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June 23, 2015

Wyoming Environmental Quality Council
Wyoming Department of Environmental Quality, Water Quality Division
122. W. 25th St., Herschler Building 4W
Cheyenne, WY 82002

Subject: Comments on Proposed Revisions to Water Quality Rules and Regulations Chapter 25

Dear Council Members and DEQ Staff:

I respectfully submit the following comments on the proposed revisions to Chapter 25 of the Water Quality Rules and Regulations. I have served on the Water and Waste Advisory Board (WWAB) since 2001 representing the public at large. These proposed regulations came before our Board five times beginning in June 2013 (14Jun2013, 19Sept2013, 5Dec2013, 18Apr2014, 25Jul2014). I received more commuications from concerned professionals on the proposed regulations than I have ever had my in 14 years on the Board. Not much changed between drafts other than essentially wordsmithing. From the beginning, the Board expressed concern over whether stakeholder concerns were being adequately addressed. In the fifth WWAB meeting, the board could not reach a quorum unequivocally in favor of the proposed regulations. Out of frustration with spending a lot of time on Chapter 25 and seeing few changes between versions, the Board voted 3-0 to forward the rules on to EQC provided the EQC would be made aware of the items for which some of us still had concerns. These concerns run the gamut from proposed rules that are too prescriptive to those that are not protective enough. At the request of the WWAB, DEQ prepared a letter to EQC (see docket) that provides their perspective on these issues.

After the July 2014 WWAB vote to forward the proposed Chapter 25 rule on to EQC, I became aware of two issues that, had I been aware of, I would have voted against forwarding the proposed rules on to the EQC. They relate to the proposed septic tank design and percolation test method.

Governor Mead's Streamlining Government Initiative has mandated that DEQ rewrite each chapter to streamline rules for a more efficient and effective government. He wants the rules required and needed, but not more. I am concerned that the proposed rules for septic tanks do not meet the Governor's intent due, in part, to over-regulation and the resulting increased cost of compliance.

Section 9. Septic Tanks and Other Treatment Tanks:

At our WWAB meetings, we were told repeatedly that Wyoming has a very low failure rate for septic systems. If that is the case, then it is unclear why there is a need to change this portion of the regulation. I am concerned that the cost impact within Wyoming to manufacturers and homeowners may outweigh the need for the proposed changes. Through a public records request,

I obtained an email prepared by James Brough, DEQ Northwest District Engineer and an attached spreadsheet that was sent internally to management and technical staff on January 13, 2015. The spreadsheet lists DEQ approved manufacturers, tank materials and configurations, and then assesses whether each septic tank meets the proposed requirements in Section 9(a)(iv)(E). I understand that DEQ began in the last week to confirm the accuracy of the spreadsheet. I have attached the spreadsheet printed on 11×17 paper in color to more easily see the results with corrections made by DEQ (as of 6/23/2015 at 12:30 p.m.) Highlighted in pink are WDEQ's approved tanks that do not appear to meet the proposed regulations. Wyoming companies manufacture precast concrete septic tanks. The approved list also includes precasters from surrounding states because it is expensive to ship concrete, and the closest source can be from a surrounding state. According to the spreadsheet, over 90% of the septic tanks approved for use in Wyoming would not meet the propose regulations. If it is confirmed that many of the precasters would not meet the proposed regulation, then the need for these revisions should be questioned. The existing rules are compared to the proposed rules in Table 1.

Table 1. Comparison of existing rule to proposed rule for septic tanks

	Outlet Baffle/Tee Extends above Liquid Level	**Space above Liquid Level**		**Vent Space (inches)**	**% Inlet Baffle Extends below Liquid Level**	**% Outlet Baffle Extends below Liquid Level**
		(inches)	**% of Liquid Depth**			
Existing Rule	Not specified	Not specified	20%	Not specified	Not specified	Into middle 1/3 of liquid depth
Existing Rule Reference	N/A	N/A	8(a)(iii)(C)	N/A	N/A	8(a)(iii)(A)
Proposed Rule	6-in mimimum	Greater of		1 – 4 in	10 – 50 %	24-52%
		9-in	20%			
Proposed Rule Reference	9(a)(iv)(E)(I)	9(a)(iv)(E)(IV)		9(a)(iv)(E)(III)	9(a)(iv)(E)(III)	
Approved Tank Range	4.1 – 9.5 in	7.5 – 20 in	12 – 48%	1 – 4 in	10 – 50%	24 – 52%

I am concerned that the majority of potentially affected tank manufacturers may not be aware of the proposed regulations. Did DEQ/EQC send notice of the hearing to them? Have they assessed the economic impact both to those manufacturers who would have to dispose of existing concrete tank inventory and manufacture new molds, and the associated increased cost to consumers? Is there a reason to differ from ASTM C1277 (Standard Specifications for Precast Concrete Septic Tanks)? If EQC decides not to pass the proposed rules at the hearing, perhaps DEQ could have the proposed rules evaluated by a committee consisting of representatives from tank manufacturers, county delegated programs, and the district engineering staff.

While the proposed rules may be overly prescriptive, a simple and inexpensive requirement could be added to the rules that would improve public health and safety. The proposed rules for septic tanks do not require an effluent filter for tank discharge, whereas many states are now requiring them. This helps prevent the discharge of solids, which can plug up a leach field. Effluent filters are cheap and easily removed for cleaning with a garden hose.

Appendix A Percolation Test Procedure:

DEQ has proposed their own method to conduct a percolation test rather than using the traditional method, which has been widely used for decades (since the 1920s). The WWAB repeatedly raised concerns that we did not feel comfortable that the proposed method would give equivalent results to the traditional method. One concern was that because the head was higher in DEQ's proposed method, the flow rate through the hole would be higher. DEQ assured the WWAB at our 25 July

2014 meeting that they had run extensive spreadsheet calculations to demonstrate that the proposed test would yield essentially the same results as the standard percolation test. I asked for a copy of the spreadsheet, which DEQ sent me on December 3, 2014. Upon inspection of the spreadsheet, it became apparent that DEQ had assumed the same bottom flow rate for the proposed method despite having a higher head of water than the traditional method. This assumption is poor and would lead to a possibly inaccurate conclusion that the proposed test method is equivalent to the traditional method. DEQ presented no results of actual field tests, which are simple to do, to show equivalency. I would urge DEQ to use the widely used standard percolation test method or run actual field tests to show equivalency rather than adopting the proposed test method based on a flawed analysis.

Because percolation tests results are variable and the results often inaccurate, an alternative suggested at WWAB meetings is to determine soil texture using simple methods that involve nothing more than mixing soil with water and testing by kneading, squeezing, and rubbing with the hands and answering simple questions regarding whether a ribbon can be made and is the soil gritty, etc. A simple table then equates soil texture to percolation rates. An example is shown on the next two pages used by the State of Idaho that was adopted from the U.S. Department of Agriculture.

Section 16. Greywater Systems:

Proposed rules for greywater systems are onerous and will discourage greywater reuse. I would suggest that details can be put in a technical guideline, which can be changed more easily without having to change the rule.

Section 15. Privies:

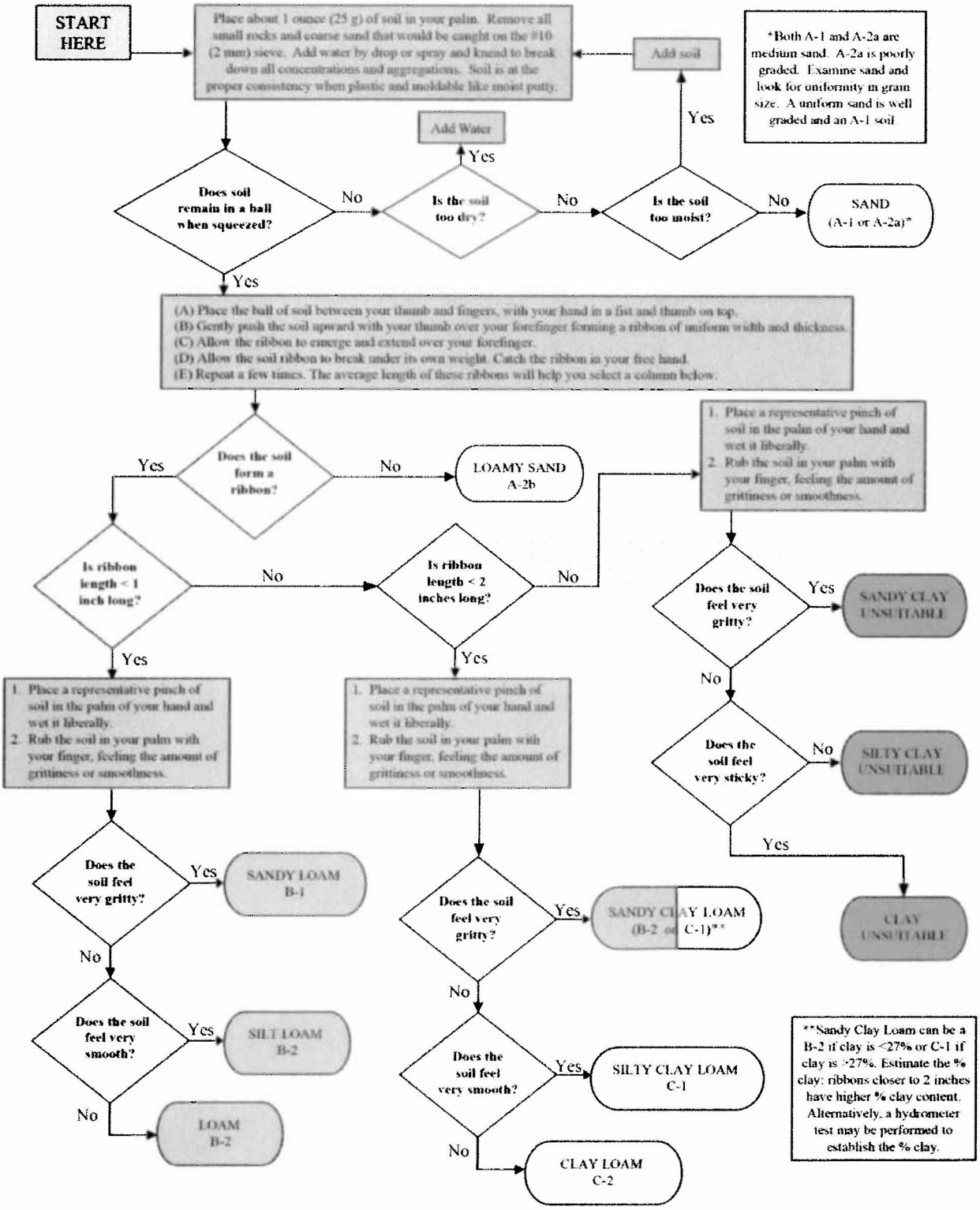
Proposed regulations for privies could be simplified. Permit-by-rule seems more appropriate than the requirement to submit the design package for review and approval by DEQ under the general permit.

Thank you for this opportunity to comment. I would like to make public comment at the upcoming public hearing regarding material contained in this letter.

Sincerely,

Lorie S. Cahn, P.G.

TGM-Soil Texture Flowchart



Soil Texture Determination Flowchart (Table B-2 in Idaho's Technical Guidance Manual https://www.deq.idaho.gov/media/1148/tgm-entire.pdf)

Percolation and application rates by soil type (excerpted from Table 2-9 in Idaho's Technical Guidance Manual https://www.deq.idaho.gov/media/1148/tgm-entire.pdf)

Soil Type	**Percolation Rate (minutes/in)**[a]	**Application Rate (gal/day/ft^2)**[b]
Gravel, coarse sand[c]	<1	Not suitable
Medium sand	1 - 3	1.2
Medium sand, poorly graded	4 - 5	1.0
Fine sand, loamy sand	6 - 15	0.75
Sandy loam	16 - 30	0.6
Loam, silt loam	31 - 60	0.45
Sandy or silty clay loam[d]	45 - 60	0.3
Clay loam	61 - 120	0.2
Clays, organic muck, duripan, hardpan, claypan	>120	Not suitable

a. Estimates only; actual percolation rates as determined using ASTM D5093 or D3385 may differ
b. Application rates are for domestic wastes. A safety factor of 1.5 or more should be used for wastes of significantly different characteristics.
c. See medium sand definition for a material that may be acceptable for use.
d. Soils without expandable clays.

WYOMING DEQ - Septic Tank Evaluation (corrected by Rich Cripe, DEQ as of 6/23/15 at 12:30 p.m.)

															Note 3.a					Note 3.d		Note 3.c	Note 3.b	
					Max. Soil	Access	No. of	Nominal	EXTERIOR DIMENSIONS			INTERIOR HEIGHTS			Baffle / Tee Extensions from Liquid Level (LL)				Length	Space	% of Liq.	Vent	% Baffle extends	
															Inlet		Outlet		to Width	above LL	Depth	Space	into LL	
Name of Manufacturer	Model / Description	City	State	Material	Cover (in)	Size (in)	Compart-ments	Size (gallons)	Length	Width	Height	Height	Inlet	Outlet (LL)	Down	Up	Down	Up	Ratio	(in)	(%)	(in)	Inlet	Outlet
Ace Roto-Mold	AST-1000-2	Hospers	IA	Polyethylene	36		2	1000												0				
	AST-1250-2	Hospers	IA		36		2	1250	116	59	65	56	54	48	12	9.25	22	4.1	2.0	8	17%	4	25%	46%
A.J. Vollmar	1000 Gallon Single Comp	Casper	WY	concrete		20		1000	96	48	78	70		56.5					2.0	13.5	24%		20%	24%
AK Industries	AKS92550	Plymouth	IN	HDPE	48		2	1500	126.5	63	61.25	60	53	50	8.75	9.25	18	6.25	2.0	10	20%	1.5	18%	36%
American Plumbing & Heatir	1000 Gallon Single Comp	Mills	WY	concrete			1	1000	103	55	68	61	53	50					1.9	11	22%		16%	22%
Anderson Precast & Supply	1000 Gallon Single Comp	Bozeman	MT	concrete			1	1000	111	58	67	58	51	48					1.9	10	21%		25%	25%
Big Horn Precast	1000 Gallon Two Comp	Powell	WY	concrete		22	2	1000	102	58	68	60	50	48	12	9	18	9	1.8	12	25%	3	25%	38%
							2	1250	120	60	68	60	50	48	12	9	18	9	2.0	12	25%	3	25%	38%
							2	2000	144	78	68	60	50	48	12	9	18	9	1.8	12	25%	3	25%	38%
Boom Concrete		Newell	SD	concrete		20	1	1000	106	56	67	60	53	50					1.9	10	20%		37%	37%
							1	1500	146	56	67	60	53	50					2.6	10	20%		37%	37%
Cody Precast	1000 Gallon Two Comp	Cody	WY	concrete		24	2	1000	94	67	64.5	57.5	51	48					1.4	9.5	20%	3	14%	20%
(Del Zotto forms)	1500 Gallon Two Comp					24	2	1500	140	67	64.5	57.5	51	48					2.1	9.5	20%		14%	20%
Colorado Precast	1000 gallon Round	Loveland	CO	concrete		20	2	1000	83	83	72	63	54	52			14		1.0	11	21%	2	42%	27%
					24	20	2	1250	118.5	59.5	67	60	51	48			14		2.0	12	25%	2	46%	29%
					24	20	2	1500	128	74	67	60	51	48			14		1.7	12	25%	2	46%	29%
					24	20	2	2000	128	74	76.5	69.5	61	58			14		1.7	11.5	20%	2	38%	24%
Copeland Concrete		Rifle	CO	concrete		20	1	1000	99	68	62	53	44	41					1.5	12	29%		33%	61%
Croell Ready Mix	Model "A"	Wheatland	WY	concrete		20	1	1000	96	48	78	70		56.5					2.0	13.5	24%		39%	33%
Dura-Crete		Salt Lake City	UT	concrete		20	1	1000	112	56	70	61	50.5	48.5	9.5	8	25	9	2.0	12.5	26%		20%	52%
								1250	126	60	70	61	52	48.5	8.5	8	25	9	2.1	12.5	26%		18%	52%
								1750	127	66	75.5	66.5	59.5	57	9	8	25	8	1.9	9.5	17%		16%	44%
								2500	151	80	82	71	63	59.5	9.5	7	25	7	1.9	11.5	19%		16%	42%
Ellingford Brothers		Evanston	WY	concrete		20	2	1000	96	62	68	61	51	48					1.5	13	27%		21%	27%
G & L Gravel		Torrington	WY	concrete			1	1000	108	54	60	62	45	42					2.0	20	48%		27%	33%
Hardrock Inc.		Gillette	WY	concrete			1	1000	110	55	66	60	51	48	12	9.5	18	9.5	2.0	12	25%	3	25%	38%
							1	1500	127	65	66	60	51	48	12	9.5	18	9.5	2.0	12	25%	3	25%	38%
Infiltrator	TW-1050	Old Saybrook	CT	HDPE			2	1000	123.7	66	50.6	48	43	40	14		14		1.9	8	20%		35%	35%
	TW-1250						2	1250	143.7	66	50.6	48	43	40					2.2	8	20%		35%	35%
	TW-1500						2	1500	170.4	66	50.6	48	43	40					2.6	8	20%		35%	35%
ICP		Gillette	WY	concrete		22	1	1250	114	60	68.5	61.5	54	51					1.9	10.5	21%		22%	33%
J&D Precast		Rapid City	SD	concrete		24	1	1000	96	49	78	72	63	60	6		19		2.0	12	20%		10%	32%
							2	1000	96	49	78	72	63	60					2.0	12	20%		20%	27%
							2	1500	96	73	78	72	63	60					1.3	12	20%		20%	38%
Kanta Products, Inc		Three Forks	MT	concrete		20	2	1000	96	62	64	57	51	48	12	6	19.5		1.5	9	19%	3	25%	41%
						24	1	1500	126	68	65	57	51	48	12		19.5		1.9	9	19%		25%	41%
						24	2	1500	126	66	67	57	51	48	12		19.5		1.9	9	19%		25%	41%
Montana Terrazzo Co.		Billings	MT	concrete		20	2	1000	96	62	65	57	51	48			19.5		1.5	9	19%		21%	41%
							2	1100	126	66	56	48	39	36	10		12		1.9	12	33%	1.5	28%	33%
							2	1500	126	66	68	60	51	48	10		16		1.9	12	25%	1.5	21%	33%
							2	2000	126	66	92	84	73	70			24		1.9	14	20%		14%	34%
Norwesco	1000 Gallon Low Profile			HDPE	36	20	2	1000	116	60	51.5	51	43	40	11	8.5	14	5.5	1.9	11	28%	1	28%	35%
					36		2	1250	157	60	51.5	51	43	40	11	8.5	14	5.5	2.6	11	28%	1	28%	35%
					36		2	1500	157	69	51.5	51	43	40	11	8.5	14	5.5	2.3	11	28%	1	28%	35%
Panhandle Concrete Products		Scottsbluff	NE	concrete			2	1000	102	58	67	61	51	48	12		18		1.8	13	27%		25%	38%
							2	1250	120	60	67	61	51	48	12		18		2.0	13	27%		25%	38%
							2	1500	126	68	67	59	51	48	12		18		1.9	11	23%		25%	38%
							2	2000	144	78	67	59	51	48	12		18		1.8	11	23%		25%	38%
PBR, Inc		Worland	WY	concrete			2	1000	96	62	67	60	51	48	12		18		1.5	12	25%		25%	38%
							2	1500	126	68	67	60	51	48	12		18		1.9	12	25%		25%	38%
Precast Concrete Products	1,000 gal 1 pc SC	Etna	WY	concrete		24	1	1000	112	54	68	61	51	48	24		24		2.1	13	27%		46%	50%
	1,000 gal 2 pc DC					24	2	1000	102	56	68.5	60	53	50			18		1.8	10	20%		18%	36%
	1,500 gal 2 pc DC						2	1500	120	72	72.5	64	56	53			18		1.7	11	21%		17%	34%

Robertson Manufacturing		Hyde Park	UT	concrete		22	1	1500	144	67	56.5	48.5	44	41				2.1	7.5	18%		17%	24%
							1	2000	164	68	72	60	52	50	6		20	2.4	10	20%		12%	44%
Rich Cripe, DEQ, not checked last two columns below here																							
Rock Springs Block Co.	*Supplied by Dura Crete (SLC, UT)*																						
Rotonics Manufactur (RMI)		Denver	CO	HDPE	36		2	1250	132	63	58		47	45				2.1	?	?		?	?
Snyder Industries	1000 Dominator	Lincoln	NE	HDPE	24	20	2	1050	126	60	51	48.5	43	41	13		14	2.1	7.5	18%		32%	34%
	1250 Dominator				24	20	2	1250	161	60	51	48.5	43	41	13		14	2.7	7.5	18%		32%	34%
					24	20	2	1500	191	60	51	48.5	43	41	13		14	3.2	7.5	18%		32%	34%
Summit Precast	1000 Gallon Septic Tank	Pinedale	WY	concrete	48		2	1000	107	53	67	61	53	50	14		17	2.0	11	22%	2	34%	34%
Skyline Concrete Products	CST-1500-2C	Sheridan	WY	concrete			1	1000	96	48	84	78	68	65	12		26	2.0	13	20%	4	18%	40%
							1	1500	120	60	75	71	62	59	12		23.5	2.0	12	20%	3	20%	40%
					60		2	1500	126	68	68	60	51.5	48.5	8.5		14.5	1.9	11.5	24%	3	18%	30%
Vaughn Concrete Products		Cheyenne	WY	concrete	72		2	1000	94	68	68	60	50	47	17	12	20	1.4	13	28%	4	36%	43%
					72		2	1250	106	68	68	60	50	47	17	12	20	1.6	13	28%	4	36%	43%
					72		2	1500	126	68	68	60	54	51	17	12	20	1.9	9	18%	?	33%	39%
					72		2	2000	126	68	86	77	72	69	17	12	20	1.9	8	12%	?	25%	29%
Wind River Ready Mix	Model 1000 Low Profile	Riverton	WY	concrete		22	2	1000	120	60	56	49	40	37	13		18	2.0	12	32%		35%	49%

NOTES

1 LL stands for liquid level

2 Unknown or Question

3 Indicates non compliance with proposed Chapter 25 regulations.

3.a Section 9 (a)(iv)(E)(I) The tees or baffles shall extend above the liquid level a minimum distance of six (6) inches

3.b Section 9 (a)(iv)(E)(II) The tees or baffles shall extend below the liquid level a distance equal to thirty to forty percent (30-40%) of the liquid depth

3.c Section 9 (a)(iv)(E)(III) A minimum of three (3) inches of clear space shall be provided over the top of the baffles or tees.

3.d Section 9 (a)(iv)(E)(IV) The outlet elevation shall be designed to provide a minimum distance of nine (9) inches or twenty (20) percent of the liquid depth, whichever is greater, between the top of the liquid and the bottom of the septic tank cover for scum storage and the venting of gases