End States Workshop #2 – 200 Area
August 10/11, 2004
Buried Waste and Contaminated Soils – Breakout Group

Question: For Solid & Liquid Waste Sites End States CERCLA requires that decisions be made using 9 criteria. In weighing these criteria:

- **If waste is left in place under an engineered barrier, what factors affecting public acceptance must the Tri-Parties consider?**
- **If waste must be removed for treatment and disposal, what factors affecting public acceptance must the Tri-Parties consider?**
- **What other options should be considered by the Tri-Parties and when is it appropriate to consider them?**
- **How would these considerations change depending on location inside or outside the core zone and could these decisions affect how the core zone is defined?**
- **If data collection activities are purposely focused on defining the highest levels of contamination, how important is additional detailed characterization information in making these decisions? How does this change for different end states or hazards?**

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In order to develop some very specific tools and perspectives to assist in risk balancing considerations (associated with future risk assessments and remedial/closure decisions), the following questions can be posed to solicit stakeholder input and values. Specifically for **Solid & Liquid Waste Sites End States** CERCLA requires that decisions be made using 9 criteria (see handout). In weighing these criteria:

- When would you consider leaving waste in place under an engineered barrier?
- When would you consider removal, treatment, and disposal of the waste?
- What other options would you consider and when would you consider them?
- How would these considerations change depending on location inside or outside the core zone and could these decisions affect how the core zone is defined?
- If data collection activities are purposely focused on defining the highest levels of contamination, how important is additional detailed characterization information in making these decisions? How does this change for different end states or hazards?

Group #1

- Costs appear to be most important in the displays (posters)

- It would be helpful for a 3D presentation of the 200 Area with different levels and plumes
- Is capping a solution for deep contaminates, even with a large cap?
- Deep contamination stabilization technology is needed.
- Beneficial use ideas displayed on posters (along with costs, etc.) per alternatives
- Are we talking about using the same technology for each location or using the same technology for all locations?
- The life of the caps do not last as long as the contaminates
- Mobility of contaminants could be worse that currently thought
- Costs: may be less expensive to do he work now before it (contaminants) expand
- Dilution effect not talked about
- Dissolution is not solution
- In what circumstance would you allow to keep waste in place under a barrier:
    - Not if it could migrate
    - If every isotope is identified and stabilized
    - Need plan of action if there is new migration
    - Need agency with funds to act if necessary
    - If technology is not available to clean up, then cap for now
    - If contaminates did go into the River, what is the consequences (risk)
    - If risk to workers for direct removal today exceeds potential risk for the future
    - If surrounded by waste that will be staying in place, work from the edge to the core
- Do not forget the workers risk

- How would these considerations change depending on location inside or outside the core zone:
    - Clean it up outside the core zone so that you do not need institutional controls versus letting the area be cleaned up by natural means (keep area large until clean up). Except if "returning" to the area to other uses earlier.
    - Considerations should not change
- When would you consider removal, treatment, and disposal of the waste? Always consider it.
- Need to get on with clean-up where it will effect groundwater
- If you do not have control, then you have to clean it up.
- Gable Mountain Pond: leave it alone
- Moving it from outside the core zone into the core zone does not reduce total footprint.
- Must define what the ultimate end use (activities, etc.) will be first
- Do we have adequate knowledge of what is there? Not all areas! We need the knowledge to reduce the footprint
- Are you willing to wait for better technology if risk is not too high?
    - What is your time frame?
    - You need to focus effort on developing those technologies
    - You have to know how valid your current mobility data is
- need to understand the behavior of contaminants

Group #2

- Need to determine the longevity of the barriers to determine whether they are valid.
- Institutional controls only last 2 years without ongoing presence. How reliable are they?
- Need to answer the question of how quickly contaminants will get into the water.
- When would you consider removal, treatment, and disposal of the waste? Always consider it first.
- For any significant risk, you should have a bias against institutional controls.
- We are approaching this clean-up piecemeal versus looking at the Site overall (e.g. OK for monolith on Plateau if the rest of the Site is cleaned up and address ground water).
- Consistency problem: old waste versus new waste
    - Need risk analysis of options.
    - Do the right thing whether pre or post 1970 (TRU).
- Government can not "cap it" and walk away
- If we can not count on ongoing institutional controls, we should clean it all up now.
- We do not have the adequate risk numbers yet to answer these questions.
- We need to think outside the box to develop the technology to clean up the Site. We could do it if we had the will.
- First and foremost is protecting the groundwater – high risk first.
- Focus on the threats to the River.
- How stable does the waste have to be to be safe for temporary storage?
- Do not hear enough about the risk to the workers.

Group #3

- Amount of characterization to determine contamination is needed for answers.
- When would you leave waste under a barrier:
    - Based on SAC how rapidly is waste moving toward groundwater
    - Look at contaminants differently based on half life
    - Will waste (cesium/strontium) half life cause deteration before it is a risk to groundwater
    - If long lived contaminants are expected to get to groundwater – remediation should be planned. If new technology is required it should be pursued.
- Missing:
    - Modeling showing the movement of contaminants
    - Kind of contaminants
- Encourage to be certain of methods used in each situation.
- Good to capture both chemical and radiological risks.

- Risk reduction versus dollars
    - Need to include worker exposure risk
    - Other ecological damage
    - Others (community impact, etc.)
- "no action" could be viable for a certain time period (e.g. Gable Mountain Pond for 50 years)
- Need to know the inventory to determine the risk.
- Tc 99 should be looked at in total. There are high levels in BC cribs and also in tank waste. How will it be managed and stabilized? Where will it end up? Can it be prevented from getting to groundwater and drinking water?
- Cost figures should be life cycle costs
- Need aggressive plan to develop technology for remediation for contamination that could get into the groundwater (particularly Tc-99).
- Point of contamination (time, space, concentration) versus anti-degradation policy.
- Footprint can be re-configured (core area zone).
- Institutional controls criteria:
    - Graded approach
    - Look at the risk after the 2nd half-life
    - Have to look at contaminate criteria
    - Risk over time is reduced
- Different footprints at different levels
- What is the inventory and where is it?
- Impact of geology?
- Timeframes must be related to the level of characterization.
- "moving it down the street" in not valid.
- Be careful how you compare risks – must include worker risk.
- For long range planning, need to have strong agency accountability