

APPENDIX A
TABLE A-1: METALS CONCENTRATIONS USED IN CEIR - STOCKPILE AND ROAD SAMPLES
 Lehigh Southwest Cement Company
 Cupertino Facility

Concentrations reported in milligrams per kilogram (mg/kg)

Sample ID:	Stockpiles															
	Main Feed Materials															
	Quarry Overburden (Low Grade)					Primary Crushed Limestone (High Grade)					Primary Crushed Limestone (Medium Grade)					
	SP1					SP2					SP3					
	004	171	101	092		149	050	023	148		122	056	186	018		
	1	2	3	Comp.	Avg.	1	2	3	Comp.	Avg.	1	1-Dup.	2	3	Comp.	Avg.
Antimony	--	--	--	<5.0	2.5	--	--	--	<5.0	2.5	--	--	--	--	<5.0	2.5
Arsenic	--	--	--	<2.5	1.3	--	--	--	<2.5	1.3	--	--	--	--	3.6	3.6
Barium	--	--	--	780	780	--	--	--	130	130	--	--	--	--	590	590
Beryllium	--	--	--	<1.5	0.8	--	--	--	<1.5	0.8	--	--	--	--	<1.5	0.75
Cadmium	--	--	--	<2.5	1.3	--	--	--	3.3	3.3	--	--	--	--	<2.5	1.3
Chromium	32	10	37	17	24	12	5.5	12	11	10	17	27	27	23	16	22
Cobalt	--	--	--	6.4	6.4	--	--	--	<2.5	1.3	--	--	--	--	5.1	5.1
Copper	--	--	--	14	14	--	--	--	22	22	--	--	--	--	25	25
Lead	--	--	--	<2.5	1.3	--	--	--	<2.5	1.3	--	--	--	--	<2.5	1.25
Mercury	--	--	--	0.20	0.20	--	--	--	0.19	0.19	--	--	--	--	0.28	0.28
Molybdenum	--	--	--	<5.0	2.5	--	--	--	<5.0	2.5	--	--	--	--	<5.0	2.5
Nickel	--	--	--	23	23	--	--	--	21	21	--	--	--	--	30	30
Selenium	--	--	--	<5.0	2.5	--	--	--	<5.0	2.5	--	--	--	--	<5.0	2.5
Silver	--	--	--	<2.5	1.3	--	--	--	<2.5	1.3	--	--	--	--	<2.5	1.25
Thallium	--	--	--	<2.5	1.3	--	--	--	<2.5	1.3	--	--	--	--	<2.5	1.25
Vanadium	--	--	--	19	19	--	--	--	220	220	--	--	--	--	64	64
Zinc	--	--	--	<50	25	--	--	--	59	59	--	--	--	--	68	68
Hex Chromium	<0.20	<0.19	<0.20	--	0.00	<0.20	<0.19	<0.20	--	0.00	<0.20	<0.20	<0.20	<0.20	--	0.00

Notes:

1. Samples analyzed using EPA methods 3060/7199 and 6020/7471A
2. If concentrations were non-detect results, averages were calculated using one-half the reporting limit, with the exception of hexavalent chromium. If hexavalent chromium was not detected in all samples analyzed, it was assumed to be zero.
3. "<" sign indicates reported concentrations less than the reporting limit

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Sample ID:	Stockpiles																			
	Additive Feed Material										Fuels									
	Bauxite SP4					Iron Ore SP5					Coal SP6					Coke SP7				
	161	185	055	173		172	169	166	085		058	189	175	187		046	065	199	193	
1	2	3	Comp.	Avg.	1	2	3	Comp.	Avg.	1	2	3	Comp.	Avg.	1	2	3	Comp.	Avg.	
Antimony	--	--	--	<5.0	2.5	--	--	--	<20	10	--	--	--	<5.0	2.5	--	--	--	<5.0	2.5
Arsenic	--	--	--	3.9	3.9	--	--	--	16	16.0	--	--	--	<2.5	1.3	--	--	--	<2.5	1.3
Barium	--	--	--	<2.5	1.25	--	--	--	220	220	--	--	--	170	170	--	--	--	3.0	3.0
Beryllium	--	--	--	<1.5	0.75	--	--	--	<3.0	1.5	--	--	--	1.5	1.5	--	--	--	<1.5	0.75
Cadmium	--	--	--	<2.5	1.3	--	--	--	<5.0	2.5	--	--	--	<2.5	1.3	--	--	--	<2.5	1.3
Chromium	100	110	110	120	110	280	13	14	41	87	<10	15	<5.0	11	8.4	<1.0	<1.0	2.4	<5.0	1.475
Cobalt	--	--	--	<2.5	1.25	--	--	--	55	55	--	--	--	<2.5	1.25	--	--	--	<2.5	1.25
Copper	--	--	--	<5.0	2.5	--	--	--	44	44	--	--	--	13	13	--	--	--	<5.0	2.5
Lead	--	--	--	13	13	--	--	--	<5.0	2.5	--	--	--	<2.5	1.25	--	--	--	<2.5	1.25
Mercury	--	--	--	<0.020	0.010	--	--	--	<0.020	0.010	--	--	--	0.042	0.042	--	--	--	<0.020	0.010
Molybdenum	--	--	--	<5.0	2.5	--	--	--	11	11	--	--	--	<5.0	2.5	--	--	--	14	14
Nickel	--	--	--	<5.0	3	--	--	--	410	410	--	--	--	38	38	--	--	--	280	280
Selenium	--	--	--	<5.0	2.5	--	--	--	<10	5	--	--	--	<5.0	2.5	--	--	--	<5.0	2.5
Silver	--	--	--	<2.5	1.25	--	--	--	<5.0	2.5	--	--	--	<2.5	1.25	--	--	--	<2.5	1.25
Thallium	--	--	--	<2.5	1.25	--	--	--	<5.0	2.5	--	--	--	5.4	5.4	--	--	--	<2.5	1.25
Vanadium	--	--	--	110	110	--	--	--	1200	1200	--	--	--	150	150	--	--	--	820	820
Zinc	--	--	--	<50	25	--	--	--	<100	50	--	--	--	<50	25	--	--	--	<50	25
Hex Chromium	0.89	0.86	0.71	--	0.82	<0.20	<0.20	<0.20	--	0.00	<0.20	<0.20	<0.20	--	0.00	<0.20	<0.20	<0.20	--	0.00

Notes:

1. Samples analyzed using EPA methods 3060/7199 and 6020/7471A
2. If concentrations were non-detect results, averages were calculated using one-half the reporting limit, with the exception of hexavalent chromium. If hexavalent chromium was not detected in all samples analyzed, it was assumed to be zero.
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 Lehigh Southwest Cement Company
 Cupertino Facility

Concentrations reported in milligrams per kilogram (mg/kg)

Sample ID:	Stockpiles																							
	Products									Supplementary Cementitious Materials														
	Clinker SP8									Natural Gypsum SP9					Pozzolan SP10					Slag SP11				
	016	097	003	162	111	005	033	074		098	120	049	142		083	042	165	076		060	197	108	181	
1	1-Dup.	1	2	2	2-Dup.	3	3	Avg.	1	2	3	Comp.	Avg.	1	2	3	Comp.	Avg.	1	2	3	Comp.	Avg.	
Antimony	--	--	<5.0	--	<5.0	<5.0	--	<5.0	2.5	--	--	--	<5.0	2.5	--	--	--	2.5	<5.0	--	--	--	<5.0	2.5
Arsenic	--	--	4.3	--	4.6	4.6	--	4.4	4.5	--	--	--	<2.5	1.3	--	--	--	1.3	<2.5	--	--	--	<2.5	1.3
Barium	--	--	940	--	1000	1100	--	990	1008	--	--	--	54	54	--	--	--	160	160	--	--	--	280	280
Beryllium	--	--	<1.5	--	<1.5	<1.5	--	<1.5	0.75	--	--	--	<1.5	0.75	--	--	--	0.75	<1.5	--	--	--	4.7	4.7
Cadmium	--	--	<2.5	--	<2.5	<2.5	--	<2.5	1.25	--	--	--	<2.5	1.3	--	--	--	1.3	<2.5	--	--	--	<2.5	1.3
Chromium	63	69	64	68	71	75	74	64	69	1.5	<1.0	2.6	<5.0	1.8	<1.0	14	2.6	5.7	9.8	11	9.6	5.9	8.2	8.7
Cobalt	--	--	4.9	--	5.1	5.5	--	4.8	5.1	--	--	--	25	25	--	--	--	1.25	<2.5	--	--	--	<2.5	1.25
Copper	--	--	22	--	23	25	--	22	23	--	--	--	58	58	--	--	--	2.5	<5.0	--	--	--	<5.0	2.5
Lead	--	--	2.6	--	2.8	2.8	--	2.7	2.7	--	--	--	8.2	8.2	--	--	--	11	11	--	--	--	<2.5	1.25
Mercury	--	--	<0.020	--	<0.020	<0.020	--	<0.020	0.01	--	--	--	<0.020	0.010	--	--	--	25	25	--	--	--	1.1	1.1
Molybdenum	--	--	6.9	--	7.6	7.9	--	7.1	7.4	--	--	--	<5.0	2.5	--	--	--	2.5	<5.0	--	--	--	<5.0	2.5
Nickel	--	--	84	--	90	96	--	85	89	--	--	--	<5.0	3	--	--	--	38	38	--	--	--	<5.0	3
Selenium	--	--	<5.0	--	<5.0	<5.0	--	<5.0	2.5	--	--	--	<5.0	2.5	--	--	--	2.5	<5.0	--	--	--	<5.0	2.5
Silver	--	--	<2.5	--	<2.5	<2.5	--	<2.5	1.25	--	--	--	<2.5	1.25	--	--	--	1.25	<2.5	--	--	--	<2.5	1.25
Thallium	--	--	<2.5	--	<2.5	<2.5	--	<2.5	1.25	--	--	--	<2.5	1.25	--	--	--	1.25	<2.5	--	--	--	<2.5	1.25
Vanadium	--	--	350	--	370	390	--	360	368	--	--	--	7.0	7.0	--	--	--	14	14	--	--	--	18	18
Zinc	--	--	81	--	60	60	--	68	67	--	--	--	190	190	--	--	--	25	<50	--	--	--	<50	25
Hex Chromium	5.8	6.9	--	5.8	--	--	5.6	--	6.0	<0.20	<0.20	<0.20	--	0.00	<0.20	<0.20	0.23	0.14	0.14	<0.20	<0.20	<0.20	--	0.00

Notes:

1. Samples analyzed using EPA methods 3060/7199 and 6020/7471A
2. If concentrations were non-detect results, averages were calculated using one-half the reporting limit, with the exception of Hexavalent chromium was not detected in all samples analyzed, it was assumed to be zero.
3. "<" sign indicates reported concentrations less than the reporting limit

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 Lehigh Southwest Cement Company
 Cupertino Facility

Concentrations reported in milligrams per kilogram (mg/kg)

Sample ID:	Roads										
	Unpaved Road Dust SP13							Paved Road Dust SP14			
	121	015	036	068	191	174		183	102	159	
	1	1	2	2	3	3	Avg.	1	1	2	Avg.
Antimony	--	<5.0	--	<5.0	--	<5.0	2.5	--	<5.0	--	2.5
Arsenic	--	<2.5	--	<2.5	--	<2.5	1.3	--	3.2	--	3.2
Barium	--	1200	--	1200	--	600	1000	--	1100	--	1100
Beryllium	--	<1.5	--	<1.5	--	<1.5	0.75	--	<1.5	--	0.75
Cadmium	--	<2.5	--	<2.5	--	<2.5	1.3	--	<2.5	--	1.25
Chromium	30	27	46	44	50	49	41	60	61	4.2	41.7
Cobalt	--	8.7	--	13	--	7.7	9.8	--	8.2	--	8.2
Copper	--	22	--	29	--	23	25	--	29	--	29
Lead	--	<2.5	--	3.1	--	2.5	2.3	--	4.4	--	4.4
Mercury	--	0.29	--	<0.02	--	0.12	0.14	--	0.17	--	0.17
Molybdenum	--	<5.0	--	<5.0	--	<5.0	2.50	--	5.2	--	5.2
Nickel	--	44	--	60	--	57	54	--	91	--	91
Selenium	--	<5.0	--	<5.0	--	<5.0	2.50	--	<5.0	--	0.25
Silver	--	<2.5	--	<2.5	--	<2.5	1.25	--	<2.5	--	1.25
Thallium	--	<2.5	--	<2.5	--	<2.5	1.25	--	<2.5	--	1.25
Vanadium	--	37	--	63	--	150	83	--	280	--	280
Zinc	--	<50	--	52	--	<50	34	--	65	--	65
Hex Chromium	<0.20	--	<0.20	--	5.5	--	1.9	3.1	--	<0.20	1.6

Notes:

1. Samples analyzed using EPA methods 3060/7199 and 6020/7471A
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TABLE A-2: METALS CONCENTRATIONS USED IN THE CEIR - PROCESS MATERIAL SAMPLES
 Lehigh Southwest Cement Company
 Cupertino Facility

Concentrations in milligrams per kilogram (mg/kg)

Sample Date	Feed Materials										Fuels				
	Limestone Baghouse Dust (High Grade) M1					Limestone Baghouse Dust (All Grade) M2					Coal/Pet. Coke Baghouse Dust M3				
	11/20/08	11/20/08	11/20/08	11/20/08		11/20/08	11/20/08	11/20/08	11/20/08		11/20/08	11/20/08	11/20/08	11/20/08	
	1	2	3	Comp.	Avg ²	1	2	3	Comp.	Avg ²	1	2	3	Comp.	Avg ²
Chemical	221	309	331	246		254	317	338	229		297	210	342	336	
Antimony	--	--	--	<5.0	2.5	--	--	--	<5.0	2.5	--	--	--	<5.0	2.5
Arsenic	--	--	--	4.7	4.7	--	--	--	4.5	4.5	--	--	--	<2.5	1.3
Barium	--	--	--	1000	1000	--	--	--	2000	2000	--	--	--	180	180
Beryllium	--	--	--	<1.5	0.75	--	--	--	<1.5	0.75	--	--	--	<1.5	0.75
Cadmium	--	--	--	<2.5	1.3	--	--	--	2.7	2.7	--	--	--	<2.5	1.3
Chromium	24	23	31	31	27	47	44	45	41	44	9.6	9.2	8.0	9.5	9.1
Cobalt	--	--	--	3.0	3.0	--	--	--	7.0	7.0	--	--	--	2.8	2.8
Copper	--	--	--	34	34	--	--	--	35	35	--	--	--	6.4	6.4
Lead	--	--	--	<2.5	1.25	--	--	--	2.5	2.5	--	--	--	<2.5	1.25
Mercury	--	--	--	0.12	0.12	--	--	--	0.56	0.56	--	--	--	3.9	3.9
Molybdenum	--	--	--	5.5	5.5	--	--	--	7.0	7.0	--	--	--	17	17
Nickel	--	--	--	35	35	--	--	--	53	53	--	--	--	380	380
Selenium	--	--	--	<5.0	2.5	--	--	--	<5.0	2.5	--	--	--	<5.0	2.5
Silver	--	--	--	<2.5	1.25	--	--	--	<2.5	1.25	--	--	--	<2.5	1.25
Thallium	--	--	--	<2.5	1.25	--	--	--	9.0	9	--	--	--	120	120
Vanadium	--	--	--	220	220	--	--	--	180	180	--	--	--	1100	1100
Zinc	--	--	--	120	120	--	--	--	110	110	--	--	--	<50	25
Hex Chromium	<0.20	<0.20	<0.20	--	0.00	1.1	0.85	0.71	--	0.89	<0.20	<0.20	<0.20	--	0.00

Notes:

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Concentrations in milligrams per kilogram (mg/kg)

Sample Date	Products																				
	Clinker Baghouse Dust M4							Cement Baghouse Dust M5							Kiln Exhaust Baghouse Dust M6						
	11/20/08	11/20/08	11/20/08	11/20/08	11/20/08	11/20/08		11/20/08	11/20/08	11/20/08	11/20/08	11/20/08	11/20/08	11/20/08		11/20/08	11/20/08	11/20/08	11/20/08		
1	1	2	2	3	3	Avg ²	1	1-Dup.	1	2	2	2-Dup.	3	3	Avg ²	1	2	3	Comp.	Avg ²	
Chemical	286	302	206	251	308	271		293	207	321	232	312	330	274	240		268	208	226	256	
Antimony	--	<5.0	--	<5.0	--	<5.0	2.5	--	--	<5.0	--	<5.0	<5.0	--	<5.0	2.5	--	--	--	<5.0	2.5
Arsenic	--	3.9	--	5.2	--	4.8	4.6	--	--	3.4	--	4.0	4.0	--	6.1	4.4	--	--	--	5.5	5.5
Barium	--	1100	--	1300	--	1200	1200	--	--	840	--	920	980	--	950	923	--	--	--	850	850
Beryllium	--	<1.5	--	<1.5	--	<1.5	1	--	--	<1.5	--	<1.5	<1.5	--	<1.5	0.8	--	--	--	<1.5	0.75
Cadmium	--	<2.5	--	<2.5	--	<2.5	1	--	--	<2.5	--	<2.5	<2.5	--	<2.5	1.3	--	--	--	<2.5	1.3
Chromium	81	68	63	87	86	82	78	70	68	59	65	63	66	64	63	65	35	38	39	39	38
Cobalt	--	4.3	--	5.1	--	4.7	4.7	--	--	5.5	--	5.8	6.1	--	6.1	5.9	--	--	--	6.5	6.5
Copper	--	17	--	21	--	20	19	--	--	21	--	22	23	--	23	22	--	--	--	31	31
Lead	--	2.8	--	4.0	--	3.7	3.5	--	--	2.9	--	3.1	3.3	--	3.1	3.1	--	--	--	4.2	4.2
Mercury	--	<0.020	--	<0.020	--	<0.020	0.01	--	--	<0.020	--	<0.020	<0.020	--	<0.020	0.01	--	--	--	19	19
Molybdenum	--	5.3	--	8.3	--	7.6	7.1	--	--	5.3	--	5.4	6.4	--	5.9	5.8	--	--	--	6.9	6.9
Nickel	--	67	--	82	--	76	75	--	--	100	--	110	110	--	110	108	--	--	--	59	59
Selenium	--	<5.0	--	<5.0	--	<5.0	2.5	--	--	<5.0	--	<5.0	<5.0	--	<5.0	2.5	--	--	--	<5.0	2.5
Silver	--	<2.5	--	<2.5	--	<2.5	1.3	--	--	<2.5	--	<2.5	<2.5	--	<2.5	1.3	--	--	--	<2.5	1.25
Thallium	--	<2.5	--	<2.5	--	<2.5	1.3	--	--	<2.5	--	<2.5	<2.5	--	<2.5	1.3	--	--	--	860	860
Vanadium	--	330	--	460	--	430	407	--	--	350	--	360	380	--	350	360	--	--	--	280	280
Zinc	--	<50	--	<50	--	50	33	--	--	<50	--	51	55	--	110	60.3	--	--	--	82	82
Hex Chromium	11	--	13	--	12	--	12	14	17	--	17	--	--	21	--	17	0.42	0.62	<0.20	--	0.38

Notes:

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Concentrations in milligrams per kilogram (mg/kg)

Sample Date	Products																			
	Clinker Cooler Baghouse Dust M7					Natural Gypsum Baghouse Dust M8					Synthetic Gypsum Baghouse Dust M9					Additives Baghouse Dust M11				
	11/20/08	11/20/08	11/20/08	11/20/08		11/20/08	11/20/08	11/20/08	11/20/08		11/20/08	11/20/08	11/20/08	11/20/08		11/20/08	11/20/08	11/20/08	11/20/08	
1	2	3	Comp.	Avg ²	1	2	3	Comp.	Avg ²	1	2	3	Comp.	Avg ²	1	2	3	Comp.	Avg ²	
Chemical	224	247	337	304		322	266	332	220		319	250	245	313		301	214	244	NA400	
Antimony	--	--	--	<5.0	2.5	--	--	--	<5.0	2.5	--	--	--	<5.0	2.5	--	--	--	<25	12.5
Arsenic	--	--	--	4.5	4.5	--	--	--	<2.5	1.3	--	--	--	4.5	4.5	--	--	--	14	14
Barium	--	--	--	1000	1000	--	--	--	70	70	--	--	--	22	22	--	--	--	250	250
Beryllium	--	--	--	<0.30	0.15	--	--	--	<1.5	0.75	--	--	--	<1.5	0.75	--	--	--	<3.0	1.5
Cadmium	--	--	--	<2.5	1.3	--	--	--	<2.5	1.3	--	--	--	<2.5	1.3	--	--	--	<5.0	2.5
Chromium	67	65	60	67	65	<1.0	3.2	<5.0	<5.0	2.2	27	25	22	25	25	28	25	27	31	28
Cobalt	--	--	--	4.7	4.7	--	--	--	24	24	--	--	--	65	65	--	--	--	53	53
Copper	--	--	--	30	30	--	--	--	66	66	--	--	--	<5.0	2.5	--	--	--	61	61
Lead	--	--	--	3.4	3.4	--	--	--	8.4	8.4	--	--	--	<2.5	1.25	--	--	--	6.8	6.8
Mercury	--	--	--	<0.020	0.010	--	--	--	<0.020	0.010	--	--	--	<0.020	0.010	--	--	--	0.43	0.43
Molybdenum	--	--	--	6.0	6.0	--	--	--	<5.0	0.25	--	--	--	33	33	--	--	--	<10	5
Nickel	--	--	--	80	80	--	--	--	5.6	5.6	--	--	--	3800	3800	--	--	--	430	430
Selenium	--	--	--	<5.0	2.5	--	--	--	<5.0	0.25	--	--	--	<5.0	2.5	--	--	--	<10	5
Silver	--	--	--	<2.5	1.25	--	--	--	<2.5	1.25	--	--	--	<2.5	1.25	--	--	--	<5.0	2.5
Thallium	--	--	--	<2.5	1.25	--	--	--	<2.5	1.25	--	--	--	<2.5	1.25	--	--	--	<5.0	2.5
Vanadium	--	--	--	340	340	--	--	--	14	14	--	--	--	6300	6300	--	--	--	1300	1300
Zinc	--	--	--	51	51	--	--	--	190	190	--	--	--	<50	25	--	--	--	<100	50
Hex Chromium	8.1	9.7	6.6	--	8.1	<0.20	<0.20	<0.20	--	0.00	<0.20	<0.20	<0.20	--	0.00	<0.20	<0.20	<0.20	--	0.00

Notes:

1. Samples analyzed using EPA methods 3060/7199 and 6020/7471A
2. If concentrations were non-detect results, averages were calculated using one-half the reporting limit, with the exception of hexavalent chromium. If hexavalent chromium was not detected in all samples analyzed, it was assumed to be zero.
3. "<" sign indicates reported concentrations less than the reporting limit