John

WIMB Rec'd AUG - 4 2008

STATE OF NEBRASKA

Dave Heineman
Governor

DEPARTMENT OF ENVIRONMENTAL QUALITY
Michael J. Linder
Director
Suite 400, The Atrium
1200 'N' Street
P.O. Box 98922
Lincoln, Nebraska 68509-8922
Phone (402) 471-2186
FAX (402) 471-2909
website: www.deq.state.ne.us

Authorization to Discharge Under the National Pollutant Discharge Elimination System (NPDES)

This NPDES permit is issued in compliance with the provisions of the Federal Water Pollution Control Act (33 U.S.C. Secs. 1251 *et. seq.* as amended to date), the Nebraska Environmental Protection Act (Neb. Rev. Stat. Secs. 81-1501 *et. seq.* as amended to date), and the Rules and Regulations promulgated pursuant to these Acts. The facility and outfall(s) identified in this permit are authorized to discharge wastewater and are subject to the limitations, requirements, prohibitions and conditions set forth herein. This permit regulates and controls the release of pollutants in the discharge(s) authorized herein. This permit does not relieve permittees of other duties and responsibilities under the Nebraska Environmental Protection Act, as amended, or established by regulations promulgated pursuant thereto.

NPDES Permit No.:	**NE0023884**
IIS File No.:	**PCS 57803-P**
Permittee:	**City of Sidney, Nebraska**
Facility Name:	**Sidney Wastewater Treatment Facility**
Facility Location:	**West side of Hwy 19/Upland Pkwy and north side of Road 20 (1½ miles east of the City of Sidney)**
Facility Mailing Address:	**1115 13th Avenue, P.O. Box 79, Sidney, Nebraska 69162**
Facility Legal Description:	**SE¼ SW¼, Section 33, Township 14 North, Range 49 West, Cheyenne County, NE**
Discharge Location-Outfall 001:	**SE¼ SW¼, Section 33, Township 14 North, Range 49 West, Cheyenne Co., NE**
Discharge Location-Outfall 002:	**½ mile south and ¾ mile east of intersection of I-80 and Hwy 19/Upland Pkwy**
Discharge Outfall 002 Legal Description:	**NE¼ NE¼, Section 16, Township 13 North, Range 49 West, Cheyenne County, NE**
Receiving Water-Outfall 001:	**Lodgepole Creek / Segment SP2-10000 / South Platte River Basin**
Receiving Water-Outfall 002:	**Rapid Infiltration Beds (Lodgepole Creek / Segment SP2-10000 / South Platte River Basin)**
Effective Date:	**August 1, 2008**
Expiration Date:	**June 30, 2013**

Pursuant to the Delegation Memorandum dated July 26, 1999 and signed by the Director, the undersigned hereby executes this document on the behalf of the Director.

Signed this 31st day of July, 2008

Patrick W. Rice

for Jay D. Ringenberg, Deputy Director, Program

Table of Contents

Part I. Identification of Outfalls Authorized to Discharge under this Permit

This permit specifically authorizes and regulates the discharge from the outfalls identified and described below. Discharge characteristics from these outfalls need to be consistent with those described below, and those described in the permit application and the supplemental information submitted with it, unless Departmental approval for alterations is obtained. Departmental approval for changes shall be predicated upon the requirements in this permit being able to properly address any new or changed pollution potential that may occur.

A. Outfall 001: Discharge to Lodgepole Creek

This is an existing discharge of treated wastewater from a two-stage trickling filter treatment process that discharges to Lodgepole Creek. This outfall is also proposed as an emergency overflow for Outfall 002.

B. Outfall 002: Discharge to Proposed Rapid Infiltration Beds

This is a new proposed discharge of treated wastewater from the treatment facility to rapid infiltration beds located south of I-80 near the southwest corner of the intersection of Road 16 and Road 117.

Part II. Discharge Limitations and Monitoring Requirements for Outfall 001

A. Requirements for Flow, CBOD, TSS, Chloride, and pH

The treated wastewater discharge from Outfall 001 to Lodgepole Creek is authorized and shall be monitored as specified in the following tables. Monitoring shall be conducted by sampling after the treatment process and prior to discharge to the receiving stream. The Department may designate an alternative or more specific monitoring point.

Table 1: Discharge Limits and Monitoring Requirements for Flow, CBOD, TSS, Chloride, and pH – Outfall 001

Parameters	Storet #	Units	Discharge Limits				Monitoring Frequency	Sample Type
			Daily Minimum	30 Day Average	7 Day Average	Daily Maximum		
Flow [a]	50050	MGD	---	Report	---	Report	Once Each Weekday (M-F)	Measured or Calculated
pH	00400	Standard Units	6.5	---	---	9.0	Monthly	Grab
Carbonaceous Biochemical Oxygen Demand (5-Day)	80082	mg/L	---	25.0	40.0	---	Monthly	24 Hour Composite
		kg/day	---	Report [b]	Report [b]	---		
Total Suspended Solids	00530	mg/L	---	30.0	45.0	---	Monthly	24 Hour Composite
		kg/day	---	Report [b]	Report [b]	---		
Chloride	00940	mg/L	---	Report	---	Report	Monthly	24 Hour Composite

Footnotes:
(a) Flow to be measured as effluent flow.
(b) Calculate mass limitation and report. kg/day = 3.79 x effluent flow in MGD x concentration limit in mg/L.

Abbreviations:
mg/L – milligrams per liter MGD – million gallons per day kg/day – kilograms per day

B. Requirements for Ammonia and Total Nitrogen

Table 2: Discharge Limits and Monitoring Requirements for Ammonia and Total Nitrogen – Outfall 001

Parameters	Discharge Period	Storet #	Units	INTERIM Discharge Limits		Monitoring Frequency	Sample Type
				30 Day Average	Maximum		
INTERIM Ammonia as N	*Spring* (March 1 – May 31)	00610	mg/L	Report	Report	Monthly	24 Hour Composite
			kg/day	Report	Report		
INTERIM Total Nitrogen as N		00600	mg/L	Report	Report	Monthly	24 Hour Composite
INTERIM Ammonia as N	*Summer* (June 1 – October 31)	00610	mg/L	Report	Report	Monthly	24 Hour Composite
			kg/day	Report	Report		
INTERIM Total Nitrogen as N		00600	mg/L	Report	Report	Monthly	24 Hour Composite
INTERIM Ammonia as N	*Winter* (Nov. 1 – Feb. 28 [29])	00610	mg/L	Report	Report	Monthly	24 Hour Composite
			kg/day	Report	Report		
INTERIM Total Nitrogen as N		00600	mg/L	Report	Report	Monthly	24 Hour Composite
Parameters	**Discharge Period**	**Storet #**	**Units**	**FINAL Discharge Limits**		**Monitoring Frequency**	**Sample Type**
				30 Day Average	**Maximum**		
FINAL Ammonia as N	*Spring* (March 1 – May 31)	00610	mg/L	3.00	3.97	Monthly	24 Hour Composite
			kg/day	7.70	10.21		
FINAL Total Nitrogen as N		00600	mg/L	Report	10.0	Monthly	24 Hour Composite
FINAL Ammonia as N	*Summer* (June 1 – October 31)	00610	mg/L	3.23	4.29	Monthly	24 Hour Composite
			kg/day	8.07	10.70		
FINAL Total Nitrogen as N		00600	mg/L	Report	10.0	Monthly	24 Hour Composite
FINAL Ammonia as N	*Winter* (Nov. 1 – Feb. 28 [29])	00610	mg/L	6.69	10.0	Monthly	24 Hour Composite
			kg/day	17.37	25.95		
FINAL Total Nitrogen as N		00600	mg/L	Report	10.0	Monthly	24 Hour Composite

Abbreviations:
mg/L – milligrams per liter kg/day – kilograms per day

C. Requirements for Whole Effluent Toxicity (WET)

Table 3: Discharge Limits and Monitoring Requirements for WET – Outfall 001

Parameters	Discharge Period	Storet #	Units	Discharge Limits	Monitoring Frequency	Sample Type
				Maximum		
Chronic Toxicity [a] *Pimephales promelas*	*Spring* (March 1 - May 31)	61428	TUc	3.20	(b)	24 Hour Composite [c]
Chronic Toxicity [a] *Ceriodaphnia sp*		61426	TUc	3.20	(b)	24 Hour Composite [c]
Chronic Toxicity [a] *Pimephales promelas*	*Summer* (June 1 - October 31)	61428	TUc	3.25	(b)	24 Hour Composite [c]
Chronic Toxicity [a] *Ceriodaphnia sp*		61426	TUc	3.25	(b)	24 Hour Composite [c]
Chronic Toxicity [a] *Pimephales promelas*	*Winter* (Nov. 1 - Feb. 28 [29])	61428	TUc	3.19	(b)	24 Hour Composite [c]
Chronic Toxicity [a] *Ceriodaphnia sp*		61426	TUc	3.19	(b)	24 Hour Composite [c]

Footnotes:

(a) Toxicity shall be measured using the Whole Effluent Toxicity (WET) procedures set forth in 40 CFR, Part 136. Also see Attachment 2 – Guidance for Conducting Toxicity Testing and TIE/TRE Studies.

(b) At a minimum, Chronic Whole Effluent Toxicity shall be monitored and reported annually if discharging.

(c) The sample collection for Whole Effluent Toxicity must occur on the same day as sample collection for effluent metals.

Abbreviations:

TUc – chronic toxic units

D. Requirements for Metals

Table 4: Discharge Monitoring Requirements for Metals – Outfall 001

Parameters	Storet #	Units	Discharge Limits		Monitoring Frequency	Sample Type
			Monthly Average	Maximum		
Dissolved Cadmium	01025	mg/L	Report	Report	(a) (b)	24 Hour Composite
Dissolved Chromium	01030	mg/L	Report	Report	(a) (b)	24 Hour Composite
Dissolved Copper	01040	mg/L	Report	Report	(a) (b)	24 Hour Composite
Dissolved Lead	01049	mg/L	Report	Report	(a) (b)	24 Hour Composite
Dissolved Mercury	71890	mg/L	Report	Report	(a) (b)	24 Hour Composite
Dissolved Nickel	01065	mg/L	Report	Report	(a) (b)	24 Hour Composite
Dissolved Zinc	01090	mg/L	Report	Report	(a) (b)	24 Hour Composite

Footnotes:

(a) At a minimum, effluent metals shall be monitored and reported annually if discharging.

(b) A minimum of one effluent metals sampling event must coincide with each whole effluent toxicity test.

Abbreviations:

mg/L – milligrams per liter

Part III. Influent Monitoring Requirements

To comply with these monitoring requirements, samples shall be taken at the head-works of the wastewater treatment facility prior to the treatment system. Influent wastewater shall be monitored as specified in the table below.

Table 5: Monitoring Requirements for Influent Wastewater

Parameters	Storet #	Units	Influent Reporting		Monitoring Frequency	Sample Type
			Average	Maximum		
Flow [(a)]	50050	MGD	Report	Report	Annually	Measured or Calculated
Carbonaceous Biochemical Oxygen Demand (5-Day)	80082	mg/L	Report	Report	Annually	24 Hour Composite
Total Suspended Solids	00530	mg/L	Report	Report	Annually	24 Hour Composite
Other Parameters	**Storet #**	**Units**	**Influent Reporting**		**Monitoring Frequency**	**Sample Type**
			Minimum	**Maximum**		
pH [(b)]	00400	Standard Units	Report	Report	Annually	Grab

Footnotes:

(a) Influent flow must be monitored on the same day as sample collection for CBOD, TSS, and pH.

(b) pH shall be measured within 15 minutes of collecting the sample.

Abbreviations:

mg/L – milligrams per liter MGD – million gallons per day

Part IV. Discharge Limitations and Monitoring Requirements for Outfall 002

A. Requirements from the Treatment Facility

The treated wastewater discharge from the treatment facility through Outfall 002 to rapid infiltration beds is authorized and shall be monitored as specified in the following table. Monitoring shall be conducted by sampling after the treatment process and prior to discharge to the rapid infiltration beds. The Department may designate an alternative or more specific monitoring point. Sampling directly out of the infiltration beds is prohibited unless the sample is used for process control purposes.

Table 6: Discharge Limits and Monitoring Requirements for Flow, Total Nitrogen, Total Dissolved Solids, Chloride, and pH – Outfall 002

Parameters	Storet #	Units	Discharge Limits				Monitoring Frequency	Sample Type
			Daily Minimum	30 Day Average	7 Day Average	Daily Maximum		
Flow [(a)]	50050	MGD	---	Report	---	Report	Once Each Weekday (M-F)	Measured or Calculated
pH [(b)]	00400	Standard Units	6.5	---	---	8.5	Monthly	Grab [(b)]
Total Nitrogen	00600	mg/L	---	Report	---	10.0	Monthly	24 Hour Composite
Total Dissolved Solids	70296	mg/L	---	Report	---	Report	Monthly	Grab
Chloride	00940	mg/L	---	Report	---	Report	Monthly	24 Hour Composite

Footnotes:

(a) Flow to be measured as effluent flow. The influent flow meter can be used if it meets the requirements of Appendix A, Part C.2. Flow Measurements.

(b) pH shall be measured within 15 minutes of collecting the sample.

Abbreviations:

mg/L – milligrams per liter MGD – million gallons per day

Part V. Ground Water Monitoring Well Requirements

A Sampling and Analysis Plan has been submitted to the Department. The plan must be approved by the Department before any construction can begin on the monitoring wells.

The ground water monitoring wells shall be constructed and operational prior to the initial discharge of wastewater to the rapid infiltration beds.

The permittee [1] is required to monitor the up-gradient monitoring wells and the down-gradient monitoring wells and report the sampling results for each monitoring well.

Table 7: Ground Water Monitoring Well Requirements

Parameters	Storet #	Units	Monitoring Limits		Monitoring Frequency	Sample Type
			Monthly Average	Daily Maximum		
Static Water Level	85327	Feet	---	Report [2] [3]	Quarterly	Measured
Total Nitrogen	00600	mg/L	Report	Report	Quarterly	Grab
Total Dissolved Solids	70296	mg/L	Report	Report	Quarterly	Grab
Chloride	00940	mg/L	Report	Report	Quarterly	Grab
pH [4]	00400	Standard Units	Report	Report	Quarterly	Grab [4]

Footnotes:

(1) The person doing the monitoring well sampling shall be certified as a water-well monitoring supervisor, working under the supervision of a person licensed as a pump installation contractor or be a licensed pump installation contractor in accordance with Health and Human Services Title 178 NAC.

(2) The static water level shall be measured to the nearest 0.1 of a foot.

(3) The removal of 3 casing volumes from each well prior to sampling is required. A casing volume is defined as the cross sectional area of the well casing times depth of the water column.

(4) The pH shall be measured within 15 minutes of collecting the sample.

Abbreviations:

mg/L - milligrams per liter NAC - Nebraska Administrative Code

Part VI. Compliance Schedule for Meeting Ammonia and Total Nitrogen Limitations

A. Upon issuance of this permit, the permittee shall implement the compliance schedule set forth below for meeting final numeric limits set forth for ammonia and total nitrogen. This schedule may be modified because of unforeseen circumstances by written notice from the NDEQ to the permittee.

1. On or before the last day of the 6th month after the effective date of this permit, the permittee shall submit a status report and / or a facility plan to NDEQ. The report / facility plan will include any written results of a study to determine if permit limits can be met operationally or if additional treatment processes are necessary. If additional treatment processes are necessary the written results of the study / facility plan will identify and evaluate potential treatment processes by which the permittee may achieve compliance with the final permit limits for ammonia and total nitrogen.
2. On or before the last day of the 10th month after the effective date of this permit, the permittee shall submit a progress report to NDEQ. The status report shall summarize actions taken by the permittee to comply with this Compliance Schedule. The status report is a requirement per NDEQ Title 119, Ch. 16.003.
3. On or before the last day of the 15th month after the effective date of this permit, the permittee shall submit final Plans and Specifications for review by the NDEQ Technical Assistance Unit. After final review and approval of said Plans and Specifications, the NDEQ Technical Assistance Unit may choose to issue a construction permit to the City of Sidney in order that any construction activities may be implemented in order to bring the Sidney WWTF into compliance with the final ammonia and total nitrogen limits contained in this permit to comply with this Compliance Schedule.

4. On or before the last day of the 18th month after the effective date of this permit, the permittee shall commence any construction activities in order to bring the Sidney WWTF into compliance with the final ammonia and total nitrogen limits contained in this permit.
5. On or before the last day of the 22nd and 26th months after the effective date of this permit, the permittee shall submit a progress report to NDEQ. The status report shall summarize actions taken by the permittee to comply with this Compliance Schedule. The status report is a requirement per NDEQ Title 119, Ch. 16.003.
6. On or before the last day of the 30th month after the effective date of this permit, the permittee shall complete any necessary construction and comply with the final numeric ammonia and total nitrogen limits established in this permit to comply with this Compliance Schedule.
7. On or before the last day of the 36th month after the effective date of this permit, the permittee shall certify all activities leading to facility compliance are completed. The permittee, (City of Sidney), will certify the Sidney WWTF is in compliance with the final ammonia and total nitrogen limits contained in this permit are in compliance with this Compliance Schedule.

B. All of the materials that are required to be submitted to NDEQ should be submitted to both the NDEQ Technical Assistance Unit and the Panhandle Field Office - Scottsbluff at the following addresses;

NDEQ Technical Assistance Unit
P.O. Box 98922
Lincoln, NE 68509

Panhandle Field Office
John Flint, Unit Supervisor
4500 Avenue "I", Room 129
P.O. Box 1500
Scottsbluff, NE 69363-1500

Part VII. Biosolids Disposal and Use Requirements

The biosolids disposal requirements of this permit are set forth below. The disposal of domestic biosolids is subject to the requirements of 40 CFR, Part 503. This is a Federal regulatory program administered by E.P.A. Region VII. The current contact at E.P.A. can be obtained upon request from NDEQ.

A. Approval

Submission of the Biosolids Application Form, *Attachment 1*, constitutes notice that the Wastewater Treatment Facility intends to land apply biosolids and requests approval by the NDEQ. The applicant is eligible to receive automatic approval provided the applicant indicates compliance with and understanding of the regulations and conditions contained in 40 CFR, Part 503, and when all of the conditions set forth below are met, unless the Department acts to provide a conditional or circumstantial approval.

1. Biosolids application is in compliance with the Federal 503 regulations, including all requirements related to vector and pathogen control;
2. Biosolids is not applied within 200 feet of any actively used groundwater well, except for those used exclusively for irrigation;
3. Biosolids is not being applied within 1000 feet of any public drinking water supply well; and
4. Application sites are not subject to public access.

B. Non-compliance Reporting Requirements

The permittee shall report to the NDEQ any instance(s) of noncompliance with 40 CFR, Part 503. This Non-compliance report shall be submitted to the NDEQ no later than 7 days after the permittee becomes aware of the non-compliance. The Non-compliance report shall contain the basic information required and specified in Appendix A of this NPDES permit.

C. Withdrawal of Site Approval(s)

The Department may withdraw site approval(s) for any of the following:

1. Failure to comply with the regulations contained in 40 CFR, Part 503;
2. Potential risks to surface or ground water quality;
3. Potential risks to the environment;
4. Potential risks to public health and / or welfare; and / or
5. Other site specific or facility specific considerations.

D. Biosolids Monitoring Requirements

Biosolids shall be monitored as specified below. A representative sample shall be collected and analyzed prior to application. If biosolids are hauled to another WWTF for further treatment, the following monitoring is not required.

Table 8: Monitoring Requirements for Biosolids

Parameters	Storet #	Units	Biosolids Reporting		Measurement Frequency	Sample Type
			30 Day Average	Maximum		
Ammonia (N)	82294	mg/kg	Report	Report	Annually	Composite
Total Solids	78477	mg/kg	Report	Report	Annually	Composite
Nitrate (N)	61539	mg/kg	Report	Report	Annually	Composite
Total Nitrogen	78470	mg/kg	Report	Report	Annually	Composite
Cadmium, Total	78476	mg/kg	Report	Report	Annually	Composite
Chromium, Total	78473	mg/kg	Report	Report	Annually	Composite
Copper, Total	78475	mg/kg	Report	Report	Annually	Composite
Lead, Total	78468	mg/kg	Report	Report	Annually	Composite
Nickel, Total	78469	mg/kg	Report	Report	Annually	Composite
Zinc, Total	78467	mg/kg	Report	Report	Annually	Composite
Arsenic, Total	61521	mg/kg	Report	Report	Annually	Composite
Mercury, Total	78471	mg/kg	Report	Report	Annually	Composite
Molybdenum, Total	78465	mg/kg	Report	Report	Annually	Composite
Selenium, Total	61518	mg/kg	Report	Report	Annually	Composite

Abbreviations:
mg/kg – milligrams per kilogram

Part VIII. Other Conditions and Requirements

A. Outfall 001

1. Requirements for Removal of CBOD and TSS

The 30-day average percent removal for CBOD and TSS by the WWTF shall not be less than 85%.

2. Narrative Limits

Discharges authorized under this permit:

1. Shall not be toxic to aquatic life in surface waters of the State outside the mixing zones allowed in NDEQ Title 117- *Nebraska Surface Water Quality Standards*;
2. Shall not contain pollutants at concentrations or levels that produce objectionable films, colors, turbidity, deposits, or noxious odors in the receiving stream or waterway; and
3. Shall not contain pollutants at concentrations or levels that cause the occurrence of undesirable or nuisance aquatic life in the receiving stream.

3. Whole Effluent Toxicity Corrective Actions

If the whole effluent toxicity test results exceed the toxicity limitations in this permit, this is a permit violation and the permittee must initiate corrective actions according to the conditions in *Attachment 2* - Guidance for Conducting Toxicity Testing and TIE/TRE Studies.

B. Outfall 002

1. Rapid Infiltration System Operating Conditions and Requirements

a. The maximum operating depth of the rapid infiltration cells is 3 feet.

b. Each rapid infiltration cell shall be allowed to completely empty prior to dousing them with wastewater.

c. Alternate dousing of the infiltration cells shall occur.

2. Narrative Limitations

Discharges authorized under this permit:

There shall be no impairment to the beneficial uses of the ground water. Any substances introduced directly by human activity shall not be allowed to exceed the applicable standards for ground water as set forth in NDEQ Title 118 - *Ground Water Quality Standards and Use Classification.*

C. Outfall 001 and Outfall 002

1. Certified Operator Requirements

This facility is to be operated and maintained by operators certified in accordance with NDEQ Title 197 - *Rules and Regulations for Certification of Wastewater Treatment Operators in Nebraska.*

2. Method Detection Limit Reporting Requirements

The minimum detection limit (MDL) is defined as the level at which the analytical system gives acceptable calibration points. If the analytical results are below the MDL, then the reported value on the DMR shall be a numerical value less than the MDL (e.g. <0.005).

3. Additional Monitoring

The Department may require increases in the monitoring frequencies set forth in this permit to address new information concerning a discharge, evidence of potential non-compliance, suspect water quality in a discharge, evidence of water quality impacts in the receiving stream or waterway, or other similar concerns.

4. Permit Modification and Reopening

This permit may be reopened and modified after public notice and opportunity for a public hearing for reasons specified in NDEQ Title 119 - *Rules and Regulations Pertaining to the Issuance of Permits under the National Pollutant Discharge Elimination System*, Chapter 24.

5. Permit Attachments

The attachments to this permit (e.g. forms and guidance) may be changed without a formal modification of this permit.

Appendix A – Standard Conditions that Apply to NPDES and NPP Permits

These general conditions are applicable to all NPDES and NPP permits. These conditions shall not preempt any more stringent requirements found elsewhere in this permit.

A. General Conditions

1. Information Available

All permit applications, fact sheets, permits, discharge data, monitoring reports, and any public comments concerning such shall be available to the public for inspection and copying, unless such information about methods or processes is entitled to protection as trade secrets of the owner or operator under Neb. Rev. Stat. §81-1527 (Reissue 1999) and NDEQ Title 115, Chapter 4.

2. Duty to Comply

All authorized discharges shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit.

The permittee shall comply with all conditions of this permit. Failure to comply with these conditions may be grounds for administrative action or enforcement proceedings including injunctive relief and civil or criminal penalties.

The filing of a request by the permittee for a permit modification, revocation and re-issuance, termination or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

3. Duty to Mitigate

The permittee shall take all reasonable steps to minimize, prevent or correct any adverse impact to the environment resulting from noncompliance with this permit, including such accelerated or additional monitoring as required by the NDEQ to determine the nature and impact of the noncompliant discharge.

4. Permit Actions

This permit may be modified, suspended, revoked or reissued, in part or in whole, in accordance with the regulations set forth in NDEQ Title 119, Chapter 24. In addition, this permit may be modified, revoked and reissued to incorporate standards or limitations issued pursuant to Sections 301(b)(b)(c), 301(b)(b)(d), 304(b)(b), 307(a)(b), or 405(d) of the Clean Water Act and Public Law 100-4 (i.e., industrial categorical standards and municipal sludge regulations).

5. Land Application of Wastewater Effluent

The permittee shall be permitted to discharge treated wastewater effluent by means of land application in accordance with the regulations and standards set forth in NDEQ Title 119, Chapter 12 002.

6. Toxic Pollutants

The permittee shall not discharge pollutants to waters of the state that cause a violation of the standards established in NDEQ Titles 117, 118 or 119. All discharges to surface waters of the state shall be free of toxic (acute or chronic) substances which alone or in combination with other substances, create conditions unsuitable for aquatic life outside the appropriate mixing zone.

7. Oil and Hazardous Substances/Spill Notification

Nothing in this permit shall preclude the initiation of any legal action or relieve the permittee from any responsibilities, liabilities or penalties under Section 311 of the Clean Water Act. The permittee shall conform to the provisions set forth in NDEQ Title 126, *Rules and Regulations Pertaining to the Management of Wastes*. If the permittee knows, or has reason to believe, that oil or hazardous substances were released at the facility and could enter waters of the state or any of the outfall discharges authorized in this permit, the permittee shall immediately notify the Department of a release of oil or hazardous substances. During Department office hours (i.e., 8:00 a.m. to 5:00 p.m., Monday through Friday, except holidays), notification shall be made to the Nebraska Department of Environmental Quality at telephone numbers (402) 471-2186 or (877) 253-2603 (toll free). When NDEQ cannot be contacted, the permittee shall report to the Nebraska State Patrol for referral to the NDEQ Emergency Response Team at telephone number (402) 471-4545. It shall be the permittee's responsibility to maintain current telephone numbers necessary to carry out the notification requirements set forth in this paragraph.

8. Property Rights

The issuance of this permit does not convey any property rights of any sort or any exclusive privileges nor does it authorize any damage to private property or any invasion of personal rights nor any infringement of federal, state or local laws or regulations.

9. Severability

If any provision of this permit is held invalid, the remainder of this permit shall not be affected.

10. Other Rules and Regulations Liability

The issuance of this permit in no way relieves the obligation of the permittee to comply with other rules and regulations of the Department.

11. Inspection and Entry

The permittee shall allow the Director or his authorized representative, upon the presentation of his identification and at a reasonable time:

a. to enter upon the permittee's premises where a regulated facility or activity is located or conducted, or records are required to be kept under the terms and conditions of the permit,

b. to have access to and copy any records required to be kept under the terms and conditions of the permit,

c. to inspect any facilities, equipment (including monitoring and control), practices or operations regulated or required in the permit, and

d. to sample or monitor any substances or parameters at any location.

12. Penalties

Violations of the terms and conditions of this permit may result in the initiation of criminal and/or civil actions. Civil penalties can result in fines of up to $10,000.00 per day (Neb. Rev. Stat. §81-1508, as amended to date). Criminal penalties for willful or negligent violations of this permit may result in penalties of $10,000.00 per day or by imprisonment. Violations may also result in federal prosecution.

B. Management Requirements

1. Duty to Provide Information

The permittee shall furnish to the Department within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit; or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records retained as a requirement of this permit.

2. Duty to Reapply

The permittee shall apply for a re-issuance of this permit, if an activity regulated by this permit is to be continued after the expiration date of this permit. The application shall be submitted at least 180 days before the expiration of this permit on an application form supplied by the Department, as set forth in NDEQ Title 119, Chapter 5 002.

3. Signatory Requirements

All reports and applications required by this permit or submitted to maintain compliance with this permit, shall be signed and certified as set forth in this section.

a. Permit applications shall be signed by a cognizant official who meets the following criteria:
   i) for a corporation: by a principal executive officer of at least the level of vice-president,
   ii) for a partnership or sole proprietorship: by a general partner or the proprietor, respectively, or
   iii) for a municipality, state, federal or other public facility: by either a principal executive officer or highest ranking elected official.

b. Discharge monitoring reports and other information shall be signed by the **cognizant official** or by an **authorized representative**.

c. The cognizant official designates an authorized representative. The authorized representative is responsible for the overall operation of the facility (i.e., the WWTF Operator, the City Manager, the Public Utilities Superintendent or similar person).

d. Any change in the signatories shall be submitted to the Department, in writing, within 30 days after the change.

e. Certification. All applications, reports and information submitted as a requirement of this permit, shall contain the following certification statement:

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

C. Monitoring and Records

1. Representative Sampling

Samples and measurements taken as required within this permit shall be representative of the discharge. All samples shall be taken at the monitoring points specified in this permit and, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water or substance. Monitoring points shall not be changed without notification to the Department and with the written approval of the Director.

a. Composite sampling shall be conducted in one of the following manners:
   i) continuous discharge - a minimum of one discrete aliquot collected every three hours,
   ii) less than 24 hours - a minimum of hourly discrete aliquots or a continuously drawn sample shall be collected during the discharge, or
   iii) batch discharge - a minimum of three discrete aliquots shall be collected during each discharge.

b. Composite samples shall be collected in one of the following manners:
   i) the volume of each aliquot must be proportional to either the waste stream flow at the time of sampling or the total waste stream flow since collection of the previous aliquot,
   ii) a number of equal volume aliquots taken at varying time intervals in proportion to flow,
   iii) a sample continuously collected in proportion to flow, and
   iv) where flow proportional sampling is infeasible or nonrepresentative of the pollutant loadings, the Department may approve the use of time composite samples.

c. Grab samples shall consist of a single aliquot collected over a time period not exceeding 15 minutes.

d. All sample preservation techniques shall conform to the methods adopted in NDEQ Title 119, Chapter 21 006 unless:
   i) in the case of sludge samples, alternative techniques are specified in the 40 CFR, Part 503, or
   ii) other procedures are specified in this permit.

2. Flow Measurements

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be used to insure the accuracy and reliability of measurements. The devices shall be installed, calibrated and maintained to insure the accuracy of the measurements. The accepted capability shall be consistent with the type of that device. Devices selected shall be capable of measuring flows with a maximum deviation of +/- 10%. The amount of deviation shall be from the true discharge rates throughout the range of expected discharge volumes. Guidance can be obtained from the following references for the selection, installation, calibration and operation of acceptable flow measurement devices:

a. "Water Management Manual," U. S. Department of Interior, Bureau of Reclamation, Second Edition, Revised Reprint, 2001, 327 pp. Available from the National Technical Information Services (NTIS)

b. "NPDES Compliance Inspection Manual," U. S. Environmental Protection Agency, Office of Enforcement and Compliance Assurance, Publication EPA 300-B-94-014 September 1994. This document is available from the National Technical Information Services (NTIS).

3. Test Procedures

Test procedures used for monitoring required by this permit shall conform to the methods adopted in NDEQ Title 119, Chapter 21 006 unless:

a. in the case of sludge samples, alternative techniques are specified in the 40 CFR, Part 503, or
b. other procedures are specified in this permit.

4. Averaging of Measurements

Averages shall be calculated as an arithmetic mean except:

a. bacterial counts which shall be calculated as a geometric mean, or
b. where otherwise specified by the Department.

5. Retention of Records

The permittee shall retain records of all monitoring activities for a period of at least three years (except five years for biosolids data) as set forth in NDEQ Title 119, Chapter 14 001.02. The types of records that must be retained include, but are not limited to:

a. calibration and maintenance records,
b. original strip chart recordings,
c. copies of all reports required by this permit,
d. monitoring records and information, and
e. electronically readable data.

The permittee shall retain records of monitoring required by this permit that are related to biosolids use and disposal for a period of five years or longer, as required in NDEQ Titles 119, Chapter 14.

6. Record Contents

As set forth in NDEQ Title 119, Chapter 14, records of sampling or monitoring information shall include:

a. the date(s), exact place, time and methods of sampling or measurements,
b. the name(s) of the individual(s) who performed the sampling or measurements,
c. the date(s) the analyses were performed,
d. the individual(s) who performed the analyses,
e. the analytical techniques or methods used,
f. the results of such analyses, and
g. laboratory data, bench sheets and other required information.

D. Reporting Requirements

1. Immediate Notification

a. NPP permittees shall report immediately to the publicly owned treatment works (POTW), any discharge to the POTW that may result in a violation of NDEQ Title 119, Chapter 26.
b. All permittees shall report immediately to the NDEQ:
   i) discharges of oil or hazardous substances which threaten waters of the state or public health and welfare, and
   ii) discharges causing in-stream toxicity (i.e., a fish kill) or an immediate threat to human health.

Initial notification may be verbal. A written noncompliance notification shall be submitted as set forth in Section D. 3 of this Appendix.

2. Test Procedures

Test procedures used for monitoring required by this permit, shall conform to the methods adopted in NDEQ Title 119, Chapter 27 unless:

a. In the case of biosolids samples, alternative techniques are specified in the NDEQ Title 119, Chapter 14; or
b. Other procedures are specified in this permit.

3. 24-Hour Reporting

As set forth in NDEQ Title 119, Chapter 14, the permittee shall report to the NDEQ, within 24 hours of becoming aware of:

a. any noncompliance which may endanger the environment or human health or welfare,
b. any unanticipated bypass,
c. all upsets,
d. any discharge to a POTW that causes a violation of the prohibited discharge standards, or
e. any noncompliance of an effluent limitation in this permit.

Initial notification may be verbal. A written noncompliance notification shall be submitted as set forth in Section D. 3 of this permit.

As set forth in NDEQ Title 119, Chapter 26, if sampling performed by an industrial user (NPP permittee) indicates a permit effluent violation, the permittee shall notify the Department and the city within 24 hours of becoming aware of the violation. The permittee shall resample and have it analyzed. The results of the resampling analysis shall be submitted to the Department and the city within 30 days after becoming aware of the violation.

4. Written Noncompliance Notification

a. The permittee shall submit a written noncompliance report to the NDEQ:
   i) within five days of becoming aware of any noncompliance with the:
      (a) NPP effluent limitations or requirements set forth in this permit, or
      (b) NPDES toxic pollutant effluent limitations or requirements set forth in this permit.
   ii) within seven days of becoming aware of any other noncompliance with the NPDES requirements and/or effluent limitations set forth in this permit.
b. The written notification shall be submitted on a noncompliance form supplied by the Department and shall include:
   i) a description of the discharge and cause of noncompliance,
   ii) the period of noncompliance, including exact dates and times, or if not corrected, the anticipated time the noncompliance is expected to continue, and
   iii) the steps taken to reduce, eliminate and prevent the reoccurrence of the noncompliance.

The submittal of a written noncompliance report does not relieve the permittee of any liability from enforcement proceedings that may result from the violation of permit or regulatory requirements.

5. Quarterly Discharge Monitoring Reports (DMRs)

The permittee shall report the monitoring results required by this permit on a DMR form supplied or approved by the Department. Monitoring results shall be submitted on a quarterly basis using the reporting schedule set forth below, unless otherwise specified in this permit or by the Department.

Monitoring Quarters	DMR Reporting Deadlines
January - March	April 28
April - June	July 28
July - September	October 28
October - December	January 28

If the permittee monitors any pollutant more frequently than required by this permit, using procedures specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted on the DMR. The frequency of the analysis shall also be reported on the DMR.

6. Changes in Discharge

Any facility expansion, production increases or process modifications which will result in new or substantially increased discharges of pollutants or a change in the nature of the discharge of pollutants must be reported by the permittee 180 days prior to the expansion, increases or modifications, either by amending his original application or by submitting a new application. This permit may be modified or revoked and reissued as a result of this notification to maintain compliance with applicable state or federal regulations.

7. **Changes in Toxic Discharges from Manufacturing, Commercial, Mining and Silvicultural Facilities**

Permittees discharging from manufacturing, commercial, mining and silvicultural facilities shall report to the Department:

a. if any toxic pollutant not limited in this permit is discharged from any NPDES outfall as a result of any activity that will or has occurred and results in its routine or frequent discharge. The Department shall be informed if that discharge exceeds the following notification levels:
   i) 100 micrograms per liter (0.1 mg/L) for any toxic pollutant,
   ii) 200 micrograms per liter for acrolein and acrylonitrile (0.2 mg/L),
   iii) 500 micrograms per liter for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol (0.5 mg/L),
   iv) 1000 micrograms per liter for antimony (1 mg/L),
   v) five times the maximum concentration value reported for that pollutant in the permit application or
   vi) an alternative level established by the Director, and

b. if any toxic pollutant not limited in this permit is discharged from an NPDES outfall as a result of any activity that will or has occurred and results in its nonroutine discharge. The Department shall be informed if that discharge exceeds the following notification levels:
   i) 500 micrograms per liter (0.5 mg/L) for any toxic pollutant,
   ii) 1000 micrograms for antimony (1 mg/L),
   iii) ten times the maximum concentration value reported for that pollutant in the permit application, or
   iv) an alternative level established by the Director.

8. **Changes in Sludge Quality**

The permittee shall provide written notice to the Department of any alteration or addition that results in a significant change in the permittee's sludge use or disposal practices. This permit may be modified or revoked and reissued as a result of this notification to maintain compliance with applicable state or federal regulations.

9. **Changes of Loadings to Publicly Owned Treatment Work (POTW)**

POTW's shall notify the Department of the following:

a. any new introduction of pollutants from dischargers subject to the categorical pretreatment discharge limitations set forth in NDEQ Title 119, Chapter 27, and

b. any substantial change in the volume or character of pollutants being introduced into the POTW.

Notification shall be made 180 days in advance whenever possible. Information on the quantity and quality of new discharges and their anticipated impact on the POTW shall be included.

10. **Transfers**

The permittee shall notify the Department at least 30 days prior to the proposed transfer of ownership of this permit or the permitted facility to another party. The Department may modify or revoke and reissue this permit as set forth in NDEQ Title 119, Chapter 24.

11. **Compliance Schedules**

The permittee shall submit a written report of compliance or noncompliance with any compliance schedule established in this permit. The written report shall be submitted within 14 days following all deadlines established in the compliance schedule. If compliance has not been achieved, the report shall include an alternative completion date, an explanation of the cause of the noncompliance and an explanation of the steps being taken to ensure future compliance. The submission of this report does not ensure the Department's acceptance of alternative compliance dates nor does it preclude the Department from initiating enforcement proceedings based upon the reported noncompliance.

E. Operation and Maintenance

1. Proper Operation and Maintenance

The permittee shall, at all times, maintain in good working order and operate as efficiently as possible, any facilities or systems of control installed by the permittee in order to achieve compliance with the terms and conditions of this permit. This would include, but not be limited to, effective performance based on designed facility removals, effective management, adequate operator staffing and training, adequate laboratory and process controls, and adequate funding which reflects proper user fee schedules.

2. Treatment System Failure and Upset

An upset is an affirmative defense to an enforcement action brought for noncompliance with technology-based permit effluent limitations if the permittee can demonstrate, through properly signed, operating logs or other relevant evidence, that:

a. an upset occurred and the specific cause was identified,

b. that the facility was properly operated and maintained at such time,

c. the Department was notified within 24 hours of the permittee becoming aware of the upset, and

d. the permittee took action to reduce, eliminate and prevent a reoccurrence of upset, including minimizing adverse impact to waters of the state.

3. Bypassing

Any diversion from or bypass of the treatment facilities is prohibited, unless:

a. It is unavoidable to prevent loss of life, personal injury or severe property damage;

   i) No feasible alternative exists, i.e., auxiliary treatment facilities, retention of untreated wastes or maintenance during normal periods of equipment downtime;

   ii) The permittee submits notice to the Department within 24 hours of becoming aware of the bypass or if the bypass is anticipated or should have been anticipated, the Department is notified at least ten days prior to the bypass; and

   iii) The bypass is conducted under conditions determined to be necessary by the Director to minimize any adverse effects.

b. If the bypass is needed for regular preventative maintenance for which back-up equipment should be provided, the bypass will not be allowed. When a bypass occurs, the burden is on the permittee to demonstrate compliance with item "a" above.

c. Additionally, NPP permittees shall report any bypasses to the POTW. Unanticipated bypasses shall be reported immediately and anticipated bypasses shall be reported at least ten days in advance.

d. All NPDES permittees shall notify the general public that a bypass of the treatment system is occurring. The public notification shall include:

   i) Location of the bypass;

   ii) The date the bypass started;

   iii) Anticipated length of time the bypass will occur; and

   iv) An estimate of the total volume of wastewater bypassed.

4. Removed Substances

Solids, sludge, filter backwash or other pollutants removed in the course of treatment or control of wastewater shall be disposed of at a site and in a manner approved by the Nebraska Department of Environmental Quality. The disposal of nonhazardous industrial sludges shall conform to the standards established in or to the regulations established pursuant to 40 CFR, Part 257. The disposal of sludge shall conform to the standards established in or to the regulations established pursuant to 40 CFR, Part 503. If solids are disposed of in a licensed sanitary landfill, the disposal of solids shall conform to the standards established in NDEQ Title 132. Publicly owned treatment works shall dispose of sewage sludge in a manner that protects public health and the environment from any adverse effects which may occur from toxic pollutants as defined in Section 307 of the Clean Water Act. This permit may be modified or revoked and reissued to incorporate regulatory limitations established pursuant to 40 CFR, Part 503.

F. Definitions

Administrator: The Administrator of the USEPA.

Aliquot: An individual sample having a minimum volume of 100 milliliters that is collected either manually or in an automatic sampling device.

Biweekly: Once every other week.

Bimonthly: Once every other month.

Bypass: The intentional diversion of wastes from any portion of a treatment facility.

Daily Average: An effluent limitation that cannot be exceeded and is calculated by averaging the monitoring results for any given pollutant parameter obtained during a 24-hour day.

Department: Nebraska Department of Environmental Quality.

Director: The Director of the Nebraska Department of Environmental Quality.

Industrial Discharge: Wastewater that originates from an industrial process and / or is noncontact cooling water and / or is boiler blowdown.

Industrial User: A source of indirect discharge (a pretreatment facility).

Monthly Average: Is an effluent limitation that cannot be exceeded. It is calculated by averaging any given pollutant parameter monitoring results obtained during a calendar month.

Passive Discharge: A discharge from a POTW that occurs in the absence of an affirmative action and is not authorized by the NPDES permit (e.g. discharges due to a leaking valve, discharges from an overflow structure) and / or is a discharge from an overflow structure not designed as part of the POTW (e.g. discharges resulting from lagoon berm / dike breaches).

Publicly Owned Treatment Works (POTW): A treatment works as defined by Section 212 of the Clean Water Act (Public Law 100-4) which is owned by the state or municipality, excluding any sewers or other conveyances not leading to a facility providing treatment.

Semiannually: Twice every year

Significant Industrial User (SIU): All industrial users subject to Categorical Pretreatment Standards or any industrial user that, unless exempted under Chapter 1, Section 105 of NDEQ Title 119, discharges an average of 25,000 gallons per day or more of process water; or contributes a process waste stream which makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW; or is designated as such by the Director on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any National Pretreatment Standard or requirement.

30-Day Average: Is an effluent limitation that cannot be exceeded. It is calculated by averaging any given pollutant parameter monitoring results obtained during a calendar month.

Total Toxic Organics (TTO): The summation of all quantifiable values greater than 0.01 milligrams per liter (mg/l) for toxic organic compounds that may be identified elsewhere in this permit. (If this term has application in this permit, the list of toxic organic compounds will be identified, typically in the Limitations and Monitoring Section(s) and/or in an additional Appendix to this permit.)

Toxic Pollutant: Those pollutants or combination of pollutants, including disease causing agents, after discharge and upon exposure, ingestion, inhalation or assimilation into an organism, either directly from the environment or indirectly by ingestion through food chains will, on the basis of information available to the administrator, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunction (including malfunctions in reproduction) or physical deformations in such organisms or their offspring.

Upset: An exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee, excluding such factors as operational error, improperly designed or inadequate treatment facilities or improper operation and maintenance or lack thereof.

Volatile Organic Compounds (VOC): The summation of all quantifiable values greater than 0.01 milligrams per liter (mg/l) for volatile, toxic organic compounds that may be identified elsewhere in this permit. (See the definition for Total Toxic Organics above. In many instances, VOCs are defined as the volatile fraction of the TTO parameter. If the term "VOC" has application in this permit, the list of toxic organic compounds will be identified, typically in the Limitations and Monitoring Section(s) and/or in an additional Appendix to this permit.)

Weekly Average: Is an effluent limitation that cannot be exceeded. It is calculated by averaging any given pollutant parameter monitoring results obtained during a fixed calendar week. The permittee may start their week on any weekday but the weekday must remain fixed. The Department approval is required for any change of the starting day.

"X" Day Average: An effluent limitation defined as the maximum allowable "X" day average of consecutive monitoring results during any monitoring period where "X" is a number in the range of one to seven days.

G. Abbreviations

CFR: Code of Federal Regulations
kg/Day: Kilograms per Day
MGD: Million Gallons per Day
mg/L: Milligrams per Liter
NOI: Notice of Intent
NDEQ: Nebraska Department of Environmental Quality
NDEQ Title 115: *Rules of Practice and Procedure*
NDEQ Title 117: *Nebraska Surface Water Quality Standards*
NDEQ Title 118: *Ground Water Quality Standards and Use Classification*
NDEQ Title 119: *Rules and Regulations Pertaining to the Issuance of Permits under the National Pollutant Discharge Elimination System*
NDEQ Title 126: *Rules and Regulations Pertaining to the Management of Wastes*
NDEQ Title 132: *Integrated Solid Waste Management Regulations*
NPDES: National Pollutant Discharge Elimination System
NPP: Nebraska Pretreatment Program
POTW: Publicly Owned Treatment Works
µg/L: Micrograms per Liter
WWTF: Wastewater Treatment Facility

Nebraska Department of Environmental Quality

NPDES Number	NE0023884
This area for Department Use	
IIS Number	57830
Date Received	

Wastewater Section
1200 'N' Street, Suite 400, The Atrium
PO Box 98922
Lincoln, NE 68509-8922
Tel. 402/471-4220 / Fax 402/471-2909

Attachment 1
Biosolids Application Form

Submission of this Biosolids Application Form constitutes notice that the Wastewater Treatment Facility intends to land apply biosolids and requests approval by NDEQ. The municipal wastewater treatment facility generating and applying the biosolids needs to be in compliance with the Federal regulations contained in *40 CFR Part 503* which is administered by E.P.A. Region VII.

Wastewater Treatment Facility Name

Application Site Location(s): Provide a brief narrative description of the site location(s) and /or where the NDEQ could review complete documentation pertaining to the site location(s)

Biosolids Application Checklist

Please circle the correct response and provide additional information as requested

A "No" answer to any question in this box disqualifies the facility from automatic approval.

1) Are those who produce, dispose of or land apply biosolids from the municipal wastewater treatment facility aware that any biosolids produced, disposed of or land applied must be in compliance with the Federal regulations contained in *40 CFR Part 503*? ❑ **Yes** ❑ **No**

2) Are the wastewater treatment facility's biosolids production, disposal and handling procedures in compliance with *40 CFR Part 503*? ❑ **Yes** ❑ **No**

I certify that the information submitted in this document is correct to my best knowledge and belief.

Signature* Date Signed

Printed Name Title

***Either the Cognizant Official *or* the Authorized Representative may sign.**

Nebraska Department
of Environmental Quality

Wastewater Section
1200 'N' Street, Suite 400, The Atrium
PO Box 98922
Lincoln, NE 68509-8922
Tel. 402/471-4220 / Fax 402/471-2909

Attachment 2
Guidance for Conducting Toxicity Testing and TIE/TRE Studies

1. Test Procedures

Acute and chronic toxicity is a measure of the toxic effect that a wastewater effluent may have on living organisms (i.e., *Pimephales promelas* and *Ceriodaphnia* species). Acute and chronic toxicity analyses are conducted using the EPA approved Whole Effluent Toxicity (WET) test methods set forth in 40 CFR, Part 136. There are separate and distinct test methods for measuring acute and/or chronic toxicity impacts. These test methods establish standardized conditions and require that certain chemical and physical analyses be conducted in conjunction with the toxicity analysis.

2. Results Reporting

Test results are reported in terms of toxic units. Acute toxic units are abbreviated TUa, and are the inverse of the LC_{50} (i.e., the concentration of effluent that is lethal to 50% of the organisms) expressed as a decimal fraction. Chronic toxic units are abbreviated TUc, and are the inverse of the NOEC (i.e., the highest concentration of effluent at which there is no observed effect on the organisms with respect to growth or reproductive inhibition) expressed as a decimal fraction. The tables below provide examples of the LC_{50} and NOEC conversions to toxic units.

LC_{50}	Decimal Fraction	TUa
0.1 %	0.001	1000
1%	0.01	100
10%	0.1	10
25%	0.25	4
50%	0.5	2
100%	1	1

NOEC	Decimal Fraction	TUc
0.1 %	0.001	1000
1%	0.01	100
10%	0.1	10
25%	0.25	4
50%	0.5	2
100%	1	1

3. Initial Response to Non-Compliance

If the permit limits for toxicity are exceeded, the permittee needs to perform the following actions, unless the Department specifies alternative procedures:

a. Submit a written non-compliance report (NCR) within 5 days. In the NCR, identify any suspect sources of the toxicity and describe any measures being taken to reduce toxicity.

b. Conduct follow-up toxicity testing with both organisms within four (4) weeks.

4. **Return to Compliance**

If the follow-up test results are in compliance with the limits in the permit, the permittee needs to perform the following actions, unless the Department specifies alternative procedures:

a. Within 30 days submit the results of the follow-up test in a written report to the NDEQ. The written report should discuss the effect of the measures taken to reduce toxicity. The report should also

b. provide the NDEQ with a recommendation relative to their success and, if ongoing, the need to continue implementing these measures.

c. Testing can generally be resumed on the routine schedule established in the permit, unless the NDEQ specifies otherwise. The NDEQ can require additional follow-up testing on a case-by-case basis (e.g., if there was no apparent reason why toxicity decreased). Any measures taken to reduce toxicity will generally need to be continued as Best Management Practices, unless the NDEQ provides a written approval for their discontinuance.

5. **Actions to Address Continued Non-Compliance**

If the follow-up toxicity test results are not in compliance with the permit limits, the permittee needs to perform Toxicity Identification Evaluations (TIE) and Toxicity Reduction Evaluations (TRE) as specified below, unless the Department specifies alternative procedures. The permittee is responsible for maintaining compliance with the toxicity limits in this permit. The undertaking of the TIE/TRE process does not constitute compliance unless or until compliance with the permit limits is achieved. See explanatory note below concerning Departmental actions to address non-compliance.

a. Development and implementation of a Toxicity Identification Evaluation (TIE) needs to begin immediately. A summary plan for the initiation of the TIE should be submitted to the NDEQ within 30 days of when the follow-up of non-compliant result is received. A meeting with the NDEQ to discuss TIE/TRE alternatives within this period is encouraged.

b. A complete TIE/TRE schedule should be submitted to the NDEQ within 90 days. The NDEQ will seek clarification on at least some aspects of the schedule, and may request some modification.

c. The TIE and TRE processes should continue concurrently; i.e., as the TIE process identifies toxicity sources, reasonable measures to reduce the toxicity from these sources should be taken. The TIE/TRE schedule may need to be revised in response to ongoing TIE/TRE activities.

d. Sometimes it is possible to forego or discontinue the TIE process, and proceed directly with the TRE process. However, before abandoning the TIE process, it is important that:

   i) the source of the toxicity be known; and

   ii) NDEQ concurs with this approach.

Note: On-going non-compliance with a toxicity limit will typically be addressed in one of two ways depending on whether agreement can be achieved between the NDEQ and permittee on the TIE/TRE schedule and procedures. If agreement can be achieved, the NDEQ and the permittee may wish to enter into a Consent Order. If agreement cannot be achieved, the NDEQ may proceed unilaterally via administrative and/or enforcement actions. In most instances, it is advantageous for all parties if a mutually agreed to TIE/TRE process can be implemented. For that reason, early meetings and discussions with the Department are encouraged.