

## STATEMENT OF BASIS

**Applicant:** Dell Acres Mobile Home Park  
**Permit Number:** SD0028347  
**Contact Person:** Stan Schwellenbach, Owner  
4-S Holding Company  
PO Box 162  
Pierre, SD 57501  
**Phone:** (605) 280-4847  
**Permit Type:** Minor No Discharge Water Reuse - Renewal

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### DESCRIPTION

The 4-S Holding Company operates a wastewater treatment facility at the Dell Acres Mobile Home Park, which is located about six miles east of the city of Pierre in the Northeast ¼ of the Southeast ¼ of Section 18, Township 111 North, Range 78 West, in Hughes County, South Dakota (Latitude 44.418056°, Longitude -100.252222°, map interpolation).

The wastewater treatment facility consists of individual septic tanks. The effluent from the individual tanks then flows to one of two centralized septic tanks. From these tanks, the effluent flows to a 0.5-acre single cell lagoon. Once a year (usually in the fall), the operator land applies the water from the lagoon in a shelterbelt west of the lagoon. Prior to land application, the wastewater flows through a Sanuril® chlorination unit (See Attachment 1). The land application is achieved through flood irrigation.

This wastewater treatment facility serves a population of 95 persons (permit application), with no known industrial users contributing flow to the system.

### RECEIVING WATERS

Any discharge from this facility will enter an unnamed tributary and flow about 3.5 miles to Dry Run Creek. The unnamed tributary and Dry Run Creek are 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 uses:

- (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**

Dell Acres Mobile Home Park has been submitting Discharge Monitoring Reports (DMRs) under the current permit. In the proposed permit, the facility will no longer be required to submit DMRs on a monthly basis. In the proposed permit, DMRs shall be submitted to SDDENR only for months where land application occurs.

As shown in Attachment 3, this facility has had six daily maximum violations of the fecal coliform limit during the current permit cycle. Dell Acres has implemented best management practices, including the installation of a chlorination system, to reduce the fecal coliform levels in the wastewater land applied. Based on the use of these best management practices, the fecal coliform limits are being removed from the proposed permit. No discharge or land application was reported for the months not included in the table.

**INSPECTIONS**

Personnel from SDDENR conducted a *Compliance Inspection* of the Dell Acres Mobile Home Park’s wastewater treatment facility and land application site on October 21, 2011.

The following comments detail violations of the permit that were identified during the inspection. Corrective actions for each violation are **required** for the Dell Acres Mobile Home Park to come into compliance with its surface water discharge permit.

COMMENTS	REQUIRED CORRECTIVE ACTIONS
<p>Dell Acres has not submitted its 2011 Discharge Monitoring Reports (DMRs). The owner typically submits all DMRs with the DMR that land application was completed.</p> <p><b><i>*The new/proposed permit will have DMRs required only when Dell Acres land applies. SDDENR has changed the way land application DMRs are handled after the current permit was issued. However, until the new/proposed permit is effective, DMRs <u>MUST</u> still be submitted as required.</i></b></p>	<p>Page 7 of your SWD Permit states under Reporting:</p> <p><i>Monitoring results obtained during the previous month shall be summarized and reported on a Discharge Monitoring Report form. These must be postmarked no later than the 28th day of the month following the completed reporting period.</i></p>

COMMENTS	REQUIRED CORRECTIVE ACTIONS
<p>There have been 6 effluent violations of Fecal Coliform limit under the current permit.</p>	<p>The operator should schedule discharges so that the wastewater is treated adequately.</p> <p><i>*The fecal coliform limit will be eliminated in the new/proposed permit. The facility has added a chlorination system and is implementing best management practices (fencing, warning signs ground not frozen, etc.) during land application.</i></p> <p><i>*/* Chlorination must continue and best management practices (BMP's) must continue to be followed.</i></p>
<p>The operator stated he is inspecting the pond site several times a week, which is more than what is required by the permit. However only the inspections during land application are being documented.</p>	<p>All pond site inspections conducted by Dell Acres <b>must be documented</b> in a notebook to be reviewed by SDDENR personnel when an inspection occurs. At a minimum, the notebook shall include the following:</p> <ol style="list-style-type: none"> <li>1. Date and time of the inspection;</li> <li>2. Name of the inspector(s);</li> <li>3. The facility's discharge/land application status;</li> <li>4. The measured water depth of the pond;</li> <li>5. Identification of operational problems and/or maintenance problems;</li> <li>6. Recommendations, as appropriate, to remedy identified problems;</li> <li>7. A brief description of any actions taken with regard to problems identified; and</li> <li>8. Other information, as appropriate.</li> </ol> <p>The inspection notebook is a condition of the SWD permit. An inspection notebook has been enclosed.</p>

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

<b>COMMENTS</b>	<b>RECOMMENDED CORRECTIVE ACTIONS</b>
There is no riprap in the stabilization cell of the wastewater treatment facility.	Proper riprap can prevent the erosion caused by high water and wind/wave action. This erosion may cause operation and maintenance problems and result in major repair expenses.
There are not pond depth indicators in your stabilization pond.	Pond depth indicators should be installed in each cell, with readings recorded during each inspection. These records will be helpful in determining flow to the pond and aid in maintaining the proper operating depths in the pond at all times.
There is excessive grass and tree growth on the pond dikes.	The trees need to be eliminated to prevent dike damage from the root systems. The grass is overgrown and should be mowed or hayed as needed. Tall or overgrown vegetation tends to inhibit the air action on the pond, which in turn inhibits the biological action necessary to treat the wastes and keep odors to a minimum.
There are a few cattails and reeds growing in your stabilization pond.	In order for your treatment pond to operate properly, the rush and cattail growth in the ponds should be eliminated by spraying and/or cutting to prevent erosion/seepage damage to the dikes and attracting rodents.
Dell Acres Mobile Home Park has not implemented a regular sewer line cleaning schedule.	The department recommends that the Dell Acres Mobile Home Park should develop a regular sewer line cleaning schedule. Regular cleaning will prevent sewer back-ups and will help identify 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 Judgment (BPJ).

**The permittee shall notify SDDENR at least 24 hours in advance of land application activities occurring. The permittee shall comply with the effluent limits specified below.**

**Outfall 001R** – Land application of wastewater from Dell Acres Mobile Home Park land application system (Latitude 44.417885°, Longitude -100.252931°, map interpolation).

**Outfall 001N** – Any discharge to waters of the state from land application of wastewater from Dell Acres Mobile Home Park (Latitude 44.417885°, Longitude -100.252931°, map interpolation).

Effective immediately and lasting throughout the life of this permit, Dell Acres Mobile Home Park shall have **no discharge** from its wastewater facility and **no discharge** of land applied waters 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 report the occurrence in accordance with Section 4.6 of the proposed permit and take the appropriate measures to minimize the discharge of pollutants. Such measures shall include the closing of facilities that contribute water to the wastewater treatment facility or the land application system until the discharge is terminated. **The act of land applying treated wastewater 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 wastewater. There shall be no pooling of the land applied wastewater. 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. This limit is based on the *South Dakota Recommended Design Criteria Manual for Wastewater Collection and Treatment Facilities*.
3. The land application equipment shall, to the extent feasible, be installed 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. Prior to land application, the effluent shall be treated with chlorine. This limit is based on BPJ.
6. Barriers shall be put up around the shelterbelt to limit public access while land application is occurring. This limit is based on BPJ.
7. Persons living adjacent and any other individual who frequents the shelterbelt area shall be notified prior to land application activities as to the nature of water being land applied. This limit is based on BPJ.

The following parameters shall be monitored, but will not have a limit: total gallons (gal) land applied, pH (s.u), water temperature (°F), and Escherichia coli (*E. coli*, no./100mL).

## SELF MONITORING REQUIREMENTS

### *Inspection Requirements*

Monitoring shall consist of **monthly** inspections 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. Land application equipment and land application sites shall be inspected at least **daily** while land application is occurring. The inspection shall be conducted to determine that the land application system is operating correctly and to ensure that no runoff is occurring as a result of land application of treated wastewater. Documentation of each of these visits shall be kept in a notebook to be reviewed by SDDENR or EPA personnel when an inspection occurs.

### *Land Application Monitoring Requirements*

A minimum of one sample per month shall be taken during any month that land application is occurring. 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:

<b>Effluent Characteristic</b>	<b>Frequency</b>	<b>Reporting Values<sup>1</sup></b>	<b>Sample Type<sup>1</sup></b>
Total Flow, gallons	Monthly	Monthly Total	Calculated
Number of days Land Application occurred, days	Monthly	Monthly Total	Calculated
Land Application Rate, gallons per day	Daily	Actual Value	Instantaneous
pH, standard units	Weekly <sup>2</sup>	Actual Value	Instantaneous <sup>3</sup>
Water Temperature, °F	Weekly <sup>2</sup>	Actual Value	Instantaneous <sup>4</sup>
Escherichia coli ( <i>E. coli</i> ), no./100 mL	Weekly <sup>2</sup>	Actual Value	Grab

<sup>1</sup> See **Definitions**.

<sup>2</sup> A minimum of one sample per week shall be taken for the duration of land application activities. Samples shall be representative of the land applied water and should be taken after the chlorine disinfection unit. The permittee always has the option of collecting additional samples if appropriate.

<sup>3</sup> 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.

<sup>4</sup> 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 Fahrenheit.

***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 Reporting requirements stated in the Surface Water Discharge permit. Upon discovery of a discharge, sanitary sewer overflow, runoff from land application, or other discharge, the discharge shall be monitored as shown below:

<b>Effluent Characteristic</b>	<b>Frequency</b>	<b>Reporting Value</b>	<b>Sample Type <sup>1</sup></b>
Total Flow, gallons	Each Discharge <sup>2</sup>	Event Total	Calculated
Duration of Discharge, days	Each Discharge <sup>2</sup>	Event Total	Calculated
Flow Rate, gallons per day	Daily <sup>3</sup>	Actual Value	Instantaneous
pH, standard units	Daily <sup>3</sup>	Actual Value	Instantaneous <sup>4,5</sup>
Total Residual Chlorine, mg/L	Daily <sup>3</sup>	Actual Value	Instantaneous
Water Temperature, °F	Daily <sup>3</sup>	Actual Value	Instantaneous <sup>4,6</sup>
Total Suspended Solids (TSS), mg/L	Daily <sup>3</sup>	Actual Value	Grab
Five-Day Biochemical Oxygen Demand (BOD <sub>5</sub> ), mg/L	Daily <sup>3</sup>	Actual Value	Grab
Ammonia as N, mg/L	Daily <sup>3</sup>	Actual Value	Grab <sup>4</sup>
<i>Escherichia coli</i> ( <i>E. coli</i> ), no./100 mL	Daily <sup>3</sup>	Actual Value	Grab
Total Coliform, no./100 mL	Daily <sup>3</sup>	Actual Value	Grab

<sup>1</sup> See Definitions.

<sup>2</sup> 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.

<sup>3</sup> 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.

<sup>4</sup> The pH and temperature of the effluent shall be determined when ammonia samples are collected.

<sup>5</sup> 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.

<sup>6</sup> 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 Fahrenheit.

## SLUDGE

Based on Dell Acre Mobile Home Park'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, Dell Acres Mobile Home Park is required to submit to SDDENR a sludge disposal plan for review and approval **prior** to the removal and disposal of sludge.

## 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 Dell Acres Mobile Home Park's geographic area.

COUNTY	GROUP	SPECIES	CERTAINTY OF OCCURRENCE
HUGHES	BIRD	CRANE, WHOOPING	KNOWN
		TERN, LEAST	KNOWN
	FISH	STURGEON, PALLID	KNOWN

This information was accessible at the following US Fish and Wildlife Service website as of January 20, 2012: <http://www.fws.gov/southdakotafieldoffice/SpeciesByCounty.pdf>.

## PERMIT EXPIRATION

A five-year permit is recommended.

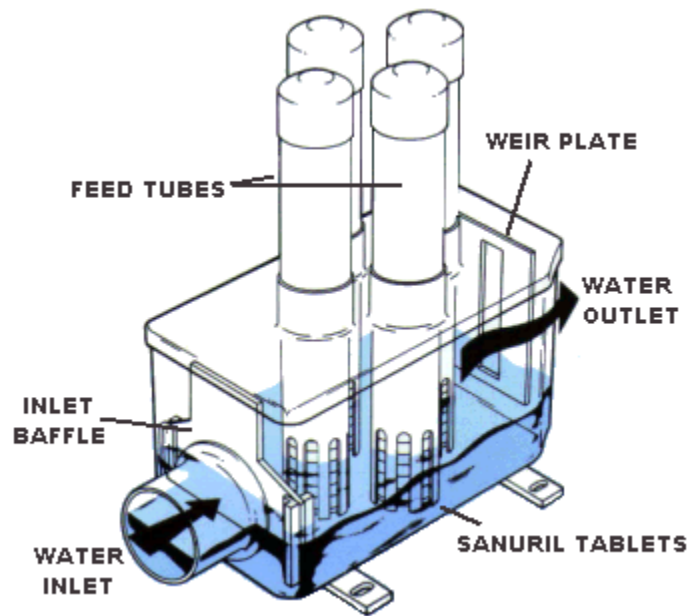
## PERMIT CONTACT

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.

January 20, 2012

# **ATTACHMENT 1**

## **Sanuril® Chlorination System Diagram**



Source: [http://www.tiptonenv.com/sanuril\\_1000.html](http://www.tiptonenv.com/sanuril_1000.html)

# **ATTACHMENT 2**

## **Antidegradation Review**

**Minor No  
Discharge Water**

Permit Type: Reuse-Renewal Applicant: Dell Acres Mobile Home Park  
Date Received: 8/02/2011 Permit #: SD0028347  
County: Hughes Legal Description: NE 1/4 SE 1/4 Sec 18, T11N, R78W  
Receiving Stream: Unnamed Trib. of Dry Creek Classification: 9, 10  
If the discharge affects a downstream waterbody with a higher use classification, list its name and uses: None

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**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 allow a discharge, except in accordance with the emergency release, bypass, or sanitary sew overflow provisions of the proposed permit.

\*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

January 20, 2012  
Date

Kelli D. Buscher, P.E.  
Team Leader

January 20, 2012  
Date

# **ATTACHMENT 3**

## **Monitoring Data**

	Fecal Coliform		Duration of discharge	Total Flow	pH		Temperature	
	30 Day Geometric Mean	Daily Max	Monthly Total	Monthly Total	Daily Min.	Daily Max	30 Day Average	Daily Max
	N/A #/100mL	10 #/100mL	N/A days	N/A gallons	N/A SU	N/A SU	N/A °C	N/A °C
10/31/2007	NR	<b>19,000</b>	3	15,500	7.84	7.84	1.1	1.1
12/31/2008	NR	<b>2,800</b>	2	21,000	NS	NS	0	0
10/31/2009	690	<b>690</b>	3	30,600	7.68	7.68	2.2	2.2
11/30/2009	30	<b>30</b>	2	14,400	7.9	7.9	2.2	2.2
10/31/2010	NR	<b>35,000</b>	9	120,000	7.91	8.2	9.4	9.4
10/31/2011	NR	<b>24,000</b>	11	121,500	7.7	7.7	12.8	16.7

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

NS is No Sample. No sample is available for these parameters.

**Violations are bolded, shaded, and larger font.**