

Management of Private Dredging

- Garry McMahan
 - Program Manager - Licenses/Permits
- Dana Blume
 - Environmental Affairs Manager



PORT OF HOUSTON AUTHORITY

Dredged Material Placement

- **Background:**
 - PHA and private terminals around the port generate around 3 million CY of silt at their berths annually—30% of all dredging
 - Some private placement areas exist, but Corps/PHA sites are more numerous
 - PHA works to accommodate private terminals use of our sites
 - All material is tested before it is placed into our sites
- Corps and PHA charge fees for site use to offset future costs of providing capacity



PORT OF HOUSTON AUTHORITY

Dredged Material Management

- The Corps and PHA develop schedules that include “windows of time” (6-8 months) when placement areas are available to receive material
- PHA announces the windows, and coordinates requests from industry



PORT OF HOUSTON AUTHORITY

Dredged Material Agreement Procedures

1. Application packet received
2. Coordination (schedule, quantity, type of material)
3. Environmental report forwarded to PHA's Environmental Department for approval
4. Agreement preparation
5. Applicant signature, invoice for 75% of estimated fee
6. PHA signature and execution
7. Review surveys, bill remaining fee
8. Final administration



PORT OF HOUSTON AUTHORITY

Port of Houston Authority Sediment Sampling Requirements

Dana Blume

PHA Environmental Affairs



PORT OF HOUSTON AUTHORITY

Private Industry: “HEY! I need to do sediment sampling. Help?”

- What is your dredge prism?*
- How many cubic yards of material ?*
- How many linear feet?*
- Are there Storm Water Outfalls?*
- What Analytical parameters do I test for?*



PORT OF HOUSTON AUTHORITY

Port of Houston Authority Requirements:

- One Sediment Core/sample taken for every 500 linear feet over the dredge prism
- Each Sediment Sample represents approximately 5,000 cubic yards of material
- Every outfall should have a sediment sample obtained from its location
- Core samples should be at least as great as the proposed dredge depth. (point of refusal)
- Homogenize sediment samples (i.e . 4 foot core = one sediment sample; 9 ft core = 2 sediment samples)
- Sample Results are good for 1 year



PORT OF HOUSTON AUTHORITY

Where do I go to get information about Port requirements?

www.portofhouston.com/pdf/channel/PHASedimentProcedures.pdf

Port of Houston Authority Sediment Sampling Requirements

One sediment core should be taken for approximately every 500 linear feet over the dredge prism and represent a maximum sediment volume of 7,000 cubic yards.

Outfalls should have sediment samples obtained at representative of that area.

Core samples should be at least as great as the proposed dredge depth. Sediment samples can be heterogeneous, for example a first core may result in one sediment sample and a second core may result in two sediment samples.

The Port of Houston Authority is available to review sampling plans and locations prior to field activities, if necessary.

A list of sediment sampling consultants and contractors will be provided upon request.

The table below lists the required sediment sample analytical constituents and parameters.

The Port of Houston Authority retains an analytical sediment sampling to the following laboratories, which are familiar with requirements and able to meet parameters:

ALS Laboratory Group, Slidell, Texas | Sully Ross, 281-550-5656
Tetra-Technica, Inc. Equinox 711-490-4444

Upon the completion of sediment sampling activities and analysis, an interested party must submit a Sampling Analysis Plan with location map (including GIS coordinates for sample location) and analytical data to the Port of Houston Authority Environmental Affairs Department for approval/acceptance into a certified disposal facility.

If you have any questions on your sediment sampling activities and PHA policies, please contact Nicole Hinkle at 713-470-2483.

Port of Houston Authority Sediment Sampling Listing of Chemicals of Concern as of 6/30/16

Chemical	CAS Number ¹	Reported Reporting Limit (Based on Comparison to Ecological Threshold)	Analysis Method
COMPOUNDS			
Total Metals (%)			Pg (Pb)
Total Metals (Metals (%))			Pg (Pb)
Total Organic Carbon (%)			TOC (%)
Metals			
Aluminum	7440-30-2	0.3	GFAA
Arsenic	7440-39-2	10	GFAA
Cadmium	7440-43-1	0.7	GFAA
Chromium	7440-47-3	3.0	GFAA
Copper	7440-50-9	30	GFAC
Lead	7439-87-1	30	GFAC
Mercury	7440-01-6	0.3	GFAC
Nickel	7440-02-0	30	GFAC
Silver	7440-22-4	1.0	GFAA
Zinc	7440-66-1	30	GFAC
ORGANOMETALLIC COMPOUNDS			
Total PCBs	8001-58-2	0.1	
ORGANIC			
Total PAHs	81-83-3	0.06	GC/MS
Naphthalene	200-96-4	1.7	GC/MS
Acenaphthene	83-32-9	20	GC/MS
Acenaphthylene	86-29-1	20	GC/MS
Fluorene	86-21-6	3.0	GC/MS
Benzo[a]anthracene	150-14-8	0.16	GC/MS
2-Methylanthracene	81-81-6	0.04	GC/MS
Other PAHs			
Fluoranthene	206-96-0	1.7	GC/MS
Pyrene	135-20-5	1.0	GC/MS
Benzo[k]fluoranthene	86-50-3	1.2	GC/MS
Chrysene	218-01-9	1.2	GC/MS
Benzo[a]pyrene	209-98-7	1.2	GC/MS
Benzo[e]pyrene	95-24-4	1.2	GC/MS
Indeno[1,2,3-cd]perylene	189-34-8	1.2	GC/MS
Benzo[ghi]perylene	83-70-3	1.2	GC/MS

Port of Houston Authority Sediment Sampling Listing of Chemicals of Concern as of 6/30/16

Chemical	CAS Number ¹	Reported Reporting Limit (Based on Comparison to Ecological Threshold)	Analysis Method
Metals			
Chloride	1472-26-7	0.2	GC/MS
Organic Halogenated			
1,2-Dichlorobenzene	94-73-1	1.0	GC/MS
1,4-Dichlorobenzene	106-46-3	1.0	GC/MS
1,2-Dibromobenzene	96-03-1	1.0	GC/MS
1,2,4-Trichlorobenzene	120-82-1	1.0	GC/MS
Hexachlorobenzene (HCB)	110-79-1	1.0	GC/MS
Polycyclic Aromatic Hydrocarbons (PAHs)			
Chloranthracene	133-11-3	0.0	GC/MS
Chloroquinoline	66-80-3	0.0	GC/MS
Di-n-butyl phthalate	84-74-2	0.0	GC/MS
Di-ethyl phthalate	85-83-7	0.0	GC/MS
Di-n-octyl phthalate	117-81-7	0.0	GC/MS
Di-n-dodecyl phthalate	117-84-0	0.0	GC/MS
Phenols			
Phenol	108-95-2	0.0	GC/MS
2-Naphthol	90-08-1	0.0	GC/MS
3-Methylphenol	100-44-6	0.0	GC/MS
2,4-Dichlorophenol	105-21-9	0.0	GC/MS
Pentafluorophenol	87-60-6	2.0	GC/MS
Monocyclic Aromatic Amines			
Benzyl alcohol	100-51-6	NA	GC/MS
Benzoic acid	65-85-3	37	GC/MS
Other			
Diuron (EPA List as 2,3,7,8-Substituted)			GC/MS
Diethyltoluamide	132-58-9	NA	GC/MS
Hexachlorocyclopentadiene	62-75-1	0.04	GC/MS
Hexachlorobenzene	87-58-3	0.004	GC/MS
1,1-Dichloroethane	80-30-8	0.0	GC/MS
Volatile Organics			
Trichloroethylene	79-07-6	0.0	P&T
Tetrahydrofuran	127-18-4	0.10	P&T
Dibromomethane	106-21-4	1.0	P&T
1,1,1-Trichloroethane	66-47-8	0.0	P&T
Total Volatile Organics (Total of all, in, g/l)	100-58-8	0.0	P&T
Pesticides			
Permethrin	100-42-9	0.0	P&T

Port of Houston Authority Sediment Sampling Listing of Chemicals of Concern as of 6/30/16

Chemical	CAS Number ¹	Reported Reporting Limit (Based on Comparison to Ecological Threshold)	Analysis Method
Total DDT (sum of 4,4'-DDE, 4,4'-DDE and 4,4'-DDE)	77-47-3 75-29-8 50-29-3	0.0 0.0 0.0	--
Atrazine	1912-24-7	0.001	GC/MS
Alachlor	1595-26-6	0.004	GC/MS
Chlorpyrifos	67-48-2	0.004	GC/MS
Carbofenthrin	76-44-9	0.004	GC/MS
Gamma HCH (Lindane)	56-54-9	0.004	GC/MS
Total PCBs	--	0.0	GC/MS

Source: USEPA

¹ Chemical Abstracts Service Registry Number

² The value is rounded to meet report criteria, and is reported in mg/kg (GC/MS method)

³ None of these data should be subject to these or other reporting general methods use of groundwater. Refer to CDD groundwater monitoring rules. Analytical testing results should be reported on a dry weight basis.



PORT OF HOUSTON AUTHORITY

Steps for a successful sediment sampling operation:

- Contact PHA prior to sediment sampling to go over plan/site map
- Hire Qualified/Experienced Contractor!!
- Use a Laboratory that can meet Sediment Analytical Reporting Limits
- Include aerial or site map with GPS locations
- Communicate with PHA staff

www.portofhouston.com



PORT OF HOUSTON AUTHORITY

Sampling Results submitted to PHA, Now what?

- **PHA will evaluate sediment analysis:**
Ecological screening thresholds (lower and upper) levels, Tx Marine Surface Water Quality Criteria, Tx Specific Median Bkgd, TCEQ Soil to Groundwater Screening Levels
- **If below PHA levels, *letter of acceptance!***
Next step is to meet with Channel Development to proceed with application
- **If above levels, *letter of denial* with next steps needed: ecological risk assessment, impact delineation, TCEQ notification, alternative landfill options**

