STATEMENT OF BASIS

Applicant:	City of Clark
Permit Number:	SDL021539
Contact Person:	Larry Dreher, Mayor Darin Altfillisch, Wastewater Superintendent 120 North Commercial Street Clark, SD 57225-1524
Phone:	(605) 532-3512
Permit Type:	Biosolids Management Permit – Renewal

DESCRIPTION OF OPERATIONS

The city of Clark operates a wastewater treatment facility located east of the city in the Southeast ¼ of the Northwest ¼ of Section 7, Township 116 North, Range 57 West, in Clark County, South Dakota (Latitude 44.872411°, Longitude -97.725674°, Navigational Quality GPS).

The wastewater treatment facility consists of a gravity flow collection system aided by three area lift stations and a main lift station, with an average design flow of 0.25 million gallons per day (MGD). Wastewater flows through a comminutor and Parshall Flume before the main lift station pumps it to the oxidation ditch. Wastewater from the oxidation ditch enters the clarifier before being discharged through a three-quarter mile discharge line to the receiving stream.

This wastewater treatment facility serves a population of 1,139 persons (2010 census), with no known industrial users contributing flow to the system.

DESCRIPTION OF BIOLSOLIDS TREATMENT AND DISPOSAL

Solids from the clarifier are either returned to the oxidation ditch or are pumped to the sludge holding tank. The city land applies sludge from the sludge holding tanks to agricultural fields in the area.

The city has approximately 320 acres of land for biosolids application. The city land applied the following amounts of biosolids to these sites during the current permit cycle.

- 5.21 dry metric tons (dmt) in 2010
- 23.76 dmt in 2009
- 24.57 dmt in 2008
- 25.24 dmt in 2007
- 29.03 dmt in 2006

The authorization to land apply treated biosolids provided under this permit is limited to those biosolids produced from the treatment works owned and operated by the city of Clark specifically designated below.

Outfall Number	Description of Biosolids Sources
201	Biosolids produced at the city of Clark's treatment works is stored in a holding tank and then applied to agricultural land.

MONITORING DATA

Chemical

The permittee has been submitting metal analyses as required under the current Biosolids permit. As shown in Attachment 1, the facility has had no trouble meeting the ceiling concentration limits and the pollutant concentration limits in the current permit. The data shows that the facility should not have any difficulty meeting the metals loading limits in their proposed permit.

Pathogen Reduction

The city of Clark has been submitting certification statements and pathogen sampling data in their annual reports as required under the current permit. The city has been meeting the Pathogen Reduction requirements for the generation of a Class B biosolids through "Alternative 1: Monitoring of Fecal Coliform" listed in Appendix B of Title 40 of the Code of Federal Regulations (40 CFR) Part 503.32(b)(2) (adopted by reference (a.b.r.) in the Administrative Rules of South Dakota (ARSD) Chapter 74:52:09).

Alternative 1 requires that seven samples of treated biosolids be collected. The geometric mean fecal coliform density of these samples must be less than 2 million colony forming units (CFU) or most probable number (MPN) per gram of biosolids on a dry weight basis.

As shown in Attachment 2, the geometric mean has ranged from 41,837 in 2006 to 1,151,354 MPN/gram in 2010. The data shows the facility should be able to meet the pathogen reduction requirements of their current permit.

Certification statements and fecal coliform sample results have been submitted as required in the annual reports.

Vector Attraction Reduction

The city has been meeting Vector Attraction Reduction requirements through Option 10 listed in Appendix B of 40 CFR Part 503 (a.b.r. in ARSD Chapter 74:52:09). Option 10 states that biosolids are incorporated within 6 hours of being land applied.

INSPECTIONS

Personnel from the South Dakota Department of Environment and Natural Resources (SDDENR conducted an inspection of the city of Clark's wastewater treatment facility on August 17, 2011. Biosolids management was evaluated during this inspection. No deficiencies in the city's biosolids handling were noted during that inspection.

BIOSOLIDS LIMITS

Effective immediately and lasting through the life of this permit, all biosolids generated by this facility to be used for land application shall meet the requirements listed below based on 40 CFR 503.13 (a.b.r. in ARSD Chapter 74:52:09) and Best Professional Judgement (BPJ). The city is currently generating Class B Biosolids. **Class B biosolids cannot be sold or given away in bags or other containers or applied on lawns or home gardens.**

Chemical

If the biosolids are to be land applied to agricultural land, forest land, a public contact site, or reclamation area it shall meet at all times:

1) The ceiling concentration pollutant limits listed in Table 1 and the cumulative pollutant loadings in Table 2; or

2) The ceiling concentration pollutant limits listed in Table 1 and the monthly average pollutant concentrations in Table 3.

Chemical Pollutant Limits

Pollutant	***Table 1***	***Table 2***	***Table 3***
	Daily Maximum mg/Kg[1, 2, 3]	**Cumulative Loading Kg/Ha[2]**	**Monthly Average mg/Kg[1, 2, 4, 5]**
Total Arsenic	75	41	41
Total Cadmium	85	39	39
Total Copper	4300	1500	1500
Total Lead	840	300	300
Total Mercury	57	17	17
Total Molybdenum	75	N/A	N/A
Total Nickel	420	420	420
Total Selenium	100	100	100
Total Zinc	7500	2800	2800

[1] All limits are on a dry weight basis and are based on 40 CFR 503.13 (a.b.r. in ARSD Chapter 74:52:09).

[2] See definitions in proposed permit.

[3] All biosolids used for land application must meet the ceiling concentrations for pollutants listed in this table.

[4] These limits represent the maximum allowable levels of pollutants for land application of any biosolids generated by the facility based on an average of all samples taken during a calendar month.

[5] If biosolids that exceed Table 3 values are land applied to a site, that site thereafter is subject to the cumulative pollutant loading rates in Table 2.

If the biosolids do not meet either of these requirements above, the biosolids shall not be land applied.

Pathogens – Class B

The permittee is currently generating Class B biosolids as defined by 40 CFR 503.32(b) (a.b.r. in ARSD Chapter 74:52:09). The permittee shall meet either a process requirement or numeric microbiological limit to demonstrate pathogen reduction:

- Process requirement: lime stabilization – sufficient lime is added to the biosolids to raise the pH of the biosolids to 12 standard units (s.u.) for ≥ 2 hours of contact.

- Microbiological limit of less than 2,000,000 fecal coliform/gram of total solids (based on a geometric mean of 7 representative biosolids samples)

There are additional approved pathogen reduction alternatives available in 40 CFR 503.32 (a.b.r. in ARSD Chapter 74:52:09) for both Class A and Class B biosolids. If the permittee intends to use one of these alternatives, SDDENR must be informed at least 30 days prior to its use. ***This change may be made without additional public notice.***

Vector Attraction Reduction

The permittee is required by 40 CFR 503.33 (a.b.r. in ARSD Chapter 74:52:09) to reduce the potential for attracting vectors such as mosquitoes. For land application, the biosolids shall meet one of the following alternatives for vector attraction reduction (VAR):

- The addition of sufficient alkali to the biosolids to raise the pH of the biosolids to at least 12 s.u. at 25ºC and maintain a pH ≥ 12 s.u. for two hours and a pH of ≥ 11.5 s.u. for 22 more hours; or
- Biosolids applied to the land surface shall be injected into the soil so that no biosolids are present on the land surface after injection; or
- Biosolids applied to the land surface shall be incorporated into the soil within six hours after application.

There are additional approved alternatives for reducing vector attraction available in 40 CFR 503.33 (a.b.r. in ARSD Chapter 74:52:09). If the permittee intends to use one of these alternatives, SDDENR must be informed in writing at least 30 days prior to its use. ***This change may be made without additional public notice.***

Site Restrictions

The permittee shall comply with **all** of the site restrictions listed below based on 40 CFR 503.32(b) (a.b.r. in ARSD Chapter 74:52:09):

- Food crops with harvested parts that contact the biosolids/soil mixture and are totally above the land surface, such as melons, tomatoes, etc., shall not be harvested for 14 months after application.

- Food crops with harvested parts below the land surface, such as potatoes, onions, etc., shall not be harvested for 20 months after application if the biosolids remain on the land surface for *four months or more* prior to incorporation into the soil or 38 months after application if the biosolids remain on the land surface for *less than four months* prior to incorporation into the soil.

- Other food, fiber, and feed crops, whose edible parts do not touch the surface of the soil, such as apples, corn, soybeans, etc., shall not be harvested from the land within 30 days after application.

- Animals shall not be allowed to graze on the land within 30 days after application.

- Turf grown on land where biosolids are applied shall not be harvested for at least one year after application if the harvested turf is placed on either a lawn, or an area with a high potential for public exposure.

- Public access to land with a high potential for public exposure shall be restricted for one year after application.

- Public access to land with a low potential for public exposure shall be restricted for 30 days after application.

SELF MONITORING REQUIREMENTS

Biosolids Monitoring

40 CFR 503.16(a)(1) (a.b.r. in ARSD Chapter 74:52:09), requires facilities, such as the city of Clark, that land apply more than zero, but less than 290 metric tons of biosolids per year to monitor the biosolids for metals, pathogens, and applicable vector attraction reduction requirements on an **annual basis**.

Parameter	Frequency[1]	Reporting Values	Sample Type
Total Arsenic, mg/kg	Annually	Actual value	Composite[2]
Total Cadmium, mg/kg	Annually	Actual value	Composite[2]
Total Copper, mg/kg	Annually	Actual value	Composite[2]
Total Lead, mg/kg	Annually	Actual value	Composite[2]
Total Mercury, mg/kg	Annually	Actual value	Composite[2]
Total Molybdenum, mg/kg	Annually	Actual value	Composite[2]
Total Nickel, mg/kg	Annually	Actual value	Composite[2]
Total Selenium, mg/kg	Annually	Actual value	Composite[2]
Total Zinc, mg/kg	Annually	Actual value	Composite[2]
Total Solids, %	Annually	Percent	Grab or composite
pH, s.u.	Annually	Actual value	Instantaneous
Ammonia as N, mg/kg	Annually [3]	Actual value	Grab or composite
Total Kjeldahl Nitrogen, mg/kg	Annually [3]	Actual value	Grab or composite
Organic Nitrogen, mg/kg	Annually [3]	Actual value	Calculate[4]
Nitrates as N, mg/kg	Annually [3]	Actual value	Grab or composite
Total Phosphorous as P, mg/kg	Annually	Actual value	Grab or composite
Fecal Coliform, MPN/gram	Annually [5]	Geometric Mean	Grab
pH of Alkaline Treated Biosolids, s.u.	Annually	Actual value [6]	Instantaneous
Amount of Alkaline, pounds or gallons[7]	Annually	Actual value	Calculate
Total amount of biosolids generated, dry metric tons	Annually	Actual Value	Calculate

[1] Facilities that land apply more than zero, but less than 290 dry metric tons of biosolids per year must sample the biosolids at a frequency of once per year for the parameters listed. Sampling must be done prior to the land

application of biosolids. If the city land applies more than 290 dry metric tons of biosolids per year, the sampling frequency will increase. ***This change will be made without additional public notice***.

[2] Subsamples of material shall be taken from several locations and time periods and combined to provide a representative composite sample. The sample shall be analyzed for the specified parameters using the methods approved in 40 CFR 503 (a.b.r. in ARSD Chapter 74:52:09).

[3] The biosolids must be sampled annually and analyzed for these parameters if land applying that year. These parameters must be used to calculate an agronomic loading rate. If using a contract hauler, this information must be presented to the contractor so the agronomic rate is not exceeded. The permittee is ultimately responsible for ensuring that any contract haulers comply with the permit requirements.

[4] Organic nitrogen is the Total Kjeldahl Nitrogen (TKN) less the Ammonia.

[5] Seven individual representative biosolids samples shall be taken annually within a two-week time period and analyzed for fecal coliform bacteria. The sample shall be analyzed using standard method 9221C as required by the 1999 EPA Region VIII Biosolids Management Handbook. Fecal coliform monitoring is only required if the microbiological limit is used as the pathogen reduction method.

[6] A log must be kept which lists the hours the pH of the biosolids/ alkaline mixture was greater than or equal to 12 s.u. for 2 hours (for the pathogen reduction and vector attraction reduction options) and greater than or equal to ll.5 for 22 hours (vector attraction reduction method) must be kept. The monitoring of alkaline treated biosolids is only required if the alkali treatment method is used for the pathogen reduction method and/or the vector attraction reduction method.

[7] The amount of alkaline added to the biosolids to meet either the vector attraction reduction method and or the pathogen reduction method. In addition, the amount of biosolids treated must also be recorded. The amount of alkaline monitoring is only required if alkaline treatment is used as the pathogen reduction method and/or vector attraction reduction method.

Soil Sampling

Since the permittee applies biosolids to the land, soil sampling is required for all land application sites. The soil samples shall be taken and analyzed for the parameters listed below.

Parameter	Frequency[1]	Sample Depth	Sample Type
Phosphorus as P, mg/kg[2]	Annually	0-6 inches	Composite[3]
Shallow Nitrate as N, mg/kg	Annually	0-1 foot and 1-2 feet	Composite[3]
Deep Nitrate as N, mg/kg	Annually[4]	2-5 feet[5]	Composite[3]
pH, s.u.	Annually	Actual value	Composite[3]

[1] Soil samples shall be taken yearly from fields prior to land application. If the field is not being used for biosolids application that calendar year, soil sampling is not required.

[2] Phosphorus shall be analyzed using either the sodium bicarbonate extraction Olsen method or the AB-DPTA extraction analytical method for soils with a pH greater than 6.5 s.u. or the Bray Kurtz I method for soils with pH less than or equal to 6.5 s.u. as outlined in the 1999 version of the EPA Region VIII Biosolids Management Handbook.

[3] A minimum of six representative samples for each 320 (or less) acre area are to be collected, composited, and analyzed.

[4] At the request of the permittee, SDDENR will evaluate each land application site on a case-by-case basis to determine if the deep nitrate soil monitoring frequency can be reduced to once every five years. SDDENR will evaluate whether or not the site is located over a shallow aquifer or if deep soil monitoring is warranted. This will be done using the published South Dakota Geological Survey county studies, precipitation data, number of years biosolids were applied to the field, irrigation records, hydrologic reports, first occurrence of aquifer materials maps, and well log information located near the fields. ***This change will be made without additional public notice.***

[5] Samples are to be collected down to either 5 feet or to the confining layer, whichever is shallower. Each foot increment is to be composited with the other samples from the site and one analysis for nitrate is to be conducted for each increment e.g. 2 to 3 feet, 3 to 4 feet, and 4 to 5 feet.

BEST MANAGEMENT PRACTICES

The permittee is currently generating a Class B biosolids. Therefore, the facility shall operate and maintain the land application site operations in accordance with the following requirements:

1. Within 180 days of the permit effective date, the permittee shall provide to SDDENR a current Biosolids Management Plan. At a minimum, this plan shall include the elements found in Attachment 3 of the Statement of Basis. After approval of the Biosolids Management Plan by SDDENR, the plan becomes an enforceable part of the permit.

   If the permittee would like to add or remove field application sites from its Biosolids Management Plan, it must notify SDDENR in writing at least 30 days prior to the change for site review and approval.

2. Application of biosolids shall be conducted in a manner that will not contaminate groundwater. The Secretary will determine on a case-by-case basis if the land application sites are located over a shallow aquifer. This will be done by using published South Dakota Geological Survey county studies, hydrologic reports, first occurrence of aquifer materials maps, and well log information located near the fields. If the land application site is located over a shallow aquifer, additional deep soil monitoring may be required.

3. There shall be no runoff of biosolids from land application sites. Biosolids shall not be applied to land within 100 feet of waters of the state.

4. Application of biosolids shall not exceed the agronomic rate for available nitrogen of the crops grown on the site. At a minimum, the permittee is required to follow the methods for calculating agronomic rate outlined in the 1999 version of the Region VIII Biosolids Management Handbook (other methods may be approved by SDDENR on a case-by-case basis). The permittee shall notify the applicator of the total nitrogen content (as N on a dry weight basis) in the biosolids.

5. Biosolids shall not be applied to frozen, ice-covered, or snow-covered sites if the slope of the land is greater than six percent.

6. Biosolids shall not be applied to frozen, ice-covered, or snow-covered sites if the slope of the land is between 3 and 6 percent, unless one of the following requirements is met:

   a) There is 80 percent vegetative ground cover; or

   b) SDDENR has approved a plan demonstrating adequate runoff containment measures.

7. Biosolids shall not be land applied to sites where the available phosphorous content of the soil exceeds the following levels:

   a) For soil pH greater than 6.5 s.u.
      1. 100 ppm based on sodium bicarbonate extraction method (e.g. Olsen); or
      2. 50 ppm based on AB-DPTA extraction analytical method;

b) For soil pH 6.5 s.u. or less:
   1. 170 ppm based on the Bray Kurtz P1 extraction method.

The city may request these limits be modified if different limits are justified based on local conditions. The alternative limits are required to be developed in cooperation with the local agricultural extension office or university and must be approved by SDDENR. ***This change may be made without additional public notice.***

8. Biosolids shall not be applied to waters of the state or to any site with standing water.

9. The specified cover crop shall be planted during the next available planting season. If this does not occur, the city shall notify SDDENR in writing. Additional restrictions may be placed on the application of the biosolids on that site on a case-by-case basis to control nitrate movement. Deep soil monitoring is required and may be increased under the discretion of SDDENR.

10. The biosolids or the application of the biosolids shall not cause or contribute to the harm of a threatened or endangered species or result in the destruction or adverse modification of critical habitat of a threatened or endangered species during or after application.

11. Biosolids shall not be applied on the site when weather and/or soil conditions prohibit proper application procedures.

12. Biosolids shall not be applied to agricultural land, forest, a public contact site, or a reclamation site if any of the cumulative pollutant loading rates have been reached. Prior to land applying biosolids that are subject to the cumulative pollutant loading rates, the permittee must submit a request to SDDENR to apply these biosolids.

13. Prior to land application of biosolids which meet the cumulative pollutant loading rates, the following conditions must be met:

    a) Determine if biosolids subject to cumulative pollutant loading rates have been applied to the site since July 19, 1993.

    b) If biosolids have not been applied to the site since July 19, 1993, the biosolids may be applied to the site.

    c) If biosolids have been applied to the site and the cumulative amount of each pollutant applied to date is known, this can be used to determine if additional amounts can be applied.

    If biosolids have been applied to the site and the cumulative amount of each pollutant applied to date is not known, biosolids shall not be applied to the site.

14. If the permittee applies the biosolids to land not owned by the permittee, the owner or lease holder of the land on which the biosolids is applied shall be provided notice and necessary information to comply with the site restrictions. The permittee is ultimately responsible for ensuring that these site restrictions are followed.

15. If biosolids, or material derived from biosolids such as compost, is to be stockpiled for 30 days or longer, measures must be taken to prevent erosion (by wind or water) from occurring. Best management practices should also be used if stockpiles are used for treatment of biosolids (i.e. composting). If a treatment pile is considered to have caused a problem, best management practices may be added as a requirement in the next permit renewal.

16. The city shall inspect the application of the biosolids to active sites **daily** when land applying. An inspection notebook shall be kept which includes the following:

    a) name of inspector;

    b) date and time of biosolids application,

    c) weather conditions at time of application and for 24 hours prior to and following application;

    d) the method used to apply the biosolids;

    e) observations made; and

    f) the date and nature of any corrective actions required or taken.

In the future, if biosolids generated by the city meets Class A requirements, the city may request SDDENR remove some or all of the management practices. If approved, this change would be made following proper administrative procedures under the reopener provision of the permit.

REQUIRED RECORDKEEPING

The permittee is to retain the following records for at least five years as required in 40 CFR 503.17 (a.b.r. in ARSD Chapter 74:52:09). These recordkeeping requirements are dependent upon the quality of biosolids produced by the permittee. At a minimum, the following records shall be kept:

1. Concentration of: Arsenic, Cadmium, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, and Zinc;

2. A description of how the pathogen reduction requirements were met;

3. A description of how the vector attraction reduction requirements were met;

4. A description of how the best management practices were met;

5. A description of how the site restrictions were met;

6. Yearly certification statements for pathogen reduction and vector attraction reduction requirements, best management practices, and site restrictions followed. This statement shall be as follows:

"I certify under penalty of law that the pathogen requirements in Part 1.3.2 of the permit, one of the vector attraction reduction alternatives in Part 1.3.3 of the permit, the best management practices in Part 1.5 of the permit, and the site restrictions in Part 1.3.4 of the permit have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment."

7. For each land application site where biosolids are land applied during the reporting year the following information shall be maintained:

   a) Site name;

   b) Site owner and/or operator;

   c) Person or entity that applies the biosolids to the land;

   d) Latitude and longitude of site;

   e) Street address or Section, Township, and Range;

   f) Size (hectares);

   g) Crop to be grown or harvested on application site;

   h) Application rate (metric tons/hectare); and

   i) Cumulative pollutant loading rate (Kg/Ha), if applicable.

   j) Cumulative pollutant loading rate certification statement, if applicable.

REPORTING REQUIREMENTS

The permittee is required to monitor, collect, and provide the following information for each reporting year:

1. The total amount of biosolids, in dry metric tons, that is generated by the facility during the reporting year;

2. A summary of any biosolids received from other facilities:

   a) Summary of total amount of biosolids received, in dry metric tons;

   b) Summary of amount of biosolids received from each individual facility, in dry metric tons;

   c) Name of each facility sending biosolids; and

   d) Location of each facility.

3. A summary of any biosolids sent to other facilities/operations:

a) Summary of total amount of biosolids sent to other facilities, in dry metric tons;

b) Summary of amount of biosolids sent to each individual facility, in dry metric tons;

c) Name of each facility receiving biosolids; and

d) Location of each facility.

4. The amount of biosolids, in dry metric tons, placed in storage during the reporting year and the total amount of biosolids already in storage and how long it has been stored.

5. The amount of biosolids land applied during the reporting year.

The city of Clark shall develop an annual biosolids report in accordance with 40 CFR 503.18 (a.b.r. in ARSD Chapter 74:52:09). This report shall include the results of all monitoring performed in accordance with the self monitoring requirements of the permit, information on best management practices, land application sites, site restrictions, and certifications. This report shall be submitted to SDDENR no later than **February 19th of each year**. Each report is for the previous calendar year.

SPECIAL CONDITIONS ON BIOSOLIDS STORAGE

Permanent storage of biosolids is prohibited. Biosolids shall not be temporarily stored for more than two years. Written permission to store biosolids for more than two years must be obtained from SDDENR. Storage of biosolids for more than two years will only be allowed if it is determined that significant treatment is occurring.

CHANGE IN TREATMENT SYSTEM OR USE/DISPOSAL PRACTICES

The permittee must inform SDDENR at least 180 days prior to any significant change in the biosolids generation and handling processes at the plant and any major change in use/disposal practices. This includes but is not limited to: the addition or removal of biosolids treatment units (e.g. digesters, drying beds, etc.) and/or any other change that would require a modification of the permit (e.g. changing from land application to surface disposal).

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. However, the table below shows the species that may be present in the city of Clark's geographic area.

COUNTY	GROUP	SPECIES	CERTAINTY OF OCCURRENCE
CLARK	BIRD	CRANE, WHOOPING	KNOWN
	FISH	SHINER, TOPEKA[1]	KNOWN

[1] Although Topeka Shiners have not been formally documented within Clark, Douglas, Grant, Jerauld, Kingsbury, Lake, Spink, or Yankton Counties, the species may still occur in these areas because they contain portions of known occupied Topeka Shiner streams and/or potentially occupied streams that exist within one or more of the three known inhabited watersheds in South Dakota: the James, Vermillion, and Big Sioux.

This information was accessible at the following US Fish and Wildlife Service website as of November 29, 2011: 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, Natural Resources Project Engineer for the Surface Water Quality Program, at (605) 773-3351.

November 29, 2011

Attachment 1 – Metals Monitoring Data

Date Analyzed	Arsenic, mg-kg dry	Cadmium, mg-kg dry	Copper, mg-kg dry	Lead, mg-kg dry	Mercury, mg-kg dry	Molybdenum, mg-kg dry	Nickel, mg-kg dry	Selenium, mg-kg dry	Zinc, mg-kg dry
Ceiling Concentrations	**75**	**85**	**4,300**	**840**	**57**	**75**	**420**	**100**	**7,500**
Pollutant Concentrations	**41**	**39**	**1,500**	**300**	**17**	**N/A**	**420**	**100**	**2,800**
3/27/2006	2.34	0.83	430	13.5	1.37	3.24	13.2	2.02	393
8/20/2007	5.39	1.44	589	16.2	2.9	3.91	30.6	4.38	606
8/22/2008	3.74	1.05	574	11.0	2.44	4.54	26.1	4.10	578
10/27/2009	5.33	0.80	418	12.2	1.90	2.76	25.3	4.16	421
9/15/2010	6.55	0.58	138	8.05	0.56	2.04	18.1	3.03	167

Attachment 2 – Fecal Coliform Data

2006 Sample #	Date Sampled	Fecal Coliform, MPN per gram
1	08/08/2006	16000
2	08/08/2006	112000
3	08/08/2006	23000
4	08/08/2006	23000
5	08/08/2006	78000
6	08/08/2006	74000
7	08/08/2006	41000
Geometric Mean:		41837

2007 Sample #	Date Sampled	Fecal Coliform, MPN per gram
1	08/20/2007	270000
2	08/20/2007	240000
3	08/20/2007	240000
4	08/20/2007	81000
5	08/20/2007	260000
6	08/20/2007	77000
7	08/20/2007	170000
Geometric Mean:		171068

2008 Sample #	Date Sampled	Fecal Coliform, MPN per gram
1	08/21/2008	1400000
2	08/21/2008	810000
3	08/21/2008	600000
4	08/21/2008	1100000
5	08/21/2008	910000
6	08/21/2008	1600000
7	08/21/2008	2000000
Geometric Mean:		1117726

2009 Sample #	Date Sampled	Fecal Coliform, MPN per gram
1	10/27/2009	182000
2	10/27/2009	90200
3	10/27/2009	144000
4	10/27/2009	74600
5	10/27/2009	413000
6	10/27/2009	365000
7	10/27/2009	111000
Geometric Mean:		162178

2010 Sample #	Date Sampled	Fecal Coliform, MPN per gram
1	08/17/2010	830000
2	08/17/2010	1700000
3	08/17/2010	880000
4	08/17/2010	3000000
5	08/17/2010	1000000
6	08/17/2010	600000
7	08/17/2010	1200000
Geometric Mean:		1151354

Attachment 3 – Biosolids Management Plan

BIOSOLIDS MANAGEMENT PLAN

The permittee is responsible for the safe land application of biosolids. A Biosolids Management Plan (Plan) must be submitted to SDDENR within 180 days of the permit effective date. The Plan shall include current biosolids practices and a 5-year biosolids operating plan that includes the following elements:

A. A description of the permittee's biosolids production and any current and known future land application sites. This includes a legal description and GPS coordinates of all fields to be used for land application, the crop to be planted on each field, the number of acres in each field, whether the land is leased or owned by the city and whether the field is irrigated. Land identified or classified as wetlands, lakes, rivers, or streams, farmsteads, tree belts, or other buffer zones that cannot or will not be used for biosolids application shall not be included in the total number of acres available.

B. A detailed map showing the outline of each field and all buffer zones and separation distances shall be included. Buffer zones to be identified and included are between biosolids application sites and: surface waters, drinking water wells, drainage ditches, property lines, residences, schools, playgrounds, airports, public roadways, and any necessary site-specific buffer zones for current sites; and source of operating procedures (*e.g.*, qualified soils consultant, Soil Conservation Service, State Extension Service) for making annual adjustments and for setting buffer zones for future sites.

C. A soils map for the land application field(s) and a description of the predominate soil type(s) for each field.

D. Site management practices relating to, at a minimum: floodplain, slope, depth to ground water, weather conditions, soil conditions (compaction, permeability, saturated, frozen, snow-covered), site access, protection of surface waters, wetlands, endangered species, and wells at current sites.

E. A list of the counties (and states if applicable) where the permittee may want to market or distribute its biosolids over the life of the permit (5 years minimum). A copy of the Plan must be submitted to the appropriate State Health Department, and should be submitted to the State Extension Service Office in the counties where biosolids may be marketed.

F. Site selection criteria to be used when identifying new land application sites.

G. Storage provision or alternate disposal provision for biosolids during periods when biosolids cannot be land applied.

H. Contingency plans that describe disposal options for any biosolids that do not meet the requirements for land application or exceed storage capacity.

I. Alternative Pollutant Limits or maximum acceptable annual and total cumulative application rates, expressed as kilograms per hectare (kg/ha), for arsenic, cadmium, copper, lead, mercury, nickel, selenium, and zinc; any other pollutants regulated by the 40 CFR Part 503 rules (a.b.r. in ARSD Chapter 74:52:09).

J. Maximum acceptable biosolids application rate to assure that the amount applied does not exceed the nutrient requirements of the particular crop grown on the application site (agronomic rates) for current year crops, and operating procedures (*e.g.*, qualified soils consultant, Soil Conservation Service, State Extension Service) for making annual agronomic rate adjustments and for setting agronomic rates for future sites.

K. A description of the pathogen treatment, vector attraction control, record keeping, monitoring, certifications, and notifications as required by the permit.

L. Procedures the permittee intends to use to ensure that biosolids practices and limits outlined in the permit are followed.

M. Public notice procedures and procedures for advance (at least 30 days) notice to SDDENR of proposed new land application sites.

N. Procedures or copies of documents specifying procedures (*e.g.*, contracts) that will be used to ensure compliance with this permit and applicable regulations if the permittee contracts with others for assistance to select and/or manage the land application sites.

O. A statement (*e.g.*, city ordinance) that the permittee will comply with the Biosolids Management Plan, as approved by SDDENR.

P. A statement that the Plan will be amended to reflect any applicable practices or limits EPA or SDDENR requires.

Q. A description of the sample collection, preservation and analysis methods used for sampling and monitoring of parameters.

R. Other nutrient applications to the fields e.g. manure, commercial fertilizer.