pH	Greater than 6.5; less than 9.0 at all times

ml/L = milliliter per liter pH = standard units

Paragraph (G)(2)(e) of OAC 1501:13-9-04 provides that siltation structures/ponds shall be maintained until the Chief authorizes removal. One of the criteria for pond removal is that the disturbed area has been stabilized and revegetated. Provided that all other criteria as outlined in Division PPD: *Inspection and Enforcement 96-1 (Removal of Siltation Structures and Termination of NPDES Monitoring)* have been achieved, monthly NPDES surface monitoring reporting may be terminated based upon the determination that the area is stabilized and permanent vegetation has been established within the watershed that discharges into that permitted outfall. At this time, the operator may submit a "Request to Remove Siltation Structure and Termination of the Two Year Period" form to the inspector. The termination of the NPDES reporting requirements will be based upon approval of this form, which may coincide with recommendations for Phase 2 performance security release. For those coal mine permits with Individual NPDES permits, please consult the permit application for specifications on permitted outfalls and when compliance for NPDES is no longer applicable.

B. EVALUATION OF POST-MINING DISCHARGES

Reclaimed mine sites may develop mine drainage problems following mining. These "other" discharges, or those that have developed during post-mining, are those seeps or flows that develop following reclamation and may include:

- Discharges of seeps emanating from the backfill;
- Discharge from fill underdrains;
- Gravity or artesian discharges from underground mines;
- Remaining sediment or wildlife impoundments; and/or,
- Other discharges requiring evaluation as determined by the Chief.

Many of these discharges are considered non-point source discharges and may even develop outside of the permitted or affected area of a mine permit.

The primary purpose of this procedure directive is to establish criteria and thresholds for evaluating post-mining, or "other" discharges with respect to whether pollution of surface and subsurface water is occurring; the potential for long-term pollution concerns; and performance security and financial responsibility. The list of factors must be flexible when establishing these

thresholds. Assessing impacts, both on- and off-site, will be done on a case-by-case basis. The Division will use the following criteria when evaluating whether post-mining discharges require remedial action or if performance security can be released:

(1) Are applicable post-mining water quality criteria being met?
(2) Are applicable receiving stream water quality standards being violated?
(3) Will groundwater supplies be adversely affected?
(4) Does the discharge interfere with the intended post-mining land use?

STEP 1: POST-MINING DISCHARGE WATER QUALITY CRITERIA

When evaluating discharges that have developed as post-mining discharges on reclaimed areas that are no longer subject to NPDES effluent limitations or monitoring requirements, the following initial water quality criteria (**Table 4**) have been established and will be assessed at the initial point of discharge. These criteria are consistent with current technology based limits.

TABLE 4

- pH must be equal to or greater than 6.0,
- alkalinity must be greater than acidity, and
- total iron concentration must be less than 7.0 mg/L as an instantaneous maximum.

On active mining areas and until permanent vegetation has been established on reclamation areas, all discharges must be directed to a certified sediment structure and must meet numerical effluent limitations as designated in **Tables 1, 2 and 3**, or as otherwise indicated in the approved permit for the mine.

Once the disturbed area has been stabilized with permanent vegetation, influent to remaining sediment ponds/structures will be determined. Provided that the influent has not been treated in such a way as to raise the pH or reduce the metals through passive or active treatment applications, and the water quality meets the minimum standards per **Table 4**, then the conditions would be considered acceptable for approval to remove sediment structures and/or approval of Phase 2 performance security standards, provided all other criteria are met. Thereafter, on-site water quality will be assessed based on the limits listed in **Table 4**.

STEP 2: IMPACT TO THE RECEIVING STREAM

The next step is to determine if the untreated discharge is interfering with achieving the postmining land use or is contributing additional solids or

sediments to water bodies of the state. This includes ponds, wetlands, ephemeral, intermittent and perennial streams.

Coal mine permits are designed to minimize disturbances to the prevailing hydrologic balance both on the mine site and in associated off-site areas and to the quality and quantity of water in surface and ground water systems both during and after coal mining operations and reclamation. Performance standards are achieved when the land affected has been restored to a condition capable of supporting the uses it was capable of supporting prior to mining and also to prevent pollution or substantial diminution of waters of the state.

Streams that have been impacted by acid or toxic mine drainage characteristically have lower pH levels (less than 6.0 s.u.) and contain high concentrations of not only total or dissolved iron, but include other metals such as manganese and aluminum, and have higher concentrations of sulfate. The additional contributions of these metals can have the capability to effect many different aspects of a stream's biological and ecological integrity. In some net alkaline discharges, where alkalinity exceeds acidity, elevated metals can precipitate and coat the streambed making it unsuitable for supporting aquatic life.

A number of other specific water quality standards for Ohio's streams and water bodies have been set forth by the OEPA as part of Chapter 3745-1 of OAC. These standards include a number of criteria including beneficial use designations, numerical water quality criteria, and anti-degradation water-body classifications. On some permits, specific water quality criteria may have been established in designated streams, or water bodies, under the OEPA TMDL (Total Maximum Daily Loading) assessments. Please consult individual NPDES permit applications for specific water quality criteria for a particular receiving stream.

When sampling in order to evaluate for impact to a receiving body of water or receiving stream, or when sampling to determine water quality discharging from the permit area, sampling should be as follows:

1) Collect a sample of the discharge at the initial point of seepage from the ground. If the discharge point is not accessible, samples should be collected as close as possible to the source, although no more than 100 feet downgradient of the discharge. Continue sampling (where applicable) at 100-foot intervals until the discharge disappears or exits the permit limits, whichever is closer;

2) If the discharge flows directly to a receiving stream:
    a. Collect a sample of the discharge as it enters the receiving stream.

b. Collect a sample at a downstream location below the mixing zone of the stream and the discharge and prior to the influence of any other discharges entering the receiving stream. If the mixing zone cannot be identified, sample approximately 50 feet downstream of the confluence of this discharge and receiving stream. If more than one discharge enters the stream, several downstream location samples may be needed to establish the contribution of each discharge.

c. Collect a sample immediately upstream of the confluence of this discharge with the receiving stream.

d. Document all sampling in the inspection report; and

> *Note:* In certain circumstances, such as the low flow season, the immediate receiving stream may not have sufficient stream flow to sample. In this instance, sample location may be moved to the next receiving stream in the watershed.

3) Look for negative physical impact to the receiving stream quality, such as staining on the streambed from precipitated metals, such as iron, manganese or aluminum. Staining alone does not necessarily indicate impact to biological resources, although iron or other metal precipitate that deposits within the stream and causes coating, or embeddedness in the substrate, may have negative impacts. In the event of such observations, contact a Division field hydrologist for assistance.

If the stream appears healthy, (e.g. no staining exists and/or aquatic life is present) and the samples collected show no substantive difference between the upstream and downstream water quality samples, and the post-mining discharge water quality criteria are within those prescribed limits in **Table 4**, then the discharge is considered to be in compliance at this time. A Division hydrologist should be contacted for assistance and clarification if necessary. Careful monitoring, as later described in **Section C,** may be advisable to determine if the chemistry, flow or duration of the discharge changes over time.

If the water quality criteria in **Table 4** have been exceeded, and/or staining does exist, and/or immediately downstream of the discharge the stream appears devoid of aquatic life, a Division hydrologist should be contacted for further review and evaluation.

C. CHARACTERIZATION OF POST-MINING DISCHARGES

Extended, or long-term sample collection or monitoring may not be needed for discharges where the initial grab samples and a visual inspection of the stream indicate no pollution as described in **Step 1** and **Step 2** of this procedure directive. Periodic inspections should be conducted to ensure that conditions have not changed.

For those discharges that have not passed either **Step 1** or **Step 2**, additional sampling will be necessary to characterize the potential long-term impacts from untreated discharges. Such sampling shall be completed under various flow scenarios to include seasonal fluctuation and must commence for a period of no less than six (6) consecutive monthly samples. Sampling may require continuation for a much longer period of time in order to adequately quantify those seasonal fluctuations.

Field observations, including flow or discharge rate, appearance (metal hydroxides, etc.) and field parameters (pH and iron), will be collected and recorded on an inspection report at each sampling event. Other beneficial field measurements include temperature and specific conductance. A geographic location, recorded with the use of a GPS unit (latitude/longitude or X-Y coordinates in WGS 84/NAD 83) will be recorded at the initial sampling event. Samples will be collected and analyzed for **Group I** analysis, unless otherwise directed by one of the Division's hydrology staff members. Additional parameters, including dissolved metals, may be necessary to establish discharge composition and effect on receiving streams.

Group I test parameters include: total iron, total manganese, sulfate, total aluminum, calcium, hardness as $CaCO_3$, total acidity, total alkalinity, pH, specific conductance, total dissolved solids, and total suspended solids.

Other available information and data should be used in the evaluation of untreated discharges to both surface (receiving streams) and groundwater. Quarterly monitoring reports (QMR) and surface monitoring reports (NPDES) should be reviewed for consistency with site observations and for impacts, such as diminution or degradation to streams or groundwater supplies. If discrepancies or documented water quality or quantity problems are identified, the inspector should request further review by a Division hydrologist.

Information and data, including maps, locations of seeps, water quality and quantity data (including baseline, field and laboratory analysis), and any applicable water monitoring reports (NPDES or QMR) obtained during field inspections and throughout the monitoring period should be forwarded to the Division hydrologist for review.

D. SAMPLING LOCATION AND HOW COMPLIANCE IS MEASURED

There can be a significant difference between the discharge quality at the point where it seeps from the ground, and the location as it enters the receiving stream. The Division will consider the release of performance security if the untreated discharge complies with this procedure directive and applicable state and federal water quality protection requirements prior to leaving the permit area, and if all the other standards for performance security release have been met. Some post-mining discharges may violate those standards as they seep from the ground, but meet those standards either prior to, or as they leave the permit area.

The Division also considers the magnitude of impact rather than the occurrence of the event. Monitoring should be designed to demonstrate whether or not the discharge causes an impact on the receiving stream. For instance, if the upstream iron concentration is 1.5 mg/L and the downstream concentration is 1.8 mg/L, the Division would likely conclude that the discharge has caused no significant change in the receiving stream. Therefore, careful documentation of seasonal fluctuations, frequency of discharge, and flows are important in the determination of the potential for long-term impacts.

Although each occurrence is site-specific, the Division provides the following direction for determining compliance for some common post-mining discharge scenarios:

Post-mining discharges as influent to permanent impoundments:

If the untreated discharge is influent to a remaining sediment/reclamation pond, a sample should be collected prior to entering the structure. If the untreated discharge meets the criteria as listed in **Table 4**, no other monitoring may be required. If the untreated discharge exceeds the criteria in **Table 4**, a Division hydrologist should be consulted for further review. At this time the Division hydrologist will review the following:

1) The effluent from the pond/structure outflow is in compliance with applicable state and federal water quality standards; and

2) No chemical treatment has been necessary following reclamation within the drainage/watershed of the structure in order to meet applicable effluent limitations.

A review will include analysis for potential long-term impacts to the pond, or to determine if the pond is being used for treatment or dilution where remediation of the discharge may be necessary. Inspection staff should not recommend approval for removal of sediment structures if the influent does not meet the

criteria in **Table 4** until the appropriate Division technical staff has completed further review.

The use of pipes or channels to divert surface runoff or shallow ground water flows must be accessible for measurement and collection for both quality and quantity in order to effectively evaluate for characterization of the mine drainage prior to influent into existing structures (e.g. ponds, wetland, etc), or to offsite areas. Seeps gathered into buried trenches with pipes and/or limestone may be considered "treated" discharges and are subject to applicable regulations for revisions to the permit as required by OAC 1501:13-4-06 and would require assurance of longterm financial obligations by the permittee.

Seeps or discharges that have been identified as a post-mining mine drainage concern and have been buried or diverted via pipes, channels or buried trenches will need to be made accessible for monitoring. Therefore, the identification and plans for diversion must be discussed between inspection and industry personnel prior to burying below the surface. This does not include those discharges that are tiled for erosion control, or repairs for stability purposes, and have *not* been identified for monitoring for mine drainage characterization. The inspector shall document the results of these discussions in inspection reports.

Drainage ways used to convey discharges:
(Note: This does not apply to reconstructed stream channels)

Drainage ways used to convey discharges from the origination of the seep area to the stream are not ordinarily considered treatment facilities. However, they can be considered as used for treatment when:

1) They provide substantial reductions in pollutants through acidity neutralization. This does not include oxidization and localized, minor precipitation of metal hydroxides.
2) They will periodically require reconstruction, cleaning or dredging of sludge buildup.
3) A substantial length of drainage way (e.g. 300 feet in length or greater) is required for the discharge to meet post-mining water quality standards.

An example of Item (1) is where substantial reductions in pollutants are achieved through the use of open limestone channels (OLC) to neutralize low pH (acidic) water conditions to net alkaline levels. Therefore, this would be a form of "treatment" and would be subject to alternative financial security for longterm pollution associated with the discharge. The Division does not consider water quality treatment in drainage ways an acceptable method for achieving compliance for performance security release.

In some instances, the open drainage ways may be located within a designated buffer zone within the permit limits. Pursuant to OAC 1501:13-9-04 (E) (1) (a),

"the operations will not cause or contribute to the violation of applicable state or federal water quality standards, and will not adversely affect the water quantity and quality or other environmental resources of the stream." Excess sedimentation or deposition of metal hydroxides or sludge should be minimized or avoided within buffer zones at all times.

Use of natural or constructed facilities for purpose of treatment:

The Division on a case-by-case basis must evaluate the use of any natural or constructed facility that is used for the direct purpose of treating the discharge. This may include existing or natural wetlands, stream channels, ditches, pipes and/or tiles contained within the permit/affected area. Existing wetlands may aid in the natural oxidation of certain metals if the drainage is net alkaline. All samples will be collected as influent to these structures.

If a wetland, or other passive treatment system is constructed for the purpose of treating the mine drainage discharge (e.g. neutralization), the permittee will make provisions for future discharge to achieve applicable water quality standards and associated financial security for longterm treatment costs.

Wet areas or diffuse seeps:

Wet areas, or diffuse seep zones within the permit limits that have minimal, and/or, no discernable channelized flow are typically not considered "other" discharges for the purpose of this procedure directive. These 'wet areas' may appear metal-laden (orange staining) or clear although disappear, or reappear seasonally. Some may disappear before leaving the permit area or upon entering a stream. However, these seep zones may be an indication that groundwater contamination may be occurring due to either mining or natural reasons, or may interfere with the intended post-mining land use and should be evaluated accordingly.

CONCLUSION

In all instances, careful observation and documentation of the occurrence and the physical and chemical properties of these discharges will be the basis for the Division's decision making. The Division will consider the release of the performance security if the permittee has successfully completed all coal mining and reclamation operations in accordance with the approved mining and reclamation plan and has achieved compliance with the requirements of ORC 1513 and OAC 1501:13. All other performance standards for performance security release must also be met.

It is important while completing inspections during active mining and reclamation to make note when poor water quality is observed. It is also important to discern to the extent possible, the source and cause of the contamination. Additional

preventative measures may be necessary during active mining and reclamation activities that would involve modifications to the current mining plan in order to avoid longterm pollution problems. Contact the field hydrologist to determine if modifications to the approved plan may be needed.

For those discharges that have not passed **STEPS 1** or **2** of this procedure directive, the permittee will need to provide interim treatment to comply with **Table 4** water quality standards. A specific longterm-monitoring plan may be necessary, which may include the installation of monitoring wells, weirs and flumes to collect more accurate flow measurements, or other methods used to adequately assess the source of the problem and necessary abatement to meet effluent criteria. If the discharge continues to exist after implementation of the abatement/remediation measures, the permittee will be required to make longterm provisions for future treatment of the discharge through alternative financial security in order to obtain release of performance security for the permit.

John F. Husted, Chief