REGION6
1445 ROSS AVENUE
DALLAS, TEXAS 75202-2733

NPDES Permit No NM0020672

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended, (33 U.S.C. 1251 et. seq; the "Act"),

City of Gallup WWTP
P.O. Box 1270
Gallup, NM 87305

is authorized to discharge to receiving waters named Puerco River Segment 20.6.4.99 thence to the Lower Colorado River of the Lower Colorado River Basin, from a facility located at 800 Sweetwater Place, City of Gallup, McKinley County, New Mexico.

The discharge is located on that water at the following coordinates: Outfall

001: Latitude 35° 31' 03" North, Longitude 108° 49' 02" West,

in accordance with this cover page and the effluent limitations, monitoring requirements, and other conditions set forth in Part I, Part II, Part III, and Part IV hereof.

This permit supersedes and replaces NPDES Permit No. NM0020672 issued August 30, 2011, with an effective date of October 1, 2011, and an expiration date of September 30, 2016.

This permit shall become effective on

This permit and the authorization to discharge shall expire at midnight,

Issued on

Prepared by

William K. Honker, P.E.
Director
Water Division (6WQ)

Quang Nguyen
Environmental Engineer
Permit Section (6WQ-PP)

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PART I – REQUIREMENTS FOR NPDES PERMITS

SECTION A. LIMITATIONS AND MONITORING REQUIREMENTS

1. FINAL Effluent Limits – 3.5 MGD Design Flow

During the period beginning the effective date of the permit and lasting through the expiration date of the permit (unless otherwise noted), the permittee is authorized to discharge treated municipal wastewater to the Puerco River Segment 20.6.4.99 thence to the Lower Colorado River from Outfall 001. Such discharges shall be limited and monitored by the permittee as specified below:

POLLUTANT	30-DAY AVG lbs/day, unless noted	DAILY MAX lbs/day, unless noted	7-DAY AVG lbs/day, unless noted	30-DAY AVG mg/L, unless noted	DAILY MAX mg/L, unless noted	7-DAY AVG mg/L, unless noted	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	Report MGD	Report MGD	Report MGD	***	***	***	Continuous	Totalizing Meter
Biological Oxygen Demand, 5-day	876	N/A	1314	30	N/A	45	Once/Week	6-Hour Composite
Total Suspended Solids	876	N/A	1314	30	N/A	45	Once/Week	6-Hour Composite
Percent Removal (minimum), BOD_5	$\geq$ 85%	***	***	***	***	***	Once/Week	Calculation (*10)
Percent Removal (minimum), TSS	$\geq$ 85%	***	***	***	***	***	Once/Week	Calculation (*10)
E. Coli Bacteria	N/A	N/A	N/A	126 MPN/100 ml (*1)	410 MPN/100 ml (*1)	N/A	Once/Week	Grab
Ammonia, Total	N/A	N/A	N/A	N/A	N/A	Report	2/month	Grab
Total Residual Chlorine	N/A	N/A	N/A	N/A	11 ug/L (*2)	N/A	Daily	Instantaneous Grab (*2)
Copper, Total	0.42	0.64	N/A	14.5 ug/l	21.8 ug/l	N/A	Once/month	Grab
Beryllium (*9)	N/A	N/A	N/A	N/A	N/A	Report	3/Week	Grab
Cadmium, Total (*9)	N/A	N/A	N/A	N/A	N/A	Report	3/Week	Grab
Mercury (*9)	N/A	N/A	N/A	N/A	N/A	Report	3/Week	Grab
Chlorodibromomethane	0.012	0.012	N/A	0.4 ug/l	0.4 ug/l	N/A	3/Week	Grab
Chloroform	0.166	0.166	N/A	5.7 ug/l	5.7 ug/l	N/A	3/Week	Grab
Bis (2-Ethylhexyl) Phthalate	0.035	0.035	N/A	1.2 ug/l	1.2 ug/l	N/A	3/Week	Grab

POLLUTANT	30-DAY AVG lbs/day, unless noted	DAILY MAX lbs/day, unless noted	7-DAY AVG lbs/day, unless noted	30-DAY AVG mg/L, unless noted	DAILY MAX mg/L, unless noted	7-DAY AVG mg/L, unless noted	MEASUREMENT FREQUENCY	SAMPLE TYPE
Total Dissolved Solids, Discharge (*3)	Report	N/A	N/A	Report (*6)	Report (*6)	N/A	Once/Month	6-Hour Composite
Total Dissolved Solids, Drinking water source (*4)	Report	N/A	N/A	Report (*6)	Report (*6)	N/A	Once/Month	6-Hour Composite
Total Dissolved Solids, Net Increase (*5)	11,683	Report	N/A	400	Report	N/A	Once/Month	6-Hour Composite

POLLUTANT	DISCHARGE LIMITATIONS MINIMUM	DISCHARGE LIMITATIONS MAXIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
pH	6.6 su	9.0 su	Daily	Grab

WHOLE EFFLUENT TOXICITY LIMIT (7-Day Chronic NOEC Freshwater) (*7)	NOEC	MEASUREMENT FREQUENCY	SAMPLE TYPE
Pimephales promelas	100%	Once/Quarter	24-Hr Composite

WHOLE EFFLUENT TOXICITY TESTING (7-Day Chronic NOEC Freshwater) (*7)	NOEC	MEASUREMENT FREQUENCY	SAMPLE TYPE
Ceriodaphnia dubia	Report	Once/Quarter (*8)	24-Hr Composite

Footnotes:

*1 Most Probable Number (MPN) per 100 ml. The 30-day average for E. coli bacteria is the geometric mean of the values for all effluent samples collected during a calendar month

*2 Regulations at 40 CFR Part 136 define "instantaneous grab" as analyzed within 15 minutes of collection. The effluent limitation for TRC is the instantaneous maximum and cannot be averaged for reporting purposes.

*3 Total dissolved solids measured at Outfall 001. Report the geometric mean value of the weekly values.

*4 Total dissolved solids flow weighted from drinking water source(s). Report the geometric mean value of the weekly values.

*5 Net total dissolved solids calculated by taking the difference between Outfall 001 discharge and the drinking water source.

*6 TDS is to be reported as mg/l. TDS analysis may use either TDS or electrical conductivity where a satisfactory correlation with TDS has been established. The correlation should be based on a minimum of five different samples.

*7 Monitoring and reporting requirements begin on the effective date of this permit. See PART II, Whole Effluent Toxicity testing requirements for additional WET monitoring and reporting conditions.

*8 Monitoring frequency reduction is available. See Part II, Whole Effluent Toxicity testing requirements for specifics.

*9 During the public comment period, the permittee may submit the analysis result using EPA Methods 1630 (for Mercury) and 200.7 (for Beryllium and Cadmium). EPA may reconsider this monitoring requirement upon the result(s).

*10 % removal is calculated using the following equation: [(average monthly influent concentration – average monthly effluent concentration) ÷ average monthly influent concentration] * 100.

FLOATING SOLIDS, VISIBLE FOAM AND/OR OILS

There shall be no discharge of floating solids or visible foam in other than trace amounts. There shall be no discharge of visible films of oil, globules of oil, grease or solids in or on the water, or coatings on stream banks.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the discharge after the final treatment unit and prior to the receiving stream. Any addition of pre- coagulant generated solids to the effluent shall be added upstream of the sample point.

B. SCHEDULE OF COMPLIANCE

Compliance Schedule 1: The permittee shall achieve compliance with the Chlorodibromomethane effluent limitations specified for discharges in accordance with the following schedule:

ACTIVITY	DATE OF COMPLETION
Achieve Final Effluent Limitations	36 months after permit effective date

a. The permittee shall submit a progress report to both EPA and NMED outlining the status of the activities (i.e., analyzers installation, Process Optimization Study, etc.) during the months of January, April, July, and October, of each year, until compliance is achieved as stated above.
b. No later than 14 calendar days following the date for compliance for Chlorodibromomethane effluent limitations, the permittee shall submit a written notice of compliance or noncompliance. The written notice shall report on all tasks that were done to achieve compliance.
c. Where the project completion reported is less than would be required to assure compliance by the required date, the report of progress shall also include an explanation for this delay and proposed remedial actions.

Compliance Schedule 2: The permittee shall achieve compliance with the Chloroform effluent limitations specified for discharges in accordance with the following schedule:

ACTIVITY	DATE OF COMPLETION
Achieve Final Effluent Limitations	36 months after permit effective date

a. The permittee shall submit a progress report to both EPA and NMED outlining the status of the activities (i.e., analyzers installation, Process Optimization Study, etc.) during the

months of January, April, July, and October, of each year, until compliance is achieved as stated above.

b. No later than 14 calendar days following the date for compliance for Chloroform effluent limitations, the permittee shall submit a written notice of compliance or noncompliance. The written notice shall report on all tasks that were done to achieve compliance.
c. Where the project completion reported is less than would be required to assure compliance by the required date, the report of progress shall also include an explanation for this delay and proposed remedial actions.

Compliance Schedule 3: The permittee shall achieve compliance with the Bis (2-Ethylhexyl) Phthalate effluent limitations specified for discharges in accordance with the following schedule:

ACTIVITY	DATE OF COMPLETION
Achieve Final Effluent Limitations	36 months after permit effective date

d. The permittee shall submit a progress report to both EPA and NMED outlining the status of the activities (i.e., analyzers installation, Process Optimization Study, etc.) during the months of January, April, July, and October, of each year, until compliance is achieved as stated above.
e. No later than 14 calendar days following the date for compliance for Bis (2-Ethylhexyl) Phthalate effluent limitations, the permittee shall submit a written notice of compliance or noncompliance. The written notice shall report on all tasks that were done to achieve compliance.
f. Where the project completion reported is less than would be required to assure compliance by the required date, the report of progress shall also include an explanation for this delay and proposed remedial actions.

Compliance Schedule 4: The permittee shall achieve compliance with the Total Dissolved Solids effluent limitations specified for discharges in accordance with the following schedule:

ACTIVITY	DATE OF COMPLETION
Achieve Final Effluent Limitations	36 months after permit effective date

a. The permittee shall submit a progress report to both EPA and NMED outlining the status of the activities (i.e., analyzers installation, Process Optimization Study, etc.) during the months of January, April, July, and October, of each year, until compliance is achieved as stated above.
b. No later than 14 calendar days following the date for compliance for Total Dissolved Solids effluent limitations, the permittee shall submit a written notice of compliance or noncompliance. The written notice shall report on all tasks that were done to achieve compliance.
c. Where the project completion reported is less than would be required to assure

compliance by the required date, the report of progress shall also include an explanation for this delay and proposed remedial actions.

Send progress and final reports to the following addresses:

EPA:

Compliance Assurance and
Enforcement Division
Water Enforcement Branch (6EN-W)
U.S. EPA, Region 6
1445 Ross Avenue
Dallas, TX 75202-2733

New Mexico:

Program Manager
Surface Water Quality Bureau
New Mexico Environment Department
P.O. Box 26110
1190 Saint Francis Drive
Santa Fe, NM 87502

C. MONITORING AND REPORTING (MAJOR DISCHARGES)

1. The permittee shall effectively monitor the operation and efficiency of all treatment and control facilities and the quantity and quality of the treated discharge.

2. All DMRs shall be electronically reported per 40 CFR 127.16. To submit electronically, access the NetDMR website at www.epa.gov/netdmr and contact the R6NetDMR@epa.gov in-box for further instructions. Until you are approved for Net DMR, you must report on the Discharge Monitoring Report Form EPA. No. 3320-1 in accordance with the "General Instructions" provided on the form. No additional copies are needed if reporting electronically, however when submitting paper form EPA No. 3320-1, the permittee shall submit the original DMR signed and certified as required by Part III.D.11 and all other reports required by Part III.D. to the EPA and copies to NMED and Navajo Nation as required (See Part III.D.IV of the permit). Reports shall be submitted monthly

   a. Reporting periods shall end on the last day of each month.
   b. The permittee is required to submit regular monthly reports as described above postmarked no later than the 15th day of the month following each reporting period.
   c. The annual sludge report required in Part IV of the permit is due on February 19 of each year and covers the previous calendar year from January 1 through December 31.

3. If any 30-day average, monthly average, 7-day average, weekly average, or daily maximum value exceeds the effluent limitations specified in Part I.A, the permittee shall report the excursion in accordance with the

requirements of Part III.D.

4. Any 30-day average, monthly average, 7-day average, weekly average, or daily maximum value reported in the required Discharge Monitoring Report which is in excess of the effluent limitation specified in Part I.A shall constitute evidence of violation of such effluent limitation and of this permit.

5. Other measurements of oxygen demand (e.g., TOC and COD) may be substituted for five-day Biochemical Oxygen Demand (BOD_5) or for five-day Carbonaceous Biochemical Oxygen Demand ($CBOD_5$), as applicable, where the permittee can demonstrate long term correlation of the method with BOD_5 or $CBOD_5$ values, as applicable. Details of the correlation procedures used must be submitted and prior approval granted by the permitting authority for this procedure to be acceptable. Data reported must also include evidence to show that the proper correlation continues to exist after approval.

D. OVERFLOW REPORTING

The permittee shall report all overflows with the DMR submittal. These reports shall be summarized and reported in tabular format. The summaries shall include: date, time, duration, location, estimated volume, and cause of the overflow. They shall also include observed environmental impacts from the overflow; actions taken to address the overflow; and, the ultimate discharge location if not contained (e.g., storm sewer system, ditch, and tributary).

TWENTY-FOUR HOUR REPORTING

a. The permittee shall report any noncompliance which may endanger health or the environment. **Notification shall be made to the EPA at the following e-mail address: R6_NPDES_Reporting@epa.gov, as soon as possible, but within 24 hours from the time the permittee becomes aware of the circumstance**. Oral notification shall also be to the New Mexico Environment Department at (505) 827-0187, and the Navajo Nation as soon as possible, but within 24 hours from the time the permittee becomes aware of the circumstance. A written submission shall be provided within 5 days of the time the

permittee becomes aware of the circumstances. The report shall contain the following information:

1. A description of the noncompliance and its cause;
2. The period of noncompliance including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and,
3. Steps-being taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.

b. The following shall be included as information which must be reported within 24 hours:
   1. Any unanticipated bypass which exceeds any effluent limitation in the permit;
   2. Any upset which exceeds any effluent limitation in the permit; and,
   3. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in Part II (industrial permits only) of the permit to be reported within 24 hours.

c. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

PART II - OTHER CONDITIONS

A. MINIMUM QUANTIFICATION LEVEL (MQL) & SUFFICIENTLY SENSITIVE METHODS

EPA-approved test procedures (methods) for the analysis and quantification of pollutants or pollutant parameters, including for the purposes of compliance monitoring/DMR reporting, permit renewal applications, or any other reporting that may be required as a condition of this permit, shall be sufficiently sensitive. A method is "sufficiently sensitive" when (1) the method minimum level (ML) of quantification is at or below the level of the applicable effluent limit for the measured pollutant or pollutant parameter; or (2) if there is no EPA-approved analytical method with a published ML at or below the effluent limit (see table below), then the method has the lowest published ML (is the most sensitive) of the analytical methods approved under 40 CFR Part 136 or required under 40 CFR Chapter I, Subchapters N or O, for the measured pollutant or pollutant parameter; or (3) the method is specified in this permit or has been otherwise approved in writing by the permitting authority (EPA Region 6) for the measured pollutant or pollutant parameter. The Permittee has the option of developing and submitting a report to justify the use of matrix or sample-specific MLs rather than the published levels. Upon written approval by EPA Region 6 the matrix or sample-specific MLs may be utilized by the Permittee for all future Discharge Monitoring Report (DMR) reporting requirements.

Current EPA Region 6 minimum quantification levels (MQLs) for reporting and compliance are provided in Appendix A of Part II of this permit. The following pollutants may not have EPA-approved methods with a published ML at or below the effluent limit, if specified:

POLLUTANT	**CAS Number**	**STORET Code**
Total Residual Chlorine	7782-50-5	50060
Cadmium	7440-43-9	01027
Silver	7440-22-4	01077
Thallium	7440-28-0	01059
Cyanide	57-12-5	78248
Dioxin (2,3,7,8-TCDD)	1764-01-6	34675
4,6-Dinitro-O-Cresol	534-52-1	34657
Pentachlorophenol	87-86-5	39032
Benzidine	92-87-5	39120
Chrysene	218-01-9	34320
Hexachlorobenzene	118-74-1	39700
N-Nitrosodimethylamine	62-75-9	34438
Aldrin	309-00-2	39330
Chlordane	57-74-9	39350
Dieldrin	60-57-1	39380
Heptachlor	76-44-8	39410
Heptachlor epoxide	1024-57-3	39420
Toxaphene	8001-35-2	39400

Unless otherwise indicated in this permit, if the EPA Region 6 MQL for a pollutant or pollutant parameter is sufficiently sensitive (as defined above) and the analytical test result is less than the MQL, then a value of zero (0) may be used for reporting purposes on DMRs. Furthermore, if the EPA Region 6 MQL for a pollutant or parameter is not sufficiently sensitive, but the analytical test result is less than the published ML from a sufficiently sensitive method, then a value of zero (0) may be used for reporting purposes on DMRs.

B. 24-HOUR ORAL REPORTING: DAILY MAXIMUM LIMITATION VIOLATIONS

Under the provisions of Part III.D.7.b.(3) of this permit, violations of daily maximum limitations for the following pollutants shall be reported orally to EPA Region 6, Compliance and Assurance Division, Water Enforcement Branch (6EN-W), Dallas, Texas, NMED and the Navajo Nation within 24 hours from the time the permittee becomes aware of the violation followed by a written report in five days.

E. coli Bacteria
Total Residual Chlorine
Copper, total

C. PERMIT MODIFICATION AND REOPENER

In accordance with 40 CFR Part 122.44(d), the permit may be reopened and modified during the life of the permit if relevant portions of New Mexico's Water Quality Standards for Interstate and Intrastate Streams are revised, or new water quality standards are established and/or remanded.

In accordance with 40 CFR Part 122.62(a)(2), the permit may be reopened and modified if new information is received that was not available at the time of permit issuance that would have justified the application of different permit conditions at the time of permit issuance. Permit modifications shall reflect the results of any of these actions and shall follow regulations listed at 40 CFR Part 124.5.

D. POLLUTION PREVENTION REQUIREMENTS

The permittee shall institute a program within 12 months of the effective date of the permit (or continue an existing one) directed towards optimizing the efficiency and extending the useful life of the facility. The permittee shall consider the following items in the program:

a. The influent loadings, flow and design capacity;
b. The effluent quality and plant performance;
c. The age and expected life of the wastewater treatment facility's equipment;
d. Bypasses and overflows of the tributary sewerage system and treatment works;
e. New developments at the facility;
f. Operator certification and training plans and status;
g. The financial status of the facility;

h. Preventative maintenance programs and equipment conditions and;
i. An overall evaluation of conditions at the facility.

E. CONTRIBUTING INDUSTRIES

1. The following pollutants may not be introduced into the treatment facility:

   a. Pollutants which create a fire or explosion hazard in the publicly owned treatment works (POTW), including, but not limited to, wastestreams with a closed cup flashpoint of less than 140 degrees Fahrenheit or 60 degrees Centigrade using the test methods specified in 40 CFR 261.21;
   b. Pollutants which will cause corrosive structural damage to the POTW, but in no case discharges with pH lower than 5.0, unless the works are specifically designed to accommodate such discharges;
   c. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW, resulting in Interference;
   d. Any pollutant, including oxygen demanding pollutants (e.g., BOD), released in a discharge at a flow rate and/or pollutant concentration which will cause Interference with the POTW;
   e. Heat in amounts which will inhibit biological activity in the POTW resulting in Interference but in no case heat in such quantities that the temperature at the POTW treatment plant exceeds 40 degrees Centigrade (104 degrees Fahrenheit) unless the Approval Authority, upon request of the POTW, approves alternate temperature limits;
   f. Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
   g. Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems; and Any trucked or hauled pollutants, except at discharge points designated by the POTW.

2. The permittee shall require any indirect discharger to the treatment works to comply with the reporting requirements of Sections 204(b), 307, and 308 of the Act, including any requirements established under 40 CFR Part 403.

3. The permittee shall provide adequate notice of the following:

   a. Any new introduction of pollutants into the treatment works from an indirect discharger which would be subject to Sections 301 and 306 of the Act if it were directly discharging those pollutants; and

   b. Any substantial change in the volume or character of pollutants being introduced into the treatment works by a source introducing pollutants into the treatment works at the time of issuance of the permit.

Any notice shall include information on (i) the quality and quantity of effluent to be introduced

into the treatment works, and (ii) any anticipated impact of the change on the quality or quantity of effluent to be discharged from the POTW.

F. WHOLE EFFLUENT TOXICITY (7 DAY CHRONIC NOEC FRESHWATER)

It is unlawful and a violation of this permit for a permittee or his designated agent, to manipulate test samples in any manner, to delay sample shipment, or to terminate or to cause to terminate a toxicity test. Once initiated, all toxicity tests must be completed unless specific authority has been granted by EPA Region 6 or the State NPDES permitting authority.

1. SCOPE AND METHODOLOGY

a. The permittee shall test the effluent for toxicity in accordance with the provisions in this section.

APPLICABLE TO FINAL OUTFALL(S): 001

REPORTED ON DMR AS FINAL OUTFALL: 001

CRITICAL DILUTION (%): 100%

EFFLUENT DILUTION SERIES (%): 32%, 42%, 56%, 75%, 100%
- WET LIMIT: *Pimephales Promelas*

COMPOSITE SAMPLE TYPE: Defined at PART I

TEST SPECIES/METHODS: 40 CFR Part 136

TESTING FREQUENCY: Quarterly for both species

Ceriodaphnia dubia chronic static renewal survival and reproduction test, Method 1002.0, EPA-821-R-02-013, or the most recent update thereof. This test should be terminated when 60% of the surviving females in the control produce three broods or at the end of eight days, whichever comes first.

Pimephales promelas (Fathead minnow) chronic static renewal 7-day larval survival and growth test, Method 1000.0, EPA 821 R 02 013, or the most recent update thereof. A minimum of five (5) replicates with eight (8) organisms per replicate must be used in the control and in each effluent dilution of this test.

b. The NOEC (No Observed Effect Concentration) is herein defined as the greatest effluent dilution at and below which toxicity that is statistically different from the control (0% effluent) at the 95% confidence level does not occur. Chronic lethal test failure is defined as a demonstration of a statistically significant lethal effect at test completion to a test species at or below the critical dilution. Chronic sub-lethal test failure is defined as a demonstration of a statistically significant sub-

lethal effect (i.e., growth) at test completion to a test species at or below the critical dilution.

c. The conditions of this item are effective beginning with the effective date of the WET limit for *Pimephales Promelas*. When the effluent fails the lethal or sub-lethal endpoint at or below the critical dilution, the permittee shall be considered in violation of this permit limit and the frequency for the species will increase to monthly until such time compliance with the No Observed Effect Concentration (NOEC) effluent limitation is demonstrated for a period of three consecutive months, at which time the permittee may return to the testing frequency stated in PART 1.a of this permit. The purpose of the increased frequency for WET testing is to determine the duration of a toxic event. A test that meets all test acceptability criteria and demonstrates significant toxic effects does not need additional confirmation. Such testing cannot confirm or disprove a previous test result.

d. This permit may be reopened to require WET limits, chemical specific effluent limits, additional testing, and/or other appropriate actions to address toxicity.

2. PERSISTENT LETHAL and/or SUB-LETHAL EFFECTS

The requirements of this subsection apply only when a toxicity test demonstrates significant lethal and/or sub-lethal effects at or below the critical dilution. Significant toxic effects, are herein defined as a statistically significant difference at the 95% confidence level between the survival, growth or reproduction of the appropriate test organism in a specified effluent dilution and the control (0% effluent). If the scheduled *Pimephales promelas* WET test fails, the frequency increases to monthly, see part 1.c above. If the scheduled *Ceriodaphnia dubia* WET test conducted fails, the permittee will conduct three consecutive monthly retests. The purpose of retests is to determine the duration of a toxic event. A test that meets all test acceptability criteria and demonstrates significant toxic effects does not need additional confirmation. Such testing cannot confirm or disprove a previous test result. If any valid test demonstrates significant lethal and/or sub-lethal effects to a test species at or below the critical dilution, the frequency of testing for this species is automatically increased to once per quarter with no option for frequency reduction.

Part I Testing Frequency Other Than Monthly

a. The permittee shall conduct a total of three (3) retests for any *Ceriodaphnia dubia* test that demonstrates significant toxic effects at or below the critical dilution. The retests shall be conducted monthly during the next three consecutive months. If testing on a quarterly basis, the permittee may substitute one of the retests in lieu of one scheduled toxicity test. A full report shall be prepared for each test required by this section in accordance with procedures outlined in Item D of this section and submitted with the period discharge monitoring report (DMR) to the permitting authority for review.

b. If persistent lethality is demonstrated by failure of one or more retests, the permittee shall initiate Toxicity Reduction Evaluation (TRE) requirements as specified in Part 6 of this section. If persistent sub-lethality is demonstrated by failure of two or more retest, the permittee shall initiate Toxicity Reduction Evaluation (TRE) requirements. The permittee shall notify EPA in writing within 5 days of the failure of any retest, and the TRE initiation date will be the test completion date of the first failed retest for lethal TREs or second failed retest for sub-lethal TREs. A TRE may also be required due to a demonstration of intermittent lethal effects at or below the critical dilution, or for failure to perform the required retests. The provisions of Item 2.a are suspended upon submittal of the TRE Action Plan.

Part I Testing Frequency of Monthly

a. The permittee shall initiate the Toxicity Reduction Evaluation (TRE) requirements as specified in Part 6 of this section when any two of three consecutive monthly toxicity tests for *Pimephales promelas* exhibit significant toxic effects below the critical dilution. A TRE may also be required due to a demonstration of intermittent lethal and/or sub-lethal effects below the critical dilution, or for failure to perform the required monthly test upon a first violation.

3. REQUIRED TOXICITY TESTING CONDITIONS

a. Test Acceptance

The permittee shall repeat a test, including the control and all effluent dilutions, if the procedures and quality assurance requirements defined in the test methods or in this permit are not satisfied, including the following additional criteria:

i. The toxicity test control (0% effluent) must have survival equal to or greater than 80%.
ii. The mean number of *Ceriodaphnia dubia* neonates produced per surviving female in the control (0% effluent) must be 15 or more.
iii. 60% of the surviving control females must produce three broods.
iv. The mean dry weight of surviving Fathead minnow larvae at the end of the 7 days in the control (0% effluent) must be 0.25 mg per larva or greater.
v. The percent coefficient of variation between replicates shall be 40% or less in the control (0% effluent) for the young of surviving females in the *Ceriodaphnia dubia* reproduction test and for the growth and survival of the Fathead minnow test.
vi. The percent coefficient of variation between replicates shall be 40% or less in the critical dilution, unless significant lethal or nonlethal effects are exhibited for: the young of surviving females in the *Ceriodaphnia dubia* reproduction test; the growth and survival endpoints in the Fathead minnow test.
vii. A Percent Minimum Significant Difference (PMSD) range of 13 - 47 for

Ceriodaphnia dubia reproduction.

viii. A Percent Minimum Significant Difference (PMSD) range of 12 - 30 for Fathead minnow growth.

Test failure may not be construed or reported as invalid due to a coefficient of variation value of greater than 40%. A repeat test shall be conducted within the required reporting period of any test determined to be invalid.

b. Statistical Interpretation

i. For the *Ceriodaphnia dubia* survival test, the statistical analyses used to determine if there is a significant difference between the control and the critical dilution shall be Fisher's Exact Test as described in EPA-821-R-02-013 or the most recent update thereof.

ii. For the *Ceriodaphnia dubia* reproduction test and the Fathead minnow larval survival and growth test, the statistical analyses used to determine if there is a significant difference between the control and the critical dilution shall be in accordance with the methods for determining the No Observed Effect Concentration (NOEC) as described in EPA 821 R 02 013, or the most recent update thereof.

iii. If the conditions of Test Acceptability are met in Item 2.a above and the percent survival of the test organism is equal to or greater than 80% in the critical dilution concentration and all lower dilution concentrations, the test shall be considered to be a passing test, and the permittee shall report a survival NOEC of not less than the critical dilution for the DMR reporting requirements found in Item 3 below.

c. Dilution Water

i. Dilution water used in the toxicity tests will be receiving water collected as close to the point of discharge as possible but unaffected by the discharge. The permittee shall substitute synthetic dilution water of similar pH, hardness, and alkalinity to the closest downstream perennial water where the receiving stream is classified as intermittent or where the receiving stream has no flow due to zero flow conditions.

ii. If the receiving water is unsatisfactory as a result of instream toxicity (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 dilution water control which fulfills the test acceptance requirements of Item 2.a was run concurrently with the receiving water control;

(B) the test indicating receiving water toxicity has been carried out to completion (i.e., 7 days);

(C) the permittee includes all test results indicating receiving water toxicity with the full report and information required by Item 3.a below; and

(D) the synthetic dilution water shall have a pH, hardness, and alkalinity similar to that of the receiving water or closest downstream perennial water not adversely affected by the discharge, provided the magnitude of these parameters will not cause toxicity in the synthetic dilution water.

d. Samples and Composites

i. The permittee shall collect a minimum of three flow weighted composite samples from the outfall(s) listed at Item 1.a above.

ii. The permittee shall collect second and third composite samples for use during 24 hour renewals of each dilution concentration for each test. The permittee must collect the composite samples such that the effluent samples are representative of any periodic episode of chlorination, biocide usage or other potentially toxic substance discharged on an intermittent basis.

iii. The permittee must collect the composite samples so that the maximum holding time for any effluent sample shall not exceed 72 hours. The permittee must have initiated the toxicity test within 36 hours after the collection of the last portion of the first composite sample. Samples shall be chilled to 6 degrees Centigrade during collection, shipping, and/or storage.

iv. If the flow from the outfall(s) being tested ceases during the collection of effluent samples, the requirements for the minimum number of effluent samples, the minimum number of effluent portions and the sample holding time are waived during that sampling period. However, the permittee must collect an effluent composite sample volume during the period of discharge that is sufficient to complete the required toxicity tests with daily renewal of 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 effluent composite sample collection duration and the static renewal protocol associated with the abbreviated sample collection must be documented in the full report required in Item 3 of this section.

v. MULTIPLE OUTFALLS: If the provisions of this section are applicable to multiple outfalls, the permittee shall combine the composite effluent samples in proportion to the average flow from the outfalls listed in Item 1.a above for the day the sample was collected. The permittee shall perform the toxicity test on the flow weighted composite of the outfall samples.

4. REPORTING

a. The permittee shall prepare a full report of the results of all tests conducted pursuant to this section in accordance with the Report Preparation Section of EPA 821 R 02 013, or the most current publication, for every valid or invalid toxicity test initiated whether carried to completion or not. The permittee shall retain each full report pursuant to the provisions of PART III.C.3 of this permit. The permittee shall submit full reports upon the specific request of the Agency. For any test which fails, is considered invalid or which is terminated early for

any reason, the full report must be submitted for agency review.

The permittee shall report the Whole Effluent Toxicity NOEC for *Pimephales promelas* under Parameter No. 51714 on the DMR for that reporting period in accordance with PART III.D.4 of this permit.

b. A valid test for each species must be reported on the DMR during each reporting period specified in PART I of this permit. All invalid tests, repeat tests (for invalid tests), and retests (for *C. dubia* tests previously failed) performed during the reporting period must be attached to the DMR for EPA review.

c. The permittee shall submit the results of the valid toxicity test on the DMR for that reporting period in accordance with PART III.D.4 of this permit, as follows below. Any *Pimephales promelas* WET test conducted outside of the stipulated frequency in Part 1.a of this section (results of a testing frequency increase) shall be reported under Unscheduled Events for 51714 in the DMR. Only results of valid tests are to be reported on the DMR.

i. <u>*Pimephales promelas*</u> (Fathead Minnow)

A. If the No Observed Effect Concentration (NOEC) for lethal effects is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TLP6C
B. Report the NOEC value for survival, Parameter No. TOP6C
C. Report the Lowest Observed Effect Concentration (LOEC) value for survival, Parameter No. TXP6C
D. Report the NOEC value for growth, Parameter No. TPP6C
E. Report the LOEC value for growth, Parameter No. TYP6C
F. If the No Observed Effect Concentration (NOEC) for growth is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TGP6C
G. Report the highest (critical dilution or control) Coefficient of Variation, Parameter No. TQP6C
H. Report the lowest NOEC value (lethal or sublethal), WET limit Parameter 51714.

ii. <u>*Ceriodaphnia dubia*</u>

A. If the NOEC for lethal effects is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TLP3B
B. Report the NOEC value for survival, Parameter No. TOP3B
C. Report the LOEC value for survival, Parameter No. TXP3B
D. Report the NOEC value for reproduction, Parameter No. TPP3B
E. Report the LOEC value for reproduction, Parameter No. TYP3B
F. If the No Observed Effect Concentration (NOEC) for reproduction is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TGP3B
Report the higher (critical dilution or control) Coefficient of Variation,

Parameter No. TQP3B

G. Retest 1: If the NOEC (lowest lethal or sub-lethal) for C.dubia is less than the critical dilution, enter a "1", otherwise enter "0" under parameter 22415.
H. Retest 2: If the NOEC (lowest lethal or sub-lethal) for C.dubia is less than the critical dilution, enter a "1", otherwise enter "0" under parameter 22416
I. Retest 3: If the NOEC (lowest lethal or sub-lethal) for C.dubia is less than the critical dilution, enter a "1", otherwise enter "0" under parameter 51443.

5. MONITORING FREQUENCY REDUCTION

This section does not apply to any species for which the permit establishes whole effluent toxicity (WET) limits. For the first five years after the effective date of a WET limit, the minimum monitoring frequency for the affected species is once per quarter.

a. The permittee may apply for a testing frequency reduction upon the successful completion of the first four consecutive quarters of testing for a test species, with no lethal or sub-lethal effects demonstrated at or below the critical dilution. If granted, the monitoring frequency for that test species may be reduced to not less than once per year for the less sensitive species (usually the Fathead minnow) and not less than twice per year for the most sensitive species (usually *Ceriodaphnia dubia*).
b. CERTIFICATION - The permittee must certify in writing that no test failures have occurred and that all tests meet all test acceptability criteria in item 3.a. above. In addition, the permittee must provide a list with each test performed including test initiation date, species, NOECs for lethal and sub-lethal effects and the maximum coefficient of variation for the controls. Upon review and acceptance of this information the agency will issue a letter of confirmation of the monitoring frequency reduction. A copy of the letter will be forwarded to the agency's Permit Compliance System section to update the permit reporting requirements.
c. SUB-LETHAL OR SURVIVAL FAILURES - If any test fails the survival or sub-lethal endpoint at any time during the life of this permit, three monthly retests are required and the monitoring frequency for the affected test species shall be increased to once per quarter until the permit is re-issued. Monthly retesting is not required if the permittee is performing a TRE.

Any monitoring frequency reduction applies only until the expiration date of this permit, at which time the monitoring frequency for both test species reverts to once per quarter until the permit is re-issued.

6. TOXICITY REDUCTION EVALUATION (TRE)

i. Within ninety (90) days of confirming toxicity, as outlined above, the permittee shall submit a Toxicity Reduction Evaluation (TRE) Action Plan and Schedule for conducting a TRE. The TRE Action Plan shall specify the approach and methodology to be used in performing the TRE. A Toxicity Reduction Evaluation is an investigation intended to determine those

actions necessary to achieve compliance with water quality-based effluent limits by reducing an effluent's toxicity to an acceptable level. A TRE is defined as a step-wise process which combines toxicity testing and analyses of the physical and chemical characteristics of a toxic effluent to identify the constituents causing effluent toxicity and/or treatment methods which will reduce the effluent toxicity. The goal of the TRE is to maximally reduce the toxic effects of effluent at the critical dilution and includes the following:

a. Specific Activities: The plan shall detail the specific approach the permittee intends to utilize in conducting the TRE. The approach may include toxicity characterizations, identifications and confirmation activities, source evaluation, treatability studies, or alternative approaches. When the permittee conducts Toxicity Characterization Procedures the permittee shall perform multiple characterizations and follow the procedures specified in the documents 'Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures' (EPA-600/6-91/003) and 'Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I' (EPA-600/6-91/005F), or alternate procedures. When the permittee conducts Toxicity Identification Evaluations and Confirmations, the permittee shall perform multiple identifications and follow the methods specified in the documents '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), as appropriate.
b. Sampling Plan (e.g., locations, methods, holding times, chain of custody, preservation, etc.). The effluent sample volume collected for all tests shall be adequate to perform the toxicity test, toxicity characterization, identification and confirmation procedures, and conduct chemical specific analyses when a probable toxicant has been identified;
c. Where the permittee has identified or suspects specific pollutant(s) and/or source(s) of effluent toxicity, the permittee shall conduct, concurrent with toxicity testing, chemical specific analyses for the identified and/or suspected pollutant(s) and/or source(s) of effluent toxicity. Where lethality was demonstrated within 48 hours of test initiation, each composite sample shall be analyzed independently. Otherwise the permittee may substitute a composite sample, comprised of equal portions of the individual composite samples, for the chemical specific analysis;
d. Quality Assurance Plan (e.g., QA/QC implementation, corrective actions, etc.); and
e. Project Organization (e.g., project staff, project manager, consulting services, etc.).

ii. The permittee shall initiate the TRE Action Plan within thirty (30) days of plan and schedule submittal. The permittee shall assume all risks for failure to achieve the required toxicity reduction.

iii. The permittee shall submit a quarterly TRE Activities Report, with the Discharge Monitoring Report in the months of January, April, July and October, containing information on toxicity

reduction evaluation activities including:

a. any data and/or substantiating documentation which identifies the pollutant(s) and/or source(s) of effluent toxicity;
b. any studies/evaluations and results on the treatability of the facility's effluent toxicity; and
c. any data which identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to meet no significant toxicity at the critical dilution.

i. The permittee shall submit a Final Report on Toxicity Reduction Evaluation Activities no later than twenty-eight (28) months from confirming toxicity in the retests, which provides information pertaining to the specific control mechanism selected that will, when implemented, result in reduction of effluent toxicity to no significant toxicity at the critical dilution. The report will also provide a specific corrective action schedule for implementing the selected control mechanism. A copy of the Final Report on TRE Activities shall also be submitted to the state agency.

ii. Quarterly testing during the TRE is a minimum monitoring requirement. EPA recommends that permittees required to perform a TRE not rely on quarterly testing alone to ensure success in the TRE, and that additional screening tests be performed to capture toxic samples for identification of toxicants. Failure to identify the specific chemical compound causing toxicity test failure will normally result in a permit limit for whole effluent toxicity limits per federal regulations at 40 CFR 122.44(d)(1)(v).