



TPDES PERMIT NO. WQ0004138000
[For TCEQ office use only -
EPA I.D. No. TX0119423]

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

P. O. Box 13087
Austin, Texas 78711-3087

This major amendment replaces
TPDES Permit No.
WQ0004138000, issued on
August 10, 2010.

PERMIT TO DISCHARGE WASTES
under provisions of
Section 402 of the Clean Water Act
and Chapter 26 of the Texas Water Code

Calpine Hidalgo Energy Center, L.P., Brownsville Public Utilities Board, (owners)

and Calpine Operating Services Company, Inc. (operator)

whose mailing address is

717 Texas Avenue, Suite 1000
Houston, Texas, 77002

are authorized to treat and discharge wastes from Calpine Hidalgo Energy Center, an electric power generating plant utilizing combined cycle combustion turbines (SIC 4911)

located at 4005 North Seminary Road, at the northwest corner of the intersection of Monte Cristo Road (Farm-to-Market Road 1925) and Seminary Road in the City of Edinburg, Hidalgo County, Texas 78541

to North Main Drain III; thence to North Main Drain II; thence to North Main Drain I; thence to North Floodway Channel; thence to Laguna Madre in Segment No. 2491 of the Bays and Estuaries

only according to effluent limitations, monitoring requirements and other conditions set forth in this permit, as well as the rules of the Texas Commission on Environmental Quality (TCEQ), the laws of the State of Texas, and other orders of the TCEQ. The issuance of this permit does not grant to the permittee the right to use private or public property for conveyance of wastewater along the discharge route described in this permit. This includes, but is not limited to, property belonging to any individual, partnership, corporation, or other entity. Neither does this permit authorize any invasion of personal rights nor any violation of federal, state, or local laws or regulations. It is the responsibility of the permittee to acquire property rights as may be necessary to use the discharge route.

This permit shall expire at midnight on July 1, 2015.

ISSUED DATE:

For the Commission

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Outfall Number 001

1. During the period beginning upon date of permit issuance and lasting through date of permit expiration, the permittee is authorized to discharge cooling tower blowdown (*1) and previously monitored effluent (low volume waste sources and metal cleaning wastes) subject to the following effluent limitations:

The daily average flow of effluent shall not exceed 0.92 million gallons per day (MGD). The daily maximum flow shall not exceed 1.84 MGD.

Effluent Characteristics	Discharge Limitations				Minimum Self-Monitoring Requirements	
	Daily Average		Daily Maximum		Report Daily Average and Daily Maximum	
	lbs/day	mg/L	lbs/day	mg/L	Measurement Frequency	Sample Type
Flow	0.92 MGD		1.84 MGD		1/day	Metered
Carbonaceous Biochemical Oxygen Demand (5-day)	230	30	345	45	1/week	Grab
Total Dissolved Solids	79,614	10,370	168,426	21,938	1/week	Grab
Chloride	32,628	4,250	69,027	8,991	1/week	Grab
Sulfate	25,105	3,270	53,112	6,918	1/week	Grab
Nitrate Nitrogen	1,052	137	2,219	289	1/week	Grab
Ammonia Nitrogen	23.0	3.0	53.7	7.0	1/week	Grab
Total Residual Chlorine (*2)	N/A	N/A	N/A	0.1 (*2)	1/week (*3)	Grab

(*1) See Other Requirements No. 9 and No. 11.

(*2) See Other Requirement No. 7.

(*3) Samples shall be representative of periods of chlorination.

- The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 1/day by grab sample.
- The effluent shall maintain a minimum dissolved oxygen concentrations of 5.0 mg/L and shall be monitored 1/week, by grab sample.
- There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.
- Effluent monitoring samples shall be taken at the following location: At Outfall 001, at the southwest corner of the property where the North Main Drain III crosses Monte Cristo Road.

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Outfall Number 101

1. During the period beginning upon date of permit issuance and lasting through date of permit expiration, the permittee is authorized to discharge low volume waste sources (*1) subject to the following effluent limitations:

Volume: Continuous and flow variable

Effluent Characteristics	Discharge Limitations		Minimum Self-Monitoring Requirements	
	Daily Average mg/L	Daily Maximum mg/L	Report Daily Average and Daily Maximum	Measurement Frequency Sample Type
Flow	Report, MGD	Report, MGD		1/day Estimate
Total Suspended Solids	30	100	100	1/week Grab
Oil and Grease	15	20	20	1/week Grab

(*1) See Other Requirement No. 5.

2. The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 1/day by grab sample.
3. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.
4. Effluent monitoring samples shall be taken at the following location: At Outfall 101, immediately following the discharge of low volume waste sources from the oil/water separator prior to mixing with any other wastewaters.

Calpine Hidalgo Energy Center, L.P.,
 Brownsville PUB, and
 Calpine Operating Services Company, Inc.

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Outfall Number 201

1. During the period beginning upon date of permit issuance and lasting through date of permit expiration, the permittee is authorized to discharge offline combustion turbine wash water (metal cleaning wastes) (*1) subject to the following effluent limitations:

Volume: Intermittent and flow variable

Effluent Characteristics	Discharge Limitations		Minimum Self-Monitoring Requirements	
	Daily Average mg/L Report, MGD	Daily Maximum mg/L Report, MGD	Single Grab mg/L N/A	Report Daily Average and Daily Maximum Measurement Frequency Sample Type
Flow				1/day (*2) Estimate
Total Suspended Solids	30	100	100	1/week (*2) Grab
Oil and Grease	15	20	20	1/week (*2) Grab
Copper, Total	1.0	1.0	1.0	1/week (*2) Grab
Iron, Total	1.0	1.0	1.0	1/week (*2) Grab

- (*1) See Other Requirement No. 6.
- (*2) When discharge occurs.

2. The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 1/day (*2) by grab sample.
3. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.
4. Effluent monitoring samples shall be taken at the following location: At Outfall 201, immediately following the sump below the combustion turbine engine prior to mixing with any other wastewaters.

DEFINITIONS AND STANDARD PERMIT CONDITIONS

As required by Title 30 Texas Administrative Code (TAC) Chapter 305, certain regulations appear as standard conditions in waste discharge permits. 30 TAC §§305.121 - 305.129 (relating to Permit Characteristics and Conditions) as promulgated under the Texas Water Code (TWC) §§5.103 and 5.105, and the Texas Health and Safety Code (THSC) §§361.017 and 361.024(a), establish the characteristics and standards for waste discharge permits, including sewage sludge, and those sections of 40 Code of Federal Regulations (CFR) Part 122 adopted by reference by the Commission. The following text includes these conditions and incorporates them into this permit. All definitions in Texas Water Code §26.001 and 30 TAC Chapter 305 shall apply to this permit and are incorporated by reference. Some specific definitions of words or phrases used in this permit are as follows:

1. Flow Measurements

- a. Annual average flow - the arithmetic average of all daily flow determinations taken within the preceding 12 consecutive calendar months. The annual average flow determination shall consist of daily flow volume determinations made by a totalizing meter, charted on a chart recorder, and limited to major domestic wastewater discharge facilities with a one million gallons per day or greater permitted flow.
- b. Daily average flow - the arithmetic average of all determinations of the daily flow within a period of one calendar month. The daily average flow determination shall consist of determinations made on at least four separate days. If instantaneous measurements are used to determine the daily flow, the determination shall be the arithmetic average of all instantaneous measurements taken during that month. Daily average flow determination for intermittent discharges shall consist of a minimum of three flow determinations on days of discharge.
- c. Daily maximum flow - the highest total flow for any 24-hour period in a calendar month.
- d. Instantaneous flow - the measured flow during the minimum time required to interpret the flow measuring device.
- e. 2-hour peak flow (domestic wastewater treatment plants) - the maximum flow sustained for a two-hour period during the period of daily discharge. The average of multiple measurements of instantaneous maximum flow within a two-hour period may be used to calculate the 2-hour peak flow.
- f. Maximum 2-hour peak flow (domestic wastewater treatment plants) - the highest 2-hour peak flow for any 24-hour period in a calendar month.

2. Concentration Measurements

- a. Daily average concentration - the arithmetic average of all effluent samples, composite or grab as required by this permit, within a period of one calendar month, consisting of at least four separate representative measurements.
 - i. For domestic wastewater treatment plants - When four samples are not available in a calendar month, the arithmetic average (weighted by flow) of all values in the previous four consecutive month period consisting of at least four measurements shall be utilized as the daily average concentration.
 - ii. For all other wastewater treatment plants - When four samples are not available in a calendar month, the arithmetic average (weighted by flow) of all values taken during the month shall be utilized as the daily average concentration.
- b. 7-day average concentration - the arithmetic average of all effluent samples, composite or grab as required by this permit, within a period of one calendar week, Sunday through Saturday.
- c. Daily maximum concentration - the maximum concentration measured on a single day, by the sample type specified in the permit, within a period of one calendar month.

- d. Daily discharge - the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in terms of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the sampling day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the sampling day.

The "daily discharge" determination of concentration made using a composite sample shall be the concentration of the composite sample. When grab samples are used, the "daily discharge" determination of concentration shall be the arithmetic average (weighted by flow value) of all samples collected during that day.

- e. Bacteria concentration (Fecal coliform, *E. coli*, or Enterococci) - the number of colonies of bacteria per 100 milliliters effluent. The daily average bacteria concentration is a geometric mean of the values for the effluent samples collected in a calendar month. The geometric mean shall be determined by calculating the n th root of the product of all measurements made in a calendar month, where n equals the number of measurements made; or computed as the antilogarithm of the arithmetic mean of the logarithms of all measurements made in a calendar month. For any measurement of bacteria equaling zero, a substitute value of one shall be made for input into either computation method. If specified, the 7-day average for bacteria is the geometric mean of the values for all effluent samples collected during a calendar week.
- f. Daily average loading (lbs/day) - the arithmetic average of all daily discharge loading calculations during a period of one calendar month. These calculations must be made for each day of the month that a parameter is analyzed. The daily discharge, in terms of mass (lbs/day), is calculated as $(\text{Flow, MGD} \times \text{Concentration, mg/L} \times 8.34)$.
- g. Daily maximum loading (lbs/day) - the highest daily discharge, in terms of mass (lbs/day), within a period of one calendar month.

3. Sample Type

- a. Composite sample - For domestic wastewater, a composite sample is a sample made up of a minimum of three effluent portions collected in a continuous 24-hour period or during the period of daily discharge if less than 24 hours, and combined in volumes proportional to flow, and collected at the intervals required by 30 TAC §319.9(a). For industrial wastewater, a composite sample is a sample made up of a minimum of three effluent portions collected in a continuous 24-hour period or during the period of daily discharge if less than 24 hours, and combined in volumes proportional to flow, and collected at the intervals required by 30 TAC §319.9(c).
 - b. Grab sample - an individual sample collected in less than 15 minutes.
4. Treatment Facility (facility) - wastewater facilities used in the conveyance, storage, treatment, recycling, reclamation or disposal of domestic sewage, industrial wastes, agricultural wastes, recreational wastes, or other wastes including sludge handling or disposal facilities under the jurisdiction of the Commission.
 5. The term "sewage sludge" is defined as solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in 30 TAC Chapter 312. This includes the solids that have not been classified as hazardous waste separated from wastewater by unit processes.
 6. Bypass - the intentional diversion of a waste stream from any portion of a treatment facility.

MONITORING AND REPORTING REQUIREMENTS

1. Self-Reporting

Monitoring results shall be provided at the intervals specified in the permit. Unless otherwise specified in this permit or otherwise ordered by the Commission, the permittee shall conduct effluent sampling and reporting in accordance with 30 TAC §§319.4 - 319.12. Unless otherwise

specified, a monthly effluent report shall be submitted each month, to the Enforcement Division (MC 224), by the 20th day of the following month for each discharge that is described by this permit whether or not a discharge is made for that month. Monitoring results must be reported on an approved self-report form that is signed and certified as required by Monitoring and Reporting Requirements No. 10.

As provided by state law, the permittee is subject to administrative, civil and criminal penalties, as applicable, for negligently or knowingly violating the Clean Water Act; TWC Chapters 26, 27, and 28; and THSC Chapter 361, including but not limited to knowingly making any false statement, representation, or certification on any report, record, or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, or falsifying, tampering with or knowingly rendering inaccurate any monitoring device or method required by this permit or violating any other requirement imposed by state or federal regulations.

2. Test Procedures

- a. Unless otherwise specified in this permit, test procedures for the analysis of pollutants shall comply with procedures specified in 30 TAC §§319.11 - 319.12. Measurements, tests, and calculations shall be accurately accomplished in a representative manner.
- b. All laboratory tests submitted to demonstrate compliance with this permit must meet the requirements of 30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification.

3. Records of Results

- a. Monitoring samples and measurements shall be taken at times and in a manner so as to be representative of the monitored activity.
- b. Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), monitoring and reporting records, including strip charts and records of calibration and maintenance, copies of all records required by this permit, records of all data used to complete the application for this permit, and the certification required by 40 CFR §264.73(b)(9) shall be retained at the facility site, or shall be readily available for review by a TCEQ representative for a period of three years from the date of the record or sample, measurement, report, application or certification. This period shall be extended at the request of the Executive Director.
- c. Records of monitoring activities shall include the following:
 - i. date, time, and place of sample or measurement;
 - ii. identity of individual who collected the sample or made the measurement;
 - iii. date and time of analysis;
 - iv. identity of the individual and laboratory who performed the analysis;
 - v. the technique or method of analysis; and
 - vi. the results of the analysis or measurement and quality assurance/quality control records.

The period during which records are required to be kept shall be automatically extended to the date of the final disposition of any administrative or judicial enforcement action that may be instituted against the permittee.

4. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit using approved analytical methods as specified above, all results of such monitoring shall be included in the calculation and reporting of the values submitted on the approved self-report form. Increased frequency of sampling shall be indicated on the self-report form.

5. Calibration of Instruments

All automatic flow measuring or recording devices and all totalizing meters for measuring flows shall be accurately calibrated by a trained person at plant start-up and as often thereafter as necessary to ensure accuracy, but not less often than annually unless authorized by the Executive Director for a longer period. Such person shall verify in writing that the device is operating properly and giving accurate results. Copies of the verification shall be retained at the facility site or shall be readily available for review by a TCEQ representative for a period of three years.

6. Compliance Schedule Reports

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date to the Regional Office and the Enforcement Division (MC 224).

7. Noncompliance Notification

a. In accordance with 30 TAC §305.125(9) any noncompliance that may endanger human health or safety, or the environment shall be reported by the permittee to the TCEQ. Report of such information shall be provided orally or by facsimile transmission (FAX) to the Regional Office within 24 hours of becoming aware of the noncompliance. A written submission of such information shall also be provided by the permittee to the Regional Office and the Enforcement Division (MC 224) within five working days of becoming aware of the noncompliance. The written submission shall contain a description of the noncompliance and its cause; the potential danger to human health or safety, or the environment; the period of noncompliance, including exact dates and times; if the noncompliance has not been corrected, the time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance, and to mitigate its adverse effects.

b. The following violations shall be reported under Monitoring and Reporting Requirement 7.a.:

- i. unauthorized discharges as defined in Permit Condition 2(g).
- ii. any unanticipated bypass that exceeds any effluent limitation in the permit.
- iii. violation of a permitted maximum daily discharge limitation for pollutants listed specifically in the Other Requirements section of an Industrial TPDES permit.

c. In addition to the above, any effluent violation that deviates from the permitted effluent limitation by more than 40% shall be reported by the permittee in writing to the Regional Office and the Enforcement Division (MC 224) within 5 working days of becoming aware of the noncompliance.

d. Any noncompliance other than that specified in this section, or any required information not submitted or submitted incorrectly, shall be reported to the Enforcement Division (MC 224) as promptly as possible. For effluent limitation violations, noncompliances shall be reported on the approved self-report form.

8. In accordance with the procedures described in 30 TAC §§35.301 - 35.303 (relating to Water Quality Emergency and Temporary Orders) if the permittee knows in advance of the need for a bypass, it shall submit prior notice by applying for such authorization.

9. Changes in Discharges of Toxic Substances

All existing manufacturing, commercial, mining, and silvicultural permittees shall notify the Regional Office, orally or by facsimile transmission within 24 hours, and both the Regional Office and the Enforcement Division (MC 224) in writing within five (5) working days, after becoming aware of or having reason to believe:

a. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant listed at 40 CFR Part 122, Appendix D, Tables II and III (excluding Total Phenols) that is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

- i. one hundred micrograms per liter (100 µg/L);
 - ii. two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - iii. five (5) times the maximum concentration value reported for that pollutant in the permit application; or
 - iv. the level established by the TCEQ.
- b. That any activity has occurred or will occur that would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant that is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
- i. five hundred micrograms per liter (500 µg/L);
 - ii. one milligram per liter (1 mg/L) for antimony;
 - iii. ten (10) times the maximum concentration value reported for that pollutant in the permit application; or
 - iv. the level established by the TCEQ.

10. Signatories to Reports

All reports and other information requested by the Executive Director shall be signed by the person and in the manner required by 30 TAC §305.128 (relating to Signatories to Reports).

11. All Publicly Owned Treatment Works (POTWs) must provide adequate notice to the Executive Director of the following:

- a. any new introduction of pollutants into the POTW from an indirect discharger that would be subject to CWA §301 or §306 if it were directly discharging those pollutants;
- b. any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit; and
- c. for the purpose of this paragraph, adequate notice shall include information on:
 - i. the quality and quantity of effluent introduced into the POTW; and
 - ii. any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

PERMIT CONDITIONS

1. General

- a. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in an application or in any report to the Executive Director, it shall promptly submit such facts or information.
- b. This permit is granted on the basis of the information supplied and representations made by the permittee during action on an application, and relying upon the accuracy and completeness of that information and those representations. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked, in whole or in part, in accordance with 30 TAC Chapter 305, Subchapter D, during its term for good cause including, but not limited to, the following:
 - i. violation of any terms or conditions of this permit;
 - ii. obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or
 - iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

- c. The permittee shall furnish to the Executive Director, upon request and within a reasonable time, any information to determine whether cause exists for amending, revoking, suspending, or terminating the permit. The permittee shall also furnish to the Executive Director, upon request, copies of records required to be kept by the permit.

2. Compliance

- a. Acceptance of the permit by the person to whom it is issued constitutes acknowledgment and agreement that such person will comply with all the terms and conditions embodied in the permit, and the rules and other orders of the Commission.
- b. The permittee has a duty to comply with all conditions of the permit. Failure to comply with any permit condition constitutes a violation of the permit and the Texas Water Code or the Texas Health and Safety Code, and is grounds for enforcement action, for permit amendment, revocation, or suspension, or for denial of a permit renewal application or an application for a permit for another facility.
- c. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.
- d. The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal or other permit violation that has a reasonable likelihood of adversely affecting human health or the environment.
- e. Authorization from the Commission is required before beginning any change in the permitted facility or activity that may result in noncompliance with any permit requirements.
- f. A permit may be amended, suspended and reissued, or revoked for cause in accordance with 30 TAC §§305.62 and 305.66 and TWC §7.302. The filing of a request by the permittee for a permit amendment, suspension and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- g. There shall be no unauthorized discharge of wastewater or any other waste. For the purpose of this permit, an unauthorized discharge is considered to be any discharge of wastewater into or adjacent to water in the state at any location not permitted as an outfall or otherwise defined in the Other Requirements section of this permit.
- h. In accordance with 30 TAC §305.535(a), the permittee may allow any bypass to occur from a TPDES permitted facility that does not cause permitted effluent limitations to be exceeded or an unauthorized discharge to occur, but only if the bypass is also for essential maintenance to assure efficient operation.
- i. The permittee is subject to administrative, civil, and criminal penalties, as applicable, under Texas Water Code §§7.051 - 7.075 (relating to Administrative Penalties), 7.101 - 7.111 (relating to Civil Penalties), and 7.141 - 7.202 (relating to Criminal Offenses and Penalties) for violations including, but not limited to, negligently or knowingly violating the federal CWA §§301, 302, 306, 307, 308, 318, or 405, or any condition or limitation implementing any sections in a permit issued under the CWA §402, or any requirement imposed in a pretreatment program approved under the CWA §§402(a)(3) or 402(b)(8).

3. Inspections and Entry

- a. Inspection and entry shall be allowed as prescribed in the TWC Chapters 26, 27, and 28, and THSC Chapter 361.
- b. The members of the Commission and employees and agents of the Commission are entitled to enter any public or private property at any reasonable time for the purpose of inspecting and investigating conditions relating to the quality of water in the state or the compliance with any rule, regulation, permit, or other order of the Commission. Members, employees, or agents of the Commission and Commission contractors are entitled to enter public or private property at any reasonable time to investigate or monitor or, if the responsible party is not responsive or

there is an immediate danger to public health or the environment, to remove or remediate a condition related to the quality of water in the state. Members, employees, Commission contractors, or agents acting under this authority who enter private property shall observe the establishment's rules and regulations concerning safety, internal security, and fire protection, and if the property has management in residence, shall notify management or the person then in charge of his presence and shall exhibit proper credentials. If any member, employee, Commission contractor, or agent is refused the right to enter in or on public or private property under this authority, the Executive Director may invoke the remedies authorized in TWC §7.002. The statement above, that Commission entry shall occur in accordance with an establishment's rules and regulations concerning safety, internal security, and fire protection, is not grounds for denial or restriction of entry to any part of the facility, but merely describes the Commission's duty to observe appropriate rules and regulations during an inspection.

4. Permit Amendment or Renewal

- a. The permittee shall give notice to the Executive Director as soon as possible of any planned physical alterations or additions to the permitted facility if such alterations or additions would require a permit amendment or result in a violation of permit requirements. Notice shall also be required under this paragraph when:
 - i. the alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in accordance with 30 TAC §305.534 (relating to New Sources and New Dischargers); or
 - ii. the alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in the permit, nor to notification requirements in Monitoring and Reporting Requirements No. 9; or
 - iii. the alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.
- b. Prior to any facility modifications, additions, or expansions that will increase the plant capacity beyond the permitted flow, the permittee must apply for and obtain proper authorization from the Commission before commencing construction.
- c. The permittee must apply for an amendment or renewal at least 180 days prior to expiration of the existing permit in order to continue a permitted activity after the expiration date of the permit. If an application is submitted prior to the expiration date of the permit, the existing permit shall remain in effect until the application is approved, denied, or returned. If the application is returned or denied, authorization to continue such activity shall terminate upon the effective date of the action. If an application is not submitted prior to the expiration date of the permit, the permit shall expire and authorization to continue such activity shall terminate.
- d. Prior to accepting or generating wastes that are not described in the permit application or that would result in a significant change in the quantity or quality of the existing discharge, the permittee must report the proposed changes to the Commission. The permittee must apply for a permit amendment reflecting any necessary changes in permit conditions, including effluent limitations for pollutants not identified and limited by this permit.
- e. In accordance with the TWC §26.029(b), after a public hearing, notice of which shall be given to the permittee, the Commission may require the permittee, from time to time, for good cause, in accordance with applicable laws, to conform to new or additional conditions.
- f. If any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under CWA §307(a) for a toxic pollutant that is present in the discharge and that standard or prohibition is more stringent than any limitation on the pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition. The permittee shall comply

with effluent standards or prohibitions established under CWA §307(a) for toxic pollutants within the time provided in the regulations that established those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

5. Permit Transfer

- a. Prior to any transfer of this permit, Commission approval must be obtained. The Commission shall be notified in writing of any change in control or ownership of facilities authorized by this permit. Such notification should be sent to the Applications Review and Processing Team (MC 148) of the Water Quality Division.
- b. A permit may be transferred only according to the provisions of 30 TAC §305.64 (relating to Transfer of Permits) and 30 TAC §50.133 (relating to Executive Director Action on Application or WQMP update).

6. Relationship to Hazardous Waste Activities

This permit does not authorize any activity of hazardous waste storage, processing, or disposal that requires a permit or other authorization pursuant to the Texas Health and Safety Code.

7. Relationship to Water Rights

Disposal of treated effluent by any means other than discharge directly to water in the state must be specifically authorized in this permit and may require a permit pursuant to Texas Water Code Chapter 11.

8. Property Rights

A permit does not convey any property rights of any sort, or any exclusive privilege.

9. Permit Enforceability

The conditions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstances, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

10. Relationship to Permit Application

The application pursuant to which the permit has been issued is incorporated herein; provided, however, that in the event of a conflict between the provisions of this permit and the application, the provisions of the permit shall control.

11. Notice of Bankruptcy.

- a. Each permittee shall notify the executive director, in writing, immediately following the filing of a voluntary or involuntary petition for bankruptcy under any chapter of Title 11 (Bankruptcy) of the United States Code (11 USC) by or against:
 - i. the permittee;
 - ii. an entity (as that term is defined in 11 USC, §101(15)) controlling the permittee or listing the permit or permittee as property of the estate; or
 - iii. an affiliate (as that term is defined in 11 USC, §101(2)) of the permittee.
- b. This notification must indicate:
 - i. the name of the permittee;
 - ii. the permit number(s);
 - iii. the bankruptcy court in which the petition for bankruptcy was filed; and
 - iv. the date of filing of the petition.

OPERATIONAL REQUIREMENTS

1. The permittee shall at all times ensure that the facility and all of its systems of collection, treatment, and disposal are properly operated and maintained. This includes, but is not limited to, the regular, periodic examination of wastewater solids within the treatment plant by the operator in order to maintain an appropriate quantity and quality of solids inventory as described in the various operator training manuals and according to accepted industry standards for process control. Process control, maintenance, and operations records shall be retained at the facility site, or shall be readily available for review by a TCEQ representative, for a period of three years.
2. Upon request by the Executive Director, the permittee shall take appropriate samples and provide proper analysis in order to demonstrate compliance with Commission rules. Unless otherwise specified in this permit or otherwise ordered by the Commission, the permittee shall comply with all applicable provisions of 30 TAC Chapter 312 concerning sewage sludge use and disposal and 30 TAC §§319.21 - 319.29 concerning the discharge of certain hazardous metals.
3. Domestic wastewater treatment facilities shall comply with the following provisions:
 - a. The permittee shall notify the Municipal Permits Team, Wastewater Permitting Section (MC 148) of the Water Quality Division, in writing, of any facility expansion at least 90 days prior to conducting such activity.
 - b. The permittee shall submit a closure plan for review and approval to the Municipal Permits Team, Wastewater Permitting Section (MC 148) of the Water Quality Division, for any closure activity at least 90 days prior to conducting such activity. Closure is the act of permanently taking a waste management unit or treatment facility out of service and includes the permanent removal from service of any pit, tank, pond, lagoon, surface impoundment or other treatment unit regulated by this permit.
4. The permittee is responsible for installing prior to plant start-up, and subsequently maintaining, adequate safeguards to prevent the discharge of untreated or inadequately treated wastes during electrical power failures by means of alternate power sources, standby generators, or retention of inadequately treated wastewater.
5. Unless otherwise specified, the permittee shall provide a readily accessible sampling point and, where applicable, an effluent flow measuring device or other acceptable means by which effluent flow may be determined.
6. The permittee shall remit an annual water quality fee to the Commission as required by 30 TAC Chapter 21. Failure to pay the fee may result in revocation of this permit under TWC §7.302(b)(6).
7. Documentation

For all written notifications to the Commission required of the permittee by this permit, the permittee shall keep and make available a copy of each such notification under the same conditions as self-monitoring data are required to be kept and made available. Except for information required for TPDES permit applications, effluent data, including effluent data in permits, draft permits and permit applications, and other information specified as not confidential in 30 TAC §1.5(d), any information submitted pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted in the manner prescribed in the application form or by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, information may be made available to the public without further notice. If the Commission or Executive Director agrees with the designation of confidentiality, the TCEQ will not provide the information for public inspection unless required by the Texas Attorney General or a court pursuant to an open records request. If the Executive Director does not agree with the designation of confidentiality, the person submitting the information will be notified.

8. Facilities that generate domestic wastewater shall comply with the following provisions; domestic wastewater treatment facilities at permitted industrial sites are excluded.
 - a. Whenever flow measurements for any domestic sewage treatment facility reach 75% of the permitted daily average or annual average flow for three consecutive months, the permittee must initiate engineering and financial planning for expansion or upgrading of the domestic wastewater treatment or collection facilities. Whenever the flow reaches 90% of the permitted daily average or annual average flow for three consecutive months, the permittee shall obtain necessary authorization from the Commission to commence construction of the necessary additional treatment or collection facilities. In the case of a domestic wastewater treatment facility that reaches 75% of the permitted daily average or annual average flow for three consecutive months, and the planned population to be served or the quantity of waste produced is not expected to exceed the design limitations of the treatment facility, the permittee shall submit an engineering report supporting this claim to the Executive Director of the Commission.

If in the judgment of the Executive Director the population to be served will not cause permit noncompliance, then the requirement of this section may be waived. To be effective, any waiver must be in writing and signed by the Director of the Enforcement Division (MC 149) of the Commission, and such waiver of these requirements will be reviewed upon expiration of the existing permit; however, any such waiver shall not be interpreted as condoning or excusing any violation of any permit parameter.
 - b. The plans and specifications for domestic sewage collection and treatment works associated with any domestic permit must be approved by the Commission, and failure to secure approval before commencing construction of such works or making a discharge is a violation of this permit and each day is an additional violation until approval has been secured.
 - c. Permits for domestic wastewater treatment plants are granted subject to the policy of the Commission to encourage the development of area-wide waste collection, treatment, and disposal systems. The Commission reserves the right to amend any domestic wastewater permit in accordance with applicable procedural requirements to require the system covered by this permit to be integrated into an area-wide system, should such be developed; to require the delivery of the wastes authorized to be collected in, treated by or discharged from said system, to such area-wide system; or to amend this permit in any other particular to effectuate the Commission's policy. Such amendments may be made when the changes required are advisable for water quality control purposes and are feasible on the basis of waste treatment technology, engineering, financial, and related considerations existing at the time the changes are required, exclusive of the loss of investment in or revenues from any then existing or proposed waste collection, treatment or disposal system.
9. Domestic wastewater treatment plants shall be operated and maintained by sewage plant operators holding a valid certificate of competency at the required level as defined in 30 TAC Chapter 30.
10. For Publicly Owned Treatment Works (POTWs), the 30-day average (or monthly average) percent removal for BOD and TSS shall not be less than 85%, unless otherwise authorized by this permit.
11. Facilities that generate industrial solid waste as defined in 30 TAC §335.1 shall comply with these provisions:
 - a. Any solid waste, as defined in 30 TAC §335.1 (including but not limited to such wastes as garbage, refuse, sludge from a waste treatment, water supply treatment plant or air pollution control facility, discarded materials, discarded materials to be recycled, whether the waste is solid, liquid, or semisolid), generated by the permittee during the management and treatment of wastewater, must be managed in accordance with all applicable provisions of 30 TAC Chapter 335, relating to Industrial Solid Waste Management.
 - b. Industrial wastewater that is being collected, accumulated, stored, or processed before discharge through any final discharge outfall, specified by this permit, is considered to be industrial solid waste until the wastewater passes through the actual point source discharge and must be managed in accordance with all applicable provisions of 30 TAC Chapter 335.

- c. The permittee shall provide written notification, pursuant to the requirements of 30 TAC §335.8(b)(1), to the Corrective Action Section (MC 127) of the Remediation Division informing the Commission of any closure activity involving an Industrial Solid Waste Management Unit, at least 90 days prior to conducting such an activity.
- d. Construction of any industrial solid waste management unit requires the prior written notification of the proposed activity to the Registration and Reporting Section (MC 129) of the Permitting and Remediation Support Division. No person shall dispose of industrial solid waste, including sludge or other solids from wastewater treatment processes, prior to fulfilling the deed recordation requirements of 30 TAC §335.5.
- e. The term "industrial solid waste management unit" means a landfill, surface impoundment, waste-pile, industrial furnace, incinerator, cement kiln, injection well, container, drum, salt dome waste containment cavern, or any other structure vessel, appurtenance, or other improvement on land used to manage industrial solid waste.
- f. The permittee shall keep management records for all sludge (or other waste) removed from any wastewater treatment process. These records shall fulfill all applicable requirements of 30 TAC Chapter 335 and must include the following, as it pertains to wastewater treatment and discharge:
 - i. volume of waste and date(s) generated from treatment process;
 - ii. volume of waste disposed of on-site or shipped off-site;
 - iii. date(s) of disposal;
 - iv. identity of hauler or transporter;
 - v. location of disposal site; and
 - vi. method of final disposal.

The above records shall be maintained on a monthly basis. The records shall be retained at the facility site, or shall be readily available for review by authorized representatives of the TCEQ for at least five years.

12. For industrial facilities to which the requirements of 30 TAC Chapter 335 do not apply, sludge and solid wastes, including tank cleaning and contaminated solids for disposal, shall be disposed of in accordance with THSC Code Chapter 361.

OTHER REQUIREMENTS

1. Violations of daily maximum limitations for the following pollutants shall be reported orally or by facsimile to TCEQ Region 15, within 24 hours from the time the permittee becomes aware of the violation followed by a written report within five working days to TCEQ Region 15 and the Enforcement Division (MC 224):

<u>POLLUTANT</u>	<u>MAL (mg/L)</u>
Copper, Total	0.010
Iron, Total	0.005

Test methods utilized shall be sensitive enough to demonstrate compliance with the permit effluent limitations. Permit compliance/noncompliance determinations will be based on the effluent limitations contained in this permit with consideration given to the minimum analytical level (MAL) for the parameters specified above.

When an analysis of an effluent sample for any of the parameters listed above indicates no detectable levels above the MAL and the test method detection level is as sensitive as the specified MAL, a value of zero (0) shall be used for that measurement when determining calculations and reporting requirements for the self-reporting form. This applies to determinations of daily maximum concentration, calculations of loading and daily averages, and other reportable results.

When a reported value is zero (0) based on this MAL provision, the permittee shall submit the following statement with the self-reporting form either as a separate attachment to the form or as a statement in the comments section of the form.

"The reported value(s) of zero (0) for [list parameter(s)] on the self-reporting form for [monitoring period date range] is based on the following conditions: 1) the analytical method used had a method detection level as sensitive as the MAL specified in the permit, and 2) the analytical results contained no detectable levels above the specified MAL."

When an analysis of an effluent sample for a parameter indicates no detectable levels and the test method detection level is not as sensitive as the MAL specified in the permit, or an MAL is not specified in the permit for that parameter, the level of detection achieved shall be used for that measurement when determining calculations and reporting requirements for the self-reporting form. A zero (0) may not be used.

2. The mixing zone is defined as 300 feet downstream and 100 feet upstream from the point of discharge. Chronic toxic criteria apply at the edge of the mixing zone.
3. This permit does not authorize the discharge of domestic wastewater. All domestic wastewater must be disposed of in an approved manner such as routing to an approved on-site septic tank and drainfield system or to an authorized third party for treatment and disposal.
4. There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.
5. The term "low volume waste sources" means wastewaters from, but not limited to, wastewater from wet scrubber air pollution control systems, ion exchange water treatment system, water treatment evaporator blowdown, boiler blowdown, laboratory and sampling streams, floor drainage, cooling tower basin cleaning wastes, recirculating house service water systems, and closed-loop cooling water. Sanitary and air conditioning wastes are not included.

6. The term "metal cleaning waste" means any wastewater resulting from cleaning (with or without chemical compounds) any metal process equipment including, but not limited to, boiler tube cleaning, boiler fireside cleaning, and air pre-heater cleaning.

The term "chemical metal cleaning waste" means any wastewater resulting from the cleaning of any metal process equipment with chemical compounds, including, but not limited to, boiler tube cleaning, boiler fireside cleaning, and air pre-heater cleaning.

7. The term "total residual chlorine" shall mean the value obtained using any U.S. EPA approved method for total residual chlorine described in "Standard Methods for the Examination of Water and Wastewater." Simultaneous multi-unit chlorination and continuous chlorination is permitted. The permittee shall dechlorinate continuously during periods of chlorination exceeding two hours on any day. The permittee shall dechlorinate the chlorinated effluent to a non-detectable level (defined as less than 0.1 mg/L of total residual chlorine in a single grab sample).

When chlorinating for periods exceeding two hours on any day, the permittee shall continuously monitor the oxidation reduction potential (ORP) for total residual chlorine and the effectiveness of dechlorination.

8. The term "ash transport water" shall mean water used in the transport of either fly ash or bottom ash. There shall be no discharge of "ash transport water."
9. The term "blowdown" means the minimum discharge of re-circulating water for the purpose of discharging materials contained in the water, the further buildup of which would cause concentration in amounts exceeding limits established by best engineering practices.
10. This facility is authorized to use reclaimed wastewater from the City of Edinburg and the City of McAllen as make-up water, provided proper authorization has been obtained under 30 TAC Chapter 210.
11. The 126 priority pollutants (Appendix A of Part 423) contained in chemicals added for cooling tower maintenance shall be limited in the discharge to "no detectable amount." The use of other chemical additive is not authorized unless approval is obtained and limitations are established on a case-by-case basis in accordance with Part 122.62(a). This permit prohibits the use of chemical substances containing chromium or zinc for the maintenance of the cooling tower blowdown.

12. PERMIT EXPIRATION AND APPLICATION FOR RENEWAL

Except as provided in item B below, the expiration of this permit occurs at midnight between June 30, 2015 and July 1, 2015.

- A. In accordance with 30 TAC § 305.65, the permittee shall submit an application for permit renewal a minimum of 180 days before the expiration date specified on the cover page of this permit, except when written permission for a later date has been granted by the Executive Director. Under no circumstances will an initial application for renewal be accepted on or after July 1, 2015.
- B. In accordance with 30 TAC § 305.65, if renewal procedures have been initiated before the permit expiration date (i.e., on or before June 30, 2015), the existing permit will remain in full force and effect and will not expire until Commission action on the application for renewal is final.

CHRONIC BIOMONITORING REQUIREMENTS: FRESHWATER

The provisions of this Section apply to Outfall 001 for whole effluent toxicity testing (biomonitoring).

1. Scope, Frequency and Methodology

- a. The permittee shall test the effluent for toxicity in accordance with the provisions below. Such testing will determine if an appropriately dilute effluent sample adversely affects the survival, reproduction, or growth of the test organisms.
- b. The permittee shall conduct the following toxicity tests utilizing the test organisms, procedures and quality assurance requirements specified in this Part of the permit and in accordance with "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition (EPA-821-R-02-013)," or the most recent update:
 - 1) Chronic static renewal survival and reproduction test using the water flea (*Ceriodaphnia dubia*) (Method 1002.0 or the most recent update). This test should be terminated when 60% of the surviving adults in the control produce three broods or at the end of eight days, whichever comes first. This test shall be conducted once per six months.
 - 2) Chronic static renewal 7-day larval survival and growth test using the fathead minnow (*Pimephales promelas*) (Method 1000.0 or the most recent update). A minimum of five replicates with eight organisms per replicate shall be used in the control and in each dilution. This test shall be conducted once per year.

The permittee must perform and report a valid test for each test species during the prescribed reporting period. An invalid test must be repeated during the same reporting period. An invalid test is herein defined as any test failing to satisfy the test acceptability criteria, procedures, and quality assurance requirements specified in the test methods and permit. All test results, valid or invalid, must be submitted as described below.

- c. The permittee shall use five effluent dilution concentrations and a control in each toxicity test. These additional effluent concentrations are 3%, 5%, 6%, 8%, and 11% effluent. The critical dilution, defined as 8% effluent, is the effluent concentration representative of the proportion of effluent in the receiving water during critical low flow or critical mixing conditions.
- d. This permit may be amended to require a WET limit, Chemical-Specific (CS) effluent limits, a Best Management Practice (BMP), or other appropriate actions to address toxicity. The permittee may be required to conduct a Toxicity Reduction Evaluation after multiple toxic events.

2. Required Toxicity Testing Conditions

- a. Test Acceptance - The permittee shall repeat any toxicity test, including the control and all effluent dilutions, which fail to meet the following criteria:
 - 1) a control mean survival of 80% or greater;

- 2) a control mean number of water flea neonates per surviving adult of 15 or greater;
- 3) a control mean dry weight of surviving fathead minnow larvae of 0.25 mg or greater;
- 4) a control Coefficient of Variation percent (CV%) of 40 or less in between replicates for the young of surviving females in the water flea reproduction and survival test; and the growth and survival endpoints in the fathead minnow growth and survival test.
- 5) a critical dilution CV% of 40 or less for young of surviving females in the water flea reproduction and survival test; and the growth and survival endpoints for the fathead minnow growth and survival test. However, if statistically significant lethal or nonlethal effects are exhibited at the critical dilution, a CV% greater than 40 shall not invalidate the test.
- 6) a Percent Minimum Significant Difference of 47 or less for water flea reproduction;
- 7) a Percent Minimum Significant Difference of 30 or less for fathead minnow growth.

b. Statistical Interpretation

- 1) For the water flea survival test, the statistical analyses used to determine if there is a significant difference between the control and an effluent dilution shall be Fisher's Exact Test as described in the manual referenced above, or its most recent update.
- 2) For the water flea reproduction test and the fathead minnow larval survival and growth tests, the statistical analyses used to determine if there is a significant difference between the control and an effluent dilution shall be in accordance with the manual referenced above, or its most recent update.
- 3) The permittee is responsible for reviewing test concentration-response relationships to ensure that calculated test-results are interpreted and reported correctly. The EPA manual, "Method Guidance and Recommendation for Whole Effluent Toxicity (WET) Testing (40 CFR Part 136)" (EPA 821-B-00-004) provides guidance on determining the validity of test results.
- 4) If significant lethality is demonstrated (that is, there is a statistically significant difference in survival at the critical dilution when compared to the control), the conditions of test acceptability are met, and the survival of the test organisms are equal to or greater than 80% in the critical dilution and all dilutions below that, then the permittee shall report a survival No Observed Effect Concentration (NOEC) of not less than the critical dilution for the reporting requirements.
- 5) The NOEC is defined as the greatest effluent dilution at which no significant effect is demonstrated. The Lowest Observed Effect Concentration (LOEC) is

defined as the lowest effluent dilution at which a significant effect is demonstrated. A significant effect is herein defined as a statistically significant difference between the survival, reproduction, or growth of the test organism(s) in a specified effluent dilution compared to the survival, reproduction, or growth of the test organism(s) in the control (0% effluent).

- 6) The use of NOECs and LOECs assumes either a monotonic (continuous) concentration-response relationship or a threshold model of the concentration-response relationship. For any test result that demonstrates a non-monotonic (non-continuous) response, the NOEC should be determined based on the guidance manual referenced in Item 3 above.
- 7) Pursuant to the responsibility assigned to the permittee in Part 2.b.3), test results that demonstrate a non-monotonic (non-continuous) concentration-response relationship may be submitted, prior to the due date, for technical review. The above-referenced guidance manual will be used when making a determination of test acceptability.
- 8) Staff will review test results for consistency with rules, procedures, and permit requirements.

c. Dilution Water

- 1) Dilution water used in the toxicity tests shall be the receiving water collected at a point upstream of the discharge as close as possible to the discharge point, but unaffected by the discharge. Where the toxicity tests are conducted on effluent discharges to receiving waters that are classified as intermittent streams, or where the toxicity tests are conducted on effluent discharges where no receiving water is available due to zero flow conditions, the permittee shall; (a) substitute a synthetic dilution water that has a pH, hardness, and alkalinity similar to that of the closest downstream perennial water unaffected by the discharge, or (b) utilize the closest downstream perennial water unaffected by the discharge.
- 2) Where the receiving water proves unsatisfactory as a result of pre-existing instream toxicity (i.e. fails to fulfill the test acceptance criteria of item 2.a.), the permittee may substitute synthetic dilution water for the receiving water in all subsequent tests provided the unacceptable receiving water test met the following stipulations:
 - a) a synthetic lab water control was performed (in addition to the receiving water control) which fulfilled the test acceptance requirements of item 2.a;
 - b) the test indicating receiving water toxicity was carried out to completion (i.e., 7 days);
 - c) the permittee submitted all test results indicating receiving water toxicity with the reports and information required in Part 3 of this Section.
- 3) The synthetic dilution water shall consist of standard, moderately hard,

reconstituted water. Upon approval, the permittee may substitute other appropriate dilution water with chemical and physical characteristics similar to that of the receiving water.

d. Samples and Composites

- 1) The permittee shall collect a minimum of three composite samples from Outfall 001. The second and third composite samples will be used for the renewal of the dilution concentrations for each toxicity test.
- 2) The permittee shall collect the composite samples such that the samples are representative of any periodic episode of chlorination, biocide usage, or other potentially toxic substance discharged on an intermittent basis.
- 3) The permittee shall initiate the toxicity tests within 36 hours after collection of the last portion of the first composite sample. The holding time for any subsequent composite sample shall not exceed 72 hours. Samples shall be maintained at a temperature of 0-6 degrees Centigrade during collection, shipping, and storage.
- 4) If Outfall 001 ceases discharging during the collection of effluent samples, the requirements for the minimum number of effluent samples, the minimum numbers of effluent portions, and the sample holding time, are waived during that sampling period. However, the permittee must have collected an effluent composite sample volume sufficient to complete the required toxicity tests with renewal of the effluent. When possible, the effluent samples used for the toxicity tests shall be collected on separate days if the discharge occurs over multiple days. The sample collection duration and the static renewal protocol associated with the abbreviated sample collection must be documented in the full report.

3. Reporting

All reports, tables, plans, summaries, and related correspondence required in any Part of this Section shall be submitted to the attention of the Standards Implementation Team (MC 150) of the Water Quality Division.

- a. The permittee shall prepare a full report of the results of all tests conducted in accordance with the manual referenced above, or its most recent update, for every valid and invalid toxicity test initiated whether carried to completion or not.
- b. The permittee shall routinely report the results of each biomonitoring test on the Table 1 forms provided with this permit.
 - 1) Annual biomonitoring test results are due on or before January 20th for biomonitoring conducted during the previous 12 month period.
 - 2) Semiannual biomonitoring test results are due on or before July 20th and January 20th for biomonitoring conducted during the previous 6 month period.

- 3) Quarterly biomonitoring test results are due on or before April 20th, July 20th, October 20th, and January 20th, for biomonitoring conducted during the previous calendar quarter.
 - 4) Monthly biomonitoring test results are due on or before the 20th day of the month following sampling.
- c. Enter the following codes for the appropriate parameters for valid tests only:
- 1) For the water flea, Parameter TLP3B, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."
 - 2) For the water flea, Parameter TOP3B, report the NOEC for survival.
 - 3) For the water flea, Parameter TXP3B, report the LOEC for survival.
 - 4) For the water flea, Parameter TWP3B, enter a "1" if the NOEC for reproduction is less than the critical dilution; otherwise, enter a "0."
 - 5) For the water flea, Parameter TPP3B, report the NOEC for reproduction.
 - 6) For the water flea, Parameter TYP3B, report the LOEC for reproduction.
 - 7) For the fathead minnow, Parameter TLP6C, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."
 - 8) For the fathead minnow, Parameter TOP6C, report the NOEC for survival.
 - 9) For the fathead minnow, Parameter TXP6C, report the LOEC for survival.
 - 10) For the fathead minnow, Parameter TWP6C, enter a "1" if the NOEC for growth is less than the critical dilution; otherwise, enter a "0."
 - 11) For the fathead minnow, Parameter TPP6C, report the NOEC for growth.
 - 12) For the fathead minnow, Parameter TYP6C, report the LOEC for growth.
- d. Enter the following codes on the DMR for retests only:
- 1) For retest number 1, Parameter 22415, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."
 - 2) For retest number 2, Parameter 22416, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."
4. Persistent Toxicity
The requirements of this Part apply only when a test demonstrates a significant effect at the critical dilution. A significant effect is defined as a statistically significant difference between a specified endpoint (survival, growth, or reproduction) of the test organism in a specified effluent dilution when compared to the specified endpoint of the test organism in the control. Significant lethality is defined as a statistically significant difference in survival at the critical dilution when compared to the survival of the test organism in the control. Significant

sublethality is defined as a statistically significant difference in growth/reproduction at the critical dilution when compared to the growth/reproduction of the test organism in the control.

- a. The permittee shall conduct a total of 2 additional tests (retests) for any species that demonstrates a significant effect (lethal or sublethal) at the critical dilution. The two retests shall be conducted monthly during the next two consecutive months. The permittee shall not substitute either of the two retests in lieu of routine toxicity testing. All reports shall be submitted within 20 days of test completion. Test completion is defined as the last day of the test. The retests shall also be reported on the DMRs as specified in Part 3.d.
- b. If the retests are performed due to a demonstration of significant lethality, and one or both of the two retests specified in item 4.a. demonstrates significant lethality, the permittee shall initiate the TRE requirements as specified in Part 5. The provisions of item 4.a. are suspended upon completion of the two retests and submittal of the TRE Action Plan and Schedule defined in Part 5.

If neither test demonstrates significant lethality and the permittee is testing under the reduced testing frequency provision of Part 1.e., the permittee shall return to a quarterly testing frequency for that species.

- c. If the two retests are performed due to a demonstration of significant sublethality, and one or both of the two retests specified in item 4.a. demonstrates significant lethality, the permittee shall again perform two retests as stipulated in item 4.a.
- d. If the two retests are performed due to a demonstration of significant sublethality, and neither test demonstrates significant lethality, the permittee shall continue testing at the quarterly frequency.
- e. Regardless of whether retesting for lethal or sublethal effects, or a combination of the two, no more than one retest per month is required for a species.

5. Toxicity Reduction Evaluation

- a. Within 45 days of the retest that demonstrates significant lethality, or within 45 days of being so instructed due to multiple toxic events, the permittee shall submit a General Outline for initiating a Toxicity Reduction Evaluation (TRE). The outline shall include, but not be limited to, a description of project personnel, a schedule for obtaining consultants (if needed), a discussion of influent and effluent data available for review, a sampling and analytical schedule, and a proposed TRE initiation date.
- b. Within 90 days of the retest that demonstrates significant lethality, or within 90 days of being so instructed due to multiple toxic events, the permittee shall submit a TRE Action Plan and Schedule for conducting a TRE. The plan shall specify the approach and methodology to be used in performing the TRE. A TRE is a step-wise investigation combining toxicity testing with physical and chemical analysis to determine actions necessary to eliminate or reduce effluent toxicity to a level not effecting significant lethality at the critical dilution. The TRE Action Plan shall lead to the successful elimination of significant lethality for both test species defined in item 1.b. As a minimum, the TRE Action Plan shall include the following:

- 1) Specific Activities - The TRE Action Plan shall specify the approach the permittee intends to utilize in conducting the TRE, including toxicity characterizations, identifications, confirmations, source evaluations, treatability studies, and alternative approaches. When conducting characterization analyses, the permittee shall perform multiple characterizations and follow the procedures specified in the document entitled, "Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I" (EPA/600/6-91/005F), or alternate procedures. The permittee shall perform multiple identifications and follow the methods specified in the documents entitled, "Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/080) and "Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/081). All characterization, identification, and confirmation tests shall be conducted in an orderly and logical progression;
 - 2) Sampling Plan - The TRE Action Plan should describe sampling locations, methods, holding times, chain of custody, and preservation techniques. The effluent sample volume collected for all tests shall be adequate to perform the toxicity characterization/ identification/ confirmation procedures, and chemical-specific analyses when the toxicity tests show significant lethality. Where the permittee has identified or suspects specific pollutant(s) and source(s) of effluent toxicity, the permittee shall conduct, concurrent with toxicity testing, chemical-specific analyses for the identified and suspected pollutant(s) and source(s) of effluent toxicity;
 - 3) Quality Assurance Plan - The TRE Action Plan should address record keeping and data evaluation, calibration and standardization, baseline tests, system blanks, controls, duplicates, spikes, toxicity persistence in the samples, randomization, reference toxicant control charts, as well as mechanisms to detect artifactual toxicity; and
 - 4) Project Organization - The TRE Action Plan should describe the project staff, project manager, consulting engineering services (where applicable), consulting analytical and toxicological services, etc.
- c. Within 30 days of submittal of the TRE Action Plan and Schedule, the permittee shall implement the TRE with due diligence.
- d. The permittee shall submit quarterly TRE Activities Reports concerning the progress of the TRE. The quarterly reports are due on or before April 20th, July 20th, October 20th, and January 20th. The report shall detail information regarding the TRE activities including:
- 1) results and interpretation of any chemical-specific analyses for the identified and suspected pollutant(s) performed during the quarter;
 - 2) results and interpretation of any characterization, identification, and confirmation tests performed during the quarter;

- 3) any data and substantiating documentation which identifies the pollutant(s) and source(s) of effluent toxicity;
- 4) results of any studies/evaluations concerning the treatability of the facility's effluent toxicity;
- 5) any data which identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to meet no significant lethality at the critical dilution; and
- 6) any changes to the initial TRE Plan and Schedule that are believed necessary as a result of the TRE findings.

Copies of the TRE Activities Report shall also be submitted to the U.S. EPA Region 6 office.

- e. During the TRE, the permittee shall perform, at a minimum, quarterly testing using the more sensitive species; testing for the less sensitive species shall continue at the frequency specified in Part 1.b.
- f. If the effluent ceases to effect significant lethality (herein as defined below) the permittee may end the TRE. A "cessation of lethality" is defined as no significant lethality for a period of 12 consecutive months with at least monthly testing. At the end of the 12 months, the permittee shall submit a statement of intent to cease the TRE and may then resume the testing frequency specified in Part 1.b. The permittee may only apply the "cessation of lethality" provision once.

This provision accommodates situations where operational errors and upsets, spills, or sampling errors triggered the TRE, in contrast to a situation where a single toxicant or group of toxicants cause lethality. This provision does not apply as a result of corrective actions taken by the permittee. "Corrective actions" are herein defined as proactive efforts which eliminate or reduce effluent toxicity. These include, but are not limited to, source reduction or elimination, improved housekeeping, changes in chemical usage, and modifications of influent streams and effluent treatment.

The permittee may only apply this cessation of lethality provision once. If the effluent again demonstrates significant lethality to the same species, the permit will be amended to add a WET limit with a compliance period, if appropriate. However, prior to the effective date of the WET limit, the permittee may apply for a permit amendment removing and replacing the WET limit with an alternate toxicity control measure by identifying and confirming the toxicant and an appropriate control measure.

- g. The permittee shall complete the TRE and submit a Final Report on the TRE Activities no later than 28 months from the last test day of the retest that confirmed significant lethal effects at the critical dilution. The permittee may petition the Executive Director (in writing) for an extension of the 28-month limit. However, to warrant an extension the permittee must have demonstrated due diligence in their pursuit of the TIE/TRE and must prove that circumstances beyond their control stalled the TIE/TRE. The report shall provide information pertaining to the specific control mechanism(s) selected that will, when implemented, result in reduction of effluent toxicity to no significant lethality at the critical dilution. The report will also provide a specific corrective action schedule for implementing the selected control mechanism(s). A copy

of the TRE Final Report shall also be submitted to the U.S. EPA Region 6 office.

- h. Based upon the results of the TRE and proposed corrective actions, this permit may be amended to modify the biomonitoring requirements, where necessary, to require a compliance schedule for implementation of corrective actions, to specify a WET limit, to specify a BMP, and to specify CS limits.

TABLE 1 (SHEET 1 OF 4)

BIOMONITORING REPORTING

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION

Dates and Times Date Time Date Time
 Composites No. 1 FROM: _____ TO: _____
 Collected No. 2 FROM: _____ TO: _____
 No. 3 FROM: _____ TO: _____

Test initiated: _____ am/pm _____ date

Dilution water used: _____ Receiving water _____ Synthetic Dilution water

NUMBER OF YOUNG PRODUCED PER ADULT AT END OF TEST

REP	Percent effluent (%)					
	0%	3%	5%	6%	8%	11%
A						
B						
C						
D						
E						
F						
G						
H						
I						
J						
Survival Mean						
Total Mean						
CV%*						
PMSD						

*Coefficient of Variation = standard deviation x 100/mean (calculation based on young of the surviving adults)
 Designate males (M), and dead females (D), along with number of neonates (x) released prior to death.

TABLE 1 (SHEET 2 OF 4)

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION TEST

1. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean number of young produced per adult significantly less ($p=0.05$) than the number of young per adult in the control for the % effluent corresponding to significant nonlethal effects?

CRITICAL DILUTION (8%): _____ YES _____ NO

PERCENT SURVIVAL

Time of Reading	Percent effluent (%)					
	0%	3%	5%	6%	8%	11%
24h						
48h						
End of Test						

2. Fisher's Exact Test:

Is the mean survival at test end significantly less ($p=0.05$) than the control survival for the % effluent corresponding to lethality?

CRITICAL DILUTION (8%): _____ YES _____ NO

3. Enter percent effluent corresponding to each NOEC\LOEC below:

a.) NOEC survival = _____ % effluent

b.) LOEC survival = _____ % effluent

c.) NOEC reproduction = _____ % effluent

d.) LOEC reproduction = _____ % effluent

TABLE 1 (SHEET 3 OF 4)

BIOMONITORING REPORTING

FATHEAD MINNOW LARVAE GROWTH AND SURVIVAL

Dates and Times Composites Collected

No. 1 FROM: _____ Date Time _____ Date Time _____ TO: _____

No. 2 FROM: _____ TO: _____

No. 3 FROM: _____ TO: _____

Test initiated: _____ am/pm _____ date

Dilution water used: _____ Receiving water _____ Synthetic dilution water

FATHEAD MINNOW GROWTH DATA

Effluent Concentration (%)	Average Dry Weight in milligrams in replicate chambers					Mean Dry Weight	CV%*
	A	B	C	D	E		
0%							
3%							
5%							
6%							
8%							
11%							
PMSD							

* Coefficient of Variation = standard deviation x 100/mean

- Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

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

CRITICAL DILUTION (8%): _____ YES _____ NO

TABLE 1 (SHEET 4 OF 4)
 BIOMONITORING REPORTING
 FATHEAD MINNOW GROWTH AND SURVIVAL TEST
 FATHEAD MINNOW SURVIVAL DATA

Effluent Concentration (%)	Percent Survival in replicate chambers					Mean percent survival			CV%*
	A	B	C	D	E	24h	48h	7 day	
0%									
3%									
5%									
6%									
8%									
11%									

* Coefficient of Variation = standard deviation x 100/mean

2. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

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

CRITICAL DILUTION (8%): _____ YES _____ NO

3. Enter percent effluent corresponding to each NOEC\LOEC below:

a.) NOEC survival = _____ % effluent

b.) LOEC survival = _____ % effluent

c.) NOEC growth = _____ % effluent

d.) LOEC growth = _____ % effluent

24-HOUR ACUTE BIOMONITORING REQUIREMENTS: FRESHWATER

The provisions of this section apply to Outfall 001 for whole effluent toxicity testing (biomonitoring)

1. Scope, Frequency and Methodology

- a. The permittee shall test the effluent for lethality in accordance with the provisions in this Section. Such testing will determine compliance with the Surface Water Quality Standard, 307.6(e)(2)(B), of greater than 50% survival of the appropriate test organisms in 100% effluent for a 24-hour period.
- b. The toxicity tests specified shall be conducted once per six months. The permittee shall conduct the following toxicity tests utilizing the test organisms, procedures, and quality assurance requirements specified in this section of the permit and in accordance with "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition" (EPA-821-R-02-012), or the most recent update thereof:
 - 1) Acute 24-hour static toxicity test using the water flea (*Daphnia pulex* or *Ceriodaphnia dubia*). A minimum of five replicates with eight organisms per replicate shall be used in the control and in each dilution.
 - 2) Acute 24-hour static toxicity test using the fathead minnow (*Pimephales promelas*). A minimum of five replicates with eight organisms per replicate shall be used in the control and in each dilution.

A valid test result must be submitted for each reporting period. The permittee must report, and then repeat, an invalid test during the same reporting period. The repeat test shall include the control and the 100% effluent dilution and use the appropriate number of organisms and replicates, as specified above. An invalid test is herein defined as any test failing to satisfy the test acceptability criteria, procedures, and quality assurance requirements specified in the test methods and permit.

- c. In addition to an appropriate control, a 100% effluent concentration shall be used in the toxicity tests. The control and/or dilution water shall consist of standard, synthetic, moderately hard, reconstituted water.
 - d. This permit may be amended to require a WET limit, a Best Management Practice (BMP), Chemical-Specific (CS) limits, or other appropriate actions to address toxicity. The permittee may be required to conduct a Toxicity Reduction Evaluation after multiple toxic events.
2. Required Toxicity Testing Conditions
- a. Test Acceptance - The permittee shall repeat any toxicity test, including the control, if the control fails to meet a mean survival equal to or greater than 90%.
 - b. Dilution Water - In accordance with item 1.c., the control and/or dilution water shall consist of standard, synthetic, moderately hard, reconstituted water.
 - c. Samples and Composites

- 1) The permittee shall collect one composite sample from Outfall 001.
- 2) The permittee shall collect the composite samples such that the samples are representative of any periodic episode of chlorination, biocide usage, or other potentially toxic substance discharged on an intermittent basis.
- 3) The permittee shall initiate the toxicity tests within 36 hours after collection of the last portion of the composite sample. Samples shall be maintained at a temperature of 0-6 degrees Centigrade during collection; shipping, and storage.
- 4) If Outfall 001 ceases discharging during the collection of the effluent composite sample, the requirements for the minimum number of effluent portions are waived. However, the permittee must have collected a composite sample volume sufficient for completion of the required test. The abbreviated sample collection, duration, and methodology must be documented in the full report.

3. Reporting

All reports, tables, plans, summaries, and related correspondence required in any Part of this Section shall be submitted to the attention of the Standards Implementation Team (MC 150) of the Water Quality Division.

- a. The permittee shall prepare a full report of the results of all tests conducted in accordance with the manual referenced above, or its most recent update, for every valid and invalid toxicity test initiated.
- b. The permittee shall routinely report the results of each biomonitoring test on the Table 2 forms provided with this permit.
 - 1) Semiannual biomonitoring test results are due on or before January 20th and July 20th for biomonitoring conducted during the previous 6 month period.
 - 2) Quarterly biomonitoring test results are due on or before January 20th, April 20th, July 20th, and October 20th, for biomonitoring conducted during the previous calendar quarter.
- c. Enter the following codes for the appropriate parameters for valid tests only:
 - 1) For the water flea, Parameter TIE3D, enter a "0" if the mean survival at 24-hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."
 - 2) For the fathead minnow, Parameter TIE6C, enter a "0" if the mean survival at 24-hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."
- d. Enter the following codes for retests only:
 - 1) For retest number 1, Parameter 22415, enter a "0" if the mean survival at 24-hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."

- 2) For retest number 2, Parameter 22416, enter a "0" if the mean survival at 24-hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."

4. Persistent Mortality

The requirements of this Part apply when a toxicity test demonstrates significant lethality, here defined as a mean mortality of 50% or greater to organisms exposed to the 100% effluent concentration after 24-hours.

- a. The permittee shall conduct 2 additional tests (retests) for each species that demonstrates significant lethality. The two retests shall be conducted once per week for 2 weeks. Five effluent dilution concentrations in addition to an appropriate control shall be used in the retests. These additional effluent concentrations are 6%, 13%, 25%, 50% and 100% effluent. The first retest shall be conducted within 15 days of the laboratory determination of significant lethality. All test results shall be submitted within 20 days of test completion of the second retest. Test completion is defined as the 24th hour. The retests shall also be reported on the DMRs as specified in Part 3.d.
- b. If one or both of the two retests specified in item 4.a. demonstrates significant lethality, the permittee shall initiate the TRE requirements as specified in Part 5 of this Section.

5. Toxicity Reduction Evaluation

- a. Within 45 days of the retest that demonstrates significant lethality, the permittee shall submit a General Outline for initiating a Toxicity Reduction Evaluation (TRE). The outline shall include, but not be limited to, a description of project personnel, a schedule for obtaining consultants (if needed), a discussion of influent and/or effluent data available for review, a sampling and analytical schedule, and a proposed TRE initiation date.
- b. Within 90 days of the retest that demonstrates significant lethality, the permittee shall submit a TRE Action Plan and Schedule for conducting a TRE. The plan shall specify the approach and methodology to be used in performing the TRE. A TRE is a step-wise investigation combining toxicity testing with physical and chemical analysis to determine actions necessary to eliminate or reduce effluent toxicity to a level not effecting significant lethality at the critical dilution. The TRE Action Plan shall lead to the successful elimination of significant lethality for both test species defined in item 1.b. As a minimum, the TRE Action Plan shall include the following:
 - 1) Specific Activities - The TRE Action Plan shall specify the approach the permittee intends to utilize in conducting the TRE, including toxicity characterizations, identifications, confirmations, source evaluations, treatability studies, and alternative approaches. When conducting characterization analyses, the permittee shall perform multiple characterizations and follow the procedures specified in the document entitled, "Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures" (EPA/600/6-91/003), or alternate procedures. The permittee shall perform multiple identifications and follow the methods specified in the documents entitled, "Methods for Aquatic Toxicity Identification Evaluations, Phase II

Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/080) and "Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/081). All characterization, identification, and confirmation tests shall be conducted in an orderly and logical progression;

- 2) Sampling Plan - The TRE Action Plan should describe sampling locations, methods, holding times, chain of custody, and preservation techniques. The effluent sample volume collected for all tests shall be adequate to perform the toxicity characterization/ identification/ confirmation procedures, and chemical-specific analyses when the toxicity tests show significant lethality. Where the permittee has identified or suspects specific pollutant(s) and source(s) of effluent toxicity, the permittee shall conduct, concurrent with toxicity testing, chemical-specific analyses for the identified and suspected pollutant(s) and source(s) of effluent toxicity;
 - 3) Quality Assurance Plan - The TRE Action Plan should address record keeping and data evaluation, calibration and standardization, baseline tests, system blanks, controls, duplicates, spikes, toxicity persistence in the samples, randomization, reference toxicant control charts, as well as mechanisms to detect artifactual toxicity; and
 - 4) Project Organization - The TRE Action Plan should describe the project staff, project manager, consulting engineering services (where applicable), consulting analytical and toxicological services, etc.
- c. Within 30 days of submittal of the TRE Action Plan and Schedule, the permittee shall implement the TRE with due diligence.
- d. The permittee shall submit quarterly TRE Activities Reports concerning the progress of the TRE. The quarterly TRE Activities Reports are due on or before April 20th, July 20th, October 20th, and January 20th. The report shall detail information regarding the TRE activities including:
- 1) results and interpretation of any chemical-specific analyses for the identified and/or suspected pollutant(s) performed during the quarter;
 - 2) results and interpretation of any characterization, identification, and confirmation tests performed during the quarter;
 - 3) any data and/or substantiating documentation which identifies the pollutant(s) and/or source(s) of effluent toxicity;
 - 4) results of any studies/evaluations concerning the treatability of the facility's effluent toxicity;
 - 5) any data which identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to eliminate significant lethality; and
 - 6) any changes to the initial TRE Plan and Schedule that are believed necessary as a result of the TRE findings.

Copies of the TRE Activities Report shall also be submitted to the U.S. EPA Region 6 office.

- e. During the TRE, the permittee shall perform, at a minimum, quarterly testing using the more sensitive species; testing for the less sensitive species shall continue at the frequency specified in Part 1.b.
- f. If the effluent ceases to effect significant lethality (herein as defined below) the permittee may end the TRE. A "cessation of lethality" is defined as no significant lethality for a period of 12 consecutive weeks with at least weekly testing. At the end of the 12 weeks, the permittee shall submit a statement of intent to cease the TRE and may then resume the testing frequency specified in Part 1.b. The permittee may only apply the "cessation of lethality" provision once.

This provision accommodates situations where operational errors and upsets, spills, or sampling errors triggered the TRE, in contrast to a situation where a single toxicant or group of toxicants cause lethality. This provision does not apply as a result of corrective actions taken by the permittee. "Corrective actions" are herein defined as proactive efforts which eliminate or reduce effluent toxicity. These include, but are not limited to, source reduction or elimination, improved housekeeping, changes in chemical usage, and modifications of influent streams and/or effluent treatment.

The permittee may only apply this cessation of lethality provision once. If the effluent again demonstrates significant lethality to the same species, the permit will be amended to add a WET limit with a compliance period, if appropriate. However, prior to the effective date of the WET limit, the permittee may apply for a permit amendment removing and replacing the WET limit with an alternate toxicity control measure by identifying and confirming the toxicant and/or an appropriate control measure.

- g. The permittee shall complete the TRE and submit a Final Report on the TRE Activities no later than 18 months from the last test day of the retest that demonstrates significant lethality. The permittee may petition the Executive Director (in writing) for an extension of the 18-month limit. However, to warrant an extension the permittee must have demonstrated due diligence in their pursuit of the TIE/TRE and must prove that circumstances beyond their control stalled the TIE/TRE. The report shall specify the control mechanism(s) that will, when implemented, reduce effluent toxicity as specified in item 5.g. The report will also specify a corrective action schedule for implementing the selected control mechanism(s). A copy of the TRE Final Report shall also be submitted to the U.S. EPA Region 6 office.
- h. Within 3 years of the last day of the test confirming toxicity, the permittee shall comply with 307.6.(e)(2)(B), which requires greater than 50% survival of the test organism in 100% effluent at the end of 24-hours. The permittee may petition the Executive Director (in writing) for an extension of the 3-year limit. However, to warrant an extension the permittee must have demonstrated due diligence in their pursuit of the TIE/TRE and must prove that circumstances beyond their control stalled the TIE/TRE.

The requirement to comply with 307.6.(e)(2)(B) may be exempted upon proof that toxicity is caused by an excess, imbalance, or deficiency of dissolved salts. This exemption excludes instances where individually toxic components (e.g. metals) form a salt compound. Following the exemption, the permit may be amended to include an

ion-adjustment protocol, alternate species testing, or single species testing.

- i. Based upon the results of the TRE and proposed corrective actions, this permit may be amended to modify the biomonitoring requirements where necessary, to require a compliance schedule for implementation of corrective actions, to specify a WET limit, to specify a BMP, and/or to specify a CS limit.

TABLE 2 (SHEET 1 OF 2)

WATER FLEA SURVIVAL

GENERAL INFORMATION

	Time (am/pm)	Date
Composite Sample Collected		
Test Initiated		

PERCENT SURVIVAL

Time	Rep	Percent effluent (%)					
		0%	6%	13%	25%	50%	100%
24h	A						
	B						
	C						
	D						
	E						
	MEAN						

Enter percent effluent corresponding to the LC50 below:

24 hour LC50 = _____% effluent

TABLE 2 (SHEET 2 OF 2)

FATHEAD MINNOW SURVIVAL

GENERAL INFORMATION

	Time (am/pm)	Date
Composite Sample Collected		
Test Initiated		

PERCENT SURVIVAL

Time	Rep	Percent effluent (%)					
		0%	6%	13%	25%	50%	100%
24h	A						
	B						
	C						
	D						
	E						
	MEAN						

Enter percent effluent corresponding to the LC50 below:

24 hour LC50 = _____ % effluent

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

For draft Texas Pollutant Discharge Elimination System TPDES Permit No. WQ0004138000, EPA ID No. TX0119423 to discharge to water in the state.

Issuing Office: Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Applicants: Calpine Hidalgo Energy Center, L.P.,
Brownsville Public Utilities Board, and
Calpine Operating Services Company, Inc.
717 Texas Avenue, Suite 1000
Houston, Texas, 77002

Prepared By: Charles Faulds, P.E.
Wastewater Permitting Section
Water Quality Division
(512) 239-4649

Date: February 26, 2014

Permit Action: Major Amendment without renewal; TPDES Permit No. WQ0004138000

I. EXECUTIVE DIRECTOR RECOMMENDATION

The Executive Director has made a preliminary decision that this permit, if issued, meets all statutory and regulatory requirements. The draft permit will be issued to retain the current expiration date of July 1, 2015.

II. APPLICANT ACTIVITY

The applicants currently own and operate Hidalgo Energy Center, a combined cycle electric power generating facility.

III. DISCHARGE LOCATION

As described in the application, the plant site is located at 4005 North Seminary Road, at the northwest corner of the intersection of Monte Cristo Road (Farm-to-Market Road 1925) and Seminary Road in the City of Edinburg, Hidalgo County, Texas 78541. Discharge is to North Main Drain III; thence to North Main Drain II; thence to North Main Drain I; thence to North Floodway Channel; thence to Laguna Madre in Segment No. 2491 of the Bays and Estuaries.

IV. RECEIVING STREAM USES

The unclassified receiving waters have limited aquatic life use for the North Main Drain III. The designated uses for Segment No. 2491 are primary contact recreation, oyster waters, and exceptional aquatic life use.

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

V. STREAM STANDARDS

The general criteria and numerical criteria that make up the stream standards are provided in 30 Texas Administrative Code (TAC) §§307.1 - 307.10, effective July 22, 2010.

VI. DISCHARGE DESCRIPTION

The following is a quantitative description of the discharge described in the Monthly Effluent Report data for the period from August 2010 through September 2013. The "Average of Daily Avg." values presented in the following table are the average of all daily average values for the reporting period for each parameter. The "Maximum of Daily Max." values presented in the following table are the individual maximum values for the reporting period for each parameter.

A. Flow			
Outfall	Frequency	Average of Daily Avg, MGD	Maximum of Daily Max, MGD
001	Continuous	0.681	1.09
101	Continuous	0.005	0.070
201	Intermittent	no discharge reported	

B. Effluent Characteristics					
Outfall	Parameter	Average of Daily Avg		Maximum of Daily Max	
		mg/L	lbs/day	mg/L	lbs/day
001	Carbonaceous Biochemical Oxygen Demand (5-day)	6.71	38.36	23.90	179
	Total Dissolved Solids	4,335	24,749	7,160	42,824
	Chloride	1,264	7,206	3,100	16,741
	Sulfate	1,592	9,007	4,210	22,735
	Nitrate Nitrogen	80.27	476.4	181	1,250
	Ammonia Nitrogen	0.59	3.25	4.97	23.80
	Total Residual Chlorine	N/A		<0.1 mg/L	
	pH, Standard Units (s.u.)	6.1 s.u. minimum		8.0 s.u. maximum	
	Dissolved Oxygen	5.4 mg/L minimum		N/A	
101	Total Suspended Solids	8.97 mg/L		247 mg/L	
	Oil and Grease	<4.60 mg/L		12.20 mg/L	
	pH	6.2 s.u. minimum		9.10 s.u. maximum	
201	Total Suspended Solids	no discharge reported			
	Oil and Grease	no discharge reported			
	Copper, Total	no discharge reported			
	Iron, Total	no discharge reported			
	pH	no discharge reported			

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

Permit Exceedances:

Outfall	Dates	Pollutants	Permit Limits		Reported Values	
			Daily Avg	Daily Max	Daily Avg.	Daily Max.
001	April 2011	Ammonia Nitrogen	1.0 mg/L	3.0 mg/L 23 lbs/day	1.2 mg/L	
	December 2011		1.0 mg/L	3.0 mg/L 23 lbs/day	1.74 mg/L	4.97 mg/L 23.1 lbs/day
	January 2012		1.0 mg/L	3.0 mg/L 23 lbs/day	1.464 mg/L	4.95 mg/L 23.8 lbs/day
	September 2012		1.0 mg/L	3.0 mg/L	1.26 mg/L	3.24 mg/L
	December 2012		1.0 mg/L		1.1 mg/L	
	June 2012	Nitrate Nitrogen	137 mg/L		165.8 mg/L	
	July 2012		137 mg/L		163 mg/L	
	August 2012		137 mg/L		142 mg/L	
101	November 2012	pH		9.0 s.u.		9.1 s.u.
	December 2012	Total Suspended Solids	30 mg/L		31.2 mg/L	
	January 2013		30 mg/L	100 mg/L	<69 mg/L	247 mg/L

No permit action is required for the nitrate nitrogen exceedances at Outfall 001 or the pH and TSS exceedances at internal Outfall 101. This permit amendment is expected to reduce the number and frequency of Ammonia Nitrogen exceedances.

BIOMONITORING HISTORY:

In the past five years, the permittee performed twenty chronic tests, with zero demonstrations of significant toxicity (i.e., zero failures) by either test species.

In the past five years, the permittee has performed twenty 24-hour acute tests, with one demonstration of significant mortality by each test species.

Species	Date of Failure	Result (NOEC)	Endpoint
<i>Water flea</i>	N/A		
<i>Fathead minnow</i>	N/A		

A reasonable potential determination was performed in accordance with 40 CFR §122.44(d)(1)(ii) to determine whether the discharge will reasonably be expected to cause or contribute to an exceedance of a state water quality standard or criterion within that standard.

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

Each test species is evaluated separately. The RP determination is based on representative data from the previous five years of chronic WET testing. The table below identifies the number of test failures required to necessitate that a WET limit be placed in the permit or the consideration of additional Best Professional Judgment (BPJ) factors, such as the duration and magnitude of the failures.

WET REASONABLE POTENTIAL DETERMINATION THRESHOLDS
More than 3 failures in the past five years = WET limit
3 failures with 2 or 3 occurring in the past 3 years = WET limit
1 to 3 failures in the past five years but 1 or less in last 3 years = BPJ
0 failures = No limit

With zero failures by both test species, a determination of no RP was made. With no RP, WET limits are not required and both test species are eligible for the testing frequency reduction.

All test data results were used for this determination.

VII. DRAFT EFFLUENT LIMITATIONS

Final effluent limitations are established in the draft permit as follows:

Outfall	Parameter	Daily Average		Daily Maximum	
		mg/L	lbs/day	mg/L	lbs/day
001	Flow	0.92 MGD		1.84 MGD	
	Carbonaceous Biochemical Oxygen Demand (5-day)	30	230	45	345
	Total Dissolved Solids	10,370	79,614	21,938	168,426
	Chloride	4,250	32,628	8,991	69,027
	Sulfate	3,270	25,105	6,918	53,112
	Nitrate Nitrogen	137	1,052	289	2,219
	Ammonia Nitrogen	3.0	23.0	7.0	53.7
	Total residual Chlorine	N/A		0.1 mg/L	
	pH, standard units (s.u.)	6.0 s.u. (minimum)		9.0 s.u. (maximum)	
101	Dissolved Oxygen	N/A		5.0 mg/L (minimum)	
	Flow	Report, MGD		Report, MGD	
	Total Suspended Solids	30 mg/L		100 mg/L	
	Oil and Grease	15 mg/L		20 mg/L	
201	pH, standard units (s.u.)	6.0 s.u. (minimum)		9.0 s.u. (maximum)	
	Flow	Report, MGD		Report, MGD	
	Total Suspended Solids	30 mg/L		100 mg/L	
	Oil and Grease	15 mg/L		20 mg/L	
	Copper, Total	1.0 mg/L		1.0 mg/L	
	Iron, Total	1.0 mg/L		1.0 mg/L	
	pH, standard units (s.u.)	6.0 s.u. (minimum)		9.0 s.u. (maximum)	

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

VIII. SUMMARY OF CHANGES FROM APPLICATION

No changes were made from the application.

See the next section for changes to the permit.

IX. SUMMARY OF CHANGES FROM EXISTING PERMIT

The permittee requested the following changes in its amendment request that the Executive Director has recommended granting.

1. Increase the daily average ammonia nitrogen limit to 3 mg/L and the daily maximum ammonia limit to 7 mg/L.

The Hidalgo Energy Center (HEC) currently has a daily average ammonia-nitrogen limit of 1 mg/L and a daily maximum limit of 3 mg/L. As reported in the application, the HEC has relinquished its option to construct groundwater wells, and it does not have the potential to use groundwater as a raw water source. The HEC is limited to using treated wastewater and potable water from the City of McAllen. As the treated wastewater from McAllen is diverted from the receiving stream and reused at the HEC, the overall loading to the receiving stream is less than what was originally modeled. A low estimate provided in the amendment represented that reclaimed water usage at the HEC is 2.5 MGD.

The TCEQ Water Quality Assessment Team conducted a dissolved oxygen analysis of the discharge (05/23/2013) using an uncalibrated QUAL-TX model. Based on model results, the proposed effluent set consisting of 0.92 MGD, 30 mg/L CBOD₅, 3 mg/L Ammonia-Nitrogen and 5 mg/L DO is predicted to be adequate to ensure that the dissolved oxygen level in the receiving waters will be maintained above the criterion (3 mg/L).

Segment No. 2491 is currently listed on the State's inventory of impaired and threatened waters (the 2012 Clean Water Act Section 303(d) list). The Segment is listed for depressed dissolved oxygen in the upper portion of the bay north of the Arroyo Colorado confluence (AU 2491_01). This discharge is through ditches approximately 60 miles before entering Segment 2491 and is therefore not anticipated to have the potential to negatively affect dissolved oxygen in the Segment.

Antibacksliding

The current ammonia-nitrogen limits were placed into the permit on the basis that groundwater could potentially be used as raw water in addition to treated wastewater or potable water from the City of McAllen. The Hidalgo Energy Center does not and will not have a groundwater source that can be used as raw water. This change in the water source is a material and substantial change from what was presented in the original application materials and meets EPA's exception to anti-backsliding at 40 CFR § 122.44 (1)(2)(i)(A).

Previously, when the modeling for dissolved oxygen was conducted, it was assumed that all of the wastewater from the City of McAllen and all of the wastewater from the Hidalgo Energy Center would be discharged to the receiving stream. The effects of the combined discharges indicated there was limited capacity of the receiving stream to meet the dissolved

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

oxygen standard at the time (5 mg/L); therefore, the Hidalgo Energy Center was given lower limits than the City of McAllen and other nearby facilities. As the Hidalgo Energy Center now receives its water in the form of wastewater from the City of McAllen, the facility has had difficulty at times in meeting its lower effluent limitations for ammonia nitrogen. Therefore, daily average and daily maximum ammonia-nitrogen limits have been increased in the draft permit.

2. Revise requirements for total residual chlorine based on current categorical effluent guidelines.

Other Requirement No. 7 addresses the measurement and discharge of total residual chlorine and is based on the requirements for Steam Electric Power Generation facilities under the Categorical Effluent Guidelines (40 CFR Part 423). The requirement for the measurement of total residual chlorine (40 CFR § 423.11(a)) was amended May 18, 2012, as follows: *"the term total residual chlorine.....means the value obtained using any of the "chlorine-total residual" methods in Table 1B in 40 CFR 136.3(a) where the method has the capability of measuring free available chlorine, or other methods approved by the permitting authority."* Table 1B in 40 CFR 136.3(a) for chlorine includes the following methods from Standard Methods: amperometric (direct and direct low level); N, N-diethyl-p-phenylenediamine -- ferrous aluminum sulfate; and spectrophotometric.

Additionally 40 CFR 423.12(b)(8) states *"Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the Regional Administrator or State, if the State has NPDES permit issuing authority, that the units in a particular location cannot operate at or below this level of chlorination."* Since the facility dechlorinates to a non-detectable level during periods of chlorination, the applicant has stated that they believe the provision of 40 CFR § 423.12(b)(8) is met. The TCEQ agrees.

As a result, the first portion of Other Requirement No. 7 has been changed as follows:

7. The term "total residual chlorine" shall mean the value obtained using any U.S. EPA approved method for total residual chlorine described in "Standard Methods for the Examination of Water and Wastewater." Simultaneous multi-unit chlorination and continuous chlorination is permitted. The permittee shall dechlorinate continuously during periods of chlorination exceeding two hours on any day. The permittee shall dechlorinate the chlorinated effluent to a non-detectable level (defined as less than 0.1 mg/L of total residual chlorine in a single grab sample).

The requirement to continuously monitor the Oxidation Reduction Potential (ORP) for total residual chlorine and the effectiveness of de-chlorination at Outfall 001 remains in Other Requirement No. 7.

3. Authorize closed-loop cooling water as a low volume waste.

The applicant has requested that closed-loop cooling water be added to the list of allowed low-volume wastes in Other Requirement No. 5. According to the applicant, closed-loop cooling water is demineralized water with a small concentration of corrosion inhibitor that is

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

used in the closed-loop system. This waste stream may only be generated once every five years over the life of the plant. Approximately 5,000 gallons would be generated at any one time.

As a result, Other Requirement No. 5 has been changed as follows:

5. The term "low volume waste sources" means wastewaters from, but not limited to, wastewater from wet scrubber air pollution control systems, ion exchange water treatment system, water treatment evaporator blowdown, boiler blowdown, laboratory and sampling streams, floor drainage, cooling tower basin cleaning wastes, recirculating house service water systems, and closed-loop cooling water. Sanitary and air conditioning wastes are not included.

The following additional changes have been made to the draft permit.

1. The zip code was added to the facility location description on page one of the permit.
2. Other Requirement No. 1 was deleted as it is not applicable, and the remaining Other Requirements were re-numbered.
3. Former Other Requirement No. 4, which was re-numbered as Other Requirement No. 3, was revised to reflect current TCEQ language for this provision.
4. Former Other Requirement No. 10 was deleted as it was duplicative of former Other Requirement No. 13, and the remaining subsequent Other Requirements were re-numbered.
5. New Other Requirement No. 12 was added to clarify permit expiration.

X. DRAFT PERMIT RATIONALE

The following section sets forth the statutory and regulatory requirements considered in preparing the draft permit. Also set forth are any calculations or other necessary explanations of the derivation of specific effluent limitations and conditions, including a citation to the applicable effluent limitation guidelines and water quality standards.

A. REASON FOR PERMIT ISSUANCE

The applicant has applied to the Texas Commission on Environmental Quality (TCEQ) for a major amendment to Permit No. WQ0004138000 to authorize an increase in the ammonia nitrogen daily average limit from 1 mg/L to 3 mg/L, an increase in the ammonia nitrogen daily maximum limit from 3 mg/L to 7 mg/L, modify Other Requirement No. 7 regarding total residual chlorine, and modify Other Requirement No. 5 to add closed-loop cooling water to the list of low-volume wastes. The existing permit authorizes the discharge of cooling tower blowdown and previously monitored effluent (low volume waste sources and metal cleaning wastes) at a daily average flow not to exceed 920,000 gallons per day, which will remain the same.

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

B. WATER QUALITY SUMMARY

The discharge route is to North Main Drain III; thence to North Main Drain II; thence to North Main Drain I; thence to North Floodway Channel; thence to Laguna Madre, Segment No. 2491 of the Bays and Estuaries. The unclassified receiving waters have limited aquatic life use for the North Main Drain III. The designated uses for Segment No. 2491 are primary contact recreation, oyster waters, and exceptional aquatic life use. Effluent limitations and conditions established in the draft permit are in compliance with state water quality standards and the applicable water quality management plan. The effluent limits in the draft permit will maintain and protect the existing instream uses. Additional discussion of the water quality aspects of the draft permit is in Section X.D. of this fact sheet.

In accordance with 30 TAC §307.5 and the TCEQ implementation procedures (June 2010) for the Texas Surface Water Quality Standards, an antidegradation review of the receiving waters was performed. A Tier 1 antidegradation review has preliminarily determined that existing water quality uses will not be impaired by this permit action. Numerical and narrative criteria to protect existing uses will be maintained. A Tier 2 review is not required since no exceptional, high, or intermediate aquatic life use water bodies have been identified in the discharge route. Existing uses will be maintained and protected. The preliminary determination can be reexamined and may be modified if new information is received.

A watershed of high priority has been identified in Segment No. 2491. The piping plover, *Charadrius melodus Ord*, a threatened aquatic-dependent species, is found in the watershed of Segment No. 2491 but not in Hidalgo County. Therefore, the discharge is not expected to have an effect on any federal endangered or threatened aquatic or aquatic-dependent species or proposed species or their critical habitat. This determination is based on the United States Fish and Wildlife Service's (USFWS) biological opinion on the State of Texas authorization of the TPDES (September 14, 1998; October 21, 1998 update). To make this determination for TPDES permits, TCEQ and EPA only considered aquatic or aquatic-dependent species occurring in watersheds of critical concern or high priority as listed in Appendix A of the USFWS biological opinion. The determination is subject to reevaluation due to subsequent updates or amendments to the biological opinion. The permit does not require EPA review with respect to the presence of endangered or threatened species.

Segment No. 2491 is currently listed on the State's inventory of impaired and threatened waters (the 2012 Clean Water Act Section 303(d) list). The listings are for elevated bacteria levels in the area adjacent to the Arroyo Colorado confluence (AU 2491_02) and bacteria (oyster waters) in the area adjacent to the Arroyo Colorado confluence (2491OW_02). The Segment is also listed for depressed dissolved oxygen in the upper portion of the bay north of the Arroyo Colorado confluence (AU 2491_01). This discharge travels through ditches approximately 60 miles before entering Segment No. 2491 and is therefore not anticipated to have the potential to negatively affect dissolved oxygen in the Segment. Domestic wastewater generated by the facility is directed to the City of Edinburg wastewater treatment plant. Accordingly, this discharge is not anticipated to contribute to elevated bacteria levels.

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

C. TECHNOLOGY-BASED EFFLUENT LIMITATIONS/CONDITIONS

1. GENERAL COMMENTS

Regulations promulgated in Title 40 of the Code of Federal Regulations (40 CFR) require technology-based limitations be placed in wastewater discharge permits based on effluent limitations guidelines, where applicable, or on best professional judgment (BPJ) in the absence of guidelines.

The proposed draft permit authorizes the discharge of cooling tower blowdown and previously monitored effluents (PMEs) (low volume waste sources from internal Outfall 101 and off-line combustion turbine wash-water sources from internal Outfall 201) via Outfall 001 at a daily average flow not to exceed 0.92 million gallons per day.

The discharge of cooling tower blowdown, low volume waste sources from internal Outfall 101 and offline turbine wash waters from internal Outfall 201 via Outfall 001 from this facility is subject to federal effluent limitation guidelines at 40 CFR Part 423. A new source determination was performed and the discharge of wastewater via Outfall 001 is a new source as defined at 40 CFR § 122.2. Therefore, new source performance standards (NSPS) are required for this discharge.

Cooling tower blowdown and PMEs (low volume waste sources from internal Outfall 101 and offline turbine wash waters from internal Outfall 201) are discharged via Outfall 001. The cooling tower blowdown receives no treatment prior to discharge. Low volume waste sources discharged via Outfall 101 include wastes from floor drains, water treatment wastes, and boiler blowdown, which are treated by an oil/water separator. These low volume wastes are monitored at Outfall 101 prior to commingling with the other wastes for discharge via Outfall 001. Portions of cooling tower blowdown and boiler blowdown are recycled. Metal cleaning waste (off-line turbine wash water) is contained in a dedicated sump prior to commingling with wastewater routed to the oil/water separator and monitored at Outfall 201.

Water used by the plant is provided through a combination of City of McAllen's publicly owned treatment works (POTW) effluent and City of McAllen's potable water system. The primary wastewater stream is generated from non-contact cooling water blowdown. The blowdown from heat recovery steam generator and evaporative coolers are used as make-up water for the cooling tower as are the wastes from the boiler water treatment system (reverse osmosis generation reject stream and backwash from the ion exchange).

The permittee does not operate a cooling water intake structure. Based on the low flow volume and the use of the effluent in the cooling tower, this facility meets the conditions that reflect the best technology available (BTA) for minimizing adverse environmental impact (AEI).

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

2. CALCULATIONS

Technology-based effluent limitations for this facility are continued from the existing permit. No technology-based calculations were performed for this major amendment without renewal.

D. WATER QUALITY-BASED EFFLUENT LIMITATIONS/CONDITIONS

1. GENERAL COMMENTS

The Texas Surface Water Quality Standards found at 30 TAC Chapter 307 state that "surface waters will not be toxic to man from ingestion of water, consumption of aquatic organisms, or contact with the skin, or to terrestrial or aquatic life." The methodology outlined in the TCEQ guidance document *Procedures to Implement the Texas Surface Water Quality Standards (IP)* is designed to ensure compliance with 30 TAC Chapter 307. Specifically, the methodology is designed to insure that no source will be allowed to discharge any wastewater that: (1) results in instream aquatic toxicity; (2) causes a violation of an applicable narrative or numerical state water quality standard; (3) results in the endangerment of a drinking water supply; or (4) results in aquatic bioaccumulation that threatens human health. Calculated water quality-based effluent limits can be found in Appendix A of this fact sheet.

TPDES permits contain technology-based effluent limits reflecting the best controls available. Where these technology-based permit limits do not protect water quality or the designated uses, additional water quality-based effluent limitations or conditions are included. State narrative and numerical water quality standards are used in conjunction with EPA criteria and other toxicity databases to determine the adequacy of technology-based permit limits and the need for additional water quality-based controls

2. AQUATIC LIFE CRITERIA

a. SCREENING

Water quality-based effluent limitations are calculated from freshwater aquatic life criteria found in Table 1 of the Texas Surface Water Quality Standards (30 TAC Chapter 307). Acute freshwater criteria are applied at the edge of the zone of initial dilution (ZID) and chronic freshwater criteria are applied at the edge of the aquatic life mixing zone. The ZID for this discharge is defined as 20 feet upstream and 60 feet downstream from the point where the discharge enters North Main Drain III. The aquatic life mixing zone for this discharge is defined as 100 feet upstream and 300 feet downstream from the point where the discharge enters North Main Drain III.

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

TCEQ uses a mass balance equation to estimate dilutions at the edges of the ZID and aquatic life mixing zone during critical conditions. The estimated dilution at the edge of the aquatic life mixing zone is calculated using the two-year maximum monthly average effluent flow of 0.89 MGD and the 7-day, 2-year (7Q2) flow of 15.18 cfs for North Main Drain III. The estimated dilution at the edge of the ZID is calculated using the two-year maximum monthly average effluent flow of 0.89 MGD and 25% of the 7Q2 flow. The following critical effluent percentages are being used:

Acute Effluent : 26.62% Chronic Effluent : 8.32%

Wasteload allocations (WLAs) are calculated using the above estimated effluent percentages, criteria outlined in the Texas Surface Water Quality Standards, and partitioning coefficients for metals (when appropriate and designated in the implementation procedures). The WLA is the end-of-pipe effluent concentration that can be discharged when, after mixing in the receiving stream, the instream numerical criteria will not be exceeded. From the WLA, a long-term average (LTA) is calculated using a lognormal probability distribution, a given coefficient of variation (0.6), and a 90th percentile confidence level. The LTA is the long-term average effluent concentration for which the WLA will never be exceeded using a selected percentile confidence level. The lower of the two LTAs (acute and chronic) is used to calculate a daily average and daily maximum effluent limitation for the protection of aquatic life using the same statistical considerations with a 99th percentile confidence level and a standard number of monthly effluent samples collected (12). Assumptions used in deriving the effluent limitations include segment 2202 values for hardness, chloride, pH, and total suspended solids (TSS), according to the January 17, 2014 Memo from Water Quality Assessment Team. The segment values are 713 mg/L CaCO₃ for hardness, 860 mg/L for chloride, 7.4 standard units for pH, and 72 mg/L for TSS. For additional details on the calculation of water quality-based effluent limitations, refer to the *IP*.

TCEQ practice for determining significant potential is to compare the reported analytical data against percentages of the calculated daily average water quality-based effluent limitation. Permit limitations are required when analytical data reported in the application exceeds 85 percent of the calculated daily average water quality-based effluent limitation. Monitoring and reporting is required when analytical data reported in the application exceeds 70 percent of the calculated daily average water quality-based effluent limitation.

b. PERMIT ACTION

No analytical data is available for screening against water quality-based effluent limitations since this is a major amendment without renewal for which analytical data is not required. Thus, no permit action is indicated.

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

3. AQUATIC ORGANISM TOXICITY CRITERIA (7-DAY CHRONIC)

a. SCREENING

The existing permit includes chronic freshwater biomonitoring requirements at Outfall 001. There have been no lethal or sublethal test failures reported in 20 chronic tests performed in the last five years for *Ceriodaphnia dubia* and *Pimephales promelas*. Minimum chronic freshwater biomonitoring conditions required for EPA classified major facilities are continued in the draft permit as outlined below.

b. PERMIT ACTION

The provisions of this section apply to Outfall 001.

Based on information contained in the permit application, the TCEQ has determined that there may be pollutants present in the effluents that may have the potential to cause toxic conditions in the receiving stream.

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

- i) Chronic static renewal 7-day survival and reproduction test using the water flea (*Ceriodaphnia dubia*). The frequency of the testing is once per six months
- ii) Chronic static renewal 7-day larval survival and growth test using the fathead minnow (*Pimephales promelas*). The frequency of testing shall be once per year

Toxicity tests shall be performed in accordance with protocols described in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition* (EPA-821-R-02-013) or the latest revision. The stipulated test species are appropriate to measure the toxicity of the effluent consistent with the requirements of the state water quality standards. The biomonitoring frequency has been established to reflect the likelihood of ambient toxicity and to provide data representative of the toxic potential of the facility's discharge.

This permit may be reopened to require effluent limits, additional testing, or other appropriate actions to address toxicity if biomonitoring data show actual or potential ambient toxicity to be the result of the permittee's discharge to the receiving stream or water body.

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

c. DILUTION SERIES

The permit requires five (5) dilutions in addition to the control (0% effluent) to be used in the toxicity tests. These additional effluent concentrations shall be 3%, 5%, 6%, 8%, and 11%. The low-flow effluent concentration (critical dilution) is defined as 8% effluent.

The dilution series outlined above was calculated using a 0.75 factor applied to the critical dilution. The critical dilution is the estimated effluent dilution at the edge of the aquatic life mixing zone, which is calculated in section X.D.2.a. of this fact sheet.

4. AQUATIC ORGANISM TOXICITY CRITERIA (24-HOUR ACUTE)

a. SCREENING

The existing permit includes 24-hour acute freshwater biomonitoring language for Outfall 001. Minimum 24-hour acute freshwater biomonitoring requirements are continued in the draft permit as outlined below.

b. PERMIT ACTION

24-hour 100% acute biomonitoring tests are required at Outfall(s) 001 at a frequency of once per six months for the life of the permit.

The biomonitoring procedures stipulated as a condition of this permit are as follows:

- i) Acute 24-hour static toxicity test using the water flea (*Daphnia pulex*). A minimum of five (5) replicates with eight (8) organisms per replicate shall be used for this test.
- ii) Acute 24-hour static toxicity test using the fathead minnow (*Pimephales promelas*). A minimum of five (5) replicates with eight (8) organisms per replicate shall be used for this test.

Toxicity tests shall be performed in accordance with protocols described in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition*, (EPA-821-R-02-012) or the latest revision.

5. AQUATIC ORGANISM BIOACCUMULATION CRITERIA

a. SCREENING

Water quality-based effluent limitations for the protection of human health are calculated using criteria for the consumption of fish tissue

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

Chapter 307). Fish tissue bioaccumulation criteria are applied at the edge of the human health mixing zone. The human health mixing zone for this discharge is identical to the aquatic life mixing zone. TCEQ uses the mass balance equation to estimate dilution at the edge of the human health mixing zone during average flow conditions. The estimated dilution at the edge of the human health mixing zone is calculated using the two-year monthly average effluent flow of 0.71 MGD and the harmonic mean flow of 22.23 cfs for North Main Drain III. The following critical effluent percentage is being used:

Human Health Effluent : 4.71%

Water quality-based effluent limitations for human health protection against the consumption of fish tissue are calculated using the same procedure as outlined for calculation of water quality-based effluent limitations for aquatic life protection. A 99th percentile confidence level in the long-term average calculation is used with only one long-term average value being calculated.

Significant potential is again determined by comparing reported analytical data against 70 percent and 85 percent of the calculated daily average water quality-based effluent limitation.

b. PERMIT ACTION

No analytical data is available for screening against water quality-based effluent limitations since this is a major amendment without renewal for which analytical data is not required. Thus, no permit action is indicated.

6. DRINKING WATER SUPPLY PROTECTION

a. SCREENING

Water Quality Segment No. 2491, which receives the discharge from this facility, is not designated as a public water supply. Screening against water quality-based effluent limitations calculated for the protection of a drinking water supply is not applicable.

b. PERMIT ACTION

None.

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

7. DISSOLVED OXYGEN PROTECTION

a. SCREENING

The water quality model results used an effluent set including 5.0 mg/L minimum dissolved oxygen. This will be required to ensure that the dissolved oxygen level in the receiving water will be maintained above the criterion of 3 mg/L.

b. PERMIT ACTION

The permit requires that the effluent shall maintain a minimum dissolved oxygen concentration of 5.0 mg/L and shall be monitored 1/week, by grab sample.

XI. PRETREATMENT REQUIREMENTS

This facility is not defined as a publicly owned treatment works (POTW). Pretreatment requirements are not proposed in the draft permit.

XII. VARIANCE REQUESTS

No variance requests have been received.

XIII. PROCEDURES FOR FINAL DECISION

When an application is declared administratively complete, the Chief Clerk sends a letter to the applicant advising the applicant to publish the Notice of Receipt of Application and Intent to Obtain Permit in the newspaper. In addition, the Chief Clerk instructs the applicant to place a copy of the application in a public place for reviewing and copying in the county where the facility is or will be located. This application will be in a public place throughout the comment period. The Chief Clerk also mails this notice to any interested persons and, if required, to landowners identified in the permit application. This notice informs the public about the application, and provides that an interested person may file comments on the application or request a contested case hearing or a public meeting.

Once a draft permit is completed, it is sent, along with the Executive Director's preliminary decision, as contained in the technical summary or fact sheet, to the Chief Clerk. At that time, the Notice of Application and Preliminary Decision will be mailed to the same people and published in the same newspaper as the prior notice. This notice sets a deadline for making public comments. The applicant must place a copy of the Executive Director's preliminary decision and draft permit in the public place with the application.

Any interested person may request a public meeting on the application until the deadline for filing public comments. A public meeting is intended for the taking of public comment and is not a contested case proceeding.

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

After the public comment deadline, the Executive Director prepares a response to all significant public comments on the application or the draft permit raised during the public comment period. The Chief Clerk then mails the Executive Director's response to comments to people who have filed comments, requested a contested case hearing, or requested to be on the mailing list. This notice provides that if a person is not satisfied with the Executive Director's response and decision, they can request a contested case hearing or file a request to reconsider the Executive Director's decision within 30 days after the notice is mailed.

The Executive Director will issue the permit unless a written hearing request or request for reconsideration is filed within 30 days after the Executive Director's response to comments is mailed. If a hearing request or request for reconsideration is filed, the Executive Director will not issue the permit and will forward the application and request to the TCEQ Commissioners for their consideration at a scheduled Commission meeting. If a contested case hearing is held, it will be a legal proceeding similar to a civil trial in state district court.

If the Executive Director calls a public meeting or the Commission grants a contested case hearing as described above, the Commission will give notice of the date, time, and place of the meeting or hearing. If a hearing request or request for reconsideration is made, the Commission will consider all public comments in making its decision and shall either adopt the Executive Director's response to public comments or prepare its own response.

For additional information about this application contact Charles Faulds, P.E. at (512) 239-4649

XIV. ADMINISTRATIVE RECORD

The following section is a list of the fact sheet citations to applicable statutory or regulatory provisions and appropriate supporting references.

A. PERMIT(S)

TCEQ Permit No. WQ0004138000 issued on August 10, 2010. (EPA ID No. TX0119423)

B. APPLICATION

TPDES wastewater permit application received on October 11, 2013.

C. 40 CFR CITATION(S)

40 CFR Part 122
40 CFR Part 423

D. LETTERS/MEMORANDA/RECORDS OF COMMUNICATION

TCEQ Interoffice Memorandum from Michael Pfeil, Standards Implementation Team to Industrial Permits Team dated January 29, 2014.

TCEQ Interoffice Memorandum from Mark Rudolf, P.E., Water Quality Assessment Team to Industrial Permits Team dated January 28, 2014.

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

TCEQ Interoffice Memorandum from Jeff Borski, Water Quality Assessment Team to Industrial Permits Team dated January 17, 2014.

TCEQ Interoffice Memorandum from Brittany M. Lee, Standards Implementation Team to Industrial Permits Team dated January 9, 2014.

Letters from Ms. N. Koch, Weston Solutions, to Ms. Sheppard, TCEQ Application Review and Processing Team dated November 18, 2013, and December 5, 2013.

E. MISCELLANEOUS

The State of Texas 2012 Integrated Report -- Texas 303(d) List (Category 5), TCEQ, May 9, 2013.

Texas Surface Water Quality Standards, 30 TAC §§307.1 - 307.10, TCEQ, effective July 22, 2012, as approved by EPA Region 6

Texas Surface Water Quality Standards, 30 TAC §§307.1 - 307.10, TCEQ, effective August 17, 2000, and Appendix E, effective February 27, 2002, for portions of the 2010 Standards not yet approved by EPA Region 6

Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition (EPA-821-R-02-013)

Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, (EPA-821-R-02-012)

Procedures to Implement the Texas Surface Water Quality Standards, TCEQ, June 2010, as approved by EPA Region 6

Procedures to Implement the Texas Surface Water Quality Standards, TCEQ, January 2003, for portions of the 2010 IP not approved by EPA Region 6

Guidance Document for Establishing Monitoring Frequencies for Domestic and Industrial Wastewater Discharge Permits, TCEQ Document No. 98-001.000-OWR-WQ, May 1998

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

**Appendix A
Calculated Water Quality-Based Effluent Limits**

TEXTOX MENU #3 - PERENNIAL STREAM OR RIVER

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

- Table 1, 2010 Texas Surface Water Quality Standards (30 TAC 307) for Freshwater Aquatic Life
- Table 2, 2010 Texas Surface Water Quality Standards for Human Health (except Mercury)
- Table 3, 2000 Texas Surface Water Quality Standards for Human Health (Mercury)
- "Procedures to Implement the Texas Surface Water Quality Standards," Texas Commission on Environmental Quality, June 2010

PERMIT

INFORMATION

Permittee Name:	Calpine Hidalgo Energy Center, L.P., Brownsville Public Utilities Board, and Calpine Operating Services Company, Inc.
TPDES Permit No.:	WQ0004138000
Outfall No.:	001
Prepared by:	Charles Faulds
Date:	February 21, 2014

DISCHARGE INFORMATION

Receiving Waterbody:	North Main Drain III
Segment No.:	2491
TSS (mg/L):	72
pH (Standard Units):	7.4
Hardness (mg/L as CaCO ₃):	713
Chloride (mg/L):	860
Effluent Flow for Aquatic Life (MGD):	0.89
Critical Low Flow [7Q2] (cfs):	15.18
Percent Effluent for Mixing Zone:	8.32
Percent Effluent for Zone of Initial Dilution:	26.62
Effluent Flow for Human Health (MGD):	0.71
Harmonic Mean Flow (cfs):	22.23
Percent Effluent for Human Health:	4.71
Public Water Supply Use?:	no

CALCULATE DISSOLVED FRACTION (AND ENTER WATER EFFECT RATIO IF APPLICABLE):

<i>Stream/River Metal</i>	<i>Intercept (b)</i>	<i>Slope (m)</i>	<i>Partition Coefficient (Kp)</i>	<i>Dissolved Fraction (Cd/Ct)</i>		<i>Water Effect Ratio (WER)</i>	
Aluminum	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Arsenic	5.68	-0.73	21093.43	0.40		1.00	Assumed
Cadmium	6.60	-1.13	31711.32	0.30		1.00	Assumed
Chromium (Total)	6.52	-0.93	62041.28	0.18		1.00	Assumed
Chromium (+3)	6.52	-0.93	62041.28	0.18		1.00	Assumed
Chromium (+6)	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Copper	6.02	-0.74	44215.44	0.24		1.00	Assumed
Lead	6.45	-0.80	92073.36	0.13		1.00	Assumed
Mercury	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Nickel	5.69	-0.57	42787.85	0.25		1.00	Assumed
Selenium	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Silver	6.38	-1.03	29305.39	0.32		1.00	Assumed
Zinc	6.10	-0.70	63076.45	0.18		1.00	Assumed

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

CONVERT TISSUE-BASED CRITERIA TO WATER COLUMN CRITERIA:

Parameter	Water and Fish Criterion (ug/kg)	Fish Only Criterion (ug/kg)	BCF (l/kg)	Water and Fish Criterion (ug/L)	Fish Only Criterion (ug/L)
4,4'-DDD	166.16	166.16	53600	0.0031	0.0031
4,4'-DDE	214.4	214.4	53600	0.004	0.004
4,4'-DDT	209.04	209.04	53600	0.0039	0.0039
Dioxins/Furans	0.0004	0.0004	5000	8.00E-08	8.00E-08
Mercury					
Polychlorinated Biphenyls (PCBs)	19.96	19.96	31200	6.40E-04	6.40E-04

AQUATIC LIFE

CALCULATE DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS:

Parameter	FW		WLAa	WLAc	LTAa	LTAc	Daily Avg. (ug/L)	Daily Max. (ug/L)
	Acute Criterion (ug/L)	Chronic Criterion (ug/L)						
Aldrin	3	N/A	11.3	N/A	6.46	N/A	9.49	20.1
Aluminum	991	N/A	3722	N/A	2133	N/A	3135	6633
Arsenic	340	150	3216	4543	1843	3498	2709	5732
Cadmium	57.7	0.96	712	37.9	408	29.2	42.9	90.7
Carbaryl	2	N/A	7.51	N/A	4.30	N/A	6.33	13.39
Chlordane	2.4	0.004	9.01	0.0481	5.17	0.0370	0.0544	0.1152
Chlorpyrifos	0.083	0.041	0.31	0.4930	0.1786	0.3796	0.2626	0.5555
Chromium (+3)	2847	370	58457	24343	33496	18744	27554	58294
Chromium (+6)	15.7	10.6	59.0	127	33.8	98.1	49.7	105
Copper	90.4	50.7	1420	2552	814	1965	1196	2531
Cyanide	45.8	10.7	172	129	98.6	99.1	145	307
4,4'-DDT	1.10	0.0010	4.13	0.0120	2.37	0.0093	0.0136	0.0288
Demeton	N/A	0.1	N/A	1.20	N/A	0.9258	1.36	2.88
Diazinon	0.1700	0.1700	0.6385	2.04	0.3659	1.57	0.538	1.14
Dicofol	59.3	19.8	223	238	128	183	188	397
Dieldrin	0.24	0.002	0.9014	0.0240	0.5165	0.0185	0.0272	0.0576
Diuron	210	70	789	842	452	648	664	1406
Endosulfan I (alpha)	0.22	0.056	0.8263	0.6733	0.4735	0.5185	0.6960	1.47
Endosulfan II (beta)	0.22	0.056	0.8263	0.6733	0.4735	0.5185	0.6960	1.47
Endosulfan sulfate	0.22	0.056	0.8263	0.6733	0.4735	0.5185	0.6960	1.47
Endrin	0.086	0.002	0.3230	0.0240	0.1851	0.0185	0.0272	0.0576
Guthion	N/A	0.01	N/A	0.1202	N/A	0.0926	0.1361	0.2879
Heptachlor	0.52	0.004	1.95	0.0481	1.12	0.0370	0.0544	0.1152
Hexachlorocyclohexane (Lindane)	1.126	0.08	4.23	0.9619	2.42	0.7407	1.09	2.30
Lead	502	19.6	14395	1796	8248	1383	2033	4300
Malathion	N/A	0.0100	N/A	0.1202	N/A	0.0926	0.1361	0.2879
Mercury	2.4	1.3	9.01	15.6	5.17	12.0	7.59	16.1
Methoxychlor	N/A	0.0300	N/A	0.3607	N/A	0.2777	0.4083	0.8638
Mirex	N/A	0.0010	N/A	0.0120	N/A	0.0093	0.0136	0.0288
Nickel	2467	274	37812	13445	21666	10352	15218	32196
Nonylphenol	28	6.6	105	79.4	60.3	61.1	88.6	187
Parathion (ethyl)	0.065	0.013	0.244	0.156	0.140	0.120	0.177	0.374
Pentachlorophenol	13.0	10.0	49.0	120	28.1	92.6	41.3	87.3
Phenanthrene	30	30	113	361	64.6	278	94.9	201
Polychlorinated Biphenyls (PCBs)	2	0.014	7.51	0.17	4.30	0.130	0.191	0.40
Selenium	20	5	75.1	60.1	43.0	46.3	63.3	134
Silver	0.8	N/A	104	N/A	59.6	N/A	87.6	185

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

AQUATIC LIFE

CALCULATE DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS:

Parameter	FW	FW	WLAa	WLAc	LTAA	LTAc	Daily Avg. (ug/L)	Daily Max. (ug/L)
	Acute Criterion (ug/L)	Chronic Criterion (ug/L)						
Toxaphene	0.78	0.0002	2.93	0.0024	1.68	0.0019	0.0027	0.0058
Tributyltin (TBT)	0.13	0.024	0.488	0.289	0.280	0.222	0.327	0.691
2,4,5 Trichlorophenol	136	64.0	510.81	769.52	292.69	592.53	430.26	910.27
Zinc	619	624	12883	41580	7382	32017	10852	22958

HUMAN HEALTH

CALCULATE DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS:

Parameter	Water and Fish	Fish Only	WLAh	LTAh	Daily Avg. (ug/L)	Daily Max. (ug/L)
	Criterion (ug/L)	Criterion (ug/L)				
Acrylonitrile	0.8	3.8	80.7	75.0	110	233
Aldrin	0.00094	0.001	0.0212	0.0197	0.0290	0.0614
Anthracene	5569	N/A	N/A	N/A	N/A	N/A
Antimony	6	1071	22744	21152	31093	65782
Arsenic	10	N/A	N/A	N/A	N/A	N/A
Barium	2000	N/A	N/A	N/A	N/A	N/A
Benzene	5	513	10894	10132	14893	31509
Benzidine	0.00086	0.002	0.042	0.039	0.058	0.123
Benzo(a)anthracene	0.068	0.330	7.01	6.52	9.58	20.3
Benzo(a)pyrene	0.068	0.330	7.01	6.52	9.58	20.3
Bis(chloromethyl)ether	0.0024	0.440	9.34	8.69	12.8	27.0
Bis(2-chloroethyl)ether	0.3	5.27	112	104	153	324
Bis(2-ethylhexyl)phthalate	6	41	871	810	1190	2518
Bromodichloromethane	10.2	322	6838	6359	9348	19778
Bromoform	69.1	2175	46189	42955	63145	133592
Cadmium	5	N/A	N/A	N/A	N/A	N/A
Carbon Tetrachloride	4.1	29	616	573	842	1781
Chlordane	0.008	0.0081	0.172	0.160	0.235	0.498
Chlorobenzene	100	5201	110449	102718	150995	319453
Chlorodibromomethane (Dibromochloromethane)	7.6	239	5075	4720	6939	14680
Chloroform	70	7143	151690	141072	207376	438733
Chromium (+6)	62	502	10661	9914	14574	30834
Chrysene	68.13	327	6944	6458	9493	20085
Cresols	736	1981	42069	39124	57512	121676
Cyanide	200	N/A	N/A	N/A	N/A	N/A
4,4'-DDD	0.0031	0.0031	0.0658	0.0612	0.0900	0.1904
4,4'-DDE	0.004	0.004	0.0849	0.0790	0.1161	0.2457
4,4'-DDT	0.0039	0.0039	0.0828	0.0770	0.1132	0.2395
2,4'-D	70	N/A	N/A	N/A	N/A	N/A
Danitol	5.39	5.44	116	107	158	334
1,2-Dibromoethane	0.16	2.13	45.2	42.1	61.8	131
m-Dichlorobenzene	473	1445	30686	28538	41951	88754
o-Dichlorobenzene	600	4336	92080	85635	125883	266323
p-Dichlorobenzene	75	N/A	N/A	N/A	N/A	N/A
3,3'-Dichlorobenzidine	0.32	0.44	9.34	8.69	12.8	27.0
1,2-Dichloroethane	5	553	11744	10922	16055	33966
1,1-Dichloroethylene	7	23916	507885	472333	694329	1468955
Dichloromethane	5	5926	125846	117036	172044	363983

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

HUMAN HEALTH

CALCULATE DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS:

Parameter	Water and		WLAh	LTAh	Daily Avg. (ug/L)	Daily Max. (ug/L)
	Fish Criterion (ug/L)	Fish Only Criterion (ug/L)				
1,2-Dichloropropane	5	226	4799	4463	6561	13881
1,3-Dichloropropene (1,3- Dichloropropylene)	3.4	211	4481	4167	6126	12960
Dicofol	0.076	0.076	1.61	1.50	2.21	4.67
Dieldrin	0.0005	0.0005	0.011	0.010	0.015	0.031
2,4-Dimethylphenol	257	571	12126	11277	16577	35072
Di-n-Butyl Phthalate	1318	3010	63921	59446	87386	184878
Dioxins/Furans (TCDD Equivalents)	8.00E-08	8.00E-08	1.70E-06	1.58E-06	2.32E-06	4.91E-06
Endrin	0.2	0.2	4.25	3.95	5.81	12.3
Ethylbenzene	700	7143	151690	141072	207376	438733
Fluoride	4000	N/A	N/A	N/A	N/A	N/A
Heptachlor	0.0015	0.0015	0.0319	0.0296	0.0435	0.0921
Heptachlor Epoxide	0.00074	0.00075	0.0159	0.0148	0.0218	0.0461
Hexachlorobenzene	0.0044	0.0045	0.0956	0.0889	0.1306	0.2764
Hexachlorobutadiene	6.5	274	5819	5411	7955	16829
Hexachlorocyclohexane (alpha)	0.05	0.093	1.97	1.84	2.70	5.71
Hexachlorocyclohexane (beta)	0.17	0.33	7.01	6.52	9.58	20.27
Hexachlorocyclohexane (gamma) (Lindane)	0.2	6.2	132	122	180	381
Hexachlorocyclopentadiene	50	N/A	N/A	N/A	N/A	N/A
Hexachloroethane	27	62	1317	1224	1800	3808
Hexachlorophene	0.008	0.008	0.170	0.158	0.232	0.491
Lead	1.15	3.83	621	577	848	1795
Mercury	0.0122	0.0122	0.259	0.241	0.354	0.749
Methoxychlor	0.33	0.33	7.01	6.52	9.58	20.3
Methyl Ethyl Ketone	13932	1500000	3.19E+07	2.96E+07	4.35E+07	9.21E+07
Nickel	332	1140	98791	91876	135058	285734
Nitrate-Nitrogen (as Total Nitrogen)	10000	N/A	N/A	N/A	N/A	N/A
Nitrobenzene	11	463	9832	9144	13442	28438
N-Nitrosodiethylamine	0.0037	2.1	44.6	41.5	61.0	129
N-Nitroso-di-n-Butylamine	0.119	4.2	89.2	82.9	122	258
Pentachlorobenzene	1	1	21.2	19.7	29.0	61.4
Pentachlorophenol	1	57	1210	1126	1655	3501
Polychlorinated Biphenyls (PCBs)	6.40E-04	6.40E-04	0.0136	0.0126	0.0186	0.0393
Pyridine	23	2014	42770	39776	58470	123703
Selenium	50	N/A	N/A	N/A	N/A	N/A
1,2,4,5-Tetrachlorobenzene	0.65	0.71	15.1	14.0	20.6	43.6
1,1,2,2-Tetrachloroethane	3.2	76	1614	1501	2206	4668
Tetrachloroethylene	5	49	1041	968	1423	3010
Thallium	0.75	1.5	31.9	29.6	43.5	92.1
Toluene	1000	N/A	N/A	N/A	N/A	N/A
Toxaphene	0.0053	0.0053	0.1126	0.1047	0.1539	0.3255
2,4,5-TP (Silvex)	7.3	7.6	161	150	221	467
1,1,1-Trichloroethane	200	956663	20315875	18893764	27773833	58759607
1,1,2-Trichloroethane	5	295	6265	5826	8564	18119
Trichloroethylene	5	649	13782	12818	18842	39863
2,4,5-Trichlorophenol	1194	2435	51710	48090	70693	149561
TTHM (Sum of Total Trihalomethanes)	80	N/A	N/A	N/A	N/A	N/A
Vinyl Chloride	0.25	24	510	474	697	1474

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

CALCULATE 70% AND 85% OF DAILY AVERAGE EFFLUENT LIMITATIONS:

Aquatic Life		
Parameter	70%	85%
Aldrin	6.64	8.07
Aluminum	2195	2665
Arsenic	1896	2303
Cadmium	30.0	36.4
Carbaryl	4.43	5.38
Chlordane	0.038	0.046
Chlorpyrifos	0.184	0.223
Chromium (+3)	19288	23421
Chromium (+6)	34.8	42.2
Copper	837	1017
Cyanide	101	123
4,4'-DDT	0.010	0.012
Demeton	0.953	1.157
Diazinon	0.376	0.457
Dicofol	131	159
Dieldrin	0.019	0.023
Diuron	465	565
Endosulfan (alpha)	0.487	0.592
Endosulfan (beta)	0.487	0.592
Endosulfan sulfate	0.487	0.592
Endrin	0.019	0.023
Guthion	0.095	0.116
Heptachlor	0.038	0.046
Hexachlorocyclohexane (Lindane)	0.762	0.925
Lead	1423	1728
Malathion	0.095	0.116
Mercury	5.31	6.45
Methoxychlor	0.286	0.347
Mirex	0.010	0.012
Nickel	10653	12935
Nonylphenol	62.0	75.3
Parathion (ethyl)	0.124	0.150
Pentachlorophenol	28.9	35.1
Phenanthrene	66.4	80.7
Polychlorinated Biphenyls (PCBs)	0.133	0.162
Selenium	44.3	53.8
Silver	61.4	74.5
Toxaphene	0.0019	0.0023
Tributyltin (TBT)	0.229	0.278
2,4,5 Trichlorophenol	301	366
Zinc	7596	9224

CALCULATE 70% AND 85% OF DAILY AVERAGE EFFLUENT LIMITATIONS:

Human Health		
Parameter	70%	85%
Acrylonitrile	77.2	93.8
Aldrin	0.020	0.025
Anthracene	N/A	N/A

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

CALCULATE 70% AND 85% OF DAILY AVERAGE EFFLUENT LIMITATIONS:

Human Health

<i>Parameter</i>	<i>70%</i>	<i>85%</i>
Antimony	21765	26429
Arsenic	N/A	N/A
Barium	N/A	N/A
Benzene	10425	12659
Benzidine	0.041	0.049
Benzo(a)anthracene	6.71	8.14
Benzo(a)pyrene	6.71	8.14
Bis(chloromethyl)ether	8.94	10.9
Bis(2-chloroethyl)ether	107	130
Bis(2-ethylhexyl)phthalate	833	1012
Bromodichloromethane	6544	7946
Bromoform	44201	53673
Cadmium	N/A	N/A
Carbon Tetrachloride	589	716
Chlordane	0.165	0.200
Chlorobenzene	105697	128346
Chlorodibromomethane (Dibromochloromethane)	4857	5898
Chloroform	145163	176269
Chromium (+6)	10202	12388
Chrysene	6645	8069
Cresols	40259	48886
Cyanide	N/A	N/A
4,4'-DDD	0.063	0.076
4,4'-DDE	0.081	0.099
4,4'-DDT	0.079	0.096
2,4'-D	N/A	N/A
Danitol	111	134
1,2-Dibromoethane	43.3	52.6
m-Dichlorobenzene	29366	35659
o-Dichlorobenzene	88118	107000
p-Dichlorobenzene	N/A	N/A
3,3'-Dichlorobenzidine	8.94	10.9
1,2-Dichloroethane	11238	13646
1,1-Dichloroethylene	486030	590180
Dichloromethane	120431	146237
1,2-Dichloropropane	4593	5577
1,3-Dichloropropene (1,3-Dichloropropylene)	4288	5207
Dicofol	1.54	1.88
Dieldrin	0.010	0.012
2,4-Dimethylphenol	11604	14091
Di-n-Butyl Phthalate	61170	74278
Dioxins/Furans (TCDD Equivalents)	1.63E-06	1.97E-06
Endrin	4.06	4.94
Ethylbenzene	145163	176269
Fluoride	N/A	N/A
Heptachlor	0.030	0.037
Heptachlor Epoxide	0.015	0.019
Hexachlorobenzene	0.091	0.111
Hexachlorobutadiene	5568	6762
Hexachlorocyclohexane (alpha)	1.89	2.29
Hexachlorocyclohexane (beta)	6.71	8.14

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

CALCULATE 70% AND 85% OF DAILY AVERAGE EFFLUENT LIMITATIONS:

Human Health

Parameter	70%	85%
Hexachlorocyclohexane (gamma) (Lindane)	126	153
Hexachlorocyclopentadiene	N/A	N/A
Hexachloroethane	1260	1530
Hexachlorophene	0.163	0.197
Lead	594	721
Mercury	0.248	0.301
Methoxychlor	6.71	8.14
Methyl Ethyl Ketone	3.05E+07	3.70E+07
Nickel	94540	114799
Nitrate-Nitrogen (as Total Nitrogen)	N/A	N/A
Nitrobenzene	9409	11426
N-Nitrosodiethylamine	42.7	51.8
N-Nitroso-di-n-Butylamine	85.4	104
Pentachlorobenzene	20.3	24.7
Pentachlorophenol	1158	1407
Polychlorinated Biphenyls (PCBs)	0.013	0.016
Pyridine	40929	49700
Selenium	N/A	N/A
1,2,4,5-Tetrachlorobenzene	14.4	17.5
1,1,1,2-Tetrachloroethane	1545	1875
Tetrachloroethylene	996	1209
Thallium	30.5	37.0
Toluene	N/A	N/A
Toxaphene	0.108	0.131
2,4,5-TP (Silvex)	154	188
1,1,1-Trichloroethane	19441683	23607758
1,1,2-Trichloroethane	5995	7280
Trichloroethylene	13189	16015
2,4,5-Trichlorophenol	49485	60089
TTHM (Sum of Total Trihalomethanes)	N/A	N/A
Vinyl Chloride	488	592

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Compliance History Report

PUBLISHED Compliance History Report for CN600131932, RN100224989, Rating Year 2014 which includes Compliance History (CH) components from September 1, 2009, through August 31, 2014.

Customer, Respondent, or Owner/Operator:	CN600131932, Calpine Hidalgo Energy Center, L.P.	Classification:	SATISFACTORY	Rating:	1.76
Regulated Entity:	RN100224989, CALPINE HIDALGO ENERGY CENTER	Classification:	SATISFACTORY	Rating:	1.76
Complexity Points:	18	Repeat Violator:	NO		
CH Group:	06 - Electric Power Generation				
Location:	4005 N SEMINARY RD EDINBURG, TX 78541-8097, HIDALGO COUNTY				
TCEQ Region:	REGION 15 - HARLINGEN				

ID Number(s):

AIR OPERATING PERMITS ACCOUNT NUMBER HN0406E	AIR OPERATING PERMITS PERMIT 1837
WASTEWATER PERMIT WQ0004138000	WASTEWATER EPA ID TX0119423
AIR NEW SOURCE PERMITS PERMIT 38599	AIR NEW SOURCE PERMITS REGISTRATION 119552
AIR NEW SOURCE PERMITS AFS NUM 4821500087	AIR EMISSIONS INVENTORY ACCOUNT NUMBER HN0406E
INDUSTRIAL AND HAZARDOUS WASTE EPA ID TXR000035303	INDUSTRIAL AND HAZARDOUS WASTE SOLID WASTE REGISTRATION # (SWR) 86364

Compliance History Period: September 01, 2009 to August 31, 2014 **Rating Year:** 2014 **Rating Date:** 09/01/2014

Date Compliance History Report Prepared: February 05, 2015

Agency Decision Requiring Compliance History: Enforcement

Component Period Selected: February 05, 2010 to February 05, 2015

TCEQ Staff Member to Contact for Additional Information Regarding This Compliance History.

Name: Merrit McKelvy

Phone: (512) 239-4742

Site and Owner/Operator History:

- 1) Has the site been in existence and/or operation for the full five year compliance period? YES
- 2) Has there been a (known) change in ownership/operator of the site during the compliance period? NO
- 3) If YES for #2, who is the current owner/operator? N/A
- 4) If YES for #2, who was/were the prior owner(s)/operator(s)? N/A
- 5) If YES, when did the change(s) in owner or operator occur? N/A

Components (Multimedia) for the Site Are Listed in Sections A - J

A. Final Orders, court judgments, and consent decrees:

- 1 Effective Date: 01/12/2013 ADMINORDER 2012-1126-IWD-E (1660 Order-Agreed Order With Denial)
 Classification: Moderate
 Citation: 2D TWC Chapter 26, SubChapter A 26.121(a)(1)
 30 TAC Chapter 305, SubChapter F 305.125(1)
 Rqmt Prov: TPDES Permit PERMIT
 Description: Failure to comply with permitted effluent limitations, as documented during a record review conducted on May 15, 2012.

B. Criminal convictions:

N/A

C. Chronic excessive emissions events:

N/A

D. The approval dates of investigations (CCEDS Inv. Track. No.):

Item 1	February 11, 2010	(819794)
Item 2	March 11, 2010	(836184)
Item 3	April 13, 2010	(836185)
Item 4	June 09, 2010	(847904)
Item 5	July 15, 2010	(862318)
Item 6	September 03, 2010	(843503)
Item 7	September 13, 2010	(930601)
Item 8	October 13, 2010	(883365)
Item 9	November 01, 2010	(864580)
Item 10	November 08, 2010	(889756)
Item 11	December 09, 2010	(898124)
Item 12	February 11, 2011	(910905)
Item 13	February 22, 2011	(892956)
Item 14	March 11, 2011	(918176)
Item 15	April 09, 2011	(930599)
Item 16	June 09, 2011	(947294)
Item 17	June 15, 2011	(924193)
Item 18	July 13, 2011	(954557)
Item 19	July 25, 2011	(923912)
Item 20	August 16, 2011	(961138)
Item 21	September 15, 2011	(967230)
Item 22	October 13, 2011	(973193)
Item 23	November 10, 2011	(979329)
Item 24	November 23, 2011	(959192)
Item 25	December 17, 2011	(986160)
Item 26	March 12, 2012	(1005377)
Item 27	April 09, 2012	(1011950)
Item 28	May 01, 2012	(1018321)
Item 29	June 08, 2012	(1009846)
Item 30	June 11, 2012	(1026043)
Item 31	November 16, 2012	(1069859)
Item 32	February 22, 2013	(1059563)
Item 33	March 12, 2013	(1091259)
Item 34	April 12, 2013	(1097592)
Item 35	May 15, 2013	(1108632)
Item 36	June 10, 2013	(1112194)
Item 37	August 14, 2013	(1126900)
Item 38	September 03, 2013	(1114059)
Item 39	September 10, 2013	(1131439)
Item 40	October 11, 2013	(1137183)
Item 41	November 12, 2013	(1142602)
Item 42	November 21, 2013	(1120838)
Item 43	December 13, 2013	(1149027)
Item 44	January 09, 2014	(1155114)
Item 45	February 06, 2014	(1162423)
Item 46	March 13, 2014	(1169048)
Item 47	April 17, 2014	(1176234)
Item 48	May 12, 2014	(1182469)
Item 49	June 16, 2014	(1189349)
Item 50	July 08, 2014	(1201326)
Item 51	July 10, 2014	(1166257)
Item 52	August 12, 2014	(1201327)
Item 53	September 05, 2014	(1207664)
Item 54	October 14, 2014	(1214070)
Item 55	November 11, 2014	(1220304)

E. Written notices of violations (NOV) (CCEDS Inv. Track. No.):

A notice of violation represents a written allegation of a violation of a specific regulatory requirement from the commission to a regulated entity. A notice of violation is not a final enforcement action, nor proof that a violation has actually occurred.

N/A

F. Environmental audits:

Notice of Intent Date: 08/13/2012 (1035463)

No DOV Associated

G. Type of environmental management systems (EMSs):

N/A

H. Voluntary on-site compliance assessment dates:

N/A

I. Participation in a voluntary pollution reduction program:

J. Early compliance:

N/A

Sites Outside of Texas:

N/A