

February 10, 1995

Ms. Madhulla Logan
Alameda County Health Care Services Agency
Division of Environmental Protection
Department of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, CA 94502

RE: Revised Short-Term Exposure Lead Spread Sheet for the
Former Gun Club Site, 500 Maitland Drive, Alameda

Dear Ms. Logan:

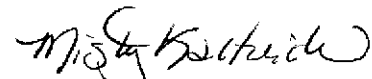
In accordance with your request, the Lead Risk Assessment Work Sheet for short-term Construction Workers has been recalculated using the latest version of the DTSC spread sheet which sets defaults of lead in soil to 640 mg/kg, and respirable dust to 500 ug/m³.

Based on this revision the lead blood-levels for long-term worker exposure would be 5.0 ug/dl (see Appendix E, Table E-3, Attached) and the lead blood levels for short-term construction work would be 6.6 ug/dl (Attached). Based on these calculations the levels of lead for each type of worker falls below the maximum allowable lead blood-levels for the 99th percentile in accordance with DTSC guidelines. This indicates that minimal risk exposure would be left after removal of the soil containing lead above 1000 ppm.

Based on the revised calculations for lead levels, no further assessment to the risk is warranted. ACC requests that Alameda County Health Care Services Agency approve the proposed remedial action to move forward with ultimate site closure.

If you have any questions regarding the project, please contact me at (510) 522-8188.

Sincerely,



Misty Kattreider
Geologist

cc: Mr. Aidan Barry - Harbor Bay Island Associates
Mr. Dick Rudloff/Mr. Bob Warnick - City of Alameda
Ms. Donna Dehn - Health/Sciences Consulting

Appendix E Table E-3
Lead Risk Assessment Spreadsheet
California Department of Toxic Substances Control
Long-term Storage Facility Worker After Remediation of Hot Spots to 1000 mg/kg

Medium	Level
LEAD IN AIR ug/m ³	0.18 ^a
LEAD IN SOIL (ug/g)	640 ^b
LEAD IN WATER (ug/L)	15 ^a
PLANT UPTAKE? 1=YES 0=NO	0
AIRBORNE DUST ug/m ³	50 ^c

Pathway	ug/dL	Route-specific Constant	Concen. in Medium	Contact Rate	Percent of Total
SOIL CONTACT:	0.13 =	1.00E-04 (ug/dL)/(ug/day) *	640 ug/g *	1.85 ^a g soil/day (5 g/m ² * 0.37 m ²)	6%
SOIL INGESTION:	0.00 =	0.018 (ug/dL)/(ug/day) *	640 ug/g *	0 ^b g soil/day	0%
INHALATION:	0.35 =	1.64 ^d (ug/dL)/(ug/day) *	0.21 ug/m ³		16%
WATER INGESTION:	0.84 =	0.04 (ug/dL)/(ug/day) *	15 ug/L *	1.4 ^a L water/day	38%
FOOD INGESTION:	0.88 =	0.04 (ug/dL)/(ug/day) *	10 ug Pb/kg die	2.2 ^a kg diet/day	40%

Age-Group	(ug/dL)	Percentiles				
		50th	90th	95th	98th	99th
BLOOD Pb, ADULT	(ug/dL)	2.2	3.4	3.9	4.5	5.0

- ^a Default value
- ^b Concentration is the 95% UCL of the arithmetic mean based on a lognormal distribution assuming hot spots are removed and the concentration remaining is 1000 mg/kg.
- ^c Site-specific assumption.
- ^d Use of this value assumes a 24 hr/day exposure which over-estimates the potential exposure of a storage facility worker.

LEAD RISK ASSESSMENT SPREADSHEET
 CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

INPUT			OUTPUT						
MEDIUM	LEVEL		percentiles					PRG-89	PRG-95
			50th	90th	95th	98th	99th	(ug/g)	(ug/g)
LEAD IN AIR (ug/m ³)	0.15								
LEAD IN SOIL (ug/g)	640.0	BLOOD Pb, ADULT (ug/dl)	2.9	4.5	5.1	8.0	6.6	1894.4	2515.3
LEAD IN WATER (ug/l)	15	BLOOD Pb, CHILD (ug/dl)	6.5	10.2	11.6	13.4	14.7	218.8	461.6
PLANT UPTAKE? 1=YES 0=NO	0	BLOOD Pb, PICA CHILD (ug/dl)	39.6	62.1	70.4	81.5	89.7	19.2	40.5
RESPIRABLE DUST (ug/m ³)	500	BLOOD Pb, INDUSTRIAL (ug/dl)	2.8	4.1	4.6	5.4	5.9	2254.0	3334.9

EXPOSURE PARAMETERS

General	units	residential			industrial
		adults	children	children with pica	adults
Days per week	days/week	7	7	7	5
Dermal Contact					
Skin area	cm ²	3700	2600	2600	5800
Soil adherence	mg/cm ²	0.5	0.5	0.5	0.5
Route-specific constant	(mg/d)(ug/day)	0.00011	0.00011	0.00011	0.00011
Soil Ingestion					
Soil ingestion	mg/day	25	55	790	25
Route-specific constant	(ug/d)(ug/day)	0.0178	0.0704	0.0704	0.0178
Inhalation					
Breathing rate	m ³ /day	20	10	10	20
Route-specific constant	(ug/d)(ug/day)	0.082	0.192	0.192	0.082
Water Ingestion					
Water ingestion	l/day	1.4	0.4	0.4	1.4
Route-specific constant	(ug/d)(ug/day)	0.04	0.16	0.16	0.04
Food Ingestion					
Food ingestion	kg/day	2.2	1.3	1.3	2.2
Route-specific constant	(ug/d)(ug/day)	0.04	0.16	0.16	0.04
Dietary concentration	ug/kg	10.0	10.0	10.0	10.0
Lead in produce	ug/kg	10.0	10.0	10.0	

Short-term Construction Worker After Remediation of LEAD Hot Spots to 1000 mg/

All defaults used except:
 • Lead in soil set to 640 mg/kg
 • Respirable dust set to 500 ug/m³ not 50 ug/m³

PATHWAYS, ADULTS

Pathway	Residential		Industrial		Concentration in medium
	Blood Pb ug/dl	percent of total	Blood Pb ug/dl	percent of total	
SOIL CONTACT:	0.19	4%	0.14	5%	640 ug/g
SOIL INGESTION:	0.28	10%	0.20	8%	640 ug/g
INHALATION:	0.77	27%	0.55	21%	0.47 ug/m ³
WATER INGESTION:	0.84	29%	0.84	32%	15 ug/l
FOOD INGESTION:	0.88	30%	0.88	34%	10.0 ug Pb/kg diet

PATHWAYS, CHILDREN

Pathway	Typical		with pica		concentration in medium
	Blood Pb ug/dl	percent of total	Blood Pb ug/dl	percent of total	
SOIL CONTACT:	0.09	1%	0.09	0%	640 ug/g
SOIL INGESTION:	2.48	38%	35.60	90%	640 ug/g
INHALATION:	0.80	14%	0.90	2%	0.47 ug/m ³
WATER INGESTION:	0.06	15%	0.06	2%	15 ug/l
FOOD INGESTION:	2.08	32%	2.08	5%	10.0 ug Pb/kg diet

Note: This is the latest version of the spreadsheet and the route specific constant for inhalation has changed - it is 1.64/20 for adults and 1.92/10 for children. DTSC made this change.