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SAMPLING PROTOCOL FOR ROUTINE UNDERGROUND STORAGE TANK (UST)

REMOVALS UPGRADES REPAIRS

CASE A: WATER NOT PRESENT IN TANK PIT		
TANK SIZE & PIPING	**MINIMUM NUMBER OF SOIL SAMPLES**	**LOCATION OF SOIL SAMPLES**
Up to 12,000 gallons	Two per tank.*	One at each end of tank.
12,000 gallons or more	Three or more per tank.*	Ends and middle of each tank.
Product piping/dispensers	1.Every 20 linear feet of piping, or at each piping coupling, elbow, or tee, and 2.Each dispenser.*	Same as previous column.
STOCKPILES		
A 4-in-1 composite sample for every 50 cubic yards of stockpile soil.		

CASE B: WATER PRESENT IN TANK PIT			
1.The tank pit may be purged and allowed to refill before sampling. The purged water is to be handled correctly.			
2.The water sample is to be representative of water in the tank pit.			
TANK SIZE & PIPING	**MINIMUM NUMBER OF SOIL SAMPLES**	**LOCATION OF SOIL SAMPLES**	**MINIMUM NUMBER OF WATER SAMPLES**
Less than 1,000 gallons	One per excavation.*	A sidewall at soil/groundwater interface.*	One per excavation.*
1,000 to 12,000 gallons	Two per excavation.*	Sidewalls at soil/groundwater interface.*	One per excavation.*
12,000 gallons or more or tank cluster	Three per excavation.*	Two from sidewall at soil/groundwater interface and one from the down gradient sidewall at soil/groundwater interface.*	One per excavation.*
Product Piping/Dispensers	1. Every 20 linear feet of piping, or at each piping coupling, elbow, or tee, and 2.Each dispenser.*	Same as previous column.*	As determined by on-site EMD representative.
STOCKPILES			
A 4-in-1 composite sample for every 50 yards of stockpile soil.			

***:** These are minimums only. The on-site EMD representative may require more samples and/or analysis based upon professional judgment. Generally, samples are to be taken several feet into the native soil by a "qualified third party" firm. Backfill must be handled as hazardous waste or designated waste until determined otherwise.

Individual Analytes and Methods for Soil and Groundwater Samples

Tank Product Type	Analytes	Analytical Method(s)
Gasoline	GRO	EPA 8015B or EPA 8260B/C
	BTEX, naphthalene, MTBE[1], ETBE, DIPE, TAME, TBA, 1,2-DCA	EPA 8260B/C
	Lead[2]	EPA 6010/6020 or EPA 7000/7010 and WET[3]
Diesel, Jet fuels, and Fuel Oils #1 and #2	DRO	EPA 8015B
	BTEX, naphthalene, MTBE	EPA 8260B/C
Heavy Fuel Oils (Bunker fuel, etc.)	DRO, ORO	EPA 8015B
	BTEX, MTBE, naphthalene	EPA 8260B/C
	16 priority pollutant PAHs[4]	EPA 8270E SIM
Waste (Used) Motor Oil and Unknown	GRO	EPA 8015B or EPA 8260B/C
	DRO, ORO	EPA 8015B
	BTEX, naphthalene, chlorinated VOCs[5], MTBE, ETBE, DIPE, TAME, TBA, 1,2-DCA	EPA 8260B/C
	PCBs[5]	EPA 8270E
	16 priority pollutant PAHs	EPA 8270E SIM
	Wear Metals: cadmium, chromium, nickel, lead, zinc[5]	EPA 6010/6020 or EPA 7000/7010 and WET[3]
Dry Cleaning Substance	TPH as Stoddard Solvent	EPA 8015B
	Chlorinated VOCs	EPA 8260B/C

Notes:

1) MTBE to be analyzed for all USTs unless EMD determines the tank contained only diesel or jet fuel per California Health & Safety Code (H&SC) §25296.15(a).
2) Lead to be analyzed if EMD determines the tank was likely to have contained leaded or aviation gasoline.
3) The Waste Extraction Test (WET) method to be used for soil samples where total metals concentrations exceed 10 x STLC. The WET method is described in the California Code of Regulations, Title 22, Division 4.5, Chapter 11, Appendix II. Our objective is to simulate natural soil solution conditions. Therefore, soil pH testing should be conducted prior to the extraction procedure to select an appropriate extractant. If the soil pH is equal to or greater than 6.0, deionized water should be used as the extractant. If the soil pH is less than 6.0, the standard citrate buffer should be used as the extractant.
4) The 16 priority pollutant PAHs are: naphthalene, acenaphthene, acenaphthylene, anthracene, phenanthrene, fluorene, chrysene, fluoranthene, pyrene, benzo(b)fluoranthene, benzo(a) pyrene, benzo(k)fluoranthene, benzo(a)anthracene, indeno(1,2,3-c,d)pyrene, dibenz(a,h)anthracene, benzo(g,h,i)perylene.
5) Analyses for chlorinated solvents, cadmium, chromium, nickel, zinc, and PCBs not required if EMD determines that the tank contained only fuel. Lead, however, is required in all cases.