## FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

For draft Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0010555001, EPA I.D. No. TX0020591, to discharge to water in the state.

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

Applicant: City of Commerce
1119 Alamo Street
Commerce, Texas 75428

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Municipal Permits Team
Wastewater Permitting Section (MC 148)
Water Quality Division
(512) 239-1205

Date: December 14, 2020

Permit Action: Renewal

### 1. 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 includes an expiration date of **five years from the date of issuance**.

### 2. APPLICANT ACTIVITY

The applicant has applied to the Texas Commission on Environmental Quality (TCEQ) for a renewal of the existing permit that authorizes the discharge of treated domestic wastewater at an annual average flow not to exceed 2.0 million gallons per day (MGD). The existing wastewater treatment facility serves the Commerce.

### 3. FACILITY AND DISCHARGE LOCATION

The plant site is located approximately 0.5 mile south of the intersection of Charity Road and Farm-to-Market Road 3218, on the east side of Farm-to-Market Road 3218, in Hunt County, Texas 75428.

Outfall Location:

| Outfall Number | Latitude | Longitude |
|---|---|---|
| 001 | 33.214741 N | 95.88837 W |

The treated effluent is discharged to an unnamed tributary, thence to Upper South Sulphur River in Segment No. 0306 of the Sulphur River Basin. The unclassified receiving water use is minimal aquatic life use for an unnamed tributary. The designated uses for Segment No. 0306 are primary contact recreation and intermediate aquatic life

use.

## 4. TREATMENT PROCESS DESCRIPTION AND SEWAGE SLUDGE DISPOSAL

The Commerce Wastewater Treatment Facility is an activated sludge process plant operated in the complete mix aeration mode. Treatment units include fine screens, two equalization basins, two aeration basins, two final clarifiers, a chlorine contact chamber, a dechlorination chamber, two sludge digesters, and three sludge drying beds. The facility is in operation.

Sludge generated from the treatment facility is hauled by a registered transporter and disposed of at a TCEQ-permitted landfill, Republic Maloy Landfill, Permit No. 1195A, in Hunt County. The draft permit also authorizes the disposal of sludge at a TCEQ-authorized land application site, co-disposal landfill, wastewater treatment facility, or facility that further processes sludge.

## 5. INDUSTRIAL WASTE CONTRIBUTION

The draft permit includes pretreatment requirements that are appropriate for a facility of this size and complexity. The Commerce WWTF does appear to receive significant industrial wastewater contributions. The WWTP receives process wastewater from one significant industrial user (SIU). The process wastewater flow from the SIU contributes less than 1.0% of the WWTP current maximum hydraulic capacity. The POTW has not experienced any instances of pass through or interference, therefore, at this time, the TCEQ is not requiring the permittee to develop a pretreatment program.

## 6. SUMMARY OF SELF-REPORTED EFFLUENT ANALYSES

The following is a summary of the applicant's effluent monitoring data for the period August 2015 through October 2020. The average of Daily Average value is computed by the averaging of all 30-day average values for the reporting period for each parameter: flow, five-day carbonaceous biochemical oxygen demand ($CBOD_5$), total suspended solids (TSS), ammonia nitrogen ($NH_3$-N). The average of Daily Average value for *Escherichia coli* in colony-forming units (CFU) or most probable number (MPN) per 100 ml is calculated via geometric mean.

| Parameter | Average of Daily Avg |
|---|---|
| Flow, MGD | 1.05 |
| $CBOD_5$, mg/l | 3.5 |
| TSS, mg/l | 5.2 |
| $NH_3$-N, mg/l | 0.3 |
| *E. coli*, CFU or MPN per 100 ml | 3 |

## 7. DRAFT PERMIT CONDITIONS AND MONITORING REQUIREMENTS

The effluent limitations and monitoring requirements for those parameters that are limited in the draft permit are as follows:

### A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The annual average flow of effluent shall not exceed 2.0 MGD, nor shall the

average discharge during any two-hour period (2-hour peak) exceed 2,334 gallons per minute.

| Parameter | 30-Day Average | | 7-Day Average | Daily Maximum |
|---|---|---|---|---|
| | mg/l | lbs/day | mg/l | mg/l |
| $CBOD_5$ | 10 | 167 | 15 | 25 |
| TSS | 15 | 250 | 25 | 40 |
| $NH_3$-N | 2 | 33 | 5 | 10 |
| DO (minimum) | 6.0 | N/A | N/A | N/A |
| *E. coli*, CFU or MPN per 100 ml | 126 | N/A | N/A | 399 |

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored once per 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.

The effluent shall contain a chlorine residual of at least 1.0 mg/l after a detention time of at least 20 minutes (based on peak flow) and shall be monitored daily by grab sample. The permittee shall dechlorinate the chlorinated effluent to less than 0.1 mg/l chlorine residual and shall monitor chlorine residual daily by grab sample after the dechlorination process. An equivalent method of disinfection may be substituted only with prior approval of the Executive Director.

| Parameter | Monitoring Requirement |
|---|---|
| Flow, MGD | Continuous |
| $CBOD_5$ | Two/week |
| TSS | Two/week |
| $NH_3$-N | Two/week |
| DO | Two/week |
| *E. coli* | One/week |

B. SEWAGE SLUDGE REQUIREMENTS

The draft permit includes Sludge Provisions according to the requirements of 30 TAC Chapter 312, Sludge Use, Disposal, and Transportation. Sludge generated from the treatment facility is hauled by a registered transporter and disposed of at a TCEQ-permitted landfill, Republic Maloy Landfill, Permit No. 1195A, in Hunt County. The draft permit also authorizes the disposal of sludge at a TCEQ-authorized land application site, co-disposal landfill, wastewater treatment facility, or facility that further processes sludge.

C. PRETREATMENT REQUIREMENTS

Permit requirements for pretreatment are based on TPDES regulations contained in 30 TAC Chapter 315, which references 40 Code of Federal Regulations (CFR) Part 403, "General Pretreatment Regulations for Existing and New Sources of Pollution" *[rev. Federal Register/ Vol. 70/ No. 198/ Friday, October 14, 2005/ Rules and Regulations, pages 60134-60798]*. The permit includes specific requirements that establish responsibilities of local government, industry, and

the public to implement the standards to control pollutants which pass through or interfere with treatment processes in publicly owned treatment works or which may contaminate the sewage sludge. This permit has appropriate pretreatment language for a facility of this size and complexity.

D. WHOLE EFFLUENT TOXICITY (BIOMONITORING) REQUIREMENTS

(1) The draft permit includes chronic freshwater biomonitoring requirements as follows. The permit requires five dilutions in addition to the control (0% effluent) to be used in the toxicity tests. These additional effluent concentrations shall be 31%, 41%, 55%, 73%, and 97%. The low-flow effluent concentration (critical dilution) is defined as 97% effluent.

(a) Chronic static renewal survival and reproduction test using the water flea (*Ceriodaphnia dubia*). The frequency of the testing is once per quarter for at least the first year of testing, after which the permittee may apply for a testing frequency reduction.

(b) Chronic static renewal 7-day larval survival and growth test using the fathead minnow (*Pimephales promelas*). The frequency of the testing is once per quarter for at least the first year of testing, after which the permittee may apply for a testing frequency reduction.

(2) The draft permit includes the following minimum 24-hour acute freshwater biomonitoring requirements at a frequency of once per six months:

(a) Acute 24-hour static toxicity test using the water flea (*Daphnia pulex* or *Ceriodaphnia dubia*).

(b) Acute 24-hour static toxicity test using the fathead minnow (*Pimephales promelas*).

E. SUMMARY OF CHANGES FROM APPLICATION

None.

I. SUMMARY OF CHANGES FROM EXISTING PERMIT

The Standard Permit Conditions, Sludge Provisions, Other Requirements, and Biomonitoring sections of the draft permit have been updated.

For Publicly Owned Treatment Works (POTWs), effective December 21, 2023, the permittee must submit the written report for unauthorized discharges and unanticipated bypasses that exceed any effluent limit in the permit using the online electronic reporting system available through the TCEQ website unless the permittee requests and obtains an electronic reporting waiver.

Effective December 21, 2020, the permittee must submit the annual sludge report using the online electronic reporting system available through the TCEQ website unless the permittee requests and obtains an electronic reporting waiver. The

Reporting Requirements of the Sludge Provisions have also been updated.

Certain accidental discharges or spills of treated or untreated wastewater from wastewater treatment facilities or collection systems owned or operated by a local government may be reported on a monthly basis in accordance with 30 TAC § 305.132.

Other Requirement No. 4 in the existing permit has been removed because this provision is covered under 30 TAC § 305.62(d), which authorizes the TCEQ to reopen an issued permit when necessary.

The draft permit includes all updates based on the 30 TAC § 312 rule change effective April 23, 2020.

## 8. DRAFT PERMIT RATIONALE

### A. TECHNOLOGY-BASED EFFLUENT LIMITATIONS/CONDITIONS

Regulations promulgated in Title 40 of the CFR require that 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.

Effluent limitations for maximum and minimum pH are in accordance with 40 CFR § 133.102(c) and 30 TAC § 309.1(b).

### B. WATER QUALITY SUMMARY AND COASTAL MANAGEMENT PLAN

#### (1) WATER QUALITY SUMMARY

The treated effluent is discharged to an unnamed tributary, thence to Upper South Sulphur River in Segment No. 0306 of the Sulphur River Basin. The unclassified receiving water use is minimal aquatic life use for an unnamed tributary. The designated uses for Segment No. 0306 are primary contact recreation and intermediate aquatic life use. The effluent limitations in the draft permit will maintain and protect the existing instream uses. All determinations are preliminary and subject to additional review and/or revisions.

The discharge from this permit action 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's) 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. 0306 is currently listed in the State's inventory of impaired and threatened waters (the 2020 Clean Water Act Section 303(d) list). The listings are specifically for bacteria in water (recreation use) in the portion of the Upper South Sulphur River from a point 1 km (0.6 mi) upstream of State Highway 71 upstream approximately 10 km (6 mi) to Dunbar Creek (Assessment Unit [AU] 0306_01) and for pH in the portion of the Upper South Sulphur River from the confluence with Hickory Creek approximately 19 km (12 mi) to State Highway 71 (AU 0306_03). This facility is designed to provide adequate disinfection and, when operated properly, should not add to the bacterial impairment of the segment.

The pollutant analysis of treated effluent provided by the permittee in the application indicated 570 mg/l total dissolved solids (TDS), 94.7 mg/l sulfate, and 76.2mg/l chloride present in the effluent. The segment criteria for Segment No. 0306 are 600 mg/l for TDS, 180 mg/l for sulfate, and 80 mg/l for chlorides. Based on dissolved solids screening, no additional limits or monitoring requirements are needed for total dissolved solids, chloride, or sulfate. See Attachment 1 of this Fact Sheet.

The effluent limitations and conditions in the draft permit comply with EPA-approved portions of the 2018 Texas Surface Water Quality Standards (TSWQS), 30 TAC §§ 307.1 - 307.10, effective March 1, 2018; 2014 TSWQS, effective March 6, 2014; 2010 TSWQS, effective July 22, 2010; and 2000 TSWQS, effective July 26, 2000.

(2) CONVENTIONAL PARAMETERS

Effluent limitations for the conventional effluent parameters (i.e., Biochemical Oxygen Demand or Carbonaceous Biochemical Oxygen Demand, Ammonia Nitrogen, etc.) are based on stream standards and waste load allocations for water quality-limited streams as established in the TSWQS and the State of Texas Water Quality Management Plan (WQMP).

The existing effluent limits have been reviewed for consistency with the State of Texas Water Quality Management Plan (WQMP). The existing limits are consistent with the approved WQMP.

The effluent limitations in the draft permit meet the requirements for secondary treatment and the requirements for disinfection according to 30 TAC Chapter 309, Subchapter A: Effluent Limitations.

(3) COASTAL MANAGEMENT PLAN

The facility is not located in the Coastal Management Program boundary.

C. WATER QUALITY-BASED EFFLUENT LIMITATIONS/CONDITIONS

(1) GENERAL COMMENTS

The Texas Surface Water Quality Standards (30 TAC Chapter 307) state that surface waters will not be toxic to man, or to terrestrial or aquatic life. The methodology outlined in the *Procedures to Implement the Texas Surface Water Quality Standards* (IP) (June 2010) is designed to ensure compliance with 30 TAC Chapter 307. Specifically, the methodology is designed to ensure 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.

(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).

There is no mixing zone or zone of initial dilution for this discharge directly to an intermittent stream; acute freshwater criteria apply at the end of pipe. Chronic freshwater criteria are applied in the perennial freshwater stream.

For the intermittent stream, the percent effluent for acute protection of aquatic life is 100% because the 7Q2 of the intermittent stream is 0.0 cubic feet per second (cfs). This effluent percentage also provides acute protection of aquatic life in the perennial stream. TCEQ uses the mass balance equation to estimate dilution in the perennial stream during critical conditions. The estimated dilution for chronic protection of aquatic life is calculated using the permitted flow of 2.0 MGD and the 7-day, 2-year (7Q2) flow of 0.1 cfs for unnamed tributary within three miles of Upper South Sulphur River the perennial stream. The following critical effluent percentages are being used:

Acute Effluent %: 100% Chronic Effluent %: 96.87%

Waste load 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, instream numerical criteria will not be exceeded. From the WLA, a long-term average (LTA) is calculated using a log normal probability distribution, a given coefficient of variation (0.6), and a 90$^{th}$ 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 the 99th percentile confidence level and a standard number of monthly effluent samples collected (12). Assumptions used in deriving the effluent limitations include segment values for hardness, chlorides, pH, and total suspended solids (TSS) according to the segment-specific values contained in the TCEQ guidance document IP. The segment values are 54 mg/l for hardness (as calcium carbonate), 29 mg/l for chlorides, 7.5 standard units for pH, and 24 mg/l for TSS. For additional details on the calculation of water quality-based effluent limitations, refer to the TCEQ guidance document.

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% of the calculated daily average water quality-based effluent limitation. Monitoring and reporting is required when analytical data reported in the application exceeds 70% of the calculated daily average water quality-based effluent limitation.

(b) PERMIT ACTION

Analytical data reported in the application was screened against calculated water quality-based effluent limitations for the protection of aquatic life. Reported analytical data does not exceed 70% of the calculated daily average water quality-based effluent limitations for aquatic life protection.

(3) 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 freshwater fish tissue found in Table 2 of the Texas Surface Water Quality Standards (30 TAC Chapter 307). Freshwater fish tissue bioaccumulation criteria are applied for human health protection in the perennial stream. TCEQ uses the mass balance equation to estimate dilution in the perennial stream during average flow conditions. The estimated dilution for human health protection is calculated using the permitted flow of 2.0 MGD and the harmonic mean flow of 0.2 cfs for unnamed tributary within three miles of Upper South Sulphur River. The following critical effluent percentage is being used:

Human Health Effluent %: 93.929%

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% and 85% of the calculated daily average water quality-based effluent limitation.

(b) PERMIT ACTION

Reported analytical data does not exceed 70% of the calculated daily average water quality-based effluent limitation for human health protection.

(4) DRINKING WATER SUPPLY PROTECTION

(a) SCREENING

Water Quality Segment No. 0306, which receives the discharge from this facility, is not designated as a public water supply. Screening reported analytical data of the effluent against water quality-based effluent limitations calculated for the protection of a drinking water supply is not applicable.

(b) PERMIT ACTION

None.

(5) WHOLE EFFLUENT TOXICITY (BIOMONITORING) CRITERIA

(a) SCREENING

TCEQ has determined that there may be pollutants present in the effluent that may have the potential to cause toxic conditions in the receiving stream. Whole effluent biomonitoring is the most direct measure of potential toxicity that 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 existing permit includes chronic freshwater biomonitoring requirements. A summary of the biomonitoring testing for the facility indicates that in the past three years, the permittee has performed 24 chronic tests, with zero demonstrations of significant toxicity (i.e., zero failures).

A reasonable potential (RP) 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. Each test species is evaluated separately. The RP determination is based on representative data from the previous three years of chronic WET testing. This determination was performed in accordance with the methodology outlined in the TCEQ letter to the EPA dated December 28, 2015 and

approved by the EPA in a letter dated December 28, 2015.

With zero failures, a determination of no RP was made. WET limits are not required, and both test species may be eligible for the testing frequency reduction after one year of quarterly testing occurs.

(b) PERMIT ACTION

The 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, and/or other appropriate actions to address toxicity if biomonitoring data show actual or potential ambient toxicity to be the result of the permittee's discharge to the receiving stream or water body.

(6) WHOLE EFFLUENT TOXICITY CRITERIA (24-HOUR ACUTE)

(a) SCREENING

The existing permit includes 24-hour acute freshwater biomonitoring language. A summary of the biomonitoring testing for the facility indicates that in the past three years, the permittee has performed 10 24-hour acute tests, with zero demonstrations of significant mortality (i.e., zero failures).

(b) PERMIT ACTION

The draft permit includes 24-hour 100% acute biomonitoring tests for the life of the permit.

## 9. WATER QUALITY VARIANCE REQUESTS

No variance requests have been received.

## 10. 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 review 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.

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 and final decision 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 and final decision 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 Sonia Bhuiya at (512) 239-1205.

## 11. ADMINISTRATIVE RECORD

The following items were considered in developing the draft permit:

A. PERMIT(S)

TPDES Permit No. WQ0010555001 issued on April 27, 2016.

B. APPLICATION

Application received on August 18, 2020, and additional information received on October 19, 2020.

C. MEMORANDA

Interoffice memoranda from the Water Quality Assessment Section of the TCEQ Water Quality Division. Interoffice memorandum from the Pretreatment Team of the TCEQ Water Quality Division.

D. MISCELLANEOUS

Federal Clean Water Act § 402; Texas Water Code § 26.027; 30 TAC Chapters 30, 305, 309, 312, and 319; Commission policies; and U.S. Environmental Protection Agency guidelines.

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

*Procedures to Implement the Texas Surface Water Quality Standards* (IP), Texas Commission on Environmental Quality, June 2010, as approved by the U.S. Environmental Protection Agency, and the IP, January 2003, for portions of the 2010 IP not approved by the U.S. Environmental Protection Agency.

Texas 2020 CWA Section 303(d) List, Texas Commission on Environmental Quality, March 25, 2020; approved by the EPA on May 12, 2020.

Texas Natural Resource Conservation Commission, Guidance Document for Establishing Monitoring Frequencies for Domestic and Industrial Wastewater Discharge Permits, Document No. 98-001.000-OWR-WQ, May 1998.

Attachment 1

## Screening Calculations for Total Dissolved Solids, Chloride, and Sulfate

### Menu 2 - Discharge to an Intermittent Stream within 3 Miles of a Perennial Stream

### Screen the Perennial Stream

| | |
|---|---|
| **Applicant Name:** | **City of Commerce** |
| **Permit Number, Outfall:** | **10555-001** |
| **Segment Number:** | **0306-Upper South Sulphur River** |

| Enter values needed for screening: | | | Data Source (edit if different) |
|---|---|---|---|
| QE - Average effluent flow | 2 | MGD | |
| QS - Perennial stream harmonic mean flow | 0.20 | cfs | CC memo |
| QE - Average effluent flow | 3.0945 | cfs | Calculated |
| CA - TDS - ambient segment concentration | 326 | mg/L | 2010 IP, Appendix D |
| CA - chloride - ambient segment concentration | 29 | mg/L | 2010 IP, Appendix D |
| CA - sulfate - ambient segment concentration | 54 | mg/L | 2010 IP, Appendix D |
| CC - TDS - segment criterion | 600 | mg/L | 2014 TSWQS, Appendix A |
| CC - chloride - segment criterion | 80 | mg/L | 2014 TSWQS, Appendix A |
| CC - sulfate - segment criterion | 180 | mg/L | 2014 TSWQS, Appendix A |
| CE - TDS - average effluent concentration | 570 | mg/L | Permit application |
| CE - chloride - average effluent concentration | 76.2 | mg/L | Application and retests |
| CE - sulfate - average effluent concentration | 94.7 | mg/L | Permit application |

**Screening Equation**

$$CC \geq [(QS)(CA) + (QE)(CE)]/[QE + QS]$$

| Preliminary Calculations<br>Parameter | Load in River QSCA | Effluent Load QECE | New Concentration Equation 2 | % Change in Ambient | % Change in Assim. Capacity |
|---|---|---|---|---|---|
| TDS | 65.2 | 1763.842 | 555.19 | 70.3 | 83.6 |
| Chloride | 5.8 | 235.7979 | 73.33 | 152.9 | 86.9 |
| Sulfate | 10.8 | 293.0454 | 92.23 | 70.8 | 30.3 |

| | | | |
|---|---|---|---|
| **No further screening for TDS needed if:** | 555.19 | ≤ | 600 |

| | | | |
|---|---|---|---|
| **No further screening for chloride needed if:** | **73.33** | ≤ | **80** |
| **No further screening for sulfate needed if:** | **92.23** | ≤ | **180** |

**Permit Limit Calculations**

**TDS**

| | | |
|---|---|---|
| Calculate the WLA | WLA= [CC(QE+QS) - (QS)(CA)]/QE | 617.71 |
| Calculate the LTA | LTA = WLA * 0.93 | 574.47 |
| Calculate the daily average | Daily Avg. = LTA * 1.47 | **844.47** |
| Calculate the daily maximum | Daily Max. = LTA * 3.11 | **1786.60** |
| Calculate 70% of the daily average | 70% of Daily Avg. = | 591.13 |
| Calculate 85% of the daily average | 85% of Daily Avg. = | 717.80 |

| | | | | | |
|---|---|---|---|---|---|
| **No permit limitations needed if:** | **570** | ≤ | **591.13** | | |
| **Reporting needed if:** | **570** | > | **591.13** | but ≤ | **717.80** |
| **Permit limits may be needed if:** | **570** | > | **717.80** | | |

**No permit limitations needed for TDS**

**Chloride**

| | | |
|---|---|---|
| Calculate the WLA | WLA= [CC(QE+QS) - (QS)(CA)]/QE | 83.30 |
| Calculate the LTA | LTA = WLA * 0.93 | 77.47 |
| Calculate the daily average | Daily Avg. = LTA * 1.47 | **113.87** |
| Calculate the daily maximum | Daily Max. = LTA * 3.11 | **240.92** |
| Calculate 70% of the daily average | 70% of Daily Avg. = | 79.71 |
| Calculate 85% of the daily average | 85% of Daily Avg. = | 96.79 |

| | | | | | |
|---|---|---|---|---|---|
| **No permit limitations needed if:** | **76.2** | ≤ | **79.71** | | |
| **Reporting needed if:** | **76.2** | > | **79.71** | but ≤ | **96.79** |
| **Permit limits may be needed if:** | **76.2** | > | **96.79** | | |

**No permit limitations needed for chloride**

**Sulfate**

| | | |
|---|---|---|
| Calculate the WLA | WLA= [CC(QE+QS) - (QS)(CA)]/QE | 188.14 |
| Calculate the LTA | LTA = WLA * 0.93 | 174.97 |
| Calculate the daily average | Daily Avg. = LTA * 1.47 | **257.21** |
| Calculate the daily maximum | Daily Max. = LTA * 3.11 | **544.17** |
| Calculate 70% of the daily average | 70% of Daily Avg. = | 180.05 |
| Calculate 85% of the daily average | 85% of Daily Avg. = | 218.63 |

| | | | |
|---|---|---|---|
| **No permit limitations needed if:** | **94.7** | ≤ | **180.05** |

| | | | | | |
|---|---|---|---|---|---|
| **Reporting needed if:** | 94.7 | > | 180.05 | but ≤ | 218.63 |
| **Permit limits may be needed if:** | 94.7 | > | 218.63 | | |

**No permit limitations needed for sulfate**