



Division of Waste & Hazardous Substances Zoom Hearing Presentation

REGULATORY CHANGES TO DELAWARE'S ABOVEGROUND STORAGE TANKS

Proposed Changes to Regulations Summary

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



Proposed Changes

- ❑ Added definitions from Statute for ease of reference
 - ❑ Best Management Practices
 - ❑ Tier 0
- ❑ Amended numbering throughout the document
- ❑ Added requirements for Tier 0 exemption



Proposed Changes

- ❑ Part B, Section 14.0 Site Assessment Requirements removed
 - ❑ Added sampling requirements to individual Sections
 - ❑ Moved certain requirements out of the regulations and into DERBCAP



Proposed Changes

- ❑ Amended the definition of an AST
 - ❑ each compartment will be considered a single AST as it pertains to compliance with these regulations
 - ❑ Currently a compartmentalized AST is considered one AST



Admin. Code 1352 ERRATA

- Adherence to Regulatory Style Manual
 - Numbering
 - But not limited to
- Grammar; italics, bold font, commas, periods, spelling



Admin. Code 1352 ERRATA table

PART/SECTION	DESCRIBE ERROR	PROPOSED CORRECTION
A/3.3.8.1	<p>There is a missed strikeout in 3.3.8. The number "2013" should be struck out (deleted).</p> <p>3.3.8.1 ASME RTP-1 -2013, <i>Reinforced Thermoset Plastic Corrosion Resistant Equipment</i>, 2013 Edition.</p>	<p>We propose to deleting "-2013"</p> <p>ASME RTP-1 -2013, <i>Reinforced Thermoset Plastic Corrosion Resistant Equipment</i>, 2013 Edition.</p>
A/3.3.8.5	<p>There is a formatting error in 3.3.8.5. "Pipeline Transportation Systems for Liquids and Slurries" should be italicized instead of bolded.</p> <p>3.3.8.5 ASME B31.4, Pipeline Transportation Systems for Liquids and Slurries <u>Pipeline Transportation Systems for Liquids and Slurries</u>. 2012 Edition.</p>	<p>We propose that "Pipeline Transportation Systems for Liquids and Slurries" be italicized.</p> <p>3.3.8.5 ASME B31.4, <i>Pipeline Transportation Systems for Liquids and Slurries</i> <u>Pipeline Transportation Systems for Liquids and Slurries</u>. 2012 Edition.</p>
A/3.4	<p>There is a formatting error in 3.4. A question mark remained after "Incorporate by Reference"</p> <p><u>"3.4 Incorporation by Reference?"</u></p>	<p>We propose that "?" be removed.</p> <p><u>"3.4 Incorporation by Reference"</u></p>

Delaware Risk-Based Corrective Action Protocol (DERBCAP)

For Petroleum Underground
Aboveground Storage Tanks



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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

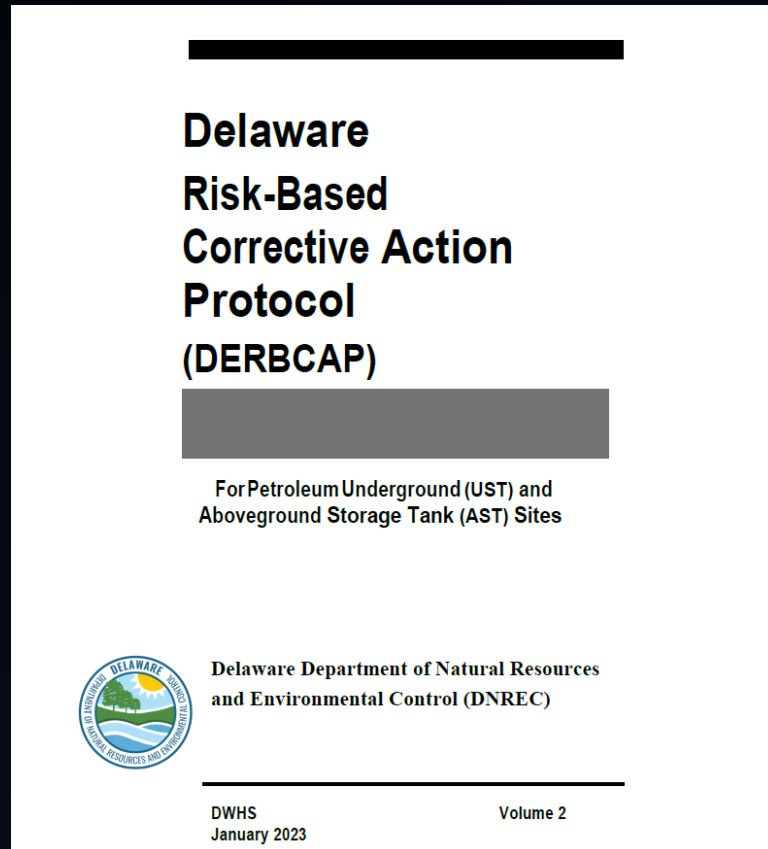


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DELAWARE RISK-BASED CORRECTIVE ACTION PROTOCOL



- 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



Delaware Department of Natural Resources
and Environmental Control (DNREC)

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- Incorporated AST and 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.



Delaware Risk-Based Corrective Action Protocol (DERBCAP)

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



Delaware Department of Natural Resources
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January 2023

Volume 2

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 (COC) 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									
Benzo(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 Aboveground Storage Tanks Regulations published in August 1, 2023 Register of Regulations.
- Summary of changes to proposed AST Regulations.
- Signed Start Action Notice #2023-03.
- 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 Aboveground Storage Tanks Regulations Dated May 21, 2023 in The News Journal.

E X H I B I T S

- Legal Notice clipping of Public Workshop on Aboveground Storage Tanks 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 Aboveground Storage Tanks 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 Aboveground Storage Tanks 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 1352.
- Delaware Risk Based Corrective Action Protocol, Volume 2, January, 2023.
- Hydrogeologic Investigation Guidance, Volume 2, January, 2023.
- Vapor Intrusion Guidance, January, 2023.
- The Department Powerpoint presentation for the August 30, 2023 Public Hearing on Aboveground Storage Tanks Regulations.

Zoom Hearing Presentation



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

