

REINHOLD ENVIRONMENTAL Ltd.



**2015 NO<sub>x</sub>-Combustion Round Table  
& Expo Presentations**

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# THEY'RE HERE!!! REVIEW OF THE NEW FEDERAL REGULATIONS FOR CCR

Presented by: Mark Rokoff, National Practice Lead, CCP Management



February 23, 2015

# Overview of Presentation

- Overview/Applicability of the Rule
- Surface Impoundments
- Landfills
- Groundwater Monitoring Systems
- Recordkeeping, Notifications, and Publicly Accessible Internet Site

# Overview/Applicability of the Rule

# Overview of The Final CCR Rule

-  – Published Draft Rule June 2010
  
-  – Prepublication of final CCR rule issued December 19, 2014
  - Final CCR rule to be published in the Federal Register
    - (published date)
  
  - Final CCR rules will be effective 6 months after publication
    - (effective date)

# Overview of The Final CCR Rule

## Final CCR Rule (pre-publication version):

- Preamble: Pages 1 to 606
- Final Rule: Pages 606 to 745

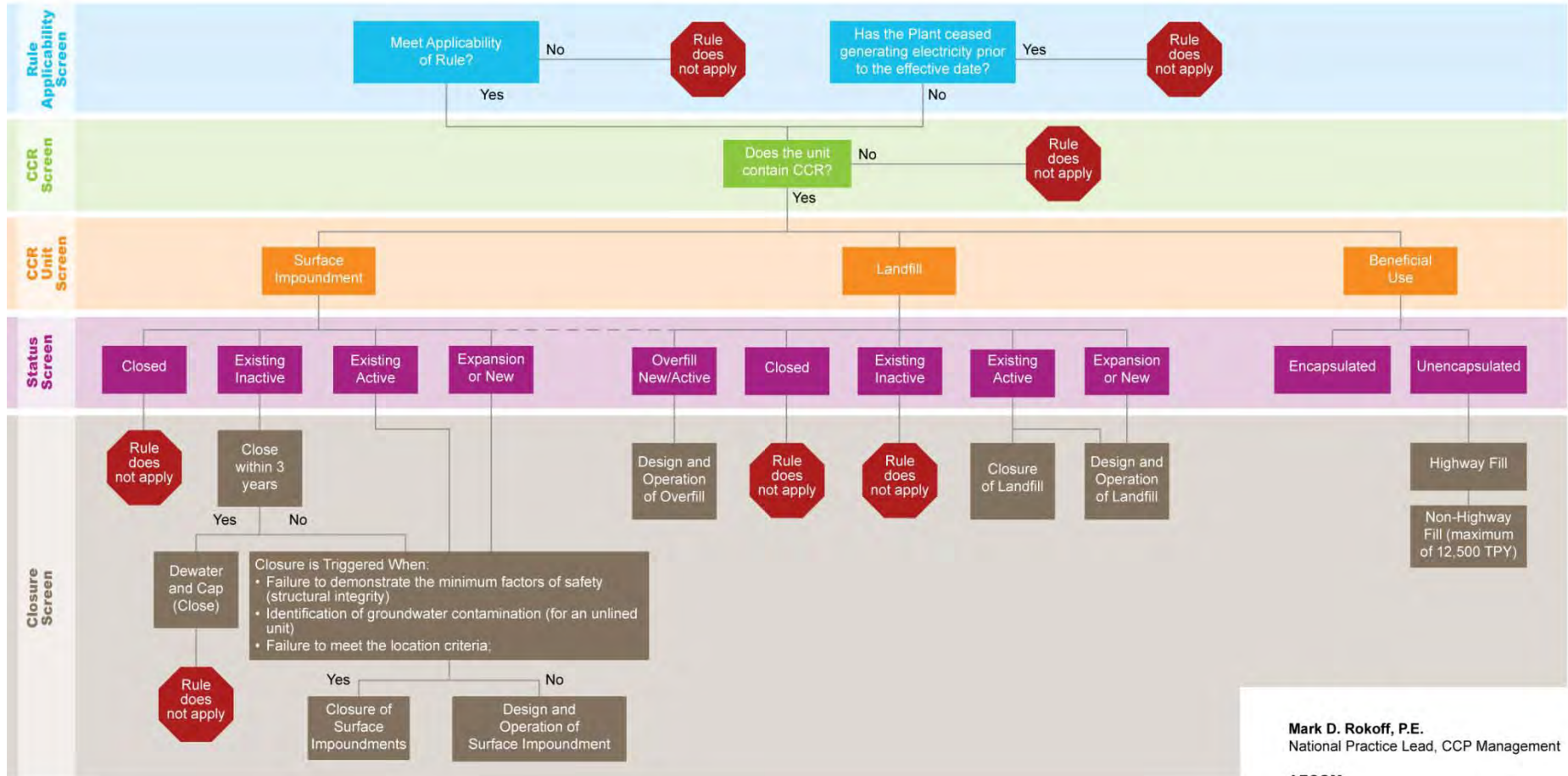
## Perspective from the EPA on the Preamble:

*“The final definition makes **extremely** clear the impoundments that are covered by the rule, so an owner or operator will be able to **easily discern** whether a particular unit is a CCR surface impoundment.”*  
(Pre-Publication Version, Page 198)

# General CCR Terms

Term	Definition
Coal Combustion Residuals (CCR)	<ul style="list-style-type: none"><li>• fly ash, bottom ash, boiler slag, and FGD materials</li><li>• generated from burning coal</li><li>• for the purpose of generating electricity by electric utilities and independent power producers</li></ul>
CCR Unit	Any <b>CCR landfill, CCR surface impoundment, or lateral expansion of a CCR units, or a combination</b> of more than one of these units, based on the context of paragraph(s) in which it was used. This term includes both new and existing units, unless otherwise specified.

# Rule Applicability Screen

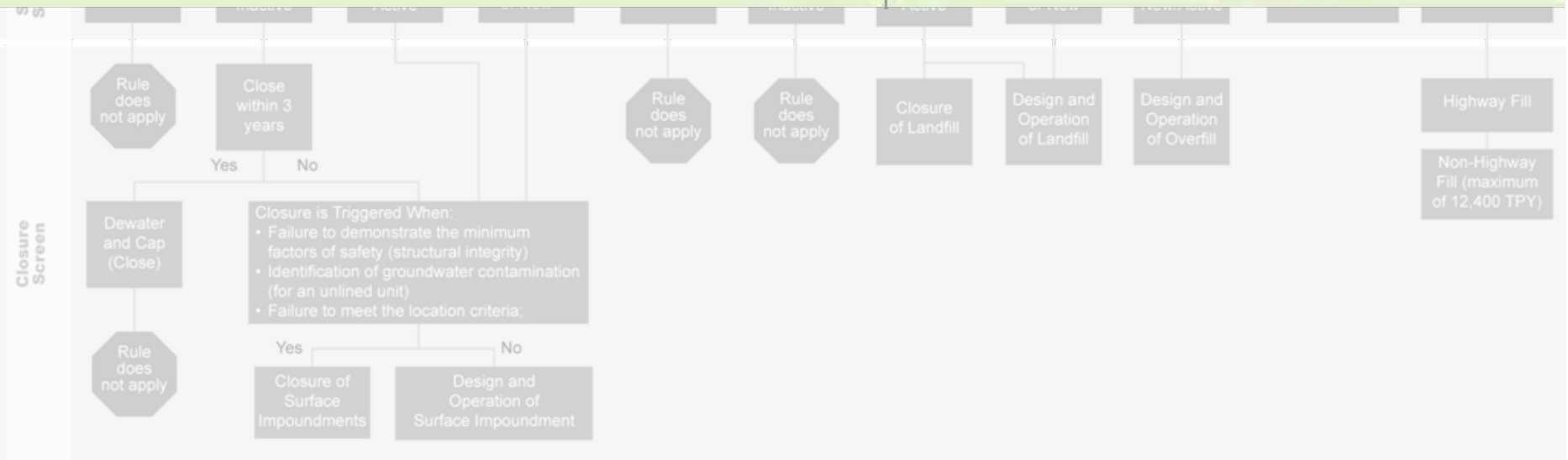
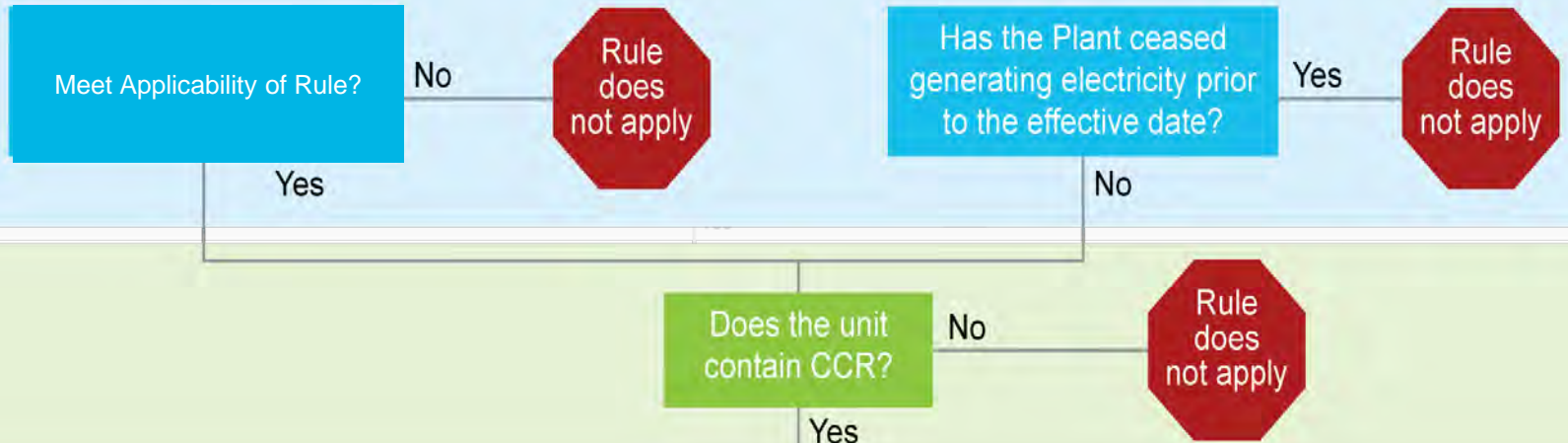


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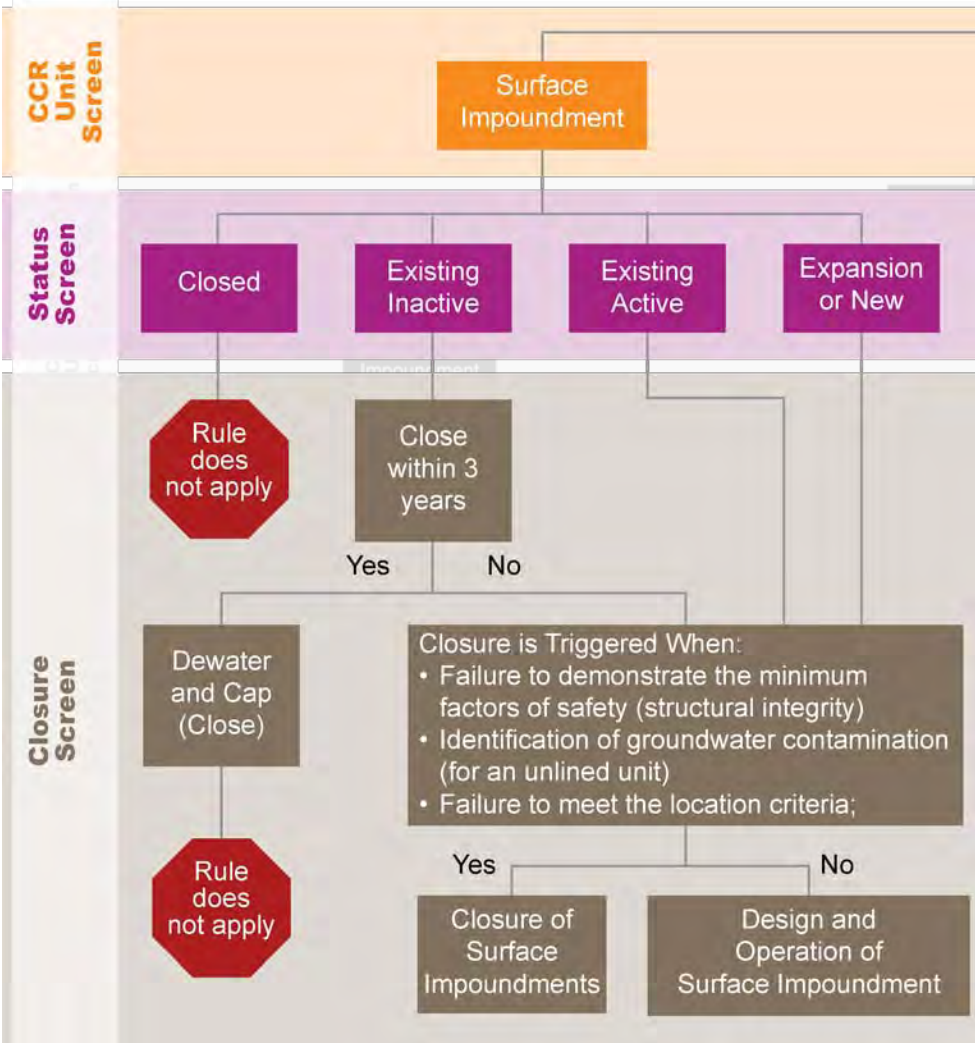
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# Rule Applicability Screen

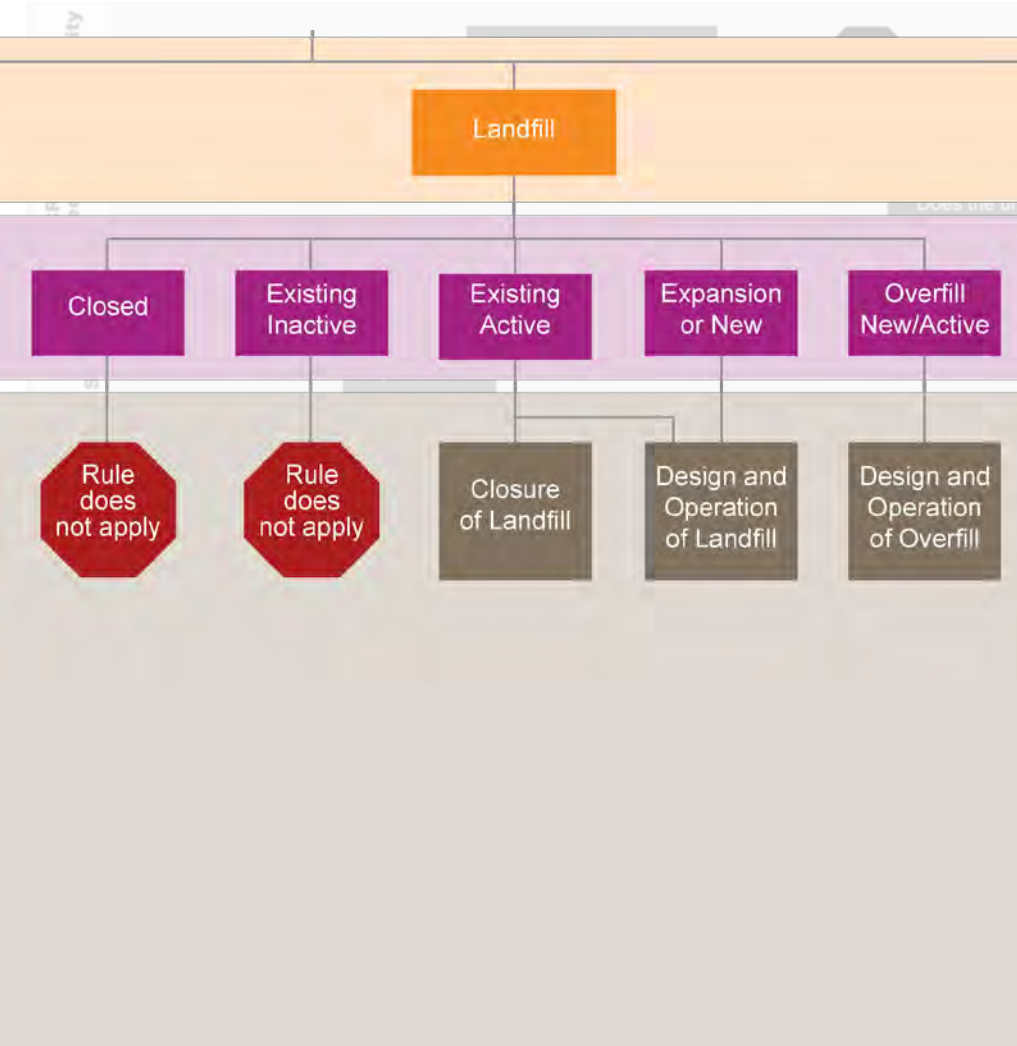


# Unit, Status, and Closure Applicability Screens



Term	Definition
CCR Surface Impoundment	<ol style="list-style-type: none"> <li>1. A natural topographic depression, man-made excavation, or diked area, which is</li> <li>2. designed to hold an accumulation of CCR and liquids, and the unit</li> <li>3. treats, stores, or disposes of CCR.</li> </ol>
Inactive CCR Surface Impoundment	<ul style="list-style-type: none"> <li>• CCR surface impoundment that no longer receives CCR on or after <i>180 days after publication date</i> and still contains both CCR and liquids on or after <i>180 days after publication date</i>.</li> </ul>
Existing (active) CCR Surface Impoundment	<ul style="list-style-type: none"> <li>• CCR surface impoundment that receives CCR both before and after <i>180 days after publication date</i>, or</li> <li>• for which construction commenced prior to <i>180 days after publication date</i> and receives CCR on or after <i>180 days after publication date</i>.</li> </ul>
New CCR Surface Impoundment	CCR surface impoundment or lateral expansion of an existing or new CCR surface impoundment that first receives CCR or commences construction after <i>180 days after publication date</i> .

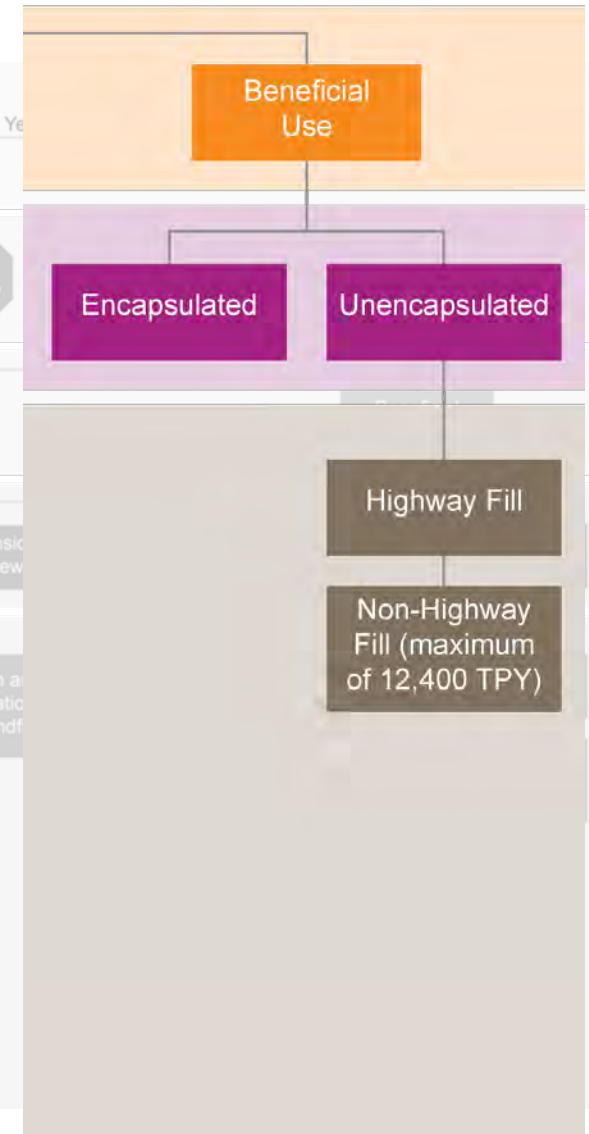
# Unit, Status, and Closure Applicability Screens



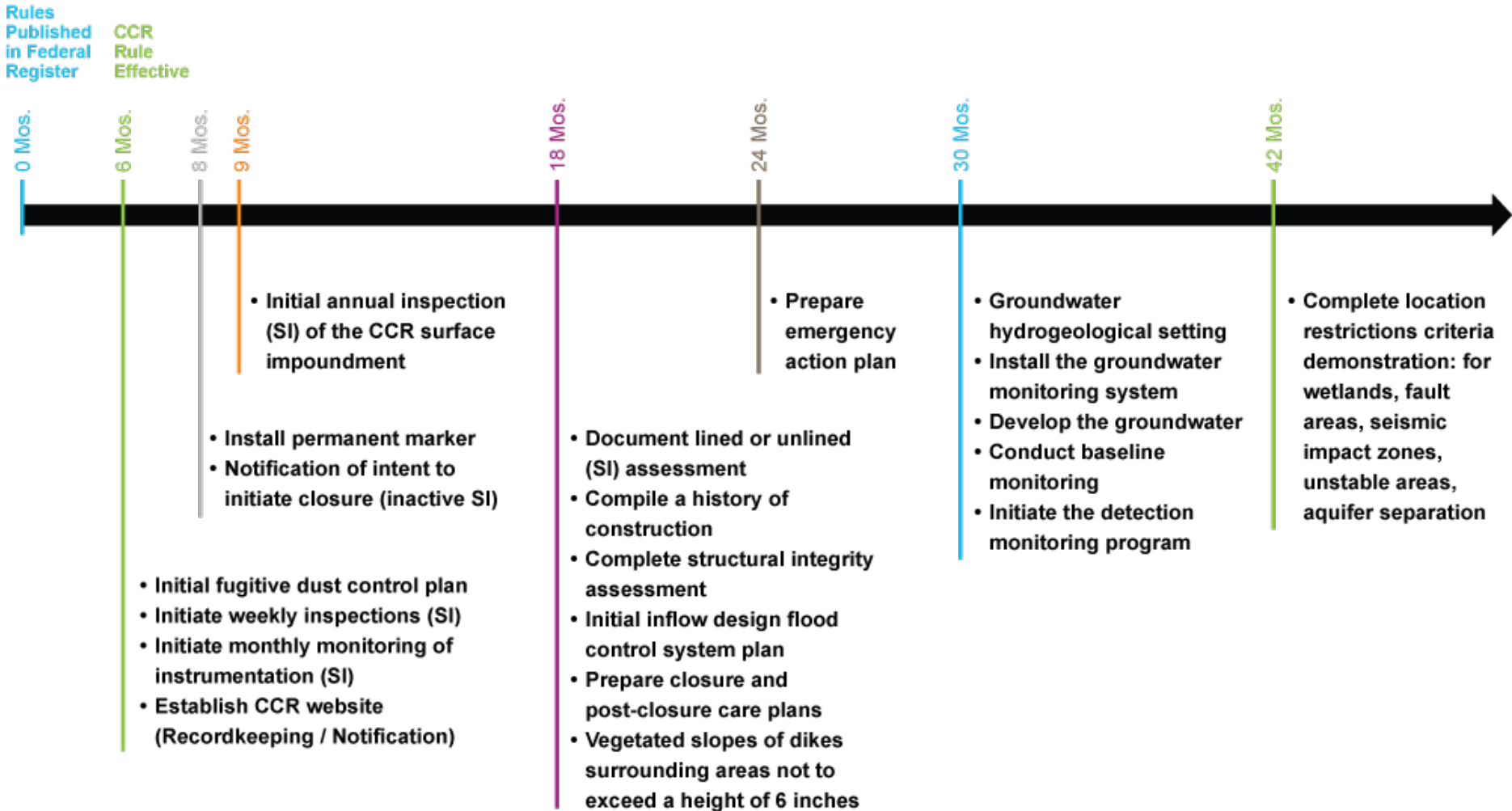
Term	Definition
CCR Landfill	<ol style="list-style-type: none"> <li>1. An area of land or an excavation the receives CCR and is not a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground or surface mine, or a cave.</li> <li>2. Includes sand and gravel pits and quarries that receive CCR, CCR piles.</li> <li>3. Any practice that does not meeting the definition of a beneficial use of CCR.</li> </ol>
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New CCR Landfill	CCR landfill or lateral expansion of a CCR landfill that first receives CCR or commences construction after <i>180 days after publication date</i> .
Overfill	New CCR landfill constructed over a closed CCR surface impoundment.

# Unit, Status, and Closure Applicability Screens

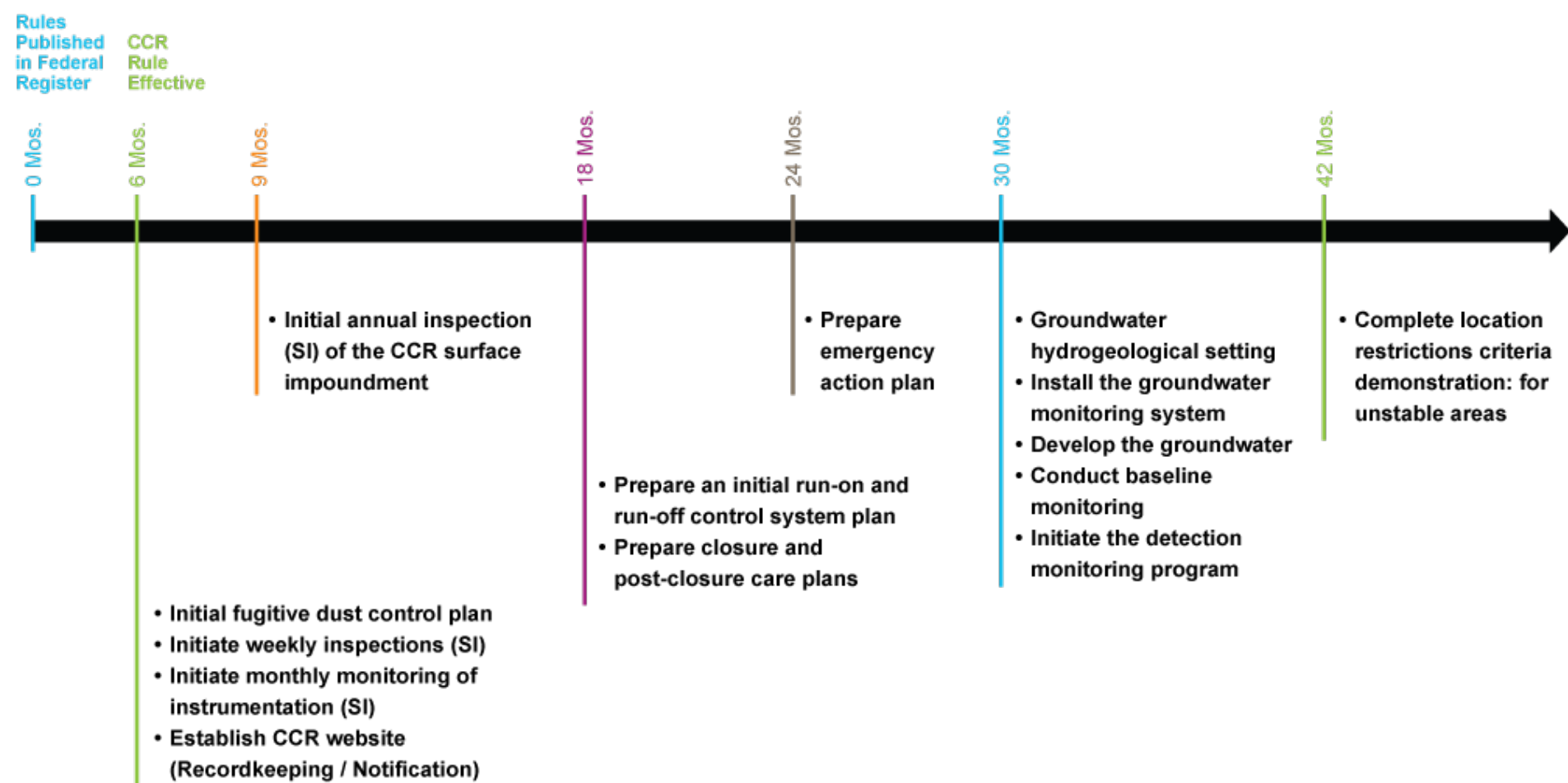
Rule Applicability Screen	Criterion	Description
CCR Screen	1	CCR must provide a functional benefit.
CCR Unit Screen	2	CCR must substitute for the use of a virgin material, conserving natural resources that would otherwise need to be obtained through practices, such as extraction.
Status Screen	3	The use of CCR must meet relevant product specifications, regulatory standards, or design standards, when available, and where such specifications or standards have not been established, CCR may not be used in excess quantities.
Closure Screen	4	When unencapsulated use of CCR involving placement on the land of 12,400 tons or more in non-roadway applications, the user must demonstrate and keep records, and provide such documentation upon request, that environmental releases to ground water, surface water, soil and air are comparable to or lower than those from analogous products made without CCR, or that environmental releases to ground water, surface water, soil and air will be at or below relevant regulatory and health-based benchmarks for human and ecological receptors during use.



# Implementation Timeline for Existing CCR Surface Impoundment

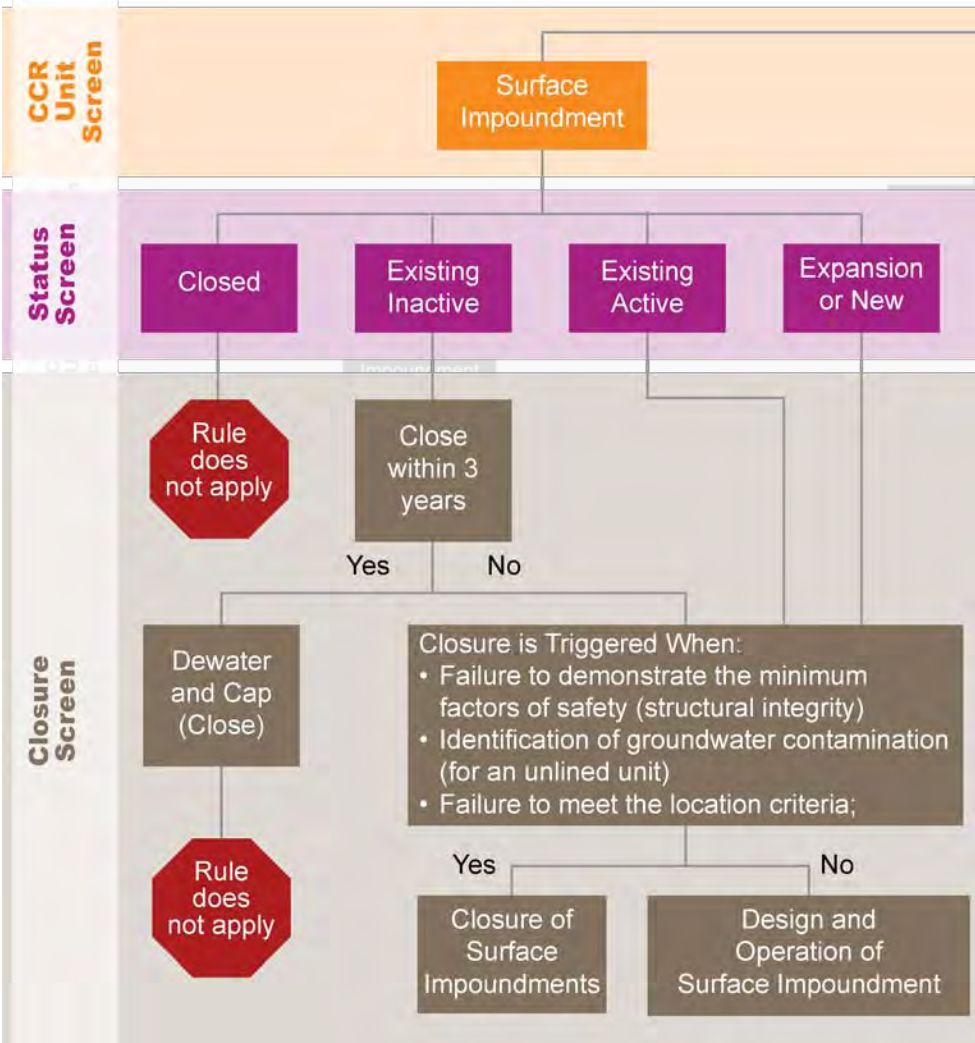


# Operation and Closure Existing Landfill: Implementation Timeline for Existing CCR Landfill



# Surface Impoundments


# Unit, Status, and Closure Applicability Screens



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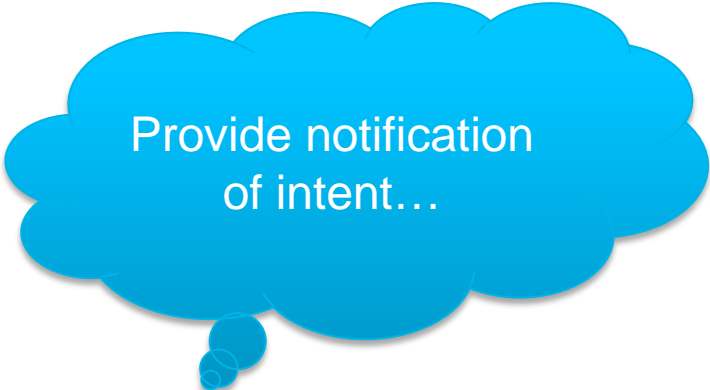
# Closure of Inactive Surface Impoundment

- If an existing impoundment receives no CCR on the “effective date”  
**AND**
- Completes dewatering and closure activities (in accordance with the final rule) within 3 years of publication date, **THEN**
- It is not subject to CCR requirements
  - With the exception of
    - the air criteria for fugitive dust
    - The inspection & monitoring requirements, and
    - The record keeping requirements (including CCR website)



Provide notification  
of intent...

# Closure of Inactive Surface Impoundments (cont.)



Provide notification  
of intent...

- ...to initiate closure within 8 months of publication date
  - Include narrative description of the closure
  - Provide schedule for completing closure including required certifications
  - Record in operating record (agency notification and website posting)

# Closure of an Inactive Surface Impoundment

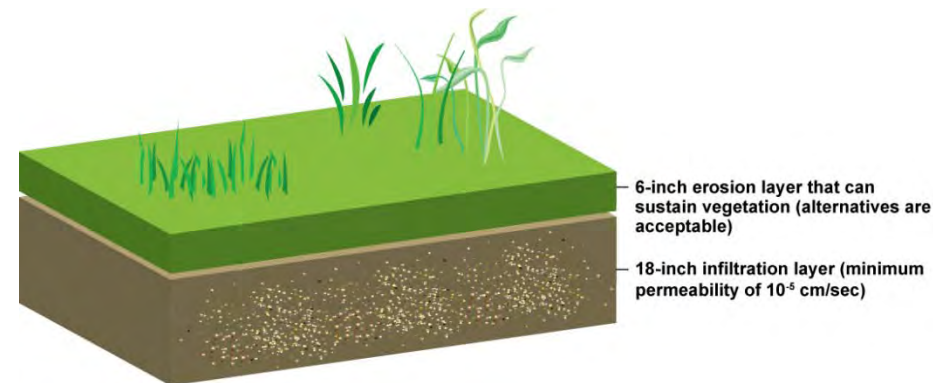
**Dewatering** – preparing a CCR surface impoundment for placement of final cover by:

- Eliminating free liquids by removing liquid wastes and solidifying the remaining wastes and waste residues
- Stabilizing remaining wastes sufficient to support the final cover system.

**Closure Activities** – closure must be conducted in accordance with the Final Rule

- Provides for closure options (closure in place or clean closure)
- Any impoundment that does not meet these criteria is subject to all requirements of the Rule, with several ways to trigger closure.

<b>Closure in Place</b>	Final cover must include 18-inch infiltration layer (minimum permeability $10^{-5}$ cm/sec) under a 6-inch erosion layer that can sustain vegetation (alternatives are acceptable)
<b>Clean Closure</b>	Remove all CCR from the unit and decontaminate all areas affected by releases from the impoundment, including the bottom liner, if applicable.



# How Closure is Triggered for an Existing Impoundment?

1. Known final receipt of waste or final removal of CCR from the unit for beneficial use
2. Two years after the most recent receipt of CCR or removal of CCR for beneficial use for idled CCR units with remaining capacity
3. CCR unit fails to meet any of the following technical criteria:
  - 18 months - If a CCR surface impoundment cannot demonstrate the minimum factors of safety regarding structural integrity of the CCR unit.
  - 30 months - If an **unlined** CCR surface impoundment is found to contaminate groundwater in excess of a ground water protection standard;  
or
  - 42 months - If the CCR unit has been sited inappropriately; i.e., cannot meet the applicable location criteria;

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## Safety Factor Assessments:

Assessment Condition	Safety Factor (minimum)	Comments
long-term, maximum storage pool loading condition	1.50	
maximum surcharge pool loading condition	1.40	
seismic condition	1.00	2% exceedance in 50 years
liquefaction condition	1.20	for dikes constructed of soils that have susceptibility to liquefaction

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  - o 42 months - If the CCR unit has been sited inappropriately; i.e., cannot meet the applicable location criteria;

## Presence of Liner

- 18 months – document if impoundments include documented liner
- 3 acceptable alternatives that include at least 2 feet of material with a permeability not exceeding  $10^{-7}$  cm/sec.

Liner Option	Description
Soil Liner	2 ft of soil ( $\leq 10^{-7}$ cm/sec)
Composite Liner	30 mil geomembrane (GM) over 2 ft of soil ( $\leq 10^{-7}$ cm/sec)
Alternate Liner	30 mil GM over lower component (flow rate = 2 ft of soil, $\leq 10^{-7}$ cm/sec)

- If impoundment liner meets criterion, groundwater impact will not trigger closure.

# How Closure is Triggered for an Existing Impoundment?

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## Location Restrictions

- 5 ft separation from uppermost aquifer (or seasonal high groundwater)
- Wetlands
- Fault areas
- Seismic impact zones
- Unstable areas

# Once Closure is Triggered...

1. Known final receipt of waste or final removal of CCR from the unit for beneficial use
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  - 42 months - If the CCR unit has been sited inappropriately; i.e., cannot meet the applicable location criteria;



- Owner must initiate closure of the CCR unit within 30 days
- Note that final receipt of waste refers to
  - CCR or
  - any non-CCR wastestream

# Once Closure is Triggered...

1. Known final receipt of waste or final removal of CCR from the unit for beneficial use

Owner must initiate closure of the CCR unit within 30 days

2. Two years after the most recent receipt of CCR or removal of CCR for beneficial use for idled CCR units with remaining capacity

Owner must initiate closure of the CCR unit within 2 years

3. CCR unit fails to meet any of the following technical criteria:
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  - 42 months - If the CCR unit has been sited inappropriately; i.e., cannot meet the applicable location criteria;

2 year extensions are possible provided that there is a reasonable likelihood that the CCR unit will accept wastes in the foreseeable future or will remove CCR from the unit for the purpose of beneficial use

# Once Closure is Triggered...

1. Known final receipt of waste or final removal of CCR from the unit for beneficial use

Owner must initiate closure of the CCR unit within 30 days

2. Two years after the most recent receipt of CCR or removal of CCR for beneficial use for idled CCR units with remaining capacity

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  - 42 months - If the CCR unit has been sited inappropriately; i.e., cannot meet the applicable location criteria;

Owner must initiate closure of the CCR unit within 6 months

# Once Closure is Triggered...

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2. Two years after the most recent receipt of CCR or removal of CCR for beneficial use for idled CCR units with remaining capacity

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  - 42 months - If the CCR unit has been sited inappropriately; i.e., cannot meet the applicable location criteria;

Owner must initiate closure of the CCR unit within 6 months

Alternative Closure Requirements (extensions) are available if...alternate disposal capacity is not available

- Pond can remain in use up to 5 more years
- Owner continues its efforts to obtain additional capacity
- Owner complies with all other requirements
- Owner prepares Annual Progress Report

# Once Closure is Triggered...

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2. Two years after the most recent receipt of CCR or removal of CCR for beneficial use for idled CCR units with remaining capacity

3. CCR unit fails to meet any of the following technical criteria:

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- 30 months - If an **unlined** CCR surface impoundment is found to contaminate groundwater in excess of a ground water protection standard; or
- 42 months - If the CCR unit has been sited inappropriately; i.e., cannot meet the applicable location criteria;

Extension for alternative disposal capacity does not apply if structural integrity FOS are not met.

the CCR unit within 30 days

Owner must initiate closure of the CCR unit within 2 years

Owner must initiate closure of the CCR unit within 6 months

Alternative Closure Requirements (extensions) are available if... alternative disposal capacity is not available

- Pond can remain open up to 5 more years
- Owner continues efforts to obtain additional capacity
- Owner complies with other requirements
- Owner prepares Annual Progress Report

# Operation & Closure of Existing SI: Closure & Post-Closure Plans

Written closure plan must be placed in the operating record within 18 months of publication date and must include:

- A narrative description of how the CCR unit will be closed
- For Clean Closure: Description of procedures to remove the CCR and decontaminate the CCR unit
- For Closure In Place: Description of methods and procedures to be used to install the final cover system as well as discuss achieving the performance standards
- An estimate of the...
  - maximum inventory of CCR ever on-site over the active life of the CCR unit.
  - largest area of the CCR unit ever requiring a final cover at any time during the CCR unit's active life.
- A schedule for completing all activities necessary to satisfy the closure criteria and an estimate of the year closure will be complete.
- As applicable, site-specific information, factors and considerations that would support any time extension request

# Operation & Closure of Existing SI: Closure & Post-Closure Plans

Written **post-closure plan** must be placed in the operating record within 18 months of publication date and must include:

- Description of the monitoring and maintenance activities required and the frequency at which these activities will be performed;
- Name, address, telephone number, and e-mail address of the person or office to contact about the facility during the post-closure care period; and
- Description of the planned uses of the property during the post-closure period.

# Operation & Closure of Existing SI: Hydrologic and Hydraulic Capacity

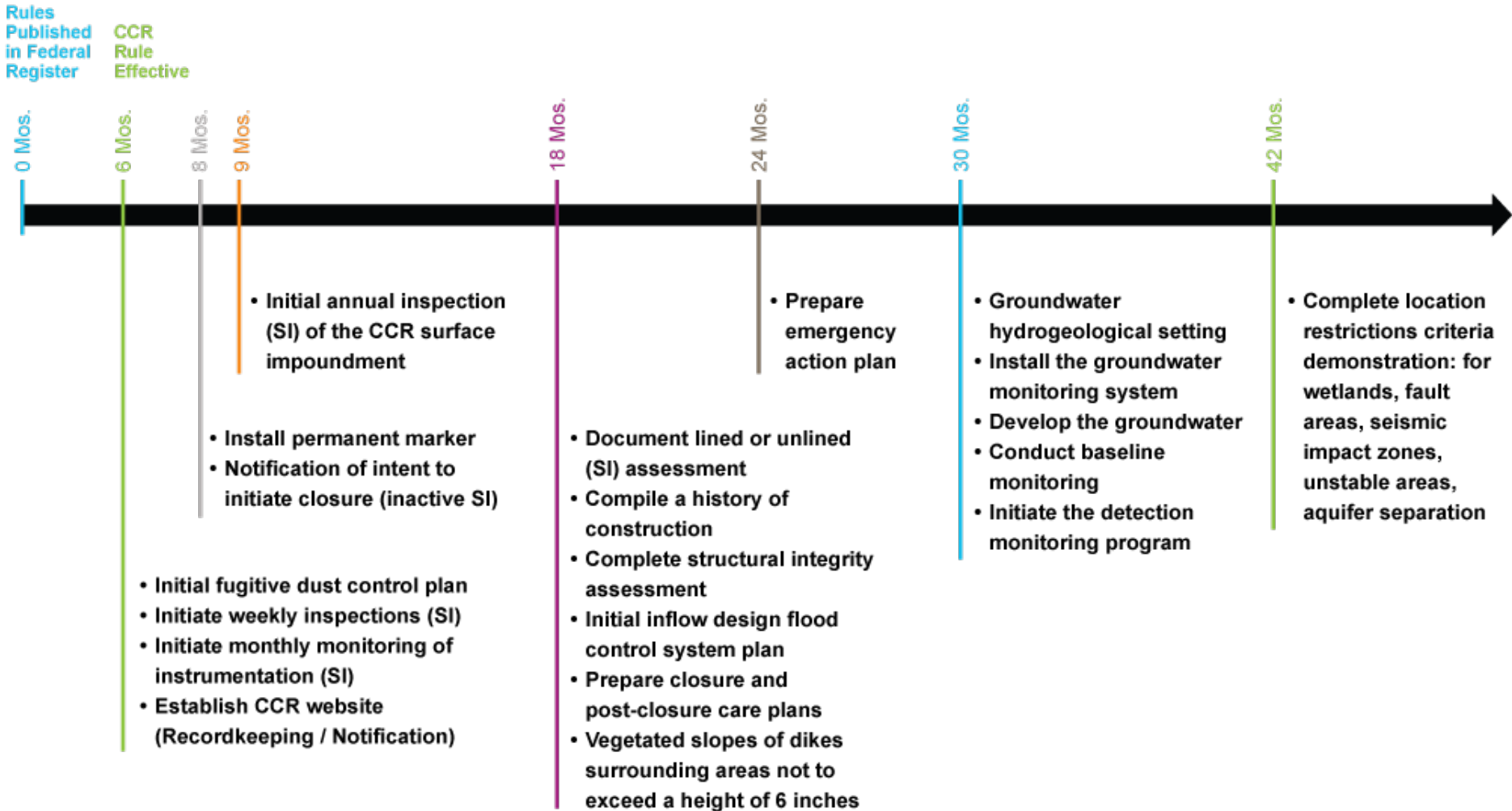
**Within 18 months of publication date and every 5 years**

- Assessment of Hazard Potential Classification
- Hydrologic and hydraulic capacity – an evaluation of risers and outlet works shall be used to prepare an initial flow design flood control system plan

Hazard Potential Classification	Possible adverse incremental consequences (Diked surface impoundment where failure or mis-operation will...)
High Hazard	probable cause loss of human life.
Low Hazard	results in no probable loss of human life and low economic and/or environmental losses
Significant Hazard	results in no probable loss of human life, but can cause economic loss, environmental damage, disruption of lifeline facilities, or other impact concerns

Hazard Criteria	Design Storm
High Hazard Surface Impoundment	Probable Maximum Flood (PMF)
Significant hazard surface impoundment	1,000 year flood
Low hazard surface impoundment	100 year flood
Incised surface impoundment	25 year flood

# Implementation Timeline for Existing CCR Surface Impoundment



# Design of a new CCR Surface Impoundment or Lateral Expansion

- A new CCR surface impoundment or lateral expansion that first receives CCR or commences construction 180 days after publication date.
  
- Criteria apply for design and operation
  - Local restrictions
  - Liner design
  - Groundwater monitoring
  - Structural integrity assessment
  - Emergency action plan
  - Flood control plan
  - Ongoing monitoring
  - Reporting
  
- Requires certification by a qualified professional engineer

# Design of a new CCR Surface Impoundment of Lateral Expansion

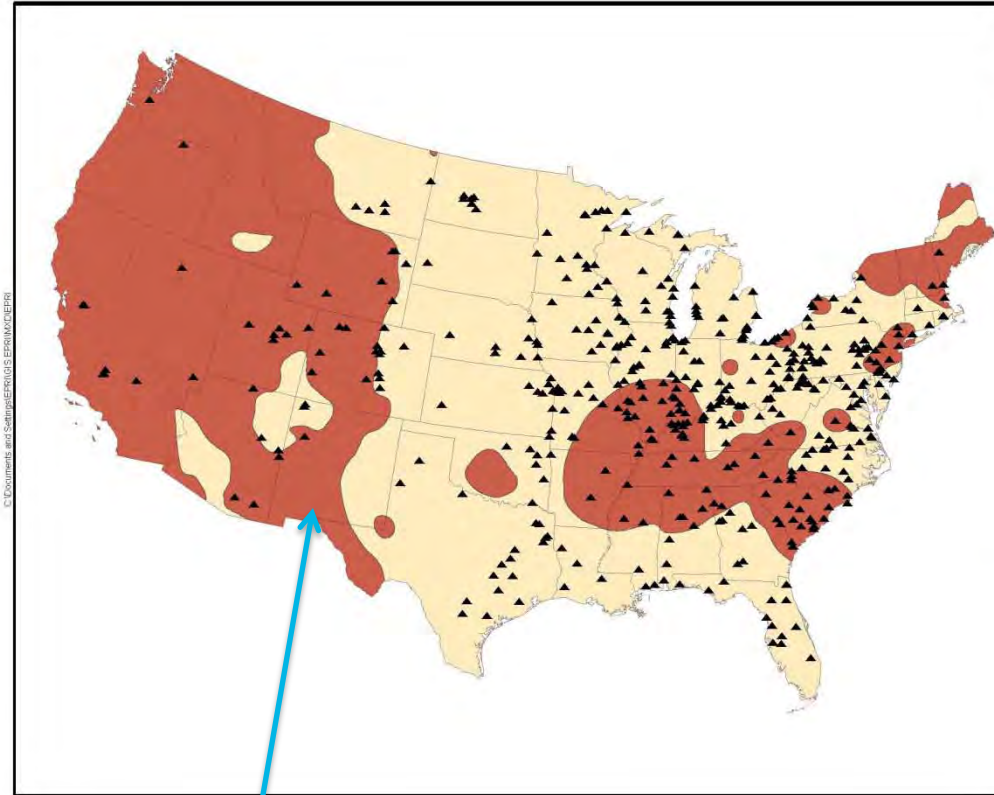
Complete a demonstration based on the following **location restrictions**

- Base of CCR unit is at least 5 feet above the uppermost aquifer (or seasonal high groundwater)
- Wetlands
- Fault areas
- Seismic impact zones
- Unstable areas



# Design of a new CCR Surface Impoundment of Lateral Expansion (cont.)

- No new CCR landfills, existing and new CCR surface impoundment and all lateral extensions will be located in seismic impact zones
- New CCR landfills, existing and new CCR surface impoundments and all lateral extensions to be located in a seismic impact zone
  - Demonstrate all containment structures are designed to resist maximum horizontal acceleration
  - Certified by a qualified professional engineer



**Seismic impact zone** – 2% probability that the maximum expected horizontal acceleration will exceed 0.10 g in 50 years.

# Design of a new CCR Surface Impoundment of Lateral Expansion (cont.)

## Liner System

Liner Option	Description New SI or Lateral Expansion
Composite Liner	30 mil geomembrane (GM) over 2 ft of soil ( $\leq 10^{-7}$ cm/sec) Note: HDPE must be 60 mil
Alternate Liner	30 mil GM over lower component (flow rate = 2 ft of soil, $\leq 10^{-7}$ cm/sec)

- Acceptable proven alternative liner system
- Certification from a qualified professional engineer

## Stability design

- Not required for incised, new impoundments
- Additional evaluations are required every 5 years

# Design of a new CCR Surface Impoundment of Lateral Expansion (cont.)

## For new surface impoundments or lateral expansions:

- Assessment of Hazard Potential Classification
- Hydrologic and hydraulic capacity – an evaluation of risers and outlet works shall be used to prepare an initial flow design flood control system plan

Hazard Potential Classification	Possible adverse incremental consequences (Diked surface impoundment where failure or mis-operation will...)
High Hazard	probable cause loss of human life.
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Significant hazard surface impoundment	1,000 year flood
Low hazard surface impoundment	100 year flood
Incised surface impoundment	25 year flood

# Design of a new CCR Surface Impoundment of Lateral Expansion (cont.)

**Groundwater** – a new CCR surface impoundment must:

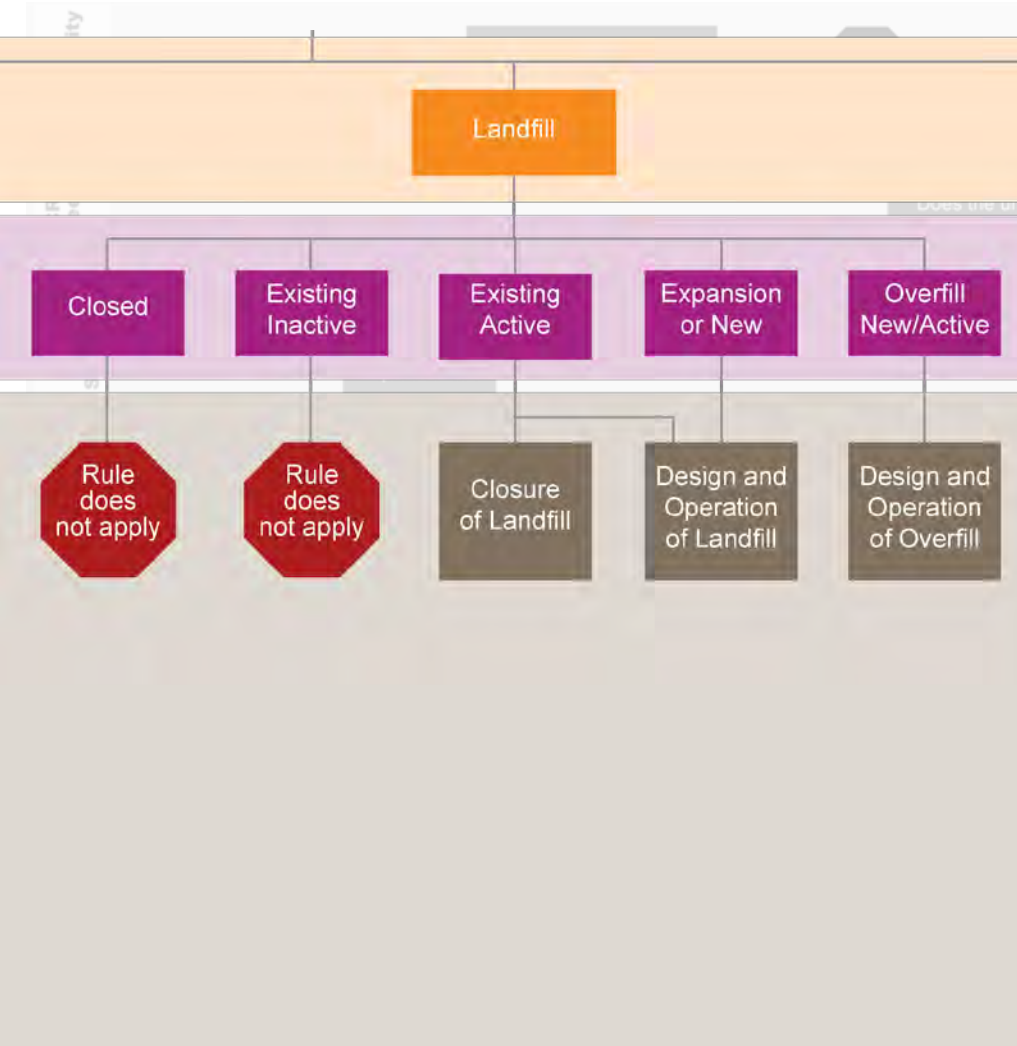
- Investigate the hydrogeological setting
- Install a groundwater monitoring system
- Conduct a minimum 8 rounds of sampling to establish the background levels
- Initiate detection monitoring program
- Evaluate groundwater monitoring data for statistically significant increases (SSIs)

# Closure Period of a Surface Impoundment

- **Initial Closure Period:** 5 years is allowed to complete impoundment closure
  
- **Extensions:**
  - For Impoundments >40 acres → Up to 5, 2-year extensions possible
  - For impoundments <40 acres → 1, 2-year extension is possible

# Landfills

# Unit, Status, and Closure Applicability Screens



Term	Definition
CCR Landfill	<ol style="list-style-type: none"> <li>1. An area of land or an excavation the receives CCR and is not a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground or surface mine, or a cave.</li> <li>2. Includes sand and gravel pits and quarries that receive CCR, CCR piles.</li> <li>3. Any practice that does not meeting the definition of a beneficial use of CCR.</li> </ol>
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New CCR Landfill	CCR landfill or lateral expansion of a CCR landfill that first receives CCR or commences construction after <i>180 days after publication date</i> .
Overfill	New CCR landfill constructed over a closed CCR surface impoundment.

# How Closure is Triggered for an Existing Landfill?

1. Receives the known final receipt of waste, either CCR or any non-CCR waste stream; or removes the known final volume of CCR from the CCR unit for the purpose of beneficial use
2. Two years after the most recent receipt of CCR or removal of CCR for beneficial use for idled CCR units with remaining capacity
3. CCR unit fails to meet the following technical criteria:
  - o 42 months - If the CCR unit cannot demonstrate that the CCR unit is located in an stable area; unless...
    - The owner or operator demonstrates that recognized and generally accepted engineering practices have been incorporated into the design of the CCR Landfill to achieve the integrity of the structural components of the CCR landfill will not be disrupted.

# Once Closure is Triggered...

1. Receives the known final receipt of waste, either CCR or any non-CCR waste stream; or removes the known final volume of CCR from the CCR unit for the purpose of beneficial use

Owner must initiate closure of the CCR unit within 30 days

2. Two years after the most recent receipt of CCR or removal of CCR for beneficial use for idled CCR units with remaining capacity

3. CCR unit fails to meet the following technical criteria:

- o 42 months - If the CCR unit cannot demonstrate that the CCR unit is located in an stable area; unless...

# Once Closure is Triggered...

1. Receives the known final receipt of waste, either CCR or any non-CCR waste stream; or removes the known final volume of CCR from the CCR unit for the purpose of beneficial use

Owner must initiate closure of the CCR unit within 30 days

2. Two years after the most recent receipt of CCR or removal of CCR for beneficial use for idled CCR units with remaining capacity

Owner must initiate closure of the CCR unit within 2 years

3. CCR unit fails to meet the following technical criteria:

- o 42 months - If the CCR unit cannot demonstrate that the CCR unit is located in an stable area; unless...

2 year extensions are possible provided that there is a reasonable likelihood that the CCR unit will accept wastes in the foreseeable future or will remove CCR from the unit for the purpose of beneficial use

# Once Closure is Triggered...

1. Receives the known final receipt of waste, either CCR or any non-CCR waste stream; or removes the known final volume of CCR from the CCR unit for the purpose of beneficial use

Owner must initiate closure of the CCR unit within 30 days

2. Two years after the most recent receipt of CCR or removal of CCR for beneficial use for idled CCR units with remaining capacity

Owner must initiate closure of the CCR unit within 2 years

3. CCR unit fails to meet the following technical criteria:

- o 42 months - If the CCR unit cannot demonstrate that the CCR unit is located in an stable area; unless...

Owner must initiate closure of the CCR unit within 6 months

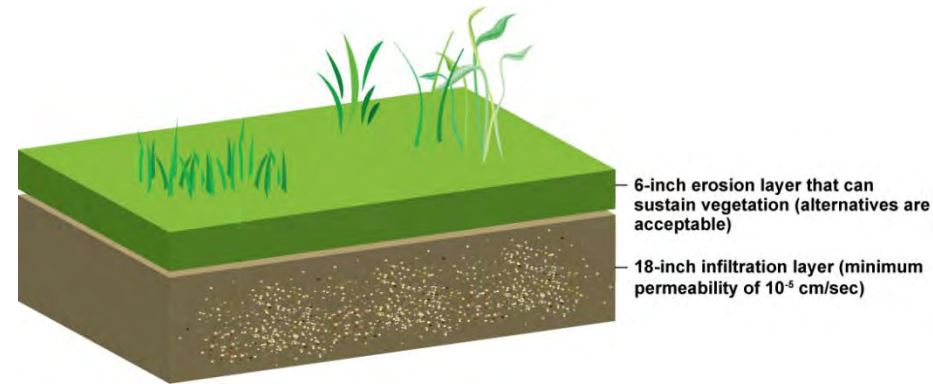
Alternative Closure Requirements (extensions) are available if...alternate disposal capacity is not available

- Landfill can remain in use up to 5 more years
- Owner continues its efforts to obtain additional capacity
- Owner complies with all other requirements
- Owner prepares Annual Progress Report

# Operation & Closure of Existing Landfill: Closure & Post-Closure Plans

Cover System must be...

- less than or equal to the permeability of any bottom liner system or natural subsoils present, or
  - a permeability no greater than  $1 \times 10^{-5}$  cm/sec,
- whichever is less.



## Closure in Place

Final cover must include

- 18-inch infiltration layer of earthen material
- 6-inch erosion layer that can sustain vegetation

(alternatives are acceptable)

## Clean Closure

Remove all CCR from the unit and decontaminate all areas affected by releases from the impoundment, including the bottom liner, if applicable.

# Operation & Closure of Existing Landfill: Closure & Post-Closure Plans

Written closure plan must be placed in the operating record within 18 months of publication date and must include:

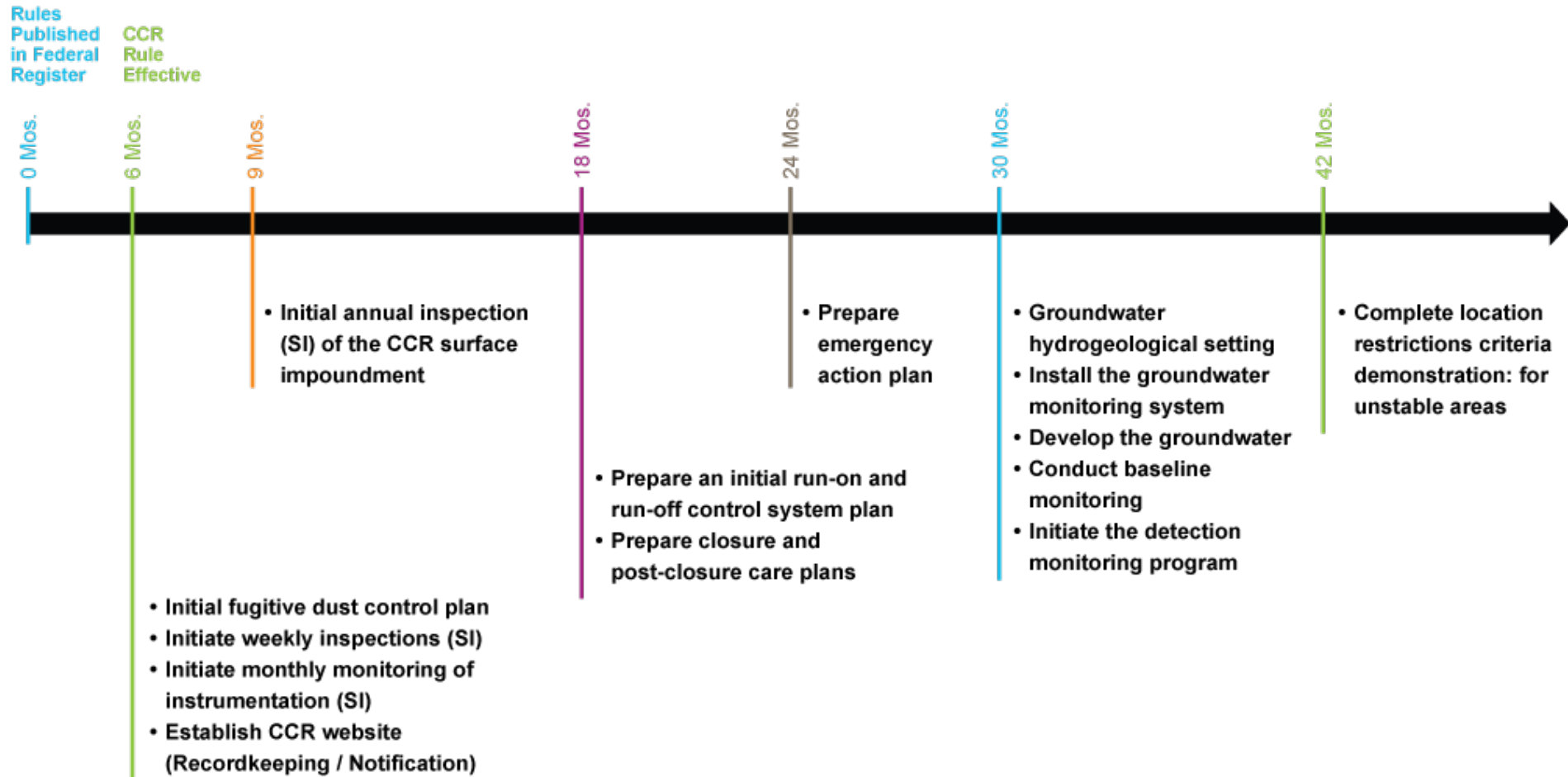
- A narrative description of how the CCR unit will be closed
- For Clean Closure: Description of procedures to remove the CCR and decontaminate the CCR unit
- For Closure In Place: Description of methods and procedures to be used to install the final cover system as well as discuss achieving the performance standards
- An estimate of the...
  - maximum inventory of CCR ever on-site over the active life of the CCR unit.
  - largest area of the CCR unit ever requiring a final cover at any time during the CCR unit's active life.
- A schedule for completing all activities necessary to satisfy the closure criteria and an estimate of the year closure will be complete.
- As applicable, site-specific information, factors and considerations that would support any time extension request

# Operation & Closure of Existing Landfill: Closure & Post-Closure Plans

Written **post-closure plan** must be placed in the operating record within 18 months of publication date and must include:

- Description of the monitoring and maintenance activities required and the frequency at which these activities will be performed;
- Name, address, telephone number, and e-mail address of the person or office to contact about the facility during the post-closure care period; and
- Description of the planned uses of the property during the post-closure period.

# Operation and Closure Existing Landfill: Implementation Timeline for Existing CCR Landfill



# Design and Operation of a Landfill

- Criteria provided in the Final Rule
- Key design criteria
  - Leachate collection and removal – design, constructed, operated, and maintained to collect and removal leachate from the landfill
  - Liner system – designed, constructed, operated, and maintained with a composite liner or proven alternative
  - Groundwater – a new CCR unit must
    - Investigate hydrogeological setting
    - Install a groundwater monitoring system
    - Conduct a minimum 8 rounds of sampling to establish background levels
    - Initiate detection monitoring program
    - Evaluate groundwater monitoring data for statistically significant increases

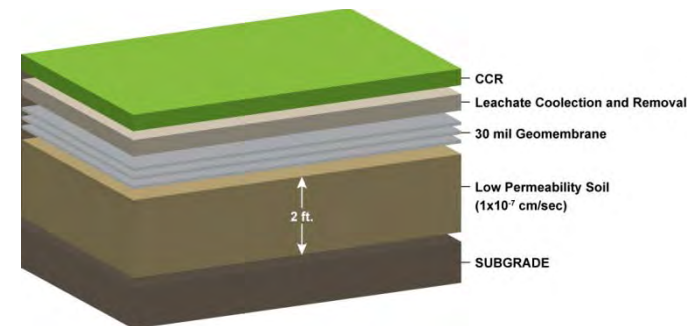
# Design and Operation of a Landfill

## Liner System:

Liner Option	Description New Landfill or Lateral Expansion
Composite Liner	30 mil geomembrane (GM) over 2 ft of soil ( $\leq 10^{-7}$ cm/sec) (in direct contact) Note: HDPE must be 60 mil
Alternate Liner	30 mil GM over lower component (flow rate = 2 ft of soil, $\leq 10^{-7}$ cm/sec)

## Leachate Collection and Removal:

- Designed, constructed, operated, and maintained to collect and remove leachate from the landfill during the active life and post-closure care
- Designed and operated to maintain less than a 30-centimeter depth of leachate over the liner



## Run-on and run-off control system plan

# Design and Operation of an Overfill

## Key design criteria

- Impoundment closure prior to overfill construction
  - Control, minimize, or eliminate post-closure infiltration of liquids
  - Reduce the probability of impoundment capacity
  - Measure for major slope stability
  - Complete closure in the shortest practical time
  - Eliminate free liquids by solidifying or removal
  - Stabilize remaining waste
  - Install cap system that meets the final cover requirements

# Design and Operation of an Overfill

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  - Measure for major slope stability
  - Complete closure in the shortest practical time
  - Eliminate free liquids by solidifying or removal
  - Stabilize remaining waste
  - Install cap system that meets the final cover requirements
- Same design criteria as a landfill

Yes, for a new overfill, the SI must be capped and a liner system installed.

# Closure Period of a Landfill

- **Initial Closure Period:** 6 months is allowed to complete landfill closure (assumes phased closure)
  
- **Extensions:**
  - For landfills not triggered by failure to meet location restrictions → Up to 2, 1-year extensions possible

# Groundwater Monitoring System

# Groundwater Monitoring and Corrective Action

## Applicability

- All CCR landfills (except inactive landfills that are not subject to the CCR Rule)
- All surface impoundments and lateral expansions (except inactive surface impoundments that will close within 36 months of the Rule)

## Overview

- Within 30 months of publication
  - Install groundwater monitoring system
  - Conduct 8 monitoring events (must account for seasonal and spatial variability)
- Semiannual detection monitoring can trigger assessment monitoring (one statistical failure of Appendix III)
- If Assessment monitoring identifies presence of Appendix IV constituent above Groundwater Protection Standards (GWPS), then an Assessment of Corrective Measure is triggered.
- Leads to Implementation of Corrective Action Program

# Groundwater Monitoring and Corrective Action (cont.)

## Detection Monitoring

- Background monitoring of 8 events is required for Appendix III and Appendix IV constituents.
- Frequency is self-directed but a minimum of semiannually
- Monitoring is required through the life, closure, and post-closure care periods.
- Assessment is triggered by the detection of a statistically significant increase (SSI) in any Appendix III constituent.
- A 90 day period to establish Assessment Monitoring Program is provided.

Appendix III Constituents
Boron
Calcium
Chloride
Fluoride
pH
Sulfate
Total dissolved solids (TDS)

Appendix IV Constituents	
Antimony	Arsenic
Barium	Beryllium
Cadmium	Chromium
Cobalt	Fluoride
Lead	Lithium
Mercury	Molybdenum
Selenium	Thallium
Radium 226 and 228 combined	

# Groundwater Monitoring and Corrective Action (cont.)

## Assessment Monitoring

- Minimum Assessment requirement - within 90 days, add annual Appendix IV testing to the program.
- If any Appendix IV constituent is detected
  - Notify State Director and post to CCR Website
  - Monitor for the detected Appendix IV constituent semiannually with the Appendix III constituents.
  - Set a Groundwater Protection Standard (GWPS) for the detected Appendix IV constituent
- Return to Detection Monitoring if the detected Appendix III and IV constituents are at or below background for 2 consecutive events.
- If Appendix IV constituent(s) show a SSI over the GWPS for 2 consecutive events, then:
  - Characterization of the nature and extent of the release
  - Proceed to Assessment of Corrective Measures.

# Groundwater Monitoring and Corrective Action (cont.)

## Assessment of Corrective Measures

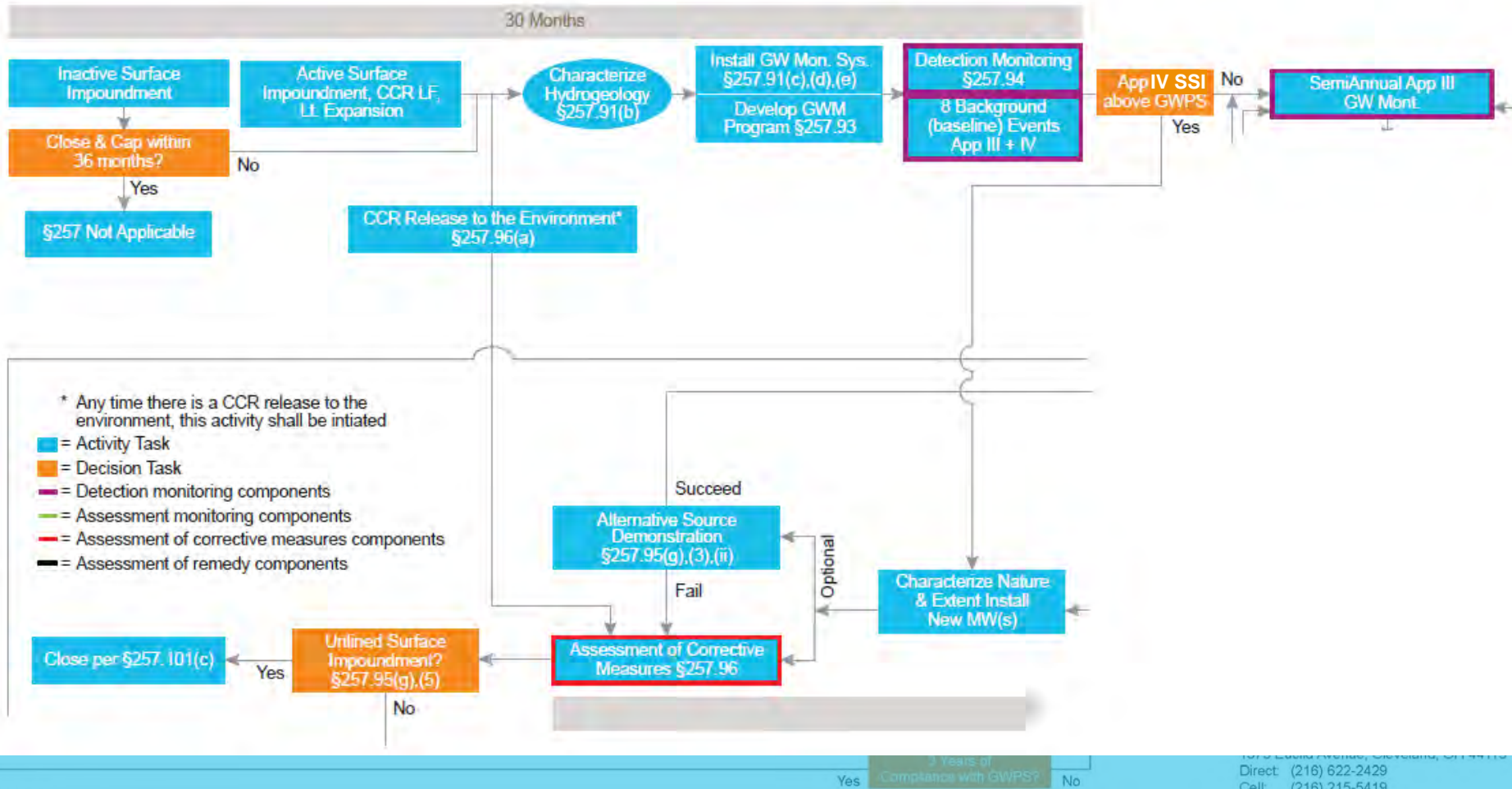
- Must be initiated within 90 days of determination of SSI of Appendix IV constituent(s) for 2 consecutive events.
  - One allowance for a 60-day extension.
  - Public meeting required prior to remedy selection.

## Selection of Remedy

- The selected remedy should:
  - Protect human health and the environment,
  - Restore groundwater to GWPS, and
  - Control source of release.
- There is no specified deadline for selecting a remedy.



# Groundwater Monitoring and Corrective Action (cont.)



DRAFT

3 Years of Compliance with GWPS? Yes No

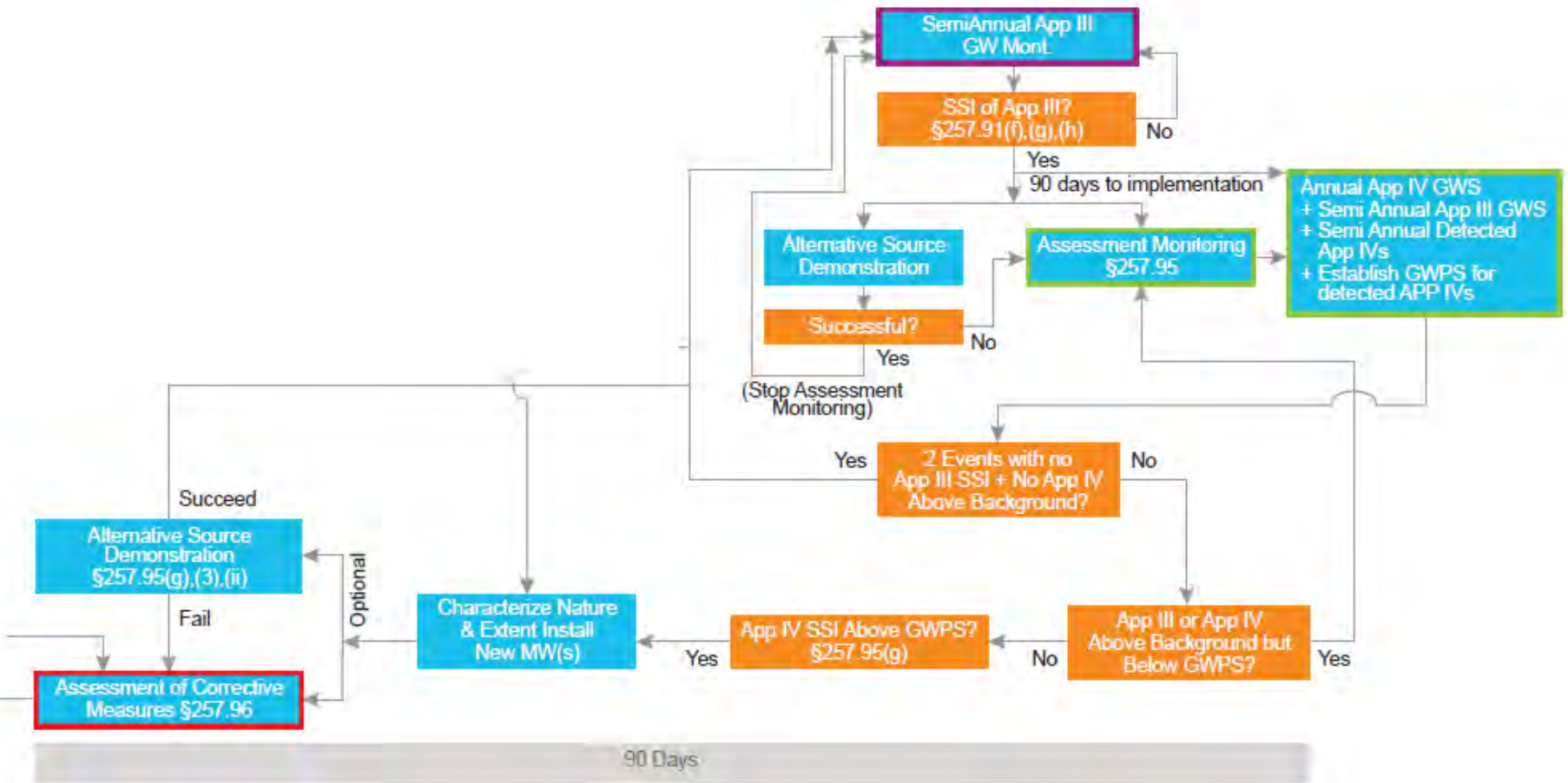
1075 East Avenue, Cleveland, OH 44115  
 Direct: (216) 622-2429  
 Cell: (216) 215-5419  
 mark.rokoff@aecom.com

# Groundwater Monitoring and Corrective Action (cont.)

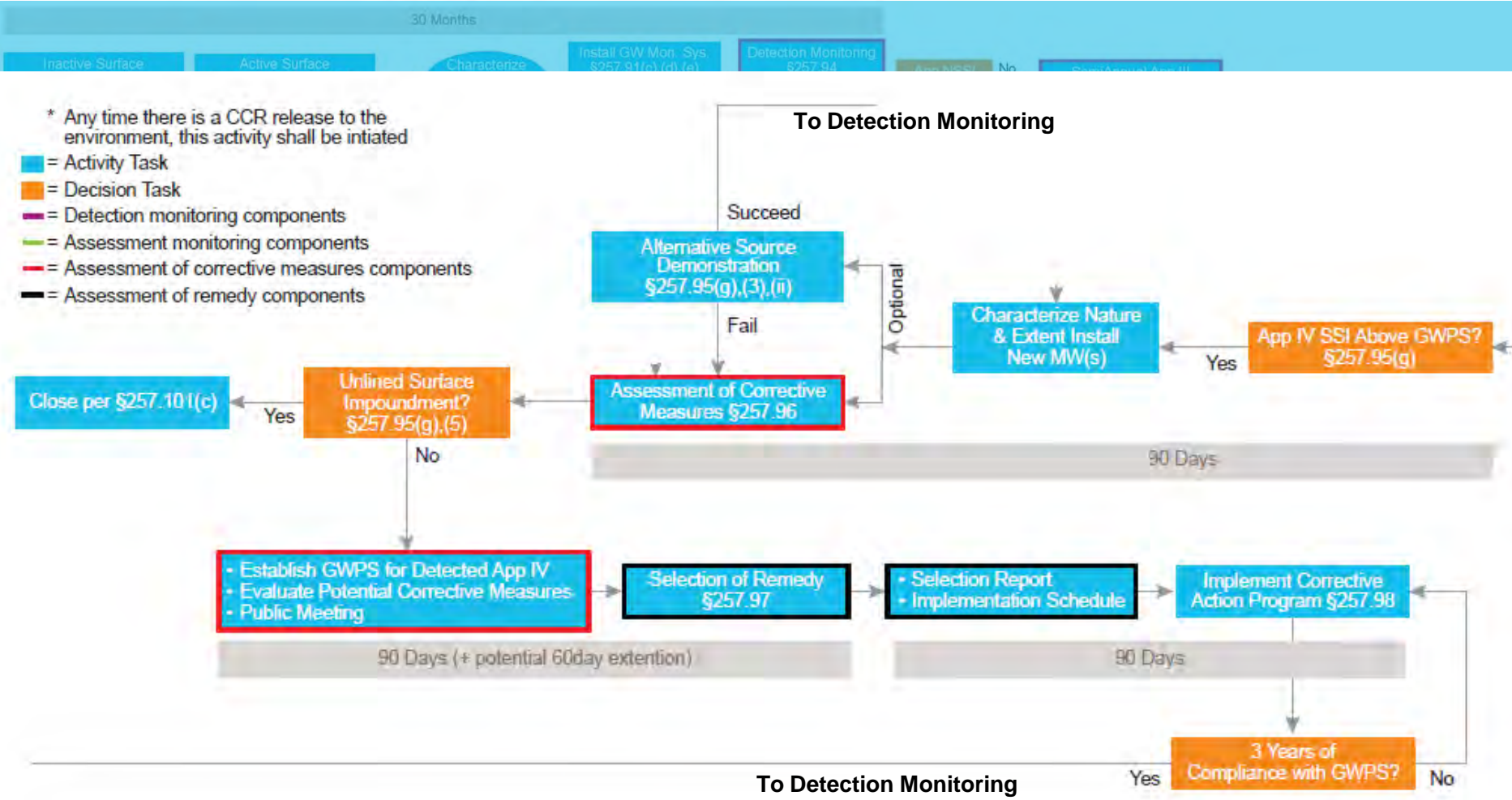
30 Months

Install GW Mon. Sys

Detection Monitoring



# Groundwater Monitoring and Corrective Action (cont.)



DRAFT

Cell: (216) 215-9419  
mark.rokoff@aecom.com

# Recordkeeping, Notifications, and Publicly Accessible Internet Site

# CCR Recordkeeping

**Operating Record:** Files that must maintain all information required by Rule in a written operating record at their facility.

- Unless specified otherwise, each file must be retained for at least five years following the date of each occurrence, measurement, maintenance, corrective action, report, record, or study.
- An owner or operator of more than one CCR unit may use one recordkeeping system provided the system identifies each file by the name of each CCR unit.
- For existing CCR units, complete the operating criteria no later than 6 months after publication date.
- For new CCR units, complete the demonstration no later than the date of initial receipt of CCR.
- Information must include:
  - Operating Criteria
  - Location Restrictions
  - Design Criteria
  - Groundwater Monitoring and Corrective Action
  - Closure and Post-Closure Care

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  - Design Criteria
  - Groundwater Monitoring and Corrective Action
  - Closure and Post-Closure Care

# CCR Recordkeeping

## Notification Requirements:

- Notification of all items posted in the operating record to the relevant State Director or Tribal authority.
- Notify within 30 days of placing information in the operating record
- Groundwater Monitoring Notification Examples
  - Establishing an assessment monitoring program within 30 days
  - Returning to a detection monitoring program within 30 days
  - Detecting one or more constituents in Appendix IV to this part at statistically significant levels above the groundwater protection standard within 30 days
  - Initiating the assessment of corrective measures requirements within 30 days
  - Completing the remedy within 30 days
- Closure and Post-Closure Care Examples
  - Intent to initiate closure of the CCR unit
  - Completion of closure of a CCR unit
  - Recording a notation on the deed
  - Intent to comply with the alternative closure requirements
  - Completion of post-closure care period

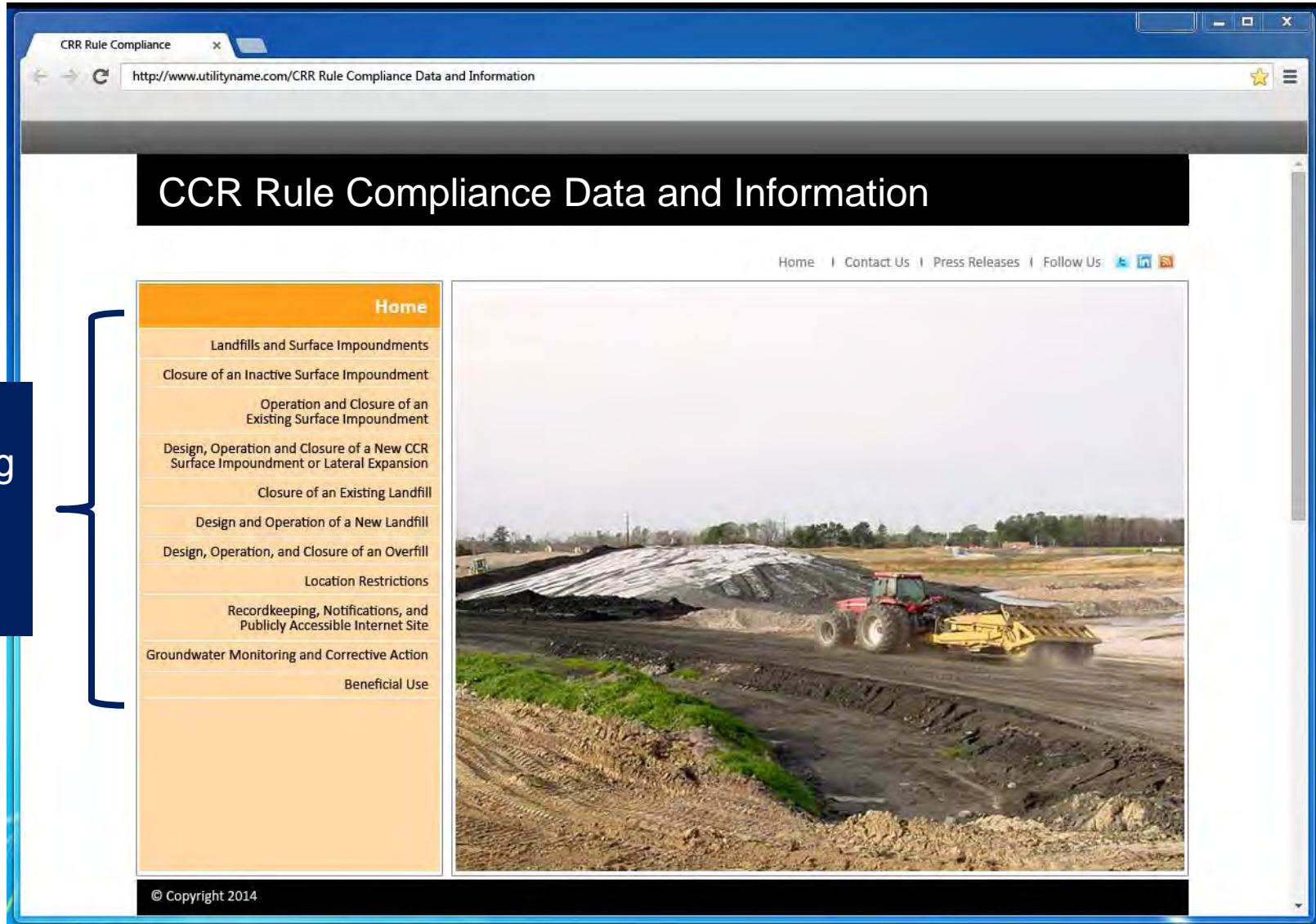
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# CCR Recordkeeping

**CCR Website:** Within 6 months of the Rule's publication date, establish and maintain a publicly accessible internet site (CCR website)



The screenshot shows a web browser window with the address bar displaying "http://www.utilityname.com/CCR Rule Compliance Data and Information". The page title is "CCR Rule Compliance Data and Information". The navigation menu includes "Home", "Contact Us", "Press Releases", and "Follow Us". The main content area features a vertical list of topics under the heading "Home":

- Landfills and Surface Impoundments
- Closure of an Inactive Surface Impoundment
- Operation and Closure of an Existing Surface Impoundment
- Design, Operation and Closure of a New CCR Surface Impoundment or Lateral Expansion
- Closure of an Existing Landfill
- Design and Operation of a New Landfill
- Design, Operation, and Closure of an Overfill
- Location Restrictions
- Recordkeeping, Notifications, and Publicly Accessible Internet Site
- Groundwater Monitoring and Corrective Action
- Beneficial Use

To the right of the menu is a large photograph of a landfill site with a red tractor and a yellow loader. The footer of the page contains the text "© Copyright 2014".

All data in the operating record and notifications posted



# THEY'RE HERE!!! REVIEW OF THE NEW FEDERAL REGULATIONS FOR CCR

Presented by: Mark Rokoff, National Practice Lead, CCP Management

February 23, 2015

