

STATEMENT OF BASIS

Applicant: Sunshine Bible Academy
Permit Number: SD0028534
Contact Person: Larry Mehlhaff - Superintendent
Gaylen Engel - Building and Grounds Manager
400 Sunshine Drive
Miller, SD 57362
Phone: (605) 853-3071
Permit Type: Minor Municipal – New

DESCRIPTION

Sunshine Bible Academy operates a wastewater treatment facility located SE ¼ of Section 15, Township 110 North, Range 68 West, in Hand County, South Dakota (Latitude 44.333610°, Longitude -98.988260°, Navigational Quality GPS).

The wastewater treatment facility consists of three stabilization ponds operated in series, with a maximum design flow of 0.04 million gallons per day (MGD). Wastewater flows by gravity to a main lift station located north of the school, which pumps wastewater to Cell #1. Cell #1 has a surface area of 0.83 acres, Cell #2 has a surface area of 0.59 acres, and Cell #3 has a surface area of 0.49 acres. Cell #3 is equipped with a valve controlled discharge structure. From Cell #3, wastewater can be discharged to an adjacent unnamed wetland. The lift station is equipped with an emergency transfer pipe that will allow wastewater to flow to the old treatment cell in the event of a power outage and a backup generator is unavailable. Any transfer of wastewater from the lift station to the old treatment system will be considered a sanitary sewer overflow and will be required to be sampled and reported to the South Dakota Department of Environment and Natural Resources as such.

This wastewater treatment facility serves about 120 students in grades K-12, as well as 24 faculty. There are no known industrial users contributing flow to the system.

RECEIVING WATERS

Any discharge from this facility will enter an unnamed wetland that is classified by the South Dakota Surface Water Quality Standards (SDSWQS), Administrative Rules of South Dakota (ARSD), Section 74:51:03:01 for the following beneficial use:

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

Since the receiving waterbody has the minimum fishery beneficial use classification of (9), the SDSWQS (ARSD Section 74:51:01:02.01) require that an analysis of the waterbody be conducted to determine whether the waterbody deserves a higher beneficial use designation. The South Dakota Department of Environment and Natural Resources (SDDENR) has conducted an analysis for the unnamed wetland near the discharge location. SDDENR personnel have

determined that the beneficial use classifications for the creek are appropriate and will remain unchanged.

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 1.

MONITORING DATA

Because this is will be a new permit, Sunshine Bible Academy has not been required to submit Discharge Monitoring Reports (DMRs). Sunshine Bible Academy will be required to submit DMRs on a quarterly basis in the proposed permit.

INSPECTIONS

No wastewater inspections have been conducted to date as this is a new facility. However, Sunshine Bible Academy can expect periodic inspections of the facility in the future.

EFFLUENT LIMITS

The permittee shall comply with the effluent limits specified below. These limits are based on the Secondary Treatment Standards (ARSD Section 74:52:06:03), the SDSWQS, Best Professional Judgment (BPJ), and current permit limits.

No discharge shall occur from this facility until permission is granted by SDDENR. The permittee shall comply with the effluent limits specified below.

Outfall 001 – Any discharge from the control structure in Cell #3 into the unnamed tributary (Latitude 44.333889°, Longitude 98.986944°, Navigational Quality GPS).

1. The five-day Biochemical Oxygen Demand (BOD₅) concentration shall not exceed 30 mg/L (30-day average) or 45 mg/L (7-day average). These limits are based on the Secondary Treatment Standards.
2. The Total Suspended Solids (TSS) concentration shall not exceed 30 mg/L (30-day average) or 45 mg/L (7-day average). These limits are based on Secondary Treatment Standards.

If analytical results for BOD₅ show compliance with the permit limits, the permittee may request the permit issuing authority to change the TSS permit limits to 110 mg/L (30-day average) and 165 mg/L (7-day average). This change shall be based on ARSD Section 74:52:06:04 and the SDDENR policy for discharges from stabilization ponds to waters

classified for fish and wildlife propagation, recreation, and stock watering. **The permit issuing authority may approve the change without additional public notice.**

- The pH shall not be less than 6.0 standard units or greater than 9.0 standard units in any single analysis and/or measurement. These limits are based on the Secondary Treatment Standards.

Note: SDDENR specifies that pH analyses are to be conducted within 15 minutes of sample collection with a pH meter. Therefore, the permittee must have the ability to conduct onsite pH analyses. The pH meter used 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.

- No chemicals, such as chlorine, shall be used without prior written permission. This limit is based on BPJ.

Effluent water temperature (°C), flow rate (Million Gallons per Day - MGD), total flow (million gallons - MG), and duration of discharge (days) shall be monitored, but will not have a limit.

SELF MONITORING REQUIREMENTS

A minimum of three samples shall be taken during any discharge. A sample shall be taken at the beginning, middle, and end of the discharge if the discharge is less than one week in duration. If a single, continuous discharge is greater than one week in duration, three samples shall be taken the first week and one each following week. All samples collected during the 7-day or 30-day period shall be used in determining the averages. The permittee always has the option of collecting additional samples if appropriate. The following parameters shall be monitored at the frequency and with the type of measurement indicated; samples or measurements shall be representative of the volume and nature of the monitored discharge.

Effluent Characteristic	Frequency	Reporting Values ¹	Sample Type <small>Error! Bookmark not defined.</small>
Duration of Discharge, days	Monthly	Monthly Total ²	Calculate
Total Flow, million gallons	Monthly	Monthly Total	Calculate
Flow Rate, MGD	At least three per discharge ³	Daily Maximum; 30-Day Average	Instantaneous
pH, standard units	At least three per discharge ³	Daily Minimum; Daily Maximum	Instantaneous ^{4,5}
Water Temperature, °C	At least three per discharge ³	Daily Maximum; 30-Day Average	Instantaneous ^{5,6}
Five-Day Biochemical Oxygen Demand (BOD ₅), mg/L	At least three per discharge ³	Max 7-Day Average; 30-Day Average	Grab

Effluent Characteristic	Frequency	Reporting Values ¹	Sample Type <small>Error! Bookmark not defined.</small>
Total Suspended Solids (TSS), mg/L	At least three per discharge ³	Max 7-Day Average; 30-Day Average	Grab
Ammonia-Nitrogen (as N), mg/L	At least three per discharge ³	Daily Maximum; 30-Day Average	Grab ⁵

¹ See Definitions.

² The date and time of the start and termination of each discharge shall also be reported in the comment section of the DMR.

³ A minimum of three samples shall be taken during any discharge. A sample shall be taken at the beginning, middle, and end of the discharge if the discharge is less than one week in duration. If a single, continuous discharge is greater than one week in duration, three samples shall be taken the first week and one each following week. All of the samples collected during the 7-day or 30-day period are to be used in determining the averages. The permittee always has the option of collecting additional samples if appropriate.

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

⁶ 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.

Effluent monitoring results shall be summarized for each month and recorded on separate DMRs to be submitted to SDDENR on a **quarterly** basis. If no discharge occurs during a month, it shall be stated as such on the DMR.

Monitoring shall consist of **monthly** inspections of the facility and the outfall to verify that proper operation and maintenance procedures are being practiced and whether or not there is a discharge occurring from this facility. **Daily** inspections are required during a discharge. The lift station shall be inspected on at least a **weekly** basis; daily if transferring wastewater to the old treatment system. **Daily** inspections of the lift station are always 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.

SLUDGE

Based on the Academy's permit application, SDDENR does not anticipate sludge will be removed or disposed of during the life of the permit. Therefore, the proposed Surface Water

Discharge permit shall not contain sludge disposal requirements. However, if sludge disposal is necessary, the Academy is required to submit to SDDENR a sludge disposal plan for review and approval **prior** to the removal and disposal of sludge.

DRAINAGE ISSUES

Hand County has the authority to regulate drainage. Sunshine Bible Academy 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. However, the table below shows the species that may be present in the Sunshine Bible Academy’s geographic area.

County	Group	Species	Certainty of Occurrence
Hand	Bird	Crane, Whooping	Known

This information was accessible at the following US Fish and Wildlife Service website as of November 28, 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 Jonathan Hill, Natural Resources Project Engineer for the Surface Water Quality Program, at (605) 773-3351.

November 28, 2011

ATTACHMENT 1

Antidegradation Review

Minor Municipal

Permit Type: - Renewal Applicant: Sunshine Bible Academy

Date Received: 12/13/2010 Permit #: SD0028534

County: Hand Legal Description: SE ¼ of S 15, T 110 N, R 68 W

Receiving Stream: unnamed wetland Classification: 9

If the discharge affects a downstream waterbody with a higher use classification, list its name and uses:

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: The surface water discharge permittee will discharge to a receiving water assigned only the beneficial use of (9); 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;

*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: _____

Jonathan Hill
Reviewer

November 28, 2011
Date

Kelli D. Buscher, P.E.
Team Leader

November 28, 2011
Date