

10 CSR 20-8.500 [Secondary Containment] Design Requirements for Agrichemical Facilities

*PURPOSE: The following criteria [have been prepared] serve as a guide for the design, construction and operation of **primary**, secondary and operational [area] containment structures at bulk agrichemical facilities. [This rule is to be used with rules 10 CSR 20-8.110–10 CSR 20-8.220 for the planning and design of the complete storage and containment facility. This rule reflects the minimum requirements of the Missouri Clean Water Commission regarding adequacy of design, submission of plans, approval of plans and, approval of completed storage and containment facility. Deviation from these minimum requirements will be allowed where sufficient documentation is presented to justify the deviation. A facility need only to comply with these rules when it comes within the definition of an agrichemical facility. Any new agrichemical facility shall be in compliance with all of these rules before the commencement of any operational activities or any storage or use of agrichemicals. Upon adoption of these rules, all existing agrichemical facilities shall be in compliance with them as follows: secondary and operational area containment for pesticides—five (5) years from the date the rule is adopted; and secondary and operational area containment for fertilizers—five (5) years from the date the rule is adopted. Any facility that has a discharge of agrichemicals or process generated wastewater which results in damage to the environment may be required to take immediate steps to implement the secondary and operational containment requirements contained in this rule. All agrichemical facilities shall be registered and issued a general operating permit from the department on forms furnished by the department. Registration shall be valid for the life of the permit, terminated by the department or voluntarily withdrawn by the applicant. These criteria are based on the best information presently available and are similar to secondary containment regulations that have been implemented in other states. It is anticipated that they will be subject to review and revision periodically as additional information and methods appear. Addenda or supplements to this publication will be furnished to the regulated community. If others desire to receive addenda or supplements, please advise the Clean Water Commission so that your name can be added to the mailing list.*

EDITOR'S NOTE: The secretary of state has determined that the publication of this rule in its entirety would be unduly cumbersome or expensive. The entire text of the material referenced has been filed with the secretary of state. This material may be found at the Office of the Secretary of State or at the headquarters of the agency and is available to any interested person at a cost established by state law.]

- (1) Definitions. Definitions as set forth in the Clean Water Law and 10 CSR 20-2.010 shall apply to those terms when used in this rule, unless the context clearly requires otherwise. Where the terms shall and must are used, they are to mean a mandatory requirement insofar as approval by the agency is concerned, unless justification is presented for deviation from the requirements. Other terms such as should, recommend, preferred and the like, indicate discretionary requirements on the part of the agency and deviations are subject to individual consideration.

- (2) General. A facility need only to comply with these rules when they come within the definition of an agrichemical facility. Any *[new]* **construction after the effective date of this rule** *[agrichemical facility]* shall be in compliance with all of these rules before the commencement of any operational activities or any storage or use of agrichemicals. *[All existing agrichemical facilities shall be in compliance with these rules as follows: secondary and operational area containment for pesticides— five (5) years from the date the rule is adopted; and secondary and operational area containment for fertilizers—five (5) years from the date the rule is adopted.]* Any existing agrichemical facility that has a discharge of agrichemicals or process generated wastewater to the environment **is***[will be]* required to take immediate steps to implement the secondary and operational containment requirements contained in this rule **in addition to any other remedy required.** *[All agrichemical facilities shall apply for an operating permit on forms furnished by the department.]* *[Storage of bulk liquid fertilizer in a mobile container for more than thirty (30) days is prohibited unless the mobile storage container is located within a secondary containment or operational containment area. Deviation from the requirements contained in this rule will be considered by the department on a case-by-case basis. Sufficient documentation shall be submitted justifying the need for the deviation.]* **All new operations shall be designed to be no discharge.**
- (3) Exceptions. The following exceptions shall apply to agrichemical facilities:
- (A) This rule shall not apply to agrichemical facilities storing or handling less than the regulated quantities of agrichemicals unless an on-site evaluation by the department determines that compliance with the regulations is necessary to protect the environment.
 - (B) Liquid fertilizer storage tanks[,] that *[are]***were** in use *[when this rule is adopted]***in 1992**, having a storage capacity greater than forty thousand (40,000) gallons shall be exempt from the requirement of installing a liner underneath the tank itself. Spill containment diking is required around these tanks. These facilities shall submit to the department for approval a program outlining the monitoring, tank testing and record keeping that will be done at the facility to document that a release of agrichemicals from these tanks has not occurred either to surface or subsurface waters of the state.
 - (C) The prohibition of storing bulk liquid fertilizer in a mobile container for more than thirty (30) days shall not apply to barges and rail cars used solely for transporting liquid fertilizer from chemical production facilities to retail or wholesale facilities.
 - (D) The prohibition of burying pipes used for transferring full strength agrichemicals shall not apply to piping used solely for the loading and unloading of liquid fertilizer from barges and rail cars. These pipes shall be pressure tested on a yearly basis to certify the integrity of the pipes. Records of the pressure testing shall be kept on file at the facility and made available to department personnel upon request.

- (4) *[Engineering services are performed in three (3) steps: engineering report or facilities plan, preparation of construction plans, specifications and contractual documents and construction compliance, inspection, administration and acceptance. These services are generally performed by engineering firms in private practice but may be performed by state or federal agencies. All reports, plans and specifications should be submitted at least sixty (60) days prior to the date upon which action by the agency is desired or in accordance with the National Pollutant Discharge Elimination System (NPDES) or other schedules. The documents should be submitted for formal approval at the appropriate times and should include the engineer's report (facilities plan) and design drawings and specifications. For unusual or complex projects, it is suggested that the engineer meet with the appropriate department staff to discuss the project and that preliminary reports be submitted for review prior to the preparation of final plans and specifications. These documents are used by the owner in programming future action and by the agency to evaluate probable compliance with statutes and regulations. The preliminary reports and plans shall broadly describe existing problems, consider methods for alternate solutions including site and/or facility relocation estimate capital and annual costs and outline steps for further project implementation including approval by regulatory agencies. No approval for construction can be issued until final, detailed plans and specifications have been submitted to the agency and found to be satisfactory.]*

Deviations. The department may require a construction permit with a substantial deviation from these requirements as addressed in 10 CSR 20-6.010. Deviations from these rules may be approved by the department when engineering justification satisfactory to the department is provided. Justification must substantially demonstrate in writing and through calculations that a variation(s) from the design rules will result in either at least equivalent or improved effectiveness. Deviations are subject to case-by-case review with individual project consideration. Containment structures for agrichemical facilities that are not addressed or covered in this design guide are considered deviations. A written request for any deviation must include a certification that indicates compliance with all other design guide requirements.

- (5) Engineering Report. The engineering report assembles basic information, presents design criteria and assumptions, examines alternate projects with preliminary layouts and cost estimates, offers a conclusion with a proposed project for client consideration and outlines official actions and procedures to implement the project. **Engineering reports shall contain the following information and other pertinent information and may be combined with other engineering documentation.** *[The concept, including process description and sizing, factual data and controlling assumptions and considerations for the functional planning of secondary and operational containment facilities are presented for each process at the facility as well as the overall operation of the agrichemical facility as a whole system. These data form the continuing technical basis for detail design and preparation of plans and specifications. Architectural, structural, mechanical and electrical designs are usually excluded. Sketches may be desirable to aid in presentation of a project. Outline specifications of process units, special equipment, etc. are occasionally included.]*

(A) *Engineering Report Content. It is urged that the following paragraphs be utilized as a guideline for the content of the project engineering report to be submitted to the agency for review and approval:]*

- A. *[Letter of transmittal. A one (1)-page letter typed on design engineer's letterhead should be included in the submission of the report to the client;]*
- A. *[Title page.]* Title of project, agrichemical facility name and address, name and address of firm preparing the report, seal and signature of the professional engineer in charge of project;
- B. *[Table of contents shall include section headings, chapter headings and subheadings, maps, graphs, illustrations, exhibits, diagrams and appendices. Number all pages and cross-reference by page number;]*
- B. Introduction. *[Purpose—r]* Reasons for the report and circumstances leading up to the report **shall be discussed;**
- C. *[Existing conditions.]* **Existing conditions** at the agrichemical facility and *[discussion about]* proposed expansions or modifications to the facility **shall be discussed;**
- D. *[Technical information and d]* Design criteria—
 1. **Design and sizing of secondary and operational containment structures should be discussed.**
 2. **Process diagrams. A process configuration showing the interconnection of all pumps, piping and storage tanks associated with the operation of the agrichemical facility should be shown.**
- E. *[Process facilities.]* The process by which bulk chemicals are received, unloaded and transferred within the facility should be discussed. The mixing, loading and unloading of spreading or spraying equipment should be discussed. *[Design and sizing of secondary and operational containment structures should be discussed.]* All cleaning of chemical handling equipment, spraying or spreading vehicles, nurse vehicles and containment areas should be discussed. Collection, storage and disposal of rinsates, process generated wastewaters and collected precipitation should be discussed. Collection, treatment and disposal of all domestic wastewater flows associated with the facility should be discussed; and
- F. *[Process diagrams. A process configuration showing the interconnection of all pumps, piping and storage tanks associated with the operation of the agrichemical facility should be shown; and]*
- G. *Summary. Highlight very briefly what was found from the evaluation of the facility and what the proposed recommendations are for the facility—]*
- F. *[Findings.]* Method of operation, estimation of the number of cropping programs for which agrichemical services will be provided, sources of wastewater, proposed disposal or treatment practices; *[Conclusions. P]* **and the project recommended to client for construction shall be included;** and
- G. *[Recommendations. Summarized, step-by-step actions for client to follow to implement conclusions and submission of the report to the agency for review and approval.]*
- G. *[Antidegradation Report.]* Antidegradation *[shall]* **must** be implemented according to the procedures incorporated by reference in 10 CSR 20-7.031(3)(D).

- (6) **Primary Containment for Bulk Agrichemicals for new construction or modifications to an existing facility.** Containers and appurtenances used as the primary containment in the storage and handling of bulk agrichemicals shall be constructed, installed and maintained to prevent a discharge and shall be of materials and construction compatible with the specifications of the product stored.
- (A) In the event of a discharge or accumulation of storm water in the secondary containment area storage containers subject to flotation shall be anchored or placed on a raised stand to prevent flotation of the container in the event of a discharge or accumulation of storm water in the secondary containment area. The anchoring devices used to secure the storage container as well as any support structure for the storage container shall not compromise the structural integrity of the containment area or the ability of the containment area to adequately contain liquids that have accumulated in the containment area.
 - (B) All containers and appurtenances shall be designed to handle all operating stresses, taking into account hydrostatic head, pressure buildup from pumps and compressors and any other mechanical stresses to which the containers and appurtenances may be subject to in the foreseeable course of operation.
 - (C) External sight gauges shall not be used with bulk pesticide storage containers.
 - (D) External sight gauges may be used for bulk liquid fertilizer containers, but the gauge shall have a lockable valve located between the sight gauge and the storage container so that if the sight gauge is damaged, the contents of the storage container will not leak out.
 - (E) The main discharge valve from the storage container shall be lockable.
 - (F) All appurtenances shall be protected against damage from operating personnel and moving vehicles. All appurtenances shall be located within the secondary containment or operational containment area.
 - (G) Storage of bulk liquid pesticides or bulk liquid fertilizers in an underground storage tank as defined by 10 CSR 20-10.010 is prohibited. This prohibition does not apply to a water-tight catch basin used for the temporary collection of runoff or rinsate from transfer and loading areas.
 - (H) All filling of containers acting as the primary containment vessel shall be done in a manner that the individual handling the transfer hose has both feet on the floor of the containment structure or a working platform adjacent to the container. The transfer hose used in the filling process shall be securely connected to the storage container by appropriate plumbing connections.
- (7) **Secondary Containment for Bulk Agrichemicals for new construction or modifications to an existing facility.** Secondary containment for nonmobile bulk pesticides and nonmobile bulk fertilizers shall be designed to contain any spilled product **and prevent a discharge** from the primary containers or rainfall from the operational containment area and secondary containment area for the amount of time required for proper cleanup and recovery.

(A) Nonmobile Bulk Liquid Pesticides.

1. The volume of the secondary containment area when not protected from precipitation shall have a minimum volume of one hundred twenty-five percent (125%) of the volume of the largest storage container located within the containment area plus the space occupied by any other tanks located within the containment area.
2. The volume of the secondary containment when protected from precipitation shall have a minimum volume of one hundred ten percent (110%) of the volume of the largest storage container located within the containment area plus the space occupied by any other tanks located within the containment area.
3. The secondary containment structure shall not have a discharge outlet or gravity drain through the wall or floor of the containment structure.
4. The walls and floors of the secondary containment structure for nonmobile bulk liquid pesticide containers shall be constructed of suitable material that is compatible with the specifications of the product being stored. The walls and floors shall be resistant to penetration by moisture and agrichemicals. The walls and floors shall be designed to support the gravity load of the storage containers and any hydrostatic loads that would result from a massive spill within the containment structure.
5. For concrete floors and walls, expansion joints shall be spaced to prevent cracks from forming. The joints shall be sealed with a material resistant to agrichemicals. Water stops shall be installed between the containment walls and floor.
6. A collection sump may be included in the secondary containment area. The structure shall not be more than two feet (2') deep or hold more than one hundred fifty (150) gallons of liquid. The sump shall be constructed of materials that resist penetration by moisture and agrichemicals. The connection point between the containment area floor and the sump shall be sealed to prevent leakage of liquids from the containment area. The secondary containment structure floor should be sloped to the collection sump to allow for removal of liquids accumulating in the containment area.
7. No piping shall be installed through the walls or floor of the secondary containment structure except for interconnecting more than one (1) bulk liquid pesticide containment structure to another having a common wall. All piping entering and leaving the secondary containment structure shall go up and over the containment walls.
8. Piping used for transferring full strength agrichemicals, process wastewaters and rinsates shall not be buried underground.

9. Secondary containment for bulk liquid pesticides and bulk liquid fertilizers shall be separated at a minimum with a common wall. There shall be no interconnection of piping through a common wall between a bulk liquid pesticide secondary containment structure and a bulk liquid fertilizer secondary containment structure.
 10. Auxiliary tanks for storage of rinsate or precipitation collected in the secondary or operational containment area shall be located within a secondary containment structure.
- (B) Nonmobile Bulk Liquid Fertilizer.
1. The volume of the secondary containment area when not protected from precipitation shall have a minimum volume of one hundred twenty-five percent (125%) of the volume of the largest storage container located within the containment area plus the space occupied by any other tanks located within the containment area.
 2. The volume of secondary containment area when protected from precipitation shall have a minimum volume of one hundred ten percent (110%) of the volume of the largest storage container located within the containment area plus the space occupied by any other tanks located within the containment area.
 3. The secondary containment structure shall not have a discharge outlet or gravity drain through the wall or floor of the containment structure.
 4. The walls and floors of the secondary containment area for nonmobile bulk liquid fertilizer containers shall be constructed of suitable material compatible with the specifications of the product being stored. The walls and floors shall be designed to support the gravity load of the storage tanks and the hydrostatic loads of a massive spill within the containment structure.
 - A. Floors and walls may be covered by a synthetic liner installed according to the manufacturer's written directions and repaired and maintained according to the manufacturer's recommendations. The liner shall have an in-place permeability of 1×10^{-7} cm/sec. or less. The liner material shall be compatible with the chemicals being stored and the liner shall be resistant to punctures, abrasion, cracking and weathering.
 - B. Floors and walls may be constructed of suitable soil so that the finished compacted permeability rate of the floor and berm walls shall be 1×10^{-7} cm/sec. or less
 - C. Soils used in the construction of the walls and floors of the secondary containment structure may be treated with bentonite clay so that the finished compacted permeability rate of the floor and berm walls shall be 1×10^{-7} cm/sec. or less.

- D. The inner and outer slope and floors of an earthen secondary containment structure should be protected against erosion (for example, top soil placed over the seal with sodding or seeding, a compacted layer of washed river gravel or riprap material of a suitable size). If the inner side slope and floors of the containment structure are seeded or sodded, a six inch (6")-layer of top soil shall be placed over the floor and side slope prior to seeding or sodding to prevent the roots of the cover material from penetrating the earthen liner. Long rooted grasses shall not be used for seeding the side slopes and floors. If gravel or riprap is used inside the containment structure, the depth of the gravel or riprap layer shall be at least six inches (6") in depth. Side slopes of the earthen containment structure should not be steeper than a three to one (3:1) ratio of horizontal to vertical. The top width of earthen walls should not be less than two and one-half feet (2 1/2').
- E. Floors and walls may be constructed of concrete or steel provided the material is protected from corrosion or deterioration from the materials being stored.
5. For concrete floors and walls, expansion joints shall be spaced to prevent cracks from forming. The joints shall be sealed with a material resistant to agrichemicals. Water stops shall be installed between the containment walls and floor.
 6. A collection sump may be included in the secondary containment area. The structure shall not be more than two feet (2') deep or hold more than one hundred fifty (150) gallons of liquid. The sump shall be constructed of materials that resist penetration by moisture and agrichemicals. The connection point between the containment area floor and the sump shall be sealed to prevent leakage of liquids from the containment area. The secondary containment structure floor should be sloped to the collection sump to allow for removal of liquids accumulating in the containment area.
 7. No piping shall be installed through the walls or floor of the secondary containment structure except for interconnecting more than one (1) bulk liquid fertilizer containment structure to another and piping exempted in subsection (3)(D). All piping entering and leaving the secondary containment structure shall go up and over the containment walls.
 8. Piping used for transferring full strength agrichemicals, process wastewaters and rinsates shall not be buried.
 9. Auxiliary tanks to hold rinsate or precipitation collected in the secondary or operational containment area shall be located within a secondary containment area.

(C) Nonmobile Bulk Dry Fertilizer Storage.

1. Dry fertilizer shall be stored inside a sound structure to prevent contact with precipitation. All surface water runoff shall be diverted away from the storage structure.
2. All unloading, loading, mixing and handling of dry bulk fertilizers should be done on an operational containment area.
3. Pesticide impregnation of dry fertilizer shall take place within an operational containment area adequate in size to hold the volume of pesticides used and impregnation equipment.
4. Unloading of bulk dry fertilizers may be satisfied by individual catchment basins.
5. Daily cleanup of the dry fertilizer loading, unloading, mixing and handling areas shall take place.
6. Whenever feasible, dry fertilizer spreading equipment should be cleaned in the field to minimize containment and disposal requirements at the operational containment area.
7. The floors of the bulk dry fertilizer storage area shall be paved with concrete or other approved materials that will prevent the downward movement of fertilizer materials and moisture through the floor. For concrete floors and walls, expansion joints shall be placed on a close enough spacing to prevent cracks from forming. The expansion joints shall be sealed with a material resistant to agrichemicals. Cracks that occur in the floors and walls shall be sealed to prevent the downward or lateral movement of fertilizer materials and moisture.
8. **A mixing and loading pad shall extend beneath any conveyor used to load or unload dry bulk fertilizer unless the conveyor is fully enclosed within a housing that contains all spillage from the conveyor.**

(D) Nonmobile Bulk Dry Pesticide Storage.

1. Dry pesticides shall be stored inside a sound structure to prevent contact with precipitation. All surface water runoff shall be diverted away from the storage structure.
2. All loading, mixing and handling of bulk dry pesticides should be done on an operational containment area.
3. Unloading of bulk dry pesticides may be satisfied by individual catchment basins.
4. Daily cleanup of the bulk dry pesticide loading, unloading, mixing and handling areas shall take place.
5. Whenever feasible, bulk dry pesticide spreading equipment should be cleaned in the field to minimize containment and disposal requirements at the operational containment area.

6. The floors of the bulk dry pesticide storage area shall be paved with concrete or other approved materials that will prevent the downward movement of pesticide materials and moisture through the floor. For concrete floors and walls, expansion joints shall be placed on a close enough spacing to prevent cracks from forming. The expansion joints shall be sealed with a material resistant to agrichemicals. Cracks that occur in the floors and walls shall be sealed to prevent the downward or lateral movement of pesticide materials and moisture.
 7. **A mixing and loading pad shall extend beneath any conveyor used to load or unload dry bulk pesticide unless the conveyor is fully enclosed within a housing that contains all spillage from the conveyor.**
- (8) **Operational Containment for bulk liquid pesticides and bulk liquid fertilizers for new construction or modifications to an existing facility.** The operational containment area for bulk liquid pesticides and bulk liquid fertilizers shall be designed to contain any product discharged or collected precipitation for the amount of time required for proper cleanup and recovery.
- (A) Wherever feasible, application equipment should be rinsed in the field to minimize containment and disposal requirements at the operational containment area.
 - (B) Precipitation should be diverted away from the operational containment area.
 - (C) The volume of the operational containment area shall be one hundred ten percent (110%) of the volume of the largest application vehicle that will be loaded or unloaded in the operational containment area. This volume may be achieved through the use of above ground tank(s) located within the secondary containment area connected to an automatic sump pump in the operational containment area.
 - (D) A sediment trap and sump may be designed in the operational containment area. The structure shall not be more than two feet (2') deep or hold more than one hundred fifty (150) gallons of liquid. The sump shall be constructed of materials that resist penetration by moisture and agrichemicals. The connection point between the operational containment area floor and the sump shall be sealed to prevent leakage of liquids from the containment area.
 - (E) **The operational containment area shall extend beneath any pump, appurtenance, or plumbing connection not located within the secondary containment area and that is used to transfer liquid fertilizer or pesticide.** *[Unloading containment may be satisfied by the operational containment area or with individual catchment basins or portable pans/containers. The individual basins or portable containers shall be placed to catch or recover spillage and leakage from transfer connections and pumps.]*
 - (F) Bulk repackaging containment of agrichemicals may be satisfied by the operational containment area.

- (9) **Operational Containment Area for bulk dry pesticides and bulk dry fertilizers for new construction or modifications to an existing facility.** The operational containment area for bulk dry pesticides and bulk dry fertilizers shall be sized and designed to contain any spillage or leakage of dry materials that occurs from the loading and unloading of hauling or spreading equipment and from the mixing and blending equipment or precipitation that comes in contact with the operational containment area for the amount of time required for proper cleanup and recovery.
- (A) Wherever feasible, spreading equipment should be cleaned in the field to minimize containment and disposal requirements at the operational containment area.
 - (B) Precipitation should be diverted away from the operational containment area.
 - (C) *[Unloading containment may be satisfied by the operational containment area or with i]* Individual catchment basins or portable pans/containers **may be used to satisfy the requirement for operational containment.** The individual basins or portable containers shall be placed to catch or recover spillage and leakage from transfer connections and conveyors.
 - (D) **For unloading dry pesticides and dry fertilizers from rail cars, a catchment basin or concrete pad that can effectively contain the dry fertilizer or pesticide that may be discharged during the unloading process shall be used. The operator shall clean up a spill immediately after unloading occurs.**
- (10) Connection to Water Supplies. An air gap separation or reduced pressure principle backflow prevention assembly shall be installed in the water supply line that serves an agrichemical facility. The air gap or backflow prevention assembly shall be constructed, installed and inspected in accordance with 10 CSR 60-11.010 Prevention of Backflow.
- (11) Protection from Flooding. All agrichemical facilities shall be located so that the agrichemicals being stored are protected from a one hundred (100)-year flood event.
- (12) Operation and Management of Agrichemical Facilities. Bulk agrichemicals shall be stored, handled, transported, loaded and unloaded in a manner to prevent discharge that may result in unreasonable adverse **effects***[affects]* to humans or the environment. All applicable hazards of the pesticide shall be considered in the handling and loading practices to ensure proper protection of facility personnel and the environment.
- (A) *[Discharges]* **Spills** occurring *[to]* **within** the secondary containment and operational containment area shall be recovered promptly. All waste and wastewater associated with the recovery process shall be disposed of in accordance with the permit for the facility and the product labeling.
 - (B) Precipitation collected in the secondary containment and operational containment area shall be disposed of in accordance with the permit for the facility.
 - (C) Field application of rinsate and collected precipitation is acceptable and recommended.
 - (D) Appropriate security measures at the agrichemical facility, such as lighting or security fencing to discourage ready access by unauthorized personnel to the facility when unattended, are encouraged.

- (E) Agrichemical rinsates or collected precipitation shall not be disposed through storm sewers, sanitary sewer systems or waters of the state without an approved permit.
 - (F) Prior to repackaging or refilling *[bulk]* **mobile** containers, the containers must be thoroughly cleaned and inspected except when a dedicated pesticide container is refilled and the tamper indicator is otherwise intact.
- (13) Emergency and Discharge Response Plan. The operator of a bulk agrichemical facility shall prepare a written emergency and discharge response plan for the storage facility. The plan shall comply with Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requirements.

(14) Plans.

- (A) General. All plans for **primary, secondary and operational** containment structures at agrichemical facilities shall bear the name of the agrichemical facility and shall show the scale in feet, a graphic scale, the north point, data and the name of the engineer, certificate number and imprint of his/her registration seal. The plans shall be clear and legible. They shall be drawn to a scale which will permit all necessary information to be plainly shown. The size of the plans generally should not be larger than thirty inches by forty-two inches (30" × 42") (76 cm × 107 cm). Datum used should be indicated. Locations and logs of test borings and when made shall be shown on the plans. *[Blueprints shall not be submitted.]* Detail plans shall consist of plan views, elevations, sections and supplementary views which, together with the specifications and general layouts, provide the working information for the contract and construction of the containment facilities. **Plans shall** *[I]*include dimensions and relative elevations of structures, the location and outline form of equipment, storage tanks, location and size of piping and ground elevations.
- (B) Plans *[of]* **for new construction or modifications to existing** *[A]*agrichemical *[F]*facilities.
 - 1. Location plan. A plan shall *[be submitted]* show*[ing]* the location of the agrichemical facility in relation to streams, roads, water supply systems, property lines and any dwellings or structures not owned by the agrichemical facility in the immediate area of the facility.
 - 2. General layout. Layouts of the proposed agrichemical containment facility shall *[be submitted]* show*[ing]* topography of the site, size and location of storage tanks and containment structures, schematic flow diagram showing the flow through the various agrichemical mixing and handling systems, piping including any arrangements for bypassing individual systems, agrichemical handled and direction of flow through pipes, pumps and valves used for handling agrichemicals, storage areas for waste materials that cannot be reused (mud and sediment from sumps, dry fertilizer and pesticide materials accumulated during clean up processes, etc.), any test borings showing soil and rock elevations and composition at the proposed site and information showing existing groundwater elevations in relation to proposed liner installation and containment area floors shall be provided.

3. Detail plans. Unless otherwise covered by the specifications or engineer's report, detail plans shall show location, dimensions and elevations of all existing and proposed facilities; elevations of high and low groundwater level; size, pertinent features and operating capacity of all pumps, tanks, containment areas and other mechanical devices associated with the operation of the agrichemical facility and adequate description of any other features pertinent to the design and operation of the agrichemical containment facility.
- (15) Specifications. Complete technical specifications for *[the]* **new construction or modifications to an existing** *[construction of the]* agrichemical containment facility shall *[accompany]* **be included with** the plans. The specifications*[accompanying]* **included with** construction drawings shall include, but not be limited to, all construction information not shown on the drawings which is necessary to inform the builder in detail of the design requirements as to the quality of materials and workmanship and fabrication of the project and type, size, strength, operating characteristics and rating of equipment; the complete requirements for all mechanical and electrical equipment, including machinery, valves, piping and jointing of pipe; electrical apparatus, wiring and instrumentation; operating tools; construction materials; special construction materials such as clay, sand, concrete or steel; miscellaneous appurtenances; instructions for testing materials and equipment as necessary to meet design standards and performance tests for the completed works and component units. It is suggested that these performance tests be conducted at the design conditions for the operation of the agrichemical facility whenever practical.
- [(16) Modifications During Construction. Any deviations or changes from the approved plans or specifications affecting capacity or operation of the agrichemical facility shall be noted on a set of as-built plans clearly showing the alternations. The as-built plans shall be submitted to the department at the completion of the project along with an application for issuance of an operating permit for the facility].*

AUTHORITY: sections 644.026, RSMo Supp. 1990 and 644.036, RSMo 1986.

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**Original authority: 644.026, RSMo 1972, amended 1973, 1987, 1993 and 644.036, RSMo 1972, amended 1973.*