



**INFRASTRUCTURE
ALTERNATIVES, INC.**

CAP-IN-PLACE SEDIMENT DEWATERING

Hoffman Road Landfill, Toledo, OH

CLEAN WATER SOLUTIONS



PROJECT APPROACH

- Contaminated sediment remediation
- Hydraulic dredging to geotextile tubes
- Segregated TSCA and Non-TSCA regulated sediment processing
- Non-TSCA sediment dewatered in open cell of active solid waste landfill
- Separate, temp. TSCA pad for TSCA regulated material



LANDSIDE OPERATIONS

- IAI selected by Ottawa River Group as landside GC
- Screening and thickening
- Sediment conditioning with polymer
- Geotextile tube dewatering
- Water treatment design-install-operate
- Ohio Class III Water Operator
- NPDES permit/direct discharge to Ottawa River
- General Conditions at the site



PROJECT VITALS

- 242,000 cy processed
- 146 days of active dewatering operations
- 510 MG treated water discharged
- No water quality discharge permit violations
- 96% average up-time efficiency
- Project site (airspace in landfill) donated by non-federal partner, City of Toledo
- Furthest dredge area approx. 5 mi. from landfill



SITE LAYOUT



3/14/2018

Google Earth

2018 WEDA MIDWEST CHAPTER MEETING

5'



200 ft



CONSTRUCTION











SEGREGATED TSCA/NON-TSCA DEWATERING

- Sediments > 50 ppm total Aroclors (PCBs) regulated by Toxic Substances Control Act
- TSCA & Non-TSCA sediments dredged, dewatered separately
- TSCA & Non-TSCA operations conducted concurrently
- Non-TSCA material dredged first; after TSCA operations began (concurrent with Non-TSCA), all treatment residuals were processed in the TSCA pad



NON-TSCA DEWATERING IN PLACE

- 40 millimeter LLDPE liner
- 750 ft x 585 ft
- Designed to hold up to 292,000 cy sediment & 45,000 lineal ft tubes





TEMPORARY TSCA DEWATERING PAD

- 40 millimeter LLDPE liner
- 640 ft x 170 ft
- Designed to hold up to 17,000 cy sediment & 2,150 lineal ft tubes





TREATABILITY TESTING

- Bench test conditioners, applications
- Single cationic emulsion product selected
- 2.61 lbs/dry ton average dose





POLYMER APPLICATION

- Separate TSCA & Non-TSCA polymer systems
- Non-TSCA primary dose applied upstream of thickeners
- Polishing dose applied to thickener underflow for rebuilding/strengthening floc
- Flow- & density-paced dose control
- TSCA sediments: manually (operator) controlled dose





SHAKER SCREEN/GRAVITY THICKENER





GEOTEXTILE TUBES

- Geotrax™
geotextile tubes
- Manufactured by GSI





GEOTEXTILE TUBE DEWATERING

	TSCA Sediments	Non-TSCA Sediments
Volume processed	16,000 yd ³	226,000 yd ³
Geotextile tubes utilized	2,700 lineal ft	38,000 lineal ft
Tubes circumference	80 ft	75, 80, 85 ft
Stacking	2 layers	5 layers
Pre-processing	None	Screening & thickening
Disposal	Hauled to TSCA permitted landfill after dewatering	Dewatered tubes capped in place at Hoffman Road Landfill



WATER TREATMENT PLANT

- Design-Build-Operate
- Geotextile tube filtrate & storm water treatment
- Peak design flow: 4,000 GPM
- 223 total days of water treatment operations
- Effluent Monitoring: pH, COD, PCBs, metals, TSS, TFR, Low-Level Mercury, monthly Priority Pollutant Scans
- Treated water complied with all discharge limits throughout project

















CONCLUSIONS

- Wide-ranging potential for Cap-In-Place Dewatering application
- Can be accomplished without impacting landfill operations
- TSCA, Non-TSCA material segregation can be maintained
- Filtrate can be collected, treated & discharged separately from leachate



Recent photos of the site





Q & A

