STEVEN L. BESHEAR
GOVERNOR

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

LEONARD K. PETERS
SECRETARY

November 4, 2009

Mr. Jeff Snook
U.S. Department of Energy
P O Box 1410
Paducah, Kentucky 42001-1410

DEC 10 10:18AM
DEC 10 AM 10:55

Re: Paducah Gaseous Diffusion Plant
KPDES No.: KY0004049
AI No.: 3059
McCracken County, Kentucky

Dear Mr. Snook:

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 Energy and Environment Cabinet, Office of Administrative Hearings, 35-36 Fountain Place, Frankfort, Kentucky 40601 and the Commonwealth of Kentucky, Energy and Environment Cabinet, Division of Water, 200 Fair Oaks Lane, 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 Brenda Taylor, Operational Permits Section, Surface Water Permits Branch, at (502) 564-8158, extension 4921.

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,

Sandra L. Gruzesky, Director
Division of Water

SLG:ljs
Enclosure
c: Division of Water

KPDES

KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT

PERMIT NO.: KY0004049
AI NO.: 3059

AUTHORIZATION TO DISCHARGE UNDER THE KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

Pursuant to Authority in KRS 224,

United States Department of Energy (DOE)
P.O. Box 1410
Paducah, Kentucky 42001-1410

Paducah Remediation Services, LLC
P.O. Box 340
Kevil, Kentucky 42053

Uranium Disposition Services, LLC
1020 Monarch Street, Suite 100
Lexington, Kentucky 40513

is authorized to discharge from a facility located at

Paducah Gaseous Diffusion Plant
Depleted Uranium Hexafluoride Conversion Facility
5600 Hobbs Road
West Paducah, Kentucky 42086

to receiving waters named

Outfalls 001, 015, and 017 discharges to Bayou Creek at mile points 5.6, 6.2, and 7.1, respectively.

Outfalls 019 and 020 discharges to an Unnamed Tributary of Little Bayou Creek at mile point 0.25

in accordance with effluent limitations, monitoring requirements, and other conditions set forth in PARTS I, II, III, IV, and V hereof. The permit consists of this cover sheet, and PART I 13 pages, PART II 6 page, PART III 2 page, PART IV 6 pages, and PART V 3 pages.

This permit became effective on November 1, 2006
This modified permit shall become effective on December 1, 2009
This permit and the authorization to discharge shall expire at midnight, October 31, 2011

November 2, 2009
Date Signed

Sandra L. Gruzesky, Director
Division of Water

A1. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Outfall 001 - The treated wastestreams of the C-752-A Waste Storage and Treatment Facility (100,000 gpy), C-752-C Decontamination Pad (100,000 gpy), C-753 Waste Treatment and Storage, C-616 Wastewater Treatment Facility currently leased to USEC(0.8 MGD), C-612 Northwest Plume Groundwater System (0.3 MGD), C-614 Northeast Plume Containment System, and C-613 Northwest Corner Storm Water Collection Basin (1500 gpm) and contributing sources of these units.

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

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS (lbs/day)		Other Units (Specify)		MONITORING REQUIREMENTS	
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report	N/A	N/A	1/day	Instantaneous
Total Suspended Solids (mg/l)	N/A	N/A	30	60	1/Week	Grab
Oil & Grease (mg/l)	N/A	N/A	10	15	1/Week	Grab
Total Residual Chlorine (mg/l)	N/A	N/A	0.011	0.019	1/Week	Grab
Temperature (°F)	N/A	N/A	Report	89	1/Week	Grab
PCBs (mg/l)	N/A	N/A	Report	Report	1/Week	Grab
Trichloroethylene (mg/l)	N/A	N/A	Report	Report	1/Week	Grab
Total Phosphorus (mg/l)	N/A	N/A	1.0	1.0	1/Week	Grab
Total Alpha (pCi/l)	N/A	N/A	Report	Report	1/Week	Grab
Total Beta (pCi/l)	N/A	N/A	Report	Report	1/Week	Grab
Uranium (µg/l)	N/A	N/A	Report	Report	1/Week	Grab
Chronic Toxicity (TU_C)	N/A	N/A	N/A	1.00	1/Quarter	3 24-Hr Composites
Technetium-99 (pCi/l)	N/A	N/A	Report	Report	1/Quarter	Grab
Hardness (as mg/l $CaCO_3$)	N/A	N/A	Report	Report	1/Quarter	Grab
Free Cyanide (µg/l)	N/A	N/A	Report	Report	1/Quarter	Grab
Heptachlor (µg/l)	N/A	N/A	Report	Report	1/Quarter	Grab
Ideno(1,2,3-cd)pyrene (µg/l)	N/A	N/A	Report	Report	1/Quarter	Grab

The pH of the effluent shall not be less than 6.0 standard units or greater than 9.0 standard units and shall be monitored 1/Week by grab sample.

The abbreviation N/A means Not Applicable.
The abbreviation PCBs means Polychlorinated Biphenyls.

A2. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: Outfall 015 - Untreated storm water runoff from the C-749 Uranium Scrap Burial Yard, C-404 Low-Level Radioactive Waste Burial Ground, and the C-747 Burial Area.

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

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS (lbs/day)		Other Units (Specify)		MONITORING REQUIREMENTS	
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report	N/A	N/A	1/Month	Instantaneous
Total Suspended Solids (mg/l)	N/A	N/A	Report	Report	1/Month	Grab
Oil & Grease (mg/l)	N/A	N/A	10	15	1/Month	Grab
PCBs (mg/l)	N/A	N/A	Report	Report	1/Month	Grab
Total Alpha (ρCi/l)	N/A	N/A	Report	Report	1/Month	Grab
Total Beta (ρCi/l)	N/A	N/A	Report	Report	1/Month	Grab
Uranium (μg/l)	N/A	N/A	Report	Report	1/Month	Grab
Acute Toxicity (TU_A)	N/A	N/A	N/A	1.00	1/Quarter	2 Grabs
Technetium-99 (ρCi/l)	N/A	N/A	Report	Report	1/Quarter	Grab
Hardness (as mg/l $CaCO_3$)	N/A	N/A	Report	Report	1/Quarter	Grab
Total Recoverable Iron (mg/l)	N/A	N/A	Report	Report	1/Quarter	Grab
Benzo(a)anthracene (μg/l)	N/A	N/A	Report	Report	1/Quarter	Grab
Benzo(k)fluoranthene (μg/l)	N/A	N/A	Report	Report	1/Quarter	Grab
Heptachlor (μg/l)	N/A	N/A	Report	Report	1/Quarter	Grab

The pH of the effluent shall not be less than 6.0 standard units or greater than 9.0 standard units and shall be monitored 1/Month by grab sample.

The abbreviation N/A means Not Applicable.
The abbreviation PCBs means Polychlorinated Biphenyls.

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

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters or wastestreams from other outfalls.

A3. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: Outfall 017 - Untreated storm water runoff from the depleted uranium conversion facility site and cylinder yards, and distilled water treatment reject stream and cooling tower blowdown from the conversion facility.

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

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS (lbs/day)		Other Units (Specify)		MONITORING REQUIREMENTS	
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report	N/A	N/A	1/Month	Instantaneous
Temperature[1] (°F)	N/A	N/A	Report	89	1/Month	Grab
Total Suspended Solids (mg/l)	N/A	N/A	Report	Report	1/Month	Grab
Oil & Grease (mg/l)	N/A	N/A	10	15	1/Month	Grab
PCBs (mg/l)	N/A	N/A	Report	Report	1/Month	Grab
Total Recoverable Zinc (µg/l)	N/A	N/A	216	216	1/Month	Grab
Total Alpha (ρCi/l)	N/A	N/A	Report	Report	1/Month	Grab
Total Beta (ρCi/l)	N/A	N/A	Report	Report	1/Month	Grab
Uranium (µg/l)	N/A	N/A	Report	Report	1/Month	Grab
Chronic Toxicity[1] (TU_A)	N/A	N/A	N/A	1.00	1/Month	3 24 Hr Composites
Technetium-99 (ρCi/l)	N/A	N/A	Report	Report	1/Quarter	Grab
Hardness (as mg/l $CaCO_3$)	N/A	N/A	Report	Report	1/Quarter	Grab
Benzo(a)anthracene (µg/l)	N/A	N/A	Report	Report	1/Quarter	Grab
Heptachlor (µg/l)	N/A	N/A	Report	Report	1/Quarter	Grab

The pH of the effluent shall not be less than 6.0 standard units or greater than 9.0 standard units and shall be monitored 1/Month by grab sample.

The abbreviation N/A means Not Applicable.
The abbreviation PCBs means Polychlorinated Biphenyls.

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

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters or wastestreams from other outfalls.

A4. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: Outfall 019 - Storm water runoff from the covered areas of the C-746-U landfill.

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

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS (lbs/day)		Other Units (Specify)		MONITORING REQUIREMENTS	
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report	N/A	N/A	1/Month	Instantaneous
Total Suspended Solids (mg/l)	N/A	N/A	30	60	1/Month	Grab
Oil & Grease (mg/l)	N/A	N/A	10	15	1/Month	Grab
PCBs (lbs/day)(mg/l)	N/A	N/A	Report	Report	1/Month	Grab
Total Recoverable Zinc (µg/l)	N/A	N/A	216	216	1/Month	Grab
Total Alpha (ρCi/l)	N/A	N/A	Report	Report	1/Month	Grab
Total Beta (ρCi/l)	N/A	N/A	Report	Report	1/Month	Grab
Uranium (µg/l)	N/A	N/A	Report	Report	1/Month	Grab
Acute Toxicity (TU_A)	N/A	N/A	N/A	1.00	1/Quarter	2 Grabs
Technetium-99 (ρCi/l)	N/A	N/A	Report	Report	1/Quarter	Grab
Hardness (as mg/l $CaCO_3$)	N/A	N/A	Report	Report	1/Quarter	Grab
Total Recoverable Iron (mg/l)	N/A	N/A	Report	Report	1/Quarter	Grab

The pH of the effluent shall not be less than 6.0 standard units or greater than 9.0 standard units and shall be monitored 1/Week by grab sample.

The abbreviation N/A means Not Applicable.
The abbreviation PCBs means Polychlorinated Biphenyls.
There shall be no discharge of floating solids or visible foam or sheen in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters or wastestreams from other outfalls.

[1]The limits and monitoring for Temperature and Chronic Toxicity for Outfall 017 shall become effective upon completion of construction of the DUF6 facility and commencement of depleted uranium conversion and related discharge
The limits and monitoring for Acute Toxicity for Outfall 017 shall be terminated upon completion of construction of the DUF6 facility and commencement of depleted uranium conversion and related discharge

A5. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: Outfall 020 - Leachate from the C-746-U contained landfill and the C-746-S closed residential landfill.

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

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS (lbs/day) Monthly Avg.	Daily Max.	Other Units (Specify) Monthly Avg.	Daily Max.	MONITORING REQUIREMENTS Measurement Frequency	Sample Type
Flow (MGD)	Report	Report	N/A	N/A	1/Month	Instantaneous
Total Suspended Solids (mg/l)	N/A	N/A	30	60	1/Month	Grab
Oil & Grease (mg/l)	N/A	N/A	10	15	1/Month	Grab
Total Alpha (ρCi/l)	N/A	N/A	Report	Report	1/Month	Grab
Total Beta (ρCi/l)	N/A	N/A	Report	Report	1/Month	Grab
Uranium (µg/l)	N/A	N/A	Report	Report	1/Month	Grab
Acute Toxicity (TU_A)	N/A	N/A	N/A	1.00	1/Quarter	2 Grabs
1,1,1-Trichloroethane (mg/l)	N/A	N/A	0.20	Report	1/Quarter	Grab
Trichloroethylene (mg/l)	N/A	N/A	0.0308	Report	1/Quarter	Grab
Nitrates (as mg/l N)	N/A	N/A	500	Report	1/Quarter	Grab
Chlorides (mg/l)	N/A	N/A	600	1200	1/Quarter	Grab
Total Recoverable Arsenic (µg/l)	N/A	N/A	150	Report	1/Quarter	Grab
Total Recoverable Nickel (µg/l)	N/A	N/A	94	Report	1/Quarter	Grab
Total Recoverable Zinc (µg/l)	N/A	N/A	216	216	1/Quarter	Grab
PCBs (lbs/day)(mg/l)	N/A	0.0	Report	Report	1/Quarter	Grab
Technetium-99 (ρCi/l)	N/A	N/A	Report	Report	1/Quarter	Grab
Hardness (as mg/l $CaCO_3$)	N/A	N/A	Report	Report	1/Quarter	Grab
Phosphorous (mg/l)	N/A	N/A	Report	Report	1/Quarter	Grab
CBOD (mg/l)	N/A	N/A	Report	Report	1/Quarter	Grab
Dissolved Oxygen (mg/l)	N/A	N/A	Report	Report	1/Quarter	Grab
Total Recoverable Iron (mg/l)	N/A	N/A	Report	Report	1/Quarter	Grab

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

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters or wastestreams from other outfalls.

The abbreviation N/A means Not Applicable.

B. Schedule of Compliance

Permittee shall comply with the effluent limitations by the effective date of the permit with the following exceptions.

C. Responsible Parties

The United States Department of Energy (DOE), Paducah Remediation Services, LLC (PRS), and Uranium Disposition Services, LLC (UDS) are co-permittees. The DOE is responsible for all outfalls addressed by this permit. UDS responsibility is limited to Outfall 017 only. PRS is responsible for the remaining Outfalls (001, 015, 019, and 020).

D. Additional Reporting Requirements

The Permittees will furnish the following reports/information to the KDOW as indicated:

A copy of the Annual Site Environmental Report (ASER), to be submitted on Compact Disc (CD) within 30 days of DOE approval of the report. This report will include at a minimum the following information:

- Quarterly in-stream surface water sampling data for PCBs and TCE at 19 locations in the Little Bayou Creek, Bayou Creek, and Ohio River.

- Semi-annual sediment monitoring for PCBs at 14 locations in the Little Bayou Creek and Bayou Creek.

A copy of the Annual PCB Log required by 40 CFR 761.180, to be submitted on Compact Disc on or before December 1st of each year.

PART II - STANDARD CONDITIONS FOR KPDES 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.

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.

PART III

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
Paducah Regional Office
130 Eagle Nest Drive
Paducah, Kentucky 42003
ATTN: Supervisor

Environmental & Public Protection Cabinet
Dept. for Environmental Protection
Division of Water/SWP Branch
200 Fair Oaks Lane
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 5:086, 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.

C. Cooling Water Additives, FIFRA, and Mollusk Control

The discharge of any product registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) in cooling water which ultimately may be released to the waters of the Commonwealth is prohibited, except Herbicides, unless specifically identified and authorized by the KPDES permit. In the event the permittee needs to use a biocide or chemical not previously reported for mollusk control or other purpose, the permittee shall submit sufficient information, a minimum of thirty (30) days prior to the commencement of use of said biocides or chemicals, to the Division of Water for review and establishment of appropriate control parameters. Such information requirements shall include:

1. Name and general composition of biocide or chemical,
2. Any and all aquatic organism toxicity data,
3. Quantities to be used,
4. Frequencies of use,
5. Proposed discharge concentrations, and
6. EPA registration number, if applicable.

PART III

OTHER REQUIREMENTS

D. Bayou Creek and Little Bayou Creek Watershed Monitoring Program

During the reissuance of the previous permit this program was imposed as permit condition to gauge the success of the DOE remediation of the Paducah Gaseous Diffusion Plant. Over the interim period the two watersheds have been extensively sampled to the point that further collection of aquatic organisms could result in a deleterious effect on the aquatic community. Therefore biological sampling will not be required as part of these programs, the permittee shall however continue with the physical/chemical assessment of these watersheds. The permittee shall submit a revised monitoring program for the 2010 calendar year by February 1, 2010.

E. Required EPA Analytical Methods For Selected Pollutants

The following Analytical Methods will be used to demonstrate compliance of the listed pollutant with water quality based limitations. These Methods will be performed with the appropriate Quality Assurance and Quality Controls.

Pollutant	EPA Method	Pollutant	EPA Method
Polychlorinated Biphenyls	8082	Total Recoverable Zinc	6020
1,1,2,2-Tetrachloroethane	8260	1,1-Dichloroethylene	8260
1,2-Diphenylhydrazine	8270SIM	2,4,6-Trichlorophenol	8041
2,4-Dinitrotoluene	8081	3,3-Dichlorobenzidine	8270SIM
4,4'-DDD	8081	4,4'-DDE	8081
4,4'-DDT	8081	Acrylonitrile	8260
Aldrin	8081	alpha-BHC	8081
alpha-Endosulfan	8081	Benzidine	8270SIM
Benzo(a)anthracene	8270SIM	Benzo(a)pyrene	8270SIM
Benzo(k)fluoranthene	8270SIM	Beta-BHC	8081
Beta-Endosulfan	8081	Bis(2-ethylhexyl)phthalate	8270SIM
Carbon Tetrachloride	8260	Chlordane	8081
Chrysene	8270SIM	Dibenzo(a,h)anthracene	8270SIM
Dieldrin	8081	Endrin	8081
Free Cyanide	9010	gamma-BHC (Lindane)	8081
Heptachlor	8081	Heptachlor epoxide	8081
Hexachlorobenzene	8270SIM	Hexachloroethane	8081
Ideno(1,2,3-cd)pyrene	8270SIM	N-Nitrosodimethylamine	8270SIM
N-Nitrosodi-n-Propylamine	8270SIM	N-Nitrosodiphenylamine	8270SIM
Pentachlorophenol	8041	Tetrachloroethylene	8260
Total Recoverable Cadmium	6020	Total Recoverable Copper	6020
Total Recoverable Lead	6020	Total Recoverable Mercury	1631E
Total Recoverable Selenium	6020	Total Recoverable Silver	6020
Total Recoverable Thallium	6020		

SIM stands for Selective Ion Monitoring. The SIMD is the Derivatized run under 8270. The Derivatized run means that the laboratory has to derivatize the sample extract to give them a greater response in order to achieve low Method Detection Limits.

PART IV
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 Outfalls 001 and 017[1].

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.$\geq$80% 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 IC_{25} (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 less than or equal to6°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.

[1]These requirements for Outfall 017 shall become effective upon completion and commencement of operation of the depleted uranium conversion facility.

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 ($\geq$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 $\geq$ 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.

PART IV
ACUTE CONCERNS
Biomonitoring
Precipitation Dependant Discharges

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 Outfalls 015, 017, and 019.

1. Test Requirements

   A. The permittee shall perform a 48-hour static toxicity test with Ceriodaphnia sp. and a 48-hour static toxicity test with fathead minnow (Pimephales promelas). Tests shall be conducted on each of two (2) grab samples taken over the period of discharge (e.g. discrete sample 1 taken at commencement of discharge, sample 2 taken prior to cessation of discharge). Tests shall be conducted with appropriate replicates of 100% effluent, a control and a minimum of four (4) evenly spaced effluent concentrations. The selection of the effluent concentrations is subject to revision by the Division. Testing of the effluent shall be initiated within 36 hours of each sample collection. Controls shall be conducted concurrently with effluent testing using a synthetic water. The analysis will be deemed reasonable and good only if 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 (i.e. monthly or quarterly). Noncompliance with the toxicity limit will be demonstrated if the LC_{50} is less than 100% effluent.

   B. Tests shall be conducted on both species at the frequency specified in PART I of this permit.

      If after at least six (6) tests, it can be determined that Ceriodaphnia or the fathead minnow is more sensitive, a request for testing 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. Acute Toxicity

Two grab samples shall be collected during the discharge event (on or after the initiation of discharge, the second prior to cessation). Compliance testing shall be conducted on the initial sample in accordance with Part IV of this Permit. Testing of the second shall be required if during the performance of the compliance testing preliminary results for the first sample indicate a potential failure. Performance of toxicity testing on the second sample shall be in accordance with the same criteria as that applied to the initial compliance testing including the initiation of testing of the second sample within 36 hours of its collection

If the second test demonstrates noncompliance with the toxicity limit, or any one of the next two routine samples, or any of the samples show a significant noncompliance with the acute limit ($\geq$1.2 times the TU_a), the permittee will be required to perform a Toxicity Reduction Evaluation (TRE). The permittee shall provide written notification, within five (5) days of such an event to the Division of Water also indicating that a TRE would be initiated.

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 Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, EPA-821-R-02-012 (5th edition) or the most recently published edition of this publication.

PART V

BEST MANAGEMENT PRACTICES

SECTION A. GENERAL CONDITIONS

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 224.01-010(35) and who have ancillary manufacturing operations which could result in (1) the release of a hazardous substance, pollutant, or contaminant, or (2) an environmental emergency, as defined in KRS 224.01-400, 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.

2. BMP Plan

The permittee shall develop and implement a Best Management Practices (BMP) plan consistent with 401 KAR 5:065, Section 2(10) pursuant to KRS 224.70-110, which prevents or minimizes the potential for the release of "BMP pollutants" from ancillary activities through plant site runoff; spillage or leaks, sludge or waste disposal; or drainage from raw material storage. A Best Management Practices (BMP) plan will be prepared by the permittee unless the permittee can demonstrate through the submission of a BMP outline that the elements and intent of the BMP have been fulfilled through the use of existing plans such as the Spill Prevention Control and Countermeasure (SPCC) plans, contingency plans, and other applicable documents.

3. Implementation

If this is the first time for the BMP requirement, then the plan shall be developed and submitted to the Division of Water within 90 days of the effective date of the permit. Implementation shall be within 180 days of that submission. For permit renewals the plan in effect at the time of permit reissuance shall remain in effect. Modifications to the plan as a result of ineffectiveness or plan changes to the facility shall be submitted to the Division of Water and implemented as soon as possible.

4. General Requirements

The BMP plan shall:

a. Be documented in narrative form, and shall include any necessary plot plans, drawings, or maps.

b. Establish specific objectives for the control of toxic and hazardous pollutants.

(1) 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.

(2) 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.

c. Establish specific Best Management Practices to meet the objectives identified under paragraph b of this section, addressing each component or system capable of causing a release of "BMP pollutants."

d. Include any special conditions established in part b of this section.

e. Be reviewed by plant engineering staff and the plant manager.

5. 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 baseline BMPs as a minimum.

a. BMP Committee
b. Reporting of BMP Incidents
c. Risk Identification and Assessment
d. Employee Training
e. Inspections and Records
f. Preventive Maintenance
g. Good Housekeeping
h. Materials Compatibility
i. Security
j. Materials Inventory

6. SPCC Plans

The BMP plan may reflect requirements for Spill Prevention Control and Countermeasure (SPCC) plans under Section 311 of the Act and 40 CFR Part 151, and may incorporate any part of such plans into the BMP plan by reference.

7. Hazardous Waste Management

The permittee shall assure the proper management of solid and hazardous waste in accordance with the regulations promulgated under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1978 (RCRA) (40 U.S.C. 6901 et seq.) Management practices required under RCRA regulations shall be referenced in the BMP plan.

8. Documentation

The permittee shall maintain a description of the BMP plan at the facility and shall make the plan available upon request to NREPC personnel. Initial copies and modifications thereof shall be sent to the following addresses when required by Section 3:

Division of Water
Louisville Regional Office
9116 Leesgate Road
Louisville, Kentucky 40222-5084
ATTN: Supervisor

Kentucky Natural Resources and
Environmental Protection Cabinet
Dept. for Environmental Protection
Division of Water/SWP Branch
200 Fair Oaks Lane
Frankfort, Kentucky 40601

9. BMP Plan Modification

The permittee shall amend the BMP plan whenever there is a change in the facility or change in the operation of the facility which materially increases the potential for the ancillary activities to result in the release of "BMP pollutants."

10. Modification for Ineffectiveness

If the BMP plan proves to be ineffective in achieving the general objective of preventing the release of "BMP pollutants," then the specific objectives and requirements under paragraphs b and c of Section 4, the permit, and/or the BMP plan shall be subject to modification to incorporate revised BMP requirements. If at any time following the issuance of this permit the BMP plan is found to be inadequate pursuant to a state or federal site inspection or plan review, the plan shall be modified to incorporate such changes necessary to resolve the concerns.

SECTION B. SPECIFIC CONDITIONS

Periodically Discharged Wastewaters Not Specifically Covered By Effluent Conditions

The co-permittees shall include in this BMP plan procedures and controls necessary for the handling of periodically discharged wastewaters such as intake screen backwash, meter calibration, fire protection, hydrostatic testing water, water associated with demolition projects, etc.

Acceptance of Tennessee Valley Authority (TVA) Shawnee Fossil Plant Wastewaters

The co-permittees shall include in this BMP plan procedures and controls necessary for the handling of wastewaters received from the TVA Shawnee Fossil Plant. Records of volumes and quality of wastewaters transferred, treatment of those wastewaters and final disposition shall be maintained and produced upon request of Division of Water.

STEVEN L. BESHEAR
GOVERNOR

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

LEONARD K. PETERS
SECRETARY

FACT SHEET

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

KPDES No.: KY0004049 **Permit Writer:** Brenda Taylor **Date:** November 2, 2009
AI No.: 3059

1. **SYNOPSIS OF APPLICATION**

a. Name and Address of Applicant

United States Department of Energy (DOE)
P.O. Box 1410
Paducah, Kentucky 42001-1410

Paducah Remediation Services, LLC
P.O. Box 340
Kevil, Kentucky 42053

Uranium Disposition Services, LLC
1020 Monarch Street, Suite 100
Lexington, Kentucky 40513

b. Facility Location

Paducah Gaseous Diffusion Plant
Depleted Uranium Hexafluoride Conversion Facility
5600 Hobbs Road
West Paducah, Kentucky 42086

c. Description of Applicant's Operation

DOE is the owner of the Paducah Gaseous Diffusion Plant, and along with Paducah Remediation Services, LLC conduct cleanup activities including wastewater treatment, waste management, etc. Uranium Disposition Services, LLC will manage the conversion of depleted uranium hexafluoride (DUF_6) to uranium oxide powder, aqueous hydrogen fluoride (HF) and calcium fluoride.

d. Production Capacity of Facility

Not Applicable

pg

e. Description of Existing Pollution Abatement Facilities

Outfall 001 - The treated wastestreams of the C-752-A Waste Storage and Treatment Facility (100,000 gpy), C-752-C Decontamination Pad (100,000 gpy), C-753 Waste Treatment and Storage, C-616 Wastewater Treatment Facility (0.8 MGD), C-612 Northwest Plume Groundwater System (0.3 MGD), and C-613 Northwest Corner Storm Water Collection Basin (1500 gpm) are combined for discharge through this outfall.

The C-752-A Waste Storage and Treatment Facility wastewaters include sump collections, recovered spilled water, decontamination water, landfill leachate, and groundwater purge and development water. Those wastewaters which are contaminated with trichloroethylene (TCE) and polychlorinated biphenyls (PCBs) are treated by carbon adsorption. A photocatalytic reactor treatment unit provides chemical oxidation and electrochemical treatment of wastewaters, utilizing ultraviolet radiation in the presence of a catalyst. Both processes are batch treatment operations.

The C-752-C Decontamination Pad wastewaters include groundwater monitoring well purge and development waters, and equipment decontamination which, includes an isopropyl alcohol rinse. Treatment consists of physical separation, air sparging, and/or carbon adsorption. Treatment of these wastewaters may also take place at C-752-A and C-612.

The C-753 Waste Storage and Treatment Facility receives similar wastewaters and utilizes similar treatment processes as the C-752-A Waste Storage and Treatment Facility.

The C-612 Northwest Groundwater Plume System receives TCE and Technetium-99 (^{99}Tc) contaminated groundwaters from the Northwest Plume, well development, well purging, equipment contamination, and filter back wash waters for treatment. Treatment includes sedimentation, air stripping, ion exchange, carbon adsorption, and recycling.

The C-613 Northwest Corner Storm Water Collection Basin receives runoff from C-746-A Metals Recovery, C-746-B Waste Storage, C-747-A Burial Grounds and the C-746 and C-747 Scrap Yards. Treatment provided includes sedimentation, chemical addition, and recirculation.

The C-614 Northeast Plume Containment System recovers TCE contaminated groundwater from the Northeast Plume and conveys it to the C-637-2A Cooling Tower for where the TCE is stripped from the groundwater.

e. Description of Existing Pollution Abatement Facilities

Outfall 001 - The C-616 Wastewater Treatment Facility treats cooling tower blowdown to reduce phosphates. Treatment processes include chemical precipitation in a clarifier with the supernatant and sludge being discharged to the full-flow lagoon (C-616-F) where sedimentation takes place and acid treatment is available. The North-South Diversion Ditch also conveys a number of wastewaters to the C-616-F full flow lagoon for treatment. Wastewaters conveyed by the North-South Diversion Ditch include surface runoff, C-600 Steam Plant wastewaters (Ash transfer water, demineralizer regeneration, boiler blowdown, and coal pile runoff.), and Miscellaneous wastewaters (C-335 air plant cooling water and condensate blowdown, C-335 and C-337 units, 1,4,5, and 6 cascade building steam condensate, once through pump cooling water, drinking fountain drains, eyewash bath drains, safety shower drains, air conditioners, roof and floor drains, C-535 and C-537 switch house roof and floor drains, and surface runoff.)

Outfall 015 - Untreated storm water runoff from the C-749 Uranium Scrap Burial Yard, C-404 Low-Level Radioactive Waste Burial Ground, and the C-747 Burial Area.

Outfall 017 - Untreated storm water runoff from the depleted uranium conversion facility site and cylinder yards, and distilled water treatment reject stream and cooling tower blowdown from the conversion facility.

Outfall 019 - Storm water runoff from the covered areas of the C-746-U landfill is treated by a sediment basin.

Outfall 020 - Leach ate form the C-746-U contained landfill and the C-746-S closed residential landfill.

f. Permitting Action

This action is a major modification of a major KPDES permit for a Department of Energy remediation site and associated facilities. The permit is being modified in response to mediation of five requests for adjudicatory hearing on the November 1, 2006 reissuance of the permit. The United States Department of Energy (DOE), Paducah Remediation Services, LLC (PRS), and Uranium Disposition Services, LLC (UDS) are co-permittees. The DOE is responsible for all outfalls addressed by this permit. PRS is responsible for Outfalls 001, 015, 019, and 020. UDS is responsible for Outfall 017. During the public notice period DOE informed DOW of several typographical errors inconsistent with the Agreed Order. DOW has made the appropriate corrections in this final permit.

2. **RECEIVING WATERS**

a. Receiving Water Name

Outfalls 001, 015, and 017 discharges to Bayou Creek at mile points 5.6, 6.2, and 7.1, respectively.

Outfalls 019 and 020 discharges to an Unnamed Tributary of Little Bayou Creek at mile point 0.25

b. Stream Segment Use Classifications

Bayou Creek and Little Bayou Creek are classified as Warmwater Aquatic Habitat, Primary Contact Recreation, Secondary Contact Recreation, and Domestic Water Supply.

c. Stream Segment Antidegradation Categorization

The segment of Bayou Creek from the mouth, mile point 0.0, to mile point 6.5 is listed as impaired on the 2004 303(d) List of Waters For Kentucky. Impairments include nonsupport of aquatic life, nonsupport of swimming, and partial support of minimum criteria. Pollutants of concern are Mercury, Radiation, and Metals. Suspected sources are industrial point sources and land disposal. Bayou Creek is listed as a 1st Priority. Bayou Creek has been delisted as being impaired for pH and Thermal modifications.

The segment of Little Bayou Creek from the mouth, mile point 0.0, to mile point 6.5 is listed as impaired on the 2004 303(d) List of Waters For Kentucky. Impairments include nonsupport of aquatic life, nonsupport of fish consumption, and partial support of minimum criteria. Pollutants of concern are PCBs, Radiation, and Metals. Suspected sources are industrial point sources and land disposal. Little Bayou Creek is listed as a 1st Priority. A Total Maximum Daily Load (TMDL) has been developed and approved for PCBs.

d. Stream Low Flow Condition

At the point of discharges, the 7Q10 and the Harmonic Mean for the Bayou Creek are 0.00 and 0.50 cfs, respectively.

At the point of discharges, the 7Q10 and the Harmonic Mean for the Little Bayou Creek are 0.00 and 0.10 cfs, respectively.

At the city of Cairo, Illinois intake, the nearest downstream public water supply intake, the 7Q10 and the Harmonic Mean for the Ohio River are 46,300 and 198,238 cfs, respectively.

3. REPORTED DISCHARGE AND PROPOSED LIMITS

Description of Discharge - Outfall 001 - The treated wastestreams of the C-752-A Waste Storage and Treatment Facility (100,000 gpy), C-752-C Decontamination Pad (100,000 gpy), C-753 Waste Treatment and Storage, C-616 Wastewater Treatment Facility currently leased to USEC(0.8 MGD), C-612 Northwest Plume Groundwater System (0.3 MGD), C-614 Northeast Plume Containment System, and C-613 Northwest Corner Storm Water Collection Basin (1500 gpm) and contributing sources of these units.

Effluent Characteristics	Reported Discharge Monthly Average	Reported Discharge Daily Maximum	Proposed Limits Monthly Average	Proposed Limits Daily Maximum	Applicable Water Quality Criteria and/or Effluent Guidelines
Flow (MGD)	2.27	36.65	Report	Report	401 KAR 5:065, Section 2(8)
Total Suspended Solids (mg/l)	N/R	<25	30	60	401 KAR 5:080, Section 1(2)(c)2
Oil & Grease (mg/l)	BDL	6.05	10	15	401 KAR 5:080, Section 1(2)(c)2
Total Residual Chlorine (mg/l)	0.054	0.29	0.011	0.019	401 KAR 10:031, Section 4(k)
Temperature (°F)	66	91	Report	89	401 KAR 10:031, Section 4(k)
PCBs (mg/l)	BDL	0.007	Report	Report	401 KAR 10:031, Section 6
Trichloroethylene (mg/l)	BDL	BDL	Report	Report	401 KAR 10:031, Section 6
Total Phosphorus (mg/l)	0.19	0.57	1.00	1.00	401 KAR 5:080, Section 1(2)(c)2
Total Alpha (pCi/l)	N/R	19.5	Report	Report	401 KAR 5:080, Section 1(2)(c)2
Total Beta (pCi/l)	N/R	35.7	Report	Report	401 KAR 5:080, Section 1(2)(c)2
Uranium (ug/l)	24	24	Report	Report	401 KAR 5:080, Section 1(2)(c)2
Chronic Toxicity (TU_C)	N/R	2.09	N/A	1.00	401 KAR 10:029, Section 4 401 KAR 10:031, Section 4
Technetium-99 (pCi/l)	33	97	Report	Report	401 KAR 5:065, Section 2(8)
Hardness (as mg/l $CaCO_3$)	253	464	Report	Report	401 KAR 5:065, Section 2(8)
pH (Standard Units)	6.74 (min)	9.2 (max)	6.00 (min)	9.0 (max)	401 KAR 10:031, Section 4
1,1,2,2-Tetrachloroethane (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
1,1-Dichloroethylene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
1,2-Diphenylhydrazine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
2,4,6-Trichlorophenol (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
2,4-Dinitrotoluene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
3,3-Dichlorobenzidine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2

The abbreviation BDL means Below Detection Limit
The abbreviation N/R means Not Reported.
The abbreviation PCBs means Polychlorinated Biphenyls.

The data in the Reported Discharge columns for Flow, Oil & Grease, Total Residual Chlorine, Temperature, PCBs, Trichloroethylene, Total Phosphorus, Uranium, Chronic Toxicity, Technetium-99, Hardness, and pH was determined from an analysis of the Discharge Monitoring Reports (DMRs) for the previous permit.

3. REPORTED DISCHARGE AND PROPOSED LIMITS - continued

Description of Discharge - Outfall 001 - The treated wastestreams of the C-752-A Waste Storage and Treatment Facility (100,000 gpy), C-752-C Decontamination Pad (100,000 gpy), C-753 Waste Treatment and Storage, C-616 Wastewater Treatment Facility currently leased to USEC(0.8 MGD), C-612 Northwest Plume Groundwater System (0.3 MGD), C-614 Northeast Plume Containment System, and C-613 Northwest Corner Storm Water Collection Basin (1500 gpm) and contributing sources of these units.

Effluent Characteristics	Reported Discharge		Proposed Limits		Applicable Water Quality Criteria and/or Effluent Guidelines
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	
4,4'-DDD (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
4,4'-DDE (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
4,4'-DDT (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Acrylonitrile (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Aldrin (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
alpha-BHC (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
alpha-Endosulfan (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Benzidine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Benzo(a)anthracene (µg/l)	0.018	0.018	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Benzo(a)pyrene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Benzo(k)fluoranthene (µg/l)	0.006	0.006	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Beta-BHC (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Beta-Endosulfan (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Bis(2-ethylhexyl)phthalate (µg/l)	0.29	0.29	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Carbon Tetrachloride (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Chlordane (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Chrysene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Dibenzo(a,h)anthracene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Dieldrin (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Endrin (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Free Cyanide (µg/l)	0.0059	0.0059	Report	Report	401 KAR 5:065, Section 2(8)
gamma-BHC (Lindane) (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Heptachlor (µg/l)	0.059	0.059	Report	Report	401 KAR 5:065, Section 2(8)
Heptachlor epoxide (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Hexachlorobenzene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Hexachloroethane (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2

The abbreviation BDL means Below Detection Limit
The abbreviation N/R means Not Reported.

3. REPORTED DISCHARGE AND PROPOSED LIMITS - continued

Description of Discharge - Outfall 001 - The treated wastestreams of the C-752-A Waste Storage and Treatment Facility (100,000 gpy), C-752-C Decontamination Pad (100,000 gpy), C-753 Waste Treatment and Storage, C-616 Wastewater Treatment Facility currently leased to USEC(0.8 MGD), C-612 Northwest Plume Groundwater System (0.3 MGD), C-614 Northeast Plume Containment System, and C-613 Northwest Corner Storm Water Collection Basin (1500 gpm) and contributing sources of these units.

Effluent Characteristics	Reported Discharge		Proposed Limits		Applicable Water Quality Criteria and/or Effluent Guidelines
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	
Ideno(1,2,3-cd)pyrene (µg/l)	0.012	0.012	Report	Report	401 KAR 5:065, Section 2(8)
N-Nitrosodimethylamine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
N-Nitrosodi-n-Propylamine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
N-Nitrosodiphenylamine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Pentachlorophenol (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Tetrachloroethylene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Cadmium (µg/l)	0.00004	0.00004	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Copper (µg/l)	0.0061	0.0061	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Lead (µg/l)	0.0003	0.0003	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Mercury (µg/l)	0.000011	0.000011	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Selenium (µg/l)	0.0026	0.0026	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Silver (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Thallium (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2

The abbreviation BDL means Below Detection Limit
The abbreviation N/R means Not Reported.

4. METHODOLOGY USED IN DETERMINING LIMITATIONS

a. Serial Number

Outfall 001 - The treated wastestreams of the C-752-A Waste Storage and Treatment Facility (100,000 gpy), C-752-C Decontamination Pad (100,000 gpy), C-753 Waste Treatment and Storage, C-616 Wastewater Treatment Facility currently leased to USEC(0.8 MGD), C-612 Northwest Plume Groundwater System (0.3 MGD), C-614 Northeast Plume Containment System, and C-613 Northwest Corner Storm Water Collection Basin (1500 gpm) and contributing sources of these units.

b. Effluent Characteristics

Flow	Total Suspended Solids
Oil & Grease	Total Residual Chlorine
Temperature	Polychlorinated Biphenyls
Trichloroethylene	Total Phosphorus
Total Alpha	Total Beta
Uranium	Chronic Toxicity
Technetium-99	Hardness
pH	1,1,2,2-Tetrachloroethane
1,1-Dichloroethylene	1,2-Diphenylhydrazine
2,4,6-Trichlorophenol	2,4-Dinitrotoluene
3,3-Dichlorobenzidine	4,4'-DDD
4,4'-DDE	4,4'-DDT
Acrylonitrile	Aldrin
alpha-BHC	alpha-Endosulfan
Benzidine	Benzo(a)anthracene
Benzo(a)pyrene	Benzo(k)fluoranthene
Beta-BHC	Beta-Endosulfan
Bis(2-ethylhexyl)phthalate	Carbon Tetrachloride
Chlordane	Chrysene
Dibenzo(a,h)anthracene	Dieldrin
Endrin	Free Cyanide
gamma-BHC (Lindane)	Heptachlor
Heptachlor epoxide	Hexachlorobenzene
Hexachloroethane	Ideno(1,2,3-cd)pyrene
N-Nitrosodimethylamine	N-Nitrosodi-n-Propylamine
N-Nitrosodiphenylamine	Pentachlorophenol
Tetrachloroethylene	Total Recoverable Cadmium
Total Recoverable Copper	Total Recoverable Lead
Total Recoverable Mercury	Total Recoverable Selenium
Total Recoverable Silver	Total Recoverable Thallium

c. Pertinent Factors

The Environmental Protection Agency (EPA) has not developed an Effluent Limitations Guidelines for point source discharges associated with CERCLA or National Priority Superfund site cleanups.

On July 7, 2009 Kentucky's revised water quality standards, 401 KAR 10:031 became effective.

4. METHODOLOGY USED IN DETERMINING LIMITATIONS - continued

c. Pertinent Factors

Agreed Order resolving File No DOW 28187-045, File No DOW 28193-039, File No DOW 28194-039, File No DOW 28195-039 and File No DOW 28196-039.

d. Monitoring Requirements

Flow shall be monitored instantaneously once per day.

Oil & Grease, pH, Polychlorinated Biphenyls (PCBs), Temperature, Total Alpha, Total Beta, Total Phosphorus, Total Residual Chlorine, Total Suspended Solids, Trichloroethylene, and Uranium shall be monitored weekly by grab sample.

Chronic Toxicity shall be monitored quarterly by three (3) 24 hour composite samples collected every other day.

Free Cyanide, Hardness, Heptachlor, Ideno(1,2,3-cd)pyrene, and Technetium-99, shall be monitored quarterly by grab samples.

e. Justification of Limits

The Kentucky Administrative Regulations (KARs) cited below have been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes (KRSs).

Flow, Hardness, and Technetium-99
The monitoring requirements for these parameters are consistent with the requirements of 401 KAR 5:065, Section 2(8)(a).

Oil & Grease, Total Phosphorus, and Total Suspended Solids
The limits for these parameters are consistent with the requirements of 401 KAR 5:080, Section 1(2)(c) 2. These limits are representative of the Division of Water's "Best Professional Judgment" (BPJ) determination of the "Best Practicable Technology Currently Available" (BPT) and "Best Available Technology Economically Achievable" (BAT) requirements for these pollutants.

pH, Temperature, and Total Residual Chlorine
The limits for these parameters are consistent with the requirements of 401 KAR 10:031, Section 4.

Polychlorinated Biphenyls and Trichloroethylene
The limits for these parameters are consistent with the requirements of 401 KAR 10:031, Section 6.

Chronic Toxicity
The requirements for this parameter are consistent with the requirements of 401 KAR 10:029, Section 4 and 401 KAR 10:031, Sections 2 and 4.

4. METHODOLOGY USED IN DETERMINING LIMITATIONS - continued

e. Justification of Limits - continued

Total Alpha, Total Beta, and Uranium
Pursuant to 401 KAR 10:031, Section 6(2) the criteria for these parameters apply for domestic water supply use. Stream flows for water quality based permits are established under Section 3(3) of 401 KAR 10:031. For these pollutants 401 KAR 10:031, Section 3(3)(c) requires the use of harmonic mean flows for cancer-linked substances and 7Q10 flows for non-cancer linked substances determined at the point of withdrawal. The nearest downstream domestic water supply is Cario, Illinois which withdrawals from the Ohio River. The 7Q10 and Harmonic Mean of the Ohio River at the point of withdrawal are 46,300 and 198,238 cfs, respectively. Using either of these flows the resultant effluent limitations are several magnitudes of order greater than the levels reported in the discharge. Pursuant to the Division of Water's Reasonable Potential Analysis protocol monitoring and limitations would not be required if the discharge levels were less than 70% of the calculated effluent limitation. However it is the "Best Professional Judgment" (BPJ) of the Division of Water that based on the historic and present activities conducted at the permitted facility monitoring for these pollutants be conducted. This BPJ determination is consistent with the Division of Water's Reasonable Potential Analysis protocol and 401 KAR 5:080, Section 1(2)(c)2.

Free Cyanide, Heptachlor and Ideno(1,2,3-cd)pyrene,
The continuation of monitoring for these parameters is consistent with the requirements of 401 KAR 5:065, Section 2(8) and the Agreed Order resolving File No DOW 28187-045, File No DOW 28193-039, File No DOW 28194-039, File No DOW 28195-039 and File No DOW 28196-039. A sampling plan was agreed upon for Outfall 001 which required the permittees to collect samples during specific events. If the results of the sampling events produced a single detect of the pollutants in question then the permittees would collect additional samples. If the results of those sampling events produce detects then the permittees agreed to continue monitoring of these pollutants. The sample and re-sampling results for these pollutants indicated detection therefore consistent with the Agreed Order the permit will require continuation of monitoring.

1,1,2,2-Tetrachloroethane, 1,1-Dichloroethylene, 1,2-Diphenylhydrazine, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 3,3-Dichlorobenzidine, 4,4'-DDD, 4,4'-DDT, Acrylonitrile, Aldrin, alpha-BHC, alpha-Endosulfan, Benzidine, beta-BHC, beta-Endosulfan, Carbon Tetrachloride, Chlordane, Chrysene, Dibenzo(a,h)anthracene, Dieldrin, Endrin, gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene, Hexachloroethane, N-Nitrosodimethylamine, N-Nitrosodi-n-Propylamine, N-Nitrosodiphenylamine, Pentachlorophenol, Tetrachloroethylene, Total Recoverable Silver,
The removal of these parameters from the permit is consistent with the 401 KAR 5:080, Section 1(2)(c)2 and the Agreed Order resolving File No DOW 28187-045, File No DOW 28193-039, File No DOW 28194-039, File No DOW 28195-039 and File No DOW 28196-039. A sampling plan was agreed upon for Outfall 001 which required the permittees to collect samples during specific events. If the results of the sampling events produced non-detects of the pollutants in question then the DOW agreed to removal of those pollutants from the permit. The sample results for these pollutants were non-detect therefore consistent with the Agreed Order they are being removed from the permit.

4. METHODOLOGY USED IN DETERMINING LIMITATIONS - continued

e. Justification of Limits - continued

4,4'-DDE, Benzo(a)pyrene,
The removal of these parameters from the permit is consistent with the 401 KAR 5:080, Section 1(2)(c)2 and the Agreed Order resolving File No DOW 28187-045, File No DOW 28193-039, File No DOW 28194-039, File No DOW 28195-039 and File No DOW 28196-039. A sampling plan was agreed upon for Outfall 001 which required the permittees to collect samples during specific events. If the results of the sampling events produced a single detect of the pollutants in question then the permittees would collect additional samples. If the results of those sampling events produce non-detects then DOW agreed to removal of those pollutants from the permit. The sample results for these pollutants produce a detect however upon re-sampling the results indicated non-detect therefore consistent with the Agreed Order they are being removed from the permit.

Benzo(a)anthracene, Benzo(k)fluoranthene, Bis(2-ethylhexyl)phthalate, Total Recoverable Cadmium, Total Recoverable Copper, Total Recoverable Lead, Total Recoverable Mercury, Total Recoverable Selenium, and Total Recoverable Thallium
The removal of these parameters from the permit is consistent with the 401 KAR 5:080, Section 1(2)(c)2. The permittee has requested the removal of these pollutants pursuant to the DOW's reasonable potential criteria which states where the discharge concentration of a pollutant is less than 70% of the calculated water quality based effluent limitation a reasonable potential to violate water quality standards does not exist and monitoring is not required.

5. REPORTED DISCHARGE AND PROPOSED LIMITS

Description of Discharge - Outfall 015 - Untreated storm water runoff from the C-749 Uranium Scrap Burial Yard, C-404 Low-Level Radioactive Waste Burial Ground, and the C-747 Burial Area.

Effluent Characteristics	Reported Discharge Monthly Average	Reported Discharge Daily Maximum	Proposed Limits Monthly Average	Proposed Limits Daily Maximum	Applicable Water Quality Criteria and/or Effluent Guidelines
Flow (MGD)	0.58	0.62	Report	Report	401 KAR 5:065, Section 2(8)
Total Suspended Solids (mg/l)	N/R	<10	Report	Report	401 KAR 5:080, Section 1(2)(c)2
Oil & Grease (mg/l)	BDL	10	10	15	401 KAR 5:080, Section 1(2)(c)2
PCBs (mg/l)	0.0009	0.075	Report	Report	401 KAR 10:031, Section 6
Total Alpha (ρCi/l)	N/R	19.5	Report	Report	401 KAR 5:080, Section 1(2)(c)2
Total Beta (ρCi/l)	N/R	35.7	Report	Report	401 KAR 5:080, Section 1(2)(c)2
Uranium (ug/l)	24	24	Report	Report	401 KAR 5:080, Section 1(2)(c)2
Acute Toxicity (TU_A)	N/R	2.09	N/A	1.00	401 KAR 10:029, Section 4 401 KAR 10:031, Section 4
Technetium-99 (ρCi/l)	37	58	Report	Report	401 KAR 5:065, Section 2(8)
Hardness (as mg/l $CaCO_3$)	164	436	Report	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Iron (mg/l)	0.85	1.24	Report	Report	401 KAR 5:065, Section 2(8)
pH (Standard Units)	6.77 (min)	8.31 (max)	6.00 (min)	9.0 (max)	401 KAR 10:031, Section 4
1,1,2,2-Tetrachloroethane (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
1,1-Dichloroethylene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
1,2-Diphenylhydrazine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
2,4,6-Trichlorophenol (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
2,4-Dinitrotoluene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
3,3-Dichlorobenzidine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2

The abbreviation BDL means Below Detection Limit
The abbreviation N/R means Not Reported.
The abbreviation PCBs means Polychlorinated Biphenyls.

The data in the Reported Discharge columns for Flow, Oil & Grease, Total Residual Chlorine, Temperature, PCBs, Trichloroethylene, Total Phosphorus, Uranium, Chronic Toxicity, Technetium-99, Hardness, and pH was determined from an analysis of the Discharge Monitoring Reports (DMRs) for the previous permit.

5. REPORTED DISCHARGE AND PROPOSED LIMITS - continued

Description of Discharge - Outfall 015 - Untreated storm water runoff from the C-749 Uranium Scrap Burial Yard, C-404 Low-Level Radioactive Waste Burial Ground, and the C-747 Burial Area.

Effluent Characteristics	Reported Discharge		Proposed Limits		Applicable Water Quality Criteria and/or Effluent Guidelines
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	
4,4'-DDD (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
4,4'-DDE (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
4,4'-DDT (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Acrylonitrile (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Aldrin (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
alpha-BHC (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
alpha-Endosulfan (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Benzidine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Benzo(a)anthracene (µg/l)	0.006	0.006	Report	Report	401 KAR 5:065, Section 2(8)
Benzo(a)pyrene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Benzo(k)fluoranthene (µg/l)	0.006	0.006	Report	Report	401 KAR 5:065, Section 2(8)
Beta-BHC (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Beta-Endosulfan (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Bis(2-ethylhexyl)phthalate (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Carbon Tetrachloride (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Chlordane (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Chrysene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Dibenzo(a,h)anthracene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Dieldrin (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Endrin (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Free Cyanide (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
gamma-BHC (Lindane) (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Heptachlor (µg/l)	0.006	0.006	Report	Report	401 KAR 5:065, Section 2(8)
Heptachlor epoxide (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Hexachlorobenzene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Hexachloroethane (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2

The abbreviation BDL means Below Detection Limit
The abbreviation N/R means Not Reported.

5. REPORTED DISCHARGE AND PROPOSED LIMITS - continued

Description of Discharge - Outfall 015 - Untreated storm water runoff from the C-749 Uranium Scrap Burial Yard, C-404 Low-Level Radioactive Waste Burial Ground, and the C-747 Burial Area.

Effluent Characteristics	Reported Discharge		Proposed Limits		Applicable Water Quality Criteria and/or Effluent Guidelines
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	
Ideno(1,2,3-cd)pyrene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
N-Nitrosodimethylamine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
N-Nitrosodi-n-Propylamine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
N-Nitrosodiphenylamine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Pentachlorophenol (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Tetrachloroethylene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Cadmium (µg/l)	0.000073	0.000073	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Copper (µg/l)	0.00488	0.00488	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Lead (µg/l)	0.00066	0.00066	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Mercury (µg/l)	0.0000053	0.0000053	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Selenium (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Silver (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Thallium (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2

The abbreviation BDL means Below Detection Limit
The abbreviation N/R means Not Reported.

6. METHODOLOGY USED IN DETERMINING LIMITATIONS

a. Serial Number

Outfall 015 - Untreated storm water runoff from the C-749 Uranium Scrap Burial Yard, C-404 Low-Level Radioactive Waste Burial Ground, and the C-747 Burial Area.

b. Effluent Characteristics

Flow	Total Suspended Solids
Oil & Grease	Polychlorinated Biphenyls
Total Alpha	Total Beta
Uranium	Acute Toxicity
Technetium-99	Hardness
Total Recoverable Iron	pH
1,1,2,2-Tetrachloroethane	1,1-Dichloroethylene
1,2-Diphenylhydrazine	2,4,6-Trichlorophenol
2,4-Dinitrotoluene	3,3-Dichlorobenzidine
4,4'-DDD	4,4'-DDE
4,4'-DDT	Acrylonitrile
Aldrin	alpha-BHC
alpha-Endosulfan	Benzidine
Benzo(a)anthracene	Benzo(a)pyrene
Benzo(k)fluoranthene	Beta-BHC
Beta-Endosulfan	Bis(2-ethylhexyl)phthalate
Carbon Tetrachloride	Chlordane
Chrysene	Dibenzo(a,h)anthracene
Dieldrin	Endrin
Free Cyanide	gamma-BHC (Lindane)
Heptachlor	Heptachlor epoxide
Hexachlorobenzene	Hexachloroethane
Ideno(1,2,3-cd)pyrene	N-Nitrosodimethylamine
N-Nitrosodi-n-Propylamine	N-Nitrosodiphenylamine
Pentachlorophenol	Tetrachloroethylene
Total Recoverable Cadmium	Total Recoverable Copper
Total Recoverable Lead	Total Recoverable Mercury
Total Recoverable Selenium	Total Recoverable Silver
Total Recoverable Thallium	

c. Pertinent Factors

The Environmental Protection Agency (EPA) has not developed an Effluent Limitations Guidelines for point source discharges associated with CERCLA or National Priority Superfund site cleanups.

On July 7, 2009 Kentucky's revised water quality standards, 401 KAR 10:031 became effective.

Agreed Order resolving File No DOW 28187-045, File No DOW 28193-039, File No DOW 28194-039, File No DOW 28195-039 and File No DOW 28196-039

6. **METHODOLOGY USED IN DETERMINING LIMITATIONS - continued**

d. Monitoring Requirements

Flow shall be monitored instantaneously once per month.

Oil & Grease, pH, Polychlorinated Biphenyls (PCBs), Total Alpha, Total Beta, Total Phosphorus, Total Residual Chlorine, Total Suspended Solids, Trichloroethylene, and Uranium shall be monitored monthly by grab sample.

Acute Toxicity shall be monitored monthly by two (2) grab samples collected during the period of discharge.

Benzo(a)anthracene, Benzo(k)fluoranthene, Hardness, Heptachlor, Technetium-99, and Total Recoverable Iron, shall be monitored quarterly by grab samples.

e. Justification of Limits

The Kentucky Administrative Regulations (KARs) cited below have been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes (KRSs).

Flow, Hardness, Technetium-99, and Total Recoverable Iron
The monitoring requirements for these parameters are consistent with the requirements of 401 KAR 5:065, Section 2(8)(a).

Oil & Grease and Total Suspended Solids
The limits for these parameters are consistent with the requirements of 401 KAR 5:080, Section 1(2)(c) 2. These limits are representative of the Division of Water's "Best Professional Judgment" (BPJ) determination of the "Best Practicable Technology Currently Available" (BPT) and "Best Available Technology Economically Achievable" (BAT) requirements for these pollutants.

pH
The limits for this parameter are consistent with the requirements of 401 KAR 10:031, Section 4.

Polychlorinated Biphenyls
The limits for this parameter are consistent with the requirements of 401 KAR 10:031, Section 6.

Acute Toxicity
The requirements for this parameter are consistent with the requirements of 401 KAR 10:029, Section 4 and 401 KAR 10:031, Sections 2 and 4.

6. METHODOLOGY USED IN DETERMINING LIMITATIONS - continued

e. Justification of Limits - continued

Total Alpha, Total Beta, and Uranium
Pursuant to 401 KAR 10:031, Section 6(2) the criteria for these parameters apply for domestic water supply use. Stream flows for water quality based permits are established under Section 3(3) of 401 KAR 10:031. For these pollutants 401 KAR 10:031, Section 3(3)(c) requires the use of harmonic mean flows for cancer-linked substances and 7Q10 flows for non-cancer linked substances determined at the point of withdrawal. The nearest downstream domestic water supply is Cario, Illinois which withdrawals from the Ohio River. The 7Q10 and Harmonic Mean of the Ohio River at the point of withdrawal are 46,300 and 198,238 cfs, respectively. Using either of these flows the resultant effluent limitations are several magnitudes of order greater than the levels reported in the discharge. Pursuant to the Division of Water's Reasonable Potential Analysis protocol monitoring and limitations would not be required if the discharge levels were less than 70% of the calculated effluent limitation. However it is the "Best Professional Judgment" (BPJ) of the Division of Water that based on the historic and present activities conducted at the permitted facility monitoring for these pollutants be conducted. This BPJ determination is consistent with the Division of Water's Reasonable Potential Analysis protocol and 401 KAR 5:080, Section 1(2)(c)2.

Benzo(a)anthracene, Benzo(k)fluoranthene, and Heptachlor
The continuation of monitoring for these parameters is consistent with the requirements of 401 KAR 5:065, Section 2(8) and the Agreed Order resolving File No DOW 28187-045, File No DOW 28193-039, File No DOW 28194-039, File No DOW 28195-039 and File No DOW 28196-039. A sampling plan was agreed upon for Outfall 001 which required the permittees to collect samples during specific events. If the results of the sampling events produced a single detect of the pollutants in question then the permittees would collect additional samples. If the results of those sampling events produce detects then the permittees agreed to continue monitoring of these pollutants. The sample and re-sampling results for these pollutants indicated detection therefore consistent with the Agreed Order the permit will require continuation of monitoring.

1,1,2,2-Tetrachloroethane, 1,1-Dichloroethylene, 1,2-Diphenylhydrazine, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 3,3-Dichlorobenzidine, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Acrylonitrile, Aldrin, alpha-BHC, alpha-Endosulfan, Benzidine, beta-BHC, beta-Endosulfan, Carbon Tetrachloride, Chlordane, Dieldrin, Endrin, Free Cyanide, Heptachlor epoxide, Hexachlorobenzene, Hexachloroethane, Ideno(1,2,3-cd)pyrene, N-Nitrosodimethylamine, N-Nitrosodiphenylamine, Pentachlorophenol, Tetrachloroethylene, Total Recoverable Selenium, and Total Recoverable Silver,
The removal of these parameters from the permit is consistent with the 401 KAR 5:080, Section 1(2)(c)2 and the Agreed Order resolving File No DOW 28187-045, File No DOW 28193-039, File No DOW 28194-039, File No DOW 28195-039 and File No DOW 28196-039. A sampling plan was agreed upon for Outfall 001 which required the permittees to collect samples during specific events. If the results of the sampling events produced non-detects of the pollutants in question then the DOW agreed to removal of those pollutants from the permit. The sample results for these pollutants were non-detect therefore consistent with the Agreed Order they are being removed from the permit.

6. **METHODOLOGY USED IN DETERMINING LIMITATIONS - continued**

Benzo(a)pyrene, Chrysene, Dibenzo(a,h)anthracene, gamma-BHC (Lindane), N-Nitrosodi-n-Propylamine, and Total Recoverable Thallium
The removal of these parameters from the permit is consistent with the 401 KAR 5:080, Section 1(2)(c)2 and the Agreed Order resolving File No DOW 28187-045, File No DOW 28193-039, File No DOW 28194-039, File No DOW 28195-039 and File No DOW 28196-039. A sampling plan was agreed upon for Outfall 001 which required the permittees to collect samples during specific events. If the results of the sampling events produced a single detect of the pollutants in question then the permittees would collect additional samples. If the results of those sampling events produce non-detects then DOW agreed to removal of those pollutants from the permit. The sample results for these pollutants produce a detect however upon re-sampling the results indicated non-detect therefore consistent with the Agreed Order they are being removed from the permit.

Bis(2-ethylhexyl)phthalate, Total Recoverable Cadmium, Total Recoverable Copper, Total Recoverable Lead, and Total Recoverable Mercury,
The removal of these parameters from the permit is consistent with the 401 KAR 5:080, Section 1(2)(c)2. The permittee has requested the removal of these pollutants pursuant to the DOW's reasonable potential criteria which states where the discharge concentration of a pollutant is less than 70% of the calculated water quality based effluent limitation a reasonable potential to violate water quality standards does not exist and monitoring is not required.

7. REPORTED DISCHARGE AND PROPOSED LIMITS

Description of Discharge - Outfall 017 - Untreated storm water runoff from the depleted uranium conversion facility site and cylinder yards, and distilled water treatment reject stream and cooling tower blowdown from the conversion facility.

Effluent Characteristics	Reported Discharge Monthly Average	Reported Discharge Daily Maximum	Proposed Limits Monthly Average	Proposed Limits Daily Maximum	Applicable Water Quality Criteria and/or Effluent Guidelines
Flow (MGD)	2.05	35.74	Report	Report	401 KAR 5:065, Section 2(8)
Temperature[1] (°F)	N/R	N/R	Report	89	401 KAR 5:031, Section 4
Total Suspended Solids (mg/l)	N/R	23	Report	Report	401 KAR 5:080, Section 1(2)(c)2
Oil & Grease (mg/l)	BDL	BDL	10	15	401 KAR 5:080, Section 1(2)(c)2
PCBs (mg/l)	0.0043	0.415	Report	Report	401 KAR 10:031, Section 6
Total Alpha (ρCi/l)	N/R	19.5	Report	Report	401 KAR 5:080, Section 1(2)(c)2
Total Beta (ρCi/l)	N/R	35.7	Report	Report	401 KAR 5:080, Section 1(2)(c)2
Uranium (ug/l)	3.0	7.0	Report	Report	401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Zinc (µg/l)	147	263	216	216	401 KAR 10:031, Section 4
Acute Toxicity (TU_a)	N/A	N/A	N/A	1.00	401 KAR 10:029, Section 4 401 KAR 10:031, Section 4
Chronic Toxicity[1] (TU_c)	N/R	N/R	N/A	1.00	401 KAR 10:029, Section 4 401 KAR 10:031, Section 4
Technetium-99 (ρCi/l)	21.5	26.6	Report	Report	401 KAR 5:065, Section 2(8)
Hardness (as mg/l $CaCO_3$)	97	527	Report	Report	401 KAR 5:065, Section 2(8)
pH (Standard Units)	7.00 (min)	8.90 (max)	6.00 (min)	9.0 (max)	401 KAR 10:031, Section 4
1,1,2,2-Tetrachloroethane (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
1,1-Dichloroethylene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
1,2-Diphenylhydrazine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
2,4,6-Trichlorophenol (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
2,4-Dinitrotoluene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
3,3-Dichlorobenzidine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2

The abbreviation BDL means Below Detection Limit
The abbreviation N/R means Not Reported.
The abbreviation PCBs means Polychlorinated Biphenyls.
The data in the Reported Discharge columns for Flow, Oil & Grease, Total Residual Chlorine, Temperature, PCBs, Trichloroethylene, Total Phosphorus, Uranium, Chronic Toxicity, Technetium-99, Hardness, and pH was determined from an analysis of the Discharge Monitoring Reports (DMRs) for the previous permit.
[1]The limits and monitoring for Temperature and Chronic Toxicity for Outfall 017 shall become effective upon completion of construction of the DUF6 facility and commencement of depleted uranium conversion and related discharge
The limits and monitoring for Acute Toxicity for Outfall 017 shall be terminated upon completion of construction of the DUF6 facility and commencement of depleted uranium conversion and related discharge

7. REPORTED DISCHARGE AND PROPOSED LIMITS - continued

Description of Discharge - Outfall 017 - Untreated storm water runoff from the depleted uranium conversion facility site and cylinder yards, and distilled water treatment reject stream and cooling tower blowdown from the conversion facility.

Effluent Characteristics	Reported Discharge Monthly Average	Reported Discharge Daily Maximum	Proposed Limits Monthly Average	Proposed Limits Daily Maximum	Applicable Water Quality Criteria and/or Effluent Guidelines
4,4'-DDD (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
4,4'-DDE (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
4,4'-DDT (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Acrylonitrile (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Aldrin (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
alpha-BHC (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
alpha-Endosulfan (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Benzidine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Benzo(a)anthracene (µg/l)	0.0091	0.0091	Report	Report	401 KAR 5:065, Section 2(8)
Benzo(a)pyrene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Benzo(k)fluoranthene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Beta-BHC (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Beta-Endosulfan (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Bis(2-ethylhexyl)phthalate (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Carbon Tetrachloride (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Chlordane (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Chrysene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Dibenzo(a,h)anthracene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Dieldrin (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Endrin (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Free Cyanide (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
gamma-BHC (Lindane) (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Heptachlor (µg/l)	0.0046	0.0046	Report	Report	401 KAR 5:065, Section 2(8)
Heptachlor epoxide (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Hexachlorobenzene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Hexachloroethane (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2

The abbreviation BDL means Below Detection Limit
The abbreviation N/R means Not Reported.

7. REPORTED DISCHARGE AND PROPOSED LIMITS - continued

Description of Discharge - Outfall 017 - Untreated storm water runoff from the depleted uranium conversion facility site and cylinder yards, and distilled water treatment reject stream and cooling tower blowdown from the conversion facility.

Effluent Characteristics	Reported Discharge Monthly Average	Reported Discharge Daily Maximum	Proposed Limits Monthly Average	Proposed Limits Daily Maximum	Applicable Water Quality Criteria and/or Effluent Guidelines
Ideno(1,2,3-cd)pyrene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
N-Nitrosodimethylamine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
N-Nitrosodi-n-Propylamine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
N-Nitrosodiphenylamine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Pentachlorophenol (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Tetrachloroethylene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Cadmium (µg/l)	0.00001	0.00001	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Copper (µg/l)	0.0018	0.0018	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Lead (µg/l)	0.00065	0.00065	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Mercury (µg/l)	0.0000019	0.0000019	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Selenium (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Silver (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Thallium (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2

The abbreviation BDL means Below Detection Limit
The abbreviation N/R means Not Reported.

8. METHODOLOGY USED IN DETERMINING LIMITATIONS

a. Serial Number

Outfall 017 - Untreated storm water runoff from the depleted uranium conversion facility site and cylinder yards, and distilled water treatment reject stream and cooling tower blowdown from the conversion facility.

b. Effluent Characteristics

Flow	Total Suspended Solids
Oil & Grease	Polychlorinated Biphenyls
Total Alpha	Total Beta
Uranium	Total Recoverable Zinc
Acute Toxicity	Technetium-99
Hardness	pH
1,1,2,2-Tetrachloroethane	1,1-Dichloroethylene
1,2-Diphenylhydrazine	2,4,6-Trichlorophenol
2,4-Dinitrotoluene	3,3-Dichlorobenzidine
4,4'-DDD	4,4'-DDE
4,4'-DDT	Acrylonitrile
Aldrin	alpha-BHC
alpha-Endosulfan	Benzidine
Benzo(a)anthracene	Benzo(a)pyrene
Benzo(k)fluoranthene	Beta-BHC
Beta-Endosulfan	Bis(2-ethylhexyl)phthalate
Carbon Tetrachloride	Chlordane
Chrysene	Dibenzo(a,h)anthracene
Dieldrin	Endrin
Free Cyanide	gamma-BHC (Lindane)
Heptachlor	Heptachlor epoxide
Hexachlorobenzene	Hexachloroethane
Ideno(1,2,3-cd)pyrene	N-Nitrosodimethylamine
N-Nitrosodi-n-Propylamine	N-Nitrosodiphenylamine
Pentachlorophenol	Tetrachloroethylene
Total Recoverable Cadmium	Total Recoverable Copper
Total Recoverable Lead	Total Recoverable Mercury
Total Recoverable Selenium	Total Recoverable Silver
Total Recoverable Thallium	Dissolved Alpha

c. Pertinent Factors

The Environmental Protection Agency (EPA) has not developed an Effluent Limitations Guidelines for point source discharges associated with CERCLA or National Priority Superfund site cleanups.

On July 7, 2009 Kentucky's revised water quality standards, 401 KAR 10:031 became effective.

Agreed Order resolving File No DOW 28187-045, File No DOW 28193-039, File No DOW 28194-039, File No DOW 28195-039 and File No DOW 28196-039

8. **METHODOLOGY USED IN DETERMINING LIMITATIONS - continued**

d. Monitoring Requirements

Flow shall be monitored instantaneously once per month.

Oil & Grease, pH, Polychlorinated Biphenyls (PCBs), Temperature, Total Alpha, Total Beta, Total Recoverable Zinc, Total Suspended Solids, and Uranium shall be monitored monthly by grab sample.

Chronic Toxicity shall be monitored monthly by three (3) 24 hour composite samples collected every other day.

Benzo(a)anthracene, Hardness, Heptachlor, shall be monitored quarterly by grab samples.

e. Justification of Limits

The Kentucky Administrative Regulations (KARs) cited below have been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes (KRSs).

Flow, Hardness, and Technetium-99
The monitoring requirements for these parameters are consistent with the requirements of 401 KAR 5:065, Section 2(8)(a).

Oil & Grease, and Total Suspended Solids
The limits for these parameters are consistent with the requirements of 401 KAR 5:080, Section 1(2)(c) 2. These limits are representative of the Division of Water's "Best Professional Judgment" (BPJ) determination of the "Best Practicable Technology Currently Available" (BPT) and "Best Available Technology Economically Achievable" (BAT) requirements for these pollutants.

pH, Temperature, Total Recoverable Zinc
The limits for these parameters are consistent with the requirements of 401 KAR 10:031, Section 4.

Polychlorinated Biphenyls, and Total Recoverable Zinc
The limits for these parameters are consistent with the requirements of 401 KAR 10:031, Section 6.

Chronic Toxicity
The requirements for this parameter are consistent with the requirements of 401 KAR 10:029, Section 4 and 401 KAR 10:031, Sections 2 and 4.

8. **METHODOLOGY USED IN DETERMINING LIMITATIONS - continued**

e. Justification of Limits - continued

Total Alpha, Total Beta, and Uranium
Pursuant to 401 KAR 10:031, Section 6(2) the criteria for these parameters apply for domestic water supply use. Stream flows for water quality based permits are established under Section 3(3) of 401 KAR 10:031. For these pollutants 401 KAR 10:031, Section 3(3)(c) requires the use of harmonic mean flows for cancer-linked substances and 7Q10 flows for non-cancer linked substances determined at the point of withdrawal. The nearest downstream domestic water supply is Cario, Illinois which withdrawals from the Ohio River. The 7Q10 and Harmonic Mean of the Ohio River at the point of withdrawal are 46,300 and 198,238 cfs, respectively. Using either of these flows the resultant effluent limitations are several magnitudes of order greater than the levels reported in the discharge. Pursuant to the Division of Water's Reasonable Potential Analysis protocol monitoring and limitations would not be required if the discharge levels were less than 70% of the calculated effluent limitation. However it is the "Best Professional Judgment" (BPJ) of the Division of Water that based on the historic and present activities conducted at the permitted facility monitoring for these pollutants be conducted. This BPJ determination is consistent with the Division of Water's Reasonable Potential Analysis protocol and 401 KAR 5:080, Section 1(2)(c)2.

Benzo(a)anthracene, and Heptachlor
The continuation of monitoring for these parameters is consistent with the requirements of 401 KAR 5:065, Section 2(8) and the Agreed Order resolving File No DOW 28187-045, File No DOW 28193-039, File No DOW 28194-039, File No DOW 28195-039 and File No DOW 28196-039. A sampling plan was agreed upon for Outfall 001 which required the permittees to collect samples during specific events. If the results of the sampling events produced a single detect of the pollutants in question then the permittees would collect additional samples. If the results of those sampling events produce detects then the permittees agreed to continue monitoring of these pollutants. The sample and re-sampling results for these pollutants indicated detection therefore consistent with the Agreed Order the permit will require continuation of monitoring.

1,1,2,2-Tetrachloroethane, 1,1-Dichloroethylene, 1,2-Diphenylhydrazine, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 3,3-Dichlorobenzidine, 4,4'-DDD, 4,4'-DDE 4,4'-DDT, Acrylonitrile, Aldrin, alpha-BHC, alpha-Endosulfan, beta-BHC, beta-Endosulfan, Carbon Tetrachloride, Chlordane, Dieldrin, Endrin, Free Cyanide, gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene, Hexachloroethane, N-Nitrosodimethylamine, N-Nitrosodiphenylamine, Pentachlorophenol, Tetrachloroethylene, Total Recoverable Selenium, Total Recoverable Silver, and Total Recoverable Thallium
The removal of these parameters from the permit is consistent with the 401 KAR 5:080, Section 1(2)(c)2 and the Agreed Order resolving File No DOW 28187-045, File No DOW 28193-039, File No DOW 28194-039, File No DOW 28195-039 and File No DOW 28196-039. A sampling plan was agreed upon for Outfall 001 which required the permittees to collect samples during specific events. If the results of the sampling events produced non-detects of the pollutants in question then the DOW agreed to removal of those pollutants from the permit. The sample results for these pollutants were non-detect therefore consistent with the Agreed Order they are being removed from the permit.

8. **METHODOLOGY USED IN DETERMINING LIMITATIONS - continued**

Benzidine, Benzo(a)pyrene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Ideno(1,2,3-cd)pyrene, N-Nitrosodi-n-Propylamine, The removal of these parameters from the permit is consistent with the 401 KAR 5:080, Section 1(2)(c)2 and the Agreed Order resolving File No DOW 28187-045, File No DOW 28193-039, File No DOW 28194-039, File No DOW 28195-039 and File No DOW 28196-039. A sampling plan was agreed upon for Outfall 001 which required the permittees to collect samples during specific events. If the results of the sampling events produced a single detect of the pollutants in question then the permittees would collect additional samples. If the results of those sampling events produce non-detects then DOW agreed to removal of those pollutants from the permit. The sample results for these pollutants produce a detect however upon re-sampling the results indicated non-detect therefore consistent with the Agreed Order they are being removed from the permit.

Bis(2-ethylhexyl)phthalate, Total Recoverable Cadmium, Total Recoverable Copper, Total Recoverable Lead, and Total Recoverable Mercury, The removal of these parameters from the permit is consistent with the 401 KAR 5:080, Section 1(2)(c)2. The permittee has requested the removal of these pollutants pursuant to the DOW's reasonable potential criteria which states where the discharge concentration of a pollutant is less than 70% of the calculated water quality based effluent limitation a reasonable potential to violate water quality standards does not exist and monitoring is not required.

9. REPORTED DISCHARGE AND PROPOSED LIMITS

Description of Discharge - Outfall 019 - Storm water runoff from the covered areas of the C-746-U landfill

Effluent Characteristics	Reported Discharge Monthly Average	Reported Discharge Daily Maximum	Proposed Limits Monthly Average	Proposed Limits Daily Maximum	Applicable Water Quality Criteria and/or Effluent Guidelines
Flow (MGD)	0.66	1.25	Report	Report	401 KAR 5:065, Section 2(8)
Total Suspended Solids (mg/l)	18.5	29	30	60	401 KAR 5:080, Section 1(2)(c)2
Oil & Grease (mg/l)	BDL	BDL	10	15	401 KAR 5:080, Section 1(2)(c)2
PCBs (mg/l)	0.0043	0.415	Report	Report	401 KAR 5:065, Section 2(8)
BOD_5 (mg/l)	N/R	<10	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Ammonia (as mg/l N)	N/R	<0.2	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
α-Terpineol (mg/l)	N/R	N/R	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Benzoic Acid (mg/l)	N/R	N/R	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
p-Cresol (mg/l)	N/R	N/R	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Phenol (mg/l)	N/R	N/R	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Alpha (ρCi/l)	N/R	19.5	Report	Report	401 KAR 5:080, Section 1(2)(c)2
Total Beta (ρCi/l)	N/R	35.7	Report	Report	401 KAR 5:080, Section 1(2)(c)2
Uranium (ug/l)	4.0	5.0	Report	Report	401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Zinc (µg/l)	147	263	216	216	401 KAR 5:080, Section 1(2)(c)2
Acute Toxicity (TU_A)	N/R	2.09	N/A	1.00	401 KAR 10:031, Section 4 401 KAR 10:029, Section 4 401 KAR 10:031, Section 4
Technetium-99 (ρCi/l)	0.69	22	Report	Report	401 KAR 5:065, Section 2(8)
Hardness (as mg/l $CaCO_3$)	73	100	Report	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Iron (mg/l)	0.83	2.03	Report	Report	401 KAR 5:065, Section 2(8)
pH (Standard Units)	7.10 (min)	8.82 (max)	6.00 (min)	9.0 (max)	401 KAR 10:031, Section 4
1,1,2,2-Tetrachloroethane (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
1,1-Dichloroethylene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
1,2-Diphenylhydrazine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
2,4,6-Trichlorophenol (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2

The abbreviation BDL means Below Detection Limit
The abbreviation N/R means Not Reported.
The abbreviation PCBs means Polychlorinated Biphenyls.
The abbreviation BOD_5 means Biochemical Oxygen Demand, 5-day.
The data in the Reported Discharge columns for Flow, Oil & Grease, Total Residual Chlorine, Temperature, PCBs, Trichloroethylene, Total Phosphorus, Uranium, Chronic Toxicity, Technetium-99, Hardness, and pH was determined from an analysis of the Discharge Monitoring Reports (DMRs) for the previous permit.

9. REPORTED DISCHARGE AND PROPOSED LIMITS - continued

Description of Discharge - Outfall 019 - Storm water runoff from the covered areas of the C-746-U landfill

Effluent Characteristics	Reported Discharge Monthly Average	Reported Discharge Daily Maximum	Proposed Limits Monthly Average	Proposed Limits Daily Maximum	Applicable Water Quality Criteria and/or Effluent Guidelines
2,4-Dinitrotoluene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
3,3-Dichlorobenzidine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
4,4'-DDD (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
4,4'-DDE (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
4,4'-DDT (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Acrylonitrile (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Aldrin (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
alpha-BHC (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
alpha-Endosulfan (µg/l)	0.00465	0.00465	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Benzidine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Benzo(a)anthracene (µg/l)	0.0043	0.0043	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Benzo(a)pyrene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Benzo(k)fluoranthene (µg/l)	0.0031	0.0031	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Beta-BHC (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Beta-Endosulfan (µg/l)	0.00245	0.00245	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Bis(2-ethylhexyl)phthalate (µg/l)	0.294	0.294	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Carbon Tetrachloride (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Chlordane (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Chrysene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Dibenzo(a,h)anthracene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Dieldrin (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Endrin (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Free Cyanide (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
gamma-BHC (Lindane) (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Heptachlor (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Heptachlor epoxide (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Hexachlorobenzene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Hexachloroethane (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2

The abbreviation BDL means Below Detection Limit
The abbreviation N/R means Not Reported.

9. REPORTED DISCHARGE AND PROPOSED LIMITS - continued

Description of Discharge - Outfall 019 - Storm water runoff from the covered areas of the C-746-U landfill

Effluent Characteristics	Reported Discharge Monthly Average	Reported Discharge Daily Maximum	Proposed Limits Monthly Average	Proposed Limits Daily Maximum	Applicable Water Quality Criteria and/or Effluent Guidelines
Ideno(1,2,3-cd)pyrene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
N-Nitrosodimethylamine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
N-Nitrosodi-n-Propylamine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
N-Nitrosodiphenylamine (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Pentachlorophenol (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Tetrachloroethylene (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Cadmium (µg/l)	0.00013	0.00013	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Copper (µg/l)	0.0028	0.0028	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Lead (µg/l)	0.0013	0.0013	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Mercury (µg/l)	0.0000047	0.0000047	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Selenium (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Silver (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Thallium (µg/l)	BDL	BDL	Remove from permit		401 KAR 5:080, Section 1(2)(c)2

The abbreviation BDL means Below Detection Limit
The abbreviation N/R means Not Reported.

10. METHODOLOGY USED IN DETERMINING LIMITATIONS

a. Serial Number

Outfall 019 - Storm water runoff from the covered areas of the C-746-U landfill

b. Effluent Characteristics

Flow	Total Suspended Solids
Oil & Grease	Polychlorinated Biphenyls
BOD_5	Ammonia
α-Terpineol	Benzoic Acid
p-Cresol	Phenol
Total Alpha	Total Beta
Uranium	Total Recoverable Zinc
Acute Toxicity	Technetium-99
Hardness	Total Recoverable Iron
pH	1,1,2,2-Tetrachloroethane
1,1-Dichloroethylene	1,2-Diphenylhydrazine
2,4,6-Trichlorophenol	2,4-Dinitrotoluene
3,3-Dichlorobenzidine	4,4'-DDD
4,4'-DDE	4,4'-DDT
Acrylonitrile	Aldrin
alpha-BHC	alpha-Endosulfan
Benzidine	Benzo(a)anthracene
Benzo(a)pyrene	Benzo(k)fluoranthene
Beta-BHC	Beta-Endosulfan
Bis(2-ethylhexyl)phthalate	Carbon Tetrachloride
Chlordane	Chrysene
Dibenzo(a,h)anthracene	Dieldrin
Endrin	Free Cyanide
gamma-BHC (Lindane)	Heptachlor
Heptachlor epoxide	Hexachlorobenzene
Hexachloroethane	Ideno(1,2,3-cd)pyrene
N-Nitrosodimethylamine	N-Nitrosodi-n-Propylamine
N-Nitrosodiphenylamine	Pentachlorophenol
Tetrachloroethylene	Total Recoverable Cadmium
Total Recoverable Copper	Total Recoverable Lead
Total Recoverable Mercury	Total Recoverable Selenium
Total Recoverable Silver	Total Recoverable Thallium

c. Pertinent Factors

On July 7, 2009 Kentucky's revised water quality standards, 401 KAR 10:031 became effective.

d. Monitoring Requirements

Flow shall be monitored instantaneously once per month.

Polychlorinated Biphenyls (PCBs), Total Alpha, Total Beta, Total Suspended Solids, and Uranium shall be monitored monthly by grab sample.

Acute Toxicity shall be monitored monthly by two (2) grab samples collected during the period of discharge.

10. METHODOLOGY USED IN DETERMINING LIMITATIONS - continued

e. Justification of Limits

The Kentucky Administrative Regulations (KARs) cited below have been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes (KRSs).

Flow, Hardness, Polychlorinated BiphenylsTechnetium-99, and Total Recoverable Iron
The monitoring requirements for these parameters are consistent with the requirements of 401 KAR 5:065, Section 2(8)(a).

Oil & Grease, and Total Suspended Solids
The limits for these parameters are consistent with the requirements of 401 KAR 5:080, Section 1(2)(c) 2. These limits are representative of the Division of Water's "Best Professional Judgment" (BPJ) determination of the "Best Practicable Technology Currently Available" (BPT) and "Best Available Technology Economically Achievable" (BAT) requirements for these pollutants.

pH
The limits for this parameter are consistent with the requirements of 401 KAR 10:031, Section 4.

Total Alpha, Total Beta, and Uranium
Pursuant to 401 KAR 10:031, Section 6(2) the criteria for these parameters apply for domestic water supply use. Stream flows for water quality based permits are established under Section 3(3) of 401 KAR 10:031. For these pollutants 401 KAR 10:031, Section 3(3)(c) requires the use of harmonic mean flows for cancer-linked substances and 7Q10 flows for non-cancer linked substances determined at the point of withdrawal. The nearest downstream domestic water supply is Cario, Illinois which withdrawals from the Ohio River. The 7Q10 and Harmonic Mean of the Ohio River at the point of withdrawal are 46,300 and 198,238 cfs, respectively. Using either of these flows the resultant effluent limitations are several magnitudes of order greater than the levels reported in the discharge. Pursuant to the Division of Water's Reasonable Potential Analysis protocol monitoring and limitations would not be required if the discharge levels were less than 70% of the calculated effluent limitation. However it is the "Best Professional Judgment" (BPJ) of the Division of Water that based on the historic and present activities conducted at the permitted facility monitoring for these pollutants be conducted. This BPJ determination is consistent with the Division of Water's Reasonable Potential Analysis protocol and 401 KAR 5:080, Section 1(2)(c)2.

Total Recoverable Zinc
The limits for this parameter are consistent with the requirements of 401 KAR 10:031, Section 6.

Acute Toxicity
The requirements for this parameter are consistent with the requirements of 401 KAR 10:029, Section 4 and 401 KAR 10:031, Sections 2 and 4.

10. METHODOLOGY USED IN DETERMINING LIMITATIONS - continued

e. Justification of Limits - continued

α-Terpineol, Ammonia, BOD_5, Benzoic Acid, p-Cresol, and Phenol
The removal of these parameters from the permit is consistent with the 401 KAR 5:080, Section 1(2)(c)2 and the Agreed Order resolving File No DOW 28187-045, File No DOW 28193-039, File No DOW 28194-039, File No DOW 28195-039 and File No DOW 28196-039.

1,1,2,2-Tetrachloroethane, 1,1-Dichloroethylene, 1,2-Diphenylhydrazine, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, Beta-BHC, Carbon Tetrachloride, Endrin, Free Cyanide, gamma-BHC (Lindane), Hexachlorobenzene, Hexachloroethane, Ideno(1,2,3-cd)pyrene, N-Nitrosodimethylamine, N-Nitrosodi-n-Propylamine, N-Nitrosodiphenylamine, Pentachlorophenol, Tetrachloroethylene, Total Recoverable Selenium, Total Recoverable Silver, Total Recoverable Thallium, and 3,3-Dichlorobenzidine
The removal of these parameters from the permit is consistent with the 401 KAR 5:080, Section 1(2)(c)2 and the Agreed Order resolving File No DOW 28187-045, File No DOW 28193-039, File No DOW 28194-039, File No DOW 28195-039 and File No DOW 28196-039. A sampling plan was agreed upon for Outfall 001 which required the permittees to collect samples during specific events. If the results of the sampling events produced non-detects of the pollutants in question then the DOW agreed to removal of those pollutants from the permit. The sample results for these pollutants were non-detect therefore consistent with the Agreed Order they are being removed from the permit.

Alpha-Endosulfan, Benzo(a)anthracene, Benzo(k)fluoranthene, Beta-Endosulfan, Bis(2-ethylhexyl)phthalate, Total Recoverable Cadmium, Total Recoverable Copper, Total Recoverable Lead, Total Recoverable Mercury,
The removal of these parameters from the permit is consistent with the 401 KAR 5:080, Section 1(2)(c)2. The permittee has requested the removal of these pollutants pursuant to the DOW's reasonable potential criteria which states where the discharge concentration of a pollutant is less than 70% of the calculated water quality based effluent limitation a reasonable potential to violate water quality standards does not exist and monitoring is not required.

11. REPORTED DISCHARGE AND PROPOSED LIMITS

Description of Discharge - Outfall 020 - Leachate from the C-746-U contained landfill and the C-746-S closed residential landfill

Effluent Characteristics	Reported Discharge Monthly Average	Reported Discharge Daily Maximum	Proposed Limits Monthly Average	Proposed Limits Daily Maximum	Applicable Water Quality Criteria and/or Effluent Guidelines
Flow (MGD)	N/R	N/R	Report	Report	401 KAR 5:065, Section 2(8)
Total Suspended Solids (mg/l)	N/R	N/R	30	60	401 KAR 5:080, Section 1(2)(c)2
Oil & Grease (mg/l)	N/R	N/R	10	15	401 KAR 5:080, Section 1(2)(c)2
PCBs (mg/l)	N/R	N/R	Report	Report	401 KAR 5:065, Section 2(8)
Total Alpha (ρCi/l)	N/R	N/R	Report	Report	401 KAR 5:080, Section 1(2)(c)2
Total Beta (ρCi/l)	N/R	N/R	Report	Report	401 KAR 5:080, Section 1(2)(c)2
Uranium (ug/l)	N/R	N/R	Report	Report	401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Zinc (µg/l)	N/R	N/R	216	216	401 KAR 10:031, Section 4
Acute Toxicity (TU_A)	N/R	N/R	N/A	1.00	401 KAR 10:029, Section 4 401 KAR 10:031, Section 4
Technetium-99 (ρCi/l)	N/R	N/R	Report	Report	401 KAR 5:065, Section 2(8)
Hardness (as mg/l $CaCO_3$)	N/R	N/R	Report	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Iron (mg/l)	N/R	N/R	Report	Report	401 KAR 5:065, Section 2(8)
pH (Standard Units)	N/R	N/R	6.00 (min)	9.0 (max)	401 KAR 10:031, Section 4
1,1,1-Trichloroethane (µg/l)	N/R	N/R	20	Report	401 KAR 10:031, Section 4
Trichloroethylene (µg/l)	N/R	N/R	30.8	Report	401 KAR 10:031, Section 4
Nitrates (as mg/l N)	N/R	N/R	500	Report	401 KAR 10:031, Section 4
Chlorides (as mg/l)	N/R	N/R	600	1200	401 KAR 10:031, Section 4
Total Recoverable Arsenic (µg/l)	N/R	N/R	150	Report	401 KAR 10:031, Section 4
Total Recoverable Nickel (µg/l)	N/R	N/R	94	Report	401 KAR 10:031, Section 4
Phosphorus (mg/l)	N/R	N/R	Report	Report	401 KAR 10:031, Section 4
CBOD (mg/l)	N/R	N/R	Report	Report	401 KAR 10:031, Section 4
Dissolved Oxygen (mg/l)	N/R	N/R	Report	Report	401 KAR 10:031, Section 4

The abbreviation N/R means Not Reported.
The abbreviation PCBs means Polychlorinated Biphenyls.
The abbreviation $CBOD_5$ means Carbonaceous Biochemical Oxygen Demand, 5-day.

12. METHODOLOGY USED IN DETERMINING LIMITATIONS

a. Serial Number

Outfall 020 - Leachate from the C-746-U contained landfill and the C-746-S closed residential landfill

b. Effluent Characteristics

Flow	Total Suspended Solids
Oil & Grease	Polychlorinated Biphenyls
Total Alpha	Total Beta
Uranium	Total Recoverable Zinc
Acute Toxicity	Technetium-99
Hardness	Total Recoverable Iron
pH	1,1,1-Trichloroethane
Trichloroethylene	Nitrates
Chlorides	Total Recoverable Arsenic
Total Recoverable Nickel	Phosphorus
COD	Dissolved Oxygen

c. Pertinent Factors

On July 7, 2009 Kentucky's revised water quality standards, 401 KAR 10:031 became effective.

d. Monitoring Requirements

Flow shall be monitored instantaneously once per month.

Oil & Grease, pH, Total Alpha, Total Beta, Total Suspended Solids, and Uranium shall be monitored once per month by grab sample.

1,1,1-Trichoroethane, $CBOD_5$, Chlorides, Dissolved Oxygen, Hardness, Nitrates, Phosphorus, Polychlorinated Biphenyls (PCBs), Technetium-99, Total Recoverable Arsenic, Total Recoverable Iron, Total Recoverable Nickel, Total Recoverable Zinc, and Trichloroethylene shall be monitored once per quarter by grab sample.

Acute Toxicity shall be monitored monthly by two (2) grab samples collected during the period of discharge.

e. Justification of Limits

The Kentucky Administrative Regulations (KARs) cited below have been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes (KRSs).

<u>$CBOD_5$, Dissolved Oxygen, Flow, Hardness, Technetium-99, and Total Recoverable Iron,</u>
The monitoring requirements for these parameters are consistent with the requirements of 401 KAR 5:065, Section 2(8)(a).

<u>pH,</u>
The limits for this parameter are consistent with the requirements of 401 KAR 10:031, Section 4.

12. METHODOLOGY USED IN DETERMINING LIMITATIONS - continued

e. Justification of Limits

Oil & Grease and Total Suspended Solids
The limits for these parameters are consistent with the requirements of 401 KAR 5:080, Section 1(2)(c) 2. These limits are representative of the Division of Water's "Best Professional Judgment" (BPJ) determination of the "Best Practicable Technology Currently Available" (BPT) and "Best Available Technology Economically Achievable" (BAT) requirements for these pollutants.

Total Alpha, Total Beta, and Uranium
Pursuant to 401 KAR 10:031, Section 6(2) the criteria for these parameters apply for domestic water supply use. Stream flows for water quality based permits are established under Section 3(3) of 401 KAR 10:031. For these pollutants 401 KAR 10:031, Section 3(3)(c) requires the use of harmonic mean flows for cancer-linked substances and 7Q10 flows for non-cancer linked substances determined at the point of withdrawal. The nearest downstream domestic water supply is Cario, Illinois which withdrawals from the Ohio River. The 7Q10 and Harmonic Mean of the Ohio River at the point of withdrawal are 46,300 and 198,238 cfs, respectively. Using either of these flows the resultant effluent limitations are several magnitudes of order greater than the levels reported in the discharge. Pursuant to the Division of Water's Reasonable Potential Analysis protocol monitoring and limitations would not be required if the discharge levels were less than 70% of the calculated effluent limitation. However it is the "Best Professional Judgment" (BPJ) of the Division of Water that based on the historic and present activities conducted at the permitted facility monitoring for these pollutants be conducted. This BPJ determination is consistent with the Division of Water's Reasonable Potential Analysis protocol and 401 KAR 5:080, Section 1(2)(c)2.

1,1,1-Trichloroethane, Chlorides, Nitrates, Phosphorus, Total Recoverable Arsenic, Total Recoverable Nickel, Total Recoverable Zinc and Trichloroethylene
The limits for these parameters are consistent with the requirements of 401 KAR 10:031, Section 6.

Acute Toxicity
The requirements for this parameter are consistent with the requirements of 401 KAR 5:029, Section 4 and 401 KAR 5:031, Sections 2 and 4.

13. ANTIDEGRADATION

The conditions of 401 KAR 10:029, Section 1 have been satisfied by this permit action. Since this permit action involves modification of an existing permit, and does not propose an expanded discharge, a review under 401 KAR 10:030 Section 1 is not applicable.

14. PROPOSED COMPLIANCE SCHEDULE FOR ATTAINING EFFLUENT LIMITATIONS

Permittee shall comply with the effluent limitations by the effective date of the permit.

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

Best Management Practices (BMP) Plan

Pursuant to 401 KAR 5:065, Section 2(10), a BMP requirement shall be included: to control or abate the discharge of pollutants from ancillary areas containing toxic or hazardous substances or those substances which could result in an environmental emergency; where numeric effluent limitations are infeasible; or to carry out the purposes and intent of KRS 224. The facility has several areas where support activities occur which have a potential of the discharge of such substances through storm water runoff or spillage. Some of these areas will drain to present wastewater treatment plants, others will not.

Cooling Water Additives, FIFRA, and Mollusk Control

The discharge of any product registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) in cooling water which ultimately may be released to the waters of the Commonwealth is prohibited, except Herbicides, unless specifically identified and authorized by the KPDES permit. In the event the permittee needs to use a biocide or chemical not previously reported for mollusk control or other purpose, the permittee shall submit sufficient information, a minimum of thirty (30) days prior to the commencement of use of said biocides or chemicals, to the Division of Water for review and establishment of appropriate control parameters. Such information requirements shall include:

1. Name and general composition of biocide or chemical,
2. Any and all aquatic organism toxicity data,
3. Quantities to be used,
4. Frequencies of use,
5. Proposed discharge concentrations, and
6. EPA registration number, if applicable.

16. PERMIT DURATION

This modified permit shall expire October 31, 2011. This facility is in the Tennessee/Mississippi/Cumberland Basin Management Unit as per the Kentucky Watershed Management Framework.

17. PERMIT INFORMATION

The application, draft permit fact sheet, public notice, comments received, and additional information is available by writing the Division of Water at 200 Fair Oaks Lane, Frankfort Office Park, Frankfort, Kentucky 40601.

18. REFERENCES AND CITED DOCUMENTS

All material and documents referenced or cited in this fact sheet are parts 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.

19. CONTACT

For further information contact the individual identified on the Public Notice or the Permit Writer - Brenda Taylor (502) 564-3410, extension 4921 or e-mail Brenda.Taylor@mail.state.ky.us.

20. PUBLIC NOTICE INFORMATION

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