Division of Waste & Hazardous Substances Workshop

REGULATORY CHANGES TO DELAWARE'S UNDERGROUND STORAGE TANK SYSTEMS AND ABOVEGROUND STORAGE TANKS

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

Aboveground Storage Tanks

PROPOSED CHANGES

Specific Proposed Changes – AST Regulations

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

Specific Proposed Changes – AST Regulations

- 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.

Underground Storage Tank Systems

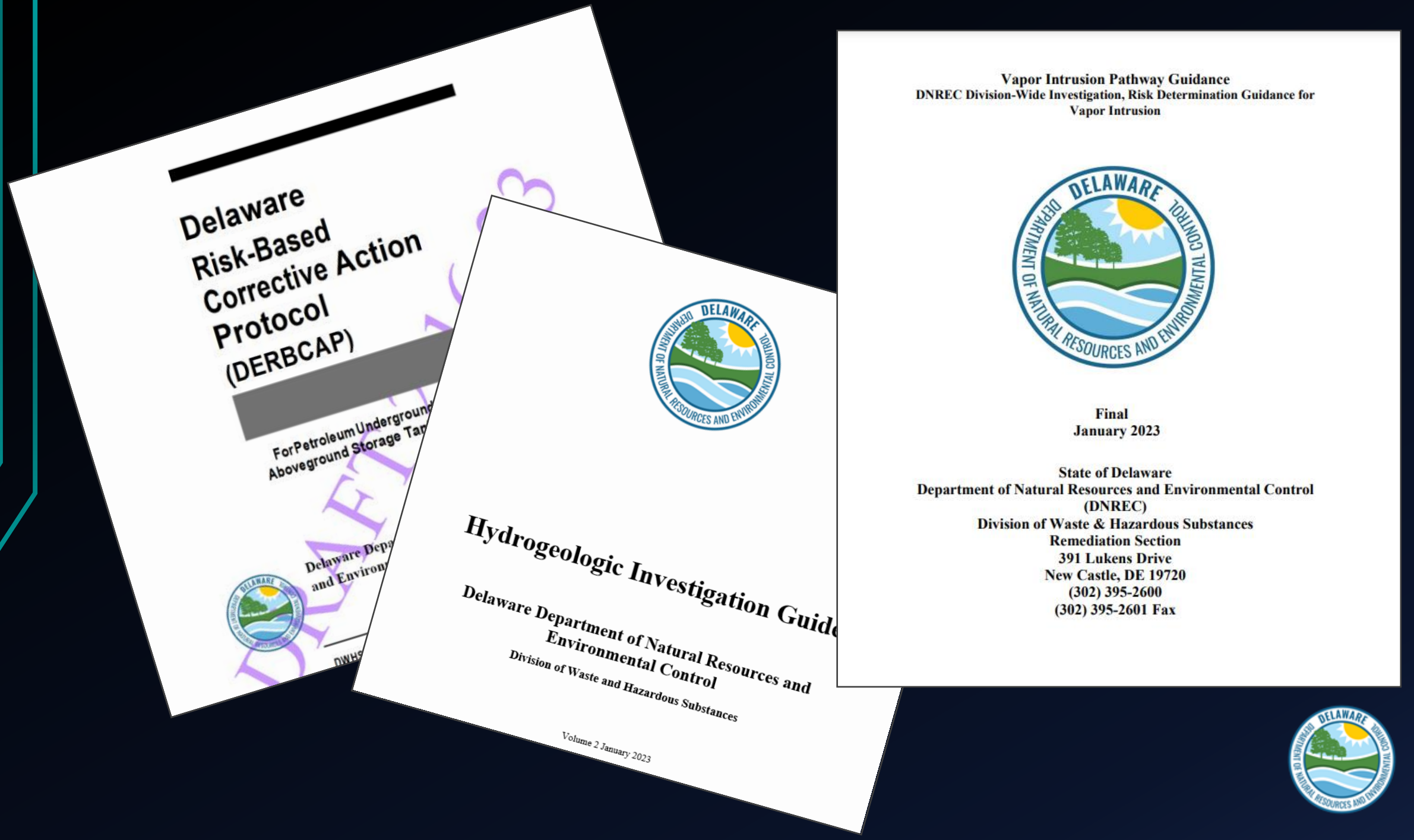
PROPOSED CHANGES

Specific Proposed Changes – UST Regulations

- 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.

Specific Proposed Changes – UST Regulations

- 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
  - 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


Delaware
Risk-Based
Corrective Action
Protocol
(DERBCAP)
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
Final
January 2023
State of Delaware
Department of Natural Resources and Environmental Control
(DNREC)
Division of Waste & Hazardous Substances
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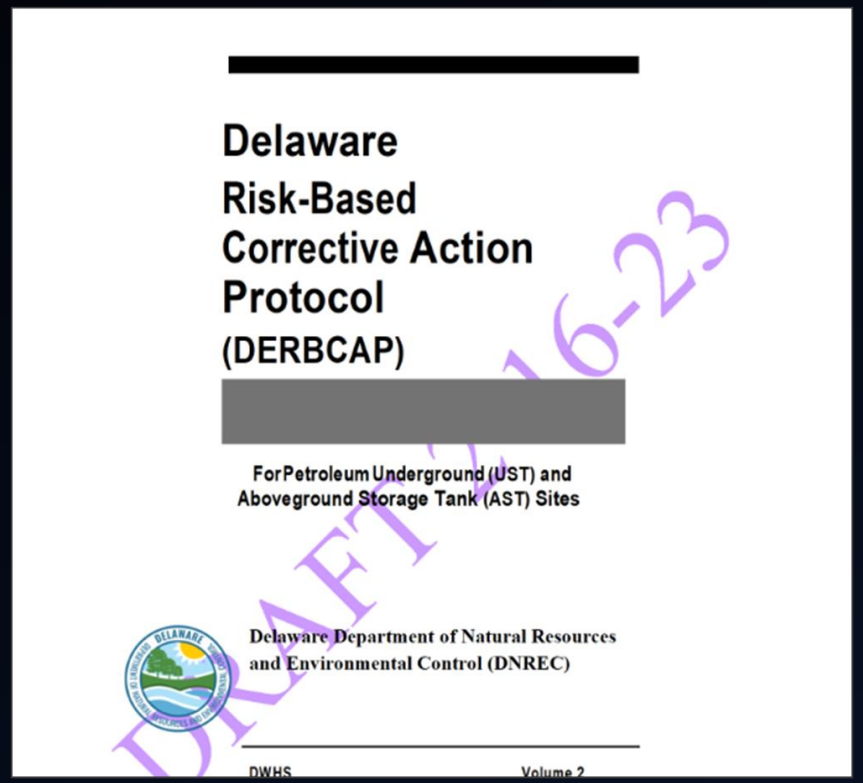
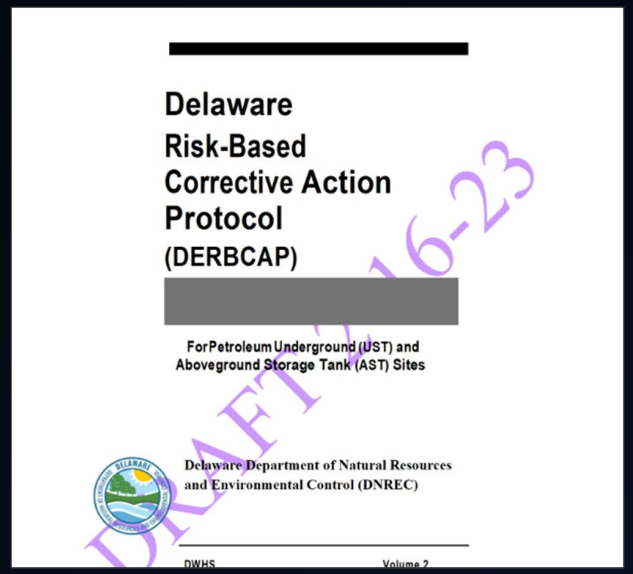
DELAWARE RISK-BASED CORRECTIVE ACTION PROTOCOL



- 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 1x10E-5 is assumed in all calculations.
- RBCA Tool Kit for Chemical Releases:

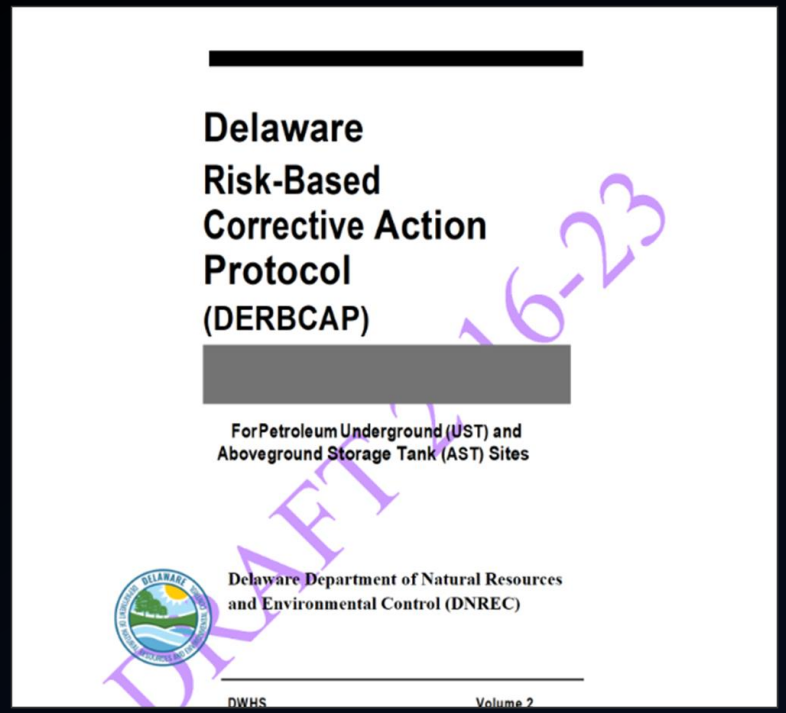
https://www.gsi-net.com/en/software/rbca-software-tool-kit-for-chemical-releases-version-2-6.html

DERBCAP UPDATE



Changes to the document:

- 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.



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-carcinogenetic 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 µg/l was applied to naphthalene
- MCLs for xylenes and ethylbenzene

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

Chemicals of Concern (COC)	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
Units: mg/Kg or mg/L	$SOIL_{DC}$	$SOIL_{GW}$	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.

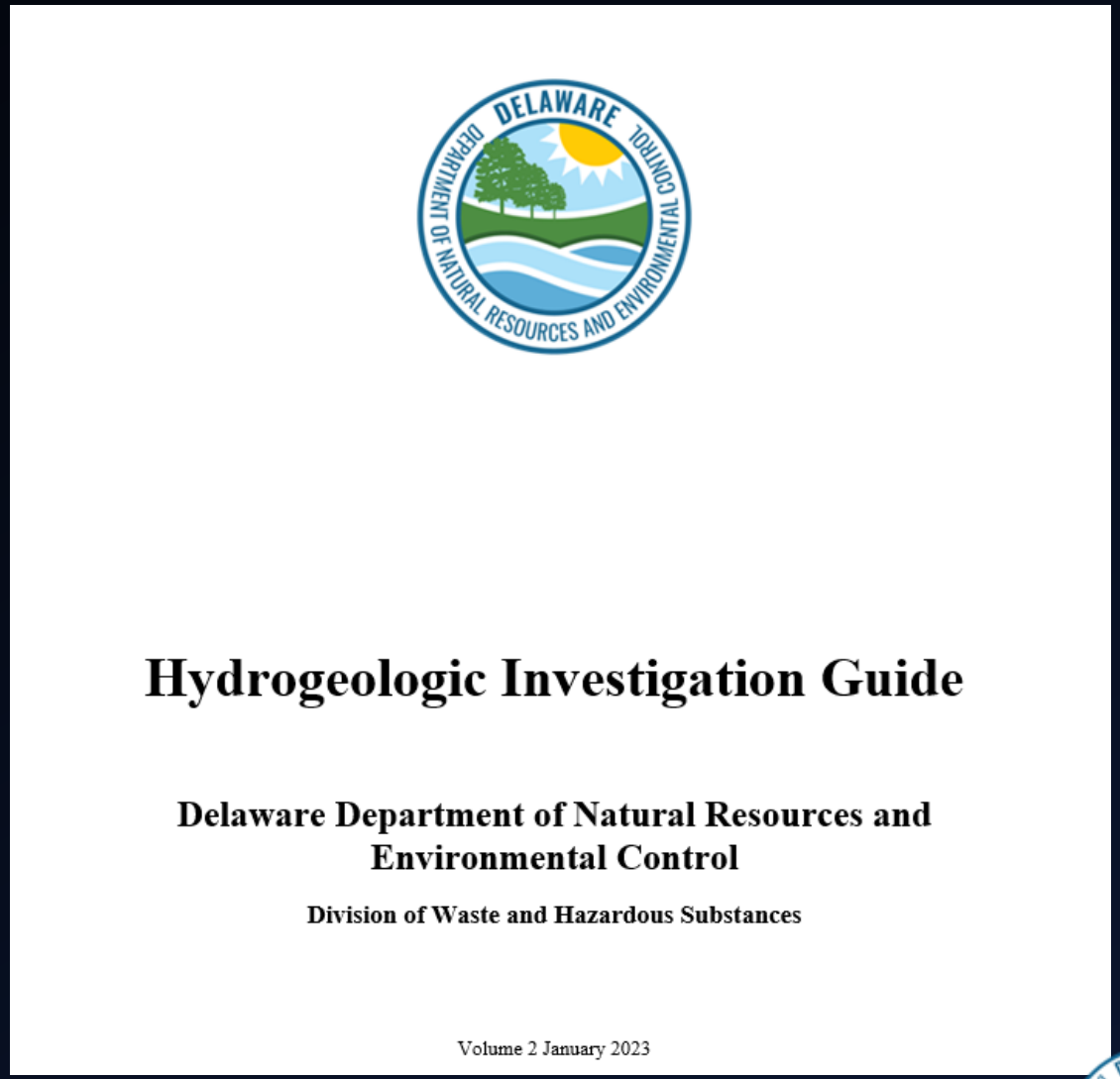
3) Values established by RBCA Toolkit for DERBCAP, Version 2.53de--see Addendices for supporting documentation

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

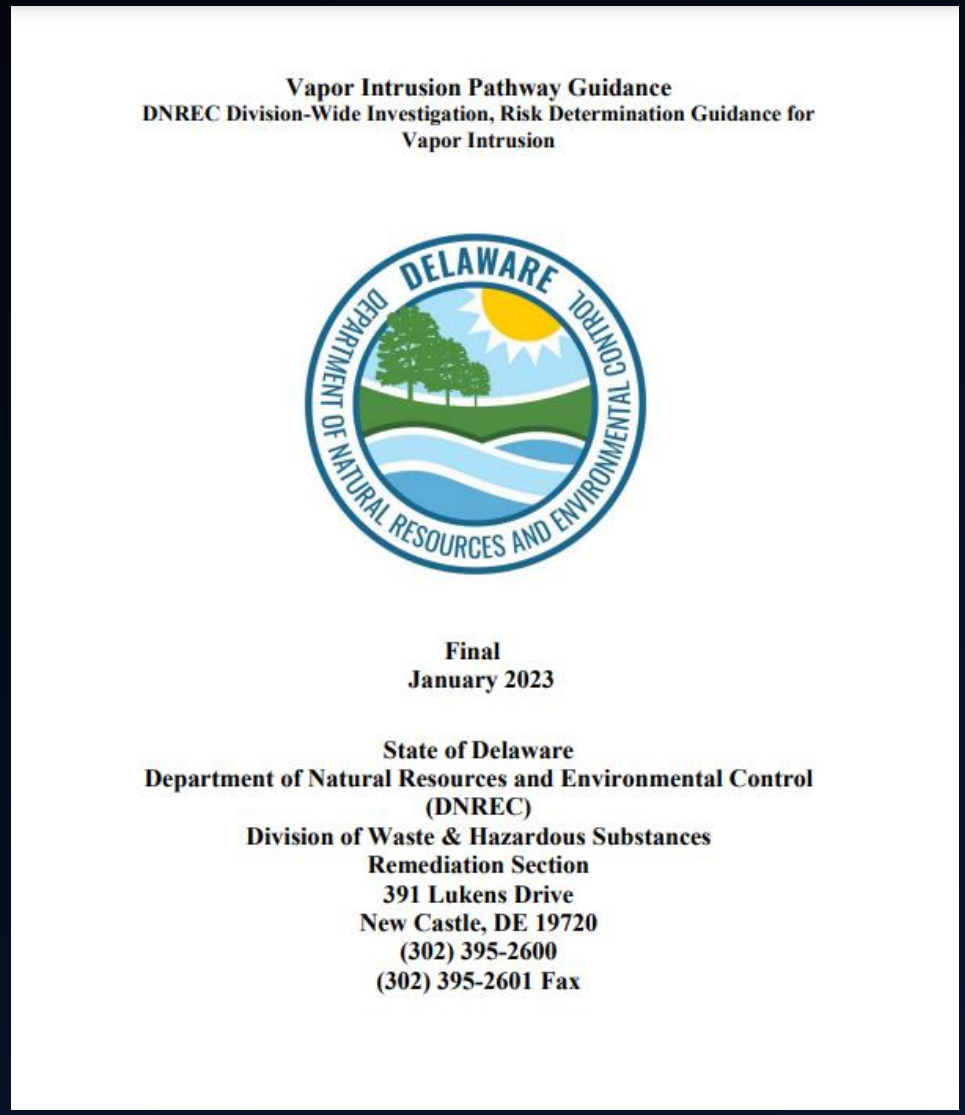
Delaware Department of Natural Resources and Environmental Control

Division of Waste and Hazardous Substances

Volume 2 January 2023

VAPOR INTRUSION PATHWAY GUIDANCE

Guidance = Standards for enforcement purposes



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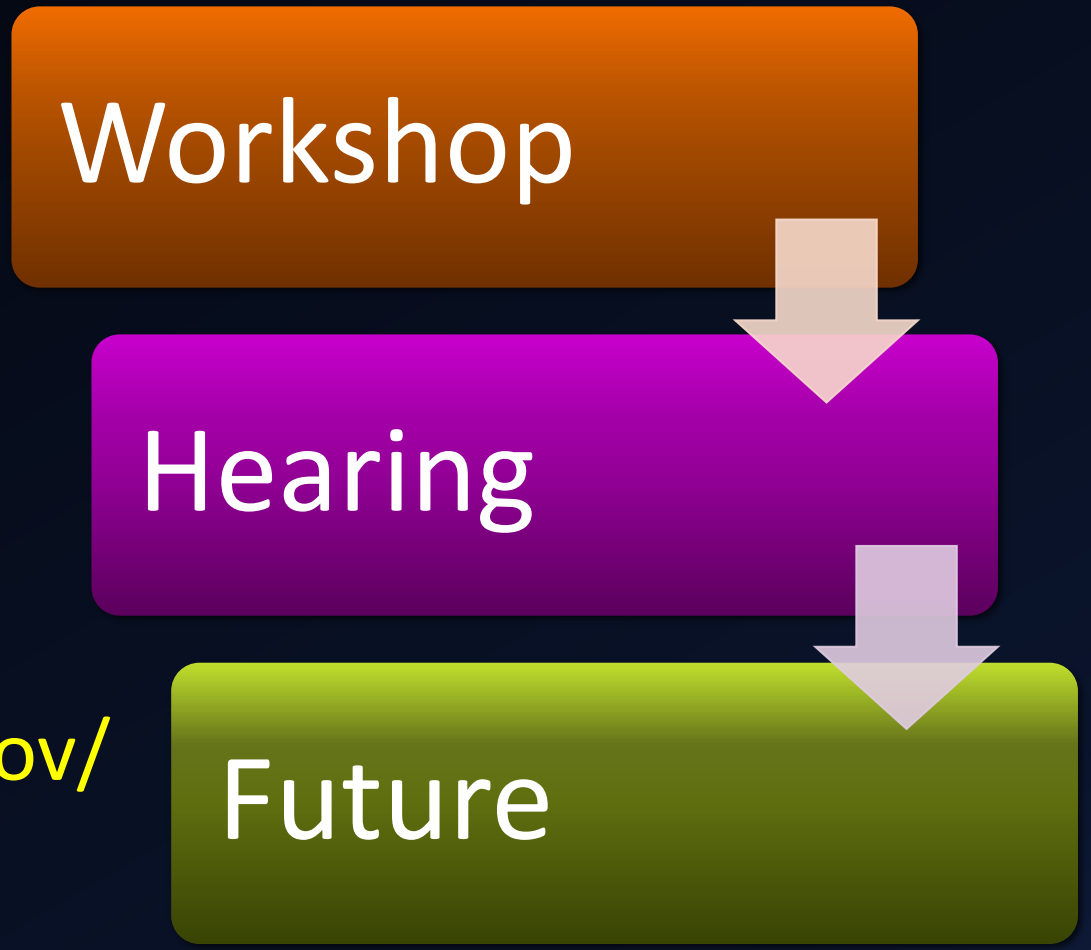
Public Process

- Workshop
- Hearing
- Finalize Changes
- More to come!

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




Any
Questions

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