

KPDES



KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT

PERMIT NO.: KYGW40000

AI NO.: 35050

AUTHORIZATION TO DISCHARGE UNDER THE KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM (KPDES)

Pursuant to Authority in KRS 224,

Coal Mining, Processing and Associated Activities

is authorized to discharge from a facility located at

Western Kentucky Coal Field

Breckinridge, Butler, Caldwell, Christian, Crittenden, Daviess, Edmonson, Grayson, Hancock, Henderson, Hopkins, McLean, Muhlenberg, Ohio, Union, Warren and Webster Counties, Kentucky

to receiving waters named

Various water bodies within the Green River and Tradewater River Basins, and portions of the Lower Cumberland, Ohio, Salt and Tennessee River Basins

in accordance with effluent limitations, monitoring requirements and other conditions set forth in this permit.

This permit shall become effective on.

This permit and the authorization to discharge shall expire at midnight,

{Signature}

Date Signed

Peter Goodmann, Director

Division of Water

**DEPARTMENT FOR ENVIRONMENTAL PROTECTION
Division of Water, 200 Fair Oaks Lane, Frankfort, Kentucky 40601**

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SECTION 1

COVERAGE

1. COVERAGE

Establishments engaged in the mining and/or processing of coal and associated activities within the counties of Breckinridge, Butler, Caldwell, Christian, Crittenden, Daviess, Edmonson, Grayson, Hancock, Henderson, Hopkins, McLean, Muhlenberg, Ohio, Union, Warren or Webster. At anytime after coverage under this general permit is granted to a facility, the permittee may elect to opt out of the general permit by filing Forms 1 and C to obtain an individual KPDES permit. The general permit coverage will remain in effect until the individual permit becomes effective.

1.1. Eligibility

Only those coal mining and/or processing operations meeting the following requirements are eligible for coverage under KYGW40000 (KYGW4):

- 1) are physically located within the Kentucky counties listed in Section 1,
- 2) have obtained a Surface Mining Control and Reclamation Act (SMCRA) permit from Department for Natural Resources (DNR) or are in the process of obtaining a SMCRA permit, and
- 3) do not have continuous discharges.

For the purposes of this permit, continuous discharge is defined as a discharge that occurs without interruption or has an average discharge duration of 96 hours or more.

1.2. Exclusions

The following are excluded from coverage under this general permit:

- 1) Coal mining and/or processing operations that directly discharge to or propose to directly discharge to a receiving water body that has been categorized as an "Impaired Water" for a pollutant or pollutants of concern that may be associated with such activities and for which an approved Total Maximum Daily Load (TMDL) has been developed;
- 2) Coal mining and/or processing operations that directly discharge to or propose to directly discharge to a receiving water body that has been designated as Coldwater Aquatic Habitat (CAH) as listed in Table C of 401 KAR 10:026, Section 5;
- 3) Coal mining and/or processing operations that directly discharge to or propose to directly discharge to a receiving water body that has been designated as an Outstanding State Resource Water (OSRW) due its support of a federally listed Threatened or Endangered Species as listed in Table C of 401 KAR 10:026, Section 5;
- 4) Coal mining and/or processing operations that directly discharge to or propose to directly discharge to a receiving water body that has been categorized as an Outstanding National Resource Water (ONRW) as listed in 401 KAR 10:030, Section 1; or
- 5) Coal mining and/or processing activities that Division of Water (DOW) has determined would be more appropriately addressed by an individual permit or an alternate general permit.

SECTION 2

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

2. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

This section of the permit establishes the KPDES effluent limitations and monitoring requirements for the outfalls listed in the Western Kentucky Coal General Permit Coverage Letter (WKCL) issued by the DOW granting authorization to discharge in accordance with the requirements of KYGW4. The WKCL lists each permitted outfall, the effluent limitations, and monitoring requirements that are applicable to that outfall.

2.1. Non-Reclamation Areas

The following effluent limitations and monitoring requirements apply to discharges from any KPDES Outfall that receives drainage from areas other than reclamation areas. Reclamation areas are the surface areas of a coal mine which have been returned to the required contour and on which revegetation, specifically seeding or planting work has commenced. Non-reclamation area drainage includes drainage from coal preparation plants, coal preparation plant associated areas, the underground workings of an underground mine both active and post mining, and active surface mine drainage.

TABLE 1.								
EFFLUENT LIMITATIONS							MONITORING REQUIREMENTS	
Effluent Characteristic	STORET Code	Units	Minimum	Monthly Average	Daily Maximum	Maximum	Frequency	Sample Type
Flow	50050	MGD	N/A	Report	Report	N/A	2/Month	Instantaneous
Total Suspended Solids ¹	00530	mg/l	N/A	35	70	N/A	2/Month	Grab
Total Recoverable Iron	00980	mg/l	N/A	3.0	4.0	N/A	2/Month	Grab
Total Recoverable Manganese ¹	11123	mg/l	N/A	2.0	4.0	N/A	2/Month	Grab
pH	00400	SU	6.0	N/A	N/A	9.0	2/Month	Grab
Acute WET ²	TS000	TU _A	N/A	N/A	N/A	1.00	1/Quarter	(²)
Specific Conductivity	00095	µS/cm	N/A	Report	Report	N/A	2/Month	Grab
Total Sulfate (as SO ₄)	00945	mg/l	N/A	Report	Report	N/A	2/Month	Grab
Total Recoverable Selenium	00981	µg/l	N/A	5.0 (³)	20	N/A	2/Month	Grab
Total Recoverable Selenium (Fish Tissue)	01148	mg/Kg dry weight	N/A	N/A	N/A	8.6	(³)	(³)
Precipitation Volume	79777	Inches	N/A	N/A	N/A	Report	(⁴)	Grab

¹See Section 4 for alternate monitoring and effluent limitations available for a qualifying precipitation event.
²See Section 3 for additional requirements related to Whole Effluent Toxicity (WET) Testing including sampling requirements.
³Should the monthly average concentration of total recoverable selenium exceed 5.0 µg/l see Section 2.7 for additional requirements.
⁴Precipitation volume required only when applying for an Alternate Precipitation Effluent Limitation (APEL).

²Precipitation volume required only when applying for an APEL.

2.3. Release from Monitoring Requirements

To seek release from monitoring a designated outfall, the permittee shall provide certification to DOW that a sediment control structure has been removed pursuant to DNR approval and is no longer required to meet the effluent requirements of the permit. The permittee shall use the DOW General Coal Information Update eForm found at: <https://dep.gateway.ky.gov/eportal/default.aspx> for this certification.

2.4. Release from Permit Requirement

The effluent limitations and monitoring requirements shall remain in effect until the SMCRA authority has granted Phase III Bond release. The Coal Mining Effluent Limitation Guidelines (ELG) defines bond release as the time at which the appropriate regulatory authority returns a reclamation or performance bond based upon its determination that reclamation work (including, in the case of underground mines, mine sealing and abandonment procedures) has been satisfactorily completed. Therefore, in order to terminate the KPDES permit, the permittee shall submit to DOW a copy of the DNR approved Phase III SMCRA Bond Release for the entire permitted area.

2.5. Sanitary Wastewater

Sanitary wastewaters are comprised of wastewaters from bathhouses, mine offices, etc. The applicable effluent limitations and monitoring requirements are dependent upon how the effluent from the wastewater treatment plant is disposed. The effluent may be discharged directly to a water of the Commonwealth or to another treatment system such as a sediment control structure in which case the effluent must meet secondary treatment standards prior to commingling with the wastes in the other treatment system.

The following effluent limitations and monitoring requirements apply to the discharge of treated sanitary wastewaters to another treatment system. These limits apply before commingling with waters of the other treatment system.

TABLE 3.								
EFFLUENT LIMITATIONS							MONITORING REQUIREMENTS	
Effluent Characteristic	STORET Code	Units	Minimum	Monthly Average	Daily Maximum	Maximum	Frequency	Sample Type
Flow	50050	MGD	N/A	Report	Report	N/A	1/Month	Instantaneous
Biochemical Oxygen Demand (5 day)	00310	mg/l	N/A	30	45	N/A	1/Month	Grab
Total Suspended Solids	00530	mg/l	N/A	30	45	N/A	1/Month	Grab
The permittee shall provide disinfection of the treated effluent prior to commingling with waters of the sediment basin.								

The following effluent limitations and monitoring requirements apply to the direct discharge of treated sanitary wastewaters to a water of the Commonwealth. These limits apply before discharge to or mixing with the waters of the receiving stream.

TABLE 4.								
EFFLUENT LIMITATIONS							MONITORING REQUIREMENTS	
Effluent Characteristic	STORET Code	Units	Minimum	Monthly Average	Weekly Average	Maximum	Frequency	Sample Type
Flow	50050	MGD	N/A	Report	Report	N/A	1/Month	Instantaneous
Carbonaceous Biochemical Oxygen Demand (5 day)	00310	mg/l	N/A	10	15	N/A	1/Month	Grab
Total Suspended Solids	00530	mg/l	N/A	30	45	N/A	1/Month	Grab
Ammonia (as NH ₃ N)								
May 1 – October 31	00610	mg/l	N/A	2.0	3.0	N/A	1/Month	Grab
November 1 – April 30	00610	mg/l	N/A	5.0	7.5	N/A	1/Month	Grab
E. Coli	51040	#/100 ml	N/A	130	240	N/A	1/Month	Grab
Dissolved Oxygen	00300	mg/l	7.0	N/A	N/A	N/A	1/Month	Grab
Total Residual Chlorine	50060	mg/l	N/A	0.011	0.019	N/A	1/Month	Grab
pH	00400	SU	6.0	N/A	N/A	9.0	1/Month	Grab

2.6. Standard Effluent Requirements

The discharges to waters of the Commonwealth shall not produce floating solids, visible foam or a visible sheen on the surface of the receiving waters.

2.7. Additional Requirements for Total Recoverable Selenium

The monthly average discharge concentration for total recoverable selenium of 5.0 µg/l is a trigger that once exceeded, requires the permittee to collect and analyze fish tissue for selenium residue.

2.7.1. Tissue Collection and Analysis

The following requirements apply:

- (1) Collection and analysis shall be performed within the calendar month following the calendar month the 5 µg/l monthly average trigger was exceeded;
- (2) Fish tissue collection and analysis shall be performed in accordance with the DOW protocols specified in "Methods for the Collection of Selenium Residue in Fish Tissue Used to Determine KPDES Permit Compliance" (See Appendix A);
- (3) Results of the analysis shall be reported as Total Recoverable Selenium (Fish Tissue) on the Discharge Monitoring Report (DMR) for the month during which the analysis were performed (See Section 6.6 for more information regarding reporting requirements); and
- (4) The permittee shall conduct fish tissue collections and analysis after each monthly average exceedance of the 5.0 µg/l trigger.

2.7.2. Results of Analysis

The results of the fish tissue shall be interpreted as follows:

- (1) less than or equal to 8.6 mg/Kg dry weight selenium residue there is no permit violation;
- (2) greater than 8.6 mg/Kg dry weight selenium residue there is a permit violation; and
- (3) unable to obtain fish tissue, the 5.0 µg/l trigger becomes the effluent limitation and there is a permit violation

2.7.3. Requirements Effective Dates

The monitoring and effluent requirements for Total Recoverable Selenium shall become effective:

- 1) On January 1, 2016 for existing facilities, and
- 2) Within thirty (30) days of the effective date of coverage for new or expanded facilities.

New facilities are those facilities that commence after the effective date of this permit and include the following:

1. New surface mining areas draining to in-stream sediment control structure(s);
2. A new coal preparation plant; or
3. A new underground mine is an underground mine that has a surface discharge.

Expanded facilities are existing facilities where one or more of the following occur after the effective date of this permit:

1. Expanded active surface mining areas draining to an in-stream sediment control structure include:
 - a) new acreage (greater than 10 % of the originally permitted acreage not to exceed 20 acres) draining to an existing in-stream sediment control structure, or
 - b) a new fill, or the enlargement of an existing fill over its original design by 10 % or greater ;
2. A coal preparation plant where a new slurry impoundment or enlargements of an existing slurry impoundment over its original design by 10 % or greater (acreage);
3. An underground mine the expansion of which necessitates a new surface discharge.

SECTION 3

WET TESTING REQUIREMENTS

3. WET TESTING REQUIREMENTS

The permittee shall perform quarterly Acute WET tests on the discharge from each of the outfalls required by the WKCL to conduct such testing.

For existing discharges, i.e. from sediment control structures that have been constructed and certified, WET testing shall be initiated as described in the following sections by January 1, 2016.

For new and expanded discharges, WET testing shall be initiated within thirty (30) days of the effective date of coverage.

3.1. Sampling Requirements

Two discrete grab samples shall be collected during periods of discharge at least 2 hours apart but no more than 48 hours apart. Samples shall be iced and maintained at not greater than 6°C during collection, storage, transport and until used in the test by the laboratory.

If the permittee is unable to collect the two required samples within the 48 hour period due to the cessation of the discharge, the permittee shall report No Discharge (NODI) Code "F" ('insufficient flow for sampling') on the quarterly DMR for that outfall. (See Section 6.6 for additional information regarding DMRs).

3.2. Test Requirements

The Acute WET test requirements consists of two 48-hour static non-renewal toxicity tests with water flea (Ceriodaphnia dubia, Daphnia magna, or Daphnia pulex) and two 48-hour static non-renewal toxicity tests with fathead minnow (Pimephales promelas) performed on discrete grab samples of 100% effluent (1.00 TU_A) at the frequency specified. Testing of each sample shall begin within 36 hours of the collection of that sample.

3.3. Serial Dilutions

Effluent concentrations for the tests must include the percent effluent required by the permit and at least four additional effluent concentrations as in the following table.

TABLE 5.					
Required Percent Effluent	Dilution 1 Percent	Dilution 2 Percent	Dilution 3 Percent	Dilution 4 Percent	Dilution 5 Percent
100	20	40	60	80	100

Selection of different effluent concentrations must be approved by DOW prior to testing.

3.4. Controls

Control tests shall be conducted concurrent with effluent testing using synthetic water. The analysis will be deemed reasonable and good only if the minimum control requirements are met:

Control survival is 90% or greater in test organisms held in synthetic water.

Any test that does not meet the control acceptability criteria shall be repeated as soon as practicable within the monitoring period.

Within 30 days prior to initiating an effluent toxicity test, a reference toxicant test must be completed for the method used; alternatively, the reference toxicant test may be run concurrent with the effluent toxicity test.

3.5. Test Methods

All test organisms, procedures, and quality assurance criteria used shall be in accordance with Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, EPA-821-R-02-012 (5th edition), the most recently published edition of this publication, or as approved in advance by DOW.

3.6. Reduction to Single Species Testing

After at least six (6) consecutive passing toxicity tests using both, the water flea and the fathead minnow, a request for testing with only the most sensitive species may be submitted to DOW. Upon approval, the most sensitive species may be considered as representative and all subsequent compliance tests may be conducted using only that species unless directed at any time by DOW to change or revert to both.

3.7. Reduction in Monitoring Frequency

The permittee may request a reduction in the frequency of WET testing from quarterly to annual upon demonstration that no test failures, incomplete tests, or invalid tests occurred during the following specified timeframes:

1. Existing facilities: four (4) consecutive quarters;
2. New or expanded facilities: eight (8) consecutive quarters.

New and expanded facilities are defined in Section 2.7.3 of this permit. In the event of the failure of an annual test or non-submission by January 28th of the year following the completion of the test the permittee will again be subject to quarterly WET testing.

3.8. Reporting Requirements

Results of all toxicity tests conducted with any species shall be reported according to the most recent format provided by DOW (See Section 6.10 of this permit). Notification of failed test shall be made to DOW within five days of test completion. Test reports shall be submitted to DOW within thirty (30) days of completion. A control chart including the most recent reference toxicant test endpoints for the effluent test method (minimum of 5, up to 20 if available) shall be part of the report.

3.9. Test Results

Noncompliance is demonstrated if the LC₅₀ is less than 100 % effluent. If noncompliance occurs in an initial test, the permittee shall repeat the test using new grab samples collected approximately twelve (12) hours apart. Sampling must be initiated within ten (10) days of completing the failed test. The second round of testing shall include both species unless approved for only the most sensitive species by DOW.

Results of the second round of testing will be used to evaluate the persistence of the toxic event and the possible need for a Toxicity Reduction Evaluation (TRE).

3.10. Accelerated Testing

If the second round of testing also demonstrates noncompliance, the permittee will be required to perform accelerated testing as specified in the following paragraphs.

Complete four (4) additional rounds of testing to evaluate the frequency and degree of toxicity within sixty (60) days of completing the second failed round of testing. Results of the initial and second rounds of testing specified above plus the four (4) additional rounds of testing will be used in deciding if a TRE shall be required.

If results from any two (2) of six (6) rounds of testing show a significant noncompliance with the Toxicity limit, i.e., ≥ 1.2 times the TU, or results from any four of the six tests show toxicity as defined in Section 3.9, a TRE will be required.

The permittee shall provide written notification to DOW within five (5) days of completing the accelerated testing, stating that: (1) toxicity persisted and that a TRE will be initiated; or (2) that toxicity did not persist and normal testing will resume.

Should toxicity prove not to be persistent during the accelerated testing period, but reoccur within twelve (12) months of the initial failure at a level ≥ 1.2 times the TU, then a TRE shall be required.

3.11. WET TRE

Having determined that a TRE is required, the permittee shall initiate and/or continue at least monthly testing with both species until such time as a specific TRE plan is approved by DOW. A TRE plan shall be developed by the permittee and submitted to DOW within thirty (30) days of determining a TRE is required. The plan shall be developed in accordance with the most recent Environmental Protection Agency (EPA) and DOW guidance. Questions regarding this process may be submitted to DOW.

The TRE plan shall include Toxic Identification Evaluation (TIE) procedures, treatability studies, and evaluations of: chemical usage including changes in types, handling and suppliers; operational and process procedures; housekeeping and maintenance activities; and raw materials. The TRE plan will establish an implementation schedule to begin immediately upon approval by DOW, to have duration of at least six (6) months, and not to exceed twenty-four (24) months. The implementation schedule shall include quarterly progress reports being submitted to DOW, due the last day of the month following each calendar quarter.

Upon completion of the TRE, the permittee shall submit a final report detailing the findings of the TRE and actions taken or to be taken to prevent the reoccurrence of toxicity. This final report shall include: the toxicant(s), if any are identified; treatment options; operational changes; and the proposed resolutions including an implementation schedule not to exceed one-hundred-eighty (180) days.

Should the permittee determine the toxicant(s) and/or a workable treatment prior to the planned conclusion of the TRE, the permittee will notify DOW within five (5) days of making that determination and take appropriate actions to implement the solution within one-hundred-eighty (180) days of that notification.

SECTION 4

ALTERNATE PRECIPITATION EFFLUENT LIMITATIONS (APELs)

4. APELs

APELs are alternate precipitation effluent limitations that may be substituted, on a case-by-case basis, for the Technology-Based Effluent Limitations (TBELs) for Total Recoverable Manganese (TRM) and Total Suspended Solids (TSS) and Settleable Solids (SS) only. APELs are not available for WQBELs and other permit requirements.

Authorized by the Coal ELG, APELs are available for sediment control structure discharges influenced by a qualifying precipitation event, i.e. the volume of rainfall or snowmelt that occurs during a 24 hour period. APELs are available on a case-by-case basis and are a function of the size of the precipitation event and the type of drainage received by the sediment control structure. The precipitation volume is the total volume of rainfall or equivalent snow melt that has occurred during the 24 hours preceding the commencement or increase in the discharge (qualifying event).

Discharges that are influenced by precipitation that ceased more than 24 hours prior to the sampling event are not eligible for APELs. In such cases the bypass and upset conditions found in Sections 8.13 and 8.14 of this permit may apply.

4.1. Available APELs

The following table lists the available APELs associated with each effluent limits basis. The precipitation volume referenced in the table is the volume of precipitation occurring at the time of discharge.

The following codes are used in Table 6.

1. **UGNC** - Discharges from underground workings of underground mines **not commingled**. “Commingled” means two or more types of drainage that are combined for treatment or discharge.
2. **UGC** - Discharges from underground workings of underground mines **commingled**. “Commingled” means two or more types of drainage that are combined for treatment or discharge.
3. **CSMD** - Controlled surface mine drainage (except steep slope and mountaintop removal). “Controlled surface mine drainage” means any surface mine drainage that is pumped or siphoned from the active mining area. “Steep slope” means surface mining activities conducted on slopes greater than 20%. “Mountaintop removal” means surface coal mining and reclamation operations that remove entire coal seams running through the upper fraction of a mountain, ridge, or hill by removing all of the overburden and creating a level plateau or gently rolling contour with no highwalls remaining.
4. **NSMD** - Non-controlled surface mine drainage (except steep slope and mountaintop removal). “Steep slope” means surface mining activities conducted on slopes greater than 20%. “Mountaintop removal” means surface coal mining and reclamation operations that remove entire coal seams running through the upper fraction of a mountain, ridge, or hill by removing all of the overburden and creating a level plateau or gently rolling contour with no highwalls remaining.
5. **PPAA** - Discharges from coal preparation plant and coal preparation plant associated areas. “Coal preparation plant” means a facility where coal is subjected to cleaning, concentrating, or other processing or preparation in order to separate coal from its impurities and then loaded for transit to a consuming facility. Includes all pipes, channels, basins, tanks and all other structures and equipment that convey, contain, treat, or process any water that is used in the coal preparation plant (including slurry sediment control structures, freshwater sediment control structures, and conveyances). “Coal preparation associated areas” means coal preparation plant yards, immediate access roads, coal refuse piles, and coal storage piles and facilities.
6. **RA** - Reclamation Areas. “Reclamation area” means the surface area of a coal mine which has been returned to required contour and on which revegetation (specially, seeding or planting) work has commenced.

TABLE 6.		
ALTERNATE PRECIPITATION EFFLUENT LIMITATIONS		
Source Determining Effluent Limits	Precipitation Volume (PV) inches of rainfall	
	0.01 < PV ≤ 4.8	PV > 4.8
UGNC	Not Applicable	Not Applicable
UGC	Not Applicable	TRM, TSS not required
CSMD	Not Applicable	TRM, TSS not required
RA	Not Applicable	SS not required
NSMD	TRM not required SS (0.5 ml/l) replaces TSS	SS, TRM, TSS not required
PPAA	TRM not required SS (0.5 ml/l) replaces TSS	SS, TRM, TSS not required

4.2. Requesting APELs

To request alternate effluent limitations, the permittee shall indicate on the monthly DMR; that APELs are requested, the cumulative inches of precipitation for the 24 hours preceding the commencement or increase in the discharge, and the source of the precipitation data. (See Section 6.6 for additional information regarding completion of the DMRs to request alternate effluent limitations). The use of alternate effluent limitations is conditionally approved until such time as the Cabinet determines the reported information is inadequate.

SECTION 5

BEST MANAGEMENT PRACTICES (BMP) PLAN REQUIREMENTS

5. BEST MANAGEMENT PRACTICES (BMP) PLAN REQUIREMENTS

The permittee shall develop and implement a Best Management Practices Plan (BMPP) consistent with 401 KAR 5:065, Section 2(4).

5.1. Applicability

These conditions apply to all permittees who use, manufacture, store, handle, or discharge any pollutant listed as: (1) toxic under Section 307(a)(1) of the Clean Water Act; (2) oil, as defined in Section 311(a)(1) of the Act; (3) any pollutant listed as hazardous under Section 311 of the Act; or (4) is defined as a pollutant pursuant to KRS 224.1-010(35) and who have operations which could result in (1) the release of a hazardous substance, pollutant, or contaminant, or (2) an environmental emergency, as defined in KRS 224.1-400, as amended, or any regulation promulgated pursuant thereto (hereinafter, the "BMP pollutants"). These operations include material storage areas; plant site runoff; in-plant transfer, process and material handling areas; loading and unloading operations, and sludge and waste disposal areas.

5.2. Plan

The permittee shall develop and implement a BMPP consistent with 401 KAR 5:065, Section 2(4) pursuant to KRS 224.70-110, which prevents or minimizes the potential for the release of "BMP pollutants" from ancillary activities through site runoff; spillage or leaks, sludge or waste disposal; or drainage from raw material storage.

5.3. Implementation

The permittee shall implement the BMPP upon the commencement of regulated activity. Modifications to the plan as a result of ineffectiveness or plan changes to the facility shall be implemented as soon as possible.

Within 90 days of the effective date of the permit, the permittee shall evaluate the current BMPP and make any necessary modifications to insure its continued effectiveness.

5.4. General Requirements

The BMPP shall:

- 1) Be documented in narrative form, and shall include any necessary plot plans, drawings, or maps.
- 2) Establish specific objectives for the control of toxic and hazardous pollutants.
 - a. Each facility component or system shall be examined for its potential for causing a release of "BMP pollutants" due to equipment failure, improper operation, natural phenomena such as rain or snowfall, etc.
 - b. Where experience indicates a reasonable potential for equipment failure (e.g., a tank overflow or leakage), natural condition (e.g., precipitation), or other circumstances which could result in a release of "BMP pollutants", the plan should include a prediction of the direction, rate of flow, and total quantity of the pollutants which could be released from the facility as result of each condition or circumstance.
- 3) Establish specific BMPs to meet the objectives identified under paragraph b of this section, addressing each component or system capable of causing a release of "BMP pollutants".
- 4) Include any special conditions established in part b of this section.
- 5) Be reviewed by engineering staff and the site manager.

5.5. Documentation

The permittee shall maintain a copy of the BMPP at the facility and shall make the plan available upon request to Energy and Environmental Cabinet (EEC) personnel.

5.6. Specific Requirements

The plan shall be consistent with the general guidance contained in the publication entitled "NPDES Best Management Practices Guidance Document", and shall include the following as a minimum:

- 1) Site description
- 2) Site Maps
- 3) BMP Selection
- 4) Inspection, Records, and Documentation
- 5) Modification for Ineffectiveness,
- 6) Evaluation of BMP Effectiveness,
- 7) Groundwater Protection Plan,
- 8) Conditions of any 401 Water Quality Certification granted to the operation, and
- 9) Management of the stormwater runoff within the DNR Surface Disturbance Mining Permit boundary that is not directed to the pit or a sediment structure Site Description

5.6.1. Site Description

The BMPP shall include a copy of the DNR-approved mine plan submitted as part of the SMCRA permit. In addition to the DNR-approved mine plan, the BMPP shall include:

- 1) List of outfalls (latitude, longitude, receiving water, DNR sediment control structure number, KPDES Outfall Number, and projected activation date); and
- 2) List of in-stream monitoring locations (latitude, longitude, and water body name).

5.6.2. Site Maps

The BMPP shall include:

- (1) Mining and Reclamation Plan (MRP) map;
- (2) Environmental Resources Information (ERI) map; and
- (3) Site map indicating the location of any and all storage and disposal areas for petroleum-base products or toxic or hazardous substances utilized at the mine.

5.6.3. BMP Selection

BMPs shall be selected to address the major areas of concern and the management of petroleum-based products and toxic or hazardous substances. The selection, design, construction, implementation, operation, maintenance, and effectiveness of BMPs is a critical component to the operation's Clean Water Act (CWA) requirements. The permittee must be judicious in the selection of BMPs to prevent incompatible or counterproductive results. The BMPP shall describe the selected BMPs, provide the rationale for selection, and discuss the objective of the BMPs.

5.6.4. Inspection, Records, and Documentation

The BMPP shall establish inspection schedules including procedures and frequencies, documentation requirements, and records retention locations where these records are available for review.

5.6.5. Evaluation of BMP Effectiveness

The BMPP shall establish protocols, procedures, and a schedule of review for the evaluation of the effectiveness of the selected BMPs.

Protocols: The protocols are a set of performance benchmarks which shall be narrative, numeric, biological assessment, or a combination thereof, against which the effectiveness of the BMPs are to be judged. Due to the variability of a number of factors influencing the selection of BMPs, universal performance benchmarks are not feasible therefore site-specific standards shall be developed. The performance benchmarks are to be consistent with the goals of the CWA and SMCRA.

Procedures: The procedures shall document the process for comparing the success of the actual BMP performance versus the stated benchmark. Discharge data, receiving stream biological assessments, inspections, etc., are among the tools to be utilized in this evaluation process. If these assessments indicate that impacts to the aquatic community are occurring, then the permittee shall modify the BMPP and implement as required.

Schedule of Review: The schedule of review shall include both fixed and episode derived dates for review. Quarterly and annual evaluations of the effectiveness of the BMPs shall be performed. Episodic events, such as precipitation events of 1 inch or more, changes in the mine plan, inspections by regulatory agencies, etc., may necessitate a review of BMP performance.

5.6.6. Modification for Ineffectiveness

The BMPs and the BMPP shall be reviewed and appropriate modifications implemented to utilize other practicable measures if any of the following events occur:

- 1) As a result of either a fixed or episodic event-driven evaluation, the permittee determines the selected BMPs are not achieving the established performance benchmarks;
- 2) As a result of an evaluation or inspection by Cabinet personnel; or
- 3) A release of any petroleum-based product, toxic or hazardous substance.

5.7. Documentation

The permittee shall maintain a copy of the BMPP at the facility and shall make the plan available upon request to EEC personnel.

5.8. Modification

The permittee shall modify the BMPP whenever there is a change in the facility or change in the operation of the facility that materially increases the potential for the release of “BMP pollutants”.

SECTION 6

MONITORING AND REPORTING REQUIREMENTS

6. MONITORING AND REPORTING REQUIREMENTS

6.1. KPDES Outfalls

Discharge samples and measurements shall be collected at the compliance point for each KPDES Outfall identified in the WKCL. The permittee shall notify DOW within thirty (30) days of a change in sediment control structure status or in type of drainage received by any KPDES Outfall, by submitting the DOW General Coal Information Update eForm found at: <https://dep.gateway.ky.gov/eportal/default.aspx>.

6.2. Substantially Identical Outfalls

Substantially identical outfalls are outfalls that receive drainage from the same type of activities, utilize the same type of sediment control structures, are within the same watershed, are expected to produce similar effluents and would be subject to the same effluent limitations. In such cases, DOW may authorize the permittee, upon request, to monitor a single representative outfall for compliance purposes.

6.2.1. Permittee Requests

Requests to monitor an outfall that is representative of two or more substantially identical outfalls shall document the following:

- 1) Location of each of the substantially identical outfalls;
- 2) The KPDES permit outfall number assigned to each outfall;
- 3) The types of activities taking place within the contributing drainage area of each outfall;
- 4) Description of the sediment control structures for each outfall;
- 5) The expected frequency and volume of flow for each outfall;
- 6) Why the permittee expects the outfalls to produce similar effluents;
- 7) The outfall the permittee requests as the representative outfall; and
- 8) The basis for selecting the representative outfall.

Requests shall be made using DOW's electronic web based eNOI-KYG04, available on KDEP's forms library site at: <http://dep.ky.gov/formslibrary/Pages/default.aspx>

6.2.2. Implementation

When utilizing a representative outfall for substantially identical outfalls the following conditions apply:

- 1) Representative outfalls are KPDES permit specific and cannot be used for reporting compliance samples on other KPDES permits;
- 2) DMRs for each outfall substantially identical to the representative outfall shall be submitted utilizing the analytical data from corresponding representative outfall;
- 3) Corrective actions or additional monitoring triggered by monitoring results from the representative outfall shall be implemented at each of the substantially identical outfalls;
- 4) No Discharge (NODI) codes may be use only if the representative outfall does not discharge.

6.2.3. Re-designation

Representative outfalls shall be re-designated when:

- 1) The status of the outfall changes and the status of the outfalls it represents do not; or
- 2) The frequency and volume of flow and waste strength of the outfall does not accurately reflect the frequency and volume of flow or waste strength of the outfalls it represents.

Changes in the status or designation as a representative outfall for substantially identical outfalls shall be made using DOW's electronic web based eNOI-KYG04, available on KDEP's forms library site at: <http://dep.ky.gov/formslibrary/Pages/default.aspx>.

6.3. Compliance Point

The compliance point for each KPDES outfall is the nearest accessible point after final treatment, but prior to actual discharge to the receiving waters. For sediment control structures, the principal spillway or riser pipe outlet of the sediment control structure shall be this point. Where multiple sediment control structures are used in series for treatment of the wastewater, the compliance point is the principal spillway or riser pipe outlet of the last sediment control structure in the series provided any internal stream segment of the series is authorized by a CWA permit to be utilized for waste treatment.

6.4. Number of Required Samples

A minimum of two (2) grab samples per physical/chemical specific parameter shall be collected each calendar month during a period of discharge resulting from a precipitation or pumpage event for: (1) active coal mining areas, (2) underground mines, (3) coal preparation plants, and (4) coal preparation plant associated areas.

For reclamation areas the permittee shall collect a minimum of one (1) grab sample per physical/chemical specific parameter each calendar month during a period of discharge.

6.5. Sample Collection

Samples and measurements taken to determine compliance with permit effluent limitations in Section 2 of this permit shall be collected during periods of discharge. The permittee may establish a sampling schedule provided the minimum number of samples specified in Section 6.4 are obtained. In the event the minimum number of samples cannot be obtained, the permittee shall provide the necessary documentation specified in Section 6.6 to the Cabinet upon request. Samples are to be collected from the compliance point and are not to be collected from within any sediment control structure.

6.6. No Discharge Reporting

If the permittee is unable to collect one or more of the required number of samples specified in Section 6.4, the permittee shall report the appropriate No Discharge (NODI) Code for each uncollected sample on the monthly DMR for that outfall. The permittee shall document its claim that only one, or no discharge occurred during the monitoring period. Such documentation shall be made available to the cabinet upon request. The use of a NODI Code is conditionally approved until such time as the Cabinet determines the submitted documentation for the use of that NODI Code is inadequate.

NODI Codes are used in EPA's Integrated Compliance Information System (ICIS) to report a No Discharge on a DMR. The following table lists the NODI codes that DOW has determined to be appropriate for use on coal related DMRs.

TABLE 7.	
NODI Code	Definition
2	Operation Shutdown
5	Frozen Conditions
9	Conditional Monitoring – Not Required This Period
C	No Discharge
F	Insufficient Flow For Sampling
I	Land Applied
J	Recycled –Water-Closed System
K	Natural Disaster
Q	Not Quantifiable
R	Administratively Resolved
V	Weather Related

The circumstances under which each code is used and the required documentation in addition to the documentation and certification requirements of Sections 8.10 and 8.11 of this permit are as follows:

NODI Code 2

This code is to be used when the operation has been shutdown as a result of enforcement action or bond forfeiture and the permittee is denied access to the site. Additional documentation shall include the notice issued by the enforcing agency denying access.

NODI Code 5

This code is to be used when the discharge or outfall structure is frozen. Additional documentation includes: (1) dated photographs; and (2) a narrative of the severity and duration of the condition shall be included.

NODI Code 9

The use of this code serves multiple purposes: (1).On a parameter by parameter basis when making use of the alternate effluent limitations due to a precipitation event for settleable solids, total recoverable manganese, and total suspended solids; (2) when fish tissue analysis for selenium residue is not triggered; and (3) On a discharge basis when factors beyond the control of the permittee prevent the collection of required number of samples during a monitoring period.

Additional documentation required for the alternate effluent limitations includes: (1) the accumulated precipitation volume during the 24 hours preceding the commencement or increase in discharge and (2) the source of the precipitation data.

In the third case the permittee shall provide as additional documentation: (1) an explanation of the factors that prevented the collection of the minimum number of samples; and (2) what actions the permittee may take to address future occurrences.

NODI Code C

This code is to be used when there are no discharges during the monitoring period from a sediment control structure due to its' design, construction, maintenance and operation or if has not been constructed. Additional documentation includes: (1) Certification the sediment control structures were constructed, maintained and operated in accordance with DNR approved performance standards; and (2) Daily precipitation information indicating that no storm event exceeded the 10 year, 24 hour precipitation event.

NODI Code F

This code is specific to WET testing and is to be used when the discharge ceases prior completion of the sample requirements specified in Section 3 of this permit. Additional documentation includes: (1) the time and date of commencement of sample collection, and (2) the time and date the discharge ceased.

NODI Code I

This code is to be used when a sediment control structure does not discharge during a monitoring period due to the land application of the effluent to the surface of a fill or other mining area. Additional documentation includes: (1) description of application area; (2) daily application rates; (3) daily precipitation volumes; and (4) the source of the precipitation data.

NODI Code J

This code is to be used when water from slurry disposal areas or sediment control structures associated with a coal preparation plant (coal washer) is utilized as make-up water, i.e. recycled within the washer circuitry. Additional documentation includes: (1) designed make-up water rate required for washer; (2) sources of make-up water; (3) daily volume removed from structure; (4) daily precipitation volumes; and (5) the source of the precipitation data.

NODI Code K

This code is to be used when the outfall is destroyed or inaccessible due to a natural disaster such as flooding, tornado, etc. Additional documentation includes: (1) dated photographs; and (2) a narrative of the severity and duration of the condition shall be included.

NODI Code Q

This code is to be used when an outfall is discharging however due to the shallowness of the discharge a valid sample could not be collected. Additional documentation includes: (1) dated photographs; and (2) estimated flow rate.

NODI Code V

This code is to be used when outfalls are inaccessible due to extreme weather conditions. Additional documentation includes: (1) a description of the weather conditions; (2) dated photographs of the conditions; and (3) duration of the conditions preventing access.

6.7. Settleable Solids (SS) Testing Procedures

Fill an Imhoff cone to the one (1)-liter mark with a thoroughly mixed sample. Allow to settle undisturbed for 45 minutes. Gently stir along the inside surface of the cone with a stirring rod. Allow to settle undisturbed for 15 minutes longer. Record the volume of settled material in the cone as milliliters per liter. Where a separation of settleable and floating materials occurs, do not include the floating material.

6.8. Sufficiently Sensitive Analytical Methods

Analytical methods utilized to demonstrate compliance with the effluent limitations established in this permit shall be sufficiently sensitive to detect pollutant levels at or below the required effluent limit. It is the responsibility of the permittee to demonstrate compliance with permit parameter limitations by utilization of sufficiently sensitive analytical methods.

6.9. Certified Laboratory Requirements

All laboratory analyses and tests required to demonstrate compliance with the conditions of this permit shall be performed by EEC certified general wastewater laboratories and EEC certified field-only laboratories. Compliance with this requirement shall commence on January 1, 2015 for analyses and tests performed by a general wastewater laboratory, and January 1, 2016 for field-only wastewater laboratories.

6.10. Submission of DMRs

Monitoring results obtained during each monitoring period must be reported. The completed DMR for each monitoring period must be submitted no later than the 28th day of the month following the monitoring period for which monitoring results were obtained.

The completed DMR for each monitoring period must be entered into the DOW approved electronic system no later than midnight on the 28th day of the month following the monitoring period for which monitoring results were obtained. Submission of DMRs to DNR will cease and electronic DMR submittal shall begin with the initial DMR upon effective date of new or renewal of coverage.

For more information regarding electronic submittal of DMRs, please visit the Division's website at: <http://water.ky.gov/permitting/Pages/netDMRInformation.aspx> or contact the DMR Coordinator at (502) 564-3410.

6.11. Submission of WET Testing Reports

Until an eForm can be developed, test results obtained during each monitoring period for WET testing shall be reported using the Kentucky Toxicity Test Report Sheet available on the DEP forms library at <http://dep.ky.gov/formslibrary/Pages/default.aspx>. All toxicity test reports, including incomplete or

invalid tests, shall be submitted within thirty (30) days of the completion or termination of the test to DOW via DEP's electronic submittal site at the following address using document type; "WET Testing".

<https://dep.gateway.ky.gov/eportal/default.aspx>

When an eForm becomes available, only WET test results submitted using the eForm will be accepted for compliance.

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SECTION 7

ADDITIONAL REQUIREMENTS

7. ADDITIONAL REQUIREMENTS

7.1. Schedule of Compliance

The permittee shall attain compliance with all requirements of this permit on the effective date of this permit unless otherwise stated below:

- 1) Compliance with the requirements for WET testing and limitations shall be attained upon completion of the implementation schedule as specified in Section 3 of this permit.
- 2) Compliance with the requirements for Total Recoverable Selenium shall be attained as specified in Section 2.7 of this permit.
- 3) Compliance with certified laboratory analysis requirements shall be obtained as specified in Section 6.9 of this permit.

7.2. Other Permits

This permit has been issued under the provisions of KRS Chapter 224 and regulations promulgated pursuant thereto. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits or licenses required by this Cabinet and other state, federal, and local agencies.

7.3. eNOI Requirements

7.3.1. eNOI

Operators seeking to obtain a new coverage, to modify an existing coverage, or to renew an existing coverage shall use DOW's electronic web based eNOI-KYG04, available on DEP's forms library site at: <http://dep.ky.gov/formslibrary/Pages/default.aspx>. DOW shall not process any NOI that is incomplete, inaccurate, or in an incorrect format.

7.3.2. eNOI Contents

Electronic form eNOI-KYG04 is comprised of the following sections: (1) Facility Operator Information, (2) General Site Location Information, (3) Specific Site Activity Information, (4) Outfall Information, (5) Other Effluent Data, (6), Other Environmental Approvals and Permit Information, (7) Discharge Monitoring Report Contact Information, (8) NOI Preparer Information (9) Attachments, and (10) Certification.

7.3.3. eNOI Submission Deadlines

Operators seeking initial coverage for a new facility shall electronically submit the eNOI-KYG04 and required attachments (Mining Reclamation Plan (MRP) map, and a completed Socioeconomic Demonstration Alternatives Analysis (SDAA) form) a minimum of 90 days prior to commencement of discharge.

Operators seeking modification of an existing coverage to address facility modifications shall electronically submit an updated eNOI-KYG04 and required attachments (MRP map, and completed SDAA) form a minimum of 90 days prior to the modification of the facility.

Operators seeking renewal of existing coverages shall electronically submit an updated eNOI-KYG04 and MRP map within 90 days of the effective date of the permit. Failure to submit the updated eNOI-KYG04 within the specified timeframe may result in the termination of coverage.

7.4. Continuation of Expiring Permit

This permit shall be continued in effect and enforceable after the expiration date of the permit provided the permittee submits a timely and complete eNOI in accordance with 401 KAR 5:060, Section 2(4).

7.5. Antidegradation

For those discharges subject to the provisions of 401 KAR 10:030 Section 1(3)(b)5, the permittee shall install, operate, and maintain wastewater treatment facilities consistent with those identified in the SDAA submitted with the eNOI-KYG04.

7.6. Discharge and Monitoring Point Accessibility

The permittee is required to conduct monitoring that is representative of the regulated discharges. Additionally, in accordance with the conditions that apply to all permits as stated in Section 8.9, the permittee shall allow authorized agency representatives to inspect the facility and collect samples to determine compliance. In order for such monitoring to be conducted either by the permittee or authorized agency personnel, all monitoring and discharge points required by this permit shall be readily and safely accessible.

7.7. Additional Conditions Specific to Mining Permits

The permittee shall notify the Director as soon as they know or have reason to believe that toxic pollutants not limited in the permit, have been or shall be discharge in excess of the highest of the following notification levels:

TABLE 8.		
POLLUTANT	ROUTINE/FREQUENT	NON-ROUTINE/INFREQUENT
Any Toxic Pollutant	100 µg/l ¹	500 µg/l ¹
Acrolein	200 µg/l	500 µg/l ¹
Acrylonitrile	200 µg/l	500 µg/l ¹
2,4-dinitrophenol	500 µg/l	500 µg/l ¹
2-methyl-4,6-dinitrophenol	500 µg/l	500 µg/l ¹
Antimony	1 mg/l	1 mg/l
Pollutant reported in permit application	Five (5) times the maximum concentration value	Ten (10) times the maximum concentration value
¹ Or level established by the Director		

7.8. Commingling of Waste Streams

Where wastestreams from any drainage area covered by this permit are combined for treatment or discharge with wastestreams from another drainage area, the concentration of each pollutant in the combined discharge may not exceed the most stringent limitations for that pollutant applicable to any component wastestream of the discharge. This requirement is consistent with the requirements of 401 KAR 5:065, Section 2(9).

7.9. Reopener Clause

This permit shall be modified, or alternatively revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved in accordance with 401 KAR 5:050 through 5:080, if the effluent standard or limitation so issued or approved:

- 1) Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
- 2) Controls any pollutant not limited in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of KRS Chapter 224 when applicable.

7.10. Certified Operator

Pursuant to 401 KAR 5:010, Section 1 a treatment plant with a design capacity of less than or equal to 50,000 gallons per day shall be under the primary responsibility of a certified operator holding an active Class I, II, III, or IV treatment certificate.

7.11. Drinking Water Systems (DWS) Intake

In addition to the requirements of Section 2 of this permit coal mining and/or processing operations that discharge within 5 miles upstream of an existing domestic water supply intake shall incorporate within the operation's BMPP, language addressing catastrophic releases and the notification procedures.

The language shall be included under the Specific Conditions Section of the BMP Plan and shall provide the following:

1. The criteria for determining a catastrophic release;
2. The notification method(s) to be used to inform the affected DWS intake that a catastrophic release has occurred;
3. The names, telephone numbers, and e-mail addresses of the contacts with the subject water supply; and
4. The names, telephone numbers, and e-mail addresses of the contacts with the permittee.

7.12. Storm Water Management

All storm water runoff within the boundary of the Surface Disturbance Mining Permit shall be, to the extent possible, diverted to either the pit or to sediment control structures. Storm water that cannot be diverted shall be addressed under the BMP Plan. During the initial phases of site preparation, Best Management Practices shall be employed to control sediment until permanent sediment control structures are constructed and placed in operation.

SECTION 8

STANDARD CONDITIONS

8. STANDARD CONDITIONS

8.1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of KRS Chapter 224 and is grounds for enforcement action; for permit termination, revocation and reissuance, modification, or denial of a permit renewal application. Any person who violates applicable statutes, who fails to perform any duty imposed, or who violates any determination, permit, administrative regulation, or order of the cabinet promulgated pursuant thereto shall be liable for a civil penalty as provided at KRS 224.99.010.

8.2. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for a new permit.

8.3. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action, that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

8.4. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

8.5. Proper Operation and Maintenance

The permittee shall at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

8.6. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, termination, notification of planned changes or anticipated noncompliance does not stay any permit condition.

8.7. Property Rights

This permit does not convey any property rights of any sort, or any exclusive privilege.

8.8. Duty to Provide Information

The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Director upon request, copies of records required to be kept by this permit.

8.9. Inspection and Entry

The permittee shall allow the Director or an authorized representative (including an authorized contractor acting as a representative of the Director), upon presentation of credentials and other documents as may be required by law, to:

- (1) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

- (2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- (3) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- (4) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by KRS 224, any substances or parameters at any location.

8.10. Monitoring and Records

- (1) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
- (2) Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities which shall be retained for a period of at least five (5) years (or longer as required by 401 KAR 5:065, Section 2(10)), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.
- (3) Records of monitoring information shall include:
 - (i) The date, exact place, and time of sampling or measurements;
 - (ii) The individual(s) who performed the sampling or measurements;
 - (iii) The date(s) analyses were performed;
 - (iv) The individual(s) who performed the analyses;
 - (v) The analytical techniques or methods used; and
 - (vi) The results of such analyses.
- (4) Monitoring must be conducted according to test procedures approved under 401 KAR 5:065, Section 2(8) unless another method is required under 401 KAR 5:065, Section 2(9) or (10).
- (5) KRS 224.99-010 provides that any person who knowingly violates KRS 224.70-110 or other enumerated statutes, or who knowingly renders inaccurate any monitoring device or method required to be maintained under this permit, shall be guilty of a Class D felony and, upon conviction, shall be punished by a fine of not more than \$25,000, or by imprisonment for not more than one (1) year, or both. Each day upon which a violation occurs shall constitute a separate violation.

8.11. Signatory Requirement

- (1) All applications, reports, or information submitted to the Director shall be signed and certified pursuant to 401 KAR 5:060, Section 4.
- (2) KRS 224.99-010 provides that any person who knowingly provides false information in any document filed or required to be maintained under KRS Chapter 224 shall be guilty of a Class D felony and upon conviction thereof, shall be punished by a fine not to exceed twenty-five thousand dollars (\$25,000), or by imprisonment, or by fine and imprisonment, for each separate violation. Each day upon which a violation occurs shall constitute a separate violation.

8.12. Reporting Requirements

8.12.1. Planned Changes

The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

- (i) The alteration or addition to a permitted facility, may meet one of the criteria for determining whether a facility is a new source in KRS 224.16-050; or
- (ii) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under KRS 224.16-050; or
- (iii) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

8.12.2. Anticipated Noncompliance

The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

8.12.3. Transfers

This permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under KRS 224; see 401 KAR 5:070, Section 5; in some cases, modification or revocation and reissuance is mandatory.

8.12.4. Monitoring Reports

Monitoring results shall be reported at the intervals specified elsewhere in this permit.

- (i) Monitoring results must be reported on a DMR or forms provided or specified by the Director for reporting results of monitoring of sludge use or disposal practices.
- (ii) If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 401 KAR 5:065, Section 2(8), or another method required for an industry-specific waste stream under 401 KAR 5:065, Section 2(9) or (10), the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Director.
- (iii) Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.

8.12.5. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit, shall be submitted no later than fourteen (14) days following each schedule date.

8.12.6. Twenty-four Hour Reporting

- (i) The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
- (ii) The following shall be included as information which must be reported within twenty-four (24) hours under this paragraph:
 - (A) Any unanticipated bypass which exceeds any effluent limitation in the permit.
 - (B) Any upset which exceeds any effluent limitation in the permit.

(C) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in the permit to be reported within twenty-four (24) hours.

(iii) The Director may waive the written report on a case-by-case basis for reports under paragraph ii of this section if the oral report has been received within twenty-four (24) hours.

8.12.7. Other Noncompliance

The permittee shall report all instances of noncompliance not reported under Sections 8.12.1, 8.12.4, 8.12.5 and 8.12.6, at the time monitoring reports are submitted. The reports shall contain the information listed in Section 8.12.6.

8.12.8. Other Information

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, or in any report to the Director, it shall promptly submit such facts or information.

8.13. Bypass

8.13.1. Definitions

- (i) Bypass means the intentional diversion of waste streams from any portion of a treatment facility.
- (ii) Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

8.13.2. Bypass Not Exceeding Limitations

The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Section 8.13.1.

8.13.3. Notice

- (i) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, and if possible at least ten days before the date of the bypass.
- (ii) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Section 8.12.6.

8.13.4. Prohibition of Bypass

- (i) Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:
 - (A) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - (B) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 - (C) The permittee submitted notices as required under Section 8.13.3.
- (ii) The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the conditions listed above in Section 8.13.3.

8.14. Upset**8.14.1. Definition**

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

8.14.2. Effect of an Upset

An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations, if the requirements of Section 8.14.3 are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

8.14.3. Conditions Necessary for a Demonstration of Upset

A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

- (i) An upset occurred and that the permittee can identify the cause(s) of the upset;
- (ii) The permitted facility was at the time being properly operated;
- (iii) The permittee submitted notice of the upset as required in Section 8.12.6; and
- (iv) The permittee complied with any remedial measures required under Section 8.4.

8.14.4. Burden of Proof

In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

SECTION 9

APPENDIX A

9. Appendix A

Methods for the Collection of Selenium Residue in Fish Tissue Used to Determine KPDES Permit Compliance

Commonwealth of Kentucky
Energy and Environment Cabinet
Department for Environmental Protection
Division of Water

9.1. Procedures

9.1.1. Scope and Applicability

This manual has been developed by the Kentucky Division of Water (KDOW) as guidance for the uniform collection of selenium residue in fish tissue for the purposes of compliance with KPDES permits. The methods set forth herein are required for all activities related to the collection of fish for the determination of selenium residue in fish tissue. Data submitted to KDOW for review will undergo QA/QC review and those data identified as not following the methods set forth in this document will be flagged and shall not be used for purposes of determining compliance with the KPDES permit.

The sources for the collection methods in this Standard Operating Procedure (SOP) document are based on the historical methods used by the Division of Water (KDOW 2008).

9.1.2. Definitions

CFR – Code of Federal Regulations

COC – Chain-of-Custody

DNR – Department for Natural Resources

DW – Dry Weight

EPA – U.S. Environmental Protection Agency

Headwater or Headwater Stream – Stream that is less than 6 square miles in catchment area.

KDFWR – Kentucky Department of Fish & Wildlife Resources

KDOW – Kentucky Division of Water

KPDES – Kentucky Pollutant Discharge Elimination System

QA – Quality Assurance

QC – Quality Control

Sample Reach – the specific length of the stream where fish survey collections are made; it includes the entire width of the stream within that stream length.

SOP – Standard Operating Procedure

WQB – Water Quality Branch

Wadeable or Wadeable Stream – Stream that is equal to or greater than 6 square miles in catchment area.

9.1.3. Personnel Qualifications / Responsibilities

Individuals conducting fish tissue collections shall possess a valid KDFWR Scientific Wildlife Collecting Permit, if applicable. Field personnel conducting fish tissue collections must also have basic knowledge of aquatic organisms and their habitats, stream geomorphology and stream physical processes. Most importantly, field personnel must be able to properly identify the target species.

9.1.4. Recommended Equipment and Supplies

- Backpack Electrofishing Unit (including Probe, Ring and Rat Tail)
- Backpack Electrofishing Unit Battery
- Dip Nets (at least 3)
- Seine (Wadeable Streams)
- 5 Gallon Bucket
- Measuring Board (in mm)
- Sterile Whirl-pack Bags
- Gallon of De-ionized Water
- Waders and Boots
- First Aid Kit
- Polarized Sunglasses
- Waterproof Pen
- Permanent Marker
- Powderless Latex or Nitrile Gloves
- Chain-of-Custody Documents
- Cooler
- Ice

9.1.5. Methods

9.1.5.1. Purpose

In order to protect the aquatic life use from the bioaccumulative effects of selenium, KDOW has promulgated a chronic selenium water quality standard based on whole-body fish tissue DW concentration. Information obtained from the fish tissue survey will be used to determine compliance with the KPDES permit. The collection of fish tissue is required when the average effluent selenium concentration discharged from a permitted outfall exceeds 5.0 µg/L (KDOW 2013). Results of selenium residue in fish tissue samples will be used to determine compliance with the KPDES permit.

9.1.5.2. Precautions Before Sampling

While following the sampling methods outlined herein, it is important to keep the sampling reach intact and undisturbed. Field personnel shall not walk through the reach until sampling has occurred. If the sampling reach has been disturbed by other activities, sufficient time shall be allowed for the water to clear and fish to settle back into normal habitats. Electrofishing in turbid water can result in less effective sampling results. Polarized sunglasses are recommended when electrofishing, since they will cut down on the glare of the water. Optimal sampling conditions, such as high water clarity, normal ambient flow conditions and high ambient sunlight conditions, will enhance sampling efficiency. If sampling conditions are not adequate or practical, the survey should be postponed until conducive sampling conditions exist.

Electrofishing unit settings shall be set based on the conductivity of the water. To minimize stress and mortality, it is important to use the minimum amount of electrical energy needed to stun fish. Select initial voltage setting at 150-400 V for high conductivity conditions (>300 µS/cm), 500-800 V for medium conductivity (100 to 300 µS/cm), and 900-1100 V for low conductivity (<100 µS/cm). Set the pulse width between 2-6 ms and pulse frequency between 40-60 Hz. Adjust the voltage, pulse width and pulse frequency to efficiently capture fish without inducing excessive stress and mortality.

9.1.5.3. Headwater Streams

To determine selenium residue in fish tissue, a target species composite sample and one duplicate/replicate sample are required at each station. Two to five individuals of the target species shall be used to establish an individual whole-body composite or duplicate/replicate sample.

9.1.5.3.1. Target Species Composite Sample

A composite, whole-body sample shall consist of two to five (2-5) individuals selected from the taxa listed in Table 9. The composite sample may be of any taxa listed, but a composite sample shall consist of individuals of the same taxon. The individuals of a composite sample shall be, at a minimum, the size listed in Table 9 and shall be within 75% of the length of the longest individual. These fish lengths represent reproductive maturity for each of these target species. A duplicate/replicate sample shall be collected at each sampling station following the same guidelines as stated for the composite sample of the target species.

TABLE 9. Common fishes of headwater streams.	
Fish Taxa	Minimum Length at Reproductive Maturity
<i>Camptostoma</i> spp. (Stonerollers)	80 mm
<i>Catostomus commersonii</i> (White Sucker)	150 mm
<i>Chrosomus erythrogaster</i> (Southern Redbelly Dace)	50 mm
<i>Hypentelium nigricans</i> (Northern Hogsucker)	125 mm
<i>Rhinichthys atratulus</i> (Blacknose Dace)	60 mm
<i>Semotilus atromaculatus</i> (Creek Chub)	100 mm

9.1.5.3.2. Sample Reach

The first sample reach shall begin 5 meters below the outfall that exceeded the monthly average effluent selenium concentration of 5.0 µg/L and extend 100 meters downstream from that point in the receiving stream. Where the effluent receiving stream is a drainage ditch and not part of the upper-most channel-defined reaches (i.e., ephemeral or intermittent channels) of a watershed, the sample collection effort will commence in the uppermost receiving stream at the discharge point of the effluent ditch.

Field personnel shall measure out this sample reach before conducting the survey. Sampling shall begin at the downstream end of the reach and continue upstream until the most upstream end of the reach has been sampled. Every effort shall be made to obtain the composite and duplicate/replicate samples of the target species within the first sample reach. If a composite sample and the duplicate/replicate sample of the target species cannot be obtained within the first sample reach, field personnel shall proceed to sample the next downstream 100 meter reach. Every effort shall be made to obtain the composite sample and the duplicate/replicate sample of the target species within the second sample reach.

Field personnel shall continue downstream using successive 100-meter reaches until adequate target species composite and duplicate/replicate samples are obtained or the stream receiving the effluent empties into its receiving stream. In the event the effluent receiving stream is less than 100 meters in length every effort shall be made to collect fish from the available habitat of that stream, but when fish are not present in such streams the collection effort is extended into the next receiving stream. That collection effort will continue at the point the stream empties into its receiving stream with sampling conducted in successive downstream 100-meter reaches.

However, no more than a total of four 100-meter reaches shall be sampled; this is inclusive of all sampled reaches. Should the stream receiving the effluent discharge empty into its receiving stream less than four successive 100-meter reaches from the point of effluent discharge, then sampling shall continue in the receiving stream from that confluence until one has sampled linear reaches totaling no more than four successive (inclusive of all reaches sampled) 100-meter reaches.

If adequate composite and duplicate/replicate samples of the target species cannot be obtained after following the procedures described in the preceding paragraph, please refer to the corresponding KPDES permit for further instructions and requirements.

9.1.5.4. Target Species Composite Sample Collection

All members of the fish tissue collection crew shall don powderless latex or nitrile gloves. The sampling crew shall consist of a minimum of two members. Dip nets, seine and backpack electrofishing units are all instruments used in the collection of fish; the hydrological and physical characteristics of the stream to be sampled will determine what equipment is appropriate. If a backpack electrofishing unit is utilized, one individual operates the backpack electrofishing unit while the other(s) work the seine (if used) and dip nets, and carry the bucket used to transport captured fish. The backpack electrofishing unit operator shall also carry a dip net (Barbour et al. 1999) if using one probe and rat tail configuration. Backpack electrofishing sampling consists of working in an upstream direction in a side-to-side/bank-to-bank sweeping technique. Crew members with dip nets walk alongside and behind the electrofishing unit operator to collect stunned fish. If necessary, a seine can be used to sample deep pool habitat more efficiently after electrofishing. The seine can also be used to block off the width of stream while the electrofishing unit operator shocks fish downstream into the seine. This technique is especially useful when the water is slightly turbid. In shallow headwater streams, use of seine or dip nets may be the appropriate equipment utilized in procurement of fishes.

Collected fish shall be frequently transferred from dip nets to a bucket of water to lessen stress and mortality. In addition, water in the bucket shall be changed periodically (warmer water temperatures require more frequent water changes) to reduced stress and mortality of fish.

9.1.5.5. Target Species Composite Sample Processing

Once adequate composite and duplicate/replicate samples of the target species are collected, the processing procedure can begin. A sterile Whirl-pack bag shall be used to contain the samples. On the outside of the bags, the collectors shall write the following information with a permanent marker: station #, permit #, stream name, location, latitude and longitude (resolve to seconds or to five decimal places), county, date, time, species collected, number of individuals collected, the parameter or analyte to be tested and whether it is the composite sample or the duplicate/replicate sample of the target species. The longest individual in the bucket shall be measured in millimeters and placed in a sterile Whirl-pack bag. The length of the first individual shall be recorded on the COC sheet and the 75th percentile of that individual's length shall be calculated. Two to four other individuals within the 75th percentile shall be measured and placed in the Whirl-pack bag with the longest individual. These lengths are recorded on the COC sheet along with the first. The duplicate/replicate sample shall be processed in the same manner as the first sample. All other fish that are being held in the bucket can be released once the duplicate/replicate sample has been processed. The bucket and measuring board shall be triple rinsed with de-ionized water after processing the samples.

The samples shall be kept on ice in a cooler until transported to a freezer for long-term storage. Maximum holding time on ice in a cooler is 12 hours. Samples shall be processed and analyzed in the lab within 30 days of collection.

9.1.5.6. Wadeable Streams

To determine selenium residue in fish tissue, a composite sample and one duplicate/replicate sample of the target species are required at each station. Two to five individuals of the target species shall be used to establish an individual whole-body composite or duplicate/replicate sample.

9.1.5.6.1. Target Species Composite Sample

A composite, whole-body sample shall consist of two to five (2-5) individuals from the taxa listed in Table 10. The composite sample may be of any taxa listed, but a composite sample shall consist of individuals of the same taxon. The individuals of a composite sample shall be, at a minimum, the size listed in Table 10 and within 75% of the length of the longest individual of that species. These fish lengths represent reproductive maturity for each of these target species. A duplicate/replicate sample shall be collected at each sampling station following the same guidelines as stated for the target species composite sample.

TABLE 10. Common fishes of wadeable streams.	
Fish Taxa	Minimum Length at Reproductive Maturity
<i>Campostoma</i> sp. (Stonerollers)	80 mm
<i>Catostomus commersonii</i> (White Sucker)	150 mm
<i>Chrosomus erythrogaster</i> (Southern Redbelly Dace)	50 mm
<i>Hypentelium nigricans</i> (Northern Hogsucker)	125 mm
<i>Rhinichthys atratulus</i> (Blacknose Dace)	60 mm
<i>Semotilus atromaculatus</i> (Creek Chub)	100 mm
<i>Ambloplites rupestris</i> (Rock Bass)	100 mm
<i>Cyprinella</i> spp. (Shiners)	75 mm
<i>Etheostoma caeruleum</i> (Rainbow Darter)	45 mm
<i>Etheostoma flabellare</i> (Fantail Darter)	45 mm
<i>Lepomis</i> spp. (Sunfish)	70 mm
<i>Luxilus chrysocephalus</i> (Striped Shiner)	80 mm
<i>Lythrurus</i> spp. (Finescale Shiners)	45 mm
<i>Pimephales notatus</i> (Bluntnose Minnow)	60 mm

9.1.5.6.2. Sample Reach

The first sample reach shall begin 5 meters below the outfall(s) that exceeded the monthly average effluent selenium concentration of 5.0 µg/L and extend 100 meters downstream from that point. If the discharge is into a drainage ditch, sampling should begin at the point the ditch discharges into the wadeable stream.

Field personnel shall measure out this sample reach before conducting the survey. Sampling shall begin at the downstream end of the reach and continue upstream until the most upstream end of the reach has been sampled. Every effort shall be made to obtain the composite and duplicate/replicate samples of the target species within the first sample reach. If a composite sample and the duplicate/replicate sample of the target species cannot be obtained within the first sample reach, field personnel shall proceed to sample the next downstream 100-meter reach. Every effort shall be made to obtain the composite sample and the duplicate/replicate sample of the target species within the second sample reach.

Field personnel shall continue downstream using successive 100-meter reaches until adequate target species composite and duplicate/replicate samples are obtained or the stream receiving the effluent empties into its receiving stream. In the event the effluent receiving stream is less than 100 meters in length every effort shall be made to collect fish from the available habitat of that stream, but when fish are not present in such streams the collection effort is extended into the next receiving stream. That collection effort will continue at the point the stream empties into its receiving stream with sampling conducted in successive downstream 100-meter reaches.

However, no more than a total of four 100-meter reaches shall be sampled; this is inclusive of all sampled reaches. Should the stream receiving the effluent discharge empty into its receiving stream less than four successive 100-meter reaches from the point of effluent discharge, then sampling shall continue in the receiving stream from that confluence until one has sampled linear reaches totaling no more than four successive (inclusive of all reaches sampled) 100-meter reaches.

If adequate composite and duplicate/replicate samples of the target species cannot be obtained after following the procedures described in the preceding paragraph, please refer to the corresponding KPDES permit for further instructions and requirements.

9.1.5.6.3. Target Species Composite Sample Collection

All members of the fish-tissue collection crew shall don powderless latex or nitrile gloves. The sampling crew shall consist of a minimum of two members. One individual operates the backpack electrofishing unit while the other(s) work the seine (if used) and dip nets, and carry the bucket used to transport captured fish. The backpack electrofishing unit operator shall also carry a dip net (Barbour et al. 1999) if using one probe and rat tail configuration. Sampling consists of using a backpack electrofishing unit working in an upstream direction in a side-to-side/bank-to-bank sweeping technique. Crew members with dip nets walk alongside and behind the electrofishing unit operator to collect stunned fish. If necessary, a seine can be used to sample deep pool habitat more efficiently after electrofishing. The seine can also be used to block off the width of stream while the electrofishing unit operator shocks fish downstream into the seine. This technique is especially useful when the water is slightly turbid.

Collected fish shall be frequently transferred from dip nets to a bucket of water to lessen stress and mortality. In addition, water in the bucket shall be changed periodically (warmer water temperatures require more frequent water changes) to reduce stress and mortality of fish.

9.1.5.6.4. Target Species Composite Sample Processing

Once adequate composite and duplicate/replicate samples of the target species are collected, the processing procedure can begin. A sterile Whirl-pack bag shall be used to contain the samples. On the outside of the bags, the collectors shall write the following information with a permanent marker: station #, permit #, stream name, location, latitude and longitude (resolve to seconds or to five decimal places), county, date, time, species collected, number of individuals collected, the parameter or analyte to be tested and whether it is the composite sample or the duplicate/replicate sample of the target species. The longest individual in the bucket shall be measured in millimeters and placed in a sterile Whirl-pack bag. The length of the first individual shall be recorded on the COC sheet and the 75th percentile of that individual's length shall be calculated. Two to four other individuals within the 75th percentile shall be measured and placed in the Whirl-pack bag with the longest individual. These lengths are recorded on the COC sheet along with the first. The duplicate/replicate sample shall be processed in the same manner as the first sample. All other fish that are being held in the bucket can be released once the duplicate/replicate sample has been processed. The bucket and measuring board shall be triple rinsed with de-ionized water after processing the samples.

The samples shall be kept on ice in a cooler until transported to a freezer for long-term storage. The maximum holding time on ice in a cooler is 12 hours. Samples shall be processed and analyzed in the lab within 30 days of collection.

9.2. Quality Assurance/Quality Control

A field crew will consist of at least one person who is knowledgeable of the identification and nomenclature of Kentucky fishes. All members of the sampling crew will don powderless latex or nitrile gloves during collection and processing of the sample. After any sampling has been completed, all sampling gear will be thoroughly cleaned to remove all fish so that no fish are carried to the next site. The equipment shall be examined prior to sampling at the next site to ensure that no fish are present.

Field data must be complete and legible and entered on COC sheets and on the Whirl-pack bag. While in the field, the field team should possess sufficient copies of COC sheets for all anticipated sampling sites, as well as copies of all applicable SOPs. The following information shall be written on the COC sheet: station #, permit #, stream name, location, latitude and longitude (resolve to seconds or to five decimal places), county, date, time, species collected, number of individuals collected, collectors, parameter to be tested and whether it is the target species composite sample or the duplicate/replicate sample. Each collector will also sign and date the Whirl-pack bag as well as the COC sheets.

When delivering a target species composite sample to the laboratory for processing, the proper COC sheet that corresponds with the sample must be delivered to the laboratory at the same time. When the collector relinquishes the sample to the sample lab custodian, the collector will sign and date the COC in the "Relinquished By" space and the lab sample custodian will sign and date the COC in the "Received By" space. All lab data submitted to KDOW for selenium compliance must be accompanied with corresponding COC sheets.

9.2.1. Procedures for the Preparation of Fish Tissue and Methods for the Determination of Selenium in Fish Tissue

For fish tissue preparation for the determination of total selenium, the following procedures shall be used by the laboratory.

9.2.1.1. Fish Tissue Processing SOP (Conducted by a Certified Wastewater Laboratory) (KDOW 2008)

Processing will be conducted in a certified "clean laboratory environment" with pre-cleaned stainless steel countertops and pre-cleaned stainless steel equipment:

1. Place composite samples in freezer when delivered from the field and allow to freeze.
2. Weigh composite sample to determine amount of dry ice to use during homogenization.
3. Remove frozen sample from freezer.
4. Remove frozen individual fish from plastic freezer bag using nitrile gloves.
5. Place each individual fish from one composite into a stainless steel industrial blender.
6. Place the equivalent amount of dry ice in the blender that was determined prior to freezing for the composite sample (Ex. If the composite sample weighed 110 grams, then you would add 110 grams of dry ice to the blender for homogenization).
7. Homogenize sample in blender.
8. Remove homogenized sample with stainless steel utensil and place in pre-cleaned glass jar with Teflon-lined lid.
9. Label jar with all of the composite sample information from the sample bag.
10. Place jar with homogenized sample into freezer until ready for analysis.

11. Clean all equipment and countertops between composite samples with the following cleaning process:

- a. Wash with mild detergent
- b. Rinse with hot tap water
- c. Rinse with distilled water
- d. Rinse with 10% nitric acid
- e. Rinse with acetone
- f. Allow to air dry

Analytical test methods and procedures shall be according to test procedures approved under 401 KAR 5:065, Section 2(8) unless another method is required under 401 KAR 5:065, Section 2(9) or (10).

9.3. References

Barbour, M.T., J. Gerritsen, B.D. Snyder, and J. B. Stribling. 1999. Rapid Bioassessment protocols for use in streams and wadeable rivers: periphyton, benthic macroinvertebrates, and fish, second edition. EPA 841-B-99-002. U.S. Environmental Protection Agency; Office of Water, Washington, D.C.

Kentucky Division of Water (KDOW). 2013. 401 KAR 10:031. Kentucky Department for Environmental Protection. Division of Water. Frankfort, Kentucky.

Kentucky Division of Water (KDOW). 2008. Standard Methods for Assessing Biological Integrity of Surface Waters in Kentucky. Kentucky Department for Environmental Protection, Division of Water, Frankfort, Kentucky.

9.4. Appendix A1

Selenium Fish Tissue Chain-of-Custody Sheet

DRAFT

SELENIUM FISH TISSUE**CHAIN-OF-CUSTODY**

Station #: _____

Date: _____

Stream / Location: _____ Time: _____

KPDES Permit#: _____

County: _____

Lat/Long Upstream Reach: _____

Lat/Long Downstream Reach: _____

Outfall #: _____

Duplicate/Replicate (circle one): yes no

Flow status (circle one): runoff event high flow low flow normal other

Fish #	Genus	Species	Length (mm)	Comments
001				
002				
003				
004				
005				
006				
007				

Length (mm) of 75%tile of Longest Fish: _____

Total # Fish Collected in Sample: _____

Collected by: _____	Date: _____	Time: _____
Relinquished by: _____	Date: _____	Time: _____
Received by: _____	Date: _____	Time: _____

9.5. Appendix A2

Example of a Filled Out Chain-of-Custody Sheet

DRAFT

SELENIUM FISH TISSUE**CHAIN-OF-CUSTODY****Station #: UTHF-001-Dup****Date: 5/23/13****Stream / Location: UT Horse Fork – Downstream Outfall****Time: 1234 CST****DNR Permit#: 745-2525****KPDES Permit#: KY0100000****County: Hancock****Lat/Long Upstream Reach: 37.770/-86.803****Lat/Long Downstream Reach: 37.771/-86.803****Outfall #: 003****Duplicate/Replicate (circle one): yes no****Flow status (circle one): runoff event high flow low flow normal other**

Fish #	Genus	Species	Length (mm)	Comments
001	Semotilus	atromaculatus	120 mm	
002	Semotilus	atromaculatus	112 mm	
003	Semotilus	atromaculaus	104 mm	
004	Semotilus	atromaculatus	123 mm	Longest
005	Semotilus	atromaculatus	98 mm	
006				
007				

Length (mm) 75%tile of Longest Fish: 92 mm**Total # Fish Collected in Sample: 5**

Collected by: John Johnson ABC Consulting	Date: 5/23/13	Time: 1234 CST
Relinquished by: John Johnson ABC Consulting	Date: 5/23/13	Time: 1536 CST
Received by: William Williamson DEF Laboratory	Date: 5/23/13	Time: 1536 CST