

Missouri Risk-Based Corrective Action Rules

October 9, 2008 Workshop



Introduction

- Two Risk-Based Corrective Action (RBCA) processes:
 - Departmental
 - Petroleum Storage Tanks
- Separate but similar rules developed
- Rules based on guidance per decision by stakeholders



Workshop Purpose

- Information regarding:
 - History of MRBCA development
 - Overview of RBCA process
 - Structure and content of RBCA rules
 - Rules status and schedules
- Address stakeholder questions and concerns



Intent

- Workshop is informational
- Departmental rules based on guidance provisions
- Tanks rules based on revised guidance and statutory deadline of February 13, 2009



What is RBCA?

- A process to develop cleanup levels in consideration of actual and potential exposure to chemicals of concern
- contaminant + pathway + route of exposure = risk



Why Risk-Based?

- Historically, conservative target levels not based on specific risk applied to all sites
- Levels not always necessary to protect human health or the environment, or possible to meet



Why Risk-Based?

- Risk-based process tailors remediation targets to site-specific risks
- Remediation based on elevated risk rather than just elevated contaminant concentrations
- From “How much contamination can be removed?” to “How much contamination can be safely left in place?”



History of MRBCA

- 1995: Push for RBCA begins
- 1998: CALM guidance issued
- 1999: Section 644.143 directs Clean Water Commission to establish RBCA process
- 2004: Tanks guidance issued, HWMC granted authority for tanks
- 2006: Departmental guidance issued
- 2008: SB907 requires tank rules by Feb. 13, 2009
 - Draft rules developed for both processes



RBCA Major Elements

- Site Characterization
- Risk Assessment
- Corrective Action
- Long-Term Stewardship



Site Characterization

- RBCA dependent on full characterization of nature and extent of contamination
- Cannot assess risk without knowing what contaminants are present, their concentrations, where they are, and where they are going



Risk Assessment

- Identify exposure pathways within area of current and future contamination
- Identify/develop applicable target levels
- Compare targets to contaminant concentrations on pathway-specific basis
- Evaluate cumulative risk (departmental)
- Does the contamination pose unacceptable risk?



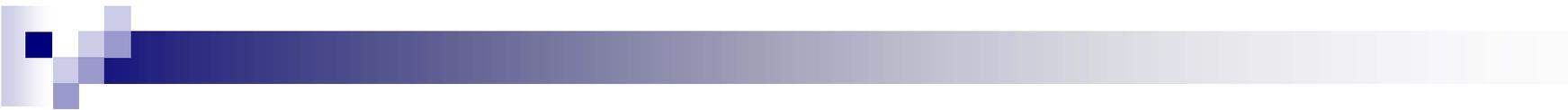
Corrective Action

- If contaminants pose unacceptable risk, corrective action is required
- Options: **reduce contaminant concentrations**, eliminate or control transport pathways, or eliminate or control receptors
- Long-term stewardship if contaminant concentrations remain $>$ unrestricted



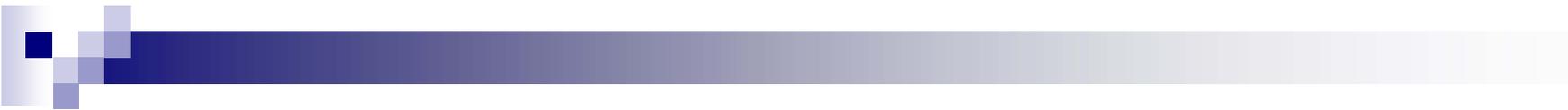
Corrective Action

- Department's preference is cleanup
- Long-term measures not necessary
- Uncertainty and liability reduced



Long-Term Stewardship

- Fundamental - ensures risk assessment assumptions not violated in future
- Ensures protection for duration necessary
- Required when COCs remain above unrestricted use
- Variety of measures to achieve goal
- Departmental – Environmental Covenant
- Tanks – information, Deed Notice or equivalent, Restrictive Covenant
- Others as supplements



MRBCA General Provisions

- 3 Tiers
- Acceptable risk levels:
 - 1 in 100,000, HI-1 individual and 1 in 10,000, HI-1 cumulative
 - Tanks individual only
- Receptors: residential, non-residential and construction worker
- Pertains to entire site, with “site” defined as extent of contamination
- Ecological assessment required



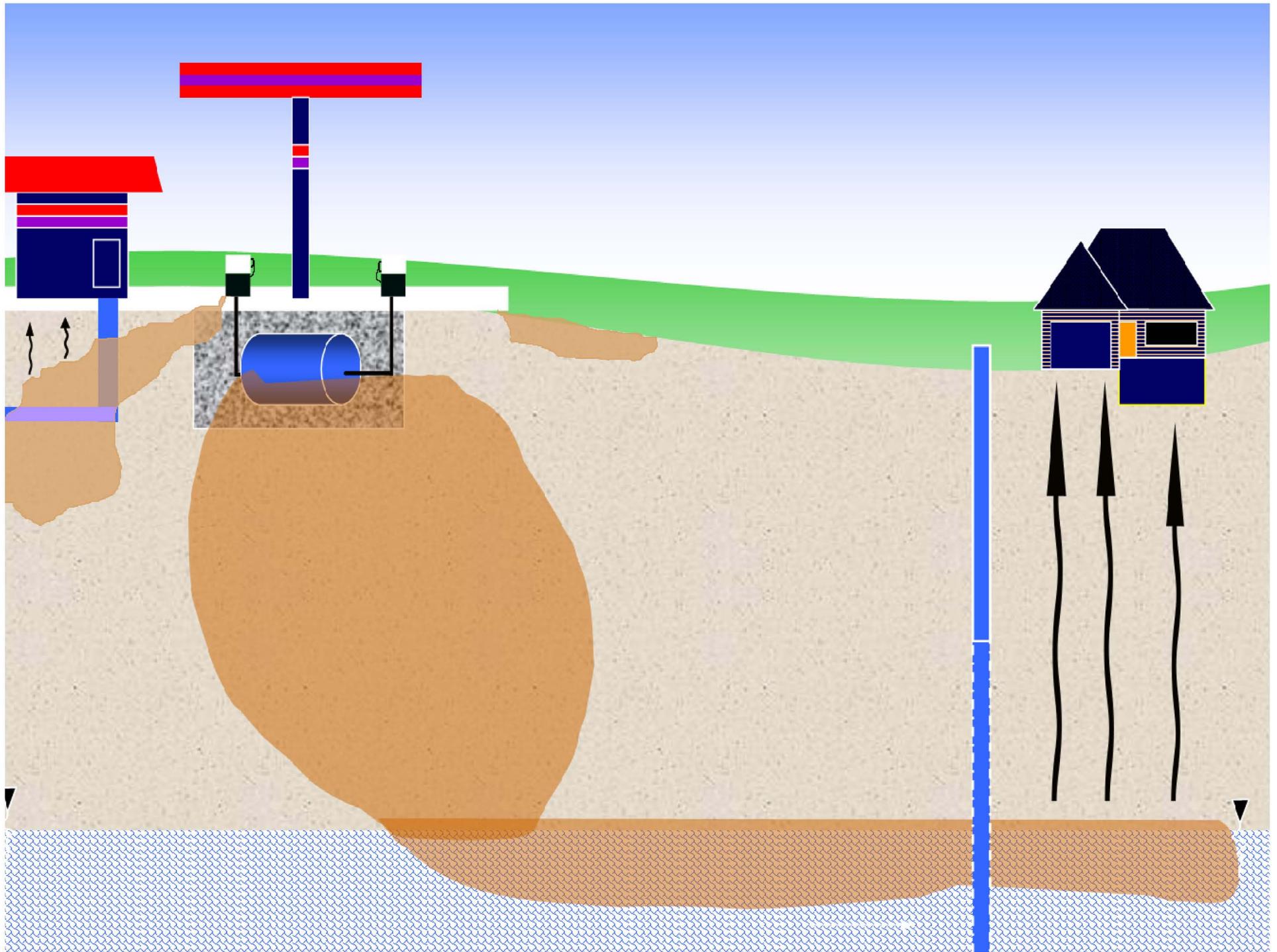
MRBCA General Provisions

- Risk-based standards provide an alternative to background or non-detect
- Default Target Levels = “action levels”
- Consideration of site-specific exposure pathways
- Tier 1 Departmental considers hundreds of contaminants
- Tier 1 Tanks considers limited suite of key petroleum constituents – primary risk drivers



Exposure Pathways

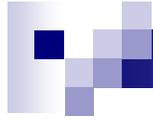
- Current and future
- Vapor intrusion: soil and groundwater
- Direct contact (ingestion, inhalation, dermal): soil, groundwater and surface water
- Groundwater discharge to surface water
- Leaching: soil to groundwater
- Other pathways on a site-specific basis



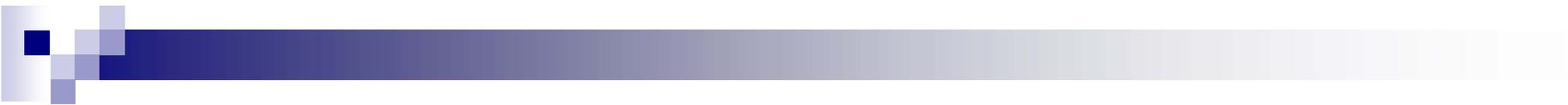


MRBCA General Provisions

- LTS if contaminants remain above unrestricted use levels
- Public participation if contamination migrates off the property of origin
- Plume stability assessment when groundwater contamination present

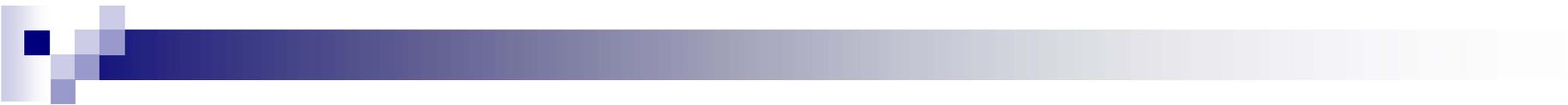


Break – 10 minutes



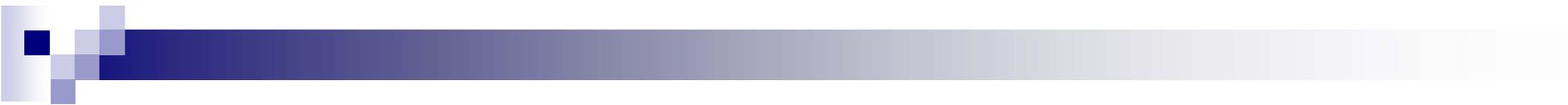
Rule Development

- Collective decision that guidance will precede rules
- Both rules structured on guidance
 - Departmental June 2006 (and updates)
 - Tanks February 2004 as revised 2008
- Content of rules similar, structure differs



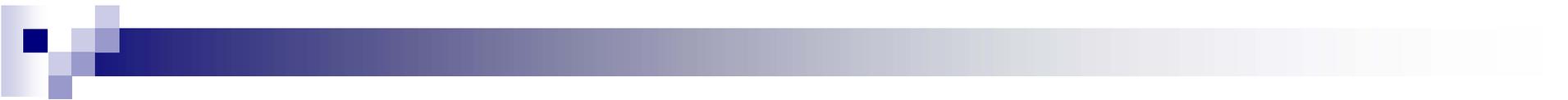
Definition of “Rule”

- 536.010 RSMO: “each agency statement of general applicability that implements, interprets, or prescribes law or policy, or that describes the organization, procedure, or practice requirements of any agency.”



MRBCA Rules

- Rules needed - guidance not enforceable
- Tanks RBCA rule must be filed with Secretary of State by February 13, 2009
- Departmental rule to precede tanks rule
- Opportunity for stakeholder comment via rulemaking process



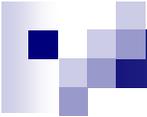
Structure of Rules

- Departmental: one new rule (draft ~34 pages)
- Tanks: multiple rules including modified existing rules and entirely new rules
 - Each rule addresses separate aspect of RBCA process beginning with discovery and ending with issuance of No Further Remedial Action letter



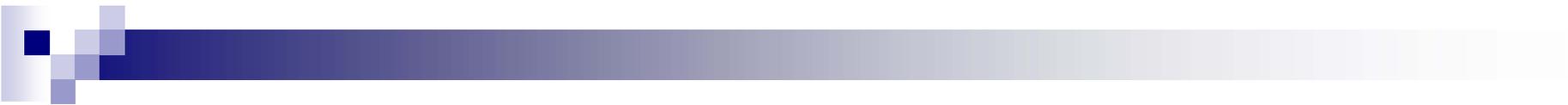
Content of Rules

- Major structural elements of the RBCA process in rules
- Rules explain what the requirements are, guidance documents explain how the requirements are to be met
- Technical details are found in guidance, not rule



10 CSR 25-18.010 Risk-based corrective action process

- (1) Definitions
- (2) Applicability
- (3) Rationale and characteristics of tiered approach
- (4) Risk-based corrective action process
- (5) Risk-based target levels within the MRBCA process
- (6) Documentation of the MRBCA process
- (7) Initial Site Characterization
- (8) Conceptual Site Model
- (9) Site Characterization for an MRBCA Risk Assessment
- (10) Ecological Risk Assessment
- (11) Representative Concentrations
- (12) Selection of COCs for MRBCA Evaluation
- (13) Risk-Based Target Levels
- (14) Conducting a Tier One Risk Assessment
- (15) Conducting a Tier Two Risk Assessment
- (16) Conducting a Tier Three Risk Assessment
- (17) Data Quality
- (18) Long-term stewardship (LTS) for risk-based corrective action sites
- (19) Risk Management Plan
- (20) Completion of Risk Management Activities
- (21) Public Participation and Notice
- (22) Procedure for Letter of Completion
- (23) MRBCA Technical Guidance



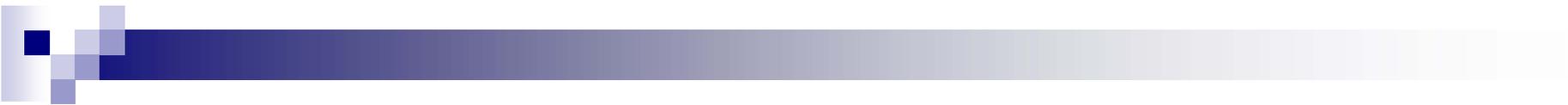
MRBCA Tanks Rules

10 CSR 20-10.070	Release Response and Corrective Action
10 CSR 20-10.071	Initial Release Response
10 CSR 20-10.072	Initial Abatement Measures, Site Check and Comparison with Default Target Levels
10 CSR 20-10.073	Initial Site Characterization
10 CSR 20-10.074	Light Non-Aqueous Phase Liquid Removal
10 CSR 20-10.075	Risk-Based Corrective Action Process
10 CSR 20-10.076	Site Characterization and Data Requirements
10 CSR 20-10.077	Risk-Based Target Levels
10 CSR 20-10.078	Tier Risk Assessment
10 CSR 20-10.079	Corrective Action Plan
10 CSR 20-10.080	Public Participation and Notice
10 CSR 20-10.081	Long-Term Stewardship
10 CSR 20-10.082	No Further Action Determinations



Status of Tanks Rules

- 10 CSR 20-10.081, Long-Term Stewardship, remains under review and will be changed
 - Current version essentially requires a restrictive covenant, changes will be made to allow a menu-approach to LTS, with the minimum requirement being notification via a deed notice



Status of Tank Rules

- So that tanks rules are under the HWMC as required by statute, the MRBCA rules will be promulgated under Division 25, Chapter 25 of the Code of State Regulations
 - 10 CSR 25-25.XXX
- Other tanks rules will also be moved to Division 25, Chapter 25 during this rulemaking



Questions?



10 CSR 20-10.070 Release Response and Corrective Action

10 CSR 20-10.071 Initial Release Response

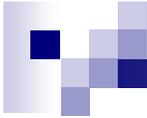
Actions required upon confirmation of a release

10 CSR 20-10.072 Initial Abatement Measures, Site Check and Comparison with Default Target Levels

Abatement measures to minimize release, investigation to determine degree and extent of contamination, comparison of maximum contaminant concentrations with DTLs to determine whether further action is warranted, submittal of report to MDNR

10 CSR 20-10.073 Initial Site Characterization

Characterization of contamination from release, data regarding site conditions to identify exposure pathways, submittal of report to MDNR



10 CSR 20-10.074 Light Non-Aqueous Phase Liquid Removal

If LNAPL present, begin initial removal actions to control extent and hazards, gather information to develop site-specific LNAPL removal work plan

10 CSR 20-10.075 Risk-Based Corrective Action Process

Identifies the information necessary to adequately and accurately assess risk: Conceptual site model development, identification of chemicals of concern, land use, evaluation of groundwater use, identification of surface water, utilities, creation of exposure model, identification of receptors and exposure pathways, ecological screening assessment, and determination of and comparison of COC concentrations with applicable target levels



10 CSR 20-10.076 Site Characterization and Data Requirements

Investigations to characterize the nature and extent of contamination, data collection for Tier 2 site-specific target level development, access to neighboring properties

10 CSR 20-10.077 Risk-Based Target Levels

Identifies target risk levels; chemical of concern toxicity factors, physical and chemical properties, exposure factors, models required to develop target levels; explanation of Tier 1 risk-based target levels, Tier 2 and 3 site-specific target levels

10 CSR 20-10.078 Tier Risk Assessment

Requirements regarding Tier 1, 2, and 3 risk assessments

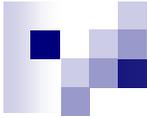


10 CSR 20-10.079 Corrective Action Plan

Explains when corrective action is required, what a corrective action plan must cover, requirements for neighboring properties, management of LNAPL, and application of risk-based target levels when remediation is via excavation

10 CSR 20-10.080 Public Participation and Notice

Sets forth provisions related to public participation and notice when corrective action is warranted on neighboring properties, requirements pertain to MDNR but may be undertaken by responsible party



10 CSR 20-10.081 Long-Term Stewardship

Explains when LTS is required, what it is, and how LTS obligations may be met

10 CSR 20-10.082 No Further Action Determinations

Stipulates the conditions under which MDNR will issue a No Further Remedial Action letter, the content of the letter, conditions under which it may be revoked