

Cover Sheet for Example Documentation

Please complete the following form and submit along with your documentation. If you have any questions, please email us at accreditation@astho.org.

The following documentation has been submitted to ASTHO for the Accreditation Library as a potential example of Health Department documentation that might meet the **PHAB Domain 2 Standard 1 Measure 6**.

This document is not intended to be a template, but is a reference as state health agencies develop and select accreditation documentation specific to the health department's activities.

Please note that the inclusion of documentation in this library does not indicate official approval or acceptance by PHAB.

Document Title:	Wastewater Management						
Document Date:	2009 -2010						
Version of Standards and Measures Used: 1.0							
Related PHAB Standard and Measure Number							
Domain:	2	Standard:	1	Measure:	6	Required Documentation:	1
Short description of how this document meets the Standard and Measure's requirements:							
<p>The Wastewater Management Section staff provide consultation, technical assistance, and information to the local health jurisdictions (LHJ) in a variety of ways: email, telephone consultation, letters in response to requests, and regular meetings with Local Health Jurisdiction On-site Sewage System Program Coordinators. We have provided an example of a response for TA via email, a letter of clarification, and documentation of a training presented at one of the Coordinators meeting.</p>							
Submitting Agency:	Washington State Department of Health						
Staff Contact Name:	Megan Davis						
Staff Contact Position:	Planning and Accreditation Coordinator						
Staff Contact Email:							
Staff Contact Phone:							
Can we attribute the document to your agency?							
<input checked="" type="checkbox"/> Yes, you can include our agency name when posting <input type="checkbox"/> No, please post the document anonymously							
Can we include staff name and contact information with the documentation?							
<input type="checkbox"/> Yes, you can include staff contact information <input type="checkbox"/> No, please do not include staff contact information							

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The following are PHAB's policies for all submitted documentation¹:

- a. No draft documents will be accepted for review by PHAB.
- b. All documentation must be in effect and in use at the time that they are submitted to PHAB.
- c. Documents must be submitted to PHAB electronically. Hard copies of documents must be scanned into an electronic format for submission. PHAB will not accept hard copies of any documentation, either with documentation submission or at the site visit. In order for documentation to be considered by site visitors it must be in an electronic format and included in the health department's record of documentation in the e-PHAB system.
- d. A PDF version of all documentation is preferred. If a document is not a PDF, it should be in a commonly used program such as Word, Excel, or PowerPoint. Documents created using health department specific software, special graphics, or other program not commonly used, will not be accepted.
- e. In many cases, a measure is demonstrated only once, at a central point in the health department. Examples of these types of documentation requirements include department-wide policies (such as human resource policies), procedures, and plans. In these cases the requirement is for a specific, central document, rather than for examples.
- f. Where documentation requires examples, health departments must submit two examples, unless otherwise noted in the list of required documentation or the guidance.
- g. Health departments are encouraged to provide narrative that describes how the submitted document relates to and meets the requirement. Text boxes will be provided by e-PHAB for health departments to include descriptions and explanations.
- h. Health departments must comply with e-PHAB electronic submission requirements and processes.

¹ PHAB requirements as listed in [National Public Health Department Accreditation Documentation Guidance](http://www.phaboard.org/wp-content/uploads/National-Public-Health-Department-Accreditation-Documents-Guidance-Version-1.0.pdf), page 2: <http://www.phaboard.org/wp-content/uploads/National-Public-Health-Department-Accreditation-Documents-Guidance-Version-1.0.pdf>

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Wastewater Management Section

Measure 2.1.6 S

Measure Description: Provide consultation, technical assistance, and/or information to Tribal and local health departments in the state regarding disease outbreak and public health hazard management.

The Wastewater Management Section staff provide consultation, technical assistance, and information to the LHJs in a variety of ways: email, telephone consultation, letters in response to requests, and regular meetings with Local Health Jurisdiction On-site Sewage System Program Coordinators. We have provided an example of a response for TA via email, a letter of clarification, and documentation of a training presented at one of the Coordinators meeting.

- Technical Assistance Email (March 2009)
- Letter to Local Health Officer (May 2009)
- West/Eastside Coordinators Meeting Charter (January 2010)
- Westside Coordinators Meeting Agenda (October 2009)
- Drip Training Presentation (October 2009)

Homan, Laura (DOH)

From: [REDACTED]
Sent: [REDACTED]
To: 'Gass, Cora'
Subject: RE: Table IX Repair Using C-33 Sand

Hi Cora,

Yes, the site preparation and construction procedures in Appendix G of the Mound Systems RS&G is a good method to use. Because of the limited available suitable soil, it becomes even more important to protect what in situ soil you have to work with from compaction through good quality control measures during construction.

Emphasis needs to be placed on making sure the soil is dry before and during site preparation. Prepare the site by breaking up, perpendicular to the slope, the top 7-8 inches to eliminate any surface mat that could impede the vertical flow of liquid into the in situ soil. Chisel type plowing is highly recommended especially in fine textured soils. The important point is that a rough, unsmeared surface be left. The sand fill will intermingle between the clods of soil, with improves the infiltration rate into the natural soil.

There's additional guidance in section 2.13.2 of the Mound RS&G for placing the sand after plowing. Immediate apply of at least 6 inches of sand after plowing. Prohibit all vehicular traffic on the plowed area. For site where the effluent may move laterally, vehicle traffic should also be prohibited for 15 ft down slope and 10 ft on both side of level sites. If it rains after the plowing is completed, wait until the soil dries out before continuing construction, and inspect the soil to determine the damage done by rainfall. Move the sand into place using a small track type tractor with a blade or a large backhoe that has sufficient reach to prevent compaction of the plowed area. Do not use a tractor/backhoe having tires. Always keep a minimum of 6 inches of sand beneath tracks to prevent compaction of the in situ soil.

Hope this helps.

[REDACTED]
[REDACTED]
Division of Environmental Health
Office of Shellfish and Water Protection
Wastewater Management Section
PO Box 47824
Olympia, WA 98504-7824
Phone: 360/236-3041 Fax: 360/236-2257
E-mail: john.eliasson@doh.wa.gov

"Working to Protect and Improve the Health of People in Washington State"

[REDACTED]
Sent: Thursday, March 05, 2009 11:57 AM
To: Eliasson, John (DOH)
Subject: Table IX Repair Using C-33 Sand

Hello John,
I hope you'll be able to help me with a question regarding the use of C-33 sand to achieve 12" of vertical separation with a Table IX repair. What method should be used when preparing the soil for the layer of C-33 sand? Would the site preparation done for a mound installation sufficient? Your guidance is appreciated.

Thank you,

Cora

[REDACTED]



STATE OF WASHINGTON
DEPARTMENT OF HEALTH
OFFICE OF SHELLFISH AND WATER PROTECTION
PO Box 47824 • Olympia, Washington 98504-7824
(360) 236-3330 • TDD Relay Service: 1-800-833-6388

[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

615 Sheridan Street
Port Townsend, WA 98368

Dear Dr. Locke:

[REDACTED]
[REDACTED]
[REDACTED]

The Washington State Board of Health rules for on-site sewage systems (WAC 246-272A) establish the minimum statewide standards for public health protection. Implemented by local health jurisdictions, the rules are developed for statewide application. As it is unlikely that the rules apply equally well to all sites encountered in the state, the waiver process provides a mechanism to allow flexibility to address local conditions or issues while maintaining public health protection at least equal to the level established by the provisions in the rules.

Under RCW 70.05.072, the local health officer is authorized to grant waivers of the State Board of Health rules for on-site sewage systems (WAC 246-272A) according to a specific procedure. This procedure includes evaluating waiver requests on a site-by-site basis and determining that the waiver is consistent with the standards in and the intent of the State Board of Health rules.

WAC 246-272A-0420(2) directed the department to develop guidance to assist local health officers in the application of waivers. The department updated *An Application Guide for Granting Waivers from State On-Site Sewage System Regulations, Chapter 246-272A WAC* on July 1, 2007 to fulfill this directive. This guidance document serves as a guide in evaluating and granting waivers from the state rule, and to clarify the review process and reporting requirements.

To maintain consistency between the waivers granted and the intent of the rule, one of the key elements outlined in the waiver guidance document is "mitigation-based" waivers. Mitigation based waivers means when a portion of the rule is waived, a corresponding mitigation measure(s) is provided to assure protection at least equal to that established by the rule. Included in the guidance document are minimum waiver review criteria and mitigation measures for Class A waivers. The Class A waiver process provides department agreement with individual waivers when approved by the local health officer, if the minimum pre-approved review criteria and mitigation measures are consistently applied. Although the review criteria and mitigation measures for Class A waivers are established in advance and "pre-approved" for use on a state-wide basis in the guidance, the Class A waiver process does not obligate a local health officer to



Thomas Locke, MD
May 1, 2009
Page 2

approve individual waivers. The local health officer must evaluate each request on a site-by site basis and determine that the waiver is consistent with the state rules. As stated in the waiver guidance document, the local health officer may require additional site-specific issues and criteria to consider and mitigation measures for any individual waiver request.

If I can be of further assistance, please contact me at (360) 236-3041, or by e-mail at john.eliasson@doh.wa.gov.

[Redacted signature block]

Homan, Laura (DOH)

From: [REDACTED]
Sent: [REDACTED] 11:59 AM
To: Eliasson, John (DOH); Homan, Laura (DOH); Schneider, Lynn (DOH); Turner, Leslie C (DOH)
Subject: FW: Waiver intent
[REDACTED] [REDACTED]

FYI

John M. Eliasson
Department of Health
Division of Environmental Health
Office of Shellfish and Water Protection
Wastewater Management Section
PO Box 47824
Olympia, WA 98504-7824
Phone: 360/236-3041 Fax: 360/236-2257
E-mail: john.eliasson@doh.wa.gov

"Working to Protect and Improve the Health of People in Washington State"

From: Eliasson, John (DOH)
Sent: Friday, May 01, 2009 2:54 PM
To: 'Linda Atkins'
Subject: RE: Waiver intent

Linda,

Attached is my response letter. I hope it addressed the issues. Please forward to Dr. Locke. Thanks.

John M. Eliasson
Department of Health
Division of Environmental Health
Office of Shellfish and Water Protection
Wastewater Management Section
PO Box 47824
Olympia, WA 98504-7824
Phone: 360/236-3041 Fax: 360/236-2257
E-mail: john.eliasson@doh.wa.gov

"Working to Protect and Improve the Health of People in Washington State"

From: Linda Atkins [<mailto:latkins@co.jefferson.wa.us>]
Sent: Thursday, April 30, 2009 11:27 AM
To: Eliasson, John (DOH)
Subject: RE: Waiver intent

Yes, or to Dr. Tom Locke, the Health Officer. Thanks so much.

Linda Atkins R.S. Environmental Health Specialist, JCPH Environmental Health Division 360-385-9444

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From: Eliasson, John (DOH) [mailto:John.Eliasson@DOH.WA.GOV]
Sent: Wednesday, April 29, 2009 9:05 AM
To: Linda Atkins
Subject: RE: Waiver intent

Linda,

I can complete the letter this week. You want the letter addressed to your LHO, right?

John M. Eliasson
Department of Health
Division of Environmental Health
Office of Shellfish and Water Protection
Wastewater Management Section
PO Box 47824
Olympia, WA 98504-7824
Phone: 360/236-3041 Fax: 360/236-2257
E-mail: john.eliasson@doh.wa.gov

"Working to Protect and Improve the Health of People in Washington State"

[REDACTED]

Sent: Tuesday, April 21, 2009 11:24 AM
To: Eliasson, John (DOH)
Cc: Susan Porto
Subject: Waiver intent



John,

Just a follow up regarding our conversation this morning.

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

DOH
Marketing Center Creekside Three @ CenterPoint
20435 72nd Ave S, Suite 200
Kent
Reception Desk (253) 395-6791

10:00 – 10:15

- Opening and introductions – pass out position/info handouts

DOH Updates:

10:15 – 10:30

- Tank Rule: when in effect
- Grey Water Rule: when? Direction it is leaning towards? A separate Listserv is available
- LOSS Rule: issues affecting LHJ and when in effect?
- WOSSA summary update

[REDACTED]

12:30 – 1:30

- Lunch Break

1:30 – 2:45 Round Table - LHJ's

- What staff reductions have you had this year?
- What policies/practices have you developed to maintain good customer service with reductions in staff?

2:45 – 3:00 - LHJ's

- Did you like the format of this meeting?
- RS&G feedback – they are all open for review - email Leslie: leslie.turner@doh.wa.gov
- Topics for future workshops?
- Topics for future roundtable discussions?
- Would anyone like to host or facilitate the next meeting?

NEWS FLASH!! The DOH wastewater section now has a listserv to disseminate information. If anyone would like to join the listserv, go to: LISTSERV.WA.GOV. Scroll down the list to wastewater and any other ones you would like to join and sign up. Also, don't forget that we are now producing a newsletter which is available on our website at: www.doh.wa.gov/ehp/ts/WW under "hot topics"

Wastewater Management Section Local Health Support Program

Purpose

Objectives

Calendar

Meeting location and agenda are coordinated and facilitated by DOH/WWMS/LHS Program Staff.

Membership

Westside Counties

Adams County Health Department
Asotin County Health District
Benton-Franklin Health District
Chelan-Douglas Health District
Columbia County Public Health District
Garfield County Health District
Grant County Public Health District
Kittitas County Public Health
Klickitat County Public Health
Lincoln County Health Department
Northeast Tri-County Health District
Okanogan County Public Health
Spokane Regional Health District
Walla Walla County Health Department
Whitman County Public Health

Eastside Counties

Clallam County Department of Health
Clark County Public Health
Cowlitz County Health Department
Grays Harbor County Public Health
Island County Public Health Department
Jefferson County Public Health
Kitsap County Health District
Lewis County Public Health
Mason County Public Health
Pacific County Public Health
Public Health - Seattle and King County
San Juan County Department of Health
Skagit County Department of Public Health
Skamania County Health Department
Snohomish Health District
Tacoma-Pierce County Health Department
Thurston County Public Health
Wahkiakum County Department of Health
Whatcom County Health Department



PUBLIC HEALTH

**ALWAYS WORKING FOR A SAFER AND
HEALTHIER WASHINGTON**

Subsurface Drip – Design, Review & Inspection Issues for Regulators

**Washington State Department of Health
October 1, 2009**

**Richard Benson, PE
Office of Shellfish and Water Protection**

Presentation Summary


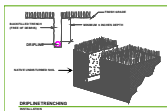


- Brief Overview of Drip Technology
- Key Design Issues
- Problems Identified in the Field
- What to Watch for in Review / Inspection
- Discussion
 - Information sharing
 - Personal experiences
 - RS&G revisions needed?





Drip Technology

- Pressure distribution system
- Discharges directly into soil (no gravel)
- Shallow installations (6-10 inches)
- Flexible polyethylene tubing (dripline)
- "Orifices" are small in-line **emitters**
- Slow discharge rates (measured in GPH)
- Requires "micro filtration", supply & return manifolds, and air / vacuum relief valves

Drip Technology (cont)

Advantages:

- Can provide very even distribution
- Unsaturated flow / aerobic conditions
- Maximizes available soil depth
- Easy to install, smaller footprint
- Works well in sand filters and mounds
- Suitable for steep slopes / difficult sites







Drip Technology (cont)

Disadvantages:

- More complex systems
- Requires skilled practitioners
- More maintenance intensive
- Pretreatment recommended
- Prone to damage from:
 - surface activities
 - freezing
 - rodents

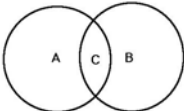









Drip Technology (cont)

- Two registered dripline & component manufacturers:
 - **Geoflow**
 - **Netafim USA**
- Similar technology, but some key differences in equipment & business approach

Geoflow <http://geoflow.com/>

- Offers 2 types of emitters:
 - "Classic" - 1.3 GPH w / pressure regulator
 - "PC" - 0.5 GPH, 1.0 GPH nominal discharge rates
 - Available emitter spacings: 6,12, 24 inches
- MFR recommends pretreatment
- "Spin clean" (vortex) filters + others
- Root growth inhibitor in emitters
- "Geoshield" (tin compound) dripline lining













Netafim <http://www.netafimusa.com/wastewater>

- PC emitters only
- Discharge rates: 0.4, 0.6, 0.9 GPH
- Available emitter spacings: 12, 18 & 24 inches
- “Mechanical barrier” to prevent root intrusion
- Disk filters + others
- Recommended scour velocity 2 fps




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Key Design Issues

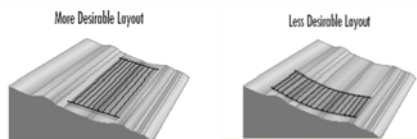
- Emitter plugging from
 - Siphoning dirt particles (air relief valves)
 - Root intrusion (root growth inhibitor, mechanical barrier)
 - Slime (dripline/emitter bactericide, flushing)
 - Scale (chemical injection)
- Filtration (per dripline MFR recommendations)
- Flushing / scouring (per dripline MFR recommendations)
- Freezing (installation depth, insulate components, continuous service)
- Rodent damage (continuous service, butyric acid)
- Draindown / drainback (see design)



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Layout

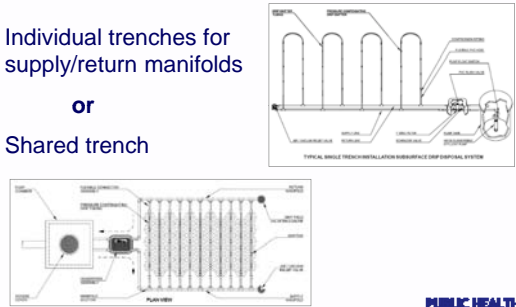
- Install dripline in longer runs parallel to contours
- Follow MFR’s guidelines for:
 - maximum runs
 - system pressure
 - scouring velocity (pump sizing)



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Supply / Return Manifold Configuration

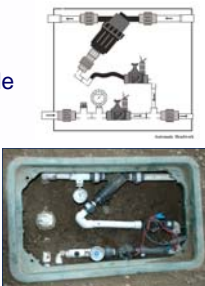
- Individual trenches for supply/return manifolds
- or
- Shared trench



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Headworks

- Install in box w/ access to grade
- Keep it as simple as possible!
- Automated vs. manual or continuous flushing (tradeoffs)
- Include pressure gage & flow meter



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Pressure Compensating “PC” vs. “Non PC” Emitters

PC (Geoflow or Netafim)

- Match discharge rate to soil type
- Easier to design (constant discharge for range of pressures)
- Available in discharge rates of 0.5 & 1.0 GPH (Geoflow)
- Available in discharge rates 0.4, 0.6, & 0.9 (Netafim)

Non PC (Geoflow)

- Discharge rate is function of pressure
- Requires pressure regulator (1.3 GPH)
- Suitable for applications in coarser soils
- Less prone to plugging

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Dripline Scouring & Flushing Velocities

- Dosing occurs during flush cycle
- Must consider in pump sizing – follow dripline MFR recommendations

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Dripline Scouring & Flushing Velocities (cont)

Netafim

- Recommends flushing velocity of 2 ft/sec.
- Interior diameter of dripline = 0.57 inches

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Dripline Scouring & Flushing Velocities (cont)

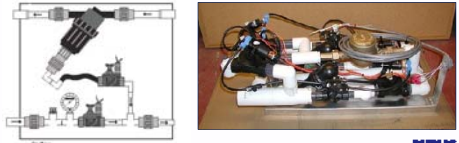
Geoflow

- Scouring not as important because:
 - Rootguard impregnated in the emitter
 - Bactericide (Geoshield®) in dripline liner & emitter
 - Smooth inner wall facilitates scouring
- Flushing velocity of 0.5 ft/sec. is sufficient
- Interior diameter of dripline = 0.55 inches

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Filter Flushing


- Manual vs. automatic flushing
- “Forward” vs. “back” flushing
- One filter or more
- Continuous flush



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Single vs. Multiple Distribution Zones

- Multiple zones are desirable
- Tradeoff: more complex, increased O&M



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Dripfield Sizing

- Use Table 2 or Table 5 in Drip RS&G
- Some confusion in applying concept
- Loading rates are lower than with conventional systems (dripline is installed in continuous beds in all soil types)
- Affected by daily emitter discharge volume and emitter dripline / emitter spacing
- General rule: divide conventional rates by 1.5
- Applied loading rate:

$$\text{Daily discharge per emitter} \div \text{Area per emitter}$$
 (dripline spcg X emitter spcg)

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Department of Health

Pump Chamber Sizing / Design

- Tanks provide only appreciable storage
- Over-sizing is better
- Pre-filter (standard effluent filter) recommended

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Problems Identified in the Field

- Drip: not a panacea
- Training needed!
- Installation considerations
- Headworks design
- Continuous flush
- Shallow installations
- Slope issues
- Treatment

20 **PUBLIC HEALTH**

Department of Health

Problems with Drip Systems

- Some things aren't that much different!



21 **PUBLIC HEALTH**

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Problems with Drip Systems (cont)

- Systems can get overly complex, need for better training!



22 **PUBLIC HEALTH**

Department of Health

Headworks Design

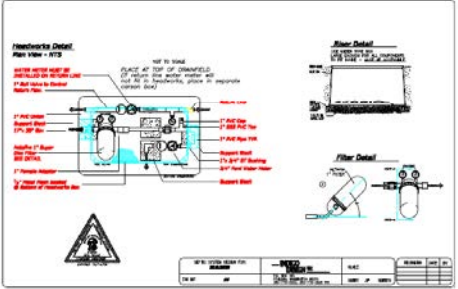
- I'll make my own!



23 **PUBLIC HEALTH**

Department of Health

Some designers have own approaches



24 **PUBLIC HEALTH**

Seal boxes as needed, keep critters out!

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Protect drip field area from surface damage

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Other Considerations

- Slightly deeper installations (10 inches?) recommended in finer textured soils
- Don't install in wet conditions (with fine textured soils)
- Install check valves (accessible for O&M) on sloped sites to prevent drain down to lower components
- With "continuous flush" or pretreatment - ok to return flush water to pump chamber (dual plumbing best)
- Special design considerations may be required for very large systems in fine textured soils (to charge system, e.g. reduce dose frequency, specify more, shorter dripline runs, etc.)

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Discussion

- Questions?
- Share your own stories
- Needed clarifications or changes to RS&G

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