WILDLIFE HABITAT COUNCIL℠

Case Study 10

West Page Swamp Case Study	
Name and Location	**Site Name:** West Page Swamp **Site Location:** Bunker Hill CERCLA site, Shoshone County, ID
Site Description	West Page Swamp is a naturally occurring 15 acre wetland that is part of the Coeur d'Alene River system in Northern Idaho. It is next to the community of Pinehurst, ID and is directly south of I-90. It was used as a tailings repository in the 1920s for a mill that processed zinc and lead ore. The soil material in the swamp consists of highly contaminated (up to 3% Pb and 1.5% Zn tailings. These materials were sufficiently toxic that the swamp showed no evidence of ecosystem function It is an extreme example of the contamination that characterizes the lateral lakes wetland area that is part of the 100 square mile NPL site. Waterfowl feeding and nesting in these areas have routinely developed acute Pb toxicity from ingesting the contaminated sediment. A description of the site with photos can be found at: http://faculty.washington.edu/clh/wet.html
Site Reuse Description	To restore wetland function to the site, a cap consisting of biosolids compost and wood ash was spread over the surface of the tailings. This cap was sufficient to reduce both accessibility and bioavailability of the underlying tailings and restore ecosystem function, characteristic of a naturally occurring wetland to the site. This wetland is part of an extensive area of naturally occurring wetlands and lakes that is used primarily for recreation and as habitat. While mining and smelting of metal ores were an important part of the economy in this county, there is no longer an industrial base in this area. Remediation activities are the primary industry.
Stakeholder Involvement	Stakeholders at the site were US EPA Region10, the Coeur d'Alene Indian Tribe, mining companies listed as PRPs (potentially responsible parties) in the remedial process, Idaho Department of Environmental Quality, and US Fish and Wildlife. All stakeholders took part in approving the remedial action and their concerns were incorporated into the remedial design for the site.

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	What were the concerns of these stakeholders and how were these resolved? Stakeholder concerns were primarily related to the ability of the surface amendment to reduce the bioavailability of the underlying metals at the site. There was concern that the site would become an attractive nuisance for wildlife. In addition, there were some concerns on the final appearance of the site with regard to site contouring. Did any of these stakeholders/partners make a financial contribution to the project? No Were any local, state, federal funding sources used? Funding for the project was provided by US EPA Environmental Response Team, a division of CERCLA.

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Site Assessment Approach and Cleanup	Briefly state the results of the site assessment. Did the site assessment approach take into account end use? The site assessment showed no ecosystem function at the site and high potential for damage to wildlife due to the high concentrations of Cd,Pb, Zn and As in the tailings. It was the goal of the project to restore a functional wetland to the site. What is/were the sources of contamination? What are/were the contaminants of concern? As stated above, the contamination was from a historical milling operation. The primary contaminants were Pb, Zn, Cd, and As with Pb toxicity to waterfowl as one of the drivers for the site. Under what specific legal authority(ies) is the cleanup being performed (CERCLA/RCRA/OUST or other)? CERCLA Briefly summarize the corrective action taken on site. If corrective action/remedy still in place please describe. Why was the particular remedy selected? Please describe any barriers encountered in employing remedy selected. The tailings were amended with a surface application of biosolids compost and wood ash. The mixture was applied with a rear cast thrower that drove through the swamp on a road built from log yard debris from a local lumber yard. For areas that were not accessible using the thrower, a blower truck was brought in the following year and the same mixture was blown onto the tailings surface. The material is still in place and works like a normal wetland soil. Describe any long term controls (e.g., institutional controls) associated with the site. Monitoring of the site over time has been conducted by the University of Washington, US EPA ERT and ID DEQ Was a closure letter obtained for the site? If so, what was issued and when? If not, are you currently seeking a closure letter? No, not to my knowledge
Reuse	Describe the end use of the site. What are the benefits of the end use of the site (for the community, regulatory agency, etc.)? The site is currently a wetland. It is in a highly visible area and is lovely to look at. It provides wildlife habitat and helps a community that was known for undisturbed natural beauty recapture that image after mining

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	and smelting operations have ceased. What has been the added value to the site?
Obstacles	What problems did you encounter during the corrective action? What was the nature of the problems encountered (e.g., regulatory, community perception, etc.) and how did you overcome these problems? This was done as a research site. It remains to be seen if this type of remedy will be used for a portion of the wetlands to be restored under the NPL Record of Decision. Describe any other obstacles related with this project (funding, etc.). There are concerns with leaving a contaminant in place, that the remedy will only be temporary. It is important to include monitoring in a remedial plan when the remedy does not completely remove contaminants from the site.
Costs and Funding	How was this project funded, i.e., were there any redevelopment funds or other resources used? This was a research project, funded by the US EPA ERT. What was the total cost of the project? Total cost of the project was about $150K. These costs were elevated as it was done as a research site. For full scale use of this type of technology, costs are expected to be lower. If an ecological enhancement was used in the remediation, were there cost savings associated with the selection of this remedy? This type of remedial action was much less expensive than conventional remedial approaches and also did not result in any negative impacts to clean areas. Sourcing clean fill material in this area has resulted in destruction of river bank soils and ecosystems.
Economic and Other Incentives	What were the economic incentives (e.g., conservation easements) associated with this project? This type of remedial action, leaving contaminants in place and reducing their bioavailability through a surface amendment that simultaneously restored ecosystem function to the site is a cost effective and environmentally friendly alternative to conventional remedial options including excavating the tailings or using an artificial capping material. Were there any other incentives (e.g., public relations) associated with this

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	project? The end result, a beautiful wetland that is highly visible (alongside an interstate) helps to restore the image of this area as an area of natural beauty rather than a Superfund site.
Time	Amendments were applied during two two week periods over the course of two summers
Other	List any other information that may be of value for this case study. This can be used to insert a "lessons learned" section, or highlight other information of interest. Also, you may add additional sections as needed, if additional information does not fit in the categories above.
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