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Dredging for Contaminant Remediation

WESTECH

DWN: RCS DATE:



WesTech **Industrial Filtration Products** complement any system requiring treatment beyond conventional clarification. Offering more than ten types of granular media filters allows WesTech to provide the appropriate filtration design for your specific application. This flexibility means you get the right solution at the lowest cost.

Dredging for Contaminant Removal

Contaminated sediment is soil, sand, rocks, organic matter, or other minerals that accumulate on the bottom of a water body and contain toxic or hazardous materials at levels that may adversely affect human health, aquatic life, or the environment. Major contaminants include polychlorinated biphenyls (PCBs), metal hydroxides, mercury, pesticides, and herbicides. Contaminated sediment is typically dredged, then processed for contaminant removal and solids disposal. The solids are disposed of in a hazardous waste landfill. Many sites present unique challenges and require that site-specific conditions be considered when determining an appropriate site remedy and treatment flow plan.

Initial Treatment

Initially, the dredge slurry passes through a screening process to remove coarse debris which is usually not hazardous. This process can include grizzly screens, washing trommels, vibrating screens, and hydrocyclones which remove large solids and reduce the load on the downstream treatment system.

The liquid phase from this initial treatment is pumped to the deaeration tank prior to the thickener. This tank allows any entrained air to be released from the liquid. It is here that return streams rejoin the process. The remaining solids in the influent stream are coagulated and flocculated for removal in a thickener.

Clarification and Filtration

Thickener effluent is further clarified in a Solids CONTACT CLARIFIER™ specially designed with a high internal recirculation rate for optimum

flocculation and settlement of fine colloidal solids. The clarifier effluent is polished in a granular media filter to remove any remaining suspended solids. An equalization tank is provided ahead of the filter to allow for periodic filter shutdown and backwash.

Wastewater flow stoppage is avoided by using a MULTICELL® Horizontal Pressure Filter. This filter design divides the filter into as many as eight (8) separate sections. Each section can function separately as an individual filter. This allows the use of the filtrate from multiple sections to be used as the backwash for a single section. The filter thus continues to receive inlet flow, while all of the filtered effluent becomes the backwash outlet flow. This backwash flow is directed to the thickener for solids removal and water recovery.

Volatile Organic Carbon

Activated carbon units are used to remove any remaining volatile organic carbon (VOC). Many VOCs are human-made chemicals that are used and produced in the manufacture of paints, adhesives, petroleum products, pharmaceuticals, and refrigerants. They often are compounds of fuels, solvents, hydraulic fluids, paint thinners, and dry-cleaning agents commonly used in urban settings. VOC contamination of drinking water is a human health concern because many are toxic and are known or suspected human carcinogens.

The solids from the thickener and the Solids CONTACT CLARIFIER™ are dewatered in a belt press or filter press. Solids which will contain toxic or otherwise hazardous materials are disposed of in hazardous waste landfills.