

STATEMENT OF BASIS

Applicant: City of Hot Springs
Permit Number: SD0022918
Contact Person: Don DeVries, Mayor
303 N. River Street
Hot Springs, SD 57747
Phone: (605) 745-3135 (City Hall)
(605) 745-4611 (Wastewater Plant)
Permit Type: Major Municipal-Renewal

DESCRIPTION

The city of Hot Springs operates a wastewater treatment facility (WWTF) located on the southeast side of the city on the 1200 Block of South 4th St. in the Southeast ¼ of the Southeast ¼ of Section 24, Township 7 South, Range 5 East, in Fall River County, South Dakota (Latitude 43.420047°, Longitude -103.461835°, Navigational Quality GPS).

The WWTF treats wastes for a population of approximately 4,129 (permit application). No significant industries are known to contribute flow to the WWTF. The WWTF has an average design flow of 0.7 million gallons per day (MGD) and a peak design flow of 1.44 MGD (permit application). The collection system is primarily gravity flow, aided by a lift station that serves five blocks on the lower end of town.

The WWTF does not discharge under normal operating conditions, but instead uses treated effluent for land application. A complete rebuild of the system including the addition of the land application equipment was completed in 1985. The system consists of pretreatment; primary clarification; biological treatment by a deep bed, high rate, artificial media trickling filter; final clarification; land application of wastewater; sludge digestion; and land application of biosolids.

Pretreatment at the facility consists of debris removal using a mechanical bar screen, an auger grinder, and flow monitoring (Parshall flume). The removed grit and debris are hauled to the Custer/Fall River Regional Landfill for disposal. The facility uses a 55-foot diameter, 9-foot deep circular clarifier for primary clarification. Sludge from the clarifier goes to an anaerobic digester and the decant flows to the trickling filter. A 32-foot diameter, 30-foot tall, deep bed, high rate, artificial media trickling filter is used for secondary treatment. Wastewater then flows to the 55-foot diameter, 9-foot deep final clarifier, before it flows to the land application system.

Wastewater from the final clarifier is piped about 4.5 miles to two storage basins, located in Section 34, Township 7 South, Range 6 East, that hold the wastewater before land application. The effluent pipe to the storage basins runs parallel to US Highway 18 and contains two emergency bypass discharge outfalls. The first emergency bypass outfall (Outfall 002N) is located approximately one mile southwest of the WWTF. The second bypass outfall (Outfall 003N) is located approximately two miles southwest of the WWTF. See attachment 1 for a map of the approximate outfall locations.

The upper storage basin has a storage capacity of 187.2 acre-feet, and the lower storage basin has a storage capacity of 183.4 acre-feet. The upper basin has a surface area of 9.75 acres at the high water mark with a possible 24-foot water depth. The lower basin has a surface area of 14.3 acres at the high water mark with a possible 23-foot water depth. The ponds have 4 to 1 slopes on the interior faces down to the bottom of the ponds.

The upper storage basin is designed to gravity feed to the 80-acre flood irrigation area located in the Southwest ¼ of Section 34, Township 7 South, Range 6 East and the Northwest ¼ of Section 3, Township 8 South, Range 6 East. The upper basin must be kept as full as possible to maintain the highest flow efficiency in the flood irrigation area. If the upper basin becomes too full, there is an emergency overflow into the lower basin. The normal operation of the treatment plant allows the transfer of treated effluent from the final clarifier into the upper basin via gravity. However, flow can be directed to the upper basin, the lower basin, or directly to the flood irrigation area.

Water from the lower storage basin is pumped to a 130,000-gallon storage tank. The wastewater can gravity flow from the tank to two center pivots in the 120-acre sprinkler land application area, located in the East ½ of Section 2, Township 8 South, Range 6 East. Water in the lower basin above the 3,190-foot elevation can be discharged into the flood irrigation area. The lower basin is also equipped with an emergency outfall (Outfall 004N).

Sludge treatment consists of two 25-foot diameter circular anaerobic digesters operated in series. In the primary digester, sludge is heated and completely mixed to digest the organic material. In the secondary digester, the digested sludge is concentrated and stored. Settled sludge is drawn off the bottom of the secondary digester and pumped to the sludge application vehicle. Supernatant is drawn off the upper portion of the secondary digester and returned to the primary clarifier. Methane produced during the digestion process is used to heat the digester sludge and to run the methane-fired generator. The digester has a propane back-up generator if necessary. The city land applies the sludge (biosolids) in accordance with the city's Biosolids Management Permit (SDL022918). The city has approximately 520 acres available at the airport for land application. These acreages are broken up into separate parcels and application to each parcel is rotated as needed to ensure appropriate agronomic rates are not exceeded.

RECEIVING WATERS

Any discharge from the treatment facility (Outfall 001) or the pipe leading to the storage basins (Outfalls 002 and 003) would enter Fall River, which is classified by the South Dakota Surface Water Quality Standards (SDSWQS), Administrative Rules of South Dakota (ARSD), Sections 74:51:03:01 and 74:51:03:13, for the following beneficial uses:

From September 25 through April 30:

- (3) Coldwater marginal fish life propagation waters;
- (8) Limited contact recreation waters;
- (9) Fish and wildlife propagation, recreation, and stock watering waters; and
- (10) Irrigation waters.

From May 1 through September 24:

- (4) Warmwater permanent fish life propagation waters;
- (8) Limited contact recreation waters;
- (9) Fish and wildlife propagation, recreation, and stock watering waters, and
- (10) Irrigation waters.

Any bypass from the emergency outfall in the lower storage basin (Outfall 004N), any discharge from the upper basin to the flood irrigation system (Outfall 005N), or any discharge from the lower basin to the sprinkler irrigation or flood irrigation systems (Outfall 006N) would discharge into an unnamed draw below a dam. The unnamed draw is classified by SDSWQS, ARSD, Section 74:51:03:01 for the following beneficial uses:

- (9) Fish and wildlife propagation, recreation, and stock watering waters; and
- (10) Irrigation waters.

The unnamed draw flows about one half mile to the Cheyenne River, which is classified by the SDSWQS, ARSD, Sections 74:51:03:01 and 74:51:03:08 for the following beneficial uses:

- (5) Warmwater semipermanent fish life propagation waters;
- (7) Immersion recreation waters;
- (8) Limited contact recreation waters;
- (9) Fish and wildlife propagation, recreation, and stock watering waters; and
- (10) Irrigation waters.

ANTIDegradation

SDDENR has fulfilled the antidegradation review requirements for this permit. In accordance with South Dakota's Antidegradation Implementation Procedure and the SDSWQS, no further review is required. The results of SDDENR's review are included in Attachment 2.

MONITORING DATA

The city of Hot Springs had three emergency discharges in 2010. The first occurred from Outfall 001 when the secondary clarifier overflowed due too much inflow to the plant from a severe thunderstorm. In June and July 2010, the facility had two separate incidents while completing construction work on the outfall line to the storage basins. Both resulted in a discharge from Outfall 002. Land application data from Outfalls 005 and 006, annual influent metals monitoring, and the three emergency discharge sample results are included in Attachment 3. Land application did not occur in the months not included in the tables.

INSPECTIONS

Personnel from SDDENR conducted a *Compliance Inspection* of the city of Hot Springs' wastewater treatment facility on May 30, 2012. The following requirements and corrective actions were made at the time of the inspection:

COMMENTS	REQUIRED CORRECTIVE ACTIONS
SDDENR has made several attempts to obtain information about the city's wastewater expenses and revenue. To date, the information has not been provided. This information is important to help SDDENR assess the city's ability to properly operate and maintain this system	In accordance with Section 2.7 of the city's permit, please submit the wastewater expenses and revenue for Fiscal Year 2011 in the Corrective Actions Summary.
The city owns and uses a pH meter capable of only reading to 0.1 standard units.	<p>Page 5 of your city's SWD permit states that pH must read to 0.01 standard units and be equipped with temperature compensation adjustment.</p> <p>The city must have access to a pH meter capable of reading to 0.01 standard units.</p>
Bypasses of the collection system during the June 2011 – May 2012 project to replace collection system lines were not reported to the SSSDENR as required.	The city must report all bypasses in accordance with Sections 1.1 and 2.11 of its SWD permit.
The trickling filter and wetwell are not in good operating condition and need to be replaced.	The city is required to properly operate and maintain all treatment and control systems used to achieve compliance with the SWD permit. The city must take steps to repair or replace this equipment to ensure effective treatment and continued compliance with the permits.

The following comments and corrective actions are *recommended* and are items that will improve the operation of your facility.

COMMENTS	RECOMMENDED CORRECTIVE ACTIONS
The lift station does not have a back-up source of power in the event of a power failure.	An alternate power source should be available for the lift station in order to prevent flood damage to homes, collection system and to the lift station itself. These problems can arise either from electrical equipment malfunctions or a power outage, and could be quite costly to correct.

COMMENTS	RECOMMENDED CORRECTIVE ACTIONS
The city has reduced the area where biosolids produced by the wastewater treatment facility can be land applied.	The city needs to continue efforts to ensure adequate land is available for biosolids reuse and disposal.
The Parshall Flume is missing the gauge plate for measuring flow into the wastewater treatment facility.	We recommend that the gauge plate be replaced so the city can measure and record the influent flows. Influent records can help the city identify and correct inflow/infiltration problems in the collection system.

EFFLUENT LIMITS

A no discharge permit is issued to facilities that are not expected to discharge under normal conditions. The no discharge requirement is based on past facility performance and Best Professional Judgement (BPJ).

Outfall 001N Any discharge from the wastewater treatment plant (Latitude 43.420047°, Longitude -103.461835°, Navigational Quality GPS).

Outfall 002N Any discharge from the first emergency bypass location of the effluent pipe to the wastewater storage basins (Latitude 43.412169°, Longitude -103.446507°, map interpolation).

Outfall 003N Any discharge from the second emergency bypass location of the effluent pipe to the wastewater storage basins (Latitude 43.404696°, Longitude -103.436145°, map interpolation).

Outfall 004N Any discharge from the southwest corner of the lower wastewater storage basin (Latitude 43.395000°, Longitude -103.393526°, map interpolation).

Land Application Outfalls

Outfall 005R Land application of wastewater from the upper basin to the flood irrigation system and the flood irrigation site (Latitude 43.392777°, Longitude -103.396671°, map interpolation). **Land application of wastewater is not considered a discharge.**

Outfall 005N Any discharge of wastewater from the upper basin to the flood irrigation system and the flood irrigation site (Latitude 43.392777°, Longitude -103.396671°, map interpolation).

Outfall 006R Land application of wastewater from the lower basin to either land application system and the sprinkler land application site (Latitude

43.380742°, Longitude -103.368604°, map interpolation). **Land application of wastewater is not considered a discharge.**

Outfall 006N Any discharge of wastewater from the lower basin to either land application system and the sprinkler land application site (Latitude 43.380742°, Longitude -103.368604°, map interpolation).

Effective immediately and lasting throughout the life of this permit, the city of Hot Springs shall have **no discharge** from Outfalls 001, 002, 003, 004 and **no discharge** of land application waters from Outfalls 005 and 006 to waters of the state, except in accordance with the bypass or emergency release provisions of the permit. If a discharge occurs or is expected to occur, the permittee shall take the appropriate measures to minimize the discharge of pollutants. Such measures shall include the closing of facilities that contribute water to the land application system until the discharge is terminated. **The act of land application is not considered a discharge.**

1. The application rate at the land application site shall be controlled so as to prevent any surface runoff of the effluent. This limit is based on BPJ and the *South Dakota Recommended Design Criteria Manual for Wastewater Collection and Treatment Facilities*.
2. To prevent ground saturation and runoff, no application is permitted during periods of heavy or prolonged rainfall, snow cover, or when the ground is frozen. No land application shall take place between November 1 through March 31, unless prior approval is granted by SDDENR. This limit is based on the *South Dakota Recommended Design Criteria Manual for Wastewater Collection and Treatment Facilities* and current permit conditions.
3. The land application equipment shall, to the extent feasible, be operated in such a manner as to minimize wind drift of the effluent and formation of aerosols. This limit is based on the *South Dakota Recommended Design Criteria Manual for Wastewater Collection and Treatment Facilities*.
4. Appropriate warning signs shall be posted on the land application site to inform the public of the nature of the water. This limit is based on BPJ.
5. By **April 1, 2013**, the city shall update and submit a land application best management plan to SDDENR for approval. The land application best management plan shall be based on *South Dakota Recommended Design Criteria Manual for Wastewater Collection and Treatment Facilities*. This limit is based on BPJ and the current permit.

SELF MONITORING REQUIREMENTS

Inspection Requirements

Monitoring shall consist of **five inspections per week** of the facility to verify that proper operation and maintenance procedures are being practiced and whether or not there is a discharge occurring from this facility. The outfalls, storage basins, and discharge locations shall be inspected at least **monthly**. Land application equipment and land application sites shall be inspected at a least **weekly** while land application is occurring. The lift station shall be inspected

on at least a **weekly** basis, although **daily** inspections are recommended. Documentation of each of these visits shall be kept in a notebook to be reviewed by SDDENR or EPA personnel when an inspection occurs.

Influent Metals Monitoring

The permittee shall sample the influent wastewater to the treatment facility for the parameters in ARSD Section 74:52:02:42, plus Molybdenum. This sampling shall continue on an **annual** basis for the life of the permit. The following is a listing of required parameters:

- | | |
|--------------------------------|-------------------|
| Antimony, total | Mercury, total |
| Arsenic, total | Molybdenum, total |
| Beryllium, total | Nickel, total |
| Cadmium, total | Phenols, total |
| Chromium, total | Selenium, total |
| Copper, total | Silver, total |
| Cyanide, total | Thallium, total |
| Cyanide, weak acid dissociable | Zinc, total |
| Lead, total | |

Sampling and analytical procedures shall be conducted in accordance with the guidelines established in ARSD Section 74:52:03:06, (adopted by reference, 40 CFR 136). At least four grab samples, taken at equal intervals over a representative 24-hour period, shall be taken.

Emergency Discharge Monitoring Requirements

If a discharge is discovered, the discharge shall be monitored and the proper authorities shall be notified in accordance with the Emergency and Noncompliance Reporting requirements stated in the Surface Water Discharge permit. Upon discovery of a release, sanitary sewer overflow, runoff from land application, or other discharge, the discharge shall be monitored as shown below:

Effluent Characteristic	Frequency	Reporting Value	Sample Type ¹
Total Flow, million gallons	Each Discharge ²	Event Total	Calculated
Duration of Discharge, days	Each Discharge ²	Event Total	Calculated
Acute Whole Effluent Toxicity, TUa	Quarterly ³	Pass/ Fail; Actual Value	Grab
Flow Rate, gallons per day	Daily ⁴	Actual Value	Instantaneous
pH, standard units	Daily ⁴	Actual Value	Instantaneous ^{5,6}
Water Temperature, °C	Daily ⁴	Actual Value	Instantaneous ^{5,7}
Total Suspended Solids (TSS), mg/L	Daily ⁴	Actual Value	Grab

Effluent Characteristic	Frequency	Reporting Value	Sample Type ¹
Five-Day Biochemical Oxygen Demand (BOD ₅), mg/L	Daily ⁴	Actual Value	Grab
Ammonia as N, mg/L	Daily ⁴	Actual Value	Grab ⁵
<i>Escherichia coli</i> (<i>E. coli</i>), no./100 mL	Daily ⁴	Actual Value	Grab
Oil and Grease, (presence/absence)	Daily ⁴	Actual Value	Visual
Oil and Grease (hexane ext. method) , mg/L	Contingent ⁸	Actual Value	Grab

¹ See Definitions.

² The permittee shall report the date and time of the start and termination of each discharge, along with the total number of gallons discharged during the entire discharge event.

³ The permittee shall, at least once each calendar quarter in which a discharge is occurring, conduct an acute WET test on a sample of the discharge. If a single, continuous discharge occurs in two (2) calendar quarters and has a duration less than or equal to 90 days, only one WET test is required for that discharge. An acute WET test shall not be required for quarters in which a discharge is not occurring or for sanitary sewer overflows.

⁴ The permittee shall take a minimum of one sample per day during any emergency release, bypass, sanitary sewer overflow, or other discharge unless SDDENR authorizes an alternative sampling schedule.

⁵ The pH and temperature of the effluent shall be determined when ammonia samples are collected.

⁶ The pH shall be taken within 15 minutes of sample collection with a pH meter. The pH meter must be capable of simultaneous calibration to two points on the pH scale that bracket the expected pH and are approximately three standard units apart. The pH meter must read to 0.01 standard units and be equipped with temperature compensation adjustment. Readings shall be reported to the nearest 0.1 standard units.

⁷ The water temperature of the effluent shall be taken as a field measurement. Measurement shall be made with a mercury-filled, or dial type thermometer, or a thermistor. Readings shall be reported to the nearest whole degree Celsius.

⁸ The presence or absence of an oil sheen shall be visually monitored. In the event that an oil sheen or floating oil is observed during discharge, grab samples shall be taken immediately, analyzed and reported.

Whole Effluent Toxicity (WET) Testing

The city of Hot Springs shall test for acute toxicity according to the requirements of the proposed permit. Acute toxicity shall be tested using both *Ceriodaphnia dubia* (water flea) and *Pimephales promelas* (fathead minnow). If acute toxicity occurs, an additional test shall be conducted within 14 days of the date of when the city learned of the failed test. At least once each calendar quarter in which a discharge is occurring, the city shall conduct acute static renewal toxicity tests on a sample of the discharge. If a single, continuous discharge occurs in two (2) calendar quarters and has a duration less than or equal to 90 days, only one WET test is required for that discharge.

SDDENR is moving towards switching from a WET limit of Pass/Fail to Toxic Units (TU_a = Acute Toxic Units, TU_c = Chronic Toxic Units). One of the advantages to switching to TU's is that it will allow labs, facilities, and SDDENR to use statistics to help eliminate false negatives and false positives, providing more accurate results. Therefore, in this permit cycle, the facility will be required to report in both Pass/Fail and TU_a.

Land Application Monitoring Requirements

A minimum of one sample per month shall be taken during any month that land application is occurring. Land application rate shall be monitored weekly. Samples shall be representative of the land applied water. All samples collected during the calendar month shall be used in determining averages. The permittee also has the option of collecting additional samples if appropriate.

Effluent Characteristic	Frequency	Reporting Values¹	Sample Type¹
Rate of Land Application, MGD	Weekly	Daily Maximum; 30-Day Average	Instantaneous
Total Amount Land Applied, million gallons	Monthly	Monthly Total	Calculate
pH, standard units	Monthly ²	Daily Minimum; Daily Maximum	Instantaneous ^{3,4}
Water Temperature, °C	Monthly ²	Daily Maximum; 30-Day Average	Instantaneous ^{3,5}
Fecal Coliform, no./100 mL ⁶	Monthly ²	Daily Maximum; 30-Day Geometric Mean	Grab
Sodium Absorption Ratio (SAR) ⁷	Monthly ²	Daily Maximum; 30-Day Average	Grab
Conductivity, µmhos/cm	Monthly ²	Daily Maximum; 30-Day Average	Grab
Total Kjeldahl Nitrogen, mg/L	Monthly ²	Daily Maximum; 30-Day Average	Grab
Ammonia-Nitrogen (as N), mg/L	Monthly ²	Daily Maximum; 30-Day Average	Grab
Total Nitrates (as N), mg/L	Monthly ²	Daily Maximum; 30-Day Average	Grab
Total Nitrites (as N), mg/L	Monthly ²	Daily Maximum; 30-Day Average	Grab
Total Sulfates, mg/L	Monthly ²	Daily Maximum; 30-Day Average	Grab
Total Chlorides, mg/L	Monthly ²	Daily Maximum; 30-Day Average	Grab

Effluent Characteristic	Frequency	Reporting Values ¹	Sample Type ¹
Total Phosphorous (as P), mg/L	Monthly ²	Daily Maximum; 30-Day Average	Grab
Total Dissolved Solids (TDS), mg/L	Monthly ²	Daily Maximum; 30-Day Average	Grab

¹ See Definitions.

² A minimum of one sample per month shall be taken for the duration of land application activities. Samples shall be taken from the irrigation wetwell and shall be representative of the land applied water. The permittee always has the option of collecting additional samples if appropriate.

³ The pH and temperature of the effluent shall be determined when ammonia samples are collected.

⁴ The pH shall be taken within 15 minutes of sample collection with a pH meter. The pH meter must be capable of simultaneous calibration to two points on the pH scale that bracket the expected pH and are approximately three standard units apart. The pH meter must read to 0.01 standard units and be equipped with temperature compensation adjustment. Readings shall be reported to the nearest 0.1 standard units.

⁵ The water temperature of the effluent shall be taken as a field measurement. Measurement shall be made with a mercury-filled, or dial type thermometer, or a thermistor. Readings shall be reported to the nearest whole degree Celsius.

⁶ For fecal coliform, if a minimum of five samples are collected in a calendar month, all of the samples collected are to be used in determining the geometric mean. Samples are to be collected at the same time as BOD₅, TSS, etc. Additional samples are to be collected during any other separate 24-hour periods. If less than five samples are taken during any calendar month, the maximum limit still applies.

⁷ The sodium absorption ratio is calculated using the Gapon equation:
$$SAR = \frac{Na}{\sqrt{\frac{(Ca + Mg)}{2}}}$$

Reporting of Monitoring Results

On October 19, 2011, the city of Hot Springs was approved to electronically submit their Discharge Monitoring Report (DMR) Forms via NetDMR. Land application monitoring results obtained during the previous month shall be summarized on separate Discharge Monitoring Report (DMR) Forms (Outfalls 005R and 006R), submitted on a **monthly** basis through an approved electronic reporting system by the **28th** day of the month following the end of the reporting period. If no land application occurs during the reporting period, “Not Required”¹ shall be reported on the DMR.

¹ In the electronic reporting system, “Not Required” is reported as “NODI 9”.

Influent metals monitoring results obtained during the annual reporting period shall be summarized and reported on a separate DMR form, submitted and submitted no later than the **28th** day of the month following the end of the reporting period.

In the case of a release from outfalls 001N, 002N, 003N, 004N, 005N, 006N; sanitary sewer overflow (SSO); upset; or other discharge, results of the required analyses shall be summarized and reported on a photocopy of the **Emergency, SSO, Upset, or Unauthorized Release**

Reporting Form located at the end of the permit. The form shall be submitted no later than the **28th** day of the month following the release.

LAND APPLICATION BEST MANAGEMENT PRACTICES PLAN

By **April 1, 2013**, the city shall submit to SDDENR for review and approval an updated Best Management Practices plan for land application. The department shall be kept informed of the land application sites, the proposed time frame of use, and shall be notified at least 30 days in advance of any changes. The plan must be updated to include all site changes and address nutrient application rates.

SLUDGE

SDDENR has issued the city of Hot Springs an individual Biosolids Management permit (SDL022918). Therefore, the proposed Surface Water Discharge permit shall not contain sludge disposal requirements.

DRAINAGE ISSUES

Fall River County has the authority to regulate drainage. The city of Hot Springs is responsible for getting any necessary drainage permits from the county **prior** to discharging.

ENDANGERED SPECIES

This is a renewal of an existing permit. No listed endangered species are expected to be impacted by activities related to this permit. Fall River County does not have endangered species present within the county. This information was accessible at the following US Fish and Wildlife Service website as of November 14, 2012:

<http://www.fws.gov/southdakotafieldoffice/SpeciesByCounty.pdf>.

PERMIT EXPIRATION

A five-year permit is recommended.

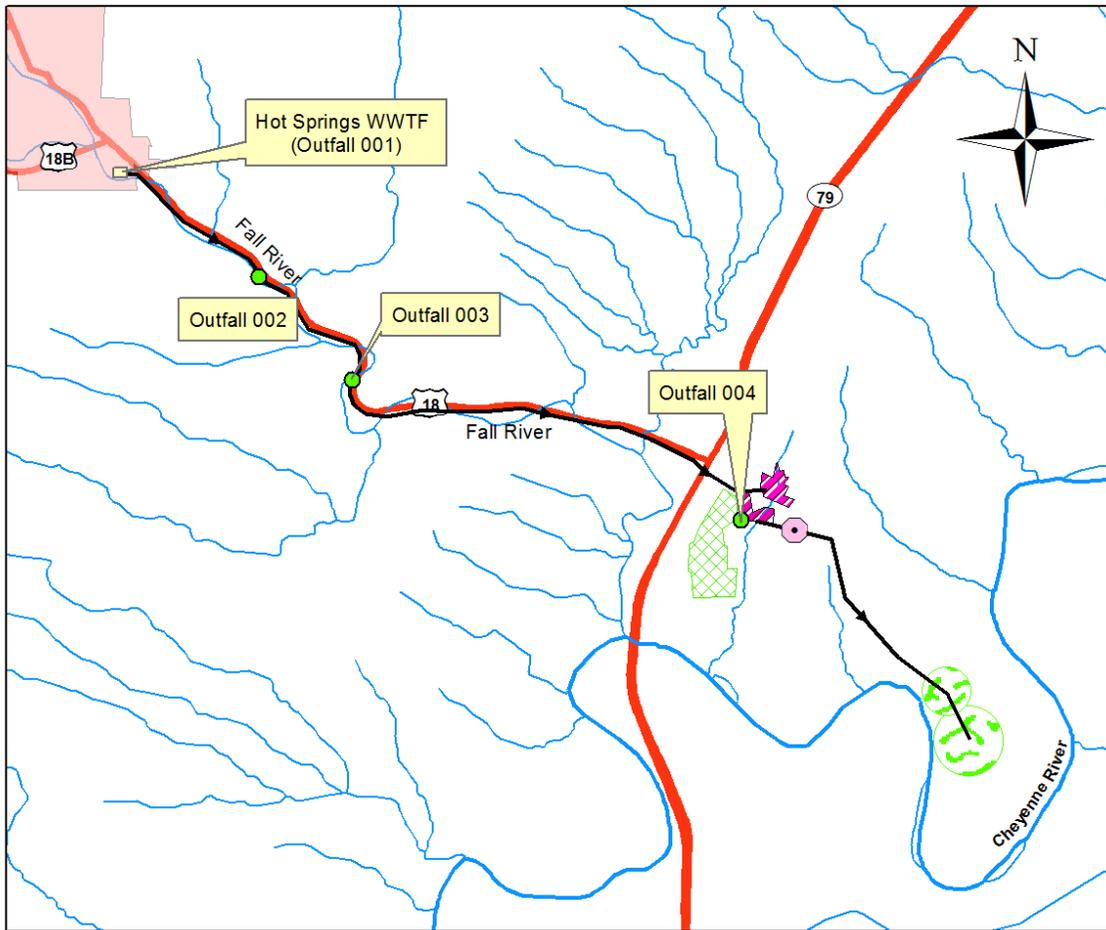
PERMIT CONTACT

Any questions pertaining to this statement of basis can be directed to Tina Piroutek, Engineer II for the Surface Water Quality Program, at (605) 773-3351.

November 14, 2012

ATTACHMENT 1

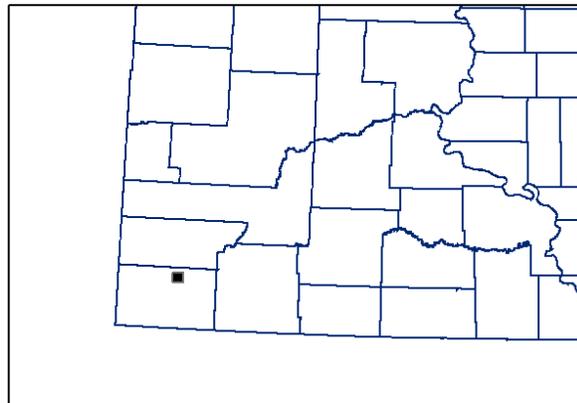
Hot Springs Facility



0 0.5 1 2 Miles

Legend

- Effluent Pipe
- ▨ Storage Basins
- ▧ Flood Irrigation Site (Outfall 005)
- ▩ Spray Land Application Site (Outfall 006)
- Effluent Pipe Outfalls
- Storage Tank
- Hot Springs
- Rivers and Streams
- Highways



ATTACHMENT 2

Antidegradation Review

Permit Type: Minor Municipal - Renewal Applicant: City of Hot Springs
Date Received: August 20, 2009 Permit #: SD0022918
County: Fall River Legal Description: SE ¼ SE ¼ Sec 24, T7S, R5E
Receiving Stream: Fall River Classification: 3 or 4, 8, 9, 10
If the discharge affects a downstream waterbody with a higher use classification, list its name and uses: Cheyenne River (5, 7, 8, 9, 10)

APPLICABILITY

1. Is the permit or the stream segment exempt from the antidegradation review process under ARSD 74:51:01? Yes No If no, go to question #2. If yes, check those reasons why the review is not required:
- Existing facility covered under a surface water discharge permit is operating at or below design flows and pollutant loadings;
 - *Existing effluent quality from a surface water discharge permitted facility is in compliance with all discharge permit limits;
 - *Existing surface water discharge permittee was discharging to the current stream segment prior to March 27, 1973, and the quality and quantity of the discharge has not degraded the water quality of that segment as it existed on March 27, 1973;
 - *The existing surface water discharge permittee, with DENR approval, has upgraded or built new wastewater treatment facilities between March 27, 1973, and July 1, 1988;
 - The existing surface water discharge permittee discharges to a receiving water assigned only the beneficial uses of (9) and (10); the discharge is not expected to contain toxic pollutants in concentrations that may cause an impact to the receiving stream; and DENR has documented that the stream cannot attain a higher use classification. This exemption does not apply to discharges that may cause impacts to downstream segments that are of higher quality;
 - Receiving water meets Tier 1 waters criteria. Any permitted discharge must meet water quality standards;
 - The permitted discharge will be authorized by a Section 404 Corps of Engineers Permit, will undergo a similar review process in the issuance of that permit, and will be issued a 401 certification by the department, indicating compliance with the state's antidegradation provisions; or
 - Other: This permit does not authorize a discharge, except in accordance with the emergency release or bypass provisions.

*An antidegradation review is not required where the proposal is to maintain or improve the existing effluent levels and conditions. Proposals for increased effluent levels, in these categories of activities are subject to review.

No further review required.

ANTIDegradation REVIEW SUMMARY

2. The outcome of the review is:
- A formal antidegradation review was not required for reasons stated in this worksheet. Any permitted discharge must ensure water quality standards will not be violated.
 - The review has determined that degradation of water quality should not be allowed. Any permitted discharge would have to meet effluent limits or conditions that would not result in any degradation estimated through appropriate modeling techniques based on ambient water quality in the receiving stream, or pursue an alternative to discharging to the waterbody.
 - The review has determined that the discharge will cause an insignificant change in water quality in the receiving stream. The appropriate agency may proceed with permit issuance with the appropriate conditions to ensure water quality standards are met.
 - The review has determined, with public input, that the permitted discharge is allowed to discharge effluent at concentrations determined through a total maximum daily load (TMDL). The TMDL will determine the appropriate effluent limits based on the upstream ambient water quality and the water quality standard(s) of the receiving stream.
 - The review has determined that the discharge is allowed. However, the full assimilative capacity of the receiving stream cannot be used in developing the permit effluent limits or conditions. In this case, a TMDL must be completed based on the upstream ambient water quality and the assimilative capacity allowed by the antidegradation review.
 - Other: _____

3. Describe any other requirements to implement antidegradation or any special conditions That are required as a result of this antidegradation review: _____

Tina Piroutek
Reviewer

November 14, 2012
Date

Kelli D. Buscher, P.E.
Team Leader

November 14, 2012
Date

ATTACHMENT 3

Monitoring Data

Emergency Discharge Results – Outfall 001

	BOD ₅	Total Residual Chlorine	Fecal Coliform	Duration of discharge	Flow rate	Total Flow	Ammonia	Acute WET Pimephales Promelas	Acute WET Ceriodaphnia	pH		TSS	Temperature
	Daily Max	Daily Max	Daily Max	Monthly Total	Daily Max	Monthly Total	Daily Max	Daily Max	Daily Max	Daily Min	Daily Max	Daily Max	Daily Max
Limit	N/A mg/L	N/A mg/L	N/A #/100mL	N/A days	N/A MGD	N/A Mgal	N/A mg/L	pass/fail	pass/fail	N/A SU	N/A SU	N/A mg/L	N/A °C
05/31/2010	60	NR	20,000	0.06	0.13	0.01	22	pass	pass	7.3	7.3	104	14.8

Emergency Discharge Results –Outfall 002

	BOD ₅	Total Residual Chlorine	Fecal Coliform	Duration of discharge	Flow rate	Total Flow	Ammonia	Acute WET Pimephales Promelas	Acute WET Ceriodaphnia	pH		TSS	Temperature
	Daily Max	Daily Max	Daily Max	Monthly Total	Daily Max	Monthly Total	Daily Max	Daily Max	Daily Max	Daily Min	Daily Max	Daily Max	Daily Max
Limit	N/A mg/L	N/A mg/L	N/A #/100mL	N/A days	N/A MGD	N/A Mgal	N/A mg/L	pass/fail	pass/fail	N/A SU	N/A SU	N/A mg/L	N/A °C
06/30/2010	21	NR	300,000	1	0.25	0.05	21	NR	NR	7.6	7.6	22	24
07/31/2010	29	NR	100,000	0.03	0.16	0.15	18	NR	NR	7.5	7.5	41	23

Influent Metals Monitoring-Outfall 001

	Arsenic, total (as As)	Antimony, total (as Sb)	Beryllium, total (as Be)	Cadmium, total (as Cd)	Chromium, total (as Cr)	Copper, total (as Cu)	Cyanide, total (as CN)	Cyanide, weak acid, dissociable
	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max
Limit	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L
03/31/2006	0.01	BD	BD	BD	BD	0.08	BD	BD
03/31/2007	BD	BD	BD	BD	BD	0.14	BD	BD
03/31/2008	BD	BD	BD	BD	BD	0.07	BD	BD
03/31/2009	BD	BD	BD	BD	BD	0.1	BD	BD
03/31/2010	BD	BD	BD	BD	BD	0.12	BD	BD
03/31/2011	BD	BD	BD	BD	BD	0.12	BD	BD

	Lead, total (as Pb)	Mercury, total (as Hg)	Molybdenum, total (as Mo)	Nickel, total (as Ni)	Phenols	Selenium, total (as Se)	Silver, total (as Ag)	Thallium, total (as Tl)	Zinc, total (as Zn)
	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max
Limit	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L
03/31/2006	0.01	BD	0.01	BD	0.08	0	BD	BD	0.12
03/31/2007	BD	BD	BD	BD	0.13	BD	BD	BD	0.15
03/31/2008	BD	BD	0.01	BD	0.13	BD	BD	BD	0.01
03/31/2009	BD	0	0.01	BD	0.03	BD	BD	BD	0.14
03/31/2010	BD	BD	0.01	BD	0.09	BD	BD	BD	0.13
03/31/2011	BD	BD	0.01	BD	0.08	BD	BD	BD	0.14

BD is Below Detection. Pollutant concentrations were too small to be measured.

NR is Not Required. No sample was required for this parameter during the monitoring period.

NS is No Sample. No sample is available for this parameter.

Land Application – Outfall 005

Limit	Chloride (as Cl)		Fecal Coliform	Conductivity		Flow	Flow rate	pH	
	30-Day Avg.	Daily Max	Daily Max	30-Day Avg.	Daily Max	Monthly Total	30-Day Avg.	Daily Min	Daily Max
	N/A mg/L	N/A mg/L	N/A #/100mL	N/A umho/cm	N/A umho/cm	N/A Mgal	N/A MGD	N/A SU	N/A SU
04/30/2005	369	369	NS	NS	NS	5.01	0.5	8.1	8.1
05/31/2005	358	358	NS	NS	NS	9.52	0.31	8.1	8.1
06/30/2005	349	349	130	2,100	2,100	0	0	8.2	8.2
07/31/2005	348	348	52	2,090	2,090	25.19	1.26	8.3	8.3
08/31/2005	378	378	4	2,220	2,220	22	0.71	8.3	8.3
09/30/2005	362	362	72	2,230	2,230	19.19	0.63	7.8	7.8
05/31/2006	363	363	42	2,220	2,220	19.26	0.62	7.9	7.9
06/30/2006	391	391	66	2,340	2,340	12	1	8.3	8.3
07/31/2006	366	366	260	2,310	2,310	15	2.14	7.96	7.96
08/31/2006	384	384	720,000	2,130	2,130	12	0.64	8.01	8.01
09/30/2006	374	374	720,000	2,100	2,100	10	1.67	8.4	8.4
05/31/2007	464	464	30	2,440	2,440	19.45	2.16	7.8	7.8
06/30/2007	310	310	70	2,210	2,210	12.5	2.08	8.3	8.3
07/31/2007	332	332	200	2,270	2,270	17	1.88	7.9	7.9
08/31/2007	323	323	420	2,060	2,060	15	1.36	7.9	7.9
09/30/2007	346	346	96	2,080	2,080	8.6	1.72	8.2	8.2
05/31/2008	351	351	8	2,450	2,450	13.7	1.52	7.8	7.8
06/30/2008	378	378	180	2,730	2,730	12	0.92	8.1	8.1
07/31/2008	418	418	6	2,350	2,350	34.03	1.7	7.9	7.9
08/31/2008	436	436	50	1,910	1,910	28.77	0.96	8	8
09/30/2008	146	146	210	2,730	2,730	15	1.36	8.5	8.5
04/30/2009	393	393	260	2,140	2,140	0	0	8.5	8.5
05/31/2009	385	385	2	2,250	2,250	20.75	1.48	7.8	7.8
06/30/2009	374	374	160	2,010	2,010	3.91	1.3	7.9	7.9
07/31/2009	431	431	450	2,060	2,060	15.51	1.1	8	8
08/31/2009	430	430	1,600	2,240	2,240	14.36	1.1	7.7	7.7
09/30/2009	392	392	4,800	2,470	2,470	9.17	1.31	8.9	8.9
10/31/2009	397	397	2,300	2,100	2,100	3.22	1.61	7.9	7.9
04/30/2010	367	367	11,000	2,130	2,130	0	0	8.2	8.2
05/31/2010	352	352	1,300	2,150	2,150	3.27	1.64	7.7	7.7
06/30/2010	349	349	80	2,090	2,090	0.9	0.9	7.9	7.9
07/31/2010	312	312	170	2,040	2,040	29.26	1.95	8.1	8.1
08/31/2010	360	360	2,600	2,140	2,140	39.14	1.63	8.3	8.3
09/30/2010	342	342	930	2,170	2,170	5.93	1.48	9	9
10/31/2010	432	432	820	2,260	2,260	9.3	1.55	7.9	7.9
05/31/2011	419	419	800	2,360	2,360	7.76	0.97	7.8	7.8
06/30/2011	369	369	92	2,420	2,420	14.63	1.46	8	8
07/31/2011	384	384	290	2,430	2,430	37.26	1.62	8	8
08/31/2011	429	429	118,800	2,280	2,280	26.23	1.09	7.7	7.7
09/30/2011	434	434	400,000	2,450	2,450	1.23	0.62	7.9	7.9

	Duration of Land Application	Ammonia (as N)		Total Kjeldahl Nitrogen		Total Nitrate (as N)		Total Nitrite (as N)	
	Monthly Total	30-Day Avg.	Daily Max	30-Day Avg.	Daily Max	30-Day Avg.	Daily Max	30-Day Avg.	Daily Max
Limit	N/A days	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L
04/30/2005	10	23	23	23	23	BD	BD	0.51	0.51
05/31/2005	31	24	24	50	50	BD	BD	BD	BD
06/30/2005	0	28	28	18	18	0.14	0.14	BD	BD
07/31/2005	20	19	19	19	19	0.26	0.26	1.8	1.8
08/31/2005	23	16	16	17	17	0.33	0.33	1.6	1.6
09/30/2005	25	18	18	19	19	0.18	0.18	16	16
05/31/2006	10	20	20	21	21	0.34	0.34	2.8	2.8
06/30/2006	12	21	21	23	23	0.16	0.16	2	2
07/31/2006	7	19	19	21	21	0.16	0.16	BD	BD
08/31/2006	8	33	33	33	33	BD	BD	BD	BD
09/30/2006	6	21	21	29	29	0.16	0.16	BD	BD
05/31/2007	9	18	18	19	19	BD	BD	BD	BD
06/30/2007	6	17	17	17	17	0.64	0.64	BD	BD
07/31/2007	9	17	17	19	19	0.2	0.2	BD	BD
08/31/2007	11	13	13	14	14	0.2	0.2	BD	BD
09/30/2007	5	11	11	12	12	0.5	0.5	BD	BD
05/31/2008	9	17	17	7.1	7.1	1.7	1.7	0.6	0.6
06/30/2008	13	16	16	15	15	1.5	1.5	0.6	0.6
07/31/2008	20	15	15	15	15	1.5	1.5	1.1	1.1
08/31/2008	17	9.5	9.5	7.6	7.6	1.4	1.4	1	1
09/30/2008	11	7	7	8.8	8.8	2.3	2.3	0.5	0.5
04/30/2009	0	18	18	18	18	0.3	0.3	BD	BD
05/31/2009	14	17	17	17	17	0.3	0.3	0.1	0.1
06/30/2009	3	20	20	21	21	0.3	0.3	0.2	0.2
07/31/2009	14	14	14	14	14	2.7	2.7	1.4	1.4
08/31/2009	13	2.3	2.3	239	239	3.4	3.4	1.2	1.2
09/30/2009	7	3.6	3.6	8.7	8.7	1.7	1.7	1.3	1.3
10/31/2009	2	4.6	4.6	7.4	7.4	1.9	1.9	1.1	1.1
04/30/2010	0	20	20	23	23	0.7	0.7	BD	BD
05/31/2010	2	18	18	20	20	0.4	0.4	BD	BD
06/30/2010	1	18	18	19	19	1	1	0.7	0.7
07/31/2010	15	14	14	13	13	0.9	0.9	0.8	0.8
08/31/2010	24	8.8	8.8	97.1	97.1	0.7	0.7	0.6	0.6
09/30/2010	4	1.9	1.9	7.5	7.5	1.4	1.4	0.9	0.9
10/31/2010	6	19.2	19.2	17.8	17.8	0.5	0.5	0.3	0.3
05/31/2011	8	24	24	26	26	0.3	0.3	BD	BD
06/30/2011	10	19	19	23	23	0.3	0.3	0.4	0.4
07/31/2011	23	15	15	18	18	0.5	0.5	0.5	0.5
08/31/2011	24	21	21	27	27	BD	BD	BD	BD
09/30/2011	2	26	26	28	28	BD	BD	BD	BD

Limit	Total Phosphorous (as P)		Sodium adsorption ratio	Total Dissolved Solids		Totals Sulfates (as SO ₄)		Temperature	
	30-Day Avg.	Daily Max	Daily Max	30-Day Avg.	Daily Max	30-Day Avg.	Daily Max	30-Day Avg.	Daily Max
	N/A mg/L	N/A mg/L	N/A Ratio	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L	N/A °C	N/A °C
04/30/2005	4	4	4.5	NS	NS	301	301	13	13
05/31/2005	3.7	3.7	4.8	NS	NS	302	302	19	19
06/30/2005	5.6	5.6	4.9	1,300	1,300	293	293	17	17
07/31/2005	3	3	4.6	1,300	1,300	308	308	23.5	23.5
08/31/2005	2.3	2.3	4.6	1,400	1,400	338	338	25	25
09/30/2005	2.4	2.4	4.4	1,300	1,300	349	349	20	20
05/31/2006	3.1	3.1	4.7	1,300	1,300	306	306	23	23
06/30/2006	2.9	2.9	4.9	1,400	1,400	314	314	24	24
07/31/2006	2.4	2.4	4.8	1,400	1,400	325	325	25.3	25.3
08/31/2006	4.5	4.5	4.5	1,300	1,300	244	244	18.7	18.7
09/30/2006	3.3	3.3	4.5	1,400	1,400	350	350	19	19
05/31/2007	3.5	3.5	4.9	1,500	1,500	411	411	19	19
06/30/2007	3	3	5	1,300	1,300	294	294	23	23
07/31/2007	2.9	2.9	4.7	1,300	1,300	359	359	23	23
08/31/2007	2.5	2.5	4.5	1,300	1,300	322	322	23	23
09/30/2007	1.8	1.8	4.8	1,300	1,300	347	347	18	18
05/31/2008	3.8	3.8	5.1	1,400	1,400	315	315	17.5	17.5
06/30/2008	2.3	2.3	5.1	1,500	1,500	271	271	17	17
07/31/2008	2.9	2.9	5.2	1,400	1,400	310	310	25.5	25.5
08/31/2008	2.6	2.6	5.4	140	1,400	313	313	25	25
09/30/2008	2.2	2.2	5.6	1,400	1,400	310	310	19.8	19.8
04/30/2009	3.5	3.5	5.2	1,300	1,300	296	296	11	11
05/31/2009	4	4	4.9	1,300	1,300	314	314	16.5	16.5
06/30/2009	4	4	5.3	1,300	1,300	316	316	16.5	16.5
07/31/2009	3	3	4.9	1,400	1,400	295	295	27.2	27.2
08/31/2009	23	23	5.7	1,400	1,400	341	341	22.8	22.8
09/30/2009	2.3	2.3	5.8	1,300	1,300	283	283	20.5	20.5
10/31/2009	2.7	2.7	5.4	1,300	1,300	331	331	15.5	15.5
04/30/2010	3.8	3.8	5.2	1,300	1,300	267	267	13.8	13.8
05/31/2010	3.6	3.6	5.3	1,400	1,400	265	265	17	17
06/30/2010	3.6	3.6	4.7	1,200	1,200	315	315	18	18
07/31/2010	2.4	2.4	4.3	1,300	1,300	377	377	26.5	26.5
08/31/2010	9.2	9.2	4.2	1,600	1,600	428	428	22.8	22.8
09/30/2010	2	2	4.2	1,400	1,400	407	407	17	17
10/31/2010	3.6	3.6	4.9	1,600	1,600	498	498	13	13
05/31/2011	3.9	3.9	5	1,500	1,500	347	347	14	14
06/30/2011	3.1	3.1	4.8	1,700	1,700	356	356	22.5	22.5
07/31/2011	3.4	3.4	5.2	1,500	1,500	362	362	22	22
08/31/2011	3.9	3.9	5.3	1,500	1,500	293	293	23	23
09/30/2011	3.4	3.4	5.4	1,500	1,500	280	280	18	18

Land Application – Outfall 006

DMR	Chloride (as Cl)		Fecal Coliform	Conductivity		Flow	Flow rate	pH	
	30-Day Avg.	Daily Max	Daily Max	30-Day Avg.	Daily Max	Monthly Total	30-Day Avg.	Daily Min	Daily Max
	N/A mg/L	N/A mg/L	N/A #/100mL	N/A umho/cm	N/A umho/cm	N/A Mgal	N/A MGD	N/A SU	N/A SU
04/30/2005	386	386	NS	NS	NS	5.01	0.43	8.1	8.1
05/31/2005	384	384	NS	NS	NS	9.52	0.31	NS	8.4
06/30/2005	375	375	88	2,420	2,420	0	0	8.7	8.7
07/31/2005	390	390	16	2,450	2,450	20	1	8.9	8.9
08/31/2005	425	425	330	2,250	2,250	16.11	0.52	8.5	8.5
09/30/2005	391	391	30	2,230	2,230	0.46	0.46	8.4	8.4
05/31/2006	364	364	16	2,320	2,320	19.26	0.62	8	8
06/30/2006	382	382	10	2,480	2,480	14.38	0.8	8.5	8.5
07/31/2006	414	414	2	2,630	2,630	14.15	2.02	8.96	8.96
08/31/2006	405	405	4,700	2,170	2,170	8.92	1.5	8.88	8.88
09/30/2006	460	460	700	1,940	1,940	8.14	1.02	8.76	8.76
05/31/2007	404	404	4	2,090	2,090	10.3	1.14	8	8
06/30/2007	467	467	70	2,640	2,640	16.04	0.67	8.6	8.6
07/31/2007	523	523	460	2,220	2,220	18.7	0.81	9.1	9.1
08/31/2007	321	321	1,300	2,080	2,080	16.9	0.94	8.9	8.9
09/30/2007	419	419	28	2,380	2,380	10	1.25	7.9	7.9
05/31/2008	346	346	34	2,660	2,660	14	1	8.1	8.1
06/30/2008	382	382	4	2,650	2,650	14.13	0.54	8.1	8.1
07/31/2008	391	391	26	2,510	2,510	24.5	1.02	8.4	8.4
08/31/2008	413	413	2	2,130	2,130	12.37	0.62	9	9
09/30/2008	428	428	BD	2,650	2,650	14.01	0.88	9.6	9.6
05/31/2009	353	353	4	2,350	2,350	14.1	1.01	8.2	8.2
06/30/2009	408	408	14	2,390	2,390	7.33	0.73	8	8
07/31/2009	543	54	3,400	2,510	2,510	14.8	0.99	8.8	8.8
08/31/2009	406	406	730	2,090	2,090	15.87	0.99	8.7	8.7
09/30/2009	463	463	40	2,030	2,030	8.6	0.61	9.4	9.4
10/31/2009	388	388	210	2,690	2,690	0.79	0.79	7.6	7.6
04/30/2010	389	389	BD	2,210	2,210	0	0	8.8	8.8
05/31/2010	381	381	BD	2,360	2,360	0	0	8	8
06/30/2010	377	377	8	2,320	2,320	2.16	0.54	8.1	8.1
07/31/2010	367	367	6	2,240	2,240	17.25	1.08	8.8	8.8
08/31/2010	434	434	2	2,240	2,240	17.41	0.65	9.8	9.8
09/30/2010	363	363	26	2,260	2,260	6.6	0.83	9.3	9.3
10/31/2010	429	429	6	2,200	2,200	6.67	0.83	8.7	8.7
05/31/2011	404	404	58	2,390	2,390	7.5	0.63	8.5	8.5
06/30/2011	355	355	18	2,430	2,430	5.6	0.8	8.3	8.3
07/31/2011	385	385	4	2,470	2,470	21.2	1.16	8.4	8.4
08/31/2011	427	427	120	2,530	2,530	19.17	0.71	9.6	9.6
09/30/2011	496	496	4,000	2,760	2,760	11	0.92	8.5	8.5

	Duration of Land Application	Ammonia (as N)		Total Kjeldahl Nitrogen		Total Nitrate (as N)		Total Nitrite (as N)	
	Monthly Total	30-Day Avg.	Daily Max	30-Day Avg.	Daily Max	30-Day Avg.	Daily Max	30-Day Avg.	Daily Max
Limit	N/A days	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L
04/30/2005	10	18	18	18	18	0.15	0.15	0.31	0.31
05/31/2005	NS	14	14	31	31	BD	BD	BD	BD
06/30/2005	NS	11	11	11	11	0.25	0.25	11	11
07/31/2005	20	0.5	0.5	2.6	2.6	1.8	1.8	0.79	0.79
08/31/2005	24	8.4	8.4	9.3	9.3	0.23	0.23	BD	BD
09/30/2005	29	12	12	15	15	BD	BD	20	20
05/31/2006	13	13	13	15	15	0.36	0.36	3.2	3.2
06/30/2006	18	9.6	9.6	11	11	1	1	4	4
07/31/2006	7	0.3	0.3	2.9	2.9	1.2	1.2	BD	BD
08/31/2006	14	8.3	8.3	16	16	0.14	0.14	BD	BD
09/30/2006	8	1.1	1.1	6.3	6.3	0.13	0.13	BD	BD
05/31/2007	9	14	14	17	17	0.18	0.18	BD	BD
06/30/2007	24	10	10	12	12	0.3	0.3	BD	BD
07/31/2007	23	20	20	13	13	0.27	0.27	BD	BD
08/31/2007	18	10	10	11	11	0.3	0.3	BD	BD
09/30/2007	8	5	5	7.5	7.5	BD	BD	BD	BD
05/31/2008	14	6.3	6.3	8.6	8.6	1.7	1.7	1	1
06/30/2008	26	3.6	3.6	7.9	7.9	1.8	1.8	0.9	0.9
07/31/2008	24	0.6	0.6	2.6	2.6	0.8	0.8	0.3	0.3
08/31/2008	20	0.4	0.4	4	4	0.1	0.1	0.2	0.2
09/30/2008	16	BD	BD	4	4	0.9	0.9	0.3	0.3
05/31/2009	14	11	11	8.4	8.4	0.1	0.1	0.4	0.4
06/30/2009	10	9.2	9.2	9.7	9.7	0.6	0.6	0.5	0.5
07/31/2009	15	1.4	1.4	6.9	6.9	0.3	0.3	BD	BD
08/31/2009	16	2	2	5.1	5.1	2.8	2.8	0.4	0.4
09/30/2009	14	0.1	0.1	3.2	3.2	0.1	0.1	BD	BD
10/31/2009	1	7.7	7.7	9.8	9.8	0.1	0.1	BD	BD
04/30/2010	0	12	12	16	16	0.6	0.6	BD	BD
05/31/2010	0	14	14	8.3	8.3	0.3	0.3	BD	BD
06/30/2010	4	9.9	9.9	10	10	0.8	0.8	0.8	0.8
07/31/2010	16	BD	BD	1.8	1.8	3.4	3.4	0.6	0.6
08/31/2010	27	BD	BD	3.8	3.8	BD	BD	BD	BD
09/30/2010	8	0.12	0.12	5.1	5.1	0.7	0.7	0.6	0.6
10/31/2010	8	1.34	1.34	3.1	3.1	BD	BD	BD	BD
05/31/2011	12	13	13	14	14	0.6	0.6	BD	BD
06/30/2011	7	6.5	6.5	8	8	1.2	1.2	0.8	0.8
07/31/2011	19	2.3	2.3	3.9	3.9	1.9	1.9	0.9	0.9
08/31/2011	27	BD	BD	4.4	4.4	BD	BD	BD	BD
09/30/2011	12	6.8	6.8	22	22	BD	BD	BD	BD

	Total Phosphorous (as P)		Sodium adsorption ratio	Total Dissolved Solids		Total Sulfate (as SO ₄)		Temperature	
	30-Day Avg.	Daily Max	Daily Max	30-Day Avg.	Daily Max	30-Day Avg.	Daily Max	30-Day Avg.	Daily Max
Limit	N/A mg/L	N/A mg/L	N/A Ratio	N/A mg/L	N/A mg/L	N/A mg/L	N/A mg/L	N/A °C	N/A °C
04/30/2005	2.8	2.8	4.8	NS	NS	478	478	12.6	12.6
05/31/2005	1.8	1.8	4.8	NS	NS	528	528	18	18
06/30/2005	1.2	1.2	4.9	1,700	1,700	553	553	17	17
07/31/2005	0.64	0.64	5.2	1,800	1,800	635	635	23.5	23.5
08/31/2005	2	2	5	1,400	1,400	375	375	24	24
09/30/2005	0.4	1.4	4.4	1,500	1,500	401	401	20	20
05/31/2006	2.1	2.1	5	1,500	1,500	423	423	23	23
06/30/2006	1.8	1.8	4.9	1,600	1,600	427	427	23	23
07/31/2006	0.8	0.8	5.6	1,700	1,700	511	511	24.8	24.8
08/31/2006	2.6	2.6	5.3	1,400	1,400	290	290	20	20
09/30/2006	1.7	1.7	6.4	1,300	130	277	277	18.3	18.3
05/31/2007	2.4	2.4	5.1	1,300	1,300	276	276	19	19
06/30/2007	1.3	1.3	5.4	1,700	1,700	476	476	24	24
07/31/2007	1.6	1.6	5.1	1,400	1,400	391	391	22	22
08/31/2007	2.1	2.1	4.3	1,300	1,300	386	386	24	24
09/30/2007	1	1	5.7	1,500	1,500	378	378	16	16
05/31/2008	2.2	2.2	5	1,500	1,500	411	411	18	18
06/30/2008	1.9	1.9	4.6	1,700	1,700	403	403	17.5	17.5
07/31/2008	1	1	4.7	1,700	1,700	467	467	25	25
08/31/2008	0.93	0.93	5.3	1,700	1,700	532	532	24	24
09/30/2008	0.48	0.48	5.7	1,500	1,500	457	457	18.8	18.8
05/31/2009	2.3	2.3	5.2	1,400	1,400	337	337	16.5	16.5
06/30/2009	2	2	5.4	1,500	1,500	393	393	16.3	16.3
07/31/2009	2.9	2.9	6.2	1,600	1,600	405	405	30.5	30.5
08/31/2009	1.4	1.4	6.1	1,500	1,500	372	372	22.1	22.1
09/30/2009	0.61	0.61	6.7	1,600	1,600	381	381	19	19
10/31/2009	0.31	0.31	4.8	2,100	2,100	804	804	3.5	3.5
04/30/2010	2.4	2.4	5.3	1,500	1,500	349	349	13.6	13.6
05/31/2010	2.4	2.4	5.5	1,400	1,400	386	386	16.6	16.6
06/30/2010	2.6	2.6	4.9	1,400	1,400	409	409	17.8	17.8
07/31/2010	1.3	1.3	5.1	1,500	1,500	434	434	26.8	26.8
08/31/2010	0.98	0.98	5.8	1,600	1,600	501	501	22.8	22.8
09/30/2010	1.3	1.3	4.4	1,500	1,500	463	463	17	17
10/31/2010	0.8	0.8	5	1,600	1,600	580	580	12	12
05/31/2011	1.6	1.6	4.7	1,600	1,600	462	462	13	13
06/30/2011	1.4	1.4	4.5	1,400	1,400	480	480	22.2	22.2
07/31/2011	1.6	1.6	4.9	1,600	1,600	512	512	27	27
08/31/2011	1	1	5.3	1,700	1,700	565	565	23	23
09/30/2011	3.1	3.1	6.1	1,800	1,800	481	481	10	10