



Florida Department of Environmental Protection Petroleum Restoration Program

Pathway To Closure

March 30, 2017





Pathway Map

- Communication with Owner
- The Basics of Closures
 - Chapter 62-780.680, F.A.C., RMO-I, RMO – II and RMO-III Closure Criteria
 - LSSI NFA
- Special Considerations for Closure
 - FDOT MOU Closures
 - MOUs For City/County Transportation Facilities
- Establishing Institutional Controls – The Process
- Group Exercise



Communication

- Discuss Closure Options with Owner
 - When NFAC fits:
 - Low State Funding Cap
 - Low Score- LSSI
 - Close out CU sooner than later
 - Owner think active RA would disrupt business
 - Ports/Airports/Government Property:
 - Non-program MOA benefits



Terminology

- No Further Action With Controls (NFAC) aka.
 - RMO II or RMO III
 - Risk Based Closure
 - Closure With Conditions or Conditional Closure
- PRSR “purser” – Person Responsible for Site Rehabilitation
- NFA – No Further Action
- RMO – Risk Management Option
- SRCO – Site Rehabilitation Completion Order
- CSM – Conceptual Site Model



Risk-Based Closures

Achieve Safe Site Closure By **Eliminating/Reducing Risk:**

$$\text{Risk} = \text{Exposure} \times \text{Toxicity}$$

- **RMO I** - Reduce Risk By Reducing Contaminant Levels

- **RMO II and III** - Reduce Risk By Eliminating Exposure



Benefits of Using a NFAC

- Usually Results In Reduced Remediation Costs
- Allows Closure When Remediation Efforts Have Reached a Diminishing Return
- Allows Closure When Contamination is Difficult to Access
- Allows Owner To Avoid Site Disruption Caused By A Source Removal or Remediation System Installation



Source Removal





AS/SVE System





No Further Action with Controls

- Exposure To Contamination Is Restricted With:
 - Institutional Controls (e.g., A Restrictive Covenant) – Most Common – No Use of Ground Water
 - Engineering Controls If Needed (e.g., A Cap) – Most Common – Pavement Maintained Over An Area With Contaminated Soil
 - Impervious Cap If Soil Exceeds Leachability Values
 - Clean Fill Cap or Impervious Cap If Soil Exceeds Direct Exposure Values
 - Occasionally Used To Control Ground Water Plume



Applicable Rules

Section 62-780.680, F.A.C. – NFA & NFA w/Controls

- (1) - Risk Management Options Level I (RMO I)
- (2) – Risk Management Options Level II (RMO II)
- (3) – Risk Management Options Level III (RMO III)
- (4) – PRSR Submits NFA Proposal
- (5) - FDEP Sends Provisional Approval
- (5) – FDEP Provides PRSR w/ SRCO approving the NFA
- (6) – Rejection of NFA proposal
- (7) – Requirements for language in SRCOs (See PRP templates)
- (8) – Notices Sent
- (9) – Final Agency Action – DEP issues the Order



Closure Evaluation

- Free Product Levels
- Soil Concentrations For:
 - Direct Exposure
 - Leachability
- Ground Water Plume
- Consider Conceptual Site Model (CSM)
To Evaluate Risk
 - Migration and Exposure Potential



NFA Criteria For Free Product

- **62-780 -RMO I**
- Free Product Not Present and
- No fire or Explosion Hazard Exists or
- **62-780 - RMO II and III**
- Free Product Not Present and
- No fire or Explosion Hazard Exists or
- Removal Is Not Technological Feasible or Cost Effective
and
- Free Product Is Not Migrating and Does Not Pose risk to human health public safety or environment



NFA Criteria For Soil – RMO I

- Contaminant Concentrations Must Not Exceed:
 - The Background Concentrations
 - The Best Achievable Detection Limits
 - The Soil Cleanup Target Levels (SCTLs) Chapter 62-777, F.A.C. for Residential Direct Exposure and Leachability
 - The Average Soil Concentrations Calculated Using the 95% UCL approach are below Chapter 62-777, F.A.C. for Residential Direct Exposure and Leachability



NFA Criteria For Soil - RMO I

- Levels Calculated Using Site Specific Soil Properties and Equations Found In Chapter 62-777, F.A.C., Figures 4,5,6, and 7 and Table VI.
- Fractionation Analysis of TRPH Levels Based On Site Specific Concentrations
- Determined Through the Direct Leachability Testing of Leachate From Synthetic Precipitation Leaching Procedure (SPLP) that Leachate Is below GW CTLs
- One Year of Ground Water Data May Be Used To Allow Soil Exceeding Leachability That Has Been Exposed To Elements For Two Years



RMO II NFA Criteria For Soil

- Direct Exposure
- May Use RMO I Criteria
- Alternative SCTLs May Be Established Which Are Above Residential Levels If One of the Following Is Provided:
 - An Engineering Control Is Used To Prevent Human Exposure or Leaching From The Soil
 - Minimum of Two Feet of Clean Soil or
 - A Cap to Prevent Exposure
 - A Land Use Restriction To Restricts Land Use To Commercial/Industrial, if Soil Levels do not exceed 62-777, Table II, F.A.C., Commercial Industrial Levels



RMO II NFA Criteria For Soil

- Leachability:
 - May Use RMO I Criteria
 - Alternative SCTLs May Be Established Which Are Above Leachability Levels If An Engineering Control Is Used To Prevent Infiltration



Examples From 62-777, F.A.C., Table II

Chemical	Direct Exposure Residential (mg/kg)	Direct Exposure Commercial/ Industrial (mg/kg)	Leachability (mg/kg)
Benzene	1.2	1.7	.007
Benzo(a)pyrene	0.1	0.7	8
MTBE	4,400	24,000	.09
TRPH	460	2700	340
Trichloroethene (TCE)	6.4	9.3	.03



NFA Criteria for Ground Water

- RMO - I Groundwater Must Meet Chapter 62-777, F.A.C., Table I Criteria:
 - Groundwater or
 - Freshwater or Marine Surface Water
- RMO – II Groundwater(demo. by min. 1 yr. monitoring):
 - May Meet Low Yield/Poor Quality Criteria and Be On-Site or
 - Be On-Site and Controlled With an Engineering Control or
 - Stable or Shrinking, Contained on Property, limited to immediate vicinity of source, and Plume Less Than 1/4 Acre
- RMO – III Groundwater:
 - Plume Must Be Stable or Shrinking and Meet Appropriate CTLs at the Institutional Control Boundary



Engineering Controls For Ground Water

- Allowed For RMO II or III
- Permanent Containment That Prevents Ground Water Migration
 - Barrier Wall
 - Slurry Wall
- One Year Of Monitoring Data Is Required To Demonstrate Effectiveness
- Periodic Monitoring To Ensure Effectiveness



Engineering Control Maintenance

- All Engineering Controls Must Have An Engineering Control Maintenance Plan
- The Plan Should Include:
 - Maintenance Requirements
 - Inspection Frequency
 - Criteria For Determining When The Engineering Control Has Failed, e.g.,
 - Large Cracks
 - Areas of Erosion
 - Increase in Ground Water Concentrations



Engineering Control Maintenance Plans

- Reporting of Routine Inspection Results Is Not Required
- Any Failure of The Engineering Control Must Be Repaired Immediately
- Failure of an Engineering Control Designed To Prevent Migration of Ground Water Must Be Reported and Repaired Immediately



Summary

- Discuss Closure Criteria With Property Owner
- Evaluate:
 - Free Product Levels
 - Soil Contaminant Levels: Direct Exposure and Leachability
 - Ground Water Plume
- For an NFAC - Establish Institutional Controls and/or Engineering Controls to Prevent Exposure To and Migration of Contamination



•Questions



Florida Department of Environmental Protection

Low-Scored Site Initiative

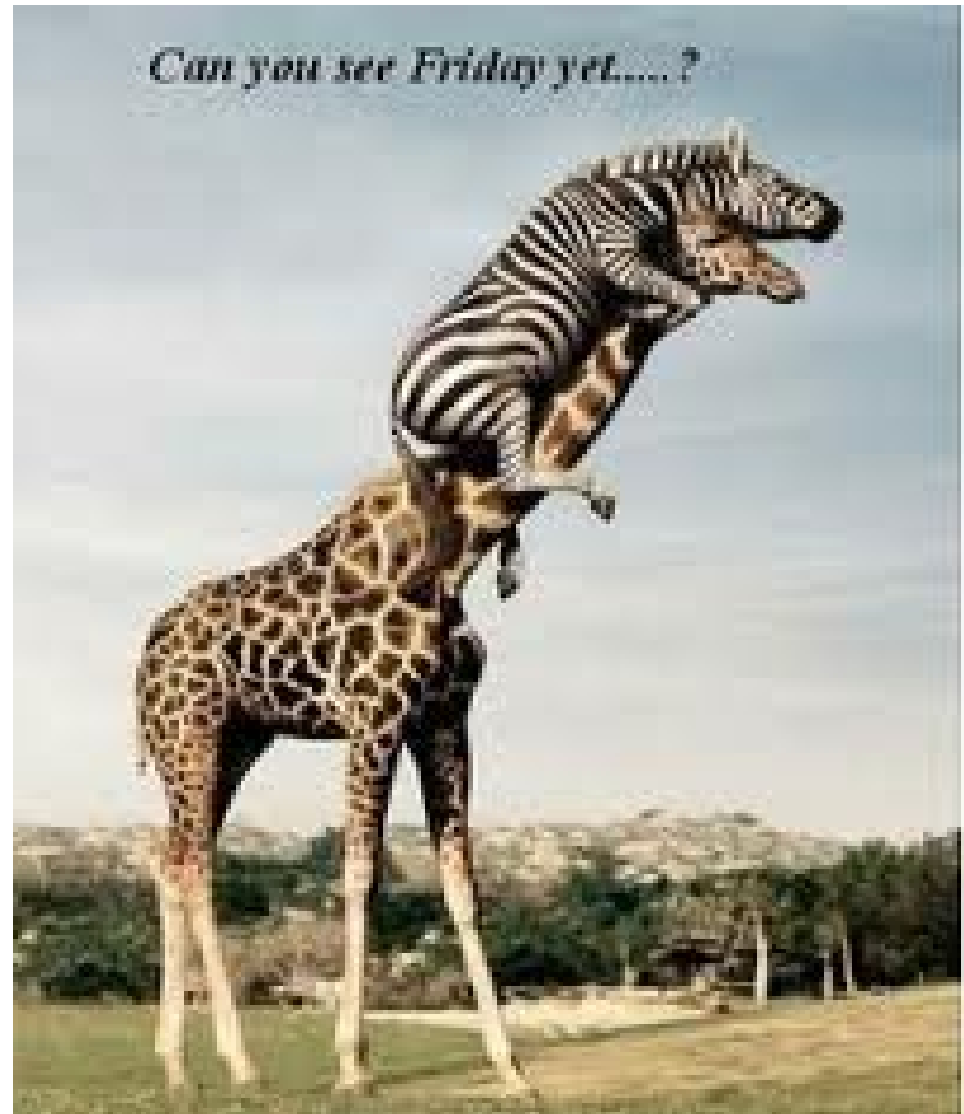




Low-Scored Site Initiative

Voluntary option for closure

- Different type of closure for owners
 - Very Popular
 - Easy Button for some
- Some owners can get funding early
- If impacts are minor, some RPs will finish cleanup





LSSI Allows 2 Unique Things:

1. Unique “LSSI NFA” Closure
 - For Elig. & non-elig. sites
 - “Minimally Contaminated”
 - Entered into ICR
2. Funding to target closures
 - Allows \leq \$35K each in SA & limited RA funding.
 - For eligible sites only





LSSI Closure Requirements

- Score 29 or less
- No excessively contaminated soil
- Plume is shrinking or stable
- No adverse effects on surface water
- Plume confined to source property, or under transportation facility where DEP has agreement for IC
- Groundwater impacts not a threat to permitted potable well
- Top 2' soil below SCTLs





LSSI OUTCOMES

- SRCO
 - If “clean”
- LSSI NFA
 - If “minimally contaminated” below 2’
- Closure requirements not met
 - Parked, Back in line





Options if LSSI Closure Requirements are Not Met

- Use \leq \$35K LSSI Limited RA funding to make site eligible for LSSI NFA
- Pursue a RMO II or III





Conditional Closure Agreement

- Pursuant to Rule 62-772.401, if owner/participant agrees to a conditional closure, they may recommend an ATC
- This might not be appropriate for all sites
 - e.g. sites with a small, shallow potable well on-site
- CCA, forms, instructions available on website:
 - <http://www.floridadep.gov/waste/petroleum-restoration/content/petroleum-cleanup-programs>
- CCA SHOULD NOT BE CONFUSED WITH A 62-780 CLOSURE.



Questions Or Comments?





Any Final Questions?

