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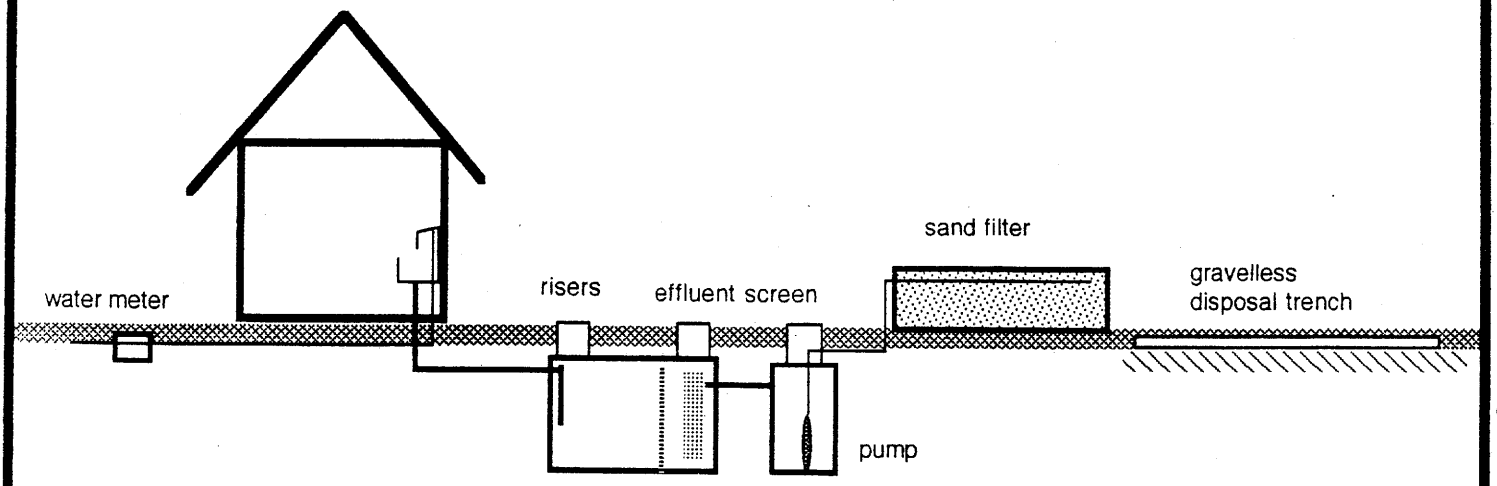
COUNTY OF MENDOCINO
DEPARTMENT OF PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH

Non-Standard On-Site Sewage

Disposal Systems Program



MARCH 1996

TABLE OF CONTENTS

100 Statement of Purpose

110 The Mendocino County Division of Environmental Health (DEH) in cooperation with the North Coast Regional Water Quality Control Board (NCRWQCB) pursuant to Section IV H.3. of the Policy on the Control of Water Quality with Respect to On-Site Waste Treatment and Disposal Practices recognizes the need for the continuing evolution of individual waste treatment and disposal systems.

111 In California, the regulation of sewage disposal systems and other wastewater discharges falls under the authority of the nine (9) California Regional Water Quality Control Boards (Regional Boards), pursuant to Division 7 of the California Water Code (Porter-Cologne Water Quality Control Act).

112 The NCRWQCB has delegated much of the day to day regulation, the routine review and permitting, of on-site wastewater treatment and disposal systems to DEH.

113 The applicable requirements and standards pertaining to on-site systems in Mendocino County are contained in the Uniform Plumbing Code; Mendocino County Code, Chapter 16, as adopted by the Mendocino County Board of Supervisors; and, the NCRWQCB Policy on the Control of Water Quality with Respect to On-Site Waste Treatment and Disposal Practices (Basin Plan).

120 The purpose of this program is to establish a procedure for approval, monitoring and evaluation of non-standard on-site sewage disposal systems within Mendocino County.

130 This program is not meant to be a research and development program for a proprietary device or method, rather the objective is to demonstrate field performance of non-standard system types prior to permitting their widespread application.

140 This program is not intended to serve as a method to circumvent the policies of the NCRWQCB, the standards and requirements of the Division of Environmental Health, or proven sewage disposal practices.

150 It is the objective of this program to obtain sufficient data which can be used for the development of non-standard on-site sewage disposal systems capable of benefiting significant numbers of people in Mendocino County.

151 The Non-Standard Systems Program was established to encourage the application of innovations and improvements in on-site sewage disposal methods that have evolved out of the considerable amount of research in the small-scale

wastewater field in the last two decades.

152 Alternative methods of sewage disposal have been developed to overcome specific constraints imposed by soils, groundwater or other site conditions, which would otherwise preclude the installation or proper functioning of a conventional on-site wastewater disposal system.

wastewater field in the last two decades.

152 Non-Standard methods of sewage disposal have been developed to overcome specific constraints imposed by soils, groundwater or other site conditions, which would otherwise preclude the installation or proper functioning of a conventional on-site wastewater disposal system, including those conventional on-site wastewater disposal systems installed with a waiver.

153 Where site constraints do not require the utilization of a non-standard system design, the use of non-standard technology in the design shall not per se place that system into this Program.

200 Definitions

201 Non-standard on-site sewage disposal system (non-standard OSSDS) means any method of on-site sewage disposal which does not use a septic tank or does not use standard leaching trenches for effluent disposal or utilizes additional treatment or disposal methods.

202 Alternative system means a non-standard OSSDS that has demonstrated satisfactory operation and maintenance under the experimental systems monitoring program, as determined by the Mendocino County Division of Environmental Health and the North Coast Regional Water Quality Control Board.

203 Experimental system means any non-standard OSSDS other than an approved alternative system. Experimental system approval must be supported by adequate technical specifications and research documentation acceptable to the Mendocino County Division of Environmental Health and the North Coast Regional Water Quality Control Board.

204 Proprietary device or method means any device or method that is held under patent trademark, or copyright.

205 Recorded agreement means an affidavit or such written declaration setting forth a binding agreement between DEH and the applicant and filed with the county recorders office.

206 Site evaluator means individuals who by virtue of their education, training and experience are qualified to examine and assess soils, geologic, and hydrologic properties as related to subsurface effluent disposal; and are qualified by virtue of their education, training and experience to design such on-site sewage disposal systems as approved by DEH and NCRWQCB.

207 Monitoring status 1 - Monitoring inspections did not reveal any deficiencies which may pose an operational threat.

208 Monitoring status 2 - Monitoring inspections revealed minor deficiencies which may pose an operation threat.

209 Monitoring status 3 - Monitoring inspections revealed marginal operation, saturation within 24 inches of trench bottom and bacterial and nutrient sampling outside of accepted performance standards as defined in Section 762.

210 Monitoring status 4 - Monitoring inspections revealed

serious deficiencies requiring immediate corrective action, such as surfacing of inadequately treated sewage effluent or extremely high bacteriological counts in monitoring wells as defined in Section 761.

211 Monitoring status 5 - Monitoring inspections were attempted but unable to be completed.

212 Failure means the ineffective treatment and disposal of waste resulting in the surfacing of sewage effluent and/or the degradation of surface or groundwater quality.

213 Standard On-Site Waste Treatment and Disposal System means any system using a standard septic tank for treatment and standard leaching trenches or seepage pit for effluent disposal.

300 Application

310 Alternative OSSDS may be considered in the following instances when the use of a standards OSSDS is not feasible and site criteria for the chosen alternative OSSDS can be met.

311 For the repair of a failing OSSDS at an existing dwelling or small commercial unit generating less than 1500 gallons per day of waste water.

312 For the construction of a single family dwelling.

313 For the new construction of a small commercial unit with a projected waste water flow of less than 1500 gallons per day.

314 For commercial or residential uses where waste water flow exceeds 1500 gallons per day on a case by case basis with agreement from the NCWQCB.

315 For the subdivision of land pursuant to the Mendocino County Code, Chapter 16.

320 Experimental OSSDS may be considered in the following instances when applied research and supportive theory suggest the design has technical merit and is a realistic and reasonable response to the site conditions.

321 For the repair of a failing OSSDS at an existing dwelling or small commercial unit generating less than 450 gallons per day of waste water.

322 For new construction of single family dwelling and small commercial units up to 450 gallons per day peak load.

323 Experimental systems are not acceptable as justification for land divisions.

330 No alternative or experimental OSSDS shall be approved for new construction within a DEH establish moratorium area, NCRWQCB waiver prohibition area, or in NCRWQCB individual system prohibition areas.

400 General Site Requirements

410 Evaluation of the site and the alternative or experimental OSSDS shall satisfy all reasonable concerns of the DEH and NCRWQCB that the sewage will be treated and disposed of below ground, in a manner that will not result in contamination or pollution of either surface water or groundwater nor create a nuisance or public health hazard.

420 Current DEH regulations and NCRWQCB Policies with Respect to On-Site Treatment and Disposal Practices should apply to the extent possible.

421 Site specific requirements may be established by DEH or NCRWQCB.

422 Waivers of specific site criteria shall be considered on an individual basis according to the needs and capabilities of the non-standard OSSDS.

423 Where referenced site, design, or construction criteria differ with NCRWQCB or DEH requirements; WQCB or DEH requirements shall prevail.

430 Minimum setbacks for the initial disposal field and replacement area to the property line shall be as follows:

431 Upslope and sideslope setback shall be a minimum of 10 feet.

432 Downslope setback shall be a minimum of 25 feet.

500 Proposal Requirements

510 All experimental proposals shall be submitted to DEH and the NCRWQCB for review and determination of the need for waste discharge requirements. A maximum of ten (10) systems of each type will be allowed for new construction per year.

520 All proposals for non-standard systems shall include the following as a minimum:

521 Site Suitability Criteria.

521.1 Scaled site plan of all test locations, the proposed system location, ground slope in the disposal site and surrounding area indicating drainage patterns, sources of water within 100 feet, and property boundaries, in accordance with DEH policies.

521.2 Soil descriptions utilizing proper scientific nomenclature to describe depth, color, stoniness, texture, mottling, structure, consistence, roots and pores.

521.3 Groundwater level determination for the disposal area, either by indication from soil mottling, or from direct observation during periods of wet weather as specified in the most recent version of NCWQCB Basin Plan Policy.

521.4 Laboratory soil texture analysis, bulk density, course aggregate content, slake test, and/or soil percolation test results. Additional tests such as plasticity index may also be required where warranted.

521.5 A topographical map showing test locations and the proposed system location may be required where soil conditions are shallow and topography is a constraint.

521.6 A parcel map of the area indicating the lot size of the proposed site and the average density of the surrounding area.

522 Technical Design Information

522.1 A general written description of the proposed alternative or experimental OSSDS. This shall

include a description of what the proposal is intending to prove or disprove.

522.2 Design criteria shall be stated, such as methods to effect treatment, peak flow and average daily flow, loading rates, and methods of disposal after treatment.

522.3 A reference list substantiating the source of design criteria. Design criteria unsubstantiated by suitable reference materials will be considered as a research development project and shall not be included in this program.

522.4 Operation, maintenance, and monitoring instructions which provide brief and simple guidance regarding the operation of the system and the homeowners responsibilities shall be provided for the homeowner.

530 Proposals for an Alternative or Experimental OSSDS shall be prepared by a qualified site evaluator as defined in the most recent version of the NCWQCB Basin Plan Policy.

600 Operating Permits

610 Applicability. In order to maintain suitable accounting of the use and functioning status of non-standard OSSDS in the County, an Operating Permit is required. The Operating Permit is administered by the County on a fee basis.

620 Issuance. Operating Permits are issued after final construction approval of the non-standard OSSDS. Operating Permits require periodic renewals, and are non-transferable.

630 Agreement. Prior to issuance of the Operating Permit, a Recorded Agreement between the Health Officer and the applicant shall be notarized and recorded with the Mendocino County Recorder. Said agreement shall set forth a binding agreement for the operation, maintenance, and monitoring of the proposed system.

640 Renewal Process. Permit renewal requires the submission of an application, a fee, and the results of required inspections and monitoring.

650 Permit Conditions. The Operating Permit serves as the basis for verifying the adequacy of system performance and maintenance. Monitoring and inspection requirements will be included as permit conditions.

660 Enforceability. Failure to submit a renewal application, the required fee or specified monitoring and inspection data, or failure to undertake any required corrective work specified by the County is cause for non-renewal or revocation of the Operating Permit, the recordation of a violation notice, and a lien on the property for penalties and costs incurred by the County.

700 Monitoring and Evaluation

710 A monitoring program shall be established at the time of approval in order to determine the effectiveness of the non-standard OSSDS. This may be in connection with NCRWQCB waste discharge requirements or according to conditions of the permit imposed by the DEH. Guidelines for expanded use of each type of non-standard OSSDS shall be based upon an evaluation of the observed performance throughout the monitoring period.

The purpose of the monitoring is two-fold:

711 To provide a higher level of surveillance of non-standard OSSDS (as opposed to that for conventional systems) to assure early detection and correction of any problems; and,

712 To compile and maintain performance data on these systems for use in periodic evaluation of design criteria and assessing the appropriateness of their continued/expanded use in the North Coast Region of the State of California, Water Quality Control Board.

720 Type of Monitoring. Monitoring activities will vary depending upon the specific type of non-standard OSSDS; but, in general, they are expected to include the following:

721 recording of wastewater flow based on water meter readings and/or pump event counters;

722 inspection and recording of water levels in monitoring wells in the disposal field;

723 water quality testing of selected water samples taken from monitoring wells or from points in the treatment process;

724 inspection and observation of pump operation or other mechanical equipment;

725 general inspection of treatment and disposal area for evidence of seepage, effluent surfacing, erosion or other possible problems.

730 Self-Monitoring. Self-monitoring by the property owner or their designated agent is required. Monitoring forms will be provided by the Mendocino County Division of Environmental Health for recording operation and

maintenance performance. Property owners shall complete the monitoring forms and return them to the Division of Environmental Health within fifteen days of receipt. Failure to perform the self-monitoring program is cause for revocation of the operating permit, as described in Section 660.

740 Frequency of Division of Environmental Health Monitoring.

741 Alternative and experimental systems shall be inspected during the wet weather season for the first two (2) years of operation and thereafter as specified by the Operating Permit.

750 Monitoring. All non-standard OSSDS must be designed with a series of monitoring wells and/or inspection risers. The number and location of the monitoring wells shall be considered on a case-by-case basis and shall be determined at the time of application review.

751 Monitoring wells and inspection risers for experimental systems shall be installed in the aggregate or filter medium of the disposal field to monitor effluent levels and, where deemed necessary, to collect water samples for water quality testing. On sites that do not meet depth to groundwater requirements for standard systems, monitoring wells shall be installed outside the disposal field to monitor groundwater levels and to collect water samples for water quality testing.

752 Inspection risers for alternative systems shall be installed in the aggregate or filter medium of the disposal field to monitor effluent levels and system operation.

753 Construction and installation of monitoring wells and inspection risers must meet current DEH requirements.

760 Performance Standards for Monitoring Wells. The DEH or other qualified site evaluator may occasionally sample monitoring wells for fecal bacteria, nitrates, and other parameters as indicators of the degree of sewage treatment and function of non-standard OSSDS. The following are limits of maximum contaminant levels to analyze the degree and function of non-standard OSSDS.

761 Sample results equal to or exceeding a fecal

coliform of 9.2 MPN in downgradient wells is deemed to potentially have an adverse effect on subsurface water and may require further investigation or corrective action.

762 Sample results exceeding 10 mg/l nitrate-nitrogen or 45 mg/l nitrate in downgradient wells is deemed to potentially have an adverse effect on subsurface water and may require further investigation or corrective action.

770 Reporting Format. The format for recording and submitting monitoring data is according to specific monitoring forms to be provided by the County.

780 Monitoring Responsibility. The monitoring program for non-standard systems is administered by the County; and the County is responsible for supplying the results to the Regional Board. The actual field monitoring work itself may be conducted either; (a) by the County, on a fee basis; or, (b) by allowing the property owner to arrange for the monitoring to be conducted independently by a qualified professional.

790 Cost. The cost of any monitoring work performed by the County is covered entirely by fees collected as part of the operating permit renewal process. Failure of property owners to submit the fees may result in non-renewal of the Operating Permit. In situations where the County defers the monitoring responsibilities to the owner of the system, then the cost of monitoring will be borne directly by the system owner, and the Operating Permit fee adjusted downward, accordingly.

800 Experimental Systems

810 Wisconsin Mounds - 1990 criteria

811 Special considerations:

- On slopes up to 25%
- For soil depths of 2 feet over creviced bedrock or impermeable layer
- Where depth to groundwater is 2 feet below ground surface
- For slowly permeable soils (60-120 MPI)

812 Site Criteria: as per the most recent version of the WQCB Basin Plan

Design and Construction Criteria: as per Converse and Tyler; "Wisconsin Mound Soil Absorption System Siting, Design, and Construction Manual"; Small Scale Waste Management Project, University of Wisconsin-Madison, 1990.

820 Aerobic Systems

821 Special Considerations:

- Allows a maximum of a 30% reduction in leachfield size provided a 100% primary & replacement area is identified
- Allows use of standard leaching trenches
- For soil depths (beneath trench bottom) of 2 feet over creviced bedrock or impermeable layer
- Where depth to groundwater is 2 feet beneath the bottom of the leaching trenches

822 Site, Design, and Construction Criteria: as per the most recent version of the Basin Plan and acceptable manufacturer's specifications.

830 Graveless Pipe Drainfield Systems

831 Special Considerations:

- Where gravel is in low supply or site constraints preclude the use of gravel

832 Site, Design, and Construction Criteria: as per the most recent version of the Basin Plan; acceptable manufacturer's specifications; and, Mendocino County, Guidelines for Graveless Pipe Drainfield Systems, March 1996

840 Non-Specific Experimental Systems

841 Special Considerations:

- As determined by qualified site evaluator, manufacturer (if applicable), the Division of Environmental Health, and the North Coast Regional Water Quality Control Board

842 Site, Design, and Construction Criteria:

- As determined by qualified site evaluator, manufacturer (if applicable), the Division of Environmental Health, and the North Coast Regional Water Quality Control Board

900 Alternative Systems

910 Wisconsin Mounds - 1978 Criteria

911 Special Considerations:

- for soil depths of two (2) feet over creviced or non-creviced bedrock, impermeable layer, coarse alluvium or groundwater
- Where slope does not exceed 6% for slowly permeable soils or 12% for permeable soils

912 Site Criteria: as per the most recent version of the WQCB Basin Plan; and, Converse, "Design and Construction Manual for Wisconsin Mounds", Small Scale Waste Management Project, University of Wisconsin-Madison, 1978

Design and Construction Criteria: as per Converse and Tyler; "Wisconsin Mound Soil Absorption System Siting, Design, and Construction Manual"; Small Scale Waste Management Project, University of Wisconsin-Madison, 1990.

920 Shallow Trench Pressure Distribution Systems

921 Special Considerations:

- On slopes greater than 6% (or 12%) up to 30%
- For soil depths (beneath trench bottom) of two (2) feet over creviced bedrock or impermeable layer
- Where depth to groundwater is 2 feet beneath the bottom of the leaching trenches
- For slowly permeable soils (60-120 mpi)

922 Site Criteria: as per most recent version of the WQCB Basin Plan; and, Sonoma County Public Health Department, "Guidelines and Regulations for Non-Standard Sewage Disposal Systems", January 1993.

Design and Construction Criteria: Otis, R.J., "Design of Pressure Distribution Networks for Septic Tank-Soil Absorption Systems", Small Scale Waste Management Project, University of Wisconsin-Madison, January 1981; Sonoma County Public Health Department, "Guidelines and Regulations for Non-Standard Sewage Disposal Systems", January 1993; and, other reference sources as approved by DEH.

930 At-Grade Systems

931 Special Considerations:

- On slopes up to 25%
- For soil depths of 3 feet over creviced bedrock or impermeable layer
- Where depth to groundwater is 3 feet below ground surface
- For sites that cannot meet waiver guidelines for standard "highline" systems

932 Site, Design and Construction Criteria: as per the most recent version of the WQCB Basin Plan; and, Converse, Tyler, and Peterson; "The Wisconsin At-Grade Absorption System: Siting, Design, and Construction Manual"; Small Scale Waster Management Project, University of Wisconsin-Madison, 1990.

940 Sand Filters

941 Special Considerations:

- Allows a 30% reduction in leachfield size
- Allows use of standard leaching trenches
- For soil depths (beneath trench bottom) of 2 feet over creviced bedrock or impermeable layer
- Where depth to groundwater is 2 feet beneath the bottom of the leaching trenches
- For slowly permeable soils (60-120 MPI)

942 Site Criteria: as per the most recent version of the Basin Plan

Design and Construction Criteria: as per Mendocino County, Guidelines for Sand Filters, March 1996