



**MISSOURI**  
DEPARTMENT OF  
NATURAL RESOURCES

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# Missouri Risk-Based Corrective Action Update and Revision Stakeholder Webinar

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DNR Hazardous Waste Program  
DHSS Bureau of Environmental Epidemiology

September 9, 2015

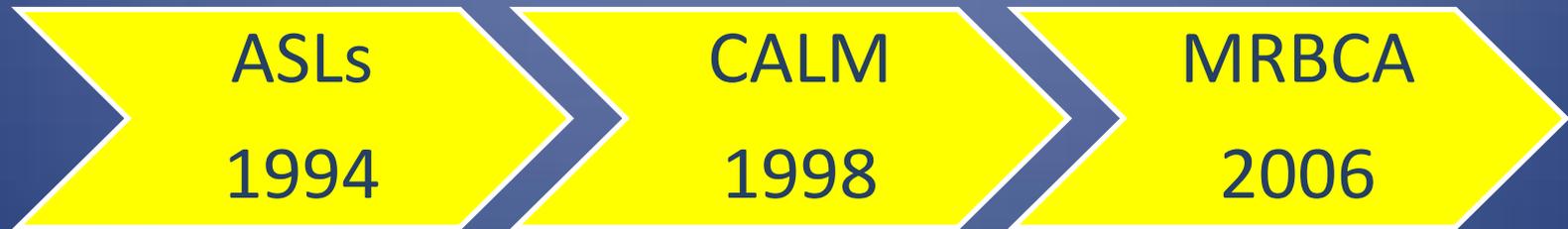
# Welcome!

- Overview and purpose
- NOT Petroleum Storage Tanks MRBCA
- Introductions
- What we'll cover
- 30 min. presentation + Q&A
- Submit questions via the chat function

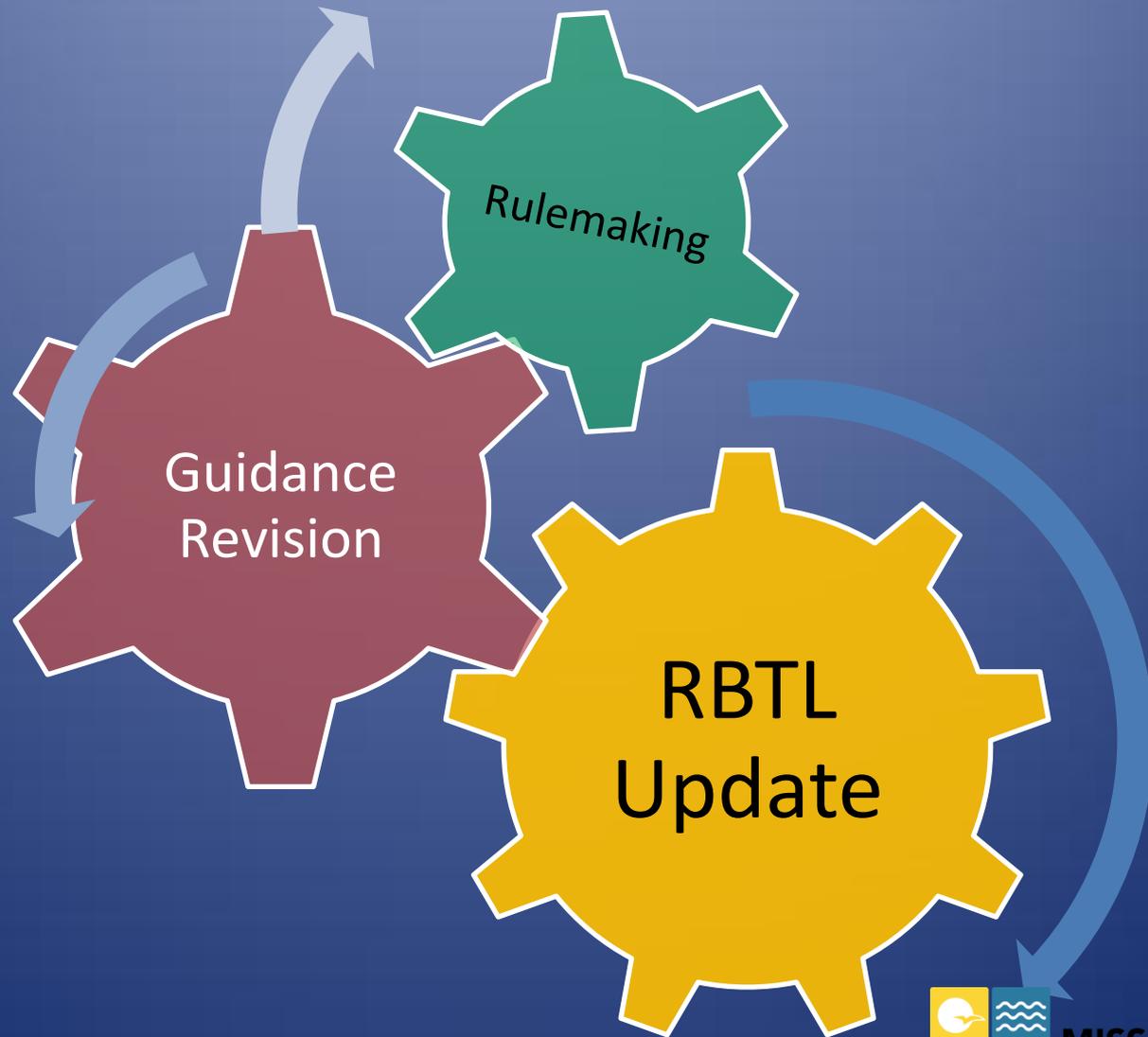
# About RBCA

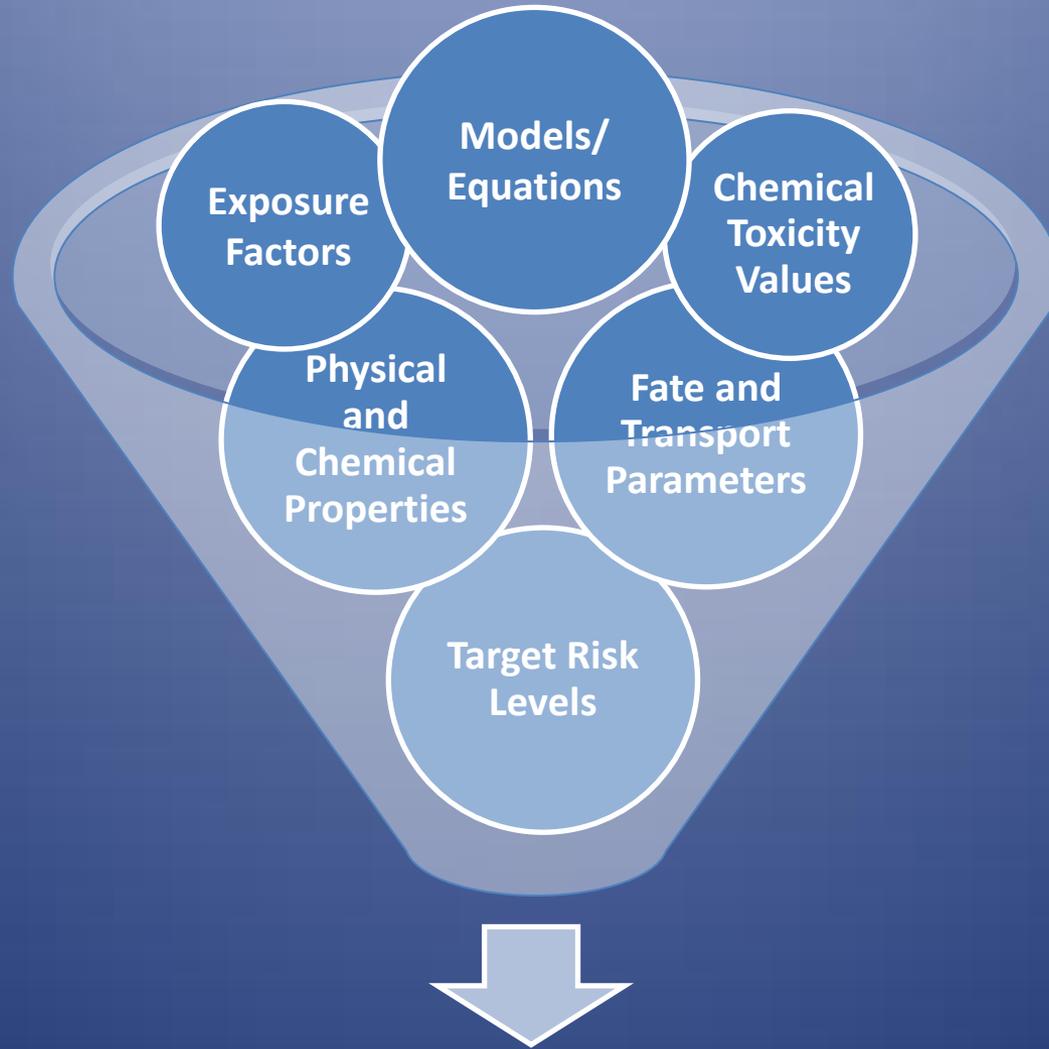
- Define RBCA
- Tiered approach
- Tier 1 – generic Risk-Based Target Levels
- DTLs – most conservative of Tier 1 RBTLs

# MDNR: A Long History of Risk-Based Remediation



# The Update Has Many Moving Parts





**RBTLs**

# Need for RBTL Update

Table B-2  
Tier 1 Risk-Based Target Levels  
Residential Land Use  
Soil Type 1 (Sandy)

Chemicals of Concern	AIR			SURFICIAL SOIL								SUBSURFACE SOIL				SOIL VAPOR			GROUNDWATER																		
	Indoor	CH	CN	Dermal Contact	CH	CN	Ingestion	CH	CN	Outdoor Inhalation	CH	CN	Ingestion, Inhalation (Vapor Emissions and Particulates), and Dermal Contact	CH	CN	Indoor Inhalation of Vapor Emissions	CH	CN	Indoor Inhalation of Vapor Emissions	CH	CN	Dermal Contact	CH	CN	Domestic Water Use	MCL	MCL										
		AA	A		AA	A		AA	A		AA	A		AA	A		AA	A		AA	A		AA	A		AA	A	AA	A	AA	A	AA	A	AA	A		
[mg/m <sup>3</sup> air]	[mg/kg]								[mg/kg]				[mg/m <sup>3</sup> air]			[mg/L]																					
<b>VOCs and SVOCs</b>																																					
Acetophenone	1.25E-01	CH	NC	1.25E+04	*	CH	NC	4.69E+01	*	CH	NC	3.44E+04	*	CH	NC	3.12E+01	*	CH	NC	6.69E+04	*	CH	NC	1.00E+04	+	CH	NC	1.61E+03	#	CH	NC	1.35E+00	CH	NC	1.65E-01	CH	NC
Acetophenylene	1.25E-01	CH	NC	NA	--	CH	NC	4.69E+01	*	CH	NC	3.36E+04	*	CH	NC	4.18E+01	*	CH	NC	8.41E+04	*	CH	NC	9.60E+01	+	CH	NC	2.96E+03	#	CH	NC	1.60E+00	CH	NC	1.70E-01	CH	NC
Acetone	1.80E+00	CH	NC	NA	--	CH	NC	7.04E+04	*	CH	NC	4.87E+05	*	CH	NC	6.15E+04	*	CH	NC	1.83E+03	CH	NC	5.09E+04	CH	NC	3.28E+04	CH	NC	6.66E+03	CH	NC	2.97E+00	CH	NC		CH	NC
Acetonitrile	3.50E-02	CH	NC	NA	--	CH	NC	1.33E+03	CH	NC	9.27E+03	CH	NC	1.16E+03	CH	NC	9.63E+01	CH	NC	9.25E+02	CH	NC	6.64E+02	CH	NC	1.26E+02	CH	NC	5.64E-02	CH	NC	5.64E-02	CH	NC		CH	NC
Acrylamide	1.97E-05	AA	C	4.50E+00	AA	C	1.42E+00	AA	C	4.51E+01	AA	C	1.05E+00	AA	C	1.46E+02	AA	C	1.69E-02	AA	C	4.19E+02	AA	C	1.57E-01	AA	C	1.49E-04	AA	C	1.49E-04	AA	C		AA	C	
Acrylic acid	5.97E-04	CH	NC	1.40E+05	*	CH	NC	3.91E+04	CH	NC	1.54E+02	CH	NC	1.54E+02	CH	NC	2.13E+02	CH	NC	1.70E+01	CH	NC	3.60E+03	CH	NC	1.49E+03	CH	NC	7.77E+00	CH	NC		CH	NC			
Acrylonitrile	3.77E-04	AA	C	NA	--	CH	NC	1.10E+01	AA	C	2.65E+02	CH	C	1.15E+01	AA	C	1.24E-01	AA	C	1.17E+01	AA	C	2.12E+00	AA	C	2.58E-01	AA	C	4.68E-04	AA	C	4.68E-04	AA	C		AA	C
Allyl alcohol	1.04E-02	CH	NC	1.40E+03	CH	NC	3.91E+02	CH	NC	2.70E+03	CH	NC	2.74E+02	CH	NC	5.45E+02	CH	NC	3.06E+02	CH	NC	1.52E+03	CH	NC	1.99E+01	CH	NC	7.78E-02	CH	NC	7.78E-02	CH	NC		CH	NC	
Allyl chloride	5.97E-04	CH	NC	8.10E+01	CH	NC	2.27E+01	CH	NC	1.54E+02	CH	NC	1.59E+01	CH	NC	2.22E+02	CH	NC	1.96E+01	CH	NC	6.38E+02	CH	NC	1.92E-01	CH	NC	4.40E-03	CH	NC	4.40E-03	CH	NC		CH	NC	

Existing RBTLs are outdated:

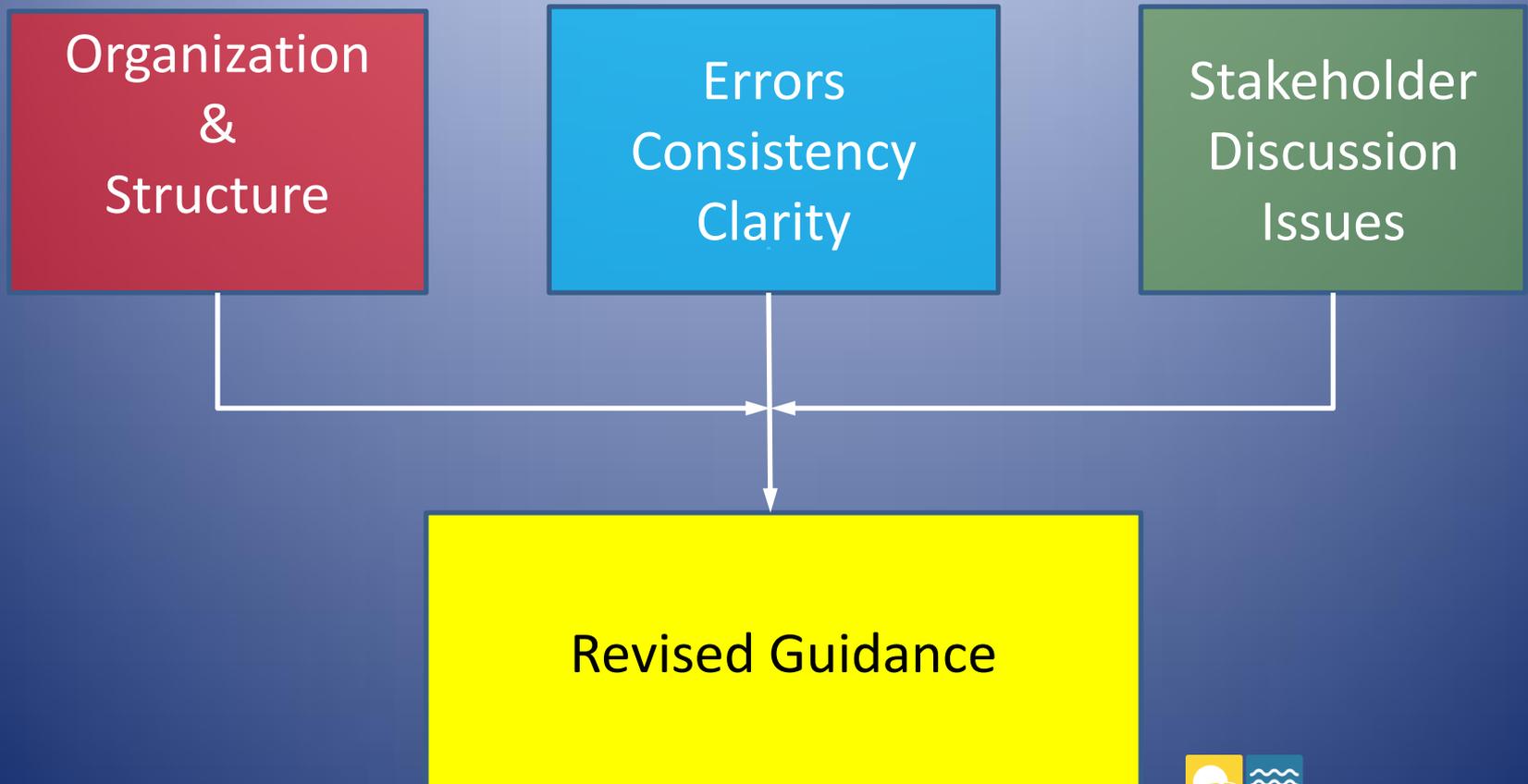
- Developed in 2006
- Not modified in almost 10 years

Update needed to ensure RBTLs are protective of public health and based on current science.

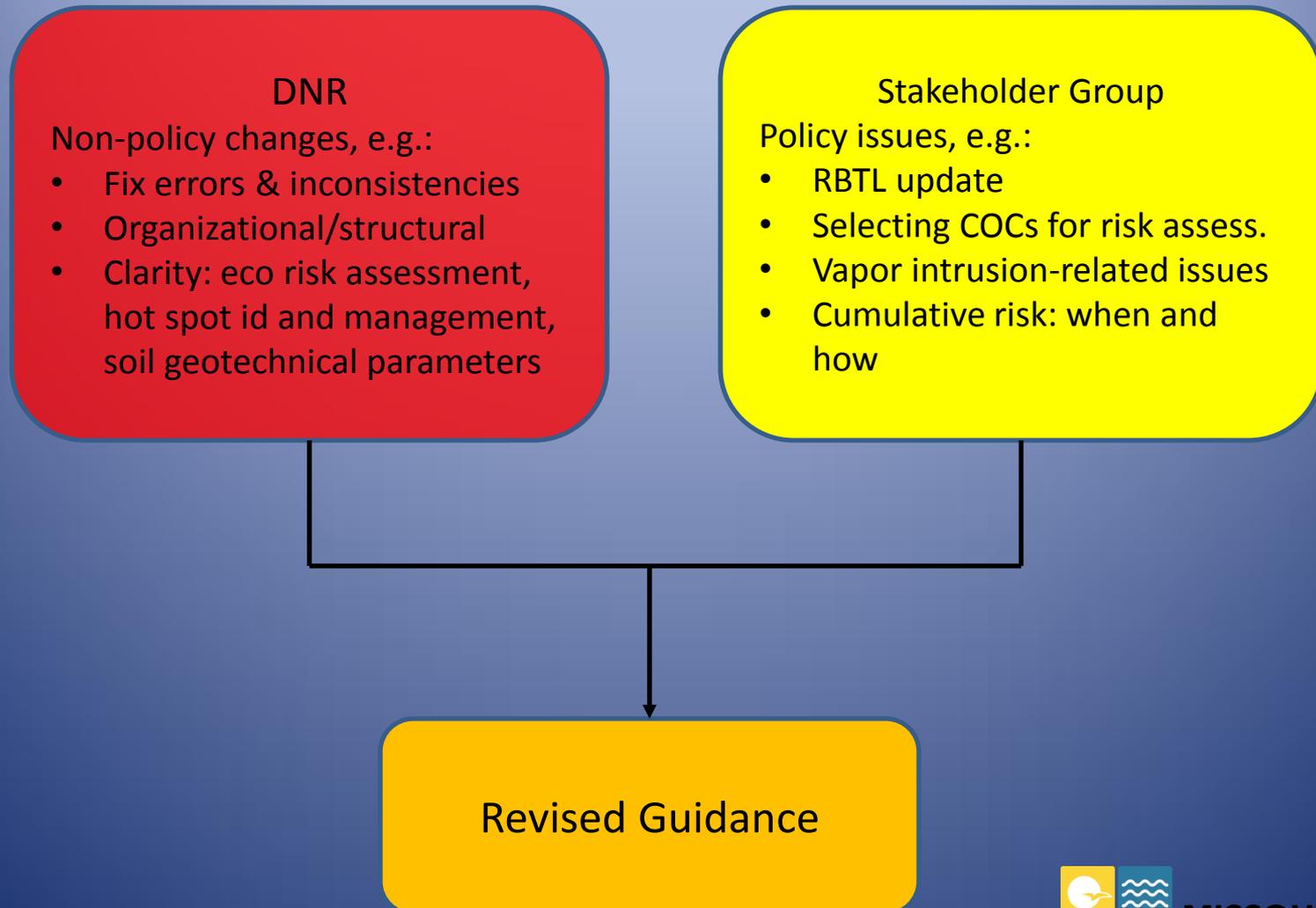
# RBTL Update – Details

	2006	Proposed
Total Chemicals	280	>700
Models/Equations	Various Sources	EPA
Exposure Factors	Various Sources	EPA defaults
Toxicity Values	Various Sources	EPA hierarchy
Physical and Chemical Properties	Various Sources	EPA hierarchy
Fate and Transport Parameters	Various Sources	EPA defaults
Target Cancer Risk (IELCR)	1e-5 each chemical 1e-4 cumulative	1e-5 each chemical 1e-4 cumulative
Target Non-Cancer Risk (HQ, HI)	1 (HQ-each chemical) 1 (HI-cumulative)	1 (HQ-each chemical) 1 (HI-cumulative)

# Need for Guidance Revision



# Guidance Revision



# Rulemaking

RBTLs/models/inputs incorporated by reference into 10 CSR 25-18.010

Rule allows guidance update, limited RBTL modification

Guidance and RBTL changes necessitate rule changes

Significance and scope of proposed changes exceed rule intent

Rulemaking necessary

# Rulemaking



- MRBCA used only in BVCP, a non-regulatory program where participation is voluntary
- No need for RBTLs to be enforceable
- RBTLs in rule hampers ability to keep them current
- HWP proposes that RBTLs no longer be incorporated into rule
- RBTLs would exist only in guidance

# Stakeholder Engagement

- Sept. 30, 2015: Stakeholder group established
- Late 2015/early 2016: Stakeholder meetings
- June 2016: Final draft revised guidance
- April or May 2016: Final draft RBTLs
- July 2016: Final revised guidance and updated RBTLs
- August 2016: Rulemaking begins
- December 2017: Rule effective

Estimated dates!

No hard deadlines apart from those associated with rulemaking

# Getting Involved

To join the stakeholder group, go to:  
<http://dnr.mo.gov/env/hwp/mrbca/mrbca.htm>

Include your name, email address, organization name and address, and phone number.

Please sign up by September 30, 2015.

You'll receive information about upcoming meetings and activities. There's no obligation!



# For Additional Information

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