

Good LUC, Bad LUC, No Such LUC, Beginner's LUC, Tough LUC, Andrew LUC, and Pot LUC

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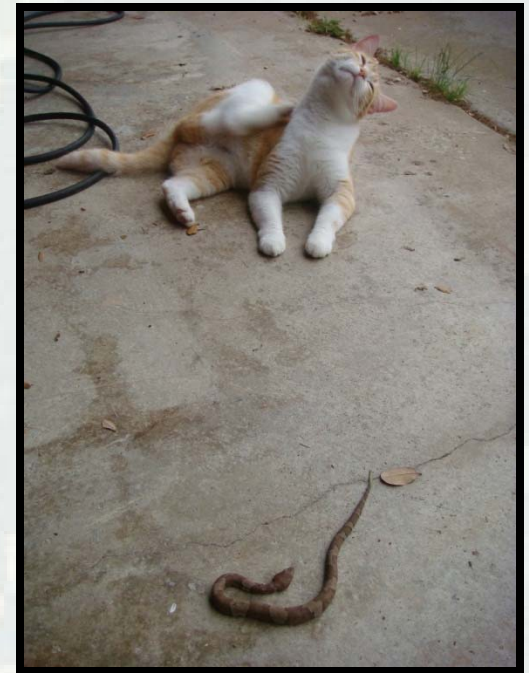


US Army Corps of Engineers
BUILDING STRONG

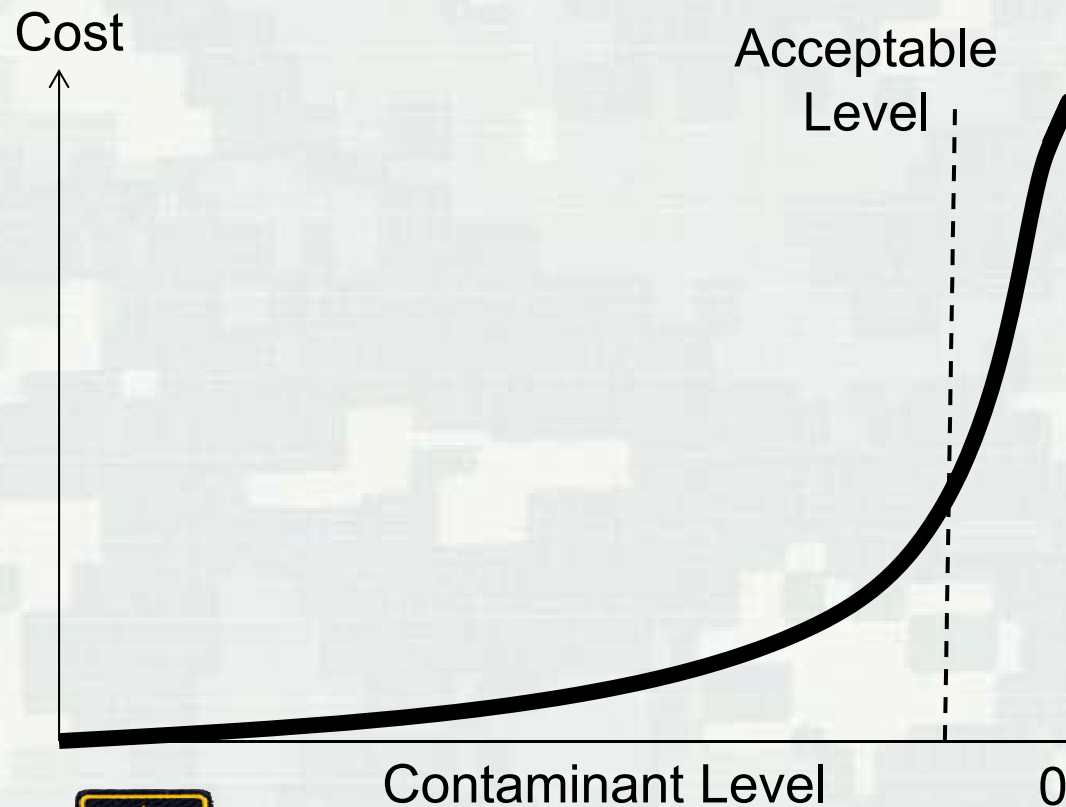


Understanding Remediation

- Receptor + Pathway + Hazard = Health Effect
- Remediation breaks the equation



Understanding Remediation



- Cleaning up contamination is rarely 100%
- Remediation goals are set pursuant to
 - Acceptable safety/risk or
 - ARARs
- Acceptable safety/risk = “Protection of human health and the environment”, i.e. ‘protective’



Understanding Remediation

- Remedial plan is like a recipe that provides the best remedial options to address the site-specific issues with any remedial site. Each alternative presents a remedial plan for clean-up.
 - Important that the site is fully characterized or determining the best remedial plan is difficult (If you don't know the problem, it is hard to find the solution.)
 - Remedial plan may have one remedial technology/option or it may have many



Understanding Remediation

Remedial Options

Treatment	<i>best</i>
Removal	<i>good</i>
LUCs	<i>ok</i>



What are Land Use Controls?

- LUCs = Engineering Controls (ECs) & Institutional Controls (ICs)
- LUCs are a type of remedy
- LUCs protect people (or environment)



LUCs = ECs & ICs

- Engineering Controls (ECs) are physical barriers that eliminate or degrade exposure of receptors (people or environment) to contamination.
- Examples – fences, soil caps, encapsulation, buildings, berms, locks, burial
- ECs do not reduce the contamination.



LUCs = ECs & ICs

- **Institutional Controls (ICs) = Governmental Controls, Proprietary Controls, and Educational Controls**
- Governmental Controls are those controls within the power of a governmental unit (local, state, Federal) that restrict the interaction of receptors with the contamination
- Examples – zoning, well restrictions, permitting, condemnation, transportation restrictions



LUCs = ECs & ICs

- **Institutional Controls (ICs) = Governmental Controls, Proprietary Controls, and Educational Controls**
- Proprietary Controls are those administrative controls within the power of a landowner under state law that restrict the interaction of receptors with the contamination.
- Examples – deed restriction, environmental covenant, deed notice, easements, license, transfers, agreements, reservations of rights



LUCs = ECs & ICs

- **Institutional Controls (ICs) = Governmental Controls, Proprietary Controls, and Educational Controls**
- Educational Controls are administrative controls to inform or educate possible receptors of the danger of the contamination so they may voluntarily self-restrict their interaction with the contamination
- Examples – signs, pamphlets, briefings, school programs, kiosks, webpages, emails, letters.



LUCs Are a Type of Remedy

- Remedial actions are actions taken to make the site safer for human health and the environment
- Remedial actions interrupt the risk formula in some way (Risk = Contamination + Pathway + Receptor)
- CERCLA includes a preference for removing or decontaminating the contamination



LUCs Are a Type of Remedy

From DoDM 4715.20

- DoD Component must consider at least 3 alternatives
 - ▶ No action
 - ▶ Remedial action to allow UU/UE
 - ▶ Remedial action to a protective condition that requires LUCs



LUCs Are a Type of Remedy

From DoDM 4715.20

- Remedial alternatives analyzed using 9 NCP criteria
 - ▶ Threshold (overall protection, compliance with ARARs)
 - ▶ Balancing (long term effectiveness; reduction of toxicity, mobility, or volume; short term effectiveness; implementability; cost)
 - ▶ Modifying (state; community acceptance)



LUCs Are a Type of Remedy

From DoDM 4715.20

- Alternatives evaluated to ensure they are
 - ▶ Efficient
 - ▶ Environmentally, economically, and fiscally sound
 - ▶ Consider sustainable practices
 - ▶ Reduce footprint of remediation system on environment



LUCs Are a Type of Remedy

- Remedial Action Objectives help define protectiveness
 - ▶ Who are we protecting?
 - ▶ What are we protecting them from?
 - ▶ What are they doing which would cause them to be exposed?
 - ▶ What are acceptable contaminant levels?
- Robust RAOs are key to developing and evaluating remedial alternatives



LUCs Are a Type of Remedy

- LUCs must be evaluated as rigorously as any other remedy
 - ▶ Must be specific enough to allow evaluation
 - ▶ Are not a default 'because something might be out there' measure
 - ▶ Do not necessarily continue in perpetuity
 - ▶ 5-year reviews are not LUCs



Land Use Controls Issues

- Pot LUC
- Beginner's LUC
- No Such LUC
- Tough LUC
- Bad LUC



Pot LUC

“Alternative 4 is comprised of surface removal of MEC and LUCs”

- Remember...
 - LUCS = Engineering Controls & Institutional Controls (Governmental Controls, Proprietary Controls, and Educational Controls)
- *What are we talking about here?*
- *How can this alternative be evaluated in a meaningful way?*
- *What will we be committing to?*
- *It isn't a pot LUC dinner; a level of specificity is essential*



Beginner's LUC

“Possible LUCs used in this alternative include dig permits, zoning restrictions, signage, and safety education.”

- This might be successful in achieving protectiveness, but...
- *What does it take to make these LUCs happen?*
 - *Who has authority to take these actions?*
 - *Who is responsible for implementation?*
 - *Who pays for what?*
 - *When is it implemented?*
 - *Who performs maintenance and inspection?*
 - *What is our role? Regulator role? Land owner role?*



Beginner's LUC

- Can't count on beginner's LUC for success
- Need to conduct an Institutional Analysis

“The objectives of the institutional analysis are to illustrate the opportunities that exist to implement an institutional control program at a specific site; identify government agencies having jurisdiction over OE contaminated lands; and assess the appropriateness, capability and willingness of government agencies to assert their control over OE contaminated lands. Authority exercised by the agency within its jurisdiction.” EP 1110-1-24

- IA should be a primary tool for evaluating alternatives in the FS for “Implementability”



No Such LUC

- Construction support \neq LUC
- Interim Risk Management \neq LUC
- Five-Year Reviews \neq LUC

- Do not confuse these efforts with LUCs



Tough LUC

“Remedies such as fencing, deed restrictions, and signage can be found in the Proposed Plan under the Institutional Controls heading.”

- NCP says remedy must be defined enough to do a “detailed analysis” of the alternative, including a cost estimate
- Does not have to have every detail listed
- But should specify the LUCs proposed
- Must answer the Who, What, Where, When, and How (and how much)
- Remember, the DD is a commitment
- Developing and analyzing LUCs in sufficient detail to support objective decision making is tough, but don’t keep kicking the LUC can down the road



Bad LUC

- *“This remedy includes deed restrictions and a change in zoning for this area to restrict digging in this property. The city will be notified of this requirement after the DD is signed.”*
- *“Finally, once all the MEC is removed, appropriate LUCs will be implemented to restrict use to recreational uses.”*
- *“We have determined there is no unacceptable risk at this site. We can close by implementing LUCs.”*
- *“LUCs will be maintained until the site’s risk drops to unlimited use and unrestricted access as required by CERCLA.”*
- No other way to say it - these are just bad LUC
 - ▶ Bad LUC like these will continue to plague the project



Good LUC

- Are specific and well defined remedies
- Are constructed to achieve specific and well defined Remedial Action Objectives
- Are supported by a robust Institutional Analysis
- Are coordinated with the PDT (especially OC) and stakeholders



Reference Documents

- EP 1110-1-24 (updated 15 Dec 2000)
- ER 200-3-1 (10 May 2004) Section 4-9.2
- DoDM 4715.20 (9 Mar 2012) DERP Management
- NCP 40 CFR 300.430 and 300.435 (1 Jan 2009)



Questions?

