TABLE 1: SUMMARY OF CHEMICAL DETECTIONS IN SOIL
CARSON / ALERIS
Corrective Measures Proposal
Carson, California

Analytical Group	Chemical Name	Detection Frequency	Range of Detected Concentrations	Mean Concentration	95 % UCL Concentration[1]	Soil PRG[2] (Commercial Worker)	Soil CHHSL[3] (Commercial Worker)	Exceeds Screening Level[4]	Units
Inorganics									
	Aluminum	57/57	16-72000	16,402	25,023	1.0E+05	NA	No	mg/kg
	Arsenic	63/82	2.1-9.9	3.78	4.20	2.5E-01	2.4E-01	**Yes**	mg/kg
	Barium	78/78	43-270	129	138	6.7E+04	6.3E+04	No	mg/kg
	Beryllium	14/78	0.5-3.6	0.386	0.467	1.9E+03	1.7E+03	No	mg/kg
	Cadmium	46/87	0.51-125	3.47	12.8	4.5E+02	9.9E+02 [a]	No	mg/kg
	Chloride	10/10	62-3005	805	1,926	NA	NA	NA	mg/kg
	Chromium	78/78	7.4-210	26.8	42.1	4.5E+02[b]	2.6E+02 [b]	No	mg/kg
	Cobalt	78/78	3.2-200	17.5	32.5	1.9E+03	3.2E+03	No	mg/kg
	Copper	191/193	0.3-10825	372	869	4.1E+04	3.8E+04	No	mg/kg
	Cyanide (total)	7/10	0.08-0.98	0.281	0.719	1.2E+04	NA	No	mg/kg
	Lead	187/190	2-645	49.4	89.0	8.0E+02	3.5E+03	No [e]	mg/kg
	Mercury	65/78	0.021-0.23	0.1	0.0846	3.1E+02	1.8E+02	No	mg/kg
	Molybdenum	17/78	2-30	2.23	4.08	5.1E+03	4.8E+03	No	mg/kg
	Nickel	78/78	6.2-500	27.1	56.9	2.0E+04	1.6E+04	No	mg/kg
	Selenium	1/78	2.1	1.19	1.29	5.1E+03	4.8E+03	No	mg/kg
	Silver	2/78	1.3-4.8	0.639	0.74	5.1E+03	4.8E+03	No	mg/kg
	Sulfate	10/10	16-184	95.1	123	NA	NA	NA	mg/kg
	Sulfide (total)	0/10	ND	ND	ND	NA	NA	NA	mg/kg
	Vanadium	78/78	15-76	38.8	41.0	1.0E+03	6.7E+03	No	mg/kg
	Zinc	190/190	1.1-7825	449	891	1.0E+05	1.0E+05	No	mg/kg
TPH									
	TEPH (C8-C40)	51/100	5.6-49000	1,982	9,722	5.2E+04[c]	5.2E+04[c]	No	mg/kg
	TPH (diesel)	7/17	25-3400	621	1,824	3.7E+04[c]	3.7E+04[c]	No	mg/kg
	TPH (extractable - rolling oil)	18/36	11-19701	1,591	8,389	5.2E+04[c]	5.2E+04[c]	No	mg/kg
	TPH (gasoline)	12/20	0.12-2800	483	1,381	2.7E+04[d]	2.7E+04[d]	No	mg/kg
	TRPH	4/5	27-310	89.0	459	5.2E+04[c]	5.2E+04[c]	No	mg/kg
	TVPH (C6-C12)	30/97	0.54-41000	1,924	3,671	2.7E+04[d]	2.7E+04[d]	**Yes**	mg/kg
VOC									
	1,1,1-Trichloroethane	0/33	ND	ND	ND	NA	NA	NA	mg/kg
	1,1,2,2-Tetrachloroethane	1/94	0.002	0.0224	0.113	9.3E-01	NA	No	mg/kg
	1,1,2-Trichloroethane	0/33	ND	ND	ND	NA	NA	NA	mg/kg
	1,1-Dichloroethane	0/33	ND	ND	ND	NA	NA	NA	mg/kg
	1,1-Dichloroethylene	0/33	ND	ND	ND	NA	NA	NA	mg/kg
	1,2,4-Trimethylbenzene	14/81	0.002-290	3.61	39.2	1.7E+02	NA	**Yes**	mg/kg
	1,2-Dichlorobenzene	0/13	ND	ND	ND	NA	NA	NA	mg/kg
	1,2-Dichloroethane (EDC)	0/33	ND	ND	ND	NA	NA	NA	mg/kg
	1,2-Dichloropropane	0/33	ND	ND	ND	NA	NA	NA	mg/kg
	1,3,5-Trimethylbenzene	11/81	0.0021-96	1.20	8.60	7.0E+01	NA	**Yes**	mg/kg
	1,3-Dichlorobenzene	0/13	ND	ND	ND	NA	NA	NA	mg/kg
	1,4-Dichlorobenzene	0/13	ND	ND	ND	NA	NA	NA	mg/kg
	2-Chloroethylvinyl ether	0/13	ND	ND	ND	NA	NA	NA	mg/kg
	4-Isopropyltoluene	4/81	0.002-4.8	0.0609	0.431	2.0E+03	NA	No	mg/kg
	Benzene	2/33	0.61-0.74	0.0623	0.344	1.4E+00	NA	No	mg/kg
	Bromodichloromethane	0/33	ND	ND	ND	NA	NA	NA	mg/kg
	Bromoform	0/13	ND	ND	ND	NA	NA	NA	mg/kg
	Bromomethane	0/13	ND	ND	ND	NA	NA	NA	mg/kg
	Carbon Tetrachloride	0/33	ND	ND	ND	NA	NA	NA	mg/kg
	Chlorobenzene	0/13	ND	ND	ND	NA	NA	NA	mg/kg
	Chloroethane	0/13	ND	ND	ND	NA	NA	NA	mg/kg
	Chloroform	0/33	ND	ND	ND	NA	NA	NA	mg/kg
	Chloromethane	0/13	ND	ND	ND	NA	NA	NA	mg/kg
	cis-1,2-Dichloroethylene	0/20	ND	ND	ND	NA	NA	NA	mg/kg
	cis-1,3-Dichloropropylene	0/33	ND	ND	ND	NA	NA	NA	mg/kg
	Dibromochloromethane	0/13	ND	ND	ND	NA	NA	NA	mg/kg
	Dichlorodifluoromethane (R12)	0/20	ND	ND	ND	NA	NA	NA	mg/kg
	Ethylbenzene	20/124	0.0037-34	0.831	4.52	4.0E+02	NA	No	mg/kg
	Isopropylbenzene	9/81	0.002-9.4	0.120	0.844	2.0E+03	NA	No	mg/kg
	Methylene Chloride	1/114	0.11	0.187	1.25	2.1E+01	NA	No	mg/kg
	Naphthalene	10/81	0.0058-69	0.861	6.18	4.2E+00	NA	**Yes**	mg/kg
	n-Butylbenzene	1/81	52	0.646	4.65	2.4E+02	NA	No	mg/kg
	n-Propylbenzene	8/81	0.0034-43	0.535	3.85	2.4E+02	NA	No	mg/kg
	sec-Butylbenzene	4/81	0.0056-0.067	0.0647	0.438	2.2E+02	NA	No	mg/kg
	Tetrachloroethylene (PCE)	12/124	0.0026-0.19	0.0291	0.128	1.3E+00	NA	No	mg/kg
	Toluene	17/124	0.021-11	0.191	1.12	5.2E+02	NA	No	mg/kg
	Total Xylenes	31/124	0.0022-220	5.61	32.2	4.2E+02	NA	No	mg/kg
	trans-1,2-Dichloroethylene	0/33	ND	ND	ND	NA	NA	NA	mg/kg
	trans-1,3-Dichloropropylene	0/33	ND	ND	ND	NA	NA	NA	mg/kg
	Trichloroethylene (TCE)	1/114	0.0022	0.0228	0.129	1.1E-01	NA	No	mg/kg

TABLE 1: SUMMARY OF CHEMICAL DETECTIONS IN SOIL
CARSON / ALERIS
Corrective Measures Proposal
Carson, California

Analytical Group	Chemical Name	Detection Frequency	Range of Detected Concentrations	Mean Concentration	95 % UCL Concentration[1]	Soil PRG[2] (Commercial Worker)	Soil CHHSL[3] (Commercial Worker)	Exceeds Screening Level[4]	Units
VOC									
	Trichlorofluoromethane (R11)	0/33	ND	ND	ND	NA	NA	NA	mg/kg
	Vinyl chloride	0/33	ND	ND	ND	NA	NA	NA	mg/kg

Notes:

[1]Corresponds to the 95% Upper Confidence Level (UCL) of the arithmetic mean calculated using ProUCL version 3.00.02 and assuming that chemicals reported as non-detect (ND) are present at one-half the method detection limit as recommended by the USEPA (1989). The maximum detected value of the primary and field duplicate sample analytical results included in the calculations. If both values were ND, the minimum detection limit was included in the calculations.

[2] US EPA Region IX Preliminary Remediation Goals (2004). October Available at http://www.epa.gov/region09/waste/sfund/prg/files/04prgtable.pdf

[3] California Human Health Screening Level (CHHSL) commercial / industrial soil screening numbers from Cal/EPA (2004). *Human-Exposure-Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil*. Office of Environmental Health Hazard Assessment (OEHHA) Integrated Risk Assessment Section. November, revised January 2005.

[4] Consistuent exceeds screening level if the maximum concentration detected at the Site is greater than a screening level for that consituent.

[a] Revised to reflect the Cal/EPA Department of Toxic Substances Control Human and Ecological Risk Division's current policy that cadmium is not considered as a carcinogen via the oral route. The revised screening value was calculated using methodology consistent with that used by Cal/EPA to calculate CHHSLs (Cal/EPA 2004), resulting in risk-based concentrations under a commercial setting of 1255 mg/kg for cancer risk and 990 mg/kg for noncancer hazard.

[b] Values for total chromium assumes a 1:6 ratio of hexavalent to trivalent chromium. CHHSLs for total chromium presented here are based on adjusted toxicity values for the 1:6 ratio assumption and calculated using the methodology for calculating soil risk-based screening levels presented in the CHHSLs document.

[c] Carcinogenic effects are evaluated using soil sampling data analyzed for VOCs. Noncancer effects are evaluated using the approach set forth by the Total Petroleum Hydrocarbon Criteria Working Group (TPHCWG, 1997) as discussed in Appendix D. Toxicity for TEPH and TRPH are assumed to be equivalent to TPH-rolling oil.

[d] Carcinogenic effects are evaluated using soil and soil gas sampling data analyzed for VOCs. Noncancer effects are evaluated using the approach set forth by the Total Petroleum Hydrocarbon Criteria Working Group (TPHCWG, 1997) as discussed in Appendix D. Toxicity for TVPH are assumed to be equivalent to TPH-gasoline.

[e] Although the maximum lead concentration does not exceed either the PRG or CHHSL values, it is above the health-based level of 340 mg/kg derived using the USEPA Adult Lead Model presented in the health risk evaluation in Appendix D. Note that only 2 samples (SB-10-3 and HA-2-1) exceed this health-based screening level and that these 2 samples are within the northwestern area of the Site that is subject to deed notification.

mg/kg = milligrams per kilogram.
NA = Not applicable, screening level not available.
ND = Not detected at or above the reporting limit for this compound.
TPH = Total petroleum hydrocarbons.
TEPH (C8-C40) = Total extractable petroleum hydrocarbons.
TRPH = Total residual petroleum hydrocarbons.
TVPH (C6-C12) = total volatile petroleum hydrocarbons.
VOC = Volatile organic compound.

References:

California Environmental Protection Agency (Cal/EPA). 2004. *Human-Exposure-Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil*. Office of Environmental Health Hazard Assessment (OEHHA) Integrated Risk Assessment Section. November, revised January 2005.

Total Petroleum Hydrocarbon Criteria Working Group (TPHCWG). 1997. *Volume 4: Development of Fraction Specific Reference Doses (RfDs) and Reference Concentrations (RfCs) for Total Petroleum Hydrocarbons (TPH).*

United States Environmental Protection Agency (1989). *Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Manual (Part A). Interim Final*. Office of Emergency and Remedial Response. EPA 540/1 89/002. Washington, D.C. December.

TABLE 2: SUMMARY OF CHEMICAL DETECTIONS IN SOIL GAS
CARSON / ALERIS
Corrective Measures Proposal
Carson, California

Analytical Group	Chemical Name	Detection Frequency	Range of Detected Concentrations	Mean Concentration	95 % UCL Concentration[1]	Soil Gas Screening Level[2]	Exceeds Screening Level[3]	Units
Gases								
	Carbon Dioxide	13/14	1.6-18	3.60	15.2	NA	NA	%
	Carbon Monoxide	0/14	ND	ND	ND	NA	NA	%
	Ethane	0/14	ND	ND	ND	NA	NA	%
	Ethene	0/14	ND	ND	ND	NA	NA	%
	Methane	3/14	0.00041-12	0.863	9.39	NA	NA	%
	Nitrogen	14/14	69-98	84.2	87.6	NA	NA	%
	Oxygen	14/14	1.2-20	11.3	14.0	NA	NA	%
VOC								
	1,1,1-Trichloroethane	4/10	6.2-35	7.88	22.3	7.0E+06	No	ug/m^3
	1,1,2,2-Tetrachloroethane	0/10	ND	ND	ND	NA	NA	ug/m^3
	1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	0/10	ND	ND	ND	NA	NA	ug/m^3
	1,1,2-Trichloroethane	0/10	ND	ND	ND	NA	NA	ug/m^3
	1,1-Dichloroethane	3/10	6.3-14	3.85	9.46	5.7E+03 *	No	ug/m^3
	1,1-Dichloroethylene	1/10	10	2.48	6.12	2.0E+05 *	No	ug/m^3
	1,2,4-Trichlorobenzene	0/10	ND	ND	ND	NA	NA	ug/m^3
	1,2,4-Trimethylbenzene	9/10	16-76	34.5	47.4	2.2E+04 *	No	ug/m^3
	1,2-Dibromoethane (EDB)	0/10	ND	ND	ND	NA	NA	ug/m^3
	1,2-Dichloro-1,1,2,2,-tetrafluoroethane (R114)	0/10	ND	ND	ND	NA	NA	ug/m^3
	1,2-Dichlorobenzene	0/10	ND	ND	ND	NA	NA	ug/m^3
	1,2-Dichloroethane (EDC)	0/10	ND	ND	ND	NA	NA	ug/m^3
	1,2-Dichloropropane	0/10	ND	ND	ND	NA	NA	ug/m^3
	1,3,5-Trimethylbenzene	9/10	4.5-19	9.33	12.5	2.2E+04 *	No	ug/m^3
	1,3-Butadiene	0/10	ND	ND	ND	NA	NA	ug/m^3
	1,3-Dichlorobenzene	0/10	ND	ND	ND	NA	NA	ug/m^3
	1,4-Dichlorobenzene	0/10	ND	ND	ND	NA	NA	ug/m^3
	1,4-Dioxane	1/10	27	8.10	12.3	1.1E+03 *	No	ug/m^3
	2,2,4-Trimethylpentane	9/10	13-35	21.8	27.7	2.5E+06 *	No	ug/m^3
	2-Butanone (MEK)	9/10	4.9-31	15.9	21.1	1.5E+07 *	No	ug/m^3
	2-Hexanone (MBK)	0/10	ND	ND	ND	NA	NA	ug/m^3
	2-Propanol	1/10	13	4.96	6.75	1.9E+07 *	No	ug/m^3
	3-Chloropropene	0/10	ND	ND	ND	NA	NA	ug/m^3
	4-Ethyltoluene	9/10	8.2-43	19.1	26.4	3.5E+05 *	No	ug/m^3
	4-Methyl-2-pentanone (MIBK)	7/10	4.9-12	5.67	7.58	9.6E+06 *	No	ug/m^3
	Acetone	10/10	14-470	245	332	7.4E+06 *	No	ug/m^3
	alpha-Chlorotoluene	0/10	ND	ND	ND	NA	NA	ug/m^3
	Benzene	9/10	3.8-40	13.2	24.1	2.8E+02	No	ug/m^3
	Bromodichloromethane	0/10	ND	ND	ND	NA	NA	ug/m^3
	Bromoform	0/10	ND	ND	ND	NA	NA	ug/m^3
	Bromomethane	0/10	ND	ND	ND	NA	NA	ug/m^3
	Carbon Disulfide	9/10	3.4-34	9.11	16.2	1.9E+06 *	No	ug/m^3
	Carbon Tetrachloride	0/10	ND	ND	ND	NA	NA	ug/m^3
	Chlorobenzene	0/10	ND	ND	ND	NA	NA	ug/m^3
	Chloroethane	1/10	3.9	1.38	1.94	5.9E+03 *	No	ug/m^3
	Chloroform	1/10	4.1	2.26	2.67	1.4E+03 *	No	ug/m^3
	Chloromethane	0/10	ND	ND	ND	NA	NA	ug/m^3
	cis-1,2-Dichloroethylene	3/10	25-170	26.8	133	1.2E+05	No	ug/m^3
	cis-1,3-Dichloropropylene	0/10	ND	ND	ND	NA	NA	ug/m^3
	Cyclohexane	1/10	8.8	2.17	5.38	1.9E+07 *	No	ug/m^3
	Dibromochloromethane	0/10	ND	ND	ND	NA	NA	ug/m^3
	Dichlorodifluoromethane (R12)	0/10	ND	ND	ND	NA	NA	ug/m^3
	Ethanol	9/10	7.2-38	20.0	27.0	8.5E+05 *	No	ug/m^3
	Ethylbenzene	9/10	5.6-24	13.2	17.4	3.2E+06 *	No	ug/m^3
	Heptane	9/10	4.8-20	10.0	13.1	2.4E+06 *	No	ug/m^3
	Hexachlorobutadiene	0/10	ND	ND	ND	NA	NA	ug/m^3
	Hexane	9/10	6.4-66	20.1	37.9	1.4E+06 *	No	ug/m^3
	Isopropylbenzene	0/10	ND	ND	ND	NA	NA	ug/m^3
	m,p-Xylenes	9/10	26-120	60.0	80.6	2.2E+06	No	ug/m^3
	Methylene Chloride	5/10	3.1-3.9	2.55	3.23	7.6E+03 *	No	ug/m^3
	Methyl-tert-Butyl Ether (MTBE)	0/10	ND	ND	ND	NA	NA	ug/m^3
	n-Propylbenzene	3/10	4.6-7.7	3.31	6.33	5.3E+05 *	No	ug/m^3
	o-Xylene	9/10	11-49	25.3	33.7	2.1E+06	No	ug/m^3
	Styrene	0/10	ND	ND	ND	NA	NA	ug/m^3
	Tetrachloroethylene (PCE)	9/10	7.2-710	263	927	1.6E+03	No	ug/m^3
	Tetrahydrofuran	8/10	2.6-4.3	3.08	3.76	4.1E+03 *	No	ug/m^3
	Toluene	9/10	22-73	41.8	54.2	8.9E+05	No	ug/m^3

TABLE 2: SUMMARY OF CHEMICAL DETECTIONS IN SOIL GAS
CARSON / ALERIS
Corrective Measures Proposal
Carson, California

Analytical Group	Chemical Name	Detection Frequency	Range of Detected Concentrations	Mean Concentration	95 % UCL Concentration[1]	Soil Gas Screening Level[2]	Exceeds Screening Level[3]	Units
VOC								
	trans-1,2-Dichloroethylene	2/10	4.3-4.7	2.21	2.95	2.4E+05	No	ug/m^3
	trans-1,3-Dichloropropylene	0/10	ND	ND	ND	NA	NA	ug/m^3
	Trichloroethylene (TCE)	7/10	6-360	77.9	339	4.4E+03	No	ug/m^3
	Trichlorofluoromethane (R11)	6/10	8.2-20	9.04	12.9	2.1E+06 *	No	ug/m^3
	Vinyl chloride	2/10	4.5-5.3	1.83	4.07	9.5E+01	No	ug/m^3
TVPH								
	TVPH	5/40	300,000-1,500,000	145,500	ND	1.0E+06	Yes	ug/m^3

Notes:

[1]Corresponds to the 95% Upper Confidence Level (UCL) of the arithmetic mean calculated using ProUCL version 3.00.02 and assuming that chemicals reported as non-detect (ND) are present at one-half the method detection limit as recommended by the USEPA (1989). The maximum detected value of either the primary or the field duplicate sample analytical results included in the calculations. If both values were ND, the minimum detection limit was included in the calculations.

[2] California Human Health Screening Level (CHHSL) commercial / industrial soil gas screening numbers for volatile chemicals below buildings constructed with engineered fill below sub-slab gravel developed by Cal/EPA (2004). CHHSLs are not currently available for those compounds where values are marked with an asterisk; screening levels were developed for these compounds using methodology presented in the CHHSLs document.

[3] Consistuent exceeds screening level if the maximum concentration detected at the Site is greater than a screening level for that consituent.

* See note 2 above.
NA = Not applicable. Health-based screening level not available or constituent was not detected.
ND = Not detected at or above the reporting limit for this compound.
ug/m^3 = micrograms per cubic meter.
VOC = Volatile organic compound.
TVPH = Total Volatile Petroleum Hydrocarbons

References:

California Environmental Protection Agency (Cal/EPA). 2004. *Human-Exposure-Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil*. Office of Environmental Health Hazard Assessment (OEHHA) Integrated Risk Assessment Section. November, revised January 2005.

United States Environmental Protection Agency (USEPA). 1989. *Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Manual (Part A). Interim Final*. Office of Emergency and Remedial Response. EPA 540/1 89/002. Washington, D.C. December.

TABLE 3: SUMMARY OF CHEMICAL DETECTIONS IN GROUNDWATER
CARSON / ALERIS
Corrective Measures Proposal
Carson, California

Analytical Group	Chemical Name	Detection Frequency	Range of Detected Concentrations	Mean Concentration	95 % UCL Concentration[1]	USEPA MCL	Cal DHS MCL	Exceeds Screening Level[2]	Units
BTEX									
	Benzene	0/1	ND	ND	ND	0.005	0.001	No	mg/L
	Ethylbenzene	0/1	ND	ND	ND	0.7	0.3	No	mg/L
	Toluene	0/1	ND	ND	ND	1	0.15	No	mg/L
	Total Xylenes	0/1	ND	ND	ND	10	1.75	No	mg/L
TPH								No	
	TPH (extractable - rolling oil)	0/1	ND	ND	ND	NA	NA	NA	mg/L
Inorganics									
	Aluminum	2/6	1.4-11	2.08	N/R	NA	1	**Yes**	mg/L
	Antimony	0/6	ND	ND	ND	0.006	0.006	No	mg/L
	Arsenic	4/6	0.0071-0.04	0.0121	0.0322	0.01	0.05	**Yes**	mg/L
	Barium	3/6	0.32-0.46	0.184	0.354	2	1	No	mg/L
	Beryllium	0/6	ND	ND	ND	0.004	0.004	No	mg/L
	Cadmium	0/6	ND	ND	ND	0.005	0.005	No	mg/L
	Chromium	0/6	ND	ND	ND	0.1	0.05	No	mg/L
	Cobalt	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Copper	1/6	0.061	0.0110	0.0546	1.3	NA	No	mg/L
	Lead	1/6	0.011	0.00267	0.01	0.015	NA	No	mg/L
	Mercury	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Molybdenum	4/6	0.063-7.7	1.35	6.89	NA	NA	NA	mg/L
	Nickel	1/6	0.15	0.0267	N/R	NA	0.1	**Yes**	mg/L
	Selenium	2/6	0.0083-0.013	0.00488	0.0158	0.05	0.05	No	mg/L
	Silver	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Thallium	0/6	ND	ND	ND	0.002	0.002	No	mg/L
	Vanadium	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Zinc	3/6	0.11-0.14	0.0619	0.959	NA	NA	NA	mg/L
Inorganics - Dissolved									
	Aluminum	0/6	ND	ND	N/R	NA	1	No	mg/L
	Antimony	0/6	ND	ND	ND	0.006	0.006	No	mg/L
	Arsenic	1/6	0.017	0.00533	0.0322	0.01	0.05	**Yes**	mg/L
	Barium	0/6	ND	ND	0.354	2	1	No	mg/L
	Beryllium	0/6	ND	ND	ND	0.004	0.004	No	mg/L
	Cadmium	0/6	ND	ND	ND	0.005	0.005	No	mg/L
	Chromium	0/6	ND	ND	ND	0.1	0.05	No	mg/L
	Cobalt	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Copper	0/6	ND	ND	0.0546	1.3	NA	No	mg/L
	Lead	0/6	ND	ND	0.00993	0.015	NA	No	mg/L
	Mercury	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Molybdenum	4/6	0.05-7.7	1.33	6.89	NA	NA	NA	mg/L
	Nickel	1/6	0.14	0.0250	N/R	NA	0.1	No	mg/L
	Selenium	2/6	0.013	0.00567	0.0158	0.05	0.05	No	mg/L
	Silver	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Thallium	0/6	ND	ND	ND	0.002	0.002	No	mg/L
	Vanadium	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Zinc	0/6	ND	ND	0.959	NA	NA	NA	mg/L
VOC									
	1,1,1,2-Tetrachloroethane	0/6	ND	ND	ND	NA	NA	NA	mg/L
	1,1,1-Trichloroethane	0/6	ND	ND	ND	0.2	0.2	No	mg/L
	1,1,2,2-Tetrachloroethane	0/6	ND	ND	ND	NA	0.001	No	mg/L
	1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	0/6	ND	ND	ND	NA	1.2	No	mg/L
	1,1,2-Trichloroethane	0/6	ND	ND	ND	0.005	0.005	No	mg/L
	1,1-Dichloroethane	3/6	0.00064-0.0077	0.00167	0.0177	NA	0.005	**Yes**	mg/L
	1,1-Dichloroethylene	2/6	0.00062-0.00094	0.000360	0.000966	0.007	0.006	No	mg/L
	1,1-Dichloropropylene	0/6	ND	ND	ND	NA	NA	NA	mg/L
	1,2,3-Trichlorobenzene	0/6	ND	ND	ND	NA	NA	NA	mg/L
	1,2,3-Trichloropropane	0/6	ND	ND	ND	NA	NA	NA	mg/L
	1,2,4-Trichlorobenzene	0/6	ND	ND	ND	0.07	0.005	No	mg/L
	1,2,4-Trimethylbenzene	0/6	ND	ND	ND	NA	NA	NA	mg/L
	1,2-Dibromo-3-chloropropane	0/6	ND	ND	ND	0.0002	NA	No	mg/L
	1,2-Dibromoethane (EDB)	0/6	ND	ND	ND	0.00005	0.00005	No	mg/L
	1,2-Dichlorobenzene	0/6	ND	ND	ND	0.6	0.6	No	mg/L
	1,2-Dichloroethane (EDC)	0/6	ND	ND	ND	0.005	0.0005	No	mg/L
	1,2-Dichloropropane	0/6	ND	ND	ND	0.005	0.005	No	mg/L
	1,3,5-Trimethylbenzene	0/6	ND	ND	ND	NA	NA	NA	mg/L
	1,3-Dichlorobenzene	0/6	ND	ND	ND	NA	NA	NA	mg/L
	1,3-Dichloropropane	0/6	ND	ND	ND	NA	NA	NA	mg/L
	1,4-Dichlorobenzene	0/6	ND	ND	ND	0.075	0.005	No	mg/L
	2,2-Dichloropropane	0/6	ND	ND	ND	NA	NA	NA	mg/L
	2-Butanone (MEK)	0/6	ND	ND	ND	NA	NA	NA	mg/L

TABLE 3: SUMMARY OF CHEMICAL DETECTIONS IN GROUNDWATER
CARSON / ALERIS
Corrective Measures Proposal
Carson, California

Analytical Group	Chemical Name	Detection Frequency	Range of Detected Concentrations	Mean Concentration	95 % UCL Concentration[1]	USEPA MCL	Cal DHS MCL	Exceeds Screening Level[2]	Units
VOC									
	2-Chlorotoluene	0/6	ND	ND	ND	NA	NA	NA	mg/L
	2-Hexanone (MBK)	0/6	ND	ND	ND	NA	NA	NA	mg/L
	4-Bromofluorobenzene	6/6	0.0527-0.0548	0.0538	0.0544	NA	NA	NA	mg/L
	4-Chlorotoluene	0/6	ND	ND	ND	NA	NA	NA	mg/L
	4-Isopropyltoluene	0/6	ND	ND	ND	NA	NA	NA	mg/L
	4-Methyl-2-pentanone (MIBK)	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Acetone	1/6	0.023	0.00467	0.0206	NA	NA	NA	mg/L
	Benzene	0/6	ND	ND	ND	0.005	0.001	No	mg/L
	Bromobenzene	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Bromochloromethane	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Bromodichloromethane	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Bromoform	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Bromomethane	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Carbon Disulfide	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Carbon Tetrachloride	0/6	ND	ND	ND	0.005	0.0005	No	mg/L
	Chlorobenzene	0/6	ND	ND	ND	0.1	0.07	No	mg/L
	Chloroethane	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Chloroform	1/6	0.00052	0.000212	0.000480	0.08	NA	No	mg/L
	Chloromethane	0/6	ND	ND	ND	NA	NA	NA	mg/L
	cis-1,2-Dichloroethylene	1/6	0.0016	0.000350	0.00144	0.07	0.006	No	mg/L
	cis-1,3-Dichloropropylene	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Dibromochloromethane	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Dibromofluoromethane	6/6	0.0498-0.0529	0.0513	0.0522	NA	NA	NA	mg/L
	Dibromomethane	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Dichlorodifluoromethane (R12)	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Diisopropyl ether (DIPE)	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Ethylbenzene	0/6	ND	ND	ND	0.7	0.3	No	mg/L
	Ethyl-tert-Butyl Ether (ETBE)	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Hexachlorobutadiene	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Isopropylbenzene	0/6	ND	ND	ND	NA	NA	NA	mg/L
	m,p-Xylenes	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Methylene Chloride	0/6	ND	ND	ND	0.005	0.005	No	mg/L
	Methyl-tert-Butyl Ether (MTBE)	0/6	ND	ND	ND	NA	0.013	No	mg/L
	Naphthalene	0/6	ND	ND	ND	NA	NA	NA	mg/L
	n-Butylbenzene	0/6	ND	ND	ND	NA	NA	NA	mg/L
	n-Propylbenzene	0/6	ND	ND	ND	NA	NA	NA	mg/L
	o-Xylene	0/6	ND	ND	ND	NA	NA	NA	mg/L
	sec-Butylbenzene	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Styrene	0/6	ND	ND	ND	0.1	0.1	No	mg/L
	tert-Amyl Methyl Ether (TAME)	0/6	ND	ND	ND	NA	NA	NA	mg/L
	tert-Butyl alcohol (TBA)	0/6	ND	ND	ND	NA	NA	NA	mg/L
	tert-Butylbenzene	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Tetrachloroethylene (PCE)	2/6	0.00051-0.0016	0.000518	0.00148	0.005	0.005	No	mg/L
	Toluene	0/6	ND	ND	ND	1	0.15	No	mg/L
	trans-1,2-Dichloroethylene	0/6	ND	ND	ND	0.1	0.01	No	mg/L
	trans-1,3-Dichloropropylene	0/6	ND	ND	ND	NA	NA	NA	mg/L
	Trichloroethylene (TCE)	3/6	0.0019-0.017	0.00422	0.0555	0.005	0.005	**Yes**	mg/L
	Trichlorofluoromethane (R11)	0/6	ND	ND	ND	NA	0.15	No	mg/L
	Vinyl chloride	0/6	ND	ND	ND	0.002	0.0005	No	mg/L

Notes:

[1] Recommended 95% upper confidence limit calculated using USEPA ProUCL Statistical Software Version 3.00.02

[1]Corresponds to the 95% Upper Confidence Level (UCL) of the arithmetic mean calculated using ProUCL version 3.00.02 and assuming that chemicals reported as non-detect (ND) are present at one-half the method detection limit as recommended by the USEPA (1989). The maximum detected value of the primary and field duplicate sample analytical results included in the calculations.

BTEX = Benzene, toluene, ethylbenzene and xylenes.
USEPA MCL = United States Environmental Protection Agency primary maximum contaminant level for drinking water.
Cal DHS MCL = California Department of Health Services primary maximum contaminant level for drinking water.
mg/L = milligrams per liter.
NA = Not applicable, screening level not available.
ND = Not detected at or above the reporting limit for this compound.
N/R = ProUCL could not recommend a 95% upper confidence limit for these data.
TPH = Total petroleum hydrocarbons.
VOC = Volatile organic compound.

References:

United States Environmental Protection Agency (1989).*Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Manual (Part A). Interim Final*. Office of Emergency and Remedial Response. EPA 540/1 89/002. Washington, D.C. December.

TABLE 4: TCE, PCE, and Breakdown Products in Groundwater at Well MW-3
ALERIS ALUMINUM
Corrective Measures Proposal
Carson, California

	Analytes						
Sample Date	TCE ug/L	PCE ug/L	1,1-DCA ug/L	1,1-DCE ug/L	1,2-DCA ug/L	cis-1,2-DCE ug/L	trans-1,2-DCE ug/L
03/12/92	<0.5	<0.5	<0.5	<0.5	--	--	--
07/22/92	**14**	<0.5	<0.5	**4.1**	--	--	--
11/03/92	**16**	<0.5	<0.5	**8.7**	--	--	--
01/25/93	**9**	<0.5	<0.5	<0.5	--	--	--
05/05/93	**18**	**1.2**	**3**	**3.2**	--	--	--
08/04/93	**8.2**	<0.5	<0.5	<0.5	--	--	--
11/03/93	**11**	<0.5	<0.5	<0.5	--	--	--
01/28/94	**11**	**1.4**	**3.7**	**4.9**	--	--	--
04/28/94	**14**	<0.5	**0.83**	**2.2**	--	--	--
08/10/94	**17**	<0.5	**3.2**	**2.8**	--	--	--
04/12/95	**13**	**0.96**	**1.9**	**1.1**	--	--	--
08/22/95	**11**	**0.72**	**1.7**	**2.2**	--	--	--
10/18/95	**15**	**1.3**	**2.1**	**1.5**	--	--	--
01/11/96	**16**	**1.4**	**2.4**	**2.4**	--	--	--
05/24/96	**14**	**1.4**	<0.5	<0.5	--	--	--
10/23/96	**12**	**0.96**	**1.5**	**3.5**	--	--	--
03/06/97	**9.8**	**0.56**	<0.5	**0.97**	--	--	--
06/20/97	**9.5**	**0.63**	**0.89**	<0.5	--	--	--
09/25/97	**12**	**1.5**	**1.6**	**1.2**	--	--	--
01/09/98	**7.6**	**0.68**	<0.5	<0.5	--	--	--
03/25/98	**8.3**	<0.5	**0.88**	<0.5	--	--	--
06/22/98	**9.1**	**1.4**	**1.2**	**0.91**	--	--	--
09/21/98	**11**	**1.7**	<0.5	**1.2**	--	--	--
12/15/98	**7**	**1.4**	**0.99**	**1**	--	--	--
03/29/99	**10**	**1.9**	**1.2**	**1.1**	--	--	--
06/28/99	**11**	**1.6**	**1.1**	**1.2**	--	--	--
09/27/99	**7.8**	**1.1**	<0.5	**1.8**	--	--	--
12/27/99	**8.4**	**1.2**	<0.5	**0.64**	--	--	--
03/30/00	**11**	**2.6**	**1.1**	**1.3**	--	--	--
06/23/00	**9.4**	**2.2**	**0.94**	**1.4**	--	--	--
03/27/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
06/02/03	**6.8**	**2.2**	**0.6**	<0.5	<0.5	<0.5	<0.5
12/15/03	**5.7**	**1.8**	**0.5**	<0.5	<0.5	<0.5	<0.5
06/25/04	<2	<2	<2	<2	<2	<2	<2
12/02/04	**5.3**	**1.5**	**0.5**	<0.5	<0.5	<0.5	<0.5
09/22/05	**4.2**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5
07/07/06	**3.5**	<2	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:

DCA = Dichloroethane.
DCE = Dichloethylene.
TCE = Trichloroethylene.
PCE = Tetrachloroethylene.
ug/L = micrograms per liter.
-- = Constituent not analyzed for at this location.
< = Constituent not detected at or above the detection limit noted.

Table 5: Comparative Analysis of Remedial Alternatives
Carson/Aleris
Corrective Measures Proposal
Carson, California

Criteria	Alternative 1: No Further Action	Alternative 2: LUC	Alternative 3: Implementation of Proposed Corrective Measures
1. Overall protection of human health and environment	Is not protective of human health or the environment.	Provides increased protection of human health provided conditions of covenant are implemented.	Protects human health for intended use of property and reduces additional contamination of the underlying groundwater.
2. Reduction of toxicity, mobility or volume	Will not reduce toxicity, mobility or volume of contaminants.	Does not reduce toxicity, or volume.	Significantly reduces volume of contamination and significantly reduces potential risk to human health and environment.
3. Long-term effectiveness and permanence	Does not provide long-term effectiveness	Limits future land use and exposure to contaminants.	Removal of contamination from property eliminates need for engineering controls.
4. Short-term effectiveness	Does not provide short-term effectiveness.	Will allow for immediate reuse of the property.	Potential exposure to construction workers and public. A health and safety plan and dust control plan will be employed to protect construction workers and the public.
5. Technical feasibility	Requires no remedial action.	Requires approvals from State and local regulatory agencies.	Technical approach is clear and easily implementable. Requires approvals from State and local regulatory agencies.
6. Administrative feasibility	Requires no remedial action.	Requires approvals from State and local regulatory agencies.	Requires approvals from State and local regulatory agencies.
7. State acceptance	Under intended Site redevelopment, not acceptable to State because contamination exceeding environmental screening levels would remain on site.	Under intended Site redevelopment, not acceptable to State because contamination exceeding environmental screening levels would remain on site.	Under intended Site redevelopment, acceptable to State because it addresses short-term and long-term protection of the community.
8. Community acceptance	Likely not acceptable to the community because contamination will remain on property. Community acceptance will be based on comments received during 30-day public comment period.	Likely not acceptable to the community because contamination will remain on property. Community acceptance will be based on comments received during 30-day public comment period.	Likely acceptable to the community because contamination will be removed from the property. Community acceptance will be based on comments received during the 30-day public comment period.