



ERNIE FLETCHER
GOVERNOR

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET

DEPARTMENT FOR ENVIRONMENTAL PROTECTION

DIVISION OF WATER

14 REILLY ROAD

FRANKFORT, KENTUCKY 40601-1190

www.kentucky.gov

TERESA J. HILL
SECRETARY

May 14, 2007

Mr. H. J. Schardein
Louisville & Jefferson County Metropolitan
Sewer District
700 West Liberty Street
Louisville, Kentucky 40203-1911

Re: Hite Creek Wastewater Treatment Plant
KPDES No.: KY0022420
Jefferson County, Kentucky

Dear Mr. Schardein:

Enclosed is the Kentucky Pollutant Discharge Elimination System (KPDES) permit for the above-referenced facility. This action constitutes a final permit issuance under 401 KAR 5:075, pursuant to KRS 224.16-050.

This permit will become effective on the date indicated in the attached permit provided that no request for adjudication is granted. All provisions of the permit will be effective and enforceable in accordance with 401 KAR 5:075, unless stayed by the Hearing Officer under Sections 11 and 13.

Any demand for a hearing on the permit shall be filed in accordance with the procedures specified in KRS 224.10-420, 224.10-440, 224.10-470 and any regulations promulgated thereto. Any person aggrieved by the issuance of a permit final decision may demand a hearing, pursuant to KRS 224.10-420(2), within thirty (30) days from the date of the issuance of this letter. Two (2) copies of request for hearing should be submitted in writing to the Environmental and Public Protection Cabinet, Office of Administrative Hearings, 35-36 Fountain Place, Frankfort, Kentucky 40601 and the Commonwealth of Kentucky, Environmental and Public Protection Cabinet, Division of Water, 14 Reilly Road, Frankfort, Kentucky 40601. For your record keeping purposes, it is recommended that these requests be sent by certified mail. The written request must conform to the appropriate statutes referenced above.

If you have any questions regarding the KPDES decision, please contact Vickie L. Prather, Inventory and Data Management Section, KPDES Branch, at (502) 564-2225, extension 470.

Further information on procedures and legal matters pertaining to the hearing request may be obtained by contacting the Office of Administrative Hearings at (502) 564-7312.

Sincerely,

David W. Morgan, Director
Division of Water

DWM:NG:ng
Enclosure

c: U.S. EPA Region IV
Division of Water Files

KPDES



KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT

PERMIT NO.: KY0022420
AI NO.: 2068

AUTHORIZATION TO DISCHARGE UNDER THE KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

Pursuant to Authority in KRS 224,

Louisville & Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville, Kentucky 40203-1911

is authorized to discharge from a facility located at

Hite Creek Wastewater Treatment Plant
5512 Hitt Lane
Louisville, Jefferson County, Kentucky

to receiving waters named

Hite Creek at mile point 1.9

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, III, and IV hereof. The permit consists of this cover sheet, and Part I 7 pages, Part II 4 pages, Part III 1 page, and Part IV 3 pages.

This permit became effective on July 1, 2007.

This permit and the authorization to discharge shall expire at midnight, June 30, 2012.

A handwritten signature in black ink, appearing to read "David W. Morgan", located above the printed name of the Director.

May 14, 2007
Date Signed

David W. Morgan, Director
Division of Water

Cheryl A. Taylor
Commissioner

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the completion of construction, the permittee is authorized to discharge from Outfall serial number: 001, Municipal Discharge.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS (PRE-CONSTRUCTION)				MONITORING REQUIREMENTS		
	lbs/day Monthly Avg.	Weekly Avg.	Other Units (Specify) Monthly Avg.	Weekly Avg.	Measurement Frequency	Sample Type	Sampling Location
Flow, Design (4.4 MGD)	N/A	N/A	Report	Report*	Continuous	N/A	Influent or Effluent
Biochemical Oxygen Demand (5-day), Carbonaceous	367	550	10 mg/l	15 mg/l	3/Week	Composite	Influent & Effluent
Total Suspended Solids	1100	1650	30 mg/l	45 mg/l	3/Week	Composite	Influent & Effluent
Fecal Coliform Bacteria, N/100	N/A	N/A	200	400	3/Week	Grab	Effluent
Ammonia (as N) Summer	147	220	4 mg/l	6 mg/l	3/Week	Composite	Influent & Effluent
Winter	367	550	10 mg/l	15 mg/l			
Dissolved Oxygen shall not be less than 7 mg/l					3/Week	Grab	Effluent
Cadmium, Total Recoverable	N/A	N/A	Report	Report*	1/Month	Composite	Effluent
Hardness as Calcium Carbonate (CaCO ₃)	N/A	N/A	Report	Report*	1/Month	Composite	Effluent
Chromium, Hexavalent	N/A	N/A	Report	Report*	1/Month	Composite	Effluent
Cyanide, Free (Amenable)	N/A	N/A	Report	Report*	1/Month	Grab	Effluent
Mercury, Total Recoverable	N/A	N/A	Report	Report*	1/Qtr	Grab	Effluent
Biomonitoring shall not exceed 1.00 Chronic toxicity unit(s)				See PART IV, Pages IV-1 through IV-3			Effluent

In addition to the specified limits, the monthly average effluent CBOD₅ and suspended solids concentration shall not exceed 15% of the respective monthly average influent concentration (85% removal).

The pH of the effluent shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored three (3) times per week by grab sample.

There shall be no discharge of floating solids or visible foam in other than trace amounts.
The effluent shall not cause a visible sheen on the receiving water.

Summer is May 1 through October 31.
Winter is November 1 through April 30.

* Daily maximum limitation

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (CONTINUATION)

During the period beginning with the permit effective date and lasting through the completion of plant expansion, the permittee is authorized to discharge from Outfall serial number: 001, Municipal Discharge.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTICS</u>	<u>DISCHARGE LIMITATIONS (PRE-CONSTRUCTION)</u>				<u>MONITORING REQUIREMENTS</u>		
	lbs/day		mg/l		Measurement	Sample	Sampling
	Monthly	Daily	Monthly	Daily	Frequency	Type	Location
	<u>Avg.</u>	<u>Max.</u>	<u>Avg.</u>	<u>Max.</u>			
Lead, Total Recoverable	N/A	N/A	Report	Report	1/Quarter*	Composite	Effluent
Copper, Total Recoverable	N/A	N/A	Report	Report	1/Quarter*	Composite	Effluent
Zinc, Total Recoverable	N/A	N/A	Report	Report	1/Quarter*	Composite	Effluent
Hardness as Calcium Carbonate (CaCO ₃)**							
Cadmium, Total Recoverable**							

* Monitoring shall be done in conjunction with biomonitoring. The quarterly monitoring for these pollutants shall be concurrent with the monthly monitoring for the reasonable potential pollutants.

** See Page I-3 for Total Recoverable Cadmium and Hardness as Calcium Carbonate (CaCO₃).

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning with completion of construction and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: 001, Municipal Discharge.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS (POST-CONSTRUCTION)				MONITORING REQUIREMENTS		
	lbs/day		Other Units (Specify)		Measurement Frequency	Sample Type	Sampling Location
	Monthly Avg.	Weekly Avg.	Monthly Avg.	Weekly Avg.			
Flow, Design (6.0 MGD)	N/A	N/A	Report	Report*	Continuous	N/A	Influent or Effluent
Biochemical Oxygen Demand (5-day), Carbonaceous	500	751	10 mg/l	15 mg/l	3/Week	Composite	Influent & Effluent
Total Suspended Solids	1501	2252	30 mg/l	45 mg/l	3/Week	Composite	Influent & Effluent
Fecal Coliform Bacteria, N/100	N/A	N/A	200	400	3/Week	Grab	Effluent
Ammonia (as N) Summer	100	150	2 mg/l	3.0 mg/l	3/Week	Composite	Influent & Effluent
Winter	250	375	5 mg/l	7.5 mg/l			
Dissolved Oxygen shall not be less than 7 mg/l					3/Week	Grab	Effluent
Total Phosphorus (as P), mg/l	N/A	N/A	1.0 Summer	1.5 Summer	1/Week	Composite	Effluent
	N/A	N/A	2.0 Winter	3.0 Winter	1/Week	Composite	Effluent
Cadmium, Total Recoverable	N/A	N/A	Report	Report*	1/Month	Composite	Effluent
Hardness as Calcium Carbonate (CaCO ₃)	N/A	N/A	Report	Report*	1/Month	Composite	Effluent
Chromium, Hexavalent	N/A	N/A	Report	Report*	1/Month	Composite	Effluent
Cyanide, Free (Amenable)	N/A	N/A	Report	Report*	1/Month	Grab	Effluent
Mercury, Total Recoverable	N/A	N/A	Report	Report*	1/Qtr	Grab	Effluent
Biomonitoring shall not exceed 1.00 Chronic toxicity unit(s)				See PART IV, Pages IV-1 through IV-3			Effluent

In addition to the specified limits, the monthly average effluent CBOD₅ and suspended solids concentration shall not exceed 15% of the respective monthly average influent concentration (85% removal).

The pH of the effluent shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored three (3) times per week by grab sample.

Effluent limitations for Total Phosphorus shall become effective after two (2) full summers after the effective date of the permit.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

The effluent shall not cause a visible sheen on the receiving water.

Summer is May 1 through October 31.

Winter is November 1 through April 30.

* Daily maximum limitation

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (CONTINUATION)

During the period beginning with the completion of expansion and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: 001, Municipal Discharge.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTICS</u>	<u>DISCHARGE LIMITATIONS (POST-CONSTRUCTION)</u>				<u>MONITORING REQUIREMENTS</u>		
	lbs/day		mg/l		<u>Measurement Frequency</u>	<u>Sample Type</u>	<u>Sampling Location</u>
	<u>Monthly Avg.</u>	<u>Daily Max.</u>	<u>Monthly Avg.</u>	<u>Daily Max.</u>			
Lead, Total Recoverable	N/A	N/A	Report	Report	1/Quarter*	Composite	Effluent
Zinc, Total Recoverable	N/A	N/A	Report	Report	1/Quarter*	Composite	Effluent
Copper, Total Recoverable	N/A	N/A	Report	Report	1/Quarter*	Composite	Effluent
Hardness as Calcium Carbonate (CaCO ₃) **							
Cadmium, Total Recoverable**							

* Monitoring shall be done in conjunction with biomonitoring. The quarterly monitoring for these pollutants shall be concurrent with the monthly monitoring for the reasonable potential pollutants.

** See Page I-3 for Total Recoverable Cadmium and Hardness as Calcium Carbonate (CaCO₃).

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (CONTINUATION)

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to administer a pretreatment program.

The permittee shall monitor the influent, effluent, and sludge as specified below:

<u>EFFLUENT CHARACTERISTICS</u>	<u>DISCHARGE LIMITATIONS</u>		<u>MONITORING REQUIREMENTS</u>		
	Monthly Avg.	Daily Max.	Measurement Frequency	Sample Type	Sampling Location
Arsenic, Total Recoverable	Report	Report	1/Year	Composite	Influent & Effluent
Cadmium, Total Recoverable	Report	Report	1/Year	Composite	Influent & Effluent
Chloride	Report	Report	1/Year	Composite	Influent & Effluent
Chromium, Hexavalent	Report	Report	1/Year	Composite	Influent & Effluent
Chromium, Total Recoverable	Report	Report	1/Year	Composite	Influent & Effluent
Copper, Total Recoverable	Report	Report	1/Year	Composite	Influent & Effluent
Cyanide, Free (Amenable)	Report	Report	1/Year	Grab	Influent & Effluent
Iron, Total Recoverable	Report	Report	1/Year	Composite	Influent & Effluent
Lead, Total Recoverable	Report	Report	1/Year	Composite	Influent & Effluent
Mercury, Total Recoverable*	Report	Report	1/Year	Grab	Influent & Effluent
Nickel, Total Recoverable	Report	Report	1/Year	Composite	Influent & Effluent
Oil & Grease	Report	Report	1/Year	Grab	Influent & Effluent
Phenols, Total	Report	Report	1/Year	Grab	Influent & Effluent
Phosphorus (as P)	Report	Report	1/Year	Composite	Influent & Effluent
Selenium, Total Recoverable	Report	Report	1/Year	Composite	Influent & Effluent
Silver, Total Recoverable	Report	Report	1/Year	Composite	Influent & Effluent
Zinc, Total Recoverable	Report	Report	1/Year	Composite	Influent & Effluent

*Mercury sampling and testing shall be done by EPA method number 1631.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (CONTINUATION)

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to administer a pretreatment program.

The permittee shall monitor the influent, effluent, and sludge as specified below:

<u>EFFLUENT CHARACTERISTICS</u>	<u>DISCHARGE LIMITATIONS</u>		<u>MONITORING REQUIREMENTS</u>		
	mg/kg or other <u>Monthly</u> <u>Avg.</u>	<u>Daily</u> <u>Max.</u>	<u>Measurement</u> <u>Frequency</u>	<u>Sample</u> <u>Type</u>	<u>Sampling</u> <u>Location</u>
Arsenic, Total Dry Weight	Report	Report	1/Year	Grab	Sludge
Cadmium, Total Dry Weight	Report	Report	1/Year	Grab	Sludge
Chromium, Total Dry Weight	Report	Report	1/Year	Grab	Sludge
Copper, Total Dry Weight	Report	Report	1/Year	Grab	Sludge
Lead, Total Dry Weight	Report	Report	1/Year	Grab	Sludge
Mercury, Total Dry Weight	Report	Report	1/Year	Grab	Sludge
Molybdenum, Total Dry Weight	Report	Report	1/Year	Grab	Sludge
Nickel, Total Dry Weight	Report	Report	1/Year	Grab	Sludge
Phosphorus, Total Dry Weight	Report	Report	1/Year	Grab	Sludge
Selenium, Total Dry Weight	Report	Report	1/Year	Grab	Sludge
Silver, Total Dry Weight	Report	Report	1/Year	Grab	Sludge
Zinc, Total Dry Weight	Report	Report	1/Year	Grab	Sludge
pH, standard units	Report*	Report**	1/Year	Grab	Sludge
Solids, Total Dry Weight, mg/kg	Report	Report	1/Year	Grab	Sludge
Solids, Total, percent	Report***	Report	1/Year	Grab	Sludge
Sludge Disposed of by Incineration, MT/Y	Report****	Report	1/Year	Grab	Sludge
Sludge Disposed of by Landfill, MT/Y	Report****	Report	1/Year	Grab	Sludge
Sludge Disposed of by Other Method, MT/Y	Report****	Report	1/Year	Grab	Sludge

* Instantaneous Minimum

** Instantaneous Maximum

*** Annual Average

**** Annual Total

MT/Y Metric Tons Per Year

B. SCHEDULE OF COMPLIANCE

Permittee will comply with total phosphorus effluent limitations after two (2) full summers following the completion of expansion. Until that date, the permittee shall report phosphorus results.

The permittee shall achieve compliance with all other requirements on the effective date of this permit.

STANDARD CONDITIONS FOR KPDES PERMIT

The permittee is also advised that all KPDES permit conditions in KPDES Regulation 401 KAR 5:065, Section 1 will apply to all discharges authorized by this permit.

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.

It is the responsibility of the permittee to demonstrate compliance with permit parameter limitations by utilization of sufficiently sensitive analytical methods.

SPECIAL POTW REQUIREMENTS

NOTE: The following requirements apply only to Publicly-Owned Treatment Works.

SLUDGE DISPOSAL

Sludge shall be disposed of in accordance with 40 CFR Part 503 and 401 KAR 45.

PROHIBITIVE DISCHARGES

Under no circumstances shall the permittee allow discharge of the following into the system:

- a. Pollutants which create a fire or explosion hazard in the publicly owned treatment works (POTW);
- b. Pollutants which will cause corrosive structural damage to the POTW, but in no case, discharges with a pH lower than 5.0;
- c. Solid or viscous pollutants in amounts which will cause obstruction to the flow in sewers, or other interference with operation of the POTW;
- d. Any pollutant, including oxygen demanding pollutants (BOD₅, etc.), released in a discharge at such a volume or strength as to cause interference in the POTW;
- e. Heat in amounts which will inhibit biological activity in the POTW, but in no case, heat in such quantities that the influent to the sewage treatment works exceeds 104° F (40° C);
- f. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
- g. Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems; and,
- h. Any trucked or hauled waste, except at discharge points designated by the POTW.

PRETREATMENT

A. Program Requirements

1. The permittee shall be responsible for the performance of all pretreatment requirements contained in 401 KAR 5:057, Section 6 and pursuant to 40 CFR Part 403, and shall be subject to enforcement actions, penalties, fines, and other remedies by the state, as provided in the Clean Water Act (hereafter the "Act"). The permittee shall implement and enforce its approved POTW pretreatment program. The permittee's approved POTW pretreatment program is hereby made an enforceable condition of this permit. The state may initiate enforcement action against a POTW and against an industrial user for noncompliance with applicable standards and requirements as provided in KRS 224.16-050(1), 224.70-110, and 224.73-120, and pursuant to the Act.
2. The permittee shall enforce the requirements promulgated under Sections 307(b), 307(c), 307(d), and 402(b) of the Act. The permittee shall cause industrial users subject to federal categorical standards to achieve compliance no later than the date specified in those requirements or, in the case of a new industrial user, upon commencement of the discharge.
3. The permittee shall perform the pretreatment functions as required in 401 KAR 5:057, Section 6 and 40 CFR Part 403 including, but not limited to:
 - a. Implement the necessary legal authorities as provided in 401 KAR 5:057, Section 6(4)(a). This includes, among other things, the authority to:
 - (1) Deny or condition new or increased contributions of pollutants or changes in the nature of pollutants (401 KAR 5:057, Section 6(4)(a)(1));
 - (2) Require compliance with applicable pretreatment standards (401 KAR 5:057, Section 6(4)(a)(2));
 - (3) Control through permit to ensure compliance (401 KAR 5:057, Section 6(4)(a)(3));
 - (4) Require the development of compliance schedules and submission of reports (401 KAR 5:057, Section 6(4)(a)(4));
 - (5) Carry out inspection, surveillance, and monitoring procedures (401 KAR 5:057, Section 6(4)(a)(5));
 - (6) Obtain remedies for noncompliance by industrial users (401 KAR 5:057, Section 6(4)(a)(6)).
 - b. Implement the programmatic functions as provided in 401 KAR 5:057, Section 6(4)(b). This includes:
 - (1) An industrial waste survey (401 KAR 5:057, Section 6(4)(b)(1 and 2));
 - (2) Notification of appropriate federal, state and/or local standards or limitations (401 KAR 5:057, Section 6(4)(b)(3));
 - (3) Receipt and analysis of self-monitoring reports and other notices, (401 KAR 5:057, Section 6(4)(b)(4));
 - (4) POTW compliance sampling and analysis (401 KAR 5:057, Section 6(4)(b)(5));
 - (5) Noncompliance investigations and enforcement (401 KAR 5:057, Section 6(4)(b)(6));
 - (6) Public participation (401 KAR 5:057, Section 6(4)(b)(7)).

- c. Provide the required funding, equipment, and personnel to implement the pretreatment program as provided in 40 CFR 403.8(f)(3) and 403.9(b)(4).
4. The permittee shall adopt and enforce local limits that will protect the treatment works against interference, pass-through, and sludge contamination. Local limits shall be revised as necessary by the permittee as provided in 40 CFR 122.21 and CFR 403.5.

B. Semi-Annual Reporting

1. The permittee shall submit semi-annually a pretreatment report to the state. The report due on March 1st shall describe the permittee's pretreatment program activities over the previous year and shall cover the period January through December. The report due on September 1st shall describe the permittee's pretreatment program activities over the previous six (6) months and shall cover the period January through June. In the event that the permittee is not in compliance with any conditions or requirements of this permit, then the permittee shall also include the reasons for noncompliance and state how and when the permittee shall comply with such conditions and requirements. Each report shall contain, but not be limited to, the following information:
 - a. Analytical results of the POTW's influent, effluent, and sludge (including sludge from lagoons) annually, by the 28th of January, for those pollutants identified under Section 307(a) of the Act which are known or suspected to be discharged by industrial users, and for any nonpriority pollutants which the permittee believes may be causing or contributing to interference, pass-through, or adversely impacting sludge quality. The report shall include all pollutants identified on KPDES Discharge Monitoring Report (DMR) for pretreatment influent, effluent, and sludge scan. The frequency of analysis shall not exceed twelve months.
 - b. A discussion of upset, interference, or pass-through incidents, if any, at the POTW treatment plant which the permittee knows or suspects were caused by industrial users of the POTW system. The discussion shall include the reasons why the incidents occurred, the corrective actions taken and, if known, the name and address of the industrial user(s) responsible.
 - c. The cumulative number of industrial users that the permittee has notified regarding baseline monitoring reports and the cumulative number of industrial user responses.
 - d. An updated list of the permittee's industrial users including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The permittee shall provide a brief explanation for each deletion. The list shall identify the industrial users subject to federal categorical standards and which set(s) of standards are applicable. The permittee shall characterize the compliance status of each industrial user by employing the following descriptions:
 - (1) In compliance with baseline monitoring report requirements (where applicable);
 - (2) Consistently achieving compliance;
 - (3) Inconsistently achieving compliance;
 - (4) Significantly violated applicable pretreatment requirements as defined by 40 CFR 403.8(f)(2)(vii);

- (5) On a compliance schedule to achieve compliance (include the date final compliance is required);
 - (6) Not achieving compliance and not on a compliance schedule;
 - (7) The permittee does not know the industrial user's compliance status (with explanation).
- e. A summary of the inspection and sampling activities conducted by the permittee during the past six (6) months to gather information and data regarding industrial users. The summary shall include:
- (1) The names of industrial users subject to surveillance by the permittee and an indication of whether they were inspected, sampled, or both and the frequency of these activities at each user; and
 - (2) The conclusions or results from the inspection or sampling of each industrial user.
- f. A summary of the compliance and enforcement activities during the past six (6) months, the summary shall include the names of the industrial users affected by the following actions:
- (1) Warning letter or notices of violation;
 - (2) Administrative orders;
 - (3) Civil actions;
 - (4) Criminal actions;
 - (5) Assessment of monetary penalties. For each industrial user identify the amount of the penalties;
 - (6) Restriction of flow to the POTW; or
 - (7) Disconnection from discharge to the POTW.
- g. A description of any significant changes in operating the pretreatment program which differ from the information in the permittee's approved pretreatment program including, but not limited to changes concerning: the program's administrative structure; local industrial discharge limitations; monitoring program or monitoring frequencies; legal authority or enforcement policy; funding mechanisms; resource requirements; or staffing levels.
- h. A summary of the semi-annual pretreatment budget, including the cost of pretreatment program functions and equipment purchases.
- i. A summary of public participation activities to involve and inform the public. This shall include a copy of the annual publication of significant violations, if such publication was needed to comply with 40 CFR 403.8(f)(2)(vii).
- j. A description of any changes in sludge disposal methods and a discussion of any concerns not described elsewhere in the report.
- k. Any other information deemed as pertinent by the state in effectively administering an approved pretreatment program.
2. A signed copy of this report shall be submitted by the due dates to the state at the address shown below:

Kentucky Department for Environmental Protection
Division of Water, KPDES Branch
14 Reilly Road, Frankfort Office Park
Frankfort, Kentucky 40601

OTHER REQUIREMENTS

A. Reporting of Monitoring Results

Monitoring results obtained during each monitoring period must be reported on a preprinted Discharge Monitoring Report (DMR) Form that will be mailed to you. The completed DMR for each monitoring period must be sent to the Division of Water at the address listed below (with a copy to the appropriate Regional Office) postmarked no later than the 28th day of the month following the monitoring period for which monitoring results were obtained.

Division of Water
Louisville Regional Office
9116 Leesgate Road
Louisville, Kentucky 40222
ATTN: Supervisor

Environmental & Public Protection Cabinet
Dept. for Environmental Protection
Division of Water/KPDES Branch
14 Reilly Road, Frankfort Office Park
Frankfort, Kentucky 40601

B. Reopener Clause

This permit shall be modified, or alternatively revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under 401 KAR 5:050 through 5:080 and KRS 224, 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.

CHRONIC CONCERNS Biomonitoring

In accordance with PART I of this permit, the permittee shall initiate, within 30 days of the effective date of this permit, or continue the series of tests described below to evaluate wastewater toxicity of the discharge from Outfall 001.

1. Test Requirements

- A. The permittee shall perform one (1) short-term fathead minnow (Pimephales promelas) growth test and one (1) short-term daphnid (Ceriodaphnia sp.) life-cycle test. Tests shall be conducted with appropriate replicates of 100% effluent, a control and a minimum of four (4) evenly spaced effluent concentrations. If the permit limit is less than 100% effluent and greater than or equal to 75% effluent, then one (1) concentration should be 100%. If the permit limit is less than 75% effluent, the permit limit concentration shall be bracketed with two (2) concentrations above and two (2) concentrations below. The selection of the effluent concentrations is subject to revision by the Division. Controls shall be tested concurrently with effluent testing using a synthetic water. The analysis will be deemed reasonable and good only if the minimum control requirements are met (i.e. >30% survival; 60% adults with 3 broods and 15 or more young/surviving female for the Ceriodaphnia test; an average 0.25 mg weight for the minnow growth test). Any test that does not meet the control acceptability criteria shall be repeated as soon as practicable within the monitoring period (i.e. monthly or quarterly). Noncompliance with the toxicity limit will be demonstrated if the IC₂₅ (inhibition concentration) for reproduction or growth is less than 100% effluent.
- B. Tests shall be conducted on both species at the frequency specified in PART I of this permit.

A minimum of three (3) twenty-four hour composite samples will be collected at a frequency of one (1) sample every other day, or at a frequency to be determined by the permitting authority. For example, the first sample would be used for test initiation, day 1, and for test solution renewal on day 2. The second sample would be used for test solution renewal on days 3 and 4. The third sample would be used for test solution renewal on days 5, 6, and 7. The lapsed time from collection of the last aliquot of the composite and its first use for test initiation, or for test solution renewal shall not exceed 36 hours. Composite samples shall be refrigerated during collection and maintained at 6°C until used.

If after at least six (6) tests, it can be determined that Ceriodaphnia or the Fathead minnow is more sensitive, a request for testing of only that organism can be made to the Division. Upon approval, that organism can be chosen as representative and all subsequent tests can be conducted on only that organism.

2. Reporting Requirements

Results of all tests conducted with any organism shall be reported according to the most recent format provided by the Division of Water (Appendix 10 of 'Methods for Culturing and Conducting Toxicity Tests with *Pimephales promelas* and *Ceriodaphnia dubia* (Fifth Edition)' KDOW, January 2002). Test results shall be submitted to the Division of Water with the next regularly scheduled discharge monitoring report.

3. Chronic Toxicity

If noncompliance with the toxicity limit occurs (IC_{25} for reproduction or growth is less than 100% effluent), the permittee must conduct a second test within 15 days of the first failure. This test will be used in evaluating the persistence of the toxic event and the possible need for a toxicity reduction evaluation (TRE).

If the second test demonstrates noncompliance with the toxicity limit, the permittee will be required to perform accelerated testing as specified in the following paragraphs.

Complete four (4) additional tests within 90 days of failure of the second test to evaluate the frequency and degree of toxicity. The results of the two (2) tests specified above and of the four (4) additional tests will be used for purposes of this evaluation.

If results from two (2) of any six (6) tests show a significant noncompliance with the chronic limit (≥ 1.2 times the TU_c), or results from four (4) of any six (6) tests show chronic toxicity (as defined in 1.A), a Toxicity Reduction Evaluation (TRE) will be required.

The permittee shall provide written notification, within five (5) days of the completion of accelerated testing to the Division of Water, that toxicity persisted and that a TRE would be initiated or that toxicity did not persist and the normal testing would resume.

Should toxicity not prove persistent during the accelerated testing, but reoccur within 12 months of the initial failure at a level ≥ 1.2 time the TU_c , then a TRE shall be initiated without further accelerated testing.

4. Toxicity Reduction Evaluation (TRE)

Having determined the effluent to be toxic, the permittee shall develop and implement an acceptable plan for the identification and treatability of the toxicant(s) within 90 days of completion of accelerated testing. The plan shall be developed in accordance with EPA guidance provided in the following EPA publications and submitted for DEP review and comment:

Clarifications Regarding Toxicity Reduction and Identification Evaluations in the National Pollutant Discharge Elimination System Program. March 27, 2001.

Toxicity Reduction Evaluation Guidance For Municipal Wastewater Treatment Plants. August 1999.

Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures. February 1991.

Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures. February 1989.

Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures. February 1989.

Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs). March 1989.

Abstracts of Toxicity Reduction Evaluations. March 1989.

The 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 will establish an implementation schedule not to exceed 24 months for completion of these activities. The implementation schedule shall include monthly progress reports and a final report.

Upon the completion of the TRE, the permittee shall submit a final report detailing the findings of the TRE and the actions 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 180 days.

Should the permittee determine the toxicant(s) and/or a workable treatment prior to the conclusion of the TRE, the permittee will notify, within five (5) days, the Division of Water and take appropriate actions to implement the solution within 180 days of determination.

5. Test Methods

All test organisms, procedures and quality assurance criteria used shall be in accordance with Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms (Fourth Edition), EPA-821-R-02-013, or the most recent edition of this publications.



ERNIE FLETCHER
GOVERNOR

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
14 REILLY ROAD
FRANKFORT, KENTUCKY 40601-1190
www.kentucky.gov

TERESA J. HILL
SECRETARY

FACT SHEET

**KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM
PERMIT TO DISCHARGE TREATED WASTEWATER
INTO WATERS OF THE COMMONWEALTH**

KPDES No.: KY0022420 Permit Writer: Daniel Hardin Date: May 14, 2007
AI No.: 2068

1. **SYNOPSIS OF APPLICATION**

a. Name and Address of Applicant

Louisville & Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville, Kentucky 40203-1911

b. Facility Location

Hite Creek Wastewater Treatment Plant
5512 Hitt Lane
Louisville, Jefferson County, Kentucky

c. Description of Applicant's Operation

Engaged in collection, treatment, and disposal of wastewater.

d. Production Capacity

6.0 MGD (Proposed expansion)
4.4 MGD (Existing plant)

e. Description of Existing Pollution Abatement Facilities

Treatment process consists of screening, grit removal, activated sludge (aeration tanks), secondary settling using clarifiers, tertiary sand filters, and ultraviolet disinfection. Solids are processed by: thickening, sludge holding tanks, and hauled to Morris Forman WWTP.

mw

f. Permitting Action

This is a modification and reissuance of a major KPDES permit for a municipality with an existing discharge. This modification is the result of a plant expansion.

This modification permitting action reopens, as per 401 KAR 5:075, Section 2(3)(a), only the permit condition(s) to be modified. All other aspects of the existing permit remain in effect for the duration of the permit.

2. RECEIVING WATER

a. Name/Mile Point

Hite Creek at mile point 1.9

b. Stream Segment Use Classifications

Warmwater Aquatic Habitat, Primary/Secondary Contact Recreation, and Domestic Water Supply

Hite Creek is included in the 303(d) list. Stream segment does not support aquatic life. Cause of impairment is unknown. Facility is in compliance with toxicity limits. A plant expansion and addition of a phosphorus limit should help improve stream conditions. A water quality assessment is currently in progress for Harrods Creek watershed and will be completed in 2006.

c. Stream Low Flow Condition

At the point of discharge into Hite Creek, the 7Q10 is 0.0 cfs and the Harmonic Mean Flow is 0.2 cfs. At the nearest downstream water intake (Louisville Water Company), the 7Q10 for the Ohio River is 11,000 cfs and the Harmonic Mean Flow is 49,000 cfs.

3. REPORTED DISCHARGE AND PROPOSED LIMITS FOR PRE-CONSTRUCTION - Municipal

Serial Number 001 (existing)

Effluent Characteristics	Reported Discharge*			Proposed Limits		COMMENTS
	<u>Average</u> <u>Annual</u> <u>Value</u>	<u>Lowest</u> <u>Monthly</u> <u>Value</u>	<u>Highest</u> <u>Monthly</u> <u>Value</u>	<u>Monthly</u> <u>Average</u>	<u>Weekly</u> <u>Average</u>	
Flow, MGD	3.73	2.43	9.36	Design Flow = 4.4 MGD		401 KAR 5:005 401 KAR 5:065
CBOD ₅ , mg/l	4.6	1	19	10	15	401 KAR 5:031 401 KAR 5:045
TSS, mg/l	5.0	1	19	30	45	401 KAR 5:045
Fecal Coliform, N/100 ml	NR	NR	1137	200	400	401 KAR 5:031 401 KAR 5:045
Ammonia (as N), mg/l	Summer 0.52	0.06	3.17	4	6	401 KAR 5:031
	Winter 0.85	0.31	4.35	10	15	401 KAR 5:045
Dissolved Oxygen, mg/l	NR	7.0	NR	Not less than 7		401 KAR 5:031 401 KAR 5:045
pH, standard units	NR	6.8	8.6	6.0 - 9.0		401 KAR 5:031 401 KAR 5:045
Biomonitoring, Toxicity units (TU _c)	<1.00	<1.00	<1.00	1.00 Daily Maximum See PART IV		401 KAR 5:031

* Reported Discharge values were compiled from fifty-seven (57) months of DMR data, from January 31, 2000 through September 30, 2004.

NR - Not Reported

Summer: May 1 through October 31
Winter: November 1 through April 30

3. REPORTED DISCHARGE AND PROPOSED LIMITS FOR PRE-CONSTRUCTION - CONTINUED

Serial Number 001 (existing)

Effluent Characteristics	Reported Discharge*		Proposed Limits		Comments
	<u>Average</u> <u>Annual</u> <u>Value</u> (mg/l)	<u>Highest</u> <u>Annual</u> <u>Value</u> (mg/l)	<u>Average</u>	<u>Maximum</u>	
Cadmium, Total Recoverable	0.00056	0.009	Monitor**	Monitor**	401 KAR 5:031
Copper, Total Recoverable	0.00289	0.018	Monitor	Monitor	401 KAR 5:031
Lead, Total Recoverable	0.001944	0.018	Monitor	Monitor	401 KAR 5:031 401 KAR 5:057
Zinc, Total Recoverable	0.049	0.077	Monitor	Monitor	401 KAR 5:031
Hardness as Calcium Carbonate (CaCO ₃)	165	231	Monitor	Monitor	401 KAR 5:031
Hexavalent Chromium	0.0117	0.03	Monitor**	Monitor**	401 KAR 5:031 401 KAR 5:057
Free Cyanide, Amenable to Chlorination	0.00727	0.03	Monitor**	Monitor**	401 KAR 5:031 401 KAR 5:057
Mercury, Total Recoverable	0.0002047	0.002	Monitor**	Monitor**	401 KAR 5:031 401 KAR 5:057
Silver, Total Recoverable	0.00857	0.036	Monitor	Monitor	401 KAR 5:031 401 KAR 5:057

NR - Not Reported
N/A - Not Applicable

* Reported Discharge values were compiled from fifty-seven (57) months of DMR data, from January 31, 2000 through September 30, 2004. For those parameters identified as reasonable potential pollutants, the values were compiled from December 31, 1998 to September 30, 2004.

** This parameter includes increased monitoring based on the reasonable potential analysis pursuant to 401 KAR 5:065, Section 2 (4). Pretreatment program will still require base monitoring.

3. REPORTED DISCHARGE AND PROPOSED LIMITS FOR POST-CONSTRUCTION - Municipal

Serial Number 001 (proposed expansion)

Effluent Characteristics		Reported Discharge*			Proposed Limits		Comments
		Average Annual Value	Lowest Monthly Value	Highest Monthly Value	Monthly Average	Weekly Average	
Value							
Flow, MGD		3.73	2.43	9.36	Design Flow = 6.0 MGD		401 KAR 5:005 401 KAR 5:065
CBOD ₅ , mg/l		4.6	1	19	10	15	401 KAR 5:031 401 KAR 5:045
TSS, mg/l		5.0	1	19	30	45	401 KAR 5:045
Fecal Coliform, N/100 ml		NR	NR	1137	200	400	401 KAR 5:031 401 KAR 5:045
Ammonia (as N), mg/l	Summer	0.52	0.06	3.17	2	3	401 KAR 5:031
	Winter	0.85	0.31	4.35	5	7.5	401 KAR 5:045
Dissolved Oxygen, mg/l		NR	7.0	NR	Not less than 7		401 KAR 5:031 401 KAR 5:045
pH, standard units		NR	6.8	8.6	6.0 - 9.0		401 KAR 5:031 401 KAR 5:045
Total Phosphorus,mg/l	Summer	NR	NR	NR	1.0**	1.5**	401 KAR 5:031
	Winter	3.2	0.31	8.7	2.0**	3.0**	
Biomonitoring, Toxicity units (TU _c)		<1.00	<1.00	<1.00	1.00 Daily Maximum See PART IV		401 KAR 5:031

* Reported Discharge values were compiled from fifty-seven (57) months of DMR data, from January 31, 2000 through September 30, 2004.

** Effluent limitations for Total Phosphorus shall become effective after two (2) full summers of monitoring. Monitoring shall commence after completion of plant expansion.

NR - Not Reported

Summer: May 1 through October 31
Winter: November 1 through April 30

3. REPORTED DISCHARGE AND PROPOSED LIMITS FOR POST-CONSTRUCTION - CONTINUED

Serial Number 001 (proposed expansion)

Effluent Characteristics	Reported Discharge*		Proposed Limits		Comments
	<u>Average</u> <u>Annual</u> <u>Value</u> (mg/l)	<u>Highest</u> <u>Annual</u> <u>Value</u> (mg/l)	<u>Average</u>	<u>Maximum</u>	
Cadmium, Total Recoverable	0.00056	0.009	Monitor**	Monitor**	401 KAR 5:031
Copper, Total Recoverable	0.00289	0.018	Monitor	Monitor	401 KAR 5:031
Lead, Total Recoverable	0.001944	0.018	Monitor	Monitor	401 KAR 5:031
Zinc, Total Recoverable	0.049	0.077	Monitor	Monitor	401 KAR 5:031
Hardness as Calcium Carbonate (CaCO ₃)	165	231	Monitor	Monitor	401 KAR 5:031
Hexavalent Chromium	0.0117	0.03	Monitor**	Monitor**	401 KAR 5:031 401 KAR 5:057
Free Cyanide, Amenable to Chlorination	0.00727	0.03	Monitor**	Monitor**	401 KAR 5:031 401 KAR 5:057
Mercury, Total Recoverable	0.0002047	0.002	Monitor**	Monitor**	401 KAR 5:031 401 KAR 5:057
Silver, Total Recoverable	0.00857	0.036	Monitor	Monitor	401 KAR 5:031 401 KAR 5:057

NR - Not Reported
N/A - Not Applicable

- * Reported Discharge values were compiled from fifty-seven (57) months of DMR data, from January 31, 2000 through September 30, 2004. For those parameters identified as reasonable potential pollutants, the values were compiled from December 31, 1998 to September 30, 2004.
- ** This parameter includes increased monitoring or a permit limit based on the reasonable potential analysis pursuant to 401 KAR 5:065, Section 2 (4). Pretreatment program will still require base monitoring.

4. METHODOLOGY USED IN DETERMINING LIMITATIONS

a. Serial Number

Outfall 001 Municipal Wastewater

b. Effluent Characteristics

Flow (MGD)	Biochemical Oxygen Demand (5-day)
Total Suspended Solids	Fecal Coliform
pH	Ammonia Nitrogen
Dissolved Oxygen	Total Phosphorus (as P)
Chronic Toxicity	Total Recoverable Lead
Total Recoverable Cadmium	Total Recoverable Copper
Total Recoverable Zinc	Hardness as Calcium Carbonate
Total Recoverable Chromium	Total Recoverable Silver
Hexavalent Chromium	Free Cyanide (Amenable to Chlorination)
Total Recoverable Arsenic	Chloride
Total Recoverable Iron	Total Recoverable Lead
Total Recoverable Mercury	Total Recoverable Nickel
Total Recoverable Selenium	Molybdenum
Total Phenolics	Oil & Grease
Percent Total Sludge Solids	Annual Amount of Sludge Disposed

c. Pertinent Factors

This municipality has an approved pretreatment program.

This modified permit has been issued with two phases: the existing plant and the expanded plant.

A summarization of the effluent guidelines, water quality standards, assumptions, and calculations can be found in Attachment A - Reasonable Potential Analysis for the Existing Plant, Attachment B - Reasonable Potential Analysis for the Expanded Plant, and Attachment C - DMR Data Summary for Reasonable Potential Analysis.

d. Monitoring Requirements

Flow shall be conducted continuously by instantaneous measurement. The design capacity and monitoring requirements are consistent with 401 KAR 5:005 and 401 KAR 5:065, Section 2 (8).

Monitoring shall be three times per week for the following pollutants: Biochemical Oxygen Demand (5-day), Total Suspended Solids, Fecal Coliform, pH, Ammonia Nitrogen, and Dissolved Oxygen.

Total Phosphorus shall be monitored once per week.

The following pollutants shall be monitored once per month: Total Recoverable Cadmium, Hexavalent Chromium, Free Cyanide (Amenable to Chlorination), and Hardness as Calcium Carbonate.

Total Recoverable Mercury shall be monitored once per quarter.

Biomonitoring shall be performed at a quarterly frequency unless the plant enters a TRE.

Pollutants to be monitored quarterly and in conjunction with biomonitoring: Total Recoverable Cadmium, Total Recoverable Copper, Total Recoverable Lead, Total Recoverable Zinc, and Hardness as Calcium Carbonate.

Monitoring shall be once per year for the pretreatment pollutants: Total Recoverable Arsenic, Total Recoverable Cadmium, Chloride, Hexavalent Chromium, Total Recoverable Chromium, Total Recoverable Copper, Free Cyanide (Amenable to Chlorination), Total Recoverable Iron, Total Recoverable Lead, Total Recoverable Mercury, Total Recoverable Nickel, Molybdenum, Oil & Grease, pH, Total Phenolics, Total Phosphorus (as P), Total Recoverable Selenium, Total Recoverable Silver, Total Recoverable Zinc, Percent Total Sludge Solids, and Annual Amount of Sludge Disposed.

e. Justification of limits

The Kentucky regulations cited below have been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes.

Fecal Coliform and pH

The effluent limitations for the above permit parameters are consistent with 401 KAR 5:031 and 401 KAR 5:045.

Biochemical Oxygen Demand (5-day), Ammonia Nitrogen, and Dissolved Oxygen

The effluent limitations for the above permit parameters are consistent with 401 KAR 5:031, Section 4 and 401 KAR 5:045, Sections 3 and 5.

Total Suspended Solids

The effluent limitations for the above permit parameters are consistent with 401 KAR 5:031, Section 4 and 401 KAR 5:045, Sections 2 and 3.

Chronic Toxicity

The effluent limitations for the above permit parameter is consistent with 401 KAR 5:029, Section 4 and 401 KAR 5:031, Sections 2 and 4.

Total Phosphorus

The effluent monitoring requirements for the above permit parameter are consistent with 401 KAR 5:031. Effluent limitations shall become effective after two (2) full summers after the completion of expansion.

Total Recoverable Lead, Total Recoverable Zinc, and Hardness as Calcium Carbonate

The monitoring requirements for the above permit parameters are consistent with 401 KAR 5:031.

Total Recoverable Cadmium

The monitoring requirement for the above permit parameter is consistent with 401 KAR 5:065 Section 2(4), and 401 KAR 5:031. A reasonable potential analysis was performed that compared monitoring data against expected effluent requirements. Monitoring data from the permittee's Discharge Monitoring Report (DMR) was used. The Steady State Toxics Wasteload Allocation Model (SSTWAM2004) generated the expected effluent requirements. Twenty-nine data points were evaluated over a 60 month time frame with two results being within the range indicating a permit limitation. The last high sample was in 2003. The monitoring frequency will be increased to monthly.

The permittee may apply for modification for the reduction of this pollutant after twelve (12) months of monitoring results have been reported to the Division. The Division will review the new results for making a determination on any request for a permit modification.

Total Recoverable Silver

The monitoring requirement for the above permit parameter is consistent with 401 KAR 5:065 Section 2(4). A reasonable potential analysis was performed that compared monitoring data against expected effluent requirements. Monitoring data from the permittee's Discharge Monitoring Report (DMR) was used. The Steady State Toxics Wasteload Allocation Model (SSTWAM2004) generated the expected effluent requirements. Five data points were evaluated with one being within the range indicating a permit limitation. There was a high sample in 2000. The samples since then have been within the water quality standards. The monitoring frequency will not be increased above the yearly pretreatment requirement.

Free Cyanide (Amenable)

The monitoring results for the above permit parameter were analyzed as per requirements in with 401 KAR 5:065 Section 2(4). A reasonable potential analysis was performed that compared monitoring data against expected effluent requirements. Monitoring data from the permittee's Discharge Monitoring Report (DMR) data was used. The Steady State Toxics Wasteload Allocation Model (SSTWAM2004) generated the expected effluent requirements. There was a high sample in 2004; but previous samples have been within the water quality standards. The monitoring frequency for free cyanide (amenable) will be monthly.

The permittee may apply for modification for the reduction in monitoring frequency of this pollutant after twelve (12) months of monitoring results have been reported to the Division. The Division will review the new results for making a determination on any request for a permit modification.

Hexavalent Chromium

The monitoring results for the above permit parameter were analyzed as per requirements in with 401 KAR 5:065 Section 2(4). A reasonable potential analysis was performed that compared monitoring data against expected effluent requirements. Monitoring data from the permittee's Discharge Monitoring Report (DMR) was used. The Steady State Toxics Wasteload Allocation Model (SSTWAM2004) generated the expected effluent requirements. There were high samples in 2001 and 2004; but samples have been within the water quality standards since that time. The monitoring frequency will be increased to monthly.

The permittee may apply for reduction in monitoring frequency of this pollutant after twelve (12) months of monitoring results have been reported to the Division. The Division will review the new results for making a determination on any request for a permit modification.

Total Recoverable Mercury

The monitoring results for the above permit parameter were analyzed as per requirements in with 401 KAR 5:065 Section 2(4). A reasonable potential analysis was performed that compared monitoring data against expected effluent requirements. Monitoring data from the permittee's Discharge Monitoring Report (DMR) was used. The Steady State Toxics Wasteload Allocation Model (SSTWAM2004) generated the expected effluent requirements. There were high samples in 2002 and 2003; but there were not enough samples to compare with water quality standards. More samples are needed for this parameter. Sample testing shall be done using test method 1631E. The monitoring frequency will be increased to quarterly.

The permittee may apply for reduction in monitoring frequency of this pollutant after twelve (12) quarterly monitoring results have been reported to the Division. The Division will review the new results for making a determination on any request for a permit modification.

FOR PRETREATMENT CITIES ONLY

Total Recoverable Arsenic, Total Recoverable Cadmium, Chloride, Hexavalent Chromium, Total Recoverable Chromium, Total Recoverable Copper, Free Cyanide (Amenable to Chlorination), Total Recoverable Iron, Total Recoverable Lead, Total Recoverable Mercury, Total Recoverable Nickel, Molybdenum, Oil & Grease, pH, Total Phenolics, Total Phosphorus (as P), Total Recoverable Selenium, Total Recoverable Silver, Total Recoverable Zinc, Percent Total Sludge Solids, and Annual Amount of Sludge Disposed

The monitoring requirements for the above permit parameters are applicable to municipal wastewater treatment plants that have pretreatment programs, as per 401 KAR 5:057, Section 6. Monitoring requirements are applicable for the municipal plant influent, effluent, and sludge in order to monitor potential interference, pass-through, or adverse impact on sludge quality.

5. **ANTIDEGRADATION**

The development of this permit commenced prior to the April 12, 2005 EPA approval of Kentucky's Antidegradation Regulation promulgated on September 8, 2004. Therefore, previous antidegradation requirements are applicable. The conditions of 401 KAR 5:029, Section 1(1) have been satisfied by this permit action. A review under Section 1(2), (3), and (4) is not applicable.

6. **PROPOSED COMPLIANCE SCHEDULE FOR ATTAINING EFFLUENT LIMITATIONS**

The permittee will comply with all effluent limitations by the effective date of the permit.

7. **PROPOSED SPECIAL CONDITIONS WHICH WILL HAVE A SIGNIFICANT IMPACT ON THE DISCHARGE**

Sludge Management:

Requirements will be imposed, as applicable, governing the disposal of sewage sludge in accordance with 40 CFR Part 503 and 401 KAR Chapter 45.

8. **PERMIT DURATION**

Five years.

9. **PERMIT INFORMATION**

The application, draft permit, fact sheet, public notice, comments received, and additional information is available from the Division of Water at 14 Reilly Road, Frankfort Office Park, Frankfort, Kentucky 40601.

10. **REFERENCES AND CITED DOCUMENTS**

All material and documents referenced or cited in this fact sheet are a part of the permit information as described above and are readily available at the Division of Water Central Office. Information regarding these materials may be obtained from the person listed below.

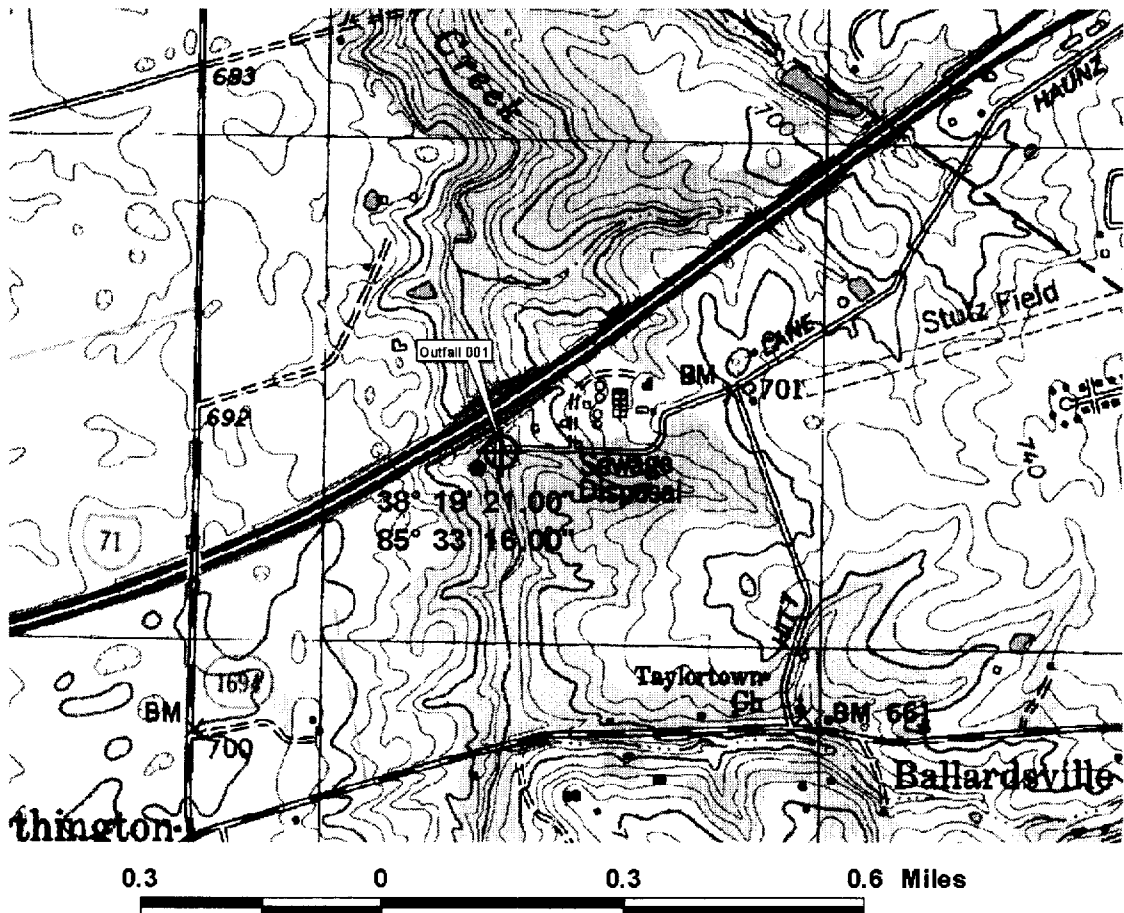
11. **CONTACT**

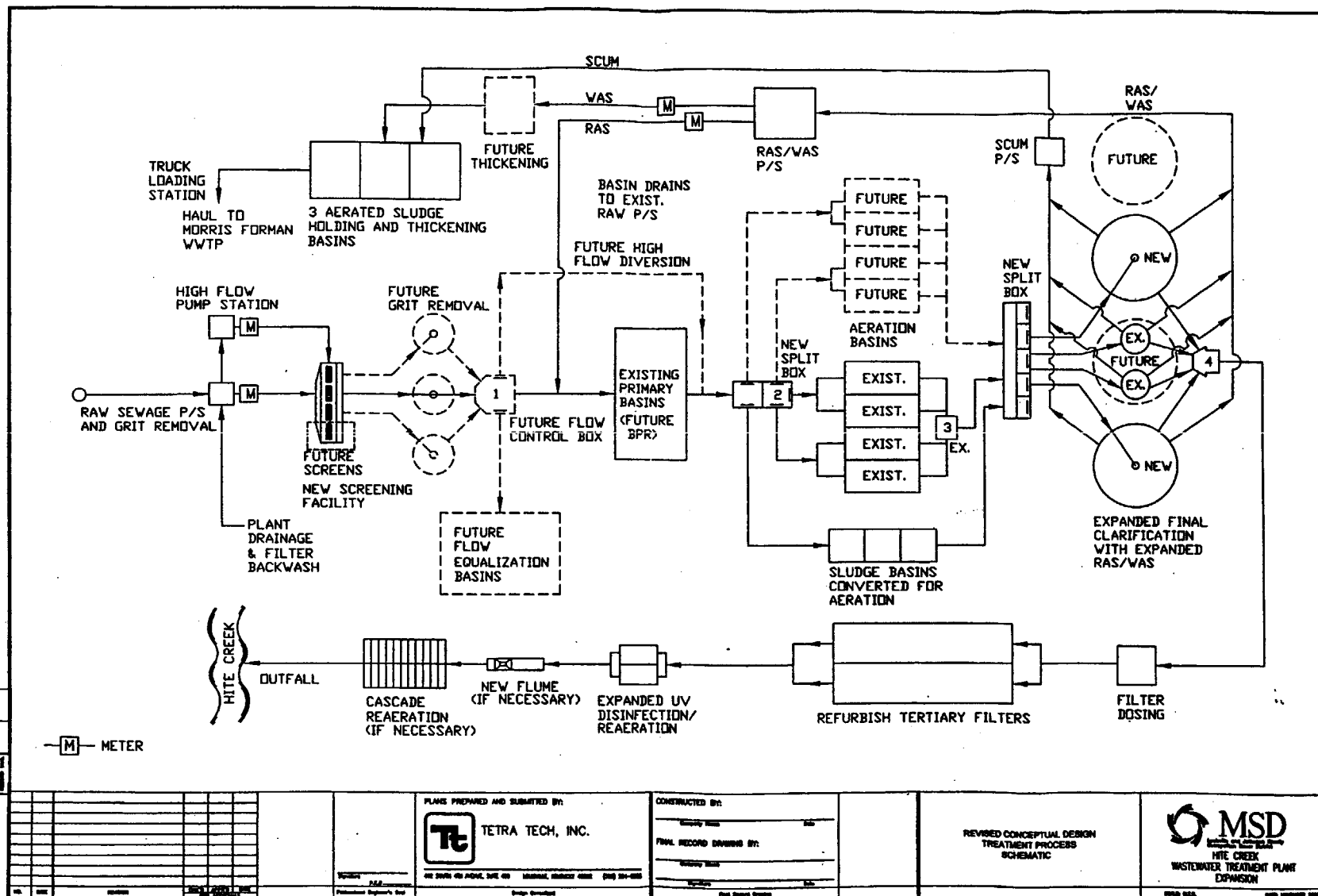
For further information on the draft permit or comment process, contact the individual identified on the Public Notice or the Permit Writer - Daniel Hardin at (502) 564-2225, extension 432, or email daniel.hardin@ky.gov.

12. **PUBLIC NOTICE INFORMATION**

Please refer to the attached Public Notice for details regarding the procedures for a final decision, deadline for comments and other information required by 401 KAR 5:075, Section 4(2)(e).

Hite Creek Wastewater Treatment Plant





NO.	DATE	BY	CHKD.
1	10/1/00	JLH	
2	10/1/00	JLH	
3	10/1/00	JLH	
4	10/1/00	JLH	
5	10/1/00	JLH	
6	10/1/00	JLH	
7	10/1/00	JLH	
8	10/1/00	JLH	
9	10/1/00	JLH	
10	10/1/00	JLH	

NO.	DATE	BY	CHKD.
1	10/1/00	JLH	
2	10/1/00	JLH	
3	10/1/00	JLH	
4	10/1/00	JLH	
5	10/1/00	JLH	
6	10/1/00	JLH	
7	10/1/00	JLH	
8	10/1/00	JLH	
9	10/1/00	JLH	
10	10/1/00	JLH	

PLANS PREPARED AND SUBMITTED BY:



TETRA TECH, INC.

NO. 1000-001, DATE 00-0000, 000000, 000000, 0000-00-0000

CONSTRUCTED BY:

FINAL RECORD DRAWING BY:

NO. 1000-001, DATE 00-0000, 000000, 0000-00-0000

REVISED CONCEPTUAL DESIGN
TREATMENT PROCESS
SCHEMATIC



WASTEWATER TREATMENT PLANT
EXPANSION

NO. 1000-001, DATE 00-0000, 000000, 0000-00-0000

ATTACHMENT A - SSTWAM2004 FOR MSD HITE CREEK (EXISTING PLANT)

Permit Writer	Daniel Hardin
Date Entered	2/16/2006
Facility Name	Hite Creek WWTP
KPDES Number	KY0022420
Outfall Number	001
Case Number	1
Is this an Existing facility, an Increase or a New facility?	Existing Facility
Receiving Water Name	Hite Creek
Discharge Mile Point	1.9
Public Water Supply Name	Louisville Water Company
Intake Water Name	Ohio River
Intake Mile Point	380.8
Total Effluent Flow (Q _T)	4.4 MGD
Receiving Water 7Q10 (Q _{RW7Q10})	0 cfs
Receiving Water Harmonic Mean (Q _{RWHM})	0.2 cfs
Receiving Water pH	0
Intake Water 7Q10 (Q _{IW7Q10})	11000 cfs
Intake Water Harmonic Mean (Q _{IWHM})	49000 cfs
Effluent Hardness	170 (as mg/l CaCO3)
Receiving Water Hardness	137 (as mg/l CaCO3)
Zone of Initial Dilution (ZID)	1
Mixing Zone (MZ)	0.333
Acute to Chronic Ratio (ACR)	0.1
Impaired	Yes
Permittee agrees to accept no mixing zone for bioaccumulative or persistent pollutants prior to 09/08/2014	No

Calculation Methodology

Definitions

Acute to Chronic Ratio	ACR	Total Effluent Flow	Q _T
Aquatic Life Acute Criteria	C _A	Receiving Water 7Q10	Q _{RW7Q10}
Aquatic Life Chronic Criteria	C _C	Receiving Water Harmonic Mean	Q _{RWHM}
Human Health Criteria - Fish Only	C _{HHFO}	Intake Water 7Q10	Q _{IW7Q10}
Human Health Criteria - Fish & Water	C _{HHFW}	Intake Water Harmonic Mean	Q _{IWHM}
End of Pipe Effluent Limit	C _T	Zone of Initial Dilution	ZID
Instream Background Concentration	C _U	Mixing Zone	MZ
Toxicity Units - Acute	TU _a	Toxicity Units - Chronic	TU _c
Effluent Hardness	H _T	Receiving Water Hardness	H _{RW}

Aquatic Life - Chemical Specific

Acute

NO ZID given $C_T = C_A$

ZID given $C_T = (C_A - C_U) \times (ZID)$

Chronic Mixing Zone / Complete Mix

$$C_T = \{C_C[Q_T + (MZ)(Q_{RW7Q10})] - [C_U(MZ)(Q_{RW7Q10})]/Q_T\}$$

Human Health - Chemical Specific

Fish Only: Mixing Zone / Complete Mix

Carcinogen / Non-Carcinogen

$$C_T = \{C_{HHFO}[Q_T + (MZ)(Q_{RWHM})] - C_U(MZ)(Q_{RWHM})\} / Q_T$$

Fish & Water Only: Mixing Zone / Applicable at point of withdrawal

Carcinogen

$$C_T = \{C_{HHFW}[Q_T + (Q_{IWHM})] - C_U(Q_{IWHM})\} / Q_T$$

Non-Carcinogen

$$C_T = \{C_{HHFW}[Q_T + (Q_{IW7Q10})] - C_U(Q_{IW7Q10})\} / Q_T$$

Aquatic Life - Whole Effluent Toxicity

Acute (Units TU_a)

NO ZID given $C_T = C_A$

ZID given $C_T = (C_A - C_U) \times (ZID)$

Chronic Mixing Zone / Complete Mix (Units TU_c)

$$C_T = \{C_C[Q_T + (MZ)(Q_{RW7Q10})] - [C_U(MZ)(Q_{RW7Q10})] / Q_T\}$$

Conversion of TU_c to TU_a: $TU_c \times ACR = TU_a$

Metal Aquatic Criteria

Pollutant

Total Recoverable Cadmium

Chromium III

Total Recoverable Copper

Total Recoverable Lead

Total Recoverable Nickel

Total Recoverable Silver

Total Recoverable Zinc

Acute Criteria

$$e^{(1.0166 (\ln \text{Hardness}) - 3.924)}$$

$$e^{(0.8190 (\ln \text{Hardness}) + 3.7256)}$$

$$e^{(0.9422 (\ln \text{Hardness}) - 1.700)}$$

$$e^{(1.273 (\ln \text{Hardness}) - 1.460)}$$

$$e^{(0.8460 (\ln \text{Hardness}) + 2.255)}$$

$$e^{(1.72 (\ln \text{Hardness}) - 6.59)}$$

$$e^{(0.8473 (\ln \text{Hardness}) + 0.884)}$$

Chronic Criteria

$$e^{(0.7409 (\ln \text{Hardness}) - 4.719)}$$

$$e^{(0.8190 (\ln \text{Hardness}) + 0.6848)}$$

$$e^{(0.8545 (\ln \text{Hardness}) - 1.702)}$$

$$e^{(1.273 (\ln \text{Hardness}) - 4.705)}$$

$$e^{(0.8460 (\ln \text{Hardness}) + 0.0584)}$$

$$e^{(0.8473 (\ln \text{Hardness}) + 0.884)}$$

Hardness (as mg/l CaCO₃)

Zone Initial Dilution (ZID)

Mixing Zone

$$H_{RW} + [H_T + H_{RW}] / ZID$$

$$[(Q_{RW7Q10})(MZ)(H_{RW}) + (Q_T)(H_T)] / [(Q_{RW7Q10})(MZ) + (Q_T)]$$

Bioaccumulative or Persistent

For new facilities after September 8, 2004 mixing zones shall not be granted for bioaccumulative or persistent pollutants of concern.

Mixing zones for bioaccumulative or persistent pollutants of concern assigned prior to September 8, 2004 shall expire no later than September 8, 2014, unless the permittee agrees to expiration of the mixing zone prior to that date.

Therefore, the application of the more stringent criteria of Human Health Fish & Water Consumption, Human Health Fish Only Consumption, and Aquatic Life Chronic shall apply as end-of-pipe effluent limitations.

Antidegradation

If a new facility or an existing facility that will have a pollutant load increase, the effluent limits are halved unless the receiving stream is impaired or the permittee has demonstrated a negative socioeconomic or cost benefit analysis.

Reasonable Potential Analysis

In establishing water quality based effluent conditions the Division of Water must determine if the pollutant concentrations in the discharge will cause, have the reasonable potential to cause, or contribute to an excursion of any water standard. The process by which the Division of Water makes this determination is known as a Reasonable Potential Analysis.

A Reasonable Potential Analysis is performed by first calculating the expected effluent limitations for those pollutants with water quality criteria. The calculated limits are then compared to the concentrations reported on the KPDES permit application and/or a summarization of the values reported on the Discharge Monitoring Report (DMRs) submitted during the term of the permit. This comparison is made by dividing the reported value by the calculated effluent limitation and converting to a percentage. The following criteria are used in determining how the pollutant will be addressed in the permit.

New Permits or New Pollutants on Permit Renewals

If the reported concentration is less than 70% of the calculated effluent limit then no monitoring or limitations will be required.

If the reported concentration is equal to or greater than 70% but less than 90% of the calculated effluent limit then monitoring will be required.

If the reported concentration is equal to or greater than 90% and the number of analysis reported on the KPDES permit application is less than 12 then monitoring will be required.

If the reported concentration is equal to or greater than 90% and the number of analysis reported on the KPDES permit application is equal or greater than 12 then an effluent limitation will be required.

Permit Renewals - Existing Pollutants

If the reported concentration is less than 70% of the calculated effluent limit then and the source of the reported concentration was the DMRs for that facility and there were more than 12 DMRs utilized to determine the reported concentrations then the pollutant will be removed from the permit.

If the reported concentration is equal to or greater than 70% but less than 90% of the calculated effluent limit then monitoring will be required.

If the reported concentration is equal to or greater than 90% then an effluent limitation will be required.

In all cases, the Division of Water still may exercise its Best Professional Judgment in the implementation of the results.

ATTACHMENT A - SSTWAM2004 FOR MSD HITE CREEK (EXISTING PLANT)

				<u>Effluent Limitations</u>					
<u>Parameter</u>	<u>CAS Number</u>	<u>Carcinogen</u>	<u>Bioaccumulative or Persistent</u>	<u>Average</u>	<u>Units</u>	<u>Justification</u>	<u>Maximum</u>	<u>Units</u>	<u>Justification</u>
Chloride	16887006	No	No	600.0000	mg/l	Chronic	1200.0000	mg/l	Acute
Total Recoverable Iron	7439896	No	No	1.0000	mg/l	Chronic	4.0000	mg/l	Acute
Total Recoverable Arsenic	7440382	Yes	No	0.1500	mg/l	Chronic	0.3400	mg/l	Acute
Total Recoverable Cadmium	7440439	No	No	0.0004	mg/l	Chronic	0.0037	mg/l	Acute
Total Recoverable Chromium	7440439	No	No	161.6000	mg/l	Human Health Fish & Water	N/A	mg/l	NA
Total Recoverable Copper	7440508	No	No	0.0147	mg/l	Chronic	0.0231	mg/l	Acute
Total Recoverable Lead	7439921	No	No	0.0063	mg/l	Chronic	0.1604	mg/l	Acute
Total Recoverable Mercury	7439976	No	Yes	5.1499E-05	mg/l	Human Health Fish Only	0.0017	mg/l	Acute
Total Recoverable Nickel	7440020	No	No	0.0817	mg/l	Chronic	0.7350	mg/l	Acute
Total Recoverable Selenium	7782492	No	No	0.0050	mg/l	Chronic	0.0200	mg/l	Acute
Total Recoverable Silver	7440224	No	No	N/A	mg/l	Human Health Fish & Water	0.0094	mg/l	Acute
Total Recoverable Zinc	7440666	No	No	0.1878	mg/l	Chronic	0.1878	mg/l	Acute
Free Cyanide	57125	No	No	0.0052	mg/l	Chronic	0.0220	mg/l	Acute
Chromium (VI)	18540299	Yes	No	0.0110	mg/l	Chronic	0.0160	mg/l	Acute
<u>Hardness</u>									
Metal limitations are developed using the mixed hardness of the effluent and receiving waters	<u>Chronic</u>	<u>Acute</u>							
	170.00	170							

Toxicity

<u>Type of Test</u>	<u>Maximum</u>	<u>Units</u>	<u>Justification</u>
Chronic	1.00	1	Acute

ATTACHMENT A - SSTWAM2004 FOR MSD HITE CREEK (EXISTING PLANT)

REASONABLE POTENTIAL ANALYSIS

A reasonable potential analysis is a determination by the Division of Water of whether effluent limitations, monitoring only or no requirements are imposed for a particular parameter on a specific permit. To perform the analysis the values reported on either the permit application or a summarization of the discharge monitoring data are divided by the expected effluent limit generated using SSTWAM95 and converted to a percentage for each pollutant. That percentage is then compared to the following criteria:

Percentage	Requirement
Less than 70%	None
Greater than 70% but less than 90%	Monitoring Only Required
Greater than 90%	Limit Required

In all cases, the Division of Water still may exercise its Best Professional Judgment in the implementation of the results, i.e. should insufficient data points exist to make a reasonable determination that a limit should be applied, then DOW may require additional monitoring to insure the appropriate requirement is imposed. This may take the form of additional monitoring requested during the development of the permit or may be required as part of the final permit.

The following table illustrates the results of the reasonable potential analysis performed on this facility.

Chemical Specific Parameter	Limits, mg/l		Reported Values, mg/l		Percentage		Effluent Limitations	
	Average	Maximum	Average	Maximum	Average	Maximum	Average	Maximum
Arsenic, Total Recoverable	0.150	0.340	0.00215	0.006	1.4%	1.8%	None	None
Cadmium, Total Recoverable	0.0004	0.0037	0.000267	0.009	66.8%	243%	None	Monitor*
Chloride	600	1200	104.95	170.71	17.5%	14.2%	None	None
Chromium, Total Recoverable	161.6	N/A	0.003	0.004	0.0%	N/A	None	None
Chromium VI	0.011	0.016	0.011	0.027	100%	169%	Monitor*	Monitor*
Copper, Total Recoverable	0.0147	0.0231	0.0036	0.035	24.5%	152%	None	Monitor*
Cyanide, Free (Amenable)	0.0052	0.022	0.01125	0.03	216%	136%	Monitor*	Monitor*
Iron, Total Recoverable	1.0	4.0	0.1188	0.423	11.9%	10.6%	None	None
Lead, Total Recoverable	0.0063	0.1604	0.00306	0.016	48.6%	10.0%	None	None
Mercury, Total Recoverable	0.000051	0.0017	0.000154	0.00028	302%	165%	Monitor*	Monitor*
Nickel, Total Recoverable	0.0817	0.7350	0.0282	0.038	34.5%	5.2%	None	None
Selenium, Total Recoverable	0.005	0.020	0.00269	0.01	53.8%	50.0%	None	None
Silver, Total Recoverable	N/A	0.0094	0.00377	0.01675	N/A	178%	None	Monitor*
Zinc, Total Recoverable	0.1878	0.1878	0.050	0.069	26.6%	36.7%	None	None

N/A = Not Applicable

* See explanation in Part 4 of Fact Sheet.

ATTACHMENT B - SSTWAM2004 FOR MSD HITE CREEK (EXPANDED PLANT)

Permit Writer	Dan Hardin
Date Entered	3/17/2005
Facility Name	MSD Hite Creek Wastewater Treatment Plant
KPDES Number	KY0022420
Outfall Number	001
Case Number	0
Is this an Existing facility, an Increase by 20%, or a New facility?	Existing Facility*
Receiving Water Name	Hite Creek
Discharge Mile Point	1.9
Public Water Supply Name	Louisville Water Company
Intake Water Name	Ohio River
Intake Mile Point	380.8
Total Effluent Flow (Q _T)	6.0 MGD
Receiving Water 7Q10 (Q _{RW7Q10})	0 cfs
Receiving Water Harmonic Mean (Q _{RWHM})	0.2 cfs
Receiving Water pH	unknown
Intake Water 7Q10 (Q _{IW7Q10})	11000 cfs
Intake Water Harmonic Mean (Q _{IWHM})	49000 cfs
Effluent Hardness	164 (as mg/l CaCO3)
Receiving Water Hardness	137 (as mg/l CaCO3)
Zone of Initial Dilution (ZID)	1
Mixing Zone (MZ)	0.33333
Acute to Chronic Ratio (ACR)	0.1
Impaired	Yes
Permittee agrees to accept no mixing zone for bioaccumulative or persistent pollutants prior to 09/08/2014	No

Calculation Methodology

Definitions

Acute to Chronic Ratio	ACR	Total Effluent Flow	Q _T
Aquatic Life Acute Criteria	C _A	Receiving Water 7Q10	Q _{RW7Q10}
Aquatic Life Chronic Criteria	C _C	Receiving Water Harmonic Mean	Q _{RWHM}
Human Health Criteria - Fish Only	C _{HHFO}	Intake Water 7Q10	Q _{IW7Q10}
Human Health Criteria - Fish & Water	C _{HHFW}	Intake Water Harmonic Mean	Q _{IWHM}
End of Pipe Effluent Limit	C _T	Zone of Initial Dilution	ZID
Instream Background Concentration	C _U	Mixing Zone	MZ
Toxicity Units - Acute	TU _a	Toxicity Units - Chronic	TU _c
Effluent Hardness	H _T	Receiving Water Hardness	H _{RW}

Aquatic Life - Chemical Specific

Acute

NO ZID given $C_T = C_A$

Chronic Mixing Zone / Complete Mix

$$C_T = \{C_C[Q_T + (MZ)(Q_{RW7Q10})] - [C_U(MZ)(Q_{RW7Q10})]/Q_T\}$$

ATTACHMENT B - SSTWAM2004 FOR MSD HITE CREEK (EXPANDED PLANT)

ZID given $C_T = (C_A - C_U) \times (ZID)$

Human Health - Chemical Specific

Fish Only: Mixing Zone / Complete Mix

Carcinogen / Non-Carcinogen

$$C_T = \{C_{HHFO}[Q_T + (MZ)(Q_{RWHM})] - C_U(MZ)(Q_{RWHM})\} / Q_T$$

Fish & Water Only: Mixing Zone / Applicable at point of withdrawal

Carcinogen

$$C_T = \{C_{HHFW}[Q_T + (Q_{IWHM})] - C_U(Q_{IWHM})\} / Q_T$$

Non-Carcinogen

$$C_T = \{C_{HHFW}[Q_T + (Q_{IW7Q10})] - C_U(Q_{IW7Q10})\} / Q_T$$

Aquatic Life - Whole Effluent Toxicity

Acute (Units TU_a)

NO ZID given $CT = CA$

ZID given $C_T = (C_A - C_U) \times (ZID)$

Chronic Mixing Zone / Complete Mix (Units TU_c)

$$C_T = \{C_C[Q_T + (MZ)(Q_{RW7Q10})] - [C_U(MZ)(Q_{RW7Q10})]\} / Q_T$$

Conversion of TU_c to TU_a : $TU_c \times ACR = TU_a$

Metal Aquatic Criteria

Pollutant

Total Recoverable Cadmium

Chromium III

Total Recoverable Copper

Total Recoverable Lead

Total Recoverable Nickel

Total Recoverable Silver

Total Recoverable Zinc

Acute Criteria

$$e^{(1.0166 (\ln \text{Hardness}) - 3.924)}$$

$$e^{(0.8190 (\ln \text{Hardness}) + 3.7256)}$$

$$e^{(0.9422 (\ln \text{Hardness}) - 1.700)}$$

$$e^{(1.273 (\ln \text{Hardness}) - 1.460)}$$

$$e^{(0.8460 (\ln \text{Hardness}) + 2.255)}$$

$$e^{(1.72 (\ln \text{Hardness}) - 6.59)}$$

$$e^{(0.8473 (\ln \text{Hardness}) + 0.884)}$$

Chronic Criteria

$$e^{(0.7409 (\ln \text{Hardness}) - 4.719)}$$

$$e^{(0.8190 (\ln \text{Hardness}) + 0.6848)}$$

$$e^{(0.8545 (\ln \text{Hardness}) - 1.702)}$$

$$e^{(1.273 (\ln \text{Hardness}) - 4.705)}$$

$$e^{(0.8460 (\ln \text{Hardness}) + 0.0584)}$$

$$e^{(0.8473 (\ln \text{Hardness}) + 0.884)}$$

Hardness (as mg/l $CaCO_3$)

Zone Initial Dilution (ZID)

$$H_{RW} + [H_T + H_{RW}] / ZID$$

Mixing Zone

$$[(Q_{RW7Q10})(MZ)(H_{RW}) + (Q_T)(H_T)] / [(Q_{RW7Q10})(MZ) + (Q_T)]$$

Bioaccumulative or Persistent

For new facilities after September 8, 2004 mixing zones shall not be granted for bioaccumulative or persistent pollutants of concern.

Mixing zones for bioaccumulative or persistent pollutants of concern assigned prior to September 8, 2004 shall expire no later than September 8, 2014, unless the permittee agrees to expiration of the mixing zone prior to that date.

Therefore, the application of the more stringent criteria of Human Health Fish & Water Consumption, Human Health Fish Only Consumption, and Aquatic Life Chronic shall apply as end-of-pipe effluent limitations.

Antidegradation

*If a new facility or an existing facility that will have a pollutant load increase of 20% or more the effluent limits are halved unless the receiving stream is impaired or the permittee has demonstrated a negative socioeconomic or cost benefit analysis.

Reasonable Potential Analysis

In establishing water quality based effluent conditions the Division of Water must determine if the pollutant concentrations in the discharge will cause, have the reasonable potential to cause, or contribute to an excursion of any water standard. The process by which the Division of Water makes this determination is known as a Reasonable Potential Analysis.

A Reasonable Potential Analysis is performed by first calculating the expected effluent limitations for those pollutants with water quality criteria. The calculated limits are then compared to the concentrations reported on the KPDES permit application and/or a summarization of the values reported on the Discharge Monitoring Report (DMRs) submitted during the term of the permit. This comparison is made by dividing the reported value by the calculated effluent limitation and converting to a percentage. The following criteria are used in determining how the pollutant will be addressed in the permit.

New Permits or New Pollutants on Permit Renewals

If the reported concentration is less than 70% of the calculated effluent limit then no monitoring or limitations will be required.

If the reported concentration is equal to or greater than 70% but less than 90% of the calculated effluent limit then monitoring will be required.

If the reported concentration is equal to or greater than 90% and the number of analysis reported on the KPDES permit application is less than 12 then monitoring will be required.

If the reported concentration is equal to or greater than 90% and the number of analysis reported on the KPDES permit application is equal or greater than 12 then an effluent limitation will be required.

Permit Renewals - Existing Pollutants

If the reported concentration is less than 70% of the calculated effluent limit then and the source of the reported concentration was the DMRs for that facility and there were more than 12 DMRs utilized to determine the reported concentrations then the pollutant will be removed from the permit.

If the reported concentration is equal to or greater than 70% but less than 90% of the calculated effluent limit then monitoring will be required.

If the reported concentration is equal to or greater than 90% then an effluent limitation will be required.

In all cases, the Division of Water still may exercise its Best Professional Judgement in the implementation of the results.

ATTACHMENT B - SSTWAM2004 FOR MSD HITE CREEK (EXPANDED PLANT)

				<u>Effluent Limitations</u>					
<u>Parameter</u>	<u>CAS Number</u>	<u>Carcinoge n</u>	<u>Bioaccumulative or Persistent</u>	<u>Average</u>	<u>Units</u>	<u>Justification</u>	<u>Maximum</u>	<u>Units</u>	<u>Justification</u>
Chloride	16887006	No	No	600.0000	mg/l	Chronic	1200.0000	mg/l	Acute
Total Recoverable Iron	7439896	No	No	1.0000	mg/l	Chronic	4.0000	mg/l	Acute
Total Recoverable Arsenic	7440382	Yes	No	0.1500	mg/l	Chronic	0.3400	mg/l	Acute
Total Recoverable Cadmium	7440439	No	No	0.0004	mg/l	Chronic	0.0037	mg/l	Acute
Total Recoverable Chromium	7440439	No	No	118.5333	mg/l	Human Health Fish & Water	N/A	mg/l	NA
Total Recoverable Copper	7440508	No	No	0.0147	mg/l	Chronic	0.0231	mg/l	Acute
Total Recoverable Lead	7439921	No	No	0.0063	mg/l	Chronic	0.1604	mg/l	Acute
Total Recoverable Mercury	7439976	No	Yes	5.1366E-05	mg/l	Human Health Fish Only	0.0017	mg/l	Acute
Total Recoverable Nickel	7440020	No	No	0.0817	mg/l	Chronic	0.7350	mg/l	Acute
Total Recoverable Selenium	7782492	No	No	0.0050	mg/l	Chronic	0.0200	mg/l	Acute
Total Recoverable Silver	7440224	No	No	N/A	mg/l	Human Health Fish & Water	0.0094	mg/l	Acute
Total Recoverable Zinc	7440666	No	No	0.1878	mg/l	Chronic	0.1878	mg/l	Acute
Free Cyanide	57125	No	No	0.0052	mg/l	Chronic	0.0220	mg/l	Acute
Chromium (VI)	18540299	Yes	No	0.0110	mg/l	Chronic	0.0160	mg/l	Acute
<u>Hardness</u>	<u>Chronic</u>	<u>Acute</u>							
Metal limitations are developed using the mixed hardness of the effluent and receiving waters	170.00	170							

Toxicity

<u>Type of Test</u>	<u>Maximum</u>	<u>Units</u>	<u>Justification</u>
Chronic	1.00	1	Acute

ATTACHMENT B - SSTWAM2004 FOR MSD HITE CREEK (EXPANDED PLANT)

REASONABLE POTENTIAL ANALYSIS

A reasonable potential analysis is a determination by the Division of Water of whether effluent limitations, monitoring only or no requirements are imposed for a particular parameter on a specific permit. To perform the analysis the values reported on either the permit application or a summarization of the discharge monitoring data are divided by the expected effluent limit generated using SSTWAM95 and converted to a percentage for each pollutant. That percentage is then compared to the following criteria:

Percentage	Requirement
Less than 70%	None
Greater than 70% but less than 90%	Monitoring Only Required
Greater than 90%	Limit Required

In all cases, the Division of Water still may exercise its Best Professional Judgment in the implementation of the results, i.e. should insufficient data points exist to make a reasonable determination that a limit should be applied, then DOW may require additional monitoring to insure the appropriate requirement is imposed. This may take the form of additional monitoring requested during the development of the permit or may be required as part of the final permit.

The following table illustrates the results of the reasonable potential analysis performed on this facility.

Chemical Specific Parameter	Limits, mg/l		Reported Values, mg/l		Percentage		Effluent Limitations	
	Average	Maximum	Average	Maximum	Average	Maximum	Average	Maximum
Arsenic, Total Recoverable	0.150	0.340	0.00215	0.006	1.4%	1.8%	None	None
Cadmium, Total Recoverable	0.0004	0.0037	0.000267	0.009	66.8%	243%	None	Monitor*
Chloride	600	1200	104.95	170.71	17.5%	14.2%	None	None
Chromium, Total Recoverable	118.5	N/A	0.003	0.004	0.0%	N/A	None	None
Chromium VI	0.011	0.016	0.011	0.027	100%	169%	Monitor*	Monitor*
Copper, Total Recoverable	0.0147	0.0231	0.0036	0.035	24.5%	152%	Monitor*	Monitor*
Cyanide, Free (Amenable)	0.0052	0.0220	0.01125	0.03	216%	136%	Monitor*	Monitor*
Iron, Total Recoverable	1.0	4.0	0.1188	0.423	11.9%	10.6%	None	None
Lead, Total Recoverable	0.0063	0.1604	0.00306	0.016	48.6%	10.0%	None	None
Mercury, Total Recoverable	0.000051	0.0017	0.000154	0.00028	302%	165%	Monitor*	Monitor*
Nickel, Total Recoverable	0.0817	0.7350	0.0282	0.038	34.5%	5.2%	None	None
Selenium, Total Recoverable	0.005	0.020	0.00269	0.01	53.8%	50.0%	None	None
Silver, Total Recoverable	N/A	0.0094	0.00377	0.01675	N/A	178%	None	Monitor*
Zinc, Total Recoverable	0.1878	0.1878	0.050	0.069	26.6%	36.7%	None	None

N/A = Not Applicable

* See explanation in Part 4 of Fact Sheet.

ATTACHMENT C -DMR DATA USED FOR HITE CREEK WWTP REASONABLE POTENTIAL ANALYSIS

DMR pipe listing	DMR date	arsenic	cadmium	chloride	chromium	chromium VI	copper	cyanide free	iron	lead	mercury	nickel	selenium	silver	zinc	Units
biomonitoring	1/31/2000		<0.001				0.004			<0.005					0.04	mg/l
biomonitoring	2/29/2000		<0.001				<0.001			<0.005					0.032	mg/l
biomonitoring	3/31/2000		<0.001				<0.001			<0.005					0.044	mg/l
biomonitoring	4/30/2000		<0.001				<0.001			0.0065					0.06	mg/l
biomonitoring	5/31/2000		<0.001				<0.008			<0.005					0.043	mg/l
biomonitoring	6/30/2000		<0.001				<0.008			0.008					0.082	mg/l
metals	9/30/2000		<0.001				<0.008			<0.005					0.042	mg/l
metals	12/31/2000		<0.001				<0.008			<0.005					0.036	mg/l
metals	3/31/2001		<0.001				0.011			<0.006					0.048	mg/l
metals	6/30/2001		<0.001				<0.008			<0.006					0.052	mg/l
metals	9/30/2001		<0.001				<0.008			<0.006					0.051	mg/l
metals	12/31/2001		<0.001				<0.008			<0.006					0.028	mg/l
metals	3/31/2002		<0.001				0.009			<0.006					0.032	mg/l
metals	6/30/2002		<0.001				<0.008			<0.006					0.051	mg/l
metals	9/30/2002		0.004				0.014			0.008					0.053	mg/l
metals	12/31/2002		0.001				0.018			0.018					0.047	mg/l
metals	3/31/2003		0.004				<0.008			<0.006					0.042	mg/l
metals	6/30/2003		<0.001				<0.008			<0.006					0.058	mg/l
metals	9/30/2003		<0.001				<0.003			<0.006					0.056	mg/l
metals	12/31/2003		0.001				<0.003			<0.004					0.058	mg/l
metals	3/31/2004		<0.001				<0.003			<0.004					0.049	mg/l
metals	6/30/2004		<0.001				<0.003			0.009					0.058	mg/l
metals	9/30/2004		<0.001				<0.003			<0.004					0.069	mg/l
metals	12/31/2004		<0.001				<0.003			<0.004					0.052	mg/l
pretreatment	12/31/2000	0.001	0.00125	37	0.0035		0.0215	0.005	0.225	0.00325	0.00012	0.0245	0.00175	0.01675	0.0515	mg/l
pretreatment	12/31/2001		0.0015	170.71	0.004	0.027	0.014			0.016		0.031		0.0005	0.045	mg/l
pretreatment	12/31/2002	0.001	0.0015	113.19	0.004	0.0015	0.011	0.005	0.11	0.008	0.000284	0.032	0.002	0.0005	0.057	mg/l
pretreatment	12/31/2003	0.003	0.0015	146.09	0.002	0.006	0.003	0.005	0.09	0.003	0.000059	0.027	0.002	0.0005	0.055	mg/l
pretreatment	12/31/2004	0.0036	0.002	57.75	0.0015	0.011	<0.022	0.03	0.05	0.009		0.0265	0.005	0.0006	0.0577	mg/l
Number of data points		4	29	5	5	4	29	4	4	29	3	5	4	5	29	
DMR average		0.00215	0.000267	104.95	0.003	0.011	0.0036	0.01125	0.1188	0.00306	0.000154	0.0282	0.00269	0.00377	0.04997	mg/l
DMR maximum		0.006	0.009	170.71	0.004	0.027	0.035	0.03	0.423	0.016	0.00028	0.038	0.01	0.01675	0.069	mg/l

Notes:

1. MSD Hite Creek KY0022420 DMR values (Jan. 2000 thru Dec. 2004)
2. Hardness average from Jan 1, 2000 thru Dec. 31, 2004 was 170.
3. In accordance with KPDES Permitting Procedures for Determining Reasonable Potential (2000), data points below detection point have been assigned a value of zero.