LPDES PERMIT NO. LA0020800, AI No. 2645

LPDES FACT SHEET and RATIONALE
FOR THE DRAFT LOUISIANA POLLUTANT DISCHARGE ELIMINATION SYSTEM (LPDES) PERMIT TO DISCHARGE TO WATERS OF LOUISIANA

I. **Company/Facility Name:** International Paper Company
Red River Mill
Post Office Box 377
Campti, LA 71411

II. **Issuing Office:** Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services
Post Office Box 4313
Baton Rouge, Louisiana 70821-4313

III. **Prepared By:** Bruce Fielding
Industrial Permits Section
Water Permits Division
Phone #: 225-219-3006
E-mail: bruce.fielding@la.gov

Date Prepared: December 3, 2009

IV. **Permit Action/Status:**

A. Reason For Permit Action:

Proposed reissuance of an expired Louisiana Pollutant Discharge Elimination System (LPDES) permit for a 5-year term following regulations promulgated at LAC 33:IX.2711/40 CFR 122.46*.

LAC 33:IX Citations: Unless otherwise stated, citations to LAC 33:IX refer to promulgated regulations listed at Louisiana Administrative Code, Title 33, Part IX.

40 CFR Citations: Unless otherwise stated, citations to 40 CFR refer to promulgated regulations listed at Title 40, Code of Federal Regulations in accordance with the dates specified at LAC 33:IX.2301.F, 4901, and 4903.

B. LPDES permit - LPDES permit effective date: January 1, 2005
LPDES permit expiration date: December 31, 2009
EPA has not retained enforcement authority.

C. Application received on July 7, 2009 and additional information received on December 21, 2009.

V. Facility Information:

A. Location - 4537 Highway 480, 3.5 miles west of Campti

B. Applicant Activity - According to the application, International Paper Company, Red River Mill, is an integrated unbleached Kraft pulp and paper mill.

C. Technology Basis - (40 CFR Chapter 1, Subchapter N/Parts 401-402, and 401, 405-415, and 417-471 have been adopted by reference at LAC 33:IX.4903)

Guideline	Reference
Unbleached Kraft	40 CFR 430, Subpart C
Secondary Fiber Non-Deink	40 CFR 430, Subpart J

Other sources of technology based limits:
LDEQ Stormwater Guidance, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6).
Best Professional Judgement
Previous LPDES permit

D. Fee Rate -
1. Fee Rating Facility Type: Major
2. Complexity Type: III
3. Wastewater Type: II
4. SIC code: 2631 - Paperboard Mill, 2611 - Pulp Mill

E. Continuous Facility Effluent Flow (Max 30-Day) - 15.1 MGD.

VI. Receiving Waters: Red River

1. TSS (15%), mg/L: 8.15
2. Average Hardness, mg/L $CaCO_3$: 245.5
3. Critical Flow, cfs: 1,330
4. Mixing Zone Fraction: 1/3
5. Harmonic Mean Flow, cfs: 8,000
6. River Basin: Red River, Subsegment No. 100101
7. Designated Uses:
   The designated uses are primary contact recreation, secondary contact recreation, fish and wildlife propagation, drinking water supply, and agriculture.

Information based on the following: LAC 33:IX Chapter 11;/Recommendation(s) from Todd Franklin, 12/2/2009. Hardness and 15% TSS data come from USGS monitoring station 07350500 on the Mississippi River listed in Hardness and TSS Data for All LDEQ

Ambient Stations for the Period of Record as of March 1998, LeBlanc. See Appendix C.

VII. Outfall Information:

Outfall 001

A. Type of wastewater - treated process wastewater from the pulp mill with a chemical recovery process, paper machines, tall oil plant, recycled fiber plant, previously treated sanitary wastewater and process area stormwater

B. Location - at the point of final discharge from the final holding pond prior to mixing with other waters at Latitude 31°53'15", Longitude 93°10'15".

C. Treatment - Primary clarification, three settling basins in parallel and biological treatment in two aerated stabilization basins. Pretreatment of the sanitary wastewater consists of oxidation and chlorination.

D. Flow - Continuous, (Max 30-Day) 15.1 MGD

E. Receiving waters - Red River

F. Basin and segment - Red River Basin, Subsegment 100101

Outfall 004

A. Type of wastewater - Low contamination potential stormwater runoff from the parking lot area north of the chip truck dumpers, south of the guard house and east of the process area.

B. Location - at the point of discharge into Sims Bayou east of the truck dumps, prior to mixing with other waters at Latitude 31°54'15", Longitude 93°10'15".

C. Treatment - None

D. Flow - Intermittent

E. Receiving waters - ditch along Highway 480, thence into Sims Bayou, thence into the Red River

F. Basin and segment - Red River Basin, Subsegment 100101

Outfall 005

A. Type of wastewater - low contamination potential stormwater runoff from the south part of the mill property including the debris landfill area.

B. Location - at the point of discharge to the unnamed ditch, east of the solids holding pond #2, prior to mixing with other waters at Latitude 31°53'45", Longitude 93°10'0".

C. Treatment - None

D. Flow - Intermittent

E. Receiving waters - Red River via an unnamed ditch

F. Basin and segment - Red River Basin, Subsegment 100101

Outfall 006

A. Type of wastewater - low contamination potential stormwater runoff from 41.32 open acres on the west side of the plant including the construction debris landfill area.

B. Location - at the point of discharge to the Red River Cutoff, prior to mixing with other waters at Latitude 31°54'15", Longitude 93°10'45".

C. Treatment - None

D. Flow - Intermittent

E. Receiving waters - Red River via an unnamed drainage ditch and Red River Cutoff

F. Basin and segment - Red River Basin, Subsegment 100101

Outfall 007

A. Type of wastewater - low contamination potential stormwater runoff from the 9.2 acres along the west side of the paved road between the temporary dock and the storage buildings for bales of used corrugated containers awaiting recycling.

B. Location - at the point of discharge to the Red River Cutoff prior to mixing with other waters at Latitude 31°54'15", Longitude 93°10'45".

C. Treatment - None

D. Flow - Intermittent

E. Receiving waters - Red River, via an unnamed ditch and Red River Cutoff

F. Basin and segment - Red River Basin, Subsegment 100101

Outfall 008

A. Type of wastewater - low contamination potential stormwater runoff from the 9.2 acres along the east side of the paved road between the temporary dock and the storage buildings for bales of used corrugated containers awaiting recycling.

B. Location - at the point of discharge to the Red River Cutoff prior to mixing with other waters at Latitude 31°54'15", Longitude 93°10'45".

C. Treatment - None

D. Flow - Intermittent

E. Receiving waters - Red River via an unnamed drainage ditch and Red River Cutoff

F. Basin and segment - Red River Basin, Subsegment 100101

VIII. Proposed Permit Limits:

The specific effluent limitations and/or conditions will be found in the draft permit. Development and calculation of permit limits are detailed in the Permit Limit Rationale section below.

Summary of Proposed Changes From the Current LPDES Permit:

A. Outfall 001 - Effluent limitations for BOD_5 and TSS were decreased a modest amount (approximately 6.4%) due to decreased production.

B. Outfall 001 - Monitoring frequency for both biomonitoring species was decreased to 1/year.

IX. Permit Limit Rationale:

The following section sets forth the principal facts and the significant factual, legal, methodological, and policy questions considered in preparing the draft permit. Also set forth are any calculations or other explanations

of the derivation of specific effluent limitations and conditions, including a citation to the applicable effluent limitation guideline or performance standard provisions as required under LAC 33:IX.2707/40 CFR Part 122.44 and reasons why they are applicable or an explanation of how the alternate effluent limitations were developed.

A. TECHNOLOGY-BASED VERSUS WATER QUALITY STANDARDS-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Following regulations promulgated at LAC 33:IX.2707.L.2.b/40 CFR Part 122.44(l)(2)(ii), the draft permit limits are based on either technology-based effluent limits pursuant to LAC 33:IX.2707.A/40 CFR Part 122.44(a) or on State water quality standards and requirements pursuant to LAC 33:IX.2707.D/40 CFR Part 122.44(d), whichever are more stringent.

B. TECHNOLOGY-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Regulations promulgated at LAC 33:IX.2707.A/40 CFR Part 122.44(a) require technology-based effluent limitations to be placed in LPDES permits based on effluent limitations guidelines where applicable, on BPJ (best professional judgement) in the absence of guidelines, or on a combination of the two. The following is a rationale for types of wastewaters. See outfall information descriptions for associated outfall(s) in Section VII. Regulations also require permits to establish monitoring requirements to yield data representative of the monitored activity [LAC 33:IX.2715/40 CFR 122.48(b)] and to assure compliance with permit limitations [LAC 33:IX.2707.I./40 CFR 122.44(I)].

1. Outfall 001 - the continuous discharge of treated process wastewater from the pulp mill with a chemical recovery process, paper machines, tall oil plant, recycled fiber plant, previously treated sanitary wastewater and process area stormwater

International Paper Company, Red River Mill is subject to Best Practicable Control Technology Currently Available (BPT) and Best Available Technology Economically Achievable (BAT) effluent limitation guidelines listed below:

Manufacturing Operation	Guideline
Unbleached Kraft	40 CFR 430, Subpart C
Secondary Fiber Non-Deink	40 CFR 430, Subpart J

PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, MG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Flow	Report	Report	---	---	Continuous
BOD_5	16,638	33,635	---	---	3/week
TSS	30,620	61,241	---	---	3/week
Color	---	---	Report (*1)	Report (*1)	1/quarter
pH (Standard Units)	---	---	6.0 (Min)	9.0 (Max)	3/week
Clarifying Agents Used (*2)	Report	Report	---	---	1/month
Biomonitoring	---	---	Monthly Avg. Minimum Report	7-Day Minimum Report	1/year

(*1) Color shall be reported in color units based on the platinum cobalt scale.

(*2) The type and daily average discharge expressed in lbs/day or gallons/day of each clarifying agent used in the intake raw river water treatment clarification system during the sampling month shall be recorded. Records of the quantity and type of clarifying agents used shall be retained for three years in accordance with Part III.C.3. No DMR reporting shall be required.

Flow - this requirement has been established in accordance with LAC 33:IX.2707.I.1.b. and retained from the current LPDES permit effective on January 1, 2005. The continuous monitoring frequency has also been retained.

pH - this requirement has been established in accordance with LAC 33:IX.1113.C.1. and retained from the current LPDES permit effective on January 1, 2005. The 3/week monitoring frequency has also been retained.

Calculations and basis of permit limitations for BOD_5 and TSS are found at Appendix A and associated appendices. Monitoring frequencies of 3/week shall be retained from the current LPDES permit.

All other parameters and associated monitoring frequencies shall be retained from the current LPDES permit effective January 1, 2005 with the exception of biomonitoring which shall have a monitoring frequency of 1/year for both species.

2. Outfalls 004, 005, 006, 007, and 008 - Stormwater

Outfall 004 - the intermittent discharge of low contamination potential stormwater runoff from the parking lot area north of the chip truck dumpers, south of the guard house and east of the process area.

Outfall 005 - the intermittent discharge of low contamination potential stormwater runoff from the south part of the mill property including the debris landfill area.

Outfall 006 - the intermittent discharge of low contamination potential stormwater runoff from 41.32 open acres on the west side of the plant including the construction debris landfill area.

Outfall 007 - the intermittent discharge of low contamination potential stormwater runoff from the 9.2 acres along the west side of the paved road between the temporary dock and the storage buildings for bales of used corrugated containers awaiting recycling.

Outfall 008 - the intermittent discharge of low contamination potential stormwater runoff from the 9.2 acres along the east side of the paved road between the temporary dock and the storage buildings for bales of used corrugated containers awaiting recycling.

Uncontaminated or low potential contaminated stormwater discharged through discrete outfall(s) not associated with process wastewater shall receive the following BPJ limitations in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6).

STORMWATER

PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, MG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Flow, MGD	Report	Report	---	---	1/quarter
TOC	---	---	---	50	1/quarter
Oil & Grease	---	---	---	15	1/quarter
pH Standard Units	---	---	6.0 (min)	9.0 (max)	1/quarter

In accordance with LAC 33:IX.2707.I.3 and 4 [40 CFR 122.44(I)(3) and (4)], a Part II condition is proposed for applicability to all storm water discharges from the facility, either through permitted outfalls or through outfalls which are not listed in the permit or as sheet flow. **For first time permit issuance**, the Part II condition requires a Storm Water Pollution Prevention Plan (SWP3) within six (6) months of the effective date of the final permit. **For renewal permit issuance**, the Part II condition requires that the Storm Water Pollution Prevention Plan (SWP3) be reviewed and updated, if necessary, within six (6) months of the effective date of the final permit. If the permittee maintains other plans that contain duplicative information, those plans could be incorporated by reference to the SWP3. Examples of these type plans include, but are not limited to: Spill Prevention Control and Countermeasures Plan (SPCC), Best Management Plan (BMP), Response Plans, etc. The conditions will be found in the draft permit. Including Best Management Practice (BMP) controls in the form of a SWP3 is consistent with other LPDES and EPA permits regulating similar discharges of stormwater associated with industrial activity, as defined in LAC 33:IX.2511.B.14 [40 CFR 122.26(b)(14)].

C. WATER QUALITY-BASED EFFLUENT LIMITATIONS

Technology-based effluent limitations and/or specific analytical results from the permittee's application were screened against state water quality numerical standard based limits by following guidance procedures established in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, October 7, 2009. Calculations, results, and documentation are given in Appendix B.

In accordance with 40 CFR § 122.44 (d)(1)/LAC 33:IX.2707.D.1, the existing (or potential) discharge (s) was evaluated in accordance with the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, October 7, 2009, to determine whether pollutants would be discharged "at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard." Calculations, results, and documentation are given in Appendix B.

The following pollutants received water quality based effluent limits:

POLLUTANT(S)
None

Minimum quantification levels (MQL's) for state water quality numerical standards-based effluent limitations are set at the values listed in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality

Standards, LDEQ, October 7, 2009. They are also listed in Part II of the permit.

TMDL Waterbodies:

Outfall(s) 001

Subsegment No. 100101, Red River, Arkansas State Line to Alexandria (LA Hwy. 165) is listed on LDEQ's FINAL 2006 305(b)/303(d) Integrated Report list with EPA Additions dated February 15, 2008 as fully supporting is designated uses for primary contact recreation and secondary contact recreation, but not supporting its designated uses for fish and wildlife propagation and drinking water supply. The 305(b)/303(d) Integrated Report list Sulfates (LDEQ-2/EPA-5) and Color (IRC-Category 5) as impairments. A suspected source of impairment for color includes upstream sources. Suspected sources for the impairment listed as sulfates include natural sources and sources outside state jurisdiction or borders. A TMDL has not been done but will be determined at a later date.

Based upon the operations and the information submitted in the application, it has been determined that the permittee does not have the potential to discharge sulfates at a level which would adversely affect the receiving waterbody. However, based upon the Color data submitted on the discharge monitoring reports, the quarterly monitor and requirement from the previous permit will remain in this permit for data gathering purposes.

A reopener clause has been placed in Part II of the permit to allow for more stringent or additional limitations or requirements to be placed in the permit, if needed, as a result of the establishment of any future TMDLs.

D. Biomonitoring Requirements

It has been determined that there may be pollutants present in the effluent which may have the potential to cause toxic conditions in the receiving stream. The State of Louisiana has established a narrative criteria which states, "toxic substances shall not be present in quantities that alone or in combination will be toxic to plant or animal life." The Office of Environmental Services requires the use of the most recent EPA biomonitoring protocols.

Whole effluent biomonitoring is the most direct measure of potential toxicity which incorporates both the effects of synergism of effluent components and receiving stream water quality characteristics. Biomonitoring of the effluent is, therefore, required as a condition of this permit to assess potential toxicity. The biomonitoring procedures stipulated as a condition of this permit for Outfall(s) 001 are as follows:

TOXICITY TESTS	FREQUENCY
Chronic static renewal 7-day survival and reproduction test using *Ceriodaphnia dubia* [Method 1002.0]	1/year
Chronic static renewal 7-day larval survival and growth test using fathead minnow (*Pimephales promelas*) [Method 1000.0]	1/year

Toxicity tests shall be performed in accordance with protocols described in the latest revision of the "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA/600/4-89/001, March 1989." The stipulated test species are appropriate to measure the toxicity of the effluent consistent with the requirements of the State water quality standards. The biomonitoring frequency has been established to reflect the likelihood of ambient toxicity and to provide data representative of the toxic potential of the facility's discharge in accordance with regulations promulgated at LAC 33:IX.2715/40 CFR Part 122.48.

Results of all dilutions as well as the associated chemical monitoring of pH, temperature, hardness, dissolved oxygen, conductivity, and alkalinity shall be documented in a full report according to the test method publication mentioned in the previous paragraph. The permittee shall submit a copy of the first full report to the Office of Environmental Compliance. The full report and subsequent reports are to be retained for three (3) years following the provisions of Part III.C.3 of this permit. The permit requires the submission of certain toxicity testing information as an attachment to the Discharge Monitoring Report.

This permit may be reopened to require effluent limits, additional testing, and/or other appropriate actions to address toxicity if biomonitoring data show actual or potential ambient toxicity to be the result of the permittee's discharge to the receiving stream or water body. Modification or revocation of the permit is subject to the provisions of LAC 33:IX.3105/40 CFR 124.5. Accelerated or intensified toxicity testing may be required in accordance with Section 308 of the Clean Water Act.

Dilution Series

The permit requires five (5) dilutions in addition to the control (0% effluent) to be used in the toxicity tests. These additional effluent concentrations shall be 2%, 3%, 4%, 5%, and 7%. The low-flow effluent concentration (critical dilution) is defined as 5% effluent. See recommendations at Appendix D.

X. Compliance History/DMR Review:

A. LDEQ records were reviewed for the period November 2007-November 2009 and revealed that the facility has not been issued any enforcement action(s).

B. A DMR review of the discharge monitoring reports for the period January 2004 through November 2009 revealed the following effluent excursions:

DATE	PARAMETER	OUTFALL	REPORTED VALUE		PERMIT LIMITS	
			MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM
2/04	TSS	001	27,616 lbs/day	79,570 lbs/day	29,785 lbs/day	59,750 lbs/day
6/05	Oil & Grease	007	N/A	106/mg/L	N/A	15 mg/L
3/09	Oil & Grease	004	N/A	27.1 mg/L	N/A	15 mg/L

C. A review of the inspection reports for the period June 2007 through June 2009 revealed the following inspections and findings:

Date - June 28, 2007
Findings:
1. There were no permit exceedances found in the past year.
2. The flow meter was within the percent error limits at 3.4%.
3. Outfall 001A outfall flow meter was calibrated on 6/12/07 in house by their I & E Department.
4. In-house lab performs BOD5, TSS, pH.
5. All laboratory functions were satisfactory.
6. There were no areas of concern noted.

Date - May 7, 2009
Findings: A routine wastewater permit inspection was conducted and the following noted:
1. The facility is an integrated unbleached kraft pulp and paper mill.
2. The facility has six permitted water discharge outfalls: Outfall 001-process, 004-008-stormwater.
3. DMRs revealed satisfactory effluent results.

4. Outfall 001 flow meter read- 1.0% of actual flow. +/- 10% of actual flow is acceptable.
5. Previous inspection, 6/28/07, revealed no areas of concern.
6. Gretchen Tibbett was present during the inspection. Larry Morgan was present during the exit interview.

XI. "IT" Questions - Applicant's Responses

This applicant is not required to submit "IT" Questions in accordance with La. R.S. 30:2018(A).

XII. Endangered Species:

The receiving waterbody, Subsegment 100101 of the Red River Basin is not listed in Section II.2 of the Implementation Strategy as requiring consultation with the U.S. Fish and Wildlife Service (FWS). This strategy was submitted with a letter dated November 17, 2008 from Rieck (FWS) to Nolan (LDEQ). Therefore, in accordance with the Memorandum of Understanding between the LDEQ and the FWS, no further informal (Section 7, Endangered Species Act) consultation is required. The effluent limitations established in the permit ensure protection of aquatic life and maintenance of the receiving water as aquatic habitat. Therefore, the issuance of the LPDES permit is not likely to have an adverse effect on any endangered or candidate species or the critical habitat.

XIII. Historic Sites:

The discharge is from an existing facility location, which does not include an expansion on undisturbed soils. Therefore, there should be no potential effect to sites or properties on or eligible for listing on the National Register of Historic Places, and in accordance with the "Memorandum of Understanding for the Protection of Historic Properties in Louisiana Regarding LPDES Permits" no consultation with the Louisiana State Historic Preservation Officer is required.

XIV. Tentative Determination:

On the basis of preliminary staff review, the Department of Environmental Quality has made a tentative determination to reissue a permit for the discharge described in the application.

XV. Variances:

No requests for variances have been received by this Office.

XVI. Public Notices:

Upon publication of the public notice, a public comment period shall begin on the date of publication and last for at least 30 days thereafter. During this

period, any interested persons may submit written comments on the draft permit and may request a public hearing to clarify issues involved in the permit decision at this Office's address on the first page of the fact sheet. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing.

Public notice published in:

Local newspaper of general circulation

Office of Environmental Services Public Notice Mailing List

Appendix A

Calculation of Technology Based Limits for International Paper Company, Red River Mill

Out. 001

Conventional pollutant loading calculations, BOD5 and TSS

TABLE 1

Calculation of BOD5, and TSS limits:

(*1) OCPSF GL 40 CFR 414 Subpart:	(*2) BOD5 Avg mg/L	(*3) BOD5 Max mg/L	(*4) TSS Avg mg/L	(*5) TSS Max mg/L	(*6) Prod. 1000 lbs per day	(*7) Prod. Fraction of Total	(*8) Process Flow (MGD)	(*9) Conv. Factor	(*10) BOD5 Avg lbs/day	(*11) BOD5 Max lbs/day	(*12) TSS Avg lbs/day	(*13) TSS Max lbs/day
B, Rayon Fibers							---	8.34	---	---	---	---
C, Other Fibers							---	8.34	---	---	---	---
D,Thermoplastic Resins							---	8.34	---	---	---	---
E,Thermosetting Resins							---	8.34	---	---	---	---
F, Commodity Organics							---	8.34	---	---	---	---
G, Bulk Organics							---	8.34	---	---	---	---
H, Specialty Organics							---	8.34	---	---	---	---
Total/Weighted[]	---	---	---	---			---	8.34	---	---	---	---

BPJ Sources/Guidelines BPJ Sources:	BOD5 Avg mg/L	BOD5 Max mg/L	TSS Avg mg/L	TSS Max mg/L	Flow (MGD)	Conv. Factor	BOD5 Avg lbs/day	BOD5 Max lbs/day	TSS Avg lbs/day	TSS Max lbs/day
Sanitary WW:					---	8.34	---	---	---	---
Miscellaneous:					---	8.34	---	---	---	---
Utility Wastewater:					---	8.34	---	---	---	---
					---	8.34	---	---	---	---
					---	8.34	---	---	---	---
					---	8.34	---	---	---	---
BPJ Source Total:					---		---	---	---	---

Other Guidelines: 40 CFR 430 Pulp,Paper,Paperboard	BOD5 Avg mg/L	BOD5 Max mg/L	TSS Avg lbs/1000	TSS Max lbs/1000	Prod. 1000 lbs per day	Flow to Tmt. Plt. Fraction	Flow (MGD)	Conv. Factor	BOD5 Avg lbs/day	BOD5 Max lbs/day	TSS Avg lbs/day	TSS Max lbs/day
					---	---	---	8.34	---	---	---	---
					---	---	---	8.34	---	---	---	---
					---	---	---	8.34	---	---	---	---
					---	---	---	8.34	---	---	---	---

40 CFR 430 Pulp,Paper,Paperboard	BOD5 Avg lbs/1000	BOD5 Max lbs/1000	TSS Avg lbs/1000	TSS Max lbs/1000	Prod. 1000 lbs per day	Flow to Tmt. Plt. Fraction	Flow (MGD)	BOD5 Avg lbs/day	BOD5 Max lbs/day	TSS Avg lbs/day	TSS Max lbs/day
Subpart C,Unbl. Kraft	2.8	5.6	6	12	2348	---	---	6574.4	13148.8	14088	28176
Subpart J, Sec. Fiber	2.8	5.7	4.6	9.2	3594	---		10063.2	20485.8	16532.4	33064.8
					---	---		---	---	---	---
Other Guideline Total (lbs/day)							---	16637.6	33634.6	30620.4	61240.8
BOD5/TSS Grand Total (lbs/day)							---	16637.6	33634.6	30620.4	61240.8

Calculation of Technology Based Limits for International Paper Company, Red River Mill

Out. 001

TABLE 2

Calculation Summary of Conventional and Non-Conventional Limits

(*1) Parameter	(*2) G/L-BPJ Avg. mg/L	(*3) G/L-BPJ Max mg/L	(*4) Process Flow (MGD)	(*5) G/L-BPJ Avg lbs/day	(*6) G/L-BPJ Max lbs/day	(*7) Tech Avg lbs/day	(*8) Old Tech Max lbs/day	(*9) Old Anti-Back 0=no scr. 1=OldvsGL 2=Old+GL	(*10) Out. 001 Avg lbs/day	(*11) Out. 001 Max lbs/day	(*12) Out. 001 Avg mg/L	(*13) Out. 001 Max mg/L
CONVENTIONAL												
BOD5				16637.6	33634.6			---	16638	33635	---	---
TSS				30620.4	61240.8			---	30620	61241	---	---
Oil and Grease				---	---			---	---	---	---	---
NON-CONVENTIONAL												
COD				---	---			---	---	---	---	---
TOC				---	---			---	---	---	---	---
TRC				---	---			---	---	---	---	---
Ammonia Nitrogen				---	---			---	---	---	---	---
Organic Nitrogen				---	---			---	---	---	---	---
Nitrate Nitrogen				---	---			---	---	---	---	---

Calculation Summary of Metal and Cyanide Toxic Limits

(*1)	(*2) G/L-BPJ Avg. mg/L	(*3) G/L-BPJ Max mg/L	(*4) Process Flow (MGD)	(*5) G/L-BPJ Avg lbs/day	(*6) G/L-BPJ Max lbs/day	(*7) Tech Avg lbs/day	(*8) Old Tech Max lbs/day	(*9) Old Anti-Back 0=no scr. 1=OldvsGL 2=Old+GL	(*10) Out. 001 Avg lbs/day	(*11) Out. 001 Max lbs/day	(*12) Out. 001 Avg mg/L	(*13) Out. 001 Max mg/L
METALS AND CYANIDE												
Total Chromium				---	---			---	---	---	---	---
Total Copper				---	---			---	---	---	---	---
Total Lead				---	---			---	---	---	---	---
Total Nickel				---	---			---	---	---	---	---
Total Zinc				---	---			---	---	---	---	---
Total Mercury				---	---			---	---	---	---	---
Total Cyanide				---	---			---	---	---	---	---
Amenable Cyanide				---	---			---	---	---	---	---
				---	---			---	---	---	---	---
				---	---			---	---	---	---	---
				---	---			---	---	---	---	---

APPENDIX A-2 LA0020800, AI No. 2645

Documentation and Explanation of Technology Calculations
and Associated Lotus Spreadsheet

This spreadsheet covers the following guideline: 40 CFR 430, Best Practicable Control Technology Currently Available (BPT effluent limitation guidelines found at 40 CFR 430, Effluent Guidelines for Pulp, Paper, and Paperboard Point Source Category, Subparts C and J. Other guidelines maybe included on a case-by-case basis. Regulations at 40 CFR 144(a)/LAC 33.IX.2707 require that technology-based permit limitations be placed in permits based on effluent limitations guidelines where applicable, on Best Professional Judgement (BPJ) in the absence of guidelines or on a combination of the two. Best Available Technology Economically Achievable (BAT) guideline factors and concentrations are used for non-conventional and toxic pollutants. In the absence of BAT, Best Conventional Pollutant Control Technology (BCT) is used for non-conventional pollutants. In the absence of either BAT or BCT, Best Practicable Control Technology (BPT) is used for conventional and non-conventional pollutants. BPT is used for conventional pollutants. New Source Performance Standards (NSPS) are used as the situation dictates, however in the case of the OCPSF guidelines, NSPS=BAT. In the absence of an applicable guideline for a particular parameter, BPJ shall be utilized. The term, "monthly average" or "average", refers to the 30-day monthly average of daily maximum values, "daily maximum" or "maximum", refers to the maximum for any one day. The term, "previous permit", refers to the most recently issued NPDES or LPDES permit. If the previous permit did not give a BPJ allowance for particular wastewater, none will be granted in the reissuance in accordance with CWA 402(o), and 40 CFR 122.44.l/LAC 33.IX.2707.L. The spreadsheet is set up in a table and column/section format. Each table represents a general category for data input or calculation points. Each reference column or section is marked by a set of parentheses enclosing a number and asterisk, for example (*1) or (*10). These columns or sections represent inputs, existing data sets, calculation points, or results for determining technology based limits for an effluent of concern.

Table 1

Table 1 is a calculation table for the conventional pollutant loadings of BOD_5 and TSS utilizing guidelines and BPJ.

(*1) The top portion of the table lists OCPSF subparts under 40 CFR 414. The bottom portion indicated by "Other Sources/Guidelines" lists non-guideline BPJ sources, sanitary wastewater, non-process area stormwater, miscellaneous wastewaters, utility wastewaters, under "Other Sources" and other contributing guidelines under "Other Guidelines".

(*2) Average BOD_5- Average BPT guideline concentrations in mg/L, lbs/1000 lbs of daily production, or BPJ concentrations in mg/L.

(*3) Maximum BOD_5- Maximum BPT guideline concentrations in mg/L, lbs/1000 lbs of daily production, or BPJ concentrations in mg/L.

(*4) Average TSS- Average BPT guideline concentrations in mg/L, lbs/1000 lbs of daily production, or BPJ concentrations in mg/L.

(*5) Maximum TSS- Maximum BPT guideline concentrations in mg/L, lbs/1000 lbs of daily production, or BPJ concentrations in mg/L.

(*6) Production in 1000 lbs/day- These values indicate the amount of production per subpart.

(*7) At the top of the table, Production fraction of total.

At the bottom of the table, Flow to Treatment Plant Fraction. Applicable to mass-based guidelines; if a portion of a process wastewater is being injected to a deepwell, POTW, or other non-surface water source, this represents the remaining fraction being discharged to the receiving water.

(*8) Flow- Flows associated with mass-based guidelines are not used in calculations.

(*9) Conversion factor- used in conjunction with flow (MGD) for converting mg/L to lbs per day, 8.34 lbs/gallon. Mg/L is assumed to be equivalent to ppm.

(*10) BOD_5, Average, lbs/day- Other Guideline contributions are summed on the line labeled "Other Guideline Total (lbs/day)". The grand total is on the indicated row and this is the technology limit for Monthly Average BOD_5.

(*11) BOD_5, Maximum, lbs/day- Similar to column (*10). See column (*10).

(*12) TSS, Average, lbs/day- Other Guideline contributions are summed on the line labeled "Other Guideline Total (lbs/day)". The grand total is on the indicated row and this is the technology limit for Monthly Average TSS.

(*13) TSS, Maximum, lbs/day- Similar to column (*12). See column (*12).

Table 2

Table 2 is a calculation summary table for Conventional, Non-Conventional, and Toxic limits.

(*1) Parameter- The parameters are organized into three groups, Conventional, Non-Conventional, and Metals and Cyanide.

(*2) Average guideline/BPJ value- Guideline or BPJ value in terms of concentration, mg/L. If there are multiple sources/allocations for the listed metals/cyanide, these values will not be indicated in this column. Single or consolidated metal/cyanide bearing waste streams (OCPSF only) will have values indicated in this column. Values will not be indicated for the conventional and non-conventional pollutants listed.

(*3) Maximum guideline/BPJ value- Guideline or BPJ value in terms of concentration, mg/L. If there are multiple sources/allocations for the listed metals/cyanide, these values will not be indicated in this column. Single or consolidated metal/cyanide bearing waste streams (OCPSF only) will have values indicated in this column. Values will not be indicated for the conventional and non-conventional pollutants listed.

(*4) Process flow in MGD- Similar to columns (*2) and (*3), this column will be left blank unless there is one consolidated metal/cyanide bearing waste stream.

(*5) Average Guideline/BPJ effluent limitation in lbs/day. Except for the metal/cyanide situation discussed in column (*2), these values are calculated in other tables and summarized in this column.

(*6) Maximum Guideline/BPJ effluent limitation in lbs/day. Similar to column (*5).

(*7) Average Tech Old in lbs/day- This column is utilized when an anti-backsliding concern (CWA 402(o), 40 CFR 122.44.l, LAC 33.IX.2707.L) is present. This would be indicated by significantly higher limits (≈10% or greater) calculated under guidelines than those previously established in the previous permit on a BPJ basis (now achievable technology, if the permittee is meeting the limits) before guideline issuance. If the previously issued permit (as applicable) contains limits for the parameter of concern and an anti-backsliding concern is present, the limits from the previously issued permit are placed in this column in lbs/day.

(*8) Maximum Tech Old in lbs/day- Similar to (*7).

(*9) Antiback, 0=no scr., 1=OldvsGL, 2=Old+GL- Anti-Backsliding screening switch. The default is set under section (*1) in Table 1. If a screen is conducted, a "1" will appear in this column. The more stringent permit limits will appear in columns (*10) and (*11). If the screen indicates that the previously issued permit limit utilizing BPJ-Technology is more stringent and an increase in production has occurred, the technology based limits can be recalculated by running the spreadsheet a second time using guidelines for the increase only. This will be indicated by a "2" in this column. The recalculated guideline limitations in columns (*4) and (*5) are subsequently added to the values in columns (*7) and (*8) yielding technology-based effluent limitations in columns (*10) and (*11). The values in this column can be changed on a row-by-row basis for site-specific screening situations.

(*10) Average technology based effluent limit in lbs/day- If no anti-backsliding screening is conducted then the value in this column will be equal to the value in column (*5). When anti-backsliding screening is used, see discussion for column (*9).

(*11) Maximum technology based effluent limit in lbs/day- If no anti-backsliding screening is conducted then the value in this column will be equal to the value in column (*6). When anti-backsliding screening is used, see discussion for column (*9).

(*12) Average technology based effluent limit in mg/L- A concentration limit can be calculated using the specified concentration flow from section (*1) in Table 1 and the mass limitation calculated under column (*10). The formula is as follows:

$$\frac{\text{effluent limit, lbs/day}}{\text{flow, MGD} * 8.34}$$

(*13) Maximum technology based effluent limit in mg/L- Similar to column (*11), a concentration limit can be calculated using the specified concentration flow from section (*1) in Table 1 and the mass limitation calculated under column (*11). The formula is as follows:

$$\frac{\text{effluent limit, lbs/day}}{\text{flow, MGD} * 8.34}$$

Appendix B

wqsmodn.wk4 Date: 04/05 Appendix B-1 Page 1
Developer: Bruce Fielding Time: 11:01 AM
Software: Lotus 4.0 LA0020800, AI2645
Revision date: 3/11/09

Water Quality Screen for International Paper Company, Red River Mill

Input variables:

Receiving Water Characteristics:

Receiving Water Name=	Red River, Subsegment 100101
Critical flow (Qr) cfs=	1330
Harm. mean/avg tidal cfs=	8000
Drinking Water=1 HHNPCR=2	1
MW=1, BW=2, 0=n	
Rec. Water Hardness=	245.5
Rec. Water TSS=	8.15
Fisch/Specific=1,Stream=0	
Diffuser Ratio=	

Dilution:

ZID Fs =	0.033333
MZ Fs =	0.333333
Critical Qr (MGD)=	859.579
Harm. Mean (MGD)=	5170.4
ZID Dilution =	0.345122
MZ Dilution =	0.050062
HHnc Dilution=	0.017263
HHc Dilution=	0.002912
ZID Upstream =	1.897525
MZ Upstream =	18.97525
MZhhnc Upstream=	56.92576
MZhhc Upstream=	342.4106
ZID Hardness=	---
MZ Hardness=	---
ZID TSS=	---
MZ TSS=	---

Toxicity Dilution Series:

Biomonitoring dilution:	0.050062
Dilution Series Factor:	0.75

	Percent Effluent
Dilution No. 1	6.675%
Dilution No. 2	5.0062%
Dilution No. 3	3.7546%
Dilution No. 4	2.8160%
Dilution No. 5	2.1120%

Effluent Characteristics:

Permittee=	International Paper Company, Red River Mill
Permit Number=	LA0020800, AI2645
Facility flow (Qef),MGD=	15.1
Outfall Number =	001
Eff. data, 2=lbs/day	1
MQL, 2=lbs/day	1
Effluent Hardness=	N/A
Effluent TSS=	N/A
WQBL ind. 0=y, 1=n	
Acute/Chr. ratio 0=n, 1=y	0
Aquatic,acute only1=y,0=n	

Multipliers:

WLAa --> LTAa	0.32
WLAc --> LTAc	0.53
LTA a,c-->WQBL avg	1.31
LTA a,c-->WQBL max	3.11
LTA h --> WQBL max	2.38
WQBL-limit/report	2.13
WLA Fraction	1
WQBL Fraction	1

Partition Coefficients; Dissolved-->Total

METALS	FW
Total Arsenic	1.845773
Total Cadmium	4.045156
Chromium III	4.891529
Chromium VI	1
Total Copper	2.794462
Total Lead	5.259803
Total Mercury	3.161902
Total Nickel	2.207797
Total Zinc	3.345618

Page Numbering/Labeling

Appendix	Appendix B-1
Page Numbers 1=y, 0=n	1
Input Page # 1=y, 0=n	1

Fischer/Site Specific inputs:

Pipe=1,Canal=2,Specific=3	
Pipe width, feet	
ZID plume dist., feet	
MZ plume dist., feet	
HHnc plume dist., feet	
HHc plume dist., feet	

Conversions:

ug/L-->lbs/day Qef	0.125934
ug/L-->lbs/day Qeo	0
ug/L-->lbs/day Qr	11.0922
lbs/day-->ug/L Qeo	7.940667
lbs/day-->ug/L Qef	7.940667
diss-->tot 1=y0=n	1
Cu diss->tot1=y0=n	1
cfs-->MGD	0.6463

Aquatic Life, Dissolved
Metal Criteria, ug/L

METALS	ACUTE	CHRONIC
Arsenic	339.8	150
Cadmium	84.10551	2.000833
Chromium III	1145.031	371.4363
Chromium VI	15.712	10.582
Copper	42.94776	26.46294
Lead	169.082	6.588884
Mercury	1.734	0.012
Nickel	3025.971	336.0583
Zinc	244.9607	223.6863

Fischer/site specific dilutions:

F/specific ZID Dilution =	---
F/specific MZ Dilution =	---
F/specific HHnc Dilution=	---
F/specific HHc Dilution=	---

Receiving Stream:

Default Hardness=	25
Default TSS=	10
99 Crit., 1=y, 0=n	1
Old MQL=1, New=0	1

Site Specific Multiplier Values:

CV =	---
N =	---
WLAa --> LTAa	---
WLAc --> LTAc	---
LTA a,c-->WQBL avg	---
LTA a,c-->WQBL max	---
LTA h --> WQBL max	---

(*1) Toxic Parameters	(*2) Instream Conc. ug/L	(*3) CuEffluent /Tech (Avg) ug/L	(*4) Effluent /Tech (Max) ug/L	(*5) MOLEffluent ug/L	(*6) 95th % 1=No 95% 0=95 %	(*7) estimate Non-Tech ug/L	(*8) Numerical Criteria Acute FW ug/L	(*9) Chronic FW ug/L	(*10) HHDW ug/L	(*11) HH Carcinogen Indicator "C"
NONCONVENTIONAL										
Total Phenols (4AAP)		75.7		5	0	161.241	700	350	5	
3-Chlorophenol				10					0.1	
4-Chlorophenol				10			383	192	0.1	
2,3-Dichlorophenol				10					0.04	
2,5-Dichlorophenol				10					0.5	
2,6-Dichlorophenol				10					0.2	
3,4-Dichlorophenol				10					0.3	
2,4-Dichlorophenocy-acetic acid (2,4-D)		10		---	0	21.3			100	
2-(2,4,5-Trichlorophen-oxy) propionic acid (2,4,5-TP, Silvex)		4		---	0	8.52			10	
METALS AND CYANIDE										
Total Arsenic				10			627.1936	276.8659	92.28865	
Total Cadmium				1			340.2199	8.093679	40.45156	
Chromium III		---	---	10			5600.954	1816.891	244.5765	
Chromium VI		---	---	10			15.712	10.582	50	C
Total Copper		---	---	10			120.0159	73.94968	2794.462	
Total Lead		5	---	5	0	10.65	889.3382	34.65623	262.9902	
Total Mercury		---	---	0.2			5.482737	0.037943	6.323803	
Total Nickel		---	---	40			6680.728	741.9485		
Total Zinc		100	---	20	0	213	819.545	748.3689	16728.09	
Total Cyanide		---	---	20			45.9	5.4	663.8	
DIOXIN										
2,3,7,8 TCDD; dioxin				0.00001					7.1E-007	C
VOLATILE COMPOUNDS										
Benzene		---	---	10			2249	1125	1.1	C
Bromoform				10			2930	1465	3.9	C
Bromodichloromethane		---	---	10					0.2	C
Carbon Tetrachloride		---	---	10			2730	1365	0.22	C
Chloroform		---	---	10			2890	1445	5.3	C
Dibromochloromethane		---	---	10					0.39	C
1,2-Dichloroethane		---	---	10			11800	5900	0.36	C
1,1-Dichloroethylene		---	---	10			1160	580	0.05	C
1,3-Dichloropropylene		---	---	10			606	303	9.86	
Ethylbenzene		---	---	10			3200	1600	2390	
Methyl Chloride		---	---	50			55000	27500		
Methylene Chloride		---	---	20			19300	9650	4.4	C
1,1,2,2-Tetrachloro-ethane				10			932	466	0.16	C

(*1) Toxic Parameters	(*12) WLAa Acute	(*13) WLAc Chronic	(*14) WLAh HHDW	(*15) LTAa Acute	(*16) LTAc Chronic	(*17) LTAh HHDW	(*18) Limiting A,C,HH	(*19) WQBL Avg 001	(*20) WQBL Max 001	(*21) WQBL Avg 001	(*22) WQBL Max 001	(*23) Need WQBL?
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	lbs/day	lbs/day	
NONCONVENTIONAL												
Total Phenols (4AAP)	2028.268	6991.339	289.6288	649.0457	3705.41	289.6288	289.6288	289.6288	689.3166	36.47411	86.80839	no
3-Chlorophenol	---	---	5.792576	---	---	5.792576	5.792576	5.792576	13.78633	0.729482	1.736168	no
4-Chlorophenol	1109.752	3835.249	5.792576	355.1207	2032.682	5.792576	5.792576	5.792576	13.78633	0.729482	1.736168	no
2,3-Dichlorophenol	---	---	2.31703	---	---	2.31703	2.31703	2.31703	5.514533	0.291793	0.694467	no
2,5-Dichlorophenol	---	---	28.96288	---	---	28.96288	28.96288	28.96288	68.93166	3.647411	8.680839	no
2,6-Dichlorophenol	---	---	11.58515	---	---	11.58515	11.58515	11.58515	27.57266	1.458965	3.472336	no
3,4-Dichlorophenol	---	---	17.37773	---	---	17.37773	17.37773	17.37773	41.35899	2.188447	5.208504	no
2,4-Dichlorophenocy-acetic acid (2,4-D)	---	---	5792.576	---	---	5792.576	5792.576	5792.576	13786.33	729.4823	1736.168	no
2-(2,4,5-Trichlorophen-oxy) propionic acid (2,4,5-TP, Silvex)	---	---	579.2576	---	---	579.2576	579.2576	579.2576	1378.633	72.94823	173.6168	no
METALS AND CYANIDE												
Total Arsenic	1817.31	5530.467	5345.89	581.539	2931.148	5345.89	581.539	761.8162	1808.586	95.93856	227.7625	no
Total Cadmium	985.7957	161.6733	2343.187	315.4546	85.68685	2343.187	85.68685	112.2498	266.4861	14.13606	33.55966	no
Chromium III	16228.91	36292.87	14167.28	5193.25	19235.22	14167.28	5193.25	6803.157	16151.01	856.7488	2033.961	no
Chromium VI	45.52592	211.3781	17170.53	14.56829	112.0304	17170.53	14.56829	19.08447	45.30739	2.403383	5.705741	no
Total Copper	347.7491	1477.164	161871.4	111.2797	782.8968	161871.4	111.2797	145.7764	346.0799	18.35821	43.58322	no
Total Lead	2576.88	692.2671	15233.91	824.6016	366.9015	15233.91	366.9015	480.641	1141.064	60.52905	143.6987	no
Total Mercury	15.88637	0.757917	366.3111	5.083639	0.401696	366.3111	0.401696	0.526222	1.249275	0.066269	0.157326	no
Total Nickel	19357.58	14820.61	---	6194.426	7854.923	---	6194.426	8114.697	19264.66	1021.916	2426.076	no
Total Zinc	2374.653	14948.86	968987.4	759.8888	7922.895	968987.4	759.8888	995.4543	2363.254	125.3615	297.6141	no
Total Cyanide	132.9964	107.8664	38451.12	42.55885	57.16918	38451.12	42.55885	55.7521	132.358	7.021085	16.66838	no
DIOXIN												
2,3,7,8 TCDD; dioxin	---	---	0.000244	---	---	0.000244	0.000244	0.000244	0.00058	0.000031	0.000073	no
VOLATILE COMPOUNDS												
Benzene	6516.535	22472.16	377.7517	2085.291	11910.25	377.7517	377.7517	377.7517	899.0489	47.57178	113.2208	no
Bromoform	8489.749	29263.75	1339.301	2716.72	15509.79	1339.301	1339.301	1339.301	3187.537	168.6636	401.4193	no
Bromodichloromethane	---	---	68.68212	---	---	68.68212	68.68212	68.68212	163.4634	8.649414	20.58561	no
Carbon Tetrachloride	7910.244	27266.22	75.55033	2531.278	14451.1	75.55033	75.55033	75.55033	179.8098	9.514355	22.64417	no
Chloroform	8373.848	28864.24	1820.076	2679.631	15298.05	1820.076	1820.076	1820.076	4331.781	229.2095	545.5185	no
Dibromochloromethane	---	---	133.9301	---	---	133.9301	133.9301	133.9301	318.7537	16.86636	40.14193	no
1,2-Dichloroethane	34190.8	117854	123.6278	10941.06	62462.62	123.6278	123.6278	123.6278	294.2342	15.56895	37.05409	no
1,1-Dichloroethylene	3361.129	11585.65	17.17053	1075.561	6140.393	17.17053	17.17053	17.17053	40.86586	2.162354	5.146401	no
1,3-Dichloropropylene	1755.9	6052.502	571.148	561.8881	3207.826	571.148	561.8881	736.0734	1747.472	92.69667	220.0661	no
Ethylbenzene	9272.081	31960.41	138442.6	2967.066	16939.02	138442.6	2967.066	3886.856	9227.575	489.4874	1162.065	no
Methyl Chloride	159363.9	549319.5	---	50996.45	291139.3	---	50996.45	66805.35	158598.9	8413.064	19973	no
Methylene Chloride	55922.24	192761.2	1511.007	17895.12	102163.4	1511.007	1511.007	1511.007	3596.196	190.2871	452.8833	no
1,1,2,2-Tetrachloro-ethane	2700.494	9308.468	54.9457	864.158	4933.488	54.9457	54.9457	54.9457	130.7708	6.919531	16.46848	no

(*1) Toxic Parameters	(*2) Instream Conc. ug/L	(*3) CuEffluent /Tech (Avg) ug/L	(*4) Effluent /Tech (Max) ug/L	(*5) MQL ug/L	(*6) Effluent 95th % 1=No 95% estimate 0=95 %	(*7) Non-Tech ug/L	(*8) Numerical Criteria Acute FW ug/L	(*9) Chronic FW ug/L	(*10) HHDW ug/L	(*11) HH Carcinogen Indicator "C"
VOLATILE COMPOUNDS (cont'd)										
Tetrachloroethylene		---	---	10			1290	645	0.65	C
Toluene		---	---	10			1270	635	6100	
1,1,1-Trichloroethane		---	---	10			5280	2640	200	
1,1,2-Trichloroethane		---	---	10			1800	900	0.56	C
Trichloroethylene		---	---	10			3900	1950	2.8	C
Vinyl Chloride		---	---	10					1.9	C
ACID COMPOUNDS										
2-Chlorophenol		---	---	10			258	129	0.1	
2,4-Dichlorophenol		---	---	10			202	101	0.3	
BASE NEUTRAL COMPOUNDS										
Benzidine				50			250	125	0.00008	C
Hexachlorobenzene		---	---	10					0.00025	C
Hexachlorabutadiene		---	---	10			5.1	1.02	0.09	C
PESTICIDES										
Aldrin				0.05			3		0.00004	C
Hexachlorocyclohexane (gamma BHC, Lindane)				0.05			5.3	0.21	0.11	C
Chlordane				0.2			2.4	0.0043	0.00019	C
4,4'-DDT				0.1			1.1	0.001	0.00019	C
4,4'-DDE				0.1			52.5	10.5	0.00019	C
4,4'-DDD				0.1			0.03	0.006	0.00027	C
Dieldrin				0.1			0.2374	0.0557	0.00005	C
Endosulfan				0.1			0.22	0.056	0.47	
Endrin				0.1			0.0864	0.0375	0.26	
Heptachlor				0.05			0.52	0.0038	0.00007	C
				1			2	0.014		
Toxaphene				5			0.73	0.0002	0.00024	C
Other Parameters:										
Fecal Col.(col/100ml)										
Chlorine							19	11		
Ammonia										
Chlorides										
Sulfates										
TDS										

(*1) Toxic Parameters	(*12) WLAa Acute	(*13) WLAc Chronic	(*14) WLAh HHDW	(*15) LTAa Acute	(*16) LTAc Chronic	(*17) LTAh HHDW	(*18) Limiting A,C,HH	(*19) WQBL Avg 001	(*20) WQBL Max 001	(*21) WQBL Avg 001	(*22) WQBL MaxWQBL? 001	(*23) Need
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	lbs/day	lbs/day	
Tetrachloroethylene	3737.808	12884.04	223.2169	1196.098	6828.541	223.2169	223.2169	223.2169	531.2562	28.1106	66.90322	no
Toluene	3679.857	12684.29	353347.1	1177.554	6722.672	353347.1	1177.554	1542.596	3662.194	194.2653	461.1947	no
1,1,1-Trichloroethane	15298.93	52734.67	11585.15	4895.659	27949.38	11585.15	4895.659	6413.313	15225.5	807.6542	1917.408	no
1,1,2-Trichloroethane	5215.546	17977.73	192.3099	1668.975	9528.196	192.3099	192.3099	192.3099	457.6976	24.21836	57.63969	no
Trichloroethylene	11300.35	38951.75	961.5497	3616.112	20644.42	961.5497	961.5497	961.5497	2288.488	121.0918	288.1985	no
Vinyl Chloride	---	---	652.4801	---	---	652.4801	652.4801	652.4801	1552.903	82.16943	195.5633	no
ACID COMPOUNDS												
2-Chlorophenol	747.5615	2576.808	5.792576	239.2197	1365.708	5.792576	5.792576	5.792576	13.78633	0.729482	1.736168	no
2,4-Dichlorophenol	585.3001	2017.501	17.37773	187.296	1069.275	17.37773	17.37773	17.37773	41.35899	2.188447	5.208504	no
BASE NEUTRAL COMPOUNDS												
Benzidine	724.3813	2496.907	0.027473	231.802	1323.361	0.027473	0.027473	0.027473	0.065385	0.00346	0.008234	no
Hexachlorobenzene	---	---	0.085853	---	---	0.085853	0.085853	0.085853	0.204329	0.010812	0.025732	no
Hexachlorabutadiene	14.77738	20.37476	30.90695	4.728761	10.79862	30.90695	4.728761	6.194677	14.70645	0.780121	1.852042	no
PESTICIDES												
Aldrin	8.692576	---	0.013736	2.781624	---	0.013736	0.013736	0.013736	0.032693	0.00173	0.004117	no
Hexachlorocyclohexane (gamma BHC, Lindane)	15.35688	4.194803	37.77517	4.914203	2.223246	37.77517	2.223246	2.912452	6.914294	0.366777	0.870745	no
Chlordane	6.954061	0.085894	0.065248	2.225299	0.045524	0.065248	0.045524	0.059636	0.141578	0.00751	0.01783	no
4,4'-DDT	3.187278	0.019975	0.065248	1.019929	0.010587	0.065248	0.010587	0.013869	0.032925	0.001747	0.004146	no
4,4'-DDE	152.1201	209.7402	0.065248	48.67843	111.1623	0.065248	0.065248	0.065248	0.15529	0.008217	0.019556	no
4,4'-DDD	0.086926	0.119852	0.092721	0.027816	0.063521	0.092721	0.027816	0.036439	0.086509	0.004589	0.010894	no
Dieldrin	0.687873	1.112622	0.017171	0.220119	0.589689	0.017171	0.017171	0.017171	0.040866	0.002162	0.005146	no
Endosulfan	0.637456	1.118614	27.22511	0.203986	0.592866	27.22511	0.203986	0.267221	0.634396	0.033652	0.079892	no
Endrin	0.250346	0.749072	15.0607	0.080111	0.397008	15.0607	0.080111	0.104945	0.249145	0.013216	0.031376	no
Heptachlor	1.506713	0.075906	0.024039	0.482148	0.04023	0.024039	0.024039	0.024039	0.057212	0.003027	0.007205	no
Toxaphene	2.115194	0.003995	0.082419	0.676862	0.002117	0.082419	0.002117	0.002774	0.006585	0.000349	0.000829	no
Other Parameters:												
Fecal Col.(col/100ml)	---	---	---	---	---	---	---	---	---	---	---	no
Chlorine	55.05298	219.7278	---	17.61695	116.4557	---	17.61695	23.07821	54.78873	2.906331	6.899764	no
Ammonia	---	---	---	---	---	---	---	---	---	---	---	no
Chlorides	---	---	---	---	---	---	---	---	---	---	---	no
Sulfates	---	---	---	---	---	---	---	---	---	---	---	no
TDS	---	---	---	---	---	---	---	---	---	---	---	no
	---	---	---	---	---	---	---	---	---	---	---	no
	---	---	---	---	---	---	---	---	---	---	---	no

APPENDIX B-2 LA0020800, AI No. 2645

Documentation and Explanation of Water Quality Screen
and Associated Lotus Spreadsheet

Each reference column is marked by a set of parentheses enclosing a number and asterisk, for example (*1) or (*19). These columns represent inputs, existing data sets, calculation points, and results for determining Water Quality Based Limits for an effluent of concern. The following represents a summary of information used in calculating the water quality screen:

Receiving Water Characteristics:

Receiving Water: Red River
Critical Flow, Qrc (cfs): 1,330
Harmonic Mean Flow, Qrh (cfs): 8,000
Subsegment No.: 100101

Receiving Stream Hardness (mg/L): 245.5
Receiving Stream TSS (mg/L): 8.15
MZ Stream Factor, Fs: 0.3
Plume distance, Pf: N/A

Effluent Characteristics:

Company: International Paper Company, Red River Mill
Facility flow, Qe (MGD): 15.1
Effluent Hardness: N/A
Effluent TSS: N/A
Pipe/canal width, Pw: N/A
Permit Number: LA0020800

Variable Definition:
Qrc, critical flow of receiving stream, cfs
Qrh, harmonic mean flow of the receiving stream, cfs
Pf = Allowable plume distance in feet, specified in LAC 33:IX.1115.D
Pw = Pipe width or canal width in feet
Qe, total facility flow , MGD
Fs, stream factor from LAC.33.IX Chapter 11 (1 for harmonic mean flow)
Cu, ambient concentration, ug/L
Cr, numerical criteria from LAC.33.IX.1113, Table 1
WLA, wasteload allocation
LTA, long term average calculations
WQBL, effluent water quality based limit
ZID, Zone of Initial Dilution in % effluent
MZ, Mixing Zone in % effluent

Formulas used in aquatic life water quality screen (dilution type WLA):

Streams:

$$\text{Dilution Factor} = \frac{Qe}{(Qrc \times 0.6463 \times Fs + Qe)}$$

$$WLA\ a,c,h = \frac{Cr}{\text{Dilution Factor}} - \frac{(Fs \times Qrc \times 0.6463 \times Cu)}{Qe}$$

Static water bodies (in the absence of a site specific dilution):

Discharge from a pipe:

$$\text{Critical Dilution} = \frac{(2.8)\ Pw\ n^{1/2}}{Pf}$$

$$WLA = \frac{(Cr-Cu)\ Pf}{(2.8)\ Pw\ n^{1/2}}$$

Discharge from a canal:

$$\text{Critical Dilution} = \frac{(2.38)(Pw^{1/2})}{(Pf)^{1/2}}$$

$$WLA = \frac{(Cr-Cu)\ Pf^{1/2}}{2.38\ Pw^{1/2}}$$

Formulas used in human health water quality screen, human health non-carcinogens (dilution type WLA):

Streams:

$$\text{Dilution Factor} = \frac{Qe}{(Qrc \times 0.6463 + Qe)}$$

$$WLA\ a,c,h = \frac{Cr}{\text{Dilution Factor}} - \frac{(Qrc \times 0.6463 \times Cu)}{Qe}$$

Formulas used in human health water quality screen, human health carcinogens (dilution type WLA):

$$\text{Dilution Factor} = \frac{Qe}{(Qrh \times 0.6463 + Qe)}$$

$$WLA\ a,c,h = \frac{Cr}{\text{Dilution Factor}} - \frac{(Qrh \times 0.6463 \times Cu)}{Qe}$$

Static water bodies in the absence of a site specific dilution (human health carcinogens and human health non-carcinogens):

Discharge from a pipe:

$$\text{Critical Dilution} = \frac{(2.8)\ Pw\ n^{1/2}}{Pf}$$

$$WLA = \frac{(Cr-Cu)\ Pf^{*}}{(2.8)\ Pw\ n^{1/2}}$$

Discharge from a canal:

$$\text{Critical Dilution} = \frac{(2.38)(Pw^{1/2})}{(Pf)^{1/2}}$$

$$WLA = \frac{(Cr-Cu)\ Pf^{1/2*}}{2.38\ Pw^{1/2}}$$

* Pf is set equal to the mixing zone distance specified in LAC 33:IX.1115 for the static water body type, i.e., lake, estuary, Gulf of Mexico, etc.

If a site specific dilution is used, WLA are calculated by subtracting Cu from Cr and dividing by the site specific dilution for human health and aquatic life criteria.

$$WLA = \frac{(Cr-Cu)}{\text{site specific dilution}}$$

Long Term Average Calculations:
LTAa = WLAa X 0.32
LTAc = WLAc X 0.53
LTAh = WLAh

WQBL Calculations:
Select most limiting LTA to calculate daily max and monthly avg WQBL

If aquatic life LTA is more limiting:
Daily Maximum = Min(LTAa, LTAc) X 3.11
Monthly Average = Min(LTAc, LTAc) X 1.31

If human health LTA is more limiting:
Daily Maximum = LTAh X 2.38
Monthly Average = LTAh

Mass Balance Formulas:

mass (lbs/day): (ug/L) X 1/1000 X (flow, MGD) X 8.34 = lbs/day

$$\text{concentration(ug/L)}: \frac{\text{lbs/day}}{\text{(flow, MGD) X 8.34 X 1/1000}} = \text{ug/L}$$

The following is an explanation of the references in the spreadsheet.

(*1) Parameter being screened.
(*2) Instream concentration for the parameter being screened in ug/L. In the absence of accurate supporting data, the instream concentration is assumed to be zero (0).
(*3) Monthly average effluent or technology value in concentration units of ug/L or mass units of lbs/day. Units determined on a case-by-case basis as appropriate to the particular situation.
(*4) Daily maximum technology value in concentration units of ug/L or mass units of lbs/day. Units determined on a case-by-case basis as appropriate to the particular situation.
(*5) Minimum analytical Quantification Levels (MQLs). Established in a letter dated January 27, 1994 from Wren Stenger of EPA Region 6 to Kilren Vidrine of LDEQ and from the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". The applicant must test for the parameter at a level at least as sensitive as the specified MQL. If this is not done, the MQL becomes the application value for screening purposes if the pollutant is suspected to be present

on-site and/or in the waste stream. Units are in ug/l or lbs/day depending on the units of the effluent data.

(*6) States whether effluent data is based on 95th percentile estimation. A "1" indicates that a 95th percentile approximation is being used, a "0" indicates that no 95th percentile approximation is being used.

(*7) 95th percentile approximation multiplier (2.13). The constant, 2.13, was established in memorandum of understanding dated October 8, 1991 from Jack Ferguson of Region 6 to Jesse Chang of LDEQ and included in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". This value is screened against effluent Water Quality Based Limits established in columns (*18) - (*21). Units are in ug/l or lbs/day depending on the units of the measured effluent data.

(*8) LAC 33.IX.1113.C.6, Table 1, Numerical Criteria for Specific Toxic Substances, freshwater (FW) or marine water (MW) (whichever is applicable) aquatic life protection, acute criteria. Units are specified. Some metals are hardness dependent. The hardness of the receiving stream shall generally be used, however a flow weighted hardness may be determined in site-specific situations. Dissolved metals are converted to Total metals using partition coefficients in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Similar to hardness, the TSS of the receiving stream shall generally be used, however, a flow weighted TSS may be determined in site-specific situations.

Hardness Dependent Criteria:

Metal	Formula
Cadmium	$e^{(1.1280[\ln(hardness)] - 1.6774)}$
Chromium III	$e^{(0.8190[\ln(hardness)] + 3.6880)}$
Copper	$e^{(0.9422[\ln(hardness)] - 1.3884)}$
Lead	$e^{(1.2730[\ln(hardness)] - 1.4600)}$
Nickel	$e^{(0.8460[\ln(hardness)] + 3.3612)}$
Zinc	$e^{(0.8473[\ln(hardness)] + 0.8604)}$

Dissolved to Total Metal Multipliers for Freshwater Streams (TSS dependent):

Metal	Multiplier
Arsenic	$1 + 0.48 \times TSS^{-0.73} \times TSS$
Cadmium	$1 + 4.00 \times TSS^{-1.13} \times TSS$
Chromium III	$1 + 3.36 \times TSS^{-0.93} \times TSS$
Copper	$1 + 1.04 \times TSS^{-0.74} \times TSS$
Lead	$1 + 2.80 \times TSS^{-0.80} \times TSS$
Mercury	$1 + 2.90 \times TSS^{-1.14} \times TSS$
Nickel	$1 + 0.49 \times TSS^{-0.57} \times TSS$
Zinc	$1 + 1.25 \times TSS^{-0.70} \times TSS$

Dissolved to Total Metal Multipliers for Marine Environments (TSS dependent):

Metal	Multiplier

Copper	$1 + (10^{4.86} \times TSS^{-0.72} \times TSS) \times 10^{-6}$
Lead	$1 + (10^{6.06} \times TSS^{-0.85} \times TSS) \times 10^{-6}$
Zinc	$1 + (10^{5.36} \times TSS^{-0.52} \times TSS) \times 10^{-6}$

If a metal does not have multiplier listed above, then the dissolved to total metal multiplier shall be 1.

(*9) LAC 33.IX.1113.C.6, Table 1, Numerical Criteria for Specific Toxic Substances, freshwater (FW) or marine water (MW) (whichever is applicable) aquatic life protection, chronic criteria. Units are specified. Some metals are hardness dependent. The hardness of the receiving stream shall generally be used, however a flow weighted hardness may be determined in site-specific situations. Dissolved metals are converted to Total metals using partition coefficients in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Similar to hardness, the TSS of the receiving stream shall generally be used, however, a flow weighted TSS may be determined in site-specific situations.
Hardness dependent criteria:

Metal	Formula
Cadmium	$e^{(0.7852[\ln(hardness)] - 3.4900)}$
Chromium III	$e^{(0.8473[\ln(hardness)] + 0.7614)}$
Copper	$e^{(0.8545[\ln(hardness)] - 1.3860)}$
Lead	$e^{(1.2730[\ln(hardness)] - 4.7050)}$
Nickel	$e^{(0.8460[\ln(hardness)] + 1.1645)}$
Zinc	$e^{(0.8473[\ln(hardness)] + 0.7614)}$

Dissolved to total metal multiplier formulas are the same as (*8), acute numerical criteria for aquatic life protection.

(*10) LAC 33.IX.1113.C.6, Table 1, Numerical Criteria for Specific Toxic Substances, human health protection, drinking water supply (HHDW), non-drinking water supply criteria (HHNDW), or human health non-primarry contact recreation (HHNPCR) (whichever is applicable). A DEQ and EPA approved Use Attainability Analysis is required before HHNPCR is used, e.g., Monte Sano Bayou. Units are specified.

(*11) C if screened and carcinogenic. If a parameter is being screened and is carcinogenic a "C" will appear in this column.

(*12) Wasteload Allocation for acute aquatic criteria (WLAa). Dilution type WLAa is calculated in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Negative values indicate that the receiving water is not meeting the acute aquatic numerical criteria for that parameter. Units are in ug/L.
Dilution WLAa formulas for streams:

$$WLAa = (Cr/\text{Dilution Factor}) - \frac{(Fs \times Qrc \times 0.6463 \times Cu)}{Qe}$$

Dilution WLAa formulas for static water bodies:
WLAa = (Cr-Cu)/Dilution Factor)
Cr represents aquatic acute numerical criteria from column (*8).
If Cu data is unavailable or inadequate, assume Cu=0.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDLs, then a blank shall appear in this column.

(*13) Wasteload Allocation for chronic aquatic criteria (WLAc). Dilution type WLAc is calculated in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Negative values indicate that the receiving water is not meeting the chronic aquatic numerical criteria for that parameter. Units are in ug/L.

Dilution WLAc formula:

$$WLAc = (Cr/\text{Dilution Factor}) - \frac{(Fs \times Orc \times 0.6463 \times Cu)}{Qe}$$

Dilution WLAc formulas for static water bodies:

WLAc = (Cr-Cu)/Dilution Factor)

Cr represents aquatic chronic numerical criteria from column (*9).

If Cu data is unavailable or inadequate, assume Cu=0.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDLs, then a blank shall appear in this column.

(*14) Wasteload Allocation for human health criteria (WLAh). Dilution type WLAh is calculated in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Negative values indicate that the receiving water is not meeting the human health numerical criteria for that parameter. Units are in ug/L. Dilution WLAh formula:

$$WLAh = (Cr/\text{Dilution Factor}) - \frac{(Fs \times Orc, Orh \times 0.6463 \times Cu)}{Qe}$$

Dilution WLAh formulas for static water bodies:

WLAh = (Cr-Cu)/Dilution Factor)

Cr represents human health numerical criteria from column (*10).

If Cu data is unavailable or inadequate, assume Cu=0.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDLs, then a blank shall appear in this column.

(*15) Long Term Average for aquatic numerical criteria (LTAa). WLAa numbers are multiplied by a multiplier specified in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards" which is 0.32. WLAa X 0.32 = LTAa.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDLs, then a blank shall appear in this column.

(*16) Long Term Average for chronic numerical criteria (LTAc). WLAc numbers are multiplied by a multiplier specified in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards" which is 0.53. WLAc X 0.53 = LTAc.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDLs, then a blank shall appear in this column.

(*17) Long Term Average for human health numerical criteria (LTAh). WLAh numbers are multiplied by a multiplier specified in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards" which is 1. WLAc X 1 = LTAh.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDLs, then a blank shall appear in this column.

(*18) Limiting Acute, Chronic or Human Health LTA's. The most limiting LTA is placed in this column. Units are consistent with the WLA calculation.

If standards are being applied at end-of-pipe, such as in the case of certain TMDLs, then the type of limit, Aquatic or Human Health (HH), is indicated.

(*19) End of pipe Water Quality Based Limit (WQBL) monthly average in terms of concentration, ug/L. If aquatic life criteria was the most limiting LTA then the limiting LTA is multiplied by 1.31 to determine the average WQBL ($LTA_{limiting\ aquatic}$ X 1.31 = $WQBL_{monthly\ average}$). If human health criteria was the most limiting criteria then LTAh = $WQBL_{monthly\ average}$. If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDLs, then either the human health criteria or the chronic aquatic life criteria shall appear in this column depending on which is more limiting.

(*20) End of pipe Water Quality Based Limit (WQBL) daily maximum in terms of concentration, ug/L. If aquatic life criteria was the most limiting LTA then the limiting LTA is multiplied by 3.11 to determine the daily maximum WQBL ($LTA_{limiting\ aquatic}$ X 3.11 = $WQBL_{daily\ max}$). If human health criteria was the most limiting criteria then LTAh is multiplied by 2.38 to determine the daily maximum WQBL ($LTA_{limiting\ aquatic}$ X 2.38 = $WQBL_{daily\ max}$). If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDLs, then either the human health criteria or the acute aquatic life criteria shall appear in this column depending on which is more limiting.

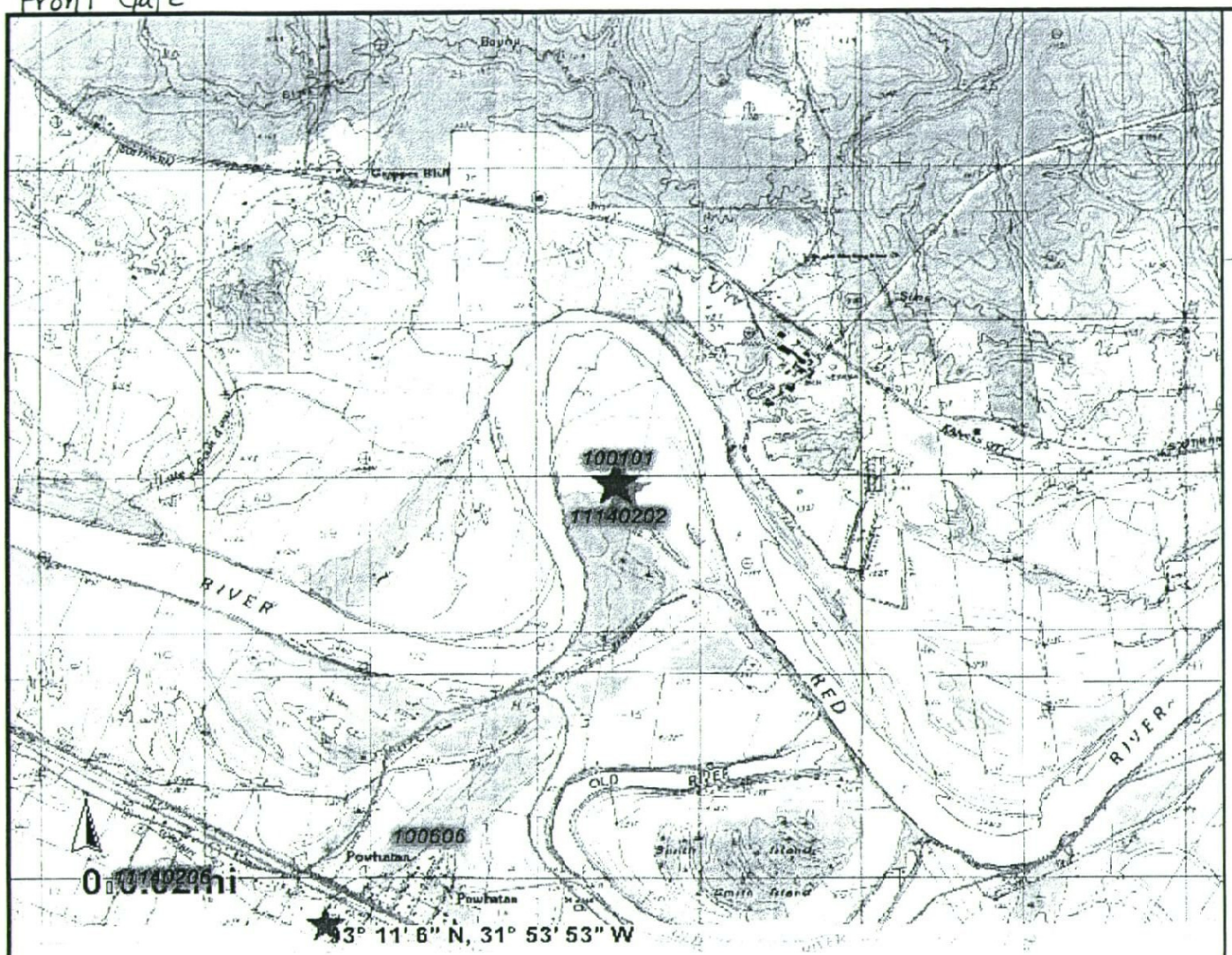
(*21) End of pipe Water Quality Based Limit (WQBL) monthly average in terms of mass, lbs/day. The mass limit is determined by using the mass balance equations above. Monthly average WQBL, ug/l/1000 X facility flow, MGD X 8.34 = monthly average WQBL, lbs/day.

(*22) End of pipe Water Quality Based Limit (WQBL) monthly average in terms of mass, lbs/day. Mass limit is determined by using the mass balance equations above. Daily maximum WQBL, ug/l/1000 X facility flow, MGD X 8.34 = daily maximum WQBL, lbs/day.

(*23) Indicates whether the screened effluent value(s) need water quality based limits for the parameter of concern. A "yes" indicates that a water quality based limit is needed in the permit; a "no" indicates the reverse.

Appendix C

Front Gate



LDEQ Interactive Mapping

- USDA HUC 8DIGIT LOUISIANA
- LDEQ SUBSEGMENTS 2006
- LDOTD PARISHES
- LDOTD LA BOUNDARY
- DRG 24K 2003
- State DRG 1:24k

November 25, 2009

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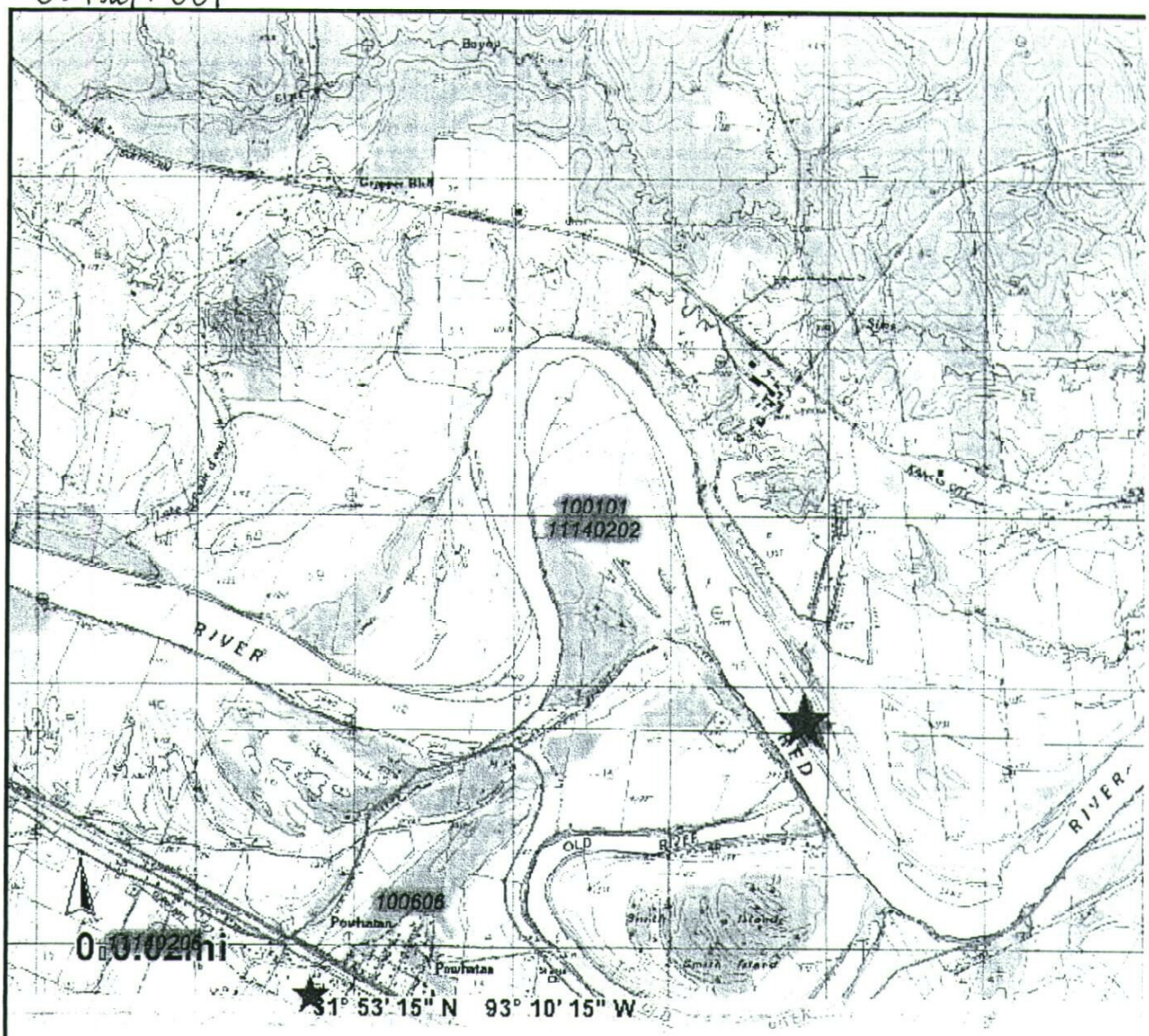
Outfall 001



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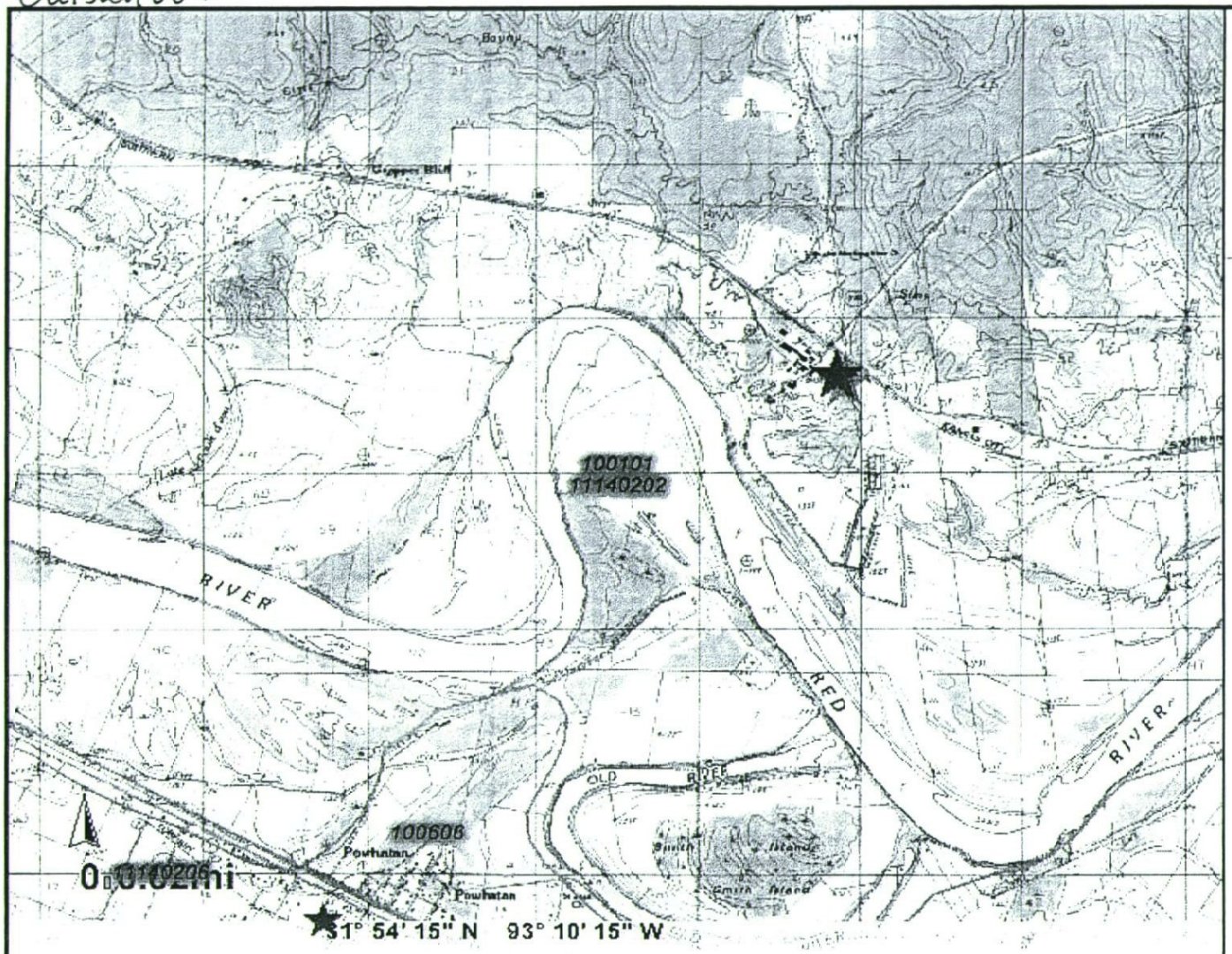
Outfall 004



LDEQ Interactive Mapping

- USDA HUC 8DIGIT LOUISIANA
- LDEQ SUBSEGMENTS 2006
- LDOTD PARISHES
- LDOTD LA BOUNDARY
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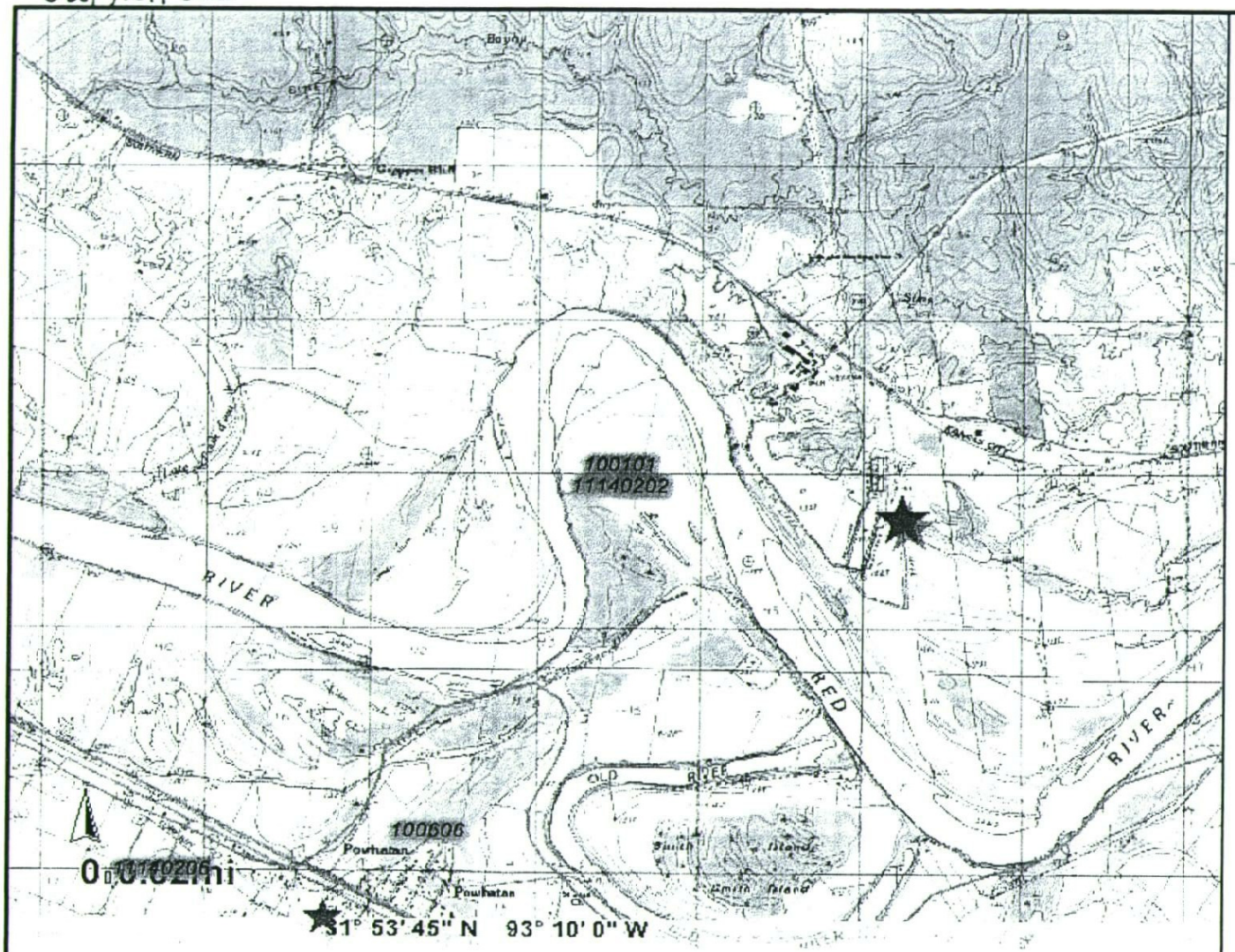
Outfall 005



LDEQ Interactive Mapping

- USDA HUC 8DIGIT LOUISIANA
- LDEQ SUBSEGMENTS 2006
- LDOTD PARISHES
- LDOTD LA BOUNDARY
- DRG 24K 2003
- State DRG 1:24k

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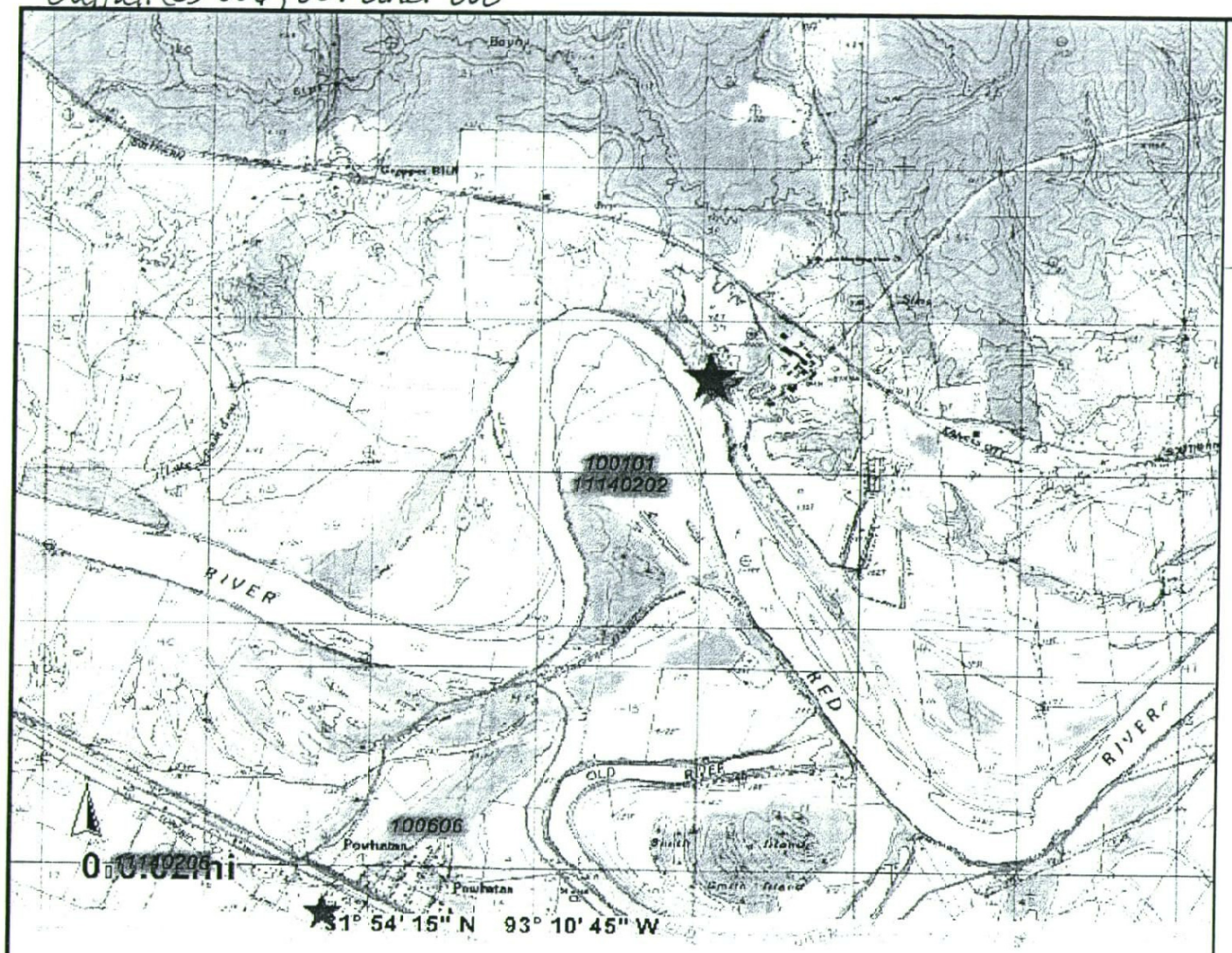
Outfall(s) 006, 007 and 008



LDEQ Interactive Mapping

- USDA HUC 8DIGIT LOUISIANA
- LDEQ SUBSEGMENTS 2006
- LDOTD PARISHES
- LDOTD LA BOUNDARY
- DRG 24K 2003
- State DRG 1:24k

November 25, 2009

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MEMORANDUM

TO: Bruce Fielding

FROM: Todd Franklin

DATE: December 2, 2009

RE: Stream Flow Characteristics for the Red River, receiving waters for International Paper Company / Red River Mill (Permit No. LA0020800, AI 2645)

The discharge from Outfall 001 flows into the Red River. Ambient data for hardness and TSS was taken from random monitoring station #2518 (Red River near Lake End). The following results were obtained from two separate samples:

Average hardness = 245.5mg/l
15th percentile TSS = 8.15 mg/l

The 7Q10 at the discharge point was determined to be 1,330 CFS. This number is based on USGS Station #07350500 (Red River at Coushatta), which is located approximately 25 miles upstream from the discharge point of the Red River Mill. The harmonic mean flow was determined to be 8,000 CFS, based on a memo from Max J. Forbes, Jr. to Jan Cedars dated August 16, 1993 (EDMS Document #40576804).

If you have additional questions or comments, please contact me at 2-3138.

Appendix D

BIOMONITORING FREQUENCY RECOMMENDATION AND RATIONALE FOR ADDITIONAL REQUIREMENTS

Permit Number: **LA0003638**
Facility Name: **Mosaic Fertilizer, LLC, Taft Plant**
Previous Critical Biomonitoring Dilution: **0.046% (10:1 ACR)**
Proposed Critical Biomonitoring Dilution: **0.10% (10:1 ACR)**
Outfall Discharge Flow: **3.02 MGD**
Receiving stream 7Q10: **141,955 cfs**
Date of Review: **11/13/09**
Name of Reviewer: **Laura Thompson**

Recommended Frequency by Species:

***Pimephales promelas* (Fathead minnow):** **Once/Year**[1]
***Daphnia pulex* (water flea):** **Once/Year**[1]

Recommended Dilution Series: **0.042%, 0.056%, 0.074%, 0.10%, and 0.13%**

Number of Tests Performed during previous 5 years by Species:

***Pimephales promelas* (Fathead minnow):** **6**
***Daphnia pulex* (water flea):** **6**
***Ceriodaphnia dubia* (water flea):** **N/A – Testing of species was not required**

Number of Failed Tests during previous 5 years by Species:

***Pimephales promelas* (Fathead minnow):** **No failures on file during the past 5 years**
***Daphnia pulex* (water flea):** **No failures on file during the past 5 years**
***Ceriodaphnia dubia* (water flea):** **N/A – Testing of species was not required**

Failed Test Dates during previous 5 years by Species:

***Pimephales promelas* (Fathead minnow):** **No failures on file during the past 5 years**
***Daphnia pulex* (water flea):** **No failures on file during the past 5 years**
***Ceriodaphnia dubia* (water flea):** **N/A – Testing of species was not required**

[1] An acute biomonitoring critical dilution of less than 1% shall have an established biomonitoring frequency of once per year.

Previous TRE Activities: **N/A – No previous TRE Activities**

Additional Requirements (including WET Limits) Rationale / Comments Concerning Permitting:

The Mosaic Fertilizer, LLC, Taft Plant owns and operates a diammonium phosphate fertilizer plant in Hahnville, St. Charles Parish, Louisiana. LPDES Permit LA0003638, effective March 1, 2004, contained freshwater acute biomonitoring as an effluent characteristic of Outfall 002 for *Daphnia pulex* and *Pimephales promelas*. The effluent series consisted of 0.019%, 0.026%, 0.034%, 0.046%, and 0.061% concentrations, with the critical biomonitoring dilution being defined as the 0.046% effluent concentration. The testing was to be performed once per quarter for the *Daphnia pulex* and the *Pimephales promelas*. Data on file indicate that the permittee has complied with the biomonitoring requirements contained in LA0003638 with no toxicity failures during the last five years.

It is recommended that freshwater acute biomonitoring continue to be an effluent characteristic of Outfall 002 (intermittent discharge of 3.02 mgd) in LA0003638. The effluent dilution series shall be 0.042%, 0.056%, 0.074%, 0.10%, and 0.13% concentrations, with 0.10% being defined as the critical biomonitoring dilution (the 10:1 Acute-to-Chronic ratio has been implemented). Since the proposed critical biomonitoring dilution is less than 1% (10:1 ACR), the biomonitoring frequency shall be once per year for *Daphnia pulex* and *Pimephales promelas*.

This recommendation is in accordance with the LDEQ/OES Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, Water Quality Management Plan Volume 3. Version 6, and the Best Professional Judgment (BPJ) of the reviewer.