DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

August 11, 2010

Mr. Richard E. Blubaugh, Vice President
Environmental, Health & Safety
Powertech (USA), Inc.
5575 DTC Parkway, Suite 140
Greenwood Village, CO 80111

Re: Dewey-Burdock Project, Groundwater Discharge Permit Draft Monitoring Proposal

Dear Mr. Blubaugh,

This letter is in response to Powertech's draft groundwater discharge monitoring plan proposal. Please be advised, Powertech will need to fully comply with the State of South Dakota groundwater quality standards, ARSD 74:54:01, groundwater discharge rules, ARSD 74:54:02, mining rules, ARSD 74:29:05:14-20, and will need to complete a Groundwater Discharge Permit application. I have enclosed a copy of the application form for your use in addition to copies of the groundwater quality standards, groundwater discharge rules and the mining rules concerning land application. The Department has reviewed the draft monitoring proposal and has the following concerns.

- Regarding Figure 1 (Land Application Sampling Locations), the majority of the monitor wells appear to be bedrock wells, some completed as deep as the Sundance. Additionally, some of the groundwater monitoring locations are situated at significant distances (several in excess of one mile) from the proposed land application areas. The Department will not allow the use of bedrock wells to evaluate shallow groundwater impacts from land application. The Department will require the installation of shallow wells within appropriate distances (e.g., within the land application areas and to ½ mile out, depending on proposed land application operations) to accurately monitor groundwater discharge from the land application sites.

- Regarding Table 1-2 (Operational Monitoring Parameters for Water), Powertech lists the regulatory limit (according to ARSD 74:54:01:04) for both pH and total dissolved solids (TDS) as "N/A". ARSD 74:54:01:04, Table 2 states the ground water quality standard for pH as 6.5 – 8.5 and total dissolved solids as 1,000 mg/l. The only instance where these parameters are not applicable, is when the receiving discharge is from a publicly owned treatment works, such as a municipality.

- The monitoring plan summary does not appear to include baseline groundwater monitoring locations or a baseline monitoring plan. ARSD 74:54:02:18 requires that a minimum of four samples be collected from each applicable well within a six month period. This would include baseline sampling of all shallow wells required for the groundwater discharge permit operation. In its Ground Water Discharge Permit application Powertech must include a baseline monitoring plan and sampling schedule.

- The Department has concerns over the potential for heavy metals and metalloids, such as arsenic and selenium, to accumulate in vegetation as a result of land application, and the potential impact this could have on livestock and wildlife in the area. In its Ground Water Discharge Permit application Powertech must address the potential for this scenario to occur as well as plans for mitigation should it become a problem.

- The included map is difficult to correlate to the narrative monitoring plan summary. In its Ground Water Discharge Permit application Powertech must clearly identify and label all sampling locations listed in Table 1 in addition to discussing items included on the map, including land application regrading, land application containment areas, standby pivot areas, and area of influence.

- On the first page, third paragraph of the Monitoring Plan Summary, Powertech references ARSD 74:29:05:15 of the mining rules. Please be advised that ARSD 74:29:05 is not part of a Ground Water Discharge Plan. However, as land application at an in-situ leach facility would also be regulated under ARSD 74:29:05:15 of the mining rules, the Ground Water Quality Program will be working closely with the Minerals and Mining Program in the review of the Ground Water Discharge Plan. Additionally, Powertech incorrectly references ARSD 74:29:05:15. The collection of a sample for every 100,000 gallons is a requirement of ARSD 74:29:05:15, not a recommendation as implied by the draft monitoring proposal. The rules also state the grab sample shall be split, and one split sample of each five consecutive grab samples shall be composited and analyzed for the required

monitoring parameters. Therefore, there would only be one analysis every 500,000 gallons.

To clarify the Groundwater Discharge Permit application process, I have enclosed a Groundwater Discharge Permit application form. This form is also available on the Department website at: http://denr.sd.gov/des/gw/GWDischarge/E0452V1-GWDischargeApp.pdf. In addition, the Groundwater Discharge permitting rules and groundwater quality standards are also available on the internet at: http://legis.state.sd.us/rules/DisplayRule.aspx?Rule=74:54. The mining rules can also be found at: http://legis.state.sd.us/rules/DisplayRule.aspx?Rule=74:29:05. If you have questions regarding the Groundwater Discharge permitting process, please feel free to contact me at the number listed below.

Sincerely,

Matt Hicks

Matt Hicks
Senior Hydrologist
Ground Water Quality Program
SD Department of Environment and Natural Resources
Telephone: 605-773-3296

Enclosure:

CC: Mark Hollenbeck, Powertech (USA), Inc., Edgemont, SD
Ron Burrows, NRC, Washington, D.C.
Valois Shea, USEPA, Region VIII, Denver, Co
Brian Walsh, SDDENR, Ground Water Quality Program, Pierre, SD
Mike Cepak, SDDENR, Minerals and Mining Program, Pierre, SD

Department of Environment & Natural Resources
Ground Water Quality

Ground Water Quality Program
523 East Capital Avenue
Joe Foss Building, Pierre,
South Dakota 57501-3181

Ground Water Discharge Plan Application

(Revised July 1997)

1. Name of discharger or person legally responsible for discharge (owner/ operator), *refer to ARSD 74:54:02:06 (1):*

Address: _____

_____ SD _____

Telephone: _____

Local representative or contact person if different from above:

Name: _____

Address: _____

_____ SD _____

Telephone: _____

2. Legal Location of Discharge Facility, *refer to ARSD 74:54:02:06 (2)*

County_____, _____1/4 _____1/4, Section _____,

Township _____, Range _____

3. *Refer to ARSD 74:54:02:06 (3)*

Name of facility and/or project _____

Estimated Project life _____ years

Type of operation, facility or development.

A. ☐ New facility ☐ Modification of existing facility

☐ Concentrated Animal Feeding Operation

☐ Industrial (i.e. chemical manufacture, metal manufacturing wood treatment, photo processing, printing, paper mills, etc.)

☐ Municipal waste

☐ Mining

☐ Other (i.e. agricultural, silvicultural, gravel washing, rock crushing Activities, etc.)
Specify_____

Description of operation.

4. Name, location (1/4, 1/4, 1/4, Section, Township, and Range), and description of all wells (existing, abandoned, or proposed), water bodies, drainages, natural or man-made structures, and water usage (past, present, or future) within a one-mile radius of the discharge site. *Refer to ARSD 74:54:02:06 (4).*

Wells - existing, abandoned, proposed, *refer to ARSD 74:54:02:06 (12)*

Name	Location	Description	Status	Usage

Water Bodies and Drainages

Name	Location	Description	Status	Usage

Structures

Name	Location	Description	Status	Usage

The above information MUST be included on a plat map and attached to the application.

5. A. Geologic Description - discussion must include:
   1. Structural Geology - regional and local
   2. Stratigraphy - description of geographic formations and thickness
      - soil types, thickness, depth to bedrock, cation exchange capacity, and attenuation capabilities.
   3. Geomorphology (topography)
   4. Land use

   B. Hydrologic description - discussion must include:
   1. Depth to ground-water or aquifer - must include all sources, description of the source, flow directions and gradients, well logs must be included.
   2. The ground-water most likely to be affected by the discharge - description to include the name of the aquifer, saturated thickness, flow direction, porosity, hydraulic conductivity, and other flow characteristics, hydraulic connection with other aquifers or surface sources, recharge information, water in storage, usage, and the projected aerial extent of the aquifer. *Refer to ARSD 74:54:02:06 (11).*
   3. The quality of all water sources in accordance to the parameters listed in *ARSD 74:54:01:03 and 74:54:01:04*, inclusive. Future monitoring sites will be required to submit sampling data upon completion.

Source Parameter	Concentration (mg\L)

   4. Flooding potential of the site, the 100 year flood plain, if applicable, and any protection measures. *Refer to ARSD 74:54:02:06 (14).*

   C. Agricultural Description - if applicable, the discussion must include land use; types of crops produced; irrigation, if used; locations of livestock confinement areas (existing or abandoned).

6. Description of construction, modification or operation of discharge system to include a quality assurance/quality control plan for construction. Copies of plans and specifications relating to construction, modification, and operation of discharge systems, including materials specifications provided by the manufacturer, must be submitted to the Department of Environment and Natural Resources. *Refer to ARSD 74:54:02:13.*

   The description must include the means of discharge (to a lagoon, cropland, septic tank-leach field, other - specify), the quantity, the quality, and the description of treatment, if any, prior to discharge. *Refer to ARSD 74:54:02:06 (6) and (10).*

Quantity

Average Volume discharged _____ gallons per day
Maximum Volume discharged _____ gallons per day
Number of days per year that facility will discharge. _____

If more than one discharge point exists, list the discharge volume (average and maximum) for each source in gallons per day.

Quality, *refer to ARSD 74:54:01:03 and 74:54:01:04*

Before Treatment

Parameter	Concentration (mg/L)
_____	_____
_____	_____
_____	_____

After Treatment - the quality of the discharge after treatment must be justified by the laboratory testing and calculation. If calculations are used, they must be submitted with the application. If more than one type of discharge, the quality for each must be submitted. composites of more than one individual discharge streams will not be accepted.

Parameter	Concentration (mg/L)
_____	_____
_____	_____
_____	_____

7. What conditions naturally exist, and what actions will the discharger take to assure that the discharge can be controlled and will not migrate into or adversely affect the quality of any waters of the state. This discussion should address chemical loading, attenuation, dilution, methods to minimize ground water discharge (i.e., synthetically lined ponds with leak detection), and methods for detecting system failures. *Refer to ARSD 74:54:02:06 (7) and 74:54:02:21.*

8. If applicable, describe the Perimeter of Operational Pollution (POP), and any Geologic or hydrological information used to determine the dimensions of the POP. A social and economic justification for the POP must be included. A plat map showing the proposed dimensions of the POP, monitoring points for the POP, and the compliance monitoring point must be included. *Refer to ARSD 74:54:02:06 (8), 74:54:02:11, and 74:54:02:17.*

9. *Refer to ARSD 74:54:02:06 (9) and 74:54:02:20,* a monitoring plan to include:
A. The ambient water quality of the discharge site in accordance with ARSD 74:54:02:18.

B. A quality assurance/quality control plan for sampling, well construction, or other effluent or leachate monitoring devices (e.g., lysimeters or tensiometers).

C. A quality assurance/quality control plan for laboratories used by the operator.
D. an operational monitoring plan to address monitoring sites, parameters to be measured, a monitoring schedule, and reporting schedule.
E. Post closure monitoring plan to address monitoring sites, parameters to be measured, a monitoring schedule, and reporting schedule.

10. Define an operational compliance effluent (discharge stream) sampling plan. Include parameters to be sampled, a monitoring schedule, and the means or devices used for measurement of the rate of discharge (flow monitoring) . Also address a reporting schedule of the discharge. *Refer to ARSD 74:54:02:06 (13), 74:54:02:20 and 74:54:02:22.*

11. Define an operation and a post-closure contingency plan to bring the facility into compliance if the permitted allowable limits are exceeded. *Refer to ARSD 74:54:02:06 (15), 74:54:02:22 and 74:54:02:27.*

12. Define methods and procedures for inspections of facility operation and for detection of system failures. The discharger must include a notarized statement granting permission to inspect in accordance with ARSD 74:50:03:03. The document must be signed by a person legally responsible for the facility. *Refer to ARSD 74:54:02:06 (16).*

NOTE:. ***To demonstrate that the ground-water standards will not be violated, and waters of the State will be protected, additional information may be requested of the discharger.***

I certify that I am a person (the owner and/or operator) legally responsible for this facility, that I am familiar with the information contained in the application, and that to the best of my knowledge and belief, such information is true, complete and accurate.

_____ _____

Signature Date

_____ _____

Printed Name of Person Signing Title

ARTICLE 74:54

GROUNDWATER QUALITY

CHAPTER 74:54:01

GROUNDWATER QUALITY STANDARDS

74:54:01:01. Definitions. Words defined in SDCL 34A-2-2 have the same meaning when used in this chapter. In addition, terms used in this chapter mean:

(1) "Ambient," the constituents or parameters and the concentration or measurements which describe water quality prior to a subsurface discharge;

(2) "CAS Number," a unique identifier assigned by the American Chemical Society to chemicals recorded in the Chemical Abstract Registry System (CAS). The CAS Number is used to conclusively identify a substance regardless of assigned name. Additional information concerning the CAS Registry System is available online at: http://www.cas.org/EO/regsys.html;

(3) "Contaminant," any physical, chemical, biological, or radiological substance or matter in water potentially harmful to human health;

(4) "Groundwater," water below the land surface that is in the zone of saturation;

(5) "EPA," the United States Environmental Protection Agency;

(6) "MFL," million fibers per liter;

(7) "mg/L," milligrams per liter;

(8) "MPN," most probable number;

(9) "mrem," "millirem," the dosage of an ionizing radiation that will cause the same biological effect as 0.001 roentgen of X-ray or gamma-ray exposure;

(10) "pH," a measure of the acidity or alkalinity of a solution, numerically equal to 7 for neutral solutions, increasing with alkalinity and decreasing with acidity;

(11) "pCi," "Picocurie," that quantity of radioactive material producing 2.22 nuclear transformations per minute;

(12) "Pollutant," dredged spoil, solid waste, incinerator residue, sewage, sewage sludge, garbage, trash, chemical waste, biological material, radioactive material, heat, wrecked or discarded equipment, rock, sand, or any industrial, municipal, or agricultural waste discharged into waters of the state;

(13) "Secretary," the secretary of the Department of Environment and Natural Resources or a representative designated to act for the secretary;

(14) "Total dissolved solids," "TDS," a term that expresses the quantity of dissolved material in a sample of water, which is determined by weighing the solid residue obtained by evaporating a measured volume of filtered sample to dryness at 356 degrees Fahrenheit.

Source: 14 SDR 86, effective December 24, 1987; 18 SDR 128, effective February 11, 1992; transferred from § 74:03:15:01, July 1, 1996; 31 SDR 62, effective November 7, 2004.
General Authority: SDCL 34A-2-11.
Law Implemented: SDCL 34A-2-10, 34A-2-11.

74:54:01:02. Toxic pollutant defined. A toxic pollutant is a water contaminant or combination of water contaminants in a concentration or concentrations which, upon exposure, ingestion, inhalation, or assimilation either directly from the environment or indirectly by ingestion through food chains, will unreasonably threaten or injure human health or the health of animals or plants. As used in this section, injuries to health include death, histopathologic change, depression of immune system, clinical symptoms of disease, behavioral abnormalities, genetic mutation, physiological malfunctions, and physical deformations in such organisms or their offspring. In order to be considered a toxic pollutant a contaminant must be one or a combination of the potential toxic pollutants shown by scientific information currently available to the public to have potential for causing one or more of the effects listed in this section.

Source: 18 SDR 128, effective February 11, 1992; transferred from § 74:03:15:01.01, July 1, 1996.
General Authority: SDCL 34A-2-11.
Law Implemented: SDCL 34A-2-10, 34A-2-11.

74:54:01:03. Classification of groundwater. The existing and future beneficial uses of groundwater shall be maintained and protected. Waters of the state in which ambient water quality is better than the minimum levels prescribed shall be maintained and protected at the better water quality.

Groundwater which has an ambient concentration of 10,000 mg/L or less total dissolved solids (TDS) is classified as having the beneficial use of drinking water supplies, suitable for human consumption.

If the ambient concentration of any water contaminant in the groundwater is in conformance with the standards in § 74:54:01:04, degradation of the groundwater to the limit of the standards may be permitted as specified in chapter 74:54:02 to accommodate necessary economic or social development upon approval of a water quality variance permit.

No water quality standards may be violated or designated beneficial uses be impaired by the granting of a water quality variance permit allowing degradation of groundwater quality. If the groundwater quality does not meet the standards in § 74:54:01:04 as a result of natural causes or conditions, no degradation of the groundwater beyond the ambient concentration may be allowed.

Source: 14 SDR 86, effective December 24, 1987; 18 SDR 128, effective February 11, 1992; transferred from § 74:03:15:02, July 1, 1996.

General Authority: SDCL 34A-2-11.

Law Implemented: SDCL 34A-2-10, 34A-2-11.

74:54:01:04. Standards for groundwater of 10,000 mg/L TDS concentration or less. The following standards are the allowable pH range and maximum allowable concentration in groundwater of 10,000 mg/L TDS concentration or less for the contaminants specified unless the ambient condition exceeds the standards. Regardless of whether there is one contaminant or more than one contaminant present in groundwater, when the ambient pH or concentration of any water contaminant exceeds the standard specified in this section, the ambient pH or concentration is the allowable limit, provided that the discharge at such concentrations will not result for the present or the reasonably foreseeable future in concentrations at any place of groundwater withdrawal in excess of the standards in this section.

These standards apply to the dissolved portion of the contaminants specified, with the exception of mercury and the organic compounds, using the definition of "dissolved" given in the publication Methods and Guidance for the Analysis of Water, Version 2, June 1999. The standards for mercury and the organic compounds apply to the total unfiltered concentrations of the contaminants.

Groundwater must meet the standards listed as follows unless otherwise provided by chapters 74:54:01 and 74:54:02:

TABLE ONE

Human Health Standards

CONTAMINANT	CAS NUMBER	CONCENTRATION
ORGANICS		
Alachlor	15972-60-8	0.002 mg/L
Aldicarb	116-06-3	0.003 mg/L
Aldicarb Sulfone	1646-87-4	0.002 mg/L
Aldicarb Sulfoxide	1646-87-3	0.004 mg/L
Atrazine	1912-24-9	0.003 mg/L
Benzene	71-43-2	0.005 mg/L
Benzo[a]pyrene	50-32-8	0.0002 mg/L
Cabofuran	1563-66-2	0.04 mg/L

Carbon tetrachloride	56-23-5	0.005 mg/L
Chlordane	57-74-9	0.002 mg/L
2,4-D (2,4-dichlorophenoxyacetic acid)	94-75-7	0.07 mg/L
Dalapon (sodium salt)	75-99-0	0.2 mg/L
Di(2-ethylhexyl)adipate	103-23-1	0.4 mg/L
Di(2-ethylhexyl)phthalate	117-81-7	0.006 mg/L
Dibromochloropropane (DBCP)	96-12-8	0.0002 mg/L
o-Dichlorobenzene	95-50-1	0.6 mg/L
p-Dichlorobenzene	106-46-7	0.075 mg/L
1,2-Dichloroethane	107-06-2	0.005 mg/L
1,1-Dichloroethylene	75-35-4	0.007 mg/L
cis 1,2-Dichloroethylene	156-59-2	0.07 mg/L
trans 1,2-Dichloroethylene	156-60-5	0.1 mg/L
Dichloromethane (Methylene chloride)	75-09-2	0.005 mg/L
1,2 Dichloropropane	78-87-5	0.005 mg/L
Dinoseb	88-85-7	0.007 mg/L
Diquat	85-00-7	0.02 mg/L
Endothall	145-73-3	0.1 mg/L
Endrin	72-20-8	0.002 mg/L
Ethylbenzene	100-41-4	0.7 mg/L
Ethylene dibromide (EDB)	106-93-4	0.00005 mg/L
Glyphosate	1071-53-6	0.7 mg/L
Heptachlor	76-44-8	0.0004 mg/L
Heptachlor epoxide	1024-57-3	0.0002 mg/L
Hexachlorobenzene	188-74-1	0.001 mg/L
Hexachlorocyclopentadiene	77-47-4	0.05 mg/L
Total Haloacetic Acids, including: Dichloroacetic acid Monochloroacetic acid Trichloroacetic acid	 76-43-6 79-11-8 76-03-9	0.06 mg/L
Lindane	58-89-9	0.0002 mg/L
Methoxychlor	72-43-5	0.04 mg/L
Monochlorobenzene	108-90-7	0.1 mg/L
Oxamyl (Vydate)	23135-22-0	0.2 mg/L
Pentachlorophenol	87-86-5	0.001 mg/L
Picloram	1918-02-1	0.5 mg/L
Polychlorinated biphenyls (PCBs)	1336-36-3	0.0005 mg/L
Simazine	122-34-9	0.004 mg/L
Styrene	100-42-5	0.1 mg/L
2,3,7,8-TCDD (Dioxin)	1746-01-6	0.00000003 mg/L (3×10^{-8} mg/L)
Tetrachloroethylene (PCE)	127-18-4	0.005 mg/L
Toluene	108-88-3	1 mg/L
Total petroleum hydrocarbons	NA	10 mg/L[1]
Toxaphene	8001-35-2	0.003 mg/L
2,4,5-TP Silvex	93-72-1	0.05 mg/L
1,2,4-Trichlorobenzene	120-82-1	0.07 mg/L

1,1,1-Trichloroethane	71-55-6	0.2 mg/L
1,1,2-Trichloroethane	79-00-5	0.005 mg/L
Total trihalomethanes, including: bromodichloromethane, bromoform (tribromomethane), chloroform (trichloromethane), and dibromochloromethane (chlorodibromomethane)	 75-27-4 75-25-2 67-66-3 124-48-1	0.08 mg/L
Trichloroethylene	79-01-6	0.005 mg/L
Vinyl chloride	75-01-4	0.002 mg/L
Xylenes (total)	1330-20-7	10 mg/L
INORGANICS		
Antimony	7440-36-0	0.006 mg/L
Arsenic	7440-38-2	0.01 mg/L[2]
Asbestos	1332-21-4	7 MFL (longer than 10 micrometers)
Barium	7440-39-3	2 mg/L
Beryllium	7440-41-7	0.004 mg/L
Bromate	7789-38-0	0.01 mg/L
Cadmium (Cd)	7440-43-9	0.005 mg/L
Chlorite	7758-19-2	1 mg/L
Chromium	7440-47-3	0.1 mg/L
Copper (Cu)	7440-50-8	1.0 mg/L
Cyanide (CN) as free cyanide	143-33-9	0.2 mg/L
Cyanine (CN) as weak acid dissociable	143-33-9	0.75 mg/L
Fluoride (F)	7681-49-4	4 mg/L
Lead (Pb)	7439-92-1	0.015 mg/L
Mercury (Hg)	7487-94-7	0.002 mg/L
Nitrate (as N)	14797-55-8	10 mg/L
Nitrite (as N)	14797-65-0	1 mg/L
Nitrate + Nitrite (both as N)	NA	10 mg/L
Selenium	7782-49-2	0.05 mg/L
Silver	7440-22-4	0.1 mg/L
Thallium	7440-28-0	0.002 mg/L
RADIONUCLIDES		
Beta particle and photon radioactivity (from man-made radionuclides)	NA	4 mrem/yr
Gross alpha particle activity, excluding radon and uranium	NA	15 pCi/l
Radium 226 & radium 228 combined	7440-14-4	5 pCi/l
Radon	10043-92-2	300 pCi/l
Uranium	7440-61-1	0.03 mg/L
MICROBIOLOGY		
Fecal coliform bacteria	NA	Less than 2.2 organisms per 100 mL (MPN)

[1] If Total Petroleum Hydrocarbons is between 0.1 mg/L and 10 mg/L, and is within the radius of influence of a well or within Zone A of a delineated wellhead protection area, clean up must continue until 0.1 mg/L is met. Total petroleum hydrocarbons must be analyzed using the California Department of Health Services Method published in "Leaking Underground Fuel Tank Field Manual: Guidelines for Site Assessment, Cleanup, and Underground Storage Tank Closure," October 1989, or its equivalent.

[2] Ground Water Discharge Plans with permitted allowable limits for arsenic issued before the effective date of these ground water quality standard revisions are exempt.

TABLE TWO

Other standards that are not applicable to groundwater receiving discharge from publicly owned treatment works.

CONTAMINANT	CAS NUMBER	CONCENTRATION
Chloride	7647-14-5	250 mg/L
pH	NA	6.5-8.5
Sulfate	7757-82-6	500 mg/L
TDS	NA	1000 mg/L

If the standards in either table one or table two are exceeded by ambient groundwater quality, the ambient water quality becomes the maximum allowable limit, as determined in § 74:54:02:18, for an approved groundwater discharge plan.

Source: 14 SDR 86, effective December 24, 1987; 18 SDR 128, effective February 11, 1992; transferred from § 74:03:15:03, July 1, 1996; 31 SDR 62, effective November 7, 2004.

General Authority: SDCL 34A-2-11.

Law Implemented: SDCL 34A-2-10, 34A-2-11.

References:

Methods and Guidance for the Analysis of Water, Version 2, June 1999; NTIS Order No. PB99-500209, published by the U.S. Environmental Protection Agency. Copies are available on CD-ROM from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161, 703-605-6000. The cost is $85.

"Leaking Underground Fuel Tank Field Manual: Guidelines for Site Assessment, Cleanup, and Underground Storage Tank Closure," October 1989, State Water Resources Control Board, P.O. Box 100, Sacramento, CA, 95812, 916-341-5250. Copies of the document are available online at: www.swrcb.ca.gov/general/publications/index.html.

Cross-References:

Organic chemicals, § 74:04:05:06.

Radionuclides, § 74:04:05:17.

40 C.F.R. § 141.11 (40 FR 59570, December 24, 1975, as amended at 45 FR 57342, August 27, 1980; 47 FR 10998, March 12, 1982; 51 FR 11410, April 2, 1986; 56 FR 30274, July 1, 1991;

56 FR 32113, July 15, 1991; 60 FR 33932, June 29, 1995; 65 FR 26022, May 4, 2000; 66 FR 7061, January 22, 2001).

40 C.F.R. § 141.12 (63 FR 69463, December 16, 1998, as amended at 66 FR 3776, January 16, 2001).

40 C.F.R. § 141.24 (40 FR 59570, December 24, 1975, as amended at 44 FR 68641, November 29, 1979; 45 FR 57345, August 27, 1980; 47 FR 10998, March 12, 1982; 52 FR 25712, July 8, 1987; 53 FR 5147, February 19, 1988; 53 FR 25110, July 1988; 56 FR 3583, January 30, 1991; 56 FR 30277, July 1, 1991; 57 FR 22178, May 27, 1992; 57 FR 31841, July 17, 1992; 59 FR 34323, July 1, 1994; 59 FR 62468, December 5, 1994; 60 FR 34085, June 29, 1995; 64 FR 67464, December 1, 1999; 65 FR 26022, May 4, 2000; 67 FR 65250, October 23, 2002; 67 FR 65898, October 29, 2002).

40 C.F.R. § 141.60 (56 FR 3593, January 30, 1991, as amended at 57 FR 31846, July 17, 1992; 59 FR 34324, July 1, 1994; 66 FR 7063, January 22, 2001).

40 C.F.R. § 141.61 (56 FR 3593, January 30, 1991, as amended at 56 FR 30280, July 1, 1991; 57 FR 31846, July 17, 1992; 59 FR 34324, July 1, 1994).

40 C.F.R. § 141.62 (56 FR 3594, January 30, 1991, as amended at 56 FR 30280, July 1, 1991; 57 FR 31847, July 17, 1992; 59 FR 34325, July 1, 1994; 60 FR 33932, June 29, 1995; 66 FR 7063, January 22, 2001; 68 FR 14506, March 25, 2003).

40 C.F.R. § 141.63 (54 FR 27566, June 29, 1989; 55 FR 25064, June 19, 1990, as amended at 65 FR 26022, May 4, 2000).

40 C.F.R. § 141.64 (FR 69465, December 16, 1998, as amended at 66 FR 3776, January 16, 2001).

40 C.F.R. § 141.66 (65 FR 76748, December 7, 2000).

40 C.F.R. § 143.3 (44 FR 42198, July 19, 1979, as amended at 51 FR 11412, April 2, 1986; 56 FR 3597, January 30, 1991).

74:54:01:05. Potential toxic pollutants. Groundwater shall not contain potential toxic pollutants. Potential toxic pollutants, other than those listed in Table 1 and Table 2 of § 74:54:01:04, must be nondetectable in groundwater at detection limits of the currently acceptable sampling and analytical techniques as approved by the secretary in § 74:54:01:06 until a maximum contaminant level (MCL) or health advisory level is set by the EPA.

Source: 14 SDR 86, effective December 24, 1987; 18 SDR 128, effective February 11, 1992; transferred from § 74:03:15:04, July 1, 1996; 31 SDR 62, effective November 7, 2004.

General Authority: SDCL 34A-2-11.

Law Implemented: SDCL 34A-2-10, 34A-2-11, 34A-2-22.

74:54:01:06. Sampling and analytical techniques. Sampling and analytical techniques and quality assurance plans must conform with the following references unless otherwise specified by the secretary:

(1) **Standard Methods for the Examination of Water and Wastewater**, 20th Edition, 1998;

(2) **Methods and Guidance for the Analysis of Water, Version 2**, June 1999;

(3) **Techniques of Water Resource Investigation of the U. S. Geological Survey**, (1982);

(4) The sampling and analytical requirements published in 67 FR 65896 - 65901 (October 29, 2002), 68 FR 14505 - 14507 (March 25, 2003), 67 FR 65246 - 65250 (October 23, 2002), (references to be codified at 40 C.F.R. Parts 141; National Primary Drinking Water Regulations) and 52 FR 25947 (July 9, 1987) and 62 FR 32462 (June 13, 1997), (to be codified at 40 C.F.R. Parts 264, Appendix IX);

(5) "National Field Manual for the Collection of Water-Quality Data", book 9, chaps. A1-A9 October 1997 to April 2004.

Source: 14 SDR 86, effective December 24, 1987; 18 SDR 128, effective February 11, 1992; transferred from § 74:03:15:05, July 1, 1996; 31 SDR 62, effective November 7, 2004.

General Authority: SDCL 34A-2-93.

Law Implemented: SDCL 34A-2-10, 34A-2-11.

References:

Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998, ISBN: 0-87553-235-7, 1220 pages, is prepared and published jointly by the American Public Health Association, the American Water Works Association, and the Water Environment Federation. Copies may be obtained from the American Public Health Association, Publications Sales, P.O. Box 753, Waldorf, Maryland, 20604-0753. The cost is $200.

Methods and Guidance for the Analysis of Water, Version 2, June 1999, Item No. PB99-500209. Copies are available on CD-ROM from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161. 703-605-6000. The cost is $85.

Techniques of Water Resource Investigation of the U.S. Geological Survey, (1982), Book 5, Chapter A3. Copies are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402-9325. The cost is $3.75.

U.S. Geological Survey, National Field Manual for the Collection of Water-Quality data: U.S. Geological Survey Techniques of Water-Resources Investigations, book 9, chaps. A1-A9, Chapter A1 (September 1998), Chapter A2 Version 2.0 (March 2003), Chapter A3 Version 1.2 (March 2003), Chapter A4 (September 1999), Chapter A5 (March 2004), Chapter A6.0 Version 1.1 (July 2003), Chapter A6.1 Version 1.2 (April 2004), Chapter A6.2 & A6.3 (April 1998), Chapter A6.4 (July 2003), Chapter A6.5 Version 1.1 (April 1998), Chapter A6.6 2nd Edition (September 2001), Chapter A6.7 (April 1998), Chapter A7 3rd Edition (November 2003), Chapter A8 & A9 (October 1997). Copies of the document are available online at: http://pubs.water.usgs.gov/twri9A.

CHAPTER 74:54:02

GROUNDWATER DISCHARGE PERMITS

74:54:02:01. Definitions. Words defined in SDCL 34A-2-2 have the same meaning when used in this chapter. In addition, terms used in this chapter mean:

(1) "Aquifer," a geologic formation, group of geologic formations, or part of a geologic formation that contains sufficient saturated permeable material to yield economical quantities of water to wells and springs;

(2) "Ambient," the constituents or parameters and the concentration or measurements which describe water quality prior to a subsurface discharge;

(3) "Board," the South Dakota Board of Water Management;

(4) "Compliance monitoring point," a well or wells located at the appropriate edge of the perimeter of operational pollution which is determined to be the earliest point of detection of a violation of a groundwater discharge plan;

(5) "EPA," the United States Environmental Protection Agency;

(6) "Contaminant," any physical, chemical, biological, or radiological substance or matter in water which is potentially harmful to human health;

(7) "Gradient," the change in total head per unit of distance;

(8) "Groundwater," water below the land surface that is in the zone of saturation;

(9) "Groundwater table," the upper surface of the zone of saturation of an unconfined aquifer;

(10) "Effluent," the discharge of partially or completely treated or untreated liquid waste;

(11) "Leachate," water that has percolated through solid waste or soils containing dissolved soluble substances and certain amounts of these substances in solution;

(12) "NPDES," the National Pollutant Discharge elimination system;

(13) "Owner and operator," person legally responsible for a facility subject to the provisions of this chapter;

(14) "Parameter," any physical, chemical, biological, or radiological constituent or characteristic of the groundwater, such as temperature, pH, and groundwater level;

(15) "Permitted allowable limit," the maximum groundwater contaminant concentration allowed at the compliance monitoring point as specified in the groundwater discharge permit;

(16) "Perimeter of operational pollution," "POP," a three-dimensional section of geologic materials surrounding the point of application of discharge within which groundwater quality degradation is permitted to occur;

(17) "Point of application," the outermost limit at which effluent or leachate has been stored, applied, disposed of, or discharged; for a diked facility, the outermost edge of the dikes;

(18) "Pollutant," dredged spoil, solid waste, incinerator residue, sewage, sewage sludge, garbage, trash, chemical waste, biological material, radioactive material, heat, wrecked or discarded equipment, rock, sand, or any industrial, municipal, or agricultural waste discharged into waters of the state;

(19) "Pollution," such contamination or other alteration of the physical, chemical, or biological properties of any waters of the state that exceeds that permitted by state effluent or water quality standards, or both, including change in temperature, taste, color, turbidity, or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive, or other substance into any waters of the state as will or is likely to create a nuisance or render such waters harmful, detrimental, or injurious to public health, safety, or welfare; or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses; or to livestock, wild animals, birds, fish, or other aquatic life;

(20) "Procedurally complete," an application for a groundwater discharge plan that contains all information necessary to fully address § 74:54:02:06;

(21) "Radius of influence," the radial distance from the center of a well bore to the point where there is no lowering of the water table or potentiometric surface because of pumping of the well; the edge of the cone of depression;

(22) "Secretary," the secretary of the Department of Environment and Natural Resources or a representative designated to act for the secretary;

(23) "Vadose zone," the zone containing water under pressure less than that of the atmosphere, including soil water, intermediate vadose water, and capillary water, limited above by the land surface and below by the surface of the zone of saturation or the water table;

(24) "Well," an artificial excavation or opening in the ground made by digging, boring, drilling, jetting, or another artificial method often walled or cased to prevent the sides from caving in, whose depth is greater than the largest surface dimension.

Source: 14 SDR 86, effective December 24, 1987; 18 SDR 128, effective February 11, 1992; transferred from § 74:03:16:01, July 1, 1996; 31 SDR 62, effective November 7, 2004.

General Authority: SDCL 34A-2-28, 34A-2-30.

Law Implemented: SDCL 34A-2-24, 34A-2-27, 34A-2-36.1.

74:54:02:02. Applicant for groundwater discharge plan. The owner and operator of a new discharge facility that is not exempted by § 74:54:02:04 and facilities that discharges waste or pollutants that may move directly or indirectly into groundwater, including land application of wastes, waste storage pits, waste storage piles, landfills and dumps, feedlots, mining and milling operations, and concentrated animal feeding operations as described in SDCL 34A-3A-24, must apply to the secretary for an approved groundwater discharge plan at least 180 days before any discharge. The owner and operator of a discharge facility that is discharging waste or pollutants before the effective date of these rules or within 120 days after their effective date who is not exempt or excluded by § 74:54:02:04 must submit an application for a groundwater discharge plan within 60 days after receipt of written notice from the secretary that an approved groundwater discharge plan is required.

Source: 14 SDR 86, effective December 24, 1987; transferred from § 74:03:16:02, July 1, 1996; 31 SDR 62, effective November 7, 2004.

General Authority: SDCL 34A-2-28.

Law Implemented: SDCL 34A-2-39, 34A-2-39.1, 34A-3A-24.

74:54:02:03. Accidental leaks and spills or intentional dumping not considered for discharge plans. The board may not approve a groundwater discharge plan that would eliminate the responsibility for a cleanup action to remove pollutants that were discharged from accidental spills and leaks from containment systems such as storage tanks, lined process ponds, and lined evaporation pits or from any intentional dumping of pollutants and that may move directly or indirectly to the groundwater. However, the board may approve a groundwater discharge plan with a water quality variance for an accidental leak or spill if it has been shown by either study or practice that all reasonable other alternatives for groundwater cleanup will not result in further removal of contaminant concentrations from the groundwater.

Source: 14 SDR 86, effective December 24, 1987; 18 SDR 128, effective February 11, 1992; transferred from § 74:03:16:03, July 1, 1996.
General Authority: SDCL 34A-2-28.
Law Implemented: SDCL 34A-2-21, 34A-2-22, 34A-2-28.

74:54:02:04. Exemptions from groundwater discharge plan. The following do not require an approved groundwater discharge plan under this chapter:

(1) Effluent or leachate which has been demonstrated to conform to the groundwater quality standards of chapter 74:54:01 and does not contain any potentially toxic pollutant as specified in § 74:54:01:05. To determine compliance, the secretary may require samples before the effluent or leachate discharges directly or indirectly into groundwater. If the discharge is by seepage through natural or altered natural materials, the secretary may take samples of the solution before or after seepage. In order to sample solution after seepage it may be necessary for the owner and operator to install groundwater monitoring wells. If for any reason the secretary does not have access to obtain the appropriate samples, this exemption does not apply;

(2) Water used for watering of lawns, gardens, or shrubs or for irrigation for the revegetation of a disturbed land area unless that water is received directly from a land application waste disposal system;

(3) Water used for irrigated agriculture, except water received from land application waste disposal systems or wastes containing any potentially toxic pollutant in concentrations exceeding current scientifically based manufacturer's recommendations for the crop, soil, and climate;

(4) Application of fertilizers, herbicides, insecticides, fungicides, rodenticides, and fumigants when used in accordance with current scientifically based manufacturer's recommendations for the crop, water, soil, and climate;

(5) Discharge resulting from flood control systems, except those whose purpose is to contain potentially toxic pollutants;

(6) Leachate which results from the direct natural infiltration of precipitation through any area of land affected by mining or milling operations, unless the secretary determines that the leachate may result in pollution of waters of the state;

(7) Leachate which results from the direct natural infiltration of precipitation through disturbed materials, unless the secretary determines that the leachate may result in pollution of waters of the state;

(8) Leachate which results entirely from the direct natural infiltration of precipitation through undisturbed materials;

(9) Underground injection control (UIC) wells permitted under chapters 74:55:01 and 74:10:09, and UIC Class II and Class III wells permitted by the EPA; and

(10) Land application of livestock wastes, not to be construed as storage of livestock wastes, within expected crop nitrogen uptake.

The secretary may require the submission of an application for approval of a groundwater discharge plan for any exempted discharge which the secretary determines may be causing or is likely to cause violations of the groundwater quality standards of chapter 74:54:01.

Source: 14 SDR 86, effective December 24, 1987; 18 SDR 128, effective February 11, 1992; transferred from § 74:03:16:04, July 1, 1996.

General Authority: SDCL 34A-2-28.

Law Implemented: SDCL 34A-2-24, 34A-2-27, 34A-2-36.1.

74:54:02:05. Separate groundwater discharge plan not required for certain activities. The following do not require a separately approved groundwater discharge plan if the discharge activity is subject to a review by the secretary as described in this chapter for conformance to chapter 74:54:01:

(1) Underground injection control (UIC) wells permitted under chapter 74:55:02 and Class V UIC wells permitted by the EPA;

(2) Individual and small on-site wastewater systems in compliance with chapter 74:53:01; and

(3) Wastewater treatment and disposal facilities with plans and specifications approved prior to construction by the secretary and which have been issued either a surface water discharge permit in accordance with chapter 74:52:01 or an EPA NPDES permit. Wastewater treatment and disposal facilities that are designed to discharge to groundwater must submit a groundwater discharge plan application.

Source: 14 SDR 86, effective December 24, 1987; 18 SDR 128, effective February 11, 1992; transferred from § 74:03:16:05, July 1, 1996.

General Authority: SDCL 34A-2-28.

Law Implemented: SDCL 34A-2-24, 34A-2-27, 34A-2-36.1.

Cross-Reference: Construction of control facilities, ch 74:53:03.

74:54:02:06. Application requirements for groundwater discharge plan approval. The application for approval of a plan to discharge wastes or pollutants to groundwater shall include the following complete information:

(1) The name and address of the owner and operator of the project and the name and address of the operator if different than the owner. A corporate application must be signed by the officers of the corporation. The name and address of the contact, if different than above, and telephone numbers for all listed names shall be included;

(2) The legal location of the facility by county, quarter, quarter, quarter, quarter, section, township, and range;

(3) The name of the project or facility and the type of operation, facility, or development, including the expected project life;

(4) A plat map showing all wells, water bodies, drainages, natural or man-made structures, and water usage within a one-mile radius of the discharge. The plat map must show the location and depth of existing or proposed wells to be used for monitoring groundwater quality;

(5) Geologic, hydrologic, and agricultural description of the area of review, including topography, soil types, aquifers, groundwater flow direction, aquifer material, and well logs. The hydrologic description must include a projected area of influence;

(6) The type, source, and chemical, physical, radiological, and toxic characteristics of the effluent or leachate to be discharged; the average and maximum daily amount of effluent or leachate discharged (gpd), the discharge rate (gpm), and the expected concentrations of any contaminant (mg/L) listed in § 74:54:01:04 in each discharge or combination of discharges. If more than one discharge point is used, information for each point must be given individually;

(7) Information which shows that the discharge can be controlled and will not migrate into or adversely affect the quality of any other waters of the state, including the applicable surface water quality standards, that the discharge is compatible with the receiving groundwater, and that the discharge will comply with the groundwater quality standards in chapter 74:54:01;

(8) If applicable, the description of the POP, including the dimensions and hydrologic and geologic data used to determine the dimensions, the proposed compliance monitoring point, and justification of necessary economic or social development for the POP;

(9) A proposed monitoring plan, which includes a description of the following:

(a) Groundwater monitoring to, at a minimum, determine groundwater flow direction and gradient, ambient water quality at the site, the quality of groundwater one-third the distance between the point of application and the compliance monitoring point, if applicable, and the quality of groundwater at the compliance monitoring point;

(b) The installation, use, and maintenance of effluent monitoring devices;

(c) Monitoring of the vadose zone;

(d) Continuation of monitoring after cessation of operations;

(e) Measures to prevent groundwater contamination after the cessation of operation, including post-operational monitoring;

(f) Monitoring well construction and groundwater sampling which conforms to **Handbook for Investigations and Corrective Action Requirements for Discharges from Storage Tanks, Piping, Systems and Other Releases: Appendix C, Standard Operating Procedures Nos. 3, 4, 6, 7, and 8**, (Version 2.0 - March 2003) and **National Field Manual for the Collection of Water-Quality Data**, book 9, chaps. A1-A9 October 1997 to April 2004, unless otherwise specified by the secretary;

(g) Description and justification of parameters to be monitored;

(10) Plans and specifications relating to construction, modification, or operation of discharge systems;

(11) Description of the groundwater most likely to be affected by the discharge, including water quality information of the receiving groundwater prior to discharge, a description of the aquifer in which the groundwater occurs, the depth to the groundwater, the saturated thickness, flow direction, porosity, hydraulic conductivity, and flow system characteristics;

(12) Distance to the nearest well, the use and the water quality of that well, and a listing of all water wells in the area of review and the status of each;

(13) A compliance sampling plan which includes provisions for sampling of effluent and for flow monitoring, to determine the volume and chemistry of the discharge onto or below the surface of the ground and a plan for sampling monitoring wells and appropriate nearby water wells which includes the parameters to be sampled for. Sampling and analytical methods must conform with § 74:54:01:06;

(14) A description of the flooding potential of the discharge site, including the 100-year flood plain, and any applicable flood protection measures;

(15) A contingency plan for bringing the facility into compliance if permitted allowable limits are exceeded; and

(16) Methods and procedures for inspections of the facility operations and for detecting failure of the system.

Source: 14 SDR 86, effective December 24, 1987; 18 SDR 128, effective February 11, 1992; transferred from § 74:03:16:06, July 1, 1996; 31 SDR 62, effective November 7, 2004.

General Authority: SDCL 34A-2-28, 34A-2-30.

Law Implemented: SDCL 34A-2-27, 34A-2-29, 34A-2-38, 34A-2-44.

References:

Handbook for Investigations and Corrective Action Requirements for Discharges from Storage Tanks, Piping, Systems and Other Releases-Version 2.0 (2003), South Dakota Department of Environment and Natural Resources, Ground Water Quality Program. Copies are available on CD-Rom at no cost from the South Dakota Department of Environment and Natural Resources, Ground Water Quality Program, 523 East Capitol Avenue, Pierre, SD, 57501. A downloadable version of the document is available via the internet at the following website: http://www.state.sd.us/denr/DES/Ground/Spills/Handbook.htm.

U.S. Geological Survey, **National Field Manual for the Collection of Water-Quality Data**: U.S. Geological Survey Techniques of Water-Resources Investigations, book 9, chaps. A1-A-9, Chapter A1 (September 1998), Chapter A2 Version 2.0 (March 2003), Chapter A3 Version 1.2 (March 2003), Chapter A4 (September 1999), Chapter A5 (March 2004), Chapter A6.0 Version 1.1 (July 2003), Chapter A6.1 Version 1.2 (April 2004), Chapter A6.2 & A6.3 (April 1998), Chapter A6.4 (July 2003), Chapter A6.5 Version 1.1 (April 1998), Chapter A6.6 2nd Edition (September 2001), Chapter A6.7 (April 1998), Chapter A7 3rd Edition (November 2003), Chapter A8 & A9 (October 1997). Copies of the document are available online at: http://pubs.water.usgs.gov/twri9A.

74:54:02:07. Secretary review. The secretary shall review a groundwater discharge plan approval application for completeness. The secretary shall notify the owner and operator within 30 days after receipt of the application that the application is procedurally complete or that the application requires additional information to be procedurally complete. If the application is procedurally incomplete, the secretary shall identify in the notice those items required to complete the application. If the owner and operator resubmits a plan or provides additional information intended to complete a procedurally incomplete plan, the secretary shall notify the owner and operator whether or not the plan or additional information is procedurally complete. This notification shall occur within 30 days after each submission.

Source: 14 SDR 86, effective December 24, 1987; transferred from § 74:03:16:07, July 1, 1996.

General Authority: SDCL 34A-2-28, 34A-2-30.

Law Implemented: SDCL 34A-2-32.

74:54:02:08. Notice of recommendations -- Hearing. The secretary shall publish a notice of recommendations in a legal newspaper in the affected county within 120 days after the final determination of the procedural completeness of a groundwater discharge plan by the secretary. The recommendations shall describe the secretary's proposed disposition of the application, including any recommended conditions, and shall allow 30 days in which interested persons may file a petition to initiate a contested case and request a hearing before the board on the application. A petition to initiate a contested case must comply with the requirements of chapter 74:50:02. The board shall allow no change from the operation described in the plan application and approved by the board unless the board's order of approval is modified following notice and hearing. If a petition is not filed, the application for a plan will become final or will be denied in accordance with § 74:54:02:09 without a hearing.

Source: 14 SDR 86, effective December 24, 1987; 18 SDR 128, effective February 11, 1992; transferred from § 74:03:16:08, July 1, 1996.

General Authority: SDCL 34A-2-28, 34A-2-30.

Law Implemented: SDCL 34A-2-31, 34A-2-32, 34A-2-35, 34A-2-36.1.

74:54:02:09. Board approval of application for groundwater discharge plan. The board may conditionally approve the groundwater discharge plan application by issuing all applicable permits described in §§ 74:54:02:11 and 74:54:02:13 under the following conditions:

(1) The application for a groundwater discharge plan is procedurally complete;

(2) The ambient groundwater quality will not be degraded or a water quality variance permit can be issued to degrade the ambient water quality to the standards of §§ 74:54:01:04 and 74:54:01:05; and

(3) The implementation of the proposed monitoring plan is adequate for compliance monitoring to ensure beneficial uses will not be impaired and there will be no hazard to human health.

Source: 14 SDR 86, effective December 24, 1987; transferred from § 74:03:16:09, July 1, 1996.

General Authority: SDCL 34A-2-28, 34A-2-30.

Law Implemented: SDCL 34A-2-31.

74:54:02:10. Board disapproval of application for groundwater discharge plan. The board may disapprove the groundwater discharge plan application under any one or more of the following conditions:

(1) The application is procedurally incomplete;

(2) The ambient groundwater quality will be degraded and a water quality variance permit cannot be issued to degrade the ambient water quality to the standards of §§ 74:54:01:04 and 74:54:01:05;

(3) The beneficial uses of groundwater will be impaired or there is a hazard to human health from the potential discharge;

(4) The application describes a discharge resulting from an accidental spill or leak or intentional dumping of a pollutant, unless the application is submitted as part of a remediation plan and if it has been shown by either study or practice that all reasonable other alternatives for groundwater clean-up will not result in further removal of contaminant concentrations from the groundwater;

(5) The application describes a discharge that will degrade groundwater quality to a level lower than the standards in §§ 74:54:01:04 and 74:54:01:05.

Source: 14 SDR 86, effective December 24, 1987; 18 SDR 128, effective February 22, 1992; transferred from § 74:03:16:10, July 1, 1996.

General Authority: SDCL 34A-2-28, 34A-2-30.
Law Implemented: SDCL 34A-2-24, 34A-2-25, 34A-2-31.

74:54:02:11. Board issuance of water quality variance permit -- Exemptions. As partial approval of a groundwater discharge plan, the board may issue a water quality variance permit to degrade the groundwater in a POP as described in § 74:54:02:17 upon the applicant's justification of necessary economic or social development. The water quality variance permit must specify the dimensions of the POP and the compliance monitoring point. The water quality variance permit is subject to a biennial review by the secretary.

Source: 14 SDR 86, effective December 24, 1987; 18 SDR 128, effective February 11, 1992; transferred from § 74:03:16:11, July 1, 1996.
General Authority: SDCL 34A-2-28, 34A-2-30.
Law Implemented: SDCL 34A-2-24, 34A-2-25, 34A-2-29.

74:54:02:12. Notice of recommendations for biennial review of water quality variance permit -- Hearing. The secretary shall publish a notice of recommendations in a legal newspaper in the affected county within 30 days after the biennial review of the water quality variance permit has been completed by the secretary. The recommendations shall describe the secretary's proposed disposition of the water quality variance permit review, including any recommended conditions, and shall allow 30 days in which interested persons may file a petition to initiate a contested case and request a hearing before the board. A petition to initiate a contested case must comply with the requirements of chapter 74:50:02. If a petition is not filed, the water quality variance permit review will become final without a hearing.

Source: 18 SDR 128, effective February 11, 1992; transferred from § 74:03:16:11.01, July 1, 1996.
General Authority: SDCL 34A-2-28, 34A-2-30.
Law Implemented: SDCL 34A-2-24, 34A-2-25, 34A-2-26.

74:54:02:13. Board issuance of groundwater discharge facility construction permit. As partial approval of a groundwater discharge plan, the board may issue a groundwater discharge facility construction permit for activities described in SDCL 34A-2-27 and 34A-3A-24. For new facilities and modifications of existing facilities, the construction permit must specify the sampling and reporting requirements and schedule. The duration of the facility construction permit may not exceed five years.

Source: 14 SDR 86, effective December 24, 1987; transferred from § 74:03:16:12, July 1, 1996; 31 SDR 62, effective November 7, 2004.
General Authority: SDCL 34A-2-28, 34A-2-30.
Law Implemented: SDCL 34A-2-27, 34A-2-31, 34A-2-32.

74:54:02:14. Secretary issuance of groundwater discharge permit. As final approval of a groundwater discharge plan the secretary may issue a groundwater discharge permit for the discharge of any pollutant or combination of pollutants in state waters upon the applicant showing that the discharge meets or will meet all applicable state water quality standards and all other requirements of this chapter. The duration of the permit may not exceed five years. The groundwater discharge permit must specify the permitted allowable limits. For existing facilities,

the groundwater discharge permit must also specify sampling and reporting requirements and schedule.

Source: 14 SDR 86, effective December 24, 1987; transferred from § 74:03:16:13, July 1, 1996.
General Authority: SDCL 34A-2-28, 34A-2-30.
Law Implemented: SDCL 34A-2-31, 34A-2-36.

74:54:02:15. Groundwater discharge permit renewal. The owner and operator of a groundwater discharge facility must apply for a groundwater discharge permit renewal at least 180 days before the existing permit expires by submitting in writing to the Department of Environment and Natural Resources the intent to continue the discharge activity, changes to the original application and subsequent renewals, any proposed changes with supporting technical data, and anything else that is necessary to support renewal.

Source: 14 SDR 86, effective December 24, 1987; 18 SDR 128, effective February 11, 1992; transferred from § 74:03:16;14, July 1, 1996.
General Authority: SDCL 34A-2-28, 34A-2-30.
Law Implemented: SDCL 34A-2-36.1.

74:54:02:15.01. Groundwater discharge facility construction permit renewal. The owner and operator of concentrated animal feeding operations as described in SDCL 34A-3A-24 must apply for a groundwater discharge facility construction permit renewal at least 180 days before the existing permit expires by submitting in writing to the Department of Environment and Natural Resources the intent to continue the activity, changes to the original application and subsequent renewals, any proposed changes with supporting technical data, and anything else that is necessary to support renewal.

Source: 31 SDR 62, effective November 7, 2004.
General Authority: SDCL 34A-2-28, 34A-2-30.
Law Implemented: SDCL 34A-2-36.1, 34A-3A-24.

74:54:02:16. Termination of groundwater discharge plan by board. A groundwater discharge plan approval may be terminated or a renewal denied by the board if one of the following applies:

(1) Noncompliance by the owner and operator with any condition of the approved plan;

(2) The owner and operator's failure in the application or during the plan approval process to disclose fully all relevant facts or the owner and operator's misrepresentation of relevant facts at any time;

(3) A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by plan modification or termination; or

(4) A change in any condition that requires either a temporary or permanent reduction or elimination of any discharge controlled by the plan.

Source: 14 SDR 86, effective December 24, 1987; transferred from § 74:03:16:15, July 1, 1996.

General Authority: SDCL 34A-2-28, 34A-2-30.

Law Implemented: SDCL 34A-2-31.

74:54:02:17. Perimeter of operational pollution (POP). The board may issue a water quality variance permit for a perimeter of operational pollution (POP) which meets the requirements of this chapter within which groundwater degradation is allowed only if groundwater quality standards of §§ 74:54:01:04 and 74:54:01:05 are met at the compliance monitoring point. The maximum aerial extent of the POP must be the shortest distance of the following:

(1) Not more than a one-quarter mile radius from the point of application without approval by the board;

(2) Not beyond the property boundaries of the permitted facility unless consent from the adjacent landowner(s) is obtained in writing and submitted as part of the application;

(3) Not intercepting the radius of influence of any beneficial use water supply well.

The board may adjust the POP depending upon the hydrology, type of contaminants, and other factors that may affect the groundwater quality. These zones may allow for natural attenuation of contaminants to environmentally acceptable levels. A POP may not be allowed where existing natural processes may be unable to attenuate contaminants which may pose a risk to human health or the environment and where contaminants may not be contained within the POP.

Source: 14 SDR 86, effective December 24, 1987; 18 SDR 128, effective February 11, 1992; transferred from § 74:03:16:16, July 1, 1996; 31 SDR 62, effective November 7, 2004.

General Authority: SDCL 34A-2-28, 34A-2-30.

Law Implemented: SDCL 34A-2-24, 34A-2-25.

74:54:02:18. Ambient water quality determination. The ambient water quality contaminant concentrations shall be determined prior to and specified at the time the groundwater discharge permit is issued provided that no data prior to March 27, 1973, exist.

New facilities submitting applications for groundwater discharge approval after the effective date of these rules shall, at a minimum, collect four groundwater samples from each applicable well within site boundaries over a six-month period with no two samples taken in the same month. The arithmetic mean plus one standard deviation of the sample data shall represent ambient water quality at the time of permit issuance. Thereafter, ambient water quality contaminant concentrations shall be updated to reflect natural fluctuations in concentrations by including applicable up-gradient, on-site groundwater monitoring data for the biennial water quality permit variance review.

Existing facilities discharging before or within 120 days after the effective date of these rules shall collect groundwater samples from applicable up-gradient wells within site boundaries. The arithmetic mean plus one standard deviation of applicable parameters shall represent ambient water quality at the time of permit issuance. Thereafter, ambient water quality contaminant

concentrations shall be updated to reflect natural fluctuations by including applicable up-gradient, on-site groundwater monitoring data at the water quality variance biennial permit review.

Source: 14 SDR 86, effective December 24, 1987; transferred from § 74:03:16:17, July 1, 1996.

General Authority: SDCL 34A-2-28, 34A-2-30.

Law Implemented: SDCL 34A-2-22.

74:54:02:19. Notice of commencement and discontinuance of groundwater discharge operations. This section applies to all discharge operations and to all discharge projects.

The owner and operator shall orally notify the secretary of the groundwater discharge date immediately upon commencement of discharge and submit a written notice within 30 days.

The owner and operator shall orally notify the secretary of the date of discontinuance of groundwater discharge and the reason within 10 days and shall submit a written notice confirming the oral report within 30 days. If a discontinuance is due to a spill, leak, or other accidental release, the secretary must be notified immediately.

Source: 14 SDR 86, effective December 24, 1987; 18 SDR 128, effective February 11, 1992; transferred from § 74:03:16:18, July 1, 1996.

General Authority: SDCL 34A-2-28, 34A-2-30.

Law Implemented: SDCL 34A-2-44.

74:54:02:20. Periodic submission of monitoring reports to secretary. Reports of results obtained pursuant to any monitoring requirements in the discharge plan and the methods used to obtain these results shall be periodically submitted to the secretary according to the schedule specified in the approved groundwater discharge plan. After giving written notice, the secretary may require any facility which possesses a groundwater discharge plan to use a laboratory once a year other than the one it normally uses to perform its required periodic sampling analyses. The analyses performed by the alternative laboratory shall include all of the sample analyses that are performed on routine sampling, whether the sampling is required to be conducted hourly, daily, monthly, quarterly, semiannually, or annually.

Source: 14 SDR 86, effective December 24, 1987; 18 SDR 128, effective February 11, 1992; transferred from § 74:03:16:19, July 1, 1996.

General Authority: SDCL 34A-2-28, 34A-2-30.

Law Implemented: SDCL 34A-2-44.

74:54:02:21. Reporting of mechanical problems or discharge system failures. The operator of a groundwater discharge facility shall immediately notify the secretary of any mechanical or discharge system failures. The secretary shall require a written statement confirming the oral report within 30 days.

Source: 14 SDR 86, effective December 24, 1987; transferred from § 74:03:16:20, July 1, 1996.

General Authority: SDCL 34A-2-28, 34A-2-30.

Law Implemented: SDCL 34A-2-44.

74:54:02:22. Correction of adverse effects required. If monitoring or testing indicates that the permit conditions may be or are being violated by groundwater discharge operations, the owner and operator of the discharge operations shall make corrections to the system immediately to prevent violations of the discharge permit. The owner and operator shall take immediate corrective action to clean up the groundwater. Other corrections or actions may be specified by the board.

Source: 14 SDR 86, effective December 24, 1987; transferred from § 74:03:16:21, July 1, 1996.

General Authority: SDCL 34A-2-28, 34A-2-30.

Law Implemented: SDCL 34A-2-44.

74:54:02:23. Minor modification of discharge plans. The secretary, with the consent of the owner and operator of the discharge facility, may modify a discharge plan to make corrections or allowances for changes in the permitted activity listed in this section. Such changes may be made without following the procedures set forth in §§ 74:54:02:06 and 74:54:02:08. A discharge plan modification not processed as a minor modification under this section must conform with the application and hearing requirements set forth in §§ 74:54:02:06 and 74:54:02:08. Minor modifications may only be as follows:

(1) Correction of typographical errors and language changes that have no legal or substantial effect;

(2) A requirement for more frequent monitoring or reporting by the groundwater discharge facility;

(3) A change in ownership or operational control of a facility if the secretary determines that no other change in the permit is necessary, provided a written agreement containing a specific date for transfer of responsibility for the discharge plan, coverage, and liability between the current and new owner and operator has been submitted to the secretary pursuant to § 74:54:02:24;

(4) The board, through permit conditions, may authorize the department to approve technical revisions to a groundwater discharge facility without the requirement of a permit modification or renewal. Such technical revisions include the following:

(a) Monitoring plans or parameters;
(b) Plans and specifications for permitted facilities;
(c) Reasonable changes to the quality of discharged waste;
(d) Reasonable changes in volume of discharged waste;
(e) Quality control and quality assurance plans;
(f) Any other changes that will not result in the degradation of the groundwater above the South Dakota Water Quality Standards.

Technical revisions must be submitted to the department in writing. The department shall either approve, disapprove, conditionally approve, or request additional information within 30 days after receipt.

The applicant or an interested person may appeal the decision of the department to the board by petitioning for a contested case hearing pursuant to chapter 74:50:02.

All technical revisions authorized by the department shall be recorded on a list which is kept updated and which is readily available for public inspection. A copy of the list shall be provided to anyone upon request.

Source: 18 SDR 128, effective February 11, 1992; transferred from § 74:03:16:22.01, July 1, 1996.

General Authority: SDCL 34A-2-28, 34A-2-30.

Law Implemented: SDCL 34A-2-44.

74:54:02:24. Transfer of groundwater discharge plan. If production levels, products produced, rates of discharge, and wastewater characteristics will remain unchanged, groundwater discharge plan may be automatically transferred to a new owner and operator of a groundwater discharge facility. The current owner and operator must submit the following information to the secretary in writing by certified mail at least 90 days before the proposed transfer date:

(1) The name and address of the current facility;
(2) The name and address of the new owners;
(3) The discharge permit number;
(4) The names of the new principal persons responsible for the discharge plan; and
(5) A notarized statement signed by the new principal officer stating that the principal officer has read the discharge plan and will abide by all the conditions of the discharge plan and that the production levels, rates of discharge, and wastewater characteristics will remain unchanged. If any discharge occurs without approval by the secretary of the transfer of the discharge plan, the discharge plan is subject to termination as outlined in § 74:54:02:16.

The current owner and operator of the discharge facility must include in the notice of proposed transfer a written agreement between the current and the new owner and operator which includes a specific date for transfer of responsibility for the discharge plan, its coverage, and the liability between the parties.

If there will be a change in production levels, products produced, rates of discharge, or wastewater characteristics, a transfer of the discharge plan is not permitted. The new owner and operator shall submit an application for an approved groundwater discharge plan pursuant to this chapter upon purchase of the facility.

Source: 18 SDR 128, effective February 11, 1992; transferred from § 74:03:16:22.02, July 1, 1996.

General Authority: SDCL 34A-2-28, 34A-2-30.

Law Implemented: SDCL 34A-2-44.

74:54:02:25. Report of spills, leaks, and accidental releases to secretary. Any spill, leak, or accidental release which threatens waters of the state must be immediately reported to the secretary by the discharger. The discharger, to prevent pollution of waters of the state and limit the area of impact, must take immediate action to remove and appropriately dispose of any contaminated soil or other materials. Soils contaminated with chemicals must be excavated and

disposed of in a sanitary landfill permitted under article 74:27 or disposed of in an alternate manner approved by the secretary. Land application disposal of contaminated water and soil may not exceed the manufacturer's recommended application rate, if available, for the appropriate crop, soil, and climate. Excavation must continue until the in-place material is below the applicable land application rate. Additional removal of contaminated soil may be required if there is a potential discharge to groundwater that would violate groundwater quality standards of chapter 74:54:01. The discharger must develop and submit a cleanup and remedial action plan within 30 days that includes a compliance schedule.

Source: 14 SDR 86, effective December 24, 1987; transferred from § 74:03:16:23, July 1, 1996.

General Authority: SDCL 34A-2-28, 34A-2-30.

Law Implemented: SDCL 34A-2-48.

74:54:02:26. Determination of probable out-of-compliance status. Determination of probable out-of-compliance status shall be based on the sample value for any one groundwater contaminant that exceeds the permitted allowable limit, within the established laboratory quality assurance, in any one sample from the compliance monitoring point.

Source: 14 SDR 86, effective December 24, 1987; transferred from § 74:03:16:24, July 1, 1996.

General Authority: SDCL 34A-2-28, 34A-2-30.

Law Implemented: SDCL 34A-2-49.

74:54:02:27. Probable out-of-compliance status monitoring. An accelerated schedule of monitoring is required upon determination of probable out-of-compliance status. The accelerated schedule requires monthly sampling in addition to quarterly sampling of the compliance monitoring point for the water contaminant which has met the criteria of § 74:54:02:26 for two months or until the facility is brought into compliance.

Source: 14 SDR 86, effective December 24, 1987; transferred from § 74:03:16:25, July 1, 1996.

General Authority: SDCL 34A-2-28, 34A-2-30.

Law Implemented: SDCL 34A-2-49.

74:54:02:28. Out-of-compliance status. Out-of-compliance status shall be based upon two consecutive samples which exceed the permitted allowable limit by two standard deviations as calculated for the groundwater contaminant at the compliance monitoring point or statistically higher concentrations in the compliance monitoring point over that of the permitted allowable limit determined as follows:

(1) Statistical significance shall be determined using the one-tailed Mann-Whitney U Test at the 0.10 level of significance;

(2) Compliance testing shall use data from the two analyses immediately preceding accelerated monitoring and all accelerated monitoring data to date, with a minimum of four accelerated sample data values, from the compliance monitoring point paired against the permitted allowable limit.

If the facility is determined to be out of compliance, the contingency plan submitted with the original groundwater discharge plan shall be implemented according to a compliance schedule determined by the secretary.

Source: 14 SDR 86, effective December 24, 1987; transferred from § 74:03:16:26, July 1, 1996.

General Authority: SDCL 34A-2-28, 34A-2-30.

Law Implemented: SDCL 34A-2-49.

Reference: Ground-water Quality Data Analysis, 1985, Technical Bulletin No. 462, Published by the National Council of the Paper Industry for Air and Stream Improvement, Inc., 260 Madison Ave., New York, NY 10016. The cost is $30.

74:29:05:14. Land application of solution -- General requirements. If a mine operator disposes of any solution by land application methods, the requirements in §§ 74:29:05:15 to 74:29:05:20, inclusive, and the following requirements apply:

(1) Plans and specifications for the land application system must be submitted to the department for review and approval prior to installation or construction;

(2) Before initiation of land application of solution, a chemical characterization of the solution must be conducted for all parameters listed in § 74:29:05:06;

(3) Solution may be applied to land only if the criteria in § 74:29:05:08 are met;

(4) Hydraulic loading rates of land application must not result in surface runoff;

(5) The land application system must be operated to minimize erosion and physical disturbance of vegetation; and

(6) Both during and following land application, the department shall conduct compliance monitoring of surface and ground water.

Source: 14 SDR 111, effective March 3, 1988.
General Authority: SDCL 45-6B-81.
Law Implemented: SDCL 45-6B-39, 45-6B-41, 45-6B-44, 45-6B-45.

74:29:05:15. Land application of solution -- Sampling requirements. Sampling of solution to be applied to the land shall consist of not less than one grab sample per 100,000 gallons of solution. If less than 100,000 gallons is to be applied to land, at least one grab sample must be taken and analyzed for the required parameters. Each grab sample must be of sufficient volume so the sample can be split. Each split of the sample must be of a volume sufficient to allow for analysis for all operational monitoring parameters. At every fifth sampling, one split sample of each five consecutive grab samples shall be composited and analyzed for the required monitoring parameters. The remaining split sample for all grab samples shall be preserved and stored for further individual analysis if analyses of composited samples indicate the presence of a concentration for a given parameter in excess of the criteria of § 74:29:05:08. Additional sampling in compliance with a quality assurance plan must be performed. Operational monitoring parameters shall be determined from the chemical characterization.

Source: 14 SDR 111, effective March 3, 1988.
General Authority: SDCL 45-6B-81.
Law Implemented: SDCL 45-6B-39, 45-6B-41, 45-6B-44, 45-6B-45.

Cross-Reference: Land application of solution -- Plan for operational monitoring, § 74:29:05:17.

74:29:05:16. Land application of solution -- Site evaluation. Before initiation of land application of solution, a site evaluation and characterization must be conducted to show site compatibility with the chemical composition of the solution and the amount of solution to be applied. The evaluation shall address the following:

(1) Site vegetation and wildlife;
(2) Site geology;
(3) Groundwater and surface water;
(4) Soils and depths to bedrock;
(5) Area slopes;
(6) Site erodibility;
(7) Distance to flowing streams;
(8) Adjacent land use; and
(9) Weather monitoring.

Source: 14 SDR 111, effective March 3, 1988.
General Authority: SDCL 45-6B-81.
Law Implemented: SDCL 45-6B-39, 45-6B-41, 45-6B-44, 45-6B-45.

74:29:05:17. Land application of solution -- Plan for operational monitoring. Before initiation of land application of solution, the operator must submit a written plan for operational monitoring of the land application area to the department and the department of game, fish and parks for review and approval. The plan must include the following:

(1) Methods for soil and soil water monitoring and sampling;
(2) Vegetation sampling and analysis;
(3) Soil characteristics and parameters to be monitored;
(4) Proposed analytical techniques;
(5) Sampling frequency;
(6) Criteria for determining if and when land application should be initiated or discontinued;
(7) Surface and groundwater monitoring plans;
(8) Maximum allowable metals accumulation values; and
(9) A sampling and analytical quality assurance and quality control plan.

Source: 14 SDR 111, effective March 3, 1988.
General Authority: SDCL 45-6B-81.
Law Implemented: SDCL 45-6B-39, 45-6B-41, 45-6B-44, 45-6B-45

74:29:05:18. Land application of solution -- Notice of intent to implement. The operator must give the department written notice of intent to implement land application at least one week before the initiation of the land application cycle. The notice must include the following:

(1) The date on which application will start;
(2) The amount of solution to be applied to land;
(3) The estimated duration of land application; and
(4) The chemical characterization of the solution prior to treatment.

In emergency situations requiring land application, the operator must notify the department by telephone before starting land application.

Source: 14 SDR 111, effective March 3, 1988.

General Authority: SDCL 45-6B-81.
Law Implemented: SDCL 45-6B-39, 45-6B-41, 45-6B-44, 45-6B-45.

74:29:05:19. Land application of solution -- Revegetation of site -- Inspection. Areas of surface disturbance within land application sites must be stabilized by grading and revegetating immediately following the disturbance. In areas where vegetation is destroyed by the land application of solution, revegetation shall be conducted during the first suitable planting period following disturbance.

The site must be inspected by the operator daily during periods of solution application for any unplanned effects, such as erosion, sedimentation, and damage to vegetation or wildlife. If any such effects are noted, steps must be taken immediately to mitigate the problem.

If the composition of the vegetative species of the native ground cover significantly changes during the course of land application, the operator must develop a plan that either demonstrates that after termination of land application a permanent, self-perpetuating ground cover at least equal in character and extent to the original will remain or details a revegetation program that has been approved by the department of game, fish and parks and the local conservation district.

Source: 14 SDR 111, effective March 3, 1988.
General Authority: SDCL 45-6B-81.
Law Implemented: SDCL 45-6B-39, 45-6B-41, 45-6B-44, 45-6B-45.

74:29:05:20. Land application of solution -- Written report. Following each land application cycle, a written report must be submitted to the department. This report must include the following:

(1) The total amount of solution applied;
(2) The total hydraulic loading rate per acre;
(3) The total metals loading rate per acre;
(4) The duration of the application cycle;
(5) All sampling data; and
(6) A general discussion of the success of the system.

Source: 14 SDR 111, effective March 3, 1988.
General Authority: SDCL 45-6B-81.
Law Implemented: SDCL 45-6B-39, 45-6B-41, 45-6B-44, 45-6B-45.