OUTLINE

- Use of ICs in Florida
- Selection Considerations
- FDEP Guidance on Implementing ICs
- Examples of Closure Scenarios and Continuing Obligations

Definitions used:
- Institutional controls (ICs)
- Engineering controls (ECs)
- Continuing Obligations (CO)
Section 376.301(22) “Institutional controls means the restriction on use or access to a site to eliminate or minimize exposure to petroleum products’ chemicals of concern, dry cleaning solvents, or other contaminants. Such restrictions may include, but are not limited to, deed restrictions, use restrictions, or restrictive zoning”

Section 376.79(10) Brownfield Redevelopment Act also incorporates restrictive covenants and restrictive easements
HOW ARE ICs USED?

- Authorized to eliminate potential exposures to contaminants of concern by affecting human activities
- ICs are non-engineering measures
- Typically, but not always, legal controls
- Incorporated in Chapter 62-780 (Contaminated Site Cleanup Criteria) and 62-785 (Brownfields Cleanup Criteria Rule)
  - Site Rehabilitation Completion Order with conditions (e.g., Risk Management Options Levels II and III)
  - Typically in the form of a restrictive covenant
  - Alternative soil cleanup target levels allowed in lieu of defaults in Chapter 62-777
THINGS TO CONSIDER

- Site media above applicable cleanup levels
- Defined receptors (types, location, exposure`)
- Current and projected use of contaminated property – soil, groundwater, surface water
- Probability of contamination spreading
- Inclusion of engineering controls to physically prevent exposure
- Potential impediments to successful implementation and long-term enforcement
Benefits of Layered ICs

- Provide alternate controls if one should fail/missed
- Provide different types of controls that operate on different populations or in different time frames
- Alter implementation schemes, such as passive vs. active controls
Co-authored by DWM, OGC, and District Office Waste Cleanup Programs

Not policy or rule

Summary of DEP’s experiences

Under revision

Recent public workshop by SW District
RESTRICTIVE COVENANTS

- Most common form of ICs used in DEP
- Types of ICs commonly used in RCs
  - Engineering control component
  - Interim ICs
  - ICs on non-source property
  - Partial site restrictions
ENGINEERING CONTROLS

- Designed to limit/prevent exposure and eliminate further migration
- Caps, covers, physical barrier systems, containment systems – P.E. certification
- Future owners must comply with IC including maintenance/repair of ECs, documentation
- Scale of EC may require financial assurance (e.g., methane collection system, O&M)
- If EC necessary, IC must be too
INTERIM ICs

- “Interim” because imposed prior to remediation of all media to cleanup levels
- Required by cleanup agreement, consent order for implementation prior to cleanup
  - Ex.: engineered cap over soil prior to groundwater remediation
- Terminated if no longer needed post-remediation or modified to permanent IC
When offsite contamination also meets requirements for conditional closure
Permissible with non-source property owner consent (Risk Management Option III)

Conditions
- FDEP/OGC preliminary review and approval
- No changes to submittal package requirements than source property
- Local government notice
- Modification of standard restrictive covenant and SRCO documents
PARTIAL SITE RESTRICTIONS

- Concerns restrictions on only a portion of site where contamination exists
- Dependent upon nature of contamination, media, and how it will be addressed for future land-use
- Area defined by legal description and survey
  - Form B of Guidance Document
- Grants FDEP permanent access for auditing purposes – easements common (must be surveyed)
AUDITING AND ENFORCEMENT

- Auditing performed by DEP/contractors – non-petroleum sites only
- Verify provisions of ICs are in place
  - Property appraiser
  - County records
  - Agency file review
  - Interview owner
  - Site inspection
- FDEP’s enforcement power same as that for other issues
HOW DO I DETERMINE WHAT ARE CONTINUING OBLIGATIONS?
Designation: E2790 – 11

Standard Guide for Identifying and Complying With Continuing Obligations

1
ASTM E2790-11 – 4 Step Process

- **Step 1** – Screening to determine if CO apply
  - All Appropriate Inquiry/Phase I ESA/REC review (Jerry’s presentation)

- **Step 2** – Evaluate if activity use limitations affect property prior to planning for CO
  - transactional disclosures
  - gov’t records on assessment/remediation
  - personal knowledge
  - IC/EC registry
  - land title records and land-use ordinances
Step 3 – Selecting actions that satisfy CO and maintain compliance
- Continuing obligations plan

Step 4 – Develop monitoring requirements for CO
- Type, frequency
- Level of documentation and record-keeping
- Agency submittals
EXAMPLES OF CLOSURE SCENARIOS AND CONTINUING OBLIGATIONS
<table>
<thead>
<tr>
<th>What</th>
<th>Why</th>
<th>CO</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Low permeability cap (soil, concrete, asphalt)</td>
<td>• Prevent direct exposure</td>
<td>• Cap inspection and maintenance plan (ECMP)</td>
</tr>
<tr>
<td></td>
<td>• Limit infiltration</td>
<td>• Document cap integrity and repairs</td>
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<tr>
<td></td>
<td></td>
<td>• Agency notification – repairs and modifications</td>
</tr>
</tbody>
</table>
### What
- Low permeability barrier such as slurry wall
- Usually includes engineered cap

### Why
- Contain soil and groundwater impacts
- Eliminate direct exposure
- Reduce migration potential to receptors

### CO
- ECMP that incorporates cap inspections and routine hydraulic monitoring around barrier to monitor for leaks
- Requirements for maintenance and repair of barrier
- Documentation and reporting
- Agency notification requirements
# RESIDENTIAL USE RESTRICTION

<table>
<thead>
<tr>
<th>What</th>
<th>Why</th>
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</tr>
</thead>
<tbody>
<tr>
<td>• Restricts usage to prevent exposure</td>
<td>• Caused by residual soil concentrations above residential soil cleanup target levels</td>
<td>• Maintain zoning and current non-residential land use</td>
</tr>
<tr>
<td>• NAICS</td>
<td></td>
<td>• Notification requirements to agency for zoning changes and land-use modifications</td>
</tr>
<tr>
<td>• Agricultural, mining, lodging, recreational uses (amusement parks, parks, camps, museums, zoos, or gardens); residential uses, educational uses</td>
<td></td>
<td>• Re-opener for new cleanup and closure plan</td>
</tr>
</tbody>
</table>

CO:
- Maintain zoning and current non-residential land use
- Notification requirements to agency for zoning changes and land-use modifications
- Re-opener for new cleanup and closure plan
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<tr>
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<tr>
<td>Impermeable vapor barrier below foundation and sub-slab ventilation or depressurization system (active or passive)</td>
<td>EC for vapors emanating from residual soil and/or groundwater contamination beneath a structure and into indoor air</td>
<td>Maintain building foundation, inspections</td>
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<tr>
<td></td>
<td></td>
<td>Operate/maintain</td>
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<td></td>
<td></td>
<td>May require routine indoor air monitoring</td>
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<td></td>
<td></td>
<td>Communication plan with tenants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Documentation and agency notification per ECMP</td>
</tr>
<tr>
<td>What</td>
<td>Why</td>
<td>CO</td>
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<tr>
<td>-------------------------------------------</td>
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<tr>
<td>• Restriction to prevent soil exposure</td>
<td>• Contaminated soil above applicable standards left in place below certain depth (e.g., 2 ft)</td>
<td>• Soil Mgmt Plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Dimensions of restricted area</td>
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<tr>
<td></td>
<td></td>
<td>• Communication plan with tenants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Notification requirements to Agency if work to be performed</td>
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<tr>
<td></td>
<td></td>
<td>• Proper assessment, handling, disposal of soil</td>
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<td></td>
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<td>• Worker protections in place</td>
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</table>
**STRUCTURAL IMPEDIMENT**

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<tbody>
<tr>
<td>A building or a portion of a building (e.g., footer, column) obstructs full assessment and cleanup (typically soil)</td>
<td>Remedy relies on impediment to prevent exposure</td>
<td>Impeding structure must be maintained</td>
</tr>
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<td></td>
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<td>Notification requirements to agency if structure to be demolished or modified in manner that could affect contamination</td>
</tr>
<tr>
<td></td>
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<td>Re-opener potential for new cleanup and closure plan</td>
</tr>
</tbody>
</table>
GROUNDWATER USE RESTRICTION

**What**
- Restricts potable and non-potable usage (including irrigation)
- Restricts stormwater detention
- Monitoring wells require pre-approval from Agency

**Why**
- Contaminant concentrations in groundwater are above GCTLs

**CO**
- Abandon wells
- Site inspections
- Communication plan with tenants
- Stormwater mgmt plan
- Notification requirements to agency
- Dewatering plan addressing handling, treatment, disposal of GW must be approved by FDEP if needed for redevelopment
SUMMARY OF CONTINUING OBLIGATIONS

- Require routine inspection and documentation
- O&M is the norm
- Communication plans are vital to success
- Agency interaction must continue
- 5-year EC/IC review conducted by FDEP
- Land-use changes may often result in re-openers
QUESTIONS?

THANK YOU FOR YOUR ATTENTION!

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