Exhibit G

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February 19, 2006

Ms. Diane Smith
Planning and Analysis Branch (6WQ-NP)
U.S. Environmental Protection Agency
1445 Ross Avenue
Dallas, Texas 75202-2733

VIA FEDERAL EXPRESS

Re: San Jacinto River Authority's Comments to Regarding Draft TPDES Permit No. TX0054186; Application to Discharge to Waters of the United States Permit No. TX0054186; San Jacinto River Authority Woodlands Wastewater Treatment Plant No. 1

Dear Ms. Smith:

Enclosed please find San Jacinto River Authority's ("SJRA's") comments, attachments, and appendices regarding the Environmental Protection Agency's ("EPA's") Draft NPDES Permit No. TX0054186 (the "Draft Permit"), for SJRA's Woodlands Wastewater Treatment Plant No. 1. Please note that SJRA objects to all Draft Permit provisions discussed in the comments.

REQUEST FOR PUBLIC HEARING AND EXTENSION OF PUBLIC COMMENT PERIOD

SJRA hereby requests a public hearing with regard to the Draft Permit. The issues to be considered at the public hearing include all of the issues identified in the enclosed comments. In addition, SJRA requests that EPA reopen or extend, as applicable, the comment period to provide SJRA an opportunity to respond to any other comments that may be filed regarding the Draft Permit, in accordance with 40 C.F.R. § 124.14. For example, SJRA anticipates that the Texas Commission on Environmental Quality may submit comments on the Draft Permit. If so, SJRA should be given the opportunity to review and respond to such comments.

Thank you for your attention to this matter. Please do not hesitate to contact me if you have any questions.

Sincerely,

Lauren Kalisek

Lauren Kalisek
Attorney representing San Jacinto
River Authority

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cc: (without Appendices)
Mr. Nick Troutz, Senator John Cornyn's Office
Mr. David Gillespie, EPA
Ms. Kerri Qualtrough, TCEQ
Mr. Reed Eichelberger, SJRA
Mr. Don Sarich, SJRA
Ms. Tojuana Cooper, SJRA
Dr. Peggy Glass, Alan Plummer & Associates, Inc.
Mr. Rex Hunt, Alan Plummer & Associates, Inc.

COMMENTS BY SAN JACINTO RIVER AUTHORITY
DRAFT NPDES PERMIT NO. TX0054186
WOODLANDS WASTEWATER TREATMENT PLANT NO. 1

FEBRUARY 19, 2007

DEFINITIONS AND ABBREVIATIONS

1989 NPDES Permit – The current NPDES permit under which SJRA operates WWTP No.1 issued by EPA in 1989. (See Appendix).

2004 Texas 303(d) List – TCEQ's list of waterbodies that do not meet TSWQS for designated uses. May 13, 2005. (Available at http://www.tceq.state.tx.us/assets/public/compliance/monops/water/04twqi/04_303d.pdf).

7Q2 – The lowest average stream flow for seven consecutive days with a recurrence interval of two years, as statistically determined from historical data. 30 TAC § 307.3(26).

Application – SJRA's NPDES Permit Application filed with EPA June 1, 2006, and related documents.

BPJ – Best Professional Judgment.

CBOD5 – 5 day Carbonaceous oxygen demand.

C. dubia – Ceriodaphnia dubia.

CFR – Code of Federal Regulations.

cfu – Colony forming units.

Chronic Freshwater Guidance – U.S. Environmental Protection Agency. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. Fourth Edition; October 2002. (Available at http://www.epa.gov/waterscience/wet/disk3/ctf.pdf).

DMR – Discharge monitoring report.

DO – Dissolved oxygen.

Draft Permit – The draft NPDES Permit No. TX0054186 issued by EPA on December 18, 2006 for WWTP No. 1.

E. coli – Escherichia coli bacteria.

EPA – Environmental Protection Agency.

EPA NPDES Permit Writer's Manual – U.S. Environmental Protection Agency. EPA Permit Writers' Manual EPA Document No. EPA-833-B-96-003. December 1996. (Available at http://www.epa.gov/npdes/pubs/owm0243.pdf).

Fathead Minnow – *Pimephales promelas.*

IC_{25} – 25-percent Inhibition Concentration. The toxicant concentration that would cause a 25 percent reduction in mean young per female for a *C. dubia* test population or a 25 percent reduction in mean growth for a Fathead Minnow test population.

IP – Procedures to Implement the Texas Surface Water Quality Standards. Document No. RG-194 (Revised). January 2003. (See Appendix).

Interlaboratory Variability Study – U.S. Environmental Protection Agency, Office of Water. Final Report: Interlaboratory Variability Study of EPA Short-term Chronic and Acute Whole Effluent Toxicity Test Methods, Vol. 1. Document No. EPA 821-B-01-004. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. (Available at http://www.epa.gov/waterscience/WET/finalwetv1.pdf).

MAL – Minimum Analytical Level.

mg/L – Milligrams per liter.

ml – Milliliter.

NH_3-N – Ammonia nitrogen.

NOEC – No Observed Effects Concentration.

NPDES – National Pollutant Discharge Elimination System.

PFD – The Administrative Law Judge's Proposal for Decision in TCEQ Docket No. 2003-1213-MWD; SOAH Docket No. 582-04-1194. (See Appendix).

SJRA – The San Jacinto River Authority.

SOAH – The State Office of Administrative Hearings, Texas.

Standard Methods for the Examination of Water and Wastewater – American Public Health Association, American Water Works Association, and Water Environment Federation. Standard Methods for the Examination of Water and Wastewater. 19th Edition. 1995.

State Permit – The permit issued by the TCEQ on January 17, 2006 for WWTP No. 1. (See Appendix).

TAC – Texas Administrative Code.

TCEQ – Texas Commission on Environmental Quality.

TCEQ Order – TCEQ's "Order Regarding Application by San Jacinto River Authority for Renewal of TPDES Permit No. 11401-001 in Montgomery County; TCEQ Docket No. 2003-1213-MWD; SOAH Docket No. 582-04-1194." (See Appendix).

TCEQ Record – The record associated with TCEQ Docket No. 2003-1213-MWD; SOAH Docket No. 582-04-1194, including the hearing transcripts, SJRA's Exhibits, the Executive Director's Exhibits, the PFD, the TCEQ Order and the State Permit. (See Appendix).

TPDES – Texas Pollutant Discharge Elimination System.

TRC – Total residual chlorine.

TSS – Total suspended solids.

TSWQS – Texas Surface Water Quality Standards, 30 TAC § 307.1-307.10.

WERF Report – Warren-Hicks, Ph.D., William; Benjamin R. Parkhurst, Ph.D.; and Song Qian, Ph.D. Accounting for Toxicity Test Variability in Evaluating WET Test Results. Document No. 00-ECO-1. 2006. (See Appendix).

WET Variability Document – U.S. Environmental Protection Agency, Office of Wastewater Management. Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the National Pollutant Discharge Elimination System. Document No. EPA 833-R-0-003. 2000. (Available at http://www.toxicity.com/pdf/epa2000june.pdf).

WET – Whole Effluent Toxicity.

WWTP No. 1 – The Woodlands Wastewater Treatment Plant No. 1 that is the subject of the Draft Permit.

INTRODUCTION

SJRA's comments on the Draft Permit are categorized as follows: (1) specific effluent limits and monitoring requirements; (2) whole effluent limits and monitoring requirements; (3) procedural sampling, reporting, and record-keeping requirements; and (4) correction of information in the Fact Sheet, typographical errors, and minor language clarification. References to specific Draft Permit conditions by item and page number are included in the headings for each comment.

I. SPECIFIC EFFLUENT LIMITS AND MONITORING REQUIREMENTS

A. Data Used in Development of Draft Permit (Fact Sheet at p. 2)

Section X of the Fact Sheet states that data provided in the EPA Permit Application Form 2A and "other salient data" were used to determine the average and maximum concentrations for parameters listed in Table I of the Fact Sheet from which the permit monitoring requirements are derived.

Comments: The Fact Sheet should specifically identify EPA's source, or sources, of other "salient data." In addition, the Fact Sheet should identify the methodology used by the EPA to determine average concentrations for the listed parameters for which some of the data results were below the MAL.

B. Dissolved Oxygen Limit (Draft Permit Part I Item A.1 at p. 1; Part I Item A.2 at p. 4; Fact Sheet at pgs. 2, 8)

The Draft Permit imposes a new DO limit of 6.0 mg/L with a three month compliance period. The Fact Sheet justifies this increase based on modeling performed by TCEQ in 2000, the results of which are contained in an October 5, 2000 memorandum from Charles Marshall. The Fact Sheet states that although the TCEQ modeled for both Outfall 001 and 002 with regard to SJRA's discharge, EPA uses the "most stringent" set of DO models for permitting purposes. The current 1989 NPDES Permit contains a 4.0 mg/L DO limit.[1] The Fact Sheet also notes that a three month compliance period is adequate because the data SJRA submitted in its Application demonstrate it can meet the more stringent DO limit now.

Comments: The October 5, 2000 modeling memorandum was prepared in order to identify the appropriate effluent set applicable to each outfall associated with SJRA's discharge—Outfall 001 in Panther Branch or Outfall 002 into Lake "B," the upper portion of Harrison Lake. The memorandum provides the results for three possible effluent sets for Outfall 001 and two possible effluent sets for Outfall 002. With regard to Outfall 002, the memorandum adopts a presumed DO criterion of 5.0 mg/L for Harrison Lake and concludes that an effluent set containing a DO limit of 5.0 mg/L is sufficient to maintain this criterion.

[1] 1989 NPDES Permit at p. 2 of Part I.

For Outfall 001, the memorandum adopts a presumed DO criterion of 5.0 mg/L for Panther Branch and concludes that an effluent set containing a DO limit of 6.0 mg/L is necessary to maintain this criterion. However, the memorandum fails to recognize that the portion of Panther Branch into which SJRA discharges from Outfall 001 is the subject of a site specific criterion in Appendix D of the TSWQS.[2] The TSWQS adopt a site-specific DO criterion of 4.0 mg/L for Panther Branch from its confluence with Spring Creek upstream to the dam that impounds Lake Woodlands. As shown in the memorandum, any one of the effluent sets modeled for Outfall 001 meet the site specific criterion for this portion of Panther Branch, including the set containing a DO limit of 4.0 mg/L. Indeed, the final permit issued by TCEQ includes a DO limit of 4.0 mg/L.[3] EPA should not impose a permit limit based on the application of an incorrect water quality criterion.

If EPA retains the increased DO limit of 6.0 mg/L despite these comments and the use of an incorrect water quality criterion, it should at least include a compliance period greater than three months. It is not correct to assume that because WWTP No.1 can meet a 6.0 mg/L DO limit now, that it will still be capable of doing so in its current configuration as flows at the facility increase. The facility is currently operating at approximately 47% of its design capacity. SJRA needs additional time to study what impact an increased DO limit will have on the system and identify and implement any necessary changes to ensure that this new limit will be maintained at higher flows.

In addition, a separate DO limit for Outfall 002 should be maintained since a different water quality criterion applies to this discharge. The Fact Sheet provides no justification for EPA's use of the "most stringent set" of DO models for permitting purposes. There is no reason why separate DO limits may not be applied to Outfalls 001 and 002.

Recommendation: Modify the DO limit for Outfall 001 from 6.0 mg/L to 4.0 mg/L. Include a separate DO limit for Outfall 002 of 5.0 mg/L. *See* Proposed Limitations and Monitoring Requirements Table at Attachment A. If the increased DO limit of 6.0 mg/L is maintained, provide a compliance period of one year to allow sufficient time to identify and implement any facility changes.

C. **E. coli Limit** (Draft Permit Part I Item A.1 at p. 1; Part I Item A.2 at p.4; Fact Sheet at pgs. 2, 7, 9)

The Draft Permit includes a new limit for E. coli. The permit limit tables at Part I pages 1 and 4 specify a "30-Day Avg." limit of 394 cfu per 100 ml and a "Daily Max" limit of 126 cfu per 100 ml. Page 7 of the Fact Sheet notes that Segment 1008 has established numeric criteria for E. coli and states that this criteria is included as the limit in the Draft Permit. Page 7 states that the facility, in the past, has been required to provide for bacteria control. Page 9 of the Fact Sheet states that Segment 1008 is listed on the 2004 Texas 303(d) List for bacteria.

[2] 30 TAC § 307.10, Appendix D.
[3] State Permit at p.2 Item 6.

Comments: As described in the Application, WWTP No. 1 disinfects the treated effluent prior to discharge to Panther Branch.[4] In accordance with both the 1989 NPDES Permit and the State Permit for the facility, the treated effluent maintains a minimum of 1.0 mg/L of TRC for 20 minutes (at peak flow) prior to dechlorination.[5] This minimum chlorine residual and detention time are accepted treatment practices for wastewater. Based on data provided in the Application, the geometric mean for fecal coliform in the effluent is less than 15 cfu per 100 ml,[6] indicating that the disinfection process is effective.

The fact that Segment 1008 has specific criteria for bacteria assigned to it by the TSWQS does not, in and of itself, automatically require the implementation of an effluent limit for the same parameter. The TSWQS states that the geometric mean of E. coli should not exceed 126 cfu per 100 ml and the maximum single-sample concentration of E. coli should not exceed 394 cfu per 100 ml for all water bodies designated for contact recreation uses (not just Segment 1008).[7] However, TCEQ does not impose permit limits for bacteria on facilities that disinfect using chlorine (such as WWTP No. 1). No TPDES permit for a facility that achieves disinfection using chlorine requires E. coli monitoring or contains an E. coli limitation.[8] Only facilities that disinfect with ultraviolet lamps are required to test for bacteria.[9] Therefore, there is no factual or legal basis for the simple conversion of the numeric criteria/standard for E. coli into a permit limit.

The inclusion of Segment 1008 on the 2004 Texas 303(d) List does not mandate that bacteria limits be included in permits issued to facilities that discharge to that segment. The IP states that effluents that are disinfected prior to discharge are unlikely to result in degradation of the receiving waterbody due to increased loading of recreational indicator bacteria.[10] Accordingly, TCEQ does not include bacteria limits in permits based on 303(d) listing for bacteria. EPA has provided no information or analysis in the Fact Sheet explaining how the proposed E. coli limit for WWTP No. 1 is necessary to maintain this criteria.

Page 7 of the Fact Sheet is unclear regarding the statement that the facility "has in the past been required to provide for bacteria control." If this is in reference to the requirement to disinfect, then this is a requirement of all mechanical wastewater treatment plants, but does not address why a coliform limit is needed in addition to disinfection by chlorination. If the statement refers to some other issue with bacteria, SJRA is unaware of what that issue could be. Neither the 1989 NPDES Permit nor the State Permit contains an E. coli limit.

Neither state policy nor historic practices of EPA require an E. coli limit. Therefore, it should be removed.

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[4] Application at 2A, at p. 6 of 21 and Attachment 5.
[5] 1989 NPDES Permit at p. 2 of Part I; State Permit at p. 2.
[6] Application at Attachment 3. Fecal coliform concentrations in the three tests conducted for the Application were <10 cfu per 100 ml, 32 cfu per 100 ml, and <10 cfu per 100 ml. If 10 cfu per 100 ml is used as a conservative value for the two less-than results, the geometric mean of these three tests is 14.74 cfu per 100 ml.
[7] 30 TAC 307.7(b)(1)(A)(i).
[8] Telephone conversation with Firoj Vahora, TCEQ (R. Hunt; February 5, 2007).
[9] Telephone conversation with Firoj Vahora, TCEQ (R. Hunt; February 5, 2007).
[10] IP at p. 33; third bullet in list.

Recommendation: The following modifications should be made to the Draft Permit:

- The E. coli limit should be removed.

- The following language should be used in lieu of the E coli limit:

  "The effluent shall contain a total residual chlorine (TRC) of at least 1.0 mg/L, prior to final dechlorination and disposal, after a detention time of at least 20 minutes (based on peak flow). The TRC in the chlorinated effluent shall be monitored daily by grab sample."

- However, if the E. coli limit is maintained in the final permit, the 30-Day Average limit and the Daily Maximum limits should be corrected. The Daily Maximum should be 394 cfu per 100 ml and the 30-Daily Average should be 126 cfu per 100 ml. These values are switched in the effluent limit tables on pages 1 and 4 of the Draft Permit.

These changes are reflected in the Proposed Limitations and Monitoring Requirements Table at Attachment A.

D. Reporting Requirement for Nitrate-Nitrogen and Dibromochloromethane (Draft Permit Part I Item A.1 at p. 2; Part I Item A.2 at p. 4; Fact Sheet pgs. 2, 7; Fact Sheet at Appendix A)

The Draft Permit requires monitoring for nitrate-nitrogen and dibromochloromethane. Page 7 of the Fact Sheet states that the effluent data provided by SJRA for these parameters exceeds 70% of the daily average effluent limits determined necessary to maintain TSWQS, thereby mandating a report requirement. The Fact Sheet explains that the calculation of the daily average effluent limits for nitrate-nitrogen and dibromochloromethane were based on critical conditions provided by the TCEQ Water Quality Assessment Section and the use of TEXTOX Menu 3 with a 7Q2 of 2.2 cfs and a harmonic mean flow of 4.17 cfs. These flows apply to Panther Branch. This information is also contained in Appendix A of the Fact Sheet.

Comments: EPA has incorrectly applied human health criteria to Panther Branch, which is not a classified segment with a designated public water supply use according to the TSWQS.[11] In the TSWQS, Human Health Criteria from Table 3 only apply to water bodies used as a public water supply. Because the water quality standards for nitrate-nitrogen and dibromochloromethane are human health standards applicable to segments with a designated use as a public water supply, it is inappropriate to apply the criteria to Panther Branch and use Panther Branch critical conditions in the development of the water quality based effluent limits.[12] However, if EPA wishes to evaluate the potential impact of WWTP No. 1 on Spring Creek, the

[11] Panther Branch is an unclassified perennial stream with an assigned Intermediate aquatic life use. 30 TAC § 307.10(4), Appendix D.

[12] *See* TSWQS discussing application of human health criteria, including specific criteria for nitrate-nitrogen and dibromochloromethane, to freshwaters designated as public water supplies at 30 TAC § 307.6(a)(3). *See also*, 30 TAC §§ 307.6(d)(2)(A); 307.4(d).

TEXTOX analysis should be rerun using the appropriate flow values for Spring Creek. Enclosed is a revised TEXTOX analysis at Attachment B, which uses the correct flow conditions for Spring Creek. As is indicated in this corrected analysis, the daily average effluent limit for nitrate-nitrogen is 64 mg/L and the daily average effluent limit for dibromochloromethane is 59 ug/L. The Fact Sheet (Table 1 on page 3) states that the average concentration of nitrate-nitrogen in the effluent is 15.4 mg/L, which is approximately 24% of the daily average limit for nitrate-nitrogen. Table 1 also reports that the average concentration of dibromochloromethane is 7.85 ug/L, which is approximately 13% of the daily average limit for dibromochloromethane. Clearly, the concentrations of these compounds in the effluent are well below 70% of the daily average limits. A reporting requirement is, therefore, not justified.

Recommendation: The monitoring requirements for dibromochloromethane and nitrate-nitrogen should be removed from the Draft Permit; and the Fact Sheet should be revised accordingly.

E. Reporting for Total Copper (Draft Permit Part I Item A.1 at p. 2; Part I Item A.2 at p. 4; Fact Sheet at pgs. 2, 7, Fact Sheet Appendix A)

The Draft Permit requires monitoring for total copper. Page 7 of the Fact Sheet states that the data provided by SJRA indicate that the concentration of total copper in the effluent exceeds 70% of the daily average effluent limit necessary to maintain TSWQS, thereby mandating a monitoring requirement. The Fact Sheet explains that the EPA permit writer used BPJ in establishing the report requirement and based his decision on the fact that SJRA's effluent data contained a single value exceeding this 70% threshold.

Comments: The Fact Sheet identifies the IP as a basis for the contents of the Draft Permit. The IP drafted by TCEQ establishes the procedures and methods by which the TSWQS are implemented through permitting. EPA approved the IP on November 22, 2002 as consistent with NPDES permitting requirements.[13] The IP clearly provides that, in establishing water quality based effluent limits and monitoring requirements, the "*average concentration* of the effluent data is . . . compared to the daily average limit" and if the "*average* of the effluent data equals or exceeds 70% but is less than 85% of the calculated daily average limit" monitoring is usually included as a permit condition for the parameter of concern.[14] Page 7 of the Fact Sheet states that EPA is replacing the clear policy established in the IP regarding use of the average concentration of the effluent data with the BPJ of the permit writer that a single value is sufficient to justify a monitoring requirement.

The Fact Sheet provides no justification for use of a single value rather than the average concentration as stated in the IP. EPA should provide sufficient justification for deviation from the policy it previously approved as stated in the IP.

Generally, the use of BPJ by a permit writer is only specifically authorized by the Clean Water Act in certain instances such as in the drafting of technology-based limits for industrial

[13] IP at p. 1.
[14] IP at p. 83.

dischargers where effluent limit guidelines are not yet available[15] and permit conditions governing sludge disposal prior to the promulgation of applicable federal regulations.[16] There is no legal authorization for the permit writer to replace clear written policy with his BPJ to establish a monitoring requirement for a water quality based parameter based on a single data point. Such an action is arbitrary and capricious and an abuse of EPA's discretion.[17]

Recommendation: Delete the monitoring requirement for total copper in Part I, Item A.1 at page 2 of Part I and Item A.2 at page 4 of Part I. In addition, the Fact Sheet pages 2 and 7, should be modified to remove the discussion of the copper monitoring requirement.

II. WET LIMITS AND MONITORING REQUIREMENTS

A. **General Comments on WET Limits** (Draft Permit Part I Item A.2 at p. 5; Part II Item D; Fact Sheet at pgs. 9-12; Fact Sheet at Appendix B)

The Draft Permit contains lethal and sublethal WET limits for two test species, *C. dubia* and the Fathead Minnow. The Fact Sheet states at Page 11 that reasonable potential exists for discharges from the facility to cause or contribute to an exceedance of "Texas water quality standard and narrative criterion established to protect aquatic life." Page 10 of the Fact Sheet also states that WET test results submitted by SJRA as a part of the Application were analyzed using EPA's "Technical Support Document for Water Quality Based Toxics Control" (TSD) and EPA Region 6's "WET Permitting Strategy" (May, 2005). It notes that all data were reviewed and "the majority" of the data were found to be acceptable. It concludes that the "duration and magnitude of the effluent's toxic effects have been significant." It states that the WET Limits contained in the Draft Permit are "based primarily on sub-lethal effects demonstrated to the *C. dubia* test species." Appendix B of the Fact Sheet contains the "TSD Reasonable Potential Analysis."

Comments: The Fact Sheet does not indicate the standards or guidelines EPA used to determine which portions of SJRA's WET testing data were "acceptable." The Fact Sheet's statement that only a "majority" of the data was "acceptable" indicates that EPA rejected some data. Given that some WET testing data provided by SJRA were not used by EPA in its WET analysis, EPA should clearly identify the particular data and the reasons why such data were not acceptable. Appendix B of the Fact Sheet includes test data from all of SJRA's WET tests since January 2001, which is inconsistent with the statement in the Fact Sheet that only a "majority" of the data was "acceptable." Without a clear statement of the specific test data upon which EPA is basing its decision regarding the proposed WET limits, and explanation of the reasons why some data were not accepted, it is impossible to know EPA's true basis for its decision.

The Fact Sheet also provides no explanation supporting the conclusion that the "duration and magnitude of the effluent's toxic effects has been significant." It contains no discussion showing how SJRA's test results indicate any length of time or "duration" of the alleged toxic

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[15] 33 U.S.C.A. § 1342(a)(1)(B); 40 CFR § 125.3; *see also* EPA NPDES Permit Writers' Manual at p. 68 (only discusses the use of BPJ in the context of technology based limits for industrial dischargers).
[16] 33 U.S.C.A. § 1345(d)(4).
[17] 5 U.S.C.A. § 706(2)(A) (2004).

effects or how such test results indicate the "magnitude" of the effects to be "significant." Such explanation is critical to understanding EPA's reasonable potential assessment as the basis for imposition of WET Limits in the Draft Permit.

EPA's inclusion of WET limits in the Draft Permit conflicts with the clear policies it has approved for the drafting of discharge permits contained in the IP. The Fact Sheet notes throughout that the IP was used to develop permit limits and requirements contained in the Draft Permit. However, EPA ignores the IP in drafting the WET limits. First, the Draft Permit contains sublethal WET limits. The IP does not identify any basis pursuant to which sublethal WET limits are to be imposed. The IP only provides for the imposition of lethal WET limits and, then, only in specific cases.[18]

Second, the Fact Sheet notes that the WET limits are based "primarily" on the sublethal effects demonstrated for *C. dubia*. The IP does not identify any basis pursuant to which WET limits are imposed due to sublethal effects. In addition, the use of the term "primarily" indicates other data were used, but fails to specify this data. Again, EPA should clearly identify all data used to justify these permit limits.

As noted previously, the IP has been approved by EPA and serves as the guiding document establishing how permit limits and requirements are developed to maintain TSWQS. EPA's failure to abide by the written policy it has approved and implemented in its review of permits for TSWQS, and in the creation of this specific Draft Permit, is arbitrary and capricious and an abuse of its discretion.[19]

EPA's inclusion of WET limits in the Draft Permit also directly conflicts with the TCEQ's specific findings of fact and conclusions of law made after an evidentiary hearing conducted before SOAH in 2005 regarding TCEQ's renewal and issuance of the State Permit and the inclusion of a WET limit in that permit. Based on the recommendation of the presiding Administrative Law Judge and her review of the evidentiary record (including testimony and evidence offered by EPA), the TCEQ found that, when applying the policies regarding WET limits contained in the IP to SJRA's WET testing data, WET limits were not warranted in SJRA's permit.[20] TCEQ specifically found that the November 2001 and January 2002 tests for *C. dubia* were "too unreliable to constitute a part of the basis for including a WET limit in SJRA's permit."[21] With regard to the sublethal test effects, TCEQ found them to be "inadequate evidence of toxicity to trigger a WET limit; their primary significance is their tendency to corroborate any toxicity exhibited in tests for survival."[22]

EPA objected to the State Permit issued by the TCEQ and federalized the permit, leading to its issuance of the Draft Permit that is the subject of these comments. However, nowhere in its objection or the Fact Sheet for the Draft Permit, does EPA explain how TCEQ erred in its application of governing laws, regulations or EPA approved polices (i.e., the IP) or interpretation

[18] IP at pgs. 101-125.
[19] 5 U.S.C.A. § 706(2)(A).
[20] TCEQ Order at p. 16.
[21] TCEQ Order at p. 12, Finding of Fact Nos. 74, 80.
[22] TCEQ Order at p. 12, Finding of Fact No. 83.

of the facts regarding SJRA's WET test data. Rather than justifying its disagreement with TCEQ's decision based on the facts determined by the evidentiary hearing and the laws, regulations, and policies at issue, EPA is now simply changing the rules to fit the outcome it desires. It is ignoring that portion of the IP that does not support the imposition of WET limits in the Draft Permit and ignoring the fact-finding performed by the TCEQ on the issue of WET limits.

For permitted discharges in Texas, the "reasonable potential" review mandated by 40 CFR § 122.44(d)(1)(v) is found in the IP. It is not the TSD Reasonable Potential Calculation contained in Appendix B of the Fact Sheet. EPA should abide by the policies it has approved within the IP with regard to the imposition of WET Limits in Texas permits.

The specific errors made by EPA in its justification for WET limits in the Draft Permit include:

- Sublethal test results are not an appropriate basis to impose WET limits.[23] EPA provides no justification for deviation from the IP, the TCEQ Record, and the TCEQ Order.

- The November 2001 and January 2002 test results for *C. dubia* are unreliable.[24] EPA fails to explain why it believes these test results are reliable and how both TCEQ and the Administrative Law Judge erred at the state evidentiary hearing.

- IP, not TSD, is the appropriate policy to follow in making a reasonable potential determination as required in 40 CFR 122.44. The IP has been approved by EPA, and EPA provides no justification for deviation from it.

EPA's deviation from the IP in this case, and its failure to consider or apply the TCEQ Record, including specific findings of fact and conclusions of law established by TCEQ, constitutes an abuse of EPA's discretion and is arbitrary and capricious.[25] EPA cannot simply ignore the policy it has previously approved regarding WET limits in Texas or ignore the extensive TCEQ Record and TCEQ Order addressing the imposition of WET limits in SJRA's permit. EPA must provide a meaningful, thorough and thoughtful response to the TCEQ Record and TCEQ's decision in order to justify its imposition of any WET limit in the Draft Permit. Copies of documents comprising the TCEQ Record are submitted as an Appendix to these comments and are incorporated herein for all purposes.

B. **<u>WET Limits for Fathead Minnow</u>** (Draft Permit Part I Item A.2 at p. 5; Fact Sheet at pgs. 2, 9; Fact Sheet Appendix)

The Draft Permit contains sublethal and lethal WET limits for the Fathead Minnow.

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[23] *See* IP at pgs. 101-125; TCEQ Order at p. 12, Finding of Fact No. 83.
[24] *See* TCEQ Record; PFD; TCEQ Order at p. 12, Findings of Fact Nos. 74, 80.
[25] 5 U.S.C.A. § 706(2)(A).

Comments: SJRA WET testing data do not include any significant lethal effects for the Fathead Minnow. Furthermore, as shown in Appendix B of the Fact Sheet, a finding of no reasonable potential for lethal effects for the vertebrate species is indicated, and a recommendation for WET monitoring only is made. A lethal WET limit for this species is not justified even based on EPA's own determination.

Neither is the sublethal WET limit for the Fathead Minnow justified. As previously discussed, the IP does not provide for establishing sublethal WET limits.

It should also be recognized that the results reported by SJRA for its Fathead Minnow testing for March 2004 are not reliable. As noted in its DMR for this testing, SJRA did not certify the test results because it considered them to be invalid for the reasons explained in its accompanying documentation provided by Risk Sciences. The DMR and analysis by Risk Sciences, provided at Attachment C, are incorporated herein by reference. The March 2004 test results should not be considered by EPA in its reasonable potential analysis.

Even the results of the December 2003 test are borderline. The Percent Minimum Significant Difference (PMSD) for this test is below the lower bound established in EPA guidance.[26] For tests where the PMSD is less than the established lower bound, additional statistical tests are required to determine when differences between the samples and the control are significant. When a follow-up statistical test is applied to determine if the difference between the control and the 86% effluent sample is sufficient to be "significant," the conclusion is dependent on whether the results are judged based on the original number of organisms or the surviving number of organisms. In addition, the IC_{25} for the test is 86% effluent. In general, the NOEC and IC_{25} should be comparable for a valid test.

Recommendation: On page 5 of Part I, delete the WET limits for the Fathead Minnow.

C. **WET Limits for *C. dubia*** (Draft Permit Part I Item A.2 at p. 5; Fact Sheet at pgs 2, 9; Fact Sheet at Appendix B)

The Draft Permit contains sublethal and lethal WET limits for the *C. dubia*.

Comments: See previous general comments on WET Limits at Section II.A above. The November 2001 and January 2002 *C. dubia* test results are invalid. The bases for this conclusion are described in the TCEQ Order issuing the State Permit and the TCEQ Record.

Sublethal test results should not be used to support a finding of reasonable potential because to do so contravenes the IP previously approved by EPA. The TCEQ has also found, with respect to this specific permit, that sublethal test results are "inadequate evidence of toxicity to trigger a WET limit; their primary significance is their tendency to corroborate any toxicity in tests for survival."[27]

Recommendation: On page 5 of Part I, delete the WET limits for *C. dubia*.

[26] *See* Chronic Freshwater Guidance and Interlaboratory Study.
[27] TCEQ Order at p. 12, Finding of Fact No. 83.

D. **Use of IC_{25} in Lieu of NOEC** (Draft Permit Part I Item A.1 at p. 2; Part I Item A.2 at p. 5; Part II Item D; Fact Sheet at pgs. 10-12; Fact Sheet at Appendix B)

The WET limits contained in the Draft Permit require the use of NOEC to determine test results and response actions.

Comments: The use of the NOEC in calculating end points in WET testing relies on hypothesis testing techniques for statistical analysis. However, both the Chronic Freshwater Guidance[28] and the EPA WET Variability Document[29] state that point estimation techniques, which produce values such as IC_{25}, are the preferred statistical methods in calculating end points for effluent toxicity tests, rather than hypothesis testing techniques. EPA guidance provides the option of using either NOEC or IC_{25} in reviewing and determining sublethal WET test results.[30] Use of IC_{25} is preferable because it is less variable and a more robust analysis that is based on all of the test data.

Recommendations:

- Specify the value to be reported as IC_{25} rather than NOEC in the following sections of the permit: page 2 of Part I, page 5 of Part I, page 4 of Part II (Section D.1.c), page 7 of Part II (Section D.3.b), and page 9 of Part II (Section D.4.b).

- Replace the definition of NOEC on page 3 of Part II (Section D.1.a) with the definition of IC_{25}.

- Replace the section on page 5 of Part II (Section D.2.b) that describes the statistical tests required for determining NOEC with a description of the statistical tests required for determining IC_{25}.

- Replace the parameter codes on page 8 of Part II (Section D.3.c) for reporting WET test results on DMRs with the appropriate codes for IC_{25} rather than NOEC.

E. **Definition of NOEC** (Draft Permit, Part II Items D.1.b and D.1.c at pgs. 3-4; Part II Items D.4.a at p. 9)

The Draft Permit defines NOEC as the "greatest effluent dilution at *and below* which lethality that is statistically different from the control (0% effluent) at the 95% confidence level does not occur." (emphasis added). The Draft Permit goes on to define a chronic lethal test failure as a "demonstration of a statistically significant lethal effect at test completion to a test species *at or below* the critical dilution." It defines a chronic sublethal test failure as a "demonstration of a statistically significant sublethal effect (i.e., growth or reproduction) at test completion to a test species *at or below* the critical dilution." In addition, section D.1.c defines a

[28] Chronic Freshwater Guidance at p. 41, Section 9.5.1.

[29] WET Variability Document, Chapter 3, Section 3.4.1 states that the "greater variability of the NOEC underscores the desirability of using point estimates to characterize effluent toxicity."

[30] Section 9 of the Chronic Freshwater Guidance discusses both hypothesis testing (i.e. NOEC) and point-estimate (i.e. IC_{25}) analysis as viable endpoint techniques.

WET limit violation as occurring when "the effluent fails a test endpoint *at or below* the critical dilution." Finally, the provisions for reducing the monitoring frequency for the Fathead Minnow state that the permittee may apply for testing frequency reduction upon completion of the first four consecutive quarters of testing with "no lethal or sub-lethal effects demonstrated *at or below* the critical dilution."

Comments: NOEC should not be retained as the endpoint for chronic tests. However, if it is, the definition in the Draft Permit must be revised. The NOEC definitions, and all permit provisions dependent on a determination of NOEC, should be revised to delete the phrase "and below." This definition is inconsistent with EPA's own guidance[31] and the current definition used by the TCEQ in TPDES permits. A finding of a significant effect at a dilution below the critical dilution does not constitute a test failure. This inappropriate modification of the definition of NOEC substantially increases the risk of having to report a test as exhibiting toxicity when it would be inappropriate to do so. The Draft Permit should be modified to define NOEC in accordance with EPA's own guidance.

At one time TCEQ included the phrase "or below" in the definition of NOEC in TPDES permits. The definition was revised to delete the phrase "or below," in accordance with EPA guidance, and EPA approved the revision.[32] It is not appropriate for EPA now to include this incorrect definition in the Draft Permit.

Recommendations: Delete the phrase "or below" from the following sections of the Draft Permit: page 3 of Part II (Section D.1.b), page 4 of Part II (Section D.1.c), and page 9 of Part II (Section D.4.a).

F. **Sublethal WET Limits** (Draft Permit Part I Item A.2 at page 5)

The Draft Permit proposes a limit of a NOEC of 85% effluent for both lethal and sublethal tests for both *C. dubia* and the Fathead Minnow.

Comments: If, subsequent to issuance of the permit, the WWTP No. 1 effluent exhibits lethal or sublethal effects in a WET test at the critical dilution of 85%, the facility will be deemed to be in violation of the permit. The responsible action for SJRA to take at that point is to initiate a TRE to determine the cause of the test failures so that a strategy can be developed to eliminate the test failures.

However, SJRA may not be able to implement a TRE successfully. Frequently, it is not possible to obtain meaningful TRE results when the test failures are chronic and only occur at relatively high effluent concentrations.

In fact, the Region 6 WET Strategy states, "Due to the potential difficulty of resolving toxicity related, in some cases, to identifying toxicants responsible for sublethal effects, EPA Region 6 will take a graduated approach to TREs and implementation of WET limits where

[31] Chronic Freshwater Guidance at p. 37, Section 9.1.1.2.

[32] *See* email correspondence from Phillip Jennings, EPA, to Mike Pfeil, TCEQ, dated April 29, 2004, at Attachment D.

significant sub-lethal effects are demonstrated only in effluent concentrations greater than 75% effluent." The Region 6 WET Strategy later states, "...Region 6 will implement limits for sublethal limits at the 80% effluent level at this time." It is not clear whether 75% effluent or 80% effluent is intended to be the upper limit; but, clearly, it is recognized that, if a sublethal limit is to be established, it should be less than the 85% effluent limit currently proposed, according to EPA policy.

The Region 6 WET Strategy recognizes that it is inequitable to impose a limit that cannot be met by reasonable diligence on the part of the permittee. Establishing a permit limit of 85% effluent for sublethal test failures is inequitable because of the unavailability of tools that will allow SJRA to identify the cause of test failures at that level. If the causes of test failures cannot be determined, appropriate control actions cannot be identified that will result in compliance with the permit.

As previously stated, SJRA objects to the establishment of a WET limit(s) in the permit for WWTP No. 1. However, if EPA proceeds with issuance of a WET limit, different limits should be established for the lethal and sublethal tests.

Recommendations: If WET limits are imposed, revise item A.2 of Part I at page 5 to establish different limits for lethal and sublethal tests. The recommended limits are as follows:

- Lethal: IC_{25} = 85% effluent
- Sublethal: IC_{25} = 75% effluent

G. **Compliance Determination for Chronic Tests** (Draft Permit Part I pgs. 2, 5; Part II Item D.1.C at p. 4)

The Draft Permit provides that for the WET limits, a permit violation occurs for every test where the organism response at the critical dilution is statistically different from the organism response in the control.

Comments: SJRA strongly objects to the inclusion of WET limits in the permit. However, if a limit is included, the basis for determining compliance with the limit should be substantially revised. The importance of basing decisions on the IC_{25} endpoint rather than NOEC has already been discussed.

In addition, the Draft Permit provides that every test where the organism response at the critical dilution is statistically different from the organism response in the control is a permit violation. Imposing a compliance requirement that every test must pass is inconsistent with the known variability of WET tests, particularly the 7-day *C. dubia* survival and reproduction tests. It imposes a standard that cannot be consistently achieved regardless of the diligence of the permittee. There are many sources that document chronic test variability. For brevity sake, only the *C. dubia* test is discussed below. The variability of the Fathead Minnow test is only slightly less than the variability of the *C. dubia* test. Examples of studies documenting chronic test variability follow.

EPA Interlaboratory Variability Study Split Sample Testing

The Interlaboratory Variability Study was conducted by EPA from September 1999 to April 2000.[33] As part of this study, EPA split samples of a reference toxicant, an effluent, and a receiving water and sent the split samples to multiple laboratories. EPA asked the laboratories to identify the lethal and sublethal NOEC for each sample. There were 34 participating laboratories. Collectively, these laboratories performed 48 tests of the reference toxicant sample, 27 tests of the effluent sample, and 13 tests of the receiving water sample. Some tests were unsuccessful or invalid so the total number of test results reported is less than the number of tests performed. (In fact, only 10 of the 88 resulted in reportable results, i.e., only 80% of the tests were successfully completed. It is unlikely that EPA would accept this low rate of test competition from a permittee). Also, apparently, the reference toxicant sample was incorrectly formulated because most (but not all) laboratories reported NOEC values for survival and reproduction in the reference toxicant of 100%, which suggests there was no toxicant present.

The results of this testing are presented in Table 9.12 of the EPA Interlaboratory Variability Study. The results are also presented in Table A herein. As can be seen from Table A, the laboratories reported a wide range of results for what should have been identical samples. In each case, the median value is the value reported by most (65% – 97%) of the laboratories. It could be presumed that the median value is the "correct" value for each sample. (There is no truly "correct" value because the test result is defined by organism response, which is variable between organisms. No one group of organisms is the "correct" group.) However, for most (4 out of 6) samples and endpoints (survival or reproduction), approximately 30% of the laboratories reported a value different than the correct value. Further, when the test result was different than the correct value, it was much more likely to be less than the correct value (which would be a false positive) than to be greater than the correct value (which would be a false negative). This indicates permittees are significantly more likely to have a test indicate a failure, when it should be a pass than to have a test indicate a pass, when it should be a failure.

[33] *See* Interlaboratory Study.

Table A

Variability of 7-day *Ceriodaphnia dubia* Survival and Reproduction Test

Sample Type	Endpoint	NOEC Frequency (% Sample)						Median NOEC (% Sample)	Total Number of Tests	% of Tests Results < Median	% of Test Results > Median
		<6.25%	6.25%	12.5%	25%	50%	100%				
Reference Toxicant	Survival	0	0	0	1	0	35	100	36	3	0
	Reproduction	0	2	3	1	4	26	100	36	30	0
Effluent	Survival	0	2	6	15	0	0	25	23	35	0
	Reproduction	0	3	17	4	0	0	12.5	24	12	17
Receiving Water	Survival	0	0	0	9	1	0	25	10	0	10
	Reproduction	0	0	3	7	0	0	25	10	30	0

As determined in the EPA Interlaboratory Variability Study[1]

Reference Toxicant Charts

The variability of the test also can be observed by inspecting reference toxicant charts prepared by the laboratories that conduct WET tests. At least once each month, a WET laboratory runs a WET test with a known toxicant in order to confirm that its organisms are responding within an acceptable range. The result of each test is plotted on a 24-month graph to indicate the normal range of variability for that specific laboratory. Figures A and B are reference toxicant charts (*C. dubia*) for two laboratories that conduct WET testing.[34] These laboratories use sodium chloride as the toxicant and report the IC_{25} value for the test, which is the concentration of sodium chloride that produces a 25% reduction in reproduction.

For the two laboratories whose results are presented on Figures A and B, the median IC_{25} is approximately 600 mg/L of sodium chloride. However, depending on the laboratory and the month, the IC_{25} ranged from approximately 260 mg/L sodium chloride to approximately 890 mg/L, a difference of approximately plus or minus 50%.

This variability can be compared to the variability of chemical analyses for chloride concentrations in this range. Standard Methods for the Examination of Water and Wastewater indicates that the relative standard deviations for the results of chloride tests typically used for concentrations in this range (Argentometric Method and Mercuric Nitrate Method) are 3-4%. This means that 95% of the time (1 out of 20 samples) the values reported for a standard sample containing 600 mg/L of sodium chloride would be between 540 mg/L to 640 mg/L.

These charts confirm that, as observed in the data from the EPA Interlaboratory Variability Study, while a median value of multiple tests may approximate the "correct" answer, any single test can be significantly wrong. Further, inspection of the reference toxicant charts confirms that results may differ from the median for several months at a time. Therefore, conducting one or two additional tests in consecutive months has a low likelihood of producing the correct value.

[34] *See* Attachment E for underlying laboratory reports.

Figure A
Reference Toxicant Data
Ceriodaphnia dubia
Reproduction IC_{25}

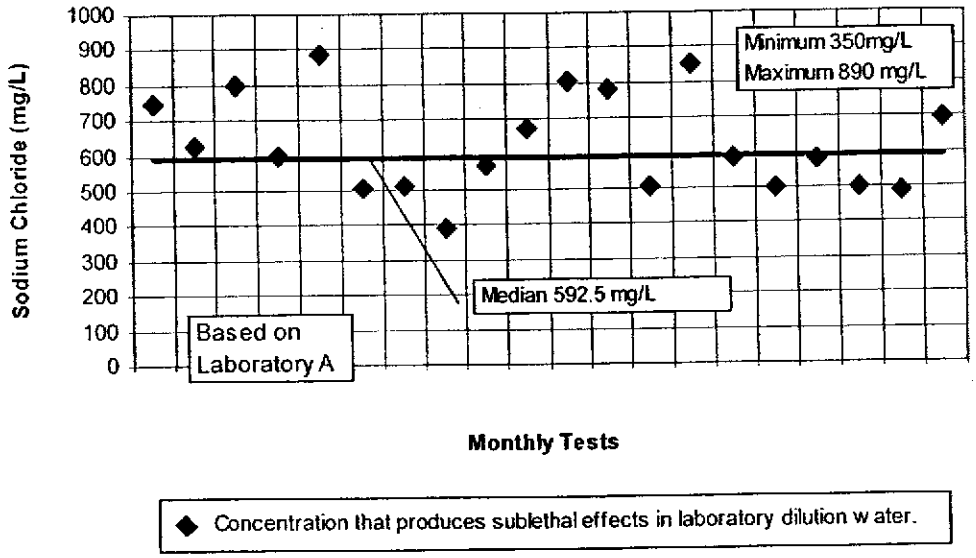
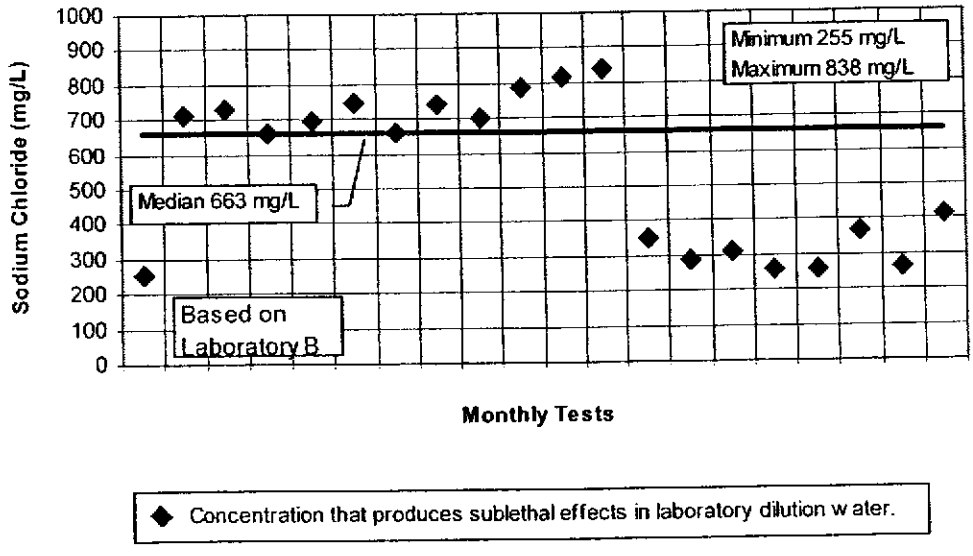


Figure B
Reference Toxicant Data
Ceriodaphnia dubia
Reproduction IC_{25}



National Reference Toxicant Database

As wide as the results are that are reflected on the two reference toxicant charts presented herein, the actual variability of the test is much greater. This is reflected in the data maintained by EPA in the National Reference Toxicant Database.

The WERF Report determined test variability using reference toxicant data compiled by EPA. The database and the quality assurance protocols applied by EPA are described in Section 3 of the WET Variability Document. The WET Variability document states that for each test in the database, EPA personnel or an EPA contractor calculated the effect concentration, verified that all test acceptability criteria has been met, and verified that the statistical flow chart for evaluating the raw data had been followed correctly. The WET Variability Document further states that "thus, all summary statistics and estimates were calculated from the replicate data and strictly followed the most current EPA test methods."[35]

The WERF Report on test variability presents a graphical summary of the IC_{25} values for the chronic 7-day *C. dubia* reproduction test as reported in the National Reference Toxicant Database. The reference toxicant in these tests was the same reference toxicant that was used by the two laboratories for which results are presented on Figure A and Figure B, sodium chloride. The summary in the WERF Report of the reproduction test results is reproduced on Figure C.

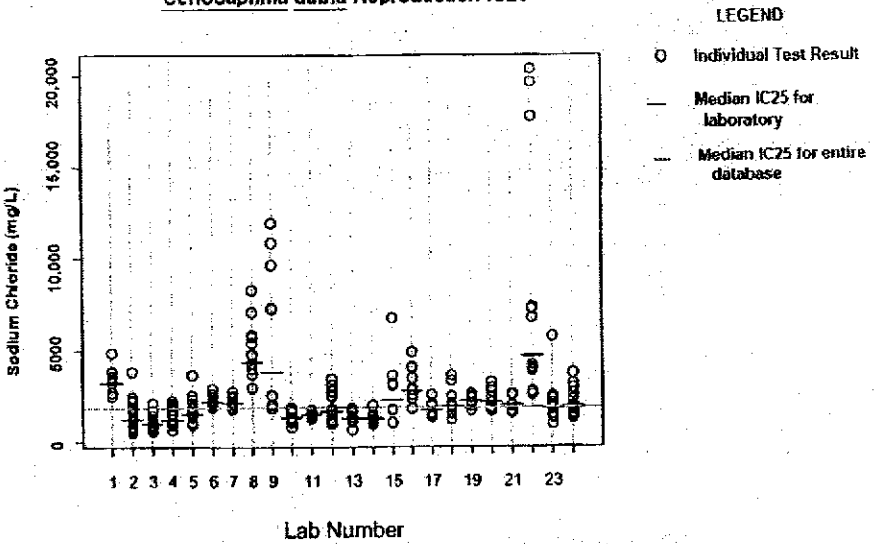
Data from 24 laboratories are presented on Figure C. Circles document the results of individual tests reported by the laboratory. The short, solid, horizontal line on each vertical line represents the median of the IC_{25} values reported by that laboratory. The dotted horizontal line that crosses the entire chart is the median of all of the IC_{25} values reported by the different laboratories.

As indicated on Figure C, the median IC_{25} for reproduction, based on all of the tests in the EPA National Database, is almost 2,000 mg/L of sodium chloride (which is much greater than the 600 mg/L values reported by the two laboratories whose results are presented on Figures A and B). Median IC_{25} reproduction values for individual laboratories range from approximately 1,000 mg/L to approximately 5,000 mg/L. Individual test results range from approximately 600 mg/L to over 20,000 mg/L.

Similar widely distributed results can be observed for the 7-day chronic *C. dubia* survival test. Figure D is also from the WERF Report. It presents a graphical summary of the test results in the EPA National Reference Toxicant Database for the survival test. As indicated on Figure D, the median IC_{25} for survival, based on all of the tests in the EPA database is approximately 1,800 mg/L. Median IC_{25} survival values for individual laboratories range from just over 1,000 mg/L to approximately 3,500 mg/L. Individual test results range from approximately 300 mg/L to well over 6,000 mg/L.

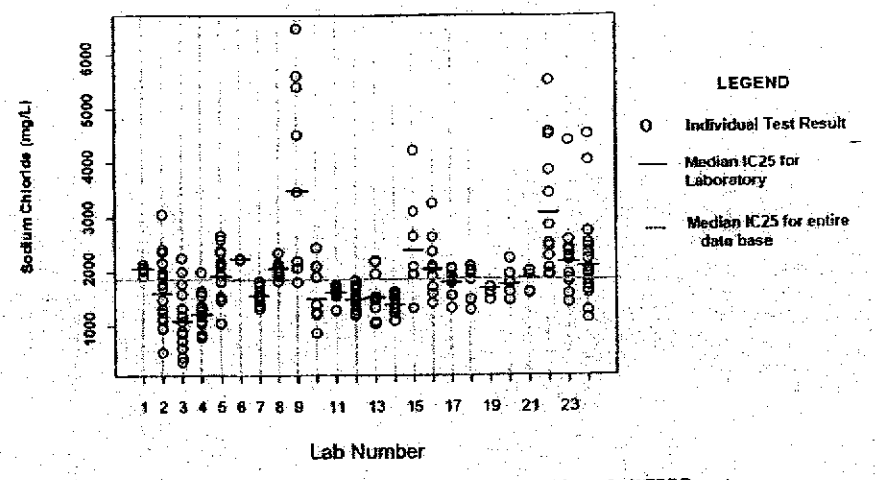
[35] WET Variability Document, Chapter 3, Section 3.1.

Figure C
Reference Toxicant Data
Ceriodaphnia dubia Reproduction IC25



Based on EPA National Reference Toxicant Data Base, Reproduced from the WERF Report

Figure D
Reference Toxicant Data
Ceriodaphnia dubia Survival IC25



Based on EPA National Reference Toxicant Data Base, Reproduced from the WERF Report

Conclusion: A permit limit based on any chronic WET test is inappropriate because of the test variability documented above. There are no actions a permittee can take to ensure it consistently passes the test, since many factors other than effluent quality can determine test results.

However, if a limit is imposed, it should be reflective of the variability of the test. The determination of permit compliance should not be based on an individual test result because of the high likelihood that any single test can be unrepresentative.

There is no truly "correct" result for a WET test because the test result is defined by the responses of the specific organisms used in that individual test (organisms are not equivalent to meters that consistently respond the same way to the same concentration of a substance). The fact that different sets of organisms respond differently is documented in the WET test results reported in the EPA National Reference Toxicant Database for *C. dubia*. All of these tests were conducted on solutions containing the same toxicant, sodium chloride, and all other variables were controlled in accordance with test protocols. Nevertheless, the test results are very different. The results for the Fathead Minnow tests are not distributed over quite as wide a range as the *C. dubia* tests, but are still highly variable.

If compliance is to be judged based on the chronic WET test, it should be based on the central tendency of the data. As shown in the Interlaboratory Variability Study, there can be a moderate degree of agreement among tests and laboratories regarding the median value for a sample. However, both the Interlaboratory Variability Study and the reference toxicant charts show that the median must be determined based on a sufficient number of tests. As shown on the reference toxicant charts, testing on three successive months is not sufficient to define the central tendency of the data.

Recommendation: If a WET limit is imposed, the method for determining compliance set forth on page 4 of Part II (Section D.1.c) should be revised to read as follows:

"The conditions of this item are effective beginning with the effective date of the WET limit. When the median of all tests conducted during the previous twelve months exceeds the IC_{25} value set forth in Part I of this permit, the permittee shall be considered in violation of this permit limit, and the testing frequency for the affected species will increase to monthly until such time as compliance with the IC_{25} effluent limitation is demonstrated, at which time the permittee may return to the testing frequency stated in Part I of the Draft Permit. The median value shall be recalculated and reported each month based on the results during the previous twelve-month period."

H. Toxicity Reduction Evaluation Provision, If Permits Contain a WET Limit (not currently in Draft Permit)

If there are persistent failures of a WET test, a Toxicity Reduction Evaluation (TRE) will need to be conducted to identify the cause of the failures and to determine a strategy for achieving permit compliance. Completing a TRE requires a minimum of several months.

Depending on the nature of the WET test failure (acute, chronic, lethal, or sublethal) and the consistency of test failures, it can take two years or more to complete a TRE.

If the permittee is diligently conducting a TRE, it should not be subject to continuing to accrue permit violations during that period. This is especially of concern because additional WET tests may be conducted during a TRE, in the effort to complete the TRE. The permittee should not be penalized for diligence in attempting to obtain permit compliance.

Recommendation: The Draft Permit should contain the following provision as Section D.1.e:

"Upon failure of the WET permit limit, the permittee may notify EPA of its intent to conduct a TRE. The notification will be accompanied by a work plan for conducting a TRE. Subsequent WET test failures will not be permit violations, so long as the permittee is diligently pursuing the TRE. The permittee will submit quarterly reports to EPA documenting TRE activities and results to date."

I. **Addition of Chemical Specific Limit During WET Limit Compliance Period** (Draft Permit Part I Item A.2 at p. 5; Part II Item D at pgs. 3-9; Fact Sheet at p. 11)

The Draft Permit provides a period of three years for achieving compliance with the WET limits.[36] The Fact Sheet at page 11 states that SJRA can request a chemical-specific limit in lieu of a WET limit, if a specific toxicant is identified and controlled during this three-year period. The language in the permit provides for the addition of chemical-specific limits, but not removal of the applicable WET limits.[37]

Comments: The IP provides that, when appropriate, a Best Management Practice can also be established in lieu of a WET limit.[38] The language of the Draft Permit should be amended to document that a chemical-specific limit or Best Management Practices may be substituted for the proposed WET limit during the three-year compliance period. The language should be clear that the permit will not impose WET Limits and a chemical-specific limit for the same toxicant.

Recommendation: Revise the permit to include Section D.1.f, to read as follows:

> "Prior to the effective date of a WET limit, a chemical-specific limit or Best Management Practice(s) may be substituted for the WET limit, if a specific toxicant and an appropriate control(s) are identified, and if it is demonstrated that the control works through twelve monthly tests. If a chemical-specific limit or Best Management Practice is added to the permit in accordance with this provision, the related WET limit(s) will be removed from the permit."

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[36] Draft Permit Part I at p. 1.
[37] Draft Permit Part II Item 1.d at p.4.
[38] IP at p. 113.

J. **WET Testing Reporting Requirements** (Draft Permit Part I Item A.1 at p. 2; Part I Item A.2 at p. 5; Part II. Item D.3.b at pg. 7)

The Draft Permit specifies in Part I that the results of WET tests are to be reported as the "7-Day Minimum" and a "30-Day Avg." Part II of the Draft Permit requires the permittee to report the "Daily Average Minimum NOEC", the "30-Day Average Minimum," and, finally, states that "only ONE" set of biomonitoring data for each species is to be recorded on the DMR for each "reporting period." Parameter codes are not provided for any of these reporting requirements in Section D.3.c of the Draft Permit.

Comments: The reporting requirements use terms that are not defined in the permit. Of the reporting requirements identified above, only the 30-Day Average is defined. "Reporting period" is also undefined.

In addition, the terms are confusing and appear to be contradictory. Examples of confusing provisions are as follows:

- The requirement in Section D.3.b of the Draft Permit to report the "Daily Average Minimum NOEC" for each "reporting period" is confusing not only because it is undefined but also because, while it represents an average of measurements over a "reporting period," it is described as a "minimum."

- It is not clear how a 7-day value is to be reported for a 7-day test that uses three samples collected over multiple days.

- It is also confusing whether one test is to be reported on the DMR or whether average values are to be reported when more than one test is conducted during some specified period.

As previously stated, SJRA believes that the results of WET tests should be reported as a median of the results over a twelve-month period. However, even if EPA determines not to grant SJRA's request, the reporting requirements in Part I and Part II must be significantly redrafted.

Recommendation: Revise the WET test reporting requirements using defined terms and parameter codes appropriate for WET testing.

K. ***Monitoring Dates for Quarterly Whole Effluent Toxicity Testing*** (Draft Permit Part I Item A.1 at p. 3, note 10)

The Draft Permit requires quarterly biomonitoring beginning on the effective date of the permit. The quarters are unlikely to correspond to calendar quarters.

Comments: The State Permit also requires quarterly biomonitoring, but the quarters are defined as calendar quarters (January-March, April-June, July-September, October-December).

It is unnecessarily burdensome for the permittee to have to maintain two different analysis and reporting schedules.

Recommendation: Revise note 10 on page 3 of Part I and note 9 on page 5 of Part I to read as follows:

"Monitoring and reporting requirements begin on the effective date of this permit. Measurement and reporting frequency shall be by calendar quarters. Quarterly biomonitoring test results are due on or before April 20, July 20, October 20, and January 20 for biomonitoring conducted during the previous calendar quarter."

III. PROCEDURAL SAMPLING, REPORTING, AND RECORD-KEEPING REQUIREMENTS

A. **Composite Sampling Requirements** (Draft Permit Part I Item A.1 at pgs. 1-2; Part I Item A.2 at p. 4; Part III Item F.22.d at p. 10)

The Draft Permit requires 12-hour, flow-weighted, composite samples for CBOD, TSS, and Ammonia Nitrogen analyses. The permit later defines the 12-hour composite sample as consisting of 12 effluent portions collected no closer together than one hour. The sampling interval is to include the highest flow periods of the day.

Comments: SJRA has three objections to this requirement:

- The objective of water quality sampling is to obtain samples that are representative of the effluent being produced. Results based on 12-hour composite samples are less representative than results based on 24-hour composite samples.

- SJRA's current State Permit also requires monitoring for CBOD, TSS, and Ammonia Nitrogen, but using 24-hour, flow-weighted composite samples. In addition, the Draft Permit requires 24-hour, flow-weighted composite samples for WET tests. It is unnecessarily burdensome to have to collect two different types of flow-weighted composite samples.

- The required sampling regime is unnecessarily restrictive in two respects:

    1. The objective of the sampling is to obtain a representative, flow-weighted sample over the sampling period. This can be achieved by collecting samples at equal time intervals and varying the volume of each sample based on the flow at the time of the sample. It can also be achieved by collecting equal-volume samples at time intervals proportional to flow. Automatic samplers can be programmed to collect flow-weighted composite samples using the second method. The second method is the method used by SJRA. At WWTP No. 1, the frequency of sampling is proportional to flow in the plant. Each individual sample consists of a set volume. The interval of time between samples varies according to flow.

The interval is shorter during higher flow periods and longer during lower flow periods. The current procedure for collecting composite samples was established in consultation with EPA compliance inspectors in April 2005. However, this sampling method would not be allowed under the provisions of the Draft Permit.

2. It is physically impractical to adhere strictly to the requirement to collect 12 samples no closer than one hour apart during a 12-hour period, if interpreted literally. Time is required to collect each sample so the time between the end of one sampling event and the beginning of the next sampling event will always be less than 60 minutes. In addition, it is not practical for the operational staff to collect each sample exactly 60 minutes apart.

The State Permit provides a more flexible definition of the sampling requirement. It defines the required composite sample as a sample made up of a minimum of three effluent portions collected no closer than two hours apart in a continuous 24-hour period, combined in volumes proportional to flow.[39] This is a better approach than the approach in the Draft Permit.

Recommendation: The Draft Permit should be revised to require 24-hour composite sampling for these parameters. The Draft Permit should use a definition of 24-hour composite sample that is consistent with the definition provided in the State Permit.

If 12-hour composites are to be required, the definition of 12-hour composite should be modified to read as follows:

> "12-HOUR COMPOSITE SAMPLE consists of a minimum of three effluent portions collected no closer together than two hours and composited according to flow. The daily sampling intervals shall include the highest flow periods."

B. Reporting Period and Report Due Date for the Annual Sludge Report (Draft Permit Part I Item C.3 at p. 7)

The Draft Permit requires an Annual Sludge Report covering the period January 1 through December 31 of each year. It also requires submission of this annual report by February 19 of the subsequent year.

Comments: The Annual Sludge Report required by the Draft Permit is similar to that required by the State Permit. However, the reporting period required for the purposes of the State Permit covers a period from August 1 of one year to July 31 of the next. The due date for the State Annual Report is September 1 after the end of the period.[40] In order to eliminate needless time and expense in duplicating efforts in order to meet two competing sets of reporting requirements established in the Draft Permit and the State Permit (and even requiring duplicate

[39] State Permit at p. 4 Item 3.a.
[40] The reporting period is defined in reporting instructions to SJRA from the TCEQ.

sampling in some instances), these requirements should be revised so they are consistent with State Permit requirements.

Recommendation: Modify the Draft Permit to require the reporting period for the Annual Sludge Report to cover a period of August 1 to the following July 31. The due date for the Annual Sludge Report should be changed to September 1 following the end of the reporting period.

C. **DMR as Evidence of Violation** (Draft Permit Part I Item C.5 at p. 7)

The Draft Permit states that any 30-day average, 7-day average, or daily maximum value reported in the required Discharge Monitoring Report which is in excess of the specified effluent limitation shall constitute evidence of violation of such effluent limitation and of the permit.

Comments: This language exceeds EPA's authority in that it attempts to pre-determine the legal weight given to information contained in DMRs prior to the commencement of an enforcement action or litigation. EPA does not have the statutory authority to predetermine the admissibility of evidence outside the scope of a judicial determination.

Recommendation: Part I Item C.5 should be deleted from the Draft Permit.

D. **Sampling Frequency for Certain Pollutants** (Draft Permit Part I Item A.1 at pgs. 2-3, note 9; Part I Item A.2 at pgs. 4-5, note 8; Fact Sheet at p. 12)

The Draft Permit calls for twice monthly testing for total copper, dibromochloromethane, and nitrate-nitrogen, with samples taken at least 10 days apart.

Comments: If the monitoring requirements for these parameters are retained despite the comments at Sections I.D and I.E, they should be modified. The 10-day minimum separation time between samples is too restrictive for the proposed frequency of testing. A minimum separation of five days between samples would allow sufficient time for SJRA to re-sample, in case of equipment malfunction, laboratory error or shipping problems, but would still provide a good temporal distribution of samples.

Recommendation: Modify the Draft Permit to require a minimum separation between samples of five days.

E. **Flow Measurement Requirement** (Draft Permit Part I Item A.1 at p. 2; Part Item A.2 at p. 4)

The Draft Permit requires daily, instantaneous flow measurements.

Comments: The Draft Permit does not define "instantaneous" as it pertains to flow measurements, and use of the term is not consistent with the parameter. The State Permit requires flow to be measured continuously, using a totalizing meter.[41] In addition, the 1989

[41] State Permit at p. 2 Item 1.

NPDES Permit requires continuous measurement of flow using a totalizing meter.[42] TCEQ regulations also require use of a totalizing meter for a facility of this size.[43] Continuous flow measurements using a totalizing meter are more representative of plant operations.

Recommendation: Modify the Draft Permit to require continuous flow measurement using a totalizing meter.

F. Temperature Requirement for WET Samples (Draft Permit Part II Item D.2.d.iii at p. 6)

The Draft Permit states that effluent samples for WET tests should be chilled to 4°C.

Comments: EPA guidance on WET testing protocol now provides that samples should be chilled from 0°C to 6°C. [44]

Recommendation: Modify the reference in the Draft Permit to reflect current EPA guidance on this issue.

G. Notice for Listed Conditions (Draft Permit Part II Item C.3 at p. 2)

The Draft Permit requires that "adequate notice" be provided of the introduction of pollutants from certain indirect dischargers, and any substantial change in the volume or character of pollutants.

Comments: This requirement is vague in that it fails to specify to whom notice should be given.

Recommendation: Modify the Draft Permit to provide that notice of the introduction of pollutants from certain indirect dischargers and any substantial change in the volume or character of pollutants be given to the "Director" as provided in 40 § CFR 122.42(b)(2).

H. Reporting Toxicity Results (Draft Permit Part II Items D.3.c.i.A and D.3.c.ii.A at p. 8)

Permit provisions regarding reporting of WET test results stipulate coding on the discharge monitoring report according to whether the Fathead Minnow or *C. dubia* NOEC is less than the critical dilution.

Comments: These items should be clarified so that they relate to lethal toxicity only.

Recommendation: Modify the Draft Permit to add the word "lethal" before "toxicity" in Part II Items D.3.c.i.A and D.3.c.ii.A.

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[42] 1989 NPDES Permit, at p. 2 of Part I, Section A.
[43] 30 TAC § 319.9 (Table 1).
[44] Chronic Freshwater Guidance at p. 31, Section 8.5.1.

I. **Reporting for Monitoring More Frequently than Required** (Draft Permit Part III, Item 5 at p. 5)

The Draft Permit states that if monitoring is done more frequently than required by the permit, using authorized test procedures, the results must be reported with the DMR.

Comments: The State Permit states that if the permittee monitors any pollutant at the locations designated in the permit more frequently than required by the permit, the results must be included in calculations and must be reported on approved self-reporting forms.[45] This is appropriate since compliance can only be determined on measurements of wastewater quality at the compliance point. For example, the results of a TSS analysis taken on samples of wastewater collected before and after the filters for the purposes of reviewing filter efficiency could technically be required to be reported under the current draft permit language but would be meaningless for the purposes of permit compliance. It should be clarified that reporting of additional monitoring is only applicable for sampling at the designated point of compliance.

Recommendation: The first sentence of this requirement should be modified to read as follows:

> "If the permittee monitors any pollutant at the point of compliance with the monitoring requirements more frequently than required by this permit...."

J. **Reporting of Violations of Discharge Limitations** (Draft Permit Part II Item A at p. 1)

Part II.A of the Draft Permit requires the permittee to orally report effluent limit violations for E. coli and TRC to EPA within 24 hours, citing to the provisions of Part III.D.7 of the Draft Permit. Part III.D.7 of the Draft Permit requires 24 hour reporting for noncompliance which "may endanger health or the environment."

Comments: An E. coli limit should not be imposed in the permit for the reasons discussed in Section I.C and reference to it should be deleted from this section. In addition, the entire Part II.A should be deleted even if the E. coli limit is retained because it is unnecessary and overly burdensome. It is possible to have a minor exceedance of an E. coli or TRC limit that does not endanger human health or the environment. Federal regulations at 40 CFR § 122.41(l)(6) and Part III.D.7 of the Draft Permit, which are referenced in Part II.A, only require 24 hour oral notification for an exceedance that endangers health or the environment. EPA provides no basis or justification for the proposition that every noncompliance with an E. coli or TRC limit constitutes endangerment of human health or the environment. Without such basis or justification, this provision should not be in the Draft Permit.

Recommendation: Delete Part II.A from the Draft Permit in its entirety.

[45] State Permit at p. 5 Item 4.

K. **Requirement to Notify the Texas Historical Commission and Other Sludge Record Keeping Requirements** (Draft Permit Part IV, Element 1, Section II Items 5.i.-k at p. 10)

The Draft Permit requires the permittee to provide the location of all existing sludge disposal/use sites to the State Historical Commission. In addition, provisions in the Draft Permit regarding sludge disposal recordkeeping require the permittee to (i) maintain information describing future geographical areas where sludge may be land applied; (ii) maintain information identifying site selection criteria regarding land application sites not identified at the time of the permit application submission; and (iii) maintain information regarding how future land application sites will be managed.

Comments: Any sludge disposal site used by SJRA is permitted by TCEQ, and to the extent that it is required by the TCEQ, the Texas Historical Commission has already been provided notice of such site. This requirement is unnecessary and overly burdensome, and should be removed from the Draft Permit.

In addition, the Fact Sheet provides no basis for the provisions regarding information on potential future disposal sites. It is impossible for a permittee to meet these requirements for future, undetermined and unspecified disposal sites. These requirements, in essence, require a permittee to maintain records that do not exist. These requirements do not appear in federal regulations governing sludge disposal at 40 CFR Chapter 503. Because they create recordkeeping requirements that are impossible to meet, these provisions should be deleted.

Recommendation: Delete the following provisions of Part IV: Section II.4.c; Section II.5.i; Section II.5.j; and Section II.5.k.

IV. CORRECTION OF INFORMATION IN THE FACT SHEET, TYPOGRAPHICAL ERRORS, AND MINOR LANGUAGE CLARIFICATION

A. **Narrative Limitations Requirements** (Draft Permit Part I.A at p.6)

The Draft Permit includes narrative limitations that track the language of applicable TSWQS. However, the language of these limitations does not, in every instance, relate the standard back to the effluent discharge. For example, a simple statement that "Surface waters shall be essentially free of settleable solids conducive to changes in flow characteristics of stream channels or the untimely filling of surface water in the state" does not indicate that such conditions should be the result of the discharge.

Recommendation: A statement should be added at the beginning of this section reading, "Discharges shall be such that the following narrative standards are maintained in the receiving waters."

B. **Outfall 002** (Fact Sheet at p. 2)

The second paragraph of Section IX of the Fact Sheet states that Outfall 002 is "built but not used."

Recommendation: To avoid confusion about whether SJRA may use this outfall, the phrase should be modified to read "built but not currently used."

C. **The List of Parameters above the MAL** (Fact Sheet page 3)

Table I in the Fact Sheet is based on an incorrect interpretation of MAL. MALs have been designated by EPA only for specific parameters; primarily priority pollutants. The only conventional parameters for which MALs have been established are fluoride and nitrate-nitrogen.

Recommendation: The only parameters that should be included in Table 1 are nitrate+nitrite, copper, zinc, chloroform, dibromochloromethane, and dichlorobromomethane.

D. **Incorrect Reference for Implementation Procedures** (Fact Sheet at p. 7)

The reference to Table 5 in the fourth sentence of the first paragraph on page 7 of the Fact Sheet is incorrect. It should be referenced as "Table 5 of the ITWQS." The ITWQS is the acronym used in the Fact Sheet for the IP.

E. **Reference to Dichlorobromomethane** (Draft Permit Part II at p. 9)

If the monitoring requirement is to be retained in the permit despite comments at Section I.D, the reference to dichlorobromomethane should be changed to dibromochloromethane. The proposed monitoring requirement applies to "dibromochloromethane."

INDEX OF ATTACHMENTS TO COMMENTS
ON EPA DRAFT PERMIT FOR WWTP1

Document	Attachment
Proposed Modified Limitations and Monitoring Requirements	A
Revised TEXTOX analysis	B
Analysis of the March 2004 DMR	C
E-mail from Phillip Jennings	D
Underlying laboratory reports	E

PART I – REQUIREMENTS FOR NPDES PERMITS

SECTION A. LIMITATIONS AND MONITORING REQUIREMENTS

1. Final Effluent Limits – Outfalls 001 and/or 002 – 7.8 MGD Design Flow

During the period beginning the effective date of the permit and lasting until December 31, 2009, the permittee is authorized to discharge treated wastewater to either Panther Branch, thence Spring Creek or Lake "B," the upper portion of Harrison Lake, thence to a tributary of Panther Branch, thence to Panther Branch, thence to Spring Creek, both in Segment 1008 of the San Jacinto River Basin. Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS		DISCHARGE LIMITATIONS mg/L unless noted		MONITORING REQUIREMENTS	
POLLUTANT	STORET CODE	MINIMUM	MAXIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
pH, standard units	00400	6.0	9.0	Five Days/Week (*1)	Grab
Dissolved Oxygen	00300	4.0/5.0(*2)	N/A	Five Days/Week (*1)	Grab

EFFLUENT CHARACTERISTICS		DISCHARGE LIMITATIONS lbs/day, unless noted			DISCHARGE LIMITATIONS mg/L, unless noted			MONITORING REQUIREMENTS	
POLLUTANT	STORET CODE	30-Day Avg	7-Day Avg	Daily Max	30-Day Avg	7-Day Avg	Daily Max	MONITORING FREQUENCY	SAMPLE TYPE
Flow, MGD	50050	N/A	N/A	N/A	Report	Report	Report	Continuous	Totalizing Meter
Carbonaceous Biochemical Oxygen Demand (5-day)	80082	651	976	N/A	10	15	N/A	Five Days/Week (*1)	24-Hr Composite
Total Suspended Solids	530	976	1627	N/A	15	25	N/A	Five Days/Week (*1)	24-Hr Composite
Total Residual Chlorine (*3)	50060	N/A	N/A	N/A	N/A	N/A	N/A	Daily	Instantaneous Grab
Toxicity: C. dubia 7-day (*4)	(*5)	N/A	N/A	N/A	N/A	N/A	N/A	Once/Quarter	24-Hr Composite
Toxicity: P. promelas 7-day (*4)	(*5)	N/A	N/A	N/A	N/A	N/A	N/A	Once/Quarter	24-Hr Composite
Ammonia Nitrogen (Total as N)	00610	195	391	N/A	3	6	N/A	Five Days/Week (*1)	24-Hr Composite

Footnotes:

*1 Five Days/Week means at least one sample each normal workday; Monday through Friday. The first sample of any day shall be at least sixteen (16) hours after the first daily sample of the previous day.

*2 The limitation for Outfall 001 is 4.0, and the limitation for Outfall 002 is 5.0.

*3 The effluent shall contain a chlorine residual of at least 1.0 mg/l after a detention time of at least 20 minutes (based on peak flow) and shall be monitored five days per week by instantaneous grab sample. The permittee shall dechlorinate the chlorinated effluent to less than 0.1 mg/l chlorine residual and shall monitor chlorine residual five days per week by instantaneous grab sample after the dechlorination process. Regulations at 40 CFR Part 136 define "instantaneous grab" as analyzed within 15 minutes of collection.

*4 See Part II, Section D.

*5 See Part II, Section D.3.c

TEXTOX MENU #3 - PERENNIAL STREAM OR RIVER

The water quality-based effluent limitations demonstrated below are calculated using:

Table 1, 1997 Texas Surface Water Quality Standards (30 TAC 307) for Freshwater Aquatic Life
Table 3, 2000 Texas Surface Water Quality Standards for Human Health
Procedures to Implement the Texas Surface Water Quality Standards, Texas Commission on Environmental Quality, January 2003.

PERMITTEE INFORMATION

Permittee Name:
TPDES Permit No.:
Outfall No.:

DISCHARGE INFORMATION

Immediate Receiving Waterbody:	
Segment No.:	1008
TSS:	13
pH:	6.7
Hardness:	30
Chloride:	53
Effluent Flow for Aquatic Life (MGD):	7.8
Critical Low Flow [7Q2] (cfs):	15.4
Chronic Effluent % for Aquatic Life:	43.94
Acute Effluent % for Aquatic Life:	75.81
Effluent Flow for Human Health (MGD):	7.8
Harmonic Mean Flow (cfs):	44.6
Human Health Effluent %:	21.30
Public Water Supply Use?:	yes

CALCULATE TOTAL/DISSOLVED RATIO:

Stream/River Metal	*Intercept (b)*	*Slope (m)*	*Partitioning Coefficient (Kpo)*	*Dissolved Fraction (Cd/Ct)*	*Water Effects Ratio (WER)*
Aluminum	N/A	N/A	N/A	1.00 Assumed	1.00 Assumed
Arsenic	5.68	-0.73	73590.43	0.51	1.00 Assumed
Cadmium	6.6	-1.13	219403.73	0.26	1.00 Assumed
Chromium (Total)	6.52	-0.93	304812.44	0.20	1.00 Assumed
Chromium (+3)	6.52	-0.93	304812.44	0.20	1.00 Assumed
Chromium (+6)	N/A	N/A	N/A	1.00 Assumed	1.00 Assumed
Copper	6.02	-0.74	156921.31	0.33	1.00 Assumed
Lead	6.45	-0.8	362114.00	0.18	1.00 Assumed
Mercury	N/A	N/A	N/A	1.00 Assumed	1.00 Assumed
Nickel	5.69	-0.57	113514.75	0.40	1.00 Assumed
Selenium	N/A	N/A	N/A	1.00 Assumed	1.00 Assumed
Silver	6.38	-1.03	170859.19	0.31	1.00 Assumed
Zinc	6.1	-0.7	209044.94	0.27	1.00 Assumed

AQUATIC LIFE
CALCULATE DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS

Parameter	*Acute Standard (ug/L)*	*Chronic Standard (ug/L)*	*WLAa*	*WLAc*	*LTAa*	*LTAc*	*Daily Avg. (ug/L)*	*Daily Max. (ug/L)*
Aldrin	3	N/A	3.957	N/A	2.267	N/A	3.333	7.052
Aluminum (d)	991	N/A	1307.146	N/A	748.995	N/A	1101.022	2329.373
Arsenic (d)	360	190	929.120	846.170	532.386	651.551	782.607	1655.719
Cadmium (d)	8.664	0.441	44.022	3.864	25.225	2.975	4.374	9.253
Carbaryl	2	N/A	2.638	N/A	1.512	N/A	2.222	4.701
Chlordane	2.4	0.0043	3.166	0.010	1.814	0.008	0.011	0.023
Chlorpyrifos	0.083	0.041	0.109	0.093	0.063	0.072	0.092	0.195
Chromium (+3) (d)	647.799	77.214	4240.301	872.142	2429.692	671.549	987.177	2088.518
Chromium (+6) (d)	16.000	11	21.104	25.037	12.093	19.278	17.776	37.608
Copper (d)	6.173	4.657	24.753	32.221	14.183	24.810	20.850	44.111
Cyanide (free)	45.78	10.69	60.385	24.331	34.600	18.735	27.540	58.266
4,4'-DDT	1.1	0.001	1.451	0.002	0.831	0.002	0.003	0.005
Dementon	N/A	0.1	N/A	0.228	N/A	0.175	0.258	0.545
Dicofol	59.3	19.8	78.218	45.066	44.819	34.701	51.010	107.920
Dieldrin	2.5	0.0019	3.298	0.004	1.889	0.003	0.005	0.010
Diuron	210	70	276.994	159.325	158.717	122.680	180.340	381.535
Endosulfan I (alpha)	0.22	0.056	0.290	0.127	0.166	0.098	0.144	0.305
Endosulfan II (beta)	0.22	0.056	0.290	0.127	0.166	0.098	0.144	0.305
Endosulfan sulfate	0.22	0.056	0.290	0.127	0.166	0.098	0.144	0.305
Endrin	0.18	0.0023	0.237	0.005	0.136	0.004	0.006	0.013
Guthion	N/A	0.01	N/A	0.023	N/A	0.018	0.026	0.055
Heptachlor	0.52	0.0038	0.686	0.009	0.393	0.007	0.010	0.021
Hexachlorocyclohexane (Lindane)	2	0.08	2.638	0.182	1.512	0.140	0.206	0.436
Lead (d)	17.632	0.687	132.740	8.926	76.060	6.873	10.103	21.375
Malathion	N/A	0.01	N/A	0.023	N/A	0.018	0.026	0.055
Mercury	2.400	1.3	3.166	2.959	1.814	2.278	2.666	5.641
Methoxychlor	N/A	0.03	N/A	0.068	N/A	0.053	0.077	0.164
Mirex	N/A	0.001	N/A	0.002	N/A	0.002	0.003	0.005
Nickel (d)	512.148	56.935	1672.408	320.821	958.290	247.032	363.137	768.269
Parathion (ethyl)	0.065	0.013	0.086	0.030	0.049	0.023	0.033	0.071
Pentachlorophenol	6.709	4.235	8.850	9.640	5.071	7.423	7.454	15.770
Phenanthrene	30	30	39.571	68.282	22.674	52.577	33.331	70.516

Polychlorinated Biphenyls (PCBs)	2	0.014	2.638	0.032	1.512	0.025	0.036	0.076
Selenium	20	5	26.380	11.380	15.116	8.763	12.881	27.252
Silver, (free ion)	0.92	N/A	0.996	N/A	0.571	N/A	0.839	1.774
Toxaphene	0.78	0.0002	1.029	0.000	0.590	0.000	0.001	0.001
Tributlytin (TBT)	0.13	0.024	0.171	0.055	0.098	0.042	0.062	0.131
2,4,5 Trichlorophenol	136	64	179.386	145.668	102.788	112.165	151.099	319.672
Zinc (d)	42.344	38.215	207.638	323.357	118.976	248.985	174.895	370.017

HUMAN HEALTH
CALCULATE DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS

Parameter	*Water and FW Fish (ug/L)*	*FW Fish Only (ug/L)*	*WLAh*	*LTAh*	*Daily Avg. (ug/L)*	*Daily Max. (ug/L)*
Acrylonitrile	1.28	10.9	6.010	5.590	8.217	17.384
Aldrin	0.00408	0.00426	0.019	0.018	0.026	0.055
Arsenic (d)	50	N/A	459.391	427.233	628.033	1328.696
Barium (d)	2000	N/A	9391.249	8733.862	12838.777	27162.310
Benzene	5	106	23.478	21.835	32.097	67.906
Benzidine	0.00106	0.00347	0.005	0.005	0.007	0.014
Benzo(a)anthracene	0.099	0.81	0.465	0.432	0.636	1.345
Benzo(a)pyrene	0.099	0.81	0.465	0.432	0.636	1.345
Bis(chloromethyl)ether	0.00462	0.0193	0.022	0.020	0.030	0.063
Cadmium (d)	5	N/A	90.444	84.113	123.645	261.590
Carbon Tetrachloride	3.76	8.4	17.656	16.420	24.137	51.065
Chlordane	0.021	0.0213	0.099	0.092	0.135	0.285
Chlorobenzene	776	1380	3643.805	3388.738	4981.445	10538.976
Chloroform	100	1292	469.562	436.693	641.939	1358.116
Chromiumd	100	3320	469.562	436.693	641.939	1358.116
Chrysene	0.417	8.1	1.958	1.821	2.677	5.663
Cresols	3313	13116	15556.604	14467.642	21267.434	44994.367
Cyanide (free)	200	N/A	939.125	873.386	1283.878	2716.231
4,4'-DDD	0.0103	0.01	0.048	0.045	0.066	0.140
4,4'-DDE	0.0073	0.007	0.034	0.032	0.047	0.099
4,4'-DDT	0.0073	0.007	0.034	0.032	0.047	0.099
2,4'-D	70	N/A	328.694	305.685	449.357	950.681
Danitol	0.709	0.721	3.329	3.096	4.551	9.629
Dibromochloromethane	9.2	71.6	43.200	40.176	59.058	124.947
1,2-Dibromoethane	0.014	0.335	0.066	0.061	0.090	0.190
1,3-Dichloropropene (1,3- Dichloropropylene)	22.8	161	107.060	99.566	146.362	309.650
Dieldrin	0.00171	0.002	0.008	0.007	0.011	0.023
p-Dichlorobenzene	75	N/A	352.172	327.520	481.454	1018.587
1,2-Dichloroethane	5	73.9	23.478	21.835	32.097	67.906
1,1-Dichloroethylene	1.63	5.84	7.654	7.118	10.464	22.137
Dicofol	0.215	0.217	1.010	0.939	1.380	2.920
Dioxins/Furans (TCDD Equivalents)	1.34E-07	0.00000014	6.29E-07	5.85E-07	8.60E-07	1.82E-06

Endrin	1.27	1.34	5.963	5.546	8.153	17.248
Fluoride	4000	N/A	18782.498	17467.724	25677.554	54324.620
Heptachlor	0.0026	0.00265	0.012	0.011	0.017	0.035
Heptachlor Epoxide	0.159	1.1	0.747	0.694	1.021	2.159
Hexachlorobenzene	0.0194	0.0198	0.091	0.085	0.125	0.263
Hexachlorobutadiene	2.99	3.6	14.040	13.057	19.194	40.608
Hexachlorocyclohexane (alpha)	0.163	0.413	0.765	0.712	1.046	2.214
Hexachlorocyclohexane (beta)	0.57	1.45	2.677	2.489	3.659	7.741
Hexachlorocyclohexane (gamma) (Lindane)	0.2	2	0.939	0.873	1.284	2.716
Hexachloroethane	84.2	278	395.372	367.696	540.513	1143.533
Hexachlorophene	0.0531	0.053	0.249	0.232	0.341	0.721
Lead (d)	4.98	25.3	23.384	21.747	31.969	67.634
Mercury	0.0122	0.0122	0.057	0.053	0.078	0.166
Methoxyclor	2.21	2.22	10.377	9.651	14.187	30.014
Methyl Ethyl Ketone	52900	9940000	248398.542	2.31E+05	3.40E+05	7.18E+05
Nitrate-Nitrogen (as Total Nitrogen)	10000	N/A	46956.246	43669.309	64193.884	135811.551
Nitrobenzene	37.3	233	175.147	162.887	239.443	506.577
N-Nitrosodiethylamine	0.0382	7.68	0.179	0.167	0.245	0.519
N-Nitroso-di-n-Butylamine	1.84	13.5	8.640	8.035	11.812	24.989
PCB's (Polychlorinated Biphenyls)	0.0013	0.0013	0.006	0.006	0.008	0.018
Pentachlorobenzene	6.1	6.68	28.643	26.638	39.158	82.845
Pentachlorophenol	1	135	4.696	4.367	6.419	13.581
Pyridine	88.1	13333	413.685	384.727	565.548	1196.500
Selenium	50	N/A	234.781	218.347	320.969	679.058
1,2,4,5-Tetrachlorobenzene	0.241	0.243	1.132	1.052	1.547	3.273
Tetrachloroethylene	5	323	23.478	21.835	32.097	67.906
Toxaphene	0.005	0.014	0.023	0.022	0.032	0.068
2,4,5-TP (Silvex)	47	50.3	220.694	205.246	301.711	638.314
2,4,5-Trichlorophenol	953	1069	4474.930	4161.685	6117.677	12942.841
Trichloroethylene	5	612	23.478	21.835	32.097	67.906
1,1,1-Trichloroethane	200	12586	939.125	873.386	1283.878	2716.231
TTHM (Sum of Total Trihalomethanes)	100	N/A	469.562	436.693	641.939	1358.116
Vinyl Chloride	2	415	9.391	8.734	12.839	27.162

CALCULATE 70% AND 85% OF DAILY AVERAGE EFFLUENT LIMITATIONS

Parameter	*70%*	*85%*
1,1,1-Trichloroethane		
Aldrin	2.333	2.833
Aluminum	770.715	935.869
Arsenic	547.825	665.216
Cadmium	3.062	3.718
Carbaryl	1.555	1.889
Chlordane	0.008	0.009
Chlorpyrifos	0.065	0.078
Chromium (+3)	691.024	839.101
Chromium (+6)	12.443	15.110
Copper	14.595	17.722
Cyanide (free)	19.278	23.409
4,4'-DDT	0.002	0.002
Dementon	0.180	0.219
Dicofol	35.707	43.359
Dieldrin	0.003	0.004
Diuron	126.238	153.289
Endosulfan (alpha)	0.101	0.123
Endosulfan (beta)	0.101	0.123
Endosulfan sulfate	0.101	0.123
Endrin	0.004	0.005
Guthion	0.018	0.022
Heptachlor	0.007	0.008
Hexachlorocyclohexane (Lindane)	0.144	0.175
Lead	7.072	8.588
Malathion	0.018	0.022
Mercury	1.867	2.266
Methoxychlor	0.054	0.066
Mirex	0.002	0.002
Nickel	254.196	308.666
Parathion (ethyl)	0.023	0.028
Pentachlrophenol	5.218	6.336
Phenanthrene	23.331	28.331

Polychlorinated Biphenyls (PCBs)	0.025	0.031
Selenium	9.017	10.949
Silver, (free ion)	0.587	0.713
Toxaphene	0.000	0.000
Tributlytin (TBT)	0.043	0.053
2,4,5 Trichlorophenol	105.769	128.434
Zinc	122.427	148.661
1,1,1-Trichloroethane		
Acrylonitrile	5.752	6.984
Aldrin	0.018	0.022
Arsenic	43962.313	533.828
Barium	898714.378	10912.960
Benzene	22.468	27.282
Benzidine	0.005	0.006
Benzo(a)anthracene	0.445	0.540
Benzo(a)pyrene	0.445	0.540
Bis(chloromethyl)ether	0.021	0.025
Cadmium	8655.178	105.099
Carbon Tetrachloride	16.896	20.516
Chlordane	0.094	0.115
Chlorobenzene	3487.012	4234.229
Chloroform	449.357	545.648
Chromiumd	449.357	545.648
Chrysene	1.874	2.275
Cresols	14887.204	18077.319
Cyanide (free)	89871.438	1091.296
4,4'-DDD	0.046	0.056
4,4'-DDE	0.033	0.040
4,4'-DDT	0.033	0.040
2,4'-D	31455.003	381.954
Danitol	3.186	3.869
Dibromochloromethane	41.341	50.200
1,2-Dibromoethane	0.063	0.076
1,3-Dichloropropene (1,3- Dichloropropylene)	102.453	124.408
Dieldrin	0.008	0.009
p-Dichlorobenzene	33701.789	409.236

1,2-Dichloroethane	22.468	27.282
1,1-Dichloroethylene	7.325	8.894
Dicofol	0.966	1.173
Dioxins/Furans (TCDD Equivalents)	6.02E-07	7.31E-07
Endrin	5.707	6.930
Fluoride	1797428.755	21825.921
Heptachlor	0.012	0.014
Heptachlor Epoxide	0.714	0.868
Hexachlorobenzene	0.087	0.106
Hexachlorobutadiene	13.436	16.315
Hexachlorocyclohexane (alpha)	0.732	0.889
Hexachlorocyclohexane (beta)	2.561	3.110
Hexachlorocyclohexane (gamma) (Lindane)	0.899	1.091
Hexachloroethane	378.359	459.436
Hexachlorophene	0.239	0.290
Lead	22.378	27.173
Mercury	0.055	0.067
Methoxyclor	9.931	12.059
Methyl Ethyl Ketone	2.38E+05	2.89E+05
Nitrate-Nitrogen (as Total Nitrogen)	4493571.888	54564.801
Nitrobenzene	167.610	203.527
N-Nitrosodiethylamine	0.172	0.208
N-Nitroso-di-n-Butylamine	8.268	10.040
PCB's (Polychlorinated Biphenyls)	5.84E-03	7.09E-03
Pentachlorobenzene	27.411	33.285
Pentachlorophenol	4.494	5.456
Pyridine	395.884	480.716
Selenium	22467.859	272.824
1,2,4,5-Tetrachlorobenzene	1.083	1.315
Tetrachloroethylene	22.468	27.282
Toxaphene	0.022	0.027
2,4,5-TP (Silvex)	211.198	256.455
2,4,5-Trichlorophenol	4282.374	5200.026
Trichloroethylene	22.468	27.282
1,1,1-Trichloroethane	898.714	1091.296
TTHM (Sum of Total Trihalomethanes)	44935.719	545.648
Vinyl Chloride	8.987	10.913

San Jacinto River Authority
Woodlands Division
P.O. Box 7537 The Woodlands, Texas 77387

Certified/Return Receipt No.: 7001 2510 0003 7101 7342

April 20, 2004

U.S. Environmental Protection Agency
Region 6 (6EN-WC)
Water Enforcement Branch
1445 Ross Avenue
Dallas, TX 75202-2733

Attention: Ms. Emma Cornelius

Re: SJRA Wastewater Treatment Plant No. 1
NPDES Discharge Monitoring Report – Mar. 2004
Permit No. TX 0054186

Dear Ms. Cornelius,

Please find enclosed the original and one copy of the above referenced Discharge Monitoring Report and Table 1 Biomonitoring Reports for Ceriodaphnia dubia and Pimephales promelas for the month of March, 2004. The Discharge Monitoring Report indicates that the chronic Pimephales promelas test was invalid. The test was repeated during April. Results of the retest are currently being reviewed for quality assurance purposes and will be submitted with the May, 2004 Discharge Monitoring Report. 2004. Attached is a letter from Risk Sciences, which clarifies the basis for San Jacinto River Authority invalidating the referenced test.

Should you have any questions, please contact Tojuana Howard or me at (281) 367-9512.

Very truly yours,

Donald R. Sarich, P.E.
Woodlands Division Manager

DRS/TH/cmr
Enclosures
cc: File

PERMITTEE NAME/ADDRESS *(Include Facility Name/ Location if Different)*

NAME SAN JACINTO RIVER AUTHORITY
ADDRESS PO BOX 7537
THE WOODLANDS TX 77387

FACILITY SAN JACINTO RIVER AUTHORITY
LOCATION THE WOODLANDS TX 77387
ATTN: DONALD R. SARICH, DIV MGR

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
DISCHARGE MONITORING REPORT *(DMR)*

OMB No. 2040-0004

[illegible]	001
PERMIT NUMBER	DISCHARGE NUMBER

MAJOR

F - FINAL
TOTAL FACILITY DISCHARGE

	MONITORING PERIOD						
	YEAR	MO	DAY		YEAR	MO	DAY
FROM	04	03	01	TO	04	03	31

*** NO DISCHARGE | | ***

NOTE: Read instructions before completing this form.

PARAMETER		QUANTITY OR LOADING AVERAGE	QUANTITY OR LOADING MAXIMUM	UNITS	QUALITY OR CONCENTRATION MINIMUM	QUALITY OR CONCENTRATION AVERAGE	QUALITY OR CONCENTRATION MAXIMUM	UNITS	NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
OXYGEN, DISSOLVED (DO)	SAMPLE MEASUREMENT	******	******		6.8	******	******	(19)	0	1/1	GRAB
00300 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	[illegible]	[illegible]	*****	[illegible]	[illegible]	[illegible]	MG/L			
PH	SAMPLE MEASUREMENT	******	******		7.0	******	7.3	(12)	0	1/1	GRAB
00400 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	[illegible]	[illegible]	*****	[illegible]	[illegible]	[illegible]	SU			
SOLIDS, TOTAL SUSPENDED	SAMPLE MEASUREMENT	188.27	******	(26)	******	4.9	7.1	(19)	0	5/7	COMP24
00530 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	[illegible]	[illegible]	LBS/DY	[illegible]	[illegible]	[illegible]	MG/L			
NITROGEN, AMMONIA TOTAL (AS N)	SAMPLE MEASUREMENT	37.44	******	(26)	******	0.9	1.64	(19)	0	5/7	COMP24
00610 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	[illegible]	[illegible]	LBS/DY	[illegible]	[illegible]	[illegible]	MG/L			
FLOW, IN CONDUIT OR THRU TREATMENT PLANT	SAMPLE MEASUREMENT	4.647	5.462	(03)	******	******	******		0	CONT	TOTALIZE
50050 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	[illegible]	[illegible]	MGD	[illegible]	[illegible]	[illegible]	*****			
CHLORINE, TOTAL RESIDUAL	SAMPLE MEASUREMENT	******	******		******	******	0.06	(19)	0	1/1	GRAB
50060 A 0 0 DISINFECT.PRCS CMPLT	PERMIT REQUIREMENT	[illegible]	[illegible]	*****	[illegible]	[illegible]	[illegible]	MG/L			
CHLORINE, TOTAL RESIDUAL	SAMPLE MEASUREMENT	******	******		1.2	******	******	(19)	0	1/1	GRAB
50060 8 0 0 PRIOR TO DISINFECT	PERMIT REQUIREMENT	[illegible]	[illegible]	*****	[illegible]	[illegible]	[illegible]	MG/L			

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		SIGNATURE	TELEPHONE		DATE		
Donald R. Sarich, P.E. Division Manager	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	Donald R Sarich	281	367-9512	04	04	19
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

EVIDENTIARY HEARING FILED 09/23/93.

Attachment C, p. 2

EPA Form 3320-1 (Rev. 3/99) Previous editions may be used.

This is a 4-part form.

00483/030717-1921

PAGE 1 OF 1

Attachment C, p. 3

Form Approved.
OMB No: 2040-0004

PERMITTEE NAME/ADDRESS *(Include Facility Name/Location if Different)*

NAME SAN JACINTO RIVER AUTHORITY
ADDRESS PO BOX 7537
THE WOODLANDS TX 77387

FACILITY SAN JACINTO RIVER AUTHORITY
LOCATION THE WOODLANDS TX 77387
ATTN: DONALD R. SARICH, DIV MGR

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
DISCHARGE MONITORING REPORT *(DMR)*

PERMIT NUMBER	DISCHARGE NUMBER
TX0054186	001 A

MONITORING PERIOD	YEAR	MO	DAY
FROM	04	03	01
TO	04	03	31

MAJOR
P - FINAL
TOTAL FACILITY DISCHARGE

*** NO DISCHARGE |__| ***
NOTE: Read instructions before completing this form.

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
BOD, CARBONACEOUS 05 DAY, 20C 80082 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	169.02	******	(26)	******	4.4	5.6	(19)	0	5/7	COMP24
	PERMIT REQUIREMENT			LBS/DY				MG/L			
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

Donald R. Sarich, P.E.
Division Manager

TYPED OR PRINTED

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

[signature]

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE		DATE		
281	367-9512	04	04	19
AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

EVIDENTIARY HEARING FILED 09/23/93.

PERMITTEE NAME/ADDRESS *(Include Facility Name/Location if Different)*
NAME

ADDRESS San Jacinto River Authority
PO Box 7537
The Woodlands Tx 77387

FACILITY LOCATION San Jacinto River Authority
The Woodlands Tx

Attn: Donald R. Sarich, Div Mgr

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
DISCHARGE MONITORING REPORT *(DMR)*
(2-16) (17-19)

TX0054186	TX1 A
PERMIT NUMBER	DISCHARGE NUMBER

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	04	03	01	TO	04	03	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

Form Approved.
OMB No. 2040-0004
Approval expires 05-31-98

MAJOR

F - FINAL
TOXICITY REPORTING FOR 001

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
LF P/F SATRE 7DAY CHR CERIODAPHNIA TEP3B 1 0 0 Effluent Gross Value	SAMPLE MEASUREMENT	******	******		******	0	******	(9A) Pass=0 Fail=1		MTHLY	COMP24
	PERMIT REQUIREMENT			*** ****		REPORT DAILY AVG				QTRLY	COMP24
LF P/F SATRE 7DAY CHR PIMEPHALES TEP6C 1 0 0 Effluent Gross Value	SAMPLE MEASUREMENT	******	******		******	*	******	(9A) Pass=0 Fail=1		QTRLY	COMP24
	PERMIT REQUIREMENT			*** ****		REPORT DAILY AVG				QTRLY	COMP24
HLF P/F SATRE 7DAY CHR CERIODAPHNIA TFP3B 1 0 0 Effluent Gross Value	SAMPLE MEASUREMENT	******	******		******	0	******	(9A) Pass=0 Fail=1		MTHLY	COMP24
	PERMIT REQUIREMENT			*** ****		REPORT DAILY AVG				QTRLY	COMP24
HLF P/F SATRE 7DAY CHR PIMEPHALES TFP6C 1 0 0 Effluent Gross Value	SAMPLE MEASUREMENT	******	******		******	0	******	(9A) Pass=0 Fail=1		QTRLY	COMP24
	PERMIT REQUIREMENT			*** ****		REPORT DAILY AVG				QTRLY	COMP24
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE	DATE		
Donald R. Sarich, P.E. Division Manager	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. *(Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)*	Donald R Sarich	281 367-9512	04	04	19
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

Our analysis indicates that the Pamephales parameter test was invalid. The test was repeated during April. Results of the retest will be submitted during May, 2004.

Attachment C, p.4

TABLE I (SHEET 1 OF 5)

Permittee: San Jacinto River Authority
NPDES Permit: TX0054186
Outfall(s): 001

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION

Date Composites Collected:
No. 1: FROM 3/7/04 TO 3/8/04
No. 2: FROM 3/9/04 TO 3/10/04
No. 3: FROM 3/11/04 TO 3/12/04

Test initiated: 1150 (am)/pm 3/9/04

Dilution water used: ____ Receiving water X Reconstituted water

NUMBER OF YOUNG PRODUCED PER FEMALE @ 7 DAYS

Percent effluent (%)

REP	0%	23%	32%	45%	62%	86%
A	26	25	35	30	33	36
B	27	28	31	27	29	29
C	26	33	36	35	35	28
D	24	15	30	34	24	25
E	20	32	33	31	26	28
F	26	29	36	32	29	29
G	25	31	26	30	38	29
H	28	30	34	31	40	28
I	30	30	26	31	28	27
J	30	25	33	27	32	28
CV%*	11.207	18.791	11.600	8.355	16.459	9.862

* coefficient of variation = standard deviation x 100/mean

TABLE 1 (SHEET 2 OF 5)

Permittee: San Jacinto River Authority
NPDES Permit: TX0054186
Outfall(s): 001

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION TEST

1. Dunnett's Procedure or Steel's Many-One Rank Test as appropriat

Is the mean number of young produced per female significantly less (p=0.05) than the control's number of young per female for the % effluent corresponding to (significant nonlethal effects):

a. LOW-FLOW OR CRITICAL DILUTION (45%): ____ YES X NO

b. 1/2 LOW-FLOW DILUTION (62%): ____ YES X NO

PERCENT SURVIVAL

Percent Effluent

Time of Reading	0%	23%	32%	45%	62%	86%
24 hr.	100	100	100	100	100	100
48 hr.	100	100	100	100	100	100
7 day	100	100	100	100	100	90

2. Fisher's Exact Test:

Is the mean survival at 7 days significantly less (p=0.05) than the control survival for the % effluent corresponding to (lethality):

a. LOW-FLOW OR CRITICAL DILUTION (45%): ____ YES X NO

b. 1/2 LOW-FLOW DILUTION (62%): ____ YES X NO

3. Enter percent effluent corresponding to each NOEL (no observed effect level) below and circle the lowest number:

a. NOEL survival = 86 % effluent

b. NOEL reproduction = 86 % effluent

TABLE 1 (SHEET 3 OF 5)

Permittee: San Jacinto River Authority
NPDES Permit: TX0054186
Outfall(s): 001

4. If you answered NO to 1.a and 2.a, enter P; otherwise enter F: P

5. Enter response to item 4 on DMR Form, Parameter No. TEP3B.

6. If you answered NO to 2.b, enter P; otherwise enter F: P

7. Enter response to item 6 on DMR Form, Parameter No. TFP3B.

FATHEAD MINNOW LARVAE GROWTH AND SURVIVAL
(Pimephales promelas)

Date Composites Collected: No. 1: FROM 3/7/04 TO 3/8/04
No. 2: FROM 3/9/04 TO 3/10/04
No. 3: FROM 3/11/04 TO 3/12/04

Test initiated: 1421 am/(pm) 3/9/04 date

Dilution water used: ____ Receiving water X Reconstituted water

DATA TABLE FOR GROWTH OF FATHEAD MINNOWS

Effluent Concen. (%)	Average Dry Weight in milligrams in replicate chambers				Mean Dry Weight	CV%*
	A	B	C	D/E	(mg)	
0	0.5313	0.5763	0.7050	0.4975 / 0.5463	0.5713	13.998
23	0.5375	0.5550	0.5250	0.5700 / 0.6112	0.5598	5.980
32	0.5563	0.4825	0.5388	0.5600 / 0.4863	0.5248	7.193
45	0.4300	0.4712	0.5337	0.4888 / 0.5337	0.4915	8.967
62	0.4163	0.4275	0.4525	0.3950 / 0.4788	0.4380	9.085
86	0.3313	0.3912	0.3287	0.4387 / 0.4125	0.3905	10.489

* coefficient of variation = standard deviation x 100/mean

TABLE 1 (SHEET 4 OF 5)

Permittee: San Jacinto River Authority
NPDES Permit: TX0054186
Outfall(s): 001

1. Dunnett's Procedure:

Is the mean dry weight (growth) at 7 days effluent significantly less (p=0.05) than the control's dry weight (growth) for the % effluent corresponding to (significant nonlethal effects):

a. LOW-FLOW OR CRITICAL DILUTION (45%): X YES ____ NO

b. 1/2 LOW-FLOW DILUTION (62%): X YES ____ NO

FATHEAD MINNOW GROWTH AND SURVIVAL TEST

DATA TABLE FOR FATHEAD MINNOW SURVIVAL

Effluent Conc. %	Percent Survival in Replicate Chambers				Mean Percent Survival			CV%*
	A	B	C	D/E	24h	48h	7 days	
0	100	100	100	100/100	100	100	100	0.0
23	100	100	100	100/100	100	100	100	0.0
32	100	100	100	100/100	100	100	100	0.0
45	100	87.5	87.5	100/100	100	95	95	7.623
62	100	100	100	87.5/100	97.5	97.5	97.5	6.055
86	100	100	100	100/100	100	100	100	0.0

* coefficient of variation = standard deviation x 100/mean

TABLE 1 (SHEET 5 OF 5)

Permittee: San Jacinto River Authority
NPDES Permit: TX0054186
Outfall(s): 001

2. Dunnett's Procedure or Steel's Many-One Rank Test as appropriat

Is the mean survival at 7 days significantly less (p=0.05) than the control survival for the % effluent corresponding to (lethality):

a. LOW-FLOW OR CRITICAL DILUTION (45%): ____ YES X NO

b. 1/2 LOW-FLOW DILUTION (62%): ____ YES X NO

3. Enter percent effluent corresponding to each NOEL (no observed effect level) below and circle lowest number:

a. NOEL survival = 86 % effluent

b. NOEL growth = (32) % effluent

4. If you answered NO to 1.a and 2.a, enter P; otherwise enter F: F

5. Enter response to item 4 on DMR Form, Parameter No. TEP6C.

6. If you answered NO to 2.b, enter P; otherwise enter F: P

7. Enter response to item 6 on DMR Form, Parameter No. TFP6C..DM

TABLE 1 (SHEET 1 of 3)

FATHEAD MINNOW LARVAE GROWTH AND SURVIVAL
(Pimephales promelas)

Date Composites Collected: No. 1: FROM 3/30/04 TO 3/31/04
No. 2: FROM 4/1/04 TO 4/2/04
No. 3: FROM 4/4/04 TO 4/5/04

Test initiated: 1347 am/(pm) 4/1/04 date

Dilution water used: ____ Receiving water ___X___ Reconstituted water

DATA TABLE FOR GROWTH OF FATHEAD MINNOWS

Effluent Concen. (%)	Average Dry Weight in milligrams in replicate chambers				Mean Dry Weight	CV%*
	A	B	C	D/E	(mg)	
0	0.4712	0.5300	0.7075	0.4813 / 0.5512	0.5462	17.402
23	0.4450	0.4763	0.5213	0.5438 / 0.5288	0.5070	7.630
32	0.6863	0.5913	0.7225	0.5225 / 0.6012	0.6647	16.491
45	0.5687	0.6162	0.7888	0.8175 / 0.6864	0.6955	15.421
62	0.5613	0.7937	0.8538	0.7250 / 0.7613	0.7390	14.893
86	0.7175	0.8038	0.7725	0.7512 / 0.7313	0.7553	4.523

* coefficient of variation = standard deviation x 100/mean

20 April 2004

Tojuana Howard
San Jacinto River Authority
2436 Sawdust Rd.
The Woodlands, TX 77380

RE: Whole Effluent Toxicity Data Validation Review for Test Performed in March, 2004

Dear Ms. Howard:

I have completed a thorough review of results from the Fathead minnow chronic toxicity test performed on effluent samples collected from Woodlands Plant #1 in March, 2004. The Advent Group performed the test and reported the probable presence of toxicity in the effluent.

I disagree with the Advent Group's conclusion. The test should be considered invalid because the results were inconsistent and inconclusive. Specifically:

1) The estimated 25% Inhibition Concentration (IC25) was significantly higher than the reported No-Observed-Effect-Concentration (NOEC). This is a strong indication that there may be unanticipated anomalies in the data.

2) The test was excessively sensitive. Very small differences in average fish weight were deemed statistically-significant due to abnormally high control performance.

3) Other, more appropriate, statistical procedures demonstrate that the estimated NOEC should be higher than originally reported.

Based on these findings, the laboratory's conclusions regarding results from the first test performed in March cannot be certified as "true, accurate and complete" on the monthly Discharge Monitoring Report. A more detailed explanation follows.

BACKGROUND

On March 8th, a sample of final effluent was collected from Woodlands Plant #1 and sent to the Advent Group laboratory in Brentwood, TN. A chronic toxicity test was initiated on March 9th using Fathead minnows and *Ceriodaphnia dubia* (freshwater fleas). Renewal samples were collected and shipped on March 10th and 12th. All testing was complete by March 16th. The lab certified that no significant deviation from test protocols occurred and that the test met EPA's test acceptance criteria.

The lab reported that there was no statistically-significant decrease in survival or *Ceriodaphnia dubia* reproduction during the test. However, the lab did observe a statistically-significant reduction in Fathead minnow growth (see Table 1).

Table 1: WET Test Results Reported by Advent Group in March, 2004

Effluent Concentration	*Ceriodaphnia dubia* Survival	*Ceriodaphnia dubia* Reproduction (offspring/female)	Fathead minnow Survival	Fathead minnow Weight (mg/fish)
Control – 0%	100%	26.2	100%	0.5713
23%	100%	27.8	100%	0.5598
32%	100%	32.0	100%	0.5248
45%	100%	30.8	95%	0.4915*
55%	100%	27.6	95%	0.4490*
62%	100%	31.4	98%	0.4380*
86%	90%	28.7	100%	0.3905*

Note: asterisks (*) indicate results that were statistically-significant reductions from controls.

The Advent Group reported that the Lowest-Observed-Effect-Concentration (LOEC) was 45% effluent and the NOEC was 32% effluent for Fathead minnow growth. The lab also recorded that the estimated IC25 was 66.8% effluent. The Percent-Minimum-Significant-Difference (PMSD) , a measure of test sensitivity, was reported to be 13.5%.

By definition, when a 95% confidence level is used to define the threshold of toxicity, there is a 1-in-20 chance that a statistically-significant difference may occur for reasons unrelated to actual effluent quality. Several criteria are used to help identify these expected data anomalies. The remainder of this document describes those criteria and their applicability to this particular test.

DETAILED DISCUSSION

1) The estimated IC-25 was significantly greater than the reported NOEC.

Advent group reported that the NOEC was 32% but the IC-25 was 66.8%. When a sample is genuinely toxic, both measures of toxicity are usually quite consistent. Large gaps between the NOEC and IC25 provide a strong indication that there may be anomalies in the data.

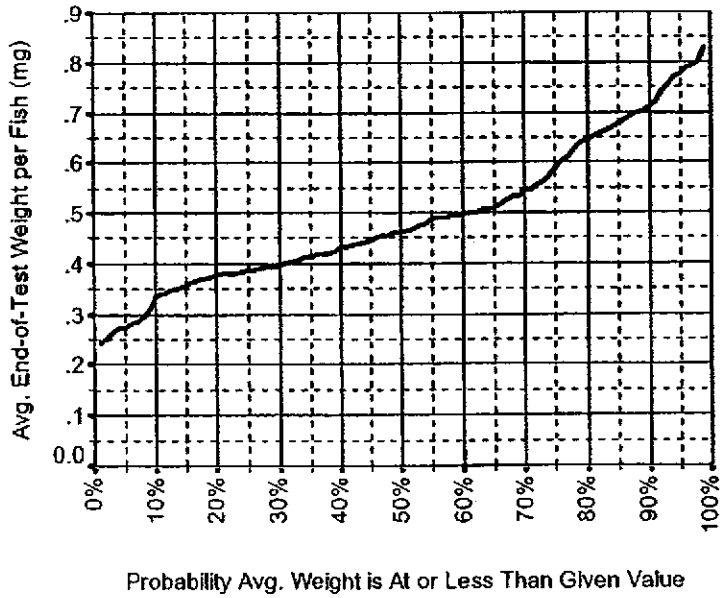
SJRA's permit specifies the use of the NOEC but also requires the discharger to perform appropriate quality assurance checks on all test data prior to certifying the results. The IC25 procedure provides an excellent quality control check on the NOEC because EPA has provided written guidance recommending the former as the preferred approach.

By itself, the IC25 estimate does not invalidate the NOEC value; however, it does establish the need to examine the data more closely. Why does the IC25 differ so greatly from the NOEC in this instance?

2) Control performance was abnormally high during the Fathead minnow growth test.

A review of historical control performance at the Advent Group indicates that the average end-of-test weight per fish is 0.39 mg/fish. Based on data from EPA's comprehensive interlaboratory study of whole effluent toxicity test variability, the mean end-of-test weight for control organisms is 0.49 mg/fish and the median is 0.46 mg/fish (see Figure 1).

Figure 1: Normal End-of-Test Weight for Fathead minnows in the Control Group



Control organisms in SJRA's March test weighed 0.57 mg/fish on average. That is nearly 17% more than the normal national mean for Fathead minnows. And, it is at the 75th percentile of national performance for control organisms. It is also more than 46% higher than the average end-of-test weight for control organisms at the Advent Group's laboratory. In fact, it is higher than any other value recorded for control organisms during all of the reference toxicant tests performed over the last two years.

Conversely, organisms assigned to the critical effluent concentration (55%) weighed an average of 0.45 mg/fish. That is only 8% less than the national average for control organisms and it is 15% better than the Advent Group normally observes for their own control organisms (see Table 2).

Table 2: Fish Weight vs. Normal Control Performance Nationally and at Advent

Effluent Concentration	Mean Weight per Fish	Pct. Diff. from Test Controls	Pct. Diff. from National Avg.	Pct. Diff. from Lab's Avg.
0%	0.5713	---	+17%	+47%
23%	0.5598	-2%	+14%	+44%
32%	0.5248	-8%	+7%	+35%
45%	0.4915	-14%	+0%	+26%
55%	0.4490*	-21%	-8%	+15%
62%	0.4380	-23%	-11%	+13%
86%	0.3905	-32%	-20%	+0%

The national average shown in Table 2 is for all Fathead minnows exposed only to non-toxic dilution water during EPA's large-scale WET variability study. Only data from tests that met EPA's test acceptance criteria was used to calculate the national average of 0.49 mg/fish. And, the laboratory average was calculated from all Fathead minnows assigned to the control group during the monthly reference toxicant tests performed by the Advent Group. Such information is routinely collected and charted in accordance with EPA's recommendations for interpreting WET test data.

Data presented in Table 2 clearly indicates that Fathead minnows exposed to various concentrations of SJRA's effluent grew larger than control organisms normally do at the Advent Group's laboratory. And, only minnows assigned to the 86% effluent concentration grew significantly less than the national average for control organisms exposed solely to non-toxic dilution water.

In essence, it is not that effluent-exposed organisms performed poorly compared to species norms, it is that control organisms in this particular test performed abnormally high. If the data is interpreted in light of this fact, then the NOEC is closer to 62% than it is to 32%. Such a conclusion is also consistent with the IC-25 value of 66% originally reported by the Advent Group.

3) Inappropriate statistical procedures were used to calculate the NOEC for minnow growth.

All of the statistical calculations performed by the Advent Group were done using ToxCalc software. This software automatically determines whether the data is normally-distributed, whether the variance is homogeneous and whether the number of replicates is equal then applies the appropriate statistical test recommended in EPA's whole effluent toxicity test method manuals. However, there is a flaw in the automatic procedures.

In this instance, Dunnett's test was used to calculate the NOEC because the software concluded that there were an equal number of replicates. On the surface, that appears to be true. There were five replicates assigned to each of the effluent concentrations tested. However, the replicates themselves were not equivalent with one another. The number of individual fish was not the same in each replicate.

Although 8 Fathead minnows were originally assigned to each replicate, in a few instances, one of the 8 organisms died. Therefore, while most replicates ended the test with the same 8 organisms they originally started with, a few replicates had only 7 live fish at the end. Therefore, since the replicates were not really "equal," a T-test (w/ Bonferroni adjustment) should have been used instead.

This was not an error on Advent's part. The software simply defaults to an incorrect statistical test because it has never been updated to reflect the change in test endpoints promulgated by EPA. When the statistical flowcharts were originally created, average fish weight was calculated by dividing the total weight of all organisms alive at the end of the test by the number of surviving fish. Later, EPA changed the method so that average weight is calculated by dividing the total weight of all live organisms by the total number of organisms alive when the test began. Using the old approach, inequivalent replicates were accounted for by the procedure for calculating the average. Under the new approach, it is possible to have an equal number of replicates with an unequal number of fish within each replicate. Therefore, the wrong statistical procedure may be triggered inadvertently.

If a T-test (w/ Bonferroni adjustment) is applied to the Fathead minnow growth data from SJRA's first test in March, the only statistically-significant reduction in weight occurs in the 86% effluent concentration. Therefore, the NOEC should have been reported as 62% not 32%. Once again, this is also consistent with the estimated IC-25 value originally recorded by the Advent Group.

CONCLUSIONS

The Fathead minnow growth test performed in mid-March should be considered invalid because:

1) The large difference between the estimated IC-25 and reported NOEC suggests the strong possibility of anomalies in the data, and…

2) Unusually high control performance, well above national and laboratory norms, distorted proper interpretation of test results, and…

3) Inappropriate statistical procedures were used to analyze the data in question thereby causing the NOEC to be significantly underestimated.

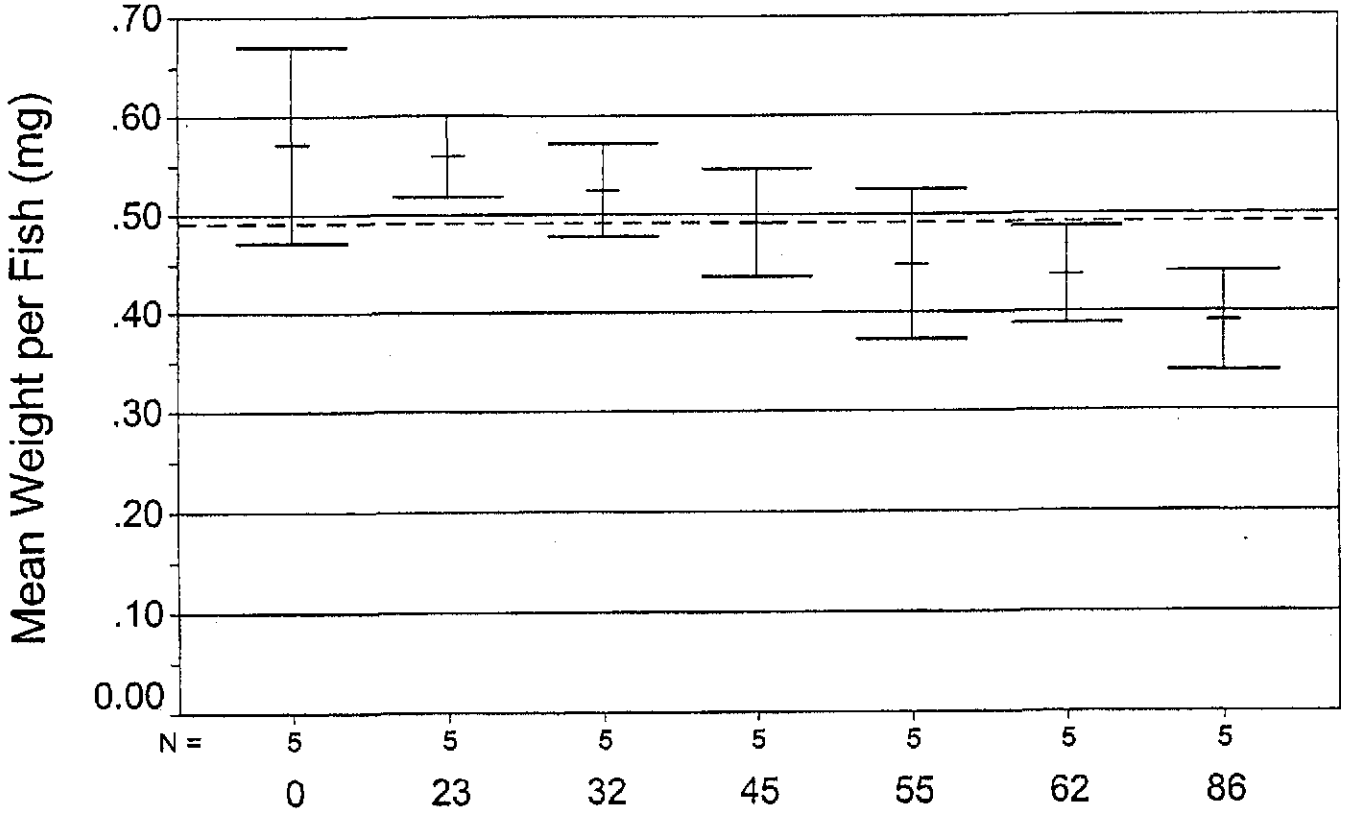
Anomalies in the data make it impossible to certify, with a reasonable level of certainty, that the test passed or failed. Therefore, the test should be repeated at the earliest available opportunity.

Respectfully submitted,

Timothy F. Moore
Risk Sciences
1417 Plymouth Dr.
Brentwood, TN 37027
Office: 615-370-1655
Fax: 615-370-5188
tmoore@risk-sciences.com

w/ attachments

Fathead minnow Growth



Red-dashed line is national avg. for species.

Oneway ANOVA & Dunnett's for Fathead minnow Growth

Test of Homogeneity of Variances

Mean Weight per Fish (mg)

Levene Statistic	df1	df2	Sig.
.908	6	28	.504

ANOVA

Mean Weight per Fish (mg)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.135	6	.022	8.775	.000
Within Groups	.072	28	.003		
Total	.207	34			

Multiple Comparisons

Dependent Variable: Mean Weight per Fish (mg)
Dunnett t (<control)[a]

(I) Effluent Concentration (%)	(J) Effluent Concentration (%)	Mean Difference (I-J)	Std. Error	Sig.
23	0	-.011540	.0320048	.737
32	0	-.046500	.0320048	.262
45	0	-.079800*	.0320048	.042
55	0	-.122280*	.0320048	.002
62	0	-.133260*	.0320048	.001
86	0	-.180800*	.0320048	.000

*. The mean difference is significant at the .05 level.

a. Dunnett t-tests treat one group as a control, and compare all other groups against it.

T-Test

Group Statistics

	Effluent Concentration (%)	N	Mean	Std. Deviation	Std. Error Mean
Mean Weight per Fish (mg)	0	5	.571280	.0799564	.0357576
	23	5	.559740	.0334565	.0149622

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (1-tailed)	Mean Difference	Std. Error Difference
Mean Weight per Fish (mg)	Equal variances assumed	1.636	.237	.298	8	.386	.011540	.0387618
	Equal variances not assumed			.298	5.359	.388	.011540	.0387618

T-Test

Group Statistics

	Effluent Concentration (%)	N	Mean	Std. Deviation	Std. Error Mean
Mean Weight per Fish (mg)	0	5	.571280	.0799564	.0357576
	32	5	.524780	.0377453	.0168802

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (1-tailed)	Mean Difference	Std. Error Difference
Mean Weight per Fish (mg)	Equal variances assumed	1.010	.344	1.176	8	.136	.046500	.0395417
	Equal variances not assumed			1.176	5.698	.143	.046500	.0395417

T-Test

Group Statistics

	Effluent Concentration (%)	N	Mean	Std. Deviation	Std. Error Mean
Mean Weight per Fish (mg)	0	5	.571280	.0799564	.0357576
	45	5	.491480	.0440548	.0197019

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (1-tailed)	Mean Difference	Std. Error Difference
Mean Weight per Fish (mg)	Equal variances assumed	.771	.405	1.955	8	.043	.079800	.0408261
	Equal variances not assumed			1.955	6.224	.048	.079800	.0408261

T-Test

Group Statistics

	Effluent Concentration (%)	N	Mean	Std. Deviation	Std. Error Mean
Mean Weight per Fish (mg)	0	5	.571280	.0799564	.0357576
	55	5	.449000	.0615249	.0275148

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (1-tailed)	Mean Difference	Std. Error Difference
Mean Weight per Fish (mg)	Equal variances assumed	.043	.841	2.710	8	.013	.122280	.0451184
	Equal variances not assumed			2.710	7.507	.014	.122280	.0451184

T-Test

Group Statistics

	Effluent Concentration (%)	N	Mean	Std. Deviation	Std. Error Mean
Mean Weight per Fish (mg)	0	5	.571280	.0799564	.0357576
	62	5	.438020	.0398027	.0178003

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (1-tailed)	Mean Difference	Std. Error Difference
Mean Weight per Fish (mg)	Equal variances assumed	1.076	.330	3.336	8	.005	.133260	.0399432
	Equal variances not assumed			3.336	5.868	.008	.133260	.0399432

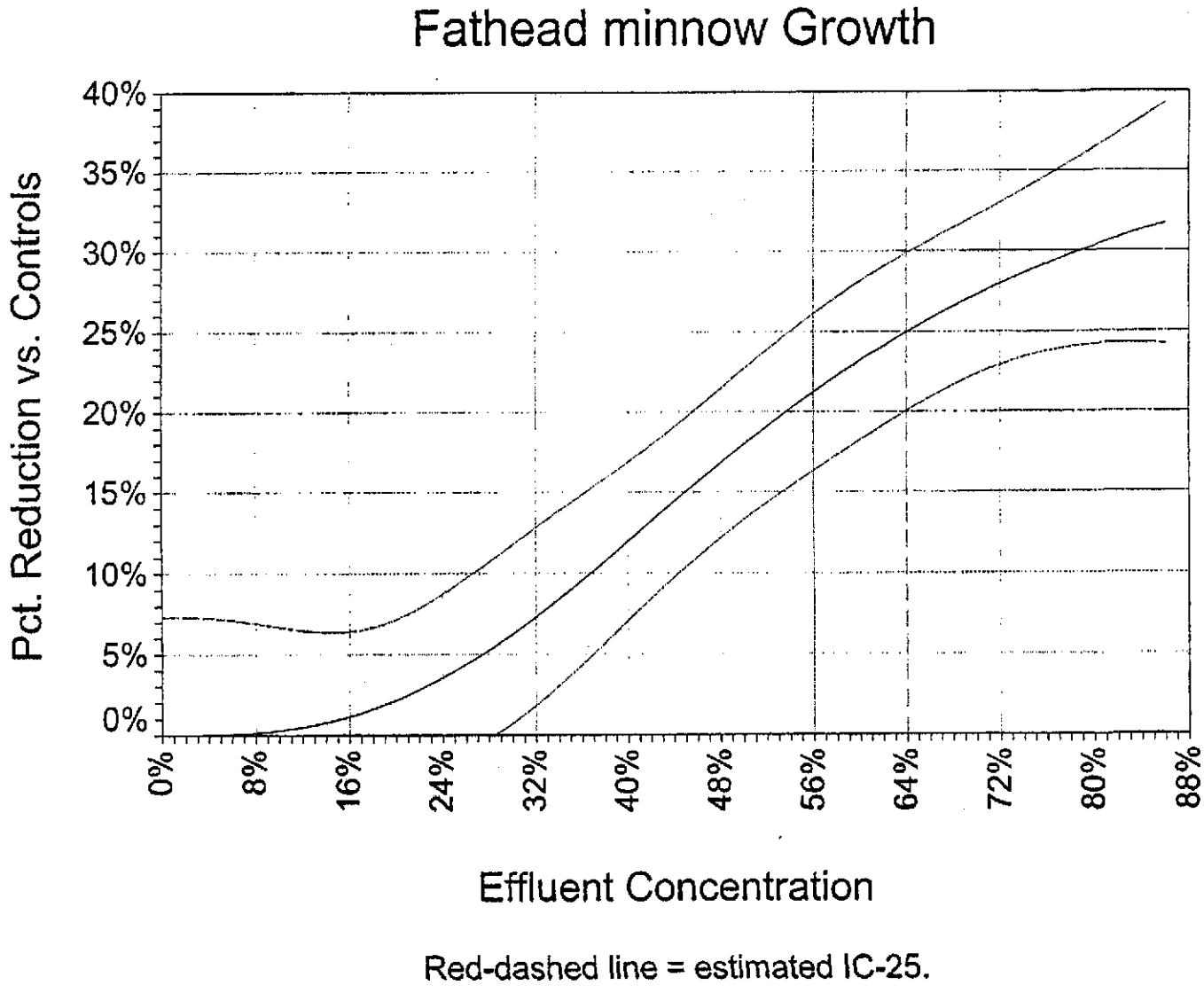
T-Test

Group Statistics

	Effluent Concentration (%)	N	Mean	Std. Deviation	Std. Error Mean
Mean Weight per Fish (mg)	0	5	.571280	.0799564	.0357576
	86	5	.390480	.0409622	.0183189

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (1-tailed)	Mean Difference	Std. Error Difference
Mean Weight per Fish (mg)	Equal variances assumed	1.143	.316	4.500	8	.001	.180800	.0401769
	Equal variances not assumed			4.500	5.964	.002	.180800	.0401769



Red-dashed line = estimated IC-25.

Michael Pfeil - TCEQ WET language revisions completed

From: <Jennings.Phillip@epamail.epa.gov>
To: Michael Pfeil <MPFEIL@tceq.state.tx.us>
Date: 4/29/2004 1:48 PM
Subject: TCEQ WET language revisions completed
CC: <lclayton@tnrcc.state.tx.us>, <mfisher@tceq.state.tx.us>, <Schwab.Kay@epamail.epa.gov>, <baskin.kitty@epamail.epa.gov>, <Hosch.Claudia@epamail.epa.gov>

Mike - I made your changes below to the shells you sent up - I think that does it. I think we are going to send down a hardcopy letter memorializing the occasion.

ccs - let us declare a common victory on the TCEQ language revisions!!

Phillip Jennings, 6WQ-PO
US EPA Region 6
1445 Ross Ave.
Dallas, TX 75202

P 214/665-7538
F 214/665-2191
E jennings.phillip@epa.gov

Michael Pfeil <MPFEIL@tceq.state.tx.us> 04/29/2004 12:45 PM

To: Phillip Jennings/R6/USEPA/US@EPA
cc:
Subject: Shells

Phil-

I added "a subsequent":

3) If one or more of the first four consecutive quarterly tests demonstrates significant lethal effects, the permittee shall continue quarterly testing for that species until the permit is reissued. If a testing frequency reduction had been previously granted and a subsequent test demonstrates significant lethal effects, the permittee will resume a quarterly testing frequency for that species until the permit is reissued.

and

ADVENT
ENVIRON

TOXICITY TEST RESULTS
PLANT 1 OUTFALL 001

Prepared for

SAN JACINTO RIVER AUTHORITY
2436 Sawdust Road
The Woodlands, Texas

Prepared by

ADVENT-ENVIRON
201 Summit View Drive, Suite 300
Brentwood, TN 37027

December 2005

ADVENT
ENVIRON

December 21, 2005

Ms. Tojuana Howard
San Jacinto River Authority
2436 Saw Mill Road
The Woodlands, TX 77380

Re: **December 2005 Toxicity Tests Results Plant 1 - Outfall 001**
ADVENT-ENVIRON Project No. 20-14653A

Dear Ms. Howard:

Attached are the results of the December definitive (six-dilution) chronic, daily-renewal toxicity tests conducted with Outfall 001 effluent. Effluent samples collected December 5, 7, and 9 and were received December 6, 8, and 10, 2005. The tests were initiated with the sample received on December 6. All samples were 24-hr. composites and arrived below the USEPA-recommended sample receipt temperature of 6.0 °C.

Fathead minnow (*Pimephales promelas*) and *Ceriodaphnia dubia* (*C. dubia*) were exposed to 23, 32, 45, 55, 62, and 86 percent test concentrations of Outfall 001 effluent for seven days. Moderately hard water served as the control and dilution water. Test methods followed EPA-821-R-02-013, *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*. Results from the toxicity tests were:

NOEC TEST RESULTS			
Toxicity Endpoint	**Permit Limits**	**Fathead Minnow**	***C. dubia***
Survival NOEC	45% (a), 55% (b)	> 86%	> 86%
Growth/Reproduction NOEC	NONE	> 86%	62 %

Note:
(a) Based on Permit No. TX0054186. (b) Based on Permit No. TNRCC11401-001.
NOEC - No Observed Effect Concentration. A NOEC value indicates the highest test exposure concentration at which there was no significant difference as compared to control exposures

Results of the tests indicated compliance with all permit limits for fathead minnow and *C. dubia*.

Fathead minnow test controls met USEPA criteria for test acceptability. The survival NOEC was 86 percent effluent. The growth Percent Minimum Significant Difference (PMSD) value was 12.7 percent, which is within the USEPA PMSD bounds of 12 to 30 percent. The concentration-response curve in this test was consistent with pattern five found in EPA's *Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing (40 CFR Part 136)*, interrupted concentration-response: significant effect bracketed by non-significant effects. The test is considered valid for assessment of permit compliance and meets the permit limit for survival NOEC. The monthly reference toxicant test also met all the test acceptability criteria.

C. dubia test controls met USEPA criteria for test acceptability. The survival NOEC was 86 percent effluent. The reproduction PMSD value was 11.7 percent, which is below the USEPA PMSD bounds of 13 to 47 percent. A PMSD value below the lower bounds indicates the sensitivity of the test is high. The concentration-response curve was consistent with pattern seven found in EPA-B-00-004, *Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing*, significant effects only at highest concentration. The test is considered valid for assessment of permit compliance. The monthly reference toxicant test also met all the test acceptability criteria.

State required forms are provided in Attachment 1. Copies of the statistical results and raw data are presented in Attachment 2. Chain-of-custody documentation and most recent reference toxicant data are presented in Attachment 3.

If you have any questions or concerns regarding this report, please call Liza Heise at (615) 377-4775, extension 121. Thank you for the opportunity to be of service to San Jacinto River Authority.

Sincerely,

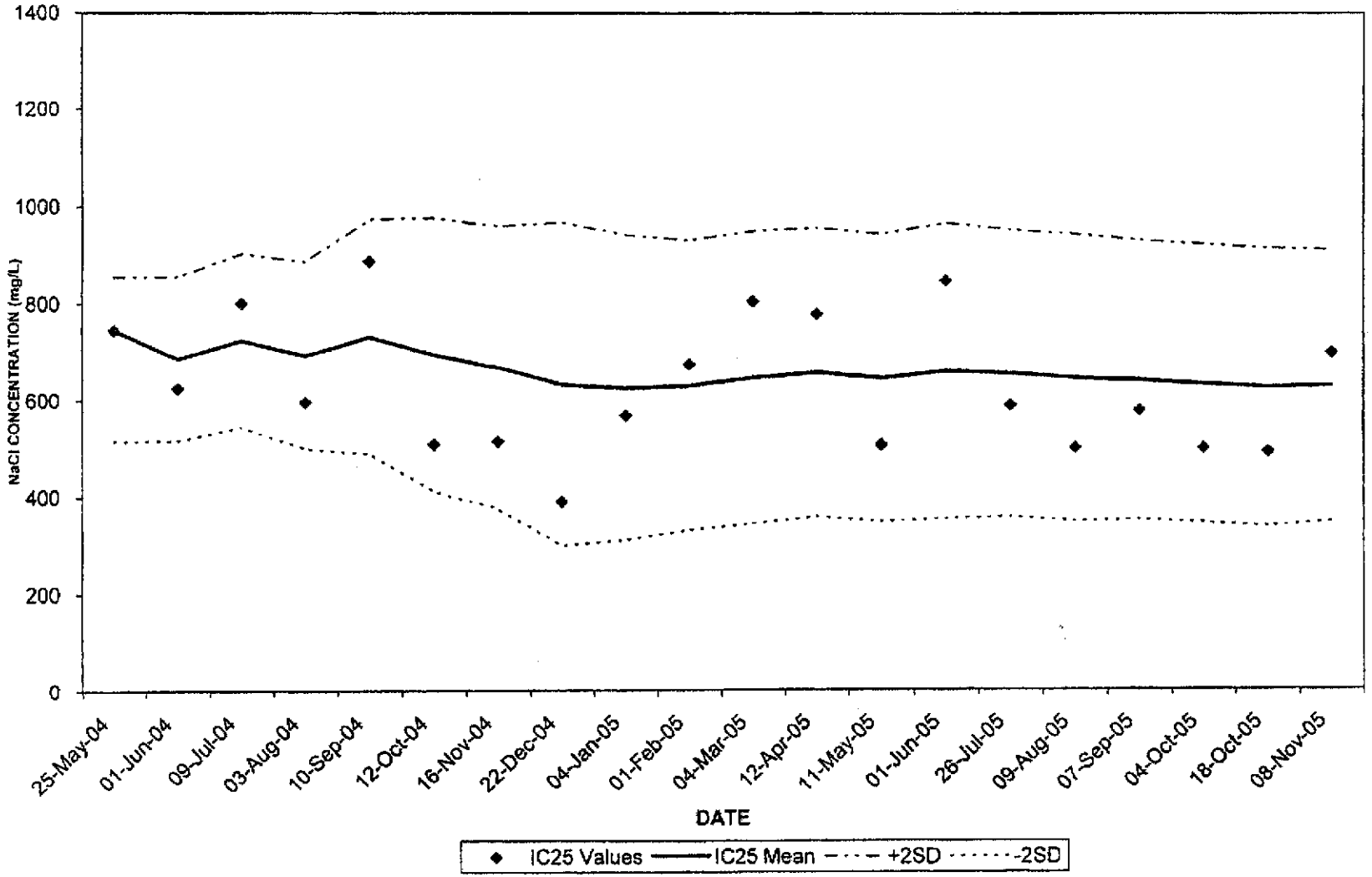
ADVENT-ENVIRON

Liza T. Heise
Project Scientist

Robin L. Garibay, REM
Principal

CHRONIC REFERENCE TOXICANT (NaCl) 2004 - 2005

Ceriodaphnia dubia



9003/05reftox/cdchronic.xls

12/16/2005

Ceriodaphnia dubia CHRONIC REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2004-2005

Test Number	Log Number	Test Initiation Date	Control Survival (%) (*)	3 Brood Production (%) (*)	Control Average Repro (*)	Survival		Reproduction		IC25 VALUE (mg/L)	IC25 CUMULATIVE MEAN (mg/L)	IC25 ST. DEV. (mg/L)	IC25 2+ STD. DEV.	IC25 2- STD. DEV.	Coefficient of Variation (%)
						NOEC (mg/L)	LOEC (mg/L)	NOEC (mg/L)	LOEC (mg/L)						
1	7793	25-May-04	90	90	23.1	1,000	2,000	500	1,000	745	745	0	855	515	0
2	7798	01-Jun-04	100	100	29.3	1,000	2,000	250	500	625	685	85	855	515	9
3	7849	09-Jul-04	100	100	28.9	1,000	2,000	500	1,000	800	723	89	902	544	10
4	7889	03-Aug-04	90	80	27.1	1,000	2,000	250	500	596	692	97	885	498	12
5	7936	10-Sep-04	90	100	30.5	1,000	2,000	500	1,000	887	731	121	973	488	15
6	7991	12-Oct-04	100	100	26.8	500	1,000	500	1,000	508	694	141	976	411	19
7	8060	16-Nov-04	100	90	27.4	1,000	2,000	125	250	514	668	148	960	376	20
8	8108	22-Dec-04	100	90	25.2	1,000	2,000	250	500	390	633	167	967	299	25
9	8114	04-Jan-05	100	90	30.1	1,000	2,000	500	1,000	568	626	158	941	310	24
10	8154	01-Feb-05	100	90	24.3	1,000	2,000	125	125	674	631	149	930	332	22
11	8208	04-Mar-05	90	90	20.4	1,000	2,000	500	1,000	805	647	151	949	344	22
12	8262	12-Apr-05	90	90	26.7	1,000	2,000	500	1,000	779	658	149	956	359	22
13	8305	11-May-05	100	100	27.8	1,000	2,000	125	250	506	646	149	944	348	22
14	8330	01-Jun-05	100	100	25.5	1,000	2,000	500	1,000	848	660	153	966	355	22
15	8415	26-Jul-05	100	90	26.5	1,000	2,000	500	1,000	589	656	148	953	359	22
16	8435	09-Aug-05	100	100	32.0	1,000	2,000	125	250	500	646	149	943	349	22
17	8469	07-Sep-05	100	100	26.9	1,000	2,000	250	500	578	642	145	932	352	22
18	8506	04-Oct-05	100	100	31.1	1,000	2,000	250	500	499	634	145	923	345	22
19	8539	18-Oct-05	100	90	34.9	500	1,000	<125	125	491	626	144	915	338	22
20	8571	08-Nov-05	100	100	27.8	1,000	2,000	500	1,000	698	630	141	913	347	22
		Avg	98	95	28	950	1900	338	675	630	664	131	932	389	

Notes:
NOEC - No Observable Effect Concentration (survival or reproduction)
LOEC - Lowest Observable Effect Concentration (survival or reproduction)
ACCEPTABLE TEST RESULTS - A reproduction NOEC ranging from 250 mg/L to 1,000 mg/L.
(*) Minimum USEPA CONTROL CRITERIA - 80 percent survival, 80 percent with 3 broods, and average reproduction of 15 neonates/adult.

CHRONIC TOXICITY

CITY OF PHOENIX

CAVE CREEK WATER RECLAMATION PLANT
NPDES Permit Number AZ0024465

Estimation of chronic toxicity of Cave Creek Water Reclamation Plant effluent to *Ceriodaphnia dubia*, Fathead Minnow, and *Selenastrum capricomutum.*

PREPARED BY:
Philip Johnson, Chemist II
Susan Cheshier, Chemist I
Terry Kitchen, Chemist I

December 2004

Sample dates: December 8, 10, 12, 2004
Test dates: December 9-17, 2004

LABORATORY IDENTIFICATION
Chronic Toxicity Test
CCWRP04.12

TABLE OF CONTENTS

SUMMARY

City Of Phoenix Water Services Department Cave Creek Water Reclamation Plant NPDES Permit #AZ0024465	
LABORATORY DIRECTOR	Randy Gottler, Superintendent, Laboratory Services Division
LABORATORY MANAGER	Jennifer Calles, Chemist III
QUALITY ASSURANCE MANAGER	Jason Hollilday, Chemist III
BIOMONITORING LABORATORY SUPERVISOR	Philip Johnson, Chemist III
BIOMONITORING TEST ANALYSTS	Susan Cheshier, Chemist I Terry Kitchen Chemist I
REPORT PREPARED BY	Susan Cheshier, Chemist I Terry Kitchen, Chemist I
TEST FACILITY	Laboratory Services ADHS License AZ0088 Microbiology/Biomonitoring Group
SAMPLE TESTED	Cave Creek WRP LIMS No. 2004061189 Final Effluent
SAMPLE COLLECTION DATES	December 8, 10, 12, 2004

Test Sample/Dilution Water Conditions	
TEST CONCENTRATIONS	Effluent 100%, 75%, 50%, 25%, 12.5%, and Control
DILUTION WATER	Hard Water Adjusted to Approximate Sample Hardness
CULTURE (CONTROL) WATER	Hard Water Supplemented With Vitamin B_{12}
SODIUM THIOSULFATE CONTROL	Anhydrous $Na_2S_2O_3$ Added to Dilution Water

Test Organism: *Ceriodaphnia dubia*	
TEST INIATION DATE / TIME	December 9, 2004 / 10:56 a.m.
TEST TERMINATION DATE / TIME	December 16, 2004 / 1:15 p.m.
LIFE STAGE / ORGANISM AGE	Neonates, Less Than 24 Hours Old
ORGANISM SOURCE	City of Phoenix, In-House Culture
TEST ORGANISM BATCH	120104 A, B
TEST	Survival and Reproduction, EPA Method 1002.0

Test Organism: Fathead minnow (*Pimephales promelas*)	
TEST INIATION DATE / TIME	December 9, 2004 / 11:14 a.m.
TEST TERMINATION DATE / TIME	December 16, 2004 / 10:36 a.m.
LIFE STAGE / ORGANISM AGE	Larvae, Less Than 48 Hours Old
ORGANISM SOURCE	Enviro Sciences, Inc.
TEST	Larval Survival and Growth, EPA Method 1000.0

Test Organism: *Selenastrum capricornutum*	
TEST INIATION DATE / TIME	December 13, 2004 / 10:06 a.m.
TEST TERMINATION DATE / TIME	December 17, 2004 / 10:44 a.m.
LIFE STAGE / ORGANISM AGE	5 Days
ORGANISM SOURCE / BATCH NUMBER	City of Phoenix, In-House Culture Batch number: 120804
TEST	Green Alga Growth Test, EPA Method 1003.0

1.0 INTRODUCTION

1.1 NPDES PERMIT NUMBER

This report complies with the requirements of the City of Phoenix Cave Creek Water Reclamation Plant, NPDES Permit #AZ0024465.

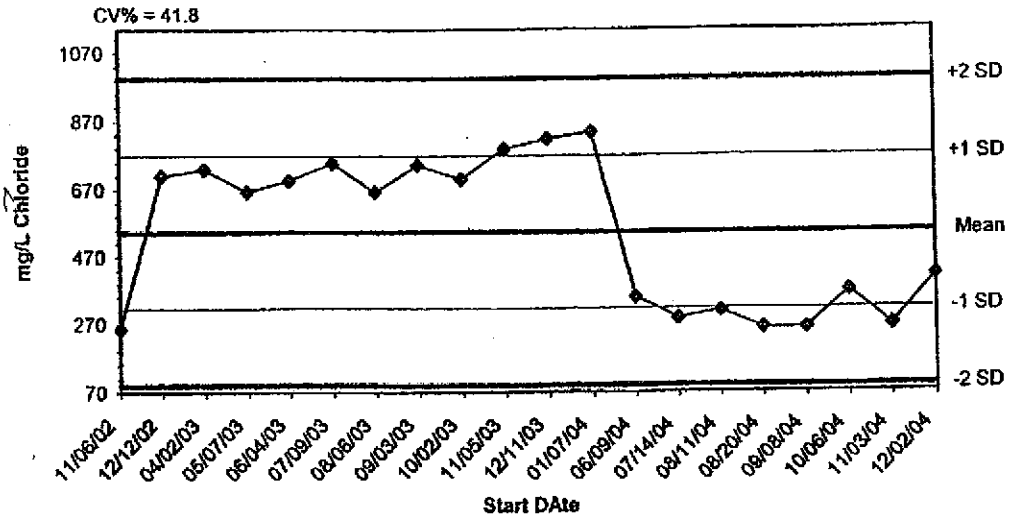
1.2 TOXICITY TESTING REQUIREMENTS

- Quarterly chronic toxicity tests shall be conducted on composite effluent samples either quarterly if in continuous discharge or if in intermittent discharge, testing will be required if discharges occur during at least five consecutive days.
- Chronic toxicity testing shall be done using three species: *Ceriodadaphnia dubia*, Fathead minnow, and *Selenastrum capricornutum.*
- Results shall be reported in TUc = 100/NOEC.
- The chronic trigger is any one test result with a daily maximum greater than 2.0 TUc.
- The hardness of the laboratory prepared dilution water will be adjusted to approximate the hardness of the sample.

1.3 PLANT LOCATION/RECEIVING WATER BODY

The Cave Creek Water Reclamation Plant, located in Maricopa County, Arizona, is authorized to discharge treated domestic wastewater up to 30,280 m^3/day (8 MGD) as a daily maximum to an unnamed wash, a tributary to Cave Creek.

Chronic Reference Toxicant NaCl Ceriodaphnia dubia IC25



Dates	Values	Mean	-1 SD	-2 SD	+1 SD	+2 SD
11/06/02	255.3750	542.3737	315.9001	89.4265	768.8473	995.3209
12/12/02	710.1370	542.3737	315.9001	89.4265	768.8473	995.3209
04/02/03	728.9362	542.3737	315.9001	89.4265	768.8473	995.3209
05/07/03	663.0000	542.3737	315.9001	89.4265	768.8473	995.3209
06/04/03	696.4286	542.3737	315.9001	89.4265	768.8473	995.3209
07/09/03	746.8269	542.3737	315.9001	89.4265	768.8473	995.3209
08/06/03	661.6901	542.3737	315.9001	89.4265	768.8473	995.3209
09/03/03	741.6000	542.3737	315.9001	89.4265	768.8473	995.3209
10/02/03	699.7959	542.3737	315.9001	89.4265	768.8473	995.3209
11/05/03	788.7066	542.3737	315.9001	89.4265	768.8473	995.3209
12/11/03	817.6271	542.3737	315.9001	89.4265	768.8473	995.3209
01/07/04	838.1613	542.3737	315.9001	89.4265	768.8473	995.3209
06/09/04	349.8387	542.3737	315.9001	89.4265	768.8473	995.3209
07/14/04	286.5789	542.3737	315.9001	89.4265	768.8473	995.3209
08/11/04	307.6923	542.3737	315.9001	89.4265	768.8473	995.3209
08/20/04	256.5000	542.3737	315.9001	89.4265	768.8473	995.3209
09/08/04	256.2500	542.3737	315.9001	89.4265	768.8473	995.3209
10/06/04	366.8134	542.3737	315.9001	89.4265	768.8473	995.3209
11/03/04	264.4590	542.3737	315.9001	89.4265	768.8473	995.3209
12/02/04	411.0577	542.3737	315.9001	89.4265	768.8473	995.3209

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INDEX OF APPENDIX TO COMMENTS ON EPA DRAFT PERMIT FOR WWTP1

SJRA 23, Correspondence between APAI and TCEQ re: City of Garland TPDES Permit	1106-1121
SJRA 24, excerpts from Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, October 2002, EPA-821-R-02-013	1122-1125
SJRA 25, January 2002 chain of custody records	1126-1127
SJRA 26, Woodlands No. 1 WWTP Samples Identified as Toxic During TRE	1128
SJRA 27, Woodlands WWTP No. 1 Effects of C_{18} Column Treatment on Effluent Quality	1129
SJRA 28, 1st Quarterly TRE 1998	1130-1194
SJRA 29, summary memo of TRE by Cathy Shoemaker of TCEQ on March 20, 2000	1195-1196
SJRA 30, December 9, 2004 Correspondence to TCEQ from SJRA transmitting proposed pretreatment program	1197-1198
SJRA 31, July 25, 1992 letter to Helen Nguyen EPA from SJRA re: TRE	1199-1212
SJRA 32, February 14, 2002 E-mail from Zdenek Matl to Martin Rochelle regarding status of permit	1213
SJRA 33, Fact Sheet for November 16, 2000 draft permit	1214-1216
SJRA 34, Direct Testimony, Timothy F. Moore	1217-1274
SJRA 35, Timothy F. Moore Resume	1275-1277
SJRA 36, "Investigating the Incidence of Type 1 Errors for Chronic Whole Effluent Toxicity Testing Using *Ceriodaphnia Dubia*," Timothy F. Moore, Steven P. Canton, and Max Grimes	1278-1282
SJRA 37, Error Band Illustration	1283
SJRA 38, Typical Acceptance Range in EPA's Annual DMR-QA Laboratory Performance Tests for WET	1284
SJRA 39, excerpt from Technical Support Document for Water Quality-based Toxics Control – Responsiveness Summary, EPA/505/2-90-001, March 1991	1285-1312
SJRA 40, Unavoidable Statistical Errors in WET Testing For Known Non-Toxic Effluents	1313
SJRA 41, October 17, 2002 Tim Moore report to Rex Hunt and Peggy Glass re: Improper Termination of WET Test in November 2001, and October 23, 2002 Tim Moore report to Peggy Glass re: Whole Effluent Toxicity (WET) Results at Woodlands WWTP#1	1314-1325
SJRA 42, PBS&J Nov 2001 Biomonitoring Report benchsheets (excerpts from ED 15)	1326-1328
SJRA 43, PBS&J Nov 2001 Biomonitoring Report control chart (excerpt from ED 15)	1329-1330
SJRA 44, December 28, 2000 letter to TCEQ from PBS&J	1331
SJRA 45, A Review of Single Species Toxicity Tests: Are the Tests Reliable Predictors of Aquatic Ecosystem Community Responses? EPA/600/R-97/114, July 1999	1332-1397
SJRA 46, November 5, 2002 report to Peggy Glass from Tim Moore re: Review of WET Results at Woodlands WWTP #1 in Summer of 1998	1398-1407

SJRA 47, 1991 TSD pie charts	1408-1409
SJRA 48, Summary of WET Decision Errors as it Appeared in EPA's TSD (1991)	1410
SJRA 49, 1996 FOIA requests	1411-1415
SJRA 50, EPA Response to 1996 FOIA requests	1416-1417
SJRA 51, EPA Permit No. TX0054186 issued 9/1/89	1418-1439
Closing Argument of San Jacinto River Authority	1440-1487
SJRA's Reply to Closing Arguments of the ED and OPIC	1488-1567
TCEQ Executive Director's Record at SOAH Hearing	
ED 1, Affidavit of Publication February 2001	1568-1571
ED 2, Chief Clerk's Affidavit of Mailed Notice of Hearing November 2003	1572-1583
ED 3, Affidavit of Publication December 2003	1584-1588
ED 4, Resume of Joel P. Klumpp	1589-1590
ED 4a, Direct Testimony of Joel P. Klumpp	1591-1599
ED 5, Draft Permit	1600-1650
ED 6, January 28, 2002 letter to L'Oreal Stepney from Paulette Johnsey	1651
ED 7, March 13, 2002 memo to Chief Clerk from Firoj Vahora re: changes to be made to draft permit	1652-1657
ED 8, Statement of Basis/Technical Summary and Executive Director's Preliminary Decision	1658-1662
ED 9, Resume of Firoj Vahora	1663-1665
ED 9a, Direct Testimony of Firoj Vahora	1666-1670
ED 10, MOA between TNRCC and EPA concerning the NPDES	1671-1741
ED 11, Resume of Michel Pfeil	1742
ED 11 a, Direct Testimony of Michael Pfeil	1743-1766
ED 12, 1995 Implementation Procedures	1767-1880
ED 13, 2003 Implementation Procedures	1881-2078
ED 14, 1st Quarterly TRE Report	2079-2134
ED 15, PBS&J Biomonioring Report for November 2001	2135-2153
ED 16, PBS&J Biomonitoring Report for January 2002	2154-2184
ED 17, June 15, 2001 letter to T. Howard from Faith Hambleton, TCEQ re: TRE	2185-2186
ED 17a, January 2002 SRA report - same as SJRA 19	
ED 18, June 3, 2003 letter to M. Cowen from EPA outcome of EPA hearing	2187-2188
ED 19, Phil Jennings Resume and Reference List	2189-2192
ED 19a, Direct Testimony of Phil Jennings	2193-2220
ED 20, Edison decision	2221-2234
ED 21, SJRA TPDES Permit No. 12597-001	2235-2288
ED 22, Historical Summary of SJRA Chronic Tests from 10/89 to 9/02	2289-2292
ED 23, Summary of Test Failures June 1998 to August 2004	2293
ED 24, database printout, back up document for ED 23	2294-2297
ED 25, San Marcos printout of test results	2298-2300
ED 26, Formosa Plastics printout of test results	2301-2302
ED 27, Chapter 5 Guidance to Regulatory Authorities, Laboratories and Permittees: Generating and Evaluating Effect Concentrations	2303-2322