TULANE ENVIRONMENTAL LAW CLINIC *Reference No. 162-002*

December 17, 2009

By U.S. Mail and fax
Ms. Soumaya Ghosn
LDEQ
Public Participation Group
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Re: **Comments on Draft Permit for Town of Independence POTW**
AI Number: **33911**
Permit Number: **LA0042544**
Activity Number: **PER20090001**

Dear Ms. Ghosn,

Please consider the following comments on the draft water discharge permit for Town of Independence Wastewater Treatment Facility, Permit No. LA 0042544 (the "Draft Permit"). The Tulane Environmental Law Clinic submits these comments on behalf of the Gulf Restoration Network,[1] Concerned Citizens of Independence, [2] Agnes Oliphant, Charlie Tate, Curtis Vedros, and Amanda Vedros (collectively "Commenters").[3] Commenters reserve the right to rely on all public comments submitted in this matter and respectfully request a written response to these comments and a notification of any permit issuance.

[1] The Gulf Restoration Network is a diverse network of local, regional and national groups dedicated to protecting and restoring the valuable resources of the Gulf of Mexico. The GRN has members in the five Gulf states of Texas, Louisiana, Mississippi, Alabama, and Florida and nationwide.
[2] Concerned Citizens of Independence is a non-profit organization operating under the laws of Louisiana. Individual members of Concerned Citizens of Independence reside, own property, work, and recreate in areas near and downstream of the Independence wastewater treatment plant ("WWTP"). Additionally, the Independence WWTP discharges into the Tangipahoa River immediately upstream from a public drinking water source, which supplies water to individual members of Concerned Citizens of Independence who reside near the source.
[3] All individual commenters live within a 600 feet of the WWTP.

Commenters also adopt and incorporate the expert comments made in the AFFIDAVIT OF MARK A. QUARLES, P.G., attached here as Exhibit A.

SUMMARY

The Town of Independence Wastewater Treatment Facility (the "Independence Facility," or "the Facility") discharges into a Tangipahoa parish drainage ditch for approximately 0.38 miles and thence into Tangipahoa River in Segment 040701 of the Lake Ponchartrain Basin. LDEQ's Statement of Basis (Nov. 13, 2009), p. 2. Louisiana has listed Segment 040701 on the state's list of impaired water bodies (*i.e.*, waters not meeting water quality standards) pursuant to § 303(d) of the Clean Water Act ("CWA") since at least 2006. *Id.* The CWA requires that states implement Total Maximum Daily Loadings ("TMDLs") studies for all impaired water bodies. 40 C.F.R. § 130.7(c). To date, however, LDEQ has not completed a TMDL for Segment 040701 despite its impaired status. Statement of Basis, p. 2.

LDEQ has designated the following uses for Segment 040701 of the Tangipahoa: Primary Contact Recreation, Secondary Contact Recreation, Fish and Wildlife Propagation, and Outstanding Natural Resource Waters. Louisiana Department of Wildlife and Fisheries has designated Segment 040701 of the Tangipahoa River[4] as a Natural and Scenic River pursuant to the Scenic Rivers Act, La. R.S. § 56:1856. In addition, the U.S. Fish and Wildlife Service ("FWS") has also identified Segment 040701 as a habitat for the Gulf Sturgeon, a listed threatened/endangered species. Statement of Basis, p. 3. However, despite its status as a highly valued river that serves as critical habitat for the Gulf Sturgeon, the Draft Permit fails to impose sufficient limitations as mandated by state and federal law.

Other problems at the Independence facility include a lack of influent monitoring requirements for Biochemical Oxygen Demand ("BOD") and Total Suspended Solids ("TSS"), insufficient monitoring of pretreatment by industrial dischargers, and a failure to address compliance history showing elevated mercury levels and pathogen indicators.

These shortcomings present significant public health concerns for the citizens of Independence and the Gulf region as a whole. For these reasons, Commenters urge LDEQ to reexamine and revise the Draft Permit.

SPECIFIC COMMENTS

I. The POTW Failed to Apply for this Renewal Permit on Time – Therefore, It Is Operating Without A Permit and LDEQ Must Review POTW As New Source.

[4] The state's designation for the Tangipahoa extends from the Louisiana-Mississippi state line to the I-12 crossing. La. R.S. § 56:1847

The town's LPDES Permit expired on April 14, 2009. To continue the activities regulated by this permit, State regulations require the Town to have applied for Draft Permit at least 180 days before the expiration of the issued permit. Doing so would preserve the effectiveness of the underlying permit. La. Admin. Code tit. 33 , pt. IX, § 2501(D)(1) provides: "Any POTW with a currently effective permit shall submit a new application at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the state administrative authority." However, the town did not apply within 180 days, nor did it receive permission from LDEQ to file it later. Instead, the town waited until March of 2009 to apply for this Draft Permit, thus allowing its permit to expire. Therefore, the Town of Independence is currently operating illegally without an LPDES permit.

Moreover, because the POTW is not currently covered by any LPDES permit, LDEQ must regulate it as a new source and new discharger, applying all technology limits, effluent standards, pretreatment standards, and any and all criteria for new sources to this facility. LDEQ must revise the Draft Permit to cover all such state and federal requirements.

Furthermore, federal regulation prohibits LDEQ from issuing an LPDES permit to the Town of Independence for the POTW without complying with 40 CFR § 122.4(i), which LDEQ has not done. This regulation provides:

> No permit may be issued . . . (i) To a new source or a new discharger, if the discharge from its construction or operation will cause or contribute to the violation of water quality standards. The owner or operator of a new source or new discharger proposing to discharge into a water segment which does not meet applicable water quality standards or is not expected to meet those standards even after the application of the effluent limitations required by sections 301(b)(1)(A) and 301(b)(1)(B) of CWA, and for which the State or interstate agency has performed a pollutants load allocation for the pollutant to be discharged, must demonstrate, before the close of the public comment period, that:
>
> (1) There are sufficient remaining pollutant load allocations to allow for the discharge; and
>
> (2) The existing dischargers into that segment are subject to compliance schedules designed to bring the segment into compliance with applicable water quality standards. The Director may waive the submission of information by the new source or new discharger required by paragraph (i) of this section if the Director determines that the Director already has adequate information to evaluate the request. An explanation of the development of limitations to meet the criteria of this paragraph (i)(2) is to be included in the fact sheet to the permit under § 124.56(b)(1) of this chapter. if "the discharge from its construction or operation will cause or

> contribute to the violation of water quality standards. The owner or operator of a new source or new discharger proposing to discharge into a water segment which does not meet applicable water quality standards or is not expected to meet those standards even after the application of the effluent limitations required by sections 301(b)(1)(A) and 301(b)(1)(B) of CWA, and for which the State or interstate agency has performed a pollutants load allocation for the pollutant to be discharged, must demonstrate, before the close of the public comment period, that:
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> (1) There are sufficient remaining pollutant load allocations to allow for the discharge; and
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> (2) The existing dischargers into that segment are subject to compliance schedules designed to bring the segment into compliance with applicable water quality standards. The Director may waive the submission of information by the new source or new discharger required by paragraph (i) of this section if the Director determines that the Director already has adequate information to evaluate the request. An explanation of the development of limitations to meet the criteria of this paragraph (i)(2) is to be included in the fact sheet to the permit under § 124.56(b)(1) of this chapter.

II. LDEQ Must Revise the Draft Permit to Provide Effluent Limitations That Protect Water Quality in the "Ditch," Which is an Intermittent Stream.

The Draft Permit and the Statement of Basis state that the discharge from the POTW occurs into an "unnamed parish drainage ditch", travels approximately 0.38 miles in the "ditch", and then discharges into the Tangipahoa River. However, according to the United States Geological Survey (USGS) Loranger Quadrangle Map for the POTW area[i], the "ditch" that receives the discharge is at a minimum, an intermittent stream. The topography between the river and the POTW is relatively flat (approximately 10 feet elevation difference over a lateral distance of 2,400 feet). The flat terrain and close proximity to the Tangipahoa River suggest a likelihood that perennial groundwater recharge to unnamed tributary / "ditch" occurs, and that the "ditch" could in fact be a perennial stream with a hydrologic and ecologic connection to the river. *See also,* Quarles Aff, Attach. A.

Louisiana law provides that "for the purposes of the Louisiana Pollutant Discharge Elimination System, 'waters of the state' means all surface waters within the state of Louisiana . . . [which] includes . . . intermittent streams." La. R.S. § 2002(7). Indeed, the Louisiana First Circuit Court of Appeal made clear that "[u]nless specifically excepted by permit, the Louisiana Water Quality Standards apply to intermittent streams which may be dry during dry weather conditions, and to man-made water courses such as ditches or canals created specifically for drainage or water conveyance." *Matter of McGowan*, 533 So.2d 999, 1003 (La. App. 1 Cir. 1988). Therefore, the "ditch" identified

in the Draft Permit is the first receiving water body for the POTW and any effluent limitations established in the Draft Permit should be based upon the assimilative capacity of that first receiving stream and must protect the stream's water quality.

III. The Town of Independence's Wastewater Treatment Facility Has A History of Frequent Permit Violations and Exceedances Which LDEQ Must Address in Issuing This Permit.

Discharge Monitoring Reports ("DMRs") dating from December 2006 through June 2009 demonstrate numerous permit exceedances at the Independence facility for Carbonaceous Biochemical Oxygen Demand ("CBOD"), Total Suspended Solids ("TSS"), and fecal coliform. Statement of Basis, p. 9. Although design capacity at the Independence POTW is 0.7 MGD and planned design capacity is 0.9 MGD, inspections reveal that flows from the facility have exceeded 1.2 MGD, which is 75 percent more than the flow the facility can handle. *See* Statement of Basis, p. 7. Furthermore, a number of inspections over the past three years have revealed deficiencies including "strong odor," "shrimp peelings and parts," "black material," "toilet paper and plastic waste materials," "foam," "brown algae," and "dark gray sludge cakes." *Id.* at pp. 7-8. These problems are unacceptable especially for a facility that sits within a residential area and discharges into a highly valued river.

These permit violations became so severe that they eventually prompted LDEQ to issue two Compliance Orders—the first on October 29, 2008 (Docket # WE-CN-08-0225A) and the second on April 17, 2009 (Docket # WE-CN-08-0225B). *Id.* These Compliance Orders set forth a schedule of upgrades required of the Independence POTW. However, "the Town is not on schedule with activities required by the Compliance Order." *Id.* at p. 9. Moreover, the town's improvements of its wastewater collection and treatment systems and pretreatment agreements with industrial discharger DoRan Sea-Pak, LLC have not brought the facility fully into compliance. *Id.* Water quality problems in the areas surrounding the Independence POTW persist and the threat to wildlife, the environment, and public health remains unabated.

Under Louisiana's Constitution, LDEQ has an affirmative duty as public trustee to avoid or minimize adverse environmental impacts. *Save Ourselves, Inc. v. Louisiana Environmental Control Comm'n.***,** 452 So. 2d 1152, 1156-57 (La. 1984) (*citing* La. Const. Art. 9, § 1). To uphold its constitutional duty, LDEQ must seriously consider the Independence POTW's compliance history and the facility's frequent and continued permit exceedances in setting effluent limitations and monitoring requirements for the new LPDES permit. Compliance history is grounds for non-renewal. La. Admin. Code tit. 33, IX § 309.C.6.

IV. The Draft Permit's Lack of Influent Monitoring and Reporting Requirements for BOD and TSS Fail To Meet State and Federal Regulations Governing Percent Removal at POTWs.

LDEQ's Draft Permit violates both state and federal law by failing to include monthly monitoring and reporting requirements for influent concentrations of Biochemical Oxygen Demand ("BOD") and Total Suspended Solids ("TSS"). Louisiana law mandates that POTWs shall not have a 30-day average percent removal for BOD or TSS of less than 85 percent. La. Admin. Code, tit. 33, pt. IX, § 5905.A.3 and B.3; Draft Permit, Part III, p. 5 of 18. Similarly, both state and federal regulations require agencies such as LDEQ to ensure that effluent discharges receive secondary or equivalent treatment. 40 C.F.R. § 133.101(g); La. Admin. Code, tit. 33, pt. IX, § 305. The minimum level of effluent quality attainable by secondary treatment requires removal of 85 percent of BOD and TSS. 40 C.F.R. §§ 133.102(a)(3) and (b)(3); La. Admin. Code, tit. 33, pt. IX, §§ 711(C)(1)(c) and 711(C)(2)(c).

Percent removal may be calculated as a function of influent concentration or quantity, but either calculation necessitates monitoring and reporting of BOD and TSS influent.[5] Louisiana Administrative Code tit. 33 pt. IX § 5903 explains that percent removal is "determined from the 30-day average values of the raw wastewater influent pollutant concentrations to the facility and the 30-day average values of the effluent pollutant concentrations for a given time period. La. Admin. Code, tit. 33, pt. IX, § 5903.A. Thus, Louisiana law requires monitoring and reporting of BOD and TSS influent concentrations since it would be impossible to calculate percent removal for those parameters without such data.

The Draft Permit, however, imposes no requirement that the Independence POTW monitor and report influent concentrations of BOD or TSS. As a result, LDEQ will have no way of assessing whether the Independence facility is meeting the 85% removal requirement for BOD and TSS under state law. Part II, Section B. of the Draft Permit explains that the permittee must complete an annual Environmental Audit Report, which "shall discuss . . . influent loading . . . ." Draft Permit, Part II, p. 9 of 11. Requiring the permittee to take annual measurements does not satisfy § 5905.A.3 and B.3.

Accordingly, LDEQ must revise the Draft Permit to require monitoring and reporting of influent BOD and TSS concentrations so that it can accurately assess percent removal and assure compliance with both state and federal law.

V. The Draft Permit Should Have More Stringent Pretreatment Monitoring Requirements and Include Specific Flow Limits for Industrial Dischargers.

La. Admin. Code sections 6101-6135 implement the pretreatment provisions of the Clean Water Act ("CWA") by "establish[ing] responsibilities of federal, state, and local government, industry and the public . . . to control pollutants which pass through or interfere with treatment processes in publicly owned treatment works (POTWs) or which

[5] Percent removal based on concentration may be calculated according to the following equation: Percent Removal = ((Influent Concentration – Effluent Concentration) x 100) ÷ Influent Concentration. Percent removal based on quantity is calculated by the following equation: Percent Removal = ((Influent Quantity – Effluent Quantity) x 100) ÷ Influent Quantity.

may contaminate sewage sludge." La. Admin. Code tit. 33, pt. IX, subpt. 2 § 6101-6135. Whenever pollutants contributed by industrial users cause interference or pass through to a POTW that discharges less than 5.0 MGD, and similar violations are "likely to recur," the regulations require the POTW to "develop and enforce *specific effluent limits* for industrial user(s), and all other users, as appropriate, which…are necessary to ensure renewed and continued compliance with the POTW's LPDES permit or sludge use or disposal practices." La. Admin. Code tit. 33, pt. IX, subpt. 2 § 6109.C.2 (emphasis added).

Because the Independence facility currently has a design capacity of 0.7 MGD and planned capacity of only 0.9 MGD, § 6109.C governs the development and enforcement of pretreatment limits. Therefore, to comply with state regulations, LDEQ must modify the Draft Permit to explicitly require the Independence POTW to develop and enforce specific effluent flow limits for all industrial dischargers/pretreaters that discharge into the POTW. However, the Draft Permit notes that flow for one of the facility's industrial dischargers, Lallie Kemp Medical Center, is "[u]ndetermined." Statement of Basis, p. 1. LDEQ must revise the Draft Permit fix this omission.

In a subsection entitled "Pretreatment Requirements," LDEQ explains that compliance problems at the Independence POTW are likely attributable to DoRan Seafood, LLC. *See* Statement of Basis, p. 12. DoRan Seafood, LLC is an "industrial user" as per § 6109.C.2.'s language. *See* Statement of Basis, p. 12. In light of the facility's poor compliance history, outlined in Section I above, one can expect that similar violations at the Independence POTW are "likely to recur." Therefore, the Independence POTW must "develop and enforce specific effluent limits" for its industrial users (*e.g.*, DoRan) in order to comply with § 6109.C.2. LDEQ must revise the Draft Permit to *require* an individual permit with enforceable effluent limits, monitoring to ensure compliance, and reporting for at least DoRan and any other qualifying industrial users[6]. LDEQ must revise the Draft Permit to require the Independence POTW to keep records of such individual permits and monitoring reports on file for LDEQ's and the public's inspection.

VI. Effluent Limits in Draft Permit Fall Short of State and Federal Requirements Designed to Protect the Receiving Waterbody.

The Draft Permit violates state and federal regulations because it fails to include effluent limitations that "control all pollutants or pollutant parameters . . . which . . . have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality." La. Admin. Code, tit. 33, pt. IX, § 2707(D)(1)(a); 40 C.F.R. § 122.44(d)(1)(i). Specifically, the Draft Permit's effluent limitations fall short with respect to ammonia, Total Kheldal Nitrogen

[6] A pretreatment agreement with DoRan Sea-Pak alone does not satisfy this requirement. *See* Statement of Basis, p. 9 (explaining that the Town of Independence entered into a pretreatment agreement with DoRan in December 2008 to correct violations).

(TKN), phosphorus, chlorine, TSS, and mercury. These failures also indicate that LDEQ has not met its constitutional duty as public trustee for the environment to avoid or minimize adverse environmental impacts. *Save Ourselves*, 452 So. 2d at 1156-57 (*citing* La. Const. Art. 9, § 1).

A. The Draft Permit Should Incorporate Water Quality Based Effluent Limits for Ammonia.

The Draft Permit's ammonia limitations are insufficient because they do not take water quality standards into account. LDEQ determined the technology-based limits for ammonia using "[b]est professional judgment" based on data reported from "Discharge Monitoring Reports and similar facilities with similar effluents." Statement of Basis, p. 5. Congress designed technology-based limits "to require a minimum level of treatment of pollutants for point source discharges based on available treatment technologies, while allowing the discharger to use any available control technique to meet the limits." EPA Guidance Document, "Water Quality and Technology-Based Permitting," *available at:* http://cfpub.epa.gov/npdes/generalissues/watertechnology.cfm (last visited Nov. 29, 2009).

However, the CWA also requires adherence to more stringent, water quality-based effluent limits ("WQBELs") when technology-based limits are not sufficient to protect water quality. 33 U.S.C. § 1313(b)(1); 40 C.F.R. § 122.44(d). WQBELs require evaluation of characteristics specific to the receiving water body in order to arrive at effluent limits that are adequately protective of that water body. In this case, technology-based limits are clearly not providing the minimum level of protection envisioned by the CWA since the receiving water body is impaired and experiencing frequent permit exceedances. LDEQ should therefore revise the Draft Permit to include WQBELs for ammonia in addition to the technology-based effluent limit contained in the current draft.

B. The Draft Permit Should Maintain the Previous Permit's Monitoring Requirements for Total Kjeldahl Nitrogen and Phosphorus

LDEQ claims that monitoring requirements for total kjeldahl nitrogen ("TKN") and phosphorus ("P") are no longer necessary due to new data from the 2006 Water Quality Management Plan, which purportedly demonstrates that subsegment 040701 of the Tangipahoa River is no longer impaired for nitrogen or phosphorus. Statement of Basis, p. 4. However, TKN and P monitoring requirements should remain in the Draft Permit for several reasons.

As an initial consideration, LDEQ is currently in the process of developing criteria for both TKN and P, so it would be beneficial for the Independence facility to monitor its discharges so that it will be able to meet the new regulations. *See* LDEQ Report, "Developing Nutrient Criteria for Louisiana"(2006), available at: http://www.deq.louisiana.gov/portal/Portals/0/planning/LA%20Nutrient%20Strategy%20Plan%20Final%20FOR%20WEB.pdf (last visited Dec. 15, 2009

Additionally, LDEQ should not have removed TKN and P monitoring from the Draft Permit because concentrations of TKN and P in effluent from the Independence facility remain relatively high. *See* Town of Independence table, after "Pretreatment Evaluation and Recommendation." In fact, the reported levels of TKN are sometimes higher than levels of ammonia nitrogen, yet the Draft Permit retains ammonia nitrogen limits "[d]ue to high concentrations reported on DMRs" and eliminates any monitoring or reporting of TKN and P.

For these reasons, LDEQ should revise the Draft Permit to reincorporate monitoring requirements for both TKN and P.

C. The Draft Permit Should Require Residual Chlorine Testing or Toxicity Testing.

Although the Independence POTW chlorinates for disinfection, the Draft Permit does not require Total Residual Chlorine Testing or toxicity testing. LDEQ explains that if "[f]uture water quality studies . . . indicate potential toxicity from the presence of residual chlorine in the treatment facility's effluent . . . a future Total Residual Chlorine Limit may be required . . . ." Draft Permit, Part II, p. 2 of 11. According to the Draft Permit, if a Total Residual Chlorine Limit were imposed it would likely require "no measurable" amounts of residual chlorine and require the permittee "to provide for dechlorination of the effluent prior to a discharge." *Id.*

However, such a tentative limitation on residual chlorine cannot sufficiently safeguard the receiving waterbody from the residual chlorine, which LDEQ admits may cause "potential toxicity." *Id.* In order to uphold its constitutional duty as public trustee of the environment and maintain state water quality standards, LDEQ must revise the Draft Permit affirmatively to require Total Residual Chlorine Testing. *See Save Ourselves*, 452 So. 2d at 1156-57 (*citing* La. Const. Art. 9, § 1).; La. Admin. Code, tit. 33, pt. IX, § 2707(D)(1)(a); 40 C.F.R. § 122.44(d)(1)(i).

D. The Draft Permit Should Establish Numeric Water Quality Criteria for TSS Based on Comparable Turbidity Regulations.

LDEQ's Statement of Basis claims that no numeric water quality criteria exist for TSS, so it is not surprising that the Draft Permit contains no numeric water quality limitations for the parameter. Statement of Basis, p. 5. Instead, the Draft Permit establishes technology-based effluent limits for TSS on a "case-by-base" basis using Best Professional Judgment for the type of technology at the facility. *Id.*

However, LDEQ failed to relate TSS to turbidity even though Louisiana law implement numeric water quality criteria for turbidity. *See* La. Admin. Code, tit. 33, pt.

IX § 1113.B.9.[7] EPA explains that turbidity "is caused by suspended matter or impurities that interfere with the clarity of the water." EPA Guidance Document, "Importance of Turbidity," *available at:* http://www.epa.gov/safewater/mdbp/pdf/turbidity/chap_07.pdf (last visited Nov. 29, 2009).[8] Thus, turbidity and TSS are easily translatable measurements of the effect of suspended solids on water clarity.

Basing numeric water quality criteria for TSS on turbidity requirements is entirely feasible. Indeed, LDEQ has already done so for a TMDL on the Pearl River. Therefore, LDEQ should revise the Draft Permit to include numeric water quality criteria by translating criteria for turbidity to criteria for TSS.

E. The Draft Permit Should Incorporate Influent and Effluent Mercury Limits that Meet Louisiana's Water Quality Standard and Require Use of Clean Testing and Ultra Trace Analysis Methods for Influent and Effluent Mercury Discharges.

As previously explained, to "achieve water quality standards established under § 303 of the CWA," the Draft Permit must include effluent limitations that "control all pollutants or pollutant parameters . . . which the Director determines are or may 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, including State narrative criteria for water quality." La. Admin. Code tit. 33, pt. IX, § 2707(D)(1)(a); 40 C.F.R. § 122.44(d)(1)(i). In order to ensure compliance with Louisiana's water quality standard for mercury, LDEQ should set discharge limits and monitoring requirements for mercury. Louisiana's chronic water quality standard for mercury is 0.012 µg/L and its acute water quality standard is 2.40 µg/L. Therefore, LDEQ must incorporate discharge limitations for mercury into the Draft Permit to ensure that discharge from the Independence POTW meets the water quality standard.

The Draft Permit currently requires the Town of Independence to develop a Mercury Minimization Program Plan ("MMPP") within one year of the permit's effective date in order to regulate the receiving waterbody's mercury impairment. Draft Permit, Part II, p. 4 of 11. However, the MMPP must only incorporate guidelines requiring identification of mercury sources during the first year, a vague requirement to "implement controls measures" during year two, "public outreach programs" during year three, and sampling "once during year four." *Id.* The Draft Permit also contains a reopener clause "[s]hould the TMDL for mercury determine a mercury effluent limitation is necessary . . . ." Statement of Basis, p. 3. Such vague language and requirements,

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[7] LDED set maximum nephelometric turbidity units ("NTU") for aquatic habitat in the Tangipahoa River at 50 NTU. *See* La. Admin. Code, tit. 33, pt. IX § 1113.B.9.b.

[8] *See also*, EPA Report, "Charge to the Science Advisory Board (SAB) ECOLOGICAL PROCESSES AND EFFECTS COMMITTEE For Review of Guidance on: EMPIRICAL APPROACHES FOR NUTRIENT CRITERIA DERIVATION" (Sept. 2009), available at: http://yosemite.epa.gov/sab/sabproduct.nsf/66090F716F26AD2885257615007AB302/$File/Charge+Questions+to+SAB+08-17-09+for+EPEC+Nutrient+Criteria+Sept+9-11+2009+Mtg.pdf.

however, do not actually ensure that the discharge will not cause the receiving water to violate Louisiana's water quality standard for mercury. In fact, the Statement of Basis admits that the Draft Permit does not currently contain effluent limitations for mercury despite mercury impairment in the receiving waterbody. *Id.* LDEQ must therefore revise the Draft Permit to contain more specific measures aimed at minimizing mercury discharges, and include discharge limits and monitoring requirements for mercury.

Further, because Louisiana's chronic water quality standard is 0.012 µg/L, LDEQ must require monitoring using clean testing and ultra trace analysis methods such as EPA Method 1631 or 245.7. Currently, the Draft Permit states "EPA Method 1631 must be used for effluent sampling only. EPA method 245.7 can be used for monitoring the collection system and influent." Draft Permit, Part II, p. 4 of 11. Arguably, this language does not require use of either method, but rather allows their use under certain circumstances. LDEQ must require the Independence POTW to use clean testing and ultra trace analysis when monitoring mercury discharges for both influent and effluent. Additionally, by setting the MQL at 0.2 ug/L—ABOVE Louisiana's mercury water quality standard of 0.012 ug/L — the facility may actually violate the mercury water quality standard, but the test results will reflect "no detect."

CONCLUSION

Commenters respectfully object to the issuance of the Draft Permit unless and until LDEQ adequately addresses these Comments. Again, thank you for the opportunity to participate in the state's water quality protection process.

Sincerely,

Corinne Van Dalen (La. Bar No. 21175)
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As counsel for all Commenters, and supervising attorney with respect to Lara E. Benbenisty's representation of Agnes Oliphant, Charlie Tate, Curtis Vedros, and Amanda Vedros

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Cc:

Mrs. Angela Marse
Water Permits Division
Louisiana Department of Environmental Quality
Office of Environmental Services
PO Box 4313
Baton Rouge, LA 70821-4313

[i] Louisiana State University, topographic map download site, December 9, 2009, Loranger Quadrangle Map, pre-1998, http://atlas.lsu.edu/q24k/makeparishmarkermapper.asp?fipscode=22105.

AFFIDAVIT OF MARK A. QUARLES, P.G.

BEFORE ME, the undersigned authority, personally came and appeared, Mark A. Quarles, P.G., who, after being duly sworn, did depose and say:

Qualifications

1. My name is Mark A. Quarles. I am an expert in the field of stormwater and wastewater permitting and spill prevention under the federal Clean Water Act's National Pollutant Discharge Elimination System and related state programs.

2. I have specifically completed monitoring and permitting programs associated with sanitary wastewater treatment facilities.

3. I am an environmental consultant and am working on behalf of the commenting parties in this matter.

4. An accurate copy of my curriculum vitae is attached to this Statement.

5. I have reviewed and assessed the Draft Louisiana Pollution Discharge Elimination System (LPDES) permit (the "Draft Permit") and accompanying Statement of Basis for the Town of Independence publicly owned treatment works (POTW).

6. This Statement contains my expert opinions, which I hold to a reasonable degree of scientific certainty. My opinions are based on my application of professional judgment and expertise to sufficient facts or data, consisting specifically of a review of the regulations and documents related to the LPDES Draft Permit at issue in this matter. These are facts and data typically and reasonably relied upon by experts in my field.

7. In my expert opinion, the Draft Permit is not sufficient to protect the waters, as required by the Clean Water Act, into which it allows the facility to discharge, for the reasons described below.

Summary of Opinions

The monitoring parameters and effluent limitations established by LDEQ are not sufficient to protect the receiving water bodies.

8. The Draft Permit allows *the same* Monthly Average mass loadings for Carbonaceous Biological Oxygen Demand (CBOD, 58 lbs/day), Total Suspended Solids (TSS, 88 lbs/day), and Ammonia Nitrogen (29 lbs/day) to the receiving stream for both 0.7 and 0.9 million gallons per day (MGD) discharges. This is mathematically impossible when the same effluent concentration for each parameter included in this Draft Permit is used with the 30 percent increase in flow from 0.7 to 0.9 MGD. Using standard EPA-approved calculations to establish actual mass loadings for TSS, as an example for all pollutants

allowed under this Draft Permit, results in a 30 percent increase (113 lb/day compared to 88 lb/day) loading to the receiving stream:

Current (30-day average) 0.7 MGD x 15 mg/L x 8.34 (lb)(l)/(mg)(gal) = 88 lb/day
Planned (30-day average) 0.9 MGD x 15 mg/L x 8.34 (lb)(l)/(mg)(gal) = 113 lb/day

Only by *lowering* the allowable effluent Monthly and Weekly Average concentrations can the pollutant loading to the receiving stream remain the same. LDEQ is aware of this and in fact, LDEQ concluded in its Statement of Basis (page 4): "*increasing the design capacity typically increases the loading to the receiving stream*". The concentration limits in the Draft Permit should be modified for all pollutants to result in no additional pollutant mass loading to the stream with the increased discharge to 0.9 MGD.

9. The Draft Permit does not include sufficient monitoring requirements to demonstrate fulfillment of Part III, Section B., Paragraph 7 of the Draft Permit. The Draft Permit requires that 85 percent of the Biological Oxygen Demand (BOD) and TSS be removed from the influent, yet there are no influent testing requirements included in the Draft Permit. Only through testing both the influent *and* the effluent can the facility demonstrate compliance. An influent testing requirement should be added to the permit.

10. The Draft Permit includes no testing of the effluent for Total Residual Chlorine (TRC), dissolved oxygen (DO), nitrate / nitrite, Kjeldahl nitrogen, oil and grease, phosphorous, Total Dissolved Solids (TDS), and temperature - even though Title 33, Part IX, Subpart 2, §2501 Paragraph 4.c and §7129, Tables 1A and 1 *require that all POTWs* with a flow equal to or greater than 0.1 MGD test for *all* of these pollutants, which are not currently included in the Draft Permit. The permit should be modified to be consistent with the required monitoring standards for all POTWs in Louisiana, at a minimum.

11. There is no indication that studies have been performed by the Applicant for the actual discharge to demonstrate that the effluent does not contain toxic amounts of TRC. Part II, Paragraph 8 of the Statement of Basis of the Draft Permit states that "no measurable" TRC may be required if water quality studies indicate potential toxicity from the presence of TRC in the effluent. Unless and until the Applicant demonstrates through thorough sampling that TRC does not exist in toxic amounts and there is no potential to discharge chlorine in the effluent as required by Title 33, Part IX, Subpart 2, §2501 Paragraph 4.c, TRC monitoring should be required and allowable Monthly and Weekly Average concentrations should be established in the permit.

12. The Draft Permit allows for testing of CBOD rather than BOD_5, which was required in their permit that expired on April 30, 2009. According to the tabulated analytical data included in the Statement of Basis, it seems that the Applicant has been testing and reporting CBOD instead of BOD_5 (since at least May 2007), which indicates violations of their previous permit. Further, the Draft Permit allows the same Monthly and Weekly Average concentrations for the different test methods. The Statement of Basis did not state why the change was included. According to the EPA, CBOD should only be used for facilities with known or suspected nitrification problems that favor production of

nitrifying bacteria in the treatment process[i]. Further, the EPA concluded that the permitting authority (LDEQ) must have data to show that nitrifying bacteria in the treatment process are causing BOD_5 results to be adversely affected to justify a change to CBOD. Use of the CBOD parameter by LDEQ therefore suggests that the POTW has nitrification problems that were not discussed in the Statement of Basis. According to the EPA, use of CBOD is not allowed if in-stream nitrification or ammonia toxicity is creating a problem. LDEQ should clarify why CBOD is now proposed instead of BOD_5 and discuss whether or not in-stream nitrification or ammonia toxicity is occurring.

13. According to the EPA, when CBOD is used instead of BOD_5, the corresponding CBOD permit limits should be *less than* the typical corresponding allowable BOD_5 concentrations. Further, the permit limits should be based on the results of BOD_5 / CBOD studies that are conducted during an advanced treatment review or from a wasteload allocation[ii]. There is no indication that these have been performed. The Draft Permit should be modified to include Monthly and Weekly Average CBOD concentrations that are *less than* the equivalent BOD_5 concentrations. These revised CBOD limits should be based upon an actual review of the effluent data and the actual BOD_5 / CBOD relationship.

14. The effluent monitoring data table included in the Statement of Basis for the period December 2006 through June 2009 indicates that Total Kjeldahl Nitrogen (TKN) concentrations routinely are greater than Ammonia Nitrogen concentrations from the same sample. The results of December 2007, November 2008, March 2009, and June 2009 sampling events, as examples, show that the TKN was up to 10 times higher than the Ammonia Nitrogen concentration on the same day. Given that TKN is the sum of Ammonia Nitrogen, ammonium, and organic nitrogen, the data suggests that the true nitrogen loading to the stream will be understated by testing for Ammonia Nitrogen alone, as proposed in the Draft Permit. The permit should be modified to include TKN and nitrate / nitrate nitrogen, and effluent Monthly and Weekly Average concentrations for TKN and nitrate / nitrate nitrogen should be included.

15. LDEQ concluded in the Statement of Basis (Page 4) that the reason TKN and phosphorous were removed from the previous permit was because the Tangipahoa River was no longer listed as being impaired for nitrogen and phosphorous, based upon the 2006 Water Quality Management Plan. The data that were used to de-list the stream *were not reflective* of repeated, on-going discharges of high concentrations of nitrogen into the Tangipahoa River. Discharges from the POTW routinely exceeded both the Monthly and Weekly Average concentrations (5 mg/L and 10 mg/L, respectively) for Ammonia Nitrogen up to 68 percent (21 of 31) of all monitoring periods from December 2006 through June 2009. Given that the river was apparently no longer impaired (based only upon the 2006 Plan), LDEQ should use this as a reason to be *more* protective of future discharges to prevent the impairment from happening again – particularly with the poor performance and non-compliant history of this POTW. Further, TKN and phosphorous limits are required by *all POTWs* with a flow equal to or greater than 0.1 MGD, according to Title 33, Part IX, Subpart 2, §2501 Paragraph 4.c and §7129, Table 1.

The permit should be modified to be consistent with the required monitoring standards for all POTWs in Louisiana, at a minimum.

16. The Draft Permit includes a requirement that "*there shall be no discharge of floating solids or visible foam in other than trace amounts*". The Draft Permit is ambiguous because "trace amounts" is not defined in the permit. As a result, the Draft Permit allows for floating solids and foam to be discharged at whatever amount the Applicant deems, in its sole opinion, to be a minimal or "trace amount". Allowing unlimited amounts of floating solids and foam does not protect the receiving waters and may violate state water quality criteria. LDEQ should revise the criteria to remove the ambiguity and state "there shall be no discharge of floating solids or visible foam".

17. The Draft Permit includes a parameter monitoring frequency that is insufficient to characterize the effluent quality and the affects on the receiving stream. Clearly, the influent and effluent quality from the POTW is highly variable. According to the Discharge Monitoring Report (DMR) summary table given in the Statement of Basis (pages 9 and 10), from 2007 through 2009, CBOD ranged from 70 to 1,416 pounds per day; TSS ranged from 99 to 1,427 pounds per day; and fecal coliform ranged from 920 to 4,968 colonies per 100 mL. Discharge from the largest industrial pre-treating facility is estimated to be 0.12 MGD from Doran Sea-Pak, LLC, which is almost 20 percent of the current POTW design flow. The facility influent is also highly variable due to the effects of infiltration and inflow. Further, according to LDEQ inspections (Statement of Basis, page 8), inadequate operation and maintenance and equipment malfunctions have resulted in inadequate treatment. As a result, the proposed monitoring frequencies do not adequately protect the environment.

    The most stringent frequency included in the Draft Permit is to sample a 3-hour composite once per week for CBOD, Ammonia Nitrogen, and TSS. The LDEQ concluded in its Statement of Basis (page 11) that the sample frequency is "*standard for facilities with flows between 0.5 and 1.0 MGD*". Given the non-compliant history, past operation and maintenance failures, the impaired status of the receiving stream, and the ONRW classification of the receiving stream, the Draft Permit deserves a *more stringent* monitoring frequency than what is typical.

    The EPA has also concluded that a highly variable discharge should require more frequent monitoring than a typical, consistent discharge in terms of both flow and pollutant concentration[iii]. As a result, monitoring for constituents of concern should be *daily* and a composite interval should be developed based upon the discharge characteristics from the Doran industrial facility (e.g., duration of discharge, time of discharge, variability during the day, etc.) and the sanitary influent flow. The 3-hour composite duration is insufficient to monitor this variability.

18. The Draft Permit allows the Applicant to understate the concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and pesticides that might be present in the discharge. The Draft Permit requires that Priority Pollutants be tested only once per year according to specified "Minimum Quantitative Levels" (MDLs)

that are listed in Part II, Paragraph 11 of the Draft Permit. If a constituent is less than the stated MDL, the Draft Permit allows the Applicant to report that concentration as being "zero". Use of the MDL is confusing and is not reflective of actual concentrations being present or absent. These concentrations are actually *much greater* than the Practical Quantitative Limit (PQL) of the analytical method itself. The method PQL is the concentration that a laboratory routinely and confidently reports a constituent concentration. As examples, the PQL for Benzene (by EPA Method 8260) is 0.001 mg/L compared to the allowable MDL of 10 ug/L (0.01 mg/L, or 10 times higher than the PQL); the PQL for Endrin is 0.00005 mg/L compared to the MDL of 0.1 ug/L (0.0001 mg/L, or 2 times higher than the PQL); and the PQL for benzo(a)pyrene is 0.001 mg/L compared to the MDL of 10 ug/L (0.01 mg/L, or 10 times higher than the PQL). The Draft Permit should be modified instead to allow a value of "zero" only when the constituent concentration is less than the analytical method PQL.

19. The 2006 stream assessment for the Tangipahoa River that established impairments for pathogens and mercury and de-listed the stream for TKN and phosphorous did not consider the repeated POTW discharge violations in 2007, 2008, and 2009 that included high levels of CBOD, TSS, fecal coliform, and floating solids – as documented by LDEQ during its inspections. According to the Statement of Basis (page 8), LDEQ documented during one inspection on March 3, 2009 that the "*receiving stream contained solids along with toilet paper and plastic waste materials*". As a result, the stream segment should be re-assessed under current conditions to determine compliance with all of its designated uses: Primary Contact Recreation, Secondary Contact Recreation, Fish and Wildlife Propagation, and Outstanding Natural Resource Waters.

20. According to the Statement of Basis, the Tangipahoa River is listed as being "impaired" for mercury and pathogen indicators and is not supportive of two designated uses: Primary Contact Recreation and Propagation of Fish and Wildlife. The LDEQ concluded in the Statement of Basis "*fecal coliform is the best indicator for the potential presence of pathogenic organisms in wastewater*". LDEQ's use of fecal coliform (200 colonies per 100 mL Monthly Average; 400 colonies per 100 mL Weekly Average) effluent concentrations however, fails to meet minimum EPA guidance. According to the EPA CALM guidance[iv], the EPA recommends that all States transition from the pre-1986 standard for fecal coliform used by LDEQ and instead use *E. coli* and enterococci criteria because "*these bacteria indicators correlate more strongly to gastrointestinal problems than does the fecal coliform indicator.*" Given that the Tangipahoa River is impaired for pathogens and has Primary and Secondary Contact Recreational uses, *E. coli* and enterococci should be added to the sampling program and allowable effluent concentrations should be established. The EPA in-stream Primary Contact water quality criteria for *E. coli* is 126 colony forming units (CFUs) per 100 mL and 33 CFUs per 100 mL for enterococci.

21. The Draft Permit and the Statement of Basis state that the discharge from the POTW occurs into an "unnamed parish drainage ditch", travels approximately 0.38 miles in the "ditch", and then discharges into the Tangipahoa River. However, according to the United States Geological Survey (USGS) Loranger Quadrangle Map for the POTW area[v],

the "ditch" that receives the discharge is at a minimum, an intermittent stream. The topography between the river and the POTW is relatively flat (approximately 10 feet elevation difference over a lateral distance of 2,400 feet). The flat terrain and close proximity to the Tangipahoa River suggest a likelihood that perennial groundwater recharge to unnamed tributary / "ditch" occurs, and that the "ditch" could in fact be a perennial stream with a hydrologic and ecologic connection to the river. Therefore, the "ditch" identified in the Draft Permit is the first receiving water body for the POTW and any effluent limitations established in the Draft Permit should be based upon the assimilative capacity of that first receiving stream.

The Draft Permit does not adequately protect the receiving waters because LDEQ does not have a sound scientific basis to support its conclusion that the discharges will not cause or contribute to water quality degradation.

22. The Draft Permit allows increased discharge of pollutants to the Tangipahoa River, even though it is afforded special protection as an Outstanding Natural Resource Water (ONRW) high quality water body. LDEQ has not scientifically demonstrated that the proposed discharge will not lower water quality and as a result, the proposed discharge should not be allowed under the proposed conditions. According to Louisiana Code Title 33, Part. IX, Subpart 1, §1119(B)(4), if a wastewater discharge or activity is proposed for an outstanding natural resource water body, the administrative authority shall not approve that activity if it will cause degradation of these waters. For these purposes, *degradation* is defined as a statistically significant difference at the 90 percent confidence interval from existing physical, chemical, and biological conditions.

23. LDEQ concluded in the Statement of Basis (page 5) that because the facility has been unable to meet existing permit limits, it cannot approve an increase in mass loading given the Anti-Degradation policy and the ONRW designation. However, LDEQ is allowing the Applicant to collect scientific data to attempt to demonstrate that no increase in mass loading will occur and that no degradation will occur - *after* submittal of the permit application by the Applicant, *after* development of the Draft Permit by LDEQ, and *after* issuance of the final permit. The Applicant should have already submitted a scientifically valid demonstration in its *original* permit re-issuance application to support the decreased sampling requirements included by LDEQ in the Draft Permit. Given that this successful demonstration was never made, the Draft Permit does not meet the Louisiana Anti-Degradation policy.

24. Instead of increasing the limitations to improve water quality to this high quality ONRW resource, the Draft Permit eliminates sampling requirements based on data collected prior to 2006 (data that pre-dates years of violations by the POTW) and allows for *reduced* sampling parameters than those required for all other typical POTWs in Louisiana – even those that do not discharge into an impaired or high quality water body. The Draft Permit should instead include *more restrictive* effluent limitations to protect the ONRW and impaired water body.

25. The Draft Permit allows for *increased* loadings to the Tangipahoa River for pollutants that have already exceeded mass loading and concentration limits in the past. Rudimentary mass loading calculations (see Comment 8 of this affidavit) to develop limits for Ammonia Nitrogen, TSS, and $CBOD_5$ were either not performed by LDEQ or incorrectly performed when developing the effluent limitations in the Draft Permit.

The proposed discharge is not consistent with the Louisiana Anti-Degradation Policy.

26. The provisions of the Draft Permit violate the main considerations of Louisiana's Anti-Degradation policy because they allow continued discharge of pollutants into a stream that is already listed as impaired and into a stream that is also listed as an ONRW. According to Title 33, Part IX, Section 1109, Paragraph A1., LDEQ's Anti-Degradation Policy protects waters that are already known to be impaired:

> *"no lowering of water quality will be allowed in waters where standards for the designated water uses are not currently being attained*".

Further, Title 33, Part IX, Section 1109, Paragraph A2 states:

> "*no degradation shall be allowed in high-quality waters that constitute outstanding natural resource …*"

And lastly, Title 33, Part IX, Section 1119, Paragraph 4 states:

> "*If a wastewater discharge or activity is proposed for an outstanding natural resource water body, as defined by this Chapter, the administrative authority shall not approve that activity if it will cause degradation of these waters. For these purposes, degradation is defined as a statistically significant difference at the 90 percent confidence interval from existing physical, chemical, and biological conditions"*.

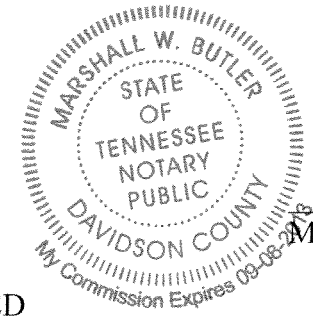
27. LDEQ used the 2006 Water Quality Management Plan to determine that the proposed discharge will result in no lowering of water quality. LDEQ's use of this plan as its main argument does not consider the recent non-compliant history of the POTW (2006 through 2009) and its numerous violations since the 2006 Water Quality Plan stream assessments were completed. As a result, LDEQ did not demonstrate how the *reduced monitoring requirements* in the Draft Permit will not lower quality or how the reduced monitoring requirements will not result in degradation. Unless and until this demonstration has been satisfactorily performed, the requirements of the Anti-Degradation policy have not been met.

The US Fish and Wildlife Service has determined that the POTW discharges into a stream segment that is critical habitat for the Federally-protected Gulf Sturgeon.

28. LDEQ stated in the Statement of Basis (page 3) that it sent a copy of the Draft Permit (originally dated October 30, 2009) to the US Fish and Wildlife Service (US FWS) for review and comment. However, as of December 8, 2009, according to the US FWS, LDEQ had not yet sent the Draft Permit to the US FWS for review[vi]. US FWS input is

critical because the Tangipahoa River and its perennial tributaries have all been designated as critical habitat for the Federally-protected Gulf Sturgeon endangered species[vii].

29. The US FWS has determined that poor water quality - including among others, temperature, turbidity, dissolved oxygen, and chlorides - typical of POTW poor effluent quality, negatively affects the Gulf Sturgeon[viii].



MARK A. QUARLES

SWORN TO AND ASCRIBED BEFORE ME, THIS 16th DAY OF Dec., 2009.

NOTARY PUBLIC

MARSHALL W. BUTLER

[i] US E.P.A, US E.P.A. NPDES Permit Writer's Manual, EPA-833-B-96-003, Page 83, December 1996.

[ii] US E.P.A, US E.P.A. NPDES Permit Writer's Manual, EPA-833-B-96-003, Pages 77 and 83, December 1996.

[iii] US E.P.A, US E.P.A. NPDES Permit Writer's Manual, EPA-833-B-96-003, Pages 119 and 120, December 1996.

[iv]Consolidated Assessment and Listing Methodology–Toward a Compendium of Best Practices (CALM), US EPA, 2002, http://www.epa.gov/owow/monitoring/calm.html, Chapter 7.

[v] Louisiana State University, topographic map download site, December 9, 2009, Loranger Quadrangle Map, pre-1998, http://atlas.lsu.edu/q24k/makeparishmarkermapper.asp?fipscode=22105.

[vi] Telephone conversation, Mark Quarles and Heather Davis, US FWS, Lafayette Ecological Services Field Office, 337-291-3129, December 8, 2009.

[vii] US FWS Letter from Brad Rieck, Deputy Supervisor, to Cheryl Sonnier Nolan, Assistant Secretary, LDEQ, November 17, 2008.

[viii] US FWS Letter from Brad Rieck, Deputy Supervisor, to Cheryl Sonnier Nolan, Assistant Secretary, LDEQ, November 17, 2008.

Attachment A

MARK A. QUARLES, P.G.

PROFESSIONAL SUMMARY AND TECHNICAL SPECIALTIES

Environmental consultant with more than 20 years experience in the following: hazardous waste management and permitting; landfill siting and design; utility line environmental assessments; hydrogeologic investigations; multi-media environmental auditing; water and wastewater permitting; municipal and industrial stormwater permitting; wetland permitting and mitigation; reservoir capacity studies; and soil / groundwater remediation.

EDUCATION

Master of Business Administration

Owen Graduate School of Management, Vanderbilt University, Nashville, Tennessee

Bachelor of Science, Environmental Engineering Technology

Western Kentucky University, Bowling Green, Kentucky

PROFESSIONAL EXPERIENCE

Globally Green Consulting, LLC, Nashville, Tennessee 2001 to current

Environmental consultant for projects in the United States and South America including as examples: reservoir capacity studies, public and private utility line permitting, municipal stormwater management, landfill siting, threatened and endangered species, groundwater contamination and supply, wetland permitting and mitigation, surface water contamination and supply, and soil contamination.

EMPE, Inc., Nashville, Tennessee 1996 to 2001

Project Manager in wide-ranging environmental projects that included as examples: stormwater permitting, spill prevention and response plans, hazardous waste management, landfill permitting, land development, and contaminant fate and transport investigations. Managed Fortune 500 industrial client projects throughout the eastern US.

SECOR International, Inc., Franklin, Tennessee 1994 to 1996

Senior Engineer, Senior Geologist, and Project Manager for industrial waste management projects throughout the southeast U.S. that included as examples: hydrogeologic investigations and stormwater permitting. Managed Fortune 500 industrial client projects throughout the eastern U.S.

RMT, Inc., Nashville, Tennessee 1990 to 1994

Project Engineer and Project Manager for industrial and municipal projects throughout the eastern U.S. for projects that included as examples: petroleum underground storage tank removals, soil and groundwater remediation, landfill siting and design, spill prevention and response plans, hazardous waste audits, industrial stormwater permitting, and property transfer assessments.

RJN Group, Atlanta, Georgia and Boston, Massachusetts 1987 to 1990

Project Engineer for municipal projects throughout the eastern U.S. for projects that included as examples: sanitary sewer hydraulic modeling for drainage basins in excess of 1 million linear feet of conveyance, and conducting infiltration and inflow investigations for sanitary sewers.

Howard K. Bell Consulting Engineers, Hopkinsville, Kentucky 1985 to 1987

Project Engineer for municipal sanitary sewer, water line, and landfill design projects in Kentucky.

PROFESSIONAL REGISTRATIONS AND CERTIFICATIONS

Licensed Professional Geologist (P.G.), Tennessee
Certified Hazardous Materials Manager, Masters Level (1993 – 2001)
Class II Water Pollution Control Operator, Massachusetts (1988)

RANGE OF TECHNICAL EXPERIENCE

Oil and Gas Exploration and Production Wastes

- *Aguida vs. ChevronTexaco* - Amazon Basin, Ecuador
  Provided technical support to the plaintiffs related to the first environmental class action lawsuit in South America. Work demonstrated that Texaco's work in the upper Amazonian jungle of Ecuador did not meet industry standards, did not meet practices employed by Texaco from the 1920s through the 1990s, and violated international and national water and soil quality standards.
- *FECONACO* – Amazon Basin, Peru
  Provided independent third-party evaluation of crude oil remediation activities of 75 sites in Block 1AB in the Amazonian jungle occupied by three indigenous groups. The work included a.) sampling of soil, sediment, and surface water contamination from present day and legacy operations, b.) an evaluation on the effectiveness of *in-situ* bioremediation as the chosen remedial alternative, and c.) a comparison of cleanup activities relative to Peruvian and U.S. standards.
- *Tulane Environmental Law Clinic* – New Orleans, Louisiana
  Reviewed a draft permit and provided written legal testimony associated with a Draft General Permit for Discharges from Oil and Gas Exploration, Development, and Production Facilities. The project consisted of comparing proposed effluent limitations to Federal standards, comparing sampling parameters to expected exploration and production waste contaminants, and recommending additional monitoring schemes that were more reflective of the risks.

Coal Combustion Wastes

- *Prairie Rivers Network* - Champaign, Illinois
  Evaluated Illinois standards for the disposal and beneficial re-use of coal combustion wastes (CCWs) compared to national solid waste and surface impoundment disposal standards. The project also included an in-depth analysis of material chemical and physical characteristics, a summary of site characterization and siting standards, and a summary of national damage assessment cases.
- *Confidential Client – Kingston, Tennessee*
  Prepared and implemented a surface water monitoring program to determine the lateral extent of 5.4 million cubic yards of CCWs that were released to the surface water from a surface impoundment failure at the Tennessee Valley Authority (TVA) Kingston coal-fired power plant.
- *Kentucky Waterways Alliance – Henderson, Kentucky*
  Provided technical review of a draft wastewater discharge permit associated with the proposed Cash Creek Integrated Gasification Combined Cycle (IGCC) plant and associated landfill. At the time, only two such plants were operational in the United States. The review included a wastewater discharge compliance review of the other plants, research into IGCC wastewater and solid waste constituents, and a comparison to the proposed discharge criteria.
- *Sierra Club – Bedford, Kentucky*
  Provided technical review of a draft wastewater discharge permit associated with the Trimble County Generating Station pulverized coal (PC) power plant and flue gas de-sulfurization (FGD) process expansion. Research was completed on the characteristics of FGD process and gypsum by-product wastes; the leachability of solid wastes; the characteristics of PC plant cooling water blowdown, metal cleaning wastewater, stormwater runoff, and coal and limestone pile runoff; the structural integrity of an existing ash surface impoundment proposed for vertical expansion; and the technical feasibility of a proposed gypsum disposal surface impoundment.

Utility Line Environmental Assessments

- *Private Landowner* - Livingston, Tennessee
  Served as lead consultant to prevent a proposed Corps of Engineer development. Arguments included identifying deficiencies in the aquatic resources alteration permit, the cultural resources survey, the stream use classification, and the Section 404 application. Negotiated alternate route.
- *Private Landowner* – Bowling Green, Kentucky
  Served as lead consultant to provide technical comments to a Draft EA for the construction of a 220-mile electrical powerline. Technical, legal, and financial reporting resulted in stopping the

project in its entirety, the Public Services Commission revoking the certificate of need (CON), and the Kentucky Attorney General conducting a formal investigation.

- *Sumner Trousdale Opposing Pipeline* – Gallatin, Tennessee
  Served as lead consultant to identify deficiencies in the wetland and aquatic resources alteration permits for a proposed 30-mile natural gas pipeline, to represent the group in public hearings, and develop technical arguments for against the proposed pipeline.

Reservoir Water Quality and Use Assessments

- *Friends of Tims Ford – Tims Ford Reservoir* - Winchester, Tennessee – served as lead consultant to provide comments on Section 10 and Section 26A Regulation permit applications and a Recreational Boating Capacity Study for reservoir-wide community boat docks associated with residential development.
- *Honeycomb Homeowner's Association* - Guntersville Lake – Guntersville, Alabama – served as lead consultant to provide comments to Section 10 and Section 26A Regulation permit applications for residential developments. Completed a detailed assessment of reservoir water quality results relative to designated use standards.
- *Murray's Loch* – Atlanta, Georgia
  Served as consultant to evaluate the technical merits of a water withdrawal permit and the effects of increased urbanization on stormwater runoff and groundwater recharge. Water withdrawal for commercial irrigation purposes resulted in decreased water levels in lakefront property of an adjacent residential neighborhood. The permit was appealed to the State Administrative Court.

Multi-Media Environmental Permitting

- *Nashville Superspeedway, USA, Inc.* – Lebanon, Tennessee
  Served as Project Manager for a $125 million superspeedway development. The environmental aspects included the requirements to determine the affects of the project on public and private groundwater users, stream alterations, wetlands, endangered plant and animal species, air permitting, stormwater runoff, oil pollution prevention, underground injection control, and due diligence property assessment.
- *Metropolitan Knoxville Airport Authority* – Knoxville, Tennessee
  Served as Project Manager for all environmental permitting and compliance activities. Activities included spill prevention and response plan development, stormwater plan development, fuel tank farm design, and compliance inspections.
- *Various Industrial Clients* – Tennessee
  Served as Project Manager for the development of SPCC Plans and SWPP Plans. Plans were prepared consistent with the requirements of 40 CFR Part 112, the Tennessee General Permit, the EPA Multi-Sector permit, and the Tennessee Construction General Permit.

Environmental Investigations and Remediation

- *USEPA* – Dickson County, Tennessee
  Served as Senior Geologist to investigate the occurrence of a cluster of cleft palate / cleft lip birth defects in the county relative to the occurrence of trichloroethene in the groundwater and public water supply. Reviewed EPA and TDEC regulatory files, CDC and Department of Health reports, interviewed City, County, TDEC, and EPA officials, and interpreted regional karst geologic and hydrogeologic data.
- *Harpeth River Watershed Association* – Franklin, Tennessee
  Served as technical advisor for a review of the environmental investigation report and corrective action plan. Contaminants of concern included free product toluene, dissolved-phase BTEX constituents, dissolved-phase acetone, and dissolved-phase chlorinated solvents.
- *Natural Resources Defense Council* – Confidential Location
  Served as technical advisor for development of a Complaint for Declaratory and Injunctive Relief related to the inappropriate disposal, investigation, and cleanup of volatile organic compounds in soil, groundwater, and surface water.
- *Confidential Client* – McMinnville, Tennessee
  Served as Project Manager to identify, quantify, and remediate the extent of a release of chlorinated solvents in a karst geologic setting. Activities included the completion of an interim

remedial action, a soil gas survey, direct push soil borings, monitoring wells and well nests, dye injection studies, streambed sampling, and a feasibility analysis.

- *Burlington Northern Railroad* - Birmingham, Alabama
  Served as a Senior Geologist for an LNAPL investigation. The investigation included the installation of temporary piezometers, soil borings, and permanent groundwater monitoring wells.
- *Sunbeam Outdoor Products, Inc.* - Neosho, Missouri
  Developed a Field Sampling and Analysis Plan for the sampling of soils and drummed liquids for a Removal Action required by EPA Region VII. Heavy metals and volatile organic compounds were the contaminants of concern in a karst geologic setting.
- *United Technologies Automotive, Inc.* - Quincy, Michigan
  Served as Project Manager for groundwater well sampling and the development of an *in-situ* remedial action for heavy metal contamination.

- *United Technologies Automotive, Inc.* - Morganfield, Kentucky
  Served as Project Engineer for a lagoon closure. Completed activities for sludge characterization and quantification, special waste permitting, and closure design for material excavation and site restoration.

Solid Waste Disposal

- *Meriwether County Landfill Permit Appeal* – Atlanta, Georgia
  Served as consultant to evaluate the technical merits of a municipal solid waste disposal permit that had been issued by the Georgia EPD. Key technical issues were placement of the landfill adjacent to a public surface water supply, typical liner performance, and landfill leakage history in Georgia. The permit was appealed to the Georgia Administrative Court.
- *Various Industrial Landfills* - Tennessee
  Served as Project Manager for Subtitle D landfill siting and design projects. Performed hydrogeologic investigations, presented design waivers for site-specific design criteria (when applicable), and developed detailed designs for permitting.
- *Various Landfills* - Tennessee
  Served as Project Manager for the design, permitting, and operation of industrial and municipal solid waste landfills, preparation of SWPP Plans, quarterly groundwater and gas monitoring reports, and hydrogeologic investigation reports.
- *Various Municipal Landfills* - Kentucky
  Served as Project Engineer for the design, permitting, and operation of municipal solid waste landfills.

Stormwater Permitting and Compliance

- *Tennessee Clean Water Network* – Knoxville, Tennessee
  Served as lead consultant for providing technical comments for the draft Knox County Phase II Municipal Separate Storm Sewer System (MS4) permit.
- *Various Industrial Clients* - Throughout the U.S.
  Served as Project Manager to obtain permit coverage through the EPA General Permit, group permits, and individual permits specific to each state. Over 125 facilities were permitted.

Hazardous Waste Management

- *Various Industrial Clients* – Throughout the U.S.
  Served as Project Manager for various projects to evaluate hazardous waste management practices consistent with the rules and regulations established under RCRA.
- *Laidlaw Environmental Services, Inc.* – Southeastern U.S.
  Completed SWPP Plans for RCRA treatment, storage, and disposal facilities.

Municipal Wastewater Management

- *Various Municipalities* – Fulton, Cobb, and Dekalb County, Georgia
  Served as Project Engineer for sewer modeling and point-source identification. Identified sources of infiltration / inflow and performed cost evaluations for source removal.

- *Various Municipal and Industrial Clients* – Tennessee
  Served as Project Engineer to establish beneficial reuse land application programs for wastewater sludge.
- *Boston Water and Sewer Commission* - Boston, Massachusetts
  Served as Project Engineer for sewer modeling and point-source identification projects of combined and separate sewers up to 15 feet in diameter. Identified sources of infiltration / inflow and performed cost evaluations for source removal.
- *Various Municipal Clients* – Throughout the U.S.
  Served as lead technical trainer for the implementation of proprietary software used for automated GIS mapping, maintenance scheduling, and hydraulic analyses of separate and combined sewers.
- *City of Hopkinsville* - Hopkinsville, Kentucky
  Served as Project Engineer for water and sewer line expansions and wastewater treatment projects.

TECHNICAL PUBLICATIONS AND LECTURES

- Quarles, M., "A Case Study in Karst Hydrogeology and Contaminant Fate and Transport", National Groundwater Association 51st Annual Convention and Exposition, December 1999.
- Quarles, M. and Allen P. Lusby, "Enhanced Biodegradation of Kerosene-Affected Groundwater and Soil," 1994 Annual Conference of the Academy of Hazardous Materials Managers, October 1994.
- Quarles, M., "New Tank Performance Standards," *Tennessee Environmental Law Letter*, July 1993.

PROFESSIONAL AFFILIATIONS

Member, National Ground Water Association
Member, American Institute of Professional Geologists

EXPERT LEGAL TESTIMONY

- *Busch, et al versus Dr. Carol Couch,* Atlanta, Georgia, 2008. State Administrative Court. Written and verbal testimony regarding drought restrictive surface water and groundwater use. Qualified by the court as an expert in geology, hydrogeology, and stormwater runoff.
- *Darrel Segraves, et al versus Dr. Carol Couch,* Atlanta, Georgia 2008. State Administrative Court. Written and verbal testimony regarding appeal of a municipal solid waste landfill permit. Qualified by the court as an expert in geology, hydrogeology, landfill design pertaining to landfill leakage, and stormwater runoff.
- *Tulane Environmental Law Clinic. 2007 - 2008.* Written testimony for numerous draft LDEQ permits and proposed rules.
- *Republic of Ecuador and PetroEcuador vs. Chevron Texaco Corporation and Texaco Petroleum Company*, U.S. District Court, Southern District of New York, 2007. Written testimony regarding environmental investigation protocol.
- *Friends of Tims Ford vs. Tennessee Valley Authority and Tennessee Department of Environment and Conservation.* U.S District Court, 2007. Written testimony in support of violations of State and Federal water quality standards, reservoir carrying capacity standards, and NEPA environmental assessment standards.
- *Freddie Howell vs. Creative Customs,* Atlanta, Georgia, 2007. Technical support regarding litigation associated with stormwater and groundwater flow and their effects on the Howell property.
- *Aguida vs. ChevronTexaco*. Lago Agrio, Ecuador Court, 2006. Written testimony that Texaco's waste management and standard operating practices in the Ecuadorian concession area.

TRAINING

Current Wetland Issues in Tennessee (2007)
Professional Liability Education - Contract Review and Revision (2000)
Professional Liability Education – Mid-Town Developer Case Study Workshop (1999)
Professional Liability Education – Liability IQ for Environmental Consultants (1998)

Liquid Animal Waste Management System Design to NRCS Standards for CAFO (1998)
8-Hour OSHA Health and Safety Annual Refresher Training (1998)
Hazardous Materials / Waste Manager Course, University of Alabama (1993)
40-Hour OSHA Health and Safety Training (1990)

CONTACT INFORMATION
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