ABOUT THE ARMORED CAP AND REMEDY OPTIONS AT THE SAN JACINTO RIVER WASTE PITS SUPERFUND SITE

TOPIC / QUESTION	PERTINENT EXCERPT FROM NRRB SUBMITTAL BY PRPS
Protection provided by the Armored Cap: ***Has weather affected it?***	"The Armored Cap continues to perform as designed and consistent with USEPA guidance, adding to the evidence demonstrating its continued protectiveness. Since June 2014, several significant high water events have occurred in the San Jacinto River, including a 10- to 20-year flood during April 2016, with no observed adverse effect on the Armored Cap." "The Armored Cap has now been through five years of successful operation and maintenance (O&M), and with the additional enhancements…would withstand events greater than a 100-year storm and a 500-year flood."
Armored Cap maintenance: ***Was it anticipated or unexpected?***	"The Armored Cap has undergone an additional two years of operation and maintenance (O&M), during which there were three maintenance events within the scope of the USEPA-approved TCRA Operations, Monitoring and Maintenance Plan. These maintenance events were of the kind contemplated by USEPA guidance on capping. In each of the maintenance events, maintenance was conducted quickly and efficiently by respondents' contractor, with no loss of material from beneath the Armored Cap."
Enhancing the Armored Cap + making it permanent: ***Will that be effective over the long term?***	"Alternative 3N (retaining the Armored Cap and making it stronger and permanent) offers the greatest protectiveness, complies with all 'applicable or relevant and appropriate requirements,' incorporates a treatment component, is the most effective from both a short-term and long-term perspective, and is implementable, with no impacts to the flood capacity of the San Jacinto River." "Selection of (this alternative) will minimize worker safety risks, environmental impacts from emissions, and other adverse community impacts."

Enhancing the Armored Cap + making it permanent: ***Is there any proof that this remedy will work?***	"…the USACE performed evaluations to assess the effectiveness of the existing enhanced Armored Cap with the proposed modifications outlined in…(the Permanent Cap remedy) and showed (it) is expected to be "highly effective." "Dr. (Danny) Reible (of Texas Tech University) is a noted capping expert who also completed a peer review of the Armored Cap in which he concluded that the Armored Cap is appropriate and protective to address Site conditions and will be effective into the future. Dr. Reible also reviewed the various alternatives in the FS and determined that Alternative 3N provides the best alternative."
Removing the Armored Cap: ***Are there associated risks?***	"Removal of the Armored Cap would be an unprecedented step and would unnecessarily create risks." "Removal of the Armored Cap would likely cause suspension and dispersal of sediment and an increase in fish tissue concentrations…."
Alternately, removing the Armored Cap and underlying material "in the dry:" ***Are there risks associated with this option?***	"The specifics of any removal "in the dry" have not been identified, but removing the waste in the dry would not only be technically challenging but would involve significantly increased risks for releases (of contaminants), particularly during storm events similar to the one that occurred in April 2016." "Given what little is known about the Additional Removal Alternative, significant concerns exist as to the efficacy of any 'in the dry' excavation in limiting disturbance and suspension of dioxin-impacted sediments during construction…." "…sediment removal alternatives are likely to result in suspension and dispersal of the wastes (despite the use of best management practices) and could potentially cause increased fish tissue concentrations of dioxins and environmental releases -- risks that cannot necessarily be avoided or minimized by removing the wastes "in the dry."

Removing underlying material "in the dry:" ***Would disturbing the waste expose it to the environment?***	"This alternative would involve removal of the Armored Cap, underlying geomembrane, and geotextile, prior to dredging of the waste material. This would directly expose the underlying disturbed waste material to the surrounding environment making it susceptible to release."
Cost differences among the remedy options: ***Isn't the most expensive option the best option?***	"The relative costs of the alternatives were widely divergent in the (Feasibility Study)… yet the effectiveness and protectiveness of the Permanent Cap (Alternative 3N) was shown to be greater than the much more costly removal options." "…this Site presents a unique situation in which spending more will likely <u>decrease</u> the protectiveness and effectiveness of the remedy, while enhancing and maintaining the Armored Cap as a permanent remedy is the most effective means of permanently containing and isolating the wastes."

The Armored Cap + barge strikes: ***Isn't the Armored Cap vulnerable?***	"With respect to barge strikes (one of the potential 'unusual catastrophic events' evaluated by the U.S. Army Corps of Engineers), the USACE concluded there is a 'low probability of barge strikes that would impact the integrity of the cap.' The USACE also noted that potential impacts from barge strikes could be avoided by constructing pilings around the Armored Cap. Alternative 3N (retaining and enhancing the cap) includes construction of an underwater berm around the Permanent Cap that would effectively serve the same function as the pilings."