Inner Area Principles

The Inner Area principles proposed by the Tri-Parties are a good beginning toward consideration of what kind of approach will be needed to remedy the problems of the Central Plateau. However, the Board feels that some principles have been overlooked in the preparation of these.

[1] While it has been generally agreed that designated waste disposal facilities of the Inner Area (like ERDF and IDF) would not be candidates for remediation. What happened to the remedial approach for the rest of the facilities of the Inner Area? Most of these areas have been under remedial consideration for some decades. What happens to planning for these?

1. LLBGs, including caissons and VPUs. These burial grounds at the least should be characterized before ~~they are left undisturbed~~decisions are made. Such characterization must meet requirements pursuant to RCRA for knowing where chemicals were disposed, extent of contaminant spread, and a RCRA compliant soil column and groundwater monitoring system. The Board has long advised that early warning soil column monitoring is necessary if wastes are to be left.
2. Cribs-trenches-other liquid disposal areas. Same as #1.
3. Ponds. Some ponds have been covered by a few feet of soil to reduce exposure from the radioactive contaminants found there. Being so near surface and accidentally available, these sites should be carefully considered for consequences before remedial decisions are made. Health risk assessment from loss of IC and use of the area and resources must be considered.
4. Tank Waste Leaks and upsets, pipelines and valves, etc.
5. Waste related to the production facilities (e.g., burial grounds, filters, injection wells, liquid disposal sites, pipelines near canyons, etc.)
6. What about the WTP remediation post-use?

[2] What does “Industrial” level clean up mean at the Central Plateau?

1. appropriate risk scenarios
2. surface cleanup vs vadose zone contaminants
3. Industrial may only be applied AFTER considering the health risks from unrestricted uses AND the reasonably foreseeable loss of industrial controls, particularly for specific areas. E.g., anything outside recognized fence lines for obvious industrial areas, which, by law need demarcation such as paved areas with fencing. Industrial cleanup levels may not be applied where contaminant spreads outside the boundary. ~~etc.~~

[3] What are the implications of having "Waste Management" with little or no clean up in the Inner Area adjacent to residential scenario surface use/beneficial groundwater use in the Outer Area?

1. HAB advice says "Remediation actions of the entire Inner Area must ensure the protectiveness of contiguous areas."
2. Huge importance in points of compliance to assure that no near-surface contaminant transgression occurs.
3. If no remediation of the vadose zone is planned in the Inner Area, how do the Inner Area principles prevent migration of the contaminants to the Outer Area? The principles must reflect the relationship between surface, vadose zone and groundwater to be able to predict successful capture of the Inner Area contaminants. An understanding of the vadose zone, groundwater, and contaminant migration potential from the Central Plateau to the river over time is lacking.
4. Groundwater plumes originating in the Inner Area already cross under the Outer Area and other parts of Hanford. How will the Inner Area principles deal with the relationship of groundwater source and contaminant plumes in other areas and to the river?
5. Use TCWMEIS projections to understand whether it is acceptable to have little or no cleanup, looking at projections of contaminant levels in groundwater and potential exposures over each future time period.

[4] Institutional Controls

1. HAB Advice says "Land use as a means to control access areas should only be as large as absolutely necessary. Minimize both the number and size of such areas."
2. DOE supports the idea that IC's are protective because 5-Year CERCLA reviews are effective and ensure that DOE would catch failed remedies. However, HAB members are unimpressed in the thoroughness or scientific basis of past 5-year Reviews.
3. CERCLA states that "ICs are appropriate to supplement, not supplant cleanup." That must be honored in considering potential ICs at Hanford.
4. State of Washington law (WAC 173-340-440(6)) says "cleanup actions shall not rely primarily on institutional controls and monitoring where it is technically possible to implement a more permanent cleanup action for all or a portion of the site ."
5. HAB advice has said "Areas relying on the maintenance of ICs beyond 100 years, which is adverse to EPA guidance, should be brought to compliance through more robust cleanup or engineered controls."
6.

[5] Groundwater

Commented [JV1]: Maybe this makes more sense under Regulatory Strategies; there is incomplete discussion within these principles on how MTCA will be integrated within the CERCLA process or how Ecology can comply with these regulations if there's no significant RTD.

1. "Groundwater protection PRGs will be developed, discussed, and approved through a single process to develop PRGs applicable to each of the 5 unique areas of the Central Plateau. (CL-6)"
2. Groundwater standards must not be exceeded beyond the point of compliance at edge of waste management units, and in no case extending into areas which are:

    a. not paved and fenced as part of obvious industrial or waste management areas, such as a mounded, fenced landfill with a cap; e.g., many square miles of ponds and burial ground areas do not qualify, nor do the areas between East and West outside ERDF, nor any

    b. outside existing 200 Area fence lines, e.g., contaminant standards must be met at the edge of the existing 200 Area boundaries. Contamination in soil and groundwater must be cleaned to prevent exceeding standards in groundwater when the groundwater reaches areas outside the 200 Areas.

    ~~1.~~

Commented [DE2]: Where did these five "unique areas" come from; it doesn't appear to be geologic?

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[6] There is no discussion in cases where we might have to do additional remediation at sites already remediated to an interim level.

[7] `There are discussion of tank closure EIS implications and of the RODS that will come from that work.

[8] There is no mention of what kind of Inner Area remediation is planned or will be planned for the WTP.

In addition, the Board would like clarification to some of the issues that are part of the proposed Inner Area Principles.

1. **Has the Inner Area footprint been shrunken as much as possible?** There are areas within the 10 square mile footprint that harbor no waste site or other impact that would keep it from being excluded. HAB Advice says "The areas identified for waste management and containment of residual contamination (i.e., areas where waste is left in place or groundwater systems designed to prevent movement of contamination off the central plateau) should be as small as technically feasible". On the other hand should these lands be sacrificed as buffer zone for the other waste contaminants within the Inner Area? In the October 5, 2010 COTW final summary notes, DOE [McCormick] stated "For the inner area the goal is to minimize the final footprint to less than ten square miles." HAB advice says "The areas identified for waste management and containment of residual contamination (i.e., areas where waste is left in place or groundwater systems designed to prevent movement of contamination off the central plateau) should be as small as technically feasible."

2. **Baseline Risk Assessment (BRA) statements.**

- The only institutional control is the industrial land use.
- BRA will not include residential or tribal scenarios
- BRA will be done on operable unit (OU) by OU basis (each work plan)
- DOE will develop documents describing principles and specific parameters on BRA that will server for guiding principles for all work plans Cumulative risk budget tool: Hanford should embrace the use of a Central Plateau cumulative risk tool to ensure that all individual remediation decisions are protective in aggregate.
- At a minimum, the point of departure (beginning consideration) for risk levels should be per EPA guidance, 10^{-6} for individual COCs and 10^{-5} for a combination of COCs. The Hazard index should be 1.0. State requirements should be ARARs not just TBC.
- Risk for radionuclides needs clarification as there is deviation from the standard 15mrem.
- Ecology: Corrective Action: It appears that Ecology has predispositioned its approval of yet to be drafted much less approved CERCLA or RCRA closure documents by referencing their use to satisfy Dangerous Waste Closure Requirements AND their approval of these draft principles. WA State Dept of Ecology intends to use CERCLA cleanups to fulfill WAC 173-303-64620 (MTCA) requirements.
- Remedies should be designed to meet standards which protect sensitive populations from the likely failure of institutional controls. To address this contingency, the Tribal and Residential risk scenarios must be included.

Commented [DE3]: What about the long section about using ICs?

Commented [DE4]: Does this mean that no cumulative impacts from neighboring sites will be evaluated?

Commented [JV5]: Related concern is if there's any attempt to change the standard in use now of 4 mrem for GW.

- Discussions regarding BRA parameters should be open and transparent.

3. CERCLA's evaluation of the **reasonable maximum exposure scenario** should include reasonably foreseeable uses of resources and land areas regardless of formal institutional controls (ICs) or plans, if it is reasonably foreseeable that those controls or plans will not be effective after a certain time period. Of those reasonably expected to be maximally exposed after failure of ICs are Yakama Nation Tribal members. The cultural value systems of the Yakama Nation mandate protection of all people within the Tribe and of the natural resources on which they depend, and it is with this idea of holistically protecting human health and the environment that the Yakama people envision the future cleanup of Hanford. The YN risk scenario needs to be included as well as the unrestricted use scenario.