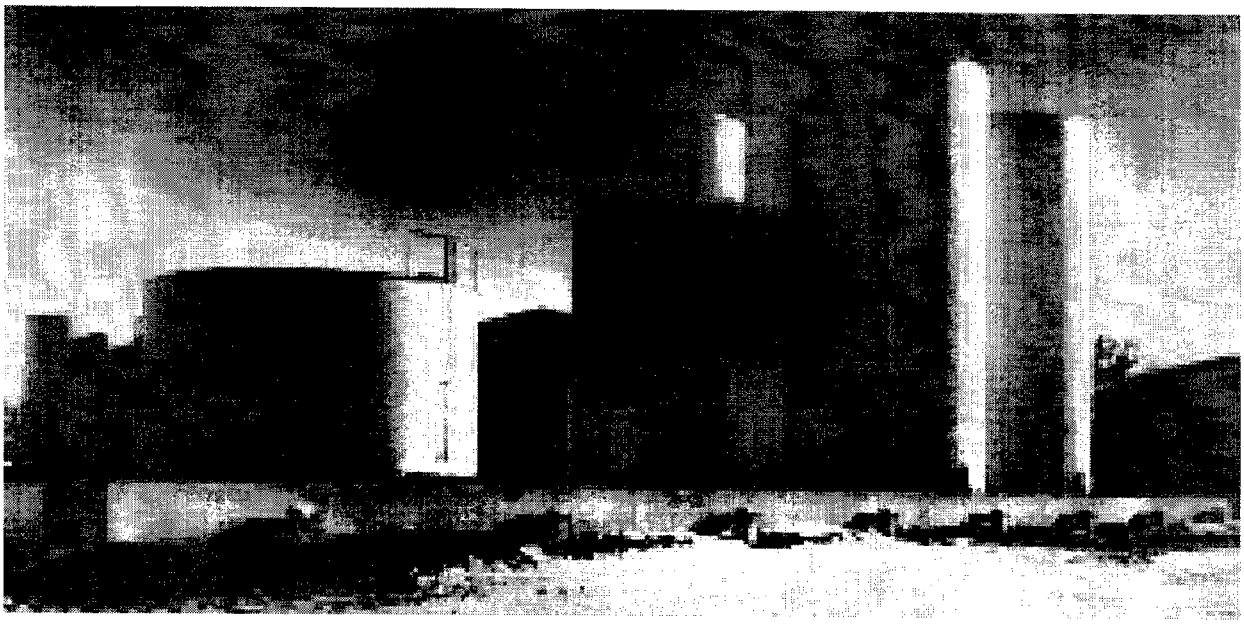
FERTILIZER AND PESTICIDE BULK FACILITY MANUAL



SOUTH DAKOTA DEPARTMENT
OF
AGRICULTURE

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Premise for Bulk Fertilizer and Pesticide Containment Requirements

Over the past several years, state regulations across the United States have moved toward increasing efforts to protect our surface and groundwater as well as the environment in general. These efforts are due to the increasing groundwater and environmental concerns expressed by the public, state and federal agencies, legislatures and rural agricultural communities.

Because of the ever present danger, liability, protection of future uses, history of releases and concern for the environment, the South Dakota Department of Agriculture adopted rules governing the containment of bulk commercial fertilizer and pesticide.

This guide has been developed by the South Dakota Department of Agriculture with the assistance of Nohr Engineering, Inc (2110 Broadway, Yankton, SD 57078) in order to provide guidelines in constructing secondary containment as well as loading, mixing and wash pads for bulk commercial fertilizer and pesticide storage facilities. All construction of these storage facilities, past or present, is subject to approval by the South Dakota Department of Agriculture (based upon requirements of rules).

A Pesticide Handling and Discharge Response Procedure and Plan for Commercial Pesticide Applicators is included in this booklet. Although it is not required at this time, you may wish to complete information for fertilizer procedures also. The plan will provide guidelines for daily operations along with plans for emergency situations.

BULK FERTILIZER

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CONTAINMENT FOR COMMERCIAL BULK FERTILIZER STORAGE FACILITIES

Bulk commercial fertilizer containment systems prevent spilled or leaking product from adversely impacting human health and the environment. They may reduce the financial liability of facility owners when release incidents occur.

Commonly used containment structure materials follow:

1. Natural permeable soils (loams, etc) are generally used for berming concrete walls or for structures lined with clays, membranes, etc.

2. Natural permeable soils (gravel) are typically used only for cover protection of impermeable surfaces such as clay and membrane liners.

3. Natural clays are commonly used as relatively inexpensive, impermeable surface to protect and seal membrane liners.

4. Bentonite clays provide lower permeability than natural clays. These clays work well beneath leak detection systems as a barrier to percolation.

5. Membrane liners provide a high degree of impermeability and chemical resistance but require careful soil surface preparation, clay protection, and installation.

6. Concrete, with a suitable coating, is a durable containment structure material.

Container spills and leaks are most effectively controlled by providing a containment structure of sufficient capacity to hold the spill volume. ARSD 12:44:05:07 mandates the containment area must be capable of containing 125 percent of the largest volume tank plus the area displaced by the butts of all other tanks inside the containment to accommodate accumulated precipitation and provide a margin of safety. Depending on tank volume, additional freeboard may be required to contain waves and surges resulting from a sudden, rapid tank failure.

ARTICLE 12:44

COMMERCIAL FERTILIZER

Chapter
12:44:01 Definitions, Repealed.
12:44:02 Licenses and fees, Repealed.
12:44:03 Storage and handling of ammonia.
12:44:04 Licensee quarterly fertilizer report, Repealed.
12:44:05 Bulk commercial fertilizer storage.
12:44:06 Inspection fees.

CHAPTER 12:44:01
DEFINITIONS

(Repealed. 12 SDR 128, 12 SDR 154, effective July 1, 1986)

CHAPTER 12:44:02
LICENSES AND FEES

(Repealed. 12 SDR 128, 12 SDR 154, effective July 1, 1986)

CHAPTER 12:44:03
STORAGE AND HANDLING OF AMMONIA

Section
12:44:03:01 Requirements for storage and handling of anhydrous ammonia.

12:44:03:01. Requirements for storage and handling of anhydrous ammonia. The requirements for storage and handling of anhydrous ammonia are those contained in 29 C.F.R. § 1910.111, July 1, 1976.

Source: SL 1975, ch 16, § 1; 12 SDR 128, 12 SDR 154, effective July 1, 1986; 17 SDR 116, effective February 14, 1991.
General Authority: SDCL 38-19-36.
Law Implemented: SDCL 38-19-36, 38-19-37.

CHAPTER 12:44:04
LICENSEE QUARTERLY FERTILIZER REPORT

(Repealed. 12 SDR 128, 12 SDR 154, effective July 1, 1986)

CHAPTER 12:44:05
BULK COMMERCIAL FERTILIZER STORAGE

Section
12:44:05:01 Definitions.
12:44:05:02 Permanent liquid bulk commercial fertilizer storage containers.
12:44:05:03 Liquid bulk commercial fertilizer storage facility construction.
12:44:05:04 Exemptions.
12:44:05:05 Alternative means for second bottom for containers with the capacity of 100,000 gallons or more.
12:44:05:06 Nonliquid bulk commercial fertilizer secondary containment.

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12:44:05:08 Leak detection requirements.
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12:44:05:12 Alternative means of secondary containment for secondary containment constructed after July 1, 1989.
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12:44:05:14 Requirements for existing bulk commercial fertilizer storage sites.
12:44:05:15 Requirements for new bulk commercial fertilizer storage facilities.
12:44:05:16 Bulk commercial fertilizer storage facility permit.
12:44:05:17 Bulk commercial fertilizer storage facility conditional permit.
12:44:05:18 Bulk commercial fertilizer storage site inspection.
12:44:05:19 Bulk commercial fertilizer storage facility inspection.
12:44:05:20 Alteration of existing permitted bulk commercial fertilizer storage facility.
12:44:05:21 Notice of bulk commercial fertilizer storage facility inspection.
12:44:05:22 Bulk commercial fertilizer storage sites construction before July 1, 1989.
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12:44:05:24 Secretary to be notified of name of contractor.
12:44:05:25 Contents of bulk commercial fertilizer storage facility permit application.
12:44:05:26 Underground storage.
12:44:05:27 Commercial fertilizer loading and mixing areas.
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12:44:05:01. Definitions. Terms defined in SDCL 38-19-1 have the same meaning in this chapter. In addition, terms used in this chapter mean:

(1) "Bulk commercial fertilizer storage facility," any area, location, tract of land, building, structure, or premises constructed in accordance with this chapter and used for the storage of bulk commercial fertilizer;

(2) "Bulk commercial fertilizer," any volume of a commercial fertilizer that is transported or held for resale in an immediate reusable container in undivided quantities greater than 100 pounds net dry weight or 55 U.S. gallons liquid measure;

(3) "Clay soil," a substance consisting of a mixture of the following components in the stated percentages of total soil weight: clay particles of the size of .02 mm or less (40 percent minimum); silt particles of the size of .05 mm to .002 mm (40 percent maximum); fine sand particles of the size of .25 mm to .05 mm (45 percent maximum);

(4) "Container," a package, can, bottle, bag, barrel, drum, tank, building, or other containing device used to enclose a commercial fertilizer, but not spray application tanks and nurse tanks;

(5) "Liquid bulk commercial fertilizer," nitrogen solutions and liquid mixed fertilizers, including clear liquids, suspensions of solids in liquids, and slurry-type mixtures requiring constant stirring to keep the solids suspended in the liquid;

(6) "Nonpermanent bulk commercial fertilizer storage containers," mobile containers that are positioned on or are a part of movable equipment, such as trucks, trailers, and tank cars;

(7) "Permanent bulk commercial fertilizer storage containers," containers that are not positioned on or are not a part of movable equipment, such as trucks and trailers, but rest on solid ground or skid platforms;

(8) "Storage facility," a location where one or more permanent bulk commercial fertilizer storage containers capable of holding more than 300 gallons of liquid fertilizer or more than 100 pounds of nonliquid fertilizer are stored; and

(9) "Storage site," a location established before July 1, 1989, where one or more permanent bulk commercial fertilizer storage containers capable of holding more than 300 gallons of liquid fertilizer or more than 100 pounds of nonliquid fertilizer are stored.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1.
Law Implemented: SDCL 38-19-1, 38-19-36, 38-19-36.1.

12:44:05:02. Permanent liquid bulk commercial fertilizer storage containers. Individual permanent liquid bulk commercial fertilizer storage containers, except anhydrous ammonia storage containers, capable of holding more than 300 gallons must be located within a bulk commercial fertilizer storage facility.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1.
Law Implemented: SDCL 38-19-36, 38-19-36.1.

12:44:05:03. Liquid bulk commercial fertilizer storage facility construction. A person may not construct a liquid bulk commercial fertilizer storage facility for the storage of permanent liquid bulk commercial fertilizer storage containers without a means of secondary containment.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.
Law Implemented: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.

12:44:05:04. Exemptions. Existing bulk commercial fertilizer storage containers with the capacity of 100,000 gallons or more are exempt from the requirements of § 12:44:05:07 and subdivision 12:44:05:14(4) if the following alterations are made by February 1, 1996:

(1) A layer of smooth, fine gravel or coarse sand at least three inches thick shall be placed over the original bottom of the storage containers, and a second bottom made of steel shall be constructed and placed over the layer of gravel or sand;

(2) The original bottom of the storage container shall be tested for leaks before the sand layer and second bottom are installed. A record of the test shall be kept on file at the storage facility;

(3) The newly constructed bottom shall be tested for leaks before any liquid fertilizer is stored on the newly constructed bottom. A record of the test shall be kept on file at the storage facility;

(4) A method by which leaks from the newly constructed bottom into the sand layer may be readily detected must be available. This may be accomplished by the establishment of weep holes or drainage ports on the exterior of the storage container in the area between the original bottom and the new bottom; and

(5) Containers must be equipped with a means of secondary containment which is of sufficient thickness and strength to withstand loading conditions and the discharge of maximum tank capacity, considering the full hydrostatic head of the discharged liquid, and large enough in volume to contain the maximum amount of discharged liquid before meeting a point of equilibrium between the liquid

remaining in the container and the liquid in secondary containment, taking into consideration the wall height of the secondary containment and the distance of the wall from the storage container. If secondary containment is obtained by the method described in subdivision 12:44:05:07(5) and §§ 12:44:05:08 to 12:44:05:10, inclusive, apply.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.
Law Implemented: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.

12:44:05:05. Alternative means for second bottom for containers with the capacity of 100,000 gallons or more. The secretary may approve a second bottom made of materials other than those described in § 12:44:05:04 if the materials, considering the substances held in the storage container, provide substantially similar protection as that described in §§ 12:44:05:04 and 12:44:05:07. A request to the secretary for approval must be supported by a plan, certified by a licensed professional engineer, showing that the proposed use of other materials will provide the required protection.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.
Law Implemented: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.

12:44:05:06. Nonliquid bulk commercial fertilizer secondary containment. Unless stored in a totally enclosed building, all nonliquid fertilizer materials must be covered and stored within a secondary containment structure. The building must be constructed so as to not allow seepage or spillage of fertilizer materials from the building under normal storage conditions.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.
Law Implemented: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.

12:44:05:07. Secondary containment. Secondary containment constructed after July 1, 1989, must be constructed according to professional engineering practices, which include the following:

(1) The walls and base must be constructed by means of one of the following:

(a) A synthetic liner at least 30 mils thick beneath 12 inches of compacted soil sufficient to withstand loading conditions and the discharge of maximum tank capacity considering the full hydrostatic head of the discharged liquid;
(b) Concrete, excluding bricks and unreinforced blocks, of sufficient thickness and strength to withstand loading conditions and the discharge of maximum tank capacity considering the full hydrostatic head of the discharged liquid; or
(c) Cross-linked polyolefin, which is crosslinkable high density polyethylene, Type 3, Class B, Category 5 resin with a minimum of 0.5 percent carbon black, as defined in American Society for Testing and Materials (ASTM) standard D 1248-84, constructed with a minimum thickness of 3/8 inch, ultraviolet stabilized for outdoor use to give excellent outdoor weatherability, and with a low temperature impact strength of a minimum of 90 foot pounds of impact at –40 degrees Fahrenheit according to the Association of Rotational Molders (ARM) impact test. The cross-linked polyolefin must be constructed of sufficient thickness and strength to withstand loading conditions and the discharge of maximum tank capacity considering the full hydrostatic head of discharged liquid;

(2) All seams and cracks must be sealed;

(3) The containment area must be capable of holding 125 percent of the volume of the largest container plus the volume of the butts of all the other tanks inside it;

(4) Each cross-linked polyolefin containment structure must be permanently marked with an embossment or with a metal certification plate permanently affixed to it. The marking must be in letters and numbers at least 1/4 inch high located on the side of the containment structure. The marking shall certify that the containment structure complies with all requirements of this section and must contain the words "meets specification of ARSD 12:44:05:07" and the date of manufacture, including month and year;

(5) Synthetic liners must have a minimum thickness of 30 mils and be chemically compatible with the materials being stored within the facility. A synthetic liner may not be used in construction of a bulk commercial fertilizer storage facility until the manufacturer of the liner provides the facility operator with a written confirmation of compatibility and a written estimate of the life of the liner. The synthetic liner must be protected by a 6-inch compacted clay soil layer below the liner and a 12-inch compacted soil layer above the liner. Both layers must be free of organic material which may decay, large rocks, angular stones, sticks, or other materials which may puncture the liner. Synthetic liners must be installed under the supervision of a representative of the manufacturer who is qualified to install the liner or under the supervision of a person who has received written certification from the liner manufacturer that he is qualified to install the liner. All seams constructed in the field must be tested and repaired in accordance with the manufacturer's recommendations; and

(6) Reinforced concrete block walls must be sealed with a water proof, water resistant material, compatible with the fertilizer products that will be stored within secondary containment, on the surface of the block facing the contained product.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.
Law Implemented: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.

References: ASTM Standard D 1248-84, "Standard Specification for Polyethylene Plastics Molding and Extrusion Materials," American Society for Testing Materials, January, 1985. Copies may be obtained from the American Society for Testing Materials, 1916 Race Street, Philadelphia, PA 19193.

Association of Rotational Molders Low Temperature Impact Test - T14, revised through January 1986. Copies may be obtained from Association of Rotational Molders, 435 North Michigan Avenue, Chicago, IL.

12:44:05:08. Leak detection requirements. Secondary containment constructed in accordance with § 12:44:05:07, after July 1, 1989, must have a leak detection system located beneath the synthetic liner and the 6-inch compacted clay soil layer, beneath the concrete base (floor) when concrete construction is utilized, and within the soil beneath the cross-linked polyolefin secondary containment structures unless the cross-linked polyolefin secondary containment structure is sitting on a poured concrete base. A series of perforated gravity collection pipe, sufficient in number and size and connected to a monitoring pipe or pipes outside of the secondary containment, must be employed in the construction of the secondary containment to detect possible leaks of the secondary containment system. Other methods of leak detection may be utilized to monitor the secondary containment system, if approved by the secretary.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.
Law Implemented: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.

12:44:05:09. Monitoring leak detection systems. Leak detection systems must be monitored at least once a month. Upon detection of any liquid within the monitoring system, the operator of the bulk

commercial fertilizer storage facility must comply with the following immediately:

(1) Notify the department of agriculture or the division of emergency and disaster services of the finding;

(2) Obtain a sample of the liquid and submit the sample to a reputable laboratory for an analysis to determine if the sample is contaminated with fertilizer or pesticide or both;

(3) Take necessary action to determine the cause of the liquid entering the leak detection system and correct the cause; and

(4) Provide the department of agriculture with a copy of the sample analysis results as soon as they are available.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.
Law Implemented: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.

12:44:05:10. Records of monitoring. The records for monthly monitoring required in § 12:44:05:09 must include the following:

(1) Name of the person doing the monitoring;
(2) Day, month, and year monitoring was conducted; and
(3) Time of day monitoring was conducted.

These records must be maintained for the life of the facility at the office of the person responsible for the bulk commercial fertilizer storage facility and must be available for inspection by an agent of the secretary of agriculture.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.
Law Implemented: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.

12:44:05:11. Disposal of contaminated liquid or material within secondary containment. For disposal purposes when any liquid or material within secondary containment contains a fertilizer, the liquid or material must be applied to a field or fields at normal fertilizer rates or used in a liquid mixing operation. This rule also applies when a commercial fertilizer is combined with a pesticide. When the liquid or material contains a pesticide, the liquid or material must be applied to a field or fields at normal pesticide application rates or used in a liquid mixing operation.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.2.
Law Implemented: SDCL 38-19-36, 38-19-36.2.

12:44:05:12. Alternative means of secondary containment for secondary containment constructed after July 1, 1989. Alternative means of secondary containment for secondary containment constructed after July 1, 1989, may be approved by the secretary if the materials used, considering the substances held in the storage containers, provide substantially similar protection to that provided by § 12:44:05:07. A request to the secretary for approval must be supported by a plan, certified by a licensed professional engineer, showing that the proposed use of other materials will provide the required protection.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.
Law Implemented: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.

12:44:05:13. New storage facility location. A new storage facility constructed after July 1, 1989, may not be located within 500 feet of a well other than monitoring wells.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.
Law Implemented: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.

12:44:05:14. Requirements for existing bulk commercial fertilizer storage sites. A bulk commercial fertilizer storage site established before July 1, 1989, must meet the following requirements by the dates specified:

(1) All fittings which are threaded into the side or bottom of storage containers must be constructed of stainless steel. This requirement must be completed by February 1, 1990, unless the containers are within secondary containment constructed in accordance with § 12:44:05:04 or 12:44:05:07;

(2) All storage containers that are equipped with sight gauges on the side of the containers must have a shutoff valve located on the lower fitting of the sight gauge assembly. This requirement must be completed by September 1, 1990, unless the containers are within secondary containment constructed in accordance with § 12:44:05:04 or 12:44:05:07;

(3) The operator of the bulk commercial fertilizer storage site must file a bulk commercial fertilizer storage facility permit application as required by § 12:44:05:25 by February 1, 1990;

(4) The bulk commercial fertilizer storage site must meet the requirements of §§ 12:44:05:27 and 12:44:05:28 by February 1, 1992; and

(5) The bulk commercial fertilizer storage site must have secondary containment constructed in accordance with § 12:44:05:07 by February 1, 1995.

Source: 15 SDR 194, effective July 1, 1989; 17 SDR 40, effective September 16, 1990.
General Authority: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.
Law Implemented: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.

12:44:05:15. Requirements for new bulk commercial fertilizer storage facilities. All bulk commercial fertilizer storage facilities constructed after July 1, 1989, must be constructed, maintained, and operated in compliance with this chapter.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.
Law Implemented: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.

12:44:05:16. Bulk commercial fertilizer storage facility permit. A bulk commercial fertilizer storage facility permit is required prior to the operation of a bulk commercial fertilizer storage facility. Each facility must be reviewed by the secretary of agriculture prior to issuance of a permit. A permit remains valid until it is voluntarily withdrawn by the applicant or is otherwise modified, suspended, or revoked by the secretary of agriculture.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36.2.
Law Implemented: SDCL 38-19-36.2.

12:44:05:17. Bulk commercial fertilizer storage facility conditional permit. A bulk commercial fertilizer storage facility conditional permit is required for the operation of a bulk commercial fertilizer storage site in accordance with § 12:44:05:14 until the completion of the construction of secondary containment.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36.2.
Law Implemented: SDCL 38-19-36.2.

12:44:05:18. Bulk commercial fertilizer storage site inspection. A bulk commercial fertilizer storage site inspection is required to determine compliance with § 12:44:05:14 prior to issuance of the conditional permit required in § 12:44:05:17.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.2.
Law Implemented: SDCL 38-19-36, 38-19-36.2, 38-19-37.

12:44:05:19. Bulk commercial fertilizer storage facility inspection. A bulk commercial fertilizer storage facility inspection must be conducted on any new, existing, or altered bulk commercial fertilizer storage facility to determine compliance with this chapter before issuance of a bulk commercial fertilizer storage facility permit. Biennial or more frequent inspections shall be conducted of a permitted facility to assure that it is operating in compliance with this chapter.
If departmental investigation, subsequent to the completion of construction, determines the facility was not constructed in accordance with the submitted plans and specifications or the requirements of this chapter, the owner must correct any deficiencies as set forth by the department.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.2, 38-19-37.
Law Implemented: SDCL 38-19-36, 38-19-36.2, 38-19-37.

12:44:05:20. Alteration of existing permitted bulk commercial fertilizer storage facility. An operator of an existing permitted bulk commercial fertilizer storage facility must notify the secretary of agriculture, in writing, before making any alterations, other than routine maintenance, to the existing permitted facility.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.
Law Implemented: SDCL 38-19-36.2.

12:44:05:21. Notice of bulk commercial fertilizer storage facility inspection. Separate notice shall be given for each bulk commercial fertilizer storage facility inspection. A report of the inspection shall be provided to the person in charge of the facility upon completion of the inspection.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.
Law Implemented: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.

12:44:05:22. Bulk commercial fertilizer storage sites construction before July 1, 1989. Bulk commercial fertilizer storage sites constructed of concrete block before July 1, 1989, may be considered for approval after inspection by the secretary. Bulk commercial fertilizer storage sites constructed of brick before July 1, 1989, may not be considered for approval.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.
Law Implemented: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.

12:44:05:23. Required plans and specifications for bulk commercial fertilizer storage facilities. Persons responsible for existing bulk commercial fertilizer storage sites must submit plans and specifications for all bulk commercial fertilizer storage facilities to the secretary for review by February 1, 1990.
Persons responsible for new bulk commercial fertilizer storage facilities must submit plans and specifications at least 60 days before construction begins. Installation and operation must be in accordance with approved plans and specifications.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.
Law Implemented: SDCL 38-19-36.2.

12:44:05:24. Secretary to be notified of name of contractor. If the applicant does not know who the contractor will be at the time he files a bulk commercial fertilizer storage facility permit application, the applicant must notify the secretary of the name of the contractor at least 60 days before construction begins.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.
Law Implemented: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.

12:44:05:25. Contents of bulk commercial fertilizer storage facility permit application. A bulk commercial fertilizer storage facility permit application must include the following:

(1) Name, address, and telephone number of the following:

(a) The firm applying for a permit;
(b) The firm that will operate the facility; and
(c) The firm that will construct, install, or modify the site, if known;

(2) Type of facility (new, existing, or altered);

(3) Location of the facility (county, city, and township);

(4) Legal description of the facility location;

(5) Size of the lot owned or leased;

(6) Nature of the terrain (such as level area, steep slope);

(7) Type of storage containers (such as steel, poly, wood);

(8) Number of containers, their dimensions, and the capacity of each storage container;

(9) Copies of required local permits;

(10) Soil and groundwater conditions (general soil type at the site, such as clay, gravel, sand, or loam, and the type, depth, and proximity of wells on or near the site);

(11) Surface water (approximate distance to and identity of any nearby lake, stream, drainage ditch, or storm drain into which liquid could flow);

(12) Two scale drawings of plans and specifications for the facility, including other storage containers and buildings;

(13) Two copies of the plumbing diagram for the facility showing location and type of pumps and valves used to control all transferring;

(14) If a synthetic liner is used, a copy of the manufacturer's letter of compatibility and his written proof of certification of those qualified to install the liner;

(15) Signature, date of signature, and title of the person certifying information on the application; and

(16) Date of review by the secretary.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.
Law Implemented: SDCL 38-19-36.2.

12:44:05:26. Underground storage. Underground bulk commercial fertilizer storage is prohibited. A sealed catch basin used for the temporary collection of runoff or rinsate from transfer and loading areas is allowed.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1.
Law Implemented: SDCL 38-19-36, 38-19-36.1.

12:44:05:27. Commercial fertilizer loading and mixing areas. By February 1, 1992, all loading and mixing of liquid and nonliquid bulk commercial fertilizer, unless performed in the field of application, must be done within a containment area. The containment area must be constructed of concrete of sufficient strength to withstand the load weight of vehicles which will be on the containment area, and the containment area must be large enough to prevent spillage onto unprotected areas. The containment area must be designed to allow the collection of spilled materials. The containment area must be constructed, using curbs or other means, to prevent spilled materials from running out of the containment area. Any accumulated liquid or material, that contains fertilizer, within the containment area must be applied to a field or fields at normal fertilizer rates or used in a liquid mixing operation. This section also applies when a commercial fertilizer is combined with a pesticide. When the accumulated liquid or material contains a pesticide, the accumulated liquid or material must be applied to a field or fields at normal pesticide application rates or used in a liquid mixing operation.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.
Law Implemented: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.

12:44:05:28. Wash waters and rinsates. By February 1, 1992, all washing of commercial fertilizer application equipment at liquid and nonliquid bulk commercial fertilizer storage facilities must be conducted within an area that complies with § 12:44:05:27. No commercial fertilizer rinsates or wash waters from commercial fertilizer equipment may be disposed of through sanitary or storm sewer systems. Washing of commercial fertilizer equipment in the field is permissible and encouraged if it is performed at the site of the final commercial fertilizer application on a given day and no runoff from the wash site occurs. Any accumulated liquid or material, that contains a fertilizer, within the containment area must be applied to a field or fields at normal fertilizer rates or used in a liquid mixing operation. This section also applies when a commercial fertilizer is combined with a pesticide. When the accumulated liquid or material contains a pesticide, the accumulated liquid or material must be applied to a field or fields at normal pesticide application rates or used in a liquid mixing operation.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.
Law Implemented: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.

12:44:05:29. Spills. The operator or manager of a bulk commercial fertilizer storage facility shall notify the department of agriculture or the division of emergency and disaster services within 3 hours after a spill of more than 25 gallons of liquid outside the secondary containment area. The operator or manager of a nonliquid bulk commercial fertilizer storage facility shall notify the department of agriculture or the division of emergency and disaster services within 3 hours after a spill of more than 500 pounds of dry fertilizer outside the secondary containment area.

Source: 15 SDR 194, effective July 1, 1989.
General Authority: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.
Law Implemented: SDCL 38-19-36, 38-19-36.1, 38-19-36.2.

CHAPTER 12:44:06
INSPECTION FEES

Section
12:44:06:01 Commercial fertilizer tonnage inspection fee.

12:44:06:01. Commercial fertilizer tonnage inspection fee. The commercial fertilizer tonnage inspection fee set in SDCL 38-19-10 is increased by two cents a ton.

Source: 19 SDR 198, effective July 1, 1993.
General Authority: SDCL 38-19-10.
Law Implemented: SDCL 38-19-10.

APPLICATION CHECKLIST

as required by ARSD 12:44:05:25

☐ 1. **Dry Bulk Fertilizer Permit Applications**: The application must be completed in its entirety. The only exception to this requirement is the synthetic liner and plumbing diagram information which are not required for dry bulk commercial fertilizer storage facility permit applications unless liquid is present within the dry bulk storage area.

☐ a. **Drawings**: Submit two (2) scale drawings of plans and specifications for the dry storage facility including bin size and capacity, along with the location of other storage containers and buildings on the premises. This includes plans and specifications for existing dry bulk fertilizer storage buildings. It also includes the construction diagrams for required loading, mixing and washing pad(s).

☐ i) Load and mix pads are required if loading and/or mixing is performed outside of the containment area, other than in the field of application.

☐ ii) A wash pad is only required if application equipment is washed, other than in the field of application.

☐ b. **Permits:** A copy of any local construction permits must accompany the application.

☐ c. **Contractor:** The name of the firm that will construct, install or modify the site, if known at the time of application submittal.

☐ 2. **Liquid Bulk Fertilizer Permit Applications:** The application must be completed in its entirety.

☐ a. **Drawings:** Submit two (2) scale drawings of plans and specifications for the facility, along with the location of other storage containers and buildings on the premises.

☐ i) Include the length, width and interior wall height of the containment area.

☐ ii) State the diameter, height and capacity of each storage tank to be contained.

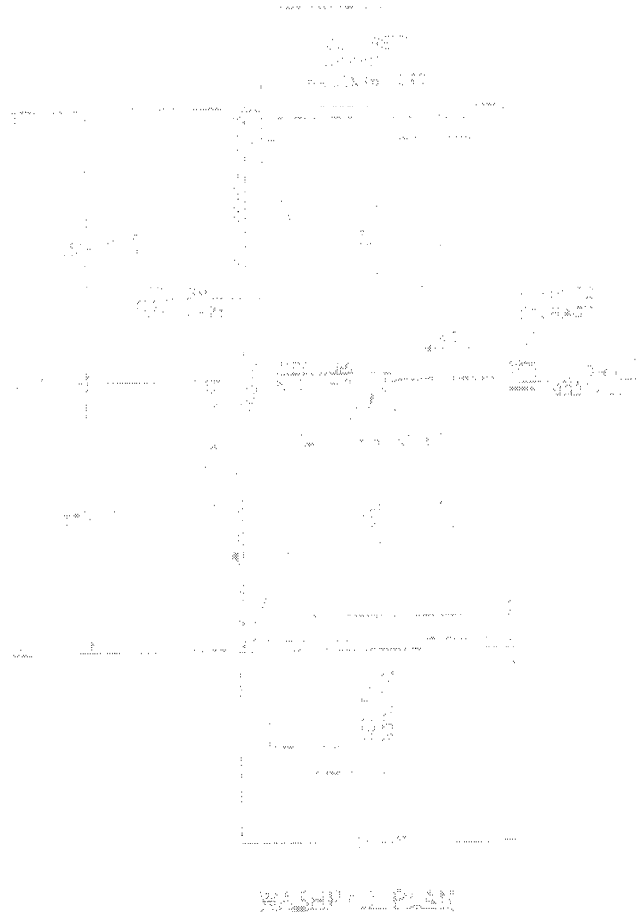
☐ iii) If cone bottom tanks are within the containment area, include the distance from the floor to the bottom of the cone and the distance from the floor to the top of the cone where it meets the side of the tank.

☐ iv) Include construction diagrams for load, mix and/or wash pad(s). Load and/or mix pads are required if loading and/or mixing is performed outside of containment area. Wash pads are only required if fertilizer application equipment is washed, other than in the field of application.

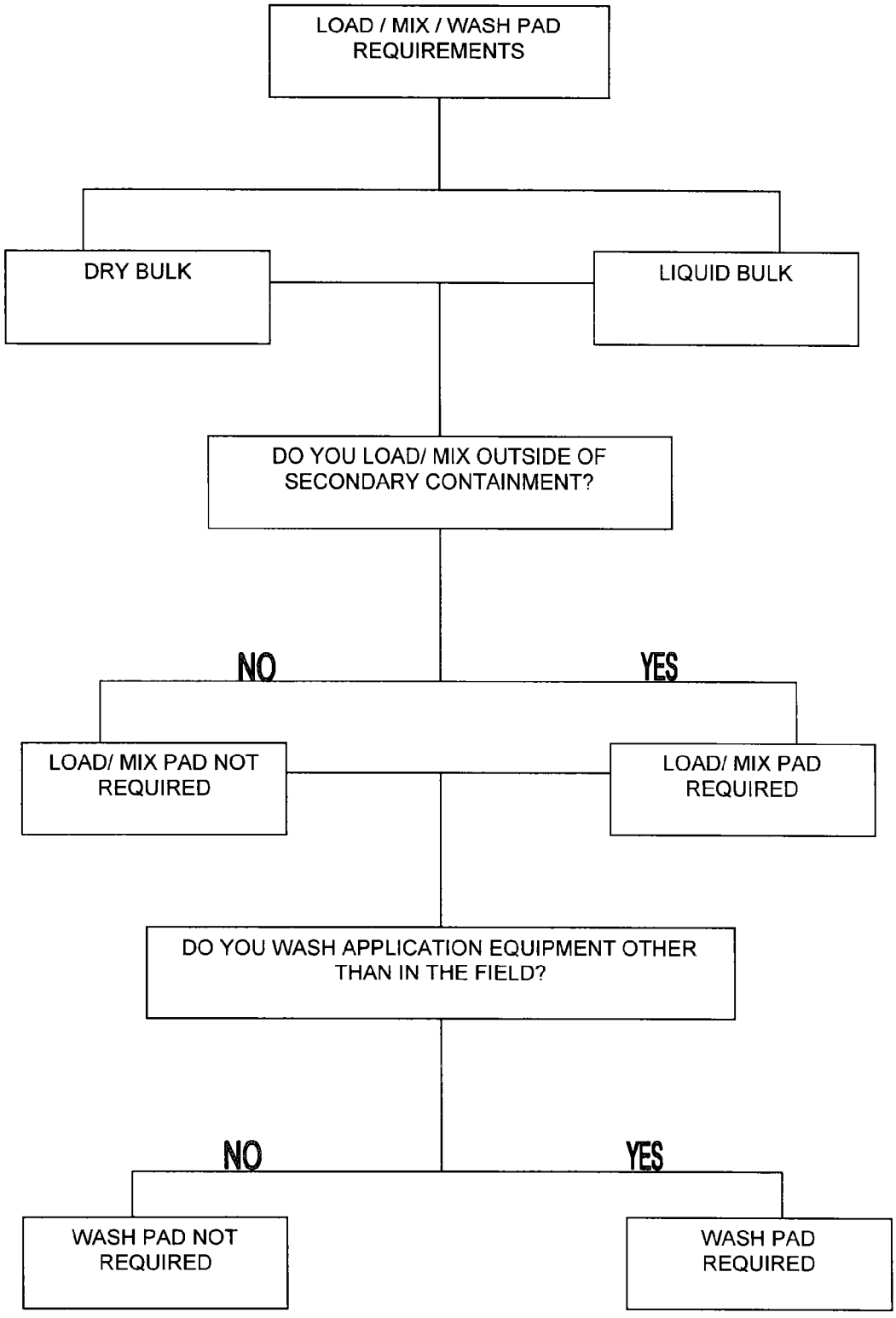
☐ b. **Synthetic Liner:** A copy of the manufacturer's letter of compatibility and his written estimate of the life of the liner and written proof of certification of those qualified to install the liner, must accompany the application.

☐ c. **Plumbing Diagrams:** Submit two (2) copies of a plumbing diagram for the facility showing location and types of pumps and valves used to control all transferring of material.

LOAD/MIX/WASH PAD

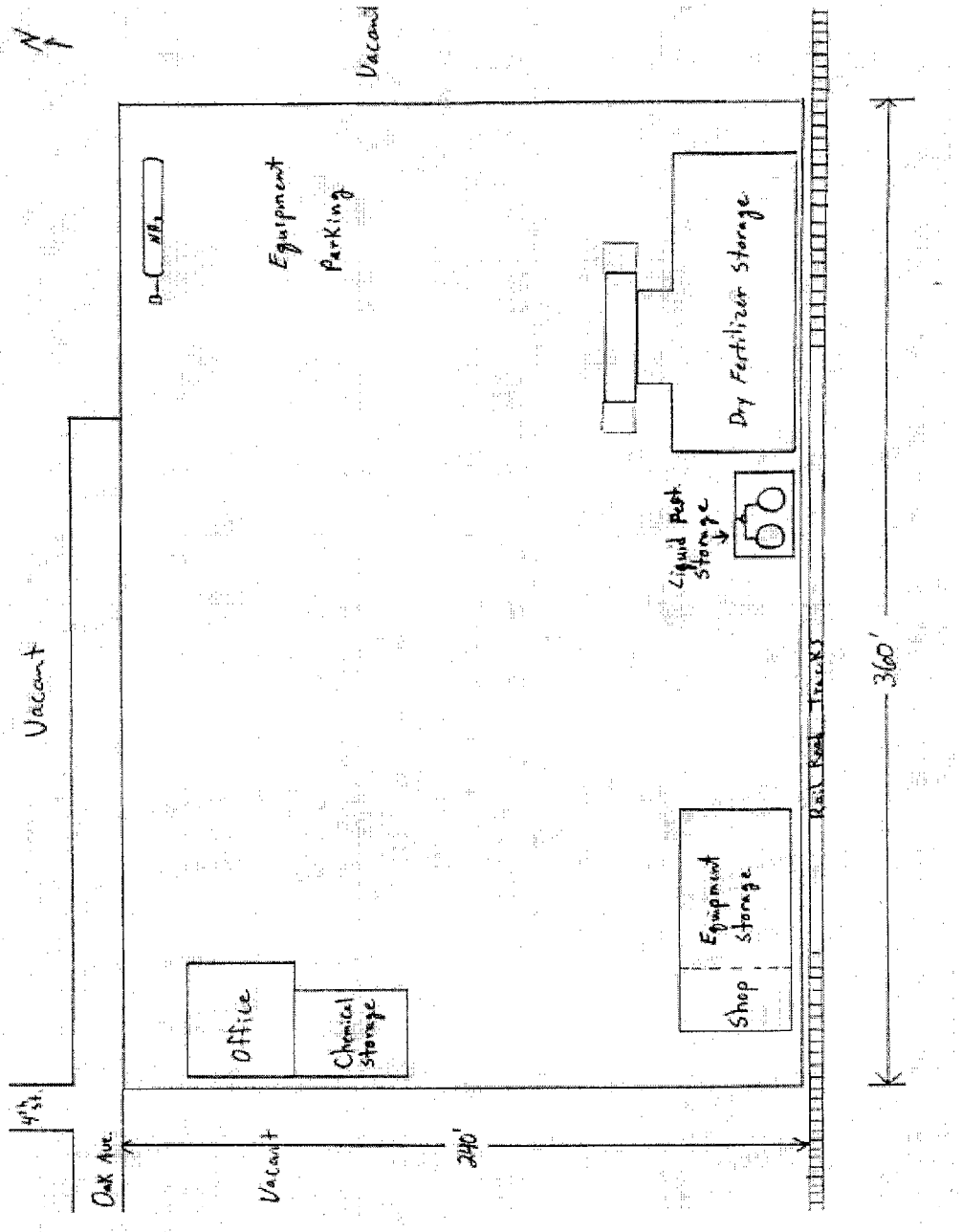


EXAMPLE PLANS AND DRAWINGS

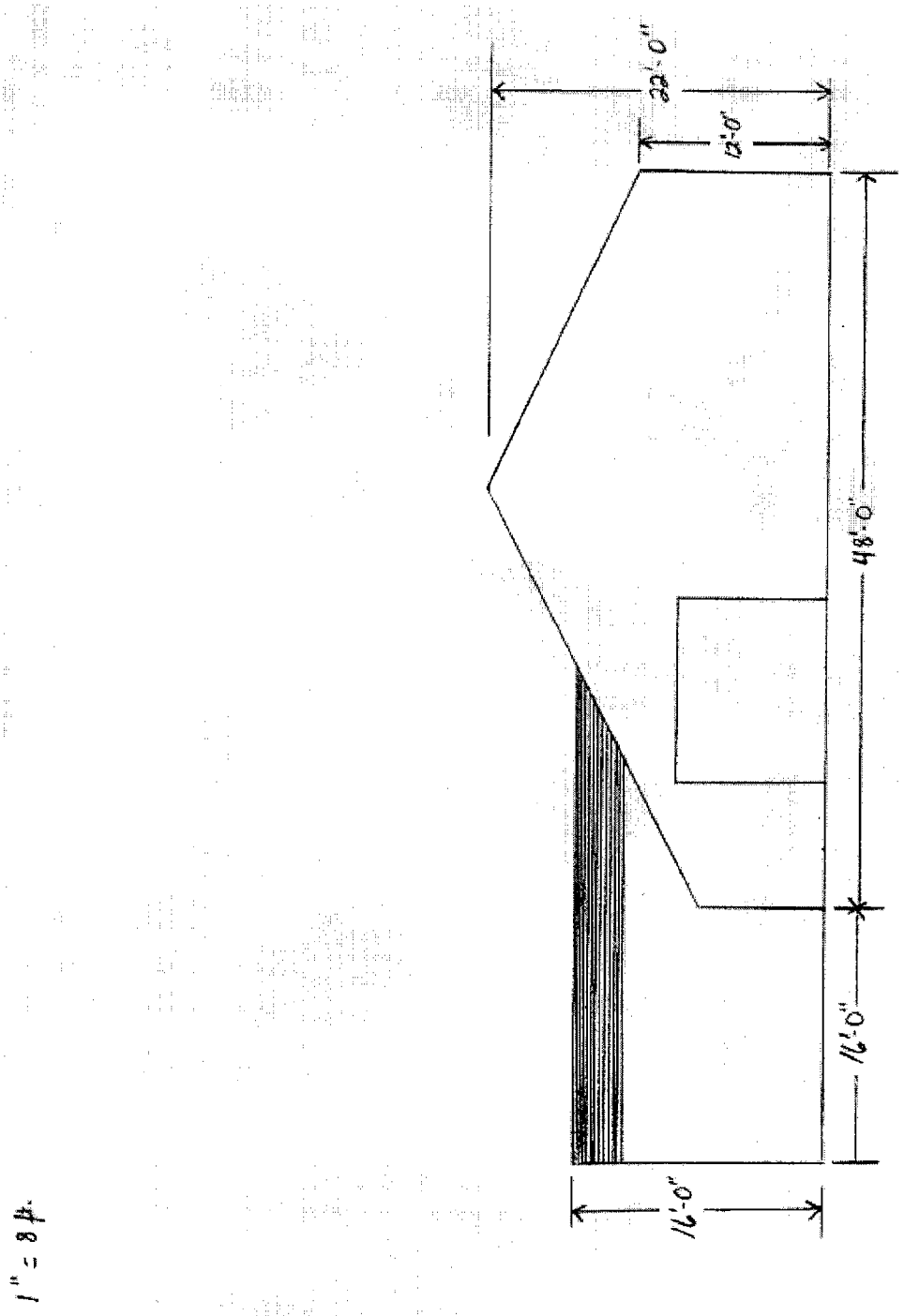

LOAD / MIX / WASH PAD REQUIREMENTS
DRY BULK
LIQUID BULK
DO YOU LOAD/ MIX OUTSIDE OF SECONDARY CONTAINMENT?
NO
YES
LOAD/ MIX PAD NOT REQUIRED
LOAD/ MIX PAD REQUIRED
DO YOU WASH APPLICATION EQUIPMENT OTHER THAN IN THE FIELD?
NO
YES
WASH PAD NOT REQUIRED
WASH PAD REQUIRED

SECONDARY CONTAINMENT AND LOAD/WASH PAD PLANS AND DRAWINGS

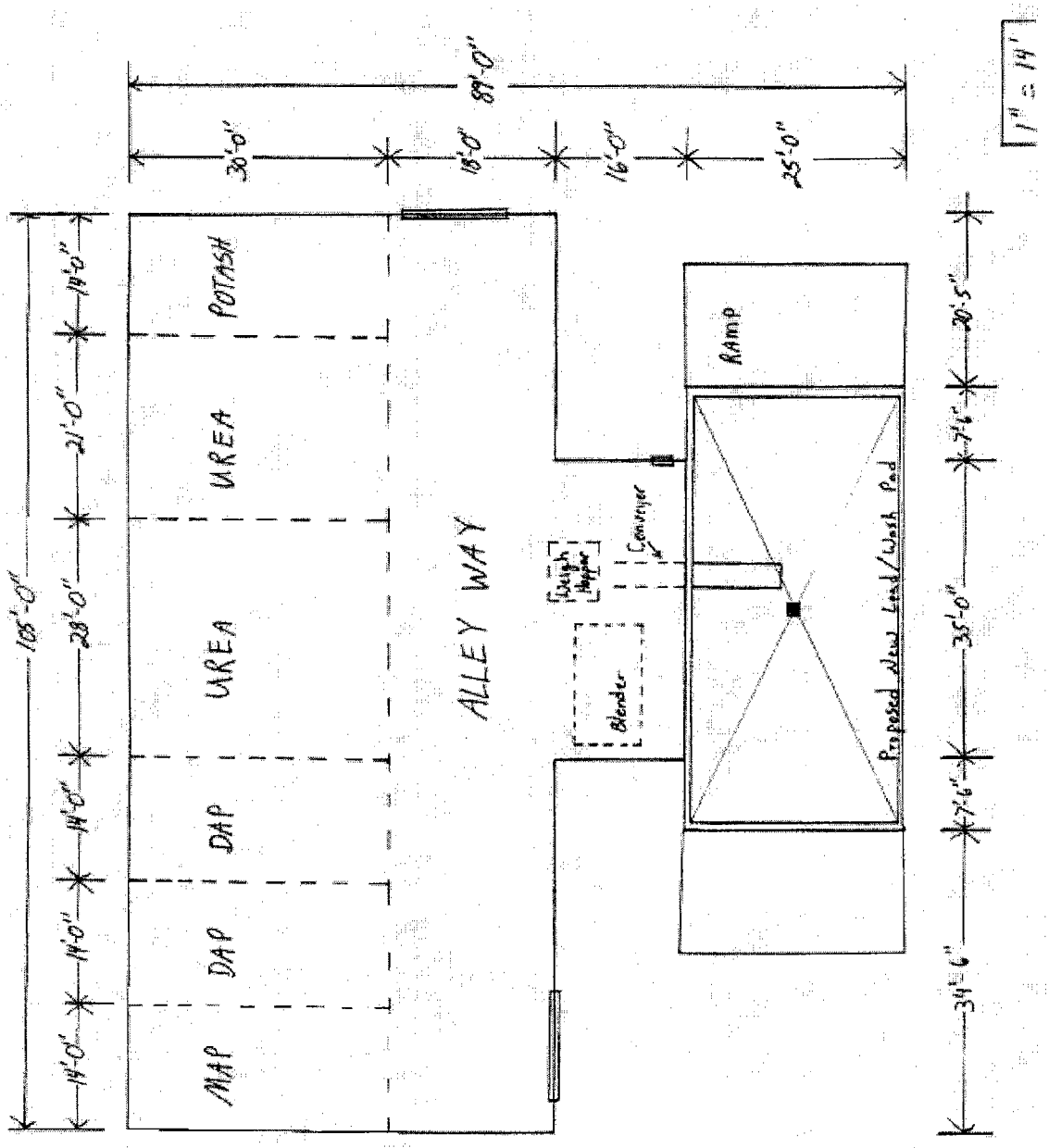
The following pages provide examples of secondary containment and load/wash pad information required to be submitted with the permit application for a dry or liquid bulk commercial fertilizer storage facility.



Example: Area Site Location Drawing



Example: Exterior Storage View Drawing



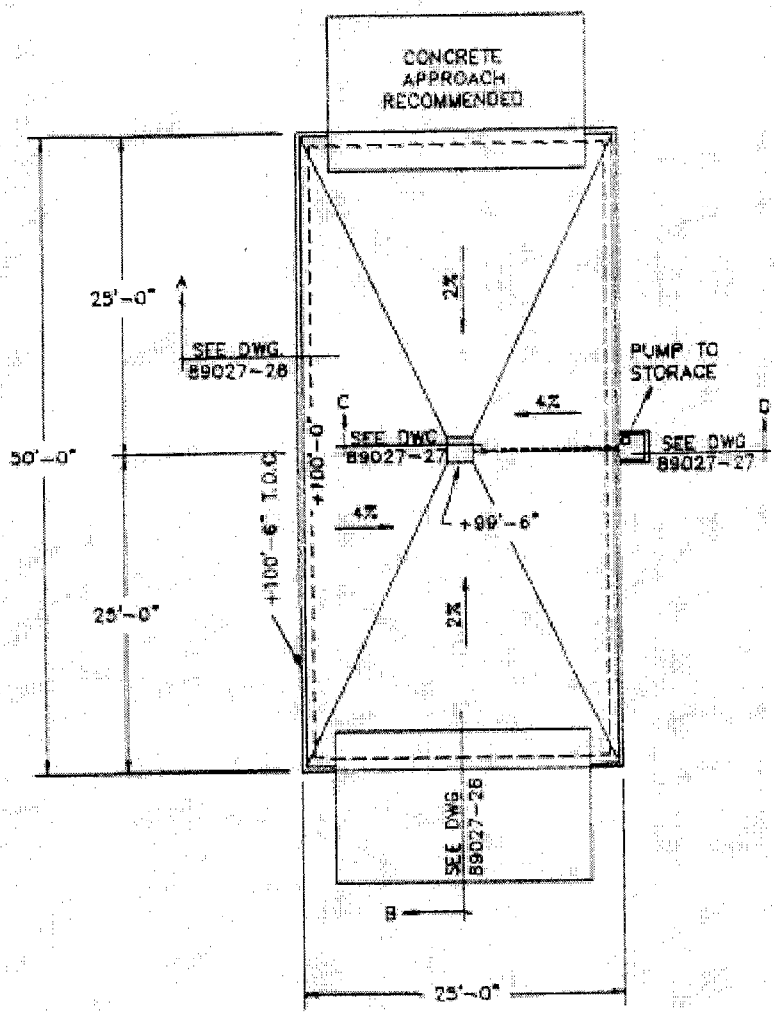
Example: Structural Drawing View

Proposed New Load/Wash Pad Drawings

(example information to include in your submitted plans and drawings)

- 35' x 21' (outside dimensions).
- Sump in center of pad is 12" x 12" x 12".
- Curb around pad is 6" high X 6" wide.
- Concrete is 8" thick with #4 rebar, 12 inches on center in 4,000 psi concrete.
- Ramps on each end are made of 6" concrete.
- Entire pad slopes toward the sump in the center. The slope of the pad is 1/4" per foot.
- See attached copy of construction diagram from fertilizer and pesticide bulk facility manual for additional construction information.
- Pad will be used for loading dry fertilizer and to wash application equipment. The concrete will be under the entire length of the conveyor.

WASHPAD PLAN

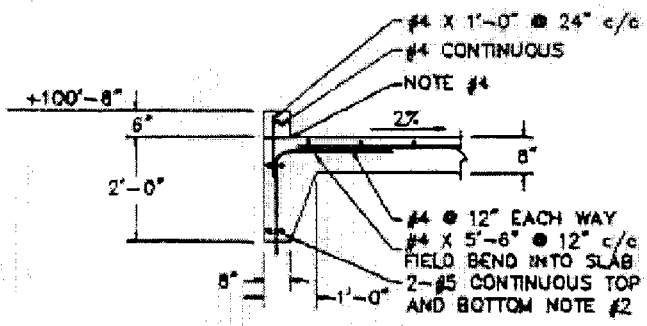


WASHPAD PLAN

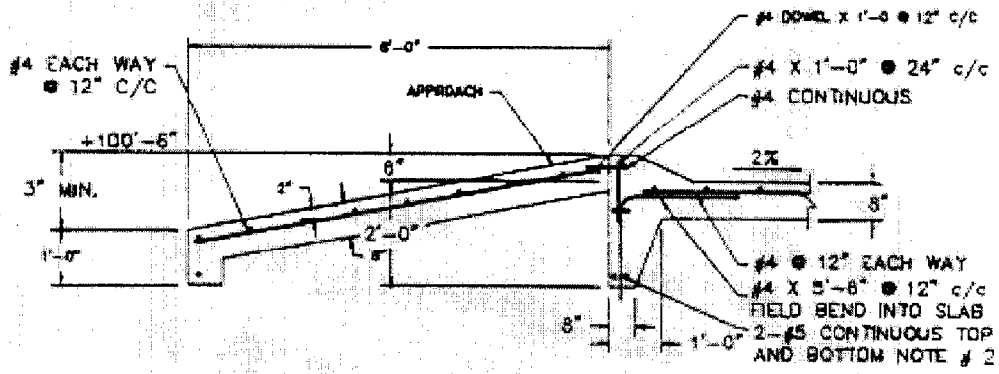
NOTES:

1) MINIMUM ALLOWABLE SOIL BEARING PRESSURE 2000 PSF, REFER TO SPECIFICATIONS FOR ADDITIONAL SOIL INFORMATION.
2) REINFORCING STEEL: GRADE 60
3) CONCRETE 4000 PSI.
4) CAULK PER SPECIFICATIONS. REFER TO MISCELLANEOUS CONSTRUCTION DETAIL DRAWING 89027-22 FOR MORE INFORMATION.
5) REFER TO WASHPAD CONSTRUCTION DETAIL DRAWING 89027-26 AND 89027-27 FOR DETAIL OF SECTIONS.

WASHPAD CONSTRUCTION DETAILS



SECTION A

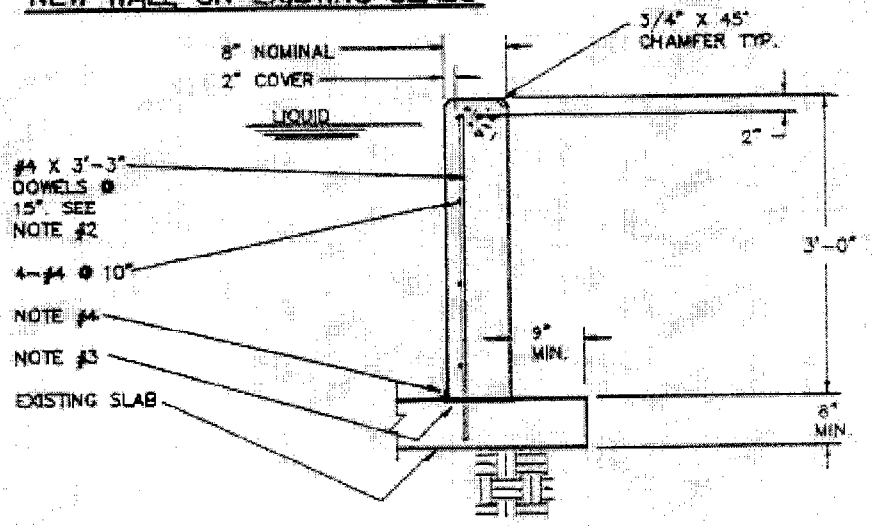


SECTION B

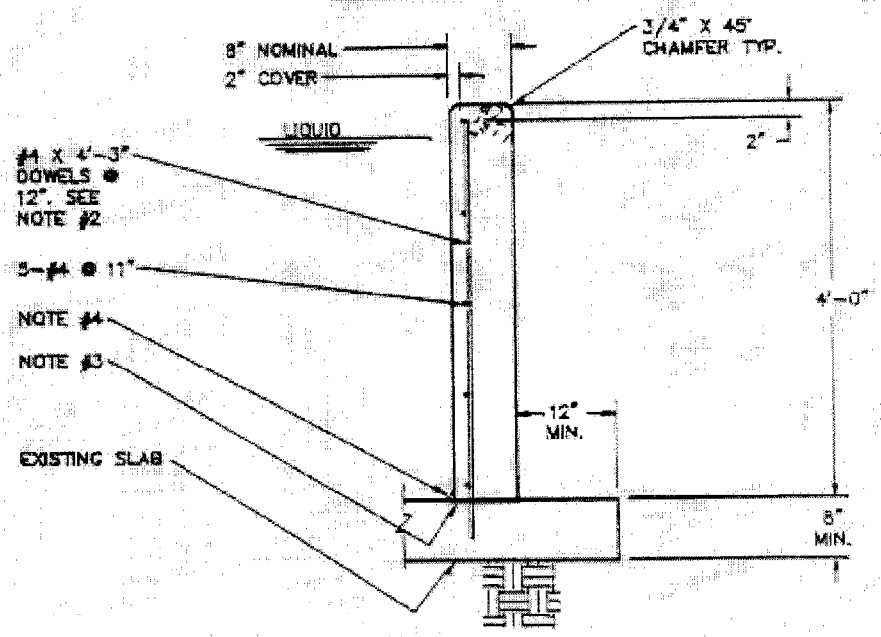
NOTES:
1) MINIMUM ALLOWABLE SOIL BEARING PRESSURE 2000 PSF, REFER TO SPECIFICATIONS FOR ADDITIONAL SOIL INFORMATION.
2) REINFORCING STEEL: GRADE 60
3) CONCRETE 4000 PSI.
4) CAULK PER SPECIFICATIONS. REFER TO MISCELLANEOUS CONSTRUCTION DETAIL DRAWING 89027-22 FOR MORE INFORMATION.

CONTAINMENT FOR FERTILIZER STORAGE FACILITIES

NEW WALL ON EXISTING SLABS



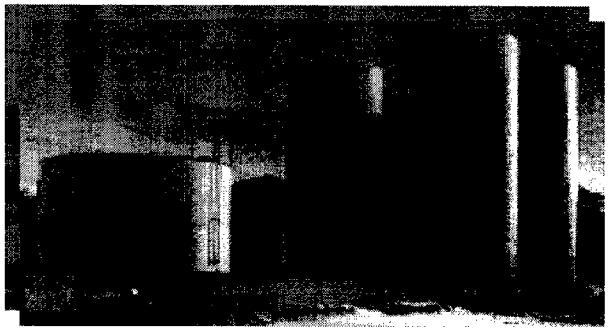
3'-0" WALL HEIGHT



4'-0" WALL HEIGHT

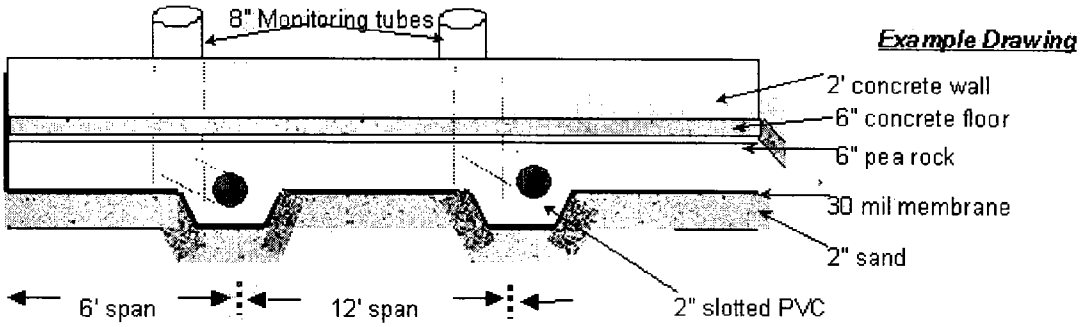
NOTES:

1) EXISTING SLAB MUST BE IN GOOD CONDITION, NOT BROKEN OR CRACKED. #4 @ 18" EACH WAY OR EQUAL SLAB REINFORCING IS RECOMMENDED.
2) SET DOWELS IN EPOXY PER SPECIFICATION. DO NOT DRILL THROUGH CONCRETE SLAB.
3) ROUGHEN EXISTING SLAB PER BONDING AGENT INSTRUCTIONS.
4) CAULK PER SPECIFICATIONS. REFER TO MISCELLANEOUS CONSTRUCTION DETAIL DRAWING 99027-22 FOR MORE INFORMATION.
5) REPAIR CRACKS PER SPECIFICATIONS.



BULK FERTILIZER LEAK DETECTION SYSTEM

Bulk fertilizer secondary containment must have a leak detection system located under the containment area. A sufficient number of slotted gravity collection pipes connected to monitoring pipes outside of containment must be used to detect possible leaks of the secondary containment system. The collection pipe can have no greater than a six foot span on either side and no greater than a twelve foot span between two pipes. Other methods of leak detection may be utilized if granted prior approval.



MONITORING LEAK DETECTION SYSTEMS

Leak detection systems must be monitored at least once a month. Upon detection of any liquid within the monitoring system, the operator of the bulk commercial fertilizer storage facility must immediately:

(1) Notify the Department of Agriculture (605-773-4432) or Division of Emergency Management (605-773-3231);
(2) Obtain a sample of the liquid and submit the sample to a reputable laboratory for analysis to determine if the sample contains fertilizer, pesticide or both;
(3) Take necessary action to determine the cause of the liquid entering the leak detection system and correct it; and
(4) Provide the Department of Agriculture with a copy of the sample analysis results as soon as they are available.

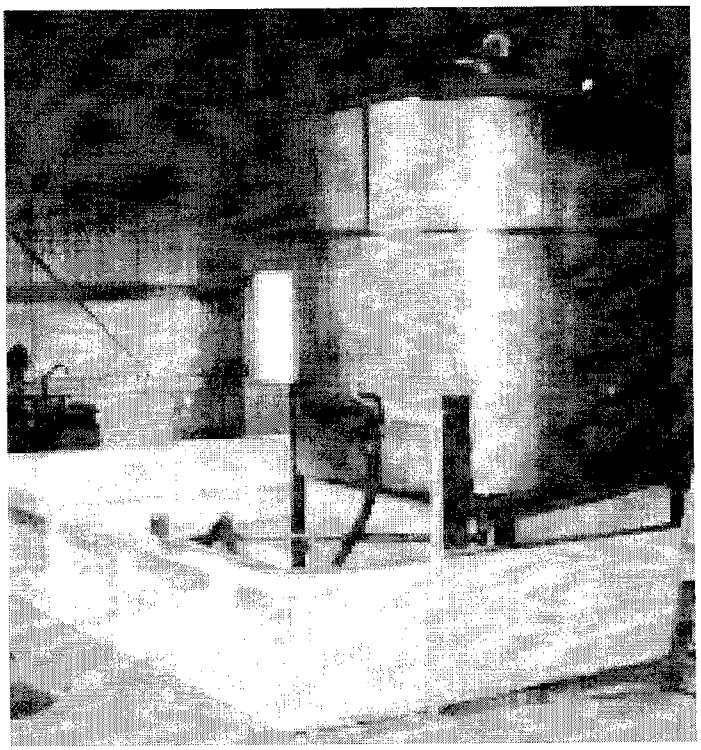
RECORDS OF MONITORING

Monthly monitoring records are required and must include:

(1) Name of the person conducting the monitoring;
(2) Day, month, and year monitoring was conducted; and
(3) Time of day the monitoring was conducted.

These records must be maintained for the life of the facility at the office of the person responsible for the bulk commercial fertilizer storage facility.

BULK PESTICIDE



III. BULK PESTICIDE STORAGE

A. Bulk Pesticide Secondary Containment Overview 29

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C. Bulk Pesticide Containment Laws and Rules
- **1**. South Dakota Codified Law (SDCL 38-21) 31
- **2**. South Dakota Administrative Rules (ARSD 12:56) 31

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- **1**. Operational Area Containment Plans 52
- **2**. Operational Area Containment Rules 53
- **3**. Application for Operational Area Containment Registration 55

Secondary Containment of Bulk Pesticides

Premise for Secondary Containment

Throughout the ag chemical industry, bulk pesticides have become increasingly popular with commercial applicators because of the low cost, ease of mixing and decreased container disposal. The main disadvantage of bulk containers is the danger of spills which adversely affect the environment through possible surface and groundwater contamination. As a result of increasing numbers of pesticide spills related to the storage of these chemicals in bulk facilities, the South Dakota Department of Agriculture has adopted rules and regulations which govern bulk pesticide containment.

This guide has been developed by the South Dakota Department of Agriculture with the assistance of Nohr Engineering, Inc. (2110 Broadway, Yankton, SD 57078) in order to provide guidelines in constructing secondary containment for bulk pesticide storage facilities. All construction of these secondary containment facilities are subject to approval by the South Dakota Department of Agriculture.

Commonly used containment structure materials are as follows:

- Natural permeable soils (loams, etc.) generally are used for berming concrete walls, or for structures lined with clays, membranes, etc.
- Natural permeable soils (gravel) are generally used only for cover protection of impermeable surfaces such as clay and membrane liners.
- Natural clays which are commonly used as relatively inexpensive, impermeable surface to protect and seal membrane liners.
- Bentonite clays provide lower permeability than natural clays.
- Membrane liners provide a high degree of impermeability and chemical resistance but require careful soil surface preparation and clay protection.
- §Concrete is a durable containment structure material.

§Concrete block containment walls are never satisfactory; due to block porosity, the vulnerability of mortar joints and possible loss of wall integrity due to joint cracking, etc.

The containment area must be capable of holding 110 percent of the largest volume tank plus the area displaced by the butts of all other tanks inside the containment. This will provide an excess capacity capable of containing accumulated precipitation and provide a margin of safety. Depending on tank volume, additional freeboard may be required to contain waves and surges resulting from a sudden, rapid tank failure.

The capacity of a walled or bermed dike containment area is calculated by multiplying the surface area within the containment area, less the containment area physically occupied by tanks, by the height of the containment wall or bermed dike (see Wall Height Calculations in this section).

Bulk Pesticide Permit Application Checklist

Bulk Dry or Liquid Pesticide Permit Applications: The application must be completed in its entirety for both dry and liquid bulk pesticide.

☐ a. **Drawings:** Submit two (2) scale drawings of plans and specifications for the facility, along with the location of other storage containers and buildings on the premises.

☐ i) Include the length, width and wall height (inside dimensions) of the containment area.

☐ ii) State the diameter, height and capacity of each storage tank to be contained.

☐ iii) If cone bottom tanks are within the containment area, include the distance from the floor to the bottom of the cone and the distance from the floor to the top of the cone where it meets the side of the tank.

☐ iv) Include construction diagrams for load, mix and/or wash pad(s) designated as the Operational Area Containment. ARSD 12:56:17:01 describes the conditions requiring operational area containment. ARSD 12:56:17:02 describes the construction requirements for operational area containment.

☐ b. **Synthetic Liner:** A copy of the manufacturer's letter of compatibility and his written estimate of the life of the liner and written proof of certification of those qualified to install the liner, must accompany the application.

☐ c. **Plumbing Diagrams:** Submit two (2) copies of a plumbing diagram for the facility showing location and types of pumps and valves used to control all transferring of materials.

BULK PESTICIDE CONTAINMENT LAWS AND RULES

Codified Laws regulating bulk pesticides and secondary containment, SDCL 38-21, are as follows:

> **SDCL 38-21-15.** No person shall transport, store or dispose of any pesticide or pesticide container in such a manner as to cause injury to humans, vegetation, crops, livestock, wildlife or beneficial insects or to pollute any waterway in a way harmful to any wildlife therein. The Secretary may promulgate rules and regulations governing the storing, transport and disposal of such pesticides and pesticide containers. Any person who violates this section is subject to a civil penalty not to exceed five thousand dollars per violation.
>
> **SDCL 38-21-16.** The Secretary shall, by regulation, require the reporting of significant pesticide accidents or incidents.

The **Administrative Rules** regulating bulk pesticides and secondary containment, ARSD 12:56, are as follows:

BULK PESTICIDE ADMINISTRATIVE RULES

Chapter

12:56:01 Definitions pertaining to pesticides.
12:56:02 Storage and disposal.
12:56:03 Pesticide transportation requirements.
12:56:13 Bulk pesticide storage.
12:56:14 Bulk distribution of pesticides.
12:56:15 Handling and loading.
12:56:17 Operational area containment.

CHAPTER 12:56:01 **DEFINITIONS PERTAINING TO PESTICIDES**

Section

12:56:01:01 Definitions.

12:56:01:01. Definitions. Terms defined in SDCL 38-21-14 shall have the same meaning in this article. In addition, terms used in this article mean:

(1) "Accident," an undesirable unexpected event caused by the use of a pesticide that adversely affects man or the environment;

(2) "Act," the Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. § 135 et seq., as amended by the Federal Environmental Pesticide Control Act of 1972, 86 Stat. 973;

(3) "Agency," the United States environmental protection agency;

(4) "Appurtenances," valves, pumps, fittings, pipes, hoses, and metering devices that are used for transferring pesticides or otherwise used in conducting operational area activities pertaining to pesticides;

(5) "Bulk pesticide," any volume of a pesticide which is transported or held in an immediate reusable

container in undivided quantities greater than 100 pounds net dry weight or 55 U.S. gallons liquid measure. The term does not include pesticides which are in the custody of the ultimate user and are fully prepared for use by the user;

(6) "Bulk pesticide storage facility," an area, location, tract of land, building, structure, or premises constructed in accordance with rules promulgated by the secretary for the storage of bulk pesticides;

(7) "Bulk repackaging," the transfer of bulk pesticide from one container to another in an unaltered state in preparation for sale;

(8) "Carrier," a person engaged in the transporting of passengers or goods for hire;

(9) "Certification," the process by which the South Dakota department of agriculture determines whether or not a person is a competent pesticide applicator;

(10) "Clay soil," any substance consisting of a mixture of the following components in the stated percentages of total soil weight: clay particles of the size of .02 mm or less (40% minimum); silt particles of the size of .05 mm to .002 mm (40% maximum); fine sand particles of the size of .25 mm to .05 mm (45% maximum);

(11) "Compatibility," a property of a pesticide which permits its use with other chemicals without undesirable results being caused by the combination;

(12) "Competent," qualified in the performance of functions associated with pesticide application, the degree of proficiency required being directly related to the nature of the activity and the associated responsibility;

(13) "Complete destruction," alteration of pesticides by physical or chemical processes to inorganic forms, incapable of altering the environment;

(14) "Container," a package, can, bottle, bag, barrel, drum, tank, or other containing device used to enclose a pesticide or pesticide related wastes but not spray applicator tanks and nurse tanks which contain pesticides which are fully prepared for use;

(15) "Department," the department of agriculture;

(16) "Diluent," material added to a pesticide or a pesticide-related waste by the user or manufacturer to reduce the concentration of active ingredient;

(17) "Discharge," any spill, leak, deposit, dumping, or emptying, either accidental or otherwise, that results in a release of a pesticide into an uncontained portion of an operational area, but not lawful transfer, mixing, loading, unloading, repackaging, or refilling of a pesticide carried out over operational area containment and not lawful distribution, use, disposal, or application of a pesticide;

(18) "Distribute," to import, consign, sell, offer for sale, solicit orders for sale, or otherwise supply pesticide for sale or use in this state;

(19) "Drift," movement of a pesticide during or after application or use through air to a site other than the intended site of application or use;

(20) "Encapsulate," to seal a pesticide, and its container if appropriate, in an impervious container made of plastic, glass, or other material which will not be chemically degraded by the contents and then seal the container within a durable container made from steel, plastic, concrete, or other suitable material of sufficient thickness and strength to resist physical damage during and subsequent to burial;

(21) "Excess pesticides," pesticides which may not be legally sold pursuant to the Act or which are to be

discarded;

(22) "Hazard," probability that a given pesticide will have an unreasonable adverse effect on man or the environment in a given situation;

(23) "Heavy metals," metallic elements of higher atomic weights, including arsenic, beryllium, cadmium, copper, lead, mercury, manganese, zinc, chromium, tin, thallium, and selenium;

(24) "Inorganic arsenicals," any compound containing arsenic in which the arsenic is not bonded to the carbon atom;

(25) "Inorganic pesticides," substances containing noncarbon hydrogen which are used as pesticides;

(26) "Lake," a pond or reservoir created by either natural or artificial means, but not ponds and appurtenances used for the treatment and disposal of wastes and permitted for such uses by the state;

(27) "Leachate," the end product of percolating a liquid through solid waste so that dissolved or suspended materials are extracted from it;

(28) "Metallo-organic pesticide," a class of carbon hydrogen pesticides containing one or more metal or metalloid atoms in the structure;

(29) "Nonpermanent bulk pesticide storage containers," mobile containers positioned on or part of movable equipment, such as trucks, trailers, and tank cars;

(30) "Open burning," combustion of a pesticide or container in any fashion other than incineration in a pesticide incinerator;

(31) "Open dumping," the placing of pesticides or pesticide containers in a land site in a manner other than prescribed by the South Dakota department of environment and natural resources in chapter 74:27:03, and which does not prevent adverse effects on the environment, and which exposes pesticides and pesticide containers to the elements, vectors, and scavengers;

(32) "Operational area," an area where the contents of pesticide containers are transferred between containers, including transfer to application equipment; where pesticides are loaded, unloaded, mixed, repackaged, or refilled; or where pesticides are cleaned, washed, or rinsed from containers or from application, handling, storage, or transportation equipment; but not a facility or location that receives or distributes pesticides in the manufacturer's original unbroken containers which remain sealed and are otherwise unopened;

(33) "Operational area containment," any structure or system constructed in accordance with chapter 12:56:17, either stationary or portable, which is effectively designed and constructed to intercept and contain pesticide discharges, including container or equipment wash water and rinsates, and to prevent escape, runoff, and leaching from an operational area;

(34) "Organic pesticides," substances containing carbon hydrogen which are used as pesticides, excluding metallo-organic compounds;

(35) "Permanent bulk pesticide storage containers," containers which are not positioned on or a part of movable equipment, such as trucks, trailers, and tank cars;

(36) "Pesticide incinerator," any installation capable of the controlled combustion of pesticides at a temperature of 1,000 degrees centigrade for two seconds dwell time that will assure complete conversion of the specific pesticide to inorganic gases and solid ash residues;

(37) "Principal operational area," the operational area where a pesticide applicator conducts the majority

of the activities listed under "operational area";

(38) "Residential premises," a structure that is used wholly or in part as a human residence, including all lawns, grounds, facilities, and furnishings pertaining to that structure; a residential structure occupied on a rental basis; and a mobile home used as a residence and the site on which it is located;

(39) "Runoff," the portion of precipitation that drains from an area as surface flow;

(40) "Sanitary landfill," a disposal facility approved or permitted by the state under chapter 74:27:04, employing an engineered method of disposing of solid wastes on land in a manner which minimizes environmental hazards by spreading the solid wastes in thin layers, compacting the solid wastes to the smallest practical volume, and applying cover material at the end of each working day;

(41) "Scrubbing," washing of impurities from any process gas stream;

(42) "Soil injection," the placement of pesticides by ordinary tillage practices within the plow layer of a soil;

(43) "Specially designated landfill," a landfill designated by the South Dakota department of environment and natural resources where pesticide-related waste, pesticides, and pesticide containers can be disposed of legally and where such dumping does not expose the public, the environment, or surface and subsurface waters to any contamination;

(44) "Statute," SDCL 38-21-14 to 38-21-55, inclusive;

(45) "Stream," a river, creek, or tributary;

(46) "Transitory," a mobile nonpermanent outlet such as a truck;

(47) "Triple rinse," flushing of containers three times, each time using a volume of the normal diluent equal to approximately 20 percent of the containers' capacity, and adding the rinse liquid to the spray mixture or disposing of it by a method prescribed for the pesticide in chapter 12:56:02;

(48) "Under the direct supervision of," application of a pesticide by a competent person acting under the instruction and control of a licensed applicator or a licensed operator, even though the licensed applicator or licensed operator is not physically present at the time and place the pesticide is applied;

(49) "Unreclaimable residues," residual materials of little or no value remaining after incineration;

(50) "Water dumping," disposal of pesticides into or on lakes, ponds, rivers, sewers, and other water systems;

(51) "Well," an artificial excavation or opening in the ground that is deeper than its largest surface dimension, that is made by digging, boring, drilling, jetting, or other artificial method for the purpose of obtaining groundwater, and that is currently used or usable or has been abandoned;

(52) "Well injection," disposal of excess pesticides and rinse liquids through a hole or shaft to a subsurface stratum;

(53) "Wetlands," those areas that are inundated or saturated by surface or groundwater and on which a prevalence of vegetation typically adapted for life in saturated soil conditions has been established.

Source: 1 SDR 65, effective March 27, 1975; 2 SDR 53, effective January 18, 1976; 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986; 13 SDR 37, effective October 8, 1986; 18 SDR 49, effective September 15, 1991.
General Authority: SDCL 38-21-15, 38-21-15.1, 38-21-51.

Law Implemented: SDCL 38-21-15, 38-21-15.1, 38-21-51.

CHAPTER 12:56:02 **STORAGE AND DISPOSAL**

Section

12:56:02:01	**Permissible disposal procedures.**
12:56:02:02	**Prohibited storage and disposal procedures.**
12:56:02:03	**Procedures for disposal of pesticides -- Exceptions.**
12:56:02:04	**Procedures for the disposal of organic mercury, lead, cadmium, arsenic, beryllium, selenium, and all inorganic pesticides.**
12:56:02:04.01	**Disposal of pesticides identified as hazardous wastes.**
12:56:02:05	**Disposal of pesticide containers and residues.**
12:56:02:06	**Procedures for disposal of pesticide residue.**
12:56:02:07	**Exemption for disposal of single containers.**
12:56:02:08	**Repealed.**

12:56:02:01. Permissible disposal procedures. Pesticides may be disposed of as follows:

(1) Using them for the legal purposes originally intended, at the prescribed dosage;

(2) Returning the pesticides to the manufacturer for potential relabeling, recovery of resources, reprocessing into other materials, or exportation of the pesticide to a country where its use may be legal;

(3) Following the procedure set forth in § 12:56:02:03.

Source: 1 SDR 65, effective March 27, 1975; 2 SDR 53, effective January 18, 1976; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-21-51.
Law Implemented: SDCL 38-21-15.

12:56:02:02. Prohibited storage and disposal procedures. No person may dispose of or store or receive for disposal or storage any pesticide or pesticide container or pesticide container residues as follows:

(1) So as to cause or allow open dumping of pesticides or pesticide containers;

(2) So as to cause or allow open burning of pesticides or pesticide containers. However, the open burning by the user of small quantities of combustible containers which do not exceed more than one day's accumulation or more than 50 pounds of combustible containers and which formerly contained organic or metallo-organic pesticides, except organic mercury, lead, cadmium, beryllium, selenium, or arsenic compounds, is acceptable;

(3) So as to cause or allow water dumping;

(4) So as to cause or allow pesticides to be stored next to food or other articles intended for consumption by humans or animals.

Source: 1 SDR 65, effective March 27, 1975; 2 SDR 53, effective January 18, 1976; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-21-51.
Law Implemented: SDCL 38-21-15.

12:56:02:03. Procedures for disposal of pesticides -- Exceptions. The procedures in this section shall be followed in the disposal of organic and metallo-organic pesticides, except organic mercury, lead, cadmium, beryllium, selenium, or arsenic compounds.

Metallo-organic pesticides may not be incinerated until after the heavy metals are recovered from the hydrocarbon chain and then shall be incinerated in a pesticide incinerator. Organic pesticides not containing metals shall be incinerated in a pesticide incinerator.

In lieu of incineration, the pesticides may be disposed of by burial in a specially designated landfill. If specially designated landfill facilities are not available, the soil injection method may be used, under direct supervision of an agent of the secretary. If soil injection methods of disposal are not available, chemical methods and procedures may be used to degrade pesticides to forms which are not hazardous to the environment. These procedures shall be performed under the direct supervision of an agent of the secretary.

If adequate disposal methods listed in this section are not available, pesticides shall be stored as prescribed in § 12:56:02:08 until disposal facilities and methods become available.

Source: 1 SDR 65, effective March 27, 1975; 2 SDR 53, effective January 18, 1976; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-21-51.
Law Implemented: SDCL 38-21-15.

12:56:02:04. Procedures for the disposal of organic mercury, lead, cadmium, arsenic, beryllium, selenium, and all inorganic pesticides. Organic mercury, lead, cadmium, beryllium, selenium, arsenic, and all inorganic pesticides shall be disposed of in the manner set forth in this section.

These pesticides may be chemically deactivated by converting them to nonhazardous compounds and the heavy metal resources recovered. However, if chemical deactivation facilities are not available, these pesticides shall be encapsulated and buried in a specially designated landfill. Records sufficient to permit location for retrieval shall be maintained at the landfill site in a manner approved by the South Dakota department of environment and natural resources.

If neither of the above options is available, these pesticides shall be placed in containers and stored temporarily until disposal facilities or procedures are available.

Source: 1 SDR 65, effective March 27, 1975; 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-21-51.
Law Implemented: SDCL 38-21-15.

12:56:02:04.01. Disposal of pesticides identified as hazardous wastes. Any pesticide which has been identified as a hazardous waste by § 74:28:22:01 shall be treated, stored, and disposed of in accordance with the procedures established by the department of environment and natural resources for the treatment, storage, and disposal of hazardous wastes as specified by § 74:28:25:01.

Source: 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-21-15, 38-21-51.
Law Implemented: SDCL 38-21-15.

12:56:02:05. Disposal of pesticide containers and residues. All pesticide containers and their residues shall be disposed of according to the following procedures:

(1) Containers which formerly contained organic mercury, lead, cadmium, beryllium, selenium, or arsenic or inorganic pesticides and which have been triple rinsed and punctured to facilitate drainage shall be disposed of in a sanitary landfill, except that small quantities of combustible containers may be burned as provided by subdivision 12:56:02:02(2) or buried in open fields by the user of the pesticide if the amounts of the containers do not exceed the daily volume limits provided by subdivision 12:56:02:02(2) for open burning;

(2) Unrinsed containers which formerly contained organic mercury, lead, cadmium, beryllium, selenium, or arsenic or inorganic pesticides shall be disposed of in a specially designated landfill or incinerated in a pesticide incinerator, except that small quantities of combustible containers may be burned as provided by subdivision 12:56:02:02(2) or buried in open fields by the user of the pesticide if the amounts of the containers do not exceed the daily volume limits provided by subdivision 12:56:02:02(2) for open burning and where light soil texture or subsurface water is not a factor, taking into consideration environmental considerations;

(3) Containers which formerly contained other organic pesticides shall be disposed of in the manner provided in subdivision (2) of this section;

(4) Containers which formerly contained organic pesticides and metallo-organic pesticides, except organic mercury, lead, cadmium, beryllium, selenium, or arsenic compounds, may be returned to the manufacturer for reconditioning when the manufacturer will accept such containers;

(5) Containers which formerly contained organic pesticides and metallo-organic pesticides, except organic mercury, lead, cadmium, beryllium, selenium, or arsenic compounds and which have been triple rinsed and punctured to facilitate drainage may be crushed and sold for scrap;

(6) Containers which formerly contained pesticides which have been identified as hazardous wastes by § 74:28:22:01 shall be treated, stored, and disposed of in accordance with the procedures established by the department of environment and natural resources for the treatment, storage, and disposal of hazardous wastes, as specified by § 74:28:25:01.

Source: 1 SDR 65, effective March 27, 1975; 2 SDR 53, effective January 18, 1976; 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-21-15, 38-21-51.
Law Implemented: SDCL 38-21-15.

12:56:02:06. Procedures for disposal of pesticide residue. Residue and rinse liquids which are not added to spray mixtures in the field shall be disposed of in the manner prescribed for each specific type of pesticide as set forth in §§ 12:56:02:03 and 12:56:02:04.

Source: 1 SDR 65, effective March 27, 1975; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-21-51.
Law Implemented: SDCL 38-21-15.

12:56:02:07. Exemption for disposal of single containers. Sections 12:56:02:01 to 12:56:02:06, inclusive, do not apply to pesticides and single containers of pesticides designed for use in the home and garden if disposed of singly during routine solid waste disposal at a sanitary landfill.

Source: 1 SDR 65, effective March 27, 1975; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-21-51.
Law Implemented: SDCL 38-21-15.

12:56:02:08. Storage facilities. Repealed.

Source: 1 SDR 65, effective March 27, 1975; 4 SDR 23, effective October 20, 1977; 12 SDR 96, repealed December 8, 1985.

CHAPTER 12:56:03 **PESTICIDE TRANSPORTATION REQUIREMENTS**

Section

12:56:03:01 **Transportation by commercial carriers.**
12:56:03:01.01 **Spills during transport.**
12:56:03:02 **Pesticides to be isolated during transportation.**
12:56:03:03 **Transportation of bulk pesticides.**

12:56:03:01. Transportation by commercial carriers. Pesticides transported by commercial carriers shall be packaged in the manufacturer's original container. Pesticides which are identified as hazardous materials shall comply with department of commerce and regulation requirements specified in § 61:23:01:02.

Source: 1 SDR 65, effective March 27, 1975; 12 SDR 96, effective December 8, 1875; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-20A-36, 38-21-15, 38-21-51.
Law Implemented: SDCL 38-20A-35, 38-21-15, 38-21-16.

12:56:03:01.01. Spills during transport. The commercial carrier shall notify the department or division of emergency and disaster services within 12 hours after the spill of more than 5 gallons of liquid or 50 pounds of dry pesticide which occurs during transportation. The commercial carrier shall provide written notice of a spill to the department within 72 hours after the spill.

Source: 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-20A-36, 38-21-15, 38-21-51.
Law Implemented: SDCL 38-20A-36, 38-21-15, 38-21-16.

12:56:03:02. Pesticides to be isolated during transportation. Pesticides shall not be transported by a commercial carrier in the same compartment of the vehicle with clothes, food, feed, or other material intended for use or consumption by humans or animals.

Source: 1 SDR 65, effective March 27, 1975; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-21-51.
Law Implemented: SDCL 38-21-15.

12:56:03:03. Transportation of bulk pesticides. A bulk pesticide storage container being transported shall comply with department of commerce and regulation requirements in § 61:23:01:02 and shall be secured to prevent significant movement during transportation. The container shall prominently bear the registered product label for the pesticide contained in it.

Source: 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-20A-36, 38-21-15, 38-21-51.
Law Implemented: SDCL 38-20A-36, 38-21-15, 38-21-16.

CHAPTER 12:56:13 **BULK PESTICIDE STORAGE**

Section

12:56:13:01 **Permanent bulk pesticide storage containers.**

12:56:13:02	**Bulk pesticide storage facility construction.**
12:56:13:03	**Secondary containment.**
12:56:13:04	**Bulk pesticide storage facility location.**
12:56:13:05	**Effective date of bulk pesticide storage facility requirements.**
12:56:13:05.01	**Bulk pesticide storage facility permit.**
12:56:13:05.02	**Bulk pesticide storage facility inspection.**
12:56:13:05.03	**Alteration of existing permitted bulk pesticide storage facility.**
12:56:13:05.04	**Notice of a bulk pesticide storage facility inspection.**
12:56:13:05.05	**Bulk pesticide storage facilities constructed prior to December 8, 1985.**
12:56:13:06	**Required plans and specifications for bulk pesticide storage facilities.**
12:56:13:07	**Contents of bulk pesticide storage facility permit application.**
12:56:13:08	**Repealed.**
12:56:13:09	**Underground storage.**
12:56:13:10	**Spills.**

12:56:13:01. Permanent bulk pesticide storage containers. Individual permanent bulk pesticide storage containers capable of holding more than 300 gallons must be located within a bulk pesticide storage facility.

Source: 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986; 13 SDR 183, effective June 7, 1987.
General Authority: SDCL 38-20A-36, 38-21-15, 38-21-51.
Law Implemented: SDCL 38-20A-36, 38-21-15.

12:56:13:02. Bulk pesticide storage facility construction. A person shall not construct a bulk pesticide storage facility, for the storage of permanent bulk pesticide storage containers, without a means of secondary containment.

Source: 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-20A-36, 38-21-15, 38-21-51.
Law Implemented: SDCL 38-20A-36, 38-21-15.

12:56:13:03. Secondary containment. Secondary containment constructed after December 8, 1985, must be constructed according to professional engineering practices, which include the following:

(1) The walls and base must be constructed by means of either:

(a) A synthetic liner at least 30 mils thick beneath 12 inches of compacted clay soil to withstand loading conditions and the discharge of maximum tank capacity considering the full hydrostatic head of the discharged liquid;
(b) Concrete, excluding blocks and bricks, of sufficient thickness and strength to withstand loading conditions and the discharge of maximum tank capacity considering the full hydrostatic head of the discharged liquid;
(c) Steel of sufficient thickness and strength to withstand loading conditions and the discharge of maximum tank capacity considering the full hydrostatic head of discharged liquid; or
(d) Cross-linked polyolefin, defined as crosslinkable high density polyethylene, type 3, Class B, Category 5 resin with minimum 0.5 percent carbon black as defined in American Society for Testing and Materials (ASTM) standard D 1248-84, constructed with a minimum thickness of 3/8 inch, ultraviolet stabilized for outdoor use to give excellent outdoor weatherability, and with a low temperature impact strength of a minimum of 90 foot pounds of impact at –40 degrees Fahrenheit according to the Association of Rotational Molders (ARM) impact test. The cross-linked polyolefin must be constructed of sufficient thickness and strength to withstand loading conditions and the discharge of maximum tank capacity considering the full hydrostatic head of discharged liquid;

(2) All seams and cracks must be sealed;

(3) The capacity of the containment area must be capable of holding 110 percent of the volume of the largest container plus the volume of the butts of all the other tanks inside it; and

(4) Each cross-linked polyolefin containment structure must be permanently marked with an embossment or with a metal certification plate permanently affixed to it. The marking must be in letter and number at least 1/4 inch high located on the side of the containment structure. The marking shall certify that the containment structure complies with all requirements of this section and contain the words "meets specification of ARSD 12:56:13:03" and the date of manufacture including month and year.

Source: 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986; 13 SDR 37, effective October 8, 1986; 13 SDR 183, effective June 7, 1987.
General Authority: SDCL 38-20A-36, 38-21-15, 38-21-51.
Law Implemented: SDCL 38-20A-36, 38-21-15.

References: ASTM Standard D 1248-84, "Standard Specification for Polyethylene Plastics Molding and Extrusion Materials," American Society for Testing and Materials, January 1985. Copies may be obtained from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19193.

Association of Rotational Molders Low Temperature Impact Test - T14, revised through January 1986. Copies may be obtained from Association of Rotational Molders, 435 North Michigan Avenue, Chicago, IL 60611.

12:56:13:04. Bulk pesticide storage facility location. A bulk pesticide storage facility shall not be located in an area where spillage, loading, unloading, or secondary containment failure will threaten or cause damage to streams or water supplies. A bulk pesticide storage facility shall not be located in an area subject to flooding.

Source: 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-20A-36, 38-21-15, 38-21-51.
Law Implemented: SDCL 38-20A-36, 38-21-15.

12:56:13:05. Effective date of bulk pesticide storage facility requirements. All bulk pesticide storage facilities must be constructed and operated in compliance with these rules. Bulk pesticide storage facilities constructed prior to the effective date of these rules must be in compliance with §§ 12:56:13:01 to 12:56:13:06, inclusive, by January 1, 1987.

Source: 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-20A-36, 38-21-15, 38-21-51.
Law Implemented: SDCL 38-20A-36, 38-21-15.

12:56:13:05.01. Bulk pesticide storage facility permit. A bulk pesticide storage facility permit is required prior to the operation of a bulk pesticide storage facility. Each facility must be approved by the secretary of agriculture prior to issuance of a permit. A permit shall remain valid until voluntarily withdrawn by the applicant or otherwise modified, suspended, or revoked by the secretary of agriculture.

Source: 13 SDR 37, effective October 8, 1986.
General Authority: SDCL 38-21-51.
Law Implemented: SDCL 38-21-15.1.

12:56:13:05.02. Bulk pesticide storage facility inspection. A bulk pesticide storage facility inspection must be conducted on any new, existing, or altered bulk pesticide storage facility to determine compliance with § 12:56:13:06 prior to issuance of a bulk pesticide storage facility permit. Biennial or more frequent inspections will be conducted of a permitted facility to assure that it is operating in compliance with §§ 12:56:13:01 to 12:56:15:03, inclusive.

Source: 13 SDR 37, effective October 8, 1986.
General Authority: SDCL 38-21-51.
Law Implemented: SDCL 38-21-15.1.

12:56:13:05.03. Alteration of existing permitted bulk pesticide storage facility. An operator of an existing permitted bulk pesticide storage facility must notify the secretary of agriculture, in writing, prior to making any alterations to the existing facility.

Source: 13 SDR 37, effective October 8, 1986.
General Authority: SDCL 38-21-51.
Law Implemented: SDCL 38-21-15.1.

12:56:13:05.04. Notice of a bulk pesticide storage facility inspection. Separate notice shall be given for each bulk pesticide storage facility inspection. A report of the inspection shall be provided to the person in charge of the facility upon completion of the inspection.

Source: 13 SDR 37, effective October 8, 1986.
General Authority: SDCL 38-21-51.
Law Implemented: SDCL 38-21-51.

12:56:13:05.05. Bulk pesticide storage facilities constructed prior to December 8, 1985. Bulk pesticide storage facilities constructed of concrete block prior to December 8, 1985, will be considered for approval after inspection by the secretary. Bulk pesticide storage facilities constructed of brick prior to December 8, 1985, will not be considered for approval. Bulk pesticide storage facilities constructed of concrete block or brick after December 8, 1985, will not be considered for approval by the secretary.

Source: 13 SDR 37, effective October 8, 1986.
General Authority: SDCL 38-20A-36, 38-21-15, 38-21-51.
Law Implemented: SDCL 38-20A-36, 38-21-15.

12:56:13:06. Required plans and specifications for bulk pesticide storage facilities. Plans and specifications for all bulk pesticide storage facilities must be submitted to the secretary for review and approval prior to construction. Installation and operation shall be in accordance with approved plans and specifications.

Source: 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986; 13 SDR 37, effective October 8, 1986.
General Authority: SDCL 38-20A-36, 38-21-15, 38-21-51.
Law Implemented: SDCL 38-20A-36, 38-21-15, 38-21-15.1.

12:56:13:07. Contents of bulk pesticide storage facility permit application. A bulk pesticide storage facility permit application shall include the following:

(1) Name, address, and telephone number of the following:

(a) Firm making application;
(b) Firm who will operate facility; and
(c) Firm who will construct, install, or modify site;

(2) Type of facility (new, existing, or altered);

(3) Location of facility (county, city, and township);

(4) Legal description of facility location;

(5) Size of lot owned or leased;

(6) Nature of terrain (level area, steep slope, etc.);

(7) Type of storage containers (steel, poly, etc);

(8) Number of containers, diameter, height, and capacity of each storage container;

(9) Copies of required local permits;

(10) Soil and groundwater conditions (general soil type at the site, such as clay, gravel, sand, loam, etc., and type, depth, and proximity of wells on or near the site);

(11) Surface water (approximate distance to and identity of nearby lake, stream, drainage ditch, or storm drain into which liquid could flow);

(12) Two scale drawings of plans and specifications for the facility, including other storage containers and buildings;

(13) Two copies of plumbing diagram for the facility showing location and type of pumps and valves used to control all transferring;

(14) Signature, date of signature, and title of the person certifying information on the application; and

(15) Date of approval by the secretary.

Source: 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986; 13 SDR 37, effective October 8, 1986.
General Authority: SDCL 38-20A-36, 38-21-15, 38-21-51.
Law Implemented: SDCL 38-20A-36, 38-21-15, 38-21-15.1.

12:56:13:08. Permanent and nonpermanent bulk pesticide storage containers. Repealed.

Source: 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986; 13 SDR 37, effective October 8, 1986; 13 SDR 183, repealed June 7, 1987.

12:56:13:09. Underground storage. Underground bulk pesticide storage is prohibited, but a sealed catch basin used for the temporary collection of runoff or rinsate from transfer and loading areas is allowed.

Source: 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-20A-36, 38-21-15, 38-21-51.
Law Implemented: SDCL 38-20A-36, 38-21-15.

12:56:13:10. Spills. The operator or manager of a bulk pesticide storage facility shall notify the department or the division of emergency and disaster services within 3 hours after a spill of more than 25 gallons of liquid or 500 pounds of dry pesticides outside the secondary containment area.

Source: 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-20A-36, 38-21-15, 38-21-51.
Law Implemented: SDCL 38-20A-36, 38-21-15.

CHAPTER 12:56:14 BULK DISTRIBUTION OF PESTICIDES

Section

12:56:14:01 **Bulk delivery system.**
12:56:14:01.01 **Bulk dispensing system.**
12:56:14:02 **Labeling.**
12:56:14:03 **Repealed.**
12:56:14:04 **Notification for delivery of bulk pesticide.**
12:56:14:05 **Bulk repackaging.**

12:56:14:01. Bulk delivery system. Scales or meters used for repackaging sales from permanent and nonpermanent bulk pesticide storage containers must be certified by the department of commerce and regulation to meet the specifications, tolerances, and other technical requirements for weighing and measuring devices as specified in § 20:01:02:01.

Source: 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986; 13 SDR 37, effective October 8, 1986.
General Authority: SDCL 38-20A-36, 38-21-15, 38-21-51.
Law Implemented: SDCL 38-20A-36, 38-21-15.

12:56:14:01.01. Bulk dispensing system. All bulk pesticide dispensing requires separate distribution systems, such as hosing and piping, for each bulk pesticide. Such distribution systems shall be constructed of materials and in a manner compatible with the physical and chemical properties of the pesticide being stored.

Source: 13 SDR 37, effective October 8, 1986.
General Authority: SDCL 38-20A-36, 38-21-15, 38-21-51.
Law Implemented: SDCL 38-20A-36, 38-21-15.

12:56:14:02. Labeling. A registered product label shall be affixed prominently to all bulk pesticide storage containers in the proximity of the outlet. All bulk pesticides used for custom mixing, tank mixing, or repackaging must be registered and labeled in accordance with the Act and SDCL 38-20A.

Source: 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-20A-36, 38-21-15, 38-21-51.
Law Implemented: SDCL 38-20A-36, 38-21-15.

12:56:14:03. Distribution of bulk pesticide. Repealed.

Source: 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986; 13 SDR 183, repealed June 7, 1987.

12:56:14:04. Notification for delivery of bulk pesticide. A person may not deliver pesticides for bulk repackaging without notifying the department prior to the initial bulk shipment to any establishment. The notification shall be made annually by the manufacturer or registrant on forms provided by the secretary, and shall include the following:

(1) The name and address of each establishment receiving such a delivery;

(2) A certificate of authorization from the registrant to repackage the pesticides including permission to utilize registered product labels on bulk containers; and

(3) The EPA registration number of each pesticide to be repackaged.

Information obtained by the department pursuant to this section shall not be disclosed without written permission of the manufacturer or registrant.

Source: 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-20A-36, 38-21-15, 38-21-51.
Law Implemented: SDCL 38-20A-36, 38-21-15.

12:56:14:05. Bulk repackaging. Bulk repackaging for distribution must meet the following requirements:

(1) The establishment receiving the transfer or delivery of the bulk pesticide must be in compliance with Section 7 of the Act (registration of pesticide-producing establishments);

(2) A representative of the receiving establishment must be present both when the product is received and when it is repackaged for sale;

(3) There is no change in the following:

(a) Pesticide formulation;
(b) Product labeling, except for the addition of the assigned EPA establishment number of the repackaging site and the net contents statement; and
(c) Identity of the manufacturer or registrant accountable for the integrity of the product, as evidenced by the assigned EPA product registration number;

(4) A written letter of authorization for bulk repackaging from the registrant must be on file at each repackaging establishment; and

(5) Containers and accessory equipment used for the storage and handling of bulk pesticides must be of materials and construction compatible with the pesticide stored and the conditions of storage as specified by label instructions.

Source: 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986; 13 SDR 183, effective June 7, 1987.
General Authority: SDCL 38-20A-36, 38-21-15, 38-21-51.
Law Implemented: SDCL 38-20A-36, 38-21-15.

CHAPTER 12:56:15 HANDLING AND LOADING

Section

12:56:15:01 Handling and loading.
12:56:15:02 Cleansing of bulk pesticide storage containers.
12:56:15:03 Handling and loading spills.

12:56:15:01. Handling and loading. Bulk pesticides shall be handled and loaded in a manner that will prevent spillage or discharge of pesticides.

Source: 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-20A-36, 38-21-15, 38-21-51.
Law Implemented: SDCL 38-20A-36, 38-21-15.

12:56:15:02. Cleansing of bulk pesticide storage containers. Bulk storage containers which contain bulk pesticide must be thoroughly cleaned according to the manufacturer's specifications before refilling, unless a sealed or dedicated reusable bulk container is refilled with a pesticide product bearing the same label.

Source: 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-20A-36, 38-21-15, 38-21-51.
Law Implemented: SDCL 38-20A-36, 38-21-15.

12:56:15:03. Handling and loading spills. Minor spills of pesticide or rinsate which have occurred from the handling, loading, or cleansing of bulk containers and which accumulate in the secondary containment area shall be disposed of as provided by the pesticide label. If the spillage is contaminated or unfit for reuse or disposal according to label directions, the operator shall comply with the disposal procedures in chapter 12:56:02.

Source: 12 SDR 96, effective December 8, 1985; 12 SDR 128, 12 SDR 154, effective July 1, 1986.
General Authority: SDCL 38-20A-36, 38-21-15, 38-21-51.
Law Implemented: SDCL 38-20A-36, 38-21-15.

CHAPTER 12:56:17 OPERATIONAL AREA CONTAINMENT

Section

12:56:17:01 **Operational area containment required.**
12:56:17:02 **Operational area containment requirements.**
12:56:17:03 **Pesticide handling and discharge response procedures and plans.**
12:56:17:04 **Training to be provided to employees.**
12:56:17:05 **Recovery, storage, and use of discharges.**
12:56:17:06 **Reporting of pesticide spills.**
12:56:17:07 **Pesticide operational area registration.**
12:56:17:08 **Prior approval required of plans and specifications for pesticide operational areas -- Dual approval if fertilizer containment requirements met.**
12:56:17:09 **Contents of pesticide operational area containment registration application.**
12:56:17:10 **Connections to potable water supply.**

12:56:17:01. Operational area containment required. After February 1, 1995, operational area containment is required of any person when the person's operational area meets any one or more of the following conditions:

(1) The operational area is the applicator's principal operational area and

(a) More than a total of 1,500 pounds of pesticide active ingredients are transferred, loaded, unloaded, mixed, repackaged, or refilled during a calendar year; or
(b) Either concentrate or diluted pesticides are cleaned, washed, or rinsed from containers or from

application, handling, storage, or transportation equipment for over 30 days accumulated during a calendar year;

(2) The operational area is within

(a) 150 feet of a lake, stream, streambed, or wetland;
(b) 150 feet of a well;
(c) 200 feet of populated buildings, either commercial or residential premises, excluding the owner or operator's own residential or commercial buildings; or
(d) 500 feet of a well used as a public water supply.

Two or more operational areas under common ownership and control within one-half mile of each other are calculated collectively to determine if the thresholds listed in subdivision (1)(a) or (1)(b) of this section have been reached.

Subdivisions (2)(c) and (2)(d) of this section do not apply to mixing and loading operations conducted by pesticide applicators utilizing containers and equipment with holding capacities of 10 U. S. gallons or less or 50 pounds net dry weight or less.

Except for pressure wood preserving operational areas, subdivisions (1)(a) and (1)(b) of this section do not apply to those operational areas located within or immediately adjacent to each pesticide application site.

Source: 18 SDR 49, effective September 15, 1991; 20 SDR 91, effective December 19, 1993.
General Authority: SDCL 38-21-15, 38-21-15.1, 38-21-51.
Law Implemented: SDCL 38-21-15, 38-21-15.1.

12:56:17:02. Operational area containment requirements. After February 1, 1995, the following requirements for containment apply to those operational areas where operational area containment is required pursuant to § 12:56:17:01:

(1) Operational area activities must be carried out in a manner that prevents escape of discharges that may result in unreasonable adverse effects on the environment;

(2) Operational area activities must be carried out on an impervious surface that is designed to catch and contain any discharges in the operational area;

(3) The operational area containment must be constructed in accordance with professional engineering practices which include the following:

(a) The material used must be of sufficient thickness and strength to withstand the weight and movement of any equipment that may be placed or parked within the operational area containment;
(b) All seams and cracks must be sealed;
(c) The operational area containment must be constructed of concrete or other materials approved by the secretary prior to construction or installation. If materials other than concrete are used, information must be provided by the applicant to the secretary which includes chemical compatibility, permeability, and physical characteristics of materials proposed to assure operational area containment integrity under conditions of proposed use. A written confirmation of compatibility of synthetic materials must be kept at the operational area or at the nearest local office of the operator;
(d) For liquid pesticides, including container and equipment rinsates, the operational area containment must be curbed or sloped to contain discharges so as to facilitate recovery of discharged materials and to prevent liquids from adjacent surfaces from flowing onto the operational area containment. To prevent unreasonable adverse effects on the environment as defined in SDCL chapter 38-21, the operational area containment must be of sufficient capacity and surface area to contain discharges from the single largest container or application system operated or cleaned within the operational area and to prevent spillage

onto unprotected areas. A minimum containment capacity of 250 U.S. gallons must be provided;
(e) For nonliquid pesticides, the operational area containment must extend beneath any conveyors or augers used in operational area activities unless the conveyors or augers are fully enclosed and constructed to prevent discharge. To prevent unreasonable adverse effects on the environment as defined in SDCL chapter 38-21, the operational area containment must be of adequate surface area to contain discharges from the largest container or equipment operated within the operational area containment. The operational area containment must be constructed to prevent liquids from adjacent surfaces from flowing onto the operational area containment;

(4) Discharges and other accumulated materials must be promptly recovered from the operational area containment. Accumulated liquids or materials containing pesticides must be disposed of in accordance with chapter 12:56:02. Accumulations of precipitation may be discharged from the operational area containment as surface runoff if the operational area containment was cleaned after the last use.

Source: 18 SDR 49, effective September 15, 1991; 20 SDR 91, effective December 19, 1993.
General Authority: SDCL 38-21-15, 38-21-15.1, 38-21-51.
Law Implemented: SDCL 38-21-15, 38-21-15.1.

12:56:17:03. Pesticide handling and discharge response procedures and plans. All applicators who conduct operational area activities must utilize procedures to minimize and mitigate the adverse effects of discharges on the environment. By February 1, 1995, all private and commercial applicators must conduct operational area activities utilizing a written pesticide handling and discharge response plan. The plan must be kept current at all times and available for use. A copy of the plan must be available for inspection by the department at either the operational area or the applicator's nearest local office or the location from which the operational area is administered. The written plan must contain the following information:

(1) Methods and procedures to be used for the transfer, loading, unloading, mixing, repackaging, and refilling of pesticide containers and pesticide application equipment;

(2) Methods and procedures to be used for the periodic inspection of appurtenances used to transfer or hold pesticides and for the repair of any equipment found to be defective;

(3) Methods and procedures to be used for the rinsing, washing, and cleaning of pesticide containers and application, storage, or transportation equipment;

(4) Methods and procedures to be used in the transfer, handling, storage, and disposal of materials recovered from within operational area containment, if required;

(5) Methods, procedures, materials, and equipment to be used to contain, recover, store, transport, and dispose of discharges outside of operational area containment systems; and

(6) The identity and telephone numbers of responsible persons and agencies who are to be contacted if a discharge occurs.

Pesticide handling and discharge response plans written to comply with another law, rule, or ordinance may be used to comply with all or part of the requirements in this section.

Source: 18 SDR 49, effective September 15, 1991; 20 SDR 91, effective December 19, 1993.
General Authority: SDCL 38-21-15, 38-21-15.1, 38-21-51.
Law Implemented: SDCL 38-21-15, 38-21-15.1.

12:56:17:04. Training to be provided to employees. Effective February 1, 1995, all private and commercial applicators who own or operate an operational area must conduct pesticide handling and discharge response plan training for all new and existing employees involved in the use and handling of

pesticides. Training must be conducted at least annually. Employees involved in pesticide use and handling must receive training no later than three days after beginning pesticide use and handling duties. The owner or operator and employees are responsible for following the firm's pesticide handling and discharge response plan to minimize contamination of the environment.

Source: 18 SDR 49, effective September 15, 1991; 20 SDR 91, effective December 19, 1993.
General Authority: SDCL 38-21-15, 38-21-15.1, 38-21-51.
Law Implemented: SDCL 38-21-15, 38-21-15.1.

12:56:17:05. Recovery, storage, and use of discharges. All discharges within and outside of operational area containment shall be immediately recovered using absorbent materials, pumps, or similar means. Operational area containment surfaces exposed to concentrated and diluted pesticides shall be periodically cleaned and all rinsates shall be recovered and stored in accordance with SDCL chapter 38-21 and article 12:56. Recovered discharges shall not be stored below ground. Containers larger than 300 U.S. gallons that contain recovered discharges or rinsates not regulated by chapter 12:56:13 for more than 14 consecutive days must be located within secondary containment constructed and maintained in accordance with the construction and capacity requirements of chapter 12:56:13. Recovered discharges may be used in accordance with the applicable pesticide product labels.

Upon recovery of discharges outside of operational area containment that are in excess of the quantities listed in § 12:56:17:06, samples shall be taken and analyzed for applicable pesticide residues by the person responsible for the discharge. Samples taken must be from the area where the discharge occurred and from where recovery was completed. These samples must be taken at a sufficient depth and from a sufficient surface area to show that the recovery was complete.

The owner or operator of the operational area shall provide written documentation to the department describing the cause of the discharge, recovery and sampling procedures, analysis reports, and disposition of the recovered materials within 30 days following the date the discharge occurred.

Source: 18 SDR 49, effective September 15, 1991.
General Authority: SDCL 38-21-15, 38-21-15.1, 38-21-51.
Law Implemented: SDCL 38-21-15, 38-21-15.1.

12:56:17:06. Reporting of pesticide spills. Pesticide discharges in excess of 25 pounds active ingredients that occur at operational areas outside of operational area containment must be reported to the department.

Source: 18 SDR 49, effective September 15, 1991.
General Authority: SDCL 38-21-15, 38-21-16, 38-21-51.
Law Implemented: SDCL 38-21-16.

12:56:17:07. Pesticide operational area registration. Effective February 1, 1995, each pesticide operational area using operational area containment as required by § 12:56:17:01 must be registered with the department. The secretary may deny registration or require additional conditions for the registration of any operational area if the registrant's application does not meet the requirements of each provision of this chapter.

If departmental investigation determines the facility is not constructed or operating in accordance with the submitted plans and specifications or the requirements of this chapter, the owner must correct any deficiencies as set forth by the department. The secretary may modify, suspend, or revoke the registration of any operational area that has not complied with this chapter.

Source: 18 SDR 49, effective September 15, 1991; 20 SDR 91, effective December 19, 1993.

General Authority: SDCL 38-21-15.1, 38-21-51.
Law Implemented: SDCL 38-21-15.1.

12:56:17:08. Required of plans and specifications for pesticide operational areas. Plans and specifications for pesticide operational areas required to be registered pursuant to this chapter must be submitted to the secretary for review and approval at least 60 days before construction begins. Installation and operation must be in accordance with approved plans and specifications.

Any person may submit pesticide operational area containment plans and specifications prior to February 1, 1995, and the department shall review such plans for compliance with this chapter. If the pesticide operational area containment plans are technically sound and comply with the rules pertaining to fertilizer in article 12:44 and the rules contained in this chapter, the department shall provide approval for construction or registration under both the pesticide and fertilizer containment requirements.

Source: 18 SDR 49, effective September 15, 1991; 20 SDR 91, effective December 19, 1993.
General Authority: SDCL 38-21-15, 38-21-15.1, 38-21-51.
Law Implemented: SDCL 38-21-15.1, 38-21-15.3.

12:56:17:09. Contents of pesticide operational area containment registration application. An application for a pesticide operational area containment registration shall include the following:

(1) The name, address, and telephone number of the following:

(a) The person applying for registration;
(b) The person who will operate the area; and
(c) The person who will construct, install, or modify the site;

(2) The type of operational area containment, new or existing and stationary or portable;

(3) The county, city, and township where the operational area is located;

(4) The legal description of the operational area, including range, township, section, quarter, quarter, quarter, and quarter;

(5) The size of the lot owned or leased;

(6) The nature of the terrain, such as level area, steep slope;

(7) The type of containers, such as steel, poly, or wood, and the size of containers to be transferred at the operational area;

(8) The type of back siphon prevention equipment to be used;

(9) Copies of required local permits;

(10) The general soil type at the operational area, such as clay, gravel, sand, or loam, and the type, depth, proximity, and legal description of wells and aquifers within 1,000 feet of the operational area;

(11) The approximate distance to and identity of any surface water, such as lake, stream, drainage ditch, or storm drain, within one-half mile into which liquid could flow;

(12) Two scale drawings of plans and specifications for the operational area containment;

(13) Two copies of the plumbing diagram for the facility showing the location and type of appurtenances

used to control all operational area operations;

(14) If synthetic materials are used, a copy of the manufacturer's letter describing the material's compatibility with pesticides;

(15) The signature, the date of signature, and the title of the person certifying information on the application; and

(16) The date of review by the secretary or the secretary's agent.

Source: 18 SDR 49, effective September 15, 1991.
General Authority: SDCL 38-21-15, 38-21-15.1, 38-21-51.
Law Implemented: SDCL 38-21-15.1, 38-21-15.3.

12:56:17:10. Connections to potable water supply. All pesticide operational areas shall implement procedures to prevent backflow incidents from contaminating potable water supplies. Potable water supply lines may not be connected to process water lines, chemical lines, or equipment unless backflow prevention is installed. Backflow prevention shall consist of one of the following:

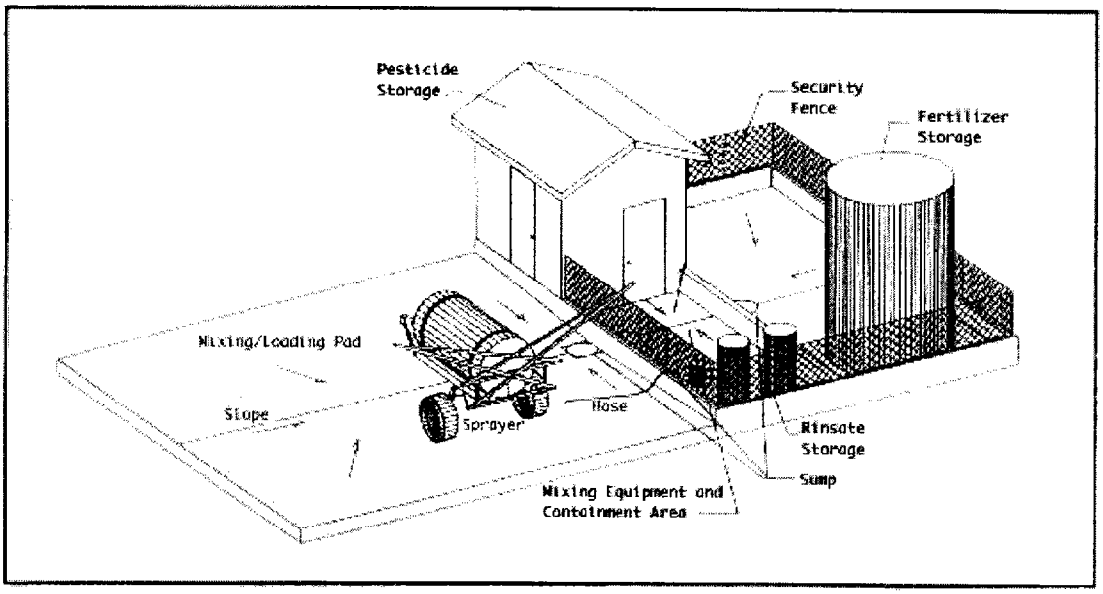
(1) A reduced-pressure principle device which meets the American Water Works Association Standard C511-89 (September 1, 1990) for backflow prevention devices; or

(2) Air gap separation. Air gap is a physical separation between the free flowing discharge end of a water pipeline and an open or nonpressurized receiving vessel. To have an acceptable air gap, the end of the discharge pipe must be located a distance of at least twice the diameter of the pipe above the topmost rim of the receiving vessel.

Source: 18 SDR 49, effective September 15, 1991.
General Authority: SDCL 38-21-15, 38-21-15.1, 38-21-51.
Law Implemented: SDCL 38-21-15.

Reference: AWWA Standard for "Reduced-Pressure Principle Backflow-Prevention Assembly," American Water Works Association, effective September 1, 1990. Copies may be obtained from the American Water Works Association, 6666 West Quincy Avenue, Denver, Colorado 80235; $12 per copy plus $2.95 shipping and handling.

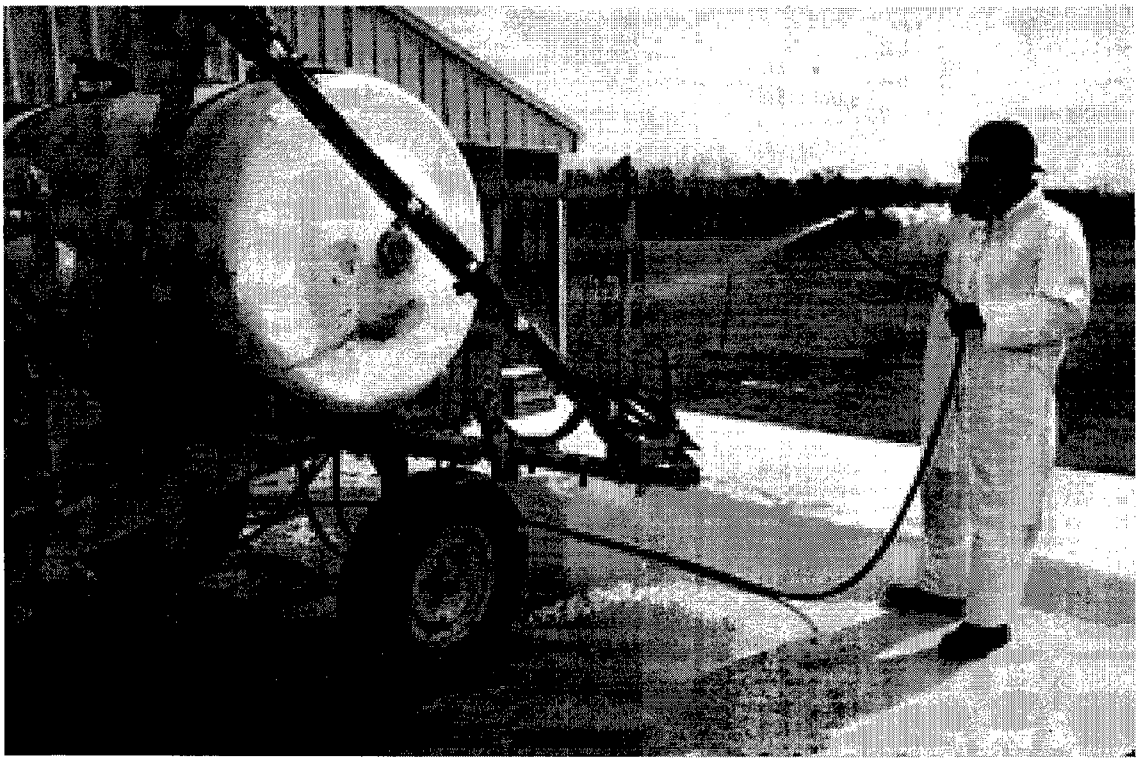
Pesticide Operational Area Containment



Combination mixing and storage area for pesticide and fertilizer handling.
Source: Designing Facilities for Pesticide and Fertilizer Containment. (MWPS-37)
MidWest Plan Service, Agricultural Engineering, Iowa State University, Ames, IA. 1991

Operational Area Containment Plans

Guidelines for pesticide operational area containment plans and specifications are provided in South Dakota Administrative Rules (ARSD) 12:56:17:08. This rule refers to plans and specifications that are detailed in the Fertilizer Section of this manual (ARSD 12:44). Examples of Fertilizer Load/Wash Pad drawings are also provided for consideration. Many new materials have recently been made available for pesticide pad construction and may also be approved for construction.



ARSD 12:56:17:08. Plans and specifications for pesticide operational areas required to be registered pursuant to this chapter must be submitted to the secretary for review and approval at least 60 days before construction begins. Installation and operation must be in accordance with approved plans and specifications.

The department shall review pesticide operational area containment plans and specifications for compliance with this chapter. If the pesticide operational area containment plans are technically sound and comply with fertilizer rules, Chapter 12:44, and the pesticide rules in Chapter 12:56, the department shall provide approval for construction or registration under both the pesticide and fertilizer containment requirements.

PESTICIDE OPERATIONAL AREA CONTAINMENT RULES

BENEFITS OF OPERATIONAL AREA CONTAINMENT

Operational area containment is a method of preventing pesticides spilled during handling from adversely impacting human health and the environment. Using containment may also reduce your financial liability when spills occur by preventing the need for environmental cleanup costs.

Containment systems, impervious pads with berms or walls, are designed to prevent the escape of spilled product or rinsates into the environment. Valuable pesticides can be collected and used. Use of containment may also make your operation more efficient by offering equipment cleaning facilities on site rather than cleaning in the field.

These systems are your safety net against financial liability by preventing your pesticide operational area from becoming contaminated. While management of your operational area will require greater attention and professionalism, it can provide peace of mind and good conscience when potentially harmful products are handled.

It protects the health of yourself, family, employees, the public and the environment and may spare you the catastrophic expense of time and money involved in the clean-up of a contaminated operational area.

OPERATIONAL AREA CONTAINMENT IS REQUIRED WHEN

Since May 1, 1995, operational area containment has been required of any person who meets any criteria of ARSD 12:56:17. However, in many cases, it may be possible to comply with these rules without installing operational area containment simply by changing your pesticide handling practices.

If you meet any one of the following criteria you need to conduct your pesticide handling activities over operational area containment.

- The operational area is within 150 feet of a lake, stream, streambed or wetland.
- The operational area is within 150 feet of a well.
- The operational area is within 200 feet of populated buildings, either commercial or residential premises, excluding the operator's own buildings. †
- The operational area is within 500 feet of a well used as a public water supply. †
- The operational area is the applicator's principal operational area (where the majority of the applicator's operational area activities occur) **AND** more than a total of 1,500 pounds of pesticide active ingredients are transferred, loaded, unloaded, mixed, repackaged, or refilled during a calendar year or either concentrate **OR** diluted pesticides are cleaned, washed or rinsed from containers or from application, handling, storage or transportation equipment for over 30 days accumulated during a calendar year. ‡,§

---

† Does not apply to mixing & loading operations conducted by applicators using containers and equipment with holding capacities of 10 gallons or less or 50 pounds net dry weight or less.

‡ When calculating to determine if the 1,500 pound or 30 day threshold has been exceeded, operational areas under common ownership and control and within one-half mile of each other are calculated collectively.

§ Except for pressure wood preserving operational areas, this does not apply to operational areas within or immediately adjacent to each pesticide application site.

OPERATIONAL AREA CONTAINMENT REQUIREMENTS

Operational areas that are required to be contained must meet the following requirements.

- Operational area activities must be carried out on an impervious surface constructed in accordance with professional engineering practices in a manner that prevents escape of discharges.
- The containment may be constructed of concrete or other materials of sufficient strength or thickness. All seams or cracks must be sealed.
- For liquid pesticides, containment must be large enough to contain discharges from the largest container transferred or rinsed, but at least 250 gallons in size. The containment must be curbed or sloped.
- For dry pesticides, there is not a specific capacity requirement but the containment must be constructed to effectively contain potential discharges.
- Discharges or other accumulated material must be promptly recovered. Materials recovered may be used for their intended purpose or disposed of in accordance with 12:56:02.

OPERATIONAL AREA CONTAINMENT REGISTRATION

Operational area containment systems must be registered with the department. An application form, plans and specifications must be submitted.

PESTICIDE HANDLING AND DISCHARGE RESPONSE PLANS

A written pesticide handling and discharge response plan is required of all certified applicators who conduct operational area activities. The written handling and response plan must be kept current and available for use.

The plan must contain a description of methods and procedures to be used for:

- handling of pesticides;
- inspection of equipment;
- rinsing, washing or cleaning of equipment and containers;
- transfer, handling, storage and disposal of rinsates; and
- include the identity and telephone numbers of emergency contacts.

Applicators are required to train employees, and those covered by the plan, regarding plan contents on an annual basis.

RECOVERY, STORAGE AND USE OF DISCHARGES

All discharges must be promptly recovered. Recovered discharges must be stored within containment if stored in tanks larger than 300 gallons for more than 14 consecutive days. **Recovered** material may be used in accordance with the product label. Following recovery of spills outside containment area, samples must be taken and documentation of complete recovery submitted to the department within 30 days.

REPORTING OF SPILLS

Spills in excess of 25 pounds active ingredient which occur outside of containment must be reported to the department.

BACKFLOW PREVENTION

Connections to potable water supplies must be protected from backflow by an air gap separation or a reduced pressure principle device.

South Dakota Department of Agriculture
Division of Agriculture Services
523 East Capitol, Foss Building
Pierre, SD 57501-3182
(605) 773-3724

APPLICATION FOR OPERATIONAL AREA CONTAINMENT REGISTRATION

Firm/person making application:

Name _____

Address _____

_____

City State Zip Code

Telephone Number:

Firm/person who will operate the containment

Name _____

Address _____

_____

City State Zip Code

Telephone Number:

Firm who will construct/install/modify site:

Name _____

_____

Address

_____

City State Zip Code

Telephone number:

Nature of terrain: (circle one)

Level Hillside or step slope Valley Hilltop

Slight slope Natural depressions with no outlet

Other (Describe)_____

_____

Legal description of operational area:

County _____

City _____

Township _____

Range _____

Section _____

Quarter _____

Quarter _____

Quarter _____

Quarter _____

Type of containment:

☐ New OR ☐ Existing

☐ Stationary OR ☐ Portable

☐ Concrete ☐ Steel ☐ Synthetic ☐ Other, describe:

_____

General Soil Type:
(Circle one): Clay Gravel Sand Loam Peat
Other (describe) _____

Is a local permit required for this construction?
Yes ☐ No ☐ (If yes, include copy)

Size of lot owned or leased: _____

Type of containers to be transferred: (complete appropriate boxes below)

Container #1	Container #2	Container #3	Container #4	Container #5
Capacity_____	Capacity_____	Capacity_____	Capacity_____	Capacity_____
Steel_____	Steel_____	Steel_____	Steel_____	Steel_____
Poly_____	Poly_____	Poly_____	Poly_____	Poly_____
Wood_____	Wood_____	Wod_____	Wood_____	Wood_____
Other_____ (describe)	Other_____	Other_____	Other_____	Other_____

Description, proximity and legal description of wells and/or aquifers which are within 1000 feet of operational are: (complete appropriate boxes below)

Aquifer	Well # 1	Well # 2	Well # 3
Proximity to site _____	Proximity to site _____	Proximity to site _____	Proximity to site _____
Aquifer depth _____	Well depth _____	Well depth _____	Well depth _____
	Township _____	Township _____	Township _____
	Range _____	Range _____	Range _____
	Section _____	Section _____	Section _____
	Quarter _____	Quarter _____	Quarter _____
	Quarter _____	Quarter _____	Quarter _____
	Quarter _____	Quarter _____	Quarter _____
	Quarter _____	Quarter _____	Quarter _____

(Attach additional sheets if there in insufficient space on the form to list the required information)

Approximate distance to and identify of any surface water such as a lake, stream, drainage ditch or storm drain which lie with 1/2 mile of operational area:

	YES OR NO (circle one)		
Lake	Y	N	Proximity to site _____
Stream	Y	N	Proximity to site _____
Ditch	Y	N	Proximity to site _____
Storm Ditch	Y	N	Proximity to site _____
Other	Y	N	Proximity to site _____
(describe) _____			

Type of back siphon prevention equipment to be used: _____

Documents which must accompany this application are:

Check box, if enclosed.

☐ 1. Copies of required local permits.

☐ 2. Two scale drawings of plans and specifications for the operational area containment.

☐ 3. Two copies of the plumbing diagram for the facility showing the location and type of appurtenances used to control all operational area operations.

☐ 4. If synthetic materials are used - Copy of manufacture's letter describing the materials compatibility with pesticides.

I hereby certify that information contained in this application is true and correct.

_____

Signature of applicant Date Title of applicant

Reviewed by: _____

OFFICE USE ONLY

PESTICIDE OPERATIONAL AREA CONTAINMENT REGISTRATION

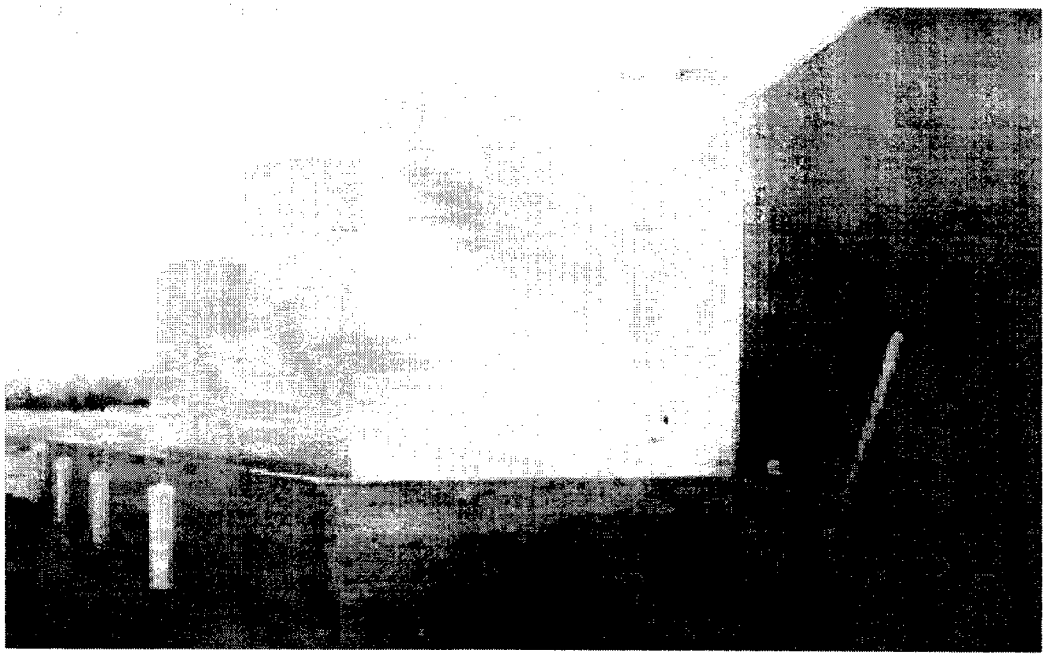
This is to certify that the pesticide Operational Area Containment described in the application is hereby registered with the South Dakota Department of Agriculture.

Registration Number _____ Date Registered _____

Signed _____

Secretary of Agriculture

BULK FACILITY PERMITTING



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EXAMPLE

South Dakota Department of Agriculture
Division of Agricultural Services
523 East Capitol, Foss Building
Pierre, SD 57501-3182
Telephone: 605/773-3724; FAX: 605/773/3481

APPLICATION FOR BULK STORAGE FACILITY PERMIT

Select the Bulk Facility Permit you are applying for: ☐ **FERTILIZER** ☑ **PESTICIDE**

Firm making application:

Name
Larry & Darrel's Fertilizer Company

Address
101 Main Street

City	State	Zip
Metropolis	*SD*	*57000*

Telephone number:
605-123-4567

☐ New
☐ Existing
☑ Altering

Location of site:
County *Crow* City *Metropolis*

Township *McGregor*

Legal description: SE 1/4 of SW 1/4 - Section 7 T-124-N, R-75-W

Firm who will operate facility:

Name
Same as above

Address

City	State	Zip

Telephone number:

Does this construction/installation/modification require a local permit?
☐ Yes ☑ No (*if yes, submit copy*)

Size of lot owned or leased: *20 acres*

Nature of terrain (*check one*):
☐ Level area
☐ Hillside or steep slop
☐ Natural depression with no outlet
☐ Valley
☐ Hilltop
☑ Slight slope

Firm who will construct/install/modify site

Name
Metropolis Construction Co.

Address
111 Main Street

City	State	Zip
Metropolis	*SD*	*57000*

Telephone number: *605-123-7654*

Type of storage containers (steel, poly, etc.)
6 wood storage bins - dry fertilizer

Number and capacity of storage containers:
New _____
Existing _____
Altering *See attached drawing*

Surface water (give approximate distance to nearby lake, stream, drainage ditch, or storm drain into which liquid could flow), and identity of same: *1/4 mile W Brown Lake, 1/2 mile N Mud Creek*

Soil and ground water conditions (state general soil type at the site such as clay, gravel, sand, loam, peat, etc.); and type, depth and proximity of wells on or near site
: *Sandy loam soils, City well - 2 mi N, Private well* 600 ft W

Submit two (2) scale drawings of plans and specifications for the facility, along with the location of other storage containers and buildings. Include length, width, and wall height (inside dimensions) of the containment area. Also, state the diameter and height of each storage tank to be contained. *Included*

Submit two (2) copies of a plumbing diagram for facility showing location and type of pumps and valves used to control all transferring. *N/A*

For Bulk Liquid Fertilizer applicants: If a synthetic liner is used, a copy of the manufacturer's letter of compatibility and his written estimate of the life of the liner and written proof of certification of those qualified to install the liner, must accompany this application. *N/A*

I hereby certify that the above statements are true and correct (representative of firm making application).
Signed by *Larry Jones* Title *Manager* Date *9/1/2000*

(Department Use Only)

Reviewed by _____ Title _____ Date _____

South Dakota Department of Agriculture
Division of Agricultural Services
523 East Capitol, Foss Building
Pierre, SD 57501-3182
Telephone: 605/773-3724; FAX: 605/773/3481

APPLICATION FOR BULK STORAGE FACILITY PERMIT

Select the Bulk Permit you are applying for: ☐ **FERTILIZER** ☐ **PESTICIDE**

Firm making application: Name	☐ New ☐ Existing ☐ Altering
Address City / State / Zip	Location of site: County_____ City_____ Township_____
Telephone number: **Firm who will operate facility:**	Legal description:
Name	Does this construction/installation/modification require a local permit? ☐ Yes ☐ No (*if yes, submit copy*)
Address City / State / Zip	Size of lot owned or leased: _____
Telephone number: **Firm who will construct/install/modify site**	Nature of terrain (*check one*): ☐ Level area ☐ Hillside or steep slop ☐ Natural depression with no outlet ☐ Valley ☐ Hilltop ☐ Slight slope
Name Address City / State / Zip	Type of storage containers (steel, poly, etc.) _____
Telephone number:	Number and capacity of storage containers: New _____ Existing _____ Altering _____

Surface water (give approximate distance to nearby lake, stream, drainage ditch, or storm drain into which liquid could flow), and identity of same:

Soil and ground water conditions (state general soil type at the site such as clay, gravel, sand, loam, peat, etc.); and type, depth and proximity of wells on or near site:_____

Submit two (2) scale drawings of plans and specifications for the facility, along with the location of other storage containers and buildings. Include length, width, and wall height (inside dimensions) of the containment area. Also, state the diameter and height of each storage tank to be contained.

Submit two (2) copies of a plumbing diagram for facility showing location and type of pumps and valves used to control all transferring.

For Bulk Liquid Fertilizer applicants: If a synthetic liner is used, a copy of the manufacturer's letter of compatibility and his written estimate of the life of the liner and written proof of certification of those qualified to install the liner, must accompany this application.

I hereby certify that the above statements are true and correct (representative of firm making application).
Signed by _____ Title _____ Date_____

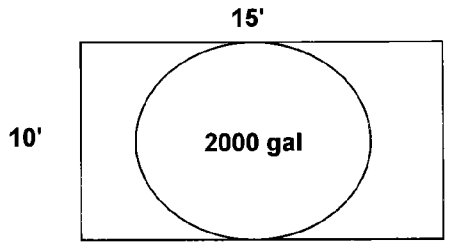
(Department Use Only)

Reviewed by _____ Title _____ Date_____

EXAMPLE

SINGLE STORAGE TANK CONTAINMENT WALL HEIGHT CALCULATIONS FOR BULK LIQUID FERTILIZER AND BULK PESTICIDE STORAGE FACILITIES

Sketch containment area with dimensions and tank shown:



Pesticide Tank

Determine area inside containment wall:

AREA = 15 (Length) Ft x 10 (Width) Ft = 150 (Area) Sq Ft

Tank volume and volume to be contained:

Tank capacity: 2000 Gal
For bulk **fertilizer** add **25%** of tank capacity: _____ Gal
For bulk **pesticide** add **10%** of tank capacity: 200 Gal
Total tank capacity to be contained: 2200 Gal

Containment volume required:

2200 (Tank capacity to be contained) Gal ÷ 7.5 Gal = 293.3 (Contained Volume) Cubic Ft

Wall heights available (standard design) 1,2,3 or 4 ft (refer to wall design sheets for construction details). When the required wall height (Hw) is 1'-0" or less, use the reinforcing for the 1'-0" wall design. When the required wall height (Hw) is 2'-0" or less, use the reinforcing for the 2'-0" wall design. When the required wall height (Hw) is 3'-0" or less, use the reinforcing of the 3'-0" wall design. When the required wall height (Hw) is 4'-0" or less, use the reinforcing for the 4'-0" wall design.

Containment Wall Height Required:

Height of wall required = 293.3 (Contained) Cubic Ft ÷ 150 (Area) Sq Ft = 2.0 (Height) Ft

SINGLE STORAGE TANK CONTAINMENT WALL HEIGHT CALCULATIONS FOR BULK LIQUID FERTILIZER AND BULK PESTICIDE STORAGE FACILITIES

Sketch containment area with dimensions and tank shown:

Determine area inside containment wall:

AREA = _____Ft (Length) x _____Ft (Width) = _____Sq Ft (Area)

Tank volume and volume to be contained:

Tank capacity: _____Gal
For bulk **fertilizer** add **25%** of tank capacity: _____Gal
For bulk **pesticide** add **10%** of tank capacity: _____Gal
Total tank capacity to be contained: _____Gal

Containment volume required:

_____Gal (Tank capacity to be contained) ÷ 7.5 Gal = _____Cubic Ft (Contained Volume)

Wall heights available (standard design) 1,2,3 or 4 ft (refer to wall design sheets for construction details). When the required wall height (Hw) is 1'-0" or less, use the reinforcing for the 1'-0" wall design. When the required wall height (Hw) is 2'-0" or less, use the reinforcing for the 2'-0" wall design. When the required wall height (Hw) is 3'-0" or less, use the reinforcing of the 3'-0" wall design. When the required wall height (Hw) is 4'-0" or less, use the reinforcing for the 4'-0" wall design.

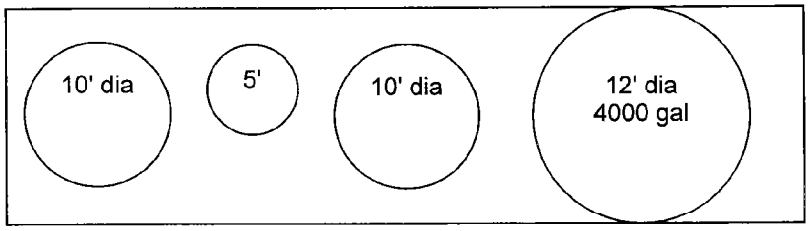
Containment Wall Height Required:

Height of wall required = _____Cubic Ft (Contained) ÷ _____Sq Ft (Area) = _____Ft (Height)

EXAMPLE

MULTIPLE STORAGE TANK CONTAINMENT WALL HEIGHT CALCULATIONS FOR BULK LIQUID FERTILIZER AND BULK PESTICIDE STORAGE FACILITIES

Sketch containment area with dimensions and tank shown:



Fertilizer Tanks

Determine area inside containment wall:

AREA = 40 (Length) Ft x 16 (Width) Ft = 640 (Area) Sq Ft

Largest tank volume and volume to be contained:

Tank capacity: 4000 Gal
For bulk **fertilizer** add **25%** of tank capacity: 1000 Gal
For bulk **pesticide** add **10%** of tank capacity: _____ Gal
Total tank capacity to be contained: 5000 Gal

Area taken up by bases of other tanks in containment area -not including the largest tank's area.
Tank diameter (Dia) in Ft.

$\frac{10}{2}$ Dia x $\frac{10}{2}$ Dia x 3.142 = 78.6 Sq Ft

$\frac{10}{2}$ Dia x $\frac{10}{2}$ Dia x 3.142 = 78.6 Sq Ft

$\frac{5}{2}$ Dia x $\frac{5}{2}$ Dia x 3.142 = 19.6 Sq Ft

$\frac{\quad}{2}$ Dia x $\frac{\quad}{2}$ Dia x 3.142 = _____ Sq Ft

Total area covered by tank bases = 176.8 Sq Ft
(excluding largest tank)

EXAMPLE

MULTIPLE STORAGE TANK CONTAINMENT WALL HEIGHT CALCULATIONS FOR BULK LIQUID FERTILIZER AND BULK PESTICIDE STORAGE FACILITIES (CONT.)

USABLE containment area:

640 (Area) Sq Ft - 176.8 (Bases) Sq Ft = 463.2 (Usable) Sq Ft

Containment volume required:

5000 (Tank capacity to be CONTAINED) Gal ÷ 7.5 Gal = 666.7 (Contained) Cubic Ft

Containment wall height:

666.7 (Contained) Cubic Ft ÷ 463.2 (Usable) Sq Ft = 1.5 (Height) Ft

Wall heights available (standard design) 1,2,3 or 4 ft (refer to wall design sheets for construction details). When the required wall height (Hw) is 1'-0" or less, use the reinforcing for the 1'-0" wall design. When the required wall height (Hw) is 2'-0" or less, use the reinforcing for the 2'-0" wall design. When the required wall height (Hw) is 3'-0" or less, use the reinforcing of the 3'-0" wall design. When the required wall height (Hw) is 4'-0" or less, use the reinforcing for the 4'-0" wall design.

MULTIPLE STORAGE TANK CONTAINMENT WALL HEIGHT CALCULATIONS FOR BULK LIQUID FERTILIZER AND BULK PESTICIDE STORAGE FACILITIES

Sketch containment area with dimensions and tank shown:

Determine area inside containment wall:

AREA = _____Ft (Length) x _____Ft (Width) = _____Sq Ft (Area)

Largest tank volume and volume to be contained:

Tank capacity: _____Gal
For bulk **fertilizer** add **25%** of tank capacity: _____Gal
For bulk **pesticide** add **10%** of tank capacity: _____Gal
Total tank capacity to be contained: _____Gal

Area taken up by bases of other tanks in containment area - not including the largest tank's area.
Tank diameter (Dia) in Ft.

$\frac{\text{_____Dia}}{2} \times \frac{\text{_____Dia}}{2} \times 3.142 =$ _____Sq Ft

$\frac{\text{_____Dia}}{2} \times \frac{\text{_____Dia}}{2} \times 3.142 =$ _____Sq Ft

$\frac{\text{_____Dia}}{2} \times \frac{\text{_____Dia}}{2} \times 3.142 =$ _____Sq Ft

$\frac{\text{_____Dia}}{2} \times \frac{\text{_____Dia}}{2} \times 3.142 =$ _____Sq Ft

Total area covered by tank bases (excluding largest tank) = _____Sq Ft

MULTIPLE STORAGE TANK CONTAINMENT WALL HEIGHT CALCULATIONS FOR BULK LIQUID FERTILIZER AND BULK PESTICIDE STORAGE FACILITIES (CONT.)

USABLE containment area:

_____Sq Ft - _____Sq Ft = _____Sq Ft
Area Bases Usable

Containment volume required:

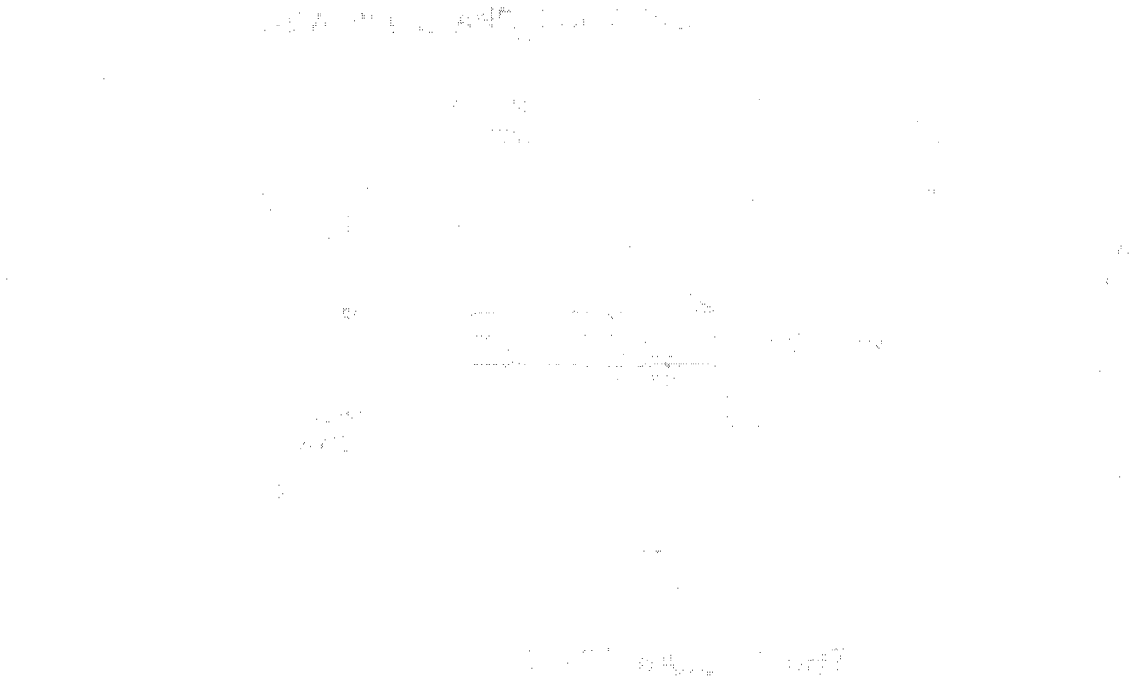
_____ Gal ÷ 7.5 Gal = _____Cubic Ft
Tank capacity to be CONTAINED Contained

Containment wall height:

_____Cubic Ft ÷ _____Sq Ft = _____Ft
Contained Usable Height

Wall heights available (standard design) 1,2,3 or 4 ft (refer to wall design sheets for construction details). When the required wall height (Hw) is 1'-0" or less, use the reinforcing for the 1'-0" wall design. When the required wall height (Hw) is 2'-0" or less, use the reinforcing for the 2'-0" wall design. When the required wall height (Hw) is 3'-0" or less, use the reinforcing of the 3'-0" wall design. When the required wall height (Hw) is 4'-0" or less, use the reinforcing for the 4'-0" wall design.

BULK FACILITY CONTAINMENT



CONSTRUCTION CRITERIA

OCTOBER 10, 1989
NOHR # 89027 and 89042

OUTLINE GENERAL SPECIFICATIONS
Cast Concrete Secondary Containment Systems
For Bulk Fertilizer and Bulk Pesticide Storage Facilities

01000 GENERAL REQUIREMENTS

BOND: if required by owner.
CONTRACT: as required by owner.
LIABILITY INSURANCE: statutory comprehensive public liability, bodily injury, property damage, comprehensive automobile liability and property damage, all is required.
Taxes, permits, inspections, fees, federal, state and other taxes as required.

03200 CONCRETE REINFORCEMENT

SLAB REINFORCEMENT: Grade 60 reinforcing bar or welded wire (WWF) per drawings, from steel service centers or equivalent.
WATERSTOP: Waterstop-Plus or equal
CONCRETE BONDING AGENT: Thorobond or equivalent.
CONCRETE CURING COMPOUND: Kure-N-Seal 0800, Carter-Water #150, Horn Cure or equivalent.
EXPANSION JOINT FILLER, ROD STOCK & SEALANT: ETHAFOAM ROD STOCK, SONOLASTIC NP II URETHANE SEALANT or equal as required.
DOWEL ANCHORING GROUT: RAMSET/REDHEAD CERAMIC 6 EPOXY or equal.

04100 MORTAR (WHERE PERMITTED BY LAW)

All masonry and concrete surfaces to receive mortar, must be clean and maintained at proper temperatures for masonry work.
Mortar for masonry shall conform to proportionary requirements of "Specifications of Mortar for Unity Masonry (ASTM C-270)".

04200 UNIT MASONRY (WHERE PERMITTED BY LAW)

Concrete unit masonry shall be 3/8" to 1/2" less than the nominal dimension shown on drawings and shall conform to the requirements of "Specifications for Hollow Load Bearing Concrete Masonry Units (ASTM C90)".
All block shall be plumb and truss to lines. Block shall be laid with completely filled mortar joints. The end of blocks shall be buttered with sufficient mortar to fill head joints.
The block vertical joints and cavities shall be completely filled and vibrated full of mortar or grout.
Block walls shall be reinforced per the applicable detail sheet.

04300 PARGET AND STUCCO FINISHING OF BLOCK WALLS (WHERE PERMITTED BY LAW)

After the masonry work is completed, apply a parget coat of stucco (Shurwall, Thorseal, Thorcoat, etc.) to fill and seal pores, joints, etc., to complete the protection against liquid penetration.
Check with product suppliers and construction supply companies to verify chemical compatibility.

07900 CAULKING & SEALANTS

JOINT FILLER: Dow Chemical Ethaform or Sonneborn Sonofoam.
SEALANT: Sikaflex-12SL or equal.
PAVING SEALING COMPOUND: Carter-Water #150 or equal.
CAULK: Sonolastic NP II or an equal caulk which resists deterioration caused by weather, stress, movement, water, oil, etc.

15000/16000 MECHANICAL, PLUMBING & ELECTRICAL

To comply with all applicable codes.
Monitoring system collection pipe, slotted pipe, etc.

NOTE:

1. Construction products or equal noted above are available from local lumberyards or construction supply companies.
2. When questions or unusual situations arise, consult with a qualified designer or engineer.

OCTOBER 10, 1989
NOHR # 89027 and 89042

NEW CONSTRUCTION NOTES
Containment Systems
For Bulk Fertilizer and Bulk Pesticide Storage Facilities

1. Wall tops to have a trowel finish. The wall should be square, level and smooth.

2. Reinforcement to extend through all control and construction joints in floor-slab. Saw cut control joints as soon as saw can be operated on the new concrete slab. Cuts to be made 1" deep on 12' 6" to 20' 0" centers. When concrete is cured, before use, fill sawed joints with sealant per specifications.

3. Foundations must be on undisturbed soil or well compacted fill. Fill, when needed, must be clean with no organic matter. The area must be well drained so no water stands around the containment wall. 2000 psf soil bearing assumed.

4. When construction is on expansive soil, which is subject to frost heaving, etc., Special design and construction procedures may be needed. Contact an engineer familiar with construction and design in these areas.

5. Regular inspection, maintenance and repair of containment systems, is required.

6. When questions arise, consult with a qualified designer or engineer.

OCTOBER 10, 1989
NOHR # 89027 and 89042

INSPECTION PROCEDURES
Secondary Containment Systems
For Bulk Fertilizer and Bulk Pesticide Storage Facilities

The extent of inspection procedures for secondary containment systems is restricted to interior and exterior wall surfaces, drain sump or drain pipe and valve connects. Gross leakage is readily evident, but close visual inspection is required to detect deteriorating areas such as spalling concrete, softening concrete, cracks, etc., before they develop into serious problems. Suspect areas can be examined by carefully picking and scraping spots, cracks and areas found during visual inspections.

Areas of concern during secondary containment inspections:

1. If valve is used for emptying containment area, it must be hand-operated and must be closed and locked at all times.

2. If pump is used in a sump drain it must be manually operated (no float switch) with a controlled access on/off button.

3. Drainpipes going through containment walls must be inspected for leakage between the pipe and the concrete.

4. Check area inside of containment area for signs of spillage and leakage. Spills inside of containment must be regularly cleaned to prevent deterioration of concrete. Water may not be allowed to stand in the containment area.

5. Check concrete for deterioration and softening if leakage or spills are found.

6. Check concrete walls inside surface for honeycombing and pitting (occurs during construction). If honeycombing is noticed, areas must be grouted with concrete and brushed to finish.

7. Examine concrete walls for cracking. Route, cut and widen crack then caulk and seal.

8. Examine floor for buckling, cracking, spalling damage and deterioration.

9. Make sketch of containment area:
   a) inside dimensions.
   b) wall height.
   c) tank locations & sizes
   d) tank with stilts, saddles, etc.
   e) note tank construction (fiberglass, steel, stainless, poly, etc)

10. Calculate containment wall height required (use form from booklet).

11. Obtain copy of construction details (reinforcing bar spacing concrete strength, etc. of containment wall system. If not available, interview owner for details).

OCTOBER 10, 1989
NOHR # 89027 and 89042

INSPECTION PROCEDURES
Poly, Plastic And Fiberglass Tanks
For Bulk Fertilizer and Bulk Pesticide Storage Facilities

- Bulk pesticide and bulk liquid fertilizer storage tanks should be regularly inspected to minimize chances of accidental spills and leaks by locating trouble spots needing repairs, improvements or replacement.

- New tanks should be hydrostatically tested (filled with water) and inspected for leaks before filling.

- On a weekly basis, tanks should be inspected for flexural cracks. These cracks can form on flat tank surfaces and dished tank ends, which are pushed outward by chemical loads and can be found near tank corners. When flexural cracks are found, the tank should be taken out of service, and repaired per the tank manufacturer's directions, or be replaced.

- Round tanks are experiencing structural failure when vertical cracks form around the circumference of vertical tanks and horizontal cracks form in the lower half of horizontal tanks. During weekly inspections, if structural cracks are noticed, the tank should be taken out of service and repaired per manufacturer's directions, or be replaced.

- Tank exteriors should be inspected monthly for deterioration due to weathering, sunlight, etc. The tanks should be located and/or sheltered per tank manufacturer's directions. If tank exterior deterioration is found, repair per manufacturer's directions or replace the tank.

- Tank interiors should be examined when possible (tank empty) for signs of softening due to chemical attack. If deterioration is found, the tank should be taken from service.

- Close daily inspections of attachments to the tank including couplings, nozzles, gussets, etc should be made. Pipe supports, valves, hoses, pipes, etc should be inspected at the same time. Problems should be corrected immediately.

- Please note only trained personnel, utilizing safe work practices, should be used for tank inspections and repairs.

- When questions or unusual situations arise, consult with a qualified designer or engineer.

OCTOBER 10, 1989
NOHR # 89027 and 89042

REPAIR PROCEDURES
Existing Concrete Walls With Cracks
Or For New Walls With Cracks
For Bulk Fertilizer and Bulk Pesticide Storage Facilities

The following procedure may be used to make generally acceptable repairs.

- The simplest and most common crack repair, routing and sealing, works on cracks that are dormant and of no structural significance. This method involves enlarging the crack along its exposed face and filling and sealing it with a suitable joint sealant. The routing may be omitted, but the repair will not last as long. Relatively untrained workers can handle this method, and it is good for sealing both fine pattern cracks and larger isolated defects or cracks.

- Do not expect routing and sealing to work on active cracks or cracks subject to strong hydrostatic pressure, except when sealing the pressure face, in which case leaks can be sealed.

- Clean the surfaces of the crack or routed joint with an air jet and let dry before placing the sealant. The purpose of the sealant is to keep water from reaching the reinforcing steel; to stop hydrostatic pressure from developing within the joint; to prevent staining of the concrete surface; to eliminate moisture problems and to prevent leaks.

- Choice of sealant depends on desired tightness or permanence. Epoxy compounds are often used. Hot poured joint sealants work well when thorough water-tightness of the joint is not required and appearance is not important. Urethanes, which remain flexible through large temperature variations, have been used successfully in cracks up to 3/4" - wide and of considerable depth (Sonolastic NPII per specification sheet).

- Check with repair material suppliers for compatibility of materials with stored products and method of application.

- Inspect repaired areas regularly and repair as needed.

- When questions or unusual situations about wall repair arise, work with a qualified designer or engineer.

OCTOBER 10, 1989
NOHR # 89027 and 89042

REPAIR PROCEDURES
Existing Concrete Block Walls
For Bulk Fertilizer and Bulk Pesticide Storage Facilities

When repair procedures are needed for existing concrete block walls with cracks, the following procedures may be used to make generally acceptable repairs.

- Resistance to leaks of mortar joints is greatly increased by proper joint tooling by the block layer. Cracks can be repaired by raking out loose material, re-mortaring and caulking with a urethane caulk to help seal the area.

- Coating, stuccoing or pargeting the block wall interior with Thorseal (or equal) fills and seals pores and cracks to complete the protection against liquid penetration.

- Check with repair material suppliers for compatibility of materials with stored products and the method of applications.

- Inspect repaired areas regularly and repair as needed.

- When questions arise, consult with a qualified designer or engineer.

OCTOBER 10, 1989
NOHR # 89027 and 89042

INSPECTION PROCEDURES
Steel Pesticide Storage Tanks
For Pesticide Storage Facilities

The extent of tank inspection procedures for above ground tanks in use is restricted to exterior surfaces and connections. Gross leakage is readily evident, but close visual inspection is required to detect deteriorating areas before they develop into serious problems. Suspect areas can be examined by carefully picking and scraping surface corrosion spots and rust scale areas.

Areas of concern during storage tank inspections:

- Tank fill valves must be closed and locked when not in use.
- All valves must be inspected for signs of leakage.
- Tank inlet and outlet piping should be checked for adequate support so bending stress' are not placed of tank inlet and outlet piping and valves.
- Tank inlet and outlet piping, as well as tank flanges, should be checked for leakage.
- Visually check piping for misalignment, bending and leakage with attention to tees, couplings, elbows, etc.
- Check roof vents for obstructions. Plugged roof vents could cause a tank to rupture during temperature changes, etc.
- Steal tank surfaces should be visually inspected for areas of rust or other deterioration. Particular attention should be given to peeling areas, welds and seams.
- Check all tanks for dents, buckling, settlement and tilting.
- Poly tanks surfaces should be checked for deterioration such as sun aging, chemical softening, stretching, etc.
- Liquid level gauges and connections should be checked to ensure no leakage and adequate top freeboard.
- Check and record the pesticide stored in each tank.

NOHR # 89027 and 89042

TANK CORROSION
Steel Tank Corrosion
For Pesticide Storage Facilities

- Tank bottoms can be subject to extensive corrosive action. Many storage tanks will require tank bottom replacement during their operating life.

- Corrosion on localized small areas is a more serious problem than corrosion over large areas. Localized corrosion often is in the form of pitting caused by rust blisters, which eat into the steel. Pit sizes range from pinhead diameters to dollar size. Pits can be widely scattered or close together.

- Flat tanks can be placed on layers of roofing felt to minimize tank bottom corrosion caused by water moving up through a concrete floor and collecting on the outside of the tank bottom base. Sloping the floor so water does not stand under the tank also helps.

- Lapped seams or butted seams are subject to grooving and deterioration that eats into the steel plate parallel to the seams. The grooving results from a combination of stress concentrations and localized corrosion. Dished heads at their attachment to a tank shell are subject to this type of deterioration. This type of grooving, occurring at locations subjected to stress concentrations, can result in tank failure unless detected and suitably repaired by welding.

- Corrosion and leaks can also occur on steel tank areas resting on concrete support saddles. Welded patches can repair this type of corrosion. Placing tar impregnated expansion joint material between the tank and the saddle support usually cushions the tank to minimize stress and corrosion.

- Corrosion control is a prime factor in spill prevention from metal tanks. It is common practice to leave steel tank surfaces unpainted for a year or more to permit some surface rusting. This surface rusting is an accepted method of removing mill scale from steel plate, but surface preparation can best be accomplished by abrasion blast cleaning before painting. The surface rusting or abrasion blast cleaning roughens the steel surface and increases the cohesion of the paint. Paint and coating manufacturers must be consulted for the correct type of coating for specific applications.

- There are many different types of corrosion found in tanks. If specific corrosion problems are found on a tank, contact a local tank representative or a qualified designer or engineer.

EMERGENCY PREPAREDNESS

Introduction

One of the goals of the South Dakota Department of Agriculture is to prevent the occurrence of incidents that would allow discharges of pesticides and fertilizers into the environment. This requires, in part, education concerning safe storage, transportation, equipment, usage, proper maintenance and safe operating procedures when dealing with agricultural chemicals. When incidents do occur positive coordinated action (including notification, containment and clean up of the incident) is necessary to minimize public health hazards and environmental damage. Due to the nature of agricultural chemical incidents, an immediate response to the scene of an incident is critical. This Agricultural Spill Response Guide is intended to be a source of information and direction for coordinating and responding to a release

A Pesticide Handling and Discharge Response Procedure and Plan for Commercial Pesticide Applicators has been included in this booklet. Properly completed, it provides strategies to protect humans and the environment in the event of a release. It may also be utilized for equipment maintenance schedules and everyday operating procedures.

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Authority - Pesticides

South Dakota Pesticide Law SDCL 38-21 and Rules ARSD 12:56 address pesticide incidents as follows:

SDCL 38-21-15. No person shall transport, store or dispose of any pesticide or pesticide container in such a manner as to cause injury to humans, vegetation, crops. livestock, wildlife or beneficial insects or to pollute nay waterway in a way harmful to any wildlife therein. The secretary may promulgate rules and regulations governing the storing, transport and disposal of such pesticides and pesticide containers.

SDCL 38-21-16. The secretary shall, by regulation, require the reporting of significant pesticide accidents or incidents.

ARSD 12:56:13:02. Bulk pesticide storage facility construction. A person shall not construct a bulk pesticide storage facility, for the storage of permanent bulk pesticide storage containers, without a means of secondary containment.

Please reference the Pesticide Handling & Discharge Response Procedure and Plan for Commercial Applicators for additional statutes related to spills.

Authority - Fertilizer

The South Dakota Commercial Fertilizer Law SDCL 38-19 and Rules ARSD 12:44:05 address fertilizer incidents as follows:

ARSD 12:44:05:03. Liquid bulk commercial fertilizer storage facility construction. A person may not construct a liquid bulk commercial fertilizer storage facility for the storage of permanent liquid bulk commercial fertilizer storage containers without a means of secondary containment.

ARSD 12:44:05:06. Nonliquid bulk commercial fertilizer secondary containment. Unless stored in a totally enclosed building, all nonliquid fertilizer materials must be covered and stored within a secondary containment structure. The building must be constructed so as to not allow seepage or spillage of fertilizer materials from the building under normal storage conditions.

ARSD 12:44:05:28. Wash waters and rinsates. By February 1, 1992, all washing of commercial fertilizer application equipment at liquid and nonliquid bulk commercial fertilizer storage facilities must be conducted within an area that complies with ARSD 12:44:05:27. No commercial fertilizer rinsates or wash waters from commercial fertilizer equipment may be disposed of through sanitary or storm sewer systems. Washing of commercial fertilizer equipment in the field is permissible and encouraged if it is performed at the site of the final commercial fertilizer application on a given day and no runoff form the wash site occurs. Any accumulated liquid or material, that contains a fertilizer, within the containment area must be applied to a field or fields at normal fertilizer rates or used in a liquid mixing operation. This section also applies when a commercial fertilizer is combined with a pesticide. When the accumulated liquid or material contains a pesticide, the accumulated liquid or material must be applied to a field or fields at normal pesticide application rates or used in a liquid mixing operation.

ARSD 12:44:05:29. Spills. The operator or manager of a bulk commercial fertilizer storage facility shall notify the department of agriculture or the division of emergency and disaster services within 3 hours after a spill of more than 25 gallons of liquid outside the secondary containment area. The operator or manager of a nonliquid bulk commercial fertilizer storage facility shall notify the department of agriculture or emergency management services within 3 hours after a spill of more than 500 pounds of dry fertilizer outside the secondary containment area.

Purpose & Objectives

The purpose of this guide is to provide a basis for coordinating and responding to an agricultural chemical spill incident. It also provides a base for chemical data information and contacts to which the local coordinator should refer for assistance during an incident investigation, containment, clean-up and removal.

The objectives of this guide are:

A) To specify the duties and authority of the South Dakota Department of Agriculture regarding pesticide and fertilizer incidents in South Dakota, hereinafter referred to as "Agricultural Spill Incidents".

B) To provide direction and coordination for South Dakota Department of Agriculture personnel who respond to incidents.

C) To develop appropriate preparedness and effective systems for reporting the occurrence of agricultural spill incidents in South Dakota.

D) To institute proper actions in an agricultural chemical spill incident to neutralize or restrict further spread of potential contaminants.

E) To provide information on the availability of resources, countermeasure techniques and other vital contacts in the event of an agricultural spill incident.

The information contained in this guide was accurate, to the best of our knowledge, at the time of publication. However, laws and rules are subject to change at any time. The information contained in this guide should not be considered a complete representation of the laws, rules and regulations. Therefore, it is the responsibility of the user of this guide to check current requirements and technology before making decisions regarding any aspect of pesticide or fertilizer handling technology or regulatory requirements.

Policy & Responsibilities

STATE

It is the policy of the South Dakota Department of Agriculture that department personnel respond to all agricultural incidents in a timely fashion, and to apply appropriate and effective procedures to contain and control agricultural chemicals involved.

FEDERAL

It is the policy of the United States Environmental Protection Agency (EPA) that timely and effective action will be taken to control and remove discharges (accidental or otherwise) from the environment.

State Response

The South Dakota Department of Agriculture will cooperate as fully as possible and practical to respond expediently to an agricultural chemical spill incident.

Actions taken by the South Dakota Department of Agriculture pursuant to this guide will be consistent with the department's responsibility under the statutes it administers.

When local authorities or other state or federal agencies participate in the response to a spill incident under this plan, such activity shall also be consistent with the responsibilities of these agencies or authorities.

The Department of Military and Veterans Affairs, Division of Emergency Management Service, as authorized in SDCL 32-9-51, will coordinate with all state agencies to assure requested assistance and technical support is provided to local government. The division will serve as the primary contact agency receiving notification via the 24 hour phone number 773-3231. The division will also coordinate with state agencies on requests of federal and/or commercial assistance.

Lead agency responsibility for the coordination of the containment, clean-up and disposal of specific types of spill substances is as follows:

A. **Department of Agriculture**
   1. Materials or substances contaminating livestock feeds or drug products.
   2. Incidents involving pesticides.
   3. Incidents involving agricultural fertilizers.
   4. Incidents involving contamination of raw milk and eggs.

B. **Department of Environment and Natural Resources**
   1. Identification of spill materials shipments.
   2. Spill materials threatening or impacting surface and sub-surface public drinking water supplies.
   3. Spill materials threatening or impacting groundwater, surface water or any waters of the state.
   4. Spill material accidents involving water treatment, waste water or solid waste treatment facilities.
   5. Radioactive material incidents.
   6. Spill material vapors or gases.
   7. Any incident requiring 1) Regional Response Team action or 2) a request for EPA funding assistance for removal action.

C. **Department of Health**

   All other spill materials other than those supervised by the Department of Agriculture and the Department of Environment and Natural Resources.

Local Response/Incident Site

The primary concern of South Dakota Department of Agriculture in responding to an agricultural spill incident is the protection of the environment from contamination and the protection of the public from exposure. The South Dakota Department of Agriculture will act only as monitors or advisors when the responsible party is conducting his own clean-up operations in accordance with the laws.

Every facility should designate one person along with several alternates to assume emergency coordination responsibilities. These people should be listed in a ranked order in the plan; and, one of these people should always be at the facility or on call. Procedures which the emergency coordinator must oversee should follow a logical sequence.

The following is a guide for local agency coordinators in responding to an incident:

A) Activate alarms or other communication system to alert facility personnel;
B) Organize the in-house response team or notify the local spill contractor (provide copy of facility handing & discharge response plan to emergency crew to use);
C) Secure a perimeter and keep all non-essential people out of possible exposure area;
D) Characterize the emergency with respect to the source, the amount of released material and the hazards created;
E) Alert fire fighters and other emergency personnel;
F) Arrange off-site evacuation if necessary (state and local officials);
G) Containment of above-ground runoff;
H) Contact the Emergency Management Service, Department of Agriculture or Department of Ag Inspector as soon as possible and report the following information:
    1) Materials involved and quantity;
    2) Environment involved; and
    3) Location and type of incident.
I) If areas outside the facility are affected, notify the Emergency Management Service or the Department of Agriculture;
J) If the facility must halt operations, monitor tanks and pipes for leaks, pressure build-up, gas generation and ruptures;
K) Provide for treating, storing or disposing of contaminated soil, water or other material;
L) Record the time, date and details of the emergency.

South Dakota Department of Agriculture

Division of Agricultural Services
Phone: 605/773-3724
Fax: 605/773-3481

REPORT OF PESTICIDE OR FERTILIZER DISCHARGE USE/DISPOSAL

INSTRUCTIONS: this form is used to report disposition of contaminated materials recovered from a pesticide discharge, as required by ARSD 12:56:17:05; or a fertilizer discharge.

Submit this form to the Department of Agriculture for approval PRIOR to using or disposing of contaminated materials.

Attach copies of analysis reports for samples of the material recovered and from the bottom of the soil excavation, if applicable.

Send To: South Dakota Department of Agriculture
Division of Agricultural Services
Foss Building, 523 East Capitol
Pierre, SD 57501

Recovered discharges must be properly stored to use or disposal.

Responsible Party: _____

Organization: _____

Address: _____ **Phone Number:** _____

Material Discharge: _____

Total Pounds Active Ingredients Discharge: _____

Date of Discharge: _____

Complete this section, describing how the contaminated materials will be used or disposed.
PRODUCT LABEL DIRECTIONS MUST BE FOLLOWED.

What Crop is or will be growing on the site? _____

Intended date of application of recovered materials? _____

Legal description of application site? _____

Number of acres recovered material will be applied to? _____

The amount of material to be applied? (yards, pounds, etc.) _____

The concentration of fertilizer/pesticide in materials to be applied? _____

If recovered materials will not be used for their intended purpose, describe how they will be disposed of: _____

_____

_____

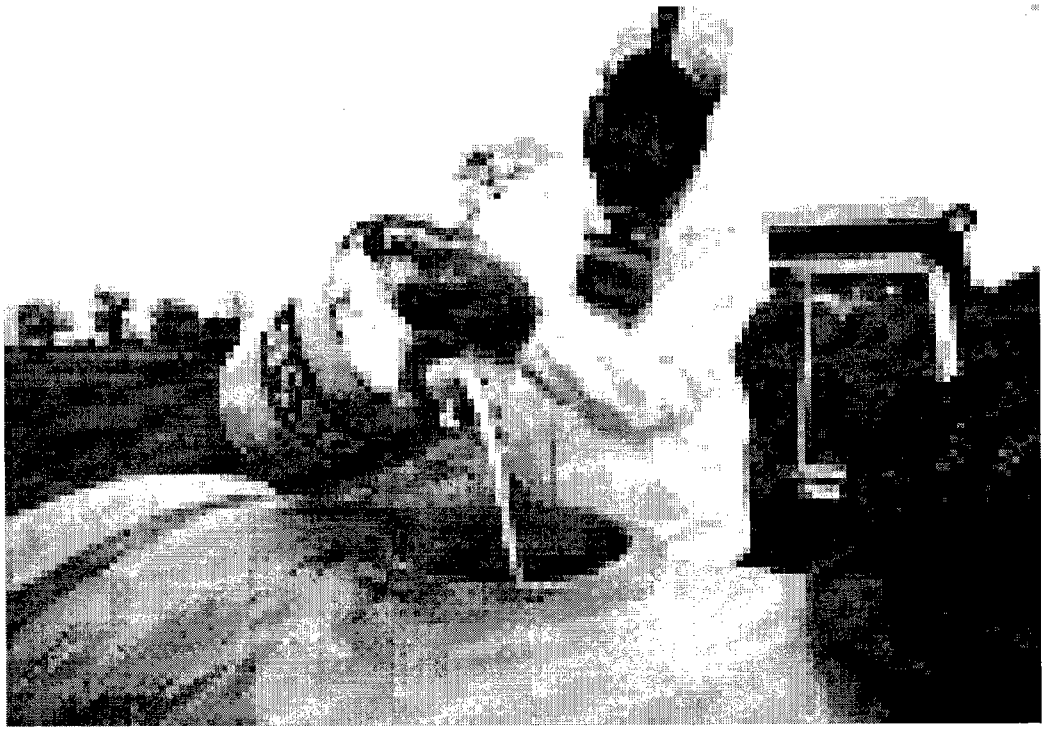
Signature of Person Completing Form: _____ **Date:** _____

Office use only:

Case Number: _____ **Date use of Recovered Materials Reviewed:** _____

Reviewed by: _____

COMMERCIAL PESTICIDE APPLICATOR



PESTICIDE HANDLING & DISCHARGE RESPONSE PLAN

PESTICIDE HANDLING AND DISCHARGE RESPONSE PLAN

Commercial applicators are required to conduct pesticide operational area activities through utilization of a written pesticide handling and discharge plan as of February 1, 1995. This plan will help facilities establish and utilize procedures that aid in preventing discharges during daily handling and use of pesticides, as well as strategies that will expedite actions necessary to minimize adverse effects on themselves, others, and the environment in the event of a discharge incident or mechanical failure. In case of an emergency incident, a written plan will provide guidance to facility employees and emergency assistance individuals.

Under the authority of SDCL 38-21-15, ARSD 12:56:17:03 requires a copy of the plan to be kept at either the operational area, the applicator's nearest local office, or the location from which the operational area is administered; and, must be made available for employee use and for inspection by the South Dakota Department of Agriculture. It is recommended that the operator provide a current copy of the plan to local fire departments, police departments, emergency medical services, and county emergency management directors.

All employees of the facility should be trained to identify an emergency response incident (i.e., major or minor spills, potential for fire, etc.), who to call for remediation assistance, and/or evacuation routes. If employees are to participate in the remediation (i.e., fire fighting, etc.), those employees must be trained to perform the necessary tasks. Employees must also know which personal protective equipment to use as well as when and how to use it.

This document is intended to provide guidelines for development of your plan. We encourage you to add details to the plan to satisfy conditions at your facility. It may be beneficial to put your plan in a binder so that pages can be added as changes occur. Although the South Dakota Department of Agriculture may occasionally review your plan to ensure it meets the provisions of ARSD 12:56:17:03, the department makes no claims, implied or otherwise, as to the suitability of the personal protective equipment, release remediation equipment, release remediation procedures, fire fighting procedures, or first aid procedures outlined herein for preventing or eliminating human exposure or damage to the environment.

The department is prepared to respond to all agricultural incidents in a timely fashion, and to apply appropriate and effective procedures to contain and control agricultural chemicals involved in emergency incidents. The Department of Agriculture works cooperatively with the Department of Environment and Natural Resources, Department of Health and other local, state and federal agencies in coordinating assistance and technical support.

At this time, it is not required for applicators who conduct fertilizer operational area activities to have a written fertilizer handling and discharge response plan. However, spaces have been provided within this plan for your own use in developing plans which will be utilized to minimize and mitigate the adverse effects of fertilizer discharges on the environment.

LOCATION OF PLAN COPIES

LOCATION: _____
CONTACT: _____ PHONE: _____
LOCATION: _____
CONTACT: _____ PHONE: _____
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LOCATION: _____
CONTACT: _____ PHONE: _____

Plan must be kept current, last update:

Date	Pages	Date	Pages	Date	Pages	Date	Pages	Date	Pages

TABLE OF CONTENTS

	Pages
I. EMERGENCY RESPONSE LIST	
A) FACILITY PERSONNEL EMERGENCY RESPONSE LIST	
B) OTHER FACILITIES FAMILIAR WITH SITE	
C) EMERGENCY ASSISTANCE	
D) MAJOR CHEMICAL COMPANY REPRESENTATIVES	
II. PRODUCT LABELS	
III. PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS)	
IV. FIRST AID INFORMATION	
V. FIRE FIGHTING PROCEDURES	
VI. MAPS	
A) MAP OF FACILITY	
B) MAP KEY	
C) MAP OF SURROUNDING AREA	
D) MAP KEY OF SURROUNDING AREA	
VII. PROCEDURES FOR USE & HANDLING OF PESTICIDE/FERTILIZER AT FACILITY	
VIII. EMERGENCY EQUIPMENT & SUPPLIES – PESTICIDE & FERTILIZER INCIDENTS	
A) PERSONAL PROTECTIVE EQUIPMENT & LOCATIONS	
B) LOCATION OF EMERGENCY EQUIPMENT & SUPPLIES	
IX. SPILL OF LIQUID PESTICIDES AND/OR FERTILIZER - PROCEDURES	
A) MINOR SPILLS	
B) MAJOR SPILLS	
X. EMPLOYEE TRAINING	
XI. DEFINITIONS TO PESTICIDE/FERTILIZER LAW AND RULE	

I. EMERGENCY RESPONSE LIST

FACILITY PERSONNEL EMERGENCY RESPONSE LIST
(Title should list responsibility of individual in the event of an incident.)

☞ If facility is required to submit Section 302 Report under SARA Title III, the Facility Emergency Coordinator designated therein should be listed first.

NAME _____
TITLE _____
PHONE _____
ADDRESS _____

NAME _____
TITLE _____
PHONE _____
ADDRESS _____

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TITLE _____
PHONE _____
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I. EMERGENCY RESPONSE LIST (continued)

EMERGENCY ASSISTANCE

NAME	CONTACT	TELEPHONE NUMBER
Fire Department	_____	911 or_____
Police	_____	911 or_____
Sheriff's Department	_____	911 or_____
Ambulance	_____	911 or_____
State Patrol	_____	_____
Doctors	_____	_____
Hospitals	_____	_____
Emergency Contractor (Excavation, Crane, etc.)	_____	_____

REPORT AGRICULTURAL CHEMICAL INCIDENTS TO:

Emergency Management Services	605-773-3231 (24 Hours)
South Dakota Department of Agriculture	605-773-4432 (Business Hours)
Department of Environment and Natural Resources	605-773-3153 (Business Hours)
National Response Center – Federal	1-800-424-8802
CHEMTREC	1-800-424-9300
Poison Control Center	1-800-POISON1 (SD) 1-800-843-0505 (IA, MN, NE)

Utilities

Buried Utilities Telephone Company_____
Cable TV Company_____
Gas Company_____
City Water System_____
Rural Water System_____
Other:_____

NOTE:

- National Response Center number must be called if a spill above the reportable quantity occurs.
- CHEMTREC and Poison Control Center numbers are provided for informational purposes only.
- Contact the Local Emergency Response Planning Committee (LEPC) to ensure your plan is compatible with their Local emergency Response Plan and in compliance with the Superfund Amendments & Reauthorization Act of 1986 (SARA) and Comprehensive Emergency Response, Compensation & Liability act of 1980 (CERCLA) regulations.
- There may be other federal, state, and local agencies that need to be contacted. Become familiar with all contacts in your area and record their numbers in the space below.

II. PRODUCT LABELS

INSERT LABELS FOR ALL PESTICIDE AND FERTILIZER PRODUCTS HANDLED OR STORED AT THE FACILITY.

III. PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS)

INSERT PESTICIDE AND FERTILIZER PRODUCT MATERIAL SAFETY DATA SHEETS. (OPTIONAL)

IV. FIRST AID INFORMATION

Refer to product label and MSDS on pages _____ to _____ for first aid instructions. If in doubt about nature of material, get medical attention immediately.

NOTE: IF MEDICAL ATTENTION IS SOUGHT, TAKELABEL(S) AND MSDS(S).

SYMPTOMS OF PESTICIDE POISONING MAY INCLUDE:

1) **Headaches**
2) **Dizziness**
3) **Weakness**
4) **Incoordination**
5) **Muscle Twitching**
6) **Tremors**
7) **Nausea**
8) **Abdominal Cramps**
9) **Diarrhea**
10) **Profuse Sweating**
11) **Blurred Vision**

MEDICAL TELEPHONE NUMBERS ARE LOCATED ON PAGE ____ (Section I) OF THIS PLAN.

LOCATION OF:

First Aid Kit_____

Eye Washer_____

Oxygen_____

Other_____

_____

_____

V. FIRE FIGHTING PROCEDURES

♦Information regarding firefighting procedures is not required to be provided to the South Dakota Department of Agriculture, and is included for informational purposes only.

A. PREFIRE PLANNING

1. The facility should be familiar with what the local fire department is willing and able to do in response to an incident at the facility.
2. Local fire department should visit the facility at least annually. They should be thoroughly familiar with the following:
   a. Locations of hydrants and other water sources;
   b. Location of normal and alternate access road, gates, fences, etc;
   c. Surrounding building occupancies and land use;
   d. Precautions and tactics for fighting garden/agricultural chemical fires;
   e. Day and night telephone numbers of the facility operators, physician familiar with products, and manufacturers of products;
   f. Means of controlling drainage at and adjacent to the facility;
   g. Symptoms of pesticide and fertilizer poisoning;
   h. What to do in case of contact with toxic chemicals;
   i. Use of self-contained breathing apparatus (Air Paks);
   j. Means of ventilating warehouses.

B. GENERAL RULES TO FOLLOW IN CASE OF FIRE:

1. Call the fire department at _____ and clear all personnel from the building/area to a safe distance upwind from smoke and fumes. Isolate the area if necessary.
   a. Have plan of burning facility and its contents ready for fire team when they arrive. This plan is on page ____ of this response plan. (Section VI)
   b. Pay special attention to the location of particularly hazardous chemicals and containers.
   c. Clarify a water use strategy. How much, if any, water will be used? Wherewill it be used? How much, if any, diking will be necessary to contain this water? What material will be used to form a dike?
   d. PROVIDE LABELS AND MATERIAL SAFETY DATA SHEETS (MSDS). Labels and MSDS are located on pages ____ to ____. (Section II)

C. POST FIRE CLEANUP

1. Isolate and secure scene to keep people away; waste and run-off may be toxic.

2. Contact South Dakota Department of Agriculture for review and approval of contaminated material disposal plan.

3. Handle waste and run-off the same as for a product spill. Directions for handling spills are located on pages ____ to ____. (Section IX)

V. FIRE FIGHTING PROCEDURES (continued)

IMPORTANT NOTES:

- If the employer's own employees will be involved in fire fighting activities, training according to 29 CFR 1910.156 must be provided. If employees are to evacuate and call the fire department or other responders, employee training should cover evacuation and fire department notification procedures. Under post-fire cleanup, people involved in such cleanup should be apprised of the proper personal protective equipment to be worn during the cleanup process (i.e., in some instances, respirators may be necessary).

- Should this facility become involved in a fire, the commanding fire office at the scene should be in a position to let the facility burn if he determines that continued water application:
  a) will result in extensive contaminated water run-off; or
  b) could result in incomplete combustion into the air.

  It would be desirable if he had advance written authority from the Facility Manager to do so if necessary or appropriate. This eventually should be discussed with insurers of the establishment.

I hereby authorize the Fire Department to make necessary decisions in handling any fire at the facilities covered by this document.

Signed_____ Date_____
Authorized Facility Representative

Signed_____ Date_____
Authorized Facility Representative

Signed_____ Date_____
Authorized Facility Representative

Signed_____ Date_____
Authorized Fire Department Representative

VI. MAPS

A. MAP OF FACILITY

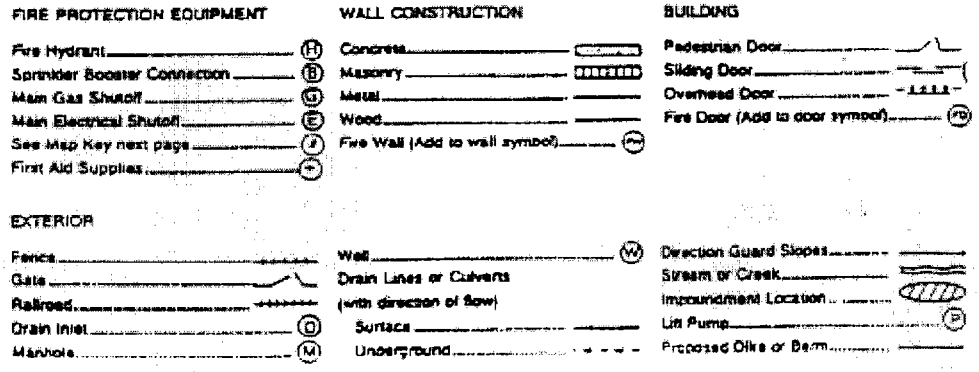
1. Accurately diagram the:**
   a. current facility property (if previously established);
   b. the proposed facility property (if new).
2. Indicate the following areas on the map:
   a. All buildings (indicate distance between buildings);
   b. All pesticide/fertilizer/anhydrous ammonia bulk tank storage areas, and all non-bulk (packaged goods) pesticide/fertilizer storage area;
   c. All pesticide/fertilizer mixing, loading, and rinsate recycling areas;
   d. All pesticide/fertilizer vehicle parking and washing areas;
   e. All sanitary sewer inlets, storm sewer inlets and outlets, tile inlets and outlets;
   f. All wells. For wells within 150 feet of any existing or proposed pesticide/fertilizer loading (rinse pad) and secondary containment (diked) areas, include the year installed and the depth;
   g. All water supplies (fire hydrants, water supply tanks, water sources, etc.);
   h. Indicate areas and directions of runoff from the facility;
   i. OSHA requires an employer to designate safe places of refuge in case evacuation of employees becomes necessary.

B. MAP OF SURROUNDING AREA

1. Attach a detailed copy of a county plat book/map, a detailed city/village map, or a combination of maps, photographs, and diagrams which accurately describe the location of the facility, and include only the following:**
   a. County b. City/Village c. Township
   d. Range e. Section f. 1/4 Section
   g. Fraction/Lot
   h. Distance and direction to cropland (be specific), residences (single family or multi-family dwelling), schools, hospitals, and businesses (type) within one-quarter mile of facility. Use standard compass directions and give exact distance measurements.
   i. Distance and direction to surface water (creeks, streams, rivers, lakes, ponds, wetlands, etc.), drainage ditches (county and others), and down gradient storm sewers within one-quarter mile of the facility;
   j. Distance and direction to any municipal water supply well within one-quarter mile of the facility. Use standard compass directions and give exact distance measurements.

** Copies of the facility map and surrounding area map prepared for the facilities' permit application may be inserted here - cut and paste as needed.

Use the appropriate symbols shown below on your facility and surrounding area maps.



VII. PROCEDURES FOR USE AND HANDLING OF PESTICIDES OR FERTILIZERS AT FACILITY

A. FILLING APPLICATION EQUIPMENT

1. Describe fill methods, specify equipment and procedures used to prevent spills and incidents, for all transfer, loading, unloading, mixing, repackaging, and refilling operations for containers and application equipment at all loading areas (be specific).

Pesticides:_____

Fertilizer:_____

a. Describe area(s) used for loading application equipment - (i.e., concrete, metal gravel, scale, pit, etc.):

PRODUCT TYPE	TYPE OF LOADING AREA
Small packaged pesticide - (<56 gal.)	
Minibulk pesticides - (56-499 gal.)	
Bulk pesticide - (>500 gal.)	
Dry bulk pesticides	
Bulk liquid fertilizer	
Dry bulk fertilizer	
Pesticide impregnated fertilizer	
Other:_____	
_____	

VII. PROCEDURES FOR USE AND HANDLING OF PESTICIDES OR FERTILIZERS AT FACILITY (continued)

2. Indicate type of backflow prevention devices that are installed/used on water supplies when:
   a. Filling application equipment - be specific.

Pesticide:_____

_____

_____

Fertilizer:_____

_____

_____

   b. Rinsing pesticide containers - be specific.

Pesticide:_____

_____

_____

Fertilizer:_____

_____

_____

   c. Cleaning application equipment (tanks) - be specific.

Pesticide:_____

_____

_____

Fertilizer:_____

_____

_____

3. Describe overfill prevention procedures and structures.

Pesticides:_____

_____

_____

_____

_____

_____

Fertilizer:_____

_____

_____

VII. PROCEDURES FOR USE AND HANDLING OF PESTICIDES OR FERTILIZERS AT FACILITY (continued)

4. Describe procedures for, frequency of, and individual responsible for inspection of equipment and appurtenances, including secondary containment and mixing/loading pad structures.

Pesticide:

Fertilizer:

5. Describe strategy used to repair equipment found to be defective.

Pesticides:

Fertilizer:

VII. PROCEDURES FOR USE AND HANDLING OF PESTICIDES OR FERTILIZERS AT FACILITY (continued)

B. HANDLING AND USING RINSATES

1. Address the generation, handling, and use of rinsates, rainwater, washwater, sludge, etc., from:
   a. Load/unload pads;

Pesticides:

Fertilizer:

   b. Secondary containment structures;

Pesticides:

Fertilizer:

   c. Transportation and application equipment for all products;

Pesticides:

Fertilizer:

VII. PROCEDURES FOR USE AND HANDLING OF PESTICIDES OR FERTILIZERS AT FACILITY (continued)

d. Rinsing/cleaning containers, including small packages, minibulks, and bulk containers;

Pesticides:

Fertilizer:

e. Application equipment parking and product storage areas; and,

Pesticides:

Fertilizer:

f. Scale pits.

Pesticides:

Fertilizer:

VII. PROCEDURES FOR USE AND HANDLING OF PESTICIDES OR FERTILIZERS AT FACILITY (continued)

2. Describe procedures used to reduce the amount of rinsate generated.

Pesticides:_____

_____

_____

_____

Fertilizer:_____

_____

_____

_____

C. USE OF RINSATE AND SLUDGE

☞Whenever possible, rinsate and sludge should be used as originally intended. When reuse is not possible either because of excessive contamination or cross-contamination with an incompatible material, the material must be disposed of in accordance with South Dakota Department of Agriculture requirements. Depending upon the chemical involved, disposal options may include a local landfill permitted to accept the material or a hazardous waste landfill.

1. Recovered pesticide or fertilizer rinsates:
   a. Rinsate resulting from daily operations should be (of the following, prioritized appropriate options and delete choices inappropriate for your operation):

      ____ Used as make-up water in the present or future outgoing pesticide/fertilizer loads of the same pesticide/fertilizer, or same use-site compatible pesticides/fertilizers. Approximate concentration of rinsate should be accounted for when intended application is near maximum label rate. Rinsate should never exceed 5% of the total load. All customers receiving rinsate as makeup water should be informed in advance and provide approval. If a customer does not approve _____.

      ____ Applied as-is to a labeled site at a labeled rate as directed by:

      _____.

      (*place name of facility contact here*)

      1. The approximate analysis of material must always be known before use.
      2. These sites must be used in the current and following season for a crop:
         a) Specified by the pesticide label(s) **[the rinsate applied cannot exceed label rates]**;
         b) Only when the fertilizer can be uniformly applied at a rate not exceeding normal nutrient needs for the present or intended crop.
      3. Location where rinsate application records are kept:

         _____

      ____ Disposed of according to label directions and as directed by South Dakota Department of Agriculture.

      ____ Other acceptable procedures outlined below:

VIII. EMERGENCY EQUIPMENT & SUPPLIES

A. PERSONAL PROTECTION EQUIPMENT & LOCATIONS

➢This list is the minimum types of personal protective equipment recommended by the South Dakota Department of Agriculture. Check all pesticide and fertilizer labels to ensure adequate personal protective equipment is available for use at your facility.

EQUIPMENT	ON SITE	OTHER	LOCATION
Pesticide & Fertilizer			
Rated Respirators			
Rubber or Neoprene Boots			
Disposable Boots			
Rubber Gloves			
Chemical Suits			
Rubber Raincoats			
Face Shield/Similar Protection			
Safety Goggles			
Hard Hats			
Soap			
Other:			
Other:			

B. LOCATION OF EMERGENCY REPAIR EQUIPMENT & SUPPLIES

(available 24 hours/day; include location, description and phone numbers)

Beveled wooden stakes & mallet:_____

_____

Rubber strips, plastic tape & duct tape:_____

_____

Assorted bolts, machine screws & hand tools:_____

_____

Rain gutter or plywood for overflow control:_____

_____

Caulking material:_____

_____

Other:_____

_____

_____

Additional release remediation equipment may be needed as the situation demands.

VIII. EMERGENCY EQUIPMENT & SUPPLIES (continued)

C. LIQUID RECOVERY EQUIPMENT

Liquid recovery equipment:_____

Liquid transfer pumps:_____

Gasoline for pumps:_____

Hoses & fittings for pumps:_____

Emergency electrical generating equipment_____
_____

Other:*_____
_____

D. OTHER EMERGENCY EQUIPMENT

Leak proof drums with lid for collection of absorbed material from cleanup of minor spills (available from drum recyclers/vehicle painters):_____

Tanks (of adequate capacity for holding recovered material):_____
_____

Portable storage tanks (i.e., tanker truck, nurse tank, etc.)_____
_____

Traffic control equipment (to prevent vehicles and persons from entering incident site)____
_____
_____

E. EXCAVATION EQUIPMENT

Front end loaders:_____

Bulldozers:_____

Dump trucks:_____

Backhoe:_____

Other:*_____
_____
_____

* Additional release remediation equipment may be needed as the situation demands

VIII. EMERGENCY EQUIPMENT & SUPPLIES (continued)

F. PESTICIDE DECONTAMINANTS

- Depending on the pesticide involved, chlorine bleach, caustic soda (lye, sodium hydroxide), or lime can sometimes be used to effectively decontaminate spills.
- Some pesticides cannot be effectively decontaminated and should only be treated with detergent and water to assist in removal.

Pesticide Decontaminants

Lye or Lime	Chlorine Bleach	Do Not Use Chemicals
Abate	Calcium cyanide	Alachlor
Atrazine	Calcium cyanamide	Amiben
Baygon	Dyfonate	Chlordane (chlorinated hydrocarbons)
Bromex	Folex	Diuron
Captan	Lethane	Maneb
Cyanazine		Methoxychlor
Cygon		Pentachlorophenol
Dalapon		Tordon
Dichlorvos or Vapona		Toxaphene
Dursban		Trifluralin
EPN		2,4-D
Malathion		
Orthene		
Rotenone		
Sevin		
Silvex		
Sodium flouride		
TCA		
2,4,5-T		

Guide to Applying Decontaminants

% Active Ingredient	Amount of Decontaminant Required
1 - 10	Use decontaminate in amount equal to the quantity of spilled pesticide.
11 - 79	Use decontaminate in amount equal to 1.5 times the quantity of spilled pesticide.
80 - 100	Use decontaminant in amount equal to 2 times the quantity of spilled pesticide.

VIII. EMERGENCY EQUIPMENT & SUPPLIES (continued)

1. Decontamination solutions can be used on surfaces and materials contaminated by dust, granular, wettable powder, or liquid pesticides.

2. Application of decontaminants
   a. Liquid - mix and apply to spill area with watering can.
   b. Dry - spread thinly and evenly over the spill area then lightly sprinkle the area using a watering can to activate the decontaminant.

3. Allow the appropriate decontamination solution to react for 1 to 6 hours before removal with absorbent material.

Nonporous Surface: Thoroughly work the appropriate amount of decontamination solution into the surface using a long-handled broom, scrub brush, or other equipment. Use absorbent material to soak up the solution. Collect the contaminated absorbent material and store it in a labeled, leak-proof container until it can be properly disposed of.	**Soil:** Remove all soil to depth of at least 3 inches below the wet surface line. Store and cover soil with plastic until it can be properly disposed of. Note: If you plan to land apply the contaminated soil, you must first contact the Department of Agriculture for approval.
Porous Surface: It may not be possible to adequately decontaminate these materials, such as wood. If clean-up is not adequate, properly dispose of the material.	**Tools, Vehicles, Equipment, Metal and Other Nonporous Objects:** These can generally be decontaminated using detergent and appropriate decontamination solution. Smaller quantities of the solution may be required, depending upon the situation.

4. When employing decontamination procedures, it is possible to create toxic by-products. In critical situations, samples of affected components (soil, sediment, water, etc)should be taken and sent to a laboratory for analysis to determine if decontamination was successful.

5. Lye or Lime
   a. Can be used in dry form or liquid solution to decontaminate pesticides acceptable to this treatment.
      - For liquid solution, combine .75 pounds of lye or lime in 3.5 quarts of water to make 1 gallon of 10% solution.
   b. Lye (caustic soda) can cause severe eye damage to persons not properly protected. Wear unventilated goggles, long-sleeved work clothes with coveralls, neoprene gloves, and a respirator to protect yourself from contact.
   c. Do not use lye on aluminum surfaces.

6. Bleach treatment
   a. Liquid or powder form of bleach (sodium hypochlorite) can be used.
      - In general, 1 gallon of liquid household bleach (5% solution) should be used per pound or gallon of spilled pesticide.
      - For bleaching powder, mix 1 gallon of water per pound or gallon of bleach and add a small amount of liquid detergent.
   b. Run a preliminary test, using a small amount of bleach, to make sure the reaction is not too vigorous as a fire could result.
   c. Do not store chlorine bleach close to, or mix it with, amine-containing pesticides.

IX. SPILL OF PESTICIDES AND FERTILIZERS - PROCEDURES

REPORT AGRICULTURE CHEMICAL LOSSES TO APPROPRIATE FEDERAL, STATE, AND LOCAL AGENCIES

➢Telephone numbers are found on page ____. (Section I)

➢Components listed are South Dakota Department of Agriculture recommended procedures only. Additional procedures may be required to control, contain, and clean up releases.

A. MINOR SPILLS

1. A minor spill is a spill small enough to be controlled, contained and cleaned up using readily available equipment and materials. The most likely sources of minor spills are:

Pesticide:_____
_____
_____

Fertilizer:_____
_____
_____

2. Our most commonly recommended procedure for containing minor spills would be to first contain the spill using:

Pesticide:_____
_____
_____

Fertilizer:_____
_____
_____

IX. SPILL OF PESTICIDES AND FERTILIZERS - PROCEDURES (continued)

3. Determine whether it is appropriate to stop the source of the spill or to limit the flow.
   - ➢Protect yourself before proceeding. Wear appropriate personal protective equipment.
   - ➢Do not allow anyone to walk in spilled material. Prevent vehicles from driving over spilled material. For traffic control materials, see page ____. (Section VIII)
   - **a. CONTROL SPILL:** Location of beveled stakes, a mallet, rubber strips, plastic tape and duct tape is listed on page ____. (Section VIII)
   - **b. CONTAIN:** If the material starts to spread, contain by diking with sand, soil or absorbent clay. Do not allow material to enter storm sewers, waterways, etc., or pool at well heads.
   - ➢Our nearest source of sand is listed on page ____, where we have access to about ____ yards of sand. (Section VIII)
   - ➢Our nearest source of soil is listed on page ____, where we have access to about ____ yards of soil. (Section VIII)
   - ➢Tools for moving these materials are listed on page ____. (Section VIII)
   - ➢Location of our front end loader is listed on page ____. (Section VIII)
   - ➢For larger spills which go beyond the capacity of our own equipment and personnel, move to the following section on **MAJOR SPILLS**.

B. MAJOR SPILLS

➢A major spill is one which involves a significant quantity of material from both product value and substantial environmental standpoints. A major spill demands your **immediate** attention and **immediate** notification of both company personnel and appropriate authorities.

➢What might be a minor spill at your own facility quickly becomes a major spill if it occurs on Main Street, during rush hour, 15 feet from a storm sewer that empties directly into a river, stream or lake.

1. FOR ANY MAJOR SPILL, BEFORE RESPONDING:

QUESTION	RESPONSE
a. Am I equipped to respond safely?	a. Notify others of the situation. See page ____ for phone numbers. (Section I) Do not allow anyone to walk or drive in the spilled material. See page ____ for traffic control supplies. (Section VIII) Get needed protective gear. See page ____ for listing. (Section VIII)
b. Does the spilled material have any special properties to consider (i.e., flammable, acid, high toxicity, reactions with other stored products)?	b. Be certain you and all responding are aware and consider these properties. See page ____ for product information locations. (Section II and Section III)
c. Are any electrical components wet or submerged?	c. Shut down all power until it is determined what can be safely used.

IX. SPILL OF PESTICIDES AND FERTILIZERS - PROCEDURES (continued)

Other pre-response considerations for this facility are:

_____ _____
_____ _____
_____ _____
_____ _____

➢Refer to **MINOR SPILLS** for more general guidelines for control, containment and cleanup procedures with regard to spills.

2. FOR A SPILL WITHIN ANY SECONDARY CONTAINMENT:

a. Are tanks sufficiently anchored?

a. Pump water or spilled product into stable tanks. For location of liquid transfer equipment, see page ____. (Section VIII)

Remove or restrain small tanks.

Other:

b. Are other materials being contaminated?

b. Remove or transfer material to another storage area. For location of liquid transfer equipment, see page ____. (Section VIII)

Other:

c. Can the leak be easily stopped?

c. Check valves. Plug holes with wood stakes or replace parts. See page ____. (Section VIII)

Tape or strap over leak. See page ____ for materials. (Section VIII)

Transfer to another tank. See page ____ for location of other tanks. (Section VIII)

Other:

3. OTHER SOURCES OF SPILLS
   a. Other response procedures include:

Pesticide:_____
_____
_____
_____

Fertilizer:_____
_____

IX. SPILL OF PESTICIDES AND FERTILIZERS - PROCEDURES (continued)

4. HIGHWAY, FIELD, OR OTHER SPILLS NOT WITHIN SECONDARY CONTAINMENT:
   a. If a spill occurs on a highway, call the State Highway Patrol _____ or the local sheriff's office _____ and South Dakota Department of Agriculture for assistance.
      ➢Do not leave the area until responsible assistance arrives
   b. Do not walk in spilled pesticide or fertilizer. Prevent vehicles from driving over spilled material. See page ____ for a listing of traffic control materials. (Section VIII)
   c. Do not handle leaking containers or go into a vehicle without appropriate personal protective equipment.
   d. Do not allow anyone to smoke near the spilled pesticide or fertilizer, or provide any other source of ignition.
   e. Dike the spill to prevent runoff of pesticide or fertilizer into any nearby waterways, ditches, streams, ponds, storm sewers, tile lines, etc.

5. FOR ANY MAJOR SPILL:
   a. Pump into storage as much spillage as possible and hold for analysis, and use or reprocessing.
   b. Follow minor spill procedures after initial recovery.
   c. If a cleanup job appears too big to handle, or if there is any doubt about the correct procedure, telephone _____ and the _____ for assistance.

WHEN DEALING WITH SPILLS, REMEMBER...

➢**When and incident results in a pesticide/fertilizer release of any amount, notify Emergency Management, Agriculture, or Environment & Natural Resources immediately upon gaining control of the spill. The agencies will provide assistance and guidance regarding proper procedure, based upon the amount and type of substance involved.**

➢**Whenever possible, spilled material should be used as originally intended. When reuse according to the product label is not possible either because of excessive contamination or cross-contamination with an incompatible material, the material must be disposed of in accordance with South Dakota Department of Agriculture requirements. Depending upon the chemical involved, disposal may be a local landfill permitted to accept the material, a hazardous waste landfill, or land application of the contaminated soil.**

➢**Do not begin use/disposal of spilled or contaminated material until the South Dakota Department of Agriculture has granted approval.**

IX. SPILL OF PESTICIDES AND FERTILIZERS - PROCEDURES (continued)

6. Describe specific procedures to be used to transfer, handle, store, and dispose of materials recovered from discharges that occur within your operational area containment and secondary containment structures. Reference appropriate pages within this plan, as needed.

Pesticide:

Fertilizer:

7. Describe methods, procedures, materials, and equipment to be used to contain, recover, store, transport, and dispose of discharges that occur outside of your operational area containment. Reference appropriate pages within this plan, as needed.

Pesticide:

Fertilizer:

X. EMPLOYEE TRAINING

- The owner or manager of an operational area shall conduct pesticide handling and discharge response plan training for all new and existing employees involved in the use and handling of pesticides.

- Training shall be conducted at least annually; and, employees involved in pesticide use and handling must receive training no later than three days after beginning pesticide use and handling duties.

- The owner or operator and employees are responsible for following the firm's pesticide handling and discharge response plan to minimize contamination of the environment.

EMPLOYEE NAME (Print)	**DATE OF TRAINING**	**EMPLOYEE HAS REVIEWED PESTICIDE HANDLING AND DISCHARGE PLAN**	
		Initials of Employee	Initials of Trainer

EMPLOYEE NAME (Print)	DATE OF TRAINING	EMPLOYEE HAS REVIEWED PESTICIDE HANDLING AND DISCHARGE PLAN	
		Initials of Employee	Initials of Trainer

XI. DEFINITIONS

A. Related South Dakota Pesticide Law and Rule

Operational Area Containment, as defined by ARSD 12:56:17:01, by the authority of 38-21-15, is required after February 1, 1995, of **any person** when their operational area meets **any one or more** of the following conditions:

1. The operational area is the applicator's principal operational area; and
   a. more than a total of 1500 pounds of pesticide active ingredients are transferred, loaded, unloaded, mixed, repackaged, or refilled during a calendar year; **or**
   b. either concentrate or diluted pesticides are cleaned, washed, or rinsed from containers or from application, handling, storage, or transportation equipment for over 30 days accumulated during a calendar year.
2. The operational area is within;
   a. 150' of a lake, stream, streambed, or wetland;
   b. 150' of a well;
   c. 200' of populated buildings, wither commercial or residential premises, excluding the owner or operator's own residential or commercial buildings;
   d. 500' of a well used as a public water supply.

➢Two or more operational areas under common ownership and control within one-half mile of each other are calculated collectively to determine if the thresholds listed in subdivisions 1a or 1b above have been reached.

➢Subdivisions 2c and 2d do not apply to mixing and loading operations conducted by pesticide applicators utilizing containers and equipment with holding capacities of 10 US gallons or less, or 50 pounds net dry weight or less.

➢Except for pressure wood preserving operational areas, subsections 1a and 1b do not apply to those operational areas located within or immediately adjacent to each pesticide application site.

Spills During Transport are required, by ARSD 12:56:03:01.01 under the authority of SDCL 38-21-16, to be reported to the Department of Agriculture or Emergency Management Services within 12 hours after a spill of more than 5 gallons of liquid or 50 pounds of dry pesticides.

Spills Outside of Secondary Containment Area are required, by 12:56:13:10 under the authority of SDCL 38-21-16, to be reported to the Department of Agriculture or Emergency Management Services by the operator/manager within 3 hours after a spill of more than 25 gallons of liquid or 500 pounds of dry pesticides.

➢According to ARSD 12:56:13:02, a person shall not construct a bulk pesticide storage facility, for the storage of permanent bulk pesticide storage containers, without a means of secondary containment.

Reporting Requirements for significant pesticide accidents or incidents are implemented by the secretary under SDCL 38-21-16. The following information should be reported: 1) Materials involved and quantity; 2) Environment involved; 3) Location and type of incident.

XI. DEFINITIONS (continued)

B. Related South Dakota Fertilizer Law and Rule

Spills Outside of Secondary Containment Area are required by ARSD 12:44:05:29 under the authority of SDCL 38-19, to be reported to the Department of Agriculture and Emergency Management Services by the operator/manager of a bulk commercial fertilizer storage facility within 3 hours after a spill of more than 25 gallons of liquid or 500 pounds of dry fertilizer.

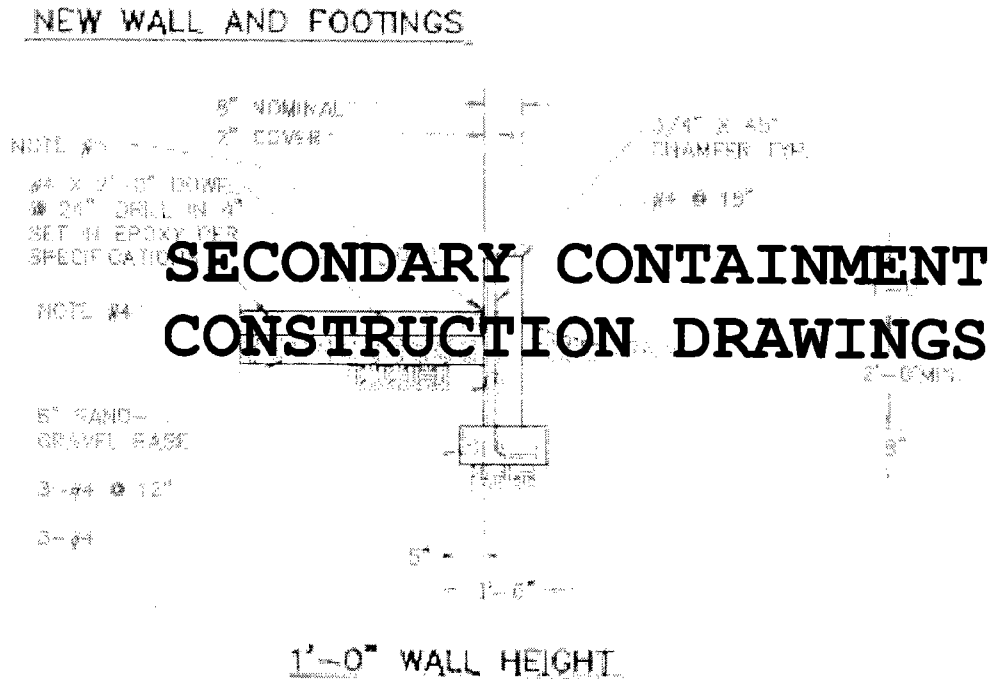
- **ARSD 12:44:05:03**, by authority of SDCL 38-19, mandates a person may not construct a liquid bulk commercial fertilizer storage facility for the storage of permanent liquid bulk commercial fertilizer storage containers without a means of secondary containment.

- **ARSD 12:44:05:06**, by authority of SDCL 38-19, mandates all nonliquid fertilizer materials, unless stored in a totally enclosed building, must be covered and stored within a secondary containment structure. The building must be constructed so as to not allow seepage or spillage of fertilizer materials from the building under normal storage conditions.

- **ARSD 12:44:05:28**, by authority of SDCL 38-19, requires, by February 1, 1992, all washing of commercial fertilizer application equipment at liquid and nonliquid bulk commercial fertilizer storage facilities must be conducted within an area that complies with ARSD 12:44:05:27. No commercial fertilizer rinsates or wash waters from commercial fertilizer equipment may be disposed of through sanitary or storm sewer systems. Washing of commercial fertilizer equipment in the field is permissible, and encouraged if it is performed at the site of the final commercial fertilizer application on a given day and no runoff from the wash site occurs. Any accumulated liquid or material that contains a fertilizer within the containment area must be applied to a field or fields at normal fertilizer rates or used in a liquid mixing operation. This section also applies when a commercial fertilizer is combined with a pesticide. When the accumulated liquid or material contains a pesticide, the accumulated liquid or material must be applied to a field or fields at normal pesticide application rates or used in a liquid mixing operation.

SOUTH DAKOTA DEPARTMENT OF AGRICULTURE
Division of Agricultural Services
Office of Agronomy Services
Foss Building, 523 E Capitol
Pierre, SD 57501-3182
Phone (605) 773-4432
FAX (605) 773-3481
Internet address: www.state.sd.us/doa/das

BULK FERTILIZER & PESTICIDE STORAGE FACILITY



SECONDARY CONTAINMENT CONSTRUCTION DRAWINGS

SOUTH DAKOTA DEPARTMENT OF AGRICULTURE

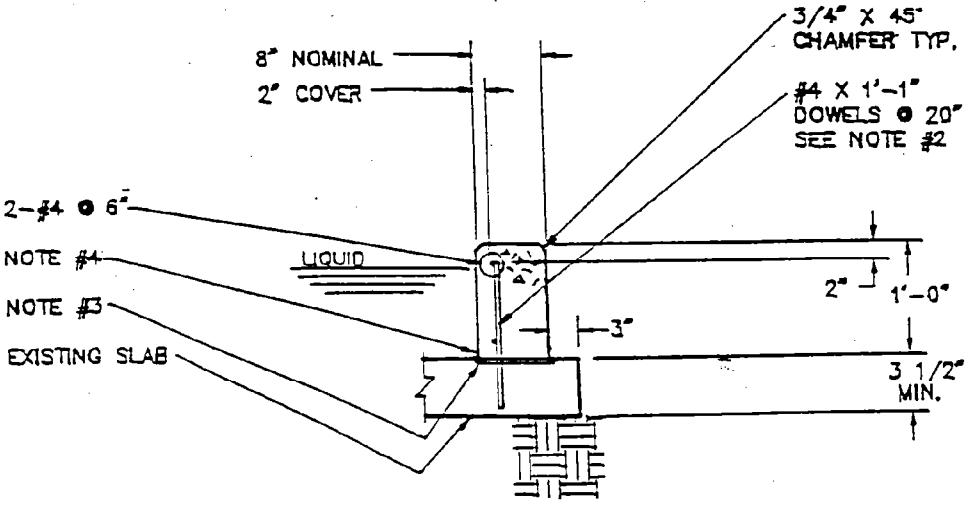
Bulk Storage Facility Drawings
Secondary Containment Construction

These Fertilizer & Pesticide Containment Drawings were developed as an example to assist facility managers in developing their own construction drawings.

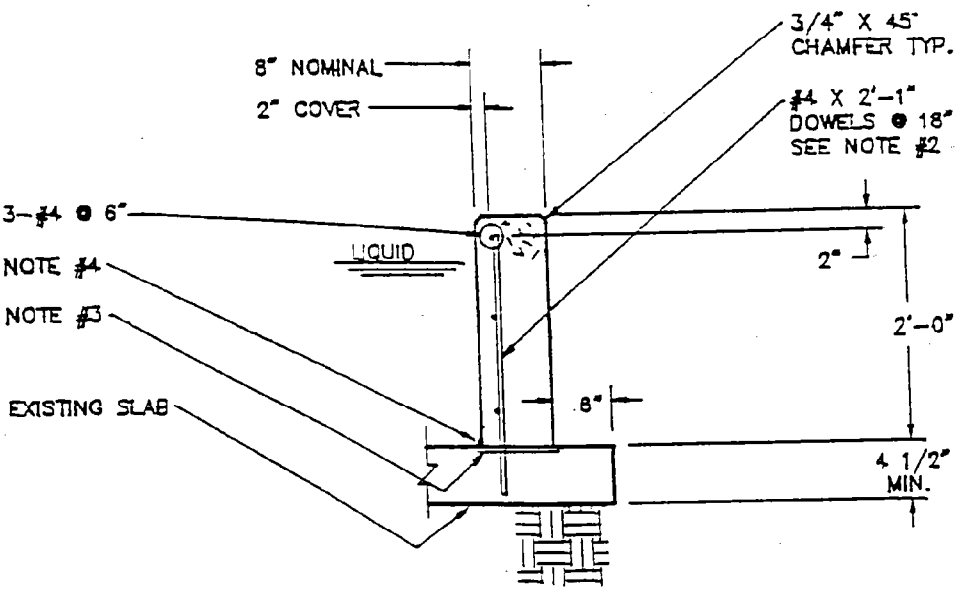
The South Dakota Department of Agriculture is in no way making a recommendation that these construction diagrams be utilized by facilities in this state. The decision to use these diagrams by commercial fertilizer and pesticide storage site managers is solely their responsibility.

Page	Description
115	Walls on Existing Slabs (1' & 2' wall heights)
116	Walls on Existing Slabs (3' & 4' wall heights)
117	New Wall and Footings (1' & 2' wall heights)
118	New Wall and Footings (3' & 4' wall heights)
119	Existing Concrete Block Wall Reinforcement (1' & 2' wall heights)
120	Existing Concrete Block Wall Reinforcement (3' & 4' wall heights)
121	Earth Bermed Dike Containment (1' & 2' dike heights)
122	Earth Bermed Dike Containment (3' & 4' dike heights)
123	Existing Concrete Block Wall on Existing Slab (1' & 2' wall heights)
124	Existing Concrete Block Wall on Existing Slab (3' & 4' wall heights)
125	Miscellaneous Construction Details (corner & wall joint)
126	Miscellaneous Construction Details (sump & sump pit)
127	Membrane to Wall Connection Details (liner to wall)
128	New Concrete Block Wall Reinforcement on New Slab (1' & 2' wall heights)
129	New Concrete Block Wall Reinforcement on New Slab (3' & 4' wall heights)
130	New Wall on Trench Footing (1' & 2' wall heights)
131	New Wall on Trench Footing (3' & 4' wall heights)
132	Miscellaneous Construction Details (optional sump & sump pit)
133	Miscellaneous Construction Details (slab to wall & wall to slab)
134	Washpad Plan
135	Washpad Construction Details (section A & B)
136	Washpad Construction Details (section C & D)
137	Washpad Capacities
138	Washpad Plan
139	Washpad Construction Details (section C & D)
140	Washpad Capacities
141	Leak Detection System Example (FERTILIZER FACILITIES)
142	Leak Detection System Example (FERTILIZER FACILITIES)
143	New Steel Containment - 1' Wall Height
144	New Steel Containment - 1' 6" Wall Height
145	New Steel Containment - 2' Wall Height
146	New Steel Containment - 2' 6" Wall Height
147	New Steel Containment - 3' Wall Height

NEW WALLS ON EXISTING SLABS



1'-0" WALL HEIGHT

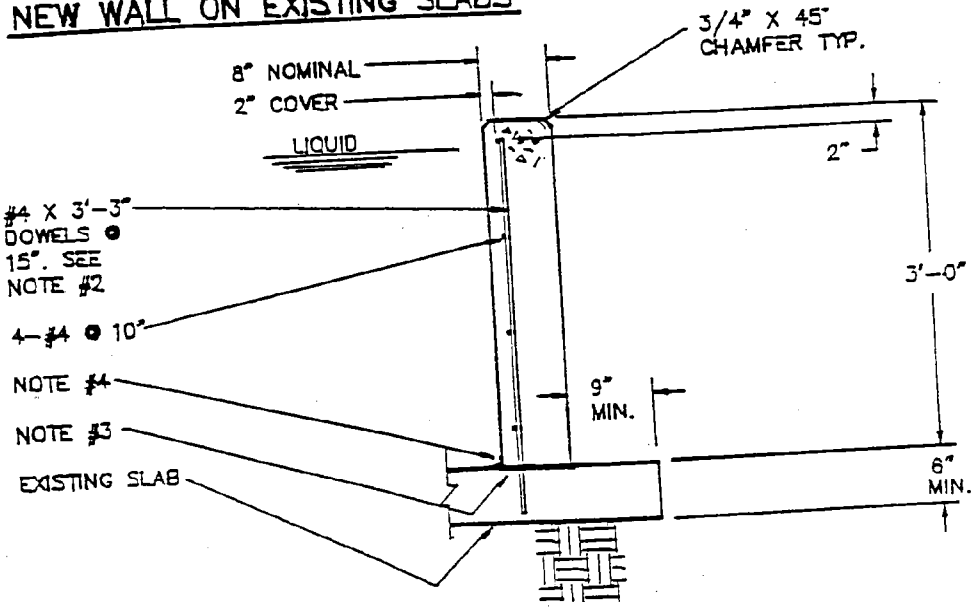


2'-0" WALL HEIGHT

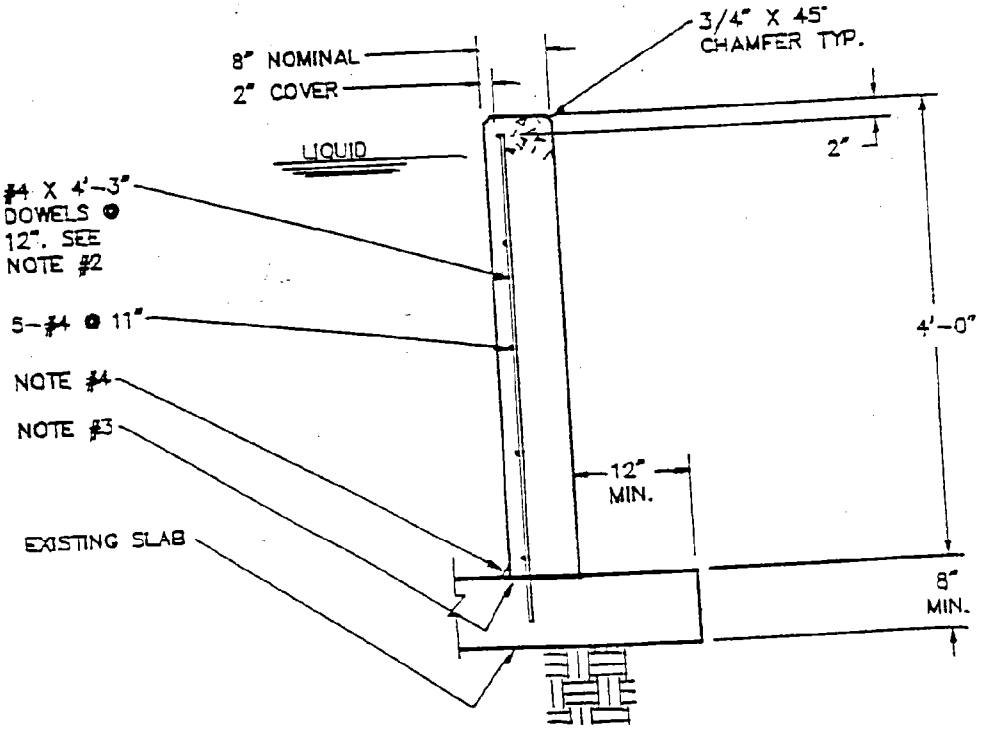
NOTES:

1) EXISTING SLAB MUST BE IN GOOD CONDITION, NOT BROKEN OR CRACKED. #4 @ 18" EACH WAY OR EQUAL REINFORCING IS RECOMMENDED.
2) SET DOWELS IN EPOXY PER SPECIFICATION. DO NOT DRILL THROUGH CONCRETE SLAB
3) ROUGHEN EXISTING SLAB PER BONDING AGENT INSTRUCTIONS.
4) CAULK PER SPECIFICATIONS. REFER TO MISCELLANEOUS CONSTRUCTION DETAIL DRAWING 89027-22 FOR MORE INFORMATION.
5) REPAIR CRACKS PER SPECIFICATIONS.

NEW WALL ON EXISTING SLABS



3'-0" WALL HEIGHT

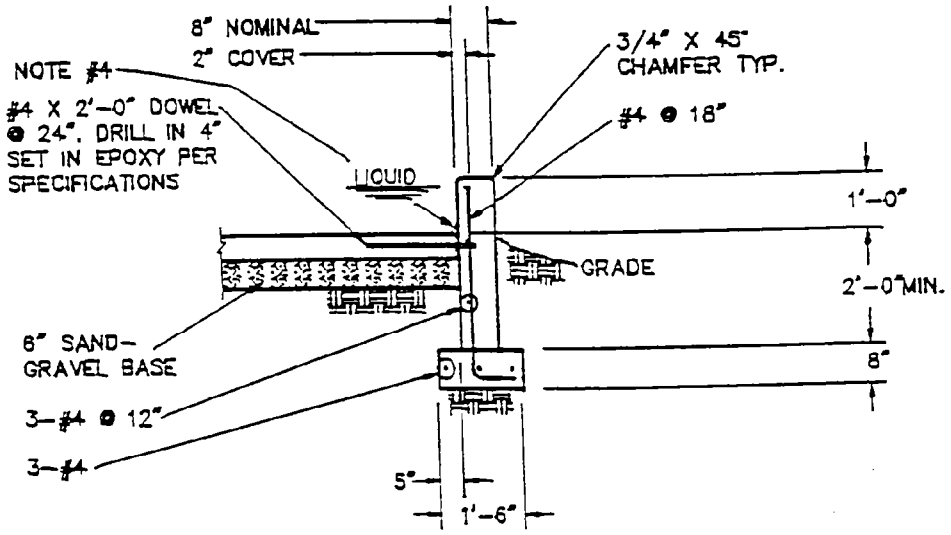


4'-0" WALL HEIGHT

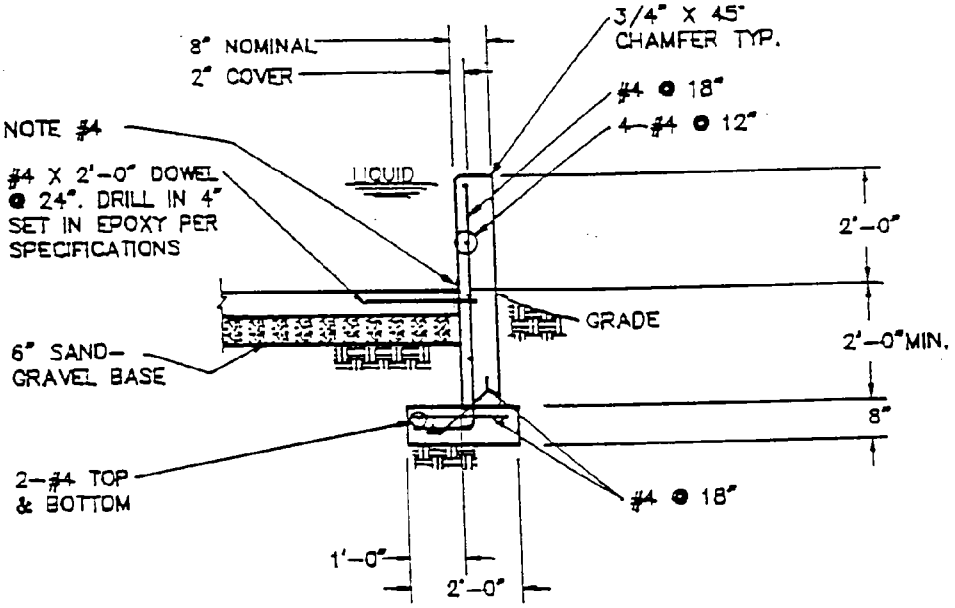
NOTES:

1) EXISTING SLAB MUST BE IN GOOD CONDITION, NOT BROKEN OR CRACKED. #4 @ 18" EACH WAY OR EQUAL SLAB REINFORCING IS RECOMMENDED.
2) SET DOWELS IN EPOXY PER SPECIFICATION, DO NOT DRILL THROUGH CONCRETE SLAB
3) ROUGHEN EXISTING SLAB PER BONDING AGENT INSTRUCTIONS.
4) CAULK PER SPECIFICATIONS.
   REFER TO MISCELLANEOUS CONSTRUCTION DETAIL DRAWING 89027-22 FOR MORE INFORMATION.
5) REPAIR CRACKS PER SPECIFICATIONS.

NEW WALL AND FOOTINGS



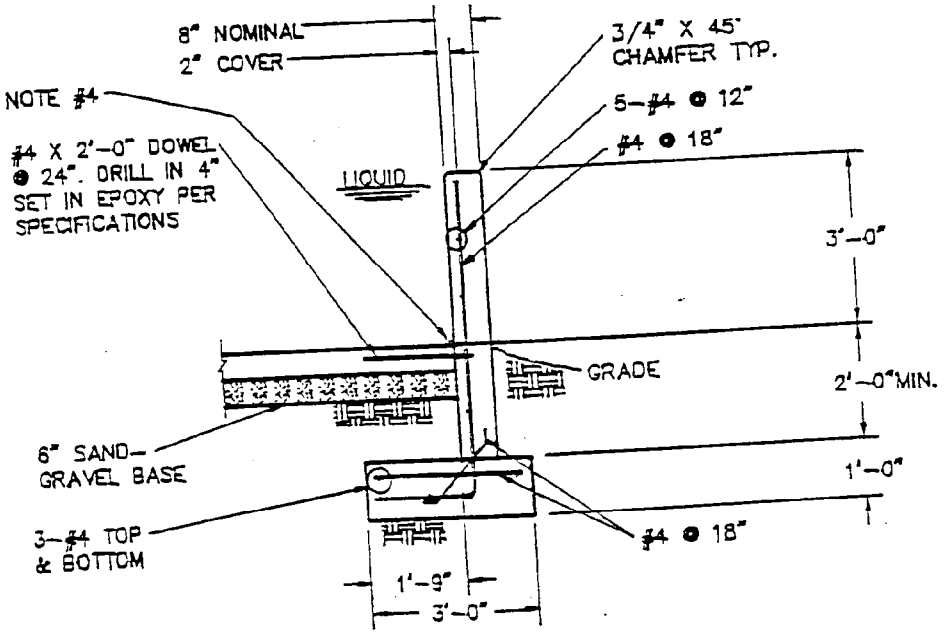
1'-0" WALL HEIGHT



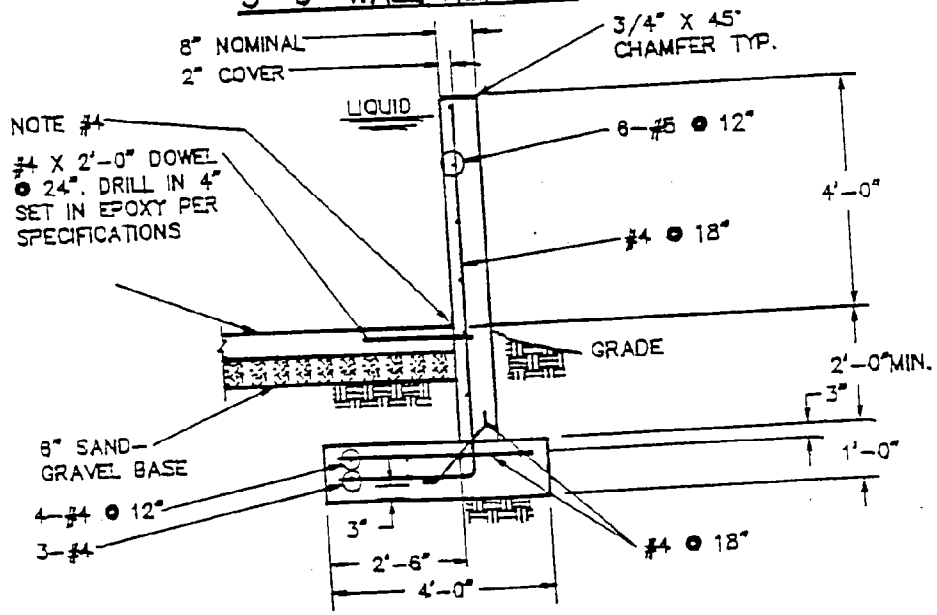
2'-0" WALL HEIGHT

NOTES:
1) SOIL BEARING PRESSURE 2000 PSF, REFER TO SPECIFICATOINS FOR ADDITIONAL SOIL INFORMATION.
2) REINFORCING STEEL: GRADE 60
3) CONCRETE 4000 PSI.
4) CAULK PER SPECIFICATIONS. REFER TO MISCELLANEOUS CONSTRUCTION DETAIL DRAWING 89027-22 FOR MORE INFORMATION.

NEW WALL AND FOOTINGS



3'-0" WALL HEIGHT



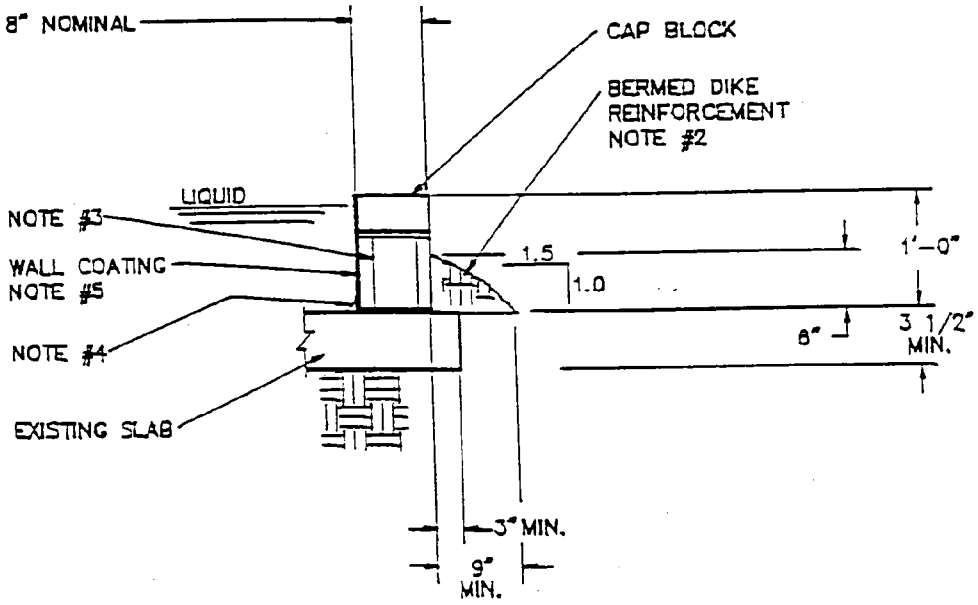
4'-0" WALL HEIGHT

NOTES:
1) SOIL BEARING PRESSURE 2000 PSF. REFER TO SPECIFICATOINS FOR ADDITIONAL SOIL INFORMATION.
2) REINFORCING STEEL: GRADE 60
3) CONCRETE 4000 PSI
4) CAULK PER SPECIFICATIONS.
   REFER TO MISCELLANEOUS CONSTRUCTION DETAIL DRAWING 89027-22 FOR MORE INFORMATION.

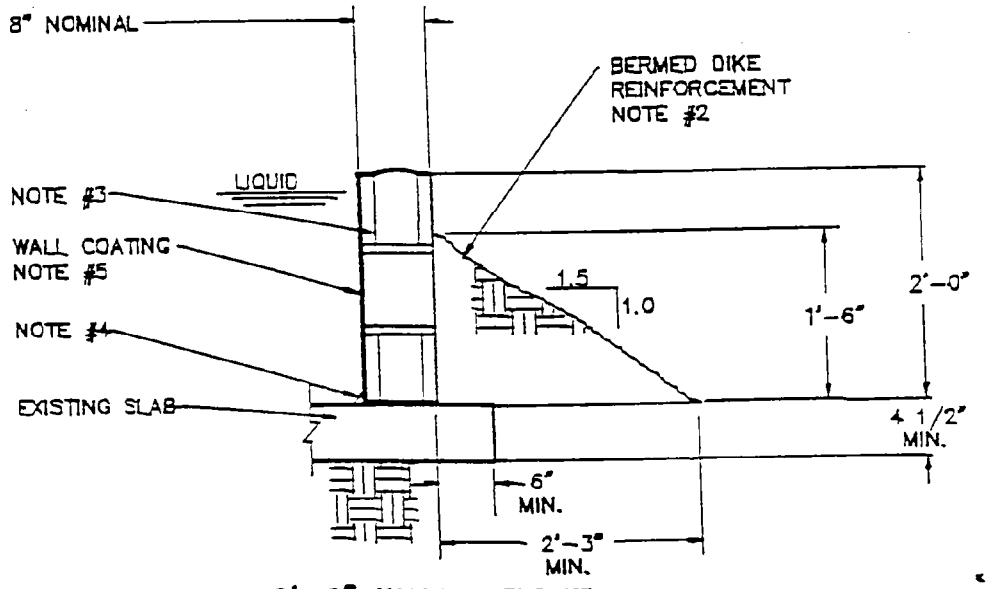
SOUTH DAKOTA DEPARTMENT OF AGRICULTURE

89027-5
9/89

EXISTING CONCRETE BLOCK WALL REINFORCEMENT



1'-0" WALL HEIGHT



2'-0" WALL HEIGHT

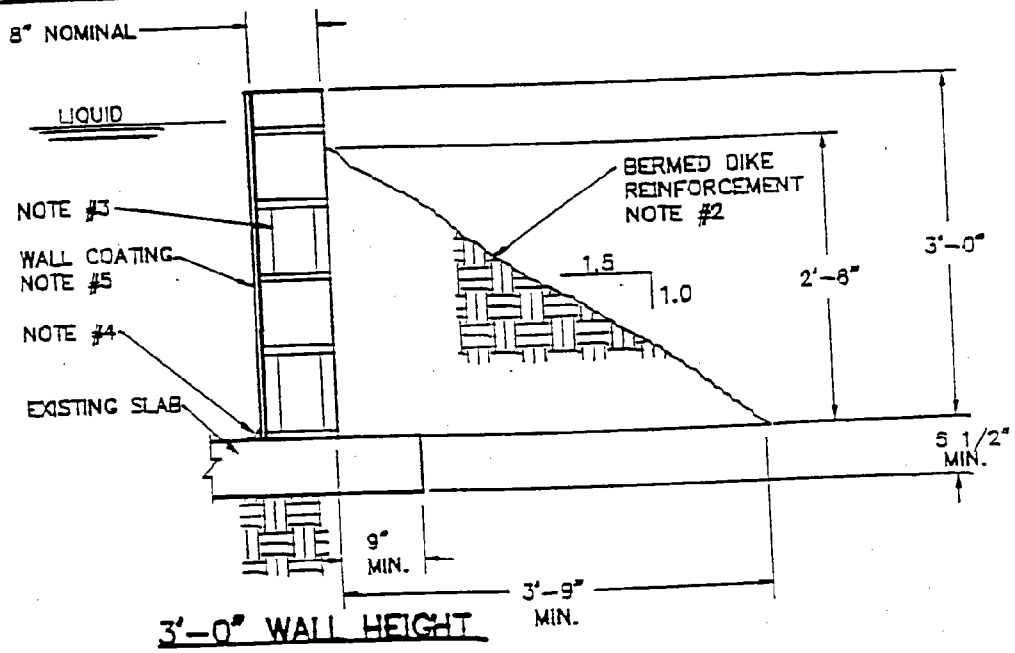
NOTES:

1) EXISTING SLAB MUST BE IN GOOD CONDITION, NOT BROKEN OR CRACKED, #4 @ 18" EACH WAY OR EQUAL SLAB REINFORCING IS RECOMMENDED.
2) BERMED DIKE SHOULD BE TREATED TO PREVENT EROSION WITH SEEDING, CRUSHED STONE OR ASPHALT.
3) FILL BLOCK CELLS WITH MORTAR OR CONCRETE.
4) CAULK PER SPECIFICATIONS.
5) COAT WALL WITH SHURWALL OR THOROCOAT PER PRODUCT MANUFACTURER'S INSTRUCTIONS.

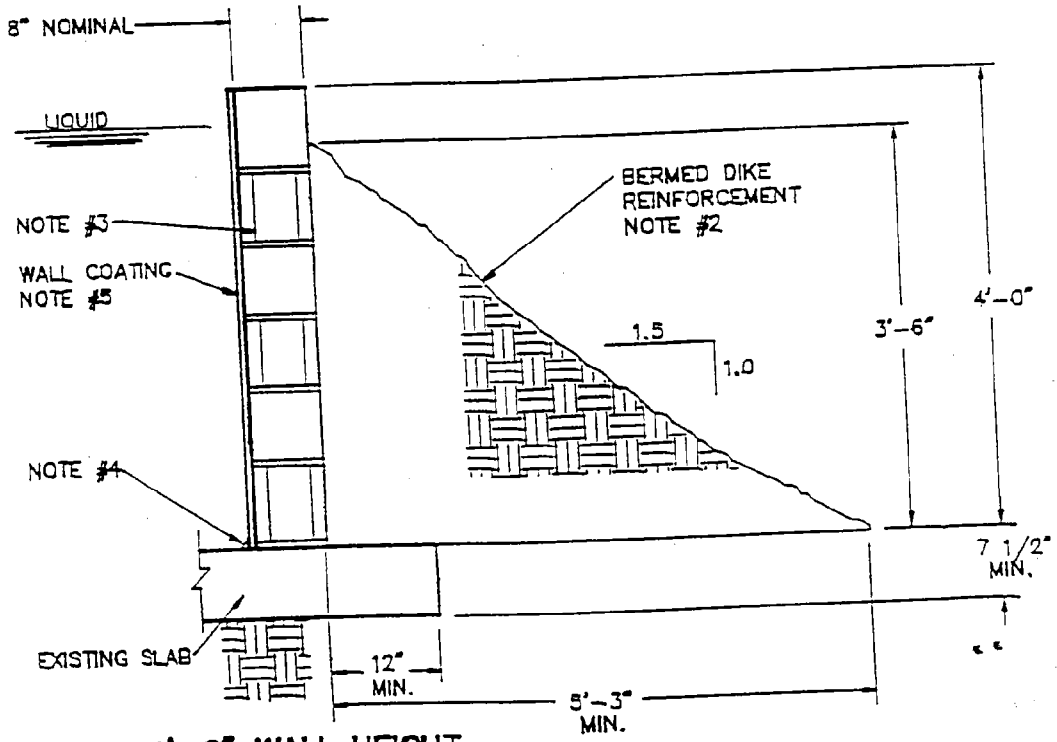
SOUTH DAKOTA DEPARTMENT OF AGRICULTURE

89027-6
9/89

EXISTING CONCRETE BLOCK WALL REINFORCEMENT



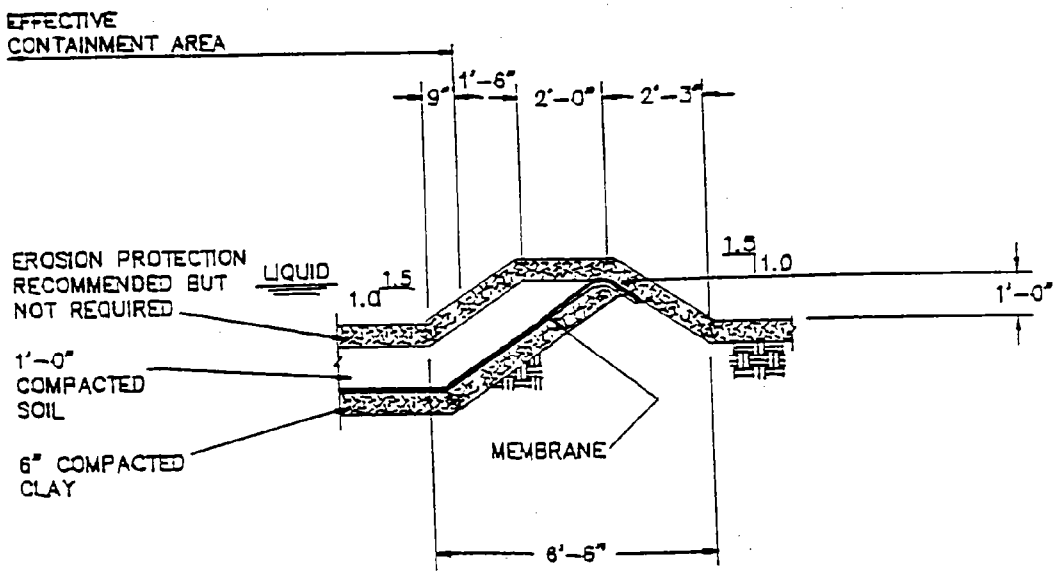
3'-0" WALL HEIGHT



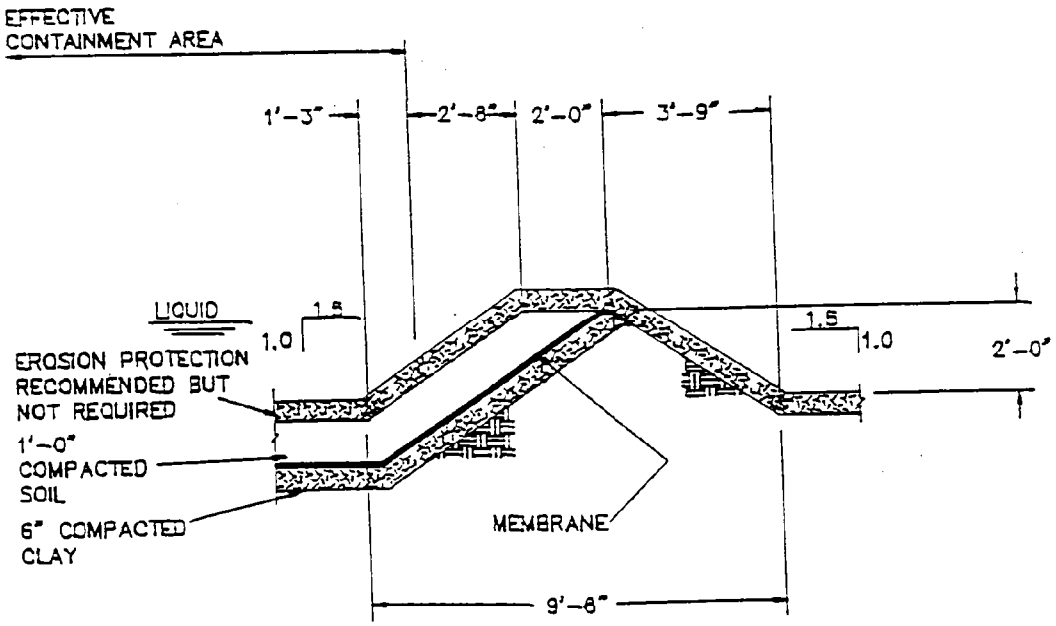
4'-0" WALL HEIGHT

NOTES:
1) EXISTING SLAB MUST BE IN GOOD CONDITION, NOT BROKEN OR CRACKED. #4 @ 18" EACH WAY OR EQUAL SLAB REINFORCING IS RECOMMENDED.
2) BERMED DIKE SHOULD BE TREATED TO PREVENT EROSION (SEEDING, CRUSHED STONE OR ASPHALT)
3) FILL BLOCK CELLS WITH MORTAR OR CONCRETE.
4) CAULK PER SPECIFICATIONS.
5) COAT WALL WITH SHURWALL OR THOROCOAT PER PRODUCT

EARTH BERMED DIKE CONTAINMENT



1'-0" BERMED DIKE HEIGHT



2'-0" BERMED DIKE HEIGHT

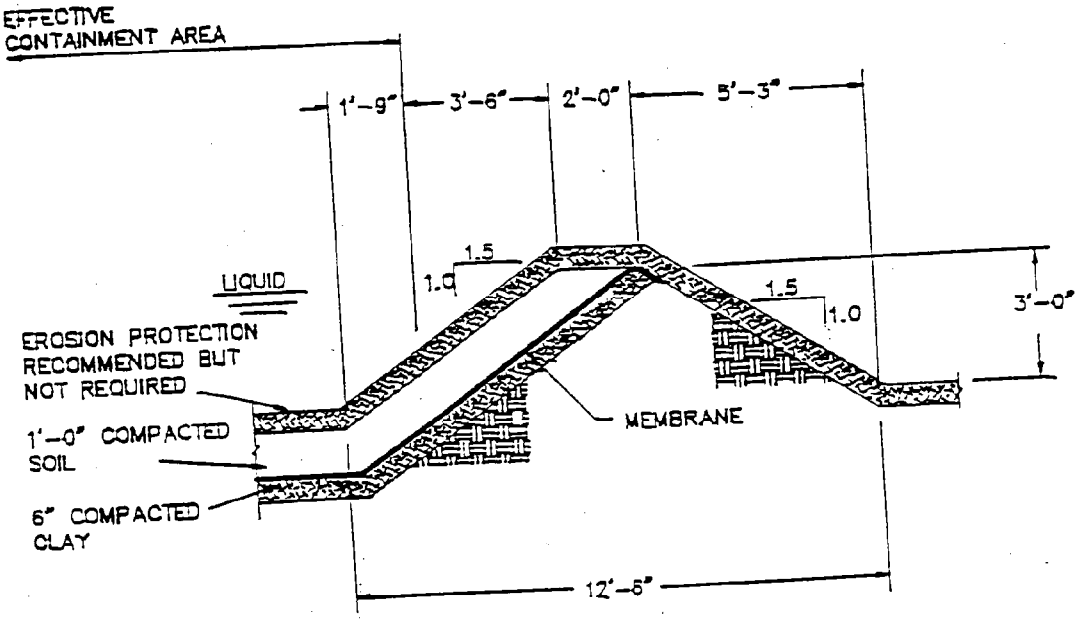
NOTES:

1) BERMED DIKE OF COMPACTED CLEAN NATURAL SOILS (NO ORGANIC MATERIALS).
2) 30 MIL LINER MINIMUM.
3) COMPACTED CLAY MUST BE PLACED WITH CARE SO AS NOT TO PUNCTURE LINER.
4) SUMP FOR WATER REMOVAL AND SPILL RECLAIM REFER TO MISCELLANEOUS CONSTRUCTION DETAIL DRAWING 89042-12 FOR MORE INFORMATION.
5) BERMED DIKE SHOULD BE TREATED TO PREVENT EROSION. (SEEDING, CRUSHED STONE OR ASPHALT).

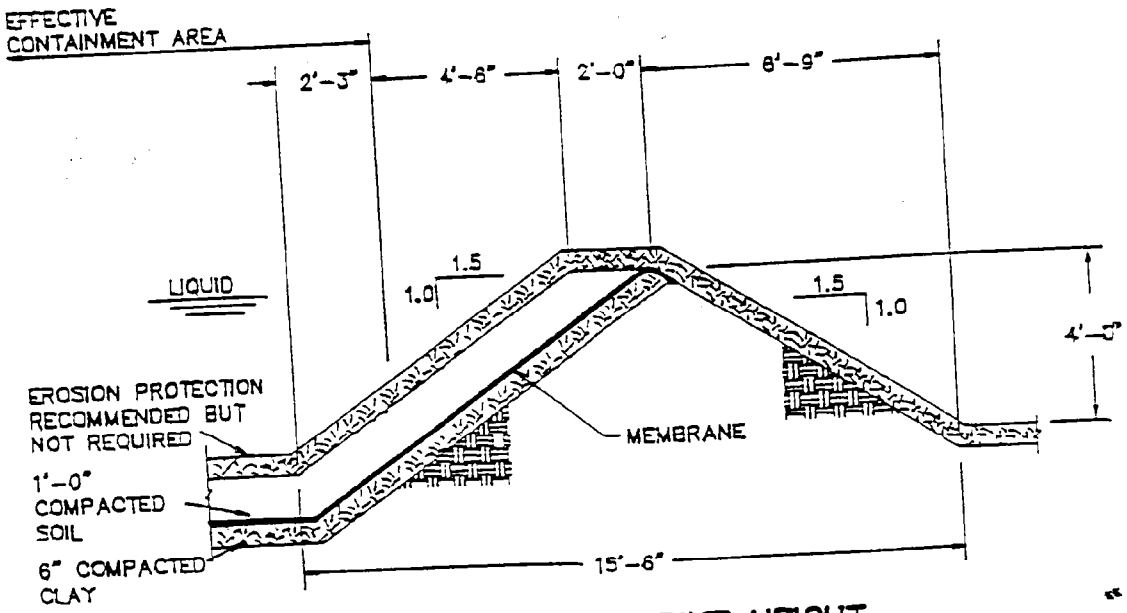
SOUTH DAKOTA DEPARTMENT OF AGRICULTURE

89027-7
9/89

EARTH BERMED DIKE CONTAINMENT



3'-0" BERMED DIKE HEIGHT

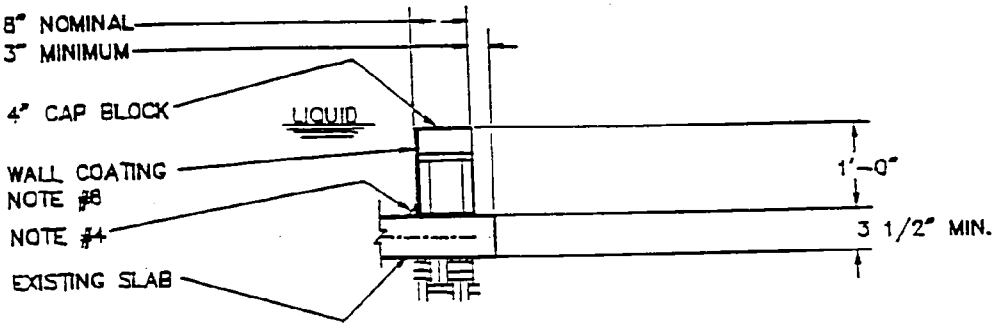


4'-0" BERMED DIKE HEIGHT

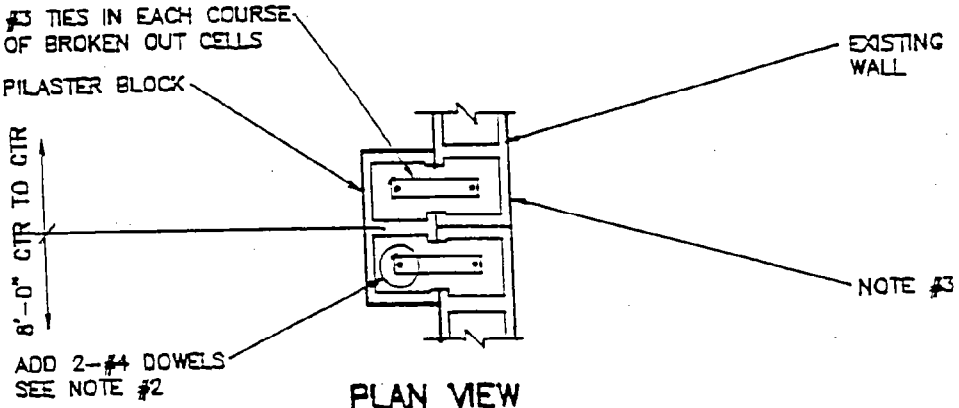
NOTES:

1) BERMED DIKE OF COMPACTED CLEAN NATURAL SOILS (NO ORGANIC MATERIALS).
2) 30 MIL LINER MINIMUM.
3) COMPACTED CLAY MUST BE PLACED WITH CARE SO AS NOT TO PUNCTURE LINER.
4) SUMP FOR WATER REMOVAL AND SPILL RECLAIM. REFER TO MISCELLANEOUS CONSTRUCTION DETAIL DRAWING 89042-12 FOR MORE INFORMATION.
5) BERMED DIKE SHOULD BE TREATED TO PREVENT EROSION. (SEEDING, CRUSHED STONE OR ASPHALT).

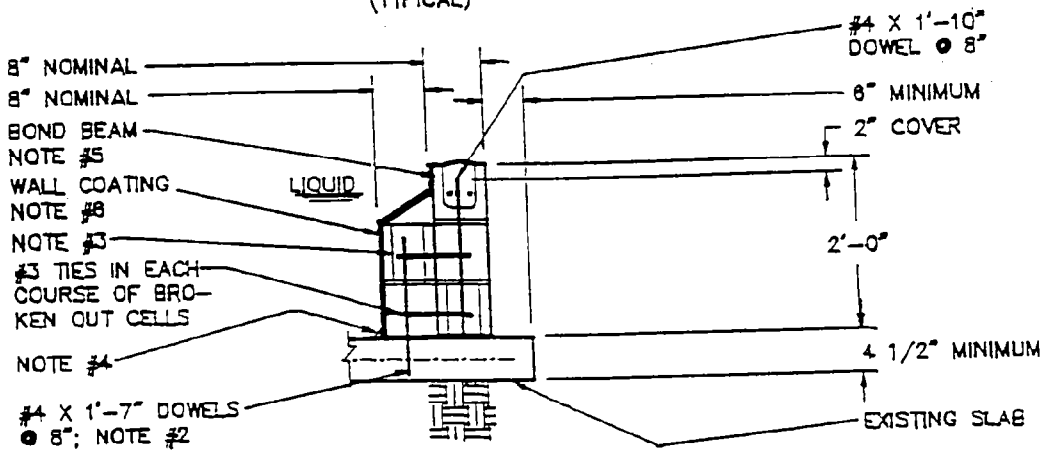
EXISTING CONCRETE BLOCK WALL ON EXISTING SLAB



1'-0" WALL HEIGHT



PLAN VIEW (TYPICAL)

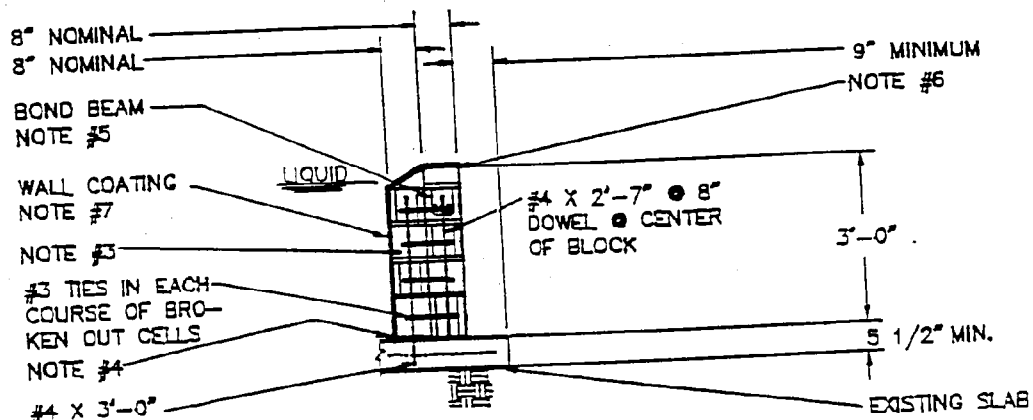


2'-0" WALL HEIGHT

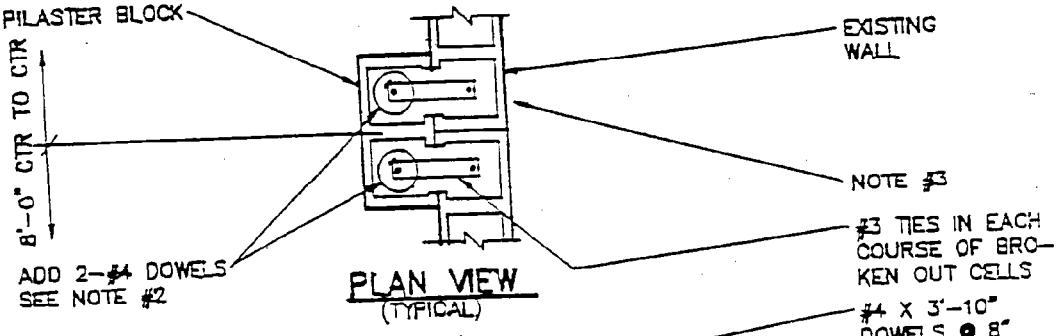
NOTE:

1) EXISTING SLAB MUST BE IN GOOD CONDITION, NOT BROKEN OR CRACKED, 8" THICK OR MORE. #4 @ 18" EACH WAY OR EQUAL SLAB REINFORCING IS RECOMMENDED.
2) SET DOWELS IN EPOXY PER SPECIFICATION, DO NOT DRILL THROUGH SLAB.
3) FILL BROKEN OUT BLOCK CELLS WITH MORTAR OR CONCRETE.
4) CAULK PER SPECIFICATIONS.
5) TOP COURSE HAS TO BE REMOVED AND BOND BEAM WITH 2-#4 INSTALLED.
6) COAT WALL WITH SHURWALL OR THOROCOAT PER PRODUCT MANUFACTURER'S INSTRUCTIONS.

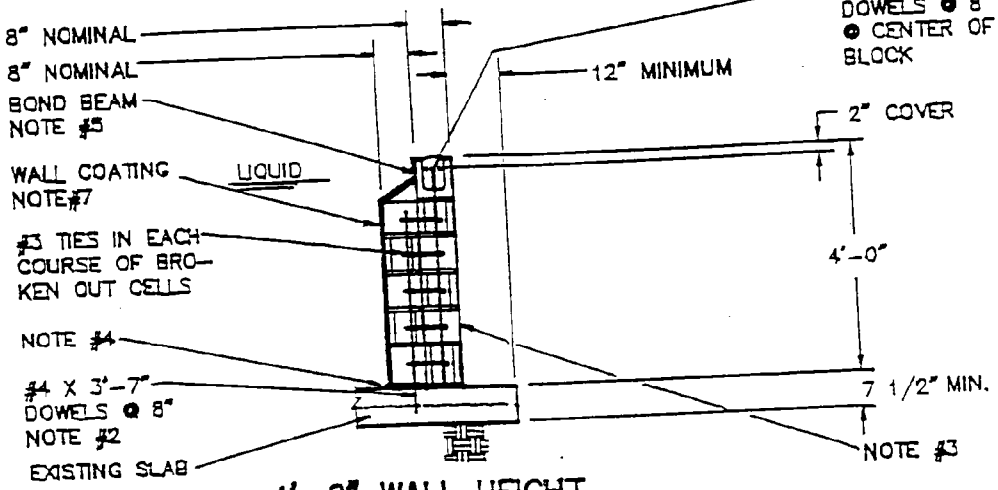
EXISTING CONCRETE BLOCK WALL ON EXISTING SLAB



3'-0" WALL HEIGHT



PLAN VIEW (TYPICAL)

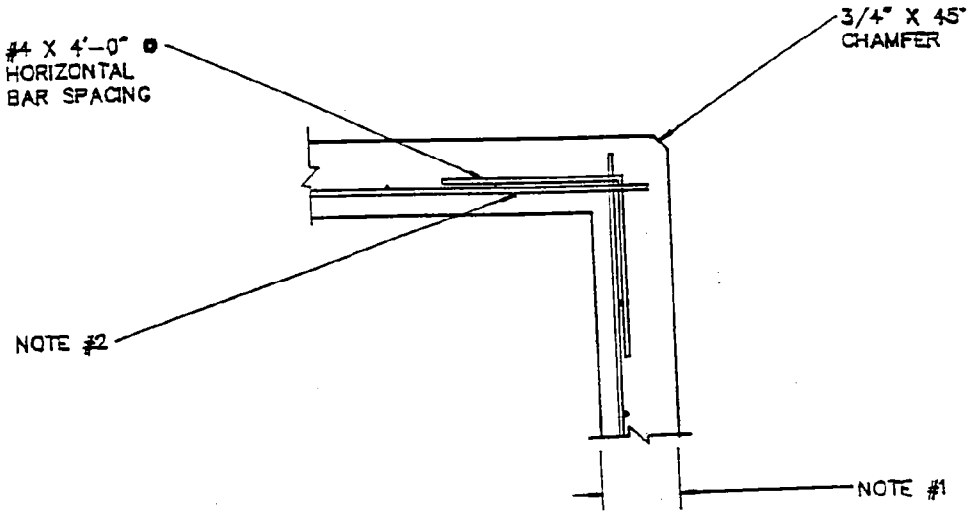


4'-0" WALL HEIGHT

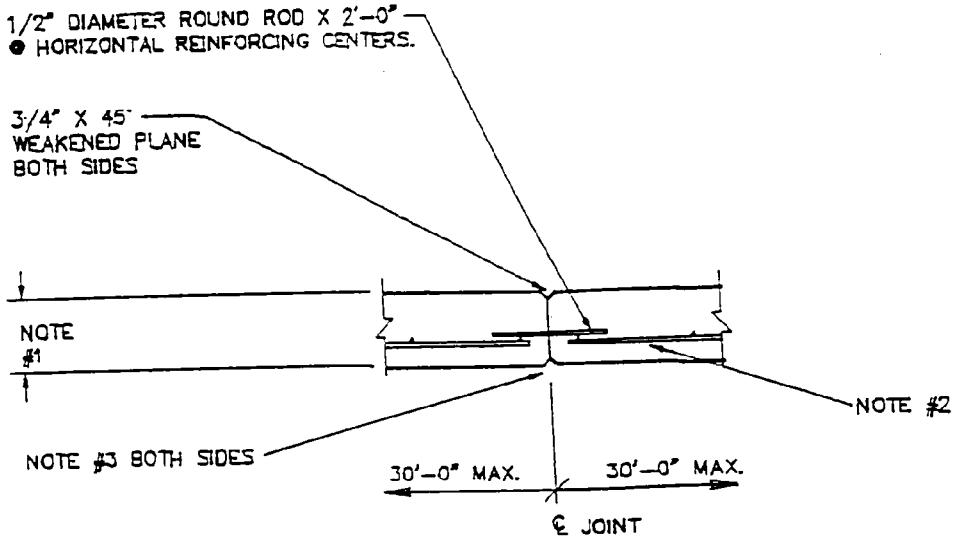
NOTE:

1) EXISTING SLAB MUST BE IN GOOD CONDITION, NOT BROKEN OR CRACKED. #4 @ 18" EACH WAY OR EQUAL SLAB REINFORCING IS RECOMMENDED.
2) SET DOWELS IN EPOXY PER SPECIFICATION, DO NOT DRILL THROUGH SLAB.
3) FILL BROKEN OUT BLOCK CELLS WITH MORTAR OR CONCRETE.
4) CAULK PER SPECIFICATIONS.
5) TOP COURSE HAS TO BE REMOVED AND BOND BEAM WITH 2-#4 INSTALLED.
6) CAP BLOCK WITH 2-#2 IF BOND BEAM IS NOT USED.
7) COAT WALL WITH SHURWALL OR THOROCOAT PER PRODUCT MANUFACTURER'S INSTRUCTION.

MISCELLANEOUS CONSTRUCTION DETAILS



CORNER PLAN DETAIL



WALL JOINT PLAN DETAIL

NOTES:
1) SEE WALL SECTIONS FOR WALL THICKNESS AND HEIGHTS.
2) SEE WALL SECTIONS FOR REINFORCING.
3) CONCRETE, REINFORCING AND CAULK PER SPECIFICATIONS.

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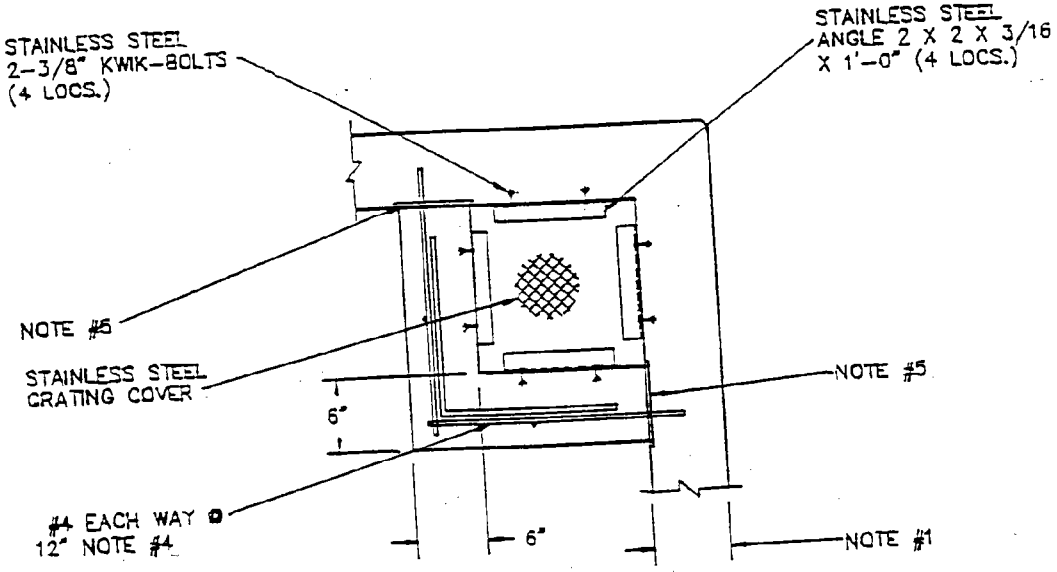
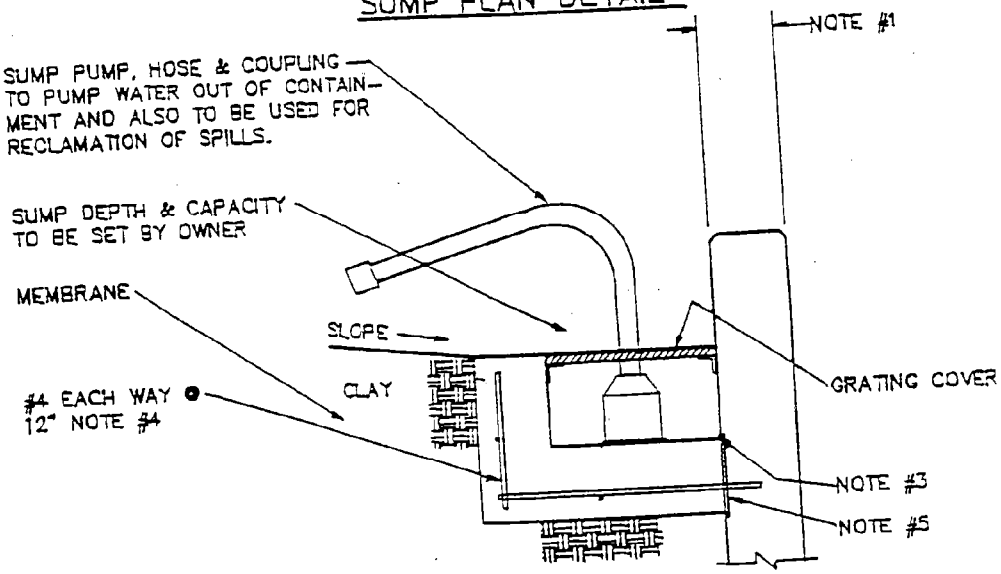
MISCELLANEOUS CONSTRUCTION DETAILS

(REFER TO DWG# 89042-18 FOR SIMILAR DETAILS)



SUMP PLAN DETAIL



SUMP PUMP PIT SECTION

NOTES:
1) SEE WALL SECTIONS FOR WALL THICKNESS AND HEIGHTS.
2) SEE WALL SECTIONS FOR REINFORCING.
3) CONCRETE, REINFORCING AND CAULK PER SPECIFICATIONS.
4) DRILL IN 4".
5) ROUGHEN SLAB PER BONDING AGENT INSTRUCTIONS.

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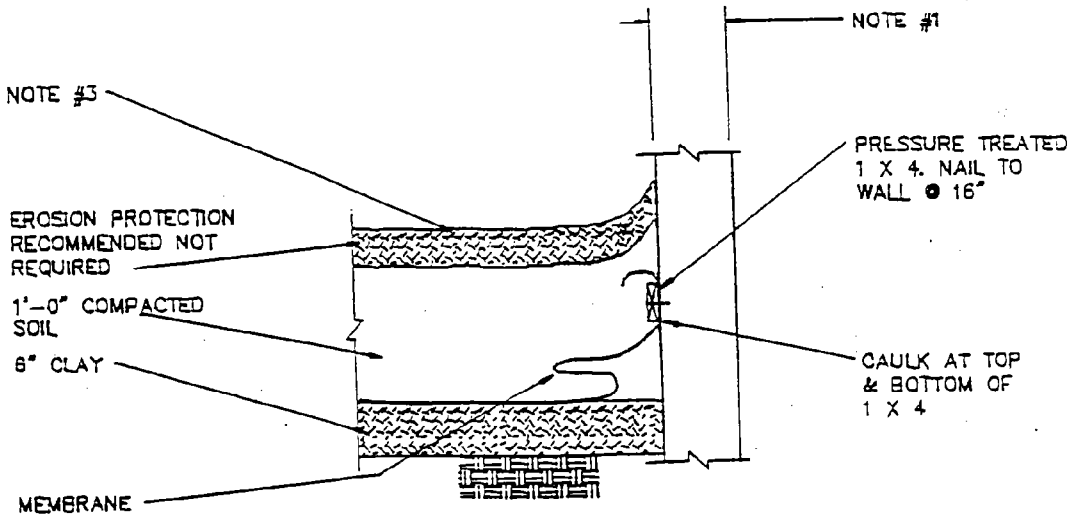
MEMBRANE TO WALL CONNECTION DETAILS



LINER TO WALL SECTION

NOTES:
1) SEE WALL SECTIONS FOR WALL THICKNESS AND HEIGHTS.
2) CONCRETE, REINFORCING AND CAULK PER SPECIFICATIONS.
3) SLOPE TO SUMP REFER TO MISCELLANEOUS CONSTRUCTION DETAIL DRAWING 89042-12 FOR MORE INFORMATION.
4) 30 MIL LINER MINIMUM.
5) COMPACTED CLAY AND SOIL MUST BE PLACED WITH CARE SO AS NOT TO PUNCTURE LINER.

SOUTH DAKOTA DEPARTMENT OF AGRICULTURE

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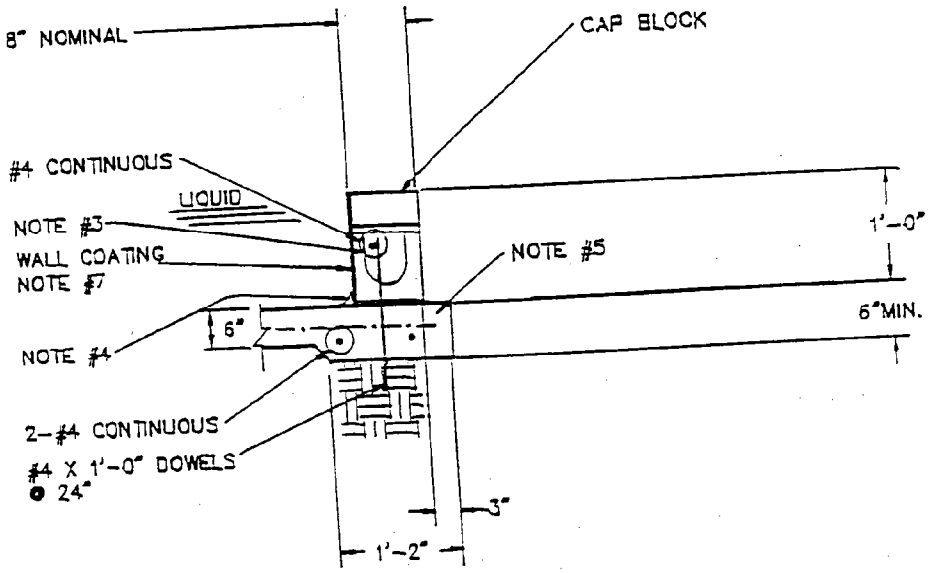
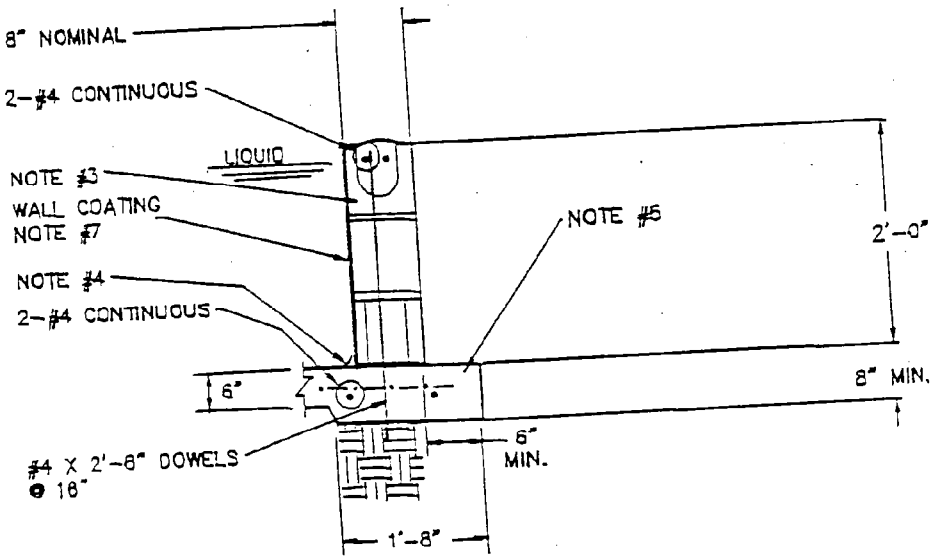
NEW CONCRETE BLOCK WALL REINFORCEMENT ON NEW SLAB



1'-0" WALL HEIGHT



2'-0" WALL HEIGHT

NOTES:

1) REINFORCING STEEL: GRADE 60
2) CONCRETE: 4000 PSI IN NEW FLOOR
3) BOND BEAM W/CONTINUOUS #4 REBAR(S) REINFORCING.
4) CAULK PER SPECIFICATIONS.
5) SLAB MUST BE 6" THICK OR MORE, 6X6-10/10 WELDED WIRE MESH REINFORCING IS RECOMMENDED.
6) FILL ALL BLOCK CELLS WITH MORTAR OR CONCRETE.
7) COAT WALL WITH SHURWALL, THOROCOAT OR EQUAL PER PRODUCT MANUFACTURER'S INSTRUCTIONS.

SOUTH DAKOTA DEPARTMENT OF AGRICULTURE

89027-19
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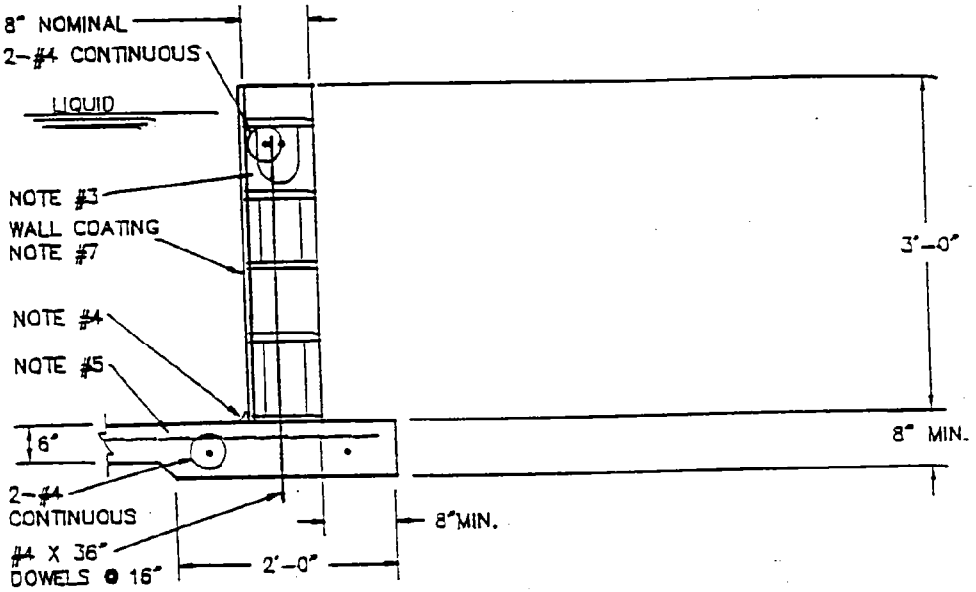
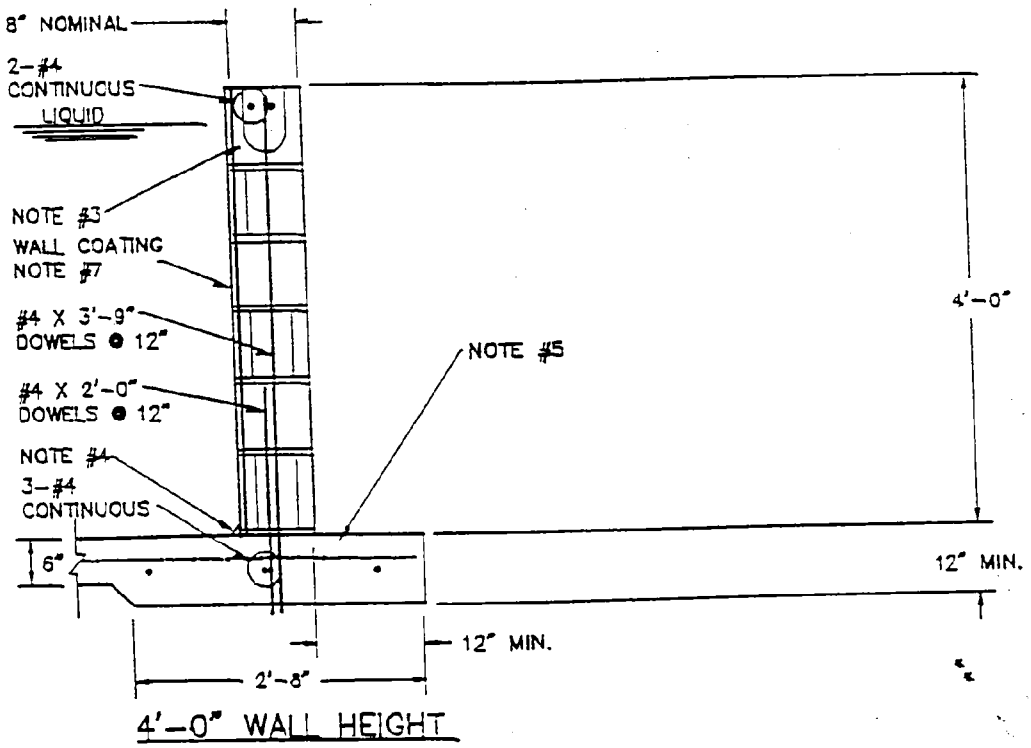
NEW CONCRETE BLOCK WALL REINFORCEMENT ON NEW SLAB



3'-0" WALL HEIGHT



4'-0" WALL HEIGHT

NOTES:

1) REINFORCING STEEL: GRADE 60
2) CONCRETE: 4000 PSI IN NEW FLOOR SLAB.
3) BOND BEAM W/CONTINUOUS #4 REBAR(S) REINFORCING.
4) CAULK PER SPECIFICATIONS.
5) SLAB MUST BE 6" THICK OR MORE, 6X6-10/10 WELDED WIRE MESH REINFORCING IS RECOMMENDED.
6) FILL ALL BLOCK CELLS WITH MORTAR OR CONCRETE.
7) COAT WALL WITH SHURWALL OR THOROCOAT OR EQUAL PER PRODUCT MANUFACTURER'S INSTRUCTION.

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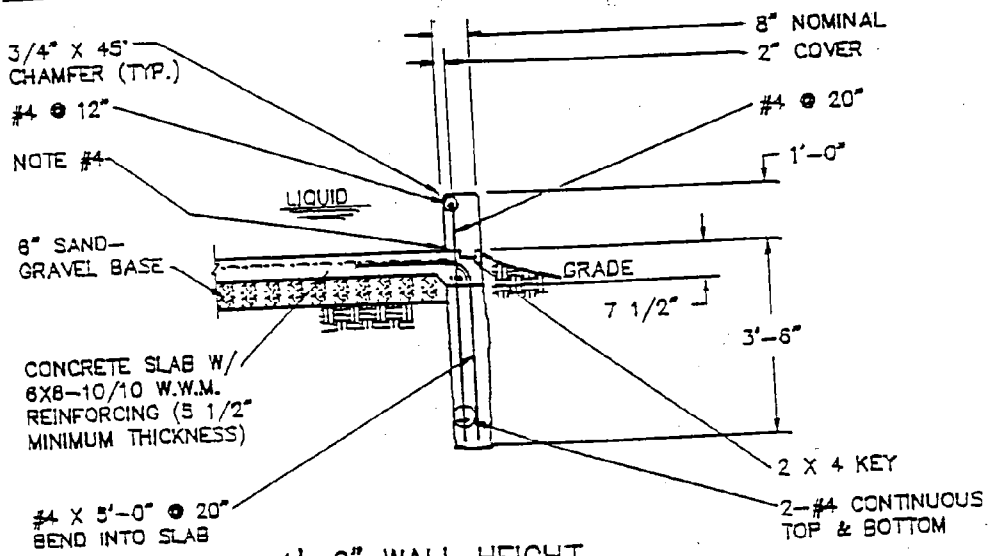
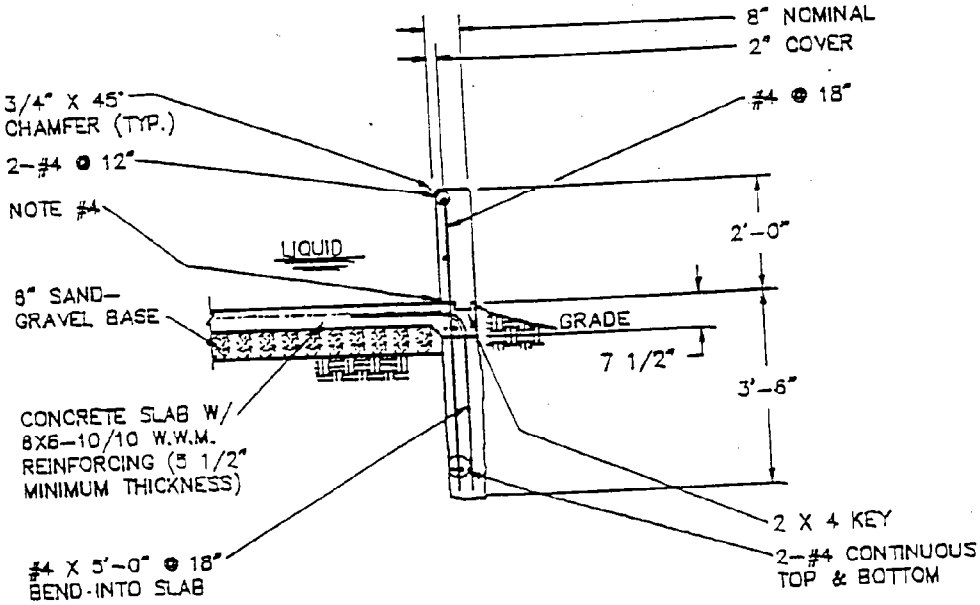
9/89

NEW WALL ON TRENCH FOOTING



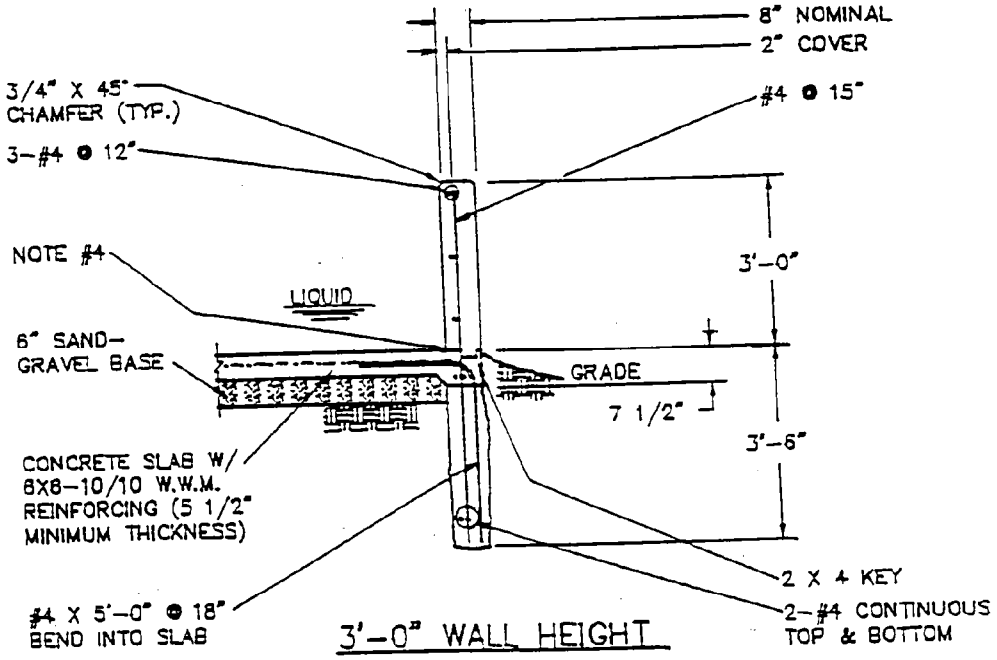
1'-0" WALL HEIGHT



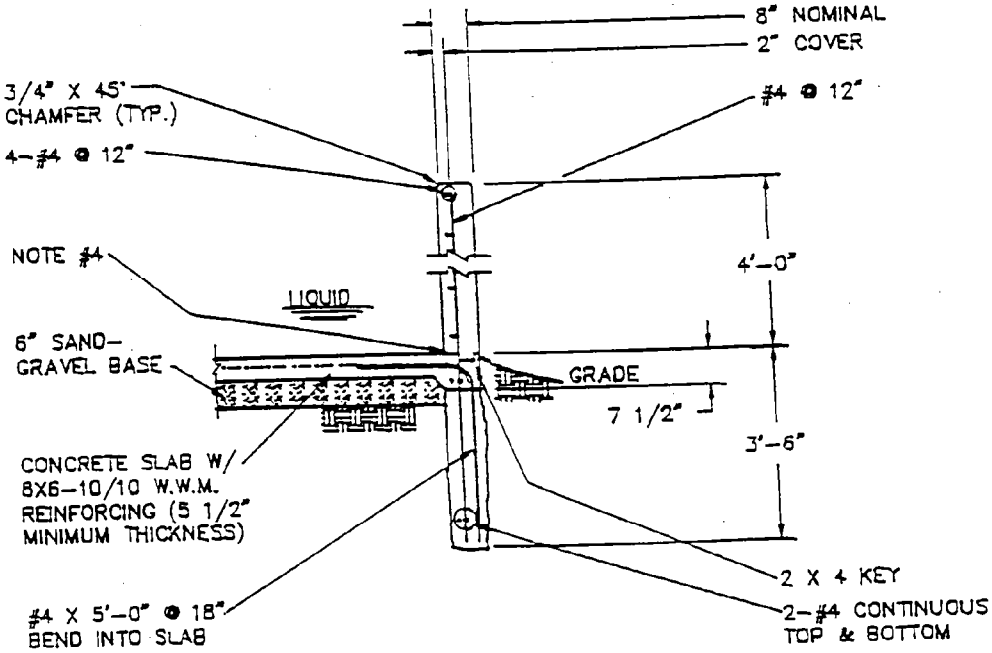
2'-0" WALL HEIGHT

NOTES:
1) MINIMUM ALLOWABLE SOIL BEARING PRESSURE 2000 PSF, REFER TO SPECIFICATIONS FOR ADDITIONAL SOIL INFORMATION.
2) REINFORCING STEEL: GRADE 60
3) CONCRETE 4000 PSI.
4) CAULK PER SPECIFICATIONS.
REFER TO MISCELLANEOUS CONSTRUCTION DETAIL DRAWING 89027-22 FOR MORE INFORMATION.

NEW WALL ON TRENCH FOOTING



3'–0" WALL HEIGHT



4'–0" WALL HEIGHT

NOTES:
1) MINIMUM ALLOWABLE SOIL BEARING PRESSURE 2000 PSF, REFER TO SPECIFICATIONS FOR ADDITIONAL SOIL INFORMATION.
2) REINFORCING STEEL: GRADE 60
3) CONCRETE 4000 PSI.
4) CAULK PER SPECIFICATIONS.
REFER TO MISCELLANEOUS CONSTRUCTION DETAIL DRAWING 89027–22 FOR MORE INFORMATION.

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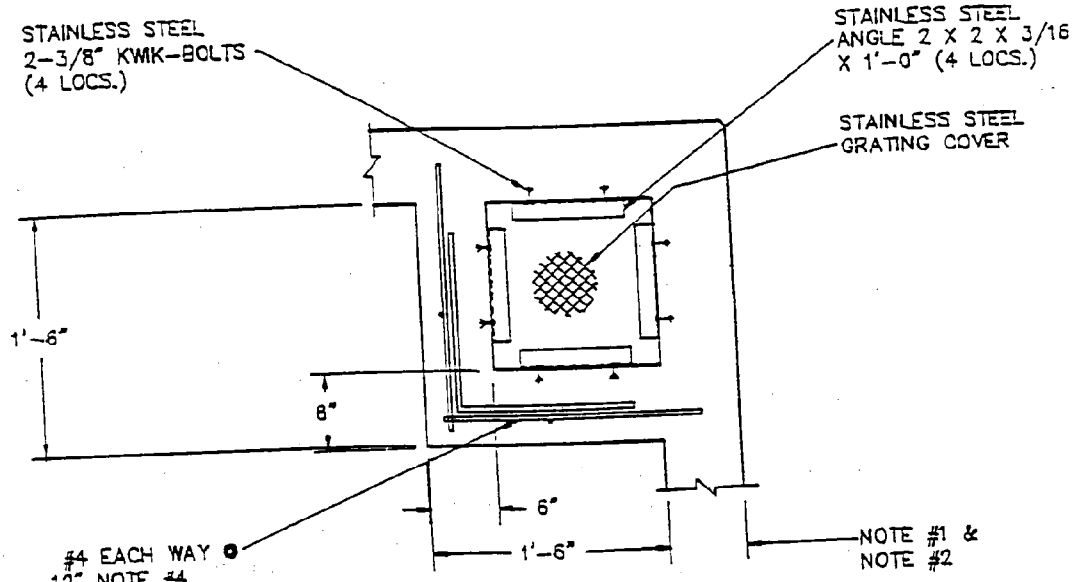
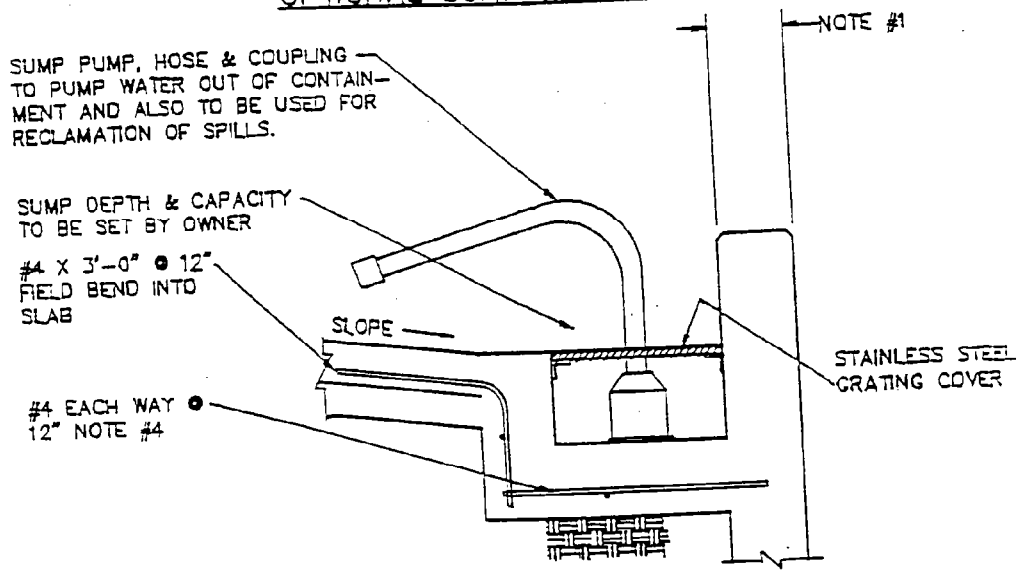
MISCELLANEOUS CONSTRUCTION DETAILS



OPTIONAL SUMP PLAN DETAIL



OPTIONAL SUMP PUMP PIT SECTION

NOTES:
1) SEE WALL SECTIONS FOR WALL THICKNESS AND HEIGHTS.
2) SEE WALL SECTIONS FOR REINFORCING.
3) CONCRETE, REINFORCING AND CAULK PER SPECIFICATIONS.
4) DRILL IN 4"

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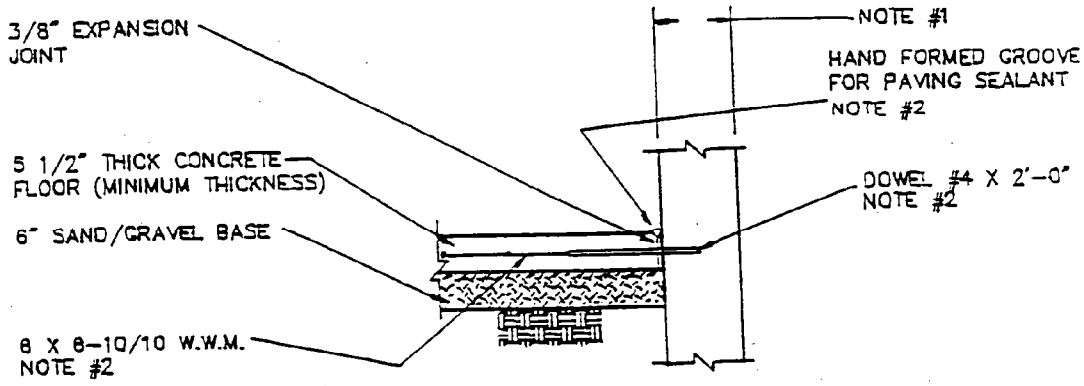
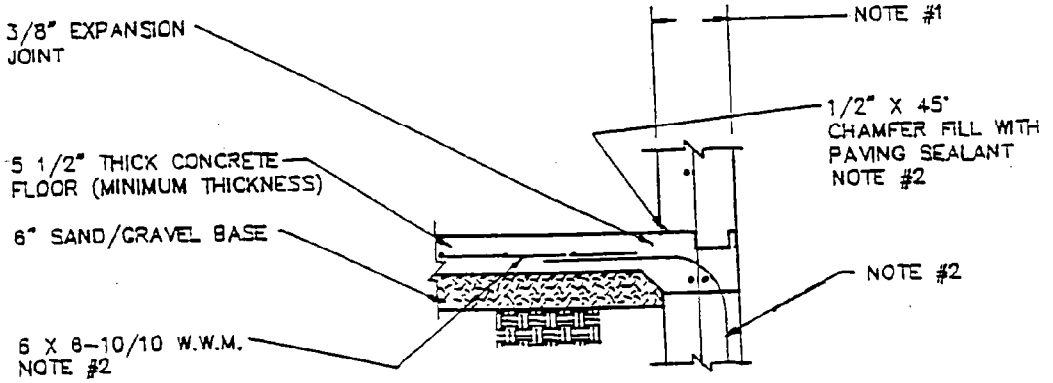
9/89

MISCELLANEOUS CONSTRUCTION DETAILS



SLAB TO WALL SECTION



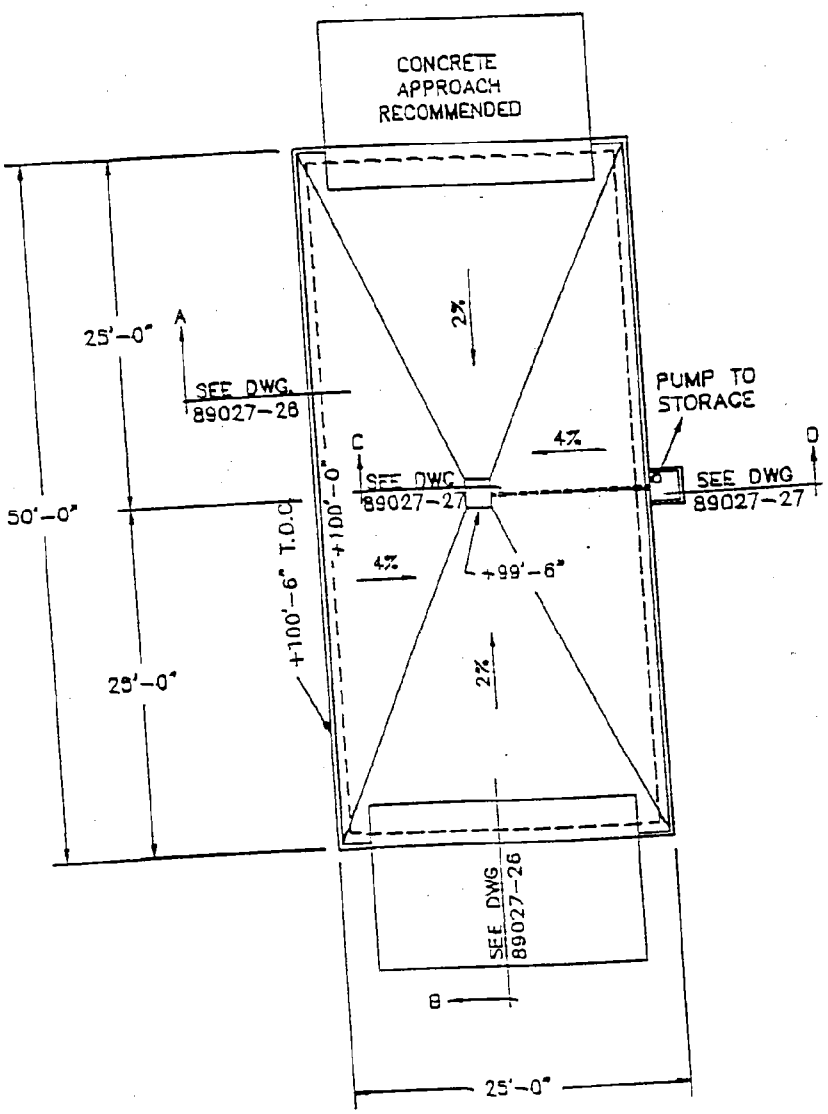
WALL TO SLAB SECTION

NOTES:
1) SEE WALL SECTIONS FOR WALL THICKNESS AND HEIGHTS.
2) CONCRETE, REINFORCING AND CAULK WITH PAVING SEALANT PER SPECIFICATIONS.

SOUTH DAKOTA DEPARTMENT OF AGRICULTURE

89027-25
4/90

WASHPAD PLAN



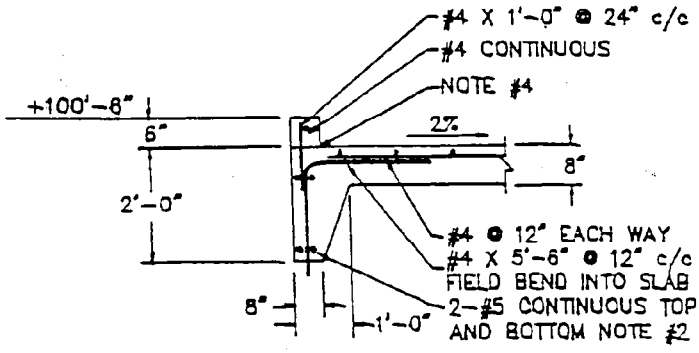
WASHPAD PLAN

NOTES:
1) MINIMUM ALLOWABLE SOIL BEARING PRESSURE 2000 PSF, REFER TO SPECIFICATIONS FOR ADDITIONAL SOIL INFORMATION.
2) REINFORCING STEEL: GRADE 60
3) CONCRETE 4000 PSI.
4) CAULK PER SPECIFICATIONS. REFER TO MISCELLANEOUS CONSTRUCTION DETAIL DRAWING 89027-22 FOR MORE INFORMATION.
5) REFER TO WASHPAD CONSTRUCTION DETAIL DRAWING 89027-26 AND 89027-27 FOR DETAIL OF SECTIONS.

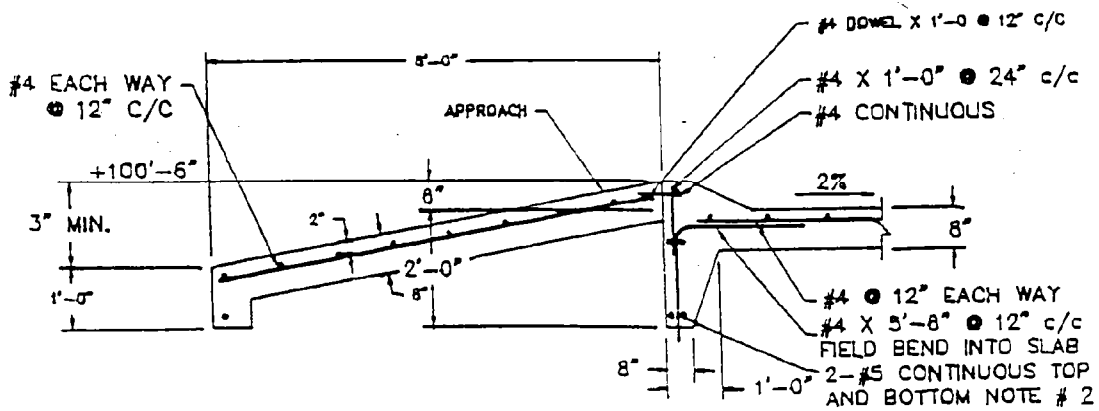
SOUTH DAKOTA DEPARTMENT OF AGRICULTURE

89027-26
4/90

WASHPAD CONSTRUCTION DETAILS



SECTION A



SECTION B

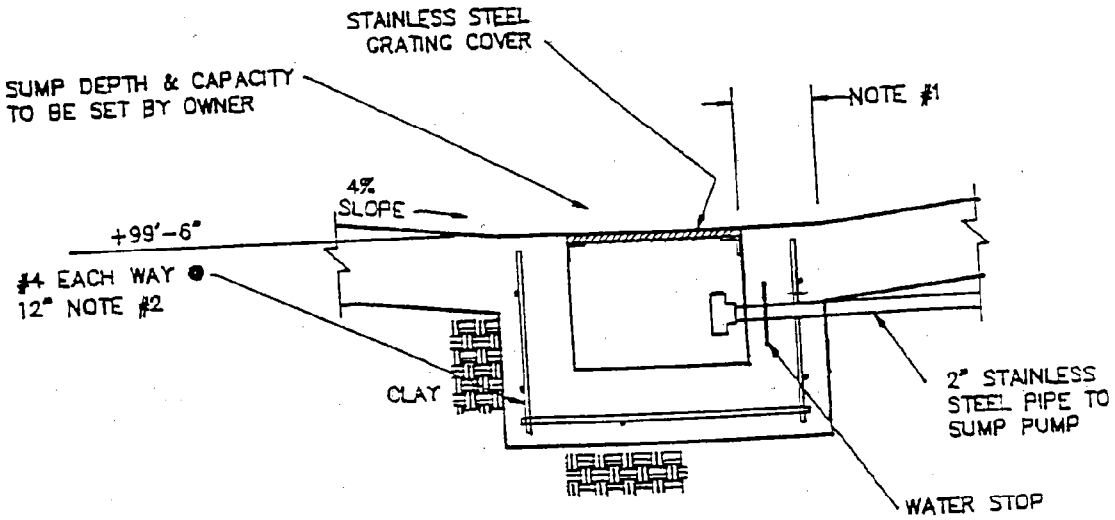
NOTES:

1) MINIMUM ALLOWABLE SOIL BEARING PRESSURE 2000 PSF, REFER TO SPECIFICATIONS FOR ADDITIONAL SOIL INFORMATION.
2) REINFORCING STEEL: GRADE 60
3) CONCRETE 4000 PSI.
4) CAULK PER SPECIFICATIONS.
   REFER TO MISCELLANEOUS CONSTRUCTION DETAIL DRAWING 89027-22 FOR MORE INFORMATION.

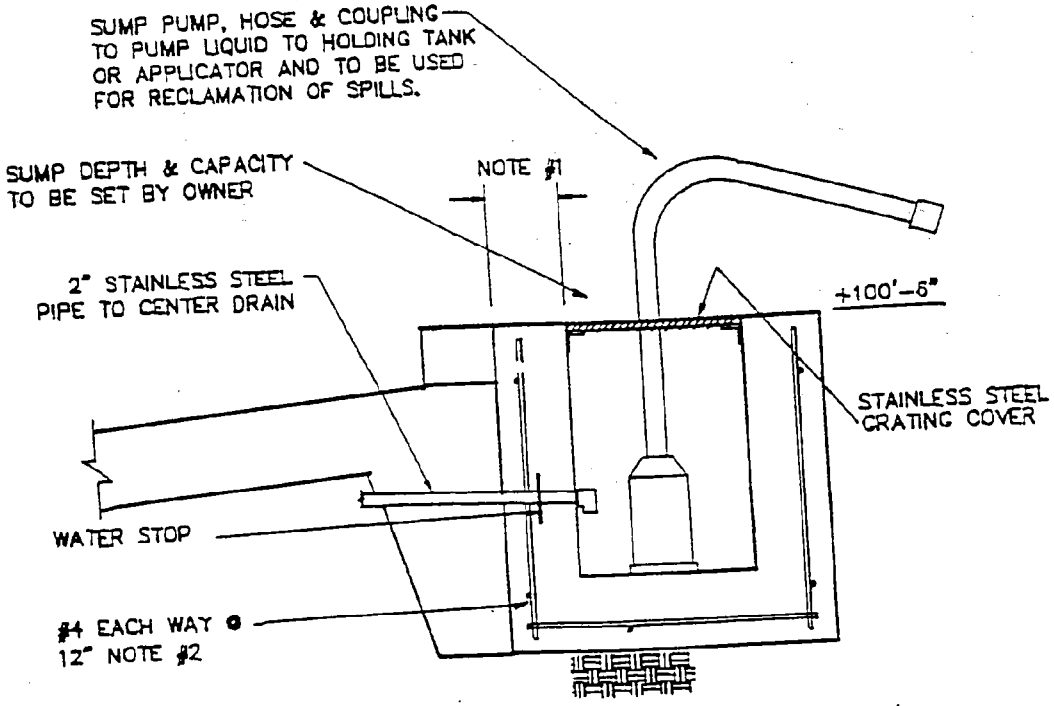
SOUTH DAKOTA DEPARTMENT OF AGRICULTURE

89027-27
4/90

WASHPAD CONSTRUCTION DETAILS



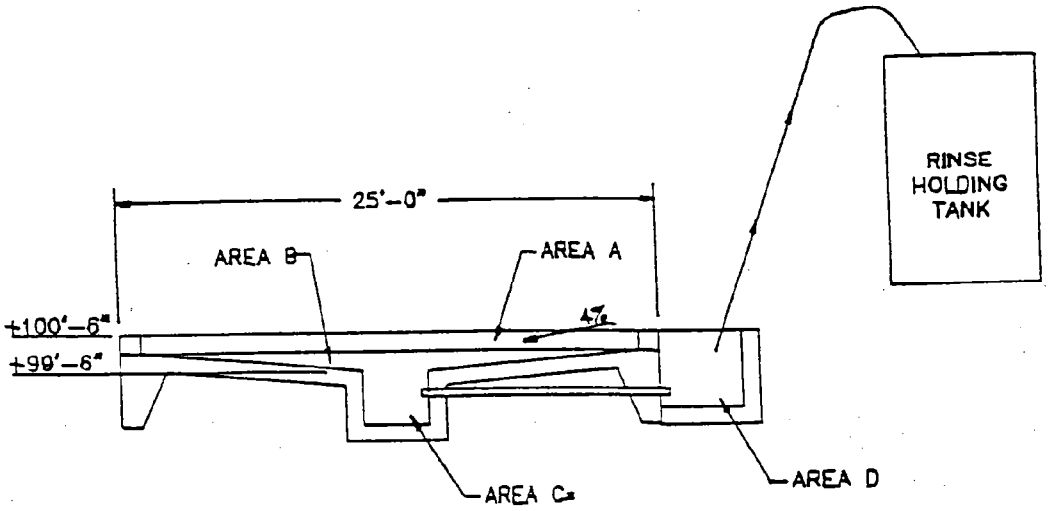
SECTION C



SECTION D

NOTES:
1) MINIMUM ALLOWABLE SOIL BEARING PRESSURE 2000 PSF. REFER TO SPECIFICATIONS FOR ADDITIONAL SOIL INFORMATION.
2) REINFORCING STEEL: GRADE 60
3) CONCRETE 4000 PSI.

WASHPAD CAPACITIES



WASHPAD SECTION

REFER TO DWG. 89027-25

AREA	DESCRIPTION	FORMULA	CALCULATIONS	GALLONS
A	WASHPAD CURB	L*W*H=G	50'*25'*.5'*7.48052	4875.3
B	WASHPAD SLOPE	$\frac{L*W*H}{3}$=G	$\frac{50'*25'*.5'}{3}$ *7.48052	1558.44
C	WASHPAD COLLECTION	L*W*H=G	2'*2'*2'*7.48052	59.84
D	WASHPAD SUMP	L*W*H=G	2'*2'*2'*7.48052	59.84

TOTAL WASHPAD CAPACITY = 6353.42 GALLONS

REFERENCE: ASSUMING THE WASHPAD SIZE IS 50' X 25' THEN 1" OF RAIN IS EQUAL TO 779.22 GALLONS

CALC: $50'*25'*\frac{1"}{12}*7.48052 = 779.22$ GALLONS

THEREFORE: THE WASHPAD WOULD BE CAPABLE OF HANDLING A RAINFALL OF 8.15 INCHES

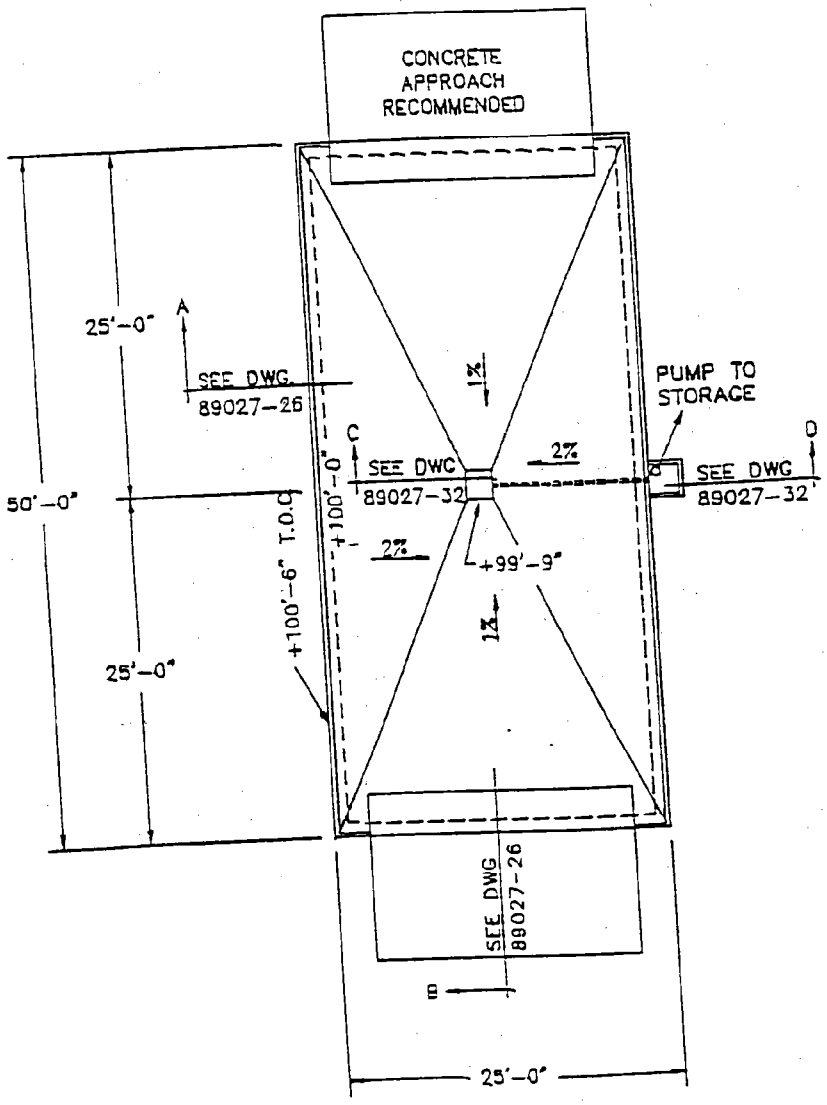
CALC: $\frac{\text{TOTAL WASHPAD CAPACITY (GALS)}}{\text{RAINFALL (GALS)}}$ OR $\frac{6363.42}{779.22}$ = 8.15 INCHES

* MUD-DIRT SEDIMENT MUST BE DISPOSED OF BY APPLYING TO A FIELD OR FIELDS AT NORMAL FERTILIZER OR PESTICIDE APPLICATION RATES OR USE IN A LIQUID MIXING OPERATION.

SOUTH DAKOTA DEPARTMENT OF AGRICULTURE

89027-31
4/90

WASHPAD PLAN



WASHPAD PLAN

NOTES:
1) MINIMUM ALLOWABLE SOIL BEARING PRESSURE 2000 PSF, REFER TO SPECIFICATIONS FOR ADDITIONAL SOIL INFORMATION.
2) REINFORCING STEEL: GRADE 60
3) CONCRETE 4000 PSI.
4) CAULK PER SPECIFICATIONS. REFER TO MISCELLANEOUS CONSTRUCTION DETAIL DRAWING 89027-22 FOR MORE INFORMATION.
5) REFER TO WASHPAD CONSTRUCTION DETAIL DRAWING 89027-26 AND 89027-32 FOR DETAIL OF SECTIONS.

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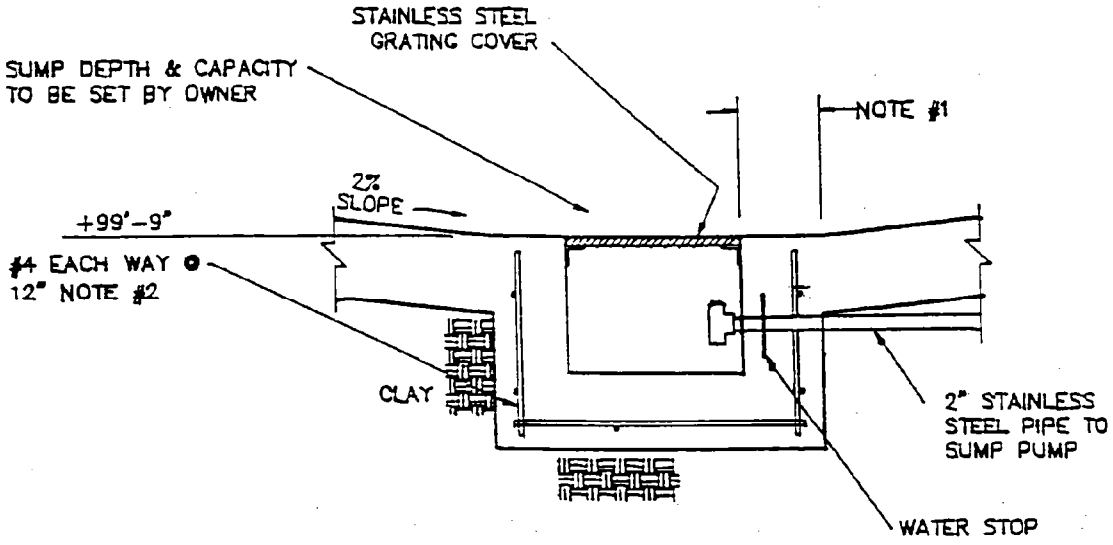
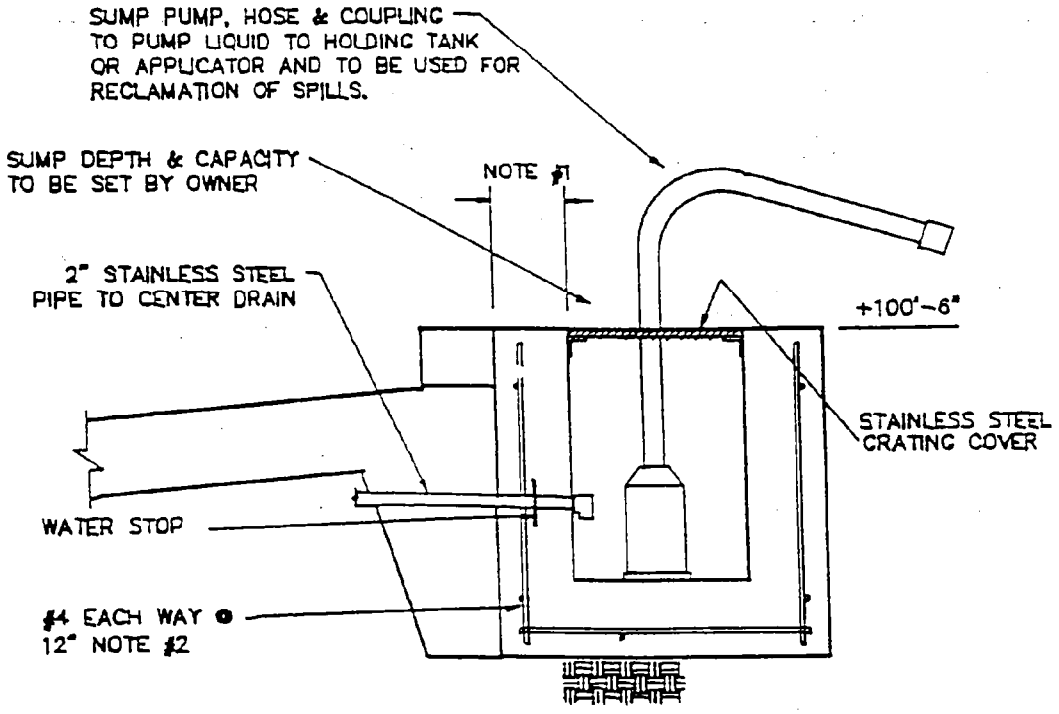
WASHPAD CONSTRUCTION DETAILS



SECTION C



SECTION D

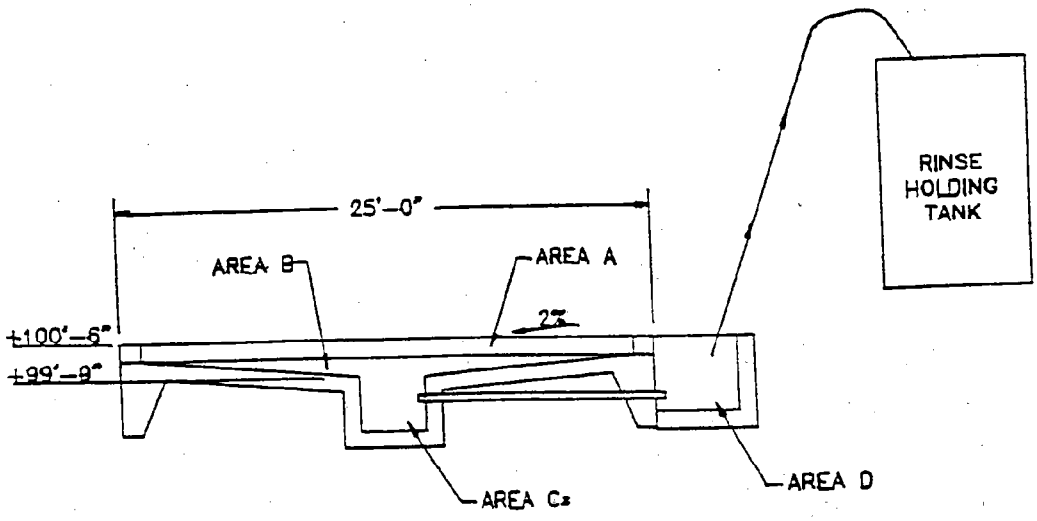
NOTES:

1) MINIMUM ALLOWABLE SOIL BEARING PRESSURE 2000 PSF, REFER TO SPECIFICATIONS FOR ADDITIONAL SOIL INFORMATION.
2) REINFORCING STEEL: GRADE 60
3) CONCRETE 4000 PSI.

SOUTH DAKOTA DEPARTMENT OF AGRICULTURE

89027-33
4/90

WASHPAD CAPACITIES



WASHPAD SECTION
REFER TO DWG. 89027-31

AREA	DESCRIPTION	FORMULA	CALCULATIONS	GALLONS
A	WASHPAD CURB	L•W•H=G	50'•25'=.5'•7.48052	4675.3
B	WASHPAD SLOPE	$\frac{L•W•H}{3}$ =G	$\frac{50'•25'=.25'}{3}$ •7.48052	779.22
C	WASHPAD COLLECTION	L•W•H•G	2'•2'•2'=7.48052	59.84
D	WASHPAD SUMP	L•W•H=G	2'•2'•2'•7.48052	59.84

TOTAL WASHPAD CAPACITY = 5574.2 GALLONS

REFERENCE: ASSUMING THE WASHPAD SIZE IS 50' X 25' THEN 1" OF RAIN IS EQUAL TO 779.22 GALLONS

CALC: $50'•25'=\frac{1"}{12}•7.48052 = 779.22$ GALLONS

THEREFORE: THE WASHPAD WOULD BE CAPABLE OF HANDLING A RAINFALL OF 8.15 INCHES

CALC: $\frac{\text{TOTAL WASHPAD CAPACITY (GALS)}}{\text{RAINFALL (GALS)}}$ OR $\frac{5574.2}{779.22} = 7.15$ INCHES

• MUD-DIRT SEDIMENT MUST BE DISPOSED OF BY APPLYING TO A FIELD OR FIELDS AT NORMAL FERTILIZER OR PESTICIDE APPLICATION RATES OR USE IN A LIQUID MIXING

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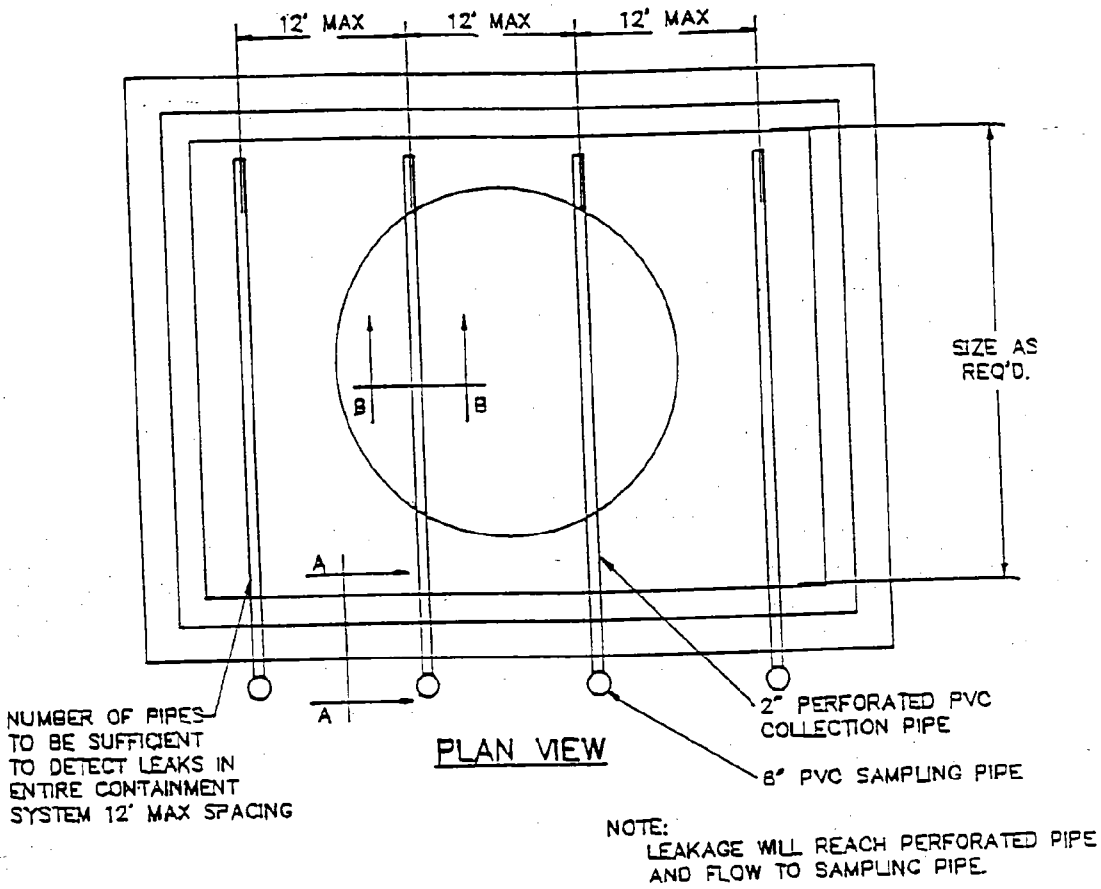
CONTAINMENT FOR FERTILIZER STORAGE FACILITIES

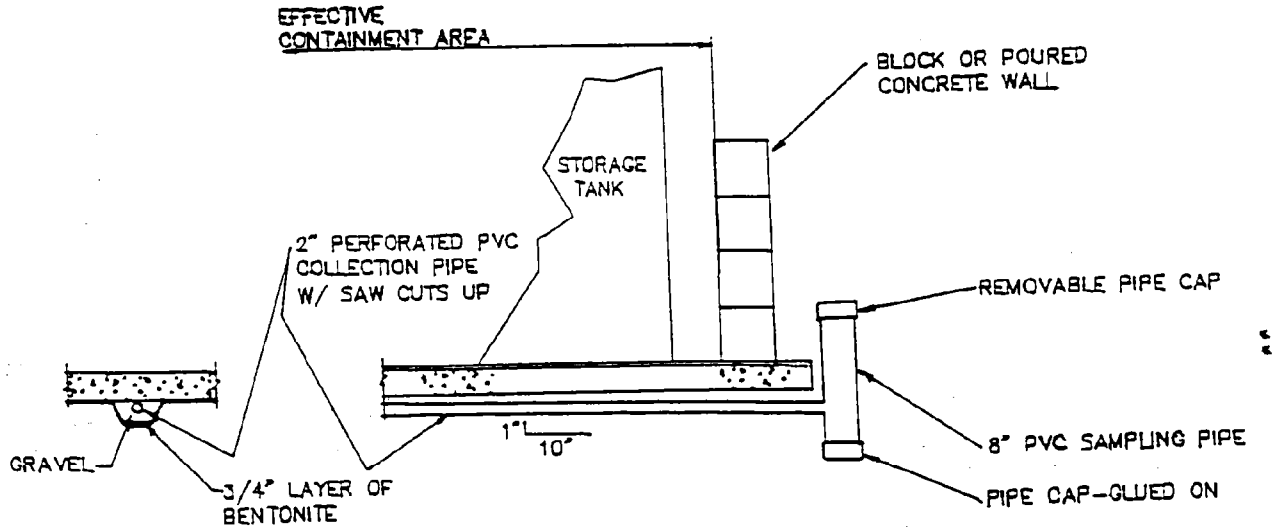
LEAK DETECTION SYSTEM EXAMPLE

FOR CONCRETE SECONDARY CONTAINMENT SYSTEMS



PLAN VIEW

NOTE:
LEAKAGE WILL REACH PERFORATED PIPE AND FLOW TO SAMPLING PIPE.



SECTION "B-B"

SECTION "A-A"

SOUTH DAKOTA DEPARTMENT OF AGRICULTURE

89027-24
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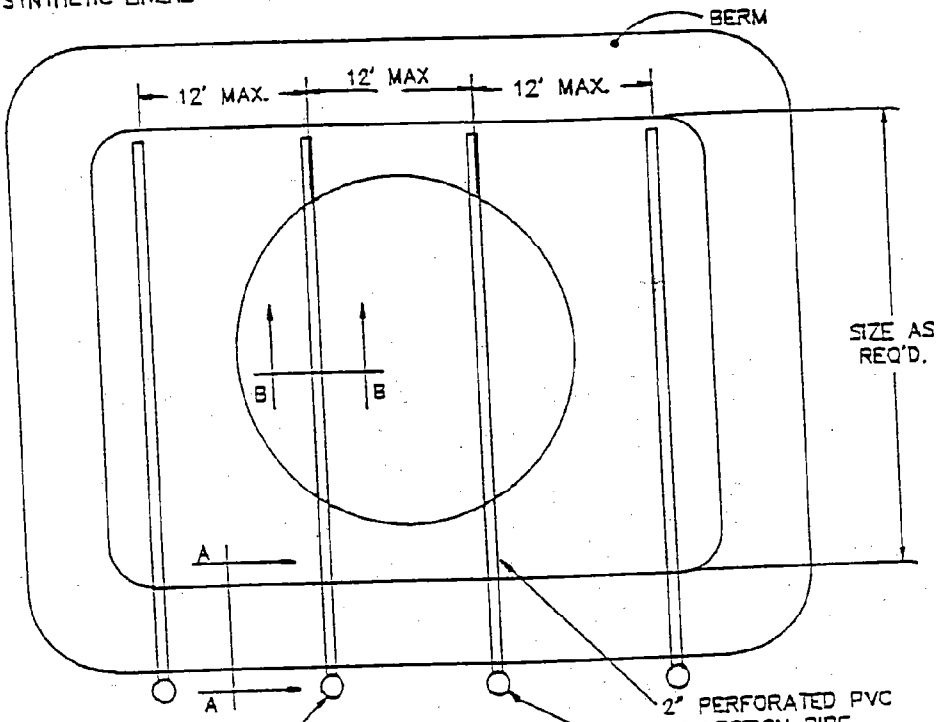
CONTAINMENT FOR FERTILIZER STORAGE FACILITIES

LEAK DETECTION SYSTEM EXAMPLE

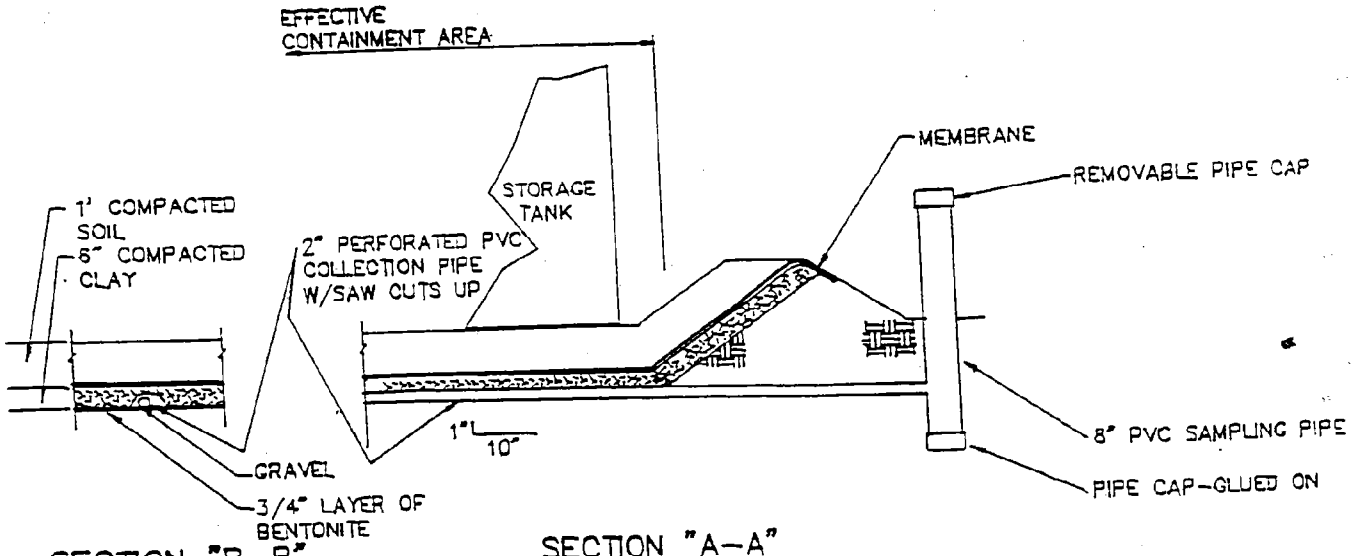
FOR SECONDARY CONTAINMENT SYSTEMS
WITH SYNTHETIC LINERS



PLAN VIEW

NUMBER OF PIPES MUST BE SUFFICIENT TO DETECT LEAKS IN ENTIRE LINER AND DIKE SYSTEM 12' MAX. SPACING

NOTE:
LEAKAGE WILL REACH PERFORATED PIPE AND FLOW TO SAMPLING PIPE.

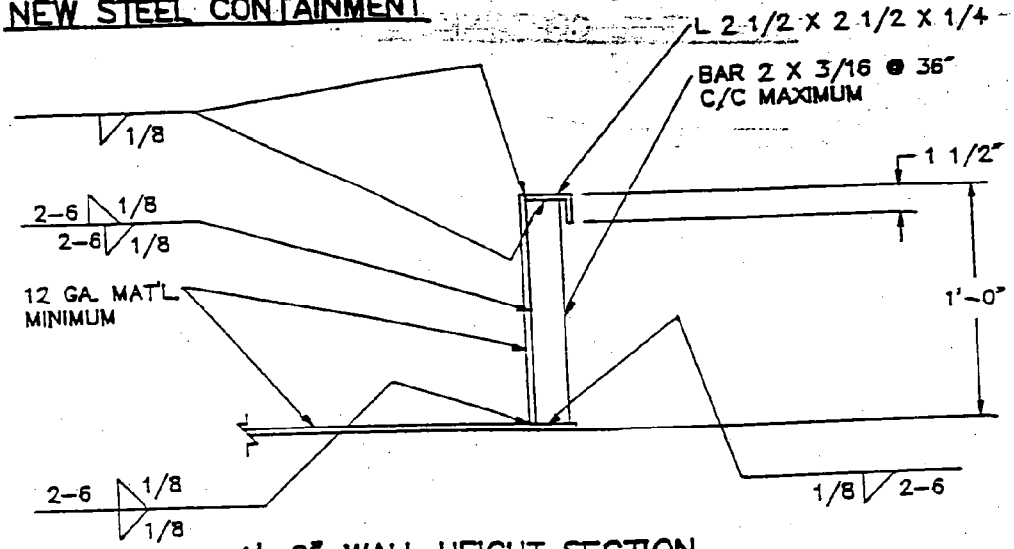


SECTION "B-B"

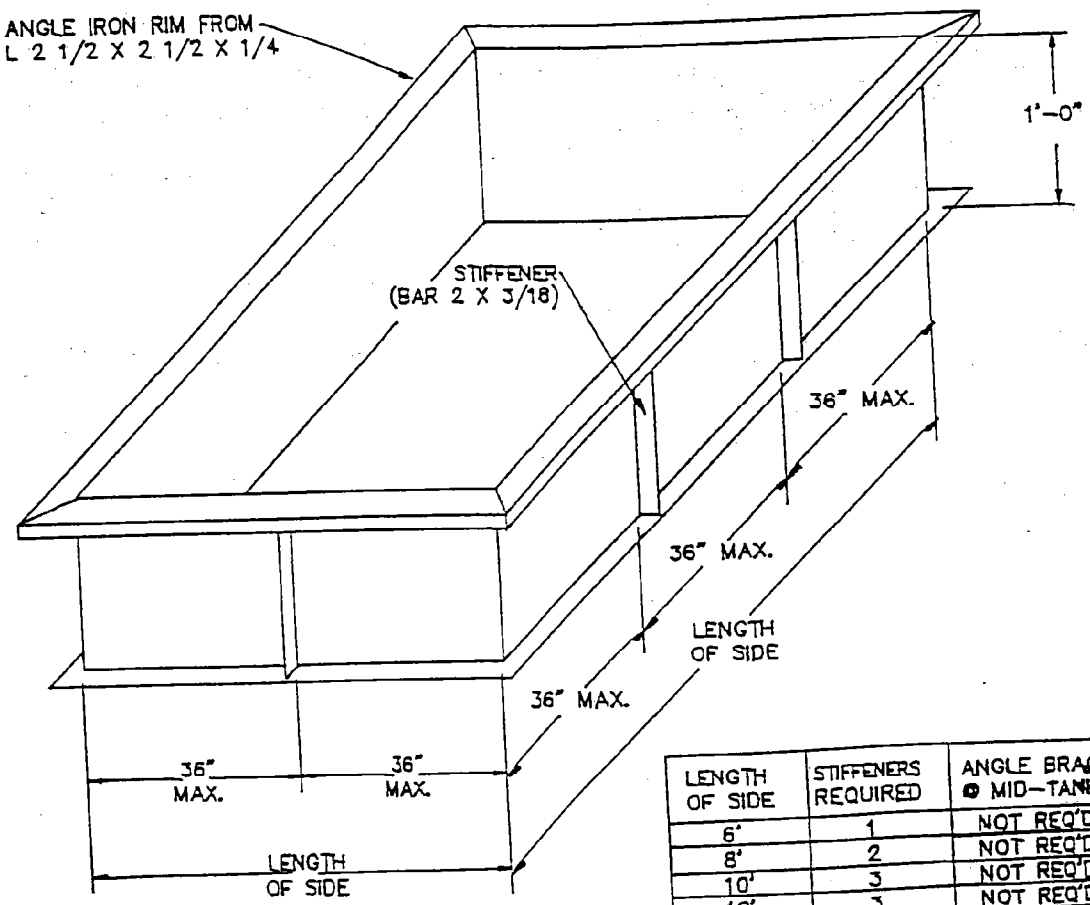
SECTION "A-A"

CONTAINMENT FOR PESTICIDE STORAGE FACILITIES (USE STAINLESS STEEL FOR FERTILIZER)

NEW STEEL CONTAINMENT



1'-0" WALL HEIGHT SECTION



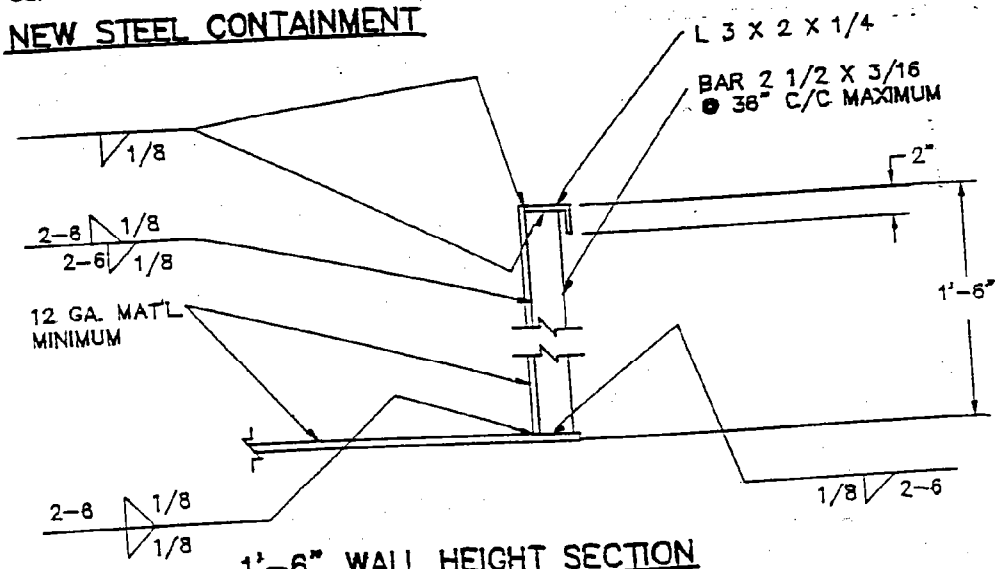
LENGTH OF SIDE	STIFFENERS REQUIRED	ANGLE BRACE @ MID-TANK
6'	1	NOT REQ'D.
8'	2	NOT REQ'D.
10'	3	NOT REQ'D.
12'	3	NOT REQ'D.
14'	4	NOT REQ'D.
16'	5	NOT REQ'D.
18'	5	NOT REQ'D.
20'	6	NOT REQ'D.

NOTES:

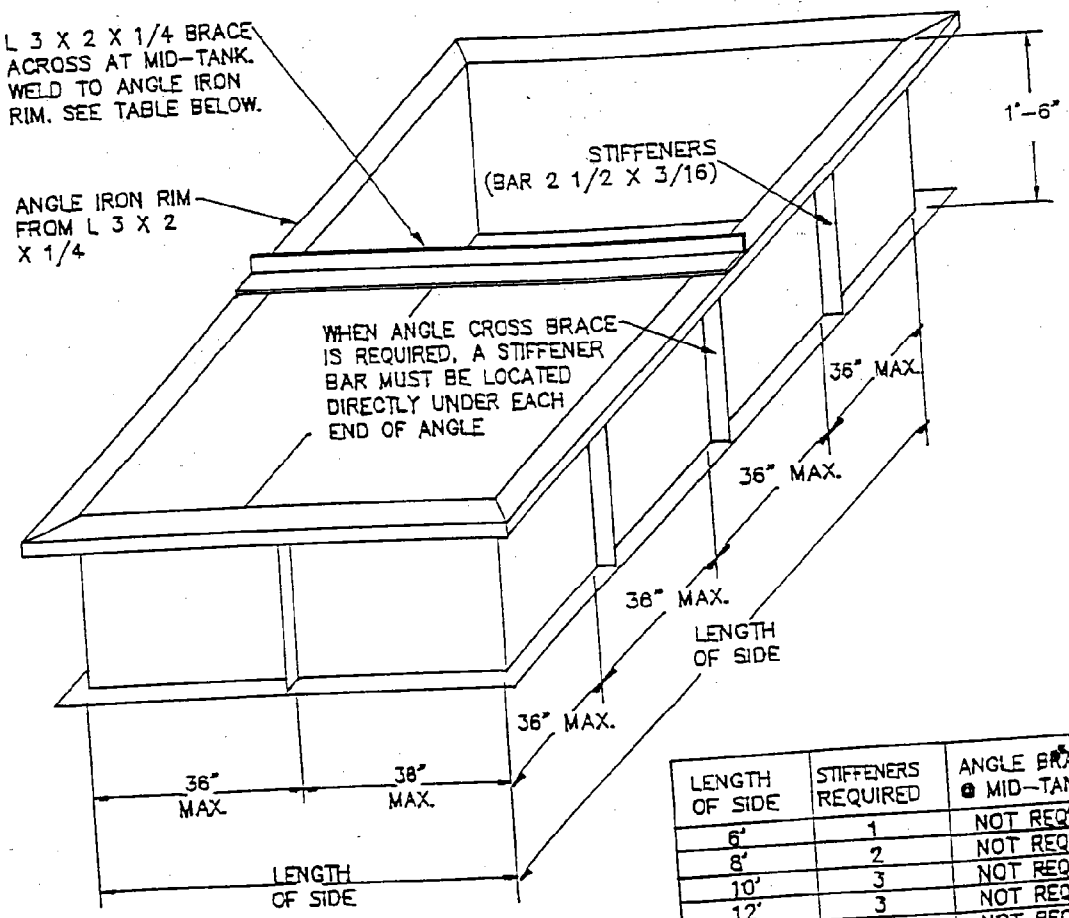
1) STEEL: A-36
2) WELDS: E60 ELECTRODE
3) PRIME & PAINT
4) OWNER MUST VERIFY COMPATABILITY OF PAINT & STEEL WITH CHEMICAL SUPPLIER.

CONTAINMENT FOR PESTICIDE STORAGE FACILITIES (USE STAINLESS STEEL FOR FERTILIZER)

NEW STEEL CONTAINMENT



1'-6" WALL HEIGHT SECTION

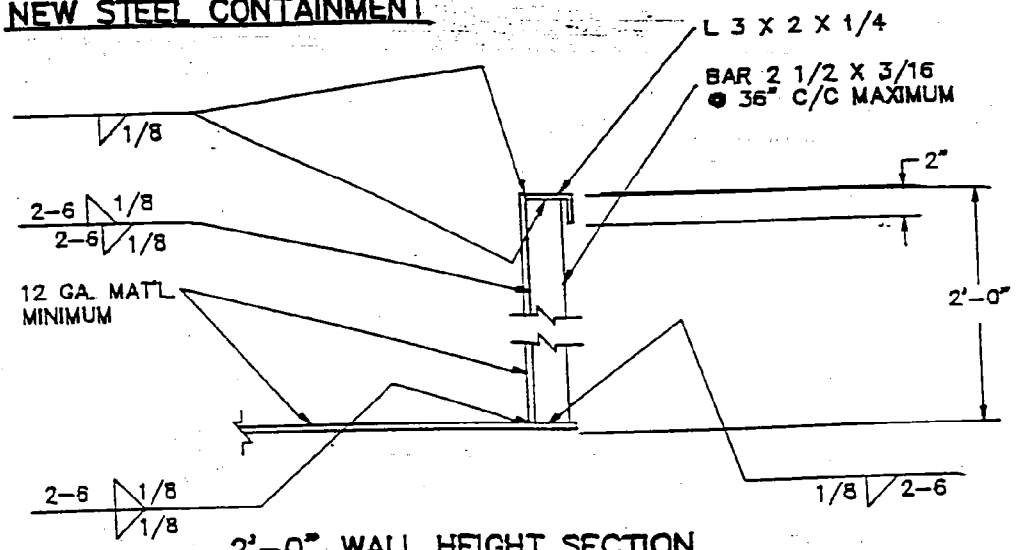


LENGTH OF SIDE	STIFFENERS REQUIRED	ANGLE BRACE @ MID-TANK
6'	1	NOT REQ'D.
8'	2	NOT REQ'D.
10'	3	NOT REQ'D.
12'	3	NOT REQ'D.
14'	4	NOT REQ'D.
16'	5	ONE REQ'D.
18'	5	ONE REQ'D.
20'	7	ONE REQ'D.

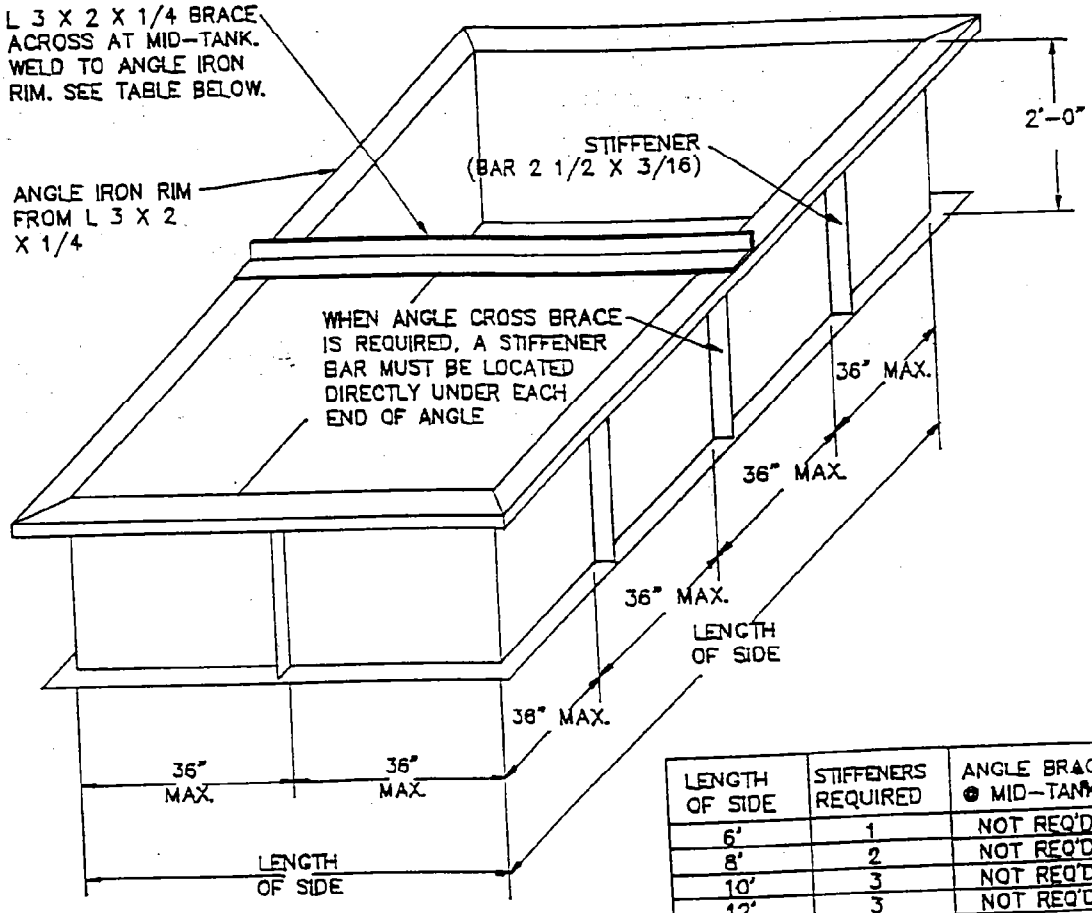
NOTES:
1) STEEL: A-36
2) WELDS: E60 ELECTRODE
3) PRIME & PAINT
4) OWNER MUST VERIFY COMPATABILITY OF PAINT & STEEL WITH CHEMICAL SUPPLIER.

CONTAINMENT FOR PESTICIDE STORAGE FACILITIES (USE STAINLESS STEEL FOR FERTILIZER)

NEW STEEL CONTAINMENT



2'-0" WALL HEIGHT SECTION

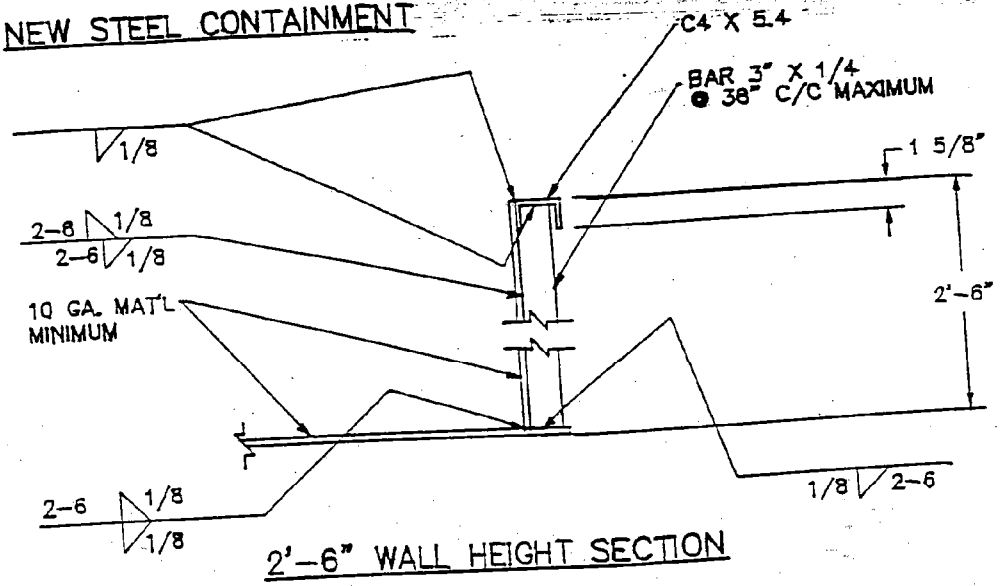


LENGTH OF SIDE	STIFFENERS REQUIRED	ANGLE BRACE @ MID-TANK
6'	1	NOT REQ'D.
8'	2	NOT REQ'D.
10'	3	NOT REQ'D.
12'	3	NOT REQ'D.
14'	5	ONE REQ'D.
16'	5	ONE REQ'D.
18'	5	ONE REQ'D.
20'	7	ONE REQ'D.

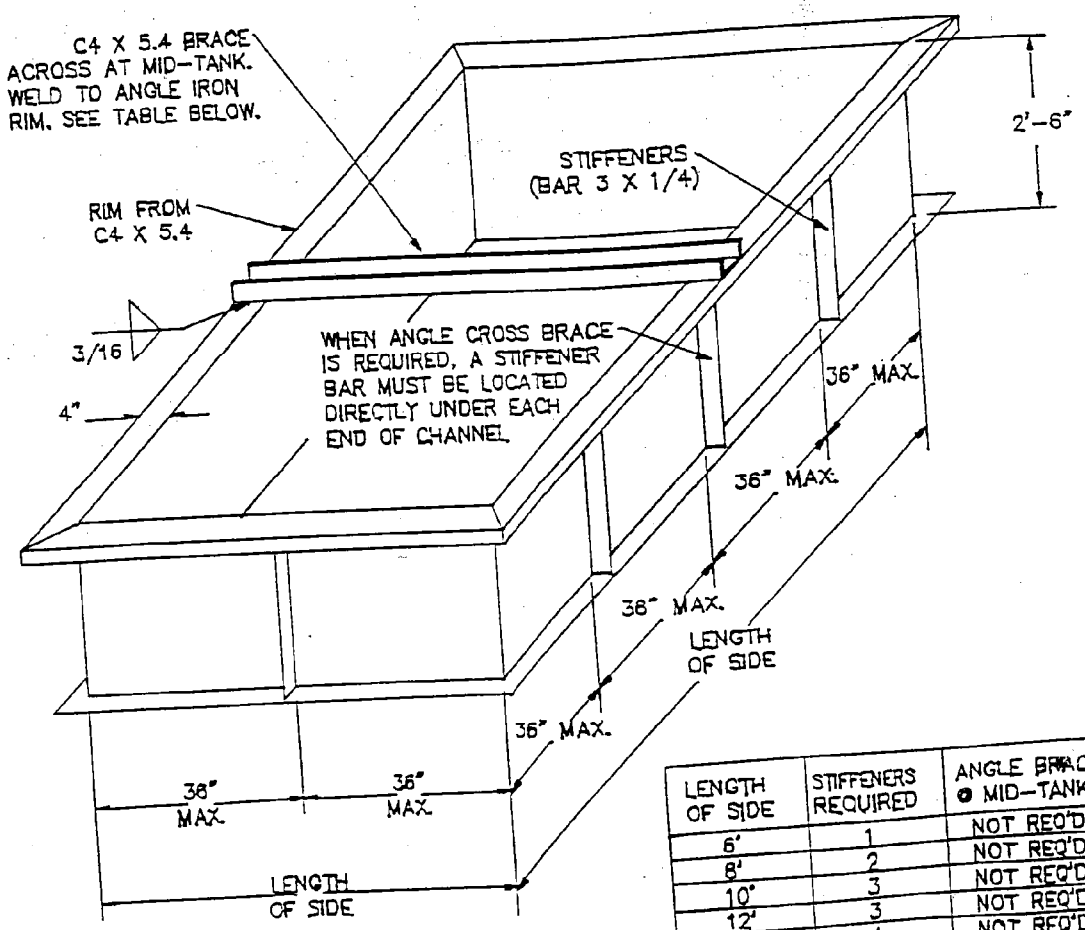
NOTES:
1) STEEL: A-36
2) WELDS: E60 ELECTRODE
3) PRIME & PAINT
4) OWNER MUST VERIFY COMPATABILITY OF PAINT & STEEL WITH CHEMICAL SUPPLIER.

CONTAINMENT FOR PESTICIDE STORAGE FACILITIES (USE STAINLESS STEEL FOR FERTILIZER)

NEW STEEL CONTAINMENT



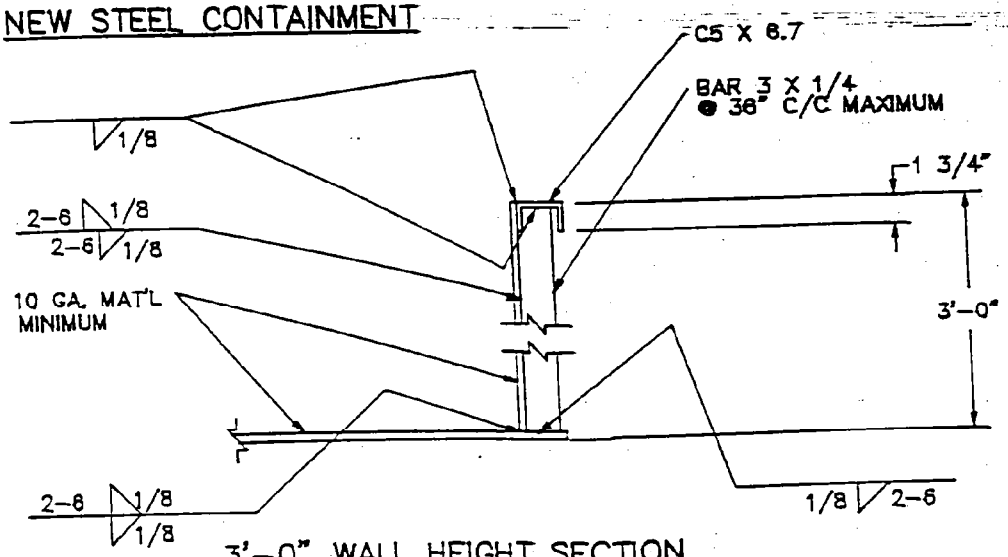
2'-6" WALL HEIGHT SECTION



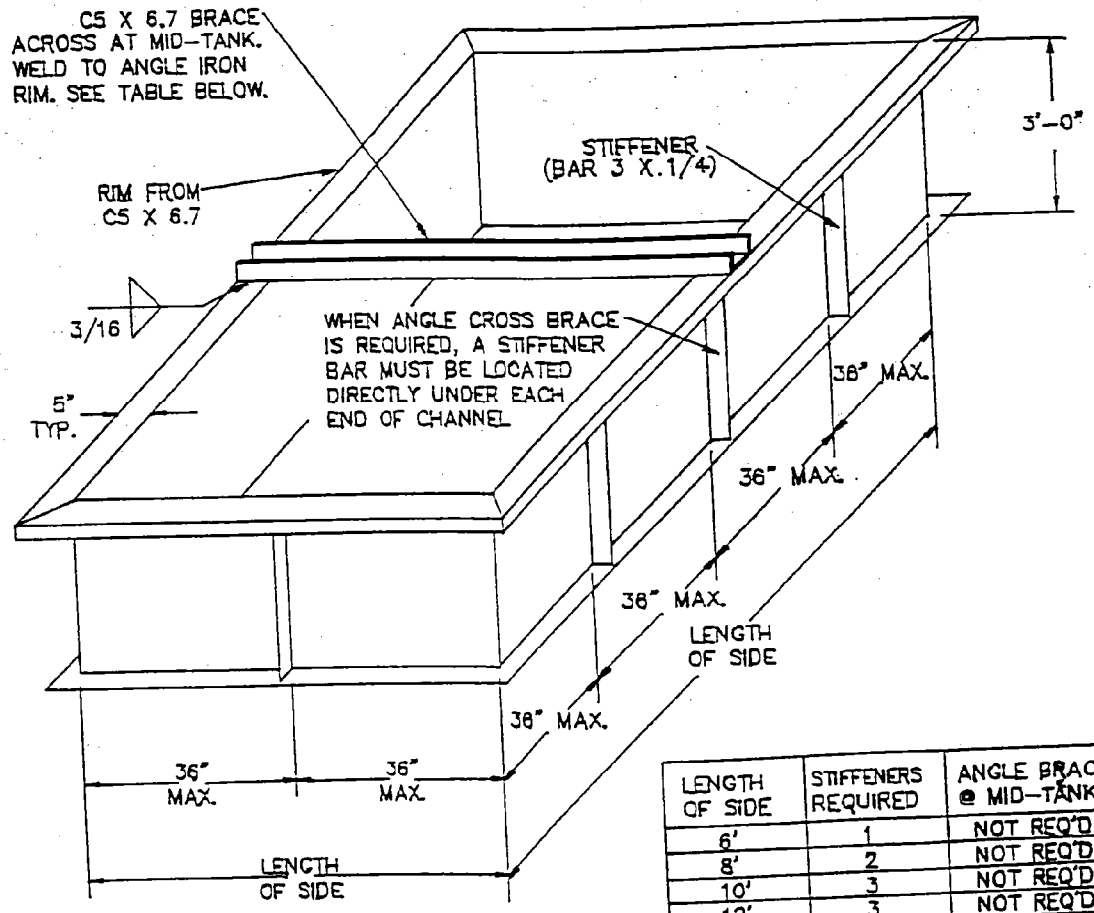
LENGTH OF SIDE	STIFFENERS REQUIRED	ANGLE BRACE @ MID-TANK
6'	1	NOT REQ'D.
8'	2	NOT REQ'D.
10'	3	NOT REQ'D.
12'	3	NOT REQ'D.
14'	4	NOT REQ'D.
16'	5	NOT REQ'D.
18'	5	ONE REQ'D.
20'	6	ONE REQ'D.
22'	7	ONE REQ'D.
24'	7	ONE REQ'D.

CONTAINMENT FOR PESTICIDE STORAGE FACILITIES (USE STAINLESS STEEL FOR FERTILIZER)

NEW STEEL CONTAINMENT



3'-0" WALL HEIGHT SECTION



LENGTH OF SIDE	STIFFENERS REQUIRED	ANGLE BRACE @ MID-TANK
6'	1	NOT REQ'D.
8'	2	NOT REQ'D.
10'	3	NOT REQ'D.
12'	3	NOT REQ'D.
14'	5	ONE REQ'D.
16'	5	ONE REQ'D.
18'	5	ONE REQ'D.
20'	6	ONE REQ'D.
22'	7	ONE REQ'D.
24'	7	ONE REQ'D.

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