



Division of Waste & Hazardous Substances Zoom Hearing Presentation

REGULATORY CHANGES TO DELAWARE'S UNDERGROUND STORAGE TANK SYSTEMS

Proposed Changes to Regulations Summary

- Numerous minor change to comply with Style Manual
- Section Consolidation and Re-organization
- Updating API 1637; color symbol system
- Incorporation by Reference
 - Delaware Risk Based Corrective Action Protocol
 - Hydrogeologic Investigation Guidance
 - Vapor Intrusion Guidance



Proposed Changes

- ❑ Amended numbering throughout the document
- ❑ Provided clarity throughout the document
- ❑ Amended definition of Tank
 - ❑ Each compartment will be considered a single Tank as it pertains to compliance with these regulations.
 - ❑ Currently a compartmentalized Tank is considered one Tank.
- ❑ Moved certain requirements out of the regulations and into DERBCAP.



Proposed Changes

- ❑ Consolidated repetitive language throughout the regulation by establishing new Sections in Part A
 - ❑ Repair, Retrofits and Upgrade Requirements in Parts B, C, and D moved to new Part A, Section 15.0
 - ❑ Change in Service and Empty UST Systems; in Parts B, C, and D moved to new Part A, Section 16.0



Proposed Changes

- ❑ Consolidated repetitive language throughout the regulation by establishing new Sections in Part A
 - ❑ Change in Substance Stored requirements in Parts B, C, and D moved to new Part A, Section 17.0
 - ❑ Removal or Closure in Place requirements in Parts B, C, and D moved to new Part A, Section 18.0



Admin Code 1351 ERRATA Table

- Adherence to Regulatory Style Manual
 - Numbering
 - Grammar; italics, bold font, commas, periods, spelling

Admin Code 1351 ERRATA Table

PART/SECTION	DESCRIBE ERROR	PROPOSED CORRECTION
A/1.2.1	There is a formatting error in 1.2.1. The word "subsection" should not be struck out. 1.2.1 and Part B , subsection 4.6 <u>18.6</u> ,	We propose to keeping "subsection" before "18.6". 1.2.1 and Part B , subsection 4.6 <u>18.6</u> ,
A/2.0	There is a formatting error in 2.0, EMPTY or Emptied "one inch (1)" should be struck out (deleted), instead of underlined (added). so that no more than <u>one inch (1)</u> <u>1 inch</u> or	We propose that "one inch (1)" be struck out. so that no more than one inch (1) <u>1 inch</u> or
A/2.0	There is a formatting error in 2.0 TANK "of" should not be underlined. " <u>of a single</u> "	We propose that "of" not be underlined. "of a <u>single</u> Regulated Substances <u>Substance</u> "
A/2.0	There is a formatting error in 2.0 Underground Storage Tank or UST "a Tank" needs to include a comma. "means any one or combination of Tanks <u>a Tank</u> including"	We propose that ",," be inserted and underlined. "means any one or combination of Tanks <u>a Tank</u> , including"

Delaware Risk-Based Corrective Action Protocol (DERBCAP)

For Petroleum Underground
Aboveground Storage Tanks



Delaware
and Environmental Control

DWHS
January 2023



Hydrogeologic Investigation Guide

Delaware Department of Natural Resources and
Environmental Control
Division of Waste and Hazardous Substances

Volume 2 January 2023

Vapor Intrusion Pathway Guidance DNREC Division-Wide Investigation, Risk Determination Guidance for Vapor Intrusion

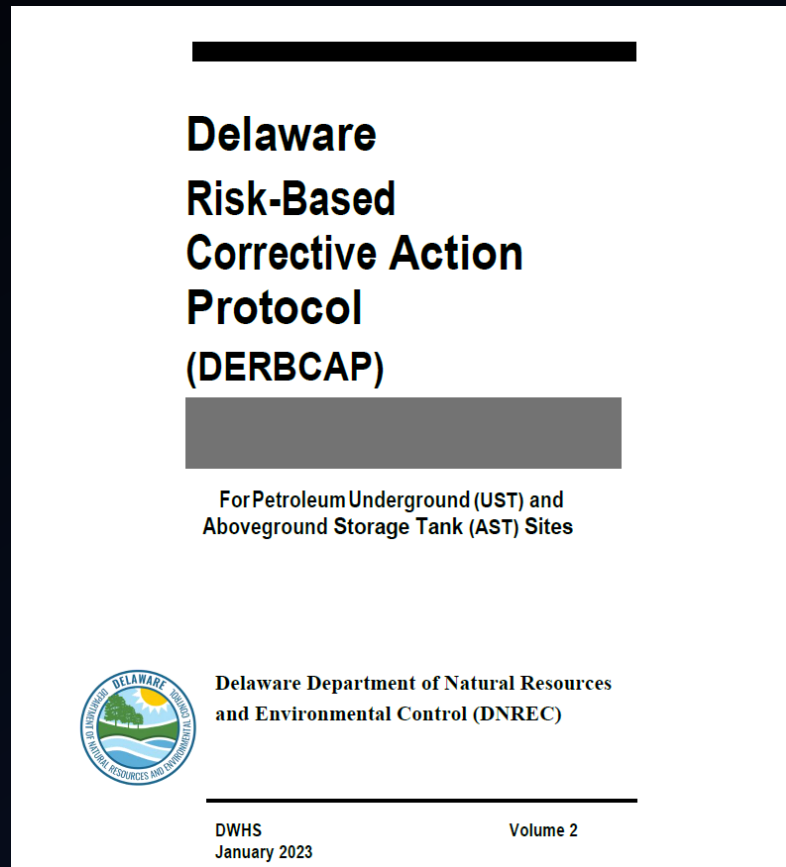


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DELAWARE RISK-BASED CORRECTIVE ACTION PROTOCOL



- National standard: *American Society for Testing and Materials (ASTM) E 1739-95(2015) Standard Guide for Risk-Based Corrective Action (RBCA) at Petroleum Release Sites*
- **Tiered** approach to evaluate Risk to Receptors
- An excess cancer risk of 1×10^{-5} is assumed in all calculations.
- RBCA Tool Kit for Chemical Releases:

<https://www.gsi-net.com/en/software/rbca-software-tool-kit-for-chemical-releases-version-2-6.html>



Changes to the document:

DERBCAP UPDATE

**Delaware
Risk-Based
Corrective Action
Protocol
(DERBCAP)**

For Petroleum Underground (UST) and
Aboveground Storage Tank (AST) Sites



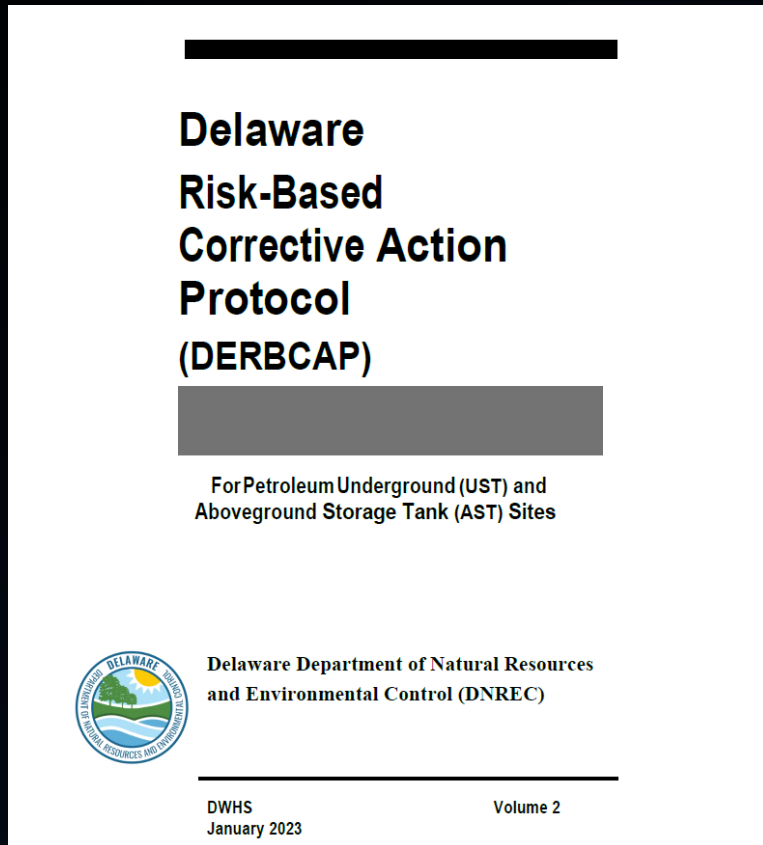
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Volume 2

- Incorporated Tier 0 sampling requirements.
- Appendices in the protocol detail the input to the Toolkit model
- Updated Action Levels and RBSLs.
- Tier 0 Action Levels and Tier 1 Risk-Based Screening Levels (RBSLs).
- The fate and transport model.





DERBCAP UPDATE

Changes to the TOOLKIT Risk Calculations:

- Risk is age adjusted
- Bodyweight of adult
- Exposure duration
- Water ingestion rate for a child and adult
- Non-carcinogenic risk
- The slope factor for Benzene
- Reference Doses more conservative for Toluene and xylenes
- The slope factor for benzo(a)pyrene
- A slope factor for ethylbenzene was added
- A slope factor for TBA was added
- A “MCL” of 2 $\mu\text{g}/\text{l}$ was applied to naphthalene
- MCLs for xylenes and ethylbenzene



Table 4. DERBCAP Risk-Based Screening Levels (RBSLs)

Chemicals of Concern (SOC) Units: mg/Kg or mg/L	DISTANCE TO POINT OF EXPOSURE (POE) OR POINT OF COMPLIANCE (POC)								
	< 50 ft			51-100 ft	101-200 ft	201-300 ft	301-400 ft	401-500 ft	> 500 ft
	SOIL _{DC}	SOIL _{GW}	GW	GW	GW	GW	GW	GW	GW
VOLATILES									
Benzene	1.2	0.048	0.014	0.025	0.078	0.44	1.5	4.1	9.5
Toluene	490	11	1.6	>530	>530	>530	>530	>530	>530
Ethylbenzene	5.8	0.68	0.7*	0.7*	2.1	40	>170	>170	>170
Xylene (mixed isomers)	58	45	10*	13	65	>200	>200	>200	>200
Isopropylbenzene (Cumene)	190	310	2	>50	>50	>50	>50	>50	>50
Naphthalene	3.8	0.14	0.002	0.12	3.6	>31	>31	>31	>31
1,2,4 Trimethylbenzene (TMB)	5.8	8.5	0.2	>57	>57	>57	>57	>57	>57
1,3,5 Trimethylbenzene (TMB)	220	46	1	1.300	3.2	11	23	41	51
ADDITIVES									
Methyl t-butyl ether (MTBE)	47	0.19	0.2	0.42	1.5	11	47	150	430
Lead	400	400	0.015	0.015	0.015	0.015	0.015	0.015	0.015
1,2-Dichloroethane (EDC)	0.46	0.0096	0.0086	0.018	0.066	0.47	2	6.8	19
1,2-Dibromoethane (EDB)	0.036	0.0011	0.00039	0.002	0.018	0.4	4.4	32	180
TBA		0.12	0.24	0.48	1.7	12	50	160	440
PAH-CARCINOGENIC									
Benz(a)Anthracene	0.82	>35	0.0078	>0.01	>0.01	>0.01	>0.01	>0.01	>0.01
Benzo(a)Pyrene	0.24	>15	0.00078	>0.0016	>0.0016	>0.0016	>0.0016	>0.0016	>0.0016
Benzo(b)Fluoranthene	1.11	>18	>0.0015	>0.0015	>0.0015	>0.0015	>0.0015	>0.0015	>0.0015
Benzo(k)Fluoranthene	1.6	>6.8	>0.00055	>0.00055	>0.00055	>0.00055	>0.00055	>0.00055	>0.00055
Chrysene	16	>6.2	>0.002	>0.002	>0.002	>0.002	>0.002	>0.002	>0.002
Indeno(1,2,3-cd)Pyrene	1.3	>130	>0.0038	>0.0038	>0.0038	>0.0038	>0.0038	>0.0038	>0.0038
PAH-NON-CARCINOGENIC									
Acenaphthene	360	>170	1.2	>4.2	>4.2	>4.2	>4.2	>4.2	>4.2
Anthracene	1800	>10	>.043	>.043	>.043	>.043	>.043	>.043	>.043
Fluoranthene	240	>130	>0.26	>0.26	>0.26	>0.26	>0.26	>0.26	>0.26
Fluorene	240	>150	0.8	>2	>2	>2	>2	>2	>2
Phenanthrene	180	>140	0.6	>0.99	>0.99	>0.99	>0.99	>0.99	>0.99
Pyrene	180	>51	>0.14	>0.14	>0.14	>0.14	>0.14	>0.14	>0.14

Notes:

- 1) SOIL_{GW}=RBSL for soil partitioning/leaching to groundwater ingestion pathway. SOIL_{DC}=RBSL for soil direct contact (ingestion, inhalation, and dermal contact) pathway; applies for on-site exposure only. GW=RBSL for groundwater ingestion pathway.
- 2) ">" indicates that the groundwater cleanup standard is greater than the constituent's aqueous solubility or the soil cleanup standard is greater than the soil residual saturation.
- 3) Values established by RBCA Toolkit for DERBCAP, Version 2.53de--see Addendices for supporting documentation
- 4) "*"=Most stringent RBSL set to EPA Maximum Contaminant Levels

**RISK BASED
SCREENING
LEVEL
TABLE 4**



HYDROGEOLOGIC INVESTIGATION GUIDANCE

Guidance = Standards
for enforcement
purposes



Hydrogeologic Investigation Guide

**Delaware Department of Natural Resources and
Environmental Control**

Division of Waste and Hazardous Substances

Volume 2 January 2023



VAPOR INTRUSION PATHWAY GUIDANCE

Guidance = Standards
for enforcement
purposes

Vapor Intrusion Pathway Guidance
DNREC Division-Wide Investigation, Risk Determination Guidance for
Vapor Intrusion



Final
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E X H I B I T S

- Proposed Underground Storage Tank Systems Regulations published in August 1, 2023 Register of Regulations.
- Summary of changes to proposed UST System Regulations.
- Signed Start Action Notice #2023-04.
- State of Delaware Public Meeting Calendar announcing workshop, as published on the webpage on May 25, 2023.
- Affidavit of Publication, The News Journal, published in the May 21, 2023 and May 24, 2023 edition, advertising the workshop.
- Affidavit of Publication, The Delaware State News, published in the May 21, 2023 and May 24, 2023 edition, advertising the workshop.
- Legal Notice clipping of Public Workshop on Underground Storage Tank System Regulations Dated May 21, 2023 in The News Journal.

EXHIBITS

- Legal Notice clipping of Public Workshop on Underground Storage Tank Systems Regulations Dated May 24, 2023 in The News Journal.
- Email dated May 30, 2023 informing Interested Parties List of June 13, 2023 Workshop .
- Register Notice of Public Hearing on Underground Storage Tank Systems Regulations scheduled for August 30, 2023.
- Affidavit of Publication, Legal Notice of Public Hearing, Delaware State News, published August 6, 2023, advertising the August 30, 2023 Public Hearing.
- Affidavit of Publication, Legal Notice of Public Hearing, The News Journal, published August 6, 2023, advertising the August 30, 2023 Public Hearing.
- Legal Notice clipping of Public Hearing on Underground Storage Tank Systems Regulations Dated August 6, 2023 in The News Journal.

E X H I B I T S

- State of Delaware Public Meeting Calendar announcing Hearing on proposed changes to Regulations, as published on the webpage on August 9, 2023.
- Email dated August 7, 2023 informing Interested Parties List of August 30, 2023 Public Hearing.
- Errata for Admin. Code 1351.
- Delaware Risk Based Corrective Action Protocol, Volume 2, January, 2023.
- Hydrogeologic Investigation Guidance, Volume 2, January, 2023.
- The Vapor Intrusion Guidance, January, 2023.
- The Department Powerpoint presentation for the August 30, 2023 Public Hearing on Regulations Governing Underground Storage Tank Systems.

Zoom Hearing Presentation



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<https://dnrec.alpha.delaware.gov/waste-hazardous/regulations/>

