Figure 1A: (EXAMPLE) Dredging Footprint with Sampling Locations
Private Dredging Application 2015

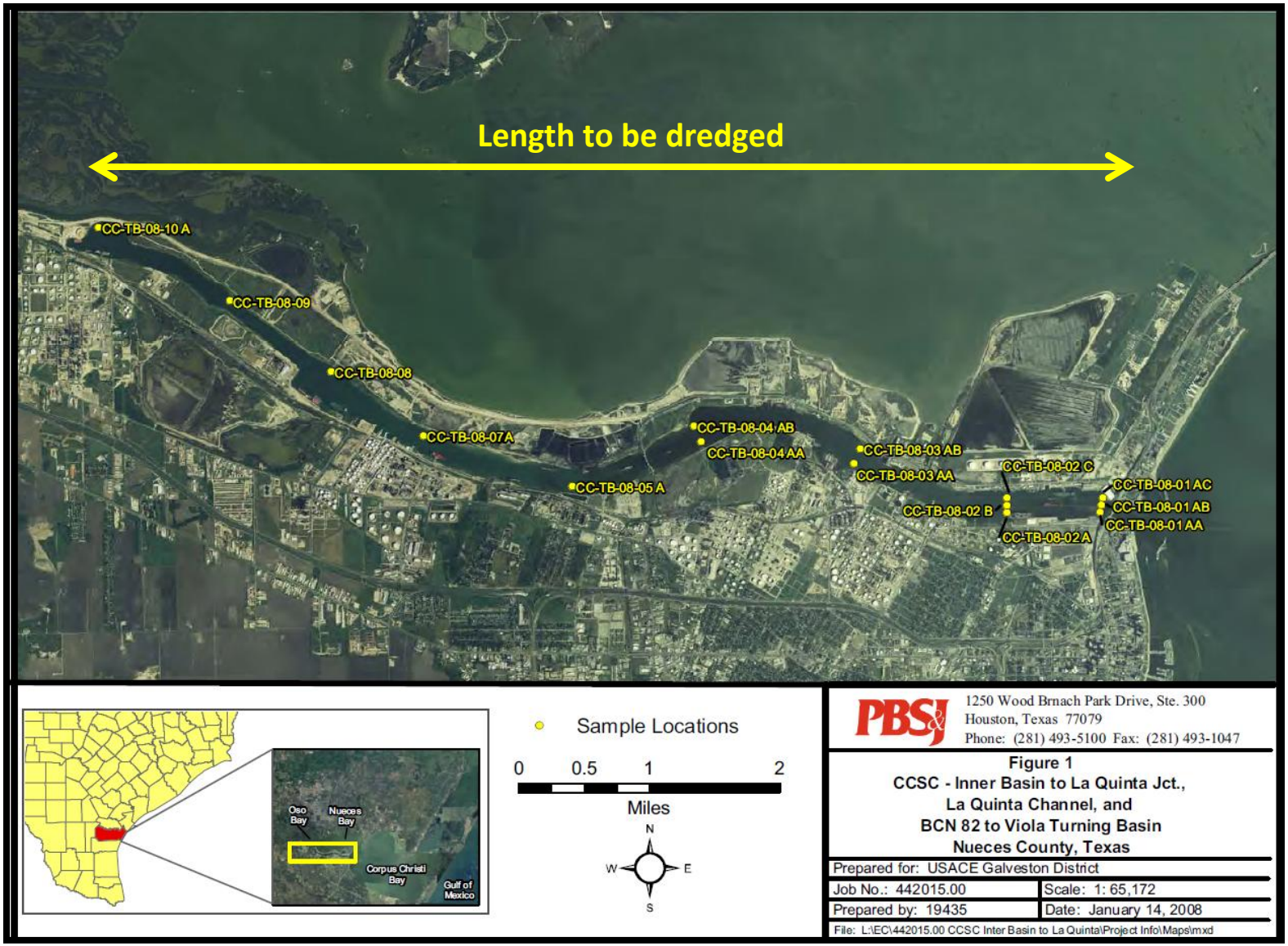
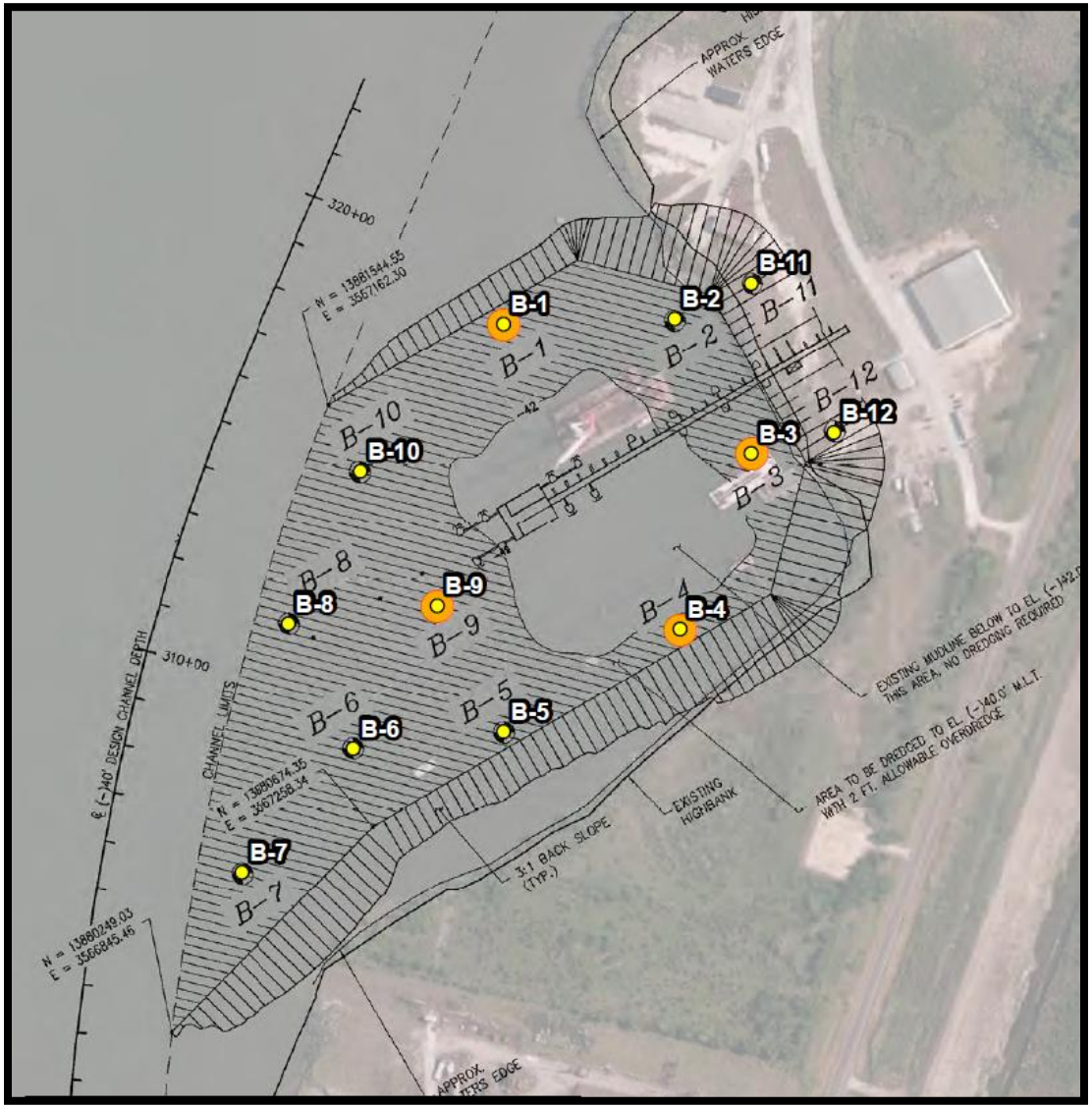


Figure 1B: (EXAMPLE) Dredging Footprint with Sampling Locations Private Dredging Application



Add Site-specific details as appropriate

Legend

- Proposed Sediment Sample Locations (SAP)
- Elutriate Media Collection and Water Sample

N

0 150 300

FEET

1 " = 300 '

1:3,600

Table 1: (EXAMPLE) Summary of Sample Collection Sites and Analyses
Private Marine Dredging Application

Sample Number	Location (State Plane NAD 83, Feet)	Sample Matrix	Analyses(1,2)
XXXX-01	**Station YY1**	**Composited Sediment Sample**	**W, S, E, GS**
XXXX-01A	YY1 Easting; ZZ1 Northing	Sediment	Component of XXXX-01
XXXX-01B	YY1 Easting; ZZ1 Northing	Sediment, Water	Component of XXXX-01
XXXX-01C	YY1 Easting; ZZ1 Northing	Sediment	Component of XXXX-01
XXXX-02	**Station YY2**	**Composited Sediment Sample**	**S, GS**
XXXX-02A	YY2 Easting; ZZ2 Northing	Sediment	Component of XXXX-02
XXXX-02B	YY2 Easting; ZZ2 Northing	Sediment	Component of XXXX-02
XXXX-02C	YY2 Easting; ZZ2 Northing	Sediment	Component of XXXX-02

Footnotes:

1) W = Analysis of a water sample, S = Analysis of a sediment sample, E = Analysis of an elutriate sample, GS = Grain-size analysis.

Table 2: Summary of Recommended (consult with your analytical provider) Procedures for Sample Collection, Preservation and Storage [(a)] Private Marine Dredging Application

Analyses	Collection Method[b]	Amount Required[c]	Container[d]	Preservation Technique	Storage Conditions	Holding Times[e]
SEDIMENT						
Chemical/Physical Analyses						
Metals	Grab	100 g	Pre-cleaned polyethylene jar[f]	Dry ice[f] or freezer storage for extended storages; otherwise refrigerate	4 ^{o}C	Hg - 28 days Others - 6 months[g]
Volatile Organic Compounds	Grab	100 g	Encore Sampler or Solvent-rinsed glass jar with Teflon lid[f]	Low level VOCs in Encores: NaHSO4 preservation within 24 hrs of collection; On-Site MeOH preservation for "high" samples. Dry ice[f] or freezer storage for extended storages; otherwise refrigerate	4 ^{o}C[f]/dark[g]	14 days for sample analysis if preserved[m]
Organic Compounds (e.g., PCBs, pesticides, polycyclic aromatic hydrocarbons	Grab	250 g	Solvent-rinsed glass jar with Teflon lid[f]	Dry ice[f] or freezer storage for extended storages; otherwise refrigerate	4 ^{o}C[f]/dark[g]	14 days[h]
Particle Size	Grab	100g	Whirl-pac bag[f]	Refrigerate	<4 ^{o}C	Undetermined
Total Organic Carbon (TOC)	Grab	50 g	Heat treated glass vial with Teflon-lined lid[f]	Dry ice[f] or freezer storage for extended storages; otherwise refrigerate	4 ^{o}C[f]	14 days
Total solids/specific gravity	Grab	50 g	Whirl-pac bag	Refrigerate	<4 ^{o}C	Undetermined
Miscellaneous	Grab	50g	Whirl-pac bag	Refrigerate	<4 ^{o}C	Undetermined

Table 2: Summary of Recommended (consult with your analytical provider) Procedures for Sample Collection, Preservation and Storage [(a)] Private Marine Dredging Application

Sediment from which elutriate is prepared	Grab	Depends on tests being performed	Glass with Teflon-lined lid	Completely fill and refrigerate	$4^{o}C$/dark/airtight	14 days
Biological Tests						
Dredged material	Grab	12-15 L per sample	Plastic bag or container[i]	Completely fill and refrigerate; sieve	$4^{o}C$/dark/airtight	14 days[j]
Reference sediment	Grab	45-50 L per test	Plastic bag or container[i]	Completely fill and refrigerate; sieve	$4^{o}C$/dark/airtight	14 days[j]
Control sediment	Grab	21-25 L per test	Plastic bag or container[i]	Completely fill and refrigerate; sieve	$4^{o}C$/dark/airtight	14 days[j]
WATER AND ELUTRIATE						
Chemical/Physical Analyses						
Particulate analysis	Discrete sampler or pump	500- 2000 mL	Plastic or glass	Lugols solution and refrigerate	$4^{o}C$	Undetermined
Metals	Discrete sampler or pump	1 L	Acid-rinsed polyethylene or glass jar[k]	pH <2 with HNO_3[k]; refrigerate	$4^{o}C$ $2^{o}C$[k]	Hg - 14 days Others - 6 months[l]
Total Kjeldahl nitrogen (TKN)	Discrete sampler or pump	100 - 200 mL	Plastic or glass[l]	H_2SO_4 to pH <2; refrigerate	$4^{o}C$[l]	24 h[l]
Chemical oxygen demand (COD)	Discrete sampler or pump	200 mL	Plastic or glass[l]	H_2SO_4 to pH <2; refrigerate	$4^{o}C$[l]	7 days[l]

Table 2: Summary of Recommended (consult with your analytical provider) Procedures for Sample Collection, Preservation and Storage [(a)]
Private Marine Dredging Application

Total organic carbon (TOC)	Discrete sampler or pump	100 mL	Plastic or glass[l]	H_2SO_4 to pH <2; refrigerate	4^oC[l]	<48 h[l]
Total inorganic carbon (TIC)	Discrete sampler or pump	100 mL	Plastic or glass[l]	Airtight seal; refrigerate[h]	4^oC[l]	6 months[l]
Phenolic compounds	Discrete sampler or pump	1 L	Glass[l]	0.1 - 1.0 g $CuSO_4$; H_2SO_4 to pH <2; refrigerate	4^oC[l]	24 h[l]
Soluble reactive phosphates	Discrete sampler or pump	-	Plastic or glass[l]	Filter; refrigerate[h]	4^oC[l]	24 h[l]
Extractable organic compounds (e.g., semivolatiles)	Discrete sampler or pump	4 L	Amber glass bottle[k]	pH <2, 6N HCL; airtight seal; refrigerate	4^oC[k]	7 days for extraction; 40 days for extract analysis[k]
Volatile organic compounds	Discrete sampler or pump	80 mL	Glass vial[k]	pH <2 with 1:1 HCL; refrigerate in airtight, completely filled container[k]	4^oC[k]	14 days for sample analysis if preserved[m]
Total phosphorus	Discrete sampler or pump	-	Plastic or glass[l]	H_2SO_4 to pH <2; refrigerate	4^oC[l]	7 days[l]
Total solids	Discrete sampler or pump	200 mL	Plastic or glass[l]	Refrigerate	4^oC[l]	7 days[l]
Sulfides	Discrete sampler or pump	-	Plastic or glass[l]	pH >9 NaOH (ZnAc); refrigerate	4^oC[l]	24 h[l]

Table 2: Summary of Recommended (consult with your analytical provider) Procedures for Sample Collection, Preservation and Storage [(a)]
Private Marine Dredging Application

Volatile solids	Discrete sampler or pump	200 mL	Plastic or glass[l]	Refrigerate	$4^{o}C$[l]	7 days[l]
Biological Tests						
Site water	Grab	Depends on tests being performed	Plastic carboy	Refrigerate	$< 4^{o}C$	14 days
Dilution water	Grab or makeup	Depends on tests being performed	Plastic carboy	Refrigerate	$< 4^{o}C$	14 days
TISSUE						
Chemical Analyses						
Metals	Trawl/Teflon-coated grab	5 - 10 g	Double Ziploc[f]	Handle with nonmetallic forceps; plastic gloves; dry ice[f]	$-20^{o}C$[f] or freezer storage	Hg - 28 days; Others - 6 months[n]
PCBs and chlorinated pesticides	Trawl/Teflon-coated grab	10 - 25 g	Hexane-rinsed double aluminum foil and double Ziploc[f]	Handle with hexane-rinsed stainless steel forceps; dry ice[f]	$-20^{o}C$[f] or freezer storage	14 days[h]
Volatile organic compounds	Trawl/Teflon-coated grab	10 - 25 g	Heat-cleaned aluminum foil and watertight plastic bag[m]	Covered ice chest[g]	$-20^{o}C$[h] or freezer storage	14 days[n]

Table 2: Summary of Recommended (consult with your analytical provider) Procedures for Sample Collection, Preservation and Storage [(a)] Private Marine Dredging Application

Semivolatile organic compounds (e.g., PAH)	Trawl/Teflon -coated grab	10 - 25 g	Hexane-rinsed double aluminum foil and double Ziploc[f]	Handle with hexane-rinsed stainless steel forceps; dry ice[f]	-20^{O}C[f] or freezer storage	14 days[h]
Lipids	Trawl/Teflon -coated grab	part of organic analyses	Hexane-rinsed aluminum foil	Handle with hexane-rinsed stainless steel forceps; quick freeze	-20^{O}C or freezer storage	14 days[h]

Footnotes

a This table contains only a summary of collection, preservation, and storage procedures for samples. Check for consistency with the sampling and analyses required for your program. This table may not contain all samples/analyses you need OR may list samples/analyses you do not need for your particular project. Additionally, CONSULT WITH YOUR ANALYTICAL PROVIDER. The cited references should be consulted for a more detailed description of these procedures (Inland Testing Manual, EPA-823-B-98-004).

b Collection method should include appropriate liners

c Amount of sample required by the laboratory to perform the analysis (wet weight or volume provided, as appropriate). CONFIRM THESE QUANTITIES WITH YOUR ANALYTICAL PROVIDER!! Miscellaneous sample size for sediment should be increased if auxiliary analytes that cannot be included as part of the organic or metal analyses are added to the list. The amounts shown are not intended as firm values; more or less tissue may be required depending on the analytes, matrices, detection limits, and particular analytical laboratory.

d All containers should be certified as clean according to EPA (1990)

e These holding times are for sediment, water, and tissue based on guidance that is sometimes administrative rather than technical in nature. There are no promulgated, scientifically based holding time criteria for sediments, tissues, or elutriates. References should be consulted if holding times for sample extracts are desired. Holding times are from the time of sample collection.

f NOAA (1989)

g Tetra Tech (1986a)

h Sample may be held for up to one year if at -20^{O}C.

i Polypropylene should be used if phthalate bioaccumulation is of concern.

j Two weeks is recommended; sediments must not be held for longer than 8 weeks prior to biological testing.

k EPA (1987); 40 CFR Part 136, Table III

l Plumb (1981)

m If samples are not preserved to pH<2, then aromatic compounds must be analyzed within 7 days.

n Tetra Tech (1986b)

Table 3: Target Detection Levels (TDLs), Screening Benchmarks and Analytical Methodology for Analysis of Common COCs and Parameters for Marine Water and Elutriate, Private Dredging Application

Chemical	CAS #	Units	TDL- Marine	Screening Benchmarks				Suggested Methods [f]
			Region 6 [a]	TSWQS (Marie Acute) [b]	EPA WQC (Marine Acute) [c]	NOAA (Marine Acute) [d]	Region 6 (Marine Acute) [e]	
Semivolatiles								
1,2,4-Trichlorobenzene	120-82-1	ug/L	0.9[h]	-	-	160	22	8270C, GC-MS SIM Mode; 1625C, 3510A, 3520A/8100, 8240A, 8250, 8260, 8270A, 8310
1,2-Dichlorobenzene	95-50-1	ug/L	0.8[h]	-	-	1,970	591	
1,3-Dichlorobenzene	541-73-1	ug/L	0.9[h]	-	-	1,970	142	
1,4-Dichlorobenzene	541-73-1	ug/L	1[h]	-	-	1,970	99	
2,4-Dichlorophenol	120-83-2	ug/L	0.8[h]	-	-	-	-	
2,4-Dimethylphenol	105-67-9	ug/L	10	-	-	-	-	
2,4-Dinitrophenol	51-28-5	ug/L	5[h]	-	-	4,850	1330	
Acenaphthene	83-32-9	ug/L	0.75[h]	-	-	970	40.4	
Acenaphthylene	208-96-8	ug/L	1.0[h]	-	-	300	-	
Anthracene	120-12-7	ug/L	0.6[h]	-	-	300	0. 18	
Benzo(a)anthracene	56-55-3	ug/L	0.4[h]	-	-	300	-	
Benzo(a)pyrene	50-32-8	ug/L	0.3[h]	-	-	300	-	
Benzo(b)fluoranthene	205-99-2	ug/L	0.6[h]	-	-	300	-	
Benzo(g,h,i)perylene	191-24-2	ug/L	1.2[h]	-	-	300	-	
Benzo(k)fluoranthene	207-08-9	ug/L	0.6[h]	-	-	300	-	
Chrysene	218-01-9	ug/L	0.3[h]	-	-	300	-	
Dibenzo(a,h)anthracene	53-70-3	ug/L	1.3[h]	-	-	300	-	
Diethyl Phthalate	84-66-2	ug/L	1[h]	-	-	2,944	884	
Fluoranthene	206-44-0	ug/L	0.9[h]	-	-	40	2.96	
Fluorene	86-73-7	ug/L	0.6[h]	-	-	300	50	
Hexachlorobenzene	118-74-1	ug/L	0.4[h]	-	-	160	-	
Indeno[1,2,3-c,d]pyrene	193-39-5	ug/L	1.2[h]	-		300	-	
Naphthalene	91-20-3	ug/L	0.8[h]	-	-	-	250	
Pentachlorophenol	87-86-5	ug/L	50	15.1	13	13	9.6	
Phenanthrene	85-01-8	ug/L	0.5[h]	7.7	-	7.7	4.6	
Phenol	108-95-2	ug/L	10	-	-	5,800	5,500	
Pyrene	129-00-0	ug/L	1.5[h]	-	-	300	0. 24	
Pesticides								
4,4'-DDD	72-54-8	ug/L	0.1	0.13	-	3.6	0. 025	608, 3510A, 3520A/8080, 8081A
4,4'-DDE	72-55-9	ug/L	0.1	-	-	14	0. 14	
4,4'-DDT	50-29-3	ug/L	0.1	-	0.13 (G, ii)	0.065	0. 001	
Aldrin	309-00-2	ug/L	0.03[h]	1.3	1.3 (G)	0.65	0. 13	

Table 3: Target Detection Levels (TDLs), Screening Benchmarks and Analytical Methodology for Analysis of Common COCs and Parameters for Marine Water and Elutriate, Private Dredging Application

Chemical	CAS #	Units	TDL- Marine	Screening Benchmarks				Suggested Methods [f]
			Region 6 [a]	TSWQS (Marie Acute) [b]	EPA WQC (Marine Acute) [c]	NOAA (Marine Acute) [d]	Region 6 (Marine Acute) [e]	
Alpha-BHC	319-84-6	ug/L	0.03	-	-	-	-	608, 3510A, 3520A/8080, 8081A
Beta-BHC	319-85-7	ug/L	0.03	-	-	-	-	
Chlordane and Derivatives	57-74-9	ug/L	0.03[h]	0.09	0.09 (G)	-	-	
Delta-BHC	319-86-8	ug/L	0.03	-	-	-	-	
Dieldrin	60-57-1	ug/L	0.03	0.71	0.71 (G)	0.355	0. 002	
Endosulfan and Derivatives	115-29-7	ug/L	0.1	0.034	0.034 (G, Y)	0.017	-	
Endrin and Derivatives	72-20-8	ug/L	0.1	0.037	0.037 (G)	0.0185	0. 002	
Gamma-BHC (lindane)	58-89-9	ug/L	0.1	-	0.16 (G)	0.08	-	
Heptachlor and Derivatives	76-44-8	ug/L	0.1	0.053	0.053 (G)	0.0265	0. 004	
Toxaphene	8001-35-2	ug/L	0.5	0.21	90 (D)	0.21	0. 0002	
Polychlorinated Biphenyls								
Total PCB	1336-36-3	ug/L	0.01	10	-	0.033	-	8082
Metals [g]								
Antimony	7440-36-0	ug/L	3 (0.03)[i]	-	-	1,500	500	200.8, 6010 or 6020
Arsenic	7440-38-2	ug/L	1 (0.011)[i]	149w	69 (A, D)	69	78	
Cadmium	7440-43-9	ug/L	1 (0.01)[i]	40w	40 (D)	40	-	
Chromium (total)	7440-47-3	ug/L	1	-	-	-	103	
Copper	7440-50-8	ug/L	1 (0.1)[i]	13.5w	4.8 (D, cc)	4.8	3.6	
Lead	7439-92-1	ug/L	1 (0.03)[i]	133w	210 (D)	210	5.3	
Mercury	7439-97-6	ug/L	0.2 (0.0003)[i]	2.1	-	1.8	1.1	7471, 7420, 245.1
Nickel	7440-02-0	ug/L	1 (0.1)[i]	118w	74 (D)	74	13.1	200.8, 6010 or 6020
Silver	7440-22-4	ug/L	1 (0.1)[i]	2w	1.9 (D)	0.95	-	
Zinc	7440-66-6	ug/L	1 (0.5)[i]	92.7w	90 (D)	90	84.2	
Miscellaneous Parameters								
Ammonia	NH3	mg/l	0.03	-	-	-	-	350.1, 350.2, 350.3
Total Organic Carbon	Q129	%	0.10%	-	-	-	-	9060, 415.1, APHA 5310D
Total Petroleum Hydrocarbons	8012-95-1	mg/l	0.1	-	-	-	NA	418.1, 8021, TNRCC 1005 & 1006

Selected Criteria

FOOTNOTES:

Table 3: Target Detection Levels (TDLs), Screening Benchmarks and Analytical Methodology for Analysis of Common COCs and Parameters for Marine Water and Elutriate, Private Dredging Application

Chemical	CAS #	Units	TDL- Marine	Screening Benchmarks				Suggested Methods [f]
			Region 6 [a]	TSWQS (Marie Acute) [b]	EPA WQC (Marine Acute) [c]	NOAA (Marine Acute) [d]	Region 6 (Marine Acute) [e]	

a) This list may include analyses and analytes not required for your site, or may not include site-specific requirements for your site. Consult with the Galveston District. The primary source of these TDLs was EPA 823-B-95-001, QA/QC Guidance for Sampling and Analysis of Sediments, Water and Tissues for Dredged Material Evaluations. (http://water.epa.gov/polwaste/sediments/cs/upload/evaluationguide.pdf)

b) TSWQS- https://www.tceq.texas.gov/waterquality/standards/2010standards.html

c) EPA WQC- http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm

d) NOAA- http://response.restoration.noaa.gov/cpr/sediment/squirt/squirt.html

e) Region 6- http://www.epa.gov/region6/water/ecopro/watershd/standard/index.htm

f) Suggested methods from USEPA, 1995, "QA/QC Guidance for Sediment and Analysis of Sediments, Water, and Tissues for Dredged Material Evaluations" (http://water.epa.gov/polwaste/sediments/cs/upload/evaluationguide.pdf), the SERIM (http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P100FTIH.TXT), and the USEPA Region 6 RIA (http://www.epa.gov/region6/water/ecopro/em/ocean/text/ria.pdf). Any method that can achieve these TDLs is acceptable, provided the appropriate documentation of the method performance is generated for the project and the method is adequately identified and described in the SAP.

g) Metals shall be expressed as Dissolved values in water samples, except for mercury, which shall be reported as Total Recoverable Concentrations

h) These values are based on recommendations from the EPA Region 6 laboratory in Houston; these values were based on data or other technical basis.

i) The values in parentheses are based on EPA "clean techniques", (EPA 1600 series methods) which are applicable in instances where other TDLs are inadequate to assess EPA water quality criteria.

TSWQS footnotes (footnote letters from TCEQ, only footnotes for constituents of concern are retained in this table):

w) Indicates that a criterion is multiplied by a water-effect ratio (WER) in order to incorporate the effects of local water chemistry on toxicity. The WER is equal to 1 except where sufficient data is available to establish a site-specific WER.

EPA WQC footnotes (footnote letters from NRWRC, only footnotes for constituents of concern are retained in this table)

A) This recommended water quality criterion was derived from data for arsenic (III), but is applied here to total arsenic, which might imply that arsenic (III) and arsenic (V) are equally toxic to aquatic life and that their toxicities are additive. No data are known to be available concerning whether the toxicities of the forms of arsenic to aquatic organisms are additive. Please consult the criteria document for details.

D) Freshwater and saltwater criteria for metals are expressed in terms of the dissolved metal in the water column. See "Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic life Metals Criteria (PDF)," (49 pp, 3MB) October 1, 1993, by Martha G. Prothro, Acting Assistant Administrator for Water, available on NSCEP's web site and 40CFR§131.36(b)(1). Conversion Factors applied in the table can be found in Appendix A to the Preamble- Conversion Factors for Dissolved Metals.

G) This Criterion is based on 304(a) aquatic life criterion issued in 1980, and was issued in one of the following documents: Aldrin/Dieldrin (PDF) (153 pp, 7.3MB) (EPA 440/5-80-019), Chlordane (PDF) (68 pp, 3.1MB) (EPA 440/5-80-027), DDT (PDF) (175 pp, 8.3MB) (EPA 440/5-80-038), Endosulfan (PDF) (155 pp, 7.3MB) (EPA 440/5-80-046), Endrin (PDF) (103 pp, 4.6MB) (EPA 440/5-80-047), Heptachlor (PDF) (114 pp, 5.4MB) (EPA 440/5-80-052), Hexachlorocyclohexane (PDF) (109 pp, 4.8MB) (EPA 440/5-80-054), Silver (EPA 440/5-80-071). The Minimum Data Requirements and derivation procedures were different in the 1980 Guidelines than in the 1985 Guidelines (PDF) (104 pp, 3.3MB). If evaluation is to be done using an averaging period, the acute criteria values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.

Y) This value was derived from data for endosulfan and is most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.

cc) When the concentration of dissolved organic carbon is elevated, copper is substantially less toxic and use of Water-Effect Ratios might be appropriate.

ii)This criterion applies to DDT and its metabolites (i.e., the total conc. DDT plus metabolites should not exceed this value).

Table 4: Target Detection Levels (TDLs), Screening Benchmarks and Analytical Methodology for Bulk Analysis of Common COCs and Parameters for Marine Sediment (dry weight), Private Dredging Application

Chemical	CAS #	Units	TDL- Marine	Screening Benchmarks			Suggested Methods [d]
			Region 6 [a]	NOAA (Marine) [b]		Region 6 (Marine) [c]	
				ERL	ERM		
Semivolatiles							
1,2,4-Trichlorobenzene	120-82-1	ug/kg	10	-	-	-	8270C; GC-MS in SIM mode; 1625C, 3540A, 3550A/8100, 8240A, 8250, 8260, 8270A
1,2-Dichlorobenzene	95-50-1	ug/kg	20	-	-	-	
1,3-Dichlorobenzene	541-73-1	ug/kg	20	-	-	-	
1,4-Dichlorobenzene	541-73-1	ug/kg	20	-	-	-	
2,4-Dichlorophenol	120-83-2	ug/kg	120[f]	-	-	-	
2,4-Dimethylphenol	105-67-9	ug/kg	20	-	-	-	
2,4-Dinitrophenol	51-28-5	ug/kg	500[f]	-	-	-	
Acenaphthene	83-32-9	ug/kg	20	16	500	16	
Acenaphthylene	208-96-8	ug/kg	20	44	640	44	
Anthracene	120-12-7	ug/kg	20	85.3	1,100	85.3	
Benzo(a)anthracene	56-55-3	ug/kg	20	261	1,600	261	
Benzo(a)pyrene	50-32-8	ug/kg	20	430	1,600	430	
Benzo(b)fluoranthene	205-99-2	ug/kg	20	-	-	-	
Benzo(g,h,i)perylene	191-24-2	ug/kg	20	-	-	-	
Benzo(k)fluoranthene	207-08-9	ug/kg	20	-	-	-	
Chrysene	218-01-9	ug/kg	20	384	2,800	384	
Dibenzo(a,h)anthracene	53-70-3	ug/kg	20	63.4	260	63.4	
Diethyl Phthalate	84-66-2	ug/kg	50	-	-	-	
Fluoranthene	206-44-0	ug/kg	20	600	5,100	600	
Fluorene	86-73-7	ug/kg	20	19	540	19	
Hexachlorobenzene	118-74-1	ug/kg	10	-	-	-	
Indeno[1,2,3-c,d]pyrene	193-39-5	ug/kg	20	-	-	-	
Naphthalene	91-20-3	ug/kg	20	160	2,100	160	
Pentachlorophenol	87-86-5	ug/kg	100	-	-	-	
Phenanthrene	85-01-8	ug/kg	20	240	1,500	240	
Phenol	108-95-2	ug/kg	100	-	-	-	
Pyrene	129-00-0	ug/kg	20	665	2,600	665	
Pesticides							
4,4'-DDD	72-54-8	ug/kg	5[f]	2	20	1.22	3540A, 3550A/8080, 8081A
4,4'-DDE	72-55-9	ug/kg	5[f]	2.2	27	2.07	
4,4'-DDT	50-29-3	ug/kg	5[f]	1	7	1.19	
Aldrin	309-00-2	ug/kg	3[f]	-	-	-	
Alpha-BHC	319-84-6	ug/kg	3[f]	-	-	-	
Beta-BHC	319-85-7	ug/kg	3[f]	-	-	-	
Chlordane and Derivatives	57-74-9	ug/kg	3[f]	-	-	-	
Delta-BHC	319-86-8	ug/kg	3[f]	-	-	-	
Dieldrin	60-57-1	ug/kg	5[f]	0.02	8	0.715	
Endosulfan and Derivatives	115-29-7	ug/kg	5[f]	-	-	-	
Endrin and Derivatives	72-20-8	ug/kg	5[f]	-	-	-	
Gamma-BHC (Lindane)	58-89-9	ug/kg	3[f]	-	-	-	
Heptachlor and Derivatives	76-44-8	ug/kg	3[f]	-	-	-	
Toxaphene	8001-35-2	ug/kg	50	-	-	-	
Polychlorinated Biphenyls							
Total PCB	1336-36-3	ug/kg	1	22.7 (g)	180	22.7 (g)	8082
Metals [e]							
Antimony	7440-36-0	mg/kg	2.5	-	-	-	6010/6020 , 3050A/7421, 7420, 3010A
Arsenic	7440-38-2	mg/kg	1	8.2	70	8.2	
Cadmium	7440-43-9	mg/kg	1	1.2	96	1.2	
Chromium (total)	7440-47-3	mg/kg	1	81	370	81	
Copper	7440-50-8	mg/kg	10	34	270	34	

Table 4: Target Detection Levels (TDLs), Screening Benchmarks and Analytical Methodology for Bulk Analysis of Common COCs and Parameters for Marine Sediment (dry weight), Private Dredging Application

Chemical	CAS #	Units	TDL- Marine	Screening Benchmarks			Suggested Methods [d]
			Region 6 [a]	NOAA (Marine) [b]		Region 6 (Marine) [c]	
				ERL	ERM		
Lead	7439-92-1	mg/kg	10	46.7	218	46.7	6010/6020 , 3050A/7421, 7420, 3010A
Mercury	7439-97-6	mg/kg	0.1	0.15	0.71	0.15	7471
Nickel	7440-02-0	mg/kg	10	20.9	51.6	20.9	6010/6020, 3050A/7421, 7420, 3010A
Silver	7440-22-4	mg/kg	1	1	3.7	1	
Zinc	7440-66-6	mg/kg	10	150	410	150	
Miscellaneous Parameters							
Ammonia	NH3	mg/kg	0.1	-	-	-	350.1, 350.1
Grain Size (sand, silt, clay)	-	%	1%	-	-	-	Sieve & Hydrometer
Total Organic Carbon	Q129	%	0.10%	-	-	-	9060
Total Petroleum Hydrocarbons	8012-95-1	mg/kg	5	-	-	-	8021, 9070, 418.1, TRNCC 1005 & 1006
Total Solids/Dry Weight	-	%	0.10%	-	-	-	160.3

Selected Criteria

FOOTNOTES:

a) This list may include analyses and analytes not required for your site, or may not include site-specific requirements for your site. Consult with the Galveston District. The primary source of these TDLs was EPA 823-B-95-001, QA/QC Guidance for Sampling and Analysis of Sediments, Water and Tissues for Dredged Material Evaluations. (http://water.epa.gov/polwaste/sediments/cs/upload/evaluationguide.pdf)

b) NOAA- http://response.restoration.noaa.gov/cpr/sediment/squirt/squirt.html

c) Region 6- http://rais.ornl.gov/tools/eco_search.php

d) Suggested methods reported in USEPA, 1995, "QA/QC Guidance for Sediment and Analysis of Sediments, Water, and Tissues for Dredged Material Evaluations" (http://water.epa.gov/polwaste/sediments/cs/upload/evaluationguide.pdf). Any method that can achieve these TDLs is acceptable, provided the appropriate documentation of the method performance is generated for the project and the method is adequately identified and described in the SAP.

e) Metals shall be expressed as Dissolved values in water samples, except for mercury and selenium, which shall be reported as Total Recoverable

f) These values are based on recommendations from the EPA Region 6 Laboratory in Houston; these values were based on data or other technical basis.

g) Total PCBs for Region 6 from "Update to Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas" RG-263 (revised) January 2006; Total PCBs for NOAA from Squirt Table for Organics in Sediment

Table 5: Tier I Soil PCLs for Human Health Screening [Total Combined, Redidential and Commercial/Industrial] for Common COCs and Parameters, Private Dredging Application

Chemical	CAS #	Units	Screening Benchmarks[a]	
			Residential[b]	Commercial/Industrial[c]
Semivolatiles				
1,2,4-Trichlorobenzene	120-82-1	ug/kg	6.6E+05	1.1E+05
1,2-Dichlorobenzene	95-50-1	ug/kg	1.10E+06	5.70E+05
1,3-Dichlorobenzene	541-73-1	ug/kg	1.70E+05	8.80E+04
1,4-Dichlorobenzene	541-73-1	ug/kg	1.20E+06	1.20E+06
2,4-Dichlorophenol	120-83-2	ug/kg	2.00E+06	2.00E+06
2,4-Dimethylphenol	105-67-9	ug/kg	1.40E+07	1.40E+07
2,4-Dinitrophenol	51-28-5	ug/kg	1.40E+06	1.40E+06
Acenaphthene	83-32-9	ug/kg	3.70E+07	3.70E+07
Acenaphthylene	208-96-8	ug/kg	3.70E+07	3.70E+07
Anthracene	120-12-7	ug/kg	1.90E+08	1.90E+08
Benzo(a)anthracene	56-55-3	ug/kg	2.40E+04	2.40E+04
Benzo(a)pyrene	50-32-8	ug/kg	2.40E+03	2.40E+03
Benzo(b)flouranthene	205-99-2	ug/kg	2.40E+04	2.40E+04
Benzo(g,h,i)perylene	191-24-2	ug/kg	1.90E+07	1.90E+07
Benzo(k)fluoranthene	207-08-9	ug/kg	2.40E+05	2.40E+05
Chrysene	218-01-9	ug/kg	2.40E+06	2.40E+06
Dibenzo(a,,h)anthracene	53-70-3	ug/kg	2.40E+03	2.40E+03
Diethyl Phthalate	84-66-2	ug/kg	5.50E+08	5.50E+08
Fluoranthene	206-44-0	ug/kg	2.50E+07	2.50E+07
Fluorene	86-73-7	ug/kg	2.50E+07	2.50E+07
Hexachlorobenzene	118-74-1	ug/kg	8.70E+03	6.90E+03
Indeno[1,2,3-c,d]pyrene	193-39-5	ug/kg	2.40E+04	2.40E+04
Naphthalene	91-20-3	ug/kg	3.60E+05	1.90E+05
Pentachlorophenol	87-86-5	ug/kg	3.20E+04	3.20E+04
Phenanthrene	85-01-8	ug/kg	1.90E+07	1.90E+07
Phenol	108-95-2	ug/kg	2.00E+08	2.00E+08
Pyrene	129-00-0	ug/kg	1.90E+07	1.90E+07
Pesticides				
4,4'-DDD	72-54-8	ug/kg	1.00E+05	1.00E+05
4,4'-DDE	72-55-9	ug/kg	7.30E+04	7.30E+04
4,4'-DDT	50-29-3	ug/kg	7.10E+04	6.80E+04
Aldrin	309-00-2	ug/kg	1.00E+03	9.70E+02
Alpha-BHC	319-84-6	ug/kg	3.30E+03	2.90E+03
Alpha chlordane	5103-71-9	ug/kg	5.40E+04	5.40E+04
Beta-BHC	319-85-7	ug/kg	1.20E+04	1.10E+04
Beta chlordane	5103-74-2	ug/kg	-	-
Delta-BHC	319-86-8	ug/kg	1.20E+04	1.20E+04
Dieldrin	60-57-1	ug/kg	1.20E+03	1.10E+03
Endosulfan	115-29-7	ug/kg	4.10E+06	4.10E+06
Endosulfan I	959-98-8	ug/kg	1.40E+06	1.40E+06

Table 5: Tier I Soil PCLs for Human Health Screening [Total Combined, Redidential and Commercial/Industrial] for Common COCs and Parameters, Private Dredging Application

Chemical	CAS #	Units	Screening Benchmarks[a]	
			Residential[b]	Commercial/Industrial[c]
Endosulfan II	33213-65-9	ug/kg	4.10E+06	4.10E+06
Endosulfan sulfate	1031-07-8	ug/kg	4.10E+06	4.10E+06
Endrin	72-20-8	ug/kg	2.00E+05	2.00E+05
Endrin aldehyde	7421-93-4	ug/kg	2.00E+05	2.00E+05
Endrin ketone	53494-70-5	ug/kg	2.00E+05	2.00E+05
Gamma-BHC (Lindane)	58-89-9	ug/kg	1.80E+04	1.80E+04
Gamma chlordane	5566-34-7	ug/kg	5.30E+04	5.10E+04
Heptachlor	76-44-8	ug/kg	3.30E+03	2.80E+03
Heptachlor epoxide	1024-57-3	ug/kg	2.00E+03	1.90E+03
Toxaphene	8001-35-2	ug/kg	1.70E+04	1.70E+04
Polychlorinated Biphenyls				
Total PCB	1336-36-3	ug/kg	7.70E+03	7.10E+03
Metals				
Antimony	7440-36-0	mg/kg	3.10E+02	3.10E+02
Arsenic	7440-38-2	mg/kg	2.00E+02	2.00E+02
Cadmium	7440-43-9	mg/kg	8.00E+02	7.60E+02
Chromium (total)	7440-47-3	mg/kg	1.20E+05	7.50E+04
Copper	7440-50-8	mg/kg	9.40E+04	9.40E+04
Lead	7439-92-1	mg/kg	-	-
Mercury (pH = 4.9)	7439-97-6	mg/kg	6.20E+00	3.30E+00
Mercury (pH = 6.8)	7439-97-6	mg/kg	1.90E+01	1.10E+01
Nickel	7440-02-0	mg/kg	8.80E+03	8.60E+03
Silver	7440-22-4	mg/kg	2.30E+03	2.30E+03
Zinc	7440-66-6	mg/kg	2.50E+05	2.50E+05
Metals				
Ammonia	NH3	mg/kg	2.10E+03	1.10E+03
Grain Size (sand, silt, clay)	-	%	-	-
Total Organic Carbon	Q129	%	-	-
Total Petroleum Hydrocarbons[d]	8012-95-1	mg/kg	3.90E+03	2.10E+03
Total Solids/Dry Weight	-	%	-	-

FOOTNOTES:

a) TCEQ Texas Risk Reduction Program (TRRP-http://tceq.texas.gov/remediation/trrp/guidance.html);lowest values are reported from 0.5 acre and 30 acre carinogenic and noncarcinogenic values.

b) Residential total soil combined include inhalation, ingestion, dermal, and vegetable consumption pathways.

c) Region 6- http://rais.ornl.gov/tools/eco_search.php

d) Suggested methods reported in USEPA, 1995, "QA/QC Guidance for Sediment and Analysis of Sediments, Water, and Tissues for Dredged Material Evaluations" (http://water.epa/gov/polwaste/sediments/cs/upload/evaluationguide.pdf). Any method that can achieve these TDLs is acceptable, provided the appropriate documentation of the method performance is generated for the project and the method is adequatel\

Table 6: Ecological Benchmarks for Soil for Common COCs and Parameters, Private Dredging Application

Chemical	CAS #	Units	Median Background	Screening Benchmarks			
				TCEQ [a]		EcoSSL [b]	
				Earthworms	Plants	Avian	Mammal
Semivolatiles							
1,2,4-Trichlorobenzene	120-82-1	ug/kg	-	2.0E+04	-	-	-
1,2-Dichlorobenzene	95-50-1	ug/kg	-	-	-	-	-
1,3-Dichlorobenzene	541-73-1	ug/kg	-	-	-	-	-
1,4-Dichlorobenzene	541-73-1	ug/kg	-	2.0E+04	-	-	-
2,4-Dichlorophenol	120-83-2	ug/kg	-	-	-	-	-
2,4-Dimethylphenol	105-67-9	ug/kg	-	-	-	-	-
2,4-Dinitrophenol	51-28-5	ug/kg	-	-	2.0E+04	-	-
Acenaphthene	83-32-9	ug/kg	-	-	2.0E+04	-	-
Acenaphthylene	208-96-8	ug/kg	-	-	-	-	-
Anthracene	120-12-7	ug/kg	-	-	-	-	-
Benzo(a)anthracene	56-55-3	ug/kg	-	-	-	-	-
Benzo(a)pyrene	50-32-8	ug/kg	-	-	-	-	-
Benzo(b)fluoranthene	205-99-2	ug/kg	-	-	-	-	-
Benzo(g,h,i)perylene	191-24-2	ug/kg	-	-	-	-	-
Benzo(k)fluoranthene	207-08-9	ug/kg	-	-	-	-	-
Chrysene	218-01-9	ug/kg	-	-	-	-	-
Dibenzo(a,h)anthracene	53-70-3	ug/kg	-	-	-	-	-
Diethyl Phthalate	84-66-2	ug/kg	-	-	1.0E+05	-	-
Fluoranthene	206-44-0	ug/kg	-	-	-	-	-
Fluorene	86-73-7	ug/kg	-	3.0E+04	-	-	-
Hexachlorobenzene	118-74-1	ug/kg	-	-	-	-	-
Indeno[1,2,3-c,d]pyrene	193-39-5	ug/kg	-	-	-	-	-
Naphthalene	91-20-3	ug/kg	-	-	-	-	-
Pentachlorophenol	87-86-5	ug/kg	-	3.1E+04	5.0E+02	2.1E+03	2.8E+03
Phenanthrene	85-01-8	ug/kg	-	-	-	-	-
Phenol	108-95-2	ug/kg	-	3.0E+04	7.0E+04	-	-
Pyrene	129-00-0	ug/kg	-	-	-	-	-
Pesticides							
4,4'-DDD	72-54-8	ug/kg	-	-	-	9.3E+01	2.1E+01
4,4'-DDE	72-55-9	ug/kg	-	-	-	9.3E+01	2.1E+01
4,4'-DDT	50-29-3	ug/kg	-	-	-	9.3E+01	2.1E+01
Aldrin	309-00-2	ug/kg	-	-	-	-	-
Alpha-BHC	319-84-6	ug/kg	-	-	-	-	-
Alpha chlordane	5103-71-9	ug/kg	-	-	-	-	-
Beta-BHC	319-85-7	ug/kg	-	-	-	-	-
Beta chlordane	5103-74-2	ug/kg	-	-	-	-	-
Delta-BHC	319-86-8	ug/kg	-	-	-	-	-
Dieldrin	60-57-1	ug/kg	-	-	-	2.2E+01	4.9E+00
Endosulfan	115-29-7	ug/kg	-	-	-	-	-
Endosulfan I	959-98-8	ug/kg	-	-	-	-	-
Endosulfan II	33213-65-9	ug/kg	-	-	-	-	-
Endosulfan sulfate	1031-07-8	ug/kg	-	-	-	-	-
Endrin	72-20-8	ug/kg	-	-	-	-	-
Endrin aldehyde	7421-93-4	ug/kg	-	-	-	-	-
Endrin ketone	53494-70-5	ug/kg	-	-	-	-	-
Gamma-BHC (Lindane)	58-89-9	ug/kg	-	-	-	-	-
Gamma chlordane	5566-34-7	ug/kg	-	-	-	-	-
Heptachlor	76-44-8	ug/kg	-	-	-	-	-

Table 6: Ecological Benchmarks for Soil for Common COCs and Parameters, Private Dredging Application

Chemical	CAS #	Units	Median Background	Screening Benchmarks			
				TCEQ [a]		EcoSSL [b]	
				Earthworms	Plants	Avian	Mammal
Heptachlor epoxide	1024-57-3	ug/kg	-	-	-	-	-
Toxaphene	8001-35-2	ug/kg	-	-	-	-	-
Polychlorinated Biphenyls							
Total PCB	1336-36-3	ug/kg	-	-	4.0E+04	-	-
Metals							
Antimony	7440-36-0	mg/kg	1.0E+00	7.8E+01	5.0E+00	-	2.7E-01
Arsenic	7440-38-2	mg/kg	5.9E+00	6.0E+01	1.8E+01	4.3E+01	4.6E+01
Cadmium	7440-43-9	mg/kg	-	1.4E+02	3.2E+01	7.7E-01	3.6E-01
Chromium (total)	7440-47-3	mg/kg	3.0E+01	4.0E-01	1.0E+00	-	-
Copper	7440-50-8	mg/kg	1.5E+01	8.0E+01	7.0E+01	2.8E+01	4.9E+01
Lead	7439-92-1	mg/kg	1.5E+01	1.7E+03	1.2E+02	1.1E+01	5.6E+01
Mercury	7439-97-6	mg/kg	4.0E-02	1.0E-01	3.0E-01	-	-
Nickel	7440-02-0	mg/kg	1.0E+01	2.8E+02	3.8E+01	2.1E+02	1.3E+02
Silver	7440-22-4	mg/kg	-	-	5.6E+02	4.2E+00	1.4E+01
Zinc	7440-66-6	mg/kg	3.0E+01	1.2E+02	1.6E+02	4.6E+01	7.9E+01
Miscellaneous Parameters							
Ammonia	NH3	mg/kg	-	-	-	-	-
Grain Size (sand, silt, clay)	-	%	-	-	-	-	-
Total Organic Carbon	Q129	%	-	-	-	-	-
Total Petroleum Hydrocarbons	8012-95-1	mg/kg	-	-	-	-	-
Total Solids/Dry Weight	-	%	-	-	-	-	-

Footnotes:

a) TCEQ: Conducting Ecological Risk Assessments at Remediation Sites in Texas (2014) (http://www.tceq.texas.gov/remediation/eco/eco.html)

b) USEPA Eco-SSL: http://www.epa.gov/ecotox/ecossl/

Table 7: Target Detection Levels (TDLs), Screening Benchmarks and Analytical Methodology for Analysis of Special Land Use/History COCs and Parameters for Marine Water and Elutriate, Private Dredging Application

Chemical	CAS #	Units	TDL- Marine	Screening Benchmarks				Suggested Methods [f]
			Region 6 [a]	TSWQS (Marie Acute) [b]	EPA WQC (Marine Acute) [c]	NOAA (Marine Acute) [d]	Region 6 (Marine Acute) [e]	
Metals								
Chromium (3+)	7440-47-3 (III)	ug/L	1	-	-	103,000	-	6020
Chromium (6+)	7440-47-3 (Cr6+)	ug/L	1	1,090w	1,100 (D)	1,100	49.6	7196A, 7197, 218.5
Selenium [g]	7782-49-2	ug/L	2	564	290 (D, dd)	290	0.136	7740, 7741, 7742, 270.2, 270.2
Organotin								
Tributyltin	688-73-3	ug/L	0.01 [h]	-	-	-	-	Krone et al., 1989 (GC/FPD)
Miscellaneous Parameters								
Cyanides	57-12-5	mg/l	0.1 [i]	0.0056	1 (Q)	0.001	0.0056	335.2, 9010B/9012A

Footnotes:

a) This list may include analyses and analytes not required for your site, or may not include site-specific requirements for your site. Consult with the Galveston District. The primary source of these TDLs was EPA 823-B-95-001, QA/QC Guidance for Sampling and Analysis of Sediments, Water and Tissues for Dredged Material Evaluations. (http://water.epa.gov/polwaste/sediments/cs/upload/evaluationguide.pdf)

b) TSWQS- https://www.tceq.texas.gov/waterquality/standards/2010standards.html

c) EPA WQC- http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm

d) NOAA- http://response.restoration.noaa.gov/cpr/sediment/squirt/squirt.html

e) Region 6- http://www.epa.gov/region6/water/ecopro/watershd/standard/index.htm

f) Suggested methods from USEPA, 1995, "QA/QC Guidance for Sediment and Analysis of Sediments, Water, and Tissues for Dredged Material Evaluations" (http://water.epa.gov/polwaste/sediments/cs/upload/evaluationguide.pdf), the SERIM (http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P100FTIH.TXT), and the USEPA Region 6 RIA (http://www.epa.gov/region6/water/ecopro/em/ocean/text/ria.pdf). Any method that can achieve these TDLs is acceptable, provided the appropriate documentation of the method performance is generated for the project and the method is adequately identified and described in the SAP.

g) Selenium shall be reported as Total Recoverable Concentrations

h) TDL value taken from Southeast Regional Implementation Manual (2008) (http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P100FTIH.TXT)

i) This value recommended by Houston lab using colorimetric method. This value is based upon FREE cyanide, not complexed as the method is designed to analyze for. If free cyanide is expected, consult the laboratory as to the best method for quantifying free cyanide.

EPA WQC footnotes (footnote letters from NRWRC, only footnotes for constituents of concern are retained in this table)

D) Freshwater and saltwater criteria for metals are expressed in terms of the dissolved metal in the water column. See "Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic life Metals Criteria (PDF)," (49 pp, 3MB) October 1, 1993, by Martha G. Prothro, Acting Assistant Administrator for Water, available on NSCEP's web site and 40CFR§131.36(b)(1). Conversion Factors applied in the table can be found in Appendix A to the Preamble-Conversion Factors for Dissolved Metals.

dd) Selenium criteria document (EPA 440/5-87-006, September 1987)states that if selenium is as toxic to saltwater fishes in the field as it is to freshwater fishes in the field, the status of the fish community should be monitored whenever the conc.of selenium exceeds 5.0 µg/l in salt water because the saltwater CCC does not take into account uptake via the food chain.

Q) This recommended water quality criterion is expressed as ug free cyanide (as CN)/l.

Table 8: Target Detection Levels (TDLs), Screening Benchmarks and Analytical Methodology for Analysis of Special Land Use/History COCs and Parameters for Marine Sediment (dry weight), Private Dredging Application

Chemical	CAS #	Units	TDL-Marine	Screening Benchmarks			Suggested Methods [d]
			Region 6 [a]	NOAA (Marine) [b]		Region 6 (Marine) [c]	
				ERL	ERM		
Polychlorinated Biphenyls [e]							
Polychlorinated Biphenyls-209 congeners	-	ug/kg	1	-	-	-	1668
Metals							
Chromium (3+)	7440-47-3 (III)	mg/kg	1	-	-	-	6010/6020
Chromium (6+)	7440-47-3	mg/kg	1	-	-	-	7196
Selenium [f]	7782-49-2	mg/kg	0.5	-	-	-	7741, 7740, 6010/6020
Organotin [g]							
Dibutyltin	1002-53-5	ug/kg	10	-	-	-	Krone et al., 1989 (GC/FPD)
Monobutyltin	78763-54-9	ug/kg	10	-	-	-	
Tributyltin	688-73-3	ug/kg	10	-	-	-	
Miscellaneous Parameters							
Cyanides	57-12-5	mg/kg	2	-	-	-	9010B/9012A
Volatile Organics							
Trichloroethene	79-01-6	ug/kg	5	-	-	-	P&T
Tetrachloroethene	127-18-4	ug/kg	0.1	-	-	-	
Ethylbenzene	100-41-4	ug/kg	1.5	-	-	-	
Total Xylene (sum of o-, m-, p-)	95-47-6 108-38-3 106-42-3	ug/kg	5	-	-	-	
Dioxins/Furans [h]							
2,3,7,8 - TCDD	1746-01-6	pg/g	0.1	-	-	-	1613B
1,2,3,7,8 - PeCDD	40321-76-4	pg/g	0.1	-	-	-	
1,2,3,4,7,8 - HxCDD	39227-28-6	pg/g	0.1	-	-	-	
1,2,3,6,7,8 - HxCDD	57653-85-7	pg/g	0.1	-	-	-	
1,2,3,7,8,9 - HxCDD	19408-74-3	pg/g	0.1	-	-	-	
1,2,3,4,6,7,8 - HpCDD	35822-46-9	pg/g	0.1	-	-	-	
OCDD	3268-87-9	pg/g	0.1	-	-	-	
2,3,7,8 - TCDF	51207-31-9	pg/g	0.1	-	-	-	
1,2,3,7,8 - PeCDF	57117-41-6	pg/g	0.1	-	-	-	
2,3,4,7,8 - PeCDF	57117-31-4	pg/g	0.1	-	-	-	
1,2,3,4,7,8 - HxCDF	70648-26-9	pg/g	0.1	-	-	-	
1,2,3,6,7,8 - HxCDF	57117-44-9	pg/g	0.1	-	-	-	
2,3,4,6,7,8 - HxCDF	60851-34-5	pg/g	0.1	-	-	-	
1,2,3,7,8,9 - HxCDF	72918-21-9	pg/g	0.1	-	-	-	
1,2,3,4,6,7,8 - HpCDF	67562-39-4	pg/g	0.1	-	-	-	
1,2,3,4,7,8,9 - HpCDF	55673-89-7	pg/g	0.1	-	-	-	
OCDF	39001-02-0	pg/g	0.1	-	-	-	
Total Dioxin TEQ	-	pg/g	20	-	-	-	-

FOOTNOTES:

a) This list may include analyses and analytes not required for your site, or may not include site-specific requirements for your site. Consult with the Galveston District. The primary source of these TDLs was EPA 823-B-95-001, QA/QC Guidance for Sampling and Analysis of Sediments, Water and Tissues for Dredged Material Evaluations. (http://water.epa.gov/polwaste/sediments/cs/upload/evaluationguide.pdf

b) NOAA- http://response/restoration.noaa.gov/cpr/sediment/squirt/squirt.html

c) Region 6- http://rais.ornl.gov/tools/eco_search.php

d) Suggested methods reported in USEPA, 1995, "QA/QC Guidance for Sediment and Analysis of Sediments, Water, and Tissues for Dredged Material Evaluations" (http://water.epa/gov/polwaste/sediments/cs/upload/evaluationguide.pdf). Any method that can achieve these TDLs is acceptable, provided the appropriate documentation of the method performance is generated for the project and the method is adequately identified and described in the SAP.

e) PCB congener TDLs are reported from the Southeast Regional Implementation Manual (2008) (http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P100FTIH.TXT). Analysis of 209 congeners for fingerprinting.

f) Selenium shall be reported as Total Recoverable Concentrations

g) Organotin TDLs are reported from the Souteast Regional Implementation Manual (2008). For example, sites with historic sandblasting, shipbreaking, maintenance, and repair would warrant analysis of organotins.

h) Dioxins/Furans TDLs are reported from Galveston Harbor and Channel and HSC Table A-2

Table 9: Tier I Soil PCLs for Human Health Screening [Total Combined, Residential and Commerical/Industrial] for Speical Land Use/History COCs and Parameters, Private Dredging Application

Chemical	CAS #	Units	Screening Benchmarks [a]	
			Residential [b]	Commercial/Industrial [c]
Polychlorinated Biphenyls [d]				
Polychlorinated Biphenyls- 209 congeners	-	ug/kg	1.14E+03	7.13E+03
Metals				
Chromium (3+)	7440-47-3 (III)	mg/kg	2.69E+04	7.46E+04
Chromium (6+)	7440-47-3 (Cr6+)	mg/kg	1.22E+02	1.01E+03
Selenium [e]	7782-49-2	mg/kg	3.09E+02	2.27E+03
Organotin				
Dibutyltin	1002-53-5	ug/kg	-	-
Monobutyltin	78763-54-9	ug/kg	-	-
Tributyltin	688-73-3	ug/kg	-	-
Miscellaneous Parameters				
Cyanides	57-12-5	mg/kg	4.80E+01	5.83E+02
Dioxins/Furans				
2,3,7,8 -TCDD	1746-01-6	pg/g	-	-
1,2,3,7,8 - PeCDD	40321-76-4	pg/g	-	-
1,2,3,4,7,8 - HxCDD	39227-28-6	pg/g	-	-
1,2,3,6,7,8 - HxCDD	57653-85-7	pg/g	-	-
1,2,3,7,8,9 - HxCDD	19408-74-3	pg/g	-	-
1,2,3,4,6,7,8 - HpCDD	35822-46-9	pg/g	-	-
OCDD	3268-87-9	pg/g	-	-
2,3,7,8 - TCDF	51207-31-9	pg/g	-	-
1,2,3,7,8 - PeCDF	57117-41-6	pg/g	-	-
2,3,4,7,8 - PeCDF	57117-31-4	pg/g	-	-
1,2,3,4,7,8 - HxCDF	70648-26-9	pg/g	-	-
1,2,3,6,7,8 - HxCDF	57117-44-9	pg/g	-	-
2,3,4,6,7,8 - HxCDF	60851-34-5	pg/g	-	-
1,2,3,7,8,9 - HxCDF	72918-21-9	pg/g	-	-
1,2,3,4,6,7,8 - HpCDF	67562-39-4	pg/g	-	-
1,2,3,4,7,8,9 - HpCDF	55673-89-7	pg/g	-	-
OCDF	39001-02-0	pg/g	-	-
Total Dioxin TEQ (2,3,7,8,-TCDD TEQ)	-	pg/g	1	5

Footnotes:

a) TCEQ Texas Risk Reduction Program (TRRP-http://www.tceq.texas.gov/remediation/trrp/guidance.html); lowest values are reported from 0.5 acre and 30 acre carcinogenic and noncarcinogenic values.

b) TRRP Table 4- Residential total soil combined include inhalation, ingestion, dermal, and vegetable consumption pathways.

c) TRRP Table 5- Commercial/Industrial total soil combined include inhalation, ingestion, and dermal pathways.

d) Analysis of 209 congeners for fingerprinting.

e) Selenium shall be reported as Total Recoverable Concentrations

Table 10: Ecological Benchmarks for Soil for Special Land Use/History COCs and Parameters, Private Dredging Application

Chemical	CAS #	Units	Median Background	Screening Benchmarks			
				TCEQ [a]		EcoSSL [b]	
				Earthworms	Plants	Avian	Mammal
Polychlorinated Biphenyls [c]							
Polychlorinated Biphenyls- 209 congeners	-	ug/kg	-	-	4.00E+01	-	-
Metals							
Chromium (3+)	7440-47-3 (III)	mg/kg	-	-	-	26	34
Chromium (6+)	7440-47-3 (Cr6+)	mg/kg	-	-	-	-	130
Selenium [d]	7782-49-2	mg/kg	3.00E-01	4.10E+00	5.20E-01	1.20E+00	6.30E-01
Organotin							
Dibutyltin	1002-53-5	ug/kg	-	-	-	-	-
Monobutyltin	78763-54-9	ug/kg	-	-	-	-	-
Tributyltin	688-73-3	ug/kg	-	-	-	-	-
Miscellaneous Parameters							
Cyanides	57-12-5	mg/kg	-	-	-	-	-
Dioxins/Furans							
2,3,7,8 -TCDD	1746-01-6	pg/g	-	-	-	-	-
1,2,3,7,8 - PeCDD	40321-76-4	pg/g	-	-	-	-	-
1,2,3,4,7,8 - HxCDD	39227-28-6	pg/g	-	-	-	-	-
1,2,3,6,7,8 - HxCDD	57653-85-7	pg/g	-	-	-	-	-
1,2,3,7,8,9 - HxCDD	19408-74-3	pg/g	-	-	-	-	-
1,2,3,4,6,7,8 - HpCDD	35822-46-9	pg/g	-	-	-	-	-
OCDD	3268-87-9	pg/g	-	-	-	-	-
2,3,7,8 - TCDF	51207-31-9	pg/g	-	-	-	-	-
1,2,3,7,8 - PeCDF	57117-41-6	pg/g	-	-	-	-	-
2,3,4,7,8 - PeCDF	57117-31-4	pg/g	-	-	-	-	-
1,2,3,4,7,8 - HxCDF	70648-26-9	pg/g	-	-	-	-	-
1,2,3,6,7,8 - HxCDF	57117-44-9	pg/g	-	-	-	-	-
2,3,4,6,7,8 - HxCDF	60851-34-5	pg/g	-	-	-	-	-
1,2,3,7,8,9 - HxCDF	72918-21-9	pg/g	-	-	-	-	-
1,2,3,4,6,7,8 - HpCDF	67562-39-4	pg/g	-	-	-	-	-
1,2,3,4,7,8,9 - HpCDF	55673-89-7	pg/g	-	-	-	-	-
OCDF	39001-02-0	pg/g	-	-	-	-	-
Total Dioxin TEQ (2,3,7,8,-TCDD TEQ)	-	pg/g	-	-	-	-	-

Footnotes:

a) TCEQ: Conducting Ecological Risk Assessments at Remediation Sites in Texas (2014) (http://www.tceq.texas.gov/remediation/eco/eco.html)

b) USEPA Eco-SSL: http://www.epa.gov/ecotox/ecossl/

c) Analysis of 209 congeners for fingerprinting.

d) Selenium shall be reported as Total Recoverable Concentrations