

300 Area End State Workshop, May 19, 2005

## **Future Land Uses**

Question: Based on the possible post-cleanup land uses (primarily focused on the time frame of 20 years into the future and beyond),

- What range of activities could the public, workers, and/or visitors be involved in within the region now known as the (industrialized) 300 Area?
- Outside the industrialized 300 Area?
- Should other alternative activities (beyond those consistent with the assumed land uses) be considered for comparison or other purposes?
- Based on the desired land-use and exposure scenarios, what types of institutional controls are appropriate, and over what time frames?

## **Group 1 – Facilitator - Shelley Cimon**

Range of activities/uses:

- Leave the 300 Area as an open area with natural vegetation – no irrigation will be required resulting in less uranium being released to groundwater.
- Develop the 300 Area in a way that includes residential and commercial uses
- Recreational use – bike paths
- Redevelop the area with facilities for research or educational use –
- Housing and other facilities to support research and educational uses of the area.
- The area could be used for future government missions.
- The area could be developed for a variety of uses like the Columbia Point area in Richland
- Maintain the area in a preservation state
  - No development, protect cultural and historical resources
- Redevelop with light industry – especially those that could make use of the Treated Effluent Disposal Facility.
- Develop the area into a transportation HUB because of the proximity to rail lines, barge dock and major highways.
- Industrial users will prefer new space to redevelopment of the 300 Area
- Several requirements that need to be included to attract industrial users
  - The user's liability must be capped so they are not taking the risk of being responsible for preexisting contamination
  - Must provide other incentives to use previously contaminated land when lots of clean land is available – tax reduction or other incentives.
- A preference for non irrigated uses over irrigated uses was expressed because some uranium will most likely remain at depth.
- Protect Cultural Resources
- At some time uranium may again be a needed resource and the uranium beneath the surface could be recovered for reuse.
- Future use should be guided by sufficient characterization of the problem and a good understanding of what will impact the remaining uranium.
- Redevelopment will require digging to install utilities.
- There may be alternate scenarios for who controls the land long term –

- DOE
- Other government agencies
- Tribes
- A key decision is who will be the future owner of the land.
- It isn't an all or nothing situation with the surface cleanup – much of the land will be clean enough for unrestricted use.
- With the cleanup planned – if you have a breach of institutional controls that is sufficient to cause a hazard you would most likely be able to detect it. A small shallow excavation will not expose people to significant hazard. And a hole large enough and deep enough to create a hazard will be large enough to be noticeable to whoever is maintaining the institutional controls.
- The requirements for cleanup need to be well defined now – cleanup is underway and will be even more aggressive once the river corridor contract is in place.
- Water (the Columbia River) is an attractant – people will want to use this area for recreation or other uses that give them access to the location and the river shore in the future.
- Reuse the land for industrial development rather than have industry continue to sprawl into undeveloped areas.
- Reuse of the area will lead to better protection of any contamination that remains. People living and working in a region with remaining contamination and institutional controls will pay attention which will lead to better protection. An example given was the desecration of Civil war battle fields that are not set aside and maintained. Isolated locations in the woods are much more often looted than those that are identified and maintained.
- Kids will dig – concern that where ever they are, kids like to dig and will encounter any contamination that will remain.
- The contamination distribution must be well understood so decision makers can be well informed as they make trade off decisions about where cleanup effort is focused. Can a large area be cleaned up to unrestricted use for the same cost remediating a small hot spot buried deeply – and is that an appropriate trade off?
- The conservation area identified in the City of Richland study does not protect all cultural resources.
- Disturbance of cultural resources is not acceptable.
- How will remediation address the long term question – the impact of uranium on the shoreline and the river?
- Need to understand the consequences of failure of institutional controls.
- Risk to environment from uranium may push cleanup more than the drinking water standard

## **Group 2 – Facilitator - Gariann Gelston**

- Encourage the City of Richland to adopt multiple uses for the 300 Area, not just industrial use. There should be no limits on the types of development.
- The Tribes want the groundwater and the vadose zone cleaned up to allow unrestricted use per NAGPRA.
- What model was used to determine the 37 pCi/g cleanup standard?
- What's the difference between U-235 and U-238?
- Use of the 300-Area groundwater for irrigation with sprinklers could result in airborne contamination.
- If the 300 Area were developed, there would be no well drilling allowed. The City would provide drinking water.
- Uses could vary in different parts of the 300 Area based on the location of the groundwater plume.
- PNNL is moving out of the 300 Area and their "Research Campus of the Future" will be located near the existing PNNL campus.

- If DOE releases the land, the City would provide utilities, so they need a plan for where not to dig.
- Future uses include all life forms, not just humans.
- Regulations are the drivers for cleanup; land use is not the driver.
- Cleanup should be protective of the biota as well as the groundwater.
- Land use discussions don't consider where the wastes are going (e.g., the groundwater plume is migrating to the river).
- The River Corridor Risk Assessment includes ecological impacts.
- Hanford groundwater discharges are closely monitored where they enter the river and also farther down river.
- Fertilizers from local farms contain uranium that gets into the river.
- The City uses institutional controls to draw water from the river, sends it to a mound area, and withdraws water from the opposite side of the mound for drinking water.
- Currently no well drilling is allowed in North Richland residential areas.
- The half life of U-238 is more than four billion years, so institutional controls won't work.
- A recent Long-Term Stewardship study said that two million people could be living in the Tri Cities in 100 years. A demographic study is needed. (Demographic information may be available on the Risk-Based End States website.)
- How can we ensure water use for many generations in the future?
- The potential for a dam to collapse and result in flooding of the 300 Area should be considered.
- The groundwater doesn't pose a risk to humans if it isn't pumped out of the aquifer. Most land uses should be OK if they use City-supplied water.
- Recreation and residential uses are likely (i.e., unrestricted surface use).
- The residential cleanup standard requires less-contaminated backfill material. There is one small area with some contaminated backfill (between 37 and 267 pCi/g), which would not be too difficult to dig up and replace with clean soil.
- All future cleanup should use clean backfill.
- How can you have an industrial cleanup standard for biota?
- Agricultural scenarios (e.g., wineries) are needed.
- This could be a prime retirement area with a golf course, swimming pools, and walking paths along the river.
- Institutional controls not related to uranium are valid for a shorter time frame.
- Other technologies exist for uranium in the vadose zone and the groundwater.
- The area could be a business and research park with light industries, high-tech industries, and/or PNNL spin-off companies.
- The City of Richland should determine the answers to the questions that were raised in their 300-Area reuse study.
- There is the potential for a bridge across the river in this area.
- The Tribes don't want DOE to give up control of this land.
- We should assume similar land uses to what we heard in the 100-Area Workshop (i.e., unconstrained uses).
- Uranium is a hexavalent heavy metal that has toxic impacts on the environment.
- Don't forget about risks to the cleanup workers as well as the public. Considering all the unknowns, there are likely to be more surprises as cleanup progresses.
- At the present time, we should distinguish between the industrial 300 Area and the land outside the fence, which is already clean for the most part. The industrial cleanup standard was meant for the land inside the fence. However, we shouldn't distinguish between the two areas for the long term.
- The riverfront area is the key distinction for land-use activities, not whether the land is contaminated (i.e., inside or outside the fence).

- Potential future uses by DOE or Department of Defense could include biological and chemical research, high-tech engineering companies, and agricultural research.
- Look at radon (daughter product of uranium) equilibrium issues.
- The 300 Area could be used for research on how to get uranium out of the environment (for Hanford and for other sites such as uranium mining areas).
- Could create a new industry here focused on new methods and materials for construction, making use of vitrification plant construction knowledge and PNNL computer expertise.
- Comply with the TPA, which says to remove all the facilities and clean up the area for multiple uses.
- May need institutional controls to train workers in the future.
- Liability issues may prevent future use of this area by the nuclear industry. But some locations don't want nuclear, so maybe this is a good location since we're pro-nuclear.
- Indemnification may be required to encourage industry to locate here.
- Industry should go to the 200 Area. The 300 Area should be cleaned up for other uses.
- Based on cleanup technology availability, use a phased approach for land use.
- Stay flexible while going through the cleanup decision process.
- It's very likely that we will find some surprises, even in the clean areas outside the fence (e.g., 618-10/11 burial grounds).

### **Group 3 – Facilitator – Susan Leckband**

#### Future Land Uses

- Access to the River, e.g., boat launch
- Unrestricted uses, all uses
- There is limited land on or near water. There will be pressure to use this premium land for residences, offices, condos, recreational uses – needs to be unrestricted use for that reason.
- Green area; sustainable, renewable industrial and residential (e.g., energy conservation, green building); different image than the current one of contamination, e.g., R&D for green technologies/demonstrations
- One big marina (dig deep)
- Industrial (passive)uses, e.g., power panels
- 337 Building – Buildings of value (if available) should be preserved for future re-use.
- Preserve many more buildings; re-evaluate in future for re-use
- There are “hotel” costs for maintaining buildings until there is an owner.
- Preserve infrastructure (water, roads) supporting the buildings
- Zero-scaping: no irrigation for any use (green building concept) in the 300 Area
- Need to consider the risks to the workers to D&D buildings; risk-management impacts, worker safety, time
- Visitors to sustainable R&D
- Envision recreational visitors – biking, running, recreation from people living in homes near the River
- Depends on use; if residential – bike paths; if industrial – walking paths; do not believe people will spend 40 hrs/week in the area
- 337 Building is worth saving. Others are too old; need too much work.
- 331 Building – upgraded, great potential
- Proximity of Area to Richland – much boating – people will get off their boats and wander the area
- Digging on shore, diving, shoreline activity – Where does contamination enter the River? Is there a pathway of exposure? Pathway – ingestion of River shore organisms; inhale dust from digging in gardens

- What about beryllium contamination to workers during D&D? Concern over inhalation pathway – addresses thru applying fixatives and the workers using supplied air
- Not see any wells being dug
- Uranium concern – toxicity of heavy metal
- Not see another cultural center in the 300 Area (There will be one at the Reach Interpretative Center.)
- No golf course
- Not see any irrigation outside the (300) area because it would change the hydrology.
- Lawns and parking lots supporting industry
- Energy production, solar
- Any energy production, e.g., nuclear
- North Richland bridge to Pasco
- Daycare, food services, strip malls – amenities supporting a work environment
- Cleanup Standards – Land Used - Institutional controls are parts of a circle. They are interdependent. They need to be integrated.
- If cleaned up to industrial standards, but a developer wants to use the land for residences, institutional controls should kick in. The developer could do additional cleanup driven by the value of the land.
- Institutional controls get lost over time (e.g., currently people are ignoring the “no overnight” camping signs)
- Effectiveness of institutional controls is based on redundancy; redundancy needs to be based on risk
- No strip malls
- Failure of institutional controls drives one to consider greater cleanup.
- Does greater cleanup warrant the cost (cost-benefit issues)?
- No development activities, No Action alternative (inside and outside the 300 Area)