



STATE OF COLORADO DEPARTMENT OF HEALTH

4210 EAST 11TH AVENUE • DENVER, COLORADO 80220 • PHONE 388-6111

NOTICE OF FINAL ADOPTION

Pursuant to the provisions of Section 3-16-2(11)(K), Colorado Revised Statutes, 1963, as amended, NOTICE is hereby given that on January 15, 1974, the Colorado Water Quality Control Commission adopted certain rules subsequent to a public hearing held pursuant to and in accordance with due and proper legal notice.

The Commission after hearing all interested persons present adopted the rules captioned as follows:

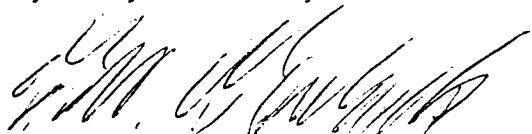
RULES FOR SUBSURFACE DISPOSAL SYSTEMS

A copy of said rules, as adopted by the Commission, is attached and made a part of this Notice.

The legal authority for the Commission to adopt the rules is contained in Sections 3-16-2, 66-28-207, and 66-28-505, Colorado Revised Statutes, as amended.

The effective date of said rules will be twenty (20) days after the date upon which this Notice is published.

Dated this 10th day of April, 1974, at Denver, Colorado.



T. W. Ten Eyck, Chairman
Colorado Water Quality Control Commission

COLORADO DEPARTMENT OF HEALTH
Water Quality Control Commission
4210 East 11th Avenue
Denver, Colorado 80220
Adopted: January 15, 1974
Effective: May 1, 1974

RULES FOR SUBSURFACE DISPOSAL SYSTEMS

The Rules and Regulations For Subsurface Disposal Systems effective July 1, 1970 are repealed and repromulgated as follows:

Section 1 - DECLARATION OF POLICY. - These Rules provide the conditions for the location, construction and operation of subsurface disposal systems. After the effective date of the adoption of these Rules, no construction nor operation shall take place contrary to provisions of these Rules.

Section 2 - DEFINITIONS. - As used in these Rules:

- (a) "Act" means the Colorado Water Quality Control Act of 1973, Chapter 66, Article 28, C.R.S. 1963 as amended.
- (b) "Aquifer" means a permeable formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield quantities of ground water to wells or springs.
- (c) "Coefficient of Storage" means the volume of water released from or taken into storage per unit surface area of the aquifer when the piezometric surface declines one (1) unit.
- (d) "Commission" means the water quality control commission created by section 66-28-201.
- (e) "Construction" when used with respect to a disposal system shall mean any initial creation of a new disposal system, any material modification or alteration of any existing disposal system, and the conversion of any condition or structure not previously used as a disposal system into such a system.
- (f) "Disposal aquifer" is any aquifer into which wastes are intended to be disposed of by means of a disposal system.
- (g) "Dispose" and "Disposal" mean the deposit, generation, creation, or discharge of any wastes at any level below the land surface.
- (h) "Division" means the division of administration of the state health department.
- (i) "Operate" when used with respect to a disposal system means the use or employment of that system to dispose of wastes below the surface of the land.

- (j) "Person" means an individual, corporation, partnership, association, state, or political subdivision thereof, federal agency, state agency, municipality, commission, or interstate body.
- (k) "Pollution" means the man-made, man-induced, or natural alteration of the physical, chemical, biological, and radiological integrity of water.
- (l) "Subsurface" means any level below the surface of the land.
- (m) "Subsurface disposal system" means any system or facility, method, excavation, well structure or condition of any kind whatsoever (other than individual sewage disposal systems, solid waste disposal sites, sanitary landfills, refuse disposal sites, oil and gas wells, water injection wells employed in oil and gas well operations, surface ditches or retention ponds and irrigation and water transportation systems), used, employed or operated so that the same may reasonably be expected, by direct or indirect means, to result in the disposal of wastes underground, including without limitation, the following: Sewage systems, treatment works, wells into which wastes are deposited or injected, installations, structures, wells and excavations to be used in connection with any subsurface explosion, detonation, reaction or process that might tend to discharge, deposit or generate wastes underground, and mines or other excavations initially made for other purposes when they are used for disposal.
- (n) "Subsurface water" or "Groundwater" means any waters of the State not visible on the surface of the ground under natural conditions.
- (o) "System" means all surface and subsurface equipment, installations and appurtenances and shall include the formations within the zone of influence of a subsurface disposal system.
- (p) "Waste" means any substance, solid, liquid or gaseous, including radioactive particles thereof, which pollute or may tend to pollute any waters of the State.
- (q) "Workover" means any remedial procedure which could change the physical or chemical characteristics of the formation, or changes in physical equipment (other than routine maintenance of mechanical equipment), repairing or replacing casings, tubing, packing and plugging or perforating additional zones.
- (r) "Zone of influence" means the areal extent to which a waste can or will migrate or be dispersed within a stated period of time from a subsurface disposal system, as well as the areal extent of the significant variations of formation fluids caused by such a system.

Section 3 - PREREQUISITES TO CONSTRUCTION AND OPERATION OF SUBSURFACE DISPOSAL SYSTEMS.

- (a) No person shall construct or operate a subsurface disposal system within the State of Colorado unless such person has a currently effective permit for such construction or operation issued by the Division pursuant to this Section.
- (b) No person shall receive a permit from the Division for the construction or operation of a subsurface disposal system within the State of Colorado unless the Commission, acting upon the application of a person proposing to construct or operate a subsurface disposal system shall have found and determined beyond a notice and public hearing, one of the following:
 - (1) that no waters of the State will be polluted thereby; or
 - (2) that if waters of the State may be polluted thereby, the pollution resulting therefrom will be limited to waters in a specified limited area from which there is no risk of significant migration and the proposed activity is justified by the public need.

Any other finding by the Commission shall preclude the construction or operation of a subsurface disposal system at the site proposed in the application in response to which the Commission has made its findings.

- (c) Every finding by the Commission under the provisions of subparagraph (b) of this Section shall be stated in writing, refer to the application upon which it was based, and shall be final; provided, however, the Commission will grant a rehearing to an applicant requesting the same if good cause therefore be shown to the Commission and such request is made within 30 days after the date of the entry of the Commission's findings. Any person assuming to construct and/or operate a subsurface disposal system, with or without a permit issued by the Division, shall be solely responsible for such system and shall be deemed to have assumed all risks in respect to the construction and operation of such system.
- (d) When the Commission shall have, pursuant to application, made one of the findings described in subparagraphs (1) or (2) of subsection (b) of this Section, the Division shall grant to the applicant a permit to construct, operate or construct and operate, as the case may be, the subsurface disposal system for which the application has been made, which permit may be subject to any conditions reasonably required by the Division.

- (e) Any person having applied to and received from the Division a permit under the provisions of this Section and thereafter assuming to construct and/or operate a subsurface disposal system under the permit shall be subject always to such orders and regulations as the Division may reasonably require, from time to time, for the prevention, abatement and control of pollution to the waters of the State, including but not limited to one or more of the following:
- (1) that no zone or interval, other than the zone or interval represented to both the Commission and Division as the disposal interval or aquifer, shall be used as part of the system except after notice and hearing.
 - (2) that a monitoring system, including prescribed equipment, tests, and installations, shall be provided and operated at the sole risk, cost and expense of the persons interested in the system; provided, however, the Division may designate some third party to utilize the monitoring system data developed by or for the operation of the system.
 - (3) that treatment of wastes shall be provided to that degree required by the Division.
 - (4) that workover or remedial procedures shall not be performed without prior notification of the Division and then only to the extent ordered by the Division.
 - (5) that disposal shall be only in such manner as may be ordered by the Division in respect to volume, rate, pressure, and similar parameters and shall not exceed that specified or be of a kind different from that presented to both the Division and the Commission upon the application filed under the provisions of Section 4 of these Rules.
 - (6) that all drilling, completing, and operating procedures for subsurface disposal and monitoring systems or wells shall conform to those practices and procedures previously reviewed by the Division and that any deviation in procedure or equipment from that specified in the applications presented to the Division shall require the concurrence of the Division before deviation from such procedures may be implemented.
 - (7) that an adequate back-up facility be provided, including surface equipment, pumps, well-head, transmission lines, holding tanks, retention ponds and treatment facilities, to assure that a system may be safely shut down in the event of component failure and to assure the treatment of effluent to a suitable degree for temporary surface disposal.

- (8) that evidence of financial responsibility be submitted to the Division and, when the Division so requires by its order, security, in the form of cash, approved securities, surety bond, or evidence of insurance, be deposited with the Treasurer of the State of Colorado, in such amount and with and under such conditions as the Division may direct to assure the people of the State of Colorado of the continued compliance with the Division's orders and that, upon abandonment, cessation or interruption of the construction or operation of the system, appropriate measures will be taken to prevent present or future pollution of the beneficially usable waters of the State. Whenever evidence of financial responsibility is required, such evidence shall be furnished annually for as long as the Division may require.
- (9) that the Division shall be furnished with such reports, charts, forms, and other information as it may reasonably require and at such intervals as may be directed by the Division from time to time.
- (10) that notwithstanding any prior finding, order or permit of the Division the continued or future construction or operation or use of a disposal system shall, upon order of the Division, be discontinued after notice and hearing if the Division determines that continued operation thereof is or may tend to be injurious to the then present or foreseeably beneficially usable waters of the State.

Section 4 - APPLICATION FILED WITH DIVISION. - Any person proposing to construct or operate, or cause to be constructed or operated, a subsurface disposal system within the State of Colorado shall file with the Division a verified, written application for a permit under Section 3 of these Rules. Such application shall contain, unless the requirement is waived as inapplicable by an order of the Division, the following:

- (a) A legal description of the area within a radius of two (2) miles of the proposed system and a legal description of the site upon which the system will be located.
- (b) An accurate map of the area within a two (2) mile radius of the proposed system showing the location of the system, property boundaries, surface and mineral ownership of record, the location of all water wells and oil and gas wells and whether the same are operating or have been abandoned and, if appropriate, whether such wells have been plugged; and the location of all mines, test holes and other artificial penetrations or excavations.

- (c) A description of the depths and deepest formations penetrated by each of the wells, mines, excavations or penetrations required to be shown on the map required at (b) above.
- (d) A description of local topography, industry, agriculture, population densities, culture, wildlife, and fish and other aquatic life within the area of the proposed system with a projection as to the probable effect of the system upon industry, agriculture, population, culture, wildlife, and fish and other aquatic life.
- (e) A description of the mineral resources believed to be present in the area of the system and the probable effect of the system upon such mineral resources, together with a map or maps illustrating geologic structures and stratigraphic sections (formations, lithologies and physical characteristics for the local area and a general map illustrating the regional geologic setting of the system). Such exhibits shall be prepared by a qualified expert.
- (f) A description of all water resources, both surface and subsurface, within the probable zone of the influence of the system, the classification if any, the available amounts thereof and potential uses and a map or maps indicating vertical and lateral limits of surface and subsurface water supplies.
- (g) A description of the chemical, physical, radiological and biological properties and characteristics of the wastes to be disposed of through the system, and the treatment proposed for such wastes.
- (h) Copies of all plans and specifications for the system and its appurtenances.
- (i) A statement of all sources relied upon for the information set forth in the application.
- (j) If the disposal system is to be an injection well, the following information shall be required:
 - (1) Potentiometric surface maps of the disposal aquifers and those aquifers immediately above and below the disposal aquifer.
 - (2) Copies of all drill-stem tests, extrapolations and data used in making the maps required at (1) above.
 - (3) Location and nature of present and potential use of fluids from the disposal or affected aquifer formations in the general area.
 - (4) Volume, rate and injection pressure of the fluid to be injected.

- (5) The following geologic and physical characteristics of the injection interval and the overlying and underlying impermeable barriers:
- (aa) Thickness.
 - (bb) Areal Extent.
 - (cc) Lithology (grain mineralogy, type and mineralogy of matrix, amount and type of cement, clay content, clay mineralogy).
 - (dd) Effective porosity and how determined.
 - (ee) Permeability, vertical and horizontal, and how determined, i.e., mechanical (electrical) logs, core analyses, formation tests.
 - (ff) Coefficient of storage of aquifer.
 - (gg) Amount and extent of natural fracturing.
 - (hh) Location, extent and effects of known or suspected faulting.
 - (ii) Extent and effects of natural solution channels.
 - (jj) Fluid saturation.
 - (kk) Formation fluid chemistry with indications of local and regional variations.
 - (ll) Temperature of formation and how determined.
 - (mm) Formation and fluid pressures, original and modifications resulting from previous fluid withdrawals.
 - (nn) Fracturing gradients.
 - (oo) Osmotic characteristics of rock and fluids both comprising and contiguous to the reservoir, and an indication of the effect of injected wastes on contiguous formations in the event of leakage.
 - (pp) Diffusion and dispersion characteristics of the waste and formation fluid, including effect of gravity segregation.

- (qq) Compatibility of injected waste with physical, chemical and biological characteristics of the reservoir.
- (6) The following engineering data concerning the well:
 - (aa) Size of hole and estimated total depth of well.
 - (bb) Type, size, weight, strength, and related data in respect to all surface, intermediate and production casing.
 - (cc) Specifications and proposed installation of tubing and packers.
 - (dd) Proposed cementing procedures and type of cement.
 - (ee) Proposed coring program.
 - (ff) Proposed information testing program.
 - (gg) Proposed injection procedure, i.e., open hole, perforated casing.
- (7) Plans for monitoring the system and, if the system is a deep disposal well, the plans for monitoring injection pressures and formation pressures, i.e., injection wells and observation wells.
- (8) Expected changes in pressure, rate of fluid displacement by injected wastes, directions of dispersion and area affected by the system.
- (k) Such other and further data as the Division may reasonably request. An applicant may upon its own initiative, or shall when requested by the Division, furnish an opinion of independent experts, satisfactory to both the Division and Commission, in respect to the accuracy and completeness of any information or data furnished by the applicant and on any aspect of the applicant's disposal system or the contemplated operation or effects thereof.

Section 5 - PRELIMINARY REVIEW OF APPLICATIONS

- (a) The Commission and the Division recognize that the accumulation of the information and data required to complete an application under Section 4 of these Rules may involve considerable expense to an applicant. Therefore,

and merely as a convenience to applicants, the Division will accept for preliminary review applications setting forth in general terms the information specified in Section 4, but the same shall be set out in sufficient detail so as to enable the Division to determine the general feasibility of a proposed system. Such applications shall be clearly designated as "for preliminary review" under authority of this Section.

- (b) The Division may rule upon applications submitted for preliminary review and either approve or disapprove the feasibility of the proposed system. The approval or disapproval by the Division upon preliminary review of applications shall in no way affect the right of an applicant to subsequently submit an application or applications containing the data required by Section 4 of these Rules. Neither the Commission nor the Division shall be bound by any ruling upon any application submitted for preliminary review.

Section 6 - PROCEEDINGS BEFORE THE COMMISSION - NOTICE - PUBLIC HEARING.

- (a) Before any finding upon an application, or application for rehearing, or finding, or amendment of a finding shall be made by the Commission under these Rules, there shall be held a public hearing upon at least twenty (20) days notice at such time and place as may be prescribed by the Commission and any person interested in the action of the Commission shall be entitled to appear and be heard; except, when an emergency requiring immediate action is found to exist by the Commission, the Commission may issue an emergency order without notification of the hearing, which shall be effective upon promulgation, but shall remain effective for no more than twenty (20) days.
- (b) The Applicant shall cause notice of every public hearing to be given by personal service to each surface and mineral owner of record within a two (2) mile radius of any subsurface disposal system which may be the subject of any proceeding before the Commission, or it may give such notice by one publication in a newspaper of general circulation in the City and County of Denver, Denver, Colorado, and in a newspaper of general circulation in the county where the land affected by a subsurface disposal system, or some part thereof, is situated. Said notice shall be issued in the name of the State of Colorado, shall be signed by the Commission, or the Technical Secretary of the Commission, and shall specify the style and number of the proceedings, the time and place of the hearing, and shall briefly state the purpose of the proceeding.
- (c) If notice is given by personal service, such service shall be made by an officer appointed to serve summons, or by an agent of the Commission, in the same manner and extent as is provided by law for the service of summons in civil actions in the District Courts of this State. Proof of service by such agent shall be by his affidavit and proof of service by any officer shall be in the form required by law with respect to service of summons in civil actions.

- (d) In addition to the notice required to be given under subparagraph (b) of this Section, notice of every application filed with the Commission shall be given by the applicant by mailing or delivering a copy of the application to each surface and mineral owner of record within two (2) miles of any proposed subsurface disposal system. Such notice shall be mailed or delivered on or before the date the application is filed with the Commission. An affidavit shall be attached to the application showing the parties to whom the notice required by this subsection has been served, and their respective addresses.
- (e) The Commission shall designate a hearing officer, as provided in the Act, who shall make findings and recommendations to the Commission in respect to any matter pertaining to a subsurface disposal system.
- (f) Either the Commission or the Division may, on its own motion, or upon the request of any interested person, institute a proceeding to prevent a violation of the Act, or of any order, rule or regulation of the Commission or permit issued by the Commission or the Division relating to a subsurface disposal system, or for the amendment of any order, rule or regulation, by notice of hearing, or issuance of an emergency order to show cause directed to and served upon any person or persons charged with violating the same, and may take any step allowed under law.
- (g) Hearings before the Commission shall be conducted without rigid formality. A transcript of testimony shall be taken and preserved as part of the permanent record of the Commission. Any person testifying before the Commission or in support of an application or in opposition thereto shall be required to do so under oath or affirmation. Full opportunity shall be afforded all interested parties at a hearing to present evidence and to cross-examine witnesses. In general, the rules of evidence applicable before a trial court without a jury shall be applicable, providing that such rules maybe relaxed, where by so doing, the ends of justice will be better served.

Section 7 - TERMINATION, ABANDONMENT. - No subsurface disposal system subject to these Rules shall be terminated or plugged and abandoned except after notice and hearing. Every plugging and abandonment shall be accomplished in accordance with the orders of the Division. Monitoring equipment shall be operated and precautionary steps shall be undertaken after termination or abandonment for as long as the Division may reasonably require, which operation and steps shall be at the sole risk, cost, and expense of the person responsible for the disposal system.

Section 8 - WAIVER OF BASIC STANDARDS. - Any person operating a subsurface disposal system under an effective permit issued pursuant to these Rules shall not, as a result of the discharge from that system, be deemed to be in violation of the Basic Standards applicable to all the waters of this State.

Section 9 - OTHER REGULATORY AGENCIES. - Nothing in these Rules shall relieve a person making application to the Commission and Division from complying with all applicable rules and regulations of other government agencies, whether State or Federal.

Section 10 - RESPONSIBILITY. - Compliance with the Rules contained herein shall in no way be deemed to relieve any person of any liability, obligation or duty imposed on such person by statute or the common law.

Section 11 - RELIANCE UPON OTHER AGENCIES. - The Commission and the Division of Administration shall freely consult with such other State and Federal agencies and departments as the Division of Administration or the Commission may deem necessary for a proper determination of any matter subject to these Rules. Notice of hearing before the Commission or before a hearing officer designated by the Commission shall be given to interested State and Federal agencies and departments.

Section 12 - AUTHORITY. - These Rules are promulgated pursuant to the authority conferred upon the Commission by the Water Quality Control Act of 1973 (C.R.S. 66-28 as amended) and by C.R.S. (1963) 3-16-2 (6) as amended.