Table 1
Vince Bayou Sediment Organic Carbon and Grain Size Data Summary
US Oil Recovery Superfund Site
Pasadena, TX

Sample ID	Sample Date	Total Sediment Thickness[1] ft bss[2]	Sample Interval ft bss	Total Organic Carbon Weight %	Fraction Organic Carbon g-C/g-soil	Gravel %	Sand %	Silt %	Clay %	Total Fines %
Iteration 2 - WRN-7 Sampling Data										
VBSD-01	7/13/2018	0.3	0-0.5	0.53	0.005	0	29	38	32	71
VBSD-02	7/13/2018	0.4	0-0.5	1.28	0.013	0	17	44	39	84
VBSD-03	7/13/2018	0.3	0-0.5	2.92	0.029	0	13	53	34	87
VBSD-04	7/13/2018	0.3	0-0.5	2.00	0.020	0	20	48	33	80
VBSD-05	7/12/2018	0.5	0-0.5	0.42	0.004	0	32	32	36	68
VBSD-06	7/12/2018	0.5	0-0.5	0.87	0.009	0	30	38	33	71
		MEANS	--	1.34	0.013	0	23	42	35	77
Iteration 2 - WRN-8 Reconnaissance Study Data										
Reconnaissance Study Transect 1										
VBSDR-1A	12/18/2018	3	0-0.5	2.80	0.028	0	22	50	28	78
VBSDR-1A	12/18/2018	3	0.5-1.0	0.53	0.005	0	32	45	23	68
VBSDR-1B	12/18/2018	2.1	--[3]	--	--	--	--	--	--	--
VBSDR-1C	12/18/2018	2.5	0-0.5	4.00	0.040	0	29	47	25	72
VBSDR-1C	12/18/2018	2.5	0.5-1.0	3.59	0.036	0	21	48	31	79
VBSDR-1D	12/18/2018	4.3	--	--	--	--	--	--	--	--
VBSDR-1E	12/18/2018	2.4	0-0.5	2.23	0.022	0	40	36	24	60
VBSDR-1E	12/18/2018	2.4	0.5-1.0	1.90	0.019	0	41	32	27	59
		MEANS	--	2.51	0.025	0	31	43	26	69
Reconnaissance Study Transect 2										
VBSDR-2A	12/18/2018	0.8	0-0.5	0.97	0.010	0	41	34	26	59
VBSDR-2A	12/18/2018	0.8	0.5-1.0	2.20	0.022	0	25	42	33	75
VBSDR-2B	12/18/2018	3.1	--	--	--	--	--	--	--	--
VBSDR-2C	12/18/2018	0.9	0-0.5	3.55	0.036	0	29	38	33	71
VBSDR-2D	12/18/2018	0.5	--	--	--	--	--	--	--	--
VBSDR-2E	12/18/2018	1	0-0.5	1.31	0.013	0	40	28	32	60
		MEANS	--	2.01	0.020	0	34	35	31	66
Reconnaissance Study Transect 3										
VBSDR-3A	12/18/2018	0.8	0-0.5	1.09	0.011	0	40	36	24	60
VBSDR-3A	12/18/2018	0.8	0.5-1.0	3.09	0.031	0	45	35	20	55
VBSDR-3B	12/18/2018	0.5	--	--	--	--	--	--	--	--
VBSDR-3C	12/18/2018	0.5	0-0.5	2.05	0.021	0	35	36	29	65
VBSDR-3E	12/18/2018	0.5	0-0.5	0.18	0.002	0	48	28	25	52
		MEANS	--	1.60	0.016	0	42	34	24	58
Reconnaissance Study Transect 4										
VBSDR-4A	12/18/2018	0.3	0-0.5	1.97	0.020	0	7	54	39	93
VBSDR-4B	12/18/2018	0.3	--	--	--	--	--	--	--	--
VBSDR-4C	12/18/2018	0.5	0-0.5	2.12	0.021	17	54	15	15	29
VBSDR-4D	12/18/2018	0.5	--	--	--	--	--	--	--	--
VBSDR-4E	12/18/2018	0.4	0-0.5	2.85	0.029	0	40	40	20	60
		MEANS	--	2.31	0.023	6	34	36	24	61

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Pasadena, TX

Sample ID	Sample Date	Total Sediment Thickness[1] ft bss[2]	Sample Interval ft bss	Total Organic Carbon Weight %	Fraction Organic Carbon g-C/g-soil	Gravel %	Sand %	Silt %	Clay %	Total Fines %
Reconnaissance Study Transect 5										
VBSDR-5A	12/18/2018	0.4	--	--	--	--	--	--	--	--
VBSDR-5B	12/18/2018	0.5	0-0.5	0.50	0.005	0	19	43	38	81
VBSDR-5C	12/18/2018	0.4	--	--	--	--	--	--	--	--
VBSDR-5D	12/18/2018	0.5	0-0.5	0.88	0.009	0	36	39	25	64
VBSDR-5E	12/18/2018	2	0-0.5	2.15	0.022	0	32	38	31	68
VBSDR-5E	12/18/2018	2	0.5-1.0	1.80	0.018	0	33	42	25	68
		MEANS	--	1.33	0.013	0	30	40	30	70
Reconnaissance Study Transect 6										
VBSDR-6A	12/18/2018	0.3	--	--	--	--	--	--	--	--
VBSDR-6B	12/18/2018	0.5	0-0.5	0.71	0.007	0	55	29	16	45
VBSDR-6C	12/18/2018	0.5	0-0.5	1.27	0.013	0	49	32	19	51
VBSDR-6D	12/18/2018	0.9	--	--	--	--	--	--	--	--
VBSDR-6E	12/18/2018	1	0-0.5	1.30	0.013	0	67	23	10	34
VBSDR-6E	12/18/2018	1	0.5-1.0	1.10	0.011	0	20	40	40	80
		MEANS	--	1.09	0.011	0	48	31	21	52
Reconnaissance Study Transect 7										
VBSDR-7A	12/17/2018	0.8	0-0.4	2.63	0.026	NS[4]	NS	NS	NS	NS
VBSDR-7B	12/17/2018	0.8	--	--	--	--	--	--	--	
VBSDR-7C	12/17/2018	1.5	0-0.5	3.23	0.032	0	21	54	26	80
VBSDR-7C	12/17/2018	1.5	0.5-1.0	2.66	0.027	0	39	45	16	61
VBSDR-7D	12/17/2018	0.3	--	--	--	--	--	--	--	--
VBSDR-7E	12/17/2018	2	0-0.5	0.88	0.009	0	67	23	10	33
VBSDR-7E	12/17/2018	2	0.5-1.0	1.48	0.015	0	20	41	39	80
VBSDR-7F	12/17/2018	2	--	--	--	--	--	--	--	--
VBSDR-7G	12/17/2018	2	0-0.5	1.39	0.014	0	61	28	11	39
VBSDR-7G	12/17/2018	2	0.5-1.0	1.08	0.011	0	53	31	16	47
		MEANS	--	1.21	0.012	0	50	31	19	50
Reconnaissance Study Transect 8										
VBSDR-8A	12/17/2018	1	0-0.5	0.99	0.010	0	3	37	60	97
VBSDR-8A	12/17/2018	1	0.5-1.0	0.67	0.007	0	4	40	56	96
VBSDR-8B	12/17/2018	2.5	--	--	--	--	--	--	--	--
VBSDR-8C	12/17/2018	0.5	0-0.5	0.66	0.007	0	11	37	52	89
VBSDR-8D	12/17/2018	0.7	--	--	--	--	--	--	--	--
VBSDR-8E	12/17/2018	5	0-0.5	1.99	0.020	0	52	32	17	49
VBSDR-8E	12/17/2018	5	0.5-1.0	0.89	0.009	0	65	18	18	35
		MEANS	--	1.05	0.011	0	33	32	36	67
Reconnaissance Study Transect 9										
VBSDR-9A	12/17/2018	0.8	0-0.5	3.13	0.031	0	14	43	43	86
VBSDR-9B	12/17/2018	0.5	--	--	--	--	--	--	--	--
VBSDR-9C	12/17/2018	2.2	0-0.5	1.19	0.012	0	34	33	32	66
VBSDR-9C	12/17/2018	2.2	0.5-1.0	1.34	0.013	0	37	31	33	64
VBSDR-9D	12/17/2018	0.5	--	--	--	--	--	--	--	--
VBSDR-9E	12/17/2018	5.2	0-0.5	1.11	0.011	0	28	43	29	72
VBSDR-9E	12/17/2018	5.2	0.5-1.0	0.89	0.009	0	18	55	27	82
		MEANS	--	1.13	0.011	0	29	41	30	71

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Sample ID	Sample Date	Total Sediment Thickness[1] ft bss[2]	Sample Interval ft bss	Total Organic Carbon Weight %	Fraction Organic Carbon g-C/g-soil	Gravel %	Sand %	Silt %	Clay %	Total Fines %
Reconnaissance Study Transect 10										
VBSDR-10A	12/17/2018	4	0-0.5	1.19	0.012	0	38	33	29	62
VBSDR-10A	12/17/2018	4	0.5-1.0	0.86	0.009	0	23	39	38	77
VBSDR-10B	12/17/2018	0.8	--	--	--	--	--	--	--	--
VBSDR-10C	12/17/2018	0	--	--	--	--	--	--	--	--
VBSDR-10D	12/17/2018	1.2	0-0.5	0.23	0.002	19	46	2	0	2
VBSDR-10D	12/17/2018	1.2	0.5-1.0	0.41	0.004	0	56	13	31	44
VBSDR-10E	12/17/2018	1.9	0-0.5	2.31	0.023	0	30	40	30	71
VBSDR-10E	12/17/2018	1.9	0.5-1.0	2.04	0.020	0	30	37	34	70
		MEANS	--	1.25	0.012	5	40	23	24	47

Notes:
(1) Total sediment thickness is the thickness at that location measured by the sediment probe or core.
(2) ft bss - feet below sediment surface
(3) -- indicates parameter not analyzed (not required by WRN-AOI-1-8)
(4) NS indicates insufficient sample volume for grain size analysis

Table 2
Vince Bayou Sediment COPC Delineation Sample Location Selection Process
US Oil Recovery Superfund Site
Pasadena, TX

Sample ID	Sample Interval ft bss[1]	Sample Date	Is soft sedment present?	Does sample have visual, olfactory or other indicators of potential COPC impacts?	Olfactory or visual potential COPC indicators description (if present)	Is TOC Concentration at the upper end of TOC concentration range?[3]	Is grain size on the lower end of grain size range for locations on this transect?[3]	Sample Selection Notes
Transect 1								
VBSDR-1A	0-0.5	12/18/2018	Yes	Yes	Odor	Yes	Yes	Selected VBSDR-1A due the presence of odor, TOC/grain size values, and proximity to southwest shoreline. Selected VBSDR-1C due the presence of staining, odor in both intervals, TOC/grain size values.
	0.5-1.0	12/18/2018		No		No	No	
VBSDR-1B	--[2]	12/18/2018	Yes	Yes	Odor			
VBSDR-1C	0-0.5	12/18/2018	Yes	Yes	Staining, Odor	Yes	Yes	
	0.5-1.0	12/18/2018		Yes	Staining, Odor	Yes	Yes	
VBSDR-1D	--	12/18/2018	Yes	Yes	Staining, Odor			
VBSDR-1E	0-0.5	12/18/2018	Yes	No		No	No	
	0.5-1.0	12/18/2018		Yes	Staining, Odor	No	No	
Transect 2								
VBSDR-2A	0-0.5	12/18/2018	Yes	Yes	Odor	No	No	Selected VBSD-2A due to presence of odor, proximity to southwest shoreline. Selected VBSDR-2C due to presence of staining, odor, TOC/grain size values.
	0.5-1.0	12/18/2018		Yes	Odor	Yes	Yes	
VBSDR-2B	--	12/18/2018	Yes	Yes	Staining, Odor			
VBSDR-2C	0-0.5	12/18/2018	Yes	Yes	Staining, Odor	Yes	Yes	
VBSDR-2D	--	12/18/2018	Yes	No				
VBSDR-2E	0-0.5	12/18/2018	Yes	No		No	No	
Transect 3								
VBSDR-3A	0-0.5	12/18/2018	Yes	No		No	Yes	Selected VBSD-3A due to presence of odor in second interval, grain size values, proximity to southwest shoreline.
	0.5-1.0	12/18/2018		Yes	Odor	Yes	No	
VBSDR-3B	--	12/18/2018	Yes	No				
VBSDR-3C	0-0.5	12/18/2018	Yes	No		Yes	Yes	
VBSDR-3E	0-0.5	12/18/2018	Yes	No		No	No	
Transect 4								
VBSDR-4A	0-0.5	12/18/2018	Yes	No		No	Yes	Selected VBSDR-4C due to presence of odor.
VBSDR-4B	--	12/18/2018	Yes	No				
VBSDR-4C	0-0.5	12/18/2018	Yes	Yes	Odor	No	No	
VBSDR-4D	--	12/18/2018	Yes	No				
VBSDR-4E	0-0.5	12/18/2018	Yes	No		Yes	No	

Table 2
Vince Bayou Sediment COPC Delineation Sample Location Selection Process
US Oil Recovery Superfund Site
Pasadena, TX

Sample ID	Sample Interval ft bss[1]	Sample Date	Is soft sedment present?	Does sample have visual, olfactory or other indicators of potential COPC impacts?	Olfactory or visual potential COPC indicators description (if present)	Is TOC Concentration at the upper end of TOC concentration range?[3]	Is grain size on the lower end of grain size range for locations on this transect?[3]	Sample Selection Notes
Transect 5								
VBSDR-5A	--	12/18/2018	Yes	No				
VBSDR-5B	0-0.5	12/18/2018	Yes	No		No	Yes	Selected VBSDR-5B due to grain size values, proximity to southwest shoreline.
VBSDR-5C	--	12/18/2018	Yes	No				
VBSDR-5D	0-0.5	12/18/2018	Yes	No		No	No	
VBSDR-5E	0-0.5	12/18/2018	Yes	No		Yes	No	Selected VBSDR-5E due to TOC value, presence of odor in second interval.
	0.5-1.0	12/18/2018		Yes	Odor	Yes	No	
Transect 6								
VBSDR-6A	--	12/18/2018	Yes	No				
VBSDR-6B	0-0.5	12/18/2018	Yes	No		No	No	
VBSDR-6C	0-0.5	12/18/2018	Yes	No		Yes	No	Selected VBSDR-6C due to TOC value, proximity to southwest shoreline.
VBSDR-6D	--	12/18/2018	Yes	No				
VBSDR-6E	0-0.5	12/18/2018	Yes	No		Yes	No	
	0.5-1.0	12/18/2018		No		Yes	Yes	
Transect 7								
VBSDR-7A	0-0.4	12/17/2018	Yes	No		Yes		
VBSDR-7B	--	12/17/2018	Yes	Yes	Odor			Selected VBSDR-7B due to the presence of odor.
VBSDR-7C	0-0.5	12/17/2018	Yes	No		Yes	Yes	
	0.5-1.0	12/17/2018				Yes	Yes	
VBSDR-7D	--	12/17/2018	Yes	No				
VBSDR-7E	0-0.5	12/17/2018	Yes	No		No	No	
	0.5-1.0	12/17/2018				No	Yes	
VBSDR-7F	--	12/17/2018	Yes	No				
VBSDR-7G	0-0.5	12/17/2018	Yes	No		No	No	
	0.5-1.0	12/17/2018				No	No	

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Pasadena, TX

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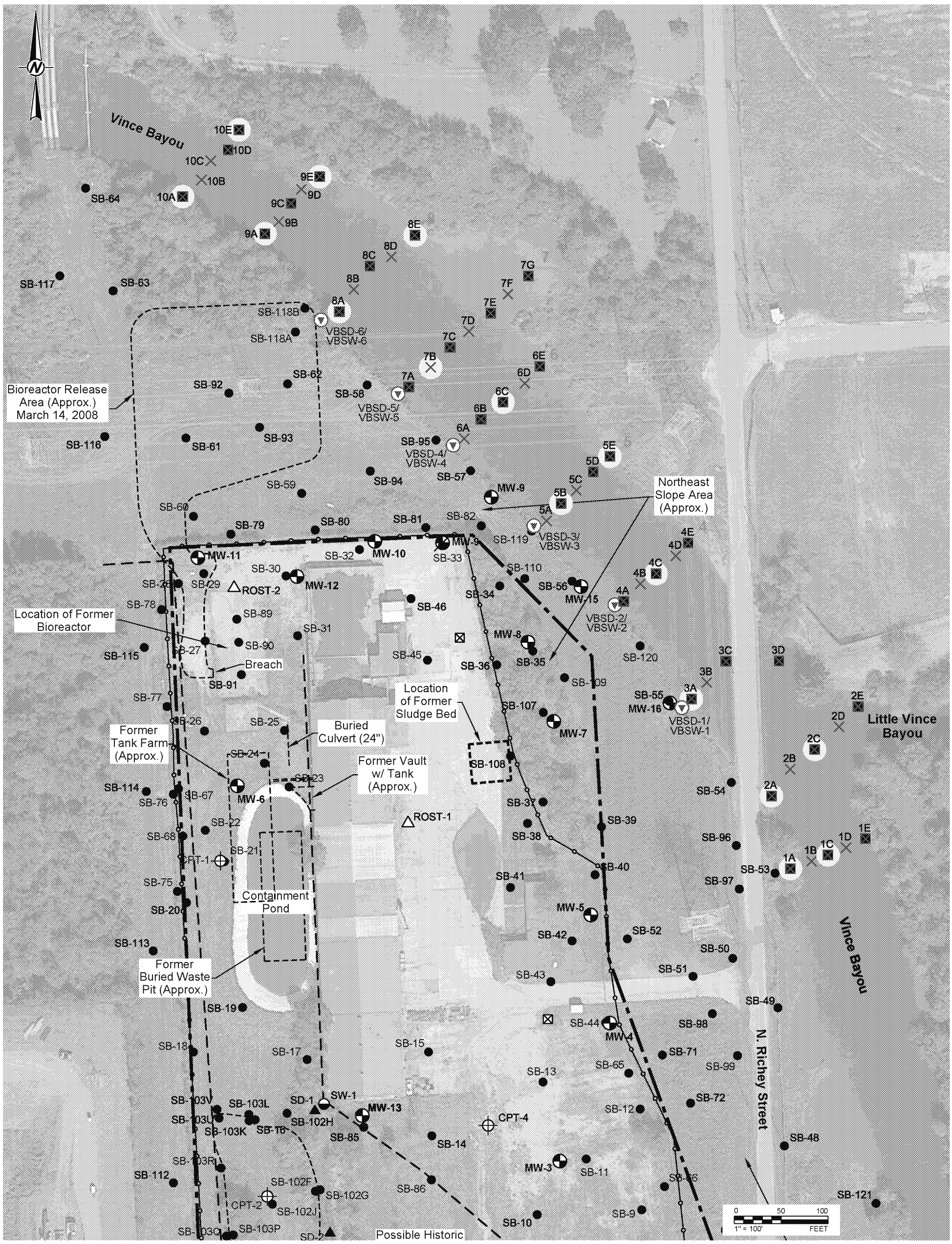
Transect 8								
VBSDR-8A	0-0.5 0.5-1.0	12/17/2018 12/17/2018	Yes	No		No No	Yes Yes	Selected VBSDR-8A due grain size value, proximity to southwest shoreline.
VBSDR-8B	--	12/17/2018	Yes	No				
VBSDR-8C	0-0.5	12/17/2018	Yes	No		No	Yes	
VBSDR-8D	--	12/17/2018	Yes	No				
VBSDR-8E	0-0.5 0.5-1.0	12/17/2018 12/17/2018	Yes	Yes No	Odor	Yes No	No No	Selected VBSDR-8E due to presence of odor, TOC value.
Transect 9								
VBSDR-9A	0-0.5	12/17/2018	Yes	No		Yes	Yes	Selected VBSDR-9A due to TOC/grain size values, proximity to southwest shoreline.
VBSDR-9B	--	12/17/2018	Yes	No				
VBSDR-9C	0-0.5 0.5-1.0	12/17/2018 12/17/2018	Yes	No		No No	No No	
VBSDR-9D	--	12/17/2018	Yes	No				
VBSDR-9E	0-0.5 0.5-1.0	12/17/2018 12/17/2018	Yes	Yes Yes	Odor Odor	No No	No Yes	Selected VBSDR-9E due to presence of odor.
Transect 10								
VBSDR-10A	0-0.5 0.5-1.0	12/17/2018 12/17/2018	Yes	No Yes	Odor	Yes No	Yes Yes	Selected VBSDR-10A due to TOC/grain size values, presence of odor in the second interval, proximity to southwest shoreline.
VBSDR-10B	--	12/17/2018	Yes	No				
VBSDR-10C	--	12/17/2018	No	NA				
VBSDR-10D	0-0.5 0.5-1.0	12/17/2018 12/17/2018	Yes	No		No No	No No	
VBSDR-10E	0-0.5 0.5-1.0	12/17/2018 12/17/2018	Yes	Yes No	Odor	Yes Yes	Yes Yes	Selected VBSDR-10E due to the presence of odor, TOC/grain size values.

Notes:
(1) ft bss - feet below sediment surface
(2) -- indicates samples for TOC and grain size analyses not collected from that location
(3) Responses were based on whether the sample result was above or below the mean of the results for all samples within that transect.
(4) Blue shading indicates location selected for subsequent COPC delineation sample per WRN-8.



LEGEND

- APPROX. PROPERTY BOUNDARY
- APPROX. SECURITY FENCE
- APPROX. PIPELINE LOCATION
- MONITORING WELL LOCATION
- SOIL BORING LOCATION PER RI/FS WORK PLAN OR APPLICABLE WORK PLAN REFINEMENT NOTICE
- ON-PROPERTY SURFACE WATER SAMPLE LOCATION
- ON-PROPERTY SEDIMENT SAMPLE LOCATION
- CPT LOCATION
- CPT/ROST LOCATION
- VINCE BAYOU SEDIMENT/SURFACE WATER SAMPLE LOCATION
- VINCE BAYOU SEDIMENT THICKNESS PROBE LOCATION
- VINCE BAYOU SEDIMENT THICKNESS PROBE AND SEDIMENT SAMPLE LOCATION (TOC, GRAIN SIZE)
- VINCE BAYOU ADDITIONAL SAMPLING LOCATION

NOTE(S)

1. HIGHLIGHTED CIRCLED LOCATIONS ARE SELECTED FOR ADDITIONAL COPC DELINEATION SAMPLING PER WRN-8..

REFERENCE(S)

BASE MAP TAKEN FROM GOOGLE EARTH, PHOTOGRAPHY DATED OCTOBER 28, 2017.

CLIENT
US OIL RECOVERY

PROJECT
US OIL RECOVERY SUPERFUND SITE
PASADENA, HARRIS COUNTY, TEXAS

TITLE
SEDIMENT RECONNAISSANCE STUDY SAMPLE LOCATION MAP

CONSULTANT
GOLDER

YYYY-MM-DD	2019-01-22
DESIGNED	AJD
PREPARED	AJD
REVIEWED	RJR
APPROVED	MKW

PROJECT NO	REV	FIGURE
30403333	0	1