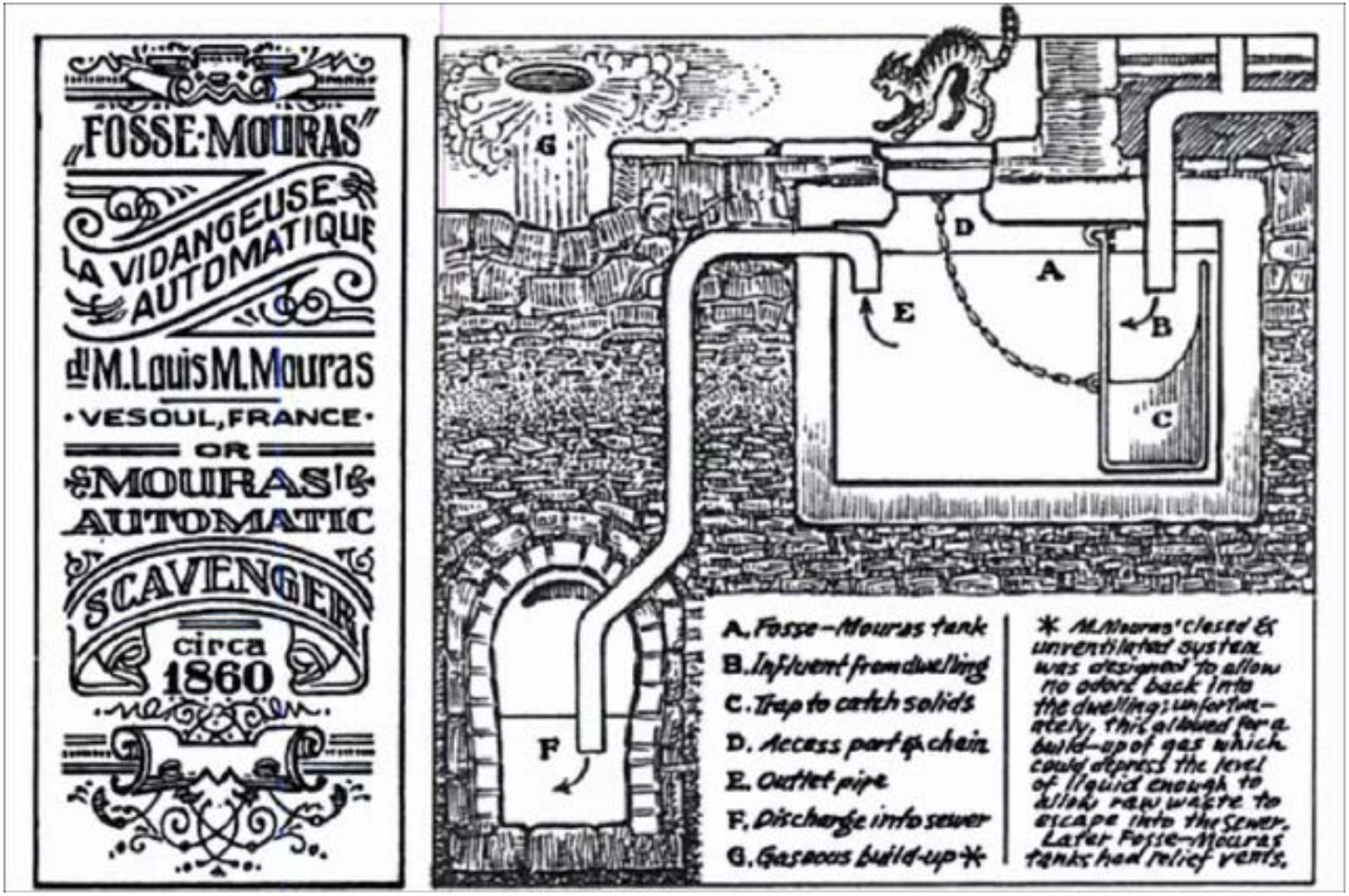


Washington State Department of Health

HISTORICAL OVERVIEW OF ON-SITE REGULATIONS IN WASHINGTON

ON-SITE REGULATION REVISION COMMITTEE MEETING
JUNE 25, 2018

The Early Days

There were no rules specific to on-site design, installation, or operation prior to 1942.

Some urban areas were served by sanitary sewers.

Rural and small-town citizens were left to develop and maintain their own wastewater systems.

PUGET SOUND REGION
WAR AND POST-WAR DEVELOPMENT

MAY 1943

PUGET SOUND REGIONAL PLANNING COMMISSION
AND
WASHINGTON STATE PLANNING COUNCIL
in cooperation with
NATIONAL RESOURCES PLANNING BOARD

UNITED STATES GOVERNMENT PRINTING OFFICE - WASHINGTON : 1943

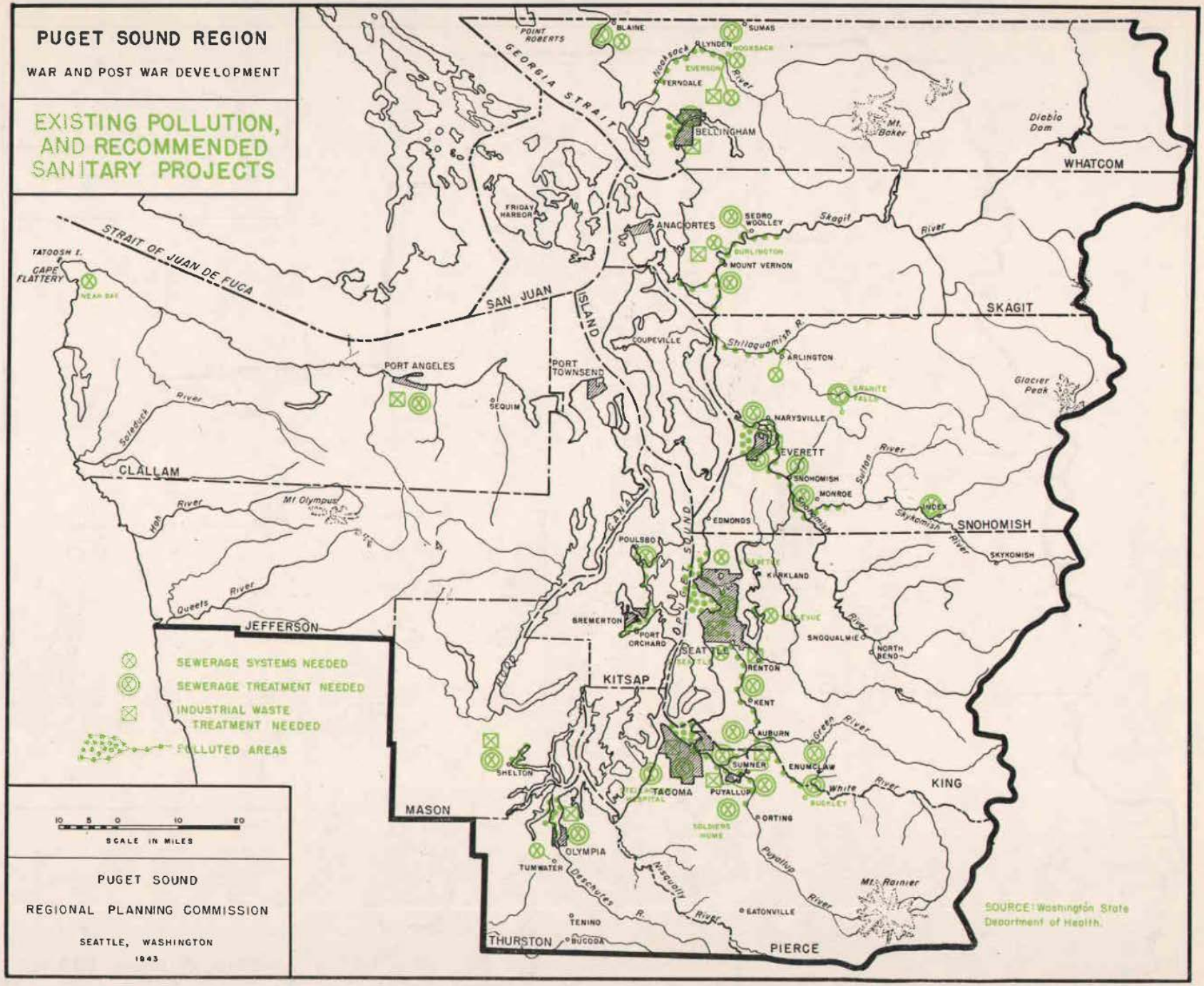

PUGET SOUND REGION
WAR AND POST WAR DEVELOPMENT
EXISTING POLLUTION, AND RECOMMENDED SANITARY PROJECTS
SEWERAGE SYSTEMS NEEDED
SEWERAGE TREATMENT NEEDED
INDUSTRIAL WASTE TREATMENT NEEDED
POLLUTED AREAS
10 5 0 10 20
SCALE IN MILES
PUGET SOUND
REGIONAL PLANNING COMMISSION
SEATTLE, WASHINGTON
1943
SOURCE: Washington State Department of Health.
GEORGIA STRAIT
STRAIT OF JUAN DE FUCA
SAN JUAN ISLAND
PUGET SOUND
HOOD CANAL
WHATCOM
SKAGIT
SNOHOMISH
KING
PIERCE
THURSTON
MASON
KITSAP
JEFFERSON
CLALLAM
BLAINE
POINT ROBERTS
SUMAS
LYNDEN
NOOKSACK
FERNDALE
EVERSON
BELLINGHAM
Mt. Baker
Diablo Dam
FRIDAY HARBOR
ANACORTES
SEDRO WOOLLEY
BURLINGTON
MOUNT VERNON
Skagit River
TATOOSH I.
CAPE FLATTERY
NEAH BAY
COUPEVILLE
Stillaguamish R.
ARLINGTON
GRANITE FALLS
Glacier Peak
PORT ANGELES
PORT TOWNSEND
SEQUIM
Soleduck River
MARYSVILLE
EVERETT
Sultan River
SNOHOMISH
MONROE
Skykomish River
INDEX
EDMONDS
POULSBO
KIRKLAND
BREMERTON
PORT ORCHARD
SEATTLE
RENTON
SNOQUALMIE
NORTH BEND
Queets River
High River
Mt. Olympus
KENT
AUBURN
Green River
SUMNER
ENUMCLAW
White River
BUCKLEY
TACOMA
PUYALLUP
SOLDIERS HOME
ORTING
SHELTON
OLYMPIA
TUMWATER
Deschutes R.
Nisqually River
Puyallup River
Mt. Rainier
EATONVILLE
TENINO
BUCODA

FIGURE 35.

Homes Without Sewage Services

TABLE 34.—*Number of dwelling units by adequacy and selected facilities, Puget Sound region, April 1940*

Item	All counties	Clallam	Island	Jefferson	King	Kitsap	Mason	Pierce	San Juan	Skagit	Snohomish	Thurston	Whatcom
All dwelling units in county	353,677	6,916	2,861	2,963	183,151	16,803	4,663	59,372	1,295	11,835	30,239	12,980	20,599
State of repair and plumbing:													
Not needing major repairs	294,699	5,619	2,003	2,168	157,491	15,292	4,218	49,884	734	8,684	21,250	11,636	15,720
With private bath and private flush toilet	218,673	3,465	834	1,304	125,490	10,137	1,993	38,039	350	5,333	14,238	6,893	10,597
Without bath and private flush toilet	76,026	2,154	1,169	864	32,001	5,155	2,225	11,845	384	3,351	7,012	4,743	5,123
Needing major repairs	37,922	969	702	661	12,235	901	273	6,838	532	2,061	7,889	839	4,022
With private bath and private flush toilet	16,651	385	74	123	6,548	316	87	3,381	125	631	3,085	190	1,706
Without bath and private flush toilet	21,325	584	628	538	5,687	585	186	3,457	407	1,430	4,804	649	2,316
No report	21,056	328	156	134	13,425	610	172	2,650	29	1,090	1,100	505	857
Running water in dwelling unit:													
Number	303,252	5,430	1,803	2,121	166,153	13,393	3,115	52,073	749	8,825	23,547	9,460	16,583
Percent	86.9	79.6	63.8	73.0	92.1	80.7	67.6	88.5	59.0	75.6	78.8	73.8	81.4
Electric lighting:													
Number	322,794	5,508	2,179	2,237	175,714	15,275	3,612	56,206	776	10,360	27,327	4,438	19,162
Percent	92.9	81.2	77.3	77.2	97.9	92.2	78.4	95.8	61.1	89.2	91.6	98.9	94.3
Percent of dwelling units substandard	34.3	47.4	69.2	53.9	26.1	37.4	55.6	32.9	72.4	50.4	51.1	44.7	46.3

Source: 1940 Census, Housing, Second Series.

113

) Housing Representative, National Housing Agency.

PART III

4. WATER RESOURCES

By Richard G. Tyler [1]

Water resources of any area are of primary importance to its development and prosperity. Water is the one resource without which the area cannot develop. It is only necessary to compare some of the projects of the Bureau of Reclamation, where desert areas have been changed into prosperous agricultural communities, with the dust-bowl area of the mid-west, where the reverse process is in progress, to realize the important relationship between the water supply and prosperous community life. The fact, therefore, that the Puget Sound region holds a unique position in the United States in having a great abundance of water of exceptionally excellent quality (exceeding, in fact, all other comparable areas of the country) is the foundation upon which a sound developmental program can and must be based. Its numerous and excellent harbors are gateways through which increasing quantities of materials of all sorts will pass to and from all parts of the world, and particularly the Pacific rim. The abundant precipitation, aided by a topography yielding an unusually high percentage of run-off, provides the numerous streams with ample, clear, pure water, chilled even in summer by the melting snow and glaciers in the higher mountain areas. Suitable dam sites, magnificent differences in elevation, and well sustained flows provide large blocks of cheap firm power for the expanding population and developing industries clustered around the Sound. Its streams also support an important fisheries industry and make the area's scenic and recreational resources unexcelled in extent, variety and beauty. With a climate that is fairly equable throughout the year, though somewhat moist during part of that period, and a long growing and construction season, the region's possibilities for development of a stable, economic prosperity are unusually bright, if plans for development are well laid.

Water Supplies

The municipal water supplies of the area are, in the main, excellent in quality and ample in quantity. Growth of population and industry, however, is beginning to pollute the streams and approach the capacity of some of the supplies now in use. The need for planning is becoming increasingly apparent if the local streams are to have their purity safeguarded and if setting aside certain favorable streams or tributaries and reserving them for future domestic needs is to be accomplished before they are preempted for less important uses.

Some 60.6 percent of the water used in the Puget Sound basin is from surface sources, while 10.1 percent is from underground supplies (see fig. 26), leaving 29.3 percent unknown (mostly rural). The waterworks systems of 29 out of 36 cities of more than 1,000 population are municipally owned while the remaining 7 are in private control.

The larger supplies include those of Bellingham, Everett, Seattle, Tacoma, Olympia, and Bremerton. Of these, Tacoma has a surface supply supplemented by a well supply from the deep gravel and sand formations of the South Tacoma Prairie; the Olympia supply comes from ground-water sources, while the other cities mentioned have surface supplies. Everett has an exceptionally high water consumption of 1,760 gallons per capita daily, of which 1,490 gallons per capita daily is industrial water used by pulp and paper industries. Detailed data on the water supplies of all cities and towns having populations greater than 1,000 are given in table 15.

The demand that has been placed on supplies of some of the smaller communities by the influx of war workers, or the construction or expansion of army and navy camps and of war industries, has necessitated augmenting the supplies of Kirkland, Bremerton, Poulsbo, Fort Lewis, and Oak Harbor. Seattle has filed on the Tolt River for 1,250 cubic feet per second for future needs, should these arise.

For the more distant future, certain streams should be reserved for domestic use. The South Fork of the Nooksack River should be reserved for additions to the Bellingham supply and to those of other communities in its immediate vicinity. Before being discharged into the Skagit sewage should be given complete treatment and chlorinated. The lower reaches of this river are now badly polluted, though used after treatment for public water supplies by Anacortes, LaConner, Burlington, and Mount Vernon. Arlington uses filtered

[1] Professor of Sanitary Engineering, University of Washington, and Chairman, Committee on Sanitation and Public Health, Puget Sound Regional Planning Commission.

water from the Stillaguamish River, while Lynden filters its supply from the Nooksack.

The Tolt, Cedar, and Green Rivers likewise should be reserved and their drainage areas protected from pollution. All towns along these streams not already provided with modern sewage disposal plants should be so supplied. In locating new industrial plants that may be established after the war, special precautions should be taken to prevent undue contamination of streams or of existing surface and ground-water supplies. Thus should their present purity be safeguarded for posterity.

Waterborne Diseases

- Cholera
- Typhoid
- Hepatitis
- Cryptosporidiosis
- Giardia
- Amoebiasis
- E. Coli
- Salmonella
- Enterobiasis
- Dysentery
- Campylobacteriosis
- Polio
- Schistosomiasis
- Norovirus

Progress Made

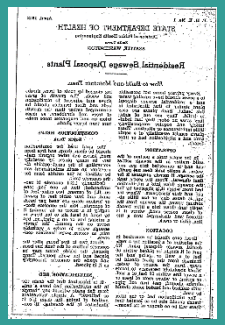
Top 10 Causes of Death

Rank	1850*	1900	1925	1950	1975	2000
1	Tuberculosis (all forms)	Pneumonia and Influenza	Diseases of the Heart	Diseases of the Heart	Diseases of the Heart	Diseases of the Heart
2	Respiratory Diseases	Tuberculosis	Pneumonia and Influenza	Cancer and other malignant tumors	Cancer and other malignant tumors	Cancer and other malignant tumors
3	Nervous System Diseases	**Diarrhea and Enteritis**	Kidney Diseases	Cerebrovascular Diseases (Stroke)	Cerebrovascular Diseases (Stroke)	Cerebrovascular Diseases (Stroke)
4	**Diarrhea and Enteritis**	Diseases of the heart	Cancer and other malignant tumors	Accidents	Accidents	Chronic lower respiratory diseases
5	Scarlet Fever	Cerebrovascular Diseases (Stroke)	Cerebrovascular Diseases (Stroke)	Certain diseases of early infancy	Pneumonia and Influenza	Accidents
6	Kidney Diseases	Kidney Diseases	Tuberculosis (all forms)	Pneumonia and Influenza	Diabetes Mellitus	Diabetes Mellitus
7	**Cholera**	Accidents	Accidents	Tuberculosis (all forms)	Cirrhosis of Liver (Liver Damage)	Pneumonia and Influenza
8	**Typhoid**	Cancer and other malignant tumors	**Diarrhea and Enteritis**	General arteriosclerosis (blood clot)	General arteriosclerosis (blood clot)	Alzheimer's Disease
9	Senility/Alzheimer's	Senility/Alzheimer's	Premature birth	Kidney Diseases	Suicide	Kidney Diseases
10	Digestive System Diseases	Diphtheria	Syphilis (all forms)	Diabetes Mellitus	Certain diseases of early infancy	Septicemia (Sepsis)

Waterborne Diseases shown in blue

**Source: Sickness and Health in America: Readings in the History of Medicine and Public Health, page 358. All other data from www.cdc.gov website.*

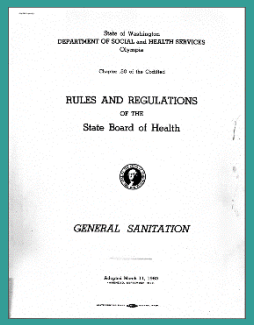
Regulatory Timeline



1942

P.H.E. No. 1

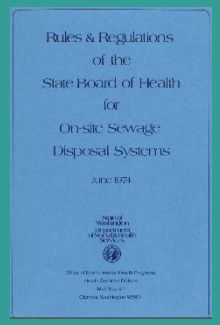
- No Permit Required
- Guidance



1960

WAC 248-50-100

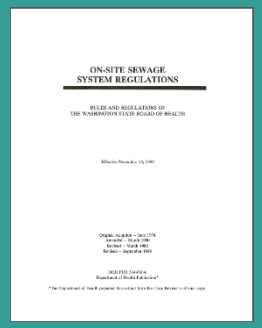
- Performance Standard
- Now WAC 246-203



1974

WAC 248-96

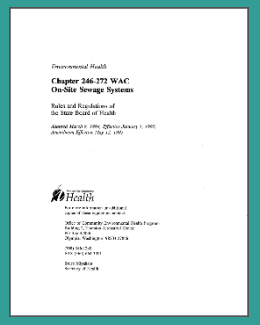
- Permit Required for First Time



1989

WAC 246-272

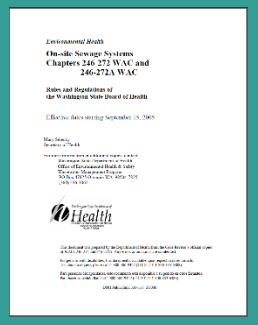
- PD Allowed w/2 ft. Vertical Separation
- Treatment Standards Developed for Marine Shoreline Repairs



1994

WAC 246-272

- Treatment Standards Extended to New Construction and Repairs on Nonconforming Sites



2005

WAC 246-272A

- Range of Performance Standards Expanded
- Product Registration Requirements Developed

P.H.E. No. 1, State Department of Health

- 1942 – First state standards specific for "Residential Sewage Disposal Plants" in Washington State
- No permit required
- Maintenance advised

P. H. E. No. 1

April, 1942

STATE DEPARTMENT OF HEALTH

Division of Public Health Engineering

Smith Tower

SEATTLE, WASHINGTON

Residential Sewage Disposal Plants

How to Build and Maintain Them

Every private home not accessible to a sewer should have running water and a residential sewage disposal plant similar to that illustrated in this leaflet. Such plants are easy to build. They are out of sight; they cause no odor; they last indefinitely and require comparatively little maintenance or attention. These plants consist essentially of a septic tank and a nitrification bed or filter trench.

OPERATION

In the septic tank a portion of the solid matter in the sewage settles out and is converted into gas and water. **A septic tank does not purify the sewage, it merely prepares it for final disposal.** From the septic tank the sewage flows into a nitrification bed from which it is absorbed by the soil and thus disappears. Where the soil is dense clay or has little absorbing power, the sewage from the septic tank flows into a filter trench of clean, coarse sand, where it is filtered and discharged into a tile line, ditch or creek.

LOCATION

Great care should be exercised in the selection of a location for a residential sewage disposal plant. No part of it should be placed within 50 feet of a well or spring and the drainage from the plant should be away from the source of water. When absolutely necessary to locate a sewer line within 50 feet of a well or spring, or where roots of trees or shrubs abound, cast iron soil pipe with caulked and leaded joints should be used.

The nitrification bed or the filter trench should also be so located that there will be no danger of its becoming clogged by roots of trees, shrubs and weeds. The growth of grass above and adjacent to nitrification beds and filter trenches should be encouraged rather than the growth of trees and shrubbery, as grass takes up and evaporates more moisture than larger plants.

CONSTRUCTION HELPS

Septic Tank

The sand used for construction should be clean, sharp, and free from mud, leaves and other organic matter. In many places by carefully excavating to the exact outside dimensions an earth embankment can be utilized as the outside form for the concrete tank.

Ordinarily 1:2:4 concrete is recommended; that is, one bag (one cu. ft.) of cement, two cubic feet of sand, and four cubic feet of gravel or broken stone are used per batch of concrete. Mix the concrete thoroughly in a mixer or by turning it by hand at least six to ten times in a mixing box or on a platform, but never on the ground. Use barely enough water to make a workable mix, as excess water weakens concrete.

About two to five hours after the concrete bottom of the tank has been poured, the inside forms may be placed and the walls poured. Tamp and spade the concrete thoroughly as it is placed.

NITRIFICATION BED

It is important that the drain tile in the nitrification bed have a uniform flat grade without any "humps or hollows." A simple, convenient method of laying the drain tile is illustrated in the drawing. It consists of setting grade boards carefully to grade in the bottom of the trench and placing the cinders, gravel or broken stone level with the top edge of these boards. The 4-inch drain tiles are then laid on top of these boards. Pieces of asphalt roofing, tar paper, or sheet metal, approximately 4" by 8" in size, are then placed over the joints to keep earth out of the tile, after which cinders, gravel or broken stones are placed against the tile as shown.

Ordinarily the tile in a nitrification bed should be laid as shallow as possible up to a depth of about 6 inches. A tile line should be so placed that it will not be disturbed by plowing or hauling across it during wet weather. In the last 2 or 3 feet of the nitrification bed the cinders, gravel or stone should be omitted and the grade of the drain tile raised at least 4 inches. A pit at least 3 feet across by 3 feet deep should be dug at the end of the tile line. Such a pit filled to the surface with cinders aerates the bed and provides additional storage and absorption capacity.

Occasionally during rainy seasons the ground in some sections of the state becomes so saturated with storm water as to leave little opportunity for the sewage to be absorbed in the nitrification bed. In such cases it is necessary to remove the ground water and tile underdrains should be laid as shown in the drawing.

FILTER TRENCH

The construction of the filter trench is clearly shown in the cross section. The bottom 4" drain tile in the filter trench should have its joints loosely wrapped with strips of asphalt roofing, tar paper, or sheet metal to exclude the sand. This lower tile should also be laid carefully to a grade of ½-inch fall in 10 feet and about 2 feet 2 inches below the grade of the upper 4" tile which leads from the septic tank. After the clean, coarse sand is laid in the filter trench to proper grade, the tile from the septic tank is laid on top of the sand and held in place by coarse cinders, gravel or broken stone and a 3-foot strip of ordinary asphalt roofing laid over the top of the tile, stone or cinders to keep the earth from flowing in and stopping up the open spaces in the stone and sand. This is important.

GENERAL

In laying out either a nitrification bed or a filter trench, extreme care should be taken to insure a grade of ½ inch in 10 feet and to avoid "humps or hollows" in the line. To this end it is strongly urged that an engineer's or architect's level be used, rather than a carpenter's level, as the latter is often inaccurate.

It is immaterial whether the filter trench or nitrification bed is laid out straight or curved, just so the required quantity of drain tile is used and carefully laid to grade. The amount of drain tile is determined by the number of people to be accommodated and the character of soil in which it is to be placed.

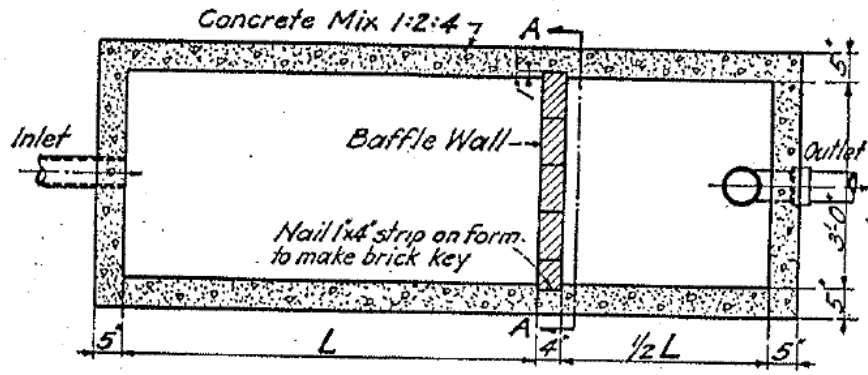
Roof drains should never be connected to the sewage disposal plant. These disposal plants should always be built according to the dimensions shown, and where there is any question as to the number of users, the next larger size should be constructed, as the additional cost is negligible.

MAINTENANCE

The tank should be inspected and the amount of sludge determined two years after installation, and each year thereafter. When the tank becomes half full of sludge and scum, this material should be removed and buried. A little sludge should always be left in the tank to keep it working.

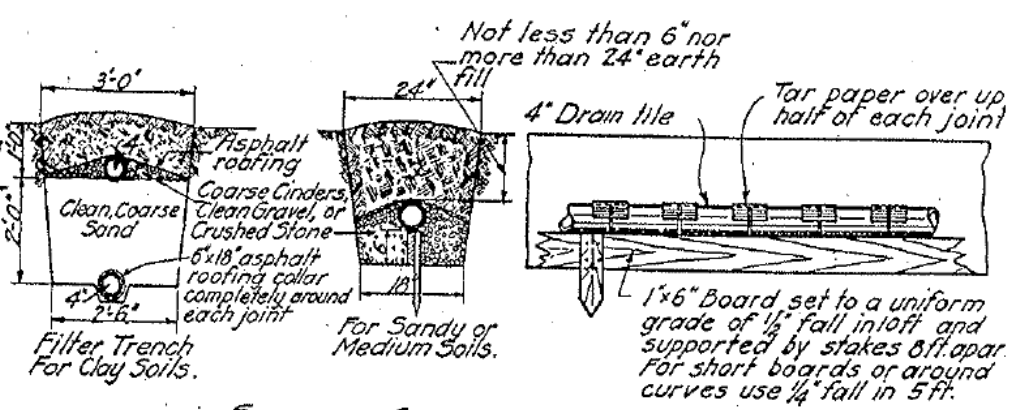
Care should be taken not to allow an undue amount of lye or disinfectants to be discharged into the sewage, as such materials defeat the purpose of the tank by interfering with bacterial action.

If any special difficulties are encountered, or unusual conditions or problems are found, the State Department of Health, Seattle, Washington, will be glad to assist by correspondence, or where practicable an engineer may be able to call and offer advice and assistance.

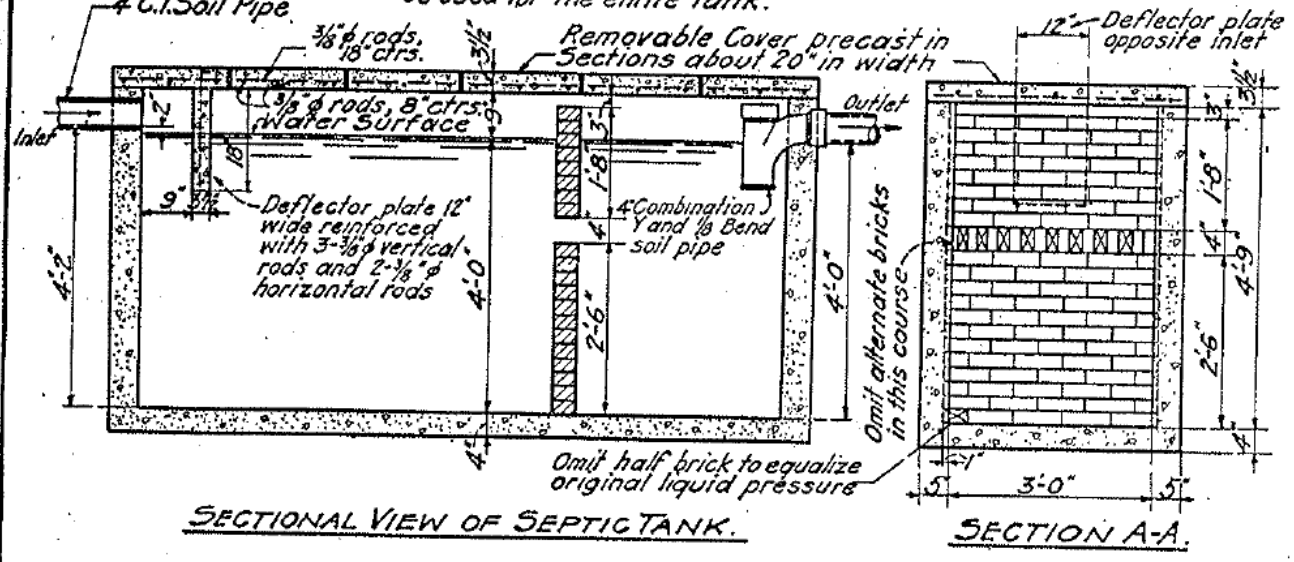


PLAN - COVER REMOVED.

Note: Where preferred concrete may be used for the baffle wall or brick may be used for the entire tank.

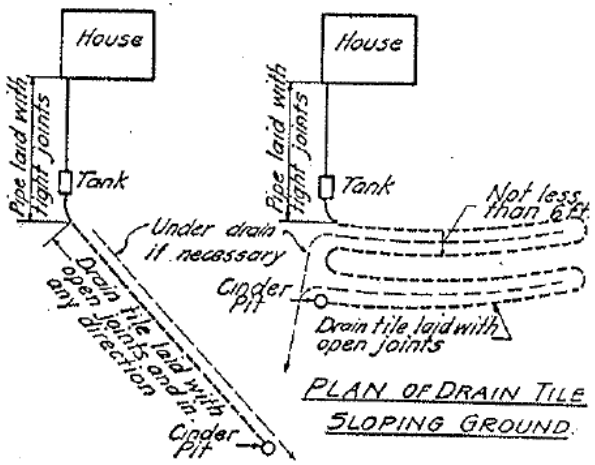


SECTIONS SHOWING DRAIN TILE IN TRENCH.



SECTIONAL VIEW OF SEPTIC TANK.

SECTION A-A.



PLAN OF DRAIN TILE SLOPING GROUND.

PLAN OF DRAIN TILE LEVEL GROUND.

TABLE OF DIMENSIONS & QUANTITIES.

No. of Users	Length L	Length ½ L	Length of 4" Drain: Sandy Soils	Medium Soils	Length Filter Trench	Bags of Cement	Cu. Yds. Sand	Cu. Yds. Gravel	⅜" ϕ Reinf. Steel Lin. Ft.	No. of Brick	Forms & Mixing Platform: 2"x4"x12'-0" Lin. Ft.	1"x6" T. & G. Sq. Ft.
1-6	6'-0"	3'-0"	120'	240'	60'	20	1.5	2.9	100	100	240	280
7-9	7'-0"	3'-6"	180'	360'	90'	22	1.7	3.3	115	100	252	300
10-12	8'-0"	4'-0"	240'	480'	120'	24	1.8	3.6	130	100	264	320
13-15	9'-0"	4'-6"	300'	600'	150'	27	2.0	4.0	145	100	276	340

RESIDENTIAL SEWAGE DISPOSAL PLANT

APPROVED BY THE

STATE DEPARTMENT OF HEALTH

SEATTLE, WASH.

WAC 248-50-100, State Board of Health

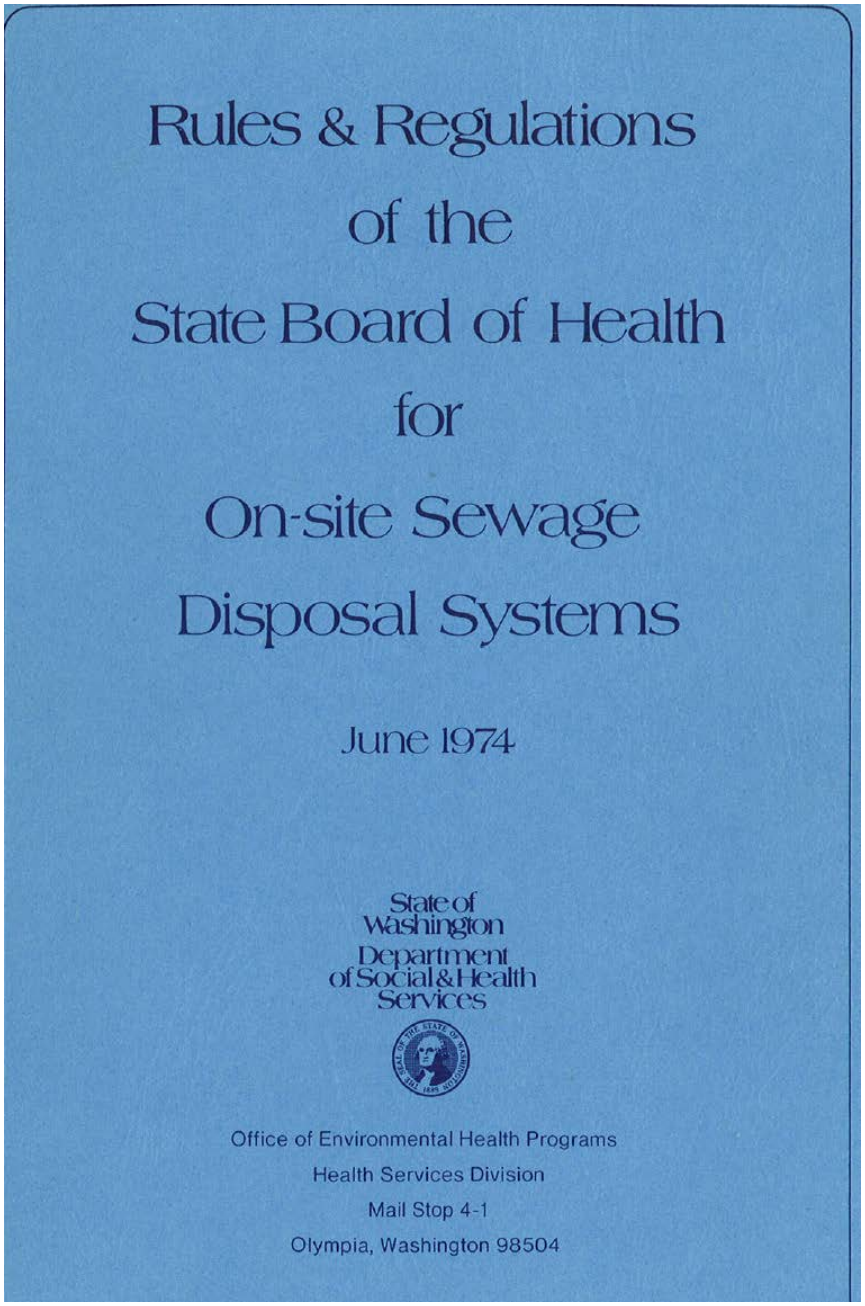
- 1960
- General sanitation rule
- No permit required

(3)Privies Shall not Drain in any Waters of the State

No privy, urinal, cesspool, septic tank or other receptacle for human excrement shall be constructed, maintained or used which **directly or indirectly drains or discharges over or upon the surface of the ground, or into any waters of the state either directly or indirectly**; unless the contents of such urinal, cesspool, septic tank or receptacle for human excrement are subjected to some recognized sterilization **treatment approved by the department of health**.

WAC 248-96, State Board of Health

- 1974 – First State Board of Health regulations requiring permits for On-Site Sewage Disposal Systems in Washington State
- A consistent framework for local health departments to establish local regulations
- Local Health and/or DSHS reviews all large on-site including >14,500
- Revised: 1980, 1982, 1983


Rules & Regulations
of the
State Board of Health
for
On-site Sewage
Disposal Systems
June 1974
State of
Washington
Department
of Social & Health
Services
Office of Environmental Health Programs
Health Services Division
Mail Stop 4-1
Olympia, Washington 98504

WAC 248-96-010 AUTHORITY. Pursuant to the authority of RCW 43.20.050 (Powers and Duties of State Board of Health), these regulations are hereby established as minimum requirements of the state board of health, governing on-site sewage disposal systems for individual homes and any other source of sewage.

WAC 248-96-011 PURPOSE AND OBJECTIVES. These regulations provide for a uniform framework through which local boards of health will establish a system of local regulations. Such local regulations will integrate local conditions consistent with uniform state standards to accomplish the following objectives:

(1) Establish design standards to accommodate long-term disposal of sewage using on-site methods for rural areas.

(2) Establish design and management system criteria to permit on-site methods of sewage disposal for subdivisions and suburban areas where significant population growth is occurring or likely to occur.

(3) Establish minimum functional regulations and guidelines for health jurisdictions choosing not to adopt local regulations.

WAC 248-96-012 SCOPE. The regulations do not apply, except as specifically noted, to public sewage collection, treatment and disposal systems. Sections WAC 248-96-018 through WAC 248-96-180, excluding 248-96-045, -046, -075, and -180 of these rules and regulations shall become effective and enforced by the health officer if the provisions of WAC 248-96-015 are not met.

WAC 248-96-015 LOCAL REGULATION. All local boards of health shall adopt local rules and regulations governing on-site waste disposal systems within eighteen months after the effective date of these regulations. Such local rules and regulations and guidelines must be consistent with the state board of health regulations and guidelines and must be approved by the secretary in accordance with the procedure outlined in section WAC 248-96-016 of the state board of health regulations. If any local board of health fails to adopt rules and regulations consistent with intent and purpose of the state regulations, the state regulations shall become effective and they shall be enforced by the local health officer within his jurisdiction.

WAC 248-96-016 LOCAL REGULATIONS APPROVAL PROCEDURE.

(1) Within six months after the passage of these regulations, all local health departments shall submit to the secretary for approval a copy of their proposed or existing local regulations governing on-site waste disposal systems. All local regulations must include appropriate sections corresponding to WAC 248-96-018 through WAC 248-96-180.

(2) Upon reviewing the local regulations, the secretary shall consider all factors relevant to the administration of local health department's program including land development

activities, basic soils and climatic conditions, local program priority and staffing, and sewage basin planning.

(3) After receiving the local regulations, the secretary shall have 60 days to either approve or disapprove the proposal. Within four months after the initial approval by the secretary, the local health department shall provide to the secretary a copy of the adopted local regulations. No changes can be made in the adopted local regulations from the original submittal without written authority from the secretary.

(4) If the secretary determines that the local regulations are not consistent with the purpose and objectives of the state board of health regulations, he shall provide in writing to the local health department, his specific reasons for not approving the local regulations. All decisions by the secretary shall be appealable to the state board of health within 120 days after the disapproval has been received by the local health department. Resubmission of revised local regulations may occur any time after disapproval has been received.

(5) Nothing in these regulations shall prohibit the adoption and enforcement of more stringent regulations by local health departments where such regulations are needed to protect the public health and welfare.

WAC 248-96-018 ADMINISTRATION. The health officer shall administer these regulations under the authority and requirements of Chapters 70.05 and 43.20 RCW. As provided in RCW 70.05.060(7), he may charge fees for this administration.

WAC 248-96-020 DEFINITIONS. (1) "Approved" - The term "approved" shall mean acceptable by the health officer as stated in writing.

(2) "Cover" - shall mean fill material that is used to cover a subsurface disposal area to a maximum depth of 18 inches.

(3) "Fill" - shall mean soil materials that have been displaced from their original location.

(4) "Ground water" - subsurface water occupying the zone of saturation.

(5) "Health officer" - the health officer of the city, county, city-county, or district health department or his authorized representative.

(6) "On-site sewage disposal system" - any system of piping, treatment devices, or other facilities that convey, store, treat, or dispose of sewage on the property where it originates or on adjacent or nearby property under the control of the user where the system is not connected to a public sewer system.

(7) "Person" - any individual, corporation, company, association, society, firm, partnership, joint stock company, or any branch of state or local government.

(8) "Public sewer system" - a sewerage system which is owned or operated by a city, town, municipal corporation, county, political subdivision of the state, or other approved ownership consisting of a collection system and necessary trunks, pumping facilities and a means of final treatment and disposal and under permit from the department of ecology.

(9) "Secretary" - the secretary of the state department of social and health services or his authorized representative.

(10) "Septic tank" - a watertight receptacle which receives the discharge of sewage from a building sewer, and is designed and constructed so as to permit separation of settleable and floating solids from the liquid, detention and digestion of the organic matter, prior to discharge of the liquid portion.

(11) "Sewage" - the water-carried human or domestic waste from residences, building, industrial establishments or other places, together with such ground water infiltration, and other wastes as may be present.

(12) "Subdivision" - a division of land, as defined in Ch. 58.17 RCW, now or as hereafter amended.

(13) "Surface water" - any body of water, whether fresh or marine, or watercourse, including lakes, impoundments and streams.

WAC 248-96-040 APPLICABILITY. (1) These regulations shall not apply to new construction for which a permit was issued prior to the effective date of the regulations or to existing systems where extensions or alterations are undertaken as a result of failure of the system or portions thereof, or pursuant to an order of the health officer.

(2) Lots, parcels or tracts that have received written approval by the health officer prior to the effective date of these regulations shall be subject to only the design section of these regulations (WAC 248-96-110) and any additional standards prescribed by the health officer. Provisions of this subsection shall also include extensions of existing systems to handle increase in flows from dwelling unit expansion.

(3) Subdivisions recorded prior to the effective date of these regulations and that have not received written approval by the health officer, shall be subject to the requirements of the county regulations in effect at the time of recording and other standards deemed necessary by the health officer.

(4) These regulations shall not apply to facilities constructed or operated in accordance with a permit issued by the Washington state department of ecology and where they may be in conflict with Chapters 90.48 or 70.95B RCW, said RCW shall govern.

WAC 248-96-045 OTHER TYPES OF DISPOSAL UNITS. Units other than septic tanks or devices that can function as septic tanks with subsurface disposal systems, including but not limited to chemical toilets, vault privies, incinerator toilets, mechanical and aerobic treatment devices, evapotranspiration systems, may be used but only with the prior approval of the health officer in accordance with the procedure established in WAC 248-96-046.

WAC 248-96-046 ALTERNATE DEVICES AND METHODS. Any alternate device or method shall first be submitted to the secretary for technical evaluation and report in accordance with guidelines established by a technical review committee and the

secretary. The secretary is hereby authorized to appoint a technical review committee for purposes of establishing said guidelines. Such guidelines shall include national standards including but not limited to guidelines of the National Sanitation Foundation. The committee shall be composed of representatives from local health departments, manufacturers, consumer organizations, engineering firms, the department of ecology, a public sewer utility, and other interested organizations. Approval authority for the application, installation or use of any alternate device or method is vested with the local health officer provided the device or method has first been given a technical evaluation and report by the secretary in accordance with the provisions of this chapter. This section shall not become effective until one year after the effective date of these regulations.

WAC 248-96-050 NO DISCHARGE TO WATERS OR GROUND SURFACE. (1) Effluent from any on-site sewage disposal system shall not be discharged to surface water or upon the surface of the ground.

(2) Subsurface on-site sewage disposal systems shall not be permitted in areas where a minimum separation of three feet between the bottom of the disposal field and the maximum seasonal ground water elevation or impermeable layer cannot be maintained. The health officer shall require such greater vertical separation as needed to protect health when the aquifer is used for a potable water supply. The health officer may reduce the vertical separation provided the local health department has in effect an adequate designer program as described in WAC 248-96-130. However, in no case shall the separation be less than one foot.

(3) Subsurface on-site sewage disposal systems shall not be permitted in areas of fractured rock or excessively permeable material where it is likely that action of the soil profile will be ineffective in retaining and removing substances having an adverse effect on ground waters.

WAC 248-96-060 CONNECTION TO PUBLIC SEWER SYSTEM. (1) Connection of any dwelling unit or other premise where sewage originates shall be made to a public sewer system where there is an adequate public sewer within 200 feet of the dwelling or other facility to be served, and such connection is permitted by the sewer utility. Such connection shall be made and use of the on-site sewage disposal system discontinued when repair or replacement of the on-site sewage disposal system is required or as directed by local ordinance, whichever is sooner, but in any case shall be accomplished within two years after public sewer service becomes available. This requirement may be waived if the health officer determines that such connection is not feasible.

(2) If the distance between the facility to be served and an adequate public sewer is greater than 200 feet, and where the anticipated sewage flow is greater than 1,000 gallons per day, connection shall be made thereto if the health officer determines that a connection is feasible and such connection is permitted by the sewer utility.

(3) Where connection to public sewer is required, the same shall be made in accordance with rules, regulations and resolution of the public sewer utility providing sanitary service:

PROVIDED, HOWEVER, That if the public sewer utility's requirements are less restrictive, subsections (1) and (2) of this section shall apply.

WAC 248-96-070 ON-SITE SYSTEM MANAGEMENT. (1) When subdivisions or multiple housing units are designed to have gross densities that exceed 3.5 housing units or 12 people/acre or waste flows of 1,200 gallons/acre/day, on-site sewage disposal systems shall not be permitted unless the perpetual maintenance and management of the sewage disposal systems are under the responsibility of an approved management system as identified in subsections (2) and (3) of this section.

(2) Proposed on-site sewage disposal systems to be located within the boundary of an operating public sewer utility shall be approved by the sewer utility prior to the issuance of a permit. If the proposed system serves a density greater than that identified in subsection (1) of this section, the maintenance of the sewage disposal system shall be the responsibility of the sewer utility or dry sewers shall be provided as approved by the department of ecology and applicable public sewer utility having jurisdiction in accordance with an approved sewage drainage basin plan.

(3) Sewage disposal systems serving housing densities and/or flows exceeding that identified in subsection (1) of this section and not located within the boundary of an operating public sewer utility, shall have an approved perpetual maintenance and management system as established under the guidelines developed by the secretary, the department of ecology, and the local government responsible for public utilities. The guidelines shall take into account the comprehensive land-use plan for the jurisdictional area and size of development.

(4) Within six months after the effective date of these regulations, the secretary shall develop guidelines describing an approved on-site waste management system.

WAC 248-96-075 LARGER SYSTEMS. Guidelines governing the review, approval procedure and authority for larger systems shall be developed jointly between the department of social and health services, the local health departments, the department of ecology, and municipal sewer utilities. However, until such guidelines are established, the following rule shall apply:

In all cases where the maximum design flow of any on-site disposal system is greater than 14,500 gallons per day, prior to instituting construction of the system, a copy of the construction plan shall be submitted to the secretary, who shall review the proposed system to determine that its use will be consistent with protection of the public health. No health officer shall issue a permit for such a system until it has been approved by the secretary.

WAC 248-96-080 PERMIT. (1) No person shall install a new on-site sewage disposal system, nor perform major alterations, extensions or relocations of an existing system without

a valid permit issued by the health officer. Permits for alterations or repairs shall be so identified. Application for such permit shall be made in writing in a manner prescribed by the health officer.

(2) When applying for a permit to install an on-site sewage disposal system, a construction plan of the proposed system is required. The construction plan shall contain information as required by the health officer in sufficient detail and to a scale which will permit a proper evaluation of the application. Such information should contain the following as a minimum:

(a) Name of applicant and legal description of site.
(b) Soil logs describing nature and depth of soils.
(c) Percolation test data where required.
(d) Anticipated maximum seasonal ground water table.
(e) General topography of the site and site drainage characteristics.
(f) Distances of proposed system to water supplies, surface water, banks or cuts, boundaries of property and structures or other improvements.
(g) Distance to public sewer system.

WAC 248-96-090 MINIMUM LOT SIZES FOR SUBDIVISIONS. One of the following methods shall be used for determining lot sizes when on-site sewage disposal is used.

METHOD (1) TABLE I MINIMUM LOT SIZES

	SOIL TYPE					
WATER SUPPLY	1	2	3	4	5	6
Public	1* acre	12,500 sq.ft.	15,000 sq.ft.	18,000 sq.ft.	20,000 sq.ft.	----
Individual-Each Lot	2* acres	1 acre	1 acre	1 acre	2 acres	----

Soil Type	Drainage	Percolation Rate**	General Soil Classification
1	Excessive	Less than 1 minute/inch	Gravel, coarse sand, cobbles
2	Good	1 - 4 minutes/inch	Sandy soil, some loam, some gravel
3	Fair	5- 9 minutes/inch	Finer sand and/or silt, few gravels
4	Poor	10 - 19 minutes/inch	Mostly silt or clay, some sand and shot clay
5	Marginal	20 - 29 minutes/inch	Silt or clay
6	Unacceptable	Over 30 minutes/inch	Gumbo, rock, hardpan, clay pan

*Lot sizes for soil type 1 can be reduced by the health officer if engineering justification can be provided that shows significant adverse effects on ground water quality will not occur; however, in no case shall the reduced size be less than that for soil type 2.

**The requirements for percolation tests may be waived by the health officer if existing soils information, such as soil logs, soil maps and Soil Conservation Service data, is sufficient to accurately classify soils.

METHOD (2) On-site sewage disposal systems shall be installed on lots, parcels, or tracts that have a sufficient amount of area with proper soils in which sewage can be retained and treated properly on-site. If engineering justification can be provided that a lot or lots have a sufficient amount of area with proper soils to adequately retain and treat sewage on-site, taking into consideration those factors outlined in subsection (2), then minimum lot size will be established by the health officer on the basis of the information submitted. Factors that must be considered when determining minimum lot size include but are not limited to the following:

(a) Soil type and depth.
(b) Area drainage, lot drainage.
(c) Protection of surface and groundwaters.
(d) Setbacks from property lines, water supplies, etc.
(e) Source of domestic water.
(f) Topography, geology and ground cover.
(g) Climatic conditions.
(h) Availability of public sewers.
(i) Activity or land use, present and anticipated.
(j) Growth patterns.
(k) Individual and accumulated gross effects on water quality.
(l) Reserve areas for additional subsurface disposal.
(m) Anticipated sewage volume.

METHOD (3) If the lot or lots are within the jurisdiction of an approved sewer utility which will provide maintenance and operation responsibility and replacement of systems as necessary, then minimum lot sizes shall be established jointly between the sewer utility, the local health, planning, established county public works departments, and other applicable local agencies.

WAC 248-96-095 DETERMINATION OF SOIL CHARACTERISTICS. (1) Preliminary tests for subdivisions involving more than one disposal system shall be made in the amount of at least one representative soil log and percolation test per acre or tract or more as required by the health officer.

(2) At least two percolation tests and one soil log shall be performed at the site of each disposal area. This requirement may be waived by the health officer if adequate soils information is available. Additional tests may be required where the soil structure varies or if large disposal areas are required.

(3) All percolation tests and soil logs shall be performed by or under the direct supervision of a registered sanitarian, professional engineer or approved designer, except as specified in WAC 248-96-130.

(4) If a sufficient amount of information is not available on water table conditions, the health officer can require that percolation tests and soil logs be conducted during the months of suspected high water table conditions.

(5) All soil tests shall be conducted using a uniform procedure developed by the secretary and the local health officers. Such procedures shall be developed within six months after the effective date of these regulations.

WAC 248-96-096 LARGER TRACT REQUIREMENTS. The requirements found in WAC 248-96-050(2) and WAC 248-96-090 may be reduced by the health officer for lots, parcels or tracts of 1/128th a section or more.

WAC 248-96-100 LOCATION. (1) The minimum distance for location of the various component parts of the on-site sewage disposal system is measured horizontally and shall comply with Table II.

TABLE II MINIMUM DISTANCE IN FEET

Component	Well or Suction Line(a)	Water Supply Line Under Pressure	Surface Water (a)(b)(c)	Building	Property Line	Open Ditches or Cuts Down Hill Side
Building sewer	50	10	10	--	--	--
Septic tank	50	10	50	5	5	--
Tile field or dry well	100	10	100	10	10	15 + Height of cut or bank

(a) In soil types that are classified as having excessive drainage characteristics in accordance with WAC 248-96-090, the distance from any water supply or surface water may be increased by the health officer.

(b) Setbacks from surface waters shall be measured from mean high water.

(c) A reduced separation can be allowed between the tile field or dry well and the well or surface water by the health officer if it can be demonstrated that the reduction will not have an adverse effect. However, in no case shall the separation be less than 75 feet.

(2) The area to be used for sewage disposal shall be selected and maintained so that it is free from encroachment by buildings and other structures. The area shall not be subject to vehicular traffic and shall not be covered with an impervious surface.

(3) The on-site sewage disposal system shall not be located in an area where surface water will accumulate. Provisions shall be made to minimize flow or accumulation of surface water over the area.

(4) No part of an on-site sewage disposal system shall be constructed in a state flood control zone, before a flood control zone permit is obtained from the department of ecology. Such permits are issued under the provisions of Ch. 86.16 RCW and Ch. 508.60 WAC.

WAC 248-96-110 DESIGN. (1) The detailed design and construction of all systems shall conform to the "Manual of Septic Tank Practice," U.S. Public Health Service Publication No. 526, 1967, or any succeeding edition, except where modified by, or in conflict with these regulations.

(2) The system shall be designed to receive all sanitary sewage and domestic waste from the building served unless otherwise approved by the health officer. Footing or roof drains shall not enter the sewage disposal system.

(3) The size of the effluent absorption area shall be determined by the results of percolation tests performed in accordance with WAC 248-96-095 together with an evaluation of soil data, drainage conditions, and such other related data as may be required by the health officer.

(4) All septic tanks shall be designed in accordance with subsection (1) of this section.

(a) All tanks must have a minimum of two compartments.

(b) "Materials" - septic tanks and dosing tanks shall be constructed of corrosion resistant material, and shall be watertight. They may be constructed of poured in-place concrete, precast reinforced concrete, concrete blocks with mortar joints, or other materials approved by the health officer and the secretary.

(c) Suitable baffles and/or tees shall be provided to prevent floating solids from leaving the tank.

(d) Access and cleanouts shall be provided for easy inspection and removal of the tank contents.

(5) Effluent shall be disposed of by means of subsurface disposal fields except when special approval for other disposal systems is granted by the health officer and the secretary.

(a) The installation and use of cesspools for disposal of sewage is not permitted.

(b) Seepage pits shall not be used for the disposal of septic tank effluent except under special conditions approved by the health officer. The depth of approved seepage pits shall not exceed 10 feet from finished grade unless approved by the department of ecology.

(c) Sewage holding tanks shall not be used as a permanent method of sewage disposal for residential dwelling units.

The health officer may allow holding tanks on an interim use basis to handle emergency situations or to correct existing problem systems.

The health officer may allow holding tanks for controlled part-time use situations such as recreational vehicle parks and trailer dump stations: PROVIDED, That an approved on-site system management program as provided by WAC 248-90-070 is in effect.

(6) The subsurface disposal system generally shall not be installed in fill. Fill can be used as cover over a subsurface disposal area up to a maximum depth of eighteen (18) inches provided that no portion of the absorption trenches are installed in this material.

The health officer may allow installation of a subsurface disposal system in fill that has been in place a period of time and has stabilized to the point where site conditions and soil tests show the site to be satisfactory to allow full compliance with provisions of these regulations.

(7) Construction on slopes in excess of 15% but not greater than 30% may be allowed: PROVIDED, That subsoil profiles indicate no restrictive layers of soil and appropriate engineering design is provided.

(8) The absorption trench shall be installed no closer than ten (10) feet to an interceptor drain line provided the interceptor drain is on a slope higher than the absorption trench. If the interceptor drain is below the absorption trench, the drain shall be installed no closer than 30 feet.

WAC 248-96-130 DESIGNER PROGRAM. If a designer program is established, all plans, specifications, and percolation tests submitted to the health officer must be designed and certified by either a registered sanitarian, professional engineer or a designer licensed by the health officer. The health officer may waive any or all portions of the requirements of this section for single family dwellings only.

WAC 248-96-140 INSPECTION. The health officer may make inspections during construction to determine compliance with these regulations. No part of any installation shall be covered until approval has been obtained from the health officer. The health officer may waive this requirement provided the installation has been made by a person licensed under WAC 248-96-175 and a designer program has been established according to WAC 248-96-130. Once an on-site system has been installed and is approved, a complete set of certified "as-built" drawings shall be provided to the health officer for a permanent record of the installation.

WAC 248-96-160 WAIVER OF REGULATIONS. Whenever a strict interpretation of these regulations would result in extreme hardship, the health officer may, upon concurrence of the secretary, waive such regulation or portion thereof: PROVIDED, That the waiver is consistent with the intent of these regulations and that no public health hazard will result.

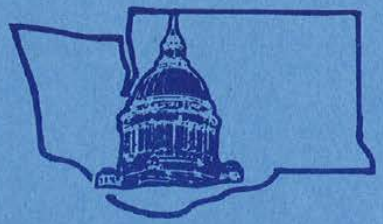
WAC 248-96-170 DISPOSAL OF SEPTIC TANK WASTE. (1) The contents of a septic tank or other treatment device shall be disposed of only in areas and in a manner approved by the health officer.

(2) Local boards of health shall establish requirements for persons engaged in the removal of septic tank contents, which shall include standards for equipment and operating procedures and may provide for the issuance and revocation of permits.

WAC 248-96-175 SEWAGE CONTRACTOR'S LICENSE. Local boards of health shall establish requirements for persons, firms, or corporations engaged in the business of installing or repairing on-site sewage disposal systems. The requirements shall include a license or permit issued for a period not to exceed one year,

an examination of the competence of the licensee to perform this work which may include a written test, and such other evaluation as the health officer may deem appropriate. The requirements shall include a means of revoking a license for non-compliance of established rules and regulations.

WAC 248-96-180 EVALUATION AND REVISION. These regulations shall be reviewed and evaluated annually. Revision shall be made as needed to insure proper administration and to allow for newer methods of on-site sewage disposal. The secretary is directed to appoint a special review committee for purposes of reviewing and recommending changes to these regulations. Members of the committee shall be selected from the land development and real estate industry, local health departments, planning, sanitarian and engineering organizations, consumer and environmental groups, state regulatory agencies, and a representative of a public sewer utility.



DANIEL J. EVANS
GOVERNOR

No person in the State of Washington shall, on the grounds of sex, race, color, or national origin, be excluded from participation in, or be subjected to discrimination under any program or activity administered or supervised by the Washington State Department of Social and Health Services.

HEALTH SERVICES DIVISION

JOHN A. BEARE, M.D.
Director, Health Services Division

DEPARTMENT OF SOCIAL AND HEALTH SERVICES

MILTON BURDMAN
Secretary

OLYMPIA, WASHINGTON 98504

WAC 248-96, State Board of Health

1979

- 3 feet of vertical separation required
- Alternative systems allowed
- 120 gallons per bedroom specified
- Percolation tests no longer used
- Dept. of Ecology reviews >14,500

WAC 246-272, State Board of Health

1989

- Regulation moved back to Department of Health
- Pressure distribution allowed with 2 feet of vertical separation
- Treatment Standards 1 & 2 applied (in response to legislation)
- Failures along marine shorelines addressed

WAC 246-272, State Board of Health

March, 1994

- Local Health Officer = <3500 gpd
- DOH = >3500 gpd and <14,500 gpd
- ECY = >14,500 residential, all industrial, and >3500 gpd using mechanical treatment

Chapter 246-272A WAC, State Board of Health

- Adopted 2005
- Residential sewage < 3500 gpd
- LOSS removed from 246-272A
- Expanded treatment levels
- Certification and registration of proprietary products added
- Required Puget counties to develop management plans that:
  - Inventory all OSS
  - Identify areas of concern for enhanced O&M&M requirements
- Required all other counties to develop lesser plans

246-272A WAC Statutory Authority

- **RCW 43.20.050 Powers and Duties State Board of Health**
- RCW 43.70.310 coordinate public health and environmental protection policies
- **RCW 70.05 Local Health Departments**
- RCW 70.08 City-County Health Departments
- **RCW 70.118 On-site Sewage Disposal Systems**
- **RCW 70.118A On-site Sewage Disposal Systems –Marine Recovery Areas**
- RCW 70.46 Health Districts
- RCW 43.70 Department of Health

246-272A WAC Statutory Authority

Coordinate with:

- RCW 18.210 On-site designer licensing
- 196-33 WAC On-site designer rules
- RCW 36.70 County Planning Enabling Act
- RCW 36.70A Growth Management Act
- RCW 58.17 Plats-Subdivisions-Dedications

RCW 43.20.050

(2) In order to protect public health, the state board of health shall:

(...)

(c) Adopt rules and standards for prevention, control, and abatement of health hazards and nuisances related to the disposal of human and animal excreta and animal remains;

(...)

(3) The state board shall adopt rules for the design, construction, installation, operation, and maintenance of those on-site sewage systems with design flows of less than three thousand five hundred gallons per day.

RCW 70.05.060

Powers and duties of local board of health.

Each local board of health shall have supervision over all matters pertaining to the preservation of the life and health of the people within its jurisdiction and shall:

(1) **Enforce through the local health officer or the administrative officer appointed under RCW 70.05.040, if any, the public health statutes of the state and rules promulgated by the state board of health and the secretary of health**;

(2) Supervise the maintenance of all health and sanitary measures for the protection of the public health within its jurisdiction;

(3) Enact such local rules and regulations as are necessary in order to preserve, promote and improve the public health and provide for the enforcement thereof;

(4) **Provide for the control and prevention of any dangerous, contagious or infectious disease within the jurisdiction of the local health department;**

(5) **Provide for the prevention, control and abatement of nuisances detrimental to the public health;**

(6) Make such reports to the state board of health through the local health officer or the administrative officer as the state board of health may require; and

(7) Establish fee schedules for issuing or renewing licenses or permits or for such other services as are authorized by the law and the rules of the state board of health: PROVIDED, That such fees for services shall not exceed the actual cost of providing any such services.

RCW 70.05.190

On-site sewage program management plans—Authority of certain boards of health.

(1) A local board of health in the twelve counties bordering Puget Sound implementing an on-site sewage program management plan may:

(a) **Impose and collect reasonable rates or charges in an amount sufficient to pay for the actual costs of administration and operation of the on-site sewage program management plan**; and

(b) Contract with the county treasurer to collect the rates or charges imposed under this section in accordance with RCW **84.56.035**.

(2) In executing the provisions in subsection (1) of this section, a local board of health does not have the authority to impose a lien on real property for failure to pay rates and charges imposed by this section.

(3) Nothing in this section provides a local board of health with the ability to impose and collect rates and charges related to the implementation of an on-site sewage program management plan beyond those powers currently designated under RCW **70.05.060**(7).

RCW 70.118.010

Legislative declaration.

The legislature finds that over one million, two hundred thousand persons in the state are not served by sanitary sewers and that they must rely on septic tank systems. **The failure of large numbers of such systems has resulted in significant health hazards, loss of property values, and water quality degradation**. The legislature further finds that failure of such systems could be reduced by utilization of nonwater-carried sewage disposal systems, or other alternative methods of effluent disposal, as a correctional measure. Waste water volume diminution and disposal of most of the high bacterial waste through composting or other alternative methods of effluent disposal would result in restorative improvement or correction of existing substandard systems.

RCW 70.118.050

Adoption of more restrictive standards.

If the legislative authority of a county or city finds that more restrictive standards than those contained in *section 2 of this act or those adopted by the state board of health for systems allowed under *section 2 of this act or limitations on expansion of a residence are necessary to ensure protection of the public health, attainment of state water quality standards, and the protection of shellfish and other public resources, the legislative authority may adopt ordinances or resolutions setting standards as they may find necessary for implementing their findings. The legislative authority may identify the geographic areas where it is necessary to implement the more restrictive standards. In addition, the legislative authority may adopt standards for the design, construction, maintenance, and monitoring of sewage disposal systems.

RCW 70.118A.030

Local health officers to develop a written on-site program management plan.

By July 1, 2007, the local health officers of health jurisdictions in the twelve counties bordering Puget Sound shall develop a written on-site program management plan to provide guidance to the local health jurisdiction.

RCW 70.118A.040

Local health officers—Determination of marine recovery areas.

(1) In developing on-site program management plans required under RCW **70.118A.030**, the local health officer shall propose a marine recovery area for those land areas **where existing on-site sewage disposal systems are a significant factor contributing to concerns associated with**:

(a) **Shellfish growing areas** that have been threatened or downgraded by the department under chapter **69.30** RCW;

(b) **Marine waters** that are listed by the department of ecology under section **303(d)** of the federal clean water act (33 U.S.C. Sec. 1251 et seq.) for **low-dissolved oxygen or fecal coliform**; or

(c) **Marine waters where nitrogen has been identified** as a contaminant of concern by the local health officer.

(2) In determining the boundaries for a marine recovery area, **the local health officer shall assess and include those land areas where existing on-site sewage disposal systems may affect water quality** in the marine recovery area.

(3) **Determinations made by the local health officer under this section, including identification of nitrogen as a contaminant of concern, will be based on published guidance developed by the department.** The guidance must be designed to ensure the proper use of available scientific and technical data. The health officer shall document the basis for these determinations when plans are submitted to the department.

(4) After July 1, 2007, the local health officer may designate additional marine recovery areas meeting the criteria of this section, according to new information. Where the department recommends the designation of a marine recovery area or expansion of a designated marine recovery area, the local health officer shall notify the department of its decision concerning the recommendation within ninety days of receipt of the recommendation.

RCW 70.118A.050

Marine recovery area on-site strategy.

(1) The local health officer of a local health jurisdiction where a marine recovery area has been proposed under RCW **70.118A.040** shall develop and approve a marine recovery area on-site strategy that includes designation of marine recovery areas to guide the local health jurisdiction in developing and managing all existing on-site sewage disposal systems within marine recovery areas within its jurisdiction. The on-site strategy must be a component of the program management plan required under RCW**70.118A.030**. The department may grant an extension of twelve months where a local health jurisdiction has demonstrated substantial progress toward completing its on-site strategy.

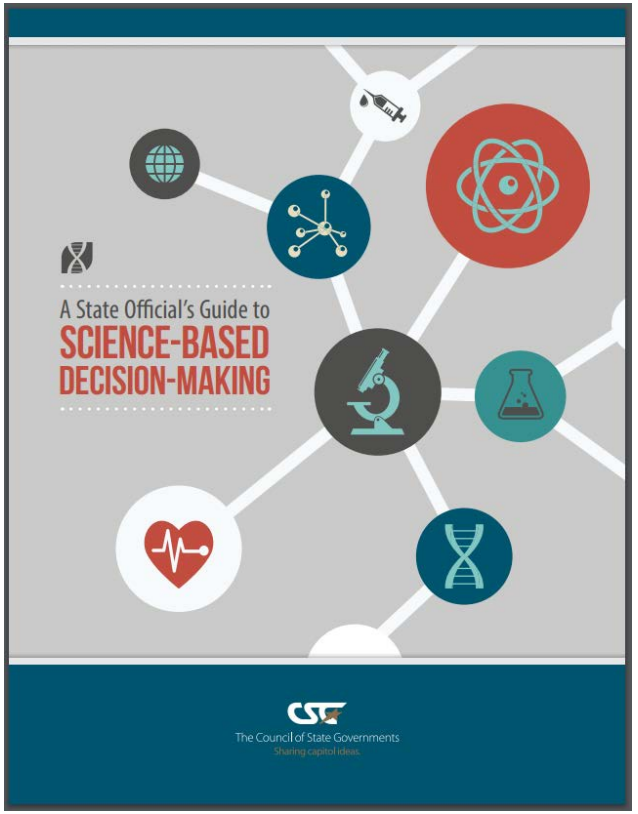
(2) **An on-site strategy for a marine recovery area must specify how the local health jurisdiction will by July 1, 2012, and thereafter, find:**

(a) Existing failing systems and ensure that system owners make necessary repairs; and

(b) Unknown systems and ensure that they are inspected as required to ensure that they are functioning properly, and repaired, if necessary.

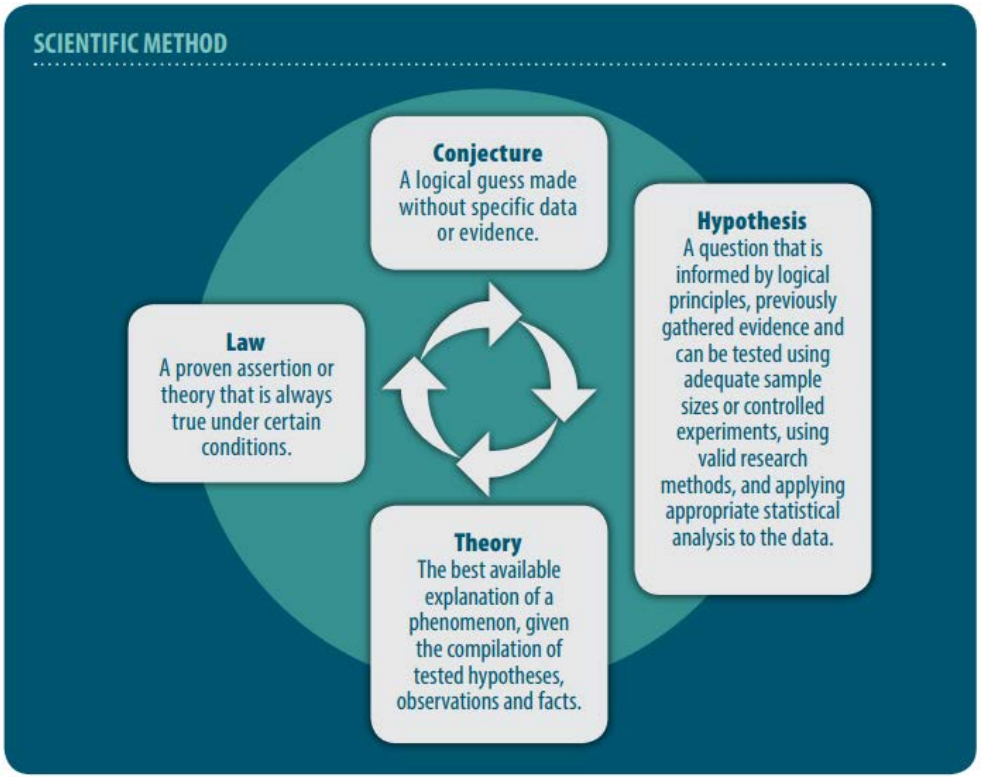
Scientific Basis of Regulations

- Policy is designed to agree with science but also considers social and economic factors.
- Department has used the Council of State Governments' guidance in recent revisions.
  - Based on Scientific Method
  - Relies on **Best Available Science (BAS)**
  - **Assumes scientific uncertainty**
  - Uses **risk assessment** and **risk management** tools



Scientific Method

"Quality science can be described as research conducted by trained individuals using documented methodologies that lead to verifiable results and conclusions."



Scientific Sources of Information (BAS)

1. Research
2. Monitoring
3. Inventory
4. Survey
5. Modeling
6. Assessment
7. Synthesis
8. Expert Opinion

Criteria for scientific sources

- Peer reviewed
- Methods clearly stated
- Conclusions based on logical assumptions and reasonable inferences
- Quantitative analysis
- Context is established
- References to relevant credible literature.

Nonscientific Sources of Information

- Anecdotal information
  - One or more observations which are not part of an organized scientific effort.
- Nonexpert opinion
  - Opinion of a person who is not a qualified scientific expert in a pertinent scientific discipline.
- Hearsay
  - Information repeated from communication with others.

<u>Criteria for scientific sources</u>

- Peer reviewed
- Methods clearly stated
- Conclusions based on logical assumptions and reasonable inferences
- Quantitative analysis
- Context is established
- References to relevant credible literature.

Scientific Uncertainty

- "Uncertainty is an inherent part of science-based decision-making"
- Science is dynamic
- No research results are 100% certain

Risk Assessment/Management

Risk assessment and **management** is the accepted method to deal with **scientific uncertainty** related to public health and environmental impacts.

A Framework for Risk Management

1. Issue identification: identify the health, environmental, social, economic, cultural, legal, political and other issues that will be considered in developing the management strategy.
2. Goal-setting: establish health or ecological goals that broadly incorporate issues and concerns raised during the issue identification process.
3. Management options development: devise a range of possible risk management strategies that consider the issues and concerns identified in the first step.
4. Data compilation and analysis: identify, collect and analyze relevant data on the scientific, technical, economic, social, cultural, legal and political aspects of the options.
5. Option selection: decide on a preferred management strategy, scaled to the risk under consideration and based on analytical review of the data and input from those involved.
6. Decision implementation: initiate hazard control/remediation and/or exposure reduction activities designed to implement the preferred management strategy.
7. Tracking and evaluation: collect and analyze monitoring and assessment information and compare against baseline data and target outcomes developed during previous steps.

Source: "A Multi-Stakeholder Framework for Ecological Risk Management: Summary." R. Bachman. SETAC Technical Workshop, Society of Environmental Toxicology and Chemistry, 1998.

Examples of Studies

Questions?