

STATEMENT OF BASIS

Applicant: Higman Sand and Gravel
Permit Number: SD0027928
Contact Person: Justin Higman, President
PO Box 438
Akron, IA 51001
Phone: (712) 568-2181
Permit Type: Minor Industrial Treatment Facility – Renewal

DESCRIPTION

Higman Sand and Gravel operates five sand and gravel mining facilities. Production of sand and gravel from the quarries is used for road building and construction purposes. Dewatering of the pits is necessary in order to extract the sand and gravel.

Spink Pit is located in the Southwest ¼ of Section 5, Township 93 North, Range 50 West, in Union County, South Dakota (Latitude 42.899722°, Longitude -96.778056° – Navigational Quality GPS). This pit is covered under the current surface water discharge permit (SD0027928) as Outfall 001.

At the request of Higman Sand and Gravel, the following gravel pits will be added to the proposed permit during this renewal cycle:

Hudson Pit (Outfall 002) is located in the Northeast ¼ of Section 2, Township 95 North, Range 48 West, in Union County, South Dakota (Latitude 43.079143°, Longitude -96.48158° – Map Interpolation).

West Hawarden Pit (Outfall 003) is located in the Southeast ¼ of Section 21, Township 95 North, Range 48 West, in Union County, South Dakota (Latitude 43.026408°, Longitude -96.515547° – Map Interpolation).

Vermillion Pit (Outfall 004) is located in the Western ½ of the Southeast ¼ of Section 29, Township 93 North, Range 51 West, in Clay County, South Dakota (Latitude 42.841895°, Longitude -96.894221° – Map Interpolation).

Volin Pit (Outfall 005) is located in Section 12, Township 94 North, Range 54 West, in Yankton County, South Dakota (Latitude 42.969016°, Longitude -97.173214° – Map Interpolation)

RECEIVING WATERS

Any discharge from the Spink Pit (Outfall 001) will enter Brule Creek. Brule Creek is classified by the South Dakota Surface Water Quality Standards (SDSWQS),

Administrative Rules of South Dakota (ARSD), Sections 74:51:03:01 and 74:51:03:07, for the following beneficial uses:

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

Any discharge from the Hudson Pit (Outfall 002) or West Hawarden Pit (Outfall 003) will enter the Big Sioux River. The Big Sioux River is classified by the South Dakota Surface Water Quality Standards (SDSWQS), Administrative Rules of South Dakota (ARSD), Sections 74:51:03:01 and 74:51:03:07, 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.

Any discharge from the Vermillion Pit (Outfall 004) will enter the Vermillion River. The Vermillion River is classified by the South Dakota Surface Water Quality Standards (SDSWQS), Administrative Rules of South Dakota (ARSD), Sections 74:51:03:01 and 74:51:03:25, for the following beneficial uses:

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

Any discharge from the Volin Pit (Outfall 005) will enter Turkey Creek. Turkey Creek is classified by the South Dakota Surface Water Quality Standards (SDSWQS), Administrative Rules of South Dakota (ARSD), Sections 74:51:03:01 and 74:51:03:25, for the following beneficial uses:

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

ANTIDegradation

South Dakota Department of Environment and Natural Resources (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

Higman Sand and Gravel submits Discharge Monitoring Reports (DMRs) for the Spink Pit on a quarterly basis. The data in Attachment 2 shows that Spink Pit has misreported temperature as Fahrenheit instead of Celsius in the most recent discharge. The facility must continue its efforts to consistently meet effluent limits and other provisions of the permit to protect the public health and the environment. No discharge was reported for the months not included in the table.

Routine monitoring and reporting will be required for the four additional outfalls included under the proposed permit.

INSPECTIONS

Personnel from the SDDENR conducted an *Off-site Evaluation Inspection* of the Spink Pit on September 17, 2010. The report noted the following comments.

- *DMRs for one quarter were submitted late, several parameters were not reported on one DMR, temperature is reported in °F instead of °C. The number of exceedances column is not filled out correctly. These issues have already been addressed with the facility.*
- *There have been two daily maximum temperature violations since the last inspection. These have already been addressed with the facility in a warning letter.*

EFFLUENT LIMITS

Higman Sand and Gravel is subject to the provisions in 40 CFR 436 Subpart C. However, the SDSWQS for the Big Sioux River, Brule Creek, Turkey Creek, and the Vermillion River are more stringent. Therefore, the facility must meet the following effluent limits that are based on Best Professional Judgment (BPJ), current permit limits, and the SDSWQS.

The permittee shall comply with the effluent limits specified below.

Outfall 001 – Any discharge from Higman Sand and Gravel – Spink Pit to Brule Creek (Latitude 42.900278°, Longitude -96.779722°, Navigational Quality GPS).

Outfall 002 – Any discharge from Higman Sand and Gravel – Hudson Pit to the Big Sioux River (Latitude 43.079143°, Longitude -96.481580°, Map Interpolation).

Outfall 003 – Any discharge from Higman Sand and Gravel – West Hawarden Pit to the Big Sioux River (Latitude 43.026408°, Longitude -96.515547°, Map Interpolation).

Outfall 004 – Any discharge from Higman Sand and Gravel – Vermillion Pit to the Vermillion River (Latitude 42.841895°, Longitude -96.894221°, Map Interpolation).

Outfall 005 – Any discharge from Higman Sand and Gravel – Volin Pit to Turkey Creek (Latitude 42.969016°, Longitude -97.173214°, Map Interpolation).

1. The Total Suspended Solids (TSS) concentration shall not exceed 25 mg/L (30-day average) or 45 mg/L (daily maximum). This limit is based on BPJ and the current permit limits for Outfall 001.
2. The Total Dissolved Solids (TDS) concentration shall not exceed 2,500 mg/L (30-day average) or 4,375 mg/L (daily maximum). These limits are based on the fish and wildlife propagation, recreation, and stock watering waters classification of the receiving streams and the SDSWQS (ARSD Section 74:51:01:52).
3. The pH shall not be less than 6.5 standard units or greater than 9.0 standard units in any single analysis and/or measurement. These limits are based on 40 CFR Part 436.32, the warmwater fish life propagation waters classifications of the receiving streams, and the SDSWQS (ARSD Section 74:51:01:48)

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.

4. The concentration of Oil & Grease (hexane extraction) shall not exceed 10 mg/L in any single sample, nor shall there be any visible sheen on the receiving water or adjoining shoreline. This limit is based on the wildlife propagation, recreation, and stock watering waters classification of the receiving streams and the SDSWQS (ARSD Sections 74:51:01:10 and 74:51:01:52).
5. The conductivity shall not exceed 2,500 µmhos/cm (30-day average) or 4,375 µmhos/cm (daily maximum) in any one sample. These limits are based on the fish and wildlife propagation, recreation, and stock watering waters classification of the receiving streams and the SDSWQS (ARSD Section 74:51:01:52)

6. The water temperature shall not exceed 20° C in any one sample or measurement. This limit is based on the current permit.
7. There shall be no discharge of industrial wastes that produce floating solids, scum, oil slicks, material discoloration, visible gassing, sludge deposits, sediments, slimes, algal blooms, fungus growths, or other offensive effects. This limit is based on the SDSWQS (ARSD Section 74:51:01:06).
8. No process or sanitary wastes shall be introduced into this discharge. This limit is based on BPJ.

In addition, flow rate (gallons per day), total flow (gallons), and duration of discharge (days) shall be monitored, but will not have a limit.

SELF MONITORING REQUIREMENTS

As a minimum, upon the effective date of this permit, 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.

Outfall 001, Outfall 002, Outfall 003, Outfall 004 and Outfall 005

Effluent Characteristic	Frequency	Reporting Values ¹	Sample Type
Total Flow, gallons	Each discharge	Monthly Total	Calculated
Duration of Discharge, days	Each discharge	Monthly Total	Calculated
Flow Rate, gallons per day	At least three per discharge	Daily Maximum; 30-Day Average	Instantaneous
pH, standard units	At least three per discharge	Daily Minimum; Daily Maximum	Instantaneous ²
Water Temperature, °C	At least three per discharge	Daily Maximum; 30-Day Average	Instantaneous ³
Conductivity, µmhos/cm	At least three per discharge	Daily Maximum; 30-Day Average	Grab

¹ See Definitions.

² 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.

³ The water temperature of the discharge 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 degree Celsius.

Effluent Characteristic	Frequency	Reporting Values ¹	Sample Type
Total Dissolved Solids (TDS), mg/L	At least three per discharge	Daily Maximum; 30-Day Average	Grab
Total Suspended Solids (TSS), mg/L	At least three per discharge	Daily Maximum; 30-Day Average	Grab
Oil and Grease (hexane ext), mg/L	Contingent ⁴	Daily Maximum	Grab
Oil and Grease, visual	Daily	Presence or Absence of Sheen	Visual ⁴
Visible Pollutants	Daily	Presence or Absence	Visual

⁴ Oil and grease shall be visually monitored during discharge. In the event that an oil sheen or floating oil is observed during discharge, grab samples shall be taken immediately, analyzed using Standard Method 5520-F (hexane extraction with silica gel) and reported.

Effluent monitoring results shall be summarized for each month and recorded on separate DMRs for each outfall 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 outfalls 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. Documentation of each of these visits shall be kept in a notebook to be reviewed by SDDENR or EPA personnel when an inspection occurs.

STORM WATER

Higman Sand and Gravel has obtained storm water permit coverage for the Spink, Hudson, West Hawarden, Vermillion, and Volin Pits. (Permit Numbers: SDR00B038, SDR00B039, SDR00B035, SDR00B475, SDR00B041, respectively). These permits contain storm water regulations and require the development of a storm water pollution prevention plan and implementation of Best Management Practices to prevent storm water runoff from becoming polluted. Therefore, storm water will not be addressed in the proposed SWD permit.

ENDANGERED SPECIES

No listed endangered species are expected to be impacted by activities related to this permit. However, the tables below show the species that may be present in Higman Sand and Gravel's geographic areas.

COUNTY	GROUP	SPECIES	CERTAINTY OF OCCURRENCE
CLAY and UNION	FISH	SHINER, TOPEKA	KNOWN
		STURGEON, PALLID	POSSIBLE
	BIRD	PLOVER, PIPING	KNOWN
		TERN, LEAST	KNOWN
	MOLLUSK	MUSSEL, SCALESHELL	HISTORIC, Missouri River
	PLANT	ORCHID, WESTERN PRAIRIE FRINGED	POSSIBLE

COUNTY	GROUP	SPECIES	CERTAINTY OF OCCURRENCE
YANKTON	FISH	SHINER, TOPEKA	POSSIBLE
		STURGEON, PALLID	POSSIBLE
	BIRD	CURLEW, ESKIMO	KNOWN
		PLOVER, PIPING	KNOWN
		TERN, LEAST	KNOWN
	MOLLUSK	EYE, HIGGINS	POSSIBLE
		MUSSEL, SCALESHELL	HISTORIC, Missouri River
	PLANT	ORCHID, WESTERN PRAIRIE FRINGED	POSSIBLE

This information was accessible at the following US Fish and Wildlife Service website as of October 18, 2011: <http://www.fws.gov/southdakotafieldoffice/SpeciesByCounty.pdf>

DRAINAGE ISSUES

Clay County, Union County, and Yankton County have the authority to regulate drainage. Higman Sand and Gravel is responsible for getting any necessary drainage permits from the counties **prior** to discharging.

PERMIT EXPIRATION

A five-year permit is recommended.

PERMIT CONTACT

Any questions pertaining to this statement of basis can be directed to Dale Healey, Natural Resources Project Engineer for the Surface Water Quality Program, at 605-773-3351.

October 18, 2011

ATTACHMENT 1
Antidegradation Review

Permit Type: Minor Industrial Applicant: Higman Sand and Gravel
 Date Received: 03-31-2008 Permit #: SD0027928
 County: Refer to pages 1-2 of the Statement of Basis Legal Description: Refer to pages 1-2 of the Statement of Basis
 Receiving Stream: Refer to pages 1-2 of the Statement of Basis Classification: Refer to pages 1-2 of the Statement of Basis
 If the discharge affects a downstream waterbody with a higher use classification, list its name and uses: N/A

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: _____

*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.

FORMAL REVIEW

2. Is the stream segment classified as an OSRW? Yes No If no, go to question #3. **If yes, no change in water quality allowed. No further review required.**
3. Will there be an insignificant change in water quality? Yes No If no, go to question #4. **If yes, no further review required.**
- Only temporary change in water quality will result from the discharge;
 - Resulting change in water quality from the discharge will only affect a water quality parameter that is only regulated by a narrative standard and the discharge will not adversely impact the stream's beneficial uses;
 - Volume of the proposed discharge is small compared to the flow in the stream. The ratio of the average stream flow to discharge flow is greater than 50:1;
 - The increase in pollutant loading at critical low flow is expected to be less than 20% of the stream's assimilative capacity;
 - The resulting change in water quality from the discharge is less than one standard deviation of the mean concentration of the ambient water quality; or
 - Other: _____

4. Are existing, regulated point or nonpoint sources located in the area in compliance with required controls or has a compliance schedule been established for these sources? Yes No If no, establish an appropriate compliance schedule prior to approving, as proposed, the activity under review.
5. Based on available information, are there existing uses that are better than the currently designated uses? Yes No If yes, use protection of the higher existing use(s) as the basis for antidegradation decision-making and arrange to upgrade the currently designated use(s).
6. Will existing uses be fully maintained and protected? Yes No If no, recommend denial of the activity as proposed.

PERMIT APPLICATION

7. Has the applicant submitted all information listed in the antidegradation implementation Procedure? Yes No If no, why not? _____

PUBLIC NOTICE AND OPPORTUNITY FOR HEARING

- 8. Has the application been properly public noticed? Yes No Date notice occurred
In paper: _____ Paper notice appeared in: _____

- 9. Has anyone petitioned the department for a public hearing on the application? Yes
 No **If no, no further review required. Proceed with writing permit based
on outcome of antidegradation review. If yes, schedule time before the Water
Management Board for public hearing on application.**
Date and time of hearing: _____
Location of hearing: _____

- 10. Did the Board of Water Management approve the application? Yes No
Attach a copy of the board minutes to this worksheet.

ANTIDEGRADATION REVIEW SUMMARY

- 11. 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: _____

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

Dale Healey
Reviewer

October 18, 2011
Date

Kelli Buscher, P.E.
Program Supervisor or Team Leader

October 18, 2011
Date

ATTACHMENT 2

Monitoring Data

Outfall 001

DMR	Limit	Duration of discharge	Floating solids or visible foam-visual	Flow rate	Flow rate	Flow, total	Hydrocarbons, petroleum	Oil and grease visual	pH	pH	Solids, total dissolved	Solids, total dissolved	Solids, total suspended	Solids, total suspended	Temperature, water deg. centigrade	Temperature, water deg. centigrade
		MO TOTAL	DAILY MX	30DA AVG	DAILY MX	MO TOTAL	DAILY MX	DAILY MX	DAILY MN	DAILY MX	30DA AVG	DAILY MX	30DA AVG	DAILY MX	30DA AVG	DAILY MX
		N/A d/mo	Y=1;N=0	N/A Mgal/d	N/A Mgal/d	N/A Mgal/mo	10 mg/L	Y=1;N=0	6 SU	9 SU	2500 mg/L	4375 mg/L	25 mg/L	45 mg/L	N/A deg C	20 deg C
End Date	Recv'd Date															
09/30/2004	10/18/2004	30	0	0.58	0.58	0.86	1	0	8.05	8.05	1	1	4	4	14	14
10/31/2004	11/15/2004	10	0	0.29	0.29	0.86	1	0	8.05	8.05	1	1	4	4	11.1	11.1
05/31/2009	5/28/2009	104	0	500	3,180,00	2	2	2	8.1	8.19	758	785	9.8	19.8	7	20
07/31/2009	8/24/2009	32	4	500	16,000	16,000	3	4	7.91	8.11	862	979	9.2	21.6	64.6	77.9 F (25.5 C)
09/30/2009	10/5/2009	3.4	0	500	10,000	N/A	N/A	N/A	7.99	8.06	905	931	9.6	13.7	71.6	74.6 F (23.6 C)

- 1 - Not required
- 2 - Administratively Resolved
- 3 - Lost Sample
- 4 - Analysis not concluded