



DEQ Statement

April 2, 2018 DEQ Memorandum to BSB Chief Executive Dave Palmer regarding "More Consideration and Evaluation of Alternatives" for Dioxin Remediation at Montana Pole

In October, Butte-Silver Bow Chief Executive Dave Palmer sent DEQ a comment letter requesting, among other things, that DEQ "validate, explain and communicate to the public (why) dioxin cannot be 're-treated' and remediated to meet acceptable standards..."

DEQ understands the concerns of the City & County of Butte-Silver Bow and its residents about dioxins at Montana Pole. We took time to respond to Butte Silver-Bow's request, preparing a four-part, in-depth report, which was provided to Chief Executive Palmer and the Butte-Silver Bow Council of Commissioners earlier this month.

- The report examined a recent Initial Alternatives Screening Document (IASD) for a former wood-treating facility in Montana – the S&W Sawmill in Darby (2017). The report also examined a Feasibility Study for a former wood-treating facility – White Pine Sash in Missoula (2015). Both documents included extensive examination of cleanup alternatives for dioxins at former wood-treating facilities, and both documents showed that remediation technologies for dioxins continue to be limited.
- A detailed examination of the status of bioremediation, specifically the use of white rot fungi, identifies the challenges faced in developing white rot fungi as a remedial technology for dioxins, specifically:
 - Extremely low dioxins cleanup levels, often below 1 part per billion, are hard to achieve even through incineration, let alone white rot fungi bioremediation.
 - The successful dioxins treatment results produced in the laboratory are hard to reproduce because of the variable soil conditions found in the field.
 - The cultivation and delivery of white rot fungi is expensive, and its less-than-reliable performance under field conditions would most likely lead to required capping of the treated soils.
- Finally, DEQ asked Tetra Tech, a national company that performs environmental cleanups worldwide, to query its technology research group about remedial alternatives

other than consolidation and capping after treatment of wood treating wastes or incineration for dioxins. The query produced limited results aside from consolidation and capping or incineration. (Incineration also was considered in the ROD at Montana Pole, but ruled out due to cost - \$72 to 101 million per 1993 estimate - and community opposition.)

DEQ is confident that it has thoroughly and carefully considered all available treatment alternatives for the Montana Pole Site, including bioremediation.

DEQ is confident that capping will provide a protective solid barrier between buried soils containing dioxin and the surface and its everyday users.

A few notes on capping:

- The cap will break the exposure pathway, preventing human contact with contaminated soils.
- Long-term Institutional Controls for the cap, such as use restrictions and annual inspections, will be implemented to prevent damage to the cap. It is the cap itself that will prevent human exposure.
- It should be noted that capping is part of a “treatment train,” meaning it is being used only as a final step in what has been a complete cleanup process. The “treatment train” for contaminated soil at Montana Pole prescribed in the 1993 Record of Decision (ROD) called for excavation, above-ground biological treatment (Land Treatment Unit), backfill of excavated and treated soils into excavated areas, and surface grading and revegetation (containment). The Montana Pole ROD remedy for its wood-treating contaminated soils is very similar to recent soil remediation at wood-treating sites in Montana. It should also be noted that the bioremediation portion of the treatment train at Montana Pole successfully removed 95 percent (more than 266,000 pounds) of PCP from the soil. PCP was the toxin of greatest concern because of its toxicity and mobility (tendency to spread). Bioremediation reduced Levels of PCP and associated PAH at Montana Pole to below the cleanup level required in the 1993 Record of Decision for the Site. Because dioxins bind to soil in the absence of a carrier co-contaminant, such as PCP, the bioremediation made the dioxins less mobile, and thus better suited to capping.
- DEQ is committed to maintaining the cap long-term. Under the Superfund process, the cap must be evaluated every five years to ensure that it continues to protect human health and the environment. In addition, an operation and maintenance plan (O&M plan) for the cap would identify a regular inspection schedule. If the cap were damaged, it would be fixed per requirements that will be outlined in an O&M plan specific to the cap. Remember that risks are from long-term exposure.