Organics-PCBs, DDTs, other chlorinated hydrocarbons
All data from the analysis of organic constuents in the NWOD Delta sediments are presented in **Appendix Tables D-2** (OCs and PCBs), **D-3** (non-alkylated PAHs) and **D-4** (alkylated PAHs).

Total PCBs and DDTs were detected in all 20 samples. Total PCB (t-PCB) concentrations ranged from 0.043 – 5.55 mg/kg (geometric mean 0.293 mg/kg), with 19 of 20 samples exceeding the TEC of 0.060 mg/kg and five exceeding the PEC of 0.680 mg/kg. Echoing the contaminant distribution observed for trace metals, the highest detected concentrations of total PCB occurred the furthest off-shore in Transect 6 (**Figure 7-5**).

All six isomers of DDT were detected in NWOD delta sediments, with the isomers of DDD (*o,p'*-DDD and *p,p'*-DDD) the most frequently occurring, in 18 of 20 samples (**Table 7-2**). Maximum detected concentrations of all six isomers exceeded their respective PECs, and geometric mean concentrations of *o,p'*-DDD and *p,p'*-DDE exceeded their TECs (0.005 mg/kg and 0.003 mg/kg, respectively). In contrast to total PCB concentrations, which had a distinct peak in Transect 6 (furthest off-shore), concentrations of DDTs were more evenly distributed throughout the sampling grid (shown as total DDT in **Figure 7-6**).

Non-DDT organochlorines were also detected in NWOD delta sediments, with chlordanes (alpha chlordane, gamma chlordane, cis- and trans- isomers of nonachlor) present at the highest concentrations in this group. This was similar to trends observed in wetland sediments around the GSL during the 1996-1996 contaminants assessment, but concentrations tended to be higher in the NWOD delta. Geometric mean concentrations of alpha chlordane slightly exceeded the TEC (0.0033 mg/kg vs. the TEC of 0.0032 mg/kg). Spatial trends for these compounds were consistent with that seen for other constituents analyzed, with the highest concentrations being present in the furthest off-shore transect, T-6 (**Table 7-3**).

Polynuclear aromatic hydrocarbons (PAHs)
Both alkylated and non-alkylated PAHs were analyzed in NWOD delta sediments. This was done to provide data for a "fingerprint" analysis of PAHs, which can provide information as to the origin and/or source of these compounds, but this analysis was not performed. Complete data from these analyses are provided in **Appendix Tables D-3** (alkylated PAHs) and **D-4** (non-alkylated PAHs). Howver, sediment screening benchmarks are only available for non-alkylated PAHs, so only these compounds are discussed below. Total PAHs (t-PAH), calculated as the summed concentration of all PAHs (using a value of ½ the detection limit for samples with non-detected concentrations) were also evaluated. Two isomers of tetrachlorobenzene (TCB) were also evaluated; sediment screening benchmarks are not available for these compounds either.

As expected, PAHs were widely distributed in the Oil Drain delta with all 25 of the non-alkylated PAHs analyzed detected in at least one sample and with 16 of the 25 detected in all sediment samples. At least one PAH was present >TEC in each of the 20 samples. Nine PAH compounds had mean concentrations in at least one transect that exceeded their respective TECs and the mean concentration of dibenz(*a,h*)anthracene exceeded the PEC in one transect (T-5) (**Table 7-4**),. Three PAH compounds, and t-PEC had maximum detected concentrations > PEC in at least one sample. While PAH concentrations exceeded TECs throughout the sampling grid, the spatial distribution concentrations was similar to that observed previously, the highest concentrations detected at the off-shore edge of the grid (**Figure 7-7**).

Conclusions and Recommendations
The majority of trace elements of concern (e.g., Hg, Cu, Pb, Zn) as well as chlorinated OCs and PAHs were detected in NWOD delta sediments at levels that exceeded threshold sediment toxicity concentrations for individual compounds. These concentrations are known to adversely impact both sediment-dwelling organisms and birds that forage on them.

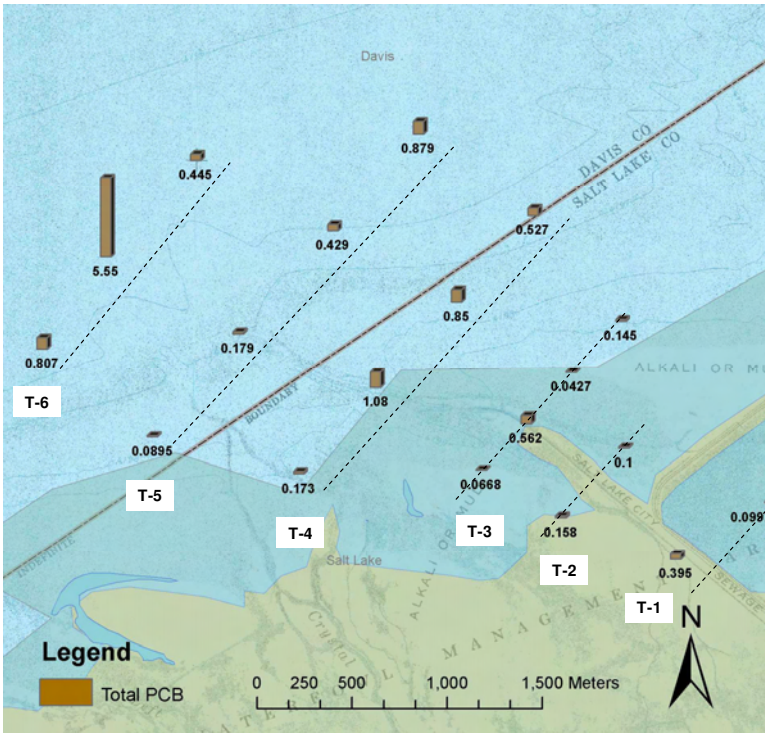

Figure 7-5. Spatial distribution of total PCBs (mg/kg dry weight) in sediments, Northwest Oil Drain Delta of the Great Salt Lake, 2000. Probable effect concentration (PEC) =0.680 mg/kg.

Table 7-2. Summary of DDT isomer concentrations (mg/kg dry weight) in sediments, Great Salt Lake Oil Drain Delta, 2000. Transects are numbered from T-1 (onshore) to T-6 (offshore).

DDT Metabolite	# Detects (of 20)	Geo. Mean Conc.	Max. Conc. (Transect #)	(#) ≥ PEC conc.	Transects ≥ PEC	(#) ≥ TEC conc.
o,p'-DDD	18	*0.006*	0.101 (T-4)	(4) ≥ 0.028	6,5,4	(10) ≥ 0.005
p,p'-DDD	18	*0.008*	0.116 (T-1)	(5) ≥ 0.028	6,5,4	(8) ≥ 0.005
o,p'-DDE	7	NC	0.059 (T-4)	(1) ≥ 0.031	4	(5) ≥ 0.003
p,p'-DDE	17	*0.004*	0.079 (T-1)	(2) ≥ 0.031	6,4	(10) ≥ 0.003
o,p'-DDT	12	0.003	0.200 (T-4)	(2) ≥ 0.063	5,4	(5) ≥ 0.004
p,p'-DDT	4	NC	0.101 (T-4)	(1) ≥ 0.063	4	(4) ≥ 0.004
Total DDTs (summed)	NA	*.0352*	0.360 (T-4)	(0) ≥ 0.572	*None*	(20) ≥ 0.005

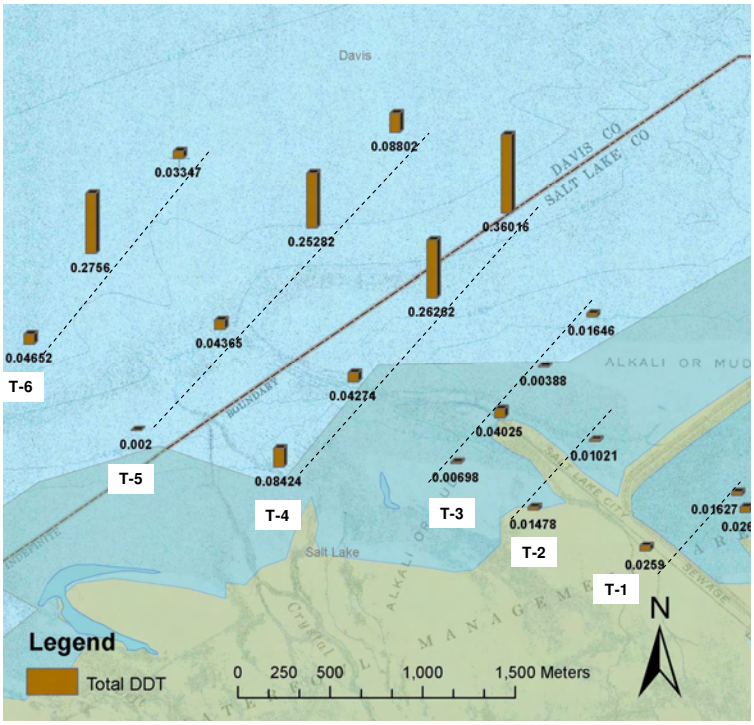

Figure 7-6. Spatial distribution of total DDTs (summed concentrations of o,p'- and p,p'-isomers of DDD, DDE and DDT; mg/kg dry weight) in sediments, Northwest Oil Drain Delta of the Great Salt Lake. Probable effect concentration (PEC) =0.572 mg/kg

Table 7-3. Concentrations of frequently detected chlorinated organic compounds in sediment samples (mg/kg dry weight) compared with sediment screening benchmarks, Northwest Oil Drain Delta, 2000.

	alpha chlordane	**gamma chlordane**	**cis-nonachlor**	**trans-nonachlor**
Threshold Effects Concentration (TEC)	*0.0032*	*0.0032*	*0.0025*	*0.0025*
Probable Effects Concentration (PEC)	**0.018**	**0.018**	**0.016**	**0.016**
All Data (20 samples)				
# detections	15	12	12	10
max conc.	**0.067**	**0.128**	**0.026**	**0.031**
geomean conc	*0.00334*	0.00234	0.00170	0.00160
% ≥ PEC	13%	17%	8%	10%
% ≥ TEC	73%	58%	67%	70%
Transect 6 (offshore; 3 samples)				
# detections	3	3	3	3
max conc.	**0.067**	**0.128**	**0.026**	**0.031**
geomean conc	*0.0107*	**0.0215**	*0.0052*	*0.0056*
% ≥ PEC	33%	33%	33%	33%
% ≥ TEC	100%	100%	66%	66%