AIR FORCE HEALTH STUDY

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An Epidemiologic Investigation of
Health Effects in Air Force Personnel
Following Exposure to Herbicides

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VOLUME X

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APPENDIX O-1.

Dependent Variable-Covariate Associations for the Immunology Assessment

This appendix contains results of tests of association between each dependent variable and candidate covariates for the adjusted analysis of each dependent variable. Pearson's chi-square test (continuity-adjusted for 2×2 tables) is used for the significance testing of the association between each discrete dependent variable and the candidate covariate. When a candidate covariate is continuous in nature (for example, age), the covariate is discretized prior to the analysis of the discrete dependent variable. Pearson's correlation coefficient is used for significance testing of the associations between each continuous dependent variable and a continuous candidate covariate. When a candidate covariate is discrete in nature, means (transformed back to the original scale, if necessary) are presented and an analysis of variance is used to investigate the difference between the means.

Table O-1-1.
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Age: Born ≥1942	Age: Born <1942	Age: p-Value	Race: Black	Race: Non-Black	Race: p-Value
Composite Skin Test Diagnosis	Abnormal	(n=909) 2.3%	(n=1,230) 4.4%	0.014	(n=128) 0.0%	(n=2,011) 3.7%	0.048
CD3 Cells (cells/mm^3)[a]		(n=849) r=-0.069		0.045	(n=48) $\bar{x}$=1,547.9	(n=801) $\bar{x}$=1,471.3	0.387
CD4 Cells (cells/mm^3)[a]		(n=849) r=-0.106		0.002	(n=48) $\bar{x}$=1,005.3	(n=801) $\bar{x}$=947.8	0.327
CD5 Cells (cells/mm^3)[a]		(n=849) r=-0.091		0.008	(n=48) $\bar{x}$=1,588.5	(n=801) $\bar{x}$=1,516.9	0.432
CD8 Cells (cells/mm^3)[a]		(n=849) r=0.019		0.586	(n=48) $\bar{x}$=672.0	(n=801) $\bar{x}$=628.6	0.339
CD14 Cells (cells/mm^3)[a]		(n=849) r=0.067		0.050	(n=48) $\bar{x}$=456.6	(n=801) $\bar{x}$=523.6	0.005
CD16+56 Cells (cells/mm^3)[a]		(n=849) r=0.088		0.010	(n=48) $\bar{x}$=257.2	(n=801) $\bar{x}$=262.8	0.786
CD20 Cells (cells/mm^3)[b]		(n=849) r=-0.227		<0.001	(n=48) $\bar{x}$=260.8	(n=801) $\bar{x}$=221.0	0.047
CD25 Cells (cells/mm^3)[a]		(n=849) r=-0.109		0.002	(n=48) $\bar{x}$=281.7	(n=801) $\bar{x}$=251.0	0.140
CD4-CD8 Ratio[a]		(n=849) r=-0.121		<0.001	(n=48) $\bar{x}$=1.50	(n=801) $\bar{x}$=1.51	0.865
Double Labelled Cells: CD3 with CD25 (cells/mm^3)[a]		(n=849) r=-0.097		0.005	(n=48) $\bar{x}$=226.5	(n=801) $\bar{x}$=197.6	0.096
Double Labelled Cells: CD5 with CD20 (continuous-cells/mm^3)[a]	Nonzero	(n=809) r=-0.222		<0.001	(n=47) $\bar{x}$=64.3	(n=762) $\bar{x}$=51.6	0.059
(discrete)	Zero	(n=361) 3.3%	(n=488) 5.7%	0.140	(n=48) 2.1%	(n=801) 4.9%	0.593
Double Labelled Cells: CD4 with CD8 (continuous-cells/mm^3)[a]	Nonzero	(n=759) r=0.027		0.464	(n=42) $\bar{x}$=31.9	(n=717) $\bar{x}$=28.9	0.355
(discrete)	Zero	(n=361) 13.3%	(n=488) 8.6%	0.037	(n=48) 12.5%	(n=801) 10.5%	0.842

[a] Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

[b] Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Occupation: Officer	Occupation: Enlisted Flyer	Occupation: Enlisted Groundcrew	p-Value
Composite Skin Test Diagnosis	Abnormal	(n=829) 4.0%	(n=149) 3.4%	(n=960) 3.1%	0.616
CD3 Cells (cells/mm^3)[a]		(n=330) $\bar{x}$=1,410.9	(n=149) $\bar{x}$=1,511.4	(n=370) $\bar{x}$=1,520.9	0.030
CD4 Cells (cells/mm^3)[a]		(n=330) $\bar{x}$=918.0	(n=149) $\bar{x}$=963.9	(n=370) $\bar{x}$=976.0	0.122
CD5 Cells (cells/mm^3)[a]		(n=330) $\bar{x}$=1,456.0	(n=149) $\bar{x}$=1,553.7	(n=370) $\bar{x}$=1,567.5	0.037
CD8 Cells (cells/mm^3)[a]		(n=330) $\bar{x}$=604.5	(n=149) $\bar{x}$=656.1	(n=370) $\bar{x}$=645.3	0.099
CD14 Cells (cells/mm^3)[a]		(n=330) $\bar{x}$=506.2	(n=149) $\bar{x}$=530.3	(n=370) $\bar{x}$=527.3	0.175
CD16+56 Cells (cells/mm^3)[a]		(n=330) $\bar{x}$=261.6	(n=149) $\bar{x}$=261.0	(n=370) $\bar{x}$=263.9	0.967
CD20 Cells (cells/mm^3)[b]		(n=330) $\bar{x}$=197.5	(n=149) $\bar{x}$=232.7	(n=370) $\bar{x}$=241.9	<0.001
CD25 Cells (cells/mm^3)[a]		(n=330) $\bar{x}$=241.5	(n=149) $\bar{x}$=246.7	(n=370) $\bar{x}$=265.6	0.047
CD4-CD8 Ratio[a]		(n=330) $\bar{x}$=1.52	(n=149) $\bar{x}$=1.47	(n=370) $\bar{x}$=1.51	0.714
Double Labelled Cells: CD3 with CD25 (cells/mm^3)[a]		(n=330) $\bar{x}$=189.4	(n=149) $\bar{x}$=194.2	(n=370) $\bar{x}$=210.4	0.035
Double Labelled Cells: CD5 with CD20 (continuous-cells/mm^3)[a]	Nonzero	(n=309) $\bar{x}$=46.5	(n=143) $\bar{x}$=52.0	(n=357) $\bar{x}$=57.9	0.001
(discrete)	Zero	(n=330) 6.4%	(n=149) 4.0%	(n=370) 3.5%	0.188
Double Labelled Cells: CD4 with CD8 (continuous-cells/mm^3)[a]	Nonzero	(n=295) $\bar{x}$=28.6	(n=139) $\bar{x}$=28.7	(n=325) $\bar{x}$=29.7	0.775
(discrete)	Zero	(n=330) 10.6%	(n=149) 6.7%	(n=370) 12.2%	0.189

[a] Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

[b] Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Current Cigarette Smoking (cigarettes/day) 0-Never	0-Former	>0-20	>20	p-Value
Composite Skin Test Diagnosis		(n=574)	(n=1,025)	(n=334)	(n=204)	
	Abnormal	3.0%	3.2%	4.5%	4.9%	0.410
CD3 Cells (cells/mm^3)[a]				(n=848) r=0.289		<0.001
CD4 Cells (cells/mm^3)[a]				(n=848) r=0.309		<0.001
CD5 Cells (cells/mm^3)[a]				(n=848) r=0.277		<0.001
CD8 Cells (cells/mm^3)[a]				(n=848) r=0.171		<0.001
CD14 Cells (cells/mm^3)[a]				(n=848) r=0.347		<0.001
CD16+56 Cells (cells/mm^3)[a]				(n=848) r=-0.103		0.003
CD20 Cells (cells/mm^3)[b]				(n=848) r=0.196		<0.001
CD25 Cells (cells/mm^3)[a]				(n=848) r=0.355		<0.001
CD4-CD8 Ratio[a]				(n=848) r=0.105		0.002
Double Labelled Cells: CD3 with CD25 (cells/mm^3)[a]				(n=848) r=0.354		<0.001
Double Labelled Cells: CD5 with CD20 (continuous-cells/mm^3)[a]	Nonzero			(n=808) r=0.001		0.968
(discrete)		(n=233)	(n=407)	(n=137)	(n=71)	
	Zero	6.0%	3.2%	5.8%	7.0%	0.240
Double Labelled Cells: CD4 with CD8 (continuous-cells/mm^3)[a]	Nonzero			(n=758) r=0.191		<0.001
(discrete)		(n=233)	(n=407)	(n=137)	(n=71)	
	Zero	12.5%	10.1%	10.2%	8.5%	0.724

[a] Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

[b] Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Lifetime Cigarette Smoking History (pack-years) 0	>0-10	>10	p-Value
Composite Skin Test Diagnosis		(n=574)	(n=663)	(n=899)	
	Abnormal	3.0%	3.5%	3.9%	0.014
CD3 Cells (cells/mm^3)[a]			(n=848)		
			r=0.127		<0.001
CD4 Cells (cells/mm^3)[a]			(n=848)		
			r=0.148		<0.001
CD5 Cells (cells/mm^3)[a]			(n=848)		
			r=0.111		0.001
CD8 Cells (cells/mm^3)[a]			(n=848)		
			r=0.069		0.044
CD14 Cells (cells/mm^3)[a]			(n=848)		
			r=0.181		<0.001
CD16+56 Cells (cells/mm^3)[a]			(n=848)		
			r=-0.023		0.500
CD20 Cells (cells/mm^3)[b]			(n=848)		
			r=0.052		0.128
CD25 Cells (cells/mm^3)[a]			(n=848)		
			r=0.199		<0.001
CD4-CD8 Ratio[a]			(n=848)		
			r=0.064		0.063
Double Labelled Cells:			(n=848)		
CD3 with CD25 (cells/mm^3)[a]			r=0.208		<0.001
Double Labelled Cells:			(n=808)		
CD5 with CD20	Nonzero		r=-0.091		0.009
(continuous-cells/mm^3)[a]					
		(n=233)	(n=255)	(n=360)	
(discrete)	Zero	6.0%	4.7%	3.9%	0.493
Double Labelled Cells:					
CD4 with CD8			(n=758)		
(continuous-cells/mm^3)[a]	Nonzero		r=0.014		0.696
		(n=233)	(n=255)	(n=360)	
(discrete)	Zero	12.5%	10.2%	9.7%	0.556

[a] Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

[b] Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Current Alcohol Use (drinks/day) 0-1	>1-4	>4	p-Value
Composite Skin Test Diagnosis	Abnormal	(n=1,668) 3.4%	(n=389) 3.9%	(n=55) 5.5%	0.679
CD3 Cells (cells/mm^3)[a]			(n=841) r=0.003		0.931
CD4 Cells (cells/mm^3)[a]			(n=841) r=0.031		0.369
CD5 Cells (cells/mm^3)[a]			(n=841) r=-0.007		0.845
CD8 Cells (cells/mm^3)[a]			(n=841) r=-0.005		0.887
CD14 Cells (cells/mm^3)[a]			(n=841) r=0.048		0.161
CD16+56 Cells (cells/mm^3)[a]			(n=841) r=0.017		0.616
CD20 Cells (cells/mm^3)[b]			(n=841) r=-0.067		0.051
CD25 Cells (cells/mm^3)[a]			(n=841) r=0.073		0.034
CD4-CD8 Ratio[a]			(n=841) r=0.035		0.309
Double Labelled Cells: CD3 with CD25 (cells/mm^3)[a]			(n=841) r=0.073		0.035
Double Labelled Cells: CD5 with CD20 (continuous-cells/mm^3)[a]	Nonzero		(n=801) r=-0.125		<0.001
(discrete)	Zero	(n=661) 4.1%	(n=161) 6.2%	(n=19) 15.8%	0.038
Double Labelled Cells: CD4 with CD8 (continuous-cells/mm^3)[a]	Nonzero		(n=753) r=-0.003		0.943
(discrete)	Zero	(n=661) 11.0%	(n=161) 8.1%	(n=19) 10.5%	0.544

[a] Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

[b] Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Lifetime Alcohol History (drink-years) 0	>0-40	>40	p-Value
Composite Skin Test Diagnosis		(n=125)	(n=1,426)	(n=548)	
	Abnormal	1.6%	3.3%	4.7%	0.141
CD3 Cells (cells/mm^3)[a]			(n=836)		
			r=0.027		0.428
CD4 Cells (cells/mm^3)[a]			(n=836)		
			r=0.046		0.185
CD5 Cells (cells/mm^3)[a]			(n=836)		
			r=0.015		0.674
CD8 Cells (cells/mm^3)[a]			(n=836)		
			r=-0.007		0.832
CD14 Cells (cells/mm^3)[a]			(n=836)		
			r=0.111		0.001
CD16+56 Cells (cells/mm^3)[a]			(n=836)		
			r=-0.034		0.327
CD20 Cells (cells/mm^3)[b]			(n=836)		
			r=-0.056		0.105
CD25 Cells (cells/mm^3)[a]			(n=836)		
			r=0.057		0.101
CD4-CD8 Ratio[a]			(n=836)		
			r=0.052		0.133
Double Labelled Cells:			(n=836)		
CD3 with CD25 (cells/mm^3)[a]			r=0.066		0.057
Double Labelled Cells:					
CD5 with CD20			(n=797)		
(continuous-cells/mm^3)[a]	Nonzero		r=-0.093		0.009
		(n=52)	(n=576)	(n=208)	
(discrete)	Zero	5.8%	3.8%	6.7%	0.216
Double Labelled Cells:					
CD4 with CD8			(n=748)		
(continuous-cells/mm^3)[a]	Nonzero		r=0.039		0.289
		(n=52)	(n=576)	(n=208)	
(discrete)	Zero	17.3%	9.7%	11.1%	0.223

[a] Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

[b] Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Physical Activity Index			
		Sedentary	Moderate	Active	p-Value
Composite Skin Test Diagnosis	Abnormal	(n=1,213) 3.9%	(n=395) 2.5%	(n=529) 3.4%	0.447
CD3 Cells (cells/mm^3)[a]		(n=479) $\bar{x}$=1,508.0	(n=165) $\bar{x}$=1,433.0	(n=204) $\bar{x}$=1,437.1	0.195
CD4 Cells (cells/mm^3)[a]		(n=479) $\bar{x}$=974.0	(n=165) $\bar{x}$=925.5	(n=204) $\bar{x}$=920.9	0.156
CD5 Cells (cells/mm^3)[a]		(n=479) $\bar{x}$=1,558.7	(n=165) $\bar{x}$=1,473.9	(n=204) $\bar{x}$=1,474.0	0.125
CD8 Cells (cells/mm^3)[a]		(n=479) $\bar{x}$=637.0	(n=165) $\bar{x}$=622.8	(n=204) $\bar{x}$=623.5	0.798
CD14 Cells (cells/mm^3)[a]		(n=479) $\bar{x}$=527.1	(n=165) $\bar{x}$=533.4	(n=204) $\bar{x}$=492.9	0.025
CD16+56 Cells (cells/mm^3)[a]		(n=479) $\bar{x}$=261.3	(n=165) $\bar{x}$=260.3	(n=204) $\bar{x}$=268.2	0.821
CD20 Cells (cells/mm^3)[b]		(n=479) $\bar{x}$=230.1	(n=165) $\bar{x}$=214.6	(n=204) $\bar{x}$=210.3	0.110
CD25 Cells (cells/mm^3)[a]		(n=479) $\bar{x}$=258.1	(n=165) $\bar{x}$=253.7	(n=204) $\bar{x}$=239.7	0.243
CD4-CD8 Ratio[a]		(n=479) $\bar{x}$=1.53	(n=165) $\bar{x}$=1.49	(n=204) $\bar{x}$=1.48	0.551
Double Labelled Cells: CD3 with CD25 (cells/mm^3)[a]		(n=479) $\bar{x}$=202.7	(n=165) $\bar{x}$=202.7	(n=204) $\bar{x}$=188.7	0.270
Double Labelled Cells: CD5 with CD20 (continuous-cells/mm^3)[a]	Nonzero	(n=459) $\bar{x}$=54.1	(n=153) $\bar{x}$=51.4	(n=196) $\bar{x}$=48.6	0.275
(discrete)	Zero	(n=479) 4.2%	(n=165) 7.3%	(n=204) 3.9%	0.223
Double Labelled Cells: CD4 with CD8 (continuous-cells/mm^3)[a]	Nonzero	(n=426) $\bar{x}$=29.1	(n=149) $\bar{x}$=30.5	(n=183) $\bar{x}$=27.9	0.481
(discrete)	Zero	(n=479) 11.1%	(n=165) 9.7%	(n=204) 10.3%	0.873

[a] Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate

[b] Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Age			Race		
		Born ≥1942	Born <1942	p-Value	Black	Non-Black	p-Value
Double Labelled Cells: CD3 with CD16+56 (continuous-cells/mm^3)[a]	Nonzero	(n=820) r=0.124		<0.001	(n=47) $\bar{x}$=119.8	(n=773) $\bar{x}$=68.7	<0.001
(discrete)	Zero	(n=361) 4.4%	(n=488) 2.7%	0.226	(n=48) 2.1%	(n=801) 3.5%	0.909
Total Lymphocyte Count (TLC) (cells/mm^3)[a]		(n=849) r=-0.095		0.005	(n=48) $\bar{x}$=2,175.4	(n=801) $\bar{x}$=2,052.7	0.241
IgA (mg/dl)[a]		(n=2,200) r=0.065		0.002	(n=129) $\bar{x}$=231.5	(n=2,071) $\bar{x}$=217.0	0.128
IgG (mg/dl)[a]		(n=2,200) r=-0.011		0.595	(n=129) $\bar{x}$=1,268.4	(n=2,071) $\bar{x}$=1,030.7	<0.001
IgM (mg/dl)[a]		(n=2,200) r=-0.067		0.002	(n=129) $\bar{x}$=91.1	(n=2,071) $\bar{x}$=105.8	0.003
Lupus Panel							
ANA Test	Present	(n=942) 10.7%	(n=1,258) 18.6%	<0.001	(n=129) 17.8%	(n=2,071) 15.1%	0.471
Thyroid Microsomal Antibody	Present	(n=942) 3.4%	(n=1,258) 3.5%	0.992	(n=129) 2.3%	(n=2,071) 3.5%	0.635
MSK Smooth Muscle Antibody	Present	(n=942) 1.9%	(n=1,258) 4.0%	0.008	(n=129) 5.4%	(n=2,071) 3.0%	0.188
MSK Mitochondrial Antibody	Present	(n=942) 0.2%	(n=1,258) 0.2%	0.999	(n=129) 0.0%	(n=2,071) 0.2%	0.999
MSK Parietal Antibody	Present	(n=942) 2.2%	(n=1,258) 2.7%	0.572	(n=129) 2.3%	(n=2,071) 2.5%	0.999
Rheumatoid Factor	Present	(n=942) 13.2%	(n=1,258) 18.2%	0.002	(n=129) 18.6%	(n=2,071) 15.9%	0.489
B Cell Clones Detected by Serum Protein Electrophoresis	Present	(n=942) 1.2%	(n=1,258) 2.6%	0.024	(n=129) 0.8%	(n=2,071) 2.1%	0.484
Other Antibodies	Present	(n=939) 2.8%	(n=1,254) 4.3%	0.074	(n=129) 0.8%	(n=2,064) 3.8%	0.121
Summary Index	Abnormal	(n=939) 30.4%	(n=1,257) 45.1%	<0.001	(n=129) 45.0%	(n=2,067) 38.4%	0.165

[a] Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

[b] Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Occupation: Officer	Occupation: Enlisted Flyer	Occupation: Enlisted Groundcrew	p-Value
Double Labelled Cells: CD3 with CD16+56 (continuous-cells/mm^3)[a]	Nonzero	(n=316) $\bar{x}$=73.2	(n=147) $\bar{x}$=71.5	(n=357) $\bar{x}$=68.9	0.694
(discrete)	Zero	(n=330) 4.2%	(n=149) 1.3%	(n=370) 3.5%	0.268
Total Lymphocyte Count (TLC) (cells/mm^3)[a]		(n=330) $\bar{x}$=1,960.6	(n=149) $\bar{x}$=2,081.9	(n=370) $\bar{x}$=2,142.4	0.002
IgA (mg/dl)[a]		(n=855) $\bar{x}$=213.0	(n=360) $\bar{x}$=214.5	(n=985) $\bar{x}$=223.5	0.069
IgG (mg/dl)[a]		(n=855) $\bar{x}$=1,027.2	(n=360) $\bar{x}$=1,027.4	(n=985) $\bar{x}$=1,063.4	0.002
IgM (mg/dl)[a]		(n=855) $\bar{x}$=103.8	(n=360) $\bar{x}$=105.3	(n=985) $\bar{x}$=105.6	0.779
Lupus Panel					
ANA Test	Present	(n=855) 17.0%	(n=360) 16.4%	(n=985) 13.3%	0.074
Thyroid Microsomal Antibody	Present	(n=855) 3.7%	(n=360) 3.1%	(n=985) 3.4%	0.812
MSK Smooth Muscle Antibody	Present	(n=855) 4.1%	(n=360) 2.2%	(n=985) 2.5%	0.092
MSK Mitochondrial Antibody	Present	(n=855) 0.4%	(n=360) 0.0%	(n=985) 0.2%	0.491
MSK Parietal Antibody	Present	(n=855) 2.5%	(n=360) 1.9%	(n=985) 2.7%	0.706
Rheumatoid Factor	Present	(n=855) 17.7%	(n=360) 15.6%	(n=985) 14.8%	0.245
B Cell Clones Detected by Serum Protein Electrophoresis	Present	(n=855) 2.3%	(n=360) 3.3%	(n=985) 1.2%	0.033
Other Antibodies	Present	(n=852) 4.0%	(n=359) 4.7%	(n=982) 3.0%	0.242
Summary Index	Abnormal	(n=855) 42.6%	(n=359) 38.7%	(n=982) 35.5%	0.009

[a] Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

[b] Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Current Cigarette Smoking (cigarettes/day) 0-Never	0-Former	>0-20	>20	p-Value
Double Labelled Cells: CD3 with CD16+56 (continuous-cells/mm^3)[a]	Nonzero		(n=819) r=0.046			0.188
(discrete)	Zero	(n=233) 4.7%	(n=407) 2.7%	(n=137) 2.9%	(n=71) 4.2%	0.558
Total Lymphocyte Count (TLC) (cells/mm^3)[a]			(n=848) r=0.286			<0.001
IgA (mg/dl)[a]			(n=2,198) r=-0.015			0.475
IgG (mg/dl)[a]			(n=2,198) r=-0.144			<0.001
IgM (mg/dl)[a]			(n=2,198) r=0.009			0.675
Lupus Panel						
ANA Test	Present	(n=602) 17.6%	(n=1,041) 13.9%	(n=345) 14.2%	(n=210) 15.7%	0.228
Thyroid Microsomal Antibody	Present	(n=602) 3.2%	(n=1,041) 3.9%	(n=345) 2.3%	(n=210) 3.8%	0.512
MSK Smooth Muscle Antibody	Present	(n=602) 3.2%	(n=1,041) 3.2%	(n=345) 2.6%	(n=210) 2.9%	0.955
MSK Mitochondrial Antibody	Present	(n=602) 0.3%	(n=1,041) 0.1%	(n=345) 0.6%	(n=210) 0.0%	0.328
MSK Parietal Antibody	Present	(n=602) 2.0%	(n=1,041) 2.8%	(n=345) 2.3%	(n=210) 2.9%	0.768
Rheumatoid Factor	Present	(n=602) 14.8%	(n=1,041) 16.1%	(n=345) 16.5%	(n=210) 18.6%	0.622
B Cell Clones Detected by Serum Protein Electrophoresis	Present	(n=602) 1.2%	(n=1,041) 1.8%	(n=345) 4.3%	(n=210) 1.4%	0.006
Other Antibodies	Present	(n=599) 3.0%	(n=1,038) 4.2%	(n=344) 3.5%	(n=210) 2.9%	0.545
Summary Index	Abnormal	(n=601) 38.9%	(n=1,039) 38.6%	(n=344) 37.8%	(n=210) 40.5%	0.937

[a] Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

[b] Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Lifetime Cigarette Smoking History: 0 Pack-years	>0-10 Pack-years	>10 Pack-years	p-Value
Double Labelled Cells: CD3 with CD16+56 (continuous-cells/mm^3)[a]	Nonzero		(n=819) r=0.015		0.669
(discrete)	Zero	(n=233) 4.7%	(n=255) 4.3%	(n=360) 1.9%	0.123
Total Lymphocyte Count (TLC) (cells/mm^3)[a]			(n=848) r=0.127		<0.001
IgA (mg/dl)[a]			(n=2,197) r=0.031		0.143
IgG (mg/dl)[a]			(n=2,197) r=-0.108		<0.001
IgM (mg/dl)[a]			(n=2,197) r=0.013		0.551
Lupus Panel					
ANA Test	Present	(n=602) 17.6%	(n=676) 13.3%	(n=919) 14.9%	0.098
Thyroid Microsomal Antibody	Present	(n=602) 3.2%	(n=676) 3.7%	(n=919) 3.5%	0.868
MSK Smooth Muscle Antibody	Present	(n=602) 3.2%	(n=676) 2.7%	(n=919) 3.3%	0.775
MSK Mitochondrial Antibody	Present	(n=602) 0.3%	(n=676) 0.1%	(n=919) 0.2%	0.785
MSK Parietal Antibody	Present	(n=602) 2.0%	(n=676) 2.5%	(n=919) 2.8%	0.594
Rheumatoid Factor	Present	(n=602) 14.8%	(n=676) 16.6%	(n=919) 16.5%	0.603
B Cell Clones Detected by Serum Protein Electrophoresis	Present	(n=602) 1.2%	(n=676) 1.3%	(n=919) 3.0%	0.012
Other Antibodies	Present	(n=599) 3.0%	(n=673) 3.6%	(n=918) 4.1%	0.510
Summary Index	Abnormal	(n=601) 38.9%	(n=673) 36.0%	(n=919) 40.7%	0.158

[a] Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

[b] Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Current Alcohol Use (drinks/day) 0-1	>1-4	>4	p-Value
Double Labelled Cells: CD3 with CD16+56 (continuous-cells/mm^3)[a]	Nonzero		(n=813) r=-0.050		0.155
(discrete)	Zero	(n=661) 3.0%	(n=161) 4.4%	(n=19) 5.3%	0.628
Total Lymphocyte Count (TLC) (cells/mm^3)[a]			(n=841) r=0.004		0.911
IgA (mg/dl)[a]			(n=2,172) r=0.037		0.082
IgG (mg/dl)[a]			(n=2,172) r=-0.052		0.016
IgM (mg/dl)[a]			(n=2,172) r=0.048		0.026
Lupus Panel					
ANA Test	Present	(n=1,717) 15.2%	(n=397) 14.9%	(n=58) 13.8%	0.947
Thyroid Microsomal Antibody	Present	(n=1,717) 3.7%	(n=397) 2.3%	(n=58) 3.4%	0.356
MSK Smooth Muscle Antibody	Present	(n=1,717) 3.1%	(n=397) 3.5%	(n=58) 0.0%	0.349
MSK Mitochondrial Antibody	Present	(n=1,717) 0.2%	(n=397) 0.5%	(n=58) 0.0%	0.437
MSK Parietal Antibody	Present	(n=1,717) 2.9%	(n=397) 1.0%	(n=58) 1.7%	0.086
Rheumatoid Factor	Present	(n=1,717) 15.6%	(n=397) 17.1%	(n=58) 20.7%	0.468
B Cell Clones Detected by Serum Protein Electrophoresis	Present	(n=1,717) 1.8%	(n=397) 3.0%	(n=58) 1.7%	0.296
Other Antibodies	Present	(n=1,712) 3.8%	(n=395) 3.0%	(n=58) 5.2%	0.643
Summary Index	Abnormal	(n=1,715) 38.8%	(n=395) 37.7%	(n=58) 43.1%	0.727

[a] Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

[b] Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Lifetime Alcohol History (drink-years) 0	>0-40	>40	p-Value
Double Labelled Cells: CD3 with CD16+56 (continuous-cells/mm^3)[a]	Nonzero		(n=808) r=-0.008		0.814
(discrete)	Zero	(n=52) 1.9%	(n=576) 3.3%	(n=208) 3.9%	0.783
Total Lymphocyte Count (TLC) (cells/mm^3)[a]			(n=836) r=0.022		0.532
IgA (mg/dl)[a]			(n=2,158) r=0.046		0.031
IgG (mg/dl)[a]			(n=2,158) r=-0.045		0.039
IgM (mg/dl)[a]			(n=2,158) r=0.005		0.806
Lupus Panel					
ANA Test	Present	(n=131) 15.3%	(n=1,467) 15.6%	(n=560) 13.8%	0.578
Thyroid Microsomal Antibody	Present	(n=131) 3.8%	(n=1,467) 3.8%	(n=560) 2.3%	0.246
MSK Smooth Muscle Antibody	Present	(n=131) 4.6%	(n=1,467) 2.9%	(n=560) 3.2%	0.572
MSK Mitochondrial Antibody	Present	(n=131) 0.8%	(n=1,467) 0.2%	(n=560) 0.2%	0.424
MSK Parietal Antibody	Present	(n=131) 2.3%	(n=1,467) 2.7%	(n=560) 2.1%	0.743
Rheumatoid Factor	Present	(n=131) 19.1%	(n=1,467) 15.2%	(n=560) 17.7%	0.250
B Cell Clones Detected by Serum Protein Electrophoresis	Present	(n=131) 2.3%	(n=1,467) 1.7%	(n=560) 2.7%	0.362
Other Antibodies	Present	(n=131) 3.8%	(n=1,461) 3.6%	(n=559) 4.1%	0.839
Summary Index	Abnormal	(n=131) 43.5%	(n=1,463) 38.3%	(n=560) 38.8%	0.509

[a] Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

[b] Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Physical Activity Index			
		Sedentary	Moderate	Active	p-Value
Double Labelled Cells:					
CD3 with (CD16+56) (continuous-cells/mm^3)[a]	Nonzero	(n=464) $\bar{x}$=73.7	(n=156) $\bar{x}$=68.7	(n=199) $\bar{x}$=66.7	0.395
(discrete)	Zero	(n=479) 3.1%	(n=165) 5.5%	(n=204) 2.5%	0.251
Total Lymphocyte Count (TLC) (cells/mm^3)[a]		(n=479) $\bar{x}$=2,088.4	(n=165) $\bar{x}$=2,022.6	(n=204) $\bar{x}$=2,025.6	0.402
IgA (mg/dl)[a]		(n=1,250) $\bar{x}$=218.0	(n=402) $\bar{x}$=220.7	(n=546) $\bar{x}$=215.2	0.707
IgG (mg/dl)[a]		(n=1,250) $\bar{x}$=1,041.3	(n=402) $\bar{x}$=1,049.0	(n=546) $\bar{x}$=1,043.0	0.856
IgM (mg/dl)[a]		(n=1,250) $\bar{x}$=103.9	(n=402) $\bar{x}$=104.7	(n=546) $\bar{x}$=106.9	0.606
Lupus Panel					
ANA Test	Present	(n=1,250) 15.5%	(n=402) 13.9%	(n=546) 15.2%	0.741
Thyroid Microsomal Antibody	Present	(n=1,250) 4.2%	(n=402) 2.5%	(n=546) 2.4%	0.070
MSK Smooth Muscle Antibody	Present	(n=1,250) 3.0%	(n=402) 3.0%	(n=546) 3.3%	0.927
MSK Mitochondrial Antibody	Present	(n=1,250) 0.4%	(n=402) 0.0%	(n=546) 0.0%	0.150
MSK Parietal Antibody	Present	(n=1,250) 2.6%	(n=402) 1.5%	(n=546) 3.1%	0.282
Rheumatoid Factor	Present	(n=1,250) 15.9%	(n=402) 17.4%	(n=546) 15.4%	0.688
B Cell Clones Detected by Serum Protein Electrophoresis	Present	(n=1,250) 2.1%	(n=402) 1.7%	(n=546) 2.0%	0.915
Other Antibodies	Present	(n=1,247) 4.1%	(n=399) 4.5%	(n=545) 2.0%	0.059
Summary Index	Abnormal	(n=1,248) 40.0%	(n=400) 39.0%	(n=546) 35.7%	0.231

[a] Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

[b] Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

APPENDIX O-2.

Interaction Tables for the Immunology Assessment

This appendix contains exposure analyses results of interactions between covariates and group or dioxin. Results are presented for separate strata of the covariate and include sample sizes, percent abnormal, relative risks, confidence intervals, and p-values for discrete dependent variables. Sample sizes, adjusted means, differences of adjusted means and confidence intervals or adjusted slopes and standard errors, and p-values are given for continuous dependent variables. Means are transformed back to the original scale, if necessary. Chapter 7, Statistical Methods, provides further details on the analytical approaches used in the interaction analyses. The covariate involved in the interaction and a reference to the analysis table in Chapter 19 are given in the heading of each subtable. A summary of the interactions described in this appendix follows.

Appendix O-2 Table	Chapter 19 Table	Dependent Variable	Model	Covariate
O-2-1	19-4	Composite Skin Test Diagnosis	3 6	Current Alcohol Use Occupation
O-2-2	19-5	CD3 Cells	2 3	Occupation Age, Occupation
O-2-3	19-6	CD4 Cells	3	Age, Occupation
O-2-4	19-7	CD5 Cells	2 3	Occupation Age, Occupation
O-2-5	19-8	CD8 Cells	2 3 4	Occupation Age, Occupation Occupation
O-2-6	19-9	CD14 Cells	3	Age
O-2-7	19-10	CD16 + 56 Cells	2 3	Occupation, Physical Activity Index Occupation, Lifetime Alcohol History, Physical Activity Index
O-2-8	19-11	CD20 Cells	1 2	Lifetime Alcohol History Age
O-2-9	19-12	CD25 Cells	3 6	Age, Occupation, Lifetime Cigarette Smoking History, Lifetime Alcohol History Lifetime Cigarette Smoking History
O-2-10	19-13	CD4-CD8 Ratio	1	Physical Activity Index

Appendix O-2 Table	Chapter 19 Table	Dependent Variable	Model	Covariate
O-2-11	19-14	Double Labelled Cells: CD3 with CD25	3	Occupation, Lifetime Cigarette Smoking History, Lifetime Alcohol History
			6	Lifetime Cigarette Smoking History
O-2-12	19-16	Double Labelled Cells: CD4 with CD8	2	Race, Current Cigarette Smoking, Lifetime Alcohol History
			3	Age, Race, Occupation
O-2-13	19-17	Double Labelled Cells: CD3 with CD16 + 56	2	Occupation
			4	Physical Activity Index
			5	Physical Activity Index
			6	Physical Activity Index
O-2-14	19-18	TLC	2	Physical Activity Index
			3	Age
O-2-15	19-19	IgA	3	Race
O-2-16	19-20	IgG	3	Occupation
O-2-17	19-21	IgM	1	Race, Physical Activity Index
			3	Physical Activity Index
			4	Current Alcohol Use
O-2-18	19-22	Lupus Panel: Antinuclear Antibody (ANA)	3	Lifetime Alcohol History
			4	Race, Lifetime Alcohol History
			5	Race, Lifetime Alcohol History
			6	Race, Lifetime Alcohol History
O-2-19	19-23	Lupus Panel: Thyroid Microsomal Antibody	1	Current Cigarette Smoking, Current Alcohol Use, Lifetime Alcohol History
			2	Current Cigarette Smoking, Lifetime Alcohol History
			3	Current Cigarette Smoking, Current Alcohol Use, Lifetime Alcohol History
			4	Current Alcohol Use
O-2-20	19-26	Lupus Panel: Parietal Antibody	1	Race
O-2-21	19-27	Lupus Panel: Rheumatoid Factor	2	Age, Occupation
			3	Occupation, Physical Activity Index
O-2-22	19-28	Lupus Panel: B Cell Clones Detected By Serum Protein Electrophoresis	5	Current Alcohol Use
			6	Current Alcohol Use
O-2-23	19-29	Lupus Panel: Other Antibodies (ANA and MSK)	6	Race

Table O-2-1.
Interaction Table for Composite Skin Test Diagnosis

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED
(Dioxin Category-by-Current Alcohol Use: Table 19-4)

Stratum	Dioxin Category	n	Percent Abnormal	Adjusted Relative Risk (95% C.I.)[a]	p-Value
0-1 Drinks/Day	Comparison	797	2.8		
	Background RH	274	5.5	1.71 (0.86,3.38)	0.126
	Low RH	191	4.7	1.74 (0.78,3.90)	0.177
	High RH	205	2.4	1.04 (0.38,2.84)	0.935
	Low plus High RH	396	3.5	1.41 (0.70,2.82)	0.334
>1 Drinks/Day	Comparison	207	3.9		
	Background RH	82	8.5	1.96 (0.67,5.71)	0.217
	Low RH	58	1.7	0.51 (0.06,4.20)	0.532
	High RH	45	0.0	--	--
	Low plus High RH	103	1.0	0.28 (0.03,2.29)	0.234

b) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED
(Current Dioxin-by-Occupation: Table 19-4)

Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Abnormal	Adjusted Relative Risk (95% C.I.)[b]	p-Value
Officer	Low	185	4.3	1.26 (0.74,2.12)	0.395
	Medium	130	6.9		
	High	20	0.0		
Enlisted Flyer	Low	32	6.3	0.50 (0.26,0.96)	0.038
	Medium	54	7.4		
	High	60	0.0		
Enlisted Groundcrew	Low	70	11.4	0.74 (0.56,0.97)	0.029
	Medium	102	2.0		
	High	210	1.9		

[a] Relative risk and confidence interval relative to Comparisons.

[b] Relative risk for a twofold increase in current dioxin.

--: Relative risk, confidence interval, and p-value not presented due to sparse number of abnormalities.

Note: Model 3: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.
Model 6: Low = ≤ 46 ppq; Medium = > 46-128 ppq; High = > 128 ppq.

Table O-2-2.
Interaction Table for CD3 Cells (cells/mm^3)

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED
(Initial Dioxin-by-Occupation: Table 19-5)

Initial Dioxin Category Summary Statistics				Analysis Results for Log_2 (Initial Dioxin)	
Stratum	Initial Dioxin	n	Adjusted Mean[a]	Adjusted Slope (Std. Error)[b]	p-Value
Officer	Low	31	1,545.4	0.036 (0.091)	0.718
	Medium	13	1,949.2		
	High	1	2,208.7		
Enlisted Flyer	Low	16	1,614.5	-0.128 (0.108)	0.276
	Medium	20	1,523.9		
	High	11	1,662.0		
Enlisted Groundcrew	Low	17	1,516.4	-0.025 (0.036)	0.502
	Medium	32	1,472.7		
	High	59	1,393.0		

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED
(Dioxin Category-by-Age: Table 19-5)

Stratum	Dioxin Category	n	Adjusted Mean[a]	Difference of Adjusted Mean vs. Comparisons (95% C.I.)[c]	p-Value[d]
Born ≥ 1942	Comparison	183	1,453.6		
	Background RH	47	1,410.8	-42.8 --	0.654
	Low RH	21	1,621.4	167.8 --	0.235
	High RH	65	1,509.9	56.3 --	0.511
	Low plus High RH	86	1,536.4	82.8 --	0.291
Born < 1942	Comparison	217	1,443.4		
	Background RH	93	1,562.1	118.7 --	0.114
	Low RH	74	1,360.4	-83.0 --	0.272
	High RH	41	1,481.9	38.5 --	0.703
	Low plus High RH	115	1,402.5	-40.9 --	0.537

Table O-2-2. (Continued)
Interaction Table for CD3 Cells (cells/mm^3)

c) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Occupation: Table 19-5)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[c]**	**p-Value[d]**
Officer	Comparison	139	1,422.7		
	Background RH	99	1,486.1	63.4 --	0.400
	Low RH	39	1,420.3	-2.4 --	0.981
	High RH	6	2,555.4	1,132.7 --	<0.001
	Low plus High RH	45	1,536.0	113.3 --	0.497
Enlisted Flyer	Comparison	74	1,521.3		
	Background RH	13	1,511.0	-10.3 --	0.954
	Low RH	25	1,406.8	-114.5 --	0.397
	High RH	22	1,356.4	-164.9 --	0.235
	Low plus High RH	47	1,383.0	-138.3 --	0.192
Enlisted Groundcrew	Comparison	187	1,425.5		
	Background RH	28	1,585.2	159.7 --	0.184
	Low RH	31	1,432.4	6.9 --	0.951
	High RH	78	1,458.5	33.0 --	0.668
	Low plus High RH	109	1,451.0	25.5 --	0.730

[a] Transformed from natural logarithm scale.

[b] Slope and standard error based on natural logarithm of CD3 cells versus $\log_2$ dioxin.

[c] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

[d] P-value is based on difference of means on natural logarithm scale.

Note: Model 2: Low = 39-98 ppt; Medium = >98-232 ppt; High = >232 ppt.
Model 3: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-2-3.
Interaction Table for CD4 Cells (cells/mm^3)

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Age: Table 19-6)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
Born ≥ 1942	Comparison	183	933.6		
	Background RH	47	912.2	-21.4 --	0.733
	Low RH	21	1,082.9	149.3 --	0.114
	High RH	65	977.3	43.7 --	0.437
	Low plus High RH	86	1,002.1	68.5 --	0.186
Born < 1942	Comparison	220	917.6		
	Background RH	94	986.2	68.6 --	0.154
	Low RH	74	861.8	-55.8 --	0.251
	High RH	43	958.4	40.8 --	0.526
	Low plus High RH	117	896.1	-21.5 --	0.614

Table O-2-3. (Continued)
Interaction Table for CD4 Cells (cells/mm^3)

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED
(Dioxin Category-by-Occupation: Table 19-6)

Stratum	Dioxin Category	n	Adjusted Mean[a]	Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]	p-Value[c]
Officer	Comparison	141	934.1		
	Background RH	99	966.0	31.9 --	0.522
	Low RH	39	916.1	-18.0 --	0.789
	High RH	6	1,618.7	684.6 --	0.001
	Low plus High RH	45	988.3	54.2 --	0.415
Enlisted Flyer	Comparison	74	957.8		
	Background RH	14	964.5	6.7 --	0.953
	Low RH	25	897.2	-60.6 --	0.488
	High RH	23	881.0	-76.8 --	0.386
	Low plus High RH	48	889.4	-68.4 --	0.321
Enlisted Groundcrew	Comparison	188	896.2		
	Background RH	28	994.3	98.1 --	0.202
	Low RH	31	942.2	46.0 --	0.523
	High RH	79	930.9	34.7 --	0.481
	Low plus High RH	110	934.1	37.9 --	0.396

[a] Transformed from natural logarithm scale.

[b] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

[c] P-value is based on difference of means on natural logarithm scale.

Note: RH = Ranch Hand.
Comparison: Current Dioxin $\leq$ 10 ppt.
Background (Ranch Hand): Current Dioxin $\leq$ 10 ppt.
Low (Ranch Hand): Current Dioxin $>$ 10 ppt, 10 ppt $<$ Initial Dioxin $\leq$ 143 ppt.
High (Ranch Hand): Current Dioxin $>$ 10 ppt, Initial Dioxin $>$ 143 ppt.

Table O-2-4.
Interaction Table for CD5 Cells (cells/mm^3)

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED
(Initial Dioxin-by-Occupation: Table 19-7)

Initial Dioxin Category Summary Statistics				Analysis Results for Log_2 (Initial Dioxin)	
Stratum	Initial Dioxin	n	Adjusted Mean[a]	Adjusted Slope (Std. Error)[b]	p-Value
Officer	Low	31	1,599.1	0.029 (0.110)	0.809
	Medium	13	2,003.7		
	High	1	2,325.2		
Enlisted Flyer	Low	16	1,662.5	-0.129 (0.105)	0.258
	Medium	20	1,568.1		
	High	11	1,730.6		
Enlisted Groundcrew	Low	17	1,577.5	-0.024 (0.035)	0.502
	Medium	32	1,550.4		
	High	59	1,445.2		

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED
(Dioxin Category-by-Age: Table 19-7)

Stratum	Dioxin Category	n	Adjusted Mean[a]	Difference of Adjusted Mean vs. Comparisons (95% C.I.)[c]	p-Value[d]
Born ≥ 1942	Comparison	183	1,515.2		
	Background RH	47	1,447.9	-67.3 --	0.498
	Low RH	21	1,683.1	167.9 --	0.256
	High RH	65	1,581.9	66.7 --	0.459
	Low plus High RH	86	1,606.0	90.8 --	0.270
Born < 1942	Comparison	217	1,469.7		
	Background RH	93	1,600.7	131.0 --	0.090
	Low RH	74	1,392.2	-77.5 --	0.317
	High RH	41	1,540.4	70.7 --	0.498
	Low plus High RH	115	1,443.4	-26.3 --	0.700

Table O-2-4. (Continued)
Interaction Table for CD5 Cells (cells/mm^3)

c) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Occupation: Table 19-7)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[c]**	**p-Value[d]**
Officer	Comparison	139	1,469.2		
	Background RH	99	1,531.2	62.0 --	0.426
	Low RH	39	1,466.7	-2.5 --	0.981
	High RH	6	2,730.2	1,261.0 --	<0.001
	Low plus High RH	45	1,593.3	124.1 --	0.235
Enlisted Flyer	Comparison	74	1,566.3		
	Background RH	13	1,576.8	10.5 --	0.956
	Low RH	25	1,440.3	-126.0 --	0.367
	High RH	22	1,418.8	-147.5 --	0.308
	Low plus High RH	47	1,430.2	-136.1 --	0.220
Enlisted Groundcrew	Comparison	187	1,458.8		
	Background RH	28	1,609.6	150.8 --	0.220
	Low RH	31	1,484.7	25.9 --	0.820
	High RH	78	1,505.1	46.3 --	0.558
	Low plus High RH	109	1,499.3	40.5 --	0.569

[a] Transformed from natural logarithm scale.

[b] Slope and standard error based on natural logarithm of CD5 cells versus $\log_2$ dioxin.

[c] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

[d] P-value is based on difference of means on natural logarithm scale.

Note: Model 2: Low = 39-98 ppt; Medium = > 98-232 ppt; High = > 232 ppt.
Model 3: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-2-5.
Interaction Table for CD8 Cells (cells/mm^3)

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED
(Initial Dioxin-by-Occupation: Table 19-8)

Initial Dioxin Category Summary Statistics				Analysis Results for Log_2 (Initial Dioxin)	
Stratum	Initial Dioxin	n	Adjusted Mean[a]	Adjusted Slope (Std. Error)[b]	p-Value
Officer	Low	31	604.3	0.493 (0.172)	0.007
	Medium	13	861.3		
	High	1	1,284.9		
Enlisted Flyer	Low	16	657.5	-0.077 (0.062)	0.225
	Medium	20	536.5		
	High	11	552.3		
Enlisted Groundcrew	Low	17	592.6	0.002 (0.032)	0.958
	Medium	33	576.2		
	High	59	623.6		

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED
(Dioxin Category-by-Age: Table 19-8)

Stratum	Dioxin Category	n	Adjusted Mean[a]	Difference of Adjusted Mean vs. Comparisons (95% C.I.)[c]	p-Value[d]
Born ≥ 1942	Comparison	183	618.5		
	Background RH	47	594.3	-24.2 --	0.612
	Low RH	21	677.3	58.8 --	0.397
	High RH	65	606.9	-11.6 --	0.780
	Low plus High RH	86	623.4	4.9 --	0.899
Born < 1942	Comparison	217	646.1		
	Background RH	93	676.4	30.3 --	0.439
	Low RH	74	594.5	-51.6 --	0.184
	High RH	41	625.4	-20.7 --	0.689
	Low plus High RH	115	605.4	-40.7 --	0.231

Table O-2-5. (Continued)
Interaction Table for CD8 Cells (cells/mm^3)

c) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED
(Dioxin Category-by-Occupation: Table 19-8)

Stratum	Dioxin Category	n	Adjusted Mean[a]	Difference of Adjusted Mean vs. Comparisons (95% C.I.)[c]	p-Value[d]
Officer	Comparison	139	611.2		
	Background RH	99	607.9	-3.3 --	0.928
	Low RH	39	597.0	-14.2 --	0.778
	High RH	6	1,186.8	575.6 --	0.001
	Low plus High RH	45	654.2	43.0 --	0.394
Enlisted Flyer	Comparison	74	693.4		
	Background RH	13	620.6	-72.8 --	0.426
	Low RH	25	611.5	-81.9 --	0.238
	High RH	22	533.1	-160.3 --	0.020
	Low plus High RH	47	573.5	-119.9 --	0.027
Enlisted Groundcrew	Comparison	187	623.9		
	Background RH	28	750.2	126.3 --	0.050
	Low RH	31	609.3	-14.6 --	0.792
	High RH	78	618.1	-5.8 --	0.882
	Low plus High RH	109	615.6	-8.3 --	0.811

Table O-2-5. (Continued)
Interaction Table for CD8 Cells (cells/mm^3)

d) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Occupation: Table 19-8)					
Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Adjusted Mean[a]	Adjusted Slope (Std. Error)[b]	p-Value
Officer	Low	84	604.3	0.111 (0.061)	0.074
	Medium	54	669.3		
	High	6	692.5		
Enlisted Flyer	Low	11	699.2	-0.043 (0.052)	0.421
	Medium	24	606.2		
	High	25	522.4		
Enlisted Groundcrew	Low	20	664.5	-0.029 (0.023)	0.210
	Medium	29	685.5		
	High	88	605.4		

[a] Transformed from natural logarithm scale.

[b] Slope and standard error based on natural logarithm of CD8 cells versus log_2 dioxin.

[c] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

[d] P-value is based on difference of means on natural logarithm scale.

Note: Model 2: Low = 39-98 ppt; Medium = > 98-232 ppt; High = > 232 ppt.
Model 3: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.
Model 4: Low = ≤ 8.1 ppt; Medium = > 8.1-20.5 ppt; High = >20.5 ppt.

Table O-2-6.
Interaction Table for CD14 Cells (cells/mm^3)

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Age: Table 19-9)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
Born ≥ 1942	Comparison	183	473.0		
	Background RH	47	468.9	-4.1 --	0.867
	Low RH	21	500.6	27.6 --	0.429
	High RH	65	480.5	7.5 --	0.728
	Low plus High RH	86	485.3	12.3 --	0.531
Born < 1942	Comparison	220	508.7		
	Background RH	94	534.7	26.0 --	0.198
	Low RH	74	454.8	-53.9 --	0.008
	High RH	43	460.8	-47.9 --	0.061
	Low plus High RH	117	457.0	-51.7 --	0.003

[a] Transformed from natural logarithm scale.

[b] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

[c] P-value is based on difference of means on natural logarithm scale.

Note: Model 3: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-2-7.
Interaction Table for CD16 + 56 Cells (cells/mm^3)

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED
(Initial Dioxin-by-Occupation: Table 19-10)

Initial Dioxin Category Summary Statistics				Analysis Results for Log_2 (Initial Dioxin)	
Stratum	Initial Dioxin	n	Adjusted Mean[a]	Adjusted Slope (Std. Error)[b]	p-Value
Officer	Low	31	245.6	0.515 (0.188)	0.007
	Medium	13	275.8		
	High	1	1,023.8		
Enlisted Flyer	Low	16	247.6	-0.098 (0.103)	0.345
	Medium	20	233.1		
	High	12	197.4		
Enlisted Groundcrew	Low	17	244.9	0.008 (0.053)	0.885
	Medium	34	234.4		
	High	59	246.9		

b) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED
(Initial Dioxin-by-Physical Activity Index: Table 19-10)

Initial Dioxin Category Summary Statistics				Analysis Results for Log_2 (Initial Dioxin)	
Stratum	Initial Dioxin	n	Adjusted Mean[a]	Adjusted Slope (Std. Error)[b]	p-Value
Sedentary	Low	25	268.8	-0.002 (0.063)	0.980
	Medium	39	270.1		
	High	50	265.2		
Moderate	Low	14	156.3	0.175 (0.105)	0.099
	Medium	14	231.9		
	High	11	257.2		
Very Active	Low	25	284.8	-0.054 (0.092)	0.559
	Medium	14	205.0		
	High	11	279.0		

Table O-2-7. (Continued)
Interaction Table for CD16 + 56 Cells (cells/mm^3)

c) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Occupation: Table 19-10)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[c]**	**p-Value[d]**
Officer	Comparison	138	240.5		
	Background RH	98	240.7	0.2 --	0.993
	Low RH	39	195.8	-44.7 --	0.044
	High RH	6	405.7	165.2 --	0.023
	Low plus High RH	45	215.7	-24.7 --	0.260
Enlisted Flyer	Comparison	74	255.4		
	Background RH	13	255.2	-0.2 --	0.997
	Low RH	25	236.4	-19.0 --	0.558
	High RH	22	188.6	-66.8 --	0.027
	Low plus High RH	47	212.7	-42.7 --	0.081
Enlisted Groundcrew	Comparison	187	255.4		
	Background RH	28	236.1	-19.3 --	0.491
	Low RH	30	241.2	-14.2 --	0.606
	High RH	78	249.8	-5.6 --	0.772
	Low plus High RH	108	247.4	-8.0 --	0.643

Table O-2-7. (Continued)
Interaction Table for CD16 + 56 Cells (cells/mm^3)

d) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Lifetime Alcohol History: Table 19-10)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[c]**	**p-Value[d]**
0 Drink-years	Comparison	20	235.5		
	Background RH	10	336.4	100.9 --	0.105
	Low RH	4	204.3	-31.2 --	0.635
	High RH	9	386.5	151.0 --	0.026
	Low plus High RH	13	317.6	82.1 --	0.128
>0-40 Drink-years	Comparison	276	245.2		
	Background RH	98	241.5	-3.7 --	0.824
	Low RH	63	207.4	-37.8 --	0.037
	High RH	72	217.8	-27.4 --	0.121
	Low plus High RH	135	212.9	-32.3 --	0.020
>40 Drink-years	Comparison	103	243.5		
	Background RH	31	207.4	-36.1 --	0.170
	Low RH	27	240.8	-2.7 --	0.925
	High RH	25	228.8	-14.7 --	0.615
	Low plus High RH	52	235.0	-8.5 --	0.702

Table O-2-7. (Continued)
Interaction Table for CD16 + 56 Cells (cells/mm^3)

e) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED
(Dioxin Category-by-Physical Activity Index: Table 19-10)

Stratum	Dioxin Category	n	Adjusted Mean[a]	Difference of Adjusted Mean vs. Comparisons (95% C.I.)[c]	p-Value[d]
Sedentary	Comparison	225	240.7		
	Background RH	76	236.6	-4.1 --	0.827
	Low RH	42	231.0	-9.7 --	0.660
	High RH	69	241.1	0.4 --	0.985
	Low plus High RH	111	237.2	-3.5 --	0.823
Moderate	Comparison	85	265.8		
	Background RH	26	261.6	-4.2 --	0.899
	Low RH	21	157.1	-108.7 --	<0.001
	High RH	18	238.3	-27.5 --	0.449
	Low plus High RH	39	190.4	-75.4 --	0.002
Very Active	Comparison	89	240.4		
	Background RH	37	233.9	-6.5 --	0.803
	Low RH	31	246.2	5.8 --	0.836
	High RH	19	212.9	-27.5 --	0.387
	Low plus High RH	50	233.0	-7.5 --	0.753

[a] Transformed from natural logarithm scale.

[b] Slope and standard error based on natural logarithm of CD16+56 cells versus $\log_2$ dioxin.

[c] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

[d] P-value is based on difference of means on natural logarithm scale.

Note: Model 2: Low = 39-98 ppt; Medium = > 98-232 ppt; High = > 232 ppt.
Model 3: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-2-8.
Interaction Table for CD20 Cells (cells/mm^3)

Stratum	Occupational Category	Group	n	Adjusted Mean[a]	Difference of Adjusted Means (95% C.I.)[b]	p-Value[c]
a) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Lifetime Alcohol History: Table 19-11)						
0 Drink-years	***All***	***Ranch Hand***	***23***	***258.6***	***50.8 --***	***0.144***
		Comparison	***29***	***207.8***		
>0-40 Drink-years	***All***	***Ranch Hand***	***249***	***232.4***	***6.9 --***	***0.502***
		Comparison	***327***	***225.5***		
>40 Drink-years	***All***	***Ranch Hand***	***89***	***227.9***	***25.3 --***	***0.116***
		Comparison	***119***	***202.6***		
0 Drink-years	Officer	Ranch Hand	9	298.2	121.8 --	0.052
		Comparison	7	176.4		
	Enlisted Flyer	Ranch Hand	4	242.0	9.1 --	0.915
		Comparison	5	232.9		
	Enlisted Groundcrew	Ranch Hand	10	227.2	13.3 --	0.779
		Comparison	17	213.9		
>0-40 Drink-years	Officer	Ranch Hand	104	221.2	15.1 --	0.325
		Comparison	122	206.1		
	Enlisted Flyer	Ranch Hand	42	238.6	-15.5 --	0.577
		Comparison	49	254.1		
	Enlisted Groundcrew	Ranch Hand	103	234.2	6.6 --	0.677
		Comparison	156	227.6		
>40 Drink-years	Officer	Ranch Hand	40	213.1	12.7 --	0.602
		Comparison	44	200.4		
	Enlisted Flyer	Ranch Hand	17	219.9	11.1 --	0.752
		Comparison	29	208.8		
	Enlisted Groundcrew	Ranch Hand	32	244.1	45.8 --	0.095
		Comparison	46	198.3		

Table O-2-8. (Continued)
Interaction Table for CD20 Cells (cells/mm^3)

b) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED (Initial Dioxin-by-Age: Table 19-11)					
Initial Dioxin Category Summary Statistics				Analysis Results for Log_2 (Initial Dioxin)	
Stratum	Initial Dioxin	n	Adjusted Mean[a]	Adjusted Slope (Std. Error)[d]	p-Value
Born ≥ 1942	Low	10	323.5	-0.044 (0.049)	0.366
	Medium	29	249.7		
	High	47	239.3		
Born < 1942	Low	54	190.1	0.053 (0.047)	0.260
	Medium	36	212.4		
	High	24	218.1		

[a] Transformed from natural logarithm (X+1) scale.

[b] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm (X+1) scale.

[c] P-value is based on difference of means on natural logarithm (X+1) scale.

[d] Slope and standard error based on natural logarithm (X+1) of CD20 cells versus log_2 dioxin.

Note: Model 2: Low = 39-98 ppt; Medium = > 98-232 ppt; High = > 232 ppt.

Table O-2-9.
Interaction Table for CD25 Cells (cells/mm^3)

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED
(Dioxin Category-by-Age: Table 19-12)

Stratum	Dioxin Category	n	Adjusted Mean[a]	Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]	p-Value[c]
Born ≥ 1942	Comparison	183	270.1		
	Background RH	47	254.1	-16.0 --	0.444
	Low RH	21	326.6	56.5 --	0.083
	High RH	65	265.7	-4.4 --	0.815
	Low plus High RH	86	279.5	9.4 --	0.584
Born < 1942	Comparison	216	268.4		
	Background RH	92	289.8	21.4 --	0.199
	Low RH	73	249.4	-19.0 --	0.257
	High RH	41	282.1	13.7 --	0.547
	Low plus High RH	114	260.7	-7.7 --	0.612

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED
(Dioxin Category-by-Occupation: Table 19-12)

Stratum	Dioxin Category	n	Adjusted Mean[a]	Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]	p-Value[c]
Officer	Comparison	138	266.5		
	Background RH	98	276.3	9.8 --	0.560
	Low RH	39	257.6	-8.9 --	0.693
	High RH	6	454.0	187.5 --	0.006
	Low plus High RH	45	277.8	11.3 --	0.609
Enlisted Flyer	Comparison	74	284.0		
	Background RH	13	274.7	-9.3 --	0.817
	Low RH	25	245.8	-38.2 --	0.193
	High RH	22	229.1	-54.9 --	0.062
	Low plus High RH	47	237.8	-46.2 --	0.043
Enlisted Groundcrew	Comparison	187	266.2		
	Background RH	28	285.8	19.6 --	0.458
	Low RH	30	301.3	35.1 --	0.182
	High RH	78	274.4	8.2 --	0.631
	Low plus High RH	108	281.7	15.5 --	0.322

Table O-2-9. (Continued)
Interaction Table for CD25 Cells (cells/mm^3)

c) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Lifetime Cigarette Smoking History: Table 19-12)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
0 Pack-years	Comparison	107	240.8		
	Background RH	44	232.0	-8.8 --	0.664
	Low RH	21	238.7	-2.1 --	0.937
	High RH	27	259.9	19.1 --	0.466
	Low plus High RH	48	251.8	11.0 --	0.634
>0-10 Pack-years	Comparison	113	272.1		
	Background RH	38	256.0	-16.1 --	0.495
	Low RH	25	292.1	20.0 --	0.509
	High RH	43	258.0	-14.1 --	0.532
	Low plus High RH	68	270.1	-2.0 --	0.917
>10 Pack-years	Comparison	179	280.8		
	Background RH	57	322.0	41.2 --	0.060
	Low RH	48	272.3	-8.5 --	0.689
	High RH	36	290.6	9.8 --	0.688
	Low plus High RH	84	280.0	-0.8 --	0.963

Table O-2-9. (Continued)
Interaction Table for CD25 Cells (cells/mm^3)

d) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Lifetime Alcohol History: Table 19-12)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
0 Drink-years	Comparison	20	228.1		
	Background RH	10	284.9	56.8 --	0.228
	Low RH	4	327.1	99.0 --	0.151
	High RH	9	437.0	208.9 --	0.001
	Low plus High RH	13	399.7	171.6 --	0.001
>0-40 Drink-years	Comparison	276	270.1		
	Background RH	98	280.7	10.6 --	0.499
	Low RH	63	258.6	-11.5 --	0.519
	High RH	72	240.4	-29.7 --	0.069
	Low plus High RH	135	248.7	-21.4 --	0.106
>40 Drink-years	Comparison	103	265.6		
	Background RH	31	256.0	-9.6 --	0.708
	Low RH	27	269.4	3.8 --	0.888
	High RH	25	298.1	32.5 --	0.263
	Low plus High RH	52	282.9	17.3 --	0.422

Table O-2-9. (Continued)
Interaction Table for CD25 Cells (cells/mm^3)

e) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Lifetime Cigarette Smoking History: Table 19-12)					
Current Dioxin Category Summary Statistics				**Analysis Results for Log_2 (Current Dioxin + 1)**	
Stratum	**Current Dioxin**	**n**	**Adjusted Mean[a]**	**Adjusted Slope (Std. Error)[d]**	**p-Value**
0 Pack-years	Low	36	240.9	-0.005 (0.034)	0.889
	Medium	27	252.6		
	High	31	243.1		
>0-10 Pack-years	Low	35	254.6	0.001 (0.029)	0.985
	Medium	29	271.0		
	High	42	251.5		
>10 Pack-years	Low	41	341.1	-0.041 (0.031)	0.184
	Medium	60	266.7		
	High	43	291.4		

[a] Transformed from natural logarithm scale.

[b] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

[c] P-value is based on difference of means on natural logarithm scale.

[d] Slope and standard error based on natural logarithm of CD25 cells versus log_2 dioxin.

Note: Model 3: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.
Model 6: Low = ≤ 46 ppq; Medium = > 46-128 ppq; High = > 128 ppq.

Table O-2-10.
Interaction Table for CD4-CD8 Ratio

a) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Physical Activity Index: Table 19-13)						
Stratum	**Occupational Category**	**Group**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Means (95% C.I.)[b]**	**p-Value[c]**
Sedentary	***All***	***Ranch Hand***	***201***	***1.515***	***-0.027 --***	***0.651***
		Comparison	***268***	***1.542***		
Moderate	***All***	***Ranch Hand***	***66***	***1.658***	***0.282 --***	***0.005***
		Comparison	***99***	***1.376***		
Very Active	***All***	***Ranch Hand***	***94***	***1.522***	***0.091 --***	***0.294***
		Comparison	***108***	***1.431***		
Sedentary	Officer	Ranch Hand	81	1.640	0.007 --	0.950
		Comparison	79	1.633		
	Enlisted Flyer	Ranch Hand	31	1.455	-0.016 --	0.906
		Comparison	51	1.471		
	Enlisted Groundcrew	Ranch Hand	89	1.442	-0.062 --	0.461
		Comparison	138	1.504		
Moderate	Officer	Ranch Hand	28	1.647	0.278 --	0.067
		Comparison	43	1.369		
	Enlisted Flyer	Ranch Hand	13	1.773	0.229 --	0.378
		Comparison	15	1.544		
	Enlisted Groundcrew	Ranch Hand	25	1.641	0.295 --	0.060
		Comparison	41	1.346		
Very Active	Officer	Ranch Hand	44	1.560	-0.042 --	0.755
		Comparison	51	1.602		
	Enlisted Flyer	Ranch Hand	19	1.598	0.379 --	0.051
		Comparison	17	1.219		
	Enlisted Groundcrew	Ranch Hand	31	1.470	0.108 --	0.443
		Comparison	40	1.362		

[a] Transformed from natural logarithm scale.

[b] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

[c] P-value is based on difference of means on natural logarithm scale.

Table O-2-11.
Interaction Table for Double Labelled Cells: CD3 with CD25 (cells/mm^3)

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Occupation: Table 19-14)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
Officer	Comparison	138	206.9		
	Background RH	98	216.9	10.0 --	0.469
	Low RH	39	203.1	-3.8 --	0.838
	High RH	6	385.0	178.1 --	0.002
	Low plus High RH	45	221.1	14.2 --	0.438
Enlisted Flyer	Comparison	74	224.3		
	Background RH	13	217.8	-6.5 --	0.848
	Low RH	25	188.4	-35.9 --	0.139
	High RH	22	183.3	-41.0 --	0.099
	Low plus High RH	47	186.0	-38.3 --	0.046
Enlisted Groundcrew	Comparison	187	217.1		
	Background RH	28	236.6	19.5 --	0.396
	Low RH	30	245.5	28.4 --	0.211
	High RH	78	222.5	5.4 --	0.715
	Low plus High RH	108	228.6	11.5 --	0.393

Table O-2-11. (Continued)
Interaction Table for Double Labelled Cells: CD3 with CD25 (cells/mm^3)

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Lifetime Cigarette Smoking History: Table 19-14)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
0 Pack-years	Comparison	107	187.9		
	Background RH	44	183.9	-4.0 --	0.813
	Low RH	21	181.3	-6.6 --	0.762
	High RH	27	198.0	10.1 --	0.638
	Low plus High RH	48	190.5	2.6 --	0.874
>0-10 Pack-years	Comparison	113	215.7		
	Background RH	38	205.9	-9.8 --	0.626
	Low RH	25	234.8	19.1 --	0.454
	High RH	43	207.6	-8.1 --	0.673
	Low plus High RH	68	217.2	1.5 --	0.927
>10 Pack-years	Comparison	179	223.6		
	Background RH	57	257.0	33.4 --	0.072
	Low RH	48	218.1	-5.5 --	0.760
	High RH	36	234.8	11.2 --	0.590
	Low plus High RH	84	225.1	1.5 --	0.918

Table O-2-11. (Continued)
Interaction Table for Double Labelled Cells: CD3 with CD25 (cells/mm^3)

c) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Lifetime Alcohol History: Table 19-14)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
0 Drink-years	Comparison	20	172.6		
	Background RH	10	245.8	73.2 --	0.070
	Low RH	4	266.7	94.1 --	0.103
	High RH	9	335.3	162.7 --	0.001
	Low plus High RH	13	312.4	139.8 --	0.001
>0-40 Drink-years	Comparison	276	215.2		
	Background RH	98	223.7	8.5 --	0.522
	Low RH	63	202.4	-12.8 --	0.388
	High RH	72	189.9	-25.3 --	0.067
	Low plus High RH	135	195.7	-19.5 --	0.078
>40 Drink-years	Comparison	103	210.1		
	Background RH	31	203.4	-6.7 --	0.757
	Low RH	27	219.0	8.9 --	0.699
	High RH	25	245.6	35.5 --	0.155
	Low plus High RH	52	231.4	21.3 --	0.246

Table O-2-11. (Continued)
Interaction Table for Double Labelled Cells: CD3 with CD25 (cells/mm^3)

d) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Lifetime Cigarette Smoking History: Table 19-14)					
Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Adjusted Mean[a]	Adjusted Slope (Std. Error)[d]	p-Value
0 Pack-years	Low	36	185.8	-0.013 (0.036)	0.712
	Medium	27	191.1		
	High	31	179.8		
>0-10 Pack-years	Low	35	197.2	0.001 (0.031)	0.988
	Medium	29	219.2		
	High	42	198.4		
>10 Pack-years	Low	41	271.4	-0.043 (0.033)	0.196
	Medium	60	214.0		
	High	43	235.9		

[a] Transformed from natural logarithm scale.

[b] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

[c] P-value is based on difference of means on natural logarithm scale.

[d] Slope and standard error based on natural logarithm of CD3 with CD25 cells versus log_2 dioxin.

Note: Model 3: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.
Model 6: Low = ≤ 46 ppq; Medium = > 46-128 ppq; High = > 128 ppq.

Table O-2-12.
Interaction Table for Double Labelled Cells: CD4 with CD8
(Zero vs. Nonzero)

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED (Initial Dioxin-by-Race: Table 19-16)

Initial Dioxin Category Summary Statistics				Analysis Results for Log_2 (Initial Dioxin)	
Stratum	Initial Dioxin	n	Percent Zero	Adjusted Relative Risk (95% C.I.)[a]	p-Value
Black	Low	5	20.0	--	--
	Medium	2	0.0		
	High	5	0.0		
Non-Black	Low	59	11.9	1.00 (0.70,1.43)	0.982
	Medium	63	7.9		
	High	66	15.2		

b) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED (Initial Dioxin-by-Current Cigarette Smoking: Table 19-16)

Initial Dioxin Category Summary Statistics				Analysis Results for Log_2 (Initial Dioxin)	
Stratum	Initial Dioxin	n	Percent Zero	Adjusted Relative Risk (95% C.I.)[a]	p-Value
0-Never Smoked	Low	15	13.3	0.86 (0.46,1.59)	0.626
	Medium	10	10.0		
	High	23	13.0		
0-Former Smoker	Low	42	14.3	0.91 (0.55,1.50)	0.713
	Medium	38	10.5		
	High	26	19.2		
>0 Cigarettes/Day	Low	4	0.0	5.15 (0.73,36.17)	0.099
	Medium	10	0.0		
	High	16	12.5		
>0-20 Cigarettes/Day	Low	3	0.0	--	--
	Medium	7	0.0		
	High	6	0.0		

[a] Relative risk for a twofold increase in initial dioxin.

--: Adjusted relative risk, confidence interval, and p-value not presented due to the sparse number of abnormalities.

Note: Low = 39-98 ppt; Medium = > 98-232 ppt; High = > 232 ppt.

Table O-2-12. (Continued)
Interaction Table for Double Labelled Cells: CD4 with CD8 (cells/mm^3)
(Nonzero Measurements)

c) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED (Initial Dioxin-by-Lifetime Alcohol History: Table 19-16)					
Initial Dioxin Category Summary Statistics				**Analysis Results for Log_2 (Initial Dioxin)**	
Stratum	**Initial Dioxin**	**n**	**Adjusted Mean[a]**	**Adjusted Slope (Std. Error)[b]**	**p-Value**
0 Drink-years	Low	2	27.6	0.066 (0.134)	0.625
	Medium	3	25.9		
	High	5	30.9		
>0-40 Drink-years	Low	40	25.6	0.028 (0.045)	0.532
	Medium	39	28.0		
	High	40	25.7		
>40 Drink-years	Low	14	29.4	-0.038 (0.075)	0.616
	Medium	18	26.1		
	High	16	30.2		

[a] Transformed from natural logarithm scale.

[b] Slope and standard error based on natural logarithm of CD4 with CD8 versus log_2 dioxin.

Note: Analysis based on measurements above 0 cells/mm^3 only.
Low = 39-98 ppt; Medium = > 98-232 ppt; High = > 232 ppt.

Table O-2-12. (Continued)
Interaction Table for Double Labelled Cells: CD4 with CD8 (cells/mm^3)
(Nonzero Measurements)

d) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Age: Table 19-16)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
Born ≥ 1942	Comparison	159	30.3		
	Background RH	38	30.4	0.1 --	0.975
	Low RH	20	39.7	9.4 --	0.089
	High RH	55	28.9	-1.4 --	0.649
	Low plus High RH	75	31.5	1.2 --	0.695
Born < 1942	Comparison	201	33.5		
	Background RH	88	37.7	4.2 --	0.180
	Low RH	65	27.1	-6.4 --	0.027
	High RH	40	30.7	-2.8 --	0.466
	Low plus High RH	105	28.4	-5.1 --	0.044

Table O-2-12. (Continued)
Interaction Table for Double Labelled Cells: CD4 with CD8 (cells/mm^3)
(Nonzero Measurements)

e) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Race: Table 19-16)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
Black	Comparison	15	46.2		
	Background RH	5	20.7	-25.5 --	0.021
	Low RH	5	25.4	-20.8 --	0.083
	High RH	7	32.5	-13.7 --	0.249
	Low plus High RH	12	29.3	-16.9 --	0.078
Non-Black	Comparison	345	28.6		
	Background RH	121	32.5	3.9 --	0.087
	Low RH	80	26.8	-1.8 --	0.434
	High RH	88	27.0	-1.6 --	0.476
	Low plus High RH	168	26.9	-1.7 --	0.328

Table O-2-12. (Continued)
Interaction Table for Double Labelled Cells: CD4 with CD8 (cells/mm^3)
(Nonzero Measurements)

f) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Occupation: Table 19-16)					
Stratum	Dioxin Category	n	Adjusted Mean[a]	Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]	p-Value[c]
Officer	Comparison	127	32.4		
	Background RH	89	31.7	-0.7 --	0.020
	Low RH	34	27.2	-5.2 --	0.083
	High RH	5	29.5	-2.9 --	0.249
	Low plus High RH	39	27.5	-4.9 --	0.078
Enlisted Flyer	Comparison	71	30.3		
	Background RH	12	35.8	5.5 --	0.087
	Low RH	23	29.9	-0.4 --	0.434
	High RH	21	32.1	1.8 --	0.476
	Low plus High RH	44	30.9	0.6 --	0.328
Enlisted Groundcrew	Comparison	162	31.9		
	Background RH	25	43.5	11.6 --	0.033
	Low RH	28	29.9	-2.0 --	0.632
	High RH	69	29.5	-2.4 --	0.427
	Low plus High RH	97	29.6	-2.3 --	0.392

[a] Transformed from natural logarithm scale.

[b] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

[c] P-value is based on difference of means on natural logarithm scale.

Note: Analysis based on measurements above 0 cells/mm^3 only.
Model 3: RH = Ranch Hand.
Comparison: Current Dioxin $\leq$ 10 ppt.
Background (Ranch Hand): Current Dioxin $\leq$ 10 ppt.
Low (Ranch Hand): Current Dioxin $>$ 10 ppt, 10 ppt $<$ Initial Dioxin $\leq$ 143 ppt.
High (Ranch Hand): Current Dioxin $>$ 10 ppt, Initial Dioxin $>$ 143 ppt.

Table O-2-13.
Interaction Table for Double Labelled Cells: CD3 with CD16+56
(Zero vs. Nonzero)

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED (Initial Dioxin-by-Occupation: Table 19-17)					
Initial Dioxin Category Summary Statistics				Analysis Results for Log_2 (Initial Dioxin)	
Stratum	Initial Dioxin	n	Percent Zero	Adjusted Relative Risk (95% C.I.)[a]	p-Value
Officer	Low	31	3.2	--	--
	Medium	13	0.0		
	High	1	0.0		
Enlisted Flyer	Low	16	6.2	--	--
	Medium	20	0.0		
	High	12	0.0		
Enlisted Groundcrew	Low	17	0.0	2.30 (1.01,5.24)	0.048
	Medium	34	2.8		
	High	59	0.2		

b) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Physical Activity Index: Table 19-17)					
Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Zero	Adjusted Relative Risk (95% C.I.)[b]	p-Value
Sedentary	Low	63	0.0	2.62 (1.45,4.76)	0.002
	Medium	51	2.0		
	High	78	7.7		
Moderate	Low	22	4.5	0.93 (0.44,1.97)	0.845
	Medium	21	9.5		
	High	22	4.5		
Very Active	Low	31	6.5	0.22 (0.03,1.89)	0.169
	Medium	35	0.0		
	High	21	0.0		

Table O-2-13. (Continued)
Interaction Table for Double Labelled Cells: CD3 with CD16+56
(Zero vs. Nonzero)

c) MODEL 5: RANCH HANDS — CURRENT DIOXIN — ADJUSTED
(Current Dioxin-by-Physical Activity Index: Table 19-17)

Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Zero	Adjusted Relative Risk (95% C.I.)[b]	p-Value
Sedentary	Low	64	0.0	2.59 (1.44,4.64)	0.001
	Medium	54	1.9		
	High	74	8.1		
Moderate	Low	19	5.3	1.04 (0.54,2.00)	0.900
	Medium	25	4.0		
	High	21	9.5		
Very Active	Low	29	6.9	0.39 (0.08,1.84)	0.233
	Medium	37	0.0		
	High	21	0.0		

d) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED
(Current Dioxin-by-Physical Activity Index: Table 19-17)

Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Zero	Adjusted Relative Risk (95% C.I.)[b]	p-Value
Sedentary	Low	64	0.0	2.45 (1.35,4.46)	0.003
	Medium	54	1.9		
	High	74	8.1		
Moderate	Low	19	5.3	0.98 (0.50,1.92)	0.953
	Medium	25	4.0		
	High	21	9.5		
Very Active	Low	29	6.9	0.37 90.08,1.73)	0.206
	Medium	37	0.0		
	High	21	0.0		

[a] Relative risk for a twofold increase in initial dioxin.

[b] Relative risk for a twofold increase in current dioxin.

Note: Model 2: Low = 39-98 ppt; Medium = > 98-232 ppt; High = > 232 ppt.
Model 4: Low = ≤ 8.1 ppt; Medium = > 8.1-20.5 ppt; High = >20.5 ppt.
Models 5 and 6: Low = ≤ 46 ppq; Medium = > 46-128 ppq; High = > 128 ppq.

Table O-2-14.
Interaction Table for TLC (cells/mm^3)
(Continuous)

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED (Initial Dioxin-by-Physical Activity Index: Table 19-18)					
Initial Dioxin Category Summary Statistics				Analysis Results for Log_2 (Initial Dioxin)	
Stratum	Initial Dioxin	n	Adjusted Mean[a]	Adjusted Slope (Std. Error)[b]	p-Value
Sedentary	Low	25	2,202.8	-0.033 (0.031)	0.288
	Medium	39	2,127.4		
	High	50	2,046.0		
Moderate	Low	14	1,771.2	0.124 (0.051)	0.017
	Medium	14	1,925.9		
	High	11	2,588.2		
Very Active	Low	25	2,086.7	-0.063 (0.044)	0.150
	Medium	14	1,934.1		
	High	11	1,785.0		

Table O-2-14. (Continued)
Interaction Table for TLC (cells/mm^3)
(Continuous)

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED
(Dioxin Category-by-Age: Table 19-18)

Stratum	Dioxin Category	n	Adjusted Mean[a]	Difference of Adjusted Mean vs. Comparisons (95% C.I.)[c]	p-Value[d]
Born ≥ 1942	Comparison	183	2,041.1		
	Background RH	47	1,958.0	-83.1 --	0.439
	Low RH	21	2,214.7	173.6 --	0.283
	High RH	65	2,106.7	65.6 --	0.502
	Low plus High RH	86	2,132.6	91.5 --	0.308
Born < 1942	Comparison	217	2,013.1		
	Background RH	93	2,120.7	107.6 --	0.200
	Low RH	74	1,926.7	-86.4 --	0.324
	High RH	41	1,959.4	-53.7 --	0.630
	Low plus High RH	115	1,938.3	-74.8 --	0.321

[a] Transformed from natural logarithm scale.

[b] Slope and standard error based on natural logarithm of TLC versus $\log_2$ dioxin.

[c] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

[d] P-value is based on difference of means on natural logarithm scale.

Note: Model 2: Low = 39-98 ppt; Medium = > 98-232 ppt; High = > 232 ppt.
Model 3: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-2-15.
Interaction Table for IgA (mg/dl)

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Race: Table 19-19)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
Black	Comparison	55	225.7		
	Background RH	14	204.3	-21.4 --	0.461
	Low RH	23	292.6	66.9 --	0.020
	High RH	13	234.3	8.6 --	0.787
	Low plus High RH	36	270.0	44.3 --	0.063
Non-Black	Comparison	996	218.7		
	Background RH	353	217.7	-1.0 --	0.875
	Low RH	233	207.0	-11.7 --	0.095
	High RH	242	216.2	-2.5 --	0.730
	Low plus High RH	475	211.6	-7.1 --	0.199

[a] Transformed from natural logarithm scale.

[b] Difference of means after transformation to original scale; confidence interval and difference of means not presented because analysis was performed on natural logarithm scale.

[c] P-value is based on differences of means on natural logarithm scale.

Note: RH = Ranch Hand.
Comparison: Current Dioxin $\leq$ 10 ppt.
Background (Ranch Hand): Current Dioxin $\leq$ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin $\leq$ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-2-16.
Interaction Table for IgG (mg/dl)

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Occupation: Table 19-20)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
Officer	Comparison	395	1,127.8		
	Background RH	233	1,121.4	-6.4 --	0.754
	Low RH	101	1,077.4	-50.4 --	0.061
	High RH	9	897.4	-230.4 --	0.002
	Low plus High RH	110	1,061.4	-66.4 --	0.010
Enlisted Flyer	Comparison	172	1,142.6		
	Background RH	39	1,079.1	-63.5 --	0.141
	Low RH	54	1,072.5	-70.1 --	0.063
	High RH	53	1,117.3	-25.3 --	0.514
	Low plus High RH	107	1,094.7	-47.9 --	0.109
Enlisted Groundcrew	Comparison	468	1,152.5		
	Background RH	92	1,140.9	-11.6 --	0.688
	Low RH	98	1,171.1	18.6 --	0.509
	High RH	189	1,145.2	-7.3 --	0.736
	Low plus High RH	287	1,154.0	1.5 --	0.937

[a] Transformed from natural logarithm scale.

[b] Difference of means after transformation to original scale; confidence interval and difference of means not presented because analysis was performed on natural logarithm scale.

[c] P-value is based on differences of means on natural logarithm scale.

Note: RH = Ranch Hand.
Comparison: Current Dioxin $\leq$ 10 ppt.
Background (Ranch Hand): Current Dioxin $\leq$ 10 ppt.
Low (Ranch Hand): Current Dioxin $>$ 10 ppt, 10 ppt $<$ Initial Dioxin $\leq$ 143 ppt.
High (Ranch Hand): Current Dioxin $>$ 10 ppt, Initial Dioxin $>$ 143 ppt.

Table O-2-17.
Interaction Table for IgM (mg/dl)

Stratum	Occupational Category	Group	n	Adjusted Mean[a]	Difference of Adjusted Means (95% C.I.)[b]	p-Value[c]
a) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Race: Table 19-21)						
Black	***All***	***Ranch Hand***	***55***	***79.6***	***-19.1 --***	***0.027***
		Comparison	***73***	***98.7***		
Non-Black	***All***	***Ranch Hand***	***871***	***106.1***	***-0.1 --***	***0.986***
		Comparison	***1,173***	***106.2***		
Black	Officer	Ranch Hand	7	71.9	-0.8 --	0.969
		Comparison	6	72.7		
	Enlisted Flyer	Ranch Hand	10	78.7	-31.0 --	0.135
		Comparison	15	109.7		
	Enlisted Groundcrew	Ranch Hand	38	81.2	-17.9 --	0.088
		Comparison	52	99.1		
Non-Black	Officer	Ranch Hand	356	107.1	0.9 --	0.831
		Comparison	479	106.2		
	Enlisted Flyer	Ranch Hand	147	103.0	-7.5 --	0.243
		Comparison	185	110.5		
	Enlisted Groundcrew	Ranch Hand	368	106.5	1.8 --	0.632
		Comparison	509	104.7		

Table O-2-17. (Continued)
Interaction Table for IgM (mg/dl)

b) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Physical Activity Index: Table 19-21)						
Stratum	**Occupational Category**	**Group**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Means (95% C.I.)[b]**	**p-Value[c]**
Sedentary	***All***	***Ranch Hand***	***531***	***93.4***	***-6.7 --***	***0.026***
		Comparison	***700***	***100.1***		
Moderate	***All***	***Ranch Hand***	***165***	***96.6***	***-1.4 --***	***0.795***
		Comparison	***235***	***98.0***		
Very Active	***All***	***Ranch Hand***	***230***	***106.2***	***11.8 --***	***0.013***
		Comparison	***311***	***94.4***		
Sedentary	Officer	Ranch Hand	189	95.1	-7.6 --	0.150
		Comparison	238	102.7		
	Enlisted Flyer	Ranch Hand	87	87.4	-15.1 --	0.037
		Comparison	125	102.5		
	Enlisted Groundcrew	Ranch Hand	255	94.1	-3.3 --	0.442
		Comparison	337	97.4		
Moderate	Officer	Ranch Hand	72	98.1	4.2 --	0.604
		Comparison	107	93.9		
	Enlisted Flyer	Ranch Hand	33	100.7	-5.3 --	0.698
		Comparison	35	106.0		
	Enlisted Groundcrew	Ranch Hand	60	92.8	-7.1 --	0.414
		Comparison	93	99.9		
Very Active	Officer	Ranch Hand	102	103.9	12.0 --	0.085
		Comparison	140	91.9		
	Enlisted Flyer	Ranch Hand	37	105.4	4.6 --	0.721
		Comparison	40	100.8		
	Enlisted Groundcrew	Ranch Hand	91	108.9	13.8 --	0.068
		Comparison	131	95.1		

Table O-2-17. (Continued)
Interaction Table for IgM (mg/dl)

c) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Physical Activity Index: Table 19-21)					
Stratum	Dioxin Category	n	Adjusted Mean[a]	Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]	p-Value[c]
Sedentary	Comparison	574	99.3		
	Background RH	193	93.3	-6.0 --	0.173
	Low RH	139	93.2	-6.1 --	0.220
	High RH	164	92.0	-7.3 --	0.115
	Low plus High RH	303	92.5	-6.8 --	0.069
Moderate	Comparison	195	96.9		
	Background RH	70	110.9	14.0 --	0.077
	Low RH	51	83.8	-13.1 --	0.092
	High RH	39	94.0	-2.9 --	0.753
	Low plus High RH	90	88.1	-8.8 --	0.171
Very Active	Comparison	266	92.4		
	Background RH	102	99.5	7.1 --	0.246
	Low RH	63	118.1	25.7 --	0.001
	High RH	48	107.2	14.8 --	0.083
	Low plus High RH	111	113.3	20.9 --	0.001

Table O-2-17. (Continued)
Interaction Table for IgM (mg/dl)

d) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Current Alcohol Use: Table 19-21)					
Current Dioxin Category Summary Statistics				**Analysis Results for Log_2 (Current Dioxin + 1)**	
Stratum	**Current Dioxin**	**n**	**Adjusted Mean[a]**	**Adjusted Slope (Std. Error)[d]**	**p-Value**
0-1 Drinks/Day	Low	223	89.5	0.019 (0.014)	0.176
	Medium	218	90.0		
	High	239	93.3		
>1-4 Drinks/Day	Low	58	120.9	-0.091 (0.037)	0.016
	Medium	71	115.4		
	High	44	84.0		
>4 Drinks/Day	Low	7	83.8	-0.168 (0.126)	0.213
	Medium	3	178.6		
	High	6	49.8		

[a] Transformed from natural logarithm scale.

[b] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

[c] P-value is based on difference of means on natural logarithm scale.

[d] Slope and standard error based on natural logarithm of IgM versus log_2 dioxin.

Note: Model 3: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.
Model 4: Low = ≤ 8.1 ppt; Medium = > 8.1-20.5 ppt; High = > 20.5 ppt.

Table O-2-18.
Interaction Table for Lupus Panel: Antinuclear Antibody (ANA)

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Lifetime Alcohol History: Table 19-22)

Stratum	Dioxin Category	n	Percent Present	Adjusted Relative Risk (95% C.I.)[a]	p-Value
0 Drink-years	Comparison	53	17.0		
	Background RH	20	10.0	0.58 (0.11,2.96)	0.509
	Low RH	15	20.0	1.18 (0.27,5.10)	0.827
	High RH	23	13.0	0.80 (0.19,3.30)	0.756
	Low plus High RH	38	15.8	0.95 (0.30,2.97)	0.931
>0-40 Drink-years	Comparison	701	17.0		
	Background RH	255	15.3	0.80 (0.54,1.20)	0.281
	Low RH	167	17.4	0.97 (0.62,1.52)	0.898
	High RH	162	11.1	0.71 (0.41,1.21)	0.206
	Low plus High RH ..	329	14.3	0.85 (0.58,1.23)	0.388
>40 Drink-years	Comparison	279	16.8		
	Background RH	86	17.4	0.96 (0.50,1.84)	0.913
	Low RH	68	7.4	0.38 (0.15,1.01)	0.053
	High RH	63	11.1	0.70 (0.30,1.64)	0.411
	Low plus High RH	131	9.2	0.52 (0.27,1.03)	0.060

b) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Race: Table 19-22)

Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Present	Adjusted Relative Risk (95% C.I.)[b]	p-Value
Black	Low	11	27.3	0.34 (0.12,0.91)	0.032
	Medium	21	9.5		
	High	17	0.0		
Non-Black	Low	275	16.4	0.97 (0.84,1.12)	0.713
	Medium	267	15.0		
	High	268	11.6		

Table O-2-18. (Continued)
Interaction Table for Lupus Panel: Antinuclear Antibody (ANA)

c) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Lifetime Alcohol History: Table 19-22)

Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Present	Adjusted Relative Risk (95% C.I.)[b]	p-Value
0 Drinks/Day	Low	17	5.9	1.11 (0.69,1.79)	0.663
	Medium	18	16.7		
	High	23	17.4		
>0-40 Drinks/Day	Low	201	16.4	0.97 (0.82,1.15)	0.729
	Medium	193	17.1		
	High	190	10.5		
>40 Drinks/Day	Low	68	20.6	0.83 (0.61,1.13)	0.230
	Medium	77	7.8		
	High	72	9.7		

d) MODEL 5: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Race: Table 19-22)

Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Present	Adjusted Relative Risk (95% C.I.)[b]	p-Value
Black	Low	12	25.0	0.36 (0.15,0.89)	0.027
	Medium	22	9.1		
	High	15	0.0		
Non-Black	Low	278	15.1	0.99 (0.88,1.12)	0.856
	Medium	264	16.3		
	High	268	11.6		

e) MODEL 5: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Lifetime Alcohol History: Table 19-22)

Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Present	Adjusted Relative Risk (95% C.I.)[b]	p-Value
0 Drink-years	Low	18	11.1	1.07 (0.71,1.61)	0.741
	Medium	14	21.4		
	High	26	11.5		
>0-40 Drink-years	Low	203	15.3	0.99 (0.86,1.15)	0.921
	Medium	198	17.2		
	High	183	11.5		
>40 Drink-years	Low	69	17.4	0.87 (0.69,1.10)	0.246
	Medium	74	10.8		
	High	74	9.5		

Table O-2-18. (Continued)
Interaction Table for Lupus Panel: Antinuclear Antibody (ANA)

f) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Race: Table 19-22)					
Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Present	Adjusted Relative Risk (95% C.I.)[b]	p-Value
Black	Low	12	25.0	0.36 (0.15,0.88)	0.026
	Medium	22	9.1		
	High	15	0.0		
Non-Black	Low	277	15.2	0.96 (0.85,1.10)	0.591
	Medium	264	16.3		
	High	268	11.6		

g) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Lifetime Alcohol History: Table 19-22)					
Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Present	Adjusted Relative Risk (95% C.I.)[b]	p-Value
0 Drink-years	Low	18	11.1	1.05 (0.70,1.57)	0.830
	Medium	14	21.4		
	High	26	11.5		
>0-40 Drink-years	Low	202	15.3	0.96 (0.83,1.13)	0.645
	Medium	198	17.2		
	High	183	11.5		
>40 Drink-years	Low	69	17.4	0.85 (0.67,1.08)	0.193
	Medium	74	10.8		
	High	74	9.5		

[a] Relative risk and confidence interval relative to Comparisons.

[b] Relative risk for a twofold increase in current dioxin.

Note: Model 3: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.
Model 4: Low = ≤ 8.1 ppt; Medium = > 8.1-20.5 ppt; High = > 20.5 ppt.
Models 5 and 6: Low = ≤ 46 ppq; Medium = > 46-128 ppq; High = > 128 ppq.

Table O-2-19.
Interaction Table for Lupus Panel: Thyroid Microsomal Antibody

Stratum	Occupational Category	Group	n	Percent Present	Adj. Relative Risk (95% C.I.)	p-Value
a) MODEL 1: RANCH HANDS VS. COMPARISONS -- ADJUSTED (Group-by-Current Cigarette Smoking: Table 19-23)						
0-Never Smoked	*All*	*Ranch Hand*	*245*	*2.0*	*0.49 (0.18,1.40)*	*0.184*
		Comparison	*343*	*4.1*		
0-Former Smoker	*All*	*Ranch Hand*	*422*	*5.2*	*1.85 (0.97,3.51)*	*0.060*
		Comparison	*604*	*3.0*		
>0-20 Cigarettes/Day	*All*	*Ranch Hand*	*151*	*3.3*	*2.93 (0.56,15.34)*	*0.204*
		Comparison	*187*	*1.1*		
>20 Cigarettes/Day	*All*	*Ranch Hand*	*97*	*8.2*	--	--
		Comparison	*109*	*0.0*		
0-Never Smoked	Officer	Ranch Hand	131	1.5	0.49 (0.16,1.49)	0.208
		Comparison	188	4.8		
	Enlisted Flyer	Ranch Hand	24	4.2	0.78 (0.14,4.42)	0.776
		Comparison	26	0.0		
	Enlisted Groundcrew	Ranch Hand	90	2.2	0.48 (0.14,1.60)	0.231
		Comparison	129	3.9		
0-Former Smoker	Officer	Ranch Hand	175	4.0	1.74 (0.74,4.08)	0.204
		Comparison	234	2.6		
	Enlisted Flyer	Ranch Hand	82	6.1	2.77 (0.67,11.50)	0.160
		Comparison	106	2.8		
	Enlisted Groundcrew	Ranch Hand	165	6.1	1.71 (0.74,3.95)	0.209
		Comparison	264	3.4		
>0-20 Cigarettes/Day	Officer	Ranch Hand	34	5.9	2.67 (0.43,16.40)	0.289
		Comparison	34	2.9		
	Enlisted Flyer	Ranch Hand	24	4.2	4.26 (0.54,33.85)	0.171
		Comparison	46	0.0		
	Enlisted Groundcrew	Ranch Hand	93	2.2	2.63 (0.48,14.39)	0.266
		Comparison	107	0.9		
>20 Cigarettes/Day	Officer	Ranch Hand	19	21.1	--	--
		Comparison	28	0.0		
	Enlisted Flyer	Ranch Hand	24	0.0	--	--
		Comparison	21	0.0		
	Enlisted Groundcrew	Ranch Hand	54	7.4	--	--
		Comparison	60	0.0		

Table O-2-19. (Continued)
Interaction Table for Lupus Panel: Thyroid Microsomal Antibody

b) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Current Alcohol Use: Table 19-23)						
Stratum	**Occupational Category**	**Group**	**n**	**Percent Present**	**Adj. Relative Risk (95% C.I.)**	**p-Value**
0-1 Drinks/Day	***All***	***Ranch Hand***	***715***	***4.9***	***1.78 (1.07,2.96)***	***0.026***
		Comparison	***989***	***2.8***		
>1-4 Drinks/Day	***All***	***Ranch Hand***	***182***	***2.2***	***0.90 (0.24,3.40)***	***0.873***
		Comparison	***214***	***2.3***		
>4 Drinks/Day	***All***	***Ranch Hand***	***18***	***5.6***	***2.49 (0.15,42.36)***	***0.528***
		Comparison	***40***	***2.5***		
0-1 Drinks/Day	Officer	Ranch Hand	251	4.0	1.45 (0.67,3.11)	0.341
		Comparison	364	3.3		
	Enlisted Flyer	Ranch Hand	124	5.6	3.48 (0.87,13.97)	0.079
		Comparison	154	1.9		
	Enlisted Groundcrew	Ranch Hand	340	5.3	1.79 (0.87,3.66)	0.111
		Comparison	471	2.8		
>1-4 Drinks/Day	Officer	Ranch Hand	101	4.0	0.74 (0.18,3.00)	0.674
		Comparison	108	3.7		
	Enlisted Flyer	Ranch Hand	25	0.0	1.78 (0.27,11.52)	0.546
		Comparison	34	0.0		
	Enlisted Groundcrew	Ranch Hand	56	0.0	0.92 (0.21,4.03)	0.907
		Comparison	72	1.4		
>4 Drinks/Day	Officer	Ranch Hand	7	14.3	1.89 (0.10,34.03)	0.667
		Comparison	12	0.0		
	Enlisted Flyer	Ranch Hand	5	0.0	4.53 (0.21,97.28)	0.335
		Comparison	11	0.0		
	Enlisted Groundcrew	Ranch Hand	6	0.0	2.33 (0.13,41.91)	0.566
		Comparison	17	5.9		

Table O-2-19. (Continued)
Interaction Table for Lupus Panel: Thyroid Microsomal Antibody

c) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Lifetime Alcohol History: Table 19-23)						
Stratum	**Occupational Category**	**Group**	**n**	**Percent Present**	**Adj. Relative Risk (95% C.I.)**	**p-Value**
0 Drink-years	***All***	***Ranch Hand***	***62***	***3.2***	***0.72 (0.12,4.46)***	***0.722***
		Comparison	***69***	***4.3***		
>0-40 Drink-years	***All***	***Ranch Hand***	***620***	***4.4***	***1.30 (0.76,2.21)***	***0.343***
		Comparison	***847***	***3.4***		
>40 Drink-years	***All***	***Ranch Hand***	***233***	***4.7***	***7.94 (1.75,36.00)***	***0.007***
		Comparison	***327***	***0.6***		
0 Drink-years	Officer	Ranch Hand	14	0.0	0.55 (0.08,3.85)	0.551
		Comparison	22	9.1		
	Enlisted Flyer	Ranch Hand	13	7.7	1.27 (0.14,11.80)	0.835
		Comparison	12	8.3		
	Enlisted Groundcrew	Ranch Hand	35	2.9	0.75 (0.11,4.91)	0.763
		Comparison	35	0.0		
>0-40 Drink-years	Officer	Ranch Hand	250	4.4	1.02 (0.48,2.19)	0.950
		Comparison	337	3.9		
	Enlisted Flyer	Ranch Hand	94	3.2	2.34 (0.57,9.58)	0.236
		Comparison	121	0.8		
	Enlisted Groundcrew	Ranch Hand	276	4.7	1.38 (0.66,2.92)	0.394
		Comparison	389	3.9		
>40 Drink-years	Officer	Ranch Hand	95	4.2	6.07 (1.22,30.27)	0.028
		Comparison	125	0.8		
	Enlisted Flyer	Ranch Hand	47	6.4	13.89 (1.98,97.61)	0.008
		Comparison	66	1.5		
	Enlisted Groundcrew	Ranch Hand	91	4.4	8.20 (1.65,40.75)	0.010
		Comparison	136	0.0		

Table O-2-19. (Continued)
Interaction Table for Lupus Panel: Thyroid Microsomal Antibody

d) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED
(Initial Dioxin-by-Current Cigarette Smoking: Table 19-23)

Initial Dioxin Category Summary Statistics				Analysis Results for Log_2 (Initial Dioxin)	
Stratum	Initial Dioxin	n	Percent Present	Adjusted Relative Risk (95% C.I.)[a]	p-Value
0-Never Smoked	Low	45	0.0	1.25 (0.48,3.26)	0.648
	Medium	36	0.0		
	High	49	4.1		
0-Former Smoker	Low	88	6.8	1.02 (0.68,1.53)	0.936
	Medium	79	6.3		
	High	63	9.5		
>0-20 Cigarettes/Day	Low	23	13.0	0.10 (0.01,1.18)	0.067
	Medium	28	0.0		
	High	33	0.0		
>20 Cigarettes/Day	Low	12	16.7	0.37 (0.10,1.39)	0.141
	Medium	24	8.3		
	High	18	0.0		

e) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED
(Initial Dioxin-by-Lifetime Alcohol History: Table 19-23)

Initial Dioxin Category Summary Statistics				Analysis Results for Log_2 (Initial Dioxin)	
Stratum	Initial Dioxin	n	Percent Present	Adjusted Relative Risk (95% C.I.)[a]	p-Value
0 Drink-years	Low	10	0.0	5.03 (0.17,152.38)	0.353
	Medium	12	0.0		
	High	16	6.3		
>0-40 Drink-years	Low	116	4.3	0.98 (0.68,1.41)	0.893
	Medium	108	5.6		
	High	105	4.8		
>40 Drink-years	Low	42	14.3	0.40 (0.16,0.98)	0.045
	Medium	47	2.1		
	High	42	4.8		

Table O-2-19. (Continued)
Interaction Table for Lupus Panel: Thyroid Microsomal Antibody

f) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Current Cigarette Smoking: Table 19-23)					
Stratum	**Dioxin Category**	**n**	**Percent Present**	**Adjusted Relative Risk (95% C.I.)[b]**	**p-Value**
0-Never Smoked	Comparison	276	4.3		
	Background RH	106	1.9	0.41 (0.19,0.90)	0.026
	Low RH	68	0.0	--	--
	High RH	62	3.2	0.75 (0.35,1.60)	0.461
	Low plus High RH	130	1.5	0.34 (0.07,1.53)	0.157
0-Former Smoker	Comparison	516	2.9		
	Background RH	164	3.0	1.11 (0.51,2.41)	0.792
	Low RH	123	7.3	2.61 (1.14,5.98)	0.023
	High RH	107	7.5	2.89 (1.37,6.11)	0.005
	Low plus High RH	230	7.4	2.73 (1.33,5.58)	0.006
>0 Cigarettes/Day	Comparison	241	0.4		
	Background RH	91	6.6	15.82 (7.28,34.38)	<0.001
	Low RH	59	10.2	23.81 (6.68,84.88)	<0.001
	High RH	79	1.3	2.97 (1.41,6.27)	0.004
	Low plus High RH	138	5.1	11.74 (1.44,95.58)	0.021

g) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Current Alcohol Use: Table 19-23)					
Stratum	**Dioxin Category**	**n**	**Percent Present**	**Adjusted Relative Risk (95% C.I.)[b]**	**p-Value**
0-1 Drinks/Day	Comparison	820	2.9		
	Background RH	277	3.2	1.11 (0.51,2.44)	0.792
	Low RH	191	7.3	2.49 (1.26,4.92)	0.009
	High RH	203	5.4	1.98 (0.94,4.16)	0.072
	Low plus High RH	394	6.3	2.24 (1.26,4.00)	0.006
>1 Drinks/Day	Comparison	213	1.9		
	Background RH	84	4.8	2.56 (0.62,10.55)	0.194
	Low RH	59	1.7	0.88 (0.10,8.02)	0.910
	High RH	45	0.0	--	--
	Low plus High RH	104	1.0	0.51 (0.06,4.62)	0.551

Table O-2-19. (Continued)
Interaction Table for Lupus Panel: Thyroid Microsomal Antibody

h) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Lifetime Alcohol History: Table 19-23)					
Stratum	**Dioxin Category**	**n**	**Percent Present**	**Adjusted Relative Risk (95% C.I.)[b]**	**p-Value**
0 Drink-years	Comparison	53	3.8		
	Background RH	20	5.0	1.48 (0.13,17.50)	0.755
	Low RH	15	0.0	--	--
	High RH	23	4.3	1.19 (0.10,13.74)	0.892
	Low plus High RH	38	2.6	0.69 (0.06,8.03)	0.769
>0-40 Drink-years	Comparison	701	3.4		
	Background RH	255	3.9	1.15 (0.52,2.52)	0.730
	Low RH	167	5.4	1.53 (0.69,3.37)	0.296
	High RH	162	4.3	1.30 (0.55,3.04)	0.551
	Low plus High RH	329	4.9	1.42 (0.71,2.83)	0.323
>40 Drink-years	Comparison	279	0.7		
	Background RH	86	2.3	3.26 (0.45,23.44)	0.240
	Low RH	68	8.8	12.43 (2.44,63.32)	0.002
	High RH	63	4.8	7.67 (1.26,46.74)	0.027
	Low plus High RH	131	6.9	10.30 (2.12,50.01)	0.004

Table O-2-19. (Continued)
Interaction Table for Lupus Panel: Thyroid Microsomal Antibody

i) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Current Alcohol Use: Table 19-23)					
Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Present	Adjusted Relative Risk (95% C.I.)[c]	p-Value
0-1 Drinks/Day	Low	222	3.2	1.16 (0.93,1.44)	0.195
	Medium	218	6.9		
	High	239	5.4		
>1-4 Drinks/Day	Low	58	3.4	0.54 (0.21,1.36)	0.190
	Medium	71	2.8		
	High	44	0.0		
>4 Drinks/Day	Low	7	14.3	0.66 (0.15,2.92)	0.584
	Medium	3	0.0		
	High	6	0.0		

[a] Relative risk for a twofold increase in initial dioxin.

[b] Relative risk and confidence interval relative to Comparisons.

[c] Relative risk for a twofold increase in current dioxin.

--: Adjusted relative risk, confidence interval, and p-value not presented due to the sparse number of abnormalities.

Note: Model 2: Low = 39-98 ppt; Medium = > 98-232 ppt; High = > 232 ppt.
Model 3: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.
Model 4: Low = ≤ 8.1 ppt; Medium = > 8.1-20.5 ppt; High = > 20.5 ppt.

Table O-2-20.
Interaction Table for Lupus Panel: MSK Parietal Antibody

Stratum	Occupational Category	Group	n	Percent Present	Adj. Relative Risk (95% C.I.)	p-Value
a) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Race: Table 19-26)						
Black	***All***	***Ranch Hand***	***55***	***5.5***	--	--
		Comparison	***73***	***0.0***		
Non-Black	***All***	***Ranch Hand***	***871***	***2.2***	***0.75 (0.42,1.32)***	***0.316***
		Comparison	***1,173***	***2.8***		
Black	Officer	Ranch Hand	7	0.0	--	--
		Comparison	6	0.0		
	Enlisted Flyer	Ranch Hand	10	10.0	--	--
		Comparison	15	0.0		
	Enlisted Groundcrew	Ranch Hand	38	5.3	--	--
		Comparison	52	0.0		
Non-Black	Officer	Ranch Hand	356	3.1	1.41 (0.59,3.37)	0.440
		Comparison	479	2.1		
	Enlisted Flyer	Ranch Hand	147	1.4	0.70 (0.15,3.25)	0.650
		Comparison	185	2.2		
	Enlisted Groundcrew	Ranch Hand	368	1.6	0.42 (0.17,1.03)	0.057
		Comparison	509	3.7		

--: Adjusted relative risk, confidence interval, and p-value not presented due to the sparse number of abnormalities.

Table O-2-21.
Interaction Table for Lupus Panel: Rheumatoid Factor

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED (Initial Dioxin-by-Age: Table 19-27)					
Initial Dioxin Category Summary Statistics				Analysis Results for Log_2 (Initial Dioxin)	
Stratum	Initial Dioxin	n	Percent Present	Adjusted Relative Risk (95% C.I.)[a]	p-Value
Born ≥ 1942	Low	55	18.2	0.71 (0.51,0.98)	0.038
	Medium	72	9.7		
	High	109	10.1.		
Born < 1942	Low	116	18.1	0.91 (0.67,1.23)	0.548
	Medium	100	14.0		
	High	59	18.6		

b) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED (Initial Dioxin-by-Occupation: Table 19-27)					
Initial Dioxin Category Summary Statistics				Analysis Results for Log_2 (Initial Dioxin)	
Stratum	Initial Dioxin	n	Percent Present	Adjusted Relative Risk (95% C.I.)[a]	p-Value
Officer	Low	76	14.5	1.55 (0.66,3.60)	0.312
	Medium	33	21.2		
	High	1	100.0		
Enlisted Flyer	Low	35	25.7	0.36 (0.17,0.76)	0.008
	Medium	43	9.3		
	High	30	3.3		
Enlisted Groundcrew	Low	60	18.3	2.78 (2.15,3.60)	<0.001
	Medium	96	10.4		
	High	137	14.6		

Table O-2-21. (Continued)
Interaction Table for Lupus Panel: Rheumatoid Factor

c) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Occupation: Table 19-27)					
Stratum	**Dioxin Category**	**n**	**Percent Present**	**Adjusted Relative Risk (95% C.I.)[b]**	**p-Value**
Officer	Comparison	395	19.7		
	Background RH	234	13.7	0.65 (0.42,1.02)	0.064
	Low RH	101	16.8	0.77 (0.43,1.39)	0.388
	High RH	9	22.2	1.08 (0.22,5.32)	0.925
	Low plus High RH	110	17.3	0.81 (0.46,1.40)	0.445
Enlisted Flyer	Comparison	172	18.6		
	Background RH	39	15.4	0.85 (0.33,2.21)	0.738
	Low RH	54	24.1	1.45 (0.69,3.03)	0.323
	High RH	53	1.9	0.08 (0.01,0.60)	0.014
	Low plus High RH	107	13.1	0.66 (0.33,1.31)	0.233
Enlisted Groundcrew	Comparison	468	13.7		
	Background RH	92	22.8	1.92 (1.10,3.38)	0.023
	Low RH	98	16.3	1.24 (0.68,2.25)	0.486
	High RH	189	12.7	0.93 (0.56,1.54)	0.777
	Low plus High RH	287	13.9	1.03 (0.68,1.59)	0.875

Table O-2-21. (Continued)
Interaction Table for Lupus Panel: Rheumatoid Factor

d) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Physical Activity Index: Table 19-27)

Stratum	Dioxin Category	n	Percent Present	Adjusted Relative Risk (95% C.I.)[b]	p-Value
Sedentary	Comparison	574	17.8		
	Background RH	193	15.5	0.84 (0.53,1.32)	0.450
	Low RH	139	13.7	0.73 (0.43,1.24)	0.244
	High RH	164	11.6	0.63 (0.37,1.08)	0.092
	Low plus High RH	303	12.5	0.68 (0.46,1.03)	0.066
Moderate	Comparison	195	13.3		
	Background RH	70	27.1	2.41 (1.23,4.73)	0.011
	Low RH	51	23.5	1.92 (0.89,4.15)	0.098
	High RH	39	7.7	0.56 (0.16,1.98)	0.371
	Low plus High RH	90	16.7	1.30 (0.65,2.61)	0.459
Very Active	Comparison	266	17.3		
	Background RH	102	9.8	0.51 (0.25,1.06)	0.071
	Low RH	63	23.8	1.48 (0.76,2.87)	0.249
	High RH	48	10.4	0.59 (0.22,1.58)	0.290
	Low plus High RH	111	18.0	1.08 (0.60,1.94)	0.792

[a] Relative risk for a twofold increase in initial dioxin.

[b] Relative risk and confidence interval relative to Comparisons.

Note: Model 2: Low = 39-98 ppt; Medium = > 98-232 ppt; High = > 232 ppt.
Model 3: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-2-22.
Interaction Table for Lupus Panel: B Cell Clones Detected by Serum Protein Electrophoresis

a) MODEL 5: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Current Alcohol Use: Table 19-28)					
Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Present	Adjusted Relative Risk (95% C.I.)[a]	p-Value
0-1 Drinks/Day	Low	227	1.8	1.09 (0.76,1.56)	0.634
	Medium	218	1.8		
	High	235	1.7		
>1-4 Drinks/Day	Low	59	5.1	0.95 (0.58,1.53)	0.821
	Medium	68	7.4		
	High	46	2.2		
>4 Drinks/Day	Low	6	16.7	--	--
	Medium	4	0.0		
	High	6	0.0		

b) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Current Alcohol Use: Table 19-28)					
Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Present	Adjusted Relative Risk (95% C.I.)[a]	p-Value
0-1 Drinks/Day	Low	226	1.8	1.05 (0.72,1.53)	0.792
	Medium	218	1.8		
	High	235	1.7		
>1-4 Drinks/Day	Low	59	5.1	0.91 (0.56,1.50)	0.717
	Medium	68	7.4		
	High	46	2.2		
>4 Drinks/Day	Low	6	16.7	--	--
	Medium	4	0.0		
	High	6	0.0		

[a] Relative risk for a twofold increase in current dioxin.

--: Adjusted relative risk, confidence interval, and p-value not presented due to the sparse number of abnormalities.

Note: Low = ≤ 46 ppq; Medium = > 46-128 ppq; High = > 128 ppq.

Table O-2-23.
Interaction Table for Lupus Panel: Other Antibodies (ANA and MSK)

a) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Race: Table 19-29)					
Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Present	Adjusted Relative Risk (95% C.I.)[a]	p-Value
Black	Low	12	8.3	0.13 (0.01,3.20)	0.210
	Medium	23	0.0		
	High	15	0.0		
Non-Black	Low	279	3.2	1.15 (0.90,1.46)	0.276
	Medium	268	3.0		
	High	276	3.3		

[a] Relative risk for a twofold increase in current dioxin.

Note: Low = ≤ 46 ppq; Medium = > 46-128 ppq; High = > 128 ppq.

APPENDIX O-3.

Immunology Analysis Tables
Occupation Removed from Final Model

This appendix contains results of exposure analyses after occupation has been removed from those final dioxin models (Models 2 through 6) that contained occupation. These analyses are performed to investigate the relationship of the dependent variable to dioxin without removing any effects due to occupation. The format of these tables closely parallels the adjusted panels of Chapter 19 tables. A summary of the tables found in this appendix follows.

Appendix O-3 Table	Chapter 19 Table	Dependent Variable
O-3-1	19-4	Composite Skin Test Diagnosis
O-3-2	19-5	CD3 Cells
O-3-3	19-6	CD4 Cells
O-3-4	19-7	CD5 Cells
O-3-5	19-8	CD8 Cells
O-3-6	19-9	CD14 Cells
O-3-7	19-10	CD16 + 56 Cells
O-3-8	19-11	CD20 Cells
O-3-9	19-12	CD25 Cells
O-3-10	19-13	CD4-CD8 Ratio
O-3-11	19-14	Double Labelled Cells: CD3 with CD25
O-3-12	19-16	Double Labelled Cells: CD4 with CD8
O-3-13	19-17	Double Labelled Cells: CD3 with CD16 + 56
O-3-14	19-19	IgA
O-3-15	19-20	IgG
O-3-16	19-21	IgM
O-3-17	19-27	Lupus Panel: Rheumatoid Factor
O-3-18	19-28	Lupus Panel: B Cell Clones Detected By Serum Protein Electrophoresis

Table O-3-1.
Analysis of Composite Skin Test Diagnosis
Occupation Removed from Final Model

a) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED				
	Analysis Results for Log_2 (Current Dioxin + 1)			
Model[a]	n	Adj. Relative Risk (95% C.I.)[b]	p-Value	Covariate Remarks
6[c]	863	0.82 (0.67,1.01)	0.062	AGE (p=0.041) RACE (p=0.048) CSMOK (p=0.078)

[a] Log_2 (whole-weight current dioxin + 1), adjusted for log_2 total lipids.

[b] Relative risk for a twofold increase in current dioxin.

[c] Adjusted for log_2 total lipids in addition to covariates specified under "Covariate Remarks" column.

Table O-3-2.
Analysis of CD3 Cells (cells/mm^3)
Occupation Removed from Final Model

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED

Initial Dioxin Category Summary Statistics			Analysis Results for Log_2 (Initial Dioxin)[a]			
Initial Dioxin	n	Adj. Mean[ab]	R^2	Adj. Slope (Std. Error)[c]	p-Value	Covariate Remarks
Low	64	1,517.8	0.526	-0.017 (0.029)	0.566	AGE (p=0.393) CSMOK (p=0.004) DRKYR (p=0.151)
Medium	65	1,567.4				
High	71	1,473.0				

[a] Transformed from natural logarithm scale.
[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, examination group (batch-to-batch) variation, and covariates specified under "Covariate Remarks" column.
[c] Slope and standard error based on natural logarithm of CD3 cells versus log_2 (initial dioxin).

Note: Low = 39-98 ppt; Medium = >98-232 ppt; High = >232 ppt.

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED

Dioxin Category	n	Adj. Mean[ab]	Difference of Adj. Mean vs. Comparisons (95% C.I.)[c]	p-Value[d]	Covariate Remarks
Comparison	400	1,441.0**			DXCAT*AGE (p=0.024) CSMOK (p<0.001) ALC (p=0.115)
Background RH	140	1,501.9**	60.9 --**	0.294**	
Low RH	95	1,417.1**	-23.9 --**	0.718**	
High RH	106	1,487.9**	46.9 --**	0.463**	
Low plus High RH	201	1,454.0**	13.0 --**	0.790**	

[a] Transformed from natural logarithm scale.
[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, examination group (batch-to-batch) variation, and covariates specified under "Covariate Remarks" column.
[c] Difference of adjusted means after transformation to original scale; confidence interval on difference of adjusted means not presented because analysis was performed on natural logarithm scale.
[d] P-value is based on difference of means on natural logarithm scale.
**Categorized dioxin-by-covariate interaction ($0.01 < p \leq 0.05$); adjusted mean, difference of adjusted means, confidence interval, and p-value derived from a model fitted after deletion of this interaction; refer to Appendix Table O-4-1 for further analysis of this interaction.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-3-3.
Analysis of CD4 Cells (cells/mm^3)
Occupation Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED					
Dioxin Category	n	Adj. Mean[ab]	Difference of Adj. Mean vs. Comparisons (95% C.I.)[c]	p-Value[d]	Covariate Remarks
Comparison	403	920.6**			DXCAT*AGE (p=0.046) CSMOK (p<0.001)
Background RH	141	966.9**	46.3 --**	0.220**	
Low RH	95	915.5**	-5.1 --**	0.906**	
High RH	108	953.3**	32.7 --**	0.427**	
Low plus High RH	203	935.4**	14.8 --**	0.647**	

[a] Transformed from natural logarithm scale.

[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, examination group (batch-to-batch) variation, and covariates specified under "Covariate Remarks" column.

[c] Difference of adjusted means after transformation to original scale; confidence interval on difference of adjusted means not presented because analysis was performed on natural logarithm scale.

[d] P-value is based on difference of means on natural logarithm scale.

** Categorized dioxin-by-covariate interaction ($0.01 < p \leq 0.05$); adjusted mean, difference of adjusted means, confidence interval, and p-value derived from a model fitted after deletion of this interaction; refer to Appendix Table O-4-2 for further analysis of this interaction.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-3-4.
Analysis of CD5 Cells (cells/mm^3)
Occupation Removed from Final Model

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED

Initial Dioxin Category Summary Statistics			Analysis Results for Log_2 (Initial Dioxin)[a]			
Initial Dioxin	n	Adj. Mean[ab]	R^2	Adj. Slope (Std. Error)[c]	p-Value	Covariate Remarks
Low	64	1,573.5	0.526	-0.015 (0.030)	0.623	AGE (p=0.285)
Medium	65	1,631.5				CSMOK (p=0.009)
High	71	1,526.2				DRKYR (p=0.141)

[a] Transformed from natural logarithm scale.
[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, examination group (batch-to-batch) variation, and covariates specified under "Covariate Remarks" column.
[c] Slope and standard error based on natural logarithm of CD5 cells versus log_2 (initial dioxin).

Note: Low = 39-98 ppt; Medium = >98-232 ppt; High = >232 ppt.

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED

Dioxin Category	n	Adj. Mean[ab]	Difference of Adj. Mean vs. Comparisons (95% C.I.)[c]	p-Value[d]	Covariate Remarks
Comparison	400	1,481.2**			DXCAT*AGE (p=0.016)
					CSMOK (p<0.001)
Background RH	140	1,544.1**	62.9 --**	0.293**	ALC (p=0.076)
Low RH	95	1,461.1**	-20.1 --**	0.769**	
High RH	106	1,544.0**	62.8 --**	0.344**	
Low plus High RH	201	1,504.2**	23.0 --**	0.657**	

[a] Transformed from natural logarithm scale.
[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, examination group (batch-to-batch) variation, and covariates specified under "Covariate Remarks" column.
[c] Difference of adjusted means after transformation to original scale; confidence interval on difference of adjusted means not presented because analysis was performed on natural logarithm scale.
[d] P-value is based on difference of means on natural logarithm scale.

** Categorized dioxin-by-covariate interaction ($0.01 < p \leq 0.05$); adjusted mean, difference of adjusted means, confidence interval, and p-value derived from a model fitted after deletion of this interaction; refer to Appendix Table O-4-3 for further analysis of this interaction.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-3-5.
Analysis of CD8 Cells (cells/mm^3)
Occupation Removed from Final Model

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED

Initial Dioxin Category Summary Statistics			Analysis Results for Log_2 (Initial Dioxin)[a]			
Initial Dioxin	n	Adj. Mean[ab]	R^2	Adj. Slope (Std. Error)[c]	p-Value	Covariate Remarks
Low	64	615.7	0.055	-0.008 (0.027)	0.761	CSMOK (p=0.006) ALC (p=0.028)
Medium	66	610.9				
High	71	616.1				

[a] Transformed from natural logarithm scale.
[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.
[c] Slope and standard error based on natural logarithm of CD8 cells versus log_2 (initial dioxin).

Note: Low = 39-98 ppt; Medium = >98-232 ppt; High = >232 ppt.

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED

Dioxin Category	n	Adj. Mean[ab]	Difference of Adj. Mean vs. Comparisons (95% C.I.)[c]	p-Value[d]	Covariate Remarks
Comparison	400	631.6			AGE (p=0.264) CSMOK (p<0.001) ALC (p=0.051)
Background RH	140	634.8	3.2 --	0.914	
Low RH	95	605.5	-26.1 --	0.430	
High RH	106	622.0	-9.6 --	0.765	
Low plus High RH	201	614.1	-17.5 --	0.485	

[a] Transformed from natural logarithm scale.
[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.
[c] Difference of adjusted means after transformation to original scale; confidence interval on difference of adjusted means not presented because analysis was performed on natural logarithm scale.
[d] P-value is based on difference of means on natural logarithm scale.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-3-5. (Continued)
Analysis of CD8 Cells (cells/mm^3)
Occupation Removed from Final Model

b) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED							
	Current Dioxin Category Adjusted Mean[a]/(n)			Analysis Results for Log_2 (Current Dioxin + 1)			
Model[b]	Low	Medium	High	R^2	Adj. Slope (Std. Error)[c]	p-Value	Covariate Remarks
4	622.9 (115)	659.0 (107)	590.8 (119)	0.048	-0.008 (0.018)	0.679	CSMOK ($p<0.001$) ALC ($p=0.140$)

[a] Transformed from natural logarithm scale.

[b] Log_2 (lipid-adjusted current dioxin + 1).

[c] Slope and standard error based on natural logarithm of CD8 cells versus log_2 (current dioxin +1).

Note: Low = ≤ 8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.

Table O-3-6.
Analysis of CD14 Cells (cells/mm^3)
Occupation Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED					
Dioxin Category	n	Adj. Mean[ab]	Difference of Adj. Mean vs. Comparisons (95% C.I.)[c]	p-Value[d]	Covariate Remarks
Comparison	403	****			DXCAT*AGE (p=0.001) RACE (p=0.016) CSMOK (p<0.001) PHYACT (p=0.113)
Background RH	141	****	****	****	
Low RH	95	****	****	****	
High RH	108	****	****	****	
Low plus High RH	203	****	****	****	

[a] Transformed from natural logarithm scale.

[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, examination group (batch-to-batch) variation, and covariates specified under "Covariate Remarks" column.

[c] Difference of adjusted means after transformation to original scale; confidence interval on difference of adjusted means not presented because analysis was performed on natural logarithm scale.

[d] P-value is based on difference of means on natural logarithm scale.

**** Categorized dioxin-by-covariate interaction ($p \leq 0.01$); adjusted mean, difference of adjusted means, confidence interval, and p-value not presented; refer to Appendix Table O-4-4 for further analysis of this interaction.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-3-6. (Continued)
Analysis of CD14 Cells (cells/mm^3)
Occupation Removed from Final Model

b) MODELS 4, 5, AND 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED							
	Current Dioxin Category Adjusted Mean[ab]/(n)			Analysis Results for Log_2 (Current Dioxin + 1)			
Model[c]	Low	Medium	High	R^2	Adj. Slope (Std. Error)[a]	p-Value	Covariate Remarks
4	476.5 (116)	453.5 (107)	466.4 (121)	0.331	0.003 (0.014)	0.818	AGE (p=0.098) RACE (p=0.015) CSMOK (p<0.001)
5	479.2 (112)	439.0 (116)	486.9 (116)	0.332	0.007 (0.012)	0.556	AGE (p=0.081) RACE (p=0.015) CSMOK (p<0.001)
6[e]	493.2 (112)	444.0 (116)	482.7 (116)	0.341	-0.003 (0.013)	0.819	AGE (p=0.117) RACE (p=0.026) CSMOK (p<0.001)

[a] Transformed from natural logarithm scale.

[b] Adjusted for examination group (batch-to-batch) variation and covariates specified under "Covariate Remarks" column.

[c] Model 4: Log_2 (lipid-adjusted current dioxin + 1).
Model 5: Log_2 (whole-weight current dioxin + 1).
Model 6: Log_2 (whole-weight current dioxin + 1), adjusted for log_2 total lipids.

[d] Slope and standard error based on natural logarithm of CD14 cells versus log_2 (current dioxin +1).

[e] Adjusted for log_2 total lipids in addition to covariates specified under "Covariate Remarks" column.

Note: Model 4: Low = ≤ 8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.
Models 5 and 6: Low = ≤ 46 ppq; Medium = >46-128 ppq; High = >128 ppq.

Table O-3-7.
Analysis of CD16 + 56 Cells (cells/mm^3)
Occupation Removed from Final Model

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED						
Initial Dioxin Category Summary Statistics			**Analysis Results for Log$_2$ (Initial Dioxin)[a]**			
Initial Dioxin	**n**	**Adj. Mean[ab]**	**R^2**	**Adj. Slope (Std. Error)[c]**	**p-Value**	**Covariate Remarks**
Low	64	244.2	0.436	-0.001 (0.042)	0.983	CSMOK (p=0.117) PHYACT (p=0.173)
Medium	67	238.4				
High	72	243.0				

[a] Transformed from natural logarithm scale.
[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.
[c] Slope and standard error based on natural logarithm of CD16 + 56 cells versus log$_2$ (initial dioxin).

Note: Low = 39-98 ppt; Medium = >98-232 ppt; High = >232 ppt.

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED					
Dioxin Category	**n**	**Adj. Mean[ab]**	**Difference of Adj. Mean vs. Comparisons (95% C.I.)[c]**	**p-Value[d]**	**Covariate Remarks**
Comparison	399	250.3**			DXCAT*DRKYR (p=0.042) AGE (p=0.003) RACE (p=0.219) CSMOK (p=0.008) PHYACT (p=0.833)
Background RH	139	241.0**	-9.3 --**	0.496**	
Low RH	94	221.1**	-29.2 --**	0.060**	
High RH	106	241.4**	-8.9 --**	0.561**	
Low plus High RH	200	231.7**	-18.6 --**	0.115**	

[a] Transformed from natural logarithm scale.
[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, examination group (batch-to-batch) variation, and covariates specified under "Covariate Remarks" column.
[c] Difference of adjusted means after transformation to original scale; confidence interval on difference of adjusted means not presented because analysis was performed on natural logarithm scale.
[d] P-value is based on difference of means on natural logarithm scale.

** Categorized dioxin-by-covariate interaction ($0.01 < p \leq 0.05$); adjusted mean, difference of adjusted means, confidence interval, and p-value derived from a model fitted after deletion of this interaction; refer to Appendix Table O-4-5 for further analysis of this interaction.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-3-8.
Analysis of CD20 Cells (cells/mm^3)
Occupation Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED					
Dioxin Category	n	Adj. Mean[ab]	Difference of Adj. Mean vs. Comparisons (95% C.I.)[c]	p-Value[d]	Covariate Remarks
Comparison	400	211.8			AGE ($p<0.001$) CSMOK ($p<0.001$) ALC ($p=0.006$)
Background RH	140	235.3	23.5 --	0.046	
Low RH	95	222.9	11.1 --	0.402	
High RH	106	222.3	10.5 --	0.410	
Low plus High RH	201	222.6	10.8 --	0.279	

[a] Transformed from natural logarithm (X + 1) scale.

[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

[c] Difference of adjusted means after transformation to original scale; confidence interval on difference of adjusted means not presented because analysis was performed on natural logarithm (X + 1) scale.

[d] P-value is based on difference of means on natural logarithm (X + 1) scale.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-3-9.
Analysis of CD25 Cells (cells/mm^3)
Occupation Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED					
Dioxin Category	n	Adj. Mean[ab]	Difference of Adj. Mean vs. Comparisons (95% C.I.)[c]	p-Value[d]	Covariate Remarks
Comparison	399	269.3**			DXCAT*AGE (p=0.032) DXCAT*PACKYR (p=0.030) DXCAT*DRKYR (p=0.041) RACE (p=0.046) CSMOK (p<0.001)
Background RH	139	277.0**	7.7 --	0.550**	
Low RH	94	267.7**	1.6 --	0.914**	
High RH	106	271.8**	2.5 --	0.862**	
Low plus High RH	200	269.9**	0.6 --	0.961**	

[a] Transformed from natural logarithm scale.

[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, examination group (batch-to-batch) variation, and covariates specified under "Covariate Remarks" column.

[c] Difference of adjusted means after transformation to original scale; confidence interval on difference of adjusted means not presented because analysis was performed on natural logarithm scale.

[d] P-value is based on difference of means on natural logarithm scale.

** Categorized dioxin-by-covariate interactions ($0.01 < p \leq 0.05$); adjusted mean, difference of adjusted means, confidence interval, and p-value derived from a model fitted after deletion of these interactions; refer to Appendix Table O-4-6 for further analysis of these interactions.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-3-10.
Analysis of CD4-CD8 Ratio
Occupation Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED					
Dioxin Category	n	Adj. Mean[ab]	Difference of Adj. Mean vs. Comparisons (95% C.I.)[c]	p-Value[d]	Covariate Remarks
Comparison	399	1.480			AGE (p=0.008) CSMOK (p=0.005) DRKYR (p=0.071)
Background RH	139	1.538	0.058 --	0.360	
Low RH	94	1.576	0.096 --	0.191	
High RH	106	1.540	0.060 --	0.390	
Low plus High RH	200	1.557	0.077 --	0.161	

[a] Transformed from natural logarithm scale.

[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

[c] Difference of adjusted means after transformation to original scale; confidence interval on difference of adjusted means not presented because analysis was performed on natural logarithm scale.

[d] P-value is based on difference of means on natural logarithm scale.

Note: RH = Ranch Hand.
Comparison: Current Dioxin $\leq$ 10 ppt.
Background (Ranch Hand): Current Dioxin $\leq$ 10 ppt.
Low (Ranch Hand): Current Dioxin $>$ 10 ppt, 10 ppt $<$ Initial Dioxin $\leq$ 143 ppt.
High (Ranch Hand): Current Dioxin $>$ 10 ppt, Initial Dioxin $>$ 143 ppt.

Table O-3-11.
Analysis of Double Labelled Cells: CD3 with CD25 (cells/mm^3)
Occupation Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED					
Dioxin Category	n	Adj. Mean[ab]	Difference of Adj. Mean vs. Comparisons (95% C.I.)[c]	p-Value[d]	Covariate Remarks
Comparison	399	215.7**			DXCAT*PACKYR (p=0.023) DXCAT*DRKYR (p=0.018) RACE (p=0.022) CSMOK (p<0.001)
Background RH	139	221.2**	5.5 --**	0.612**	
Low RH	94	212.8**	-2.9 --**	0.818**	
High RH	106	221.2**	5.5 --**	0.651**	
Low plus High RH	200	217.2**	1.5 --**	0.877**	

[a] Transformed from natural logarithm scale.

[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, examination group (batch-to-batch) variation, and covariates specified under "Covariate Remarks" column.

[c] Difference of adjusted means after transformation to original scale; confidence interval on difference of adjusted means not presented because analysis was performed on natural logarithm scale.

[d] P-value is based on difference of means on natural logarithm scale.

** Categorized dioxin-by-covariate interactions ($0.01 < p \leq 0.05$); adjusted mean, difference of adjusted means, confidence interval, and p-value derived from a model fitted after deletion of these interactions; refer to Appendix Table O-4-7 for further analysis of these interactions.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-3-12.
Analysis of Double Labelled Cells: CD4 with CD8 (cells/mm^3)
Occupation Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED					
Dioxin Category	n	Adj. Mean[ab]	Difference of Adj. Mean vs. Comparisons (95% C.I.)[c]	p-Value[d]	Covariate Remarks
Comparison	360	****			DXCAT*AGE (p=0.006) RACE (p=0.059) CSMOK (p<0.001) PACKYR (p=0.046)
Background RH	126	****	****	****	
Low RH	85	****	****	****	
High RH	95	****	****	****	
Low plus High RH	180	****	****	****	

[a] Transformed from natural logarithm scale.

[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

[c] Difference of adjusted means after transformation to original scale; confidence interval on difference of adjusted means not presented because analysis was performed on natural logarithm scale.

[d] P-value is based on difference of means on natural logarithm scale.

**** Categorized dioxin-by-covariate interaction ($p \leq 0.01$); adjusted mean, difference of adjusted means, confidence interval, and p-value not presented; refer to Appendix Table O-4-8 for further analysis of this interaction.

Note: Analysis based on measurements above 0 cells/mm^3 only.
RH = Ranch Hand.
Comparison: Current Dioxin $\leq$ 10 ppt.
Background (Ranch Hand): Current Dioxin $\leq$ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin $\leq$ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-3-13.
Analysis of Double Labelled Cells: CD3 with CD16+56 (Zero vs. Nonzero)
Occupation Removed from Final Model

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED			
Analysis Results for Log_2 (Initial Dioxin)[a]			
n	Adj. Relative Risk (95% C.I.)[b]	p-Value	Covariate Remarks
203	1.52 (0.86,2.68)	0.147	PHYACT (p=0.158)

[a] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

[b] Relative risk for a twofold increase in initial dioxin.

Table O-3-13. (Continued)
Analysis of Double Labelled Cells: CD3 with CD16+56 (Nonzero Measurements)
Occupation Removed from Final Model

b) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED						
Initial Dioxin Category Summary Statistics			**Analysis Results for Log_2 (Initial Dioxin)[b]**			
Initial Dioxin	**n**	**Adj. Mean[ab]**	**R^2**	**Adj. Slope (Std. Error)[c]**	**p-Value**	**Covariate Remarks**
Low	62	118.0	0.499	-0.211 (0.072)	0.004	RACE (p=0.126)
Medium	64	104.3				CSMOK (p=0.039)
High	65	68.6				PACKYR (p=0.051)
						DRKYR (p=0.024)

[a] Transformed from natural logarithm scale.

[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

[c] Slope and standard error based on natural logarithm of CD3 with CD16+56 versus log_2 (initial dioxin).

Note: Analysis based on measurements above 0 cells/mm^3 only.
Low = 39-98 ppt; Medium = >98-232 ppt; High = >232 ppt.

Table O-3-14.
Analysis of IgA (mg/dl)
Occupation Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED					
Dioxin Category	n	Adj. Mean[ab]	Difference of Adj. Mean vs. Comparisons (95% C.I.)[c]	p-Value[d]	Covariate Remarks
Comparison	1,051	231.2**			DXCAT*RACE (p=0.030) AGE (p=0.004)
Background RH	367	226.2**	-5.0 --**	0.429**	
Low RH	256	224.3**	-6.9 --**	0.336**	
High RH	255	233.7**	2.5 --**	0.740**	
Low plus High RH	511	228.9**	-2.3 --**	0.687**	

[a] Transformed from natural logarithm scale.

[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

[c] Difference of adjusted means after transformation to original scale; confidence interval on difference of adjusted means not presented because analysis was performed on natural logarithm scale.

[d] P-value is based on difference of means on natural logarithm scale.

** Categorized dioxin-by-covariate interaction ($0.01 < p \leq 0.05$); adjusted mean, difference of adjusted means, confidence interval, and p-value derived from a model fitted after deletion of this interaction; refer to Appendix Table O-4-9 for further analysis of this interaction.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-3-14. (Continued)
Analysis of IgA (mg/dl)
Occupation Removed from Final Model

b) MODELS 4, 5, AND 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED							
	Current Dioxin Category Adjusted Mean[a]/(n)			Analysis Results for Log_2 (Current Dioxin + 1)			
Model[b]	Low	Medium	High	R^2	Adj. Slope (Std. Error)[c]	p-Value	Covariate Remarks
4	229.3 (289)	231.5 (295)	242.9 (294)	0.019	0.020 (0.011)	0.062	AGE (p=0.002) RACE (p=0.010)
5	229.5 (294)	235.9 (292)	237.5 (292)	0.017	0.012 (0.009)	0.191	AGE (p=0.003) RACE (p=0.010)
6[d]	225.3 (292)	235.0 (292)	240.8 (292)	0.027	0.024 (0.010)	0.019	AGE (p=0.005) RACE (p=0.011) PACKYR (p=0.050)

[a] Transformed from natural logarithm scale.

[b] Model 4: Log_2 (lipid-adjusted current dioxin + 1).
Model 5: Log_2 (whole-weight current dioxin + 1).
Model 6: Log_2 (whole-weight current dioxin + 1), adjusted for log_2 total lipids.

[c] Slope and standard error based on natural logarithm of IgA versus log_2 (current dioxin + 1).

[d] Adjusted for log_2 total lipids in addition to covariates specified under "Covariate Remarks" column.

Note: Model 4: Low = ≤ 8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.
Models 5 and 6: Low = ≤ 46 ppq; Medium = >46-128 ppq; High = >128 ppq.

Table O-3-15.
Analysis of IgG (mg/dl)
Occupation Removed from Final Model

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED						
Initial Dioxin Category Summary Statistics			Analysis Results for Log_2 (Initial Dioxin)[a]			
Initial Dioxin	n	Adj. Mean[ab]	R^2	Adj. Slope (Std. Error)[c]	p-Value	Covariate Remarks
Low	169	1,139.3	0.099	0.010 (0.008)	0.236	RACE (p<0.001) CSMOK (p=0.004) ALC (p=0.007)
Medium	169	1,167.4				
High	166	1,150.2				

[a] Transformed from natural logarithm scale.

[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

[c] Slope and standard error based on natural logarithm of IgG versus log_2 (initial dioxin).

Note: Low = 39-98 ppt; Medium = >98-232 ppt; High = >232 ppt.

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED					
Dioxin Category	n	Adj. Mean[ab]	Difference of Adj. Mean vs. Comparisons (95% C.I.)[c]	p-Value[d]	Covariate Remarks
Comparison	1,035	1,146.0			AGE (p=0.553) RACE (p<0.001) CSMOK (p<0.001) PACKYR (p=0.189) ALC (p=0.071)
Background RH	364	1,127.6	-18.4 --	0.231	
Low RH	253	1,116.9	-29.1 --	0.096	
High RH	251	1,131.0	-15.0 --	0.399	
Low plus High RH	504	1,123.9	-22.1 --	0.104	

[a] Transformed from natural logarithm scale.

[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

[c] Difference of adjusted means after transformation to original scale; confidence interval on difference of adjusted means not presented because analysis was performed on natural logarithm scale.

[d] P-value is based on difference of means on natural logarithm scale.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-3-15. (Continued)
Analysis of IgG (mg/dl)
Occupation Removed from Final Model

c) MODELS 4, 5, AND 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED							
	Current Dioxin Category Adjusted Mean[a]/(n)			Analysis Results for Log_2 (Current Dioxin + 1)			
Model[b]	Low	Medium	High	R^2	Adj. Slope (Std. Error)[c]	p-Value	Covariate Remarks
4	1,138.0 (288)	1,120.4 (292)	1,155.8 (289)	0.078	0.002 (0.005)	0.660	RACE ($p<0.001$) CSMOK ($p<0.001$) ALC ($p=0.012$)
5	1,141.4 (292)	1,127.2 (290)	1,145.6 (287)	0.078	-0.001 (0.005)	0.787	RACE ($p<0.001$) CSMOK ($p<0.001$) ALC ($p=0.011$)
6[d]	1,127.9 (291)	1,123.0 (290)	1,152.3 (287)	0.084	0.003 (0.005)	0.538	RACE ($p<0.001$) CSMOK ($p<0.001$) ALC ($p=0.018$)

[a] Transformed from natural logarithm scale.

[b] Model 4: Log_2 (lipid-adjusted current dioxin + 1).
Model 5: Log_2 (whole-weight current dioxin + 1).
Model 6: Log_2 (whole-weight current dioxin + 1), adjusted for log_2 total lipids.

[c] Slope and standard error based on natural logarithm of IgG versus log_2 (current dioxin + 1).

[d] Adjusted for log_2 total lipids in addition to covariates specified under "Covariate Remarks" column.

Note: Model 4: Low = ≤ 8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.
Models 5 and 6: Low = ≤ 46 ppq; Medium = >46-128 ppq; High = >128 ppq.

Table O-3-16.
Analysis of IgM (mg/dl)
Occupation Removed from Final Model

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED						
Initial Dioxin Category Summary Statistics			**Analysis Results for Log_2 (Initial Dioxin)[b]**			
Initial Dioxin	**n**	**Adj. Mean[ab]**	**R^2**	**Adj. Slope (Std. Error)[c]**	**p-Value**	**Covariate Remarks**
Low	171	94.5	0.046	0.013 (0.020)	0.509	AGE (p=0.036) RACE (p=0.050) PHYACT (p=0.003)
Medium	172	93.2				
High	168	99.4				

[a] Transformed from natural logarithm scale.

[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

[c] Slope and standard error based on natural logarithm of IgM versus log_2 (initial dioxin).

Note: Low = 39-98 ppt; Medium = >98-232 ppt; High = >232 ppt.

Table O-3-17.
Analysis of Lupus Panel: Rheumatoid Factor
Occupation Removed from Final Model

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED			
Analysis Results for Log_2 (Initial Dioxin)[a]			
n	Adj. Relative Risk (95% C.I.)[b]	p-Value	Covariate Remarks
511	0.83 (0.67,1.02)	0.075	AGE (p=0.235)

[a] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

[b] Relative risk for a twofold increase in initial dioxin.

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED				
Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value	Covariate Remarks
Comparison	1,035			DXCAT*PHYACT (p=0.017) AGE (p=0.044) ALC (p=0.100)
Background RH	365	0.95 (0.68,1.31)**	0.742**	
Low RH	253	1.08 (0.75,1.55)**	0.670**	
High RH	251	0.62 (0.40,0.96)**	0.032**	
Low plus High RH	504	0.85 (0.63,1.15)**	0.285**	

[a] Relative risk and confidence interval relative to Comparisons.

[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

** Categorized dioxin-by-covariate interaction ($0.01 < p \leq 0.05$); adjusted relative risk, confidence interval, and p-value derived from a model fitted after deletion of this interaction; refer to Appendix Table O-4-10 for further analysis of this interaction.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin >10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin >10 ppt, Initial Dioxin > 143 ppt.

Table O-3-17. (Continued)
Analysis of Lupus Panel: Rheumatoid Factor
Occupation Removed from Final Model

c) MODELS 4, 5, AND 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED				
	Analysis Results for Log_2 (Current Dioxin + 1)			
Model[a]	n	Adj. Relative Risk (95% C.I.)[b]	p-Value	Covariate Remarks
4	878	0.88 (0.77,1.01)	0.072	AGE (p=0.372) PHYACT (p=0.093)
5	878	0.89 (0.80,1.00)	0.042	AGE (p=0.360) PHYACT (p=0.093)
6[c]	877	0.92 (0.82,1.04)	0.207	AGE (p=0.256) PHYACT (p=0.085)

[a] Model 4: Log_2 (lipid-adjusted current dioxin + 1).
Model 5: Log_2 (whole-weight current dioxin + 1).
Model 6: Log_2 (whole-weight current dioxin + 1), adjusted for log_2 total lipids.

[b] Relative risk for a twofold increase in current dioxin.

[c] Adjusted for log_2 total lipids in addition to covariates specified under "Covariate Remarks" column.

Table O-3-18.
Analysis of Lupus Panel: B Cell Clones Detected by Serum Protein Electrophoresis
Occupation Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED				
Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value	Covariate Remarks
Comparison	1,051			AGE (p=0.008)
Background RH	367	1.82 (0.87,3.82)	0.112	
Low RH	256	0.72 (0.24,2.13)	0.547	
High RH	255	1.33 (0.52,3.41)	0.547	
Low and High RH	511	0.99 (0.46,2.15)	0.979	

[a] Relative risk and confidence interval relative to Comparisons.

[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin >10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin >10 ppt, Initial Dioxin > 143 ppt.

APPENDIX O-4.

Interaction Tables for the Immunology Assessment Occupation Removed from Final Model

This appendix contains exposure analyses results of interactions between covariates and dioxin after occupation and diabetic class have been removed from those final dioxin models (Models 2 through 6) that contained occupation. These tables are supplements to tables in Appendix O-3, which are main effects results with occupation removed from the model. Results are presented for separate strata of the covariate and include sample sizes, percent abnormal, relative risks, confidence intervals, and p-values for discrete dependent variables. Sample sizes, adjusted means, differences of adjusted means and confidence intervals or adjusted slopes and standard errors, and p-values are given for continuous dependent variables. Chapter 7, Statistical Methods, provides further details on the analytical approaches used in the interaction analyses. The analysis model, covariate involved in the interaction, and a reference to the analysis table in Chapter 19, Immunology Assessment, are given in the heading of each subtable. A summary of the interactions described in this appendix follows.

Appendix O-4 Table	Chapter 19 Table	Appendix O-3 Table	Dependent Variable	Model	Covariate
O-4-1	19-5	O-3-2	CD3 Cells	3	Age
O-4-2	19-6	O-3-3	CD4 Cells	3	Age
O-4-3	19-7	O-3-4	CD5 Cells	3	Age
O-4-4	19-9	O-3-6	CD14 Cells	3	Age
O-4-5	19-10	O-3-7	CD16 + 56 Cells	3	Lifetime Alcohol History
O-4-6	19-12	O-3-9	CD25 Cells	3	Age, Lifetime Cigarette Smoking History, Lifetime Alcohol History
O-4-7	19-14	O-3-11	Double Labelled Cells: CD3 with CD25	3	Lifetime Cigarette Smoking History, Lifetime Alcohol History
O-4-8	19-16	O-3-12	Double Labelled Cells: CD4 with CD8	3	Age
O-4-9	19-19	O-3-14	IgA	3	Race
O-4-10	19-27	O-3-17	Lupus Panel: Rheumatoid Factor	3	Physical Activity Index

Table O-4-1.
Interaction Table for CD3 Cells (cells/mm^3)
Occupation Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Age: Tables 19-5 and O-3-2)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
Born ≥ 1942	Comparison	183	1,447.6		
	Background RH	47	1,403.6	-44.0 --	0.635
	Low RH	21	1,615.9	168.3 --	0.231
	High RH	65	1,500.0	52.4 --	0.533
	Low plus High RH	86	1,527.5	79.9 --	0.301
Born < 1942	Comparison	217	1,440.0		
	Background RH	93	1,553.8	113.8 --	0.121
	Low RH	74	1,358.8	-81.2 --	0.281
	High RH	41	1,486.6	46.6 --	0.639
	Low plus High RH	115	1,403.1	-36.9 --	0.574

[a] Transformed from natural logarithm scale.

[b] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

[c] P-value is based on difference of means on natural logarithm scale.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-4-2.
Interaction Table for CD4 Cells (cells/mm^3)
Occupation Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Age: Tables 19-6 and O-3-3)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
Born ≥ 1942	Comparison	183	927.5		
	Background RH	47	912.7	-14.8 --	0.808
	Low RH	21	1,075.5	148.0 --	0.114
	High RH	65	966.2	38.7 --	0.482
	Low plus High RH	86	991.8	64.3 --	0.206
Born < 1942	Comparison	220	919.5		
	Background RH	94	991.5	72.0 --	0.129
	Low RH	74	864.1	-55.4 --	0.255
	High RH	43	957.8	38.3 --	0.545
	Low plus High RH	117	897.4	-22.1 --	0.601

[a] Transformed from natural logarithm scale.

[b] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

[c] P-value is based on difference of means on natural logarithm scale.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-4-3.
Interaction Table for CD5 Cells (cells/mm^3)
Occupation Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Age: Tables 19-7 and O-3-4)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
Born ≥ 1942	Comparison	183	1,505.6		
	Background RH	47	1,440.8	-64.8 --	0.500
	Low RH	21	1,673.5	167.9 --	0.252
	High RH	65	1,565.3	59.7 --	0.497
	Low plus High RH	86	1,591.0	85.4 --	0.291
Born < 1942	Comparison	217	1,467.1		
	Background RH	93	1,594.7	127.6 --	0.091
	Low RH	74	1,391.8	-75.3 --	0.330
	High RH	41	1,545.3	78.2 --	0.446
	Low plus High RH	115	1,444.7	-22.4 --	0.741

[a] Transformed from natural logarithm scale.

[b] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

[c] P-value is based on difference of means on natural logarithm scale.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-4-4.
Interaction Table for CD14 Cells (cells/mm^3)
Occupation Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Age: Tables 19-9 and O-3-6)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
Born ≥ 1942	Comparison	183	482.5		
	Background RH	47	468.8	-13.7 --	0.573
	Low RH	21	511.5	29.0 --	0.416
	High RH	65	495.3	12.8 --	0.559
	Low plus High RH	86	499.2	16.7 --	0.404
Born < 1942	Comparison	220	508.5		
	Background RH	94	528.8	20.3 --	0.304
	Low RH	74	454.4	-54.1 --	0.008
	High RH	43	465.8	-42.7 --	0.091
	Low plus High RH	117	458.5	-50.0 --	0.004

[a] Transformed from natural logarithm scale.

[b] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

[c] P-value is based on difference of means on natural logarithm scale.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-4-5.
Interaction Table for CD16+56 Cells (cells/mm^3)
Occupation Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Lifetime Alcohol History: Tables 19-10 and O-3-7))					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
0 Drink-years	Comparison	20	242.8		
	Background RH	10	334.3	91.5 --	0.142
	Low RH	4	216.8	-26.0 --	0.704
	High RH	9	395.1	152.3 --	0.028
	Low plus High RH	13	328.4	85.6 --	0.123
>0-40 Drink-years	Comparison	276	249.0		
	Background RH	98	239.9	-9.1 --	0.572
	Low RH	63	210.7	-38.3 --	0.038
	High RH	72	224.7	-24.3 --	0.173
	Low plus High RH	135	218.0	-31.0 --	0.028
>40 Drink-years	Comparison	103	246.5		
	Background RH	31	210.2	-36.3 --	0.170
	Low RH	27	240.5	-6.0 --	0.837
	High RH	25	234.4	-12.1 --	0.682
	Low plus High RH	52	237.6	-8.9 --	0.692

[a] Transformed from natural logarithm scale.

[b] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

[c] P-value is based on difference of means on natural logarithm scale.

Note: RH = Ranch Hand.
Comparison: Current Dioxin $\leq$ 10 ppt.
Background (Ranch Hand): Current Dioxin $\leq$ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin $\leq$ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-4-6.
Interaction Table for CD25 Cells (cells/mm^3)
Occupation Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Age: Tables 19-12 and O-3-9)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
Born ≥ 1942	Comparison	183	275.3		
	Background RH	47	255.8	-19.5 --	0.343
	Low RH	21	333.1	57.8 --	0.082
	High RH	65	273.5	-1.8 --	0.927
	Low plus High RH	86	287.0	11.7 --	0.500
Born < 1942	Comparison	216	269.3		
	Background RH	92	289.6	20.3 --	0.216
	Low RH	73	249.5	-19.8 --	0.238
	High RH	41	283.3	14.0 --	0.531
	Low plus High RH	114	261.2	-8.1 --	0.593

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Lifetime Cigarette Smoking History: Tables 19-12 and O-3-9)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
0 Pack-years	Comparison	107	242.1		
	Background RH	44	234.9	-7.2 --	0.720
	Low RH	21	240.0	-2.1 --	0.938
	High RH	27	258.8	16.7 --	0.516
	Low plus High RH	48	251.8	9.7 --	0.677
>0-10 Pack-years	Comparison	113	272.4		
	Background RH	38	257.2	-15.2 --	0.516
	Low RH	25	291.3	18.9 --	0.529
	High RH	43	258.0	-14.4 --	0.523
	Low plus High RH	68	269.8	-2.6 --	0.896
>10 Pack-years	Comparison	179	280.9		
	Background RH	57	324.2	43.3 --	0.046
	Low RH	48	272.5	-8.4 --	0.690
	High RH	36	290.3	9.4 --	0.698
	Low plus High RH	84	280.0	-0.9 --	0.958

Table O-4-6. (Continued)
Interaction Table for CD25 Cells (cells/mm^3)
Occupation Removed from Final Model

c) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Lifetime Alcohol History: Tables 19-12 and O-3-9)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
0 Drink-years	Comparison	20	231.5		
	Background RH	10	286.1	54.6 --	0.245
	Low RH	4	336.3	104.8 --	0.136
	High RH	9	440.0	208.5 --	0.001
	Low plus High RH	13	405.0	173.5 --	0.001
>0-40 Drink-years	Comparison	276	272.4		
	Background RH	98	281.2	8.8 --	0.565
	Low RH	63	260.5	-11.9 --	0.507
	High RH	72	243.7	-28.7 --	0.078
	Low plus High RH	135	251.4	-21.0 --	0.113
>40 Drink-years	Comparison	103	267.2		
	Background RH	31	258.8	-8.4 --	0.743
	Low RH	27	269.2	2.0 --	0.941
	High RH	25	301.5	34.3 --	0.240
	Low plus High RH	52	284.3	17.1 --	0.429

[a] Transformed from natural logarithm scale.

[b] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

[c] P-value is based on difference of means on natural logarithm scale.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-4-7.
Interaction Table for Double Labelled Cells: CD3 with CD25 (cells/mm^3)
Occupation Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Lifetime Cigarette Smoking History: Tables 19-14 and O-3-11)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
0 Pack-years	Comparison	107	190.3		
	Background RH	44	185.4	-4.9 --	0.768
	Low RH	21	183.9	-6.4 --	0.772
	High RH	27	201.8	11.5 --	0.592
	Low plus High RH	48	193.7	3.4 --	0.836
>0-10 Pack-years	Comparison	113	218.3		
	Background RH	38	206.5	-11.8 --	0.553
	Low RH	25	234.7	16.4 --	0.521
	High RH	43	211.9	-6.4 --	0.740
	Low plus High RH	68	220.0	1.7 --	0.919
>10 Pack-years	Comparison	179	226.6		
	Background RH	57	259.5	32.9 --	0.073
	Low RH	48	219.2	-7.4 --	0.685
	High RH	36	239.3	12.7 --	0.544
	Low plus High RH	84	227.6	1.0 --	0.943

Table O-4-7. (Continued)
Interaction Table for Double Labelled Cells: CD3 with CD25 (cells/mm^3)
Occupation Removed from Final Model

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Lifetime Alcohol History: Tables 19-14 and O-3-11)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
0 Drink-years	Comparison	20	177.6		
	Background RH	10	247.3	69.7 --	0.087
	Low RH	4	283.6	106.0 --	0.079
	High RH	9	340.6	163.0 --	0.001
	Low plus High RH	13	321.9	144.3 --	0.001
>0-40 Drink-years	Comparison	276	219.5		
	Background RH	98	223.5	4.0 --	0.760
	Low RH	63	204.7	-14.8 --	0.325
	High RH	72	197.3	-22.2 --	0.110
	Low plus High RH	135	200.7	-18.8 --	0.096
>40 Drink-years	Comparison	103	212.9		
	Background RH	31	205.5	-7.4 --	0.733
	Low RH	27	217.3	4.4 --	0.848
	High RH	25	253.2	40.3 --	0.112
	Low plus High RH	52	233.9	21.0 --	0.259

[a] Transformed from natural logarithm scale.

[b] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

[c] P-value is based on difference of means on natural logarithm scale.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-4-8.
Interaction Table for Double Labelled Cells: CD4 with CD8 (cells/mm^3)
Occupation Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Age: Tables 19-16 and O-3-12)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
Born ≥ 1942	Comparison	159	30.7		
	Background RH	38	30.5	-0.2 --	0.964
	Low RH	20	40.2	9.5 --	0.088
	High RH	55	29.4	-1.3 --	0.679
	Low plus High RH	75	31.9	1.3 --	0.662
Born < 1942	Comparison	201	33.5		
	Background RH	88	37.5	4.0 --	0.189
	Low RH	65	27.1	-6.4 --	0.027
	High RH	40	30.9	-2.6 --	0.489
	Low plus High RH	105	28.5	-5.0 --	0.044

[a] Transformed from natural logarithm scale.

[b] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

[c] P-value is based on difference of means on natural logarithm scale.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table O-4-9.
Interaction Table for IgA (mg/dl)
Occupation Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Race: Tables 19-19 and O-3-14)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
Black	Comparison	55	230.4		
	Background RH	14	207.5	-22.9 --	0.439
	Low RH	23	298.2	67.8 --	0.022
	High RH	13	242.5	12.1 --	0.714
	Low plus High RH	36	276.7	47.3 --	0.059
Non-Black	Comparison	996	219.9		
	Background RH	353	215.7	-4.2 --	0.496
	Low RH	233	207.8	-12.1 --	0.086
	High RH	242	221.7	1.8 --	0.802
	Low plus High RH	475	214.8	-5.1 --	0.350

[a] Transformed from natural logarithm scale.

[b] Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

[c] P-value is based on difference of means on natural logarithm scale.

Note: RH = Ranch Hand.
Comparison: Current Dioxin $\leq$ 10 ppt.
Background (Ranch Hand): Current Dioxin $\leq$ 10 ppt.
Low (Ranch Hand): Current Dioxin $>$ 10 ppt, 10 ppt $<$ Initial Dioxin $\leq$ 143 ppt.
High (Ranch Hand): Current Dioxin $>$ 10 ppt, Initial Dioxin $>$ 143 ppt.

Table O-4-10.
Interaction Table for Lupus Panel: Rheumatoid Factor
Occupation Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Physical Activity Index: Tables 19-27 and O-3-17)					
Stratum	**Dioxin Category**	**n**	**Percent Present**	**Adjusted Relative Risk (95% C.I.)[a]**	**p-Value**
Sedentary	Comparison	574	17.8		
	Background RH	193	15.5	0.84 (0.54,1.32)	0.457
	Low RH	139	13.7	0.73 (0.43,1.24)	0.246
	High RH	164	11.6	0.63 (0.37,1.07)	0.085
	Low plus High RH	303	12.5	0.68 (0.45,1.02)	0.059
Moderate	Comparison	195	13.3		
	Background RH	70	27.1	2.42 (1.23,4.73)	0.010
	Low RH	51	23.5	1.91 (0.89,4.14)	0.099
	High RH	39	7.7	0.56 (0.16,1.95)	0.363
	Low plus High RH	90	16.7	1.28 (0.64,2.57)	0.479
Very Active	Comparison	266	17.3		
	Background RH	102	9.8	0.51 (0.25,1.06)	0.072
	Low RH	63	23.8	1.48 (0.76,2.86)	0.249
	High RH	48	10.4	0.58 (0.22,1.56)	0.282
	Low plus High RH	111	18.0	1.07 (0.60,1.92)	0.820

[a] Relative risk and confidence interval relative to Comparisons.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

APPENDIX P-1.

Dependent Variable-Covariate Associations for the Pulmonary Assessment

This appendix contains results of tests of associations between each dependent variable and candidate covariates for the adjusted analysis of each dependent variable. Pearson's chi-square test (continuity-adjusted for 2×2 tables) is used for the significance testing of the associations between each discrete dependent variable and the candidate covariate. When a candidate covariate is continuous in nature (for example, age), the covariate is discretized prior to the analysis of the discrete dependent variable. Pearson's correlation coefficient is used for significance testing of the associations between each continuous dependent variable and a continuous candidate covariate. When a candidate covariate is discrete in nature, means (transformed back to the original scale, if necessary) are presented and an analysis of variance is used to investigate the difference between the means.

Table P-1-1.
Dependent Variable-Covariate Associations for the Pulmonary Assessment

Dependent Variable	Level	Age			Race		
		Born ≥1942	Born <1942	p-Value	Black	Non-Black	p-Value
Asthma		(n=950)	(n=1,265)		(n=130)	(n=2,085)	
	Yes	3.6%	2.9%	0.457	2.3%	3.3%	0.732
Bronchitis		(n=943)	(n=1,236)		(n=129)	(n=2,050)	
	Yes	16.9%	18.5%	0.342	14.0%	18.1%	0.289
Pneumonia		(n=937)	(n=1,192)		(n=128)	(n=2,001)	
	Yes	8.5%	12.1%	0.010	14.1%	10.3%	0.231
Thorax and Lung Abnormalities		(n=956)	(n=1,227)		(n=131)	(n=2,102)	
	Yes	8.5%	14.8%	<0.001	13.0%	12.0%	0.855
X Ray Interpretation		(n=955)	(n=1,277)		(n=131)	(n=2,101)	
	Abnormal	10.0%	16.1%	<0.001	10.7%	13.6%	0.412
FVC (percent of predicted)		(n=2,231) r=-0.078		<0.001	(n=131) $\bar{x}$=88.0	(n=2,100) $\bar{x}$=101.1	<0.001
FEV_1 (percent of predicted)		(n=2,231) r=-0.213		<0.001	(n=131) $\bar{x}$=86.8	(n=2,100) $\bar{x}$=95.5	<0.001
Ratio of Observed FEV_1 to Observed FVC[a]		(n=2,231) r=0.326		<0.001	(n=131) $\bar{x}$=0.797	(n=2,100) $\bar{x}$=0.759	<0.001
Loss of Vital Capacity		(n=955)	(n=1,276)	0.001	(n=131)	(n=2,100)	<0.001
	None	95.2%	91.0%		76.3%	93.8%	
	Mild	4.2%	7.4%		17.6%	5.3%	
	Mod. or Sev.	0.6%	1.6%		6.1%	0.9%	
Obstructive Abnormality		(n=955)	(n=1,276)	<0.001	(n=131)	(n=2,100)	0.521
	None	73.5%	44.1%		58.8%	56.6%	
	Mild	23.8%	45.6%		36.6%	36.2%	
	Mod. or Sev.	2.7%	10.3%		4.6%	7.2%	

[a] Means transformed from natural logarithm (1-X) scale; correlations based on natural logarithm (1-X) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table P-1-1. (Continued)
Dependent Variable-Covariate Associations for the Pulmonary Assessment

Dependent Variable	Level	Occupation			
		Officer	Enlisted Flyer	Enlisted Groundcrew	p-Value
Asthma		(n=864)	(n=362)	(n=989)	
	Yes	3.4%	1.9%	3.5%	0.316
Bronchitis		(n=845)	(n=354)	(n=980)	
	Yes	15.9%	21.5%	18.2%	0.063
Pneumonia		(n=819)	(n=346)	(n=964)	
	Yes	11.4%	11.3%	9.5%	0.408
Thorax and Lung Abnormalities		(n=869)	(n=365)	(n=999)	
	Yes	8.5%	17.0%	13.4%	<0.001
X Ray Interpretation		(n=869)	(n=365)	(n=998)	
	Abnormal	12.4%	16.4%	13.2%	0.163
FVC (percent of predicted)		(n=868)	(n=365)	(n=998)	
		$\bar{x}$=102.0	$\bar{x}$=99.1	$\bar{x}$=99.3	<0.001
FEV_1 (percent of predicted)		(n=868)	(n=365)	(n=998)	
		$\bar{x}$=96.3	$\bar{x}$=91.8	$\bar{x}$=94.9	<0.001
Ratio of Observed FEV_1 to Observed FVC[a]		(n=868)	(n=365)	(n=998)	
		$\bar{x}$=0.754	$\bar{x}$=0.748	$\bar{x}$=0.773	<0.001
Loss of Vital Capacity		(n=868)	(n=365)	(n=998)	0.269
	None	94.1%	91.2%	92.2%	
	Mild	5.1%	6.9%	6.5%	
	Mod. or Sev.	0.8%	1.9%	1.3%	
Obstructive Abnormality		(n=868)	(n=365)	(n=998)	<0.001
	None	53.8%	47.1%	62.7%	
	Mild	39.6%	43.0%	30.9%	
	Mod. or Sev.	6.6%	9.9%	6.4%	

[a] Means transformed from natural logarithm (1-X) scale; correlations based on natural logarithm (1-X) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table P-1-1. (Continued)
Dependent Variable-Covariate Associations for the Pulmonary Assessment

Dependent Variable	Level	Current Cigarette Smoking (cigarettes/day) 0-Never	0-Former	>0-20	>20	p-Value
Asthma		--	--	--	--	--
Bronchitis		--	--	--	--	--
Pneumonia		--	--	--	--	--
Thorax and Lung Abnormalities		(n=612)	(n=1,057)	(n=350)	(n=212)	
	Yes	2.1%	6.7%	29.4%	38.7%	<0.001
X Ray Interpretation		(n=611)	(n=1,057)	(n=350)	(n=212)	
	Abnormal	11.1%	14.1%	14.0%	16.0%	0.211
FVC (percent of predicted)			(n=2,229) r=-0.107			<0.001
FEV_1 (percent of predicted)			(n=2,229) r=-0.210			<0.001
Ratio of Observed FEV_1 to Observed FVC[a]			(n=2,229) r=0.192			<0.001
Loss of Vital Capacity		(n=611)	(n=1,057)	(n=349)	(n=212)	0.001
	None	94.9%	93.6%	88.8%	89.1%	
	Mild	4.1%	5.4%	8.6%	10.4%	
	Mod. or Sev.	1.0%	1.0%	2.6%	0.5%	
Obstructive Abnormality		(n=611)	(n=1,057)	(n=349)	(n=212)	<0.001
	None	77.4%	54.0%	43.3%	33.0%	
	Mild	20.6%	38.7%	46.1%	52.8%	
	Mod. or Sev.	2.0%	7.3%	10.6%	14.2%	

[a] Means transformed from natural logarithm (1-X) scale; correlations based on natural logarithm (1-X) versus covariate.

--: Covariate not applicable for dependent variable.

Note: Correlations (r) are based on total sample and are not category specific.

Table P-1-1. (Continued)
Dependent Variable-Covariate Associations for the Pulmonary Assessment

Dependent Variable	Level	Lifetime Cigarette Smoking History (pack-years) 0	>0 - 10	>10	p-Value
Asthma		(n=607)	(n=674)	(n=931)	
	Yes	2.6%	4.6%	2.6%	0.049
Bronchitis		(n=601)	(n=664)	(n=911)	
	Yes	13.5%	16.7%	21.4%	<0.001
Pneumonia		(n=588)	(n=655)	(n=883)	
	Yes	9.4%	8.1%	13.1%	0.003
Thorax and Lung Abnormalities		(n=612)	(n=682)	(n=936)	
	Yes	2.1%	9.2%	20.6%	<0.001
X Ray Interpretation		(n=611)	(n=682)	(n=936)	
	Abnormal	11.1%	12.0%	16.0%	0.009
FVC (percent of predicted)			(n=2,228) r=-0.149		<0.001
FEV_1 (percent of predicted)			(n=2,228) r=-0.295		<0.001
Ratio of Observed FEV_1 to Observed FVC[a]			(n=2,228) r=0.299		<0.001
Loss of Vital Capacity		(n=611)	(n=681)	(n=936)	0.003
	None	94.9%	94.3%	90.3%	
	Mild	4.1%	4.6%	8.3%	
	Mod. or Sev.	1.0%	1.2%	1.4%	
Obstructive Abnormality		(n=611)	(n=681)	(n=936)	<0.001
	None	77.4%	60.8%	40.3%	
	Mild	20.6%	34.1%	48.1%	
	Mod. or Sev.	2.0%	5.1%	11.6%	

[a] Means transformed from natural logarithm (1-X) scale; correlations based on natural logarithm (1-X) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table P-1-1. (Continued)
Dependent Variable-Covariate Associations for the Pulmonary Assessment

Dependent Variable	Level	Body Fat			Industrial Chemicals Exposure		
		Lean or Normal: ≤25%	Obese: >25%	p-Value	No	Yes	p-Value
Asthma		(n=1,651)	(n=564)		(n=919)	(n=1,296)	
	Yes	3.1%	3.6%	0.694	2.8%	3.5%	0.469
Bronchitis		(n=1,622)	(n=557)		(n=905)	(n=1,274)	
	Yes	17.3%	19.2%	0.347	15.6%	19.4%	0.026
Pneumonia		(n=1,590)	(n=539)		(n=873)	(n=1,256)	
	Yes	10.1%	11.9%	0.270	11.1%	10.1%	0.504
Thorax and Lung Abnormalities		(n=1,663)	(n=570)		(n=922)	(n=1,311)	
	Yes	12.4%	11.2%	0.510	10.6%	13.1%	0.087
X Ray Interpretation		(n=1,662)	(n=570)		(n=922)	(n=1,310)	
	Abnormal	13.8%	12.3%	0.384	13.6%	13.4%	0.942
FVC (percent of predicted)		(n=2,231) r=-0.209		<0.001	(n=921) $\bar{x}$=100.8	(n=1,310) $\bar{x}$=100.0	0.165
FEV_1 (percent of predicted)		(n=2,231) r=-0.048		0.024	(n=921) $\bar{x}$=95.7	(n=1,310) $\bar{x}$=94.5	0.107
Ratio of Observed FEV_1 to Observed FVC[a]		(n=2,231) r=-0.182		<0.001	(n=921) $\bar{x}$=0.761	(n=1,310) $\bar{x}$=0.762	0.704
Loss of Vital Capacity		(n=1,662)	(n=569)	0.001	(n=921)	(n=1,310)	0.185
	None	93.9%	89.5%		93.9%	92.0%	
	Mild	5.2%	8.4%		5.2%	6.6%	
	Mod. or Sev.	0.9%	2.1%		0.9%	1.4%	
Obstructive Abnormality		(n=1,662)	(n=569)	0.023	(n=921)	(n=1,130)	0.246
	None	55.1%	61.3%		57.0%	56.5%	
	Mild	37.3%	33.2%		37.0%	35.7%	
	Mod. or Sev.	7.6%	5.5%		6.0%	7.8%	

[a] Means transformed from natural logarithm (1-X) scale; correlations based on natural logarithm (1-X) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

APPENDIX P-2.

Interaction Tables for the Pulmonary Assessment

This appendix contains exposure analyses results of interactions between covariates and group or dioxin. Results are presented for each separate stratum of the covariate and include sample sizes, percent abnormal, relative risks, confidence intervals, and p-values for discrete dependent variables. Sample sizes, adjusted means, differences of adjusted means and confidence intervals or adjusted slopes and standard errors, and p-values are given for continuous dependent variables. Means are transformed back to the original scale, if necessary. Chapter 7, Statistical Methods, provides further details on the analytical approaches used in the interaction analyses. The covariate involved in the interaction and a reference to the analysis table in Chapter 20 are given in the heading of each subtable. A summary of the interactions described in this appendix follows.

Appendix P-2 Table	Chapter 20 Table	Dependent Variable	Model	Covariate
P-2-1	20-3	Asthma	4 6	Age Age
P-2-2	20-4	Bronchitis	4 5 6	Industrial Chemicals Exposure Industrial Chemicals Exposure Industrial Chemicals Exposure
P-2-3	20-6	Thorax and Lung Abnormalities	4	Current Cigarette Smoking
P-2-4	20-7	X Ray Interpretation	3 4 5 6	Occupation Current Cigarette Smoking Current Cigarette Smoking Current Cigarette Smoking
P-2-5	20-9	FEV_1	2	Current Cigarette Smoking
P-2-6	20-10	Ratio of Observed FEV_1 to Observed FVC	3	Age
P-2-7	20-11	Loss of Vital Capacity	4 5	Race, Current Cigarette Smoking Current Cigarette Smoking
P-2-8	20-12	Obstructive Abnormality	1 3	Lifetime Cigarette Smoking History Lifetime Cigarette Smoking History

Table P-2-1.
Interaction Table for Asthma

a) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Age: Table 20-3)					
Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Yes	Adjusted Relative Risk (95% C.I.)[a]	p-Value
Born ≥ 1942	Low	97	1.0	1.33 (0.95,1.85)	0.095
	Medium	97	8.2		
	High	170	5.9		
Born < 1942	Low	195	4.6	0.68 (0.43,1.08)	0.104
	Medium	199	3.0		
	High	126	1.6		

b) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Age: Table 20-3)					
Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Yes	Adjusted Relative Risk (95% C.I.)[a]	p-Value
Born ≥ 1942	Low	101	3.0	1.24 (0.93,1.66)	0.149
	Medium	96	7.3		
	High	167	5.4		
Born < 1942	Low	195	5.6	0.74 (0.54,1.03)	0.072
	Medium	197	1.0		
	High	127	3.1		

[a] Relative risk for a twofold increase in current dioxin.

Note: Model 4: Low = ≤8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.
Model 6: Low = ≤46 ppq; Medium = >46-128 ppq; High = >128 ppq.

Table P-2-2.
Interaction Table for Bronchitis

a) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED
(Current Dioxin-by-Industrial Chemicals Exposure: Table 20-4)

Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Yes	Adjusted Relative Risk (95% C.I.)[a]	p-Value
No	Low	155	13.6	1.02 (0.82,1.27)	0.826
	Medium	125	14.4		
	High	93	21.5		
Yes	Low	131	29.8	0.77 (0.66,0.90)	0.001
	Medium	164	22.0		
	High	200	17.0		

b) MODEL 5: RANCH HANDS — CURRENT DIOXIN — ADJUSTED
(Current Dioxin-by-Industrial Chemicals Exposure: Table 20-4)

Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Yes	Adjusted Relative Risk (95% C.I.)[a]	p-Value
No	Low	151	14.6	1.06 (0.88,1.28)	0.556
	Medium	128	12.5		
	High	94	22.3		
Yes	Low	141	30.5	0.82 (0.71,0.93)	0.003
	Medium	157	22.3		
	High	197	15.7		

c) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED
(Current Dioxin-by-Industrial Chemicals Exposure: Table 20-4)

Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Yes	Adjusted Relative Risk (95% C.I.)[a]	p-Value
No	Low	152	14.5	1.00 (0.82,1.21)	0.974
	Medium	128	12.5		
	High	94	22.3		
Yes	Low	140	30.0	0.77 (0.66,0.89)	0.001
	Medium	157	22.3		
	High	197	15.7		

[a] Relative risk for a twofold increase in current dioxin.

Note: Model 4: Low = ≤8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.
Models 5 and 6: Low = ≤46 ppq; Medium = >46-128 ppq; High = >128 ppq.

Table P-2-3.
Interaction Table for Thorax and Lung Abnormalities

a) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Current Cigarette Smoking: Table 20-6)					
Current Dioxin Category Summary Statistics				**Analysis Results for Log_2 (Current Dioxin + 1)**	
Stratum	**Current Dioxin**	**n**	**Percent Yes**	**Adjusted Relative Risk (95% C.I.)[a]**	**p-Value**
0-Never Smoked	Low	84	4.8	1.04 (0.51,2.11)	0.922
	Medium	84	1.2		
	High	80	2.5		
0-Former Smoker	Low	138	9.4	0.72 (0.51,1.01)	0.060
	Medium	144	7.6		
	High	126	7.1		
>0-20 Cigarettes/Day	Low	46	34.8	0.93 (0.71,1.21)	0.588
	Medium	44	25.0		
	High	57	35.1		
>20 Cigarettes/Day	Low	26	57.7	1.19 (0.86,1.63)	0.290
	Medium	28	39.3		
	High	36	30.6		

[a] Relative risk for a twofold increase in current dioxin.

Note: Low = ≤8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.

Table P-2-4.
Interaction Table for X Ray Interpretation

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Occupation: Table 20-7)

Stratum	Dioxin Category	n	Percent Abnormal	Adjusted Relative Risk (95% C.I.)	p-Value
Officer	Comparison	409	12.5		
	Background RH	236	14.8	1.24 (0.78,1.99)	0.354
	Low RH	103	4.9	0.33 (0.13,0.87)	0.024
	High RH	9	22.2	1.90 (0.38,9.48)	0.436
	Low plus High RH	112	6.3	0.44 (0.19,1.00)	0.051
Enlisted Flyer	Comparison	173	15.6		
	Background RH	40	25.0	2.00 (0.87,4.61)	0.105
	Low RH	55	23.6	1.65 (0.78,3.50)	0.510
	High RH	55	12.7	0.74 (0.30,1.82)	0.807
	Low plus High RH	110	18.2	1.16 (0.61,2.19)	0.821
Enlisted Groundcrew	Comparison	481	14.1		
	Background RH	98	9.2	0.56 (0.27,1.17)	0.123
	Low RH	102	16.7	1.17 (0.65,2.11)	0.825
	High RH	195	10.8	0.77 (0.46,1.31)	0.826
	Low plus High RH	297	12.8	0.91 (0.59,1.41)	0.878

b) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Current Cigarette Smoking: Table 20-7)

Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Abnormal	Adjusted Relative Risk (95% C.I.)[a]	p-Value
0-Never Smoked	Low	84	10.7	0.91 (0.68,1.22)	0.536
	Medium	84	14.3		
	High	79	11.4		
0-Former Smoker	Low	138	13.0	1.00 (0.81,1.25)	0.982
	Medium	144	16.0		
	High	126	17.5		
>0-20 Cigarettes/Day	Low	46	4.4	1.22 (0.83,1.79)	0.317
	Medium	44	9.1		
	High	57	12.3		
>20 Cigarettes/Day	Low	26	34.6	0.48 (0.31,0.76)	0.002
	Medium	28	10.7		
	High	36	2.8		

Table P-2-4. (Continued)
Interaction Table for X Ray Interpretation

c) MODEL 5: RANCH HANDS — CURRENT DIOXIN — ADJUSTED
(Current Dioxin-by-Current Cigarette Smoking: Table 20-7)

Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Abnormal	Adjusted Relative Risk (95% C.I.)[a]	p-Value
0-Never Smoked	Low	88	12.5	0.95 (0.73,1.22)	0.676
	Medium	83	12.0		
	High	76	11.8		
0-Former Smoker	Low	136	14.0	1.04 (0.86,1.26)	0.665
	Medium	145	15.9		
	High	127	16.5		
>0-20 Cigarettes/Day	Low	49	4.1	1.23 (0.87,1.73)	0.244
	Medium	43	11.6		
	High	55	10.9		
>20 Cigarettes/Day	Low	26	38.5	0.69 (0.53,0.91)	0.010
	Medium	26	0.0		
	High	38	7.9		

d) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED
(Current Dioxin-by-Current Cigarette Smoking: Table 20-7)

Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Abnormal	Adjusted Relative Risk (95% C.I.)[a]	p-Value
0-Never Smoked	Low	88	12.5	0.89 (0.69,1.16)	0.404
	Medium	83	12.0		
	High	76	11.8		
0-Former Smoker	Low	137	13.9	0.97 (0.80,1.18)	0.745
	Medium	145	15.9		
	High	127	16.5		
>0-20 Cigarettes/Day	Low	48	4.2	1.14 (0.80,1.64)	0.472
	Medium	43	11.6		
	High	55	10.9		
>20 Cigarettes/Day	Low	26	38.5	0.65 (0.49,0.86)	0.002
	Medium	26	0.0		
	High	38	7.9		

[a] Relative risk for a twofold increase in current dioxin.

Note: Model 3: RH = Ranch Hand.
Comparison: Current Dioxin ≤10 ppt.
Background (Ranch Hand): Current Dioxin ≤10 ppt.
Low (Ranch Hand): Current Dioxin >10 ppt, 10 ppt < Initial Dioxin ≤143 ppt.
High (Ranch Hand): Current Dioxin >10 ppt, Initial Dioxin >143 ppt.
Model 4: Low = ≤8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.
Models 5 and 6: Low = ≤46 ppq; Medium = >46-128 ppq; High = >128 ppq.

Table P-2-5.
Interaction Table for FEV_1
(Percent of Predicted)

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED (Initial Dioxin-by-Current Cigarette Smoking: Table 20-9)					
Initial Dioxin Category Summary Statistics				**Analysis Results for Log_2 (Initial Dioxin)**	
Stratum	**Initial Dioxin**	**n**	**Adjusted Mean**	**Adjusted Slope (Std. Error)**	**p-Value**
0-Never Smoked	Low	47	98.6	-3.093 (0.955)	0.001
	Medium	39	96.4		
	High	53	90.8		
0-Former Smoker	Low	91	93.0	-1.287 (0.795)	0.106
	Medium	80	91.0		
	High	68	88.7		
>0-20 Cigarettes/Day	Low	24	80.1	1.791 (1.304)	0.170
	Medium	30	88.1		
	High	34	89.6		
>20 Cigarettes/Day	Low	12	86.7	2.838 (1.899)	0.136
	Medium	24	85.0		
	High	18	92.0		

Note: Low = 39-98 ppt; Medium = >98-232 ppt; High = >232 ppt.

Table P-2-6.
Interaction Table for Ratio of Observed FEV_1 to Observed FVC

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Age: Table 20-10)					
Stratum	**Dioxin Category**	**n**	**Adjusted Mean[a]**	**Difference of Adjusted Mean vs. Comparisons (95% C.I.)[b]**	**p-Value[c]**
Born ≥ 1942	Comparison	451	0.794		
	Background RH	128	0.799	0.005 --	0.441
	Low RH	85	0.791	-0.003 --	0.701
	High RH	154	0.793	-0.001 --	0.828
	Low plus High RH	239	0.780	-0.014 --	0.565
Born < 1942	Comparison	609	0.756		
	Background RH	244	0.743	-0.014 --	0.012
	Low RH	175	0.763	0.006 --	0.297
	High RH	106	0.768	0.011 --	0.135
	Low plus High RH	281	0.774	0.018 --	0.065

[a] Transformed from natural logarithm (1-X) scale.

[b] Difference of adjusted means after transformation to original scale; confidence interval on difference of adjusted means not presented because analysis was performed on natural logarithm (1-X) scale.

[c] P-value is based on difference of means on natural logarithm (1-X) scale.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤10 ppt.
Background (Ranch Hand): Current Dioxin ≤10 ppt.
Low (Ranch Hand): Current Dioxin >10 ppt, 10 ppt < Initial Dioxin ≤143 ppt.
High (Ranch Hand): Current Dioxin >10 ppt, Initial Dioxin >143 ppt.

Table P-2-7.
Interaction Table for Loss of Vital Capacity

a) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED
(Current Dioxin-by-Race: Table 20-11)

			Analysis Results for Log_2 (Current Dioxin + 1)						
			Percent			Mild vs. None		Moderate or Severe vs. None	
Stratum	Dioxin Category	n	None	Mild	Mod. or Sev.	Adj. Relative Risk (95% C.I.)[a]	p-Value	Adj. Relative Risk (95% C.I.)[a]	p-Value
Non-Black	Low	282	95.0	4.3	0.7	1.20 (0.96,1.51)	0.110	0.85 (0.43,1.64)	0.619
	Medium	277	93.5	5.4	1.1				
	High	282	94.0	5.7	0.3				
Black	Low	12	83.3	16.7	0.0	0.49 (0.21,1.13)	0.095	1.63 (0.53,5.07)	0.395
	Medium	22	81.8	13.6	4.6				
	High	17	76.5	5.9	17.6				

b) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED
(Current Dioxin-by-Current Cigarette Smoking: Table 20-11)

			Analysis Results for Log_2 (Current Dioxin + 1)						
			Percent			Mild vs. None		Moderate or Severe vs. None	
Stratum	Dioxin Category	n	None	Mild	Mod. or Sev.	Adj. Relative Risk (95% C.I.)[a]	p-Value	Adj. Relative Risk (95% C.I.)[a]	p-Value
0-Never Smoked	Low	84	100.0	0.0	0.0	2.12 (1.31,3.41)	0.002	1.41 (0.62,3.24)	0.415
	Medium	83	96.4	1.2	2.4				
	High	80	88.7	8.8	2.5				
0-Former Smoker	Low	138	94.9	3.6	1.5	1.16 (0.82,1.62)	0.405	0.39 (0.14,1.15)	0.087
	Medium	144	93.8	6.2	0.0				
	High	126	93.6	5.6	0.8				
>0-20 Cigarettes/ Day	Low	46	91.3	8.7	0.0	0.70 (0.45,1.10)	0.126	1.50 (0.52,4.33)	0.458
	Medium	44	81.8	15.9	2.3				
	High	57	96.5	1.8	1.8				
>20 Cigarettes/ Day	Low	26	80.8	19.2	0.0	0.86 (0.52,1.41)	0.540	1.83 (0.43,7.84)	0.417
	Medium	28	92.9	3.6	3.6				
	High	36	94.4	5.6	0.0				

[a] Relative risk for a twofold increase in current dioxin.

Table P-2-7. (Continued)
Interaction Table for Loss of Vital Capacity

c) MODEL 5: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Current Cigarette Smoking: Table 20-11)									
Analysis Results for Log_2 (Current Dioxin + 1)									
			Percent			Mild vs. None		Moderate or Severe vs. None	
Stratum	Dioxin Category	n	None	Mild	Mod. or Sev.	Adj. Relative Risk (95% C.I.)[a]	p-Value	Adj. Relative Risk (95% C.I.)[a]	p-Value
0-Never Smoked	Low	88	100.0	0.0	0.0	2.06 (1.31,3.22)	0.002	1.29 (0.60,2.78)	0.509
	Medium	82	96.3	1.2	2.4				
	High	77	88.3	9.1	2.6				
0-Former Smoker	Low	136	94.9	3.7	1.5	1.14 (0.84,1.55)	0.388	0.57 (0.29,1.15)	0.116
	Medium	145	93.8	6.2	0.0				
	High	127	93.7	5.5	0.8				
>0-20 Cigarettes/ Day	Low	49	91.8	8.2	0.0	0.81 (0.58,1.14)	0.224	1.49 (0.58,3.82)	0.404
	Medium	43	81.4	16.3	2.3				
	High	55	96.4	1.8	1.8				
>20 Cigarettes/ Day	Low	26	80.8	19.2	0.0	0.93 (0.65,1.33)	0.676	1.64 (0.44,6.16)	0.462
	Medium	26	92.3	3.9	3.9				
	High	38	94.7	5.3	0.0				

[a] Relative risk for a twofold increase in current dioxin.

Note: Model 4: Low = ≤8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.
Model 5: Low = ≤46 ppq; Medium = >46-128 ppq; High = >128 ppq.

Table P-2-8.
Interaction Table for Obstructive Abnormality

a) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Lifetime Cigarette Smoking History: Table 20-12)										
				Percent			Mild vs. None		Moderate or Severe vs. None	
Stratum	Occupational Category	Group	n	None	Mild	Mod. or Sev.	Adj. Relative Risk (95% C.I.)	p-Value	Adj. Relative Risk (95% C.I.)	p-Value
0 Pack-years	***All***	***Ranch Hand***	***256***	***77.7***	***19.9***	***2.3***	***0.85 (0.56,1.30)***	***0.457***	***1.21 (0.37,3.89)***	***0.752***
		Comparison	***355***	***77.2***	***21.1***	***1.7***				
	Officer	Ranch Hand	133	69.9	26.3	3.8	0.89 (0.57,1.40)	0.618	1.32 (0.39,4.45)	0.656
		Comparison	194	75.8	23.2	1.0				
	Enlisted Flyer	Ranch Hand	25	72.0	24.0	4.0	0.96 (0.50,1.81)	0.889	1.81 (0.43,7.63)	0.420
		Comparison	28	75.0	25.0	0.0				
	Enlisted Groundcrew	Ranch Hand	98	89.8	10.2	0.0	0.75 (0.45,1.25)	0.266	0.94 (0.26,3.40)	0.928
		Comparison	133	79.7	17.3	3.0				
>0-10 Pack-years	***All***	***Ranch Hand***	***298***	***61.7***	***32.2***	***6.0***	***0.97 (0.69,1.36)***	***0.846***	***1.51 (0.73,3.14)***	***0.268***
		Comparison	***383***	***60.1***	***35.5***	***4.4***				
	Officer	Ranch Hand	96	59.4	36.5	4.2	1.04 (0.68,1.59)	0.868	1.61 (0.64,4.08)	0.313
		Comparison	142	51.4	45.1	3.5				
	Enlisted Flyer	Ranch Hand	53	56.6	30.2	13.2	1.11 (0.64,1.94)	0.712	2.21 (0.83,5.91)	0.114
		Comparison	61	55.7	37.7	6.6				
	Enlisted Groundcrew	Ranch Hand	149	65.1	30.2	4.7	0.87 (0.58,1.30)	0.498	1.15 (0.50,2.68)	0.742
		Comparison	180	68.3	27.2	4.4				
>10 Pack-years	***All***	***Ranch Hand***	***396***	***36.4***	***51.3***	***12.4***	***1.24 (0.92,1.67)***	***0.154***	***1.18 (0.74,1.87)***	***0.494***
		Comparison	***540***	***43.2***	***45.7***	***11.1***				
	Officer	Ranch Hand	136	28.7	58.1	13.2	1.34 (0.89,2.02)	0.163	1.28 (0.64,2.53)	0.483
		Comparison	166	34.3	51.8	13.9				
	Enlisted Flyer	Ranch Hand	84	26.2	59.5	14.3	1.43 (0.86,2.40)	0.171	1.75 (0.75,4.07)	0.192
		Comparison	114	41.2	48.3	10.5				
	Enlisted Groundcrew	Ranch Hand	176	47.2	42.1	10.8	1.12 (0.78,1.61)	0.531	0.91 (0.48,1.73)	0.780
		Comparison	260	49.6	40.8	9.6				

Table P-2-8. (Continued)
Interaction Table for Obstructive Abnormality

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Lifetime Cigarette Smoking History: Table 20-12)									
			Percent			Mild vs. None		Moderate or Severe vs. None	
Stratum	Dioxin Category	n	None	Mild	Mod. or Sev.	Adj. Relative Risk (95% C.I.)[a]	p-Value	Adj. Relative Risk (95% C.I.)[a]	p-Value
0 Pack-years	Comparison	282	77.0	21.3	1.8				
	Background RH	108	72.2	24.1	3.7	1.02 (0.59,1.77)	0.983	2.03 (0.51,8.08)	0.318
	Low RH	72	79.2	18.1	2.8	0.62 (0.31,1.24)	0.186	0.84 (0.15,4.69)	0.841
	High RH	67	85.1	14.9	0.0	0.91 (0.42,1.96)	0.945	--	--
	Low plus High RH	139	82.0	16.6	1.4	0.74 (0.42,1.31)	0.305	0.59 (0.11,3.24)	0.545
>0-10 Pack-years	Comparison	323	58.2	36.8	5.0				
	Background RH	109	60.6	33.9	5.5	0.81 (0.49,1.33)	0.402	1.14 (0.40,3.22)	0.807
	Low RH	69	56.5	34.8	8.7	1.06 (0.59,1.91)	0.854	2.05 (0.71,5.91)	0.185
	High RH	93	69.9	25.8	4.3	0.85 (0.48,1.49)	0.567	1.22 (0.36,4.05)	0.751
	Low plus High RH	162	64.2	29.6	6.2	0.93 (0.60,1.45)	0.763	1.61 (0.67,3.90)	0.291
>10 Pack-years	Comparison	455	45.3	43.1	11.7				
	Background RH	155	29.7	55.5	14.8	1.56 (1.00,2.42)	0.048	1.49 (0.77,2.89)	0.235
	Low RH	119	39.5	47.9	12.6	1.20 (0.76,1.91)	0.439	1.11 (0.54,2.28)	0.786
	High RH	100	42.0	48.0	10.0	1.40 (0.85,2.31)	0.184	0.99 (0.43,2.29)	0.980
	Low plus High RH	219	40.6	48.0	11.4	1.29 (0.89,1.86)	0.181	1.06 (0.59,1.91)	0.849

[a] Relative risk and confidence interval relative to Comparisons.

--: Relative risk, confidence interval, and p-value not given due to zero abnormalities.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤10 ppt.
Background (Ranch Hand): Current Dioxin ≤10 ppt.
Low (Ranch Hand): Current Dioxin ≤10 ppt, 10 ppt < Initial Dioxin ≤143 ppt.
High (Ranch Hand): Current Dioxin ≤10 ppt, Initial Dioxin >143 ppt.

APPENDIX P-3.

Pulmonary Analysis Tables
Occupation and Body Fat Removed from Final Model

This appendix contains results of exposure analyses after occupation and body fat have been removed from those final dioxin models (Models 2 through 6) that contained occupation or body fat. These analyses are performed to investigate the relationship of the dependent variable to dioxin without adjusting any effects due to occupation or body fat. The format of these tables closely parallels the adjusted panels of Chapter 20 tables. A summary of the tables found in this appendix follows.

Appendix P-3 Table	Chapter 20 Table	Dependent Variable
P-3-1	20-3	Asthma
P-3-2	20-4	Bronchitis
P-3-3	20-5	Pneumonia
P-3-4	20-6	Thorax and Lung Abnormalities
P-3-5	20-7	X Ray Interpretation
P-3-6	20-8	FVC
P-3-7	20-9	FEV_1
P-3-8	20-10	Ratio of Observed FVC to Observed FEV_1
P-3-9	20-11	Loss of Vital Capacity
P-3-10	20-12	Obstructive Abnormality

Table P-3-1.
Analysis of Asthma
Occupation and Body Fat Removed from Final Model

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED			
Analysis Results for Log_2 (Initial Dioxin)[a]			
n	Adj. Relative Risk (95% C.I.)[b]	p-Value	Covariate Remarks
514	1.08 (0.75,1.55)	0.693	RACE (p=0.212) AGE*PACKYR (p=0.023)

[a] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

[b] Relative risk for a twofold increase in initial dioxin.

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED				
Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value	Covariate Remarks
Comparison	1,054			AGE*RACE (p=0.027) RACE*PACKYR (p=0.031)
Background RH	369	1.59 (0.85,3.00)	0.149	
Low RH	257	1.39 (0.66,2.93)	0.394	
High RH	257	1.41 (0.67,2.99)	0.362	
Low plus High RH	514	1.40 (0.78,2.53)	0.264	

[a] Relative risk and confidence interval relative to Comparisons.

[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

Note: RH = Ranch Hand.
Comparison: Current Dioxin $\leq$10 ppt.
Background (Ranch Hand): Current Dioxin $\leq$10 ppt.
Low (Ranch Hand): Current Dioxin >10 ppt, 10 ppt < Initial Dioxin $\leq$143 ppt.
High (Ranch Hand): Current Dioxin >10 ppt, Initial Dioxin >143 ppt.

Table P-3-1. (Continued)
Analysis of Asthma
Occupation and Body Fat Removed from Final Model

c) MODELS 4, 5, AND 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED				
	Analysis Results for Log_2 (Current Dioxin + 1)			
Model[a]	n	Adj. Relative Risk (95% C.I.)[b]	p-Value	Covariate Remarks
4	884	1.04 (0.82,1.31)**	0.765**	CURR*AGE (p=0.035) AGE*RACE (p=0.039)
5	884	0.98 (0.81,1.20)	0.874	AGE*RACE (p=0.039)
6[c]	883	1.04 (0.84,1.29)**	0.730**	CURR*AGE (p=0.044) AGE*RACE (p=0.037)

[a] Model 4: Log_2 (lipid-adjusted current dioxin + 1).
Model 5: Log_2 (whole-weight current dioxin + 1).
Model 6: Log_2 (whole-weight current dioxin + 1), adjusted for log_2 total lipids.

[b] Relative risk for a twofold increase in current dioxin.

[c] Adjusted for log_2 total lipids in addition to covariates specified under "Covariate Remarks" column.

** Log_2 (current dioxin + 1)-by-covariate interaction ($0.01 < p \leq 0.05$); adjusted relative risk, confidence interval, and p-value derived from a model after deletion of this interaction; refer to Appendix Table P-4-1 for further analysis of this interaction.

Table P-3-2.
Analysis of Bronchitis
Occupation and Body Fat Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED				
Dioxin Category	**n**	**Adj. Relative Risk (95% C.I.)[ab]**	**p-Value**	**Covariate Remarks**
Comparison	1,038			PACKYR (p=0.008) IC (p=0.008)
Background RH	363	1.33 (0.98,1.80)	0.065	
Low RH	251	1.03 (0.72,1.48)	0.883	
High RH	254	0.99 (0.69,1.43)	0.978	
Low plus High RH	505	1.01 (0.76,1.34)	0.939	

[a] Relative risk and confidence interval relative to Comparisons.

[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤10 ppt.
Background (Ranch Hand): Current Dioxin ≤10 ppt.
Low (Ranch Hand): Current Dioxin >10 ppt, 10 ppt < Initial Dioxin ≤143 ppt.
High (Ranch Hand): Current Dioxin >10 ppt, Initial Dioxin >143 ppt.

Table P-3-2. (Continued)
Analysis of Bronchitis
Occupation and Body Fat Removed from Final Model

b) MODELS 4, 5, AND 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED				
	Analysis Results for Log_2 (Current Dioxin + 1)			
Model[a]	n	Adj. Relative Risk (95% C.I.)[b]	p-Value	Covariate Remarks
4	868	0.90 (0.80,1.01)**	0.076**	CURR*IC (p=0.013) PACKYR (p=0.056)
5	868	0.93 (0.84,1.03)**	0.138**	CURR*IC (p=0.009) PACKYR (p=0.053)
6[c]	886	0.89 (0.80,0.99)**	0.035**	CURR*IC (p=0.009)

[a] Model 4: Log_2 (lipid-adjusted current dioxin + 1).
Model 5: Log_2 (whole-weight current dioxin + 1).
Model 6: Log_2 (whole-weight current dioxin + 1), adjusted for log_2 total lipids.

[b] Relative risk for a twofold increase in current dioxin.

[c] Adjusted for log_2 total lipids in addition to covariates specified under "Covariate Remarks" column.

** Log_2 (current dioxin + 1)-by-covariate interaction ($p \leq 0.05$); adjusted relative risk, confidence interval, and p-value derived from a model after deletion of this interaction; refer to Appendix Table P-4-2 for further analysis of this interaction.

Table P-3-3.
Analysis of Pneumonia
Body Fat Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED				
Dioxin Category	**n**	**Adj. Relative Risk (95% C.I.)[ab]**	**p-Value**	**Covariate Remarks**
Comparison	1,018			AGE*PACKYR (p=0.020)
Background RH	349	0.85 (0.57,1.26)	0.413	
Low RH	243	0.59 (0.36,0.97)	0.039	
High RH	252	0.50 (0.29,0.85)	0.011	
Low plus High RH	495	0.55 (0.37,0.80)	0.002	

[a] Relative risk and confidence interval relative to Comparisons.

[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

Note: RH = Ranch Hand.
Comparison: Current Dioxin $\leq$10 ppt.
Background (Ranch Hand): Current Dioxin $\leq$10 ppt.
Low (Ranch Hand): Current Dioxin $>$10 ppt, 10 ppt $<$ Initial Dioxin $\leq$143 ppt.
High (Ranch Hand): Current Dioxin $>$10 ppt, Initial Dioxin $>$143 ppt.

Table P-3-4.
Analysis of Thorax and Lung Abnormalities
Occupation Removed from Final Model

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED			
Analysis Results for Log_2 (Initial Dioxin)[a]			
n	Adj. Relative Risk (95% C.I.)[b]	p-Value	Covariate Remarks
520	1.22 (0.97,1.53)	0.087	AGE ($p<0.001$) CSMOK ($p<0.001$) PACKYR ($p=0.058$)

[a] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

[b] Relative risk for a twofold increase in initial dioxin.

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED				
Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value	Covariate Remarks
Comparison	1,061			AGE ($p<0.001$) CSMOK ($p<0.001$) PACKYR ($p=0.001$)
Background RH	373	1.45 (0.99,2.14)	0.059	
Low RH	260	1.10 (0.69,1.75)	0.679	
High RH	260	1.52 (0.97,2.39)	0.068	
Low plus High RH	520	1.29 (0.91,1.85)	0.158	

[a] Relative risk and confidence interval relative to Comparisons.

[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin >10 ppt, 10 ppt $<$ Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin >10 ppt, Initial Dioxin >143 ppt.

Table P-3-4. (Continued)
Analysis of Thorax and Lung Abnormalities
Occupation Removed from Final Model

c) MODELS 4, 5, AND 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED				
	Analysis Results for Log_2 (Current Dioxin + 1)			
Model[a]	n	Adj. Relative Risk (95% C.I.)[b]	p-Value	Covariate Remarks
4	893	1.03 (0.88,1.19)	0.739	AGE ($p<0.001$) CSMOK ($p<0.001$) PACKYR ($p=0.021$)
5	893	1.02 (0.90,1.16)	0.733	AGE ($p<0.001$) CSMOK ($p<0.001$) PACKYR ($p=0.021$)
6[c]	892	1.05 (0.92,1.21)	0.463	AGE ($p<0.001$) CSMOK ($p<0.001$) PACKYR ($p=0.020$)

[a] Model 4: Log_2 (lipid-adjusted current dioxin + 1).
Model 5: Log_2 (whole-weight current dioxin + 1).
Model 6: Log_2 (whole-weight current dioxin + 1), adjusted for log_2 total lipids.

[b] Relative risk for a twofold increase in current dioxin.

[c] Adjusted for log_2 total lipids in addition to covariates specified under "Covariate Remarks" column.

Table P-3-5.
Analysis of X Ray Interpretation
Occupation and Body Fat Removed from Final Model

a) MODEL 2: RANCH HANDS – INITIAL DIOXIN – ADJUSTED			
Analysis Results for Log_2 (Initial Dioxin)[a]			
n	Adj. Relative Risk (95% C.I.)[b]	p-Value	Covariate Remarks
519	0.99 (0.80,1.22)	0.921	AGE (p=0.111) CSMOK (p=0.113)

[a] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

[b] Relative risk for a twofold increase in initial dioxin.

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY – ADJUSTED				
Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value	Covariate Remarks
Comparison	1,063			AGE (p<0.001)
Background RH	374	1.00 (0.71,1.40)	0.982	
Low RH	260	0.93 (0.62,1.39)	0.721	
High RH	259	0.93 (0.61,1.43)	0.756	
Low plus High RH	519	0.93 (0.68,1.28)	0.664	

[a] Relative risk and confidence interval relative to Comparisons.

[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤10 ppt.
Background (Ranch Hand): Current Dioxin ≤10 ppt.
Low (Ranch Hand): Current Dioxin >10 ppt, 10 ppt < Initial Dioxin ≤143 ppt.
High (Ranch Hand): Current Dioxin >10 ppt, Initial Dioxin >143 ppt.

Table P-3-5. (Continued)
Analysis of X Ray Interpretation
Occupation and Body Fat Removed from Final Model

c) MODELS 4, 5, AND 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED				
	Analysis Results for Log_2 (Current Dioxin + 1)			
Model[a]	n	Adj. Relative Risk (95% C.I.)[b]	p-Value	Covariate Remarks
4	892	****	****	CURR*CSMOK (p=0.005) AGE (p=0.007) PACKYR (p=0.061)
5	892	1.01 (0.90,1.14)**	0.891**	CURR*CSMOK (p=0.017) AGE (p=0.005) PACKYR (p=0.064)
6[c]	892	0.96 (0.84,1.09)**	0.491**	CURR*CSMOK (p=0.010) AGE (p=0.002)

[a] Model 4: Log_2 (lipid-adjusted current dioxin + 1).
Model 5: Log_2 (whole-weight current dioxin + 1).
Model 6: Log_2 (whole-weight current dioxin + 1), adjusted for log_2 total lipids.

[b] Relative risk for a twofold increase in current dioxin.

[c] Adjusted for log_2 total lipids in addition to covariates specified under "Covariate Remarks" column.

** Log_2 (current dioxin + 1)-by-covariate interaction ($0.01 < p \leq 0.05$); adjusted relative risk, confidence interval, and p-value derived after deletion of this interaction; refer to Appendix Table P-4-3 for further analysis of this interaction.

**** Log_2 (current dioxin + 1)-by-covariate interaction ($p \leq 0.01$); adjusted relative risk, confidence interval, and p-value not presented; refer to Appendix Table P-4-3 for further analysis of this interaction.

Table P-3-6.
Analysis of FVC (Percent of Predicted)
Occupation and Body Fat Removed from Final Model

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED

Initial Dioxin Category Summary Statistics			Analysis Results for Log_2 (Initial Dioxin)[a]			
Initial Dioxin	n	Adj. Mean[a]	R^2	Adj. Slope (Std. Error)	p-Value	Covariate Remarks
Low	174	94.0	0.134	-1.133 (0.462)	0.015	AGE (p=0.002) RACE (p<0.001) PACKYR*IC (p=0.023)
Medium	173	94.1				
High	173	90.7				

[a] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

Note: Low = 39-98 ppt; Medium = >98-232 ppt; High = >232 ppt.

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED

Dioxin Category	n	Adj. Mean[a]	Difference of Adj. Mean vs. Comparisons (95% C.I.)	p-Value	Covariate Remarks
Comparison	1,060	95.4			CSMOK (p<0.001) IC (p=0.305) AGE*PACKYR (p=0.026) PACKYR*RACE (p<0.001)
Background RH	372	96.0	0.6 (-1.0,2.3)	0.433	
Low RH	260	95.0	-0.3 (-2.2,1.5)	0.715	
High RH	260	93.8	-1.6 (-3.4,0.2)	0.089	
Low plus High RH	520	94.4	1.0 (-0.5,2.4)	0.182	

[a] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤10 ppt.
Background (Ranch Hand): Current Dioxin ≤10 ppt.
Low (Ranch Hand): Current Dioxin >10 ppt, 10 ppt < Initial Dioxin ≤143 ppt.
High (Ranch Hand): Current Dioxin >10 ppt, Initial Dioxin >143 ppt.

Table P-3-6. (Continued)
Analysis of FVC (Percent of Predicted)
Occupation and Body Fat Removed from Final Model

c) MODELS 4, 5, AND 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED							
	Current Dioxin Category Adjusted Mean/(n)			Analysis Results for Log_2 (Current Dioxin + 1)			
Model[a]	Low	Medium	High	R^2	Adj. Slope (Std. Error)	p-Value	Covariate Remarks
4	95.6 (294)	94.9 (299)	92.8 (299)	0.117	-1.222 (0.317)	<0.001	AGE (p=0.001) CSMOK (p=0.031) PACKYR*RACE (p=0.037) PACKYR*IC (p=0.011)
5	96.9 (299)	94.6 (296)	92.5 (297)	0.118	-1.066 (0.271)	<0.001	AGE (p=0.001) CSMOK (p=0.032) PACKYR*RACE (p=0.040) PACKYR*IC (p=0.011)
6[b]	96.4 (298)	94.5 (296)	92.8 (297)	0.120	-0.915 (0.294)	0.002	AGE (p=0.001) CSMOK (p=0.041) PACKYR*RACE (p=0.046) PACKYR*IC (p=0.011)

[a] Model 4: Log_2 (lipid-adjusted current dioxin + 1).
Model 5: Log_2 (whole-weight current dioxin + 1).
Model 6: Log_2 (whole-weight current dioxin + 1), adjusted for log_2 total lipids.

[b] Adjusted for log_2 total lipids in addition to covariates specified under "Covariate Remarks" column.

Note: Model 4: Low = ≤8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.
Models 5 and 6: Low = ≤46 ppq; Medium = >46-128 ppq; High = >128 ppq.

Table P-3-7.
Analysis of FEV_1 (Percent of Predicted)
Occupation and Body Fat Removed from Final Model

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED

Initial Dioxin Category Summary Statistics			Analysis Results for Log_2 (Initial Dioxin)[a]			
Initial Dioxin	n	Adj. Mean[a]	R^2	Adj. Slope (Std. Error)	p-Value	Covariate Remarks
Low	174	****	0.150	****	****	INIT*CSMOK (p=0.002)
Medium	173	****				AGE (p<0.001)
High	173	****				RACE (p<0.001)
						PACKYR (p<0.001)
						IC (p=0.074)

[a] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

**** Log_2 (initial dioxin)-by-covariate interaction ($p \leq 0.01$); adjusted mean, adjusted slope, standard error, and p-value not presented; refer to Appendix Table P-4-4 for further analysis of this interaction.

Note: Low = 39-98 ppt; Medium = >98-232 ppt; High = >232 ppt.

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED

Dioxin Category	n	Adj. Mean[a]	Difference of Adj. Mean vs. Comparisons (95% C.I.)	p-Value	Covariate Remarks
Comparison	1,060	91.5			CSMOK (p<0.001)
					IC (p=0.008)
Background RH	372	91.2	-0.4 (-2.3,1.6)	0.719	AGE*PACKYR (p=0.001)
Low RH	260	91.5	-0.0 (-2.2,2.1)	0.968	PACKYR*RACE (p=0.006)
High RH	260	90.2	-1.3 (-3.5,0.8)	0.230	
Low plus High RH	520	90.9	-0.7 (-2.4,1.0)	0.424	

[a] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤10 ppt.
Unknown (Ranch Hand): Current Dioxin ≤10 ppt.
Low (Ranch Hand): Current Dioxin >10 ppt, 10 ppt < Initial Dioxin ≤143 ppt.
High (Ranch Hand): Initial Dioxin >143 ppt.

Table P-3-7. (Continued)
Analysis of FEV_1 (Percent of Predicted)
Occupation and Body Fat Removed from Final Model

c) MODELS 4, 5, AND 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED							
	Current Dioxin Category Adjusted Mean/(n)			Analysis Results for Log_2 (Current Dioxin + 1)			
Model[a]	Low	Medium	High	R^2	Adj. Slope (Std. Error)	p-Value	Covariate Remarks
4	90.0 (294)	90.4 (299)	88.5 (299)	0.160	-0.337 (0.385)	0.382	AGE ($p<0.001$) RACE ($p<0.001$) CSMOK ($p<0.001$) PACKYR ($p<0.001$) IC ($p=0.031$)
5	90.3 (299)	90.0 (296)	88.8 (297)	0.160	-0.313 (0.328)	0.340	AGE ($p<0.001$) RACE ($p<0.001$) CSMOK ($p<0.001$) PACKYR ($p<0.001$) IC ($p=0.031$)
6[b]	89.9 (298)	89.8 (296)	89.1 (297)	0.161	-0.161 (0.357)	0.653	AGE ($p<0.001$) RACE ($p<0.001$) CSMOK ($p<0.001$) PACKYR ($p<0.001$) IC ($p=0.030$)

[a] Model 4: Log_2 (lipid-adjusted current dioxin + 1).
Model 5: Log_2 (whole-weight current dioxin + 1).
Model 6: Log_2 (whole-weight current dioxin + 1), adjusted for log_2 total lipids.

[b] Adjusted for log_2 total lipids in addition to covariates specified under "Covariate Remarks" column.

Note: Model 4: Low = ≤8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.
Models 5 and 6: Low = ≤46 ppq; Medium = >46-128 ppq; High = >128 ppq.

Table P-3-8.
Analysis of Ratio of Observed FEV_1 to Observed FVC
Occupation and Body Fat Removed from Final Model

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED						
Initial Dioxin Category Summary Statistics			**Analysis Results for Log_2 (Initial Dioxin)[b]**			
Initial Dioxin	**n**	**Adj. Mean[ab]**	**R^2**	**Adj. Slope (Std. Error)[c]**	**p-Value**	**Covariate Remarks**
Low	174	0.783	0.195	-0.013 (0.011)	0.208	AGE ($p<0.001$)
Medium	173	0.780				RACE ($p=0.004$)
High	173	0.798				CSMOK ($p=0.134$)
						PACKYR ($p<0.001$)
						IC ($p=0.043$)

[a] Transformed from natural logarithm (1-X) scale.

[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

[c] Slope and standard error based on natural logarithm of (1-ratio of observed FEV_1 to observed FVC) versus log_2 (initial dioxin).

Note: Low = 39-98 ppt; Medium = >98-232 ppt; High = >232 ppt.

Table P-3-8. (Continued)
Analysis of Ratio of Observed FEV_1 to Observed FVC
Occupation and Body Fat Removed from Final Model

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED					
Dioxin Category	n	Adj. Mean[ab]	Difference of Adj. Mean vs. Comparisons (95% C.I.)[c]	p-Value[d]	Covariate Remarks
Comparison	1,060	0.776			AGE ($p<0.001$) PACKYR ($p<0.001$) IC ($p=0.005$) CSMOK*RACE ($p=0.008$)
Background RH	372	0.769	-0.007 --	0.062	
Low RH	260	0.779	0.003 --	0.502	
High RH	260	0.780	0.004 --	0.377	
Low plus High RH	520	0.779	0.003 --	0.314	

[a] Transformed from natural logarithm (1-X) scale.

[b] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

[c] Difference of adjusted means after transformation to original scale; confidence interval on difference of adjusted means not presented because analysis was performed on natural logarithm (1-X) scale.

[d] P-value is based on difference of means on natural logarithm (1-X) scale.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin >10 ppt, 10 ppt $<$ Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin >10 ppt, Initial Dioxin >143 ppt.

Table P-3-8. (Continued)
Analysis of Ratio of Observed FEV_1 to Observed FVC
Occupation and Body Fat Removed from Final Model

c) MODELS 4, 5, AND 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED							
	Current Dioxin Category Adjusted Mean[a]/(n)			Analysis Results for Log_2 (Current Dioxin + 1)			
Model[b]	Low	Medium	High	R^2	Adj. Slope (Std. Error)[c]	p-Value	Covariate Remarks
4	0.762 (294)	0.777 (299)	0.783 (299)	0.208	-0.033 (0.007)	<0.001	AGE (p<0.001) RACE (p=0.002) CSMOK (p<0.001) PACKYR (p<0.001) IC (p=0.019)
5	0.762 (299)	0.775 (296)	0.787 (297)	0.207	-0.027 (0.006)	<0.001	AGE (p<0.001) RACE (p=0.002) CSMOK (p<0.001) PACKYR (p<0.001) IC (p=0.021)
6[d]	0.762 (298)	0.775 (296)	0.787 (297)	0.206	-0.029 (0.007)	<0.001	AGE (p<0.001) RACE (p=0.002) CSMOK (p<0.001) PACKYR (p<0.001) IC (p=0.020)

[a] Transformed from natural logarithm (1-X) scale.

[b] Model 4: Log_2 (lipid-adjusted current dioxin + 1).
Model 5: Log_2 (whole-weight current dioxin + 1).
Model 6: Log_2 (whole-weight current dioxin + 1), adjusted for log_2 total lipids.

[c] Slope and standard error based on natural logarithm of (1-ratio of observed FEV_1 to observed FVC) versus log_2 (current dioxin + 1).

[d] Adjusted for log_2 total lipids in addition to covariates specified under "Covariate Remarks" column.

Note: Model 4: Low = ≤8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.
Models 5 and 6: Low = ≤46 ppq; Medium = >46-128 ppq; High = >128 ppq.

Table P-3-9.
Analysis of Loss of Vital Capacity
Occupation and Body Fat Removed from Final Model

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED					
Analysis Results for Log_2 (Initial Dioxin)[a]					
	Mild vs. None		Moderate or Severe vs. None		
n	Adj. Relative Risk (95% C.I.)[b]	p-Value	Adj. Relative Risk (95% C.I.)[b]	p-Value	Covariate Remarks
520	1.13 (0.85,1.51)	0.407	0.87 (0.43,1.75)	0.690	AGE (p=0.018) RACE*PACKYR (p=0.012) IC (p=0.542)

[a] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

[b] Relative risk for a twofold increase in initial dioxin.

Table P-3-9. (Continued)
Analysis of Loss of Vital Capacity
Occupation and Body Fat Removed from Final Model

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED						
		Mild vs. None		Moderate or Severe vs. None		
Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value	Adj. Relative Risk (95% C.I.)[ab]	p-Value	Covariate Remarks
Comparison	1,060					AGE ($p<0.001$) CSMOK ($p=0.018$) IC ($p=0.135$) RACE*PACKYR ($p=0.002$)
Background RH	372	0.95 (0.55,1.62)	0.841	0.43 (0.10,1.94)	0.274	
Low RH	260	0.67 (0.36,1.24)	0.198	0.99 (0.35,2.83)	0.986	
High RH	260	0.82 (0.45,1.50)	0.522	0.72 (0.20,2.61)	0.621	
Low plus High RH	520	0.74 (0.46,1.18)	0.205	0.87 (0.36,2.11)	0.760	

[a] Relative risk and confidence interval relative to Comparisons.

[b] Adjusted for percent body fat at the time of duty in SEA, change in body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt $<$ Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table P-3-9. (Continued)
Analysis of Loss of Vital Capacity
Occupation and Body Fat Removed from Final Model

c) MODELS 4, 5, AND 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED						
		Analysis Results for Log_2 (Current Dioxin + 1)				
		Mild vs. None		Moderate or Severe vs. None		
Model[a]	n	Adj. Relative Risk (95% C.I.)[b]	p-Value	Adj. Relative Risk (95% C.I.)[b]	p-Value	Covariate Remarks
4	892	1.22 (1.00,1.50)**	0.056**	1.16 (0.71,1.91)**	0.551**	CURR*RACE (p=0.023) CURR*CSMOK (p=0.011) AGE (p=0.003) RACE*PACKYR (p=0.043)
5	892	1.21 (1.01,1.44)**	0.039**	1.15 (0.75,1.77)**	0.527**	CURR*CSMOK (p=0.032) RACE*PACKYR (p=0.058) AGE (p=0.003)
6[c]	891	1.24 (1.02,1.49)	0.029	1.22 (0.77,1.93)	0.398	AGE (p=0.012) CSMOK (p=0.120) RACE*PACKYR (p=0.042)

[a] Model 4: Log_2 (lipid-adjusted current dioxin + 1).
Model 5: Log_2 (whole-weight current dioxin + 1).
Model 6: Log_2 (whole-weight current dioxin + 1), adjusted for log_2 total lipids.

[b] Relative risk for a twofold increase in current dioxin.

[c] Adjusted for log_2 total lipids in addition to covariates specified under "Covariate Remarks" column.

** Log_2 (current dioxin + 1)-by-covariate interaction ($0.01 < p \leq 0.05$); adjusted relative risk, confidence interval, and p-value derived from a model after deletion of this interaction; refer to Appendix Table P-4-5 for further analysis of this interaction.

Table P-3-10.
Analysis of Obstructive Abnormality
Occupation and Body Fat Removed from Final Model

a) MODEL 2: RANCH HANDS – INITIAL DIOXIN – ADJUSTED					
Analysis Results for Log_2 (Initial Dioxin)[a]					
	Mild vs. None		Moderate or Severe vs. None		
n	Adj. Relative Risk (95% C.I.)[b]	p-Value	Adj. Relative Risk (95% C.I.)[b]	p-Value	Covariate Remarks
520	0.98 (0.83,1.16)	0.814	0.92 (0.67,1.26)	0.599	CSMOK (p=0.409) IC (p=0.006) AGE*PACKYR (p=0.036)

[a] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

[b] Relative risk for a twofold increase in initial dioxin.

Table P-3-10. (Continued)
Analysis of Obstructive Abnormality
Occupation and Body Fat Removed from Final Model

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED						
		Mild vs. None		Moderate or Severe vs. None		
Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value	Adj. Relative Risk (95% C.I.)[ab]	p-Value	Covariate Remarks
Comparison	1,060					DXCAT*PACKYR (p=0.037) AGE (p<0.001) CSMOK (p<0.001) IC (p=0.005)
Background RH	372	1.15 (0.87,1.51)**	0.315**	1.24 (0.77,2.02)**	0.378**	
Low RH	260	0.96 (0.70,1.31)**	0.782**	1.14 (0.66,1.97)**	0.642**	
High RH	260	1.00 (0.72,1.39)**	0.999**	0.90 (0.47,1.72)**	0.753**	
Low plus High RH	520	0.98 (0.76,1.25)**	0.853**	1.04 (0.66,1.64)**	0.880**	

[a] Relative risk and confidence interval relative to Comparisons.

[b] Adjusted for percent body fat at the time of duty in SEA, change in body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified under "Covariate Remarks" column.

** Categorized dioxin-by-covariate interaction ($0.01 < p \leq 0.05$); adjusted relative risk, confidence interval, and p-value derived from a model after deletion of this interaction; refer to Appendix Table P-4-6 for further analysis of this interaction.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤10 ppt.
Background (Ranch Hand): Current Dioxin ≤10 ppt.
Low (Ranch Hand): Current Dioxin >10 ppt, 10 ppt < Initial Dioxin ≤143 ppt.
High (Ranch Hand): Current Dioxin >10 ppt, Initial Dioxin >143 ppt.

Table P-3-10. (Continued)
Analysis of Obstructive Abnormality
Occupation and Body Fat Removed from Final Model

c) MODELS 4, 5, AND 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED						
		Analysis Results for Log_2 (Current Dioxin + 1)				
		Mild vs. None		Moderate or Severe vs. None		
Model[a]	n	Adj. Relative Risk (95% C.I.)[b]	p-Value	Adj. Relative Risk (95% C.I.)[b]	p-Value	Covariate Remarks
4	892	0.86 (0.77,0.97)	0.011	0.84 (0.68,1.03)	0.096	AGE ($p<0.001$) CSMOK ($p=0.001$) PACKYR ($p<0.001$) RACE*IC ($p=0.017$)
5	892	0.89 (0.81,0.98)	0.022	0.87 (0.73,1.03)	0.097	AGE ($p<0.001$) CSMOK ($p=0.001$) PACKYR ($p<0.001$) RACE*IC ($p=0.017$)
6[c]	891	0.90 (0.81,1.00)	0.050	0.91 (0.76,1.08)	0.282	AGE ($p<0.001$) CSMOK ($p=0.001$) PACKYR ($p<0.001$) RACE*IC ($p=0.017$)

[a] Model 4: Log_2 (lipid-adjusted current dioxin + 1).
Model 5: Log_2 (whole-weight current dioxin + 1).
Model 6: Log_2 (whole-weight current dioxin + 1), adjusted for log_2 total lipids.

[b] Relative risk for a twofold increase in current dioxin.

[c] Adjusted for log_2 total lipids in addition to covariates specified under "Covariate Remarks" column.

APPENDIX P-4.

Interaction Tables for the Pulmonary Assessment Occupation and Body Fat Removed from Final Model

This appendix contains exposure analyses results of interactions between covariates and dioxin after occupation and body fat have been removed from those final dioxin models (Models 2 through 6) that contained occupation or body fat. These tables are supplements to tables in Appendix P-3, which are main effects results with occupation and body fat removed from the model. Results are presented for each separate stratum of the covariate and include sample sizes, percent abnormal, relative risks, confidence intervals, and p-values for discrete dependent variables. Sample sizes, adjusted means, differences of adjusted means and confidence intervals or adjusted slopes and standard errors, and p-values are given for continuous dependent variables. Means are transformed back to the original scale, if necessary. Chapter 7, Statistical Methods, provides further details on the analytical approaches used in the interaction analyses. The analysis model, covariate involved in the interaction, and references to the analysis tables in Chapter 20 and Appendix P-3 are given in the heading of each subtable. A summary of the interactions described in this appendix follows.

Appendix P-4 Table	Chapter 20 Table	Appendix P-3 Table	Dependent Variable	Model	Covariate
P-4-1	20-3	P-3-1	Asthma	4 6	Age Age
P-4-2	20-4	P-3-2	Bronchitis	4 5 6	Industrial Chemicals Exposure Industrial Chemicals Exposure Industrial Chemicals Exposure
P-4-3	20-7	P-3-5	X Ray Interpretation	4 5 6	Current Cigarette Smoking Current Cigarette Smoking Current Cigarette Smoking
P-4-4	20-9	P-3-7	FEV_1	2	Current Cigarette Smoking
P-4-5	20-11	P-3-9	Loss of Vital Capacity	4 5	Race, Current Cigarette Smoking Current Cigarette Smoking
P-4-6	20-12	P-3-10	Obstructive Abnormality	3	Lifetime Cigarette Smoking History

Table P-4-1.
Interaction Table for Asthma
Occupation and Body Fat Removed from Final Model

a) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Age: Tables 20-3 and P-3-1)					
Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Yes	Adjusted Relative Risk (95% C.I.)[a]	p-Value
Born ≥ 1942	Low	97	1.0	1.29 (0.96,1.73)	0.092
	Medium	97	8.2		
	High	170	5.9		
Born < 1942	Low	195	4.6	0.69 (0.45,1.04)	0.077
	Medium	199	3.0		
	High	126	1.6		

b) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Age: Tables 20-3 and P-3-1)					
Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Yes	Adjusted Relative Risk (95% C.I.)[a]	p-Value
Born ≥ 1942	Low	101	3.0	1.27 (0.96,1.67)	0.097
	Medium	96	7.3		
	High	167	5.4		
Born < 1942	Low	195	5.6	0.74 (0.56,1.05)	0.101
	Medium	197	1.0		
	High	127	3.1		

[a] Relative risk for a twofold increase in current dioxin.

Note: Model 4: Low = ≤8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.
Model 6: Low = ≤46 ppq; Medium = >46-128 ppq; High = >128 ppq.

Table P-4-2.
Interaction Table for Bronchitis
Occupation and Body Fat Removed from Final Model

a) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED
(Current Dioxin-by-Industrial Chemicals Exposure: Tables 20-4 and P-3-2)

Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Yes	Adjusted Relative Risk (95% C.I.)[a]	p-Value
No	Low	155	13.6	1.11 (0.91,1.35)	0.316
	Medium	125	14.4		
	High	93	21.5		
Yes	Low	131	29.8	0.80 (0.69,0.93)	0.004
	Medium	164	22.0		
	High	200	17.0		

b) MODEL 5: RANCH HANDS — CURRENT DIOXIN — ADJUSTED
(Current Dioxin-by-Industrial Chemicals Exposure: Tables 20-4 and P-3-2)

Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Yes	Adjusted Relative Risk (95% C.I.)[a]	p-Value
No	Low	151	14.6	1.12 (0.94,1.33)	0.202
	Medium	128	12.5		
	High	94	22.3		
Yes	Low	141	30.5	0.84 (0.74,0.95)	0.007
	Medium	157	22.3		
	High	197	15.7		

c) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED
(Current Dioxin-by-Industrial Chemicals Exposure: Tables 20-4 and P-3-2)

Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Yes	Adjusted Relative Risk (95% C.I.)[a]	p-Value
No	Low	152	14.5	1.07 (0.90,1.29)	0.437
	Medium	128	12.5		
	High	94	22.3		
Yes	Low	140	30.0	0.80 (0.70,0.92)	0.001
	Medium	157	22.3		
	High	197	15.7		

[a] Relative risk for a twofold increase in current dioxin.

Note: Model 4: Low = ≤8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.
Models 5 and 6: Low = ≤46 ppq; Medium = >46-128 ppq; High = >128 ppq.

Table P-4-3.
Interaction Table for X Ray Interpretation
Occupation and Body Fat Removed from Final Model

a) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED
(Current Dioxin-by-Current Cigarette Smoking: Tables 20-7 and P-3-5)

Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Yes	Adjusted Relative Risk (95% C.I.)[a]	p-Value
0-Never Smoked	Low	84	10.7	1.01 (0.77,1.32)	0.946
	Medium	84	14.3		
	High	79	11.4		
0-Former Smoker	Low	138	13.0	1.08 (0.88,1.32)	0.466
	Medium	144	16.0		
	High	126	17.5		
>0-20 Cigarettes/Day	Low	46	4.4	1.26 (0.86,1.83)	0.237
	Medium	44	9.1		
	High	57	12.3		
>20 Cigarettes/ Day	Low	26	34.6	0.50 (0.32,0.79)	0.003
	Medium	28	10.7		
	High	36	2.8		

b) MODEL 5: RANCH HANDS — CURRENT DIOXIN — ADJUSTED
(Current Dioxin-by-Current Cigarette Smoking: Tables 20-7 and P-3-5)

Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Yes	Adjusted Relative Risk (95% C.I.)[a]	p-Value
0-Never Smoked	Low	88	12.5	1.02 (0.80,1.30)	0.863
	Medium	83	12.0		
	High	76	11.8		
0-Former Smoker	Low	136	14.0	1.10 (0.92,1.31)	0.293
	Medium	145	15.9		
	High	127	16.5		
>0-20 Cigarettes/Day	Low	49	4.1	1.25 (0.90,1.76)	0.187
	Medium	43	11.6		
	High	55	10.9		
>20 Cigarettes/ Day	Low	26	38.5	0.71 (0.54,0.94)	0.016
	Medium	26	0.0		
	High	38	7.9		

Table P-4-3. (Continued)
Interaction Table for X Ray Interpretation
Occupation and Body Fat Removed from Final Model

c) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Current Cigarette Smoking: Tables 20-7 and P-3-5)					
Current Dioxin Category Summary Statistics				Analysis Results for Log_2 (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Yes	Adjusted Relative Risk (95% C.I.)[a]	p-Value
0-Never Smoked	Low	88	12.5	0.99 (0.77,1.26)	0.905
	Medium	83	12.0		
	High	76	11.8		
0-Former Smoker	Low	137	13.9	1.04 (0.87,1.25)	0.670
	Medium	145	15.9		
	High	127	16.5		
>0-20 Cigarettes/Day	Low	48	4.2	1.19 (0.84,1.68)	0.322
	Medium	43	11.6		
	High	55	10.9		
>20 Cigarettes/ Day	Low	26	38.5	0.67 (0.50,0.88)	0.005
	Medium	26	0.0		
	High	38	7.9		

[a] Relative risk for a twofold increase in current dioxin.

Note: Model 4: Low = ≤8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.
Models 5 and 6: Low = ≤46 ppq; Medium = >46-128 ppq; High = >128 ppq.

Table P-4-4.
Interaction Table for FEV_1 (Percent of Predicted)
Occupation and Body Fat Removed from Final Model

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED (Initial Dioxin-by-Current Cigarette Smoking: Tables 20-9 and P-3-7)					
Initial Dioxin Category Summary Statistics				Analysis Results for Log_2 (Initial Dioxin)	
Stratum	Initial Dioxin	n	Adjusted Mean	Adjusted Slope (Std. Error)	p-Value
0-Never Smoked	Low	47	98.4	-2.985 (0.959)	0.002
	Medium	39	96.2		
	High	53	91.1		
0-Former Smoker	Low	91	92.7	-1.244 (0.012)	0.120
	Medium	80	91.0		
	High	68	88.8		
>0-20 Cigarettes/ Day	Low	24	79.8	1.836 (1.311)	0.162
	Medium	30	88.7		
	High	34	89.8		
>20 Cigarettes/ Day	Low	12	86.7	3.225 (1.902)	0.091
	Medium	24	85.5		
	High	18	93.0		

Note: Low = 39-98 ppt; Medium = >98-232 ppt; High = >232 ppt.

Table P-4-5.
Interaction Table for Loss of Vital Capacity
Occupation and Body Fat Removed from Final Model

a) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED
(Current Dioxin-by-Race: Tables 20-11 and P-3-9)

			Analysis Results for Log_2 (Current Dioxin + 1)						
			Percent			Mild vs. None		Moderate or Severe vs. None	
Stratum	Dioxin Category	n	None	Mild	Mod. or Sev.	Adj. Relative Risk (95% C.I.)[a]	p-Value	Adj. Relative Risk (95% C.I.)[a]	p-Value
Non-Black	Low	282	95.0	4.3	0.7	1.29 (1.05,1.60)	0.017	0.94 (0.51,1.74)	0.839
	Medium	277	93.5	5.4	1.1				
	High	282	94.0	5.7	0.3				
Black	Low	12	83.3	16.7	0.0	0.57 (0.25,1.31)	0.184	1.97 (0.64,6.03)	0.237
	Medium	22	81.8	13.6	4.6				
	High	17	76.5	5.9	17.6				

b) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED
(Current Dioxin-by-Current Cigarette Smoking: Tables 20-11 and P-3-9)

			Analysis Results for Log_2 (Current Dioxin + 1)						
			Percent			Mild vs. None		Moderate or Severe vs. None	
Stratum	Dioxin Category	n	None	Mild	Mod. or Sev.	Adj. Relative Risk (95% C.I.)[a]	p-Value	Adj. Relative Risk (95% C.I.)[a]	p-Value
0-Never Smoked	Low	84	100.0	0.0	0.0	2.36 (1.47,3.79)	<0.001	1.53 (0.65,3.56)	0.328
	Medium	83	96.4	1.2	2.4				
	High	80	88.7	8.8	2.5				
0-Former Smoker	Low	138	94.9	3.6	1.5	1.28 (0.93,1.77)	0.133	0.49 (0.17,1.43)	0.195
	Medium	144	93.8	6.2	0.0				
	High	126	93.6	5.6	0.8				
>0-20 Cigarettes/ Day	Low	46	91.3	8.7	0.0	0.79 (0.52,1.22)	0.292	1.64 (0.59,4.54)	0.341
	Medium	44	81.8	15.9	2.3				
	High	57	96.5	1.8	1.8				
>20 Cigarettes/ Day	Low	26	80.8	19.2	0.0	0.94 (0.60,1.48)	0.796	1.74 (0.49,6.14)	0.390
	Medium	28	92.9	3.6	3.6				
	High	36	94.4	5.6	0.0				

Table P-4-5. (Continued)
Interaction Table for Loss of Vital Capacity
Occupation and Body Fat Removed from Final Model

c) MODEL 5: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Current Cigarette Smoking: Tables 20-11 and P-3-9)									
Current Dioxin Category Summary Statistics						Analysis Results for Log_2 (Current Dioxin + 1)			
			Percent			Mild vs. None		Moderate or Severe vs. None	
Stratum	Dioxin Category	n	None	Mild	Mod. or Sev.	Adj. Relative Risk (95% C.I.)[a]	p-Value	Adj. Relative Risk (95% C.I.)[a]	p-Value
0-Never Smoked	Low	88	100.0	0.0	0.0	2.28 (1.46,3.58)	<0.001	1.37 (0.62,3.02)	0.433
	Medium	82	96.3	1.2	2.4				
	High	77	88.3	9.1	2.6				
0-Former Smoker	Low	136	94.9	3.7	1.5	1.25 (0.94,1.67)	0.129	0.65 (0.31,1.37)	0.260
	Medium	145	93.8	6.2	0.0				
	High	127	93.7	5.5	0.8				
>0-20 Cigarettes/ Day	Low	49	91.8	8.2	0.0	0.89 (0.64,1.23)	0.490	1.61 (0.65,4.01)	0.402
	Medium	43	81.4	16.3	2.3				
	High	55	96.4	1.8	1.8				
>20 Cigarettes/ Day	Low	26	80.8	19.2	0.0	0.99 (0.71,1.38)	0.952	1.62 (0.50,5.25)	0.422
	Medium	26	92.3	3.9	3.9				
	High	38	94.7	5.3	0.0				

[a] Relative risk for a twofold increase in current dioxin.

Note: Model 4: Low = ≤8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.
Model 5: Low = ≤46 ppq; Medium = >46-128 ppq; High = >128 ppq.

Table P-4-6.
Interaction Table for Obstructive Abnormality
Occupation and Body Fat Removed from Final Model

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED
(Dioxin Category-by-Lifetime Cigarette Smoking History: Tables 20-12 and P-3-10)

			Percent			Mild vs. None		Moderate or Severe vs. None	
Stratum	Dioxin Category	n	None	Mild	Mod. or Sev.	Adj. Relative Risk (95% C.I.)[a]	p-Value	Adj. Relative Risk (95% C.I.)[a]	p-Value
0 Pack-years	Comparison	282	77.0	21.3	1.8				
	Background RH	108	72.2	24.1	3.7	1.02 (0.59,1.77)	0.952	1.86 (0.47,7.38)	0.378
	Low RH	72	79.2	18.1	2.8	0.62 (0.31,1.24)	0.176	0.94 (0.17,5.26)	0.940
	High RH	67	85.1	14.9	0.0	0.91 (0.42,1.96)	0.815	--	--
	Low plus High RH	139	82.0	16.6	1.4	0.73 (0.41,1.27)	0.259	0.69 (0.13,3.73)	0.662
>0-10 Pack-years	Comparison	323	58.2	36.8	5.0				
	Background RH	109	60.6	33.9	5.5	0.83 (0.51,1.36)	0.462	1.03 (0.37,2.88)	0.949
	Low RH	69	56.5	34.8	8.7	1.04 (0.58,1.86)	0.905	2.10 (0.75,5.89)	0.157
	High RH	93	69.9	25.8	4.3	0.80 (0.46,1.40)	0.435	1.24 (0.38,4.09)	0.724
	Low plus High RH	162	64.2	29.6	6.2	0.90 (0.58,1.39)	0.636	1.64 (0.69,3.93)	0.265
>10 Pack-years	Comparison	455	45.3	43.1	11.7				
	Background RH	155	29.7	55.5	14.8	1.64 (1.07,2.53)	0.024	1.55 (0.82,2.91)	0.177
	Low RH	119	39.5	47.9	12.6	1.19 (0.75,1.87)	0.459	1.14 (0.56,2.31)	0.717
	High RH	100	42.0	48.0	10.0	1.30 (0.79,2.12)	0.298	0.99 (0.44,2.22)	0.971
	Low plus High RH	219	40.6	48.0	11.4	1.24 (0.86,1.78)	0.250	1.07 (0.60,1.93)	0.810

[a] Relative risk and confidence interval relative to Comparisons.

--: Relative risk, confidence interval, and p-value not presented due to zero number of abnormalities.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤10 ppt.
Background (Ranch Hand): Current Dioxin ≤10 ppt.
Low (Ranch Hand): Current Dioxin ≤10 ppt, 10 ppt < Initial Dioxin ≤143 ppt.
High (Ranch Hand): Current Dioxin ≤10 ppt, Initial Dioxin >143 ppt.

APPENDIX Q-1.

Summary of Analysis Results

This appendix contains a summary of the results from the exposure analyses performed for this report and contained in Chapters 9 through 20. This summary is organized into 24 tables, grouped by analysis (unadjusted, adjusted), data form (continuous, dichotomous, polychotomous), and model (1, 2, 3, and 4-6 combined). Each table contains a reference to its corresponding table in Chapters 9 through 20 and a description of the clinical parameter being summarized. The summary statistics, grouped by model and presented for each analysis and data form, are described below.

Model 1

For analyses of continuous data using Model 1 (Tables Q-1-1 and Q-1-13), the occupational category, Ranch Hand mean, Comparison mean, difference of Ranch Hand and Comparison means along with the associated 95 percent confidence interval (C.I.), and p-value are given for the unadjusted and adjusted analyses. For analyses of dichotomous data using Model 1 (Tables Q-1-5 and Q-1-17), the occupational category, estimated or adjusted relative risk and associated 95 percent confidence interval, and p-value are given for the unadjusted and adjusted analyses. The percentage of abnormalities within the Ranch Hand and Comparison groups are given for the unadjusted analyses. For analyses of polychotomous data using Model 1 (Tables Q-1-9 and Q-1-21), the contrast (of the specified abnormal category versus the normal category), occupational category, estimated or adjusted relative risk and associated 95 percent confidence interval, and p-value are given for the unadjusted and adjusted analyses. The percentage of Ranch Hands and Comparisons within each abnormal level are given for the unadjusted analyses.

Models 2, 4, 5, and 6

For analyses of continuous data using Models 2, 4, 5, and 6 (Tables Q-1-2 and Q-1-14 for Model 2; Tables Q-1-4 and Q-1-16 for Models 4, 5, and 6), the coefficient of determination (R^2), slope, standard error, and p-value are given for the unadjusted and adjusted analyses. For analyses of dichotomous data using Models 2, 4, 5, and 6 (Tables Q-1-6 and Q-1-18 for Model 2; Tables Q-1-8 and Q-1-20 for Models 4, 5, and 6), the estimated or adjusted relative risk and associated 95 percent confidence interval, and p-value are given for the unadjusted and adjusted analyses. For analyses of polychotomous data using Models 2, 4, 5, and 6 (Tables Q-1-10 and Q-1-22 for Model 2; Tables Q-1-12 and Q-1-24 for Models 4, 5, and 6), the contrast (of the specified abnormal category versus the normal category), the estimated or adjusted relative risk and associated 95 percent confidence interval, and p-value are given for the unadjusted and adjusted analyses.

Model 3

For analyses of continuous data using Model 3 (Tables Q-1-3 and Q-1-17), the R^2, dioxin category, dioxin category sample size (n) and mean, difference of Ranch Hand dioxin

category and Comparison dioxin category means along with the associated 95 percent confidence interval, and p-value are given for the unadjusted and adjusted analyses. For analyses of dichotomous data using Model 3 (Tables Q-1-7 and Q-1-19), the dioxin category, sample size, estimated or adjusted relative risk and associated 95 percent confidence interval for each Ranch Hand category versus Comparison contrast, and p-value are given for the unadjusted and adjusted analyses. The percentage of abnormalities within each dioxin category are given for unadjusted analyses. For analyses of polychotomous data using Model 3 (Tables Q-1-11 and Q-1-23), the contrast (of the specified abnormal category versus the normal category), dioxin category, sample size, estimated or adjusted relative risk and associated 95 percent confidence interval for each Ranch Hand category versus Comparison contrast, and p-value are given for the unadjusted and adjusted analyses. The percentages of each abnormal level within each dioxin category are given for the unadjusted analyses.

A summary of the analysis (unadjusted, adjusted), data form (continuous, dichotomous, polychotomous), and model (1, 2, 3, and 4-6 combined) for each table in Appendix Q-1 is given below.

Appendix Q-1 Table	Analysis	Data Form	Model(s)
Q-1-1	Unadjusted	Continuous	1
Q-1-2	Unadjusted	Continuous	2
Q-1-3	Unadjusted	Continuous	3
Q-1-4	Unadjusted	Continuous	4, 5, 6
Q-1-5	Unadjusted	Dichotomous	1
Q-1-6	Unadjusted	Dichotomous	2
Q-1-7	Unadjusted	Dichotomous	3
Q-1-8	Unadjusted	Dichotomous	4, 5, 6
Q-1-9	Unadjusted	Polychotomous	1
Q-1-10	Unadjusted	Polychotomous	2
Q-1-11	Unadjusted	Polychotomous	3
Q-1-12	Unadjusted	Polychotomous	4, 5, 6
Q-1-13	Adjusted	Continuous	1
Q-1-14	Adjusted	Continuous	2
Q-1-15	Adjusted	Continuous	3
Q-1-16	Adjusted	Continuous	4, 5, 6
Q-1-17	Adjusted	Dichotomous	1
Q-1-18	Adjusted	Dichotomous	2
Q-1-19	Adjusted	Dichotomous	3
Q-1-20	Adjusted	Dichotomous	4, 5, 6
Q-1-21	Adjusted	Polychotomous	1
Q-1-22	Adjusted	Polychotomous	2
Q-1-23	Adjusted	Polychotomous	3
Q-1-24	Adjusted	Polychotomous	4, 5, 6

Table Q-1-1.
Summary of Unadjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Means RH	Means C	Difference of Means (95% C.I.)	p-Value
9-6	Body Fat (Percent)[a]	All	21.79	21.96	-0.17 --	0.448
		Officer	21.78	21.54	0.25 --	0.432
		Enlisted Flyer	21.52	21.76	-0.24 --	0.656
		Enlisted Groundcrew	21.91	22.41	-0.50 --	0.159
9-7	Body Fat (Percent) with Adjustment for Caloric Intake[a]	All	21.79	21.96	-0.17 --	0.448
		Officer	21.78	21.54	0.25 --	0.432
		Enlisted Flyer	21.52	21.76	-0.24 --	0.656
		Enlisted Groundcrew	21.91	22.41	-0.50 --	0.159
9-10	Sedimentation Rate (mm/hr)[b]	All	8.32	7.97	0.35 --	0.248
		Officer	7.63	7.64	-0.01 --	0.989
		Enlisted Flyer	9.31	9.24	0.07 --	0.939
		Enlisted Groundcrew	8.59	7.84	0.75 --	0.109
10-40	Prostate-Specific Antigen (ng/ml)[a] (Measurements at or Above Sensitivity Limit)	All	1.013	1.025	-0.012 --	0.717
		Officer	1.131	1.117	0.014 --	0.821
		Enlisted Flyer	1.111	1.130	-0.019 --	0.838
		Enlisted Groundcrew	0.890	0.918	-0.028 --	0.492
11-28	Vibrotactile Threshold Measurement of Right Great Toe (microns)[a]	All	16.66	16.61	0.04 --	0.957
		Officer	16.97	18.45	-1.48 --	0.303
		Enlisted Flyer	20.18	19.29	0.88 --	0.711
		Enlisted Groundcrew	15.21	14.38	0.83 --	0.442
11-29	Vibrotactile Threshold Measurement of Left Great Toe (microns)[a]	All	17.12	16.43	0.70 --	0.408
		Officer	18.16	17.94	0.22 --	0.880
		Enlisted Flyer	19.98	20.37	-0.39 --	0.873
		Enlisted Groundcrew	15.32	14.11	1.21 --	0.267
13-12	AST (U/L)[a]	All	23.11	23.76	-0.66 --	0.082
		Officer	23.67	24.37	-0.70 --	0.258
		Enlisted Flyer	21.28	23.17	-1.89 --	0.022
		Enlisted Groundcrew	23.37	23.45	-0.08 --	0.887

Table Q-1-1. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Means		Difference of Means (95% C.I.)	p-Value
			RH	C		
13-14	ALT (U/L)[a]	All	26.85	27.92	-1.07 --	0.047
		Officer	26.76	27.42	-0.66 --	0.424
		Enlisted Flyer	24.76	28.11	-3.35 --	0.010
		Enlisted Groundcrew	27.80	28.32	-0.52 --	0.544
13-16	GGT (U/L)[a]	All	32.75	32.15	0.60 --	0.501
		Officer	32.37	31.07	1.30 --	0.363
		Enlisted Flyer	31.43	34.49	-3.06 --	0.172
		Enlisted Groundcrew	33.61	32.32	1.29 --	0.332
13-18	Alkaline Phosphatase (U/L)[a]	All	70.73	68.55	2.18 --	0.005
		Officer	67.74	66.56	1.18 --	0.329
		Enlisted Flyer	70.93	71.45	-0.53 --	0.790
		Enlisted Groundcrew	73.35	69.33	4.02 --	0.001
13-20	Total Bilirubin (mg/dl)[a]	All	0.62	0.63	-0.01 --	0.469
		Officer	0.65	0.64	0.01 --	0.593
		Enlisted Flyer	0.58	0.61	-0.04 --	0.161
		Enlisted Groundcrew	0.62	0.63	-0.01 --	0.561
13-23	LDH (U/L)[a]	All	145.69	145.45	0.24 --	0.826
		Officer	144.21	144.73	-0.53 --	0.759
		Enlisted Flyer	143.45	147.55	-4.10 --	0.133
		Enlisted Groundcrew	147.89	145.36	2.53 --	0.137
13-25	Cholesterol (mg/dl)[a]	All	215.57	214.93	0.64 --	0.703
		Officer	214.16	211.86	2.30 --	0.365
		Enlisted Flyer	219.24	222.12	-2.88 --	0.495
		Enlisted Groundcrew	215.38	215.19	0.19 --	0.942
13-27	HDL Cholesterol (mg/dl)[a]	All	40.56	40.91	-0.36 --	0.429
		Officer	42.15	42.23	-0.08 --	0.918
		Enlisted Flyer	40.38	40.09	0.29 --	0.785
		Enlisted Groundcrew	39.31	40.07	-0.76 --	0.244

Table Q-1-1. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Means		Difference of Means (95% C.I.)	p-Value
			RH	C		
13-29	Cholesterol-HDL Ratio[a]	All	5.30	5.25	0.05 --	0.408
		Officer	5.07	5.01	0.06 --	0.569
		Enlisted Flyer	5.38	5.53	-0.15 --	0.366
		Enlisted Groundcrew	5.48	5.36	0.11 --	0.274
13-31	Triglycerides (mg/dl)[a]	All	147.42	144.38	3.01 --	0.389
		Officer	144.96	134.52	10.44 --	0.058
		Enlisted Flyer	145.32	162.09	-16.76 --	0.074
		Enlisted Groundcrew	150.43	147.58	2.85 --	0.587
13-33	Creatine Kinase (U/L)[a]	All	128.05	129.31	-1.25 --	0.679
		Officer	127.61	124.74	2.88 --	0.535
		Enlisted Flyer	117.32	127.51	-10.20 --	0.146
		Enlisted Groundcrew	132.89	134.12	-1.23 --	0.799
13-35	Serum Amylase (U/L)[a]	All	73.27	73.57	-0.30 --	0.791
		Officer	72.08	75.01	-2.93 --	0.109
		Enlisted Flyer	73.89	71.67	2.22 --	0.394
		Enlisted Groundcrew	74.07	72.99	1.08 --	0.528
13-41	Prealbumin (mg/dl)	All	27.72	27.73	-0.01 (-0.38,0.37)	0.975
		Officer	27.95	27.85	0.09 (-0.53,0.72)	0.767
		Enlisted Flyer	27.64	27.67	-0.03 (-0.90,0.84)	0.943
		Enlisted Groundcrew	27.56	27.64	-0.08 (-0.64,0.48)	0.782
13-43	Albumin (mg/dl)	All	3,938.63	3,954.03	-15.40 (-41.48,10.68)	0.247
		Officer	3,929.45	3,955.23	-25.79 (-66.52,14.95)	0.215
		Enlisted Flyer	3,925.56	3,937.70	-12.15 (-74.19,49.89)	0.701
		Enlisted Groundcrew	3,951.68	3,958.67	-6.98 (-47.42,33.45)	0.735
13-45	α-1 Acid Glycoprotein (mg/dl)[a]	All	56.58	56.40	0.18 --	0.740
		Officer	54.08	54.73	-0.65 --	0.438
		Enlisted Flyer	57.81	57.77	0.04 --	0.975
		Enlisted Groundcrew	58.34	57.42	0.92 --	0.250

Table Q-1-1. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Means		Difference of Means (95% C.I.)	p-Value
			RH	C		
13-47	α-1 Antitrypsin (mg/dl)	All	151.59	149.48	2.12 (-0.23,4.46)	0.077
		Officer	146.98	145.89	1.08 (-2.60,4.77)	0.564
		Enlisted Flyer	156.91	153.72	3.19 (-2.76,9.13)	0.294
		Enlisted Groundcrew	153.53	151.15	2.38 (-1.10,5.86)	0.181
13-49	α-2 Macroglobulin (mg/dl)[a]	All	133.35	134.00	-0.65 --	0.607
		Officer	132.08	133.10	-1.02 --	0.609
		Enlisted Flyer	135.74	139.06	-3.32 --	0.276
		Enlisted Groundcrew	133.53	133.06	0.47 --	0.803
13-51	Apolipoprotein B (mg/dl)[a]	All	147.55	147.77	-0.22 --	0.888
		Officer	144.35	144.37	-0.02 --	0.993
		Enlisted Flyer	151.04	156.55	-5.50 --	0.137
		Enlisted Groundcrew	149.02	147.82	1.20 --	0.621
13-53	C_3 Complement (mg/dl)[a]	All	114.14	114.36	-0.22 --	0.773
		Officer	111.52	111.07	0.45 --	0.690
		Enlisted Flyer	114.35	116.40	-2.05 --	0.298
		Enlisted Groundcrew	116.39	116.62	-0.23 --	0.840
13-55	C_4 Complement (mg/dl)[a]	All	21.73	21.80	-0.07 --	0.763
		Officer	21.15	21.28	-0.13 --	0.711
		Enlisted Flyer	22.21	21.85	0.36 --	0.565
		Enlisted Groundcrew	22.07	22.25	-0.19 --	0.573
13-57	Haptoglobin (mg/dl)	All	114.81	109.17	5.64 (1.77,9.51)	0.004
		Officer	105.72	101.97	3.75 (-2.19,9.69)	0.216
		Enlisted Flyer	123.56	118.67	4.89 (-5.38,15.16)	0.351
		Enlisted Groundcrew	119.29	112.20	7.09 (1.37,12.80)	0.015
13-59	Transferrin (mg/dl)[a]	All	295.29	291.65	3.64 --	0.042
		Officer	292.34	289.00	3.35 --	0.231
		Enlisted Flyer	292.64	296.18	-3.53 --	0.443
		Enlisted Groundcrew	298.92	292.43	6.49 --	0.016

Table Q-1-1. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Means		Difference of Means (95% C.I.)	p-Value
			RH	C		
15-6	Systolic Blood Pressure (mm Hg)	All	121.56	122.25	-0.69 (-2.25,0.87)	0.386
		Officer	123.57	123.38	0.19 (-2.42,2.79)	0.889
		Enlisted Flyer	121.81	122.15	-0.34 (-3.93,3.24)	0.852
		Enlisted Groundcrew	119.74	121.31	-1.57 (-3.85,0.72)	0.180
15-18	Diastolic Blood Pressure (mm Hg)	All	72.04	72.50	-0.47 (-1.29,0.35)	0.263
		Officer	72.27	72.34	-0.06 (-1.42,1.30)	0.932
		Enlisted Flyer	72.41	72.90	-0.49 (-2.61,1.62)	0.647
		Enlisted Groundcrew	71.68	75.51	-0.82 (-2.00,0.35)	0.170
16-3	Red Blood Cell (RBC) Count (million/mm^3)	All	5.009	5.028	-0.019 (-0.052,0.013)	0.243
		Officer	4.956	4.964	-0.007 (-0.059,0.044)	0.779
		Enlisted Flyer	4.986	5.050	-0.064 (-0.140,0.013)	0.105
		Enlisted Groundcrew	5.063	5.076	-0.014 (-0.062,0.035)	0.585
16-5	White Blood Cell (WBC) Count (thousand/mm^3)[a]	All	7.15	7.06	0.09 --	0.305
		Officer	6.75	6.70	0.04 --	0.704
		Enlisted Flyer	7.37	7.35	0.02 --	0.924
		Enlisted Groundcrew	7.43	7.29	0.14 --	0.282
16-7	Hemoglobin (gm/dl)	All	15.87	15.86	0.01 (-0.08,0.10)	0.818
		Officer	15.81	15.76	0.04 (-0.09,0.18)	0.527
		Enlisted Flyer	15.87	15.93	-0.07 (-0.29,0.16)	0.553
		Enlisted Groundcrew	15.93	15.92	0.01 (-0.12,0.14)	0.912
16-9	Hematocrit (percent)	All	46.30	46.27	0.03 (-0.24,0.29)	0.839
		Officer	46.08	45.90	0.18 (-0.26,0.61)	0.426
		Enlisted Flyer	46.32	46.51	-0.19 (-0.86,0.49)	0.585
		Enlisted Groundcrew	46.48	46.51	-0.03 (-0.42,0.36)	0.888
16-11	Platelet Count (thousand/mm^3)[c]	All	251.3	246.2	5.1 --	0.030
		Officer	239.3	242.6	-3.3 --	0.343
		Enlisted Flyer	256.6	242.5	14.1 --	0.016
		Enlisted Groundcrew	259.8	250.7	9.2 --	0.011

Table Q-1-1. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Means RH	Means C	Difference of Means (95% C.I.)	p-Value
16-13	Prothrombin Time (seconds)[a]	All	11.93	11.92	0.01 --	0.765
		Officer	11.93	11.90	0.02 --	0.504
		Enlisted Flyer	11.97	11.91	0.06 --	0.479
		Enlisted Groundcrew	11.92	11.95	-0.03 --	0.358
16-16	Absolute Neutrophils (segs) (thousand/mm^3)[a]	All	4.012	3.951	0.062 --	0.315
		Officer	3.779	3.726	0.053 --	0.534
		Enlisted Flyer	4.119	4.141	-0.022 --	0.903
		Enlisted Groundcrew	4.183	4.089	0.094 --	0.320
16-17	Absolute Neutrophils (bands) (thousand/mm^3)[a] (Nonzero Measurements)	All	0.188	0.186	0.001 --	0.860
		Officer	0.190	0.178	0.011 --	0.312
		Enlisted Flyer	0.174	0.202	-0.028 --	0.110
		Enlisted Groundcrew	0.192	0.189	0.003 --	0.762
16-18	Absolute Lymphocytes (thousand/mm^3)[a]	All	1.937	1.946	-0.009 --	0.771
		Officer	1.814	1.837	-0.024 --	0.585
		Enlisted Flyer	1.972	2.024	-0.052 --	0.541
		Enlisted Groundcrew	2.036	2.017	0.019 --	0.679
16-19	Absolute Monocytes (thousand/mm^3)[c]	All	0.462	0.453	0.009 --	0.390
		Officer	0.461	0.447	0.014 --	0.416
		Enlisted Flyer	0.456	0.459	-0.003 --	0.900
		Enlisted Groundcrew	0.466	0.457	0.009 --	0.549
16-20	Absolute Eosinophils (thousand/mm^3)[a] (Nonzero Measurements)	All	0.169	0.172	-0.004 --	0.502
		Officer	0.167	0.170	-0.003 --	0.720
		Enlisted Flyer	0.163	0.182	-0.018 --	0.200
		Enlisted Groundcrew	0.172	0.171	0.001 --	0.873
16-21	Absolute Basophils (thousand/mm^3)[a] (Nonzero Measurements)	All	0.091	0.089	0.002 --	0.500
		Officer	0.088	0.085	0.003 --	0.348
		Enlisted Flyer	0.089	0.097	-0.008 --	0.186
		Enlisted Groundcrew	0.093	0.090	0.003 --	0.318

Table Q-1-1. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Means RH	Means C	Difference of Means (95% C.I.)	p-Value
17-8	Serum Creatinine (mg/dl)[a]	All	0.9741	0.9737	0.0005 --	0.943
		Officer	0.9792	0.9795	-0.0002 --	0.981
		Enlisted Flyer	0.9616	0.9572	0.0044 --	0.777
		Enlisted Groundcrew	0.9746	0.9744	0.0002 --	0.988
17-9	Urine Specific Gravity	All	1.0187	1.0189	-0.0002 (-0.0007,0.0003)	0.489
		Officer	1.0183	1.0181	0.0002 (-0.0007,0.0010)	0.662
		Enlisted Flyer	1.0177	1.0187	-0.0010 (-0.0025,0.0005)	0.190
		Enlisted Groundcrew	1.0195	1.0197	-0.0002 (-0.0010,0.0006)	0.597
18-6	Time to Diabetes Onset (years)[d]	All	--	--	-0.0050 (0.0482)[d]	0.917
		Officer	--	--	-0.0836 (0.0759)[d]	0.271
		Enlisted Flyer	--	--	0.1095 (0.1107)[d]	0.323
		Enlisted Groundcrew	--	--	0.0192 (0.0755)[d]	0.800
18-8	Testicular Volume: Minimum (cm^3)	All	15.94	15.90	0.03 (-0.43,0.50)	0.887
		Officer	15.72	15.63	0.09 (-0.66,0.84)	0.814
		Enlisted Flyer	15.80	15.89	-0.09 (-1.23,1.05)	0.877
		Enlisted Groundcrew	16.17	16.14	0.03 (-0.65,0.71)	0.929
18-9	Testicular Volume: Total (cm^3)[c]	All	33.90	34.04	-0.14 --	0.766
		Officer	33.40	33.76	-0.36 --	0.639
		Enlisted Flyer	33.86	34.45	-0.59 --	0.611
		Enlisted Groundcrew	34.35	34.13	0.21 --	0.753
18-19	Thyroid Stimulating Hormone (TSH) (μIU/ml)[a]	All	1.62	1.57	0.05 --	0.275
		Officer	1.73	1.65	0.08 --	0.269
		Enlisted Flyer	1.47	1.51	-0.04 --	0.710
		Enlisted Groundcrew	1.59	1.53	0.06 --	0.367
18-21	Thyroxine (T_4) (μg/dl)	All	7.79	7.83	-0.04 (-0.15,0.07)	0.499
		Officer	7.50	7.61	-0.11 (-0.28,0.07)	0.224
		Enlisted Flyer	7.97	7.95	0.02 (-0.24,0.28)	0.877
		Enlisted Groundcrew	7.98	7.98	-0.01 (-0.18,0.17)	0.948

Table Q-1-1. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Means		Difference of Means (95% C.I.)	p-Value
			RH	C		
18-24	Fasting Glucose (mg/dl)[a] (All Participants)	All	104.29	104.34	-0.05 --	0.954
		Officer	105.13	104.01	1.12 --	0.414
		Enlisted Flyer	103.95	107.44	-3.49 --	0.149
		Enlisted Groundcrew	103.71	103.56	0.14 --	0.914
18-26	Fasting Glucose (mg/dl)[a] (Diabetics)	All	140.11	143.54	-3.43 --	0.533
		Officer	141.34	147.92	-6.59 --	0.472
		Enlisted Flyer	141.79	144.54	-2.75 --	0.841
		Enlisted Groundcrew	138.36	140.21	-1.85 --	0.820
18-28	Fasting Glucose (mg/dl)[a] (Nondiabetics)	All	99.02	99.06	-0.04 --	0.925
		Officer	99.75	99.33	0.42 --	0.491
		Enlisted Flyer	98.22	100.75	-2.52 --	0.015
		Enlisted Groundcrew	98.70	98.24	0.46 --	0.451
18-30	2-Hour Postprandial Glucose (mg/dl)[a] (Nondiabetics)	All	103.90	103.27	0.63 --	0.630
		Officer	103.61	101.18	2.43 --	0.219
		Enlisted Flyer	106.60	108.54	-1.94 --	0.554
		Enlisted Groundcrew	103.14	103.44	-0.30 --	0.884
18-36	Serum Insulin (mIU/ml)[a] (All Participants)	All	42.64	41.77	0.88 --	0.581
		Officer	42.25	38.23	4.03 --	0.096
		Enlisted Flyer	42.65	46.91	-4.26 --	0.303
		Enlisted Groundcrew	42.68	43.02	-0.34 --	0.887
18-38	Serum Insulin (mIU/ml)[a] (Diabetics)	All	59.78	50.70	9.08 --	0.102
		Officer	70.41	55.68	14.74 --	0.163
		Enlisted Flyer	50.02	46.05	3.96 --	0.723
		Enlisted Groundcrew	55.56	49.58	5.98 --	0.445
18-40	Serum Insulin (mIU/ml)[a] (Nondiabetics)	All	73.88	74.17	-0.29 --	0.923
		Officer	69.90	66.07	3.83 --	0.374
		Enlisted Flyer	75.63	85.27	-9.64 --	0.225
		Enlisted Groundcrew	74.29	75.99	-1.70 --	0.703

Table Q-1-1. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Means		Difference of Means (95% C.I.)	p-Value
			RH	C		
18-42	Serum Glucagon (pg/ml)[a] (All Participants)	All	61.81	62.54	-0.73 --	0.316
		Officer	61.60	62.11	-0.51 --	0.660
		Enlisted Flyer	59.33	63.03	-3.71 --	0.031
		Enlisted Groundcrew	62.95	62.68	0.28 --	0.802
18-44	Serum Glucagon (pg/ml)[a] (Diabetics)	All	66.62	65.30	1.33 --	0.599
		Officer	66.11	64.19	1.92 --	0.640
		Enlisted Flyer	60.11	65.83	-5.72 --	0.313
		Enlisted Groundcrew	69.84	65.88	3.96 --	0.310
18-46	Serum Glucagon (pg/ml)[a] (Nondiabetics)	All	57.09	58.09	-0.99 --	0.146
		Officer	56.61	57.62	-1.01 --	0.355
		Enlisted Flyer	55.24	58.23	-2.98 --	0.067
		Enlisted Groundcrew	57.73	57.92	-0.19 --	0.851
18-48	α-1-C Hemoglobin (percent)[a] (All Participants)	All	7.16	7.16	0.00 --	0.978
		Officer	7.09	7.06	0.03 --	0.702
		Enlisted Flyer	7.25	7.38	-0.13 --	0.343
		Enlisted Groundcrew	7.19	7.18	0.01 --	0.851
18-50	α-1-C Hemoglobin (percent)[a] (Diabetics)	All	9.02	9.01	0.01 --	0.984
		Officer	8.89	8.92	-0.03 --	0.943
		Enlisted Flyer	8.99	9.33	-0.34 --	0.635
		Enlisted Groundcrew	9.15	8.95	0.20 --	0.628
18-52	α-1-C Hemoglobin (percent)[a] (Nondiabetics)	All	6.88	6.90	-0.02 --	0.431
		Officer	6.81	6.85	-0.04 --	0.375
		Enlisted Flyer	6.96	7.01	-0.05 --	0.563
		Enlisted Groundcrew	6.90	6.90	0.00 --	0.871
18-55	Serum Proinsulin (ng/ml)[c] (Diabetics)	All	0.777	0.820	-0.044 --	0.634
		Officer	0.752	0.986	-0.234 --	0.142
		Enlisted Flyer	0.691	0.667	0.024 --	0.902
		Enlisted Groundcrew	0.833	0.779	0.054 --	0.694

Table Q-1-1. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Means RH	Means C	Difference of Means (95% C.I.)	p-Value
18-57	Serum C Peptide (ng/ml) (Diabetics)	All	9.39	8.71	0.68 (-0.31,1.67)	0.180
		Officer	9.32	9.01	0.31 (-1.35,1.97)	0.712
		Enlisted Flyer	8.83	8.07	0.76 (-1.57,3.08)	0.523
		Enlisted Groundcrew	9.66	8.77	0.89 (-0.59,2.37)	0.237
18-59	Total Testosterone (ng/dl)[c]	All	510.7	498.0	12.7 --	0.108
		Officer	497.4	484.5	12.9 --	0.277
		Enlisted Flyer	526.7	488.7	38.0 --	0.055
		Enlisted Groundcrew	516.1	513.4	2.7 --	0.829
18-61	Free Testosterone (pg/ml)[c]	All	18.70	18.31	0.39 --	0.138
		Officer	17.55	17.24	0.31 --	0.429
		Enlisted Flyer	19.19	18.28	0.91 --	0.145
		Enlisted Groundcrew	19.52	19.29	0.23 --	0.576
18-65	Estradiol (pg/ml)[c]	All	32.16	32.17	-0.01 --	0.992
		Officer	31.24	31.60	-0.36 --	0.679
		Enlisted Flyer	32.68	31.69	0.99 --	0.498
		Enlisted Groundcrew	32.77	32.83	-0.06 --	0.943
18-67	Luteinizing Hormone (LH) (mIU/ml)[a]	All	4.02	3.88	0.14 --	0.121
		Officer	4.09	3.91	0.18 --	0.228
		Enlisted Flyer	4.11	3.88	0.23 --	0.328
		Enlisted Groundcrew	3.92	3.84	0.07 --	0.566
18-69	Follicle Stimulating Hormone (FSH) (mIU/ml)[a]	All	4.41	4.33	0.08 --	0.535
		Officer	4.66	4.54	0.12 --	0.581
		Enlisted Flyer	4.63	4.30	0.33 --	0.330
		Enlisted Groundcrew	4.12	4.16	-0.04 --	0.812
19-5	CD3 Cells (cells/mm^3)[a]	All	1,481.0	1,458.0	23.0 --	0.584
		Officer	1,474.0	1,326.5	147.5 --	0.039
		Enlisted Flyer	1,436.6	1,545.9	-109.3 --	0.450
		Enlisted Groundcrew	1,542.8	1,485.0	57.8 --	0.390

Table Q-1-1. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Means		Difference of Means (95% C.I.)	p-Value
			RH	C		
19-6	CD4 Cells (cells/mm^3)[a]	All	953.5	938.2	15.3 --	0.581
		Officer	964.5	873.0	91.5 --	0.054
		Enlisted Flyer	909.3	992.5	-83.2 --	0.400
		Enlisted Groundcrew	998.9	976.9	55.0 --	0.217
19-7	CD5 Cells (cells/mm^3)[a]	All	1,530.7	1,501.2	29.5 --	0.497
		Officer	1,524.7	1,366.7	158.0 --	0.035
		Enlisted Flyer	1,480.7	1,586.5	105.8 --	0.495
		Enlisted Groundcrew	1,595.9	1,526.6	69.3 --	0.310
19-8	CD8 Cells (cells/mm^3)[a]	All	628.3	633.0	-4.7 --	0.817
		Officer	617.7	593.3	24.4 --	0.470
		Enlisted Flyer	603.8	700.9	-97.1 --	0.053
		Enlisted Groundcrew	651.1	641.4	9.7 --	0.746
19-9	CD14 Cells (cells/mm^3)[a]	All	520.8	523.3	-2.5 --	0.934
		Officer	524.3	494.0	30.3 --	0.146
		Enlisted Flyer	517.5	538.0	-20.5 --	0.615
		Enlisted Groundcrew	524.8	535.7	-10.9 --	0.591
19-10	CD16+56 Cells (cells/mm^3)[a]	All	255.0	266.6	-11.6 --	0.253
		Officer	268.4	251.8	16.6 --	0.337
		Enlisted Flyer	221.5	278.0	-56.5 --	0.097
		Enlisted Groundcrew	258.6	268.9	-10.3 --	0.541
19-11	CD20 Cells (cells/mm^3)[c]	All	228.6	217.2	11.3 --	0.194
		Officer	206.6	189.8	16.8 --	0.159
		Enlisted Flyer	228.8	235.9	-7.1 --	0.771
		Enlisted Groundcrew	253.9	234.3	19.6 --	0.154
19-12	CD25 Cells (cells/mm^3)[a]	All	256.9	256.4	0.5 --	0.953
		Officer	250.9	232.2	18.7 --	0.213
		Enlisted Flyer	227.6	261.3	-33.7 --	0.244
		Enlisted Groundcrew	280.6	258.9	21.7 --	0.163

Table Q-1-1. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Means		Difference of Means (95% C.I.)	p-Value
			RH	C		
19-13	CD4-CD8 Ratio[a]	All	1.534	1.487	0.047 --	0.295
		Officer	1.538	1.501	0.037 --	0.631
		Enlisted Flyer	1.517	1.432	0.085 --	0.367
		Enlisted Groundcrew	1.536	1.497	0.039 --	0.549
19-14	Double Labelled Cells: CD3 with CD25 (cells/mm^3)[a]	All	202.6	202.3	0.3 --	0.966
		Officer	195.9	181.9	14.1 --	0.250
		Enlisted Flyer	175.2	207.0	-31.8 --	0.151
		Enlisted Groundcrew	226.0	204.2	21.8 --	0.102
19-15	Double Labelled Cells: CD5 with CD20 (cells/mm^3)[a] (Nonzero Measurements)	All	54.2	51.8	2.4 --	0.424
		Officer	47.9	44.3	3.6 --	0.430
		Enlisted Flyer	48.0	50.6	-2.6 --	0.802
		Enlisted Groundcrew	65.2	54.7	10.5 --	0.046
19-16	Double Labelled Cells: CD4 with CD8 (cells/mm^3)[a] (Nonzero Measurements)	All	30.0	30.5	-0.5 --	0.765
		Officer	29.0	30.6	-1.6 --	0.498
		Enlisted Flyer	30.5	29.4	1.1 --	0.733
		Enlisted Groundcrew	30.9	30.8	0.1 --	0.946
19-17	Double Labelled Cells: CD3 with CD16+56 (cells/mm^3)[a] (Nonzero Measurements)	All	72.2	71.7	0.4 --	0.931
		Officer	74.8	68.2	6.6 --	0.449
		Enlisted Flyer	77.3	65.0	12.3 --	0.424
		Enlisted Groundcrew	64.8	72.9	-8.1 --	0.465
19-18	TLC (cells/mm^3)[a]	All	2,059.4	2,050.1	9.3 --	0.851
		Officer	2,002.3	1,881.1	121.2 --	0.129
		Enlisted Flyer	2,002.4	2,108.0	-105.6 --	0.531
		Enlisted Groundcrew	2,175.3	2,100.0	75.3 --	0.373
19-19	IgA[a]	All	217.2	218.4	-1.2 --	0.787
		Officer	211.4	214.1	-2.7 --	0.701
		Enlisted Flyer	214.0	214.8	-0.8 --	0.943
		Enlisted Groundcrew	223.6	223.3	0.3 --	0.962

Table Q-1-1. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Means		Difference of Means (95% C.I.)	p-Value
			RH	C		
19-20	IgG[a]	All	1,032.1	1,051.7	-19.6 --	0.058
		Officer	1,014.5	1,036.6	-22.1 --	0.157
		Enlisted Flyer	1,003.7	1,046.7	-43.0 --	0.104
		Enlisted Groundcrew	1,059.2	1,066.6	-7.4 --	0.643
19-21	IgM[a]	All	103.9	105.5	-1.6 --	0.498
		Officer	104.3	103.4	0.9 --	0.825
		Enlisted Flyer	100.3	109.5	-9.2 --	0.141
		Enlisted Groundcrew	104.9	106.1	-1.2 --	0.748
20-8	FVC (Percent of Predicted)	All	100.1	100.5	-0.3 (-1.5,0.9)	0.607
		Officer	101.6	102.4	-0.8 (-2.7,1.2)	0.439
		Enlisted Flyer	99.8	98.5	1.3 (-1.7,4.3)	0.393
		Enlisted Groundcrew	99.0	99.5	-0.5 (-2.3,1.3)	0.597
20-9	FEV_1 (Percent of Predicted)	All	94.6	95.3	-0.7 (-2.2,0.7)	0.329
		Officer	95.7	96.8	-1.1 (-3.4,1.2)	0.352
		Enlisted Flyer	91.3	92.2	-0.9 (-4.4,2.7)	0.638
		Enlisted Groundcrew	94.8	95.1	-0.2 (-2.4,1.9)	0.826
20-10	Ratio of Observed FEV_1 to Observed FVC[f]	All	0.760	0.762	-0.002 --	0.569
		Officer	0.752	0.755	-0.004 --	0.450
		Enlisted Flyer	0.741	0.753	-0.012 --	0.193
		Enlisted Groundcrew	0.774	0.771	0.003 --	0.496

[a] Means transformed from natural logarithm scale; difference of means after transformation to original scale; confidence interval not given because analysis was performed on natural logarithm scale; p-value based on difference of means on natural logarithm scale.

[b] Means transformed from natural logarithm (clinical parameter + 0.1) scale; difference of means after transformation to original scale; confidence interval not given because analysis was performed on natural logarithm (clinical parameter + 0.1) scale; p-value based on difference of means on natural logarithm (clinical parameter + 0.1) scale.

[c] Means transformed from square root scale; difference of means after transformation to original scale; confidence interval not given because analysis was performed on square root scale; p-value based on difference of means on square root scale.

[d] Coefficient and standard error for Ranch Hand versus Comparison contrast in a failure time analysis model, using a censored Weibull distribution.

[e] Means transformed from natural logarithm (clinical parameter + 1) scale; difference of means after transformation to original scale; confidence interval not given because analysis was performed on natural logarithm (clinical parameter + 1) scale; p-value based on difference of means on natural logarithm (clinical parameter + 1) scale.

[f] Means after transformation to original scale; confidence interval not given because analysis was performed on natural logarithm (1 - clinical parameter) scale; p-value based on difference of means on natural logarithm (1 - clinical parameter) scale.

Note: RH = Ranch Hand.
C = Comparison.

Table Q-1-2.
Summary of Unadjusted Results for Continuous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Ref.	Clinical Parameter (units)	R^2	Slope (Std. Error)[a]	p-Value[a]
9-6	Body Fat (Percent)[b]	0.726	-0.0028 (0.0040)	0.484
9-7	Body Fat (Percent) with Adjustment for Caloric Intake[b]	0.726	-0.0028 (0.0040)	0.484
9-10	Sedimentation Rate (mm/hr)[c]	0.007	0.0070 (0.0099)	0.732
10-40	Prostate-Specific Antigen (ng/ml)[b] (Measurements at or Above Sensitivity Limit)	0.052	-0.086 (0.026)	0.001
11-28	Vibrotactile Threshold Measurement of Right Great Toe (microns)[b]	0.002	-0.0473 (0.0384)	0.218
11-29	Vibrotactile Threshold Measurement of Left Great Toe (microns)[b]	0.030	-0.0720 (0.0383)	0.061
13-12	AST (U/L)[b]	0.009	0.0113 (0.0124)	0.362
13-14	ALT (U/L)[b]	0.038	0.0244 (0.0154)	0.113
13-16	GGT (U/L)[b]	0.020	0.0117 (0.0212)	0.581
13-18	Alkaline Phosphatase (U/L)[b]	0.009	0.0050 (0.0083)	0.547
13-20	Total Bilirubin (mg/dl)[b]	0.005	-0.0125 (0.0140)	0.374
13-23	LDH (U/L)[b]	0.007	0.0020 (0.0058)	0.735
13-25	Cholesterol (mg/dl)[b]	0.004	0.0076 (0.0061)	0.215
13-27	HDL Cholesterol (mg/dl)[b]	0.045	-0.0176 (0.0083)	0.035
13-29	Cholesterol-HDL Ratio[b]	0.035	0.0234 (0.0092)	0.012
13-31	Triglycerides (mg/dl)[b]	0.033	0.0366 (0.0190)	0.055
13-33	Creatine Kinase (U/L)[b]	0.032	0.0114 (0.0173)	0.512
13-35	Serum Amylase (U/L)[b]	0.058	-0.0290 (0.0118)	0.014
13-41	Prealbumin (mg/dl)	0.034	-0.0073 (0.1474)	0.961
13-43	Albumin (mg/dl)	0.043	15.9199 (10.1567)	0.118
13-45	α-1 Acid Glycoprotein (mg/dl)[b]	0.010	0.0023 (0.0070)	0.745
13-47	α-1 Antitrypsin (mg/dl)	0.020	0.9889 (0.8901)	0.267
13-49	α-2 Macroglobulin (mg/dl)[b]	0.051	-0.0020 (0.0073)	0.784
13-51	Apolipoprotein B (mg/dl)[b]	0.005	0.0130 (0.0082)	0.112
13-53	C_3 Complement (mg/dl)[b]	0.074	0.0099 (0.0048)	0.041
13-55	C_4 Complement (mg/dl)[b]	0.008	0.0020 (0.0083)	0.814
13-57	Haptoglobin (mg/dl)	0.006	1.4844 (1.5109)	0.326
13-59	Transferrin (mg/dl)[b]	0.003	0.0047 (0.0045)	0.297
15-6	Systolic Blood Pressure (mm Hg)	0.080	-0.721 (0.597)	0.227

Table Q-1-2. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Ref.	Clinical Parameter (units)	R^2	Slope (Std. Error)[a]	p-Value[a]
15-18	Diastolic Blood Pressure (mm Hg)	0.037	0.288 (0.322)	0.671
16-3	Red Blood Cell (RBC) Count (million/mm^3)	0.021	0.0201 (0.0130)	0.122
16-5	White Blood Cell (WBC) Count (thousand/mm^3)[b]	0.012	0.0161 (0.0097)	0.100
16-7	Hemoglobin (gm/dl)	0.009	0.0792 (0.0361)	0.029
16-9	Hematocrit (percent)	0.011	0.2647 (0.1085)	0.015
16-11	Platelet Count (thousand/mm^3)[d]	0.029	0.1270 (0.0566)	0.025
16-13	Prothrombin Time (seconds)[b]	0.040	0.0013 (0.0014)	0.337
16-16	Absolute Neutrophils (segs) (thousand/mm^3)[b]	0.018	0.0184 (0.0128)	0.151
16-17	Absolute Neutrophils (bands) (thousand/mm^3)[b] (Nonzero Measurements)	<0.001	0.0035 (0.0304)	0.909
16-18	Absolute Lymphocytes (thousand/mm^3)[b]	0.006	0.0129 (0.0129)	0.318
16-19	Absolute Monocytes (thousand/mm^3)[d]	0.014	0.0107 (0.0059)	0.069
16-20	Absolute Eosinophils (thousand/mm^3)[b] (Nonzero Measurements)	0.006	0.0036 (0.0271)	0.894
16-21	Absolute Basophils (thousand/mm^3)[b] (Nonzero Measurements)	0.016	0.0429 (0.0204)	0.037
17-8	Serum Creatinine (mg/dl)[b]	0.005	-0.0093 (0.0066)	0.161
17-9	Urine Specific Gravity	0.028	0.0003 (0.0002)	0.142
18-6	Time to Diabetes Onset (years)[e]	--	0.0017 (0.0309)	0.957
18-8	Testicular Volume: Minimum (cm^3)	0.001	-0.1166 (0.1954)	0.551
18-9	Testicular Volume: Total (cm^3)[d]	0.001	-0.0202 (0.0329)	0.540
18-19	Thyroid Stimulating Hormone (TSH) (μIU/ml)[b]	0.005	0.0043 (0.0215)	0.841
18-21	Thyroxine (T_4) (μg/dl)	0.008	0.0465 (0.0432)	0.282
18-24	Fasting Glucose (mg/dl)[b] (All Participants)	0.095	0.0119 (0.0073)	0.101
18-26	Fasting Glucose (mg/dl)[b] (Diabetics)	0.134	0.0529 (0.0242)	0.031
18-28	Fasting Glucose (mg/dl)[b] (Nondiabetics)	0.024	-0.0035 (0.0033)	0.290
18-30	2-Hour Postprandial Glucose (mg/dl)[b] (Nondiabetics)	0.067	0.0078 (0.0107)	0.464
18-36	Serum Insulin (mIU/ml)[b] (All Participants)	0.218	0.0208 (0.0289)	0.472
18-38	Serum Insulin (mIU/ml)[b] (Diabetics)	0.537	-0.0911 (0.0619)	0.144
18-40	Serum Insulin (mIU/ml)[b] (Nondiabetics)	0.121	0.0639 (0.0321)	0.048
18-42	Serum Glucagon (pg/ml)[b] (All Participants)	0.047	0.0079 (0.0092)	0.392

Table Q-1-2. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Ref.	Clinical Parameter (units)	R^2	Slope (Std. Error)[a]	p-Value[a]
18-44	Serum Glucagon (pg/ml)[b] (Diabetics)	0.022	-0.0169 (0.0259)	0.515
18-46	Serum Glucagon (pg/ml)[b] (Nondiabetics)	0.011	0.0180 (0.0095)	0.060
18-48	α-1-C Hemoglobin (percent)[b] (All Participants)	0.070	0.0106 (0.0061)	0.082
18-50	α-1-C Hemoglobin (percent)[b] (Diabetics)	0.113	0.0360 (0.0199)	0.074
18-52	α-1-C Hemoglobin (percent)[b] (Nondiabetics)	0.008	-0.0001 (0.0032)	0.984
18-55	Serum Proinsulin (ng/ml)[d] (Diabetics)	0.426	0.007 (0.025)	0.764
18-57	Serum C Peptide (ng/ml) (Diabetics)	0.636	-0.469 (0.309)	0.133
18-59	Total Testosterone (ng/dl)[d]	0.114	0.0286 (0.1289)	0.825
18-61	Free Testosterone (pg/ml)[d]	0.070	0.030 (0.023)	0.187
18-65	Estradiol (pg/ml)[d]	0.011	0.064 (0.039)	0.101
18-67	Luteinizing Hormone (LH) (mIU/ml)[b]	0.025	-0.040 (0.016)	0.012
18-69	Follicle Stimulating Hormone (FSH) (mIU/ml)[b]	0.009	-0.035 (0.022)	0.109
19-5	CD3 Cells (cells/mm^3)[b]	0.476	0.013 (0.026)	0.627
19-6	CD4 Cells (cells/mm^3)[b]	0.465	0.010 (0.027)	0.705
19-7	CD5 Cells (cells/mm^3)[b]	0.479	0.016 (0.027)	0.545
19-8	CD8 Cells (cells/mm^3)[b]	0.001	0.008 (0.028)	0.763
19-9	CD14 Cells (cells/mm^3)[b]	0.394	0.028 (0.024)	0.249
19-10	CD16+56 Cells (cells/mm^3)[b]	0.408	-0.007 (0.041)	0.870
19-11	CD20 Cells (cells/mm^3)[f]	0.036	0.058 (0.033)	0.079
19-12	CD25 Cells (cells/mm^3)[b]	0.511	0.021 (0.035)	0.540
19-13	CD4-CD8 Ratio[b]	0.008	0.004 (0.025)	0.881
19-14	Double Labelled Cells: CD3 with CD25 (cell/mm^3)[b]	0.511	0.005 (0.038)	0.891
19-15	Double Labelled Cells: CD5 with CD20 (cell/mm^3)[b] (Nonzero Measurements)	0.457	0.089 (0.058)	0.131
19-16	Double Labelled Cells: CD4 with CD8 (cell/mm^3)[b] (Nonzero Measurements)	0.006	0.036 (0.037)	0.337
19-17	Double Labelled Cells: CD3 with CD16+56 (cell/mm^3)[b] (Nonzero Measurements)	0.438	-0.138 (0.071)	0.055
19-18	TLC (cell/mm^3)[b]	0.452	0.024 (0.022)	0.282
19-19	IgA (mg/dl)[b]	0.010	0.020 (0.016)	0.211
19-20	IgG (mg/dl)[b]	0.001	0.005 (0.008)	0.551
19-21	IgM (mg/dl)[b]	0.004	0.023 (0.019)	0.230

Table Q-1-2. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Ref.	Clinical Parameter (units)	R^2	Slope (Std. Error)[a]	p-Value[a]
20-8	FVC (Percent of Predicted)	0.040	-0.471 (0.458)	0.305
20-9	FEV_1 (Percent of Predicted)	0.006	0.125 (0.568)	0.826
20-10	Ratio of Observed FEV_1 to Observed FVC[g]	0.052	-0.029 (0.011)	0.008

[a] Adjusted for percent body fat at the time of duty in SEA and change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin.

[b] Slope and standard error based on natural logarithm of clinical parameter versus log_2 (initial dioxin).

[c] Slope and standard error based on natural logarithm of (clinical parameter + 0.1) versus log_2 (initial dioxin).

[d] Slope and standard error based on square root of clinical parameter versus log_2 (initial dioxin).

[e] Slope and standard error based on time to diabetes onset versus log_2 (initial dioxin) under a censored Weibull distribution.

[f] Slope and standard error based on natural logarithm of (clinical parameter + 1) versus log_2 (initial dioxin).

[g] Slope and standard error based on natural logarithm of (1 - clinical parameter) versus log_2 (initial dioxin).

--: R-squared not presented because analysis was based on a censored Weibull distribution.

Table Q-1-3.
Summary of Unadjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Mean[a]	Difference of Mean vs. Comparisons (95% C.I.)	p-Value
9-6	Body Fat (Percent)[b]	0.781	Comparison	1,063	22.01		
			Background RH	374	21.76	-0.25 --	0.085
			Low RH	260	22.09	0.08 --	0.616
			High RH	260	21.82	-0.19 --	0.263
			Low plus High RH	520	21.96	-0.05 --	0.691
9-7	Body Fat (Percent) with Adjustment for Caloric Intake[b]	0.787	Comparison	1,063	22.01		
			Background RH	374	21.76	-0.25 --	0.085
			Low RH	260	22.09	0.08 --	0.616
			High RH	260	21.82	-0.19 --	0.293
			Low plus High RH	520	21.96	-0.05 --	0.691
9-10	Sedimentation Rate (mm/hr)[c]	0.021	Comparison	1,063	8.05		
			Background RH	374	7.89	-0.16 --	0.697
			Low RH	260	8.91	0.85 --	0.093
			High RH	260	8.70	0.64 --	0.203
			Low plus High RH	520	8.80	0.75 --	0.057
10-40	Prostate-Specific Antigen (ng/ml)[b] (Measurements at or Above Sensitivity Limit)	0.010	Comparison	1,030	1.044		
			Background RH	362	1.032	-0.012 --	0.800
			Low RH	249	1.098	0.054 --	0.342
			High RH	252	0.910	-0.134 --	0.010
			Low plus High RH	501	1.003	-0.040 --	0.287
11-28	Vibrotactile Threshold Measurement of Right Great Toe (microns)[b]	0.016	Comparison	1,059	17.05		
			Background RH	373	16.47	-0.58 --	0.620
			Low RH	258	18.27	1.22 --	0.384
			High RH	257	16.03	-1.02 --	0.438
			Low plus High RH	515	17.11	0.06 --	0.953
11-29	Vibrotactile Threshold Measurement of Left Great Toe (microns)[b]	0.025	Comparison	1,060	16.93		
			Background RH	373	17.24	0.31 --	0.797
			Low RH	258	18.80	1.87 --	0.189
			High RH	257	15.94	-0.99 --	0.453
			Low plus High RH	515	17.31	0.38 --	0.719

Table Q-1-3. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Mean[a]	Difference of Mean vs. Comparisons (95% C.I.)	p-Value
13-14	ALT (U/L)[b]	0.048	Comparison	1,043	27.76		
			Background RH	369	25.91	-1.85 --	0.011
			Low RH	257	27.27	-0.48 --	0.571
			High RH	258	27.82	0.06 --	0.944
			Low plus High RH	515	27.54	-0.21 --	0.749
13-16	GGT (U/L)[b]	0.032	Comparison	1,043	31.97		
			Background RH	369	30.12	-1.85 --	0.119
			Low RH	257	34.47	2.50 --	0.085
			High RH	258	34.70	2.73 --	0.061
			Low plus High RH	515	34.58	2.61 --	0.020
13-18	Alkaline Phosphatase (U/L)[b]	0.009	Comparison	1,043	68.34		
			Background RH	369	69.53	1.20 --	0.267
			Low RH	257	72.13	3.80 --	0.002
			High RH	258	71.24	2.90 --	0.020
			Low plus High RH	515	71.69	3.35 --	0.001
13-20	Total Bilirubin (mg/dl)[b]	0.006	Comparison	1,043	0.63		
			Background RH	369	0.64	0.01 --	0.721
			Low RH	257	0.62	-0.01 --	0.561
			High RH	258	0.59	-0.04 --	0.033
			Low plus High RH	515	0.61	-0.02 --	0.080
13-23	LDH (U/L)[b]	0.014	Comparison	1,042	145.87		
			Background RH	369	145.56	-0.31 --	0.843
			Low RH	257	146.09	0.22 --	0.904
			High RH	258	144.96	-0.91 --	0.612
			Low plus High RH	515	145.53	-0.35 --	0.803
13-25	Cholesterol (mg/dl)[b]	0.005	Comparison	1,043	214.44		
			Background RH	369	214.04	-0.40 --	0.864
			Low RH	257	214.77	0.33 --	0.901
			High RH	258	218.20	3.76 --	0.159
			Low plus High RH	515	216.48	2.04 --	0.323

Table Q-1-3. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Mean[a]	Difference of Mean vs. Comparisons (95% C.I.)	p-Value
13-27	HDL Cholesterol (mg/dl)[b]	0.058	Comparison	1,033	40.78		
			Background RH	365	41.49	0.72 --	0.247
			Low RH	253	40.89	0.11 --	0.872
			High RH	253	39.13	-1.65 --	0.017
			Low plus High RH	506	40.00	-0.78 --	0.150
13-29	Cholesterol-HDL Ratio[b]	0.049	Comparison	1,033	5.25		
			Background RH	365	5.15	-0.10 --	0.253
			Low RH	253	5.24	-0.01 --	0.936
			High RH	253	5.55	0.30 --	0.004
			Low plus High RH	506	5.40	0.14 --	0.073
13-31	Triglycerides (mg/dl)[b]	0.059	Comparison	1,043	145.69		
			Background RH	369	139.43	-6.26 --	0.188
			Low RH	257	145.96	0.27 --	0.962
			High RH	258	161.08	15.39 --	0.008
			Low plus High RH	515	153.33	7.64 --	0.083
13-33	Creatine Kinase (U/L)[b]	0.042	Comparison	1,043	128.30		
			Background RH	369	126.97	-1.33 --	0.750
			Low RH	257	127.95	-0.35 --	0.941
			High RH	258	129.17	0.87 --	0.857
			Low plus High RH	515	128.56	0.26 --	0.945
13-35	Serum Amylase (U/L)[b]	0.042	Comparison	1,043	73.63		
			Background RH	369	71.73	-1.90 --	0.223
			Low RH	257	76.74	3.11 --	0.092
			High RH	258	71.39	-2.24 --	0.208
			Low plus High RH	515	74.02	0.39 --	0.783
13-41	Prealbumin (mg/dl)	0.019	Comparison	1,043	27.72		
			Background RH	369	27.59	-0.13 (-0.66,0.41)	0.642
			Low RH	257	27.65	-0.07 (-0.68,0.54)	0.828
			High RH	258	27.84	0.12 (-0.49,0.73)	0.691
			Low plus High RH	515	27.75	0.03 (-0.44,0.50)	0.908

Table Q-1-3. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Mean[a]	Difference of Mean vs. Comparisons (95% C.I.)	p-Value
13-43	Albumin (mg/dl)	0.029	Comparison	1,043	3,949.03		
			Background RH	369	3,921.21	-27.83 (-63.85,8.20)	0.130
			Low RH	257	3,922.34	-26.70 (-67.83,14.44)	0.203
			High RH	258	3,982.08	33.04 (-8.13,74.20)	0.116
			Low plus High RH	515	3,952.21	3.17 (-28.71,35.05)	0.846
13-45	α-1 Acid Glycoprotein (mg/dl)[b]	0.005	Comparison	1,043	56.38		
			Background RH	369	55.14	-1.24 --	0.097
			Low RH	257	57.20	0.82 --	0.344
			High RH	258	57.73	1.35 --	0.122
			Low plus High RH	515	57.46	1.08 --	0.108
13-47	α-1 Antitrypsin (mg/dl)	0.019	Comparison	1,043	149.67		
			Background RH	369	151.35	1.68 (-1.60,4.96)	0.315
			Low RH	257	151.17	1.50 (-2.25,5.25)	0.433
			High RH	258	151.60	1.93 (-1.82,5.67)	0.314
			Low plus High RH	515	151.39	1.71 (-1.19,4.62)	0.248
13-49	α-2 Macroglobulin (mg/dl)[b]	0.033	Comparison	1,043	134.27		
			Background RH	369	134.15	-0.12 --	0.944
			Low RH	257	132.47	-1.80 --	0.368
			High RH	258	131.85	-2.42 --	0.226
			Low plus High RH	515	132.16	-2.11 --	0.173
13-51	Apolipoprotein B (mg/dl)[b]	0.005	Comparison	1,043	147.56		
			Background RH	369	145.06	-2.50 --	0.246
			Low RH	257	146.21	-1.35 --	0.585
			High RH	258	151.54	3.97 --	0.115
			Low plus High RH	515	148.85	1.29 --	0.505
13-53	C_3 Complement (mg/dl)[b]	0.103	Comparison	1,043	114.40		
			Background RH	369	111.53	-2.87 --	0.004
			Low RH	257	115.79	1.39 --	0.233
			High RH	258	116.53	2.13 --	0.068
			Low plus High RH	515	116.16	1.76 --	0.051

Table Q-1-3. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Mean[a]	Difference of Mean vs. Comparisons (95% C.I.)	p-Value
13-55	C_4 Complement (mg/dl)[b]	0.011	Comparison	1,043	21.76		
			Background RH	369	21.46	-0.30 --	0.347
			Low RH	257	21.94	0.18 --	0.619
			High RH	258	21.69	-0.07 --	0.857
			Low plus High RH	515	21.82	0.06 --	0.838
13-57	Haptoglobin (mg/dl)	0.007	Comparison	1,043	109.08		
			Background RH	369	111.26	2.18 (-3.20,7.56)	0.427
			Low RH	257	112.73	3.65 (-2.49,9.79)	0.244
			High RH	258	118.43	9.35 (3.21,15.50)	0.003
			Low plus High RH	515	115.58	6.50 (1.74,11.26)	0.007
13-59	Transferrin (mg/dl)[b]	0.010	Comparison	1,043	291.27		
			Background RH	369	290.82	-0.45 --	0.859
			Low RH	257	297.13	5.86 --	0.044
			High RH	258	300.68	9.40 --	0.001
			Low plus High RH	515	298.90	7.63 --	0.001
15-6	Systolic Blood Pressure (mm Hg)	0.079	Comparison	1,046	122.32		
			Background RH	370	122.18	-0.15 (-2.27,1.98)	0.893
			Low RH	254	122.36	0.04 (-2.41,2.48)	0.977
			High RH	259	120.70	-1.62 (-4.05,0.81)	0.191
			Low plus High RH	513	121.52	-0.80 (-2.68,1.09)	0.407
15-18	Diastolic Blood Pressure (mm Hg)	0.003	Comparison	1,046	72.43		
			Background RH	370	72.02	-0.41 (-1.56,0.74)	0.484
			Low RH	254	71.92	-0.52 (-1.83,0.80)	0.444
			High RH	259	72.46	0.03 (-1.28,1.34)	0.964
			Low plus High RH	513	72.19	-0.24 (-1.26,0.78)	0.643
16-3	Red Blood Cell (RBC) Count (million/mm^3)	0.022	Comparison	1,061	5.025		
			Background RH	371	5.000	-0.025 (-0.070,0.021)	0.289
			Low RH	259	4.989	-0.036 (-0.088,0.016)	0.175
			High RH	258	5.018	-0.007 (-0.059,0.045)	0.801
			Low plus High RH	517	5.003	-0.021 (-0.062,0.019)	0.299

Table Q-1-3. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Mean[a]	Difference of Mean vs. Comparisons (95% C.I.)	p-Value
16-5	White Blood Cell (WBC) Count (thousand/mm^3)[b]	0.005	Comparison	1,061	7.05		
			Background RH	371	7.03	-0.02 --	0.838
			Low RH	259	7.05	0.00 --	0.999
			High RH	258	7.31	0.26 --	0.058
			Low plus High RH	517	7.18	0.13 --	0.221
16-7	Hemoglobin (gm/dl)	0.005	Comparison	1,061	15.86		
			Background RH	371	15.87	0.01 (-0.11,0.13)	0.876
			Low RH	259	15.75	-0.11 (-0.24,0.03)	0.128
			High RH	258	15.96	0.10 (-0.04,0.24)	0.159
			Low plus High RH	517	15.85	0.00 (-0.11,0.10)	0.941
16-9	Hematocrit (percent)	0.005	Comparison	1,061	46.25		
			Background RH	371	46.29	0.04 (-0.33,0.41)	0.835
			Low RH	259	45.89	-0.36 (-0.78,0.07)	0.100
			High RH	258	46.52	0.27 (-0.15,0.70)	0.209
			Low plus High RH	517	46.21	-0.04 (-0.37,0.29)	0.802
16-11	Platelet Count (thousand/mm^3)[d]	0.025	Comparison	1,060	245.7		
			Background RH	371	245.1	-0.6 --	0.855
			Low RH	259	247.3	1.6 --	0.669
			High RH	258	260.8	15.1 --	<0.001
			Low plus High RH	517	254.0	8.3 --	0.004
16-13	Prothrombin Time (seconds)[b]	0.010	Comparison	979	11.92		
			Background RH	342	11.95	0.03 --	0.328
			Low RH	234	11.88	-0.05 --	0.171
			High RH	240	11.91	-0.01 --	0.662
			Low plus High RH	474	11.89	-0.03 --	0.245
16-16	Absolute Neutrophils (segs) (thousand/mm^3)[b]	0.004	Comparison	1,061	3.956		
			Background RH	371	3.928	-0.028 --	0.738
			Low RH	259	3.938	-0.018 --	0.848
			High RH	258	4.145	0.189 --	0.063
			Low plus High RH	517	4.041	0.085 --	0.281

Table Q-1-3. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Mean[a]	Difference of Mean vs. Comparisons (95% C.I.)	p-Value
16-17	Absolute Neutrophils (bands) (thousand/mm^3)[b] (Nonzero Measurements)	0.008	Comparison	886	0.188		
			Background RH	308	0.189	0.001 --	0.962
			Low RH	213	0.188	0.000 --	0.990
			High RH	215	0.187	-0.001 --	0.905
			Low plus High RH	428	0.187	-0.001 --	0.932
16-18	Absolute Lymphocytes (thousand/mm^3)[b]	0.004	Comparison	1,061	1.930		
			Background RH	371	1.909	-0.021 --	0.608
			Low RH	259	1.909	-0.021 --	0.660
			High RH	258	1.960	0.030 --	0.539
			Low plus High RH	517	1.934	0.004 --	0.911
16-19	Absolute Monocytes (thousand/mm^3)[d]	0.004	Comparison	1,061	0.448		
			Background RH	371	0.462	0.014 --	0.348
			Low RH	259	0.446	-0.002 --	0.895
			High RH	258	0.480	0.032 --	0.064
			Low plus High RH	517	0.463	0.015 --	0.266
16-20	Absolute Eosinophils (thousand/mm^3)[b] (Nonzero Measurements)	0.002	Comparison	936	0.173		
			Background RH	337	0.175	0.002 --	0.785
			Low RH	230	0.164	-0.009 --	0.316
			High RH	231	0.161	-0.012 --	0.171
			Low plus High RH	461	0.163	-0.010 --	0.126
16-21	Absolute Basophils (thousand/mm^3)[b] (Nonzero Measurements)	0.007	Comparison	572	0.089		
			Background RH	201	0.092	0.003 --	0.370
			Low RH	144	0.085	-0.004 --	0.262
			High RH	143	0.092	0.003 --	0.333
			Low plus High RH	287	0.088	-0.001 --	0.918
17-8	Serum Creatinine (mg/dl)[b]	0.005	Comparison	1,063	0.9716		
			Background RH	374	0.9676	-0.0041 --	0.678
			Low RH	260	0.9894	0.0178 --	0.116
			High RH	260	0.9600	-0.0116 --	0.298
			Low plus High RH	520	0.9746	0.0030 --	0.728

Table Q-1-3. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Mean[a]	Difference of Mean vs. Comparisons (95% C.I.)	p-Value
17-9	Urine Specific Gravity	0.020	Comparison	1,062	1.0189		
			Background RH	374	1.0186	-0.0003 (-0.0011,0.0004)	0.385
			Low RH	259	1.0186	-0.0003 (-0.0011,0.0006)	0.528
			High RH	259	1.0190	0.0001 (-0.0008,0.0009)	0.852
			Low plus High RH	518	1.0188	-0.0001 (-0.0008,0.0006)	0.774
18-6	Time to Diabetes Onset (years)[e]	--	Comparison	1,059	--		
			Background RH	374	--	0.0477 (0.0741)[e]	0.520
			Low RH	258	--	-0.0777 (0.0700)[e]	0.267
			High RH	260	--	-0.0119 (0.0711)[e]	0.867
			Low plus High RH	518	--	-0.0443 (0.0559)[e]	0.428
18-8	Testicular Volume: Minimum (cm^3)	0.001	Comparison	1,057	15.90		
			Background RH	368	15.91	0.01 (-0.64,0.66)	0.973
			Low RH	256	15.86	-0.05 (-0.79,0.70)	0.901
			High RH	257	15.93	0.02 (-0.72,0.77)	0.950
			Low plus High RH	513	15.89	-0.01 (-0.59,0.57)	0.968
18-9	Testicular Volume: Total (cm^3)[d]	0.001	Comparison	1,057	34.08		
			Background RH	368	33.96	-0.12 --	0.857
			Low RH	256	33.74	-0.34 --	0.653
			High RH	257	33.69	-0.39 --	0.601
			Low plus High RH	513	33.72	-0.36 --	0.529
18-19	Thyroid Stimulating Hormone (TSH) (μIU/ml)[b]	0.001	Comparison	1,027	1.58		
			Background RH	365	1.64	0.07 --	0.293
			Low RH	254	1.60	0.02 --	0.777
			High RH	255	1.64	0.06 --	0.376
			Low plus High RH	509	1.62	0.04 --	0.450
18-21	Thyroxine (T_4) (μg/dl)	0.003	Comparison	1,027	7.80		
			Background RH	365	7.70	-0.10 (-0.26,0.06)	0.218
			Low RH	254	7.85	0.05 (-0.14,0.23)	0.617
			High RH	255	7.82	0.02 (-0.16,0.20)	0.831
			Low plus High RH	509	7.83	0.03 (-0.11,0.17)	0.646

Table Q-1-3. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Mean[a]	Difference of Mean vs. Comparisons (95% C.I.)	p-Value
18-24	Fasting Glucose (mg/dl)[b] (All Participants)	0.073	Comparison	1,060	104.02		
			Background RH	374	104.20	0.18 --	0.881
			Low RH	258	103.97	-0.05 --	0.971
			High RH	260	105.58	1.56 --	0.266
			Low plus High RH	518	104.77	0.75 --	0.486
18-26	Fasting Glucose (mg/dl)[b] (Diabetics)	0.056	Comparison	148	141.80		
			Background RH	42	135.64	-6.16 --	0.463
			Low RH	49	132.19	-9.62 --	0.210
			High RH	47	155.41	13.61 --	0.108
			Low plus High RH	96	143.09	1.28 --	0.838
18-28	Fasting Glucose (mg/dl)[b] (Nondiabetics)	0.025	Comparison	912	98.91		
			Background RH	332	99.56	0.66 --	0.235
			Low RH	209	99.11	0.21 --	0.752
			High RH	213	98.03	-0.87 --	0.180
			Low plus High RH	422	98.57	-0.34 --	0.507
18-30	2-Hour Postprandial Glucose (mg/dl)[b] (Nondiabetics)	0.065	Comparison	911	103.05		
			Background RH	331	102.28	-0.77 --	0.657
			Low RH	209	104.05	1.00 --	0.633
			High RH	213	105.13	2.07 --	0.322
			Low plus High RH	422	104.59	1.54 --	0.340
18-36	Serum Insulin (mIU/ml)[b] (All Participants)	0.184	Comparison	1,060	39.93		
			Background RH	374	38.39	-1.54 --	0.430
			Low RH	258	42.23	2.30 --	0.327
			High RH	260	42.91	2.99 --	0.208
			Low plus High RH	518	42.57	2.64 --	0.148
18-38	Serum Insulin (mIU/ml)[b] (Diabetics)	0.442	Comparison	148	52.80		
			Background RH	42	61.89	9.08 --	0.317
			Low RH	49	68.73	15.93 --	0.073
			High RH	47	50.42	-2.38 --	0.759
			Low plus High RH	96	59.05	6.25 --	0.340

Table Q-1-3. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Mean[a]	Difference of Mean vs. Comparisons (95% C.I.)	p-Value
18-40	Serum Insulin (mIU/ml)[b] (Nondiabetics)	0.132	Comparison	912	67.20		
			Background RH	332	62.62	-4.58 --	0.170
			Low RH	209	67.08	-0.12 --	0.977
			High RH	213	74.68	7.48 --	0.083
			Low plus High RH	422	70.81	3.61 --	0.266
18-42	Serum Glucagon (pg/ml)[b] (All Participants)	0.060	Comparison	957	62.70		
			Background RH	336	61.40	-1.30 --	0.197
			Low RH	228	61.47	-1.24 --	0.289
			High RH	224	62.60	-0.10 --	0.931
			Low plus High RH	452	62.03	-0.67 --	0.457
18-44	Serum Glucagon (pg/ml)[b] (Diabetics)	0.063	Comparison	132	66.15		
			Background RH	38	68.71	2.56 --	0.534
			Low RH	45	66.28	0.13 --	0.972
			High RH	38	63.14	-3.02 --	0.440
			Low plus High RH	83	64.82	-1.33 --	0.657
18-46	Serum Glucagon (pg/ml)[b] (Nondiabetics)	0.005	Comparison	825	58.17		
			Background RH	298	56.57	-1.60 --	0.087
			Low RH	183	56.54	-1.63 --	0.146
			High RH	186	58.79	0.62 --	0.585
			Low plus High RH	369	57.66	-0.51 --	0.560
18-48	α-1-C Hemoglobin (percent)[b] (All Participants)	0.041	Comparison	1,060	7.16		
			Background RH	374	7.13	-0.02 --	0.725
			Low RH	258	7.16	0.00 --	0.971
			High RH	260	7.23	0.03 --	0.330
			Low plus High RH	518	7.20	0.04 --	0.513
18-50	α-1-C Hemoglobin (percent)[b] (Diabetics)	0.044	Comparison	148	8.89		
			Background RH	42	8.69	-0.20 --	0.629
			Low RH	49	8.78	-0.11 --	0.778
			High RH	47	9.70	0.81 --	0.053
			Low plus High RH	96	9.22	0.33 --	0.301

Table Q-1-3. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Mean[a]	Difference of Mean vs. Comparisons (95% C.I.)	p-Value
18-52	α-1-C Hemoglobin (percent)[b] (Nondiabetics)	0.008	Comparison	912	6.91		
			Background RH	332	6.89	-0.02 --	0.742
			Low RH	209	6.86	-0.05 --	0.350
			High RH	213	6.83	-0.08 --	0.095
			Low plus High RH	422	6.85	-0.06 --	0.091
18-55	Serum Proinsulin (ng/ml)[d] (Diabetics)	0.232	Comparison	143	0.847		
			Background RH	39	0.690	-0.157 --	0.278
			Low RH	46	0.794	-0.053 --	0.699
			High RH	45	0.822	-0.024 --	0.862
			Low plus High RH	91	0.808	-0.039 --	0.722
18-57	Serum C Peptide (ng/ml) (Diabetics)	0.572	Comparison	143	8.62		
			Background RH	39	8.66	0.04 (-1.55,1.63)	0.962
			Low RH	46	10.40	1.78 (0.32,3.23)	0.017
			High RH	45	8.95	0.32 (-1.15,1.80)	0.668
			Low plus High RH	91	9.68	1.06 (-0.10,2.21)	0.073
18-59	Total Testosterone (ng/dl)[d]	0.099	Comparison	1,056	498.3		
			Background RH	364	521.4	23.0 --	0.031
			Low RH	256	510.5	12.2 --	0.314
			High RH	259	492.3	-6.0 --	0.614
			Low plus High RH	515	501.3	3.0 --	0.749
18-61	Free Testosterone (pg/ml)[d]	0.058	Comparison	1,056	18.32		
			Background RH	364	18.30	-0.02 --	0.954
			Low RH	256	18.52	0.20 --	0.640
			High RH	259	19.21	0.89 --	0.033
			Low plus High RH	515	18.86	0.54 --	0.093
18-65	Estradiol (pg/ml)[d]	0.005	Comparison	1,063	32.27		
			Background RH	374	31.66	-0.61 --	0.448
			Low RH	260	31.81	-0.46 --	0.618
			High RH	260	32.84	0.57 --	0.539
			Low plus High RH	520	32.32	0.05 --	0.941

Table Q-1-3. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Mean[a]	Difference of Mean vs. Comparisons (95% C.I.)	p-Value
18-67	Luteinizing Hormone (LH) (mIU/ml)[b]	0.023	Comparison	1,063	3.86		
			Background RH	374	4.00	0.14 --	0.265
			Low RH	260	4.27	0.41 --	0.006
			High RH	260	3.72	-0.14 --	0.310
			Low plus High RH	520	3.99	0.13 --	0.265
18-69	Follicle Stimulating Hormone (FSH) (mIU/ml)[b]	0.012	Comparison	1,063	4.30		
			Background RH	374	4.43	0.13 --	0.465
			Low RH	260	4.67	0.37 --	0.079
			High RH	260	4.13	-0.17 --	0.377
			Low plus High RH	520	4.39	0.09 --	0.575
19-5	CD3 Cells (cells/mm^3)[b]	0.140	Comparison	404	1,440.3		
			Background RH	141	1,499.7	59.4 --	0.321
			Low RH	95	1,387.1	-53.2 --	0.428
			High RH	108	1,509.0	68.7 --	0.298
			Low plus High RH	203	1,450.7	10.4 --	0.841
19-6	CD4 Cells (cells/mm^3)[b]	0.134	Comparison	404	921.8		
			Background RH	141	960.4	38.6 --	0.330
			Low RH	95	889.6	-32.2 --	0.468
			High RH	108	972.5	50.7 --	0.246
			Low plus High RH	203	932.8	11.0 --	0.747
19-7	CD5 Cells (cells/mm^3)[b]	0.133	Comparison	404	1,481.8		
			Background RH	141	1,539.7	57.9 --	0.348
			Low RH	95	1,425.1	-56.7 --	0.412
			High RH	108	1,568.7	86.9 --	0.204
			Low plus High RH	203	1,499.8	18.0 --	0.737
19-8	CD8 Cells (cells/mm^3)[b]	0.002	Comparison	404	629.0		
			Background RH	141	639.1	10.1 --	0.734
			Low RH	95	603.8	-25.2 --	0.447
			High RH	108	625.6	-3.4 --	0.916
			Low plus High RH	203	615.3	-13.7 --	0.588

Table Q-1-3. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Mean[a]	Difference of Mean vs. Comparisons (95% C.I.)	p-Value
19-9	CD14 Cells (cells/mm^3)[b]	0.152	Comparison	404	523.5		
			Background RH	141	535.1	11.6 --	0.581
			Low RH	95	483.7	-39.8 --	0.033
			High RH	108	515.0	-8.5 --	0.586
			Low plus High RH	203	500.1	-23.4 --	0.092
19-10	CD16+56 Cells (cells/mm^3)[b]	0.140	Comparison	404	261.4		
			Background RH	141	254.8	-6.6 --	0.647
			Low RH	95	241.7	-19.7 --	0.232
			High RH	108	244.4	-17.0 --	0.277
			Low plus High RH	203	243.2	-18.2 --	0.143
19-11	CD20 Cells (cells/mm^3)[f]	0.010	Comparison	404	213.5		
			Background RH	141	228.9	15.4 --	0.203
			Low RH	95	210.8	-2.7 --	0.836
			High RH	108	235.4	21.9 --	0.105
			Low plus High RH	203	223.5	10.0 --	0.336
19-12	CD25 Cells (cells/mm^3)[b]	0.256	Comparison	404	248.8		
			Background RH	141	254.0	5.2 --	0.680
			Low RH	95	244.2	-4.6 --	0.753
			High RH	108	255.2	6.4 --	0.647
			Low plus High RH	203	250.0	1.2 --	0.913
19-13	CD4-CD8 Ratio[b]	0.008	Comparison	404	1.488		
			Background RH	141	1.504	0.016 --	0.799
			Low RH	95	1.541	0.053 --	0.470
			High RH	108	1.553	0.065 --	0.357
			Low plus High RH	203	1.548	0.060 --	0.286
19-14	Double Labelled Cells: CD3 with CD25 (cells/mm^3)[b]	0.241	Comparison	404	196.0		
			Background RH	141	201.1	5.1 --	0.635
			Low RH	95	193.7	-2.3 --	0.850
			High RH	108	202.0	6.0 --	0.614
			Low plus High RH	203	198.1	2.1 --	0.827

Table Q-1-3. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Mean[a]	Difference of Mean vs. Comparisons (95% C.I.)	p-Value
19-15	Double Labelled Cells: CD5 with CD20 (cells/mm^3)[b] (Nonzero Measurements)	0.122	Comparison	386	50.6		
			Background RH	137	49.8	-0.8 --	0.842
			Low RH	87	51.8	1.2 --	0.808
			High RH	104	59.2	8.6 --	0.084
			Low plus High RH	191	53.7	5.1 --	0.189
19-16	Double Labelled Cells: CD4 with CD8 (cells/mm^3)[b] (Nonzero Measurements)	0.007	Comparison	361	29.4		
			Background RH	126	31.7	2.35 --	0.283
			Low RH	85	26.4	-3.00 --	0.190
			High RH	95	27.9	-1.46 --	0.518
			Low plus High RH	180	27.2	-2.20 --	0.211
19-17	Double Labelled Cells: CD3 with CD16+56 (cells/mm^3)[b] (Nonzero Measurements)	0.153	Comparison	390	72.1		
			Background RH	137	78.8	6.7 --	0.355
			Low RH	93	78.3	6.2 --	0.458
			High RH	101	62.0	-10.1 --	0.158
			Low plus High RH	194	69.3	-2.8 --	0.645
19-18	TLC (cells/mm^3)[b]	0.141	Comparison	404	2,021.7		
			Background RH	141	2,059.2	37.5 --	0.587
			Low RH	95	1,956.9	-64.8 --	0.409
			High RH	108	2,065.1	43.4 --	0.568
			Low plus High RH	203	2,013.7	-8.0 --	0.894
19-19	IgA (mg/dl)[b]	0.005	Comparison	1,051	220.4		
			Background RH	367	216.5	-3.9 --	0.529
			Low RH	256	215.6	-4.8 --	0.490
			High RH	255	220.2	-0.2 --	0.987
			Low plus High RH	511	217.8	-2.6 --	0.648
19-20	IgG (mg/dl)[b]	0.004	Comparison	1,051	1,051.7		
			Background RH	367	1,030.4	-21.3 --	0.140
			Low RH	256	1,035.0	-16.8 --	0.310
			High RH	255	1,033.0	-18.7 --	0.258
			Low plus High RH	511	1,034.0	-17.7 --	0.165

Table Q-1-3. (Continued)
Summary of Unadjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Mean[a]	Difference of Mean vs. Comparisons (95% C.I.)	p-Value
19-21	IgM (mg/dl)[b]	0.005	Comparison	1,051	104.8		
			Background RH	367	105.4	0.6 --	0.863
			Low RH	256	102.7	-2.1 --	0.610
			High RH	255	103.4	-1.4 --	0.731
			Low plus High RH	511	103.1	-1.7 --	0.581
20-8	FVC (Percent of Predicted)	0.049	Comparison	1,062	100.5		
			Background RH	373	101.2	0.7 (-1.0,2.3)	0.439
			Low RH	260	99.2	-1.3 (-3.2,0.7)	0.196
			High RH	260	99.2	-1.3 (-3.2,0.6)	0.179
			Low plus High RH	520	99.2	-1.3 (-2.8,0.2)	0.089
20-9	FEV_1 (Percent of Predicted)	0.003	Comparison	1,062	95.3		
			Background RH	373	94.6	-0.7 (-2.8,1.3)	0.492
			Low RH	260	93.9	-1.4 (-3.7,1.0)	0.257
			High RH	260	94.9	-0.4 (-2.8,2.0)	0.743
			Low plus High RH	520	94.4	-0.9 (-2.7,0.9)	0.345
20-10	Ratio of Observed FEV_1 to Observed FVC[g]	0.052	Comparison	1,062	0.762		
			Background RH	373	0.750	-0.012 --	0.009
			Low RH	260	0.762	0.000 --	0.990
			High RH	260	0.774	0.012 --	0.022
			Low plus High RH	520	0.768	0.006 --	0.136

[a] Adjusted for percent body fat at the time of duty in SEA and change in percent body fat at the time of duty in SEA to the date of the blood draw for dioxin.

[b] Means transformed from natural logarithm scale; difference of means after transformation to original scale; confidence interval not given because analysis was performed on natural logarithm scale; p-value based on difference of means on natural logarithm scale.

[c] Means transformed from natural logarithm (clinical parameter + 0.1) scale; difference of means after transformation to original scale; confidence interval not given because analysis was performed on natural logarithm (clinical parameter + 0.1) scale; p-value based on difference of means on natural logarithm (clinical parameter + 0.1) scale.

[d] Means transformed from square root scale; difference of means after transformation to original scale; confidence interval not given because analysis was performed on square root scale; p-value based on difference of means on square root scale.

[e] Coefficient and standard error for Ranch Hand versus Comparison contrast in a failure time analysis model, using a censored Weibull distrubution.

[f] Means transformed from natural logarithm (clinical parameter + 1) scale; difference of means after transformation to original scale; confidence interval not given because analysis was performed on natural logarithm (clinical parameter + 1) scale; p-value based on difference of means on natural logarithm (clinical parameter + 1) scale.

[g] Means transformed from natural logarithm (1 - clinical parameter) scale; difference of means after transformation to original scale; confidence interval not given because analysis was performed on natural logarithm (1 - clinical parameter) scale; p-value based on difference of means on natural logarithm (1 - clinical parameter) scale.

Note: RH = Ranch Hand.
Comparison: Current Dioxin $\leq$ 10 ppt.
Background (Ranch Hand): Current Dioxin $\leq$ 10 ppt.
Low (Ranch Hand): Current Dioxin $>$ 10 ppt, 10 ppt $<$ Initial Dioxin $\leq$ 143 ppt.
High (Ranch Hand): Current Dioxin $>$ 10 ppt, Initial Dioxin $>$ 143 ppt.

Table Q-1-4.
Summary of Unadjusted Results for Continuous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter (units)	Model[a]	R^2	Slope (Std. Error)	p-Value
9-6	Body Fat (Percent)[b]	4	0.086	0.0471 (0.0051)	<0.001
		5	0.096	0.0427 (0.0044)	<0.001
		6	0.092	0.0412 (0.0047)	<0.001
9-7	Body Fat (Percent) with Adjustment for Caloric Intake[b]	4	0.086	0.0471 (0.0051)	<0.001
		5	0.096	0.0427 (0.0044)	<0.001
		6	0.092	0.0412 (0.0047)	<0.001
9-10	Sedimentation Rate (mm/hr)[c]	4	0.007	0.0490 (0.0199)	0.014
		5	0.011	0.0541 (0.0170)	0.001
		6	0.029	0.0309 (0.0182)	0.090
10-40	Prostate-Specific Antigen (ng/ml)[b] (Measurements at or Above Sensitivity Limit)	4	0.009	-0.049 (0.017)	0.005
		5	0.009	-0.042 (0.015)	0.005
		6	0.010	-0.041 (0.016)	0.010
11-28	Vibrotactile Threshold Measurement of Right Great Toe (microns)[b]	4	<0.001	0.0017 (0.0271)	0.950
		5	<0.001	0.0067 (0.0232)	0.772
		6	0.002	-0.0082 (0.0251)	0.744
11-29	Vibrotactile Threshold Measurement of Left Great Toe (microns)[b]	4	<0.001	-0.0106 (0.0274)	0.698
		5	<0.001	-0.0056 (0.0235)	0.813
		6	0.001	-0.0150 (0.0254)	0.557
13-12	AST (U/L)[b]	4	0.002	0.0116 (0.0084)	0.166
		5	0.003	0.0120 (0.0072)	0.095
		6	0.005	0.0088 (0.0077)	0.253
13-14	ALT (U/L)[b]	4	0.023	0.0476 (0.0104)	<0.001
		5	0.025	0.0429 (0.0090)	<0.001
		6	0.025	0.0410 (0.0097)	<0.001
13-16	GGT (U/L)[b]	4	0.018	0.0578 (0.0142)	<0.001
		5	0.027	0.0604 (0.0122)	<0.001
		6	0.051	0.0395 (0.0130)	0.002
13-18	Alkaline Phosphatase (U/L)[b]	4	0.001	0.0063 (0.0059)	0.286
		5	0.001	0.0056 (0.0050)	0.266
		6	0.007	0.0024 (0.0054)	0.665
13-20	Total Bilirubin (mg/dl)[b]	4	0.001	-0.0088 (0.0093)	0.343
		5	<0.001	-0.0041 (0.0080)	0.607
		6	0.003	-0.0093 (0.0086)	0.281
13-23	LDH (U/L)[b]	4	0.002	0.0049 (0.0039)	0.211
		5	0.002	0.0042 (0.0033)	0.208
		6	0.002	0.0034 (0.0036)	0.341
13-25	Cholesterol (mg/dl)[b]	4	0.002	0.0058 (0.0041)	0.162
		5	0.019	0.0145 (0.0035)	<0.001
		6	0.272	-0.0054 (0.0033)	0.098

Table Q-1-4. (Continued)
Summary of Unadjusted Results for Continuous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter (units)	Model[a]	R^2	Slope (Std. Error)	p-Value
13-27	HDL Cholesterol (mg/dl)[b]	4	0.022	-0.0269 (0.0061)	<0.001
		5	0.027	-0.0255 (0.0052)	<0.001
		6	0.041	-0.0187 (0.0055)	0.001
13-29	Cholesterol-HDL Ratio[b]	4	0.024	0.0312 (0.0068)	<0.001
		5	0.049	0.0384 (0.0058)	<0.001
		6	0.226	0.0118 (0.0056)	0.035
13-31	Triglycerides (mg/dl)[b]	4	0.027	0.0649 (0.0130)	<0.001
		5	0.066	0.0888 (0.0109)	<0.001
		6	0.380	0.0196 (0.0096)	0.041
13-33	Creatine Kinase (U/L)[b]	4	0.006	0.0278 (0.0116)	0.017
		5	0.007	0.0253 (0.0100)	0.011
		6	0.006	0.0237 (0.0107)	0.027
13-35	Serum Amylase (U/L)[b]	4	0.005	-0.0171 (0.0082)	0.037
		5	0.006	-0.0164 (0.0070)	0.019
		6	0.011	-0.0104 (0.0075)	0.170
13-41	Prealbumin (mg/dl)	4	<0.001	-0.0193 (0.1040)	0.853
		5	0.001	0.0977 (0.0893)	0.274
		6	0.029	-0.0968 (0.0947)	0.307
13-43	Albumin (mg/dl)	4	<0.001	2.7200 (6.9959)	0.698
		5	0.001	4.4671 (6.0070)	0.457
		6	0.004	0.4077 (6.4688)	0.950
13-45	α-1 Acid Glycoprotein (mg/dl)[b]	4	0.004	0.0093 (0.0049)	0.060
		5	0.007	0.0103 (0.0042)	0.015
		6	0.021	0.0055 (0.0045)	0.221
13-47	α-1 Antitrypsin (mg/dl)	4	<0.001	-0.3957 (0.6371)	0.535
		5	0.001	-0.6233 (0.5469)	0.255
		6	0.001	-0.2962 (0.5870)	0.614
13-49	α-2 Macroglobulin (mg/dl)[b]	4	0.005	-0.0111 (0.0051)	0.029
		5	0.005	-0.0087 (0.0043)	0.046
		6	0.008	-0.0111 (0.0047)	0.018
13-51	Apolipoprotein B (mg/dl)[b]	4	0.007	0.0138 (0.0057)	0.016
		5	0.028	0.0244 (0.0048)	<0.001
		6	0.271	-0.0022 (0.0045)	0.624
13-53	C_3 Complement (mg/dl)[b]	4	0.051	0.0232 (0.0034)	<0.001
		5	0.073	0.0240 (0.0029)	<0.001
		6	0.119	0.0160 (0.0030)	<0.001
13-55	C_4 Complement (mg/dl)[b]	4	0.004	0.0102 (0.0056)	0.068
		5	0.009	0.0138 (0.0048)	0.004
		6	0.041	0.0038 (0.0051)	0.452

Table Q-1-4. (Continued)
Summary of Unadjusted Results for Continuous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter (units)	Model[a]	R^2	Slope (Std. Error)	p-Value
13-57	Haptoglobin (mg/dl)	4	0.002	1.3757 (1.0196)	0.178
		5	0.003	1.3748 (0.8754)	0.117
		6	0.010	0.7333 (0.9404)	0.436
13-59	Transferrin (mg/dl)[b]	4	0.007	0.0101 (0.0031)	0.001
		5	0.018	0.0108 (0.0027)	<0.001
		6	0.030	0.0074 (0.0028)	0.009
15-6	Systolic Blood Pressure (mm Hg)	4	0.004	0.777 (0.424)	0.067
		5	0.007	0.884 (0.365)	0.016
		6	0.009	0.616 (0.394)	0.119
15-18	Diastolic Blood Pressure (mm Hg)	4	0.009	0.643 (0.228)	0.005
		5	0.013	0.656 (0.196)	0.001
		6	0.016	0.492 (0.212)	0.020
16-3	Red Blood Cell (RBC) Count (million/mm^3)	4	0.004	0.0162 (0.0089)	0.072
		5	0.005	0.0157 (0.0077)	0.042
		6	0.008	0.0109 (0.0083)	0.188
16-5	White Blood Cell (WBC) Count (thousand/mm^3)[b]	4	0.002	0.0093 (0.0066)	0.162
		5	0.003	0.0086 (0.0057)	0.130
		6	0.013	0.0035 (0.0061)	0.571
16-7	Hemoglobin (gm/dl)	4	0.001	0.0237 (0.0244)	0.332
		5	0.002	0.0250 (0.0209)	0.232
		6	0.008	0.0088 (0.0225)	0.696
16-9	Hematocrit (percent)	4	0.001	0.0827 (0.0747)	0.268
		5	0.002	0.0827 (0.0640)	0.197
		6	0.006	0.0397 (0.0691)	0.565
16-11	Platelet Count (thousand/mm^3)[d]	4	0.005	0.0845 (0.0395)	0.033
		5	0.006	0.0800 (0.0339)	0.018
		6	0.009	0.0734 (0.0366)	0.045
16-13	Prothrombin Time (seconds)[b]	4	<0.001	-0.0002 (0.0009)	0.819
		5	0.001	-0.0007 (0.0008)	0.412
		6	0.011	0.0002 (0.0009)	0.814
16-16	Absolute Neutrophils (segs) (thousand/mm^3)[b]	4	0.003	0.0135 (0.0086)	0.116
		5	0.003	0.0120 (0.0074)	0.104
		6	0.010	0.0069 (0.0079)	0.387
16-17	Absolute Neutrophils (bands) (thousand/mm^3)[b] (Nonzero Measurements)	4	<0.001	-0.0108 (0.0201)	0.592
		5	<0.001	-0.0071 (0.0171)	0.679
		6	0.008	-0.0246 (0.0185)	0.185
16-18	Absolute Lymphocytes (thousand/mm^3)[b]	4	<0.001	0.0052 (0.0086)	0.549
		5	0.001	0.0055 (0.0074)	0.461
		6	0.006	0.0006 (0.0080)	0.939

Table Q-1-4. (Continued)
Summary of Unadjusted Results for Continuous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter (units)	Model[a]	R^2	Slope (Std. Error)	p-Value
16-19	Absolute Monocytes (thousand/mm^3)[d]	4	0.002	0.0054 (0.0041)	0.191
		5	0.002	0.0046 (0.0035)	0.190
		6	0.002	0.0040 (0.0038)	0.297
16-20	Absolute Eosinophils (thousand/mm^3)[b] (Nonzero Measurements)	4	0.002	-0.0243 (0.0181)	0.180
		5	0.002	-0.0206 (0.0154)	0.182
		6	0.003	-0.0264 (0.0166)	0.113
16-21	Absolute Basophils (thousand/mm^3)[b] (Nonzero Measurements)	4	<0.001	0.0056 (0.0143)	0.695
		5	<0.001	0.0060 (0.0123)	0.624
		6	0.013	-0.0062 (0.0132)	0.640
17-8	Serum Creatinine (mg/dl)[b]	4	<0.001	0.0011 (0.0042)	0.797
		5	<0.001	0.0021 (0.0036)	0.571
		6	<0.001	0.0007 (0.0039)	0.863
17-9	Urine Specific Gravity	4	0.007	0.0004 (0.0001)	0.013
		5	0.008	0.0003 (0.0001)	0.007
		6	0.008	0.0003 (0.0001)	0.027
18-6	Time to Diabetes Onset (years)[e]	4	--	-0.0694 (0.0238)	0.004
		5	--	-0.0734 (0.0216)	0.001
		6	--	-0.0506 (0.0228)	0.026
18-8	Testicular Volume: Minimum (cm^3)	4	<0.001	-0.0782 (0.1307)	0.550
		5	<0.001	-0.0285 (0.1122)	0.799
		6	0.002	-0.0880 (0.1211)	0.467
18-9	Testicular Volume: Total (cm^3)[d]	4	0.001	-0.0175 (0.0220)	0.426
		5	<0.001	-0.0094 (0.0189)	0.618
		6	0.002	-0.0194 (0.0204)	0.341
18-19	Thyroid Stimulating Hormone (TSH) (μIU/ml)[b]	4	<0.001	0.0087 (0.0145)	0.547
		5	0.001	0.0120 (0.0124)	0.334
		6	0.003	0.0060 (0.0134)	0.655
18-21	Thyroxine (T_4) (μg/dl)	4	0.003	0.0532 (0.0308)	0.085
		5	0.002	0.0384 (0.0264)	0.147
		6	0.003	0.0469 (0.0286)	0.101
18-24	Fasting Glucose (mg/dl)[b] (All Participants)	4	0.018	0.0185 (0.0046)	<0.001
		5	0.026	0.0193 (0.0039)	<0.001
		6	0.053	0.0116 (0.0042)	0.005
18-26	Fasting Glucose (mg/dl)[b] (Diabetics)	4	0.072	0.0603 (0.0185)	0.001
		5	0.089	0.0558 (0.0153)	<0.001
		6	0.117	0.0389 (0.0172)	0.025
18-28	Fasting Glucose (mg/dl)[b] (Nondiabetics)	4	<0.001	-0.0002 (0.0022)	0.943
		5	<0.001	0.0009 (0.0019)	0.650
		6	0.006	-0.0009 (0.0020)	0.656

Table Q-1-4. (Continued)
Summary of Unadjusted Results for Continuous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter (units)	Model[a]	R^2	Slope (Std. Error)	p-Value
18-30	2-Hour Postprandial Glucose (mg/dl)[b] (Nondiabetics)	4	0.018	0.0267 (0.0071)	<0.001
		5	0.026	0.0275 (0.0061)	<0.001
		6	0.037	0.0214 (0.0065)	0.001
18-36	Serum Insulin (mIU/ml)[b] (All Participants)	4	0.113	0.0989 (0.0205)	<0.001
		5	0.122	0.1008 (0.0175)	<0.001
		6	0.140	0.0726 (0.0186)	<0.001
18-38	Serum Insulin (mIU/ml)[b] (Diabetics)	4	0.478	-0.0442 (0.0501)	0.380
		5	0.478	-0.0325 (0.0418)	0.438
		6	0.478	-0.0337 (0.0473)	0.477
18-40	Serum Insulin (mIU/ml)[b] (Nondiabetics)	4	0.044	0.1259 (0.0218)	<0.001
		5	0.059	0.1263 (0.0187)	<0.001
		6	0.089	0.0960 (0.0196)	<0.001
18-42	Serum Glucagon (pg/ml)[b] (All Participants)	4	0.051	0.0111 (0.0062)	0.073
		5	0.054	0.0120 (0.0053)	0.023
		6	0.057	0.0084 (0.0057)	0.140
18-44	Serum Glucagon (pg/ml)[b] (Diabetics)	4	0.015	-0.0070 (0.0184)	0.705
		5	0.014	0.0009 (0.0153)	0.952
		6	0.029	-0.0093 (0.0171)	0.587
18-46	Serum Glucagon (pg/ml)[b] (Nondiabetics)	4	0.008	0.0143 (0.0064)	0.025
		5	0.009	0.0136 (0.0055)	0.013
		6	0.010	0.0117 (0.0059)	0.047
18-48	α-1-C Hemoglobin (percent)[b] (All Participants)	4	0.011	0.0123 (0.0038)	0.001
		5	0.016	0.0126 (0.0033)	<0.001
		6	0.036	0.0072 (0.0035)	0.042
18-50	α-1-C Hemoglobin (percent)[b] (Diabetics)	4	0.048	0.0391 (0.0149)	0.010
		5	0.050	0.0334 (0.0124)	0.008
		6	0.064	0.0241 (0.0141)	0.090
18-52	α-1-C Hemoglobin (percent)[b] (Nondiabetics)	4	<0.001	-0.0011 (0.0023)	0.625
		5	<0.001	-0.0002 (0.0020)	0.926
		6	0.005	-0.0015 (0.0021)	0.457
18-55	Serum Proinsulin (ng/ml)[d] (Diabetics)	4	0.363	0.032 (0.020)	0.113
		5	0.370	0.033 (0.016)	0.047
		6	0.382	0.020 (0.018)	0.288
18-57	Serum C Peptide (ng/ml) (Diabetics)	4	0.617	0.140 (0.240)	0.561
		5	0.617	0.138 (0.200)	0.489
		6	0.618	0.188 (0.226)	0.408
18-59	Total Testosterone (ng/dl)[d]	4	0.023	-0.4277 (0.0951)	<0.001
		5	0.035	-0.4561 (0.0811)	<0.001
		6	0.042	-0.3385 (0.0870)	<0.001

Table Q-1-4. (Continued)
Summary of Unadjusted Results for Continuous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter (units)	Model[a]	R^2	Slope (Std. Error)	p-Value
18-61	Free Testosterone (pg/ml)[d]	4	0.001	-0.014 (0.016)	0.383
		5	<0.001	-0.008 (0.014)	0.546
		6	0.001	-0.003 (0.015)	0.818
18-65	Estradiol (pg/ml)[d]	4	0.002	0.034 (0.027)	0.198
		5	0.002	0.028 (0.023)	0.226
		6	0.004	0.020 (0.025)	0.418
18-67	Luteinizing Hormone (LH) (mIU/ml)[b]	4	0.005	-0.024 (0.012)	0.035
		5	0.004	-0.019 (0.010)	0.052
		6	0.005	-0.023 (0.011)	0.035
18-69	Follicle Stimulating Hormone (FSH) (mIU/ml)[b]	4	0.001	-0.014 (0.016)	0.383
		5	<0.001	-0.006 (0.013)	0.640
		6	0.004	-0.018 (0.014)	0.226
19-5	CD3 Cells (cells/mm^3)[b]	4	0.296	-0.002 (0.017)	0.896
		5	0.296	-0.001 (0.015)	0.967
		6	0.300	-0.008 (0.016)	0.629
19-6	CD4 Cells (cells/mm^3)[b]	4	0.269	0.001 (0.017)	0.974
		5	0.269	0.003 (0.015)	0.866
		6	0.276	-0.007 (0.016)	0.647
19-7	CD5 Cells (cells/mm^3)[b]	4	0.282	0.003 (0.017)	0.865
		5	0.282	0.004 (0.015)	0.802
		6	0.285	-0.003 (0.016)	0.838
19-8	CD8 Cells (cells/mm^3)[b]	4	0.001	-0.009 (0.019)	0.639
		5	0.001	-0.009 (0.016)	0.592
		6	0.001	-0.009 (0.018)	0.602
19-9	CD14 Cells (cells/mm^3)[b]	4	0.241	-0.004 (0.014)	0.767
		5	0.240	0.000 (0.012)	0.985
		6	0.256	-0.012 (0.013)	0.383
19-10	CD16+56 Cells (cells/mm^3)[b]	4	0.241	-0.007 (0.024)	0.766
		5	0.241	-0.009 (0.020)	0.669
		6	0.241	-0.006 (0.022)	0.793
19-11	CD20 Cells (cells/mm^3)[f]	4	0.003	0.022 (0.020)	0.280
		5	0.004	0.021 (0.018)	0.250
		6	0.006	0.014 (0.019)	0.473
19-12	CD25 Cells (cells/mm^3)[b]	4	0.363	-0.004 (0.021)	0.848
		5	0.363	-0.001 (0.019)	0.960
		6	0.370	-0.014 (0.020)	0.482
19-13	CD4-CD8 Ratio[b]	4	0.001	0.011 (0.016)	0.510
		5	0.003	0.014 (0.014)	0.338
		6	0.013	0.003 (0.015)	0.833

Table Q-1-4. (Continued)
Summary of Unadjusted Results for Continuous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter (units)	Model[a]	R^2	Slope (Std. Error)	p-Value
19-14	Double Labelled Cells: CD3 with CD25 (cells/mm^3)[b]	4	0.365	-0.007 (0.023)	0.750
		5	0.365	-0.004 (0.020)	0.859
		6	0.372	-0.018 (0.022)	0.414
19-15	Double Labelled Cells: CD5 with CD20 (cells/mm^3)[b] (Nonzero Measurements)	4	0.274	0.078 (0.033)	0.017
		5	0.275	0.069 (0.028)	0.016
		6	0.276	0.062 (0.031)	0.044
19-16	Double Labelled Cells: CD4 with CD8 (cells/mm^3)[b] (Nonzero Measurements)	4	0.002	-0.021 (0.027)	0.443
		5	0.001	-0.021 (0.041)	0.614
		6	0.001	-0.028 (0.044)	0.522
19-17	Double Labelled Cells: CD3 with CD16+56 (cells/mm^3)[b] (Nonzero Measurements)	4	0.302	-0.102 (0.041)	0.014
		5	0.304	-0.093 (0.035)	0.009
		6	0.308	-0.074 (0.038)	0.053
19-18	TLC (cells/mm^3)[b]	4	0.269	0.005 (0.014)	0.702
		5	0.270	0.005 (0.012)	0.657
		6	0.274	-0.001 (0.013)	0.957
19-19	IgA (mg/dl)[b]	4	0.002	0.013 (0.011)	0.218
		5	0.001	0.007 (0.009)	0.455
		6	0.006	0.016 (0.010)	0.099
19-20	IgG (mg/dl)[b]	4	0.001	0.004 (0.005)	0.508
		5	<0.001	-0.001 (0.005)	0.892
		6	0.012	0.005 (0.005)	0.290
19-21	IgM (mg/dl)[b]	4	<0.001	0.001 (0.013)	0.914
		5	<0.001	-0.002 (0.011)	0.825
		6	0.005	0.005 (0.012)	0.698
20-8	FVC (Percent of Predicted)	4	0.011	-1.023 (0.323)	0.002
		5	0.012	-0.919 (0.277)	0.001
		6	0.016	-0.728 (0.299)	0.015
20-9	FEV_1 (Percent of Predicted)	4	<0.001	0.231 (0.405)	0.568
		5	<0.001	0.107 (0.347)	0.757
		6	0.008	0.437 (0.374)	0.243
20-10	Ratio of Observed FEV_1 to Observed FVC[g]	4	0.041	-0.046 (0.007)	<0.001
		5	0.035	-0.037 (0.006)	<0.001
		6	0.042	-0.043 (0.007)	<0.001

[a] Model 4: Log_2 (lipid-adjusted current dioxin + 1).
Model 5: Log_2 (whole-weight current dioxin + 1).
Model 6: Log_2 (whole-weight current dioxin + 1), adjusted for log_2 total lipids.

[b] Slope and standard error based on natural logarithm of clinical parameter versus log_2 (current dioxin + 1).

[c] Slope and standard error based on natural logarithm of (clinical parameter + 0.1) versus log_2 (current dioxin + 1).

[d] Slope and standard error based on square root of clinical parameter versus $\log_2$ (current dioxin + 1).

[e] Slope and standard error based on time to diabetes onset versus $\log_2$ (current dioxin + 1) under a censored Weibull distribution.

[f] Slope and standard error based on natural logarithm of (clinical parameter + 1) versus $\log_2$ (current dioxin + 1).

[g] Slope and standard error based on natural logarithm of (1 - clinical parameter) versus $\log_2$ (current dioxin + 1).

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
10-6	Skin Neoplasms of Uncertain Behavior or Unspecified Nature	All	0.5	0.6	0.77 (0.23,2.64)	0.914
		Officer	0.6	0.6	0.92 (0.15,5.50)	0.999
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	0.5	0.8	0.69 (0.13,3.76)	0.982
10-7	Basal Cell Carcinomas (All Sites Combined)	All	11.3	10.2	1.12 (0.85,1.49)	0.462
		Officer	15.1	12.9	1.21 (0.82,1.79)	0.399
		Enlisted Flyer	13.3	11.2	1.22 (0.63,2.34)	0.675
		Enlisted Ground.	6.9	7.3	0.94 (0.56,1.57)	0.906
10-8	Basal Cell Carcinomas (Ear, Face, Head, and Neck)	All	9.1	7.9	1.18 (0.87,1.61)	0.330
		Officer	12.0	9.4	1.32 (0.85,2.05)	0.258
		Enlisted Flyer	10.7	9.6	1.12 (0.55,2.28)	0.894
		Enlisted Ground.	5.8	5.8	1.01 (0.57,1.78)	0.999
10-9	Basal Cell Carcinomas (Trunk)	All	3.5	3.0	1.17 (0.72,1.91)	0.613
		Officer	5.6	4.7	1.21 (0.65,2.23)	0.663
		Enlisted Flyer	4.0	2.1	1.91 (0.53,6.88)	0.498
		Enlisted Ground.	1.3	1.7	0.76 (0.25,2.29)	0.829
10-10	Basal Cell Carcinomas (Upper Extremities)	All	1.9	1.7	1.15 (0.60,2.21)	0.796
		Officer	3.6	2.7	1.39 (0.64,3.03)	0.534
		Enlisted Flyer	0.7	0.5	1.25 (0.08,20.13)	0.999
		Enlisted Ground.	0.8	1.2	0.69 (0.17,2.76)	0.844
10-11	Basal Cell Carcinomas (Lower Extremities)	All	0.1	0.3	0.45 (0.05,4.33)	0.839
		Officer	0.3	0.2	1.37 (0.09,22.03)	0.999
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	0.0	0.4	--	--
10-12	Squamous Cell Carcinomas	All	1.4	1.2	1.16 (0.53,2.52)	0.859
		Officer	1.7	1.8	0.91 (0.32,2.59)	0.999
		Enlisted Flyer	1.3	1.1	1.25 (0.17,8.98)	0.999
		Enlisted Ground.	1.1	0.6	1.84 (0.41,8.28)	0.671
10-13	Nonmelanomas	All	12.6	11.3	1.14 (0.87,1.49)	0.374
		Officer	17.1	14.5	1.22 (0.84,1.77)	0.351
		Enlisted Flyer	14.7	12.3	1.23 (0.65,2.30)	0.636
		Enlisted Ground.	7.7	7.9	0.97 (0.59,1.59)	0.999
10-14	Melanomas	All	1.2	0.8	1.49 (0.63,3.53)	0.486
		Officer	1.7	1.0	1.66 (0.50,5.48)	0.596
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	1.3	1.0	1.38 (0.40,4.80)	0.852

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
10-15	Systemic Neoplasms	All	21.1	20.5	1.04 (0.85,1.28)	0.755
		Officer	21.3	22.9	0.91 (0.66,1.27)	0.640
		Enlisted Flyer	24.4	22.2	1.13 (0.69,1.85)	0.712
		Enlisted Ground.	19.7	17.7	1.14 (0.82,1.57)	0.489
10-16	Malignant Systemic Neoplasms	All	5.0	4.3	1.17 (0.78,1.74)	0.507
		Officer	6.1	6.4	0.95 (0.54,1.67)	0.980
		Enlisted Flyer	8.1	5.4	1.54 (0.67,3.54)	0.414
		Enlisted Ground.	2.8	2.1	1.37 (0.61,3.09)	0.575
10-17	Benign Systemic Neoplasms	All	16.4	15.6	1.07 (0.85,1.34)	0.611
		Officer	14.1	16.1	0.86 (0.59,1.25)	0.476
		Enlisted Flyer	19.4	17.2	1.15 (0.68,1.97)	0.699
		Enlisted Ground.	17.3	14.4	1.24 (0.88,1.75)	0.254
10-18	Systemic Neoplasms of Uncertain Behavior or Unspecified Nature	All	1.6	1.7	0.92 (0.48,1.79)	0.948
		Officer	2.8	2.2	1.27 (0.53,3.03)	0.749
		Enlisted Flyer	0.0	1.0	--	--
		Enlisted Ground.	1.2	1.6	0.75 (0.25,2.27)	0.817
10-19	Malignant Systemic Neoplasms (Eye, Ear, Face, Head, and Neck)	All	1.1	0.8	1.36 (0.56,3.28)	0.644
		Officer	1.4	0.6	2.34 (0.56,9.84)	0.406
		Enlisted Flyer	1.3	2.0	0.63 (0.11,3.48)	0.905
		Enlisted Ground.	0.7	0.5	1.37 (0.27,6.80)	0.999
10-20	Malignant Systemic Neoplasms (Oral Cavity, Pharynx, and Larynx)	All	0.4	0.5	0.91 (0.26,3.21)	0.999
		Officer	0.3	0.4	0.69 (0.06,7.69)	0.999
		Enlisted Flyer	1.3	1.0	1.27 (0.18,9.13)	0.999
		Enlisted Ground.	0.2	0.4	0.68 (0.06,7.53)	0.999
10-21	Malignant Systemic Neoplasms (Esophagus)	All	0.0	0.1	--	--
		Officer	0.0	0.0	--	--
		Enlisted Flyer	0.0	0.5	--	--
		Enlisted Ground.	0.0	0.0	--	--
10-22	Malignant Systemic Neoplasms (Brain)	All	0.1	0.1	1.35 (0.09,21.74)	0.999
		Officer	0.3	0.0	--	--
		Enlisted Flyer	0.0	0.5	--	--
		Enlisted Ground.	0.0	0.0	--	--
10-23	Malignant Systemic Neoplasms (Thymus, Heart, and Mediastinum)	All	0.2	0.0	--	--
		Officer	0.3	0.0	--	--
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	0.2	0.0	--	--

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
10-24	Malignant Systemic Neoplasms (Thyroid Gland)	All	0.2	0.2	1.36 (0.19,9.66)	0.999
		Officer	0.6	0.2	2.80 (0.25,30.90)	0.774
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	0.0	0.2	--	--
10-25	Malignant Systemic Neoplasms (Bronchus and Lung)	All	0.6	0.3	2.04 (0.58,7.26)	0.420
		Officer	1.1	0.2	5.61 (0.63,50.43)	0.200
		Enlisted Flyer	0.6	1.0	0.63 (0.06,7.03)	0.999
		Enlisted Ground.	0.2	0.2	1.36 (0.09,21.86)	0.999
10-26	Malignant Systemic Neoplasms (Colon and Rectum)	All	0.5	0.3	1.70 (0.46,6.35)	0.645
		Officer	0.8	0.6	1.39 (0.28,6.95)	0.999
		Enlisted Flyer	1.3	0.0	--	--
		Enlisted Ground.	0.0	0.2	--	--
10-27	Malignant Systemic Neoplasms (Kidney and Bladder)	All	0.6	0.4	1.63 (0.50,5.37)	0.610
		Officer	0.8	1.0	0.83 (0.20,3.51)	0.999
		Enlisted Flyer	0.6	0.0	--	--
		Enlisted Ground.	0.5	0.0	--	--
10-28	Malignant Systemic Neoplasms (Prostate)	All	1.7	1.8	0.94 (0.50,1.80)	0.989
		Officer	2.5	3.2	0.78 (0.34,1.78)	0.694
		Enlisted Flyer	2.5	2.0	1.28 (0.31,5.18)	0.999
		Enlisted Ground.	0.7	0.5	1.37 (0.27,6.80)	0.999
10-29	Malignant Systemic Neoplasms (Testicles)	All	0.3	0.0	--	--
		Officer	0.3	0.0	--	--
		Enlisted Flyer	0.6	0.0	--	--
		Enlisted Ground.	0.2	0.0	--	--
10-30	Malignant Systemic Neoplasms (Ill-Defined Sites)	All	0.1	0.2	0.45 (0.05,4.35)	0.842
		Officer	0.0	0.4	--	--
		Enlisted Flyer	0.6	0.0	--	--
		Enlisted Ground.	0.0	0.2	--	--
10-31	Malignant Systemic Neoplasms (Connective and Other Soft Tissue)	All	0.0	0.2	--	--
		Officer	0.0	0.2	--	--
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	0.0	0.2	--	--
10-32	Carcinomas in Situ of the Penis, Other, and Unspecified Sites	All	0.1	0.1	1.36 (0.09,21.74)	0.999
		Officer	0.3	0.0	--	--
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	0.0	0.2	--	--

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
10-33	Hodgkin's Disease	All	0.1	0.1	1.36 (0.09,21.52)	0.999
		Officer	0.3	0.2	1.39 (0.09,22.32)	0.999
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	0.0	0.0	--	--
10-34	Leukemia	All	0.1	0.1	1.36 (0.09,21.74)	0.999
		Officer	0.0	0.0	--	--
		Enlisted Flyer	0.6	0.0	--	--
		Enlisted Ground.	0.0	0.2	--	--
10-35	Non-Hodgkin's Lymphoma	All	0.1	0.3	0.34 (0.04,3.04)	0.574
		Officer	0.0	0.6	--	--
		Enlisted Flyer	0.0	0.5	--	--
		Enlisted Ground.	0.2	0.0	--	--
10-36	Other Malignant Systemic Neoplasms of Lymphoid and Histiocytic Tissue	All	0.1	0.1	1.36 (0.09,21.74)	0.999
		Officer	0.0	0.2	--	--
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	0.2	0.0	--	--
10-37	Multiple Myeloma	All	0.1	0.0	--	--
		Officer	0.0	0.0	--	--
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	0.2	0.0	--	--
10-38	Skin or Systemic Neoplasms	All	44.9	41.4	1.16 (0.97,1.37)	0.108
		Officer	48.0	46.4	1.07 (0.82,1.40)	0.679
		Enlisted Flyer	48.1	43.1	1.23 (0.81,1.86)	0.398
		Enlisted Ground.	41.0	36.5	1.21 (0.94,1.57)	0.167
10-39	Prostate-Specific Antigen (Below vs. At or Above Sensitivity Limit)	All	2.4	2.9	0.84 (0.50,1.42)	0.603
		Officer	2.8	3.8	0.72 (0.33,1.58)	0.532
		Enlisted Flyer	2.5	1.5	1.70 (0.38,7.71)	0.755
		Enlisted Ground.	2.1	2.6	0.81 (0.35,1.88)	0.783
10-41	Prostate-Specific Antigen	All	3.6	4.9	0.73 (0.48,1.13)	0.188
		Officer	5.0	5.8	0.86 (0.47,1.57)	0.724
		Enlisted Flyer	5.0	6.9	0.71 (0.29,1.73)	0.588
		Enlisted Ground.	1.9	3.3	0.57 (0.25,1.30)	0.248
11-3	Inflammatory Diseases	All	0.6	0.2	4.05 (0.82,20.09)	0.136
		Officer	0.5	0.2	2.72 (0.25,30.09)	0.792
		Enlisted Flyer	1.2	0.0	--	0.388
		Enlisted Ground.	0.5	0.2	2.76 (0.25,30.48)	0.782

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
11-4	Hereditary and Degenerative Diseases	All	5.6	5.2	1.09 (0.75,1.58)	0.725
		Officer	4.9	4.6	1.07 (0.57,2.01)	0.963
		Enlisted Flyer	5.6	7.4	0.74 (0.31,1.73)	0.624
		Enlisted Ground.	6.2	4.9	1.30 (0.75,2.24)	0.434
11-5	Peripheral Disorders	All	16.9	15.9	1.08 (0.86,1.35)	0.552
		Officer	18.3	15.6	1.21 (0.85,1.73)	0.343
		Enlisted Flyer	18.0	17.3	1.05 (0.61,1.80)	0.975
		Enlisted Ground.	15.3	15.6	0.98 (0.69,1.38)	0.963
11-6	Other Neurological Disorders	All	21.2	19.2	1.14 (0.92,1.40)	0.258
		Officer	8.5	8.2	1.04 (0.64,1.69)	0.976
		Enlisted Flyer	31.5	29.7	1.09 (0.70,1.70)	0.801
		Enlisted Ground.	28.3	25.0	1.18 (0.89,1.57)	0.276
11-7	Smell	All	1.5	1.3	1.11 (0.55,2.27)	0.910
		Officer	1.1	1.8	0.60 (0.18,1.97)	0.573
		Enlisted Flyer	1.9	1.5	1.26 (0.25,6.32)	0.999
		Enlisted Ground.	1.7	0.9	1.94 (0.61,6.16)	0.395
11-8	Visual Fields	All	0.1	0.2	0.45 (0.05,4.32)	0.837
		Officer	0.0	0.4	--	0.619
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	0.2	0.2	1.38 (0.09,22.05)	0.999
11-9	Light Reaction	All	0.5	0.2	2.26 (0.54,9.47)	0.433
		Officer	0.3	0.4	0.68 (0.06,7.54)	0.999
		Enlisted Flyer	0.0	0.5	--	0.999
		Enlisted Ground.	1.0	0.0	--	0.066
11-10	Ocular Movement	All	0.7	0.5	1.58 (0.53,4.71)	0.586
		Officer	0.8	0.8	1.02 (0.23,4.60)	0.999
		Enlisted Flyer	0.6	0.0	--	0.910
		Enlisted Ground.	0.7	0.3	2.07 (0.34,12.43)	0.721
11-11	Facial Sensation	All	0.3	0.1	4.06 (0.42,39.10)	0.419
		Officer	0.0	0.0	--	--
		Enlisted Flyer	0.0	0.5	--	0.999
		Enlisted Ground.	0.7	0.0	--	0.148
11-12	Jaw Clench	All	0.1	0.0	--	--
		Officer	0.0	0.0	--	--
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	0.2	0.0	--	--

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
11-13	Smile	All	0.9	0.6	1.52 (0.59,3.97)	0.533
		Officer	0.8	1.4	0.58 (0.15,2.26)	0.639
		Enlisted Flyer	0.6	0.0	--	0.910
		Enlisted Ground.	1.2	0.2	6.94 (0.81,59.66)	0.102
11-14	Palpebral Fissure	All	1.0	0.9	1.01 (0.43,2.41)	0.999
		Officer	0.8	1.2	0.68 (0.17,2.74)	0.836
		Enlisted Flyer	1.2	0.5	2.53 (0.23,28.10)	0.844
		Enlisted Ground.	1.0	0.9	1.01 (0.29,4.12)	0.999
11-15	Balance	All	0.5	0.5	1.13 (0.34,3.70)	0.999
		Officer	0.5	0.4	1.37 (0.19,9.76)	0.999
		Enlisted Flyer	0.0	1.5	--	0.332
		Enlisted Ground.	0.7	0.2	4.15 (0.43,40.01)	0.408
11-16	Gag Reflex	All	0.1	0.0	--	--
		Officer	0.0	0.0	--	--
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	0.2	0.0	--	--
11-17	Speech	All	0.6	0.2	4.07 (0.82,20.21)	0.133
		Officer	0.3	0.2	1.37 (0.09,21.91)	0.999
		Enlisted Flyer	0.6	0.0	--	0.910
		Enlisted Ground.	1.0	0.2	5.54 (0.62,49.77)	0.205
11-18	Palate and Uvula Movement	All	0.1	0.0	--	--
		Officer	0.0	0.0	--	--
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	0.2	0.0	--	--
11-19	Neck Range of Motion	All	14.4	13.9	1.04 (0.82,1.32)	0.808
		Officer	18.3	15.8	1.19 (0.83,1.71)	0.381
		Enlisted Flyer	14.2	20.7	0.63 (0.36,1.11)	0.141
		Enlisted Ground.	11.0	9.9	1.13 (0.75,1.70)	0.645
11-20	Cranial Nerve Index Without Range of Motion	All	4.6	3.5	1.30 (0.85,2.00)	0.266
		Officer	3.8	4.4	0.86 (0.44,1.71)	0.801
		Enlisted Flyer	3.1	4.4	0.69 (0.23,2.09)	0.695
		Enlisted Ground.	5.8	2.4	2.44 (1.25,4.78)	0.012
11-21	Pin Prick	All	5.5	5.4	1.02 (0.70,1.48)	0.999
		Officer	5.5	5.5	0.99 (0.54,1.82)	0.999
		Enlisted Flyer	5.1	8.7	0.57 (0.24,1.35)	0.275
		Enlisted Ground.	5.7	4.2	1.38 (0.76,2.50)	0.359

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
11-22	Light Touch	All	5.1	3.9	1.33 (0.88,2.01)	0.217
		Officer	4.6	4.2	1.09 (0.56,2.14)	0.934
		Enlisted Flyer	4.5	4.1	1.10 (0.39,3.10)	0.999
		Enlisted Ground.	5.7	3.5	1.68 (0.90,3.14)	0.134
11-23	Muscle Status	All	3.4	2.6	1.32 (0.80,2.16)	0.331
		Officer	3.3	2.2	1.51 (0.66,3.45)	0.448
		Enlisted Flyer	3.1	5.0	0.61 (0.20,1.82)	0.526
		Enlisted Ground.	3.6	2.1	1.75 (0.81,3.77)	0.216
11-24	Patellar Reflex	All	1.3	2.6	0.48 (0.25,0.94)	0.043
		Officer	0.8	3.2	0.25 (0.07,0.86)	0.033
		Enlisted Flyer	0.6	3.5	0.17 (0.02,1.41)	0.137
		Enlisted Ground.	1.9	1.7	1.10 (0.43,2.82)	0.999
11-25	Achilles Reflex	All	10.0	9.1	1.11 (0.83,1.48)	0.519
		Officer	12.1	9.4	1.32 (0.85,2.04)	0.257
		Enlisted Flyer	9.9	10.6	0.93 (0.47,1.85)	0.971
		Enlisted Ground.	8.2	8.2	0.99 (0.63,1.57)	0.999
11-26	Biceps Reflex	All	0.7	1.1	0.67 (0.27,1.67)	0.524
		Officer	1.4	1.2	1.14 (0.35,3.76)	0.999
		Enlisted Flyer	0.0	1.0	--	0.580
		Enlisted Ground.	0.5	1.0	0.46 (0.09,2.27)	0.532
11-27	Babinski Reflex	All	0.3	0.6	0.50 (0.13,1.91)	0.469
		Officer	0.0	0.6	--	0.367
		Enlisted Flyer	0.0	1.0	--	0.578
		Enlisted Ground.	0.7	0.5	1.38 (0.28,6.86)	0.999
11-30	Tremor	All	3.0	2.7	1.12 (0.67,1.85)	0.771
		Officer	2.2	4.0	0.54 (0.23,1.23)	0.194
		Enlisted Flyer	3.7	1.0	3.87 (0.77,19.41)	0.161
		Enlisted Ground.	3.3	2.1	1.63 (0.74,3.55)	0.304
11-31	Coordination	All	2.2	2.0	1.14 (0.63,2.04)	0.781
		Officer	2.2	2.2	1.00 (0.40,2.50)	0.999
		Enlisted Flyer	1.2	2.5	0.49 (0.09,2.56)	0.632
		Enlisted Ground.	2.6	1.6	1.70 (0.70,4.14)	0.342
11-32	Romberg Sign	All	0.5	0.5	1.13 (0.34,3.70)	0.999
		Officer	0.5	0.4	1.37 (0.19,9.76)	0.999
		Enlisted Flyer	0.0	1.5	--	0.332
		Enlisted Ground.	0.7	0.2	4.15 (0.43,40.01)	0.408

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
11-33	Gait	All	3.5	3.1	1.12 (0.70,1.79)	0.732
		Officer	2.7	3.0	0.91 (0.40,2.04)	0.973
		Enlisted Flyer	3.7	4.4	0.83 (0.29,2.38)	0.933
		Enlisted Ground.	4.1	2.8	1.48 (0.74,2.97)	0.351
11-34	Central Nervous System (CNS) Index	All	6.0	5.9	1.03 (0.72,1.47)	0.950
		Officer	4.9	6.2	0.78 (0.43,1.43)	0.515
		Enlisted Flyer	6.8	6.4	1.06 (0.46,2.43)	0.999
		Enlisted Ground.	6.7	5.4	1.26 (0.74,2.13)	0.470
12-3	Psychoses	All	2.9	2.9	0.98 (0.60,1.63)	0.999
		Officer	1.9	2.0	0.96 (0.36,2.53)	0.999
		Enlisted Flyer	4.3	2.0	2.25 (0.65,7.81)	0.319
		Enlisted Ground.	3.1	4.0	0.77 (0.38,1.53)	0.563
12-4	Alcohol Dependence	All	7.5	6.6	1.15 (0.83,1.60)	0.451
		Officer	4.6	5.2	0.89 (0.47,1.66)	0.829
		Enlisted Flyer	9.9	8.4	1.20 (0.59,2.45)	0.754
		Enlisted Ground.	9.1	7.1	1.30 (0.82,2.05)	0.324
12-5	Drug Dependence	All	0.1	0.3	0.34 (0.04,3.02)	0.569
		Officer	0.0	0.2	--	--
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	0.2	0.5	0.46 (0.05,4.40)	0.850
12-6	Anxiety	All	14.8	14.1	1.06 (0.84,1.35)	0.670
		Officer	6.8	6.4	1.08 (0.63,1.85)	0.903
		Enlisted Flyer	16.8	16.8	1.00 (0.58,1.74)	0.999
		Enlisted Ground.	21.1	19.9	1.08 (0.79,1.47)	0.700
12-7	Other Neuroses	All	40.3	36.8	1.16 (0.98,1.38)	0.101
		Officer	28.6	29.5	0.96 (0.71,1.29)	0.836
		Enlisted Flyer	48.1	43.5	1.21 (0.79,1.83)	0.442
		Enlisted Ground.	47.6	40.8	1.32 (1.02,1.70)	0.040
12-8	SCL-90-R Anxiety	All	7.8	5.8	1.38 (0.99,1.93)	0.071
		Officer	3.5	2.4	1.50 (0.68,3.32)	0.428
		Enlisted Flyer	11.2	6.9	1.70 (0.82,3.53)	0.212
		Enlisted Ground.	10.2	8.4	1.25 (0.81,1.93)	0.363
12-9	SCL-90-R Depression	All	10.1	8.8	1.16 (0.87,1.55)	0.337
		Officer	6.5	5.2	1.28 (0.72,2.27)	0.487
		Enlisted Flyer	14.9	11.3	1.37 (0.74,2.53)	0.393
		Enlisted Ground.	11.4	11.1	1.03 (0.69,1.53)	0.964

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
12-10	SCL-90-R Hostility	All	6.1	4.1	1.51 (1.03,2.21)	0.044
		Officer	1.6	2.4	0.68 (0.25,1.82)	0.592
		Enlisted Flyer	9.9	4.9	2.13 (0.94,4.83)	0.101
		Enlisted Ground.	8.6	5.4	1.65 (1.00,2.71)	0.064
12-11	SCL-90-R Interpersonal Sensitivity	All	10.4	9.2	1.16 (0.87,1.54)	0.343
		Officer	4.4	4.8	0.91 (0.47,1.73)	0.892
		Enlisted Flyer	13.7	10.3	1.37 (0.73,2.60)	0.417
		Enlisted Ground.	14.5	12.5	1.19 (0.82,1.71)	0.411
12-12	SCL-90-R Obsessive-Compulsive Behavior	All	11.0	8.7	1.30 (0.98,1.72)	0.082
		Officer	6.3	5.2	1.22 (0.69,2.18)	0.596
		Enlisted Flyer	14.9	11.3	1.37 (0.74,2.53)	0.393
		Enlisted Ground.	13.6	10.8	1.30 (0.89,1.91)	0.215
12-13	SCL-90-R Paranoid Ideation	All	7.0	4.6	1.55 (1.08,2.22)	0.022
		Officer	3.0	2.4	1.26 (0.55,2.89)	0.740
		Enlisted Flyer	9.3	5.4	1.79 (0.80,4.02)	0.219
		Enlisted Ground.	9.5	6.3	1.58 (0.99,2.52)	0.073
12-14	SCL-90-R Phobic Anxiety	All	8.4	8.0	1.06 (0.78,1.44)	0.751
		Officer	2.5	2.8	0.88 (0.37,2.04)	0.923
		Enlisted Flyer	10.6	8.9	1.21 (0.60,2.44)	0.715
		Enlisted Ground.	12.9	12.2	1.06 (0.73,1.56)	0.822
12-15	SCL-90-R Psychoticism	All	9.6	8.8	1.10 (0.82,1.46)	0.587
		Officer	5.2	4.8	1.09 (0.59,2.01)	0.920
		Enlisted Flyer	11.8	8.9	1.38 (0.70,2.72)	0.456
		Enlisted Ground.	12.6	12.4	1.03 (0.70,1.50)	0.975
12-16	SCL-90-R Somatization	All	10.2	7.7	1.36 (1.01,1.82)	0.048
		Officer	5.2	3.6	1.47 (0.76,2.83)	0.331
		Enlisted Flyer	12.4	9.9	1.30 (0.67,2.51)	0.542
		Enlisted Ground.	13.8	10.6	1.35 (0.92,1.98)	0.150
12-17	SCL-90-R Global Severity Index	All	9.8	7.7	1.30 (0.96,1.74)	0.100
		Officer	4.6	4.0	1.17 (0.60,2.26)	0.771
		Enlisted Flyer	13.0	8.9	1.54 (0.79,3.00)	0.267
		Enlisted Ground.	13.1	10.6	1.27 (0.86,1.87)	0.268
12-18	SCL-90-R Positive Symptom Total	All	11.0	9.6	1.16 (0.88,1.53)	0.331
		Officer	5.5	5.6	0.97 (0.54,1.76)	0.929
		Enlisted Flyer	13.7	10.3	1.37 (0.73,2.60)	0.330
		Enlisted Ground.	14.8	12.9	1.17 (0.82,1.69)	0.392

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
12-19	SCL-90-R Positive Symptom Distress Index	All	7.8	7.5	1.04 (0.76,1.43)	0.855
		Officer	4.6	4.2	1.11 (0.58,2.14)	0.884
		Enlisted Flyer	9.9	10.8	0.91 (0.46,1.79)	0.915
		Enlisted Ground.	9.8	9.2	1.07 (0.69,1.64)	0.857
13-3	Hepatitis (Non-A, Non-B, and Non-C)	All	1.7	1.7	1.03 (0.53,1.98)	0.999
		Officer	1.1	1.0	1.09 (0.29,4.10)	0.999
		Enlisted Flyer	3.1	1.5	2.12 (0.50,9.02)	0.495
		Enlisted Ground.	1.7	2.3	0.73 (0.29,1.85)	0.668
13-4	Jaundice	All	1.8	3.0	0.61 (0.34,1.09)	0.123
		Officer	2.5	4.1	0.61 (0.27,1.35)	0.294
		Enlisted Flyer	2.5	1.0	2.49 (0.45,13.76)	0.506
		Enlisted Ground.	1.0	2.7	0.36 (0.12,1.09)	0.099
13-5	Acute and Subacute Necrosis of the Liver	All	0.0	0.1	--	--
		Officer	0.0	0.2	--	--
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	0.0	0.0	--	--
13-6	Alcoholic Chronic Liver Disease and Cirrhosis	All	5.4	5.4	1.00 (0.68,1.47)	0.999
		Officer	5.7	3.8	1.53 (0.80,2.93)	0.265
		Enlisted Flyer	6.1	6.3	0.97 (0.40,2.37)	0.999
		Enlisted Ground.	4.9	6.5	0.74 (0.42,1.32)	0.378
13-7	Nonalcoholic Chronic Liver Disease and Cirrhosis	All	1.4	1.0	1.35 (0.62,2.92)	0.574
		Officer	1.4	0.6	2.29 (0.54,9.66)	0.422
		Enlisted Flyer	1.2	1.0	1.26 (0.18,9.02)	0.999
		Enlisted Ground.	1.4	1.4	1.02 (0.35,2.97)	0.999
13-8	Liver Abscess and Sequelae of Chronic Liver Disease	All	0.1	0.1	--	--
		Officer	0.0	0.2	--	--
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	0.2	0.0	--	--
13-9	Other Liver Disorders	All	30.1	27.9	1.11 (0.92,1.34)	0.281
		Officer	29.4	27.1	1.12 (0.83,1.51)	0.513
		Enlisted Flyer	25.3	27.1	0.91 (0.57,1.46)	0.791
		Enlisted Ground.	32.5	28.8	1.19 (0.91,1.56)	0.240
13-10	Hepatomegaly	All	1.7	2.7	0.63 (0.34,1.14)	0.163
		Officer	1.4	2.4	0.56 (0.20,1.61)	0.400
		Enlisted Flyer	3.7	1.5	2.56 (0.63,10.42)	0.306
		Enlisted Ground.	1.2	3.3	0.35 (0.13,0.95)	0.052

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
13-11	Current Hepatomegaly	All	0.6	0.8	0.80 (0.29,2.20)	0.854
		Officer	0.5	0.8	0.68 (0.12,3.72)	0.972
		Enlisted Flyer	0.6	0.0	--	--
		Enlisted Ground.	0.7	1.1	0.67 (0.17,2.70)	0.822
13-13	AST	All	2.7	3.5	0.75 (0.46,1.24)	0.316
		Officer	3.6	4.0	0.89 (0.44,1.81)	0.881
		Enlisted Flyer	1.2	3.6	0.34 (0.07,1.65)	0.286
		Enlisted Ground.	2.4	3.0	0.79 (0.36,1.74)	0.698
13-15	ALT	All	5.5	7.2	0.76 (0.53,1.08)	0.144
		Officer	5.8	6.1	0.96 (0.54,1.70)	0.998
		Enlisted Flyer	4.3	6.6	0.64 (0.25,1.63)	0.474
		Enlisted Ground.	5.8	8.4	0.67 (0.40,1.12)	0.155
13-17	GGT	All	19.9	18.4	1.10 (0.89,1.36)	0.414
		Officer	19.4	16.8	1.19 (0.84,1.70)	0.369
		Enlisted Flyer	17.9	20.9	0.82 (0.49,1.40)	0.560
		Enlisted Ground.	21.2	19.0	1.14 (0.83,1.56)	0.461
13-19	Alkaline Phosphatase	All	5.2	3.4	1.59 (1.04,2.42)	0.039
		Officer	2.8	2.6	1.06 (0.46,2.44)	0.999
		Enlisted Flyer	4.3	4.6	0.94 (0.34,2.58)	0.999
		Enlisted Ground.	7.7	3.6	2.26 (1.27,4.01)	0.007
13-21	Total Bilirubin	All	5.1	4.8	1.07 (0.73,1.58)	0.805
		Officer	5.8	5.3	1.11 (0.62,2.01)	0.837
		Enlisted Flyer	3.1	4.1	0.75 (0.24,2.33)	0.828
		Enlisted Ground.	5.3	4.6	1.15 (0.64,2.06)	0.746
13-22	Direct Bilirubin	All	1.4	2.4	0.57 (0.30,1.10)	0.127
		Officer	2.5	2.2	1.13 (0.46,2.74)	0.976
		Enlisted Flyer	0.6	1.0	0.61 (0.05,6.75)	0.999
		Enlisted Ground.	0.7	3.0	0.23 (0.07,0.80)	0.022
13-24	LDH	All	14.4	14.2	1.01 (0.80,1.29)	0.957
		Officer	13.1	13.3	0.98 (0.65,1.46)	0.987
		Enlisted Flyer	14.8	15.3	0.96 (0.54,1.72)	0.999
		Enlisted Ground.	15.4	14.6	1.06 (0.74,1.51)	0.809
13-26	Cholesterol	All	15.0	13.5	1.13 (0.89,1.44)	0.340
		Officer	12.2	10.9	1.13 (0.74,1.73)	0.637
		Enlisted Flyer	19.8	14.3	1.48 (0.85,2.58)	0.216
		Enlisted Ground.	15.6	15.5	1.01 (0.71,1.43)	0.999

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
13-28	HDL Cholesterol	All	10.9	8.5	1.33 (0.99,1.77)	0.064
		Officer	11.3	7.5	1.57 (0.98,2.51)	0.077
		Enlisted Flyer	8.9	10.9	0.80 (0.39,1.62)	0.653
		Enlisted Ground.	11.4	8.4	1.39 (0.91,2.13)	0.159
13-30	Cholesterol-HDL Ratio	All	59.0	56.6	1.10 (0.93,1.31)	0.287
		Officer	51.0	49.1	1.08 (0.82,1.42)	0.633
		Enlisted Flyer	63.9	64.8	0.96 (0.62,1.50)	0.959
		Enlisted Ground.	64.0	60.5	1.16 (0.89,1.51)	0.295
13-32	Triglycerides	All	11.2	9.3	1.22 (0.93,1.61)	0.179
		Officer	11.9	7.9	1.58 (1.00,2.50)	0.063
		Enlisted Flyer	13.6	11.2	1.24 (0.66,2.34)	0.607
		Enlisted Ground.	9.6	10.0	0.96 (0.63,1.47)	0.942
13-34	Creatine Kinase	All	14.1	13.8	1.02 (0.80,1.30)	0.916
		Officer	13.9	11.7	1.21 (0.81,1.82)	0.410
		Enlisted Flyer	11.1	14.8	0.72 (0.38,1.35)	0.384
		Enlisted Ground.	15.4	15.3	1.01 (0.71,1.43)	0.999
13-36	Serum Amylase	All	6.4	7.0	0.90 (0.64,1.27)	0.618
		Officer	6.9	9.1	0.74 (0.45,1.24)	0.310
		Enlisted Flyer	3.1	3.1	1.01 (0.30,3.37)	0.999
		Enlisted Ground.	7.2	6.6	1.10 (0.67,1.82)	0.798
13-37	Antibodies for Hepatitis A	All	33.5	34.0	0.98 (0.82,1.17)	0.849
		Officer	25.9	25.1	1.04 (0.77,1.42)	0.854
		Enlisted Flyer	47.5	44.6	1.13 (0.74,1.71)	0.645
		Enlisted Ground.	34.8	38.0	0.87 (0.67,1.13)	0.321
13-38	Serological Evidence of Present or Prior Hepatitis B Infection	All	10.7	15.5	0.66 (0.51,0.85)	0.001
		Officer	5.2	9.4	0.53 (0.30,0.92)	0.030
		Enlisted Flyer	13.6	21.3	0.58 (0.33,1.02)	0.077
		Enlisted Ground.	14.4	18.8	0.73 (0.52,1.03)	0.086
13-39	Antibodies for Hepatitis C	All	0.8	1.8	0.46 (0.21,1.04)	0.084
		Officer	0.8	1.4	0.58 (0.15,2.27)	0.641
		Enlisted Flyer	0.0	2.0	--	--
		Enlisted Ground.	1.2	2.1	0.56 (0.20,1.61)	0.400
13-40	Stool Hemoccult	All	2.6	1.9	1.35 (0.75,2.41)	0.397
		Officer	2.6	1.7	1.54 (0.59,4.04)	0.522
		Enlisted Flyer	0.0	1.0	--	--
		Enlisted Ground.	3.6	2.5	1.47 (0.68,3.15)	0.433

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
13-42	Prealbumin	All	1.3	1.3	1.00 (0.47,2.13)	0.999
		Officer	1.1	2.0	0.54 (0.17,1.75)	0.444
		Enlisted Flyer	1.2	1.0	1.21 (0.17,8.70)	0.999
		Enlisted Ground.	1.4	0.7	2.04 (0.57,7.28)	0.423
13-44	Albumin	All	2.4	2.2	1.10 (0.63,1.92)	0.852
		Officer	2.2	1.4	1.58 (0.57,4.40)	0.536
		Enlisted Flyer	1.9	3.6	0.51 (0.13,2.00)	0.509
		Enlisted Ground.	2.9	2.5	1.16 (0.53,2.54)	0.859
13-46	α-1 Acid Glycoprotein	All	2.2	2.7	0.82 (0.47,1.42)	0.570
		Officer	1.4	2.6	0.52 (0.18,1.47)	0.313
		Enlisted Flyer	3.7	3.6	1.04 (0.34,3.15)	0.999
		Enlisted Ground.	2.4	2.5	0.96 (0.42,2.19)	0.999
13-50	α-2 Macroglobulin	All	0.4	0.5	0.89 (0.25,3.16)	0.999
		Officer	0.0	0.4	--	--
		Enlisted Flyer	0.6	1.0	0.60 (0.05,6.71)	0.999
		Enlisted Ground.	0.7	0.4	2.03 (0.34,12.23)	0.735
13-52	Apolipoprotein B	All	73.9	72.1	1.09 (0.90,1.32)	0.384
		Officer	70.4	69.1	1.06 (0.79,1.43)	0.746
		Enlisted Flyer	79.6	82.1	0.85 (0.50,1.44)	0.640
		Enlisted Ground.	74.8	71.4	1.19 (0.89,1.58)	0.266
13-54	C_3 Complement	All	2.6	2.4	1.07 (0.62,1.84)	0.918
		Officer	2.8	3.2	0.85 (0.38,1.90)	0.851
		Enlisted Flyer	2.5	3.6	0.68 (0.20,2.38)	0.769
		Enlisted Ground.	2.4	1.2	1.95 (0.74,5.17)	0.261
13-56	C_4 Complement	All	0.6	0.7	0.89 (0.32,2.51)	0.999
		Officer	0.8	0.6	1.37 (0.28,6.85)	0.999
		Enlisted Flyer	0.6	2.6	0.24 (0.03,2.05)	0.315
		Enlisted Ground.	0.5	0.2	2.71 (0.24,29.99)	0.793
13-58	Haptoglobin	All	13.5	11.2	1.24 (0.96,1.61)	0.110
		Officer	9.7	9.1	1.07 (0.67,1.71)	0.856
		Enlisted Flyer	18.5	15.8	1.21 (0.70,2.10)	0.592
		Enlisted Ground.	14.9	11.4	1.36 (0.94,1.98)	0.127
13-60	Transferrin	All	11.9	14.1	0.82 (0.64,1.06)	0.149
		Officer	12.2	15.2	0.78 (0.52,1.16)	0.255
		Enlisted Flyer	16.7	13.8	1.25 (0.70,2.23)	0.540
		Enlisted Ground.	9.9	13.3	0.71 (0.47,1.06)	0.117

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
14-3	Occurrence of Acne (Lifetime)	All	87.2	84.9	1.21 (0.95,1.55)	0.134
		Officer	88.0	85.9	1.21 (0.81,1.81)	0.410
		Enlisted Flyer	85.2	88.2	0.77 (0.42,1.42)	0.494
		Enlisted Ground.	87.2	82.8	1.42 (0.99,2.03)	0.067
14-4	Acne Relative to Time of Duty in SEA (Pre- and Post-SEA and Post-SEA vs. Pre-SEA and None)	All	86.8	84.5	1.20 (0.94,1.53)	0.158
		Officer	87.5	85.7	1.17 (0.79,1.74)	0.504
		Enlisted Flyer	84.0	88.2	0.70 (0.39,1.28)	0.311
		Enlisted Ground.	87.2	82.3	1.47 (1.03,2.10)	0.042
14-5	Acne Relative to Time of Duty in SEA (Post-SEA vs. None)	All	85.8	83.1	1.23 (0.96,1.57)	0.116
		Officer	86.9	84.2	1.24 (0.83,1.86)	0.350
		Enlisted Flyer	83.4	87.1	0.75 (0.41,1.38)	0.437
		Enlisted Ground.	85.8	80.7	1.44 (1.00,2.07)	0.059
14-6	Acne Relative to Time of Duty in SEA (Pre- and Post-SEA vs. Pre-SEA)	All	95.7	97.0	0.70 (0.17,2.85)	0.888
		Officer	93.8	98.1	0.29 (0.03,3.38)	0.665
		Enlisted Flyer	88.2	100.0	0.18 (0.01,3.98)	0.466
		Enlisted Ground.	100.0	95.2	5.15 (0.26,102.22)	0.383
14-8	Location of Acne (Post-SEA)	All	46.1	44.1	1.08 (0.89,1.32)	0.443
		Officer	48.1	46.7	1.06 (0.78,1.44)	0.777
		Enlisted Flyer	43.8	48.8	0.82 (0.51,1.31)	0.479
		Enlisted Ground.	45.2	40.0	1.24 (0.92,1.67)	0.175
14-10	Location of Acne (Pre- and Post-SEA and Post-SEA)	All	46.6	45.7	1.04 (0.87,1.25)	0.716
		Officer	47.4	49.1	0.93 (0.70,1.25)	0.695
		Enlisted Flyer	44.9	46.9	0.92 (0.59,1.44)	0.801
		Enlisted Ground.	46.6	42.1	1.20 (0.91,1.58)	0.215
14-11	Other Abnormalities	All	83.6	81.9	1.13 (0.90,1.41)	0.329
		Officer	85.8	83.6	1.19 (0.81,1.73)	0.429
		Enlisted Flyer	84.6	86.6	0.85 (0.47,1.52)	0.683
		Enlisted Ground.	81.3	78.8	1.17 (0.85,1.61)	0.370
14-12	Dermatology Index	All	43.8	45.3	0.94 (0.80,1.11)	0.505
		Officer	38.1	39.8	0.93 (0.71,1.23)	0.664
		Enlisted Flyer	44.4	53.5	0.70 (0.46,1.06)	0.108
		Enlisted Ground.	48.5	47.2	1.05 (0.82,1.35)	0.746
15-3	Verified Essential Hypertension	All	38.6	38.3	1.01 (0.85,1.21)	0.922
		Officer	37.5	39.8	0.91 (0.69,1.20)	0.547
		Enlisted Flyer	44.4	38.9	1.25 (0.82,1.91)	0.347
		Enlisted Ground.	37.3	36.8	1.02 (0.79,1.33)	0.922

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
15-4	Verified Heart Disease (Excluding Hypertension)	All	49.8	48.2	1.07 (0.90,1.26)	0.481
		Officer	54.0	54.3	0.99 (0.75,1.30)	0.997
		Enlisted Flyer	55.0	45.5	1.46 (0.96,2.22)	0.093
		Enlisted Ground.	44.2	43.8	1.01 (0.79,1.31)	0.973
15-5	Verified Myocardial Infarction	All	6.9	6.7	1.03 (0.74,1.44)	0.936
		Officer	5.8	6.7	0.86 (0.49,1.51)	0.700
		Enlisted Flyer	10.0	8.4	1.21 (0.59,2.48)	0.737
		Enlisted Ground.	6.7	6.2	1.09 (0.65,1.82)	0.842
15-7	Systolic Blood Pressure	All	15.2	15.6	0.97 (0.77,1.23)	0.853
		Officer	16.6	18.1	0.90 (0.63,1.29)	0.641
		Enlisted Flyer	17.0	14.9	1.17 (0.67,2.07)	0.685
		Enlisted Ground.	13.4	13.7	0.97 (0.67,1.40)	0.942
15-8	Heart Sounds	All	20.5	20.2	1.02 (0.83,1.26)	0.888
		Officer	23.6	22.0	1.10 (0.80,1.52)	0.625
		Enlisted Flyer	20.3	16.3	1.30 (0.76,2.23)	0.412
		Enlisted Ground.	17.9	20.0	0.88 (0.63,1.21)	0.466
15-9	Overall Electrocardiograph (ECG)	All	20.7	23.4	0.86 (0.70,1.05)	0.151
		Officer	22.7	26.5	0.82 (0.59,1.12)	0.240
		Enlisted Flyer	26.3	25.2	1.05 (0.66,1.69)	0.924
		Enlisted Ground.	16.9	20.1	0.81 (0.58,1.13)	0.240
15-10	ECG: Right Bundle Branch Block (RBBB)	All	1.3	1.5	0.85 (0.41,1.75)	0.785
		Officer	0.6	1.4	0.39 (0.08,1.87)	0.373
		Enlisted Flyer	3.1	1.0	3.21 (0.61,16.77)	0.283
		Enlisted Ground.	1.2	1.8	0.67 (0.23,1.99)	0.648
15-11	ECG: Left Bundle Branch Block (LBBB)	All	0.1	0.8	--	--
		Officer	0.3	1.4	--	--
		Enlisted Flyer	0.0	0.5	--	--
		Enlisted Ground.	0.0	0.4	--	--
15-12	ECG: Nonspecific ST- and T-Wave Changes	All	14.0	14.6	0.96 (0.75,1.22)	0.757
		Officer	15.0	14.7	1.02 (0.70,1.50)	0.982
		Enlisted Flyer	20.6	17.9	1.19 (0.70,2.02)	0.605
		Enlisted Ground.	10.7	13.4	0.78 (0.53,1.15)	0.249
15-13	ECG: Bradycardia	All	3.2	2.3	1.40 (0.84,2.35)	0.250
		Officer	3.6	3.7	0.98 (0.48,2.04)	0.999
		Enlisted Flyer	4.4	0.5	9.20 (1.12,75.54)	0.033
		Enlisted Ground.	2.4	1.8	1.36 (0.56,3.31)	0.644

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
15-14	ECG: Tachycardia	All	0.3	0.2	--	--
		Officer	0.6	0.0	--	--
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	0.2	0.4	--	--
15-15	ECG: Arrhythmia	All	4.7	4.5	1.04 (0.69,1.55)	0.940
		Officer	5.0	5.3	0.94 (0.51,1.74)	0.964
		Enlisted Flyer	4.4	5.4	0.79 (0.30,2.10)	0.824
		Enlisted Ground.	4.5	3.5	1.30 (0.69,2.47)	0.521
15-16	ECG: Evidence of Prior Myocardial Infarction	All	3.4	3.4	1.00 (0.63,1.59)	0.999
		Officer	3.6	4.3	0.84 (0.41,1.69)	0.745
		Enlisted Flyer	4.4	4.0	1.11 (0.39,3.13)	0.999
		Enlisted Ground.	2.9	2.5	1.17 (0.53,2.55)	0.851
15-17	ECG: Other Diagnoses	All	1.1	0.4	2.70 (0.92,7.94)	0.105
		Officer	0.8	0.4	2.05 (0.34,12.35)	0.727
		Enlisted Flyer	1.3	0.5	2.54 (0.23,28.31)	0.839
		Enlisted Ground.	1.2	0.4	3.42 (0.66,17.70)	0.241
15-19	Diastolic Blood Pressure	All	2.8	3.2	0.85 (0.52,1.40)	0.601
		Officer	3.1	3.0	1.00 (0.46,2.21)	0.999
		Enlisted Flyer	3.8	2.5	1.54 (0.46,5.12)	0.694
		Enlisted Ground.	2.1	3.7	0.57 (0.26,1.26)	0.225
15-20	Funduscopic Examination	All	7.3	5.5	1.35 (0.96,1.91)	0.103
		Officer	6.1	4.3	1.46 (0.79,2.70)	0.289
		Enlisted Flyer	11.3	5.5	2.19 (1.00,4.79)	0.069
		Enlisted Ground.	6.7	6.5	1.03 (0.62,1.72)	0.999
15-21	Carotid Bruits	All	1.8	1.3	1.43 (0.72,2.85)	0.394
		Officer	1.4	1.8	0.75 (0.25,2.27)	0.817
		Enlisted Flyer	2.5	1.0	2.56 (0.46,14.18)	0.482
		Enlisted Ground.	1.9	0.9	2.19 (0.71,6.74)	0.264
15-22	Radial Pulses	All	0.4	0.4	1.07 (0.29,4.01)	0.999
		Officer	0.6	0.2	2.74 (0.25,30.28)	0.787
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	0.5	0.7	0.68 (0.12,3.71)	0.969
15-23	Femoral Pulses	All	1.2	0.6	2.12 (0.82,5.50)	0.178
		Officer	1.1	0.4	2.75 (0.50,15.07)	0.426
		Enlisted Flyer	1.3	1.5	0.84 (0.14,5.09)	0.999
		Enlisted Ground.	1.2	0.4	3.42 (0.66,17.70)	0.241

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
15-24	Popliteal Pulses	All	2.0	0.9	2.34 (1.11,4.95)	0.035
		Officer	1.9	0.8	2.41 (0.70,8.29)	0.259
		Enlisted Flyer	2.5	1.5	1.69 (0.37,7.67)	0.760
		Enlisted Ground.	1.9	0.7	2.75 (0.82,9.18)	0.157
15-25	Dorsalis Pedis Pulses	All	8.6	7.0	1.26 (0.92,1.72)	0.175
		Officer	8.1	6.7	1.22 (0.72,2.04)	0.544
		Enlisted Flyer	8.1	9.5	0.85 (0.41,1.77)	0.799
		Enlisted Ground.	9.3	6.3	1.52 (0.95,2.44)	0.103
15-26	Posterior Tibial Pulses	All	3.8	2.3	1.69 (1.03,2.78)	0.049
		Officer	3.0	2.4	1.26 (0.55,2.88)	0.747
		Enlisted Flyer	5.0	3.0	1.71 (0.58,5.04)	0.477
		Enlisted Ground.	4.1	1.9	2.14 (0.99,4.62)	0.074
15-27	Leg Pulses	All	9.6	7.7	1.27 (0.94,1.72)	0.132
		Officer	8.3	6.9	1.22 (0.73,2.04)	0.523
		Enlisted Flyer	9.4	10.4	0.89 (0.44,1.79)	0.884
		Enlisted Ground.	10.8	7.4	1.51 (0.97,2.35)	0.083
15-28	Peripheral Pulses	All	9.7	8.1	1.22 (0.91,1.64)	0.213
		Officer	8.6	7.1	1.23 (0.74,2.03)	0.503
		Enlisted Flyer	9.4	10.4	0.89 (0.44,1.79)	0.884
		Enlisted Ground.	10.8	8.1	1.37 (0.89,2.11)	0.187
15-29	Kidney, Urethra, and Bladder (KUB) X Ray (Excluding Kidney Stones)	All	30.6	31.0	0.98 (0.82,1.18)	0.873
		Officer	33.8	31.3	1.12 (0.84,1.50)	0.487
		Enlisted Flyer	35.2	31.7	1.17 (0.76,1.82)	0.551
		Enlisted Ground.	26.1	30.5	0.80 (0.61,1.07)	0.147
15-30	Intermittent Claudication and Vascular Insufficiency (ICVI) Index	All	3.7	2.1	1.77 (1.06,2.94)	0.037
		Officer	3.9	2.0	1.94 (0.85,4.42)	0.163
		Enlisted Flyer	5.0	2.5	2.07 (0.67,6.47)	0.318
		Enlisted Ground.	3.1	2.1	1.48 (0.67,3.27)	0.445
16-10	Hematocrit	All	1.7	1.3	1.36 (0.68,2.73)	0.496
		Officer	1.7	2.2	0.75 (0.27,2.04)	0.746
		Enlisted Flyer	2.5	0.5	5.06 (0.56,45.75)	0.250
		Enlisted Ground.	1.4	0.7	2.07 (0.58,7.39)	0.409
16-12	Platelet Count	All	1.4	0.9	1.47 (0.67,3.23)	0.449
		Officer	0.3	0.6	0.46 (0.05,4.41)	0.851
		Enlisted Flyer	1.2	1.0	1.24 (0.17,8.93)	0.999
		Enlisted Ground.	2.4	1.2	1.98 (0.75,5.25)	0.248

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
16-14	Prothrombin Time	All	0.9	0.6	1.55 (0.56,4.30)	0.555
		Officer	1.2	0.9	1.36 (0.34,5.50)	0.937
		Enlisted Flyer	1.4	1.1	1.26 (0.18,9.05)	0.999
		Enlisted Ground.	0.5	0.2	2.78 (0.25,30.74)	0.777
16-15	RBC Morphology	All	44.6	46.2	0.94 (0.79,1.11)	0.493
		Officer	47.3	47.3	1.00 (0.76,1.31)	0.999
		Enlisted Flyer	50.6	47.8	1.12 (0.74,1.70)	0.663
		Enlisted Ground.	40.0	44.6	0.83 (0.64,1.07)	0.164
16-17	Absolute Neutrophils (bands) (Zero vs. Nonzero)	All	16.9	16.6	1.02 (0.82,1.28)	0.884
		Officer	16.2	14.8	1.12 (0.77,1.62)	0.629
		Enlisted Flyer	15.4	18.4	0.81 (0.46,1.41)	0.543
		Enlisted Ground.	18.1	17.5	1.04 (0.75,1.44)	0.885
16-20	Absolute Eosinophils (Zero vs. Nonzero)	All	10.0	12.8	0.76 (0.58,0.99)	0.050
		Officer	9.3	15.0	0.59 (0.38,0.90)	0.018
		Enlisted Flyer	8.0	11.9	0.64 (0.32,1.31)	0.293
		Enlisted Ground.	11.4	11.3	1.01 (0.68,1.51)	0.999
16-21	Absolute Basophils (Zero vs. Nonzero)	All	45.0	45.3	0.99 (0.84,1.17)	0.932
		Officer	44.0	45.3	0.95 (0.72,1.24)	0.744
		Enlisted Flyer	43.2	45.3	0.92 (0.61,1.40)	0.774
		Enlisted Ground.	46.7	45.3	1.06 (0.82,1.36)	0.719
17-3	Kidney Disease	All	17.0	15.9	1.08 (0.86,1.36)	0.545
		Officer	17.3	14.0	1.28 (0.88,1.87)	0.225
		Enlisted Flyer	16.5	15.0	1.12 (0.63,1.98)	0.818
		Enlisted Ground.	16.9	17.8	0.93 (0.67,1.31)	0.754
17-4	Kidney Stones	All	3.0	2.7	1.12 (0.68,1.84)	0.755
		Officer	3.3	3.6	0.91 (0.43,1.91)	0.949
		Enlisted Flyer	3.7	3.0	1.26 (0.40,3.99)	0.918
		Enlisted Ground.	2.6	1.9	1.37 (0.59,3.19)	0.605
17-5	Urinary Protein	All	4.6	4.5	1.02 (0.68,1.53)	0.995
		Officer	4.6	2.8	1.69 (0.82,3.48)	0.207
		Enlisted Flyer	3.7	5.4	0.67 (0.24,1.86)	0.603
		Enlisted Ground.	5.0	5.7	0.86 (0.49,1.51)	0.701
17-6	Urinary Red Blood Cell Count	All	3.3	2.3	1.40 (0.84,2.34)	0.237
		Officer	2.5	1.2	2.08 (0.73,5.89)	0.254
		Enlisted Flyer	2.5	2.0	1.26 (0.31,5.12)	0.999
		Enlisted Ground.	4.3	3.5	1.24 (0.65,2.37)	0.636

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
17-7	Urinary White Blood Cell Count	All	3.5	2.5	1.40 (0.86,2.30)	0.222
		Officer	1.9	2.0	0.96 (0.36,2.54)	0.999
		Enlisted Flyer	4.3	5.0	0.87 (0.32,2.35)	0.984
		Enlisted Ground.	4.5	2.1	2.21 (1.06,4.61)	0.047
18-3	Past Thyroid Disease	All	5.3	5.6	0.93 (0.64,1.35)	0.787
		Officer	6.3	5.8	1.09 (0.62,1.92)	0.869
		Enlisted Flyer	5.0	3.4	1.46 (0.52,4.13)	0.646
		Enlisted Ground.	4.5	6.3	0.71 (0.40,1.25)	0.291
18-4	Composite Diabetes Indicator	All	15.0	14.0	1.08 (0.85,1.37)	0.576
		Officer	15.1	11.6	1.36 (0.91,2.02)	0.157
		Enlisted Flyer	15.4	17.8	0.84 (0.48,1.47)	0.642
		Enlisted Ground.	14.7	14.9	0.99 (0.69,1.41)	0.999
18-7	Thyroid Gland	All	0.5	0.8	0.67 (0.23,1.95)	0.628
		Officer	0.6	0.6	0.90 (0.15,5.41)	0.999
		Enlisted Flyer	0.0	1.0	--	--
		Enlisted Ground.	0.7	0.9	0.81 (0.19,3.40)	0.999
18-10	Retinopathy Results (Diabetics)	All	5.0	2.8	1.81 (0.56,5.82)	0.479
		Officer	3.7	3.5	1.06 (0.14,7.79)	0.999
		Enlisted Flyer	12.0	0.0	--	--
		Enlisted Ground.	3.2	3.5	0.91 (0.15,5.62)	0.999
18-11	Neuropathy Results (Diabetics)	All	12.0	6.7	1.89 (0.87,4.11)	0.150
		Officer	9.1	5.2	1.83 (0.42,8.07)	0.656
		Enlisted Flyer	12.0	13.9	0.85 (0.18,3.91)	0.999
		Enlisted Ground.	14.5	4.7	3.44 (1.01,11.74)	0.076
18-12	Radial Pulses (Doppler) (Diabetics)	All	1.4	0.6	2.54 (0.23,28.33)	0.840
		Officer	1.8	1.7	1.06 (0.06,17.30)	0.999
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	1.6	0.0	--	--
18-13	Femoral Pulses (Doppler) (Diabetics)	All	4.2	2.2	1.93 (0.53,6.98)	0.486
		Officer	7.3	0.0	--	--
		Enlisted Flyer	4.0	5.6	0.71 (0.06,8.26)	0.999
		Enlisted Ground.	1.6	2.4	0.68 (0.06,7.68)	0.999
18-14	Popliteal Pulses (Doppler) (Diabetics)	All	6.3	2.2	2.96 (0.89,9.82)	0.117
		Officer	10.9	0.0	--	--
		Enlisted Flyer	4.0	5.6	0.71 (0.06,8.26)	0.999
		Enlisted Ground.	3.2	2.4	1.38 (0.19,10.10)	0.999

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
18-15	Dorsalis Pedis Pulses (Doppler) (Diabetics)	All	16.9	12.3	1.45 (0.78,2.71)	0.312
		Officer	18.2	12.1	1.62 (0.57,4.61)	0.519
		Enlisted Flyer	12.0	16.7	0.68 (0.15,3.03)	0.890
		Enlisted Ground.	17.7	10.6	1.82 (0.70,4.71)	0.315
18-16	Posterior Tibial Pulses (Doppler) (Diabetics)	All	9.2	6.1	1.54 (0.67,3.55)	0.421
		Officer	12.7	5.2	2.67 (0.65,10.92)	0.279
		Enlisted Flyer	4.0	11.1	0.33 (0.03,3.18)	0.602
		Enlisted Ground.	8.1	4.7	1.78 (0.46,6.91)	0.624
18-17	Leg Pulses (Doppler) (Diabetics)	All	18.3	13.4	1.45 (0.79,2.65)	0.295
		Officer	18.2	12.1	1.62 (0.56,4.61)	0.519
		Enlisted Flyer	12.0	19.4	0.56 (0.13,2.44)	0.674
		Enlisted Ground.	21.0	11.8	1.99 (0.81,4.89)	0.198
18-18	Peripheral Pulses (Doppler) (Diabetics)	All	19.0	14.0	1.45 (0.80,2.62)	0.286
		Officer	20.0	13.8	1.56 (0.58,4.23)	0.529
		Enlisted Flyer	12.0	19.4	0.56 (0.13,2.44)	0.674
		Enlisted Ground.	21.0	11.8	1.99 (0.81,4.89)	0.198
18-20	Thyroid Stimulating Hormone (TSH)	All	2.4	2.3	1.01 (0.57,1.76)	0.999
		Officer	2.2	3.5	0.62 (0.27,1.46)	0.374
		Enlisted Flyer	2.5	1.0	2.55 (0.46,14.08)	0.488
		Enlisted Ground.	2.4	1.8	1.35 (0.56,3.27)	0.663
18-22	Thyroxine (T_4)	All	0.6	0.6	1.00 (0.34,2.88)	0.999
		Officer	1.4	1.0	1.35 (0.39,4.70)	0.880
		Enlisted Flyer	0.6	0.0	--	--
		Enlisted Ground.	0.0	0.5	--	--
18-23	Anti-Thyroid Antibodies	All	3.9	2.4	1.62 (0.99,2.64)	0.071
		Officer	3.9	2.9	1.36 (0.64,2.89)	0.545
		Enlisted Flyer	4.4	1.5	3.01 (0.77,11.85)	0.183
		Enlisted Ground.	3.6	2.3	1.57 (0.74,3.33)	0.325
18-25	Fasting Glucose (All Participants)	All	13.4	13.1	1.03 (0.80,1.31)	0.891
		Officer	13.2	12.5	1.06 (0.71,1.58)	0.874
		Enlisted Flyer	14.2	14.9	0.95 (0.53,1.71)	0.979
		Enlisted Ground.	13.2	12.9	1.03 (0.71,1.49)	0.956
18-27	Fasting Glucose (Diabetics)	All	69.0	69.3	0.99 (0.61,1.59)	0.999
		Officer	69.1	74.1	0.78 (0.34,1.77)	0.699
		Enlisted Flyer	76.0	66.7	1.58 (0.50,5.00)	0.617
		Enlisted Ground.	66.1	67.1	0.96 (0.48,1.92)	0.999

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
18-29	Fasting Glucose (Nondiabetics)	All	3.6	3.9	0.91 (0.57,1.48)	0.804
		Officer	3.2	4.5	0.71 (0.33,1.53)	0.487
		Enlisted Flyer	2.9	3.6	0.80 (0.22,2.90)	0.989
		Enlisted Ground.	4.2	3.6	1.20 (0.59,2.44)	0.745
18-31	2-Hour Postprandial Glucose (Nondiabetics)	All	14.7	12.0	1.26 (0.97,1.65)	0.097
		Officer	12.6	10.1	1.28 (0.81,2.01)	0.351
		Enlisted Flyer	15.3	16.3	0.93 (0.59,1.73)	0.949
		Enlisted Ground.	16.4	12.3	1.39 (0.95,2.06)	0.113
18-32	Fasting Urinary Glucose (All Participants)	All	3.1	3.1	1.00 (0.61,1.63)	0.999
		Officer	2.5	2.8	0.88 (0.38,2.06)	0.938
		Enlisted Flyer	3.1	4.5	0.69 (0.23,2.09)	0.697
		Enlisted Ground.	3.6	2.8	1.28 (0.63,2.62)	0.621
18-33	Fasting Urinary Glucose (Diabetics)	All	20.4	21.3	0.95 (0.55,1.63)	0.949
		Officer	16.4	24.1	0.61 (0.24,1.56)	0.428
		Enlisted Flyer	20.0	22.2	0.88 (0.25,3.07)	0.999
		Enlisted Ground.	24.2	19.0	1.36 (0.61,3.01)	0.585
18-34	Fasting Urinary Glucose (Nondiabetics)	All	0.0	0.1	--	--
		Officer	0.0	0.0	--	--
		Enlisted Flyer	0.0	0.6	--	--
		Enlisted Ground.	0.0	0.0	--	--
18-35	2-Hour Postprandial Urinary Glucose (Nondiabetics)	All	18.6	18.3	1.02 (0.81,1.29)	0.895
		Officer	14.9	13.8	1.10 (0.73,1.66)	0.731
		Enlisted Flyer	20.4	22.9	0.87 (0.50,1.50)	0.708
		Enlisted Ground.	21.1	20.8	1.02 (0.73,1.42)	0.992
18-39	Serum Insulin (Diabetics)	All	60.6	55.9	1.21 (0.77,1.90)	0.472
		Officer	74.5	62.1	1.79 (0.80,4.01)	0.222
		Enlisted Flyer	52.0	52.9	0.96 (0.34,2.71)	0.999
		Enlisted Ground.	51.6	52.9	0.95 (0.49,1.83)	0.999
18-43	Serum Glucagon (All Participants)	All	0.4	0.1	4.02 (0.42,38.68)	0.426
		Officer	0.0	0.0	--	--
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	0.8	0.2	4.01 (0.42,38.75)	0.428
18-45	Serum Glucagon (Diabetics)	All	2.4	0.6	3.91 (0.40,38.05)	0.449
		Officer	0.0	0.0	--	--
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	5.6	1.4	4.29 (0.43,42.46)	0.403

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
18-47	Serum Glucagon (Nondiabetics)	All	0.0	0.0	--	--
		Officer	0.0	0.0	--	--
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	0.0	0.0	--	--
18-49	α-1-C Hemoglobin (All Participants)	All	26.9	26.3	1.03 (0.85,1.25)	0.774
		Officer	24.1	22.5	1.09 (0.80,1.50)	0.639
		Enlisted Flyer	30.2	35.6	0.78 (0.50,1.22)	0.330
		Enlisted Ground.	28.1	26.4	1.09 (0.83,1.45)	0.581
18-51	α-1-C Hemoglobin (Diabetics)	All	79.6	76.5	1.20 (0.70,2.04)	0.605
		Officer	78.2	75.9	1.14 (0.47,2.74)	0.945
		Enlisted Flyer	80.0	80.6	0.97 (0.27,3.48)	0.999
		Enlisted Ground.	80.6	75.3	1.37 (0.61,3.04)	0.570
18-53	α-1-C Hemoglobin (Nondiabetics)	All	17.7	18.1	0.97 (0.77,1.23)	0.858
		Officer	14.5	15.5	0.92 (0.61,1.39)	0.777
		Enlisted Flyer	21.2	25.9	0.77 (0.45,1.31)	0.407
		Enlisted Ground.	19.1	17.8	1.09 (0.77,1.55)	0.698
18-54	Urinary Protein (Diabetics)	All	12.7	15.2	0.81 (0.43,1.54)	0.635
		Officer	12.7	12.1	1.06 (0.35,3.25)	0.999
		Enlisted Flyer	12.0	11.1	1.09 (0.22,5.36)	0.999
		Enlisted Ground.	12.9	19.1	0.63 (0.25,1.58)	0.445
18-56	Serum Proinsulin (Diabetics)	All	41.0	42.8	0.93 (0.59,1.47)	0.851
		Officer	36.5	43.9	0.74 (0.34,1.59)	0.560
		Enlisted Flyer	39.1	42.9	0.86 (0.29,2.50)	0.993
		Enlisted Ground.	45.8	42.0	1.17 (0.59,2.29)	0.784
18-58	Serum C Peptide (Diabetics)	All	61.2	61.3	1.00 (0.63,1.59)	0.999
		Officer	63.5	64.9	0.94 (0.43,2.06)	0.999
		Enlisted Flyer	56.5	54.3	1.09 (0.38,3.16)	0.999
		Enlisted Ground.	61.0	61.7	0.97 (0.49,1.93)	0.999
18-60	Total Testosterone	All	4.6	5.4	0.85 (0.58,1.26)	0.481
		Officer	4.8	4.6	1.04 (0.55,1.97)	0.999
		Enlisted Flyer	3.7	5.5	0.67 (0.24,1.84)	0.589
		Enlisted Ground.	4.8	6.0	0.79 (0.45,1.40)	0.510
18-62	Free Testosterone	All	15.4	19.5	0.75 (0.60,0.94)	0.014
		Officer	15.1	19.0	0.76 (0.53,1.10)	0.166
		Enlisted Flyer	8.7	18.5	0.42 (0.22,0.81)	0.012
		Enlisted Ground.	18.2	20.3	0.87 (0.63,1.20)	0.449

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
18-63	Sex Hormone Binding Globulin	All	15.6	18.9	0.79 (0.63,0.99)	0.051
		Officer	17.6	19.6	0.88 (0.62,1.25)	0.527
		Enlisted Flyer	13.7	16.5	0.80 (0.45,1.44)	0.550
		Enlisted Ground.	14.6	19.1	0.72 (0.51,1.02)	0.077
18-64	Total Testosterone to Sex Hormone Binding Globulin Ratio	All	9.1	10.5	0.85 (0.64,1.14)	0.351
		Officer	9.2	11.8	0.76 (0.49,1.19)	0.280
		Enlisted Flyer	9.3	12.5	0.72 (0.37,1.42)	0.430
		Enlisted Ground.	8.9	8.6	1.03 (0.66,1.62)	0.972
18-66	Estradiol	All	3.8	4.0	0.95 (0.61,1.46)	0.893
		Officer	2.7	4.0	0.68 (0.31,1.46)	0.414
		Enlisted Flyer	4.9	5.0	1.00 (0.38,2.59)	0.999
		Enlisted Ground.	4.3	3.6	1.17 (0.62,2.23)	0.744
18-68	Luteinizing Hormone (LH)	All	1.7	2.0	0.82 (0.44,1.55)	0.656
		Officer	1.4	2.8	0.48 (0.17,1.35)	0.236
		Enlisted Flyer	2.5	2.0	1.25 (0.31,5.09)	0.999
		Enlisted Ground.	1.7	1.4	1.20 (0.43,3.32)	0.938
18-70	Follicle Stimulating Hormone	All	4.9	3.8	1.30 (0.87,1.96)	0.241
		Officer	7.1	4.0	1.85 (1.02,3.37)	0.062
		Enlisted Flyer	6.2	5.0	1.26 (0.51,3.11)	0.782
		Enlisted Ground.	2.6	3.3	0.78 (0.37,1.65)	0.652
19-4	Composite Skin Test Diagnosis	All	4.2	3.0	1.46 (0.92,2.31)	0.136
		Officer	5.4	2.9	1.87 (0.92,3.78)	0.113
		Enlisted Flyer	3.8	3.1	1.22 (0.39,3.87)	0.961
		Enlisted Ground.	3.4	2.9	1.20 (0.58,2.48)	0.769
19-15	Double Labelled Cells: CD5 with CD20 (Zero vs. Nonzero)	All	5.2	4.4	1.20 (0.64,2.26)	0.693
		Officer	6.5	6.2	1.04 (0.43,2.52)	0.999
		Enlisted Flyer	3.0	4.8	0.62 (0.11,3.48)	0.895
		Enlisted Ground.	4.8	2.7	1.81 (0.60,5.49)	0.441
19-16	Double Labelled Cells: CD4 with CD8 (Zero vs. Nonzero)	All	10.6	10.6	1.01 (0.65,1.56)	0.999
		Officer	11.0	10.2	1.09 (0.54,2.20)	0.952
		Enlisted Flyer	9.1	4.8	1.98 (0.53,7.31)	0.480
		Enlisted Ground.	10.9	13.0	0.82 (0.43,1.56)	0.654
19-17	Double Labelled Cells: CD3 with CD16+56 (Zero vs. Nonzero)	All	3.8	3.1	1.24 (0.59,2.59)	0.713
		Officer	3.9	4.5	0.85 (0.29,2.51)	0.985
		Enlisted Flyer	1.5	1.2	1.26 (0.08,20.56)	0.999
		Enlisted Ground.	4.8	2.7	1.81 (0.60,5.49)	0.441

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
19-22	Lupus Panel: Antinuclear Antibody (ANA)	All	13.7	16.4	0.81 (0.64,1.03)	0.092
		Officer	15.7	17.9	0.86 (0.59,1.23)	0.454
		Enlisted Flyer	16.3	16.5	0.98 (0.56,1.72)	0.999
		Enlisted Ground.	10.9	15.0	0.69 (0.47,1.02)	0.073
19-23	Lupus Panel: Thyroid Microsomal Antibody	All	4.4	2.8	1.61 (1.02,2.55)	0.054
		Officer	4.1	3.5	1.20 (0.59,2.45)	0.739
		Enlisted Flyer	5.0	1.5	3.46 (0.90,13.25)	0.108
		Enlisted Ground.	4.4	2.6	1.69 (0.84,3.40)	0.189
19-24	Lupus Panel: MSK Smooth Muscle Antibody	All	3.0	3.2	0.94 (0.58,1.54)	0.914
		Officer	4.7	3.7	1.29 (0.66,2.55)	0.567
		Enlisted Flyer	1.9	2.5	0.75 (0.18,3.17)	0.968
		Enlisted Ground.	1.9	3.0	0.65 (0.28,1.51)	0.416
19-25	Lupus Panel: MSK Mitochondrial Antibody	All	0.2	0.2	0.90 (0.15,5.40)	0.999
		Officer	0.6	0.2	2.72 (0.25,30.12)	0.791
		Enlisted Flyer	0.0	0.0	--	--
		Enlisted Ground.	0.0	0.3	0.28 (0.01,5.76)	0.627
19-26	Lupus Panel: MSK Parietal Antibody	All	2.4	2.6	0.90 (0.52,1.55)	0.804
		Officer	3.0	2.0	1.51 (0.63,3.59)	0.479
		Enlisted Flyer	1.9	2.0	0.94 (0.21,4.25)	0.999
		Enlisted Ground.	1.9	3.3	0.58 (0.25,1.33)	0.265
19-27	Lupus Panel: Rheumatoid Factor	All	15.2	16.7	0.89 (0.71,1.13)	0.367
		Officer	15.2	19.5	0.74 (0.51,1.06)	0.118
		Enlisted Flyer	13.8	17.0	0.78 (0.44,1.39)	0.484
		Enlisted Ground.	15.7	14.2	1.13 (0.80,1.61)	0.551
19-28	Lupus Panel: B Cell Clones Detected by Serum Protein Electrophoresis	All	2.4	1.7	1.36 (0.75,2.47)	0.392
		Officer	3.3	1.6	2.07 (0.84,5.11)	0.168
		Enlisted Flyer	3.8	3.0	1.26 (0.40,3.98)	0.922
		Enlisted Ground.	1.0	1.4	0.69 (0.21,2.31)	0.754
19-29	Lupus Panel: Other Antibodies (ANA and MSK)	All	3.1	4.0	0.76 (0.48,1.21)	0.300
		Officer	3.0	4.7	0.64 (0.31,1.32)	0.297
		Enlisted Flyer	4.4	5.0	0.88 (0.33,2.35)	0.988
		Enlisted Ground.	2.7	3.2	0.85 (0.40,1.81)	0.808
19-30	Lupus Panel: Summary Index	All	37.1	40.1	0.88 (0.74,1.05)	0.170
		Officer	41.0	43.7	0.90 (0.68,1.18)	0.481
		Enlisted Flyer	38.4	39.0	0.97 (0.64,1.49)	0.989
		Enlisted Ground.	33.1	37.3	0.83 (0.64,1.09)	0.196

Table Q-1-5. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
20-3	Asthma	All	3.9	2.7	1.49 (0.93,2.39)	0.124
		Officer	4.4	2.6	1.72 (0.82,3.63)	0.209
		Enlisted Flyer	1.9	2.0	0.95 (0.21,4.29)	0.999
		Enlisted Ground.	4.3	3.0	1.47 (0.75,2.88)	0.346
20-4	Bronchitis	All	19.4	16.6	1.21 (0.97,1.51)	0.098
		Officer	15.8	15.9	1.00 (0.68,1.45)	0.999
		Enlisted Flyer	26.9	17.2	1.78 (1.07,2.96)	0.037
		Enlisted Ground.	19.7	17.0	1.20 (0.86,1.66)	0.319
20-5	Pneumonia	All	8.5	12.0	0.68 (0.51,0.92)	0.012
		Officer	8.4	13.5	0.59 (0.37,0.93)	0.029
		Enlisted Flyer	11.3	11.3	1.00 (0.51,1.95)	0.999
		Enlisted Ground.	7.6	10.9	0.67 (0.43,1.06)	0.108
20-6	Thorax and Lung Abnormalities	All	14.2	10.5	1.40 (1.09,1.81)	0.011
		Officer	10.1	7.4	1.41 (0.88,2.27)	0.197
		Enlisted Flyer	22.8	12.3	2.11 (1.21,3.68)	0.012
		Enlisted Ground.	14.4	12.7	1.16 (0.81,1.67)	0.480
20-7	X Ray Interpretation	All	13.5	13.4	1.00 (0.78,1.28)	0.999
		Officer	12.3	12.6	0.97 (0.65,1.47)	0.982
		Enlisted Flyer	19.1	14.3	1.42 (0.82,2.47)	0.271
		Enlisted Ground.	12.3	13.9	0.87 (0.60,1.27)	0.531

--: Estimated relative risk, confidence interval, and p-value not presented due to the sparse number of abnormalities.

Note: RH = Ranch Hand
C = Comparison.

Table Q-1-6.
Summary of Unadjusted Results for Dichotomous Variables
Model 2: Ranch Hands − Log_2 (Initial Dioxin)

Table Reference	Clinical Parameter	Est. Relative Risk (95% C.I.)[a]	p-Value[a]
9-3	Self-Perception of Health	1.21 (1.00,1.46)	0.049
9-4	Appearance of Illness of Distress	0.90 (0.57,1.43)	0.648
9-5	Relative Age Appearance	1.29 (0.98,1.68)	0.070
9-8	Body Fat	0.99 (0.80,1.24)	0.950
9-9	Body Fat with Adjustment for Caloric Intake	0.99 (0.80,1.24)	0.950
9-11	Sedimentation Rate	1.02 (0.87,1.19)	0.835
10-3	Skin Neoplasms	0.77 (0.66,0.90)	<0.001
10-4	Malignant Skin Neoplasms	0.74 (0.59,0.93)	0.006
10-5	Benign Skin Neoplasms	0.86 (0.72,1.02)	0.085
10-6	Skin Neoplasms of Uncertain Behavior or Unspecified Nature	0.72 (0.24,2.15)	0.530
10-7	Basal Cell Carcinomas (All Sites Combined)	0.75 (0.59,0.95)	0.013
10-8	Basal Cell Carcinomas (Ear, Face, Head, and Neck)	0.73 (0.55,0.96)	0.017
10-9	Basal Cell Carcinomas (Trunk)	0.76 (0.52,1.11)	0.134
10-10	Basal Cell Carcinomas (Upper Extremities)	0.59 (0.31,1.13)	0.082
10-11	Basal Cell Carcinomas (Lower Extremities)	--	--
10-12	Squamous Cell Carcinomas	0.85 (0.43,1.70)	0.641
10-13	Nonmelanomas	0.74 (0.58,0.93)	0.007
10-14	Melanomas	0.61 (0.30,1.24)	0.136
10-15	Systemic Neoplasms	0.93 (0.79,1.09)	0.354
10-16	Malignant Systemic Neoplasms	0.63 (0.44,0.89)	0.004
10-17	Benign Systemic Neoplasms	1.02 (0.86,1.22)	0.804
10-18	Systemic Neoplasms of Uncertain Behavior or Unspecified Nature	0.91 (0.54,1.52)	0.709
10-19	Malignant Systemic Neoplasms (Eye, Ear, Face, Head, and Neck)	0.65 (0.32,1.30)	0.182
10-20	Malignant Systemic Neoplasms (Oral Cavity, Pharynx, and Larynx)	1.17 (0.52,2.62)	0.706
10-21	Malignant Systemic Neoplasms (Esophagus)	--	--
10-22	Malignant Systemic Neoplasms (Brain)	--	--

Table Q-1-6. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Reference	Clinical Parameter	Est. Relative Risk (95% C.I.)[a]	p-Value[a]
10-23	Malignant Systemic Neoplasms (Thymus, Heart, and Mediastinum)	--	--
10-24	Malignant Systemic Neoplasms (Thyroid Gland)	0.14 (0.01,2.34)	0.044
10-25	Malignant Systemic Neoplasms (Bronchus and Lung)	0.61 (0.23,1.63)	0.275
10-26	Malignant Systemic Neoplasms (Colon and Rectum)	0.61 (0.24,1.55)	0.245
10-27	Malignant Systemic Neoplasms (Kidney and Bladder)	0.68 (0.28,1.65)	0.359
10-28	Malignant Systemic Neoplasms (Prostate)	0.68 (0.39,1.19)	0.147
10-29	Malignant Systemic Neoplasms (Testicles)	0.65 (0.22,1.95)	0.408
10-30	Malignant Systemic Neoplasms (Ill-Defined Sites)	--	--
10-31	Malignant Systemic Neoplasms (Connective and Other Soft Tissue)	--	--
10-32	Carcinomas in Situ of the Penis, Other, and Unspecified Sites	0.11 (0.00,9.47)	0.144
10-33	Hodgkin's Disease	--	--
10-34	Leukemia	0.61 (0.09,4.14)	0.569
10-35	Non-Hodgkin's Lymphoma	--	--
10-36	Other Malignant Systemic Neoplasms of Lymphoid and Histiocytic Tissue	--	--
10-37	Multiple Myeloma	--	--
10-38	Skin or Systemic Neoplasms	0.84 (0.73,0.97)	0.012
10-39	Prostate-Specific Antigen (Below vs. At or Above Sensitivity Limit)	0.89 (0.57,1.40)	0.608
10-41	Prostate-Specific Antigen	0.61 (0.41,0.90)	0.006
11-3	Inflammatory Diseases	1.09 (0.51,2.35)	0.826
11-4	Hereditary and Degenerative Diseases	0.95 (0.70,1.28)	0.712
11-5	Peripheral Disorders	1.04 (0.88,1.23)	0.673
11-6	Other Neurological Disorders	1.08 (0.93,1.25)	0.323
11-7	Smell	0.69 (0.31,1.55)	0.341
11-8	Visual Fields	--	--
11-9	Light Reaction	1.43 (0.64,3.20)	0.384
11-10	Ocular Movement	0.80 (0.39,1.67)	0.542

Table Q-1-6. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Reference	Clinical Parameter	Est. Relative Risk (95% C.I.)[a]	p-Value[a]
11-11	Facial Sensation	1.53 (0.60,3.92)	0.382
11-12	Jaw Clench	--	--
11-13	Smile	1.29 (0.75,2.22)	0.363
11-14	Palpebral Fissure	1.05 (0.56,1.98)	0.876
11-15	Balance	1.14 (0.51,2.51)	0.757
11-16	Gag Reflex	--	--
11-17	Speech	1.11 (0.54,2.26)	0.777
11-18	Palate and Uvula Movement	--	--
11-19	Neck Range of Motion	0.91 (0.76,1.10)	0.340
11-20	Cranial Nerve Index Without Range of Motion	1.08 (0.80,1.46)	0.619
11-21	Pin Prick	0.97 (0.74,1.27)	0.832
11-22	Light Touch	0.97 (0.72,1.29)	0.821
11-23	Muscle Status	0.98 (0.67,1.42)	0.905
11-24	Patellar Reflex	0.93 (0.58,1.48)	0.756
11-25	Achilles Reflex	0.95 (0.77,1.18)	0.634
11-26	Biceps Reflex	0.47 (0.21,1.06)	0.030
11-27	Babinski Reflex	--	--
11-30	Tremor	1.28 (0.85,1.94)	0.244
11-31	Coordination	0.90 (0.58,1.39)	0.622
11-32	Romberg Sign	1.14 (0.51,2.51)	0.757
11-33	Gait	1.10 (0.78,1.56)	0.598
11-34	Central Nervous System (CNS) Index	1.10 (0.84,1.45)	0.501
12-3	Psychoses	0.91 (0.62,1.33)	0.604
12-4	Alcohol Dependence	1.05 (0.81,1.35)	0.722
12-5	Drug Dependence	--	--
12-6	Anxiety	1.14 (0.96,1.35)	0.139
12-7	Other Neuroses	1.04 (0.92,1.19)	0.518
12-8	SCL-90-R Anxiety	1.11 (0.90,1.39)	0.335
12-9	SCL-90-R Depression	1.16 (0.95,1.42)	0.148
12-10	SCL-90-R Hostility	1.26 (0.99,1.60)	0.067
12-11	SCL-90-R Interpersonal Sensitivity	1.09 (0.90,1.33)	0.381

Table Q-1-6. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Reference	Clinical Parameter	Est. Relative Risk (95% C.I.)[a]	p-Value[a]
12-12	SCL-90-R Obsessive-Compulsive Behavior	1.11 (0.91,1.36)	0.304
12-13	SCL-90-R Paranoid Ideation	1.06 (0.82,1.36)	0.652
12-14	SCL-90-R Phobic Anxiety	1.27 (1.02,1.58)	0.036
12-15	SCL-90-R Psychoticism	1.06 (0.86,1.32)	0.587
12-16	SCL-90-R Somatization	1.16 (0.95,1.41)	0.158
12-17	SCL-90-R Global Severity Index	1.17 (0.96,1.43)	0.121
12-18	SCL-90-R Positive Symptom Total	1.14 (0.94,1.38)	0.177
12-19	SCL-90-R Positive Symptom Distress Index	1.14 (0.91,1.43)	0.248
13-3	Hepatitis (Non-A, Non-B, and Non-C)	1.11 (0.67,1.83)	0.693
13-4	Jaundice	1.15 (0.52,2.53)	0.739
13-5	Acute and Subacute Necrosis of the Liver	--	--
13-6	Alcoholic Chronic Liver Disease and Cirrhosis	1.05 (0.79,1.39)	0.759
13-7	Nonalcoholic Chronic Liver Disease and Cirrhosis	0.98 (0.55,1.72)	0.932
13-8	Liver Abscess and Sequelae of Chronic Liver Disease	--	--
13-9	Other Liver Disorders	1.10 (0.96,1.27)	0.177
13-10	Hepatomegaly	1.01 (0.61,1.67)	0.980
13-11	Current Hepatomegaly	0.83 (0.38,1.81)	0.632
13-13	AST	1.03 (0.69,1.52)	0.895
13-15	ALT	1.17 (0.91,1.51)	0.221
13-17	GGT	1.05 (0.89,1.22)	0.574
13-19	Alkaline Phosphatase	1.07 (0.81,1.41)	0.631
13-21	Total Bilirubin	0.97 (0.71,1.33)	0.844
13-22	Direct Bilirubin	0.73 (0.36,1.46)	0.348
13-24	LDH	1.10 (0.92,1.32)	0.302
13-26	Cholesterol	1.01 (0.84,1.21)	0.926
13-28	HDL Cholesterol	1.07 (0.87,1.32)	0.517
13-30	Cholesterol-HDL Ratio	1.13 (0.98,1.30)	0.081
13-32	Triglycerides	1.13 (0.93,1.37)	0.211
13-34	Creatine Kinase	1.01 (0.84,1.21)	0.914

Table Q-1-6. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Reference	Clinical Parameter	Est. Relative Risk (95% C.I.)[a]	p-Value[a]
13-36	Serum Amylase	0.82 (0.60,1.12)	0.189
13-37	Antibodies for Hepatitis A	0.99 (0.86,1.13)	0.864
13-38	Serological Evidence of Present or Prior Hepatitis B Infection	1.21 (1.00,1.48)	0.054
13-39	Antibodies for Hepatitis C	0.42 (0.08,2.18)	0.229
13-40	Stool Hemoccult	0.80 (0.51,1.26)	0.313
13-42	Prealbumin	1.38 (0.77,2.49)	0.282
13-44	Albumin	1.11 (0.76,1.62)	0.599
13-46	α-1 Acid Glycoprotein	1.17 (0.74,1.85)	0.507
13-50	α-2 Macroglobulin	1.38 (0.53,3.59)	0.508
13-52	Apolipoprotein B	1.08 (0.93,1.26)	0.310
13-54	C_3 Complement	0.83 (0.47,1.46)	0.504
13-56	C_4 Complement	1.20 (0.56,2.58)	0.644
13-58	Haptoglobin	1.05 (0.87,1.27)	0.617
13-60	Transferrin	0.91 (0.72,1.14)	0.403
14-3	Occurrence of Acne (Lifetime)	0.93 (0.77,1.13)	0.487
14-4	Acne Relative to Time of Duty in SEA (Pre- and Post-SEA and Post-SEA vs. Pre-SEA and None)	0.94 (0.78,1.13)	0.497
14-5	Acne Relative to Time of Duty in SEA (Post-SEA vs. None)	0.92 (0.76,1.12)	0.430
14-6	Acne Relative to Time of Duty in SEA (Pre- and Post-SEA vs. Pre-SEA)	1.20 (0.44,3.29)	0.705
14-8	Location of Acne (Post-SEA)	0.96 (0.82,1.11)	0.551
14-10	Location of Acne (Pre- and Post-SEA and Post-SEA)	1.02 (0.88,1.17)	0.804
14-11	Other Abnormalities	0.90 (0.75,1.07)	0.216
14-12	Dermatology Index	1.03 (0.90,1.18)	0.673
15-3	Verified Essential Hypertension	1.08 (0.94,1.24)	0.304
15-4	Verified Heart Disease (excluding Essential Hypertension)	0.85 (0.74,0.98)	0.019
15-5	Myocardial Infarction	1.04 (0.81,1.33)	0.772
15-7	Systolic Blood Pressure	0.97 (0.81,1.15)	0.691
15-8	Heart Sounds	0.96 (0.82,1.13)	0.648
15-9	Overall Electrocardiograph	0.88 (0.75,1.04)	0.127

Table Q-1-6. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Reference	Clinical Parameter	Est. Relative Risk (95% C.I.)[a]	p-Value[a]
15-10	ECG: Right Bundle Branch Block (RBBB)	1.09 (0.68,1.75)	0.720
15-11	ECG: Left Bundle Branch Block (LBBB)	--	--
15-12	ECG: Nonspecific ST- and T-Wave Changes	0.91 (0.76,1.10)	0.336
15-13	ECG: Bradycardia	0.66 (0.37,1.15)	0.108
15-14	ECG: Tachycardia	--	--
15-15	ECG: Arrhythmia	0.96 (0.72,1.27)	0.759
15-16	ECG: Evidence of Prior Myocardial Infarction	1.18 (0.85,1.65)	0.326
15-17	ECG: Other Diagnoses	1.36 (0.78,2.38)	0.288
15-19	Diastolic Blood Pressure	1.19 (0.83,1.70)	0.343
15-20	Funduscopic Examination	1.17 (0.93,1.48)	0.193
15-21	Carotid Bruits	0.79 (0.45,1.37)	0.382
15-22	Radial Pulses	0.34 (0.06,1.98)	0.124
15-23	Femoral Pulses	0.59 (0.31,1.13)	0.076
15-24	Popliteal Pulses	0.85 (0.56,1.29)	0.430
15-25	Dorsalis Pedis Pulses	1.02 (0.81,1.28)	0.892
15-26	Posterior Tibial Pulses	0.82 (0.58,1.17)	0.260
15-27	Leg Pulses	1.01 (0.81,1.26)	0.930
15-28	Peripheral Pulses	1.01 (0.81,1.26)	0.930
15-29	Kidney, Urethra, and Bladder (KUB) X Ray (Excluding Kidney Stones)	1.00 (0.86,1.15)	0.961
15-30	Intermittent Claudication and Vascular Insufficiency (ICVI) Index	1.02 (0.72,1.46)	0.899
16-10	Hematocrit	1.22 (0.74,2.01)	0.439
16-12	Platelet Count	1.38 (0.88,2.16)	0.174
16-14	Prothrombin Time	0.47 (0.16,1.38)	0.101
16-15	RBC Morphology	0.97 (0.85,1.11)	0.681
16-17	Absolute Neutrophils (bands) (Zero versus Nonzero)	0.92 (0.76,1.10)	0.332
16-20	Absolute Eosinophils (Zero versus Nonzero)	1.05 (0.86,1.29)	0.625
16-21	Absolute Basophils (Zero versus Nonzero)	0.97 (0.85,1.11)	0.669

Table Q-1-6. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Reference	Clinical Parameter	Est. Relative Risk (95% C.I.)[a]	p-Value[a]
17-3	Kidney Disease	0.97 (0.81,1.15)	0.717
17-4	Kidney Stones	0.58 (0.36,0.94)	0.016
17-5	Urinary Protein	1.18 (0.87,1.59)	0.287
17-6	Urinary Red Blood Cell Count	1.10 (0.79,1.52)	0.582
17-7	Urinary White Blood Cell Count	0.94 (0.66,1.34)	0.736
18-3	Past Thyroid Disease	1.08 (0.80,1.47)	0.621
18-4	Composite Diabetes Indicator	1.01 (0.85,1.19)	0.947
18-7	Thyroid Gland	--	--
18-10	Retinopathy Results (Diabetics)	1.59 (0.88,2.88)	0.144
18-11	Neuropathy Results (Diabetics)	1.20 (0.77,1.87)	0.421
18-12	Radial Pulses (Doppler) (Diabetics)	--	--
18-13	Femoral Pulses (Doppler) (Diabetics)	0.73 (0.34,1.55)	0.377
18-14	Popliteal Pulses (Doppler) (Diabetics)	0.90 (0.52,1.56)	0.699
18-15	Dorsalis Pedis Pulses (Doppler) (Diabetics)	1.19 (0.83,1.70)	0.351
18-16	Posterior Tibial Pulses (Doppler) (Diabetics)	0.84 (0.51,1.37)	0.463
18-17	Leg Pulses (Doppler) (Diabetics)	1.20 (0.85,1.70)	0.294
18-18	Peripheral Pulses (Doppler) (Diabetics)	1.20 (0.85,1.70)	0.294
18-20	Thyroid Stimulating Hormone (TSH)	1.44 (0.97,2.15)	0.076
18-22	Thyroxine (T_4)	1.06 (0.43,2.57)	0.903
18-23	Anti-Thyroid Antibodies	0.92 (0.66,1.30)	0.644
18-25	Fasting Glucose (All participants)	0.96 (0.80,1.16)	0.690
18-27	Fasting Glucose (Diabetics)	0.96 (0.69,1.34)	0.830
18-29	Fasting Glucose (Nondiabetics)	0.83 (0.55,1.26)	0.372
18-31	2-Hour Postprandial Glucose (Nondiabetics)	1.09 (0.90,1.33)	0.390
18-32	Fasting Urinary Glucose (All participants)	1.39 (1.05,1.85)	0.023
18-33	Fasting Urinary Glucose (Diabetics)	1.43 (1.03,2.00)	0.031
18-34	Fasting Urinary Glucose (Nondiabetics)	--	--
18-35	2-Hour Postprandial Urinary Glucose (Nondiabetics)	1.18 (0.98,1.41)	0.074
18-39	Serum Insulin (Diabetics)	0.62 (0.44,0.87)	0.003
18-43	Serum Glucagon (All participants)	0.71 (0.22,2.32)	0.546

Table Q-1-6. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Reference	Clinical Parameter	Est. Relative Risk (95% C.I.)[a]	p-Value[a]
18-45	Serum Glucagon (Diabetics)	0.72 (0.22,2.37)	0.566
18-47	Serum Glucagon (Nondiabetics)	--	--
18-49	α-1-C Hemoglobin (All participants)	1.02 (0.88,1.18)	0.773
18-51	α-1-C Hemoglobin (Diabetics)	1.02 (0.66,1.57)	0.931
18-53	α-1-C Hemoglobin (Nondiabetics)	1.02 (0.83,1.24)	0.866
18-54	Urinary Protein (Diabetics)	1.21 (0.78,1.88)	0.401
18-56	Serum Proinsulin (Diabetics)	1.09 (0.81,1.46)	0.556
18-58	Serum C Peptide (Diabetics)	0.79 (0.56,1.09)	0.140
18-60	Total Testosterone	1.05 (0.80,1.38)	0.709
18-62	Free Testosterone	1.14 (0.96,1.36)	0.129
18-63	Sex Hormone Binding Globulin	0.99 (0.82,1.18)	0.871
18-64	Total Testosterone to Sex Hormone Binding Globulin Ratio	0.98 (0.79,1.22)	0.879
18-66	Estradiol	1.24 (0.91,1.68)	0.180
18-68	Luteinizing Hormone (LH)	1.46 (0.83,2.57)	0.202
18-70	Follicle Stimulating Hormone	0.97 (0.71,1.32)	0.822
19-4	Composite Skin Test Diagnosis	0.77 (0.49,1.22)	0.240
19-15	Double Labelled Cells: CD5 with CD20 (Zero vs. Nonzero)	0.72 (0.41,1.29)	0.248
19-16	Double Labelled Cells: CD4 with CD8 (Zero vs. Nonzero)	0.93 (0.65,1.33)	0.686
19-17	Double Labelled Cells: CD3 with CD16+56 (Zero vs. Nonzero)	1.60 (0.95,2.70)	0.070
19-22	Lupus Panel: Antinuclear Antibody (ANA)	0.95 (0.77,1.16)	0.599
19-23	Lupus Panel: Thyroid Microsomal Antibody	0.91 (0.67,1.24)	0.559
19-24	Lupus Panel: MSK Smooth Muscle Antibody	0.60 (0.36,1.00)	0.035
19-25	Lupus Panel: MSK Mitochondrial Antibody	--	--
19-26	Lupus Panel: MSK Parietal Antibody	0.88 (0.59,1.33)	0.533
19-27	Lupus Panel: Rheumatoid Factor	0.80 (0.65,0.98)	0.028
19-28	Lupus Panel: B Cell Clones Detected by Serum Protein Electrophoresis	1.05 (0.66,1.68)	0.838

Table Q-1-6. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 2: Ranch Hands − Log_2 (Initial Dioxin)

Table Reference	Clinical Parameter	Est. Relative Risk (95% C.I.)[a]	p-Value[a]
19-29	Lupus Panel: Other Antibodies (ANA and MSK)	1.15 (0.77,1.71)	0.508
19-30	Lupus Panel: Summary Index	0.88 (0.76,1.01)	0.067
20-3	Asthma	1.17 (0.84,1.62)	0.357
20-4	Bronchitis	1.00 (0.84,1.19)	0.979
20-5	Pneumonia	0.87 (0.67,1.14)	0.309
20-6	Thorax and Lung Abnormalities	1.11 (0.92,1.35)	0.284
20-7	X Ray Interpretation	0.93 (0.76,1.14)	0.490

[a] Adjusted for percent body fat at the time of duty in SEA and change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin.

--: Estimated relative risk, confidence interval, and p-value not presented due to the sparse number of abnormalities.

Note: Relative risk for a twofold increase in initial dioxin.

Table Q-1-7.
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
9-3	Self-Perception of Health	Comparison	1,061	7.0		
		Background RH	374	6.7	1.06 (0.66,1.70)	0.815
		Low RH	260	10.4	1.47 (0.92,2.34)	0.107
		High RH	260	15.0	2.20 (1.45,3.34)	<0.001
		Low plus High RH	520	12.7	1.82 (1.28,2.60)	0.001
9-4	Appearance of Illness or Distress	Comparison	1,063	1.5		
		Background RH	374	2.1	1.46 (0.61,3.47)	0.394
		Low RH	260	2.3	1.41 (0.54,3.66)	0.482
		High RH	260	1.5	0.95 (0.31,2.92)	0.924
		Low plus High RH	520	1.9	1.18 (0.53,2.66)	0.685
9-5	Relative Age Appearance	Comparison	1,063	6.2		
		Background RH	374	4.3	0.71 (0.40,1.24)	0.229
		Low RH	260	4.2	0.64 (0.33,1.23)	0.177
		High RH	260	7.7	1.22 (0.22,2.06)	0.460
		Low plus High RH	520	6.0	0.92 (0.59,1.43)	0.710
9-8	Body Fat	Comparison	1,063	26.3		
		Background RH	374	14.2	0.82 (0.49,1.35)	0.427
		Low RH	260	30.4	1.19 (0.75,1.90)	0.464
		High RH	260	35.8	1.23 (0.78,1.94)	0.377
		Low plus High RH	520	33.1	1.21 (0.84,1.73)	0.300
9-9	Body Fat with Adjustment for Caloric Intake	Comparison	1,063	26.3		
		Background RH	374	14.2	0.82 (0.49,1.35)	0.427
		Low RH	260	30.4	1.19 (0.75,1.90)	0.464
		High RH	260	35.8	1.23 (0.78,1.94)	0.377
		Low plus High RH	520	33.1	1.21 (0.84,1.73)	0.300
9-11	Sedimentation Rate	Comparison	1,063	17.2		
		Background RH	374	13.4	0.79 (0.56,1.11)	0.174
		Low RH	260	21.5	1.29 (0.92,1.81)	0.136
		High RH	260	20.4	1.17 (0.83,1.65)	0.373
		Low plus High RH	520	21.0	1.23 (0.94,1.61)	0.128
10-3	Skin Neoplasms	Comparison	1,002	28.3		
		Background RH	356	33.4	1.31 (1.01,1.70)	0.043
		Low RH	232	36.6	1.44 (1.06,1.94)	0.019
		High RH	245	23.3	0.75 (0.54,1.04)	0.083
		Low plus High RH	477	29.8	1.05 (0.82,1.34)	0.694
10-4	Malignant Skin Neoplasms	Comparison	1,002	11.7		
		Background RH	356	14.3	1.33 (0.93,1.90)	0.119
		Low RH	232	17.3	1.53 (1.03,2.26)	0.036
		High RH	245	8.2	0.65 (0.39,1.07)	0.089
		Low plus High RH	477	12.6	1.05 (0.75,1.47)	0.761

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
10-5	Benign Skin Neoplasms	Comparison	1,056	17.6		
		Background RH	371	21.6	1.30 (0.97,1.75)	0.082
		Low RH	255	20.0	1.17 (0.83,1.66)	0.365
		High RH	258	16.7	0.92 (0.64,1.33)	0.661
		Low plus High RH	513	18.3	1.04 (0.79,1.38)	0.761
10-6	Skin Neoplasms of Uncertain Behavior or Unspecified Nature	Comparison	1,002	0.5		
		Background RH	356	0.6	1.30 (0.25,6.85)	0.760
		Low RH	232	0.4	0.79 (0.09,6.90)	0.830
		High RH	245	0.4	0.69 (0.08,6.09)	0.739
		Low plus High RH	477	0.4	0.74 (0.14,3.90)	0.719
10-7	Basal Cell Carcinomas (All Sites Combined)	Comparison	1,002	10.1		
		Background RH	356	11.8	1.25 (0.85,1.84)	0.254
		Low RH	232	14.7	1.48 (0.97,2.25)	0.066
		High RH	245	6.5	0.60 (0.35,1.04)	0.071
		Low plus High RH	477	10.5	1.01 (0.71,1.45)	0.948
10-8	Basal Cell Carcinomas (Ear, Face, Head, and Neck)	Comparison	1,002	7.6		
		Background RH	356	10.1	1.44 (0.94,2.19)	0.091
		Low RH	232	12.1	1.61 (1.02,2.56)	0.042
		High RH	245	4.5	0.56 (0.29,1.06)	0.076
		Low plus High RH	477	8.2	1.05 (0.70,1.58)	0.812
10-9	Basal Cell Carcinomas (Trunk)	Comparison	1,002	2.8		
		Background RH	356	3.1	1.16 (0.57,2.38)	0.676
		Low RH	232	4.7	1.64 (0.80,3.36)	0.176
		High RH	245	2.9	0.99 (0.42,2.30)	0.977
		Low plus High RH	477	3.8	1.31 (0.71,2.40)	0.389
10-10	Basal Cell Carcinomas (Upper Extremities)	Comparison	1,002	1.8		
		Background RH	356	2.3	1.14 (0.60,3.32)	0.428
		Low RH	232	1.7	0.89 (0.30,2.66)	0.829
		High RH	245	1.2	0.62 (0.18,2.14)	0.449
		Low plus High RH	477	1.5	0.75 (0.31,1.82)	0.523
10-11	Basal Cell Carcinomas (Lower Extremities)	Comparison	1,002	0.2		
		Background RH	356	0.3	1.95 (0.17,22.90)	0.596
		Low RH	232	0.0	--	--
		High RH	245	0.0	--	--
		Low plus High RH	477	0.0	--	--
10-12	Squamous Cell Carcinomas	Comparison	1,002	1.1		
		Background RH	356	1.7	1.59 (0.58,4.40)	0.367
		Low RH	232	1.7	1.54 (0.49,4.92)	0.461
		High RH	245	0.8	0.73 (0.16,3.32)	0.680
		Low plus High RH	477	1.3	1.12 (0.41,3.07)	0.820

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
10-13	Nonmelanomas	Comparison	1,002	11.1		
		Background RH	356	13.5	1.32 (0.92,1.91)	0.134
		Low RH	232	16.4	1.52 (1.02,2.27)	0.042
		High RH	245	7.4	0.61 (0.36,1.03)	0.064
		Low plus High RH	477	11.7	1.03 (0.73,1.45)	0.869
10-14	Melanomas	Comparison	1,002	0.8		
		Background RH	356	0.8	1.05 (0.27,4.01)	0.948
		Low RH	232	2.2	2.79 (0.90,8.66)	0.076
		High RH	245	0.8	1.01 (0.21,4.84)	0.987
		Low plus High RH	477	1.5	1.86 (0.67,5.21)	0.235
10-15	Systemic Neoplasms	Comparison	1,062	20.7		
		Background RH	372	19.6	0.98 (0.72,1.32)	0.873
		Low RH	255	23.9	1.17 (0.85,1.62)	0.340
		High RH	259	19.7	0.91 (0.65,1.28)	0.594
		Low plus High RH	514	21.8	1.04 (0.80,1.34)	0.784
10-16	Malignant Systemic Neoplasms	Comparison	1,062	4.2		
		Background RH	372	4.0	1.03 (0.57,1.89)	0.914
		Low RH	255	8.2	1.87 (1.09,3.22)	0.024
		High RH	259	3.1	0.67 (0.31,1.45)	0.309
		Low plus High RH	514	5.6	1.26 (0.77,2.04)	0.356
10-17	Benign Systemic Neoplasms	Comparison	1,062	15.6		
		Background RH	372	16.1	1.07 (0.77,1.48)	0.689
		Low RH	255	16.5	1.05 (0.73,1.52)	0.795
		High RH	259	16.2	1.02 (0.71,1.48)	0.911
		Low plus High RH	514	16.3	1.04 (0.78,1.38)	0.812
10-18	Systemic Neoplasms of Uncertain Behavior or Unspecified Nature	Comparison	1,062	1.8		
		Background RH	372	1.6	0.94 (0.37,2.38)	0.890
		Low RH	255	2.0	1.08 (0.40,2.94)	0.877
		High RH	259	1.2	0.62 (0.18,2.13)	0.448
		Low plus High RH	514	1.6	0.85 (0.37,1.96)	0.698
10-19	Malignant Systemic Neoplasms (Eye, Ear, Face, Head, and Neck)	Comparison	1,062	0.6		
		Background RH	372	0.8	1.57 (0.38,6.39)	0.532
		Low RH	255	1.6	2.49 (0.69,8.98)	0.163
		High RH	259	0.8	1.21 (0.24,6.17)	0.820
		Low plus High RH	514	1.2	1.85 (0.58,5.86)	0.295

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
10-20	Malignant Systemic Neoplasms (Oral Cavity, Pharynx, and Larynx)	Comparison	1,062	0.5		
		Background RH	372	0.3	0.58 (0.07,5.08)	0.624
		Low RH	255	0.4	0.77 (0.09,6.65)	0.810
		High RH	259	0.8	1.55 (0.29,8.26)	0.605
		Low plus High RH	514	0.6	1.15 (0.27,4.94)	0.847
10-21	Malignant Systemic Neoplasms (Esophagus)	Comparison	1,062	0.1		
		Background RH	372	0.0	--	--
		Low RH	255	0.0	--	--
		High RH	259	0.0	--	--
		Low plus High RH	514	0.0	--	--
10-22	Malignant Systemic Neoplasms (Brain)	Comparison	1,062	0.0		
		Background RH	372	0.0	--	--
		Low RH	255	0.4	--	--
		High RH	259	0.0	--	--
		Low plus High RH	514	0.2	--	--
10-23	Malignant Systemic Neoplasms (Thymus, Heart, and Mediastinum)	Comparison	1,062	0.0		
		Background RH	372	0.3	--	--
		Low RH	255	0.0	--	--
		High RH	259	0.0	--	--
		Low plus High RH	514	0.0	--	--
10-24	Malignant Systemic Neoplasms (Thyroid Gland)	Comparison	1,062	0.0		
		Background RH	372	0.0	--	--
		Low RH	255	0.8	--	--
		High RH	259	0.0	--	--
		Low plus High RH	514	0.4	--	--
10-25	Malignant Systemic Neoplasms (Bronchus and Lung)	Comparison	1,062	0.4		
		Background RH	372	0.8	2.40 (0.51,11.28)	0.268
		Low RH	255	1.2	2.48 (0.53,11.59)	0.249
		High RH	259	0.0	--	--
		Low plus High RH	514	0.6	1.06 (0.21,5.27)	0.944
10-26	Malignant Systemic Neoplasms (Colon and Rectum)	Comparison	1,062	0.3		
		Background RH	372	0.3	1.14 (0.12,11.07)	0.910
		Low RH	255	1.6	5.12 (1.13,23.27)	0.034
		High RH	259	0.0	--	--
		Low plus High RH	514	0.8	2.48 (0.55,11.23)	0.239
10-27	Malignant Systemic Neoplasms (Kidney and Bladder)	Comparison	1,062	0.4		
		Background RH	372	0.5	1.47 (0.26,8.19)	0.261
		Low RH	255	1.2	3.01 (0.66,13.61)	0.154
		High RH	259	0.4	1.00 (0.11,9.10)	0.997
		Low plus High RH	514	0.8	2.01 (0.50,8.14)	0.328

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
10-28	Malignant Systemic Neoplasms (Prostate)	Comparison	1,062	2.1		
		Background RH	372	1.3	0.72 (0.27,1.92)	0.508
		Low RH	255	2.4	1.04 (0.41,2.61)	0.934
		High RH	259	1.5	0.68 (0.23,2.01)	0.487
		Low plus High RH	514	2.0	0.86 (0.40,1.84)	0.697
10-29	Malignant Systemic Neoplasms (Testicles)	Comparison	1,062	0.0		
		Background RH	372	0.0	--	--
		Low RH	255	0.8	--	--
		High RH	259	0.4	--	--
		Low plus High RH	514	0.6	--	--
10-30	Malignant Systemic Neoplasms (Ill-Defined Sites)	Comparison	1,062	0.2		
		Background RH	372	0.0	--	--
		Low RH	255	0.0	--	--
		High RH	259	0.0	--	--
		Low plus High RH	514	0.0	--	--
10-31	Malignant Systemic Neoplasms (Connective and Other Soft Tissue)	Comparison	1,062	0.2		
		Background RH	372	0.0	--	--
		Low RH	255	0.0	--	--
		High RH	259	0.0	--	--
		Low plus High RH	514	0.0	--	--
10-32	Carcinomas in Situ of the Penis, Other, and Unspecified Sites	Comparison	1,062	0.1		
		Background RH	372	0.0	--	--
		Low RH	255	0.4	4.22 (0.26,68.18)	0.311
		High RH	259	0.0	--	--
		Low plus High RH	514	0.2	2.05 (0.13,33.72)	0.617
10-33	Hodgkin's Disease	Comparison	1,062	0.1		
		Background RH	372	0.3	2.59 (0.15,43.50)	0.509
		Low RH	255	0.0	--	--
		High RH	259	0.0	--	--
		Low plus High RH	514	0.0	--	--
10-34	Leukemia	Comparison	1,062	0.1		
		Background RH	372	0.0	--	--
		Low RH	255	0.4	4.35 (0.26,70.40)	0.300
		High RH	259	0.0	--	--
		Low plus High RH	514	0.2	2.10 (0.13,34.67)	0.603
10-35	Non-Hodgkin's Lymphoma	Comparison	1,062	0.2		
		Background RH	372	0.3	1.23 (0.11,14.03)	0.865
		Low RH	255	0.0	--	--
		High RH	259	0.0	--	--
		Low plus High RH	514	0.0	--	--

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
10-36	Other Malignant Systemic Neoplasms of Lymphoid and Histiocytic Tissue	Comparison	1,062	0.1		
		Background RH	372	0.3	2.84 (0.16,50.71)	0.477
		Low RH	255	0.0	--	--
		High RH	259	0.0	--	--
		Low plus High RH	514	0.0	--	--
10-37	Multiple Myeloma	Comparison	1,062	0.0		
		Background RH	372	0.0	--	--
		Low RH	255	0.4	--	--
		High RH	259	0.0	--	--
		Low plus High RH	514	0.2	--	--
10-38	Skin or Systemic Neoplasms	Comparison	1,055	42.0		
		Background RH	369	45.0	1.17 (0.92,1.49)	0.208
		Low RH	250	48.8	1.29 (0.98,1.70)	0.073
		High RH	257	39.3	0.87 (0.66,1.16)	0.348
		Low plus High RH	507	44.0	1.06 (0.86,1.32)	0.584
10-39	Prostate-Specific Antigen (Below vs. At or Above Sensitivity Limit)	Comparison	1,062	3.0		
		Background RH	372	2.7	0.95 (0.46,1.96)	0.882
		Low RH	255	2.4	0.76 (0.31,1.83)	0.534
		High RH	259	2.7	0.85 (0.37,1.96)	0.700
		Low plus High RH	514	2.5	0.80 (0.42,1.55)	0.512
10-41	Prostate-Specific Antigen	Comparison	1,062	5.0		
		Background RH	372	2.4	0.49 (0.24,1.00)	0.050
		Low RH	255	5.9	1.14 (0.63,2.06)	0.665
		High RH	259	3.5	0.67 (0.33,1.39)	0.282
		Low plus High RH	514	4.7	0.91 (0.55,1.49)	0.693
11-3	Inflammatory Diseases	Comparison	1,054	0.2		
		Background RH	373	0.3	1.14 (0.10,12.72)	0.916
		Low RH	260	0.4	2.19 (0.20,24.61)	0.525
		High RH	256	0.8	5.14 (0.70,37.90)	0.108
		Low plus High RH	516	0.6	3.53 (0.57,21.74)	0.174
11-4	Hereditary and Degenerative Diseases	Comparison	1,061	5.6		
		Background RH	373	6.4	1.10 (0.67,1.80)	0.714
		Low RH	260	5.8	1.09 (0.61,1.95)	0.778
		High RH	257	5.1	0.94 (0.51,1.75)	0.846
		Low plus High RH	517	5.4	1.01 (0.64,1.62)	0.952

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
11-5	Peripheral Disorders	Comparison	1,059	16.7		
		Background RH	370	16.2	0.99 (0.72,1.37)	0.947
		Low RH	260	18.8	1.14 (0.80,1.62)	0.472
		High RH	257	17.5	1.04 (0.72,1.49)	0.837
		Low plus High RH	517	18.2	1.09 (0.82,1.44)	0.550
11-6	Other Neurological Disorders	Comparison	1,056	20.4		
		Background RH	370	16.8	0.79 (0.57,1.08)	0.132
		Low RH	259	23.6	1.17 (0.85,1.62)	0.339
		High RH	257	26.1	1.40 (1.01,1.92)	0.040
		Low plus High RH	516	24.8	1.28 (0.99,1.65)	0.055
11-7	Smell	Comparison	1,062	1.3		
		Background RH	373	2.1	1.70 (0.70,4.12)	0.243
		Low RH	260	1.5	1.15 (0.37,3.53)	0.807
		High RH	257	0.4	0.28 (0.04,2.18)	0.227
		Low plus High RH	517	1.0	0.72 (0.26,2.01)	0.526
11-8	Visual Fields	Comparison	1,058	0.1		
		Background RH	372	0.3	--	--
		Low RH	260	0.0	--	--
		High RH	256	0.0	--	--
		Low plus High RH	516	0.0	--	--
11-9	Light Reaction	Comparison	1,060	0.2		
		Background RH	372	0.3	1.07 (0.10,11.97)	0.956
		Low RH	260	0.8	5.05 (0.70,36.61)	0.109
		High RH	257	0.8	5.31 (0.72,39.12)	0.101
		Low plus High RH	517	0.8	5.18 (0.93,28.94)	0.061
11-10	Ocular	Comparison	1,060	0.5		
		Background RH	372	0.5	1.16 (0.22,6.06)	0.863
		Low RH	260	1.2	2.41 (0.57,10.21)	0.232
		High RH	257	0.8	1.64 (0.31,8.59)	0.556
		Low plus High RH	517	1.0	2.03 (0.58,7.11)	0.266
11-11	Facial Sensation	Comparison	1,062	0.0		
		Background RH	373	0.3	--	0.520
		Low RH	260	0.0	--	--
		High RH	257	0.8	--	0.076
		Low plus High RH	517	0.4	--	0.214
11-12	Jaw Clench	Comparison	1,062	0.0		
		Background RH	373	0.0	--	--
		Low RH	260	0.0	--	--
		High RH	257	0.4	--	--
		Low plus High RH	517	0.2	--	--

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
11-13	Smile	Comparison	1,062	0.4		
		Background RH	373	0.5	1.58 (0.28,8.75)	0.603
		Low RH	260	1.2	2.98 (0.66,13.48)	0.155
		High RH	257	1.2	2.84 (0.62,12.94)	0.176
		Low plus High RH	517	1.2	2.91 (0.81,10.45)	0.101
11-14	Palpebral Fissure	Comparison	1,062	0.8		
		Background RH	373	1.1	1.35 (0.41,4.46)	0.624
		Low RH	260	1.2	1.35 (0.36,5.04)	0.657
		High RH	257	0.8	0.86 (0.18,4.04)	0.848
		Low plus High RH	517	1.0	1.10 (0.36,3.32)	0.866
11-15	Balance	Comparison	1,061	0.5		
		Background RH	373	0.5	1.19 (0.23,6.29)	0.836
		Low RH	259	0.4	0.71 (0.08,6.15)	0.755
		High RH	257	0.8	1.31 (0.23,7.41)	0.760
		Low plus High RH	516	0.6	1.01 (0.23,4.43)	0.994
11-16	Gag Reflex	Comparison	1,062	0.0		
		Background RH	373	0.0	--	--
		Low RH	260	0.0	--	--
		High RH	257	0.4	--	--
		Low plus High RH	517	0.2	--	--
11-17	Speech	Comparison	1,062	0.0		
		Background RH	373	0.3	--	0.520
		Low RH	260	0.8	--	0.077
		High RH	257	0.8	--	0.076
		Low plus High RH	517	0.8	--	0.023
11-18	Palate and Uvula Movement	Comparison	1,062	0.0		
		Background RH	373	0.0	--	--
		Low RH	260	0.0	--	--
		High RH	257	0.4	--	--
		Low plus High RH	517	0.2	--	--
11-19	Neck Range of Motion	Comparison	1,062	13.2		
		Background RH	373	13.4	1.07 (0.75,1.52)	0.702
		Low RH	260	15.8	1.16 (0.79,1.70)	0.446
		High RH	256	13.7	1.01 (0.67,1.51)	0.976
		Low plus High RH	516	14.7	1.08 (0.80,1.47)	0.605
11-20	Cranial Nerve Index Without Range of Motion	Comparison	1,058	3.3		
		Background RH	372	4.3	1.32 (0.72,2.43)	0.368
		Low RH	259	5.4	1.66 (0.88,3.14)	0.119
		High RH	256	4.3	1.31 (0.65,2.62)	0.450
		Low plus High RH	515	4.9	1.48 (0.88,2.51)	0.142

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
11-21	Pin Prick	Comparison	1,013	5.4		
		Background RH	361	4.4	0.93 (0.52,1.65)	0.795
		Low RH	245	7.3	1.29 (0.74,2.26)	0.363
		High RH	246	5.3	0.86 (0.46,1.62)	0.642
		Low plus High RH	491	6.3	1.07 (0.68,1.70)	0.768
11-22	Light Touch	Comparison	1,013	4.1		
		Background RH	361	4.4	1.23 (0.68,2.23)	0.500
		Low RH	245	5.7	1.30 (0.69,2.43)	0.412
		High RH	246	5.3	1.15 (0.60,2.19)	0.678
		Low plus High RH	491	5.5	1.22 (0.74,2.02)	0.433
11-23	Muscle Status	Comparison	1,062	2.5		
		Background RH	373	3.2	1.16 (0.58,2.33)	0.674
		Low RH	260	3.1	1.25 (0.56,2.79)	0.590
		High RH	257	3.1	1.34 (0.60,3.00)	0.477
		Low plus High RH	517	3.1	1.29 (0.69,2.43)	0.427
11-24	Patellar Reflex	Comparison	1,059	2.7		
		Background RH	371	0.3	0.11 (0.02,0.84)	0.033
		Low RH	260	1.9	0.62 (0.24,1.63)	0.334
		High RH	257	1.9	0.60 (0.23,1.58)	0.301
		Low plus High RH	517	1.9	0.61 (0.29,1.27)	0.188
11-25	Achilles Reflex	Comparison	1,059	9.1		
		Background RH	371	9.2	1.10 (0.73,1.67)	0.638
		Low RH	259	11.6	1.23 (0.79,1.91)	0.352
		High RH	257	9.3	0.96 (0.60,1.55)	0.879
		Low plus High RH	516	10.5	1.10 (0.77,1.56)	0.610
11-26	Biceps Reflex	Comparison	1,062	1.2		
		Background RH	373	0.0	--	0.584
		Low RH	260	2.3	1.60 (0.59,4.33)	0.351
		High RH	257	0.4	0.24 (0.03,1.89)	0.174
		Low plus High RH	517	1.4	0.91 (0.35,2.34)	0.837
11-27	Babinski Reflex	Comparison	1,061	0.7		
		Background RH	373	0.5	0.72 (0.15,3.53)	0.684
		Low RH	260	0.4	0.55 (0.07,4.54)	0.578
		High RH	257	0.0	--	0.408
		Low plus High RH	517	0.2	0.28 (0.03,2.37)	0.244
11-30	Tremor	Comparison	1,062	2.7		
		Background RH	373	3.2	1.19 (0.60,2.37)	0.623
		Low RH	260	1.5	0.57 (0.20,1.62)	0.289
		High RH	257	3.5	1.27 (0.59,2.73)	0.539
		Low plus High RH	517	2.5	0.92 (0.47,1.78)	0.797

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
11-31	Coordination	Comparison	1,062	2.2		
		Background RH	373	1.9	0.83 (0.35,1.96)	0.664
		Low RH	259	2.7	1.20 (0.51,2.84)	0.681
		High RH	257	2.3	1.09 (0.43,2.74)	0.858
		Low plus High RH	516	2.5	1.15 (0.57,2.30)	0.703
11-32	Romberg Sign	Comparison	1,061	0.5		
		Background RH	373	0.5	1.19 (0.23,6.29)	0.836
		Low RH	259	0.4	0.71 (0.08,6.15)	0.755
		High RH	257	0.8	1.31 (0.23,7.41)	0.760
		Low plus High RH	516	0.6	1.01 (0.23,4.43)	0.994
11-33	Gait	Comparison	1,061	3.5		
		Background RH	373	3.8	1.16 (0.61,2.18)	0.655
		Low RH	260	1.9	0.53 (0.20,1.36)	0.184
		High RH	257	4.7	1.28 (0.66,2.51)	0.467
		Low plus High RH	517	3.3	0.90 (0.50,1.62)	0.726
11-34	Central Nervous System (CNS) Index	Comparison	1,062	6.3		
		Background RH	373	6.2	1.01 (0.62,1.65)	0.969
		Low RH	259	4.2	0.64 (0.33,1.24)	0.185
		High RH	257	7.4	1.16 (0.68,1.97)	0.589
		Low plus High RH	516	5.8	0.89 (0.57,1.40)	0.622
12-3	Psychoses	Comparison	1,062	3.0		
		Background RH	373	1.9	0.67 (0.29,1.53)	0.336
		Low RH	260	3.5	1.13 (0.53,2.42)	0.745
		High RH	258	3.5	1.07 (0.50,2.28)	0.867
		Low plus High RH	518	3.5	1.10 (0.61,1.99)	0.753
12-4	Alcohol Dependence	Comparison	1,062	6.4		
		Background RH	373	7.5	1.18 (0.74,1.87)	0.484
		Low RH	260	7.7	1.21 (0.72,2.03)	0.475
		High RH	258	7.4	1.17 (0.69,1.99)	0.557
		Low plus High RH	518	7.5	1.19 (0.79,1.79)	0.404
12-5	Drug Dependence	Comparison	1,062	0.3		
		Background RH	373	0.3	0.62 (0.06,6.22)	0.684
		Low RH	260	0.0	--	--
		High RH	258	0.0	--	--
		Low plus High RH	518	0.0	--	--
12-6	Anxiety	Comparison	1,059	14.8		
		Background RH	371	13.5	0.91 (0.64,1.28)	0.585
		Low RH	259	12.7	0.84 (0.56,1.26)	0.395
		High RH	257	20.2	1.43 (1.01,2.04)	0.044
		Low plus High RH	516	16.5	1.12 (0.84,1.50)	0.433

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
12-7	Other Neuroses	Comparison	1,051	38.3		
		Background RH	366	34.7	0.87 (0.68,1.12)	0.293
		Low RH	257	44.8	1.31 (0.99,1.73)	0.056
		High RH	255	45.9	1.34 (1.02,1.77)	0.037
		Low plus High RH	512	45.3	1.33 (1.07,1.64)	0.010
12-8	SCL-90-R	Comparison	1,061	5.6		
	Anxiety	Background RH	373	5.1	0.94 (0.55,1.60)	0.812
		Low RH	259	7.3	1.32 (0.77,2.26)	0.309
		High RH	258	11.2	2.11 (1.32,3.38)	0.002
		Low plus High RH	517	9.3	1.71 (1.14,2.54)	0.009
12-9	SCL-90-R	Comparison	1,061	8.8		
	Depression	Background RH	373	9.1	1.09 (0.72,1.65)	0.684
		Low RH	259	7.7	0.85 (0.51,1.41)	0.527
		High RH	258	13.6	1.58 (1.04,2.40)	0.031
		Low plus High RH	517	10.6	1.20 (0.85,1.71)	0.303
12-10	SCL-90-R	Comparison	1,061	4.2		
	Hostility	Background RH	373	4.8	1.26 (0.71,2.21)	0.429
		Low RH	259	5.4	1.25 (0.67,2.32)	0.484
		High RH	258	8.9	2.04 (1.21,3.46)	0.008
		Low plus High RH	517	7.2	1.64 (1.05,2.58)	0.032
12-11	SCL-90-R	Comparison	1,061	8.7		
	Interpersonal	Background RH	373	7.5	0.88 (0.57,1.37)	0.575
	Sensitivity	Low RH	259	9.7	1.11 (0.70,1.77)	0.662
		High RH	258	13.6	1.62 (1.06,2.45)	0.024
		Low plus High RH	517	11.6	1.36 (0.96,1.92)	0.083
12-12	SCL-90-R	Comparison	1,061	8.6		
	Obsessive-	Background RH	373	10.7	1.32 (0.89,1.96)	0.171
	Compulsive	Low RH	259	8.9	1.01 (0.62,1.63)	0.982
	Behavior	High RH	258	12.8	1.54 (1.00,2.36)	0.049
		Low plus High RH	517	10.8	1.26 (0.89,1.80)	0.196
12-13	SCL-90-R	Comparison	1,061	4.4		
	Paranoid	Background RH	373	6.2	1.44 (0.86,2.41)	0.170
	Ideation	Low RH	259	5.8	1.31 (0.72,2.38)	0.380
		High RH	258	8.5	2.00 (1.18,3.39)	0.010
		Low plus High RH	517	7.2	1.64 (1.05,2.57)	0.029
12-14	SCL-90-R	Comparison	1,061	7.8		
	Phobic Anxiety	Background RH	373	7.5	0.98 (0.63,1.54)	0.933
		Low RH	259	6.6	0.80 (0.46,1.37)	0.413
		High RH	258	11.2	1.47 (0.94,2.31)	0.094
		Low plus High RH	517	8.9	1.12 (0.77,1.64)	0.560

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
12-15	SCL-90-R Psychoticism	Comparison	1,061	8.7		
		Background RH	373	8.9	1.05 (0.69,1.60)	0.809
		Low RH	259	8.5	0.96 (0.59,1.56)	0.852
		High RH	258	10.9	1.26 (0.80,1.97)	0.317
		Low plus High RH	517	9.7	1.10 (0.77,1.59)	0.598
12-16	SCL-90-R Somatization	Comparison	1,061	7.6		
		Background RH	373	8.6	1.16 (0.75,1.78)	0.505
		Low RH	259	9.7	1.27 (0.80,2.04)	0.315
		High RH	258	12.8	1.75 (1.14,2.70)	0.011
		Low plus High RH	517	11.2	1.51 (1.05,2.15)	0.024
12-17	SCL-90-R Global Severity Index	Comparison	1,061	7.7		
		Background RH	373	7.5	1.01 (0.64,1.58)	0.967
		Low RH	259	8.9	1.13 (0.70,1.84)	0.615
		High RH	258	13.6	1.82 (1.19,2.78)	0.006
		Low plus High RH	517	11.2	1.47 (1.03,2.09)	0.035
12-18	SCL-90-R Positive Symptom Total	Comparison	1,061	9.4		
		Background RH	373	8.6	0.95 (0.62,1.44)	0.791
		Low RH	259	10.4	1.08 (0.69,1.70)	0.732
		High RH	258	14.3	1.56 (1.04,2.34)	0.033
		Low plus High RH	517	12.4	1.13 (0.94,1.84)	0.110
12-19	SCL-90-R Positive Symptom Distress Index	Comparison	1,061	7.2		
		Background RH	373	6.2	0.91 (0.56,1.47)	0.691
		Low RH	259	7.7	1.06 (0.63,1.77)	0.836
		High RH	258	9.7	1.32 (0.82,2.13)	0.249
		Low plus High RH	517	8.7	1.19 (0.81,1.75)	0.380
13-3	Hepatitis (Non-A, Non-B, and Non-C)	Comparison	1,055	1.7		
		Background RH	370	1.6	0.98 (0.38,2.52)	0.973
		Low RH	258	1.9	1.10 (0.40,2.99)	0.856
		High RH	258	1.6	0.89 (0.30,2.65)	0.828
		Low plus High RH	516	1.7	0.99 (0.44,2.23)	0.985
13-4	Jaundice	Comparison	1,035	2.8		
		Background RH	363	3.6	1.36 (0.69,2.67)	0.376
		Low RH	253	0.4	0.14 (0.02,1.01)	0.052
		High RH	254	0.8	0.26 (0.06,1.09)	0.066
		Low plus High RH	507	0.6	0.20 (0.06,0.66)	0.008
13-5	Acute and Subacute Necrosis of the Liver	Comparison	1,062	0.0		
		Background RH	374	0.0	--	--
		Low RH	260	0.0	--	--
		High RH	260	0.0	--	--
		Low plus High RH	520	0.0	--	--

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
13-6	Alcoholic Chronic Liver Disease and Cirrhosis	Comparison	1,005	6.0		
		Background RH	354	5.4	0.94 (0.55,1.61)	0.821
		Low RH	245	5.7	0.91 (0.50,1.67)	0.767
		High RH	235	6.0	0.96 (0.52,1.75)	0.887
		Low plus High RH	480	5.8	0.93 (0.59,1.49)	0.776
13-7	Nonalcoholic Chronic Liver Disease and Cirrhosis	Comparison	1,062	1.1		
		Background RH	374	1.1	1.15 (0.36,3.63)	0.814
		Low RH	260	1.5	1.24 (0.38,3.99)	0.721
		High RH	260	1.2	0.79 (0.22,2.92)	0.730
		Low plus High RH	520	1.3	1.00 (0.38,2.62)	0.999
13-8	Liver Abscess and Sequelae of Chronic Liver Disease	Comparison	1,063	0.1		
		Background RH	374	0.0	--	--
		Low RH	260	0.0	--	--
		High RH	260	0.4	--	--
		Low plus High RH	520	0.2	--	--
13-9	Other Liver Disorders	Comparison	1,053	27.4		
		Background RH	371	25.1	0.96 (0.73,1.26)	0.750
		Low RH	259	29.0	1.04 (0.77,1.41)	0.787
		High RH	260	34.2	1.30 (0.97,1.74)	0.081
		Low plus High RH	519	31.6	1.17 (0.93,1.47)	0.193
13-10	Hepatomegaly	Comparison	1,061	2.6		
		Background RH	374	1.3	0.53 (0.20,1.38)	0.192
		Low RH	260	0.8	0.27 (0.06,1.13)	0.073
		High RH	259	2.7	0.98 (0.42,2.28)	0.960
		Low plus High RH	519	1.7	0.61 (0.29,1.32)	0.210
13-11	Current Hepatomegaly	Comparison	1,043	0.9		
		Background RH	371	0.3	0.34 (0.04,2.72)	0.310
		Low RH	258	0.4	0.43 (0.05,3.42)	0.425
		High RH	258	1.2	1.25 (0.33,4.71)	0.738
		Low plus High RH	516	0.8	0.85 (0.26,2.78)	0.783
13-13	AST	Comparison	1,043	3.2		
		Background RH	369	2.2	0.78 (0.35,1.71)	0.529
		Low RH	257	3.5	1.06 (0.50,2.25)	0.885
		High RH	258	1.9	0.53 (0.20,1.38)	0.192
		Low plus High RH	515	2.7	0.78 (0.41,1.48)	0.449
13-15	ALT	Comparison	1,043	7.0		
		Background RH	369	4.1	0.63 (0.36,1.12)	0.117
		Low RH	257	5.1	0.68 (0.37,1.26)	0.217
		High RH	258	7.4	0.94 (0.55,1.60)	0.812
		Low plus High RH	515	6.2	0.81 (0.52,1.26)	0.348

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
13-17	GGT	Comparison	1,043	18.0		
		Background RH	369	16.3	0.94 (0.68,1.30)	0.717
		Low RH	257	21.4	1.22 (0.87,1.72)	0.249
		High RH	258	22.5	1.24 (0.89,1.74)	0.201
		Low plus High RH	515	21.9	1.23 (0.95,1.61)	0.120
13-19	Alkaline Phosphatase	Comparison	1,043	3.1		
		Background RH	369	4.9	1.68 (0.92,3.05)	0.089
		Low RH	257	5.8	1.86 (0.99,3.50)	0.055
		High RH	258	4.7	1.50 (0.76,2.97)	0.247
		Low plus High RH	515	5.2	1.68 (0.99,2.85)	0.054
13-21	Total Bilirubin	Comparison	1,043	5.0		
		Background RH	369	5.4	1.12 (0.65,1.91)	0.682
		Low RH	247	4.7	0.92 (0.48,1.75)	0.795
		High RH	258	4.7	0.92 (0.48,1.75)	0.788
		Low plus High RH	515	4.7	0.92 (0.56,1.51)	0.732
13-22	Direct Bilirubin	Comparison	1,043	2.3		
		Background RH	369	1.4	0.71 (0.27,1.91)	0.503
		Low RH	257	1.6	0.61 (0.21,1.78)	0.363
		High RH	258	0.8	0.27 (0.06,1.16)	0.078
		Low plus High RH	515	1.2	0.43 (0.17,1.07)	0.069
13-24	LDH	Comparison	1,042	14.4		
		Background RH	369	13.3	1.01 (0.71,1.44)	0.945
		Low RH	257	12.5	0.82 (0.54,1.23)	0.332
		High RH	258	15.5	0.99 (0.68,1.46)	0.977
		Low plus High RH	515	14.0	0.91 (0.67,1.23)	0.525
13-26	Cholesterol	Comparison	1,043	12.7		
		Background RH	369	13.6	1.07 (0.75,1.53)	0.697
		Low RH	257	14.8	1.22 (0.83,1.81)	0.313
		High RH	258	16.7	1.37 (0.94,2.00)	0.101
		Low plus High RH	515	15.7	1.30 (0.96,1.75)	0.091
13-28	HDL Cholesterol	Comparison	1,033	8.4		
		Background RH	365	10.4	1.48 (0.98,2.23)	0.061
		Low RH	253	8.7	0.97 (0.59,1.60)	0.913
		High RH	253	12.3	1.36 (0.88,2.12)	0.169
		Low plus High RH	506	10.5	1.17 (0.81,1.68)	0.405
13-30	Cholesterol-HDL Ratio	Comparison	1,033	57.1		
		Background RH	365	52.9	0.93 (0.73,1.18)	0.543
		Low RH	253	58.5	1.04 (0.79,1.39)	0.769
		High RH	253	68.0	1.49 (1.11,2.00)	0.009
		Low plus High RH	506	63.2	1.24 (0.99,1.55)	0.060

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
13-32	Triglycerides	Comparison	1,043	9.7		
		Background RH	369	8.9	1.04 (0.68,1.58)	0.862
		Low RH	257	10.9	1.10 (0.70,1.72)	0.685
		High RH	258	14.7	1.46 (0.97,2.19)	0.071
		Low plus High RH	515	12.8	1.28 (0.91,1.78)	0.152
13-34	Creatine Kinase	Comparison	1,043	13.6		
		Background RH	369	12.5	1.04 (0.72,1.49)	0.845
		Low RH	257	13.6	0.95 (0.64,1.43)	0.818
		High RH	258	15.5	1.04 (0.70,1.53)	0.851
		Low plus High RH	515	14.6	1.00 (0.73,1.36)	0.982
13-36	Serum Amylase	Comparison	1,043	7.9		
		Background RH	369	6.8	0.77 (0.48,1.23)	0.273
		Low RH	257	7.0	0.91 (0.53,1.54)	0.719
		High RH	258	4.7	0.62 (0.33,1.16)	0.137
		Low plus High RH	515	5.8	0.77 (0.50,1.19)	0.232
13-37	Antibodies for Hepatitis A	Comparison	1,063	34.1		
		Background RH	374	30.5	0.88 (0.68,1.14)	0.338
		Low RH	260	35.8	1.04 (0.78,1.38)	0.810
		High RH	260	36.2	1.06 (0.80,1.42)	0.667
		Low plus High RH	520	36.0	1.05 (0.84,1.31)	0.666
13-38	Serological Evidence of Present or Prior Hepatitis B Infection	Comparison	1,063	15.1		
		Background RH	374	9.4	0.61 (0.41,0.90)	0.013
		Low RH	260	10.0	0.61 (0.40,0.95)	0.030
		High RH	260	13.1	0.80 (0.53,1.19)	0.272
		Low plus High RH	520	11.5	0.71 (0.51,0.97)	0.033
13-39	Antibodies for Hepatitis C	Comparison	1,063	1.5		
		Background RH	374	0.5	0.31 (0.07,1.37)	0.122
		Low RH	260	0.4	0.27 (0.04,2.06)	0.207
		High RH	260	0.4	0.28 (0.04,2.11)	0.215
		Low plus High RH	520	0.4	0.27 (0.06,1.20)	0.086
13-40	Stool Hemoccult	Comparison	1,005	1.8		
		Background RH	358	1.7	0.93 (0.36,2.39)	0.885
		Low RH	247	4.0	2.39 (1.08,5.27)	0.031
		High RH	243	1.6	0.89 (0.30,2.68)	0.841
		Low plus High RH	490	2.9	1.62 (0.79,3.30)	0.184
13-42	Prealbumin	Comparison	1,043	1.3		
		Background RH	369	1.6	1.39 (0.52,3.69)	0.510
		Low RH	257	0.8	0.49 (0.11,2.19)	0.352
		High RH	258	1.2	0.70 (0.19,2.55)	0.590
		Low plus High RH	515	1.0	0.60 (0.21,1.70)	0.335

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
13-44	Albumin	Comparison	1,043	2.3		
		Background RH	369	2.4	1.26 (0.58,2.77)	0.559
		Low RH	257	2.7	1.05 (0.44,2.48)	0.917
		High RH	258	2.3	0.86 (0.34,2.15)	0.743
		Low plus High RH	515	2.5	0.95 (0.47,1.90)	0.887
13-46	α-1 Acid Glycoprotein	Comparison	1,043	2.6		
		Background RH	369	1.6	0.57 (0.23,1.40)	0.223
		Low RH	257	2.3	0.91 (0.37,2.24)	0.837
		High RH	258	2.3	0.96 (0.39,2.37)	0.936
		Low plus High RH	515	2.3	0.94 (0.47,1.87)	0.852
13-50	α-2 Macroglobulin	Comparison	1,043	0.6		
		Background RH	369	0.3	0.51 (0.06,4.36)	0.542
		Low RH	257	0.0	--	--
		High RH	258	0.8	1.11 (0.21,5.88)	0.905
		Low plus High RH	515	0.4	0.55 (0.11,2.86)	0.479
13-52	Apolipoprotein B	Comparison	1,043	71.8		
		Background RH	369	71.3	0.98 (0.75,1.28)	0.890
		Low RH	257	72.8	1.06 (0.78,1.44)	0.719
		High RH	258	77.9	1.37 (0.99,1.90)	0.058
		Low plus High RH	515	75.3	1.20 (0.94,1.53)	0.146
13-54	C_3 Complement	Comparison	1,043	2.7		
		Background RH	369	3.8	1.23 (0.63,2.38)	0.549
		Low RH	257	1.9	0.72 (0.27,1.90)	0.504
		High RH	258	1.2	0.46 (0.13,1.55)	0.210
		Low plus High RH	515	1.6	0.59 (0.26,1.33)	0.207
13-56	C_4 Complement	Comparison	1,043	0.8		
		Background RH	369	0.8	1.00 (0.26,3.85)	0.997
		Low RH	257	0.8	0.98 (0.20,4.66)	0.977
		High RH	258	0.4	0.51 (0.06,4.17)	0.530
		Low plus High RH	515	0.6	0.75 (0.20,2.88)	0.676
13-58	Haptoglobin	Comparison	1,043	11.2		
		Background RH	369	12.2	1.08 (0.74,1.56)	0.696
		Low RH	257	12.1	1.08 (0.71,1.64)	0.730
		High RH	258	15.1	1.44 (0.97,2.14)	0.068
		Low plus High RH	515	13.6	1.25 (0.91,1.73)	0.164
13-60	Transferrin	Comparison	1,043	14.7		
		Background RH	369	14.1	0.97 (0.69,1.37)	0.863
		Low RH	257	10.5	0.67 (0.43,1.03)	0.071
		High RH	258	8.9	0.56 (0.36,0.90)	0.015
		Low plus High RH	515	9.7	0.62 (0.44,0.87)	0.005

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
14-3	Occurrence of Acne (Lifetime)	Comparison	1,063	86.1		
		Background RH	374	88.2	1.28 (0.89,1.84)	0.180
		Low RH	260	88.1	1.15 (0.76,1.74)	0.507
		High RH	260	85.4	0.91 (0.62,1.35)	0.643
		Low plus High RH	520	86.7	1.02 (0.75,1.39)	0.900
14-4	Acne Relative to Time of Duty in SEA (Pre- and Post-SEA and Post-SEA vs. Pre-SEA and None)	Comparison	1,063	85.7		
		Background RH	374	88.0	1.29 (0.90,1.84)	0.168
		Low RH	260	87.3	1.11 (0.74,1.66)	0.615
		High RH	260	85.0	0.91 (0.62,1.34)	0.638
		Low plus High RH	520	86.2	1.00 (0.74,1.36)	0.985
14-5	Acne Relative to Time of Duty in SEA (Post-SEA vs. None)	Comparison	946	84.4		
		Background RH	337	86.9	1.31 (0.91,1.89)	0.150
		Low RH	237	86.9	1.18 (0.77,1.79)	0.447
		High RH	233	83.7	0.91 (0.62,1.35)	0.650
		Low plus High RH	470	85.3	1.03 (0.76,1.41)	0.845
14-6	Acne Relative to Time of Duty in SEA (Pre- and Post-SEA vs. Pre-SEA)	Comparison	117	96.6		
		Background RH	37	97.3	1.37 (0.14,13.90)	0.786
		Low RH	23	91.3	0.32 (0.05,1.99)	0.222
		High RH	27	96.3	0.82 (0.08,8.19)	0.865
		Low plus High RH	50	94.0	0.48 (0.10,2.36)	0.367
14-8	Location of Acne (Post-SEA)	Comparison	797	44.7		
		Background RH	293	48.1	1.17 (0.90,1.54)	0.246
		Low RH	205	45.9	1.02 (0.75,1.39)	0.906
		High RH	194	42.8	0.91 (0.66,1.26)	0.574
		Low plus High RH	399	44.4	0.97 (0.76,1.23)	0.781
14-10	Location of Acne (Pre- and Post-SEA and Post-SEA)	Comparison	910	46.5		
		Background RH	329	48.9	1.12 (0.87,1.44)	0.392
		Low RH	226	44.7	0.91 (0.68,1.22)	0.537
		High RH	220	44.5	0.92 (0.68,1.24)	0.594
		Low plus High RH	446	44.6	0.92 (0.73,1.15)	0.457
14-11	Other Abnormalities	Comparison	1,061	81.3		
		Background RH	374	85.3	1.44 (1.04,2.01)	0.029
		Low RH	260	84.6	1.20 (0.83,1.74)	0.342
		High RH	260	80.4	0.89 (0.63,1.26)	0.519
		Low plus High RH	520	82.5	1.03 (0.78,1.35)	0.849

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
14-12	Dermatology Index	Comparison	1,062	44.8		
		Background RH	374	46.8	1.13 (0.89,1.43)	0.332
		Low RH	260	40.4	0.83 (0.63,1.09)	0.180
		High RH	260	41.9	0.86 (0.65,1.13)	0.271
		Low plus High RH	520	41.2	0.84 (0.68,1.04)	0.114
15-3	Verified Essential Hypertension	Comparison	1,033	38.9		
		Background RH	368	34.2	1.00 (0.77,1.30)	0.993
		Low RH	249	38.6	0.90 (0.67,1.21)	0.479
		High RH	258	45.0	1.09 (0.82,1.46)	0.549
		Low plus High RH	507	41.8	0.99 (0.79,1.25)	0.953
15-4	Verified Heart Disease (excluding Essential Hypertension)	Comparison	1,046	49.7		
		Background RH	371	53.4	1.18 (0.93,1.50)	0.174
		Low RH	254	53.5	1.11 (0.84,1.47)	0.448
		High RH	259	41.3	0.71 (0.53,0.94)	0.016
		Low plus High RH	513	47.4	0.89 (0.72,1.10)	0.280
15-5	Verified Myocardial Infarction	Comparison	1,046	6.4		
		Background RH	371	6.2	1.04 (0.64,1.71)	0.868
		Low RH	254	6.3	0.90 (0.51,1.58)	0.701
		High RH	259	8.1	1.20 (0.72,2.02)	0.489
		Low plus High RH	513	7.2	1.05 (0.69,1.59)	0.838
15-7	Systolic Blood Pressure	Comparison	1,046	16.1		
		Background RH	370	13.5	0.97 (0.69,1.38)	0.871
		Low RH	254	16.9	0.99 (0.68,1.44)	0.966
		High RH	259	17.4	0.95 (0.65,1.37)	0.776
		Low plus High RH	513	17.2	0.97 (0.73,1.30)	0.832
15-8	Heart Sounds	Comparison	1,044	19.8		
		Background RH	369	19.5	1.01 (0.75,1.37)	0.936
		Low RH	253	21.7	1.10 (0.78,1.53)	0.596
		High RH	259	20.8	1.04 (0.74,1.46)	0.820
		Low plus High RH	512	21.3	1.07 (0.82,1.39)	0.626
15-9	Overall Electrocardio-graph (ECG)	Comparison	1,044	23.9		
		Background RH	371	17.0	0.70 (0.52,0.96)	0.027
		Low RH	254	25.2	1.00 (0.73,1.38)	0.992
		High RH	259	18.1	0.66 (0.46,0.94)	0.021
		Low plus High RH	513	21.6	0.82 (0.64,1.07)	0.139
15-10	ECG: Right Bundle Branch Block (RBBB)	Comparison	1,045	1.4		
		Background RH	371	0.8	0.56 (0.16,1.97)	0.367
		Low RH	254	1.6	1.04 (0.34,3.17)	0.948
		High RH	259	1.9	1.33 (0.48,3.74)	0.584
		Low plus High RH	513	1.8	1.18 (0.51,2.75)	0.695

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
15-11	ECG: Left Bundle Branch Block (LBBB)	Comparison	1,045	0.7		
		Background RH	371	0.0	--	--
		Low RH	254	0.4	--	--
		High RH	259	0.0	--	--
		Low plus High RH	513	0.2	--	--
15-12	ECG: Nonspecific ST- and T-Wave Changes	Comparison	1,045	14.7		
		Background RH	371	10.5	0.75 (0.52,1.10)	0.144
		Low RH	254	16.9	1.10 (0.75,1.59)	0.631
		High RH	259	13.9	0.86 (0.58,1.27)	0.442
		Low plus High RH	513	15.4	0.97 (0.72,1.31)	0.856
15-13	ECG: Bradycardia	Comparison	1,046	2.2		
		Background RH	371	4.9	2.09 (1.10,3.94)	0.023
		Low RH	254	3.1	1.42 (0.62,3.23)	0.404
		High RH	259	1.2	0.55 (0.16,1.87)	0.341
		Low plus High RH	513	2.1	1.00 (0.48,2.08)	0.992
15-14	ECG: Tachycardia	Comparison	1,046	0.2		
		Background RH	371	0.0	--	--
		Low RH	254	0.4	--	--
		High RH	259	0.0	--	--
		Low plus High RH	513	0.2	--	--
15-15	ECG: Arrhythmia	Comparison	1,045	4.4		
		Background RH	371	3.2	0.76 (0.40,1.45)	0.403
		Low RH	254	5.9	1.29 (0.70,2.35)	0.414
		High RH	259	5.4	1.20 (0.64,2.23)	0.569
		Low plus High RH	513	5.7	1.24 (0.77,2.01)	0.378
15-16	ECG: Evidence of Prior Myocardial Infarction	Comparison	1,042	3.2		
		Background RH	370	3.0	1.00 (0.49,2.01)	0.990
		Low RH	254	2.8	0.78 (0.34,1.80)	0.563
		High RH	258	4.3	1.26 (0.62,2.57)	0.518
		Low plus High RH	512	3.5	1.02 (0.56,1.84)	0.955
15-17	ECG: Other Diagnoses	Comparison	1,046	0.1		
		Background RH	371	1.1	10.0 (1.11,90.7)	0.040
		Low RH	254	0.4	4.4 (0.27,70.0)	0.298
		High RH	259	1.9	23.2 (2.68,202.0)	0.004
		Low plus High RH	513	1.2	13.4 (1.60,112.0)	0.016
15-19	Diastolic Blood Pressure	Comparison	1,046	3.1		
		Background RH	370	2.4	0.87 (0.41,1.86)	0.721
		Low RH	254	2.0	0.62 (0.24,1.61)	0.328
		High RH	259	4.2	1.28 (0.63,2.60)	0.490
		Low plus High RH	513	3.1	0.96 (0.52,1.77)	0.896

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
15-20	Funduscopic Examination	Comparison	1,043	5.3		
		Background RH	369	6.2	1.31 (0.79,2.18)	0.298
		Low RH	251	6.0	1.05 (0.58,1.89)	0.883
		High RH	258	8.9	1.64 (0.98,2.74)	0.061
		Low plus High RH	509	7.5	1.34 (0.87,2.06)	0.190
15-21	Carotid Bruits	Comparison	1,045	1.4		
		Background RH	371	1.9	1.30 (0.52,3.26)	0.569
		Low RH	254	2.4	1.56 (0.60,4.10)	0.363
		High RH	259	1.2	0.79 (0.23,2.79)	0.719
		Low plus High RH	513	1.8	1.18 (0.51,2.75)	0.694
15-22	Radial Pulses	Comparison	1,046	0.5		
		Background RH	371	0.5	1.00 (0.19,5.28)	0.995
		Low RH	254	0.8	1.73 (0.33,9.06)	0.515
		High RH	259	0.0	--	--
		Low plus High RH	513	0.4	0.88 (0.17,4.60)	0.881
15-23	Femoral Pulses	Comparison	1,046	0.5		
		Background RH	371	0.3	0.57 (0.07,4.93)	0.609
		Low RH	254	2.8	5.44 (1.70,17.40)	0.004
		High RH	259	0.8	1.54 (0.29,8.12)	0.613
		Low plus High RH	513	1.8	3.52 (1.16,10.70)	0.026
15-24	Popliteal Pulses	Comparison	1,045	1.1		
		Background RH	371	0.5	0.51 (0.11,2.31)	0.378
		Low RH	254	2.8	2.48 (0.95,6.52)	0.064
		High RH	259	3.1	2.94 (1.15,7.50)	0.024
		Low plus High RH	513	2.9	2.71 (1.22,6.00)	0.014
15-25	Dorsalis Pedis Pulses	Comparison	1,045	7.7		
		Background RH	370	8.9	1.14 (0.74,1.76)	0.540
		Low RH	254	7.9	0.99 (0.59,1.66)	0.968
		High RH	258	9.7	1.33 (0.83,2.15)	0.238
		Low plus High RH	512	8.8	1.15 (0.78,1.70)	0.467
15-26	Posterior Tibial Pulses	Comparison	1,045	2.3		
		Background RH	371	2.7	1.10 (0.52,2.33)	0.812
		Low RH	254	3.9	1.67 (0.78,3.57)	0.184
		High RH	259	5.0	2.35 (1.16,4.76)	0.017
		Low plus High RH	513	4.5	2.00 (1.10,3.61)	0.022
15-27	Leg Pulses	Comparison	1,045	8.2		
		Background RH	370	9.7	1.16 (0.77,1.75)	0.483
		Low RH	254	8.3	0.96 (0.58,1.59)	0.886
		High RH	258	11.2	1.46 (0.93,2.30)	0.099
		Low plus High RH	512	9.8	1.20 (0.83,1.74)	0.333

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
15-28	Peripheral Pulses	Comparison	1,045	8.7		
		Background RH	370	10.0	1.12 (0.74,1.68)	0.597
		Low RH	254	8.3	0.91 (0.55,1.50)	0.707
		High RH	258	11.2	1.38 (0.88,2.17)	0.159
		Low plus High RH	512	9.8	1.13 (0.79,1.64)	0.503
15-29	Kidney, Urethra, and Bladder (KUB) X Ray (Excluding Kidney Stones)	Comparison	1,045	32.3		
		Background RH	370	31.1	1.00 (0.77,1.30)	0.974
		Low RH	254	31.9	0.90 (0.67,1.21)	0.485
		High RH	258	29.1	0.82 (0.60,1.11)	0.197
		Low plus High RH	512	30.5	0.86 (0.68,1.08)	0.197
15-30	Intermittent Claudication and Vascular Insufficiency (ICVI) Index	Comparison	1,043	2.4		
		Background RH	371	3.2	1.31 (0.65,2.65)	0.456
		Low RH	254	3.5	1.51 (0.70,3.29)	0.298
		High RH	259	3.9	1.69 (0.80,3.59)	0.168
		Low plus High RH	513	3.7	1.60 (0.87,2.95)	0.129
16-10	Hematocrit	Comparison	1,061	0.9		
		Background RH	371	1.9	2.31 (0.86,6.19)	0.096
		Low RH	259	1.5	1.51 (0.47,4.89)	0.489
		High RH	258	1.2	1.11 (0.30,4.09)	0.880
		Low plus High RH	517	1.4	1.31 (0.49,3.48)	0.592
16-12	Platelet Count	Comparison	1,060	0.9		
		Background RH	371	0.3	0.33 (0.04,2.66)	0.300
		Low RH	259	0.8	0.86 (0.19,4.04)	0.853
		High RH	258	2.7	3.12 (1.14,8.55)	0.027
		Low plus High RH	517	1.7	1.97 (0.77,5.03)	0.156
16-14	Prothrombin Time	Comparison	979	0.4		
		Background RH	342	0.9	2.80 (0.61,12.78)	0.184
		Low RH	234	1.3	2.50 (0.54,11.49)	0.239
		High RH	240	0.4	0.79 (0.09,7.21)	0.832
		Low plus High RH	474	0.8	1.62 (0.40,6.65)	0.503
16-15	RBC Morphology	Comparison	1,061	46.7		
		Background RH	371	41.5	0.82 (0.65,1.05)	0.110
		Low RH	259	46.3	0.96 (0.73,1.27)	0.788
		High RH	258	45.0	0.93 (0.71,1.23)	0.618
		Low plus High RH	517	45.7	0.95 (0.77,1.17)	0.618
16-17	Absolute Neutrophils (bands) (Zero vs. Nonzero)	Comparison	1,061	16.5		
		Background RH	371	17.0	1.05 (0.76,1.44)	0.782
		Low RH	259	17.8	1.11 (0.77,1.58)	0.583
		High RH	258	16.7	0.99 (0.69,1.44)	0.974
		Low plus High RH	517	17.2	1.05 (0.79,1.39)	0.739

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
16-20	Absolute Eosinophils (Zero vs. Nonzero)	Comparison	1,061	11.8		
		Background RH	371	9.2	0.81 (0.54,1.21)	0.305
		Low RH	259	11.2	0.90 (0.59,1.39)	0.643
		High RH	258	10.5	0.83 (0.53,1.29)	0.409
		Low plus High RH	517	10.8	0.87 (0.62,1.21)	0.404
16-21	Absolute Basophils (Zero vs. Nonzero)	Comparison	1,061	46.1		
		Background RH	371	45.8	0.98 (0.77,1.25)	0.876
		Low RH	259	44.4	0.93 (0.70,1.22)	0.587
		High RH	258	44.6	0.95 (0.72,1.25)	0.725
		Low plus High RH	517	44.5	0.94 (0.76,1.16)	0.561
17-3	Kidney Disease	Comparison	1,041	16.0		
		Background RH	364	16.2	1.07 (0.77,1.48)	0.690
		Low RH	253	17.0	1.04 (0.72,1.51)	0.830
		High RH	256	17.6	1.08 (0.75,1.55)	0.694
		Low plus High RH	509	17.3	1.06 (0.80,1.41)	0.695
17-4	Kidney Stones	Comparison	1,063	2.5		
		Background RH	374	2.7	1.02 (0.49,2.14)	0.957
		Low RH	260	3.8	1.55 (0.74,3.25)	0.246
		High RH	260	2.7	1.09 (0.47,2.54)	0.839
		Low plus High RH	520	3.3	1.32 (0.71,2.46)	0.377
17-5	Urinary Protein	Comparison	1,062	4.5		
		Background RH	374	4.8	1.31 (0.75,2.31)	0.345
		Low RH	259	3.5	0.67 (0.32,1.39)	0.280
		High RH	259	4.6	0.87 (0.45,1.68)	0.677
		Low plus High RH	518	4.1	0.77 (0.45,1.31)	0.334
17-6	Urinary Red Blood Cell Count	Comparison	1,062	2.0		
		Background RH	374	2.1	1.08 (0.47,2.47)	0.858
		Low RH	259	2.3	1.21 (0.48,3.03)	0.688
		High RH	259	5.8	3.00 (1.51,5.93)	0.002
		Low plus High RH	518	4.1	2.10 (1.13,3.90)	0.019
17-7	Urinary White Blood Cell Count	Comparison	1,062	2.4		
		Background RH	374	2.4	1.06 (0.49,2.30)	0.887
		Low RH	259	3.5	1.45 (0.67,3.16)	0.346
		High RH	259	3.9	1.63 (0.77,3.45)	0.202
		Low plus High RH	518	3.7	1.54 (0.84,2.83)	0.165
18-3	Past Thyroid Disease	Comparison	1,057	5.9		
		Background RH	371	6.7	1.22 (0.75,1.98)	0.421
		Low RH	258	4.3	0.71 (0.37,1.37)	0.305
		High RH	258	5.0	0.81 (0.44,1.50)	0.500
		Low plus High RH	516	4.7	0.76 (0.47,1.23)	0.267

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
18-4	Composite Diabetes Indicator	Comparison	1,059	14.0		
		Background RH	373	11.3	1.00 (0.69,1.47)	0.988
		Low RH	258	19.0	1.30 (0.90,1.89)	0.165
		High RH	260	18.1	1.13 (0.77,1.65)	0.523
		Low plus High RH	518	18.5	1.21 (0.90,1.63)	0.197
18-7	Thyroid Gland	Comparison	1,030	0.9		
		Background RH	365	1.1	1.23 (0.37,4.07)	0.740
		Low RH	254	0.0	--	--
		High RH	255	0.4	0.45 (0.06,3.61)	0.453
		Low plus High RH	509	0.2	0.23 (0.03,1.81)	0.162
18-10	Retinopathy Results (Diabetics)	Comparison	147	2.7		
		Background RH	41	4.9	1.87 (0.32,11.09)	0.490
		Low RH	49	2.0	0.65 (0.07,6.03)	0.702
		High RH	47	8.5	2.92 (0.67,12.80)	0.155
		Low plus High RH	96	5.2	1.68 (0.42,6.66)	0.460
18-11	Neuropathy Results (Diabetics)	Comparison	148	7.4		
		Background RH	42	14.3	2.26 (0.74,6.86)	0.151
		Low RH	49	6.1	0.68 (0.18,2.61)	0.570
		High RH	47	17.0	2.30 (0.82,6.47)	0.115
		Low plus High RH	96	11.5	1.37 (0.55,3.42)	0.502
18-12	Radial Pulses (Doppler) (Diabetics)	Comparison	148	0.7		
		Background RH	42	2.4	5.19 (0.23,96.2)	0.267
		Low RH	49	2.0	2.48 (0.14,44.0)	0.533
		High RH	47	0.0	--	--
		Low plus High RH	96	1.0	1.14 (0.06,20.91)	0.932
18-13	Femoral Pulses (Doppler) (Diabetics)	Comparison	148	2.0		
		Background RH	42	2.4	1.29 (0.12,13.36)	0.833
		Low RH	49	6.1	2.77 (0.53,14.56)	0.228
		High RH	47	2.1	0.82 (0.08,8.89)	0.872
		Low plus High RH	96	4.2	1.80 (0.38,8.56)	0.458
18-14	Popliteal Pulses (Doppler) (Diabetics)	Comparison	148	2.7		
		Background RH	42	2.4	0.86 (0.09,8.21)	0.897
		Low RH	49	6.1	2.10 (0.45,9.88)	0.348
		High RH	47	8.5	3.04 (0.70,13.15)	0.137
		Low plus High RH	96	7.3	2.54 (0.71,9.12)	0.154
18-15	Dorsalis Pedis Pulses (Doppler) (Diabetics)	Comparison	148	12.8		
		Background RH	42	14.3	0.96 (0.34,2.70)	0.932
		Low RH	49	10.2	0.65 (0.22,1.89)	0.425
		High RH	47	25.5	2.36 (0.99,5.59)	0.052
		Low plus High RH	96	17.7	1.32 (0.63,2.77)	0.461

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
18-16	Posterior Tibial Pulses (Doppler) (Diabetics)	Comparison	148	4.7		
		Background RH	42	4.8	0.83 (0.16,4.34)	0.829
		Low RH	49	8.2	1.61 (0.44,5.83)	0.471
		High RH	47	12.8	2.87 (0.89,9.32)	0.079
		Low plus High RH	96	10.4	2.18 (0.78,6.05)	0.136
18-17	Leg Pulses (Doppler) (Diabetics)	Comparison	148	12.8		
		Background RH	42	14.3	0.92 (0.33,2.59)	0.875
		Low RH	49	10.2	0.66 (0.23,1.92)	0.444
		High RH	47	29.8	3.05 (1.32,7.02)	0.009
		Low plus High RH	96	19.8	1.56 (0.76,3.21)	0.224
18-18	Peripheral Pulses (Doppler) (Diabetics)	Comparison	148	13.5		
		Background RH	42	16.7	1.05 (0.39,2.81)	0.919
		Low RH	49	10.2	0.62 (0.21,1.79)	0.376
		High RH	47	29.8	2.86 (1.25,6.55)	0.013
		Low plus High RH	96	19.8	1.47 (0.72,3.00)	0.292
18-20	Thyroid Stimulating Hormone (TSH)	Comparison	1,027	2.4		
		Background RH	365	2.5	0.93 (0.43,2.02)	0.847
		Low RH	254	1.2	0.49 (0.15,1.64)	0.246
		High RH	255	3.5	1.59 (0.73,3.47)	0.245
		Low plus High RH	509	2.4	1.02 (0.50,2.05)	0.964
18-22	Thyroxine (T_4)	Comparison	1,027	0.8		
		Background RH	365	0.5	0.74 (0.16,3.56)	0.712
		Low RH	254	0.4	0.47 (0.06,3.83)	0.484
		High RH	255	0.8	0.95 (0.20,4.55)	0.947
		Low plus High RH	509	0.6	0.71 (0.19,2.71)	0.617
18-23	Anti-Thyroid Antibodies	Comparison	1,027	2.4		
		Background RH	365	3.6	1.48 (0.74,2.94)	0.266
		Low RH	254	4.7	1.97 (0.97,3.98)	0.060
		High RH	255	3.9	1.64 (0.78,3.48)	0.195
		Low plus High RH	509	4.3	1.80 (1.00,3.24)	0.048
18-25	Fasting Glucose (All Participants)	Comparison	1,060	13.0		
		Background RH	374	9.6	0.91 (0.61,1.35)	0.628
		Low RH	258	17.1	1.23 (0.84,1.82)	0.284
		High RH	260	15.4	1.00 (0.67,1.50)	0.983
		Low plus High RH	518	16.2	1.12 (0.82,1.52)	0.487
18-27	Fasting Glucose (Diabetics)	Comparison	148	68.2		
		Background RH	42	64.3	1.11 (0.52,2.37)	0.778
		Low RH	49	69.4	1.04 (0.51,2.13)	0.908
		High RH	47	72.3	1.15 (0.55,2.41)	0.716
		Low plus High RH	96	70.8	1.09 (0.62,1.94)	0.762

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
18-29	Fasting Glucose (Nondiabetics)	Comparison	912	4.1		
		Background RH	332	2.7	0.73 (0.35,1.53)	0.401
		Low RH	209	4.8	1.13 (0.55,2.31)	0.745
		High RH	213	2.8	0.63 (0.26,1.51)	0.297
		Low plus High RH	422	3.8	0.87 (0.48,1.58)	0.644
18-31	2-Hour Postprandial Glucose (Nondiabetics)	Comparison	911	12.0		
		Background RH	331	10.0	0.94 (0.62,1.43)	0.765
		Low RH	209	15.8	1.30 (0.85,2.00)	0.229
		High RH	213	19.2	1.56 (1.04,2.33)	0.031
		Low plus High RH	422	17.5	1.43 (1.03,1.99)	0.031
18-32	Fasting Urinary Glucose (All Participants)	Comparison	1,059	3.1		
		Background RH	374	1.6	0.67 (0.27,1.62)	0.373
		Low RH	257	3.1	0.84 (0.38,1.87)	0.673
		High RH	259	5.8	1.53 (0.80,2.93)	0.195
		Low plus High RH	516	4.5	1.19 (0.68,2.08)	0.542
18-33	Fasting Urinary Glucose (Diabetics)	Comparison	147	21.8		
		Background RH	42	14.3	0.71 (0.27,1.86)	0.483
		Low RH	49	16.3	0.69 (0.29,1.62)	0.394
		High RH	47	31.9	1.60 (0.77,3.35)	0.209
		Low plus High RH	96	24.0	1.09 (0.59,2.02)	0.780
18-34	Fasting Urinary Glucose (Nondiabetics)	Comparison	912	0.1		
		Background RH	332	0.0	--	--
		Low RH	208	0.0	--	--
		High RH	212	0.0	--	--
		Low plus High RH	420	0.0	--	--
18-35	2-Hour Postprandial Urinary Glucose (Nondiabetics)	Comparison	910	17.5		
		Background RH	331	16.9	0.96 (0.69,1.35)	0.827
		Low RH	208	18.8	1.11 (0.75,1.64)	0.604
		High RH	213	23.0	1.39 (0.97,2.00)	0.076
		Low plus High RH	421	20.9	1.25 (0.93,1.67)	0.137
18-39	Serum Insulin (Diabetics)	Comparison	148	58.1		
		Background RH	42	64.3	1.47 (0.70,3.08)	0.308
		Low RH	49	67.3	1.62 (0.80,3.26)	0.177
		High RH	47	46.8	0.61 (0.31,1.20)	0.150
		Low plus High RH	96	57.3	0.99 (0.58,1.69)	0.968
18-43	Serum Glucagon (All Participants)	Comparison	957	0.1		
		Background RH	336	0.3	4.64 (0.28,77.40)	0.287
		Low RH	228	0.9	5.67 (0.49,65.60)	0.165
		High RH	224	0.0	--	--
		Low plus High RH	452	0.4	2.64 (0.23,30.57)	0.439

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
18-45	Serum Glucagon (Diabetics)	Comparison	132	0.8		
		Background RH	38	2.6	8.33 (0.42,167.13)	0.166
		Low RH	45	4.4	6.44 (0.51,80.67)	0.149
		High RH	38	0.0	--	--
		Low plus High RH	83	2.4	2.57 (0.22,30.32)	0.453
18-47	Serum Glucagon (Nondiabetics)	Comparison	825	0.0		
		Background RH	298	0.0	--	--
		Low RH	183	0.0	--	--
		High RH	186	0.0	--	--
		Low plus High RH	369	0.0	--	--
18-49	α-1-C Hemoglobin (All Participants)	Comparison	1,060	26.1		
		Background RH	374	23.5	1.02 (0.77,1.35)	0.893
		Low RH	258	29.5	1.11 (0.81,1.50)	0.523
		High RH	260	28.8	1.01 (0.74,1.38)	0.938
		Low plus High RH	518	29.2	1.06 (0.83,1.34)	0.646
18-51	α-1-C Hemoglobin (Diabetics)	Comparison	148	73.6		
		Background RH	42	69.0	1.11 (0.50,2.45)	0.798
		Low RH	49	81.6	1.59 (0.69,3.65)	0.273
		High RH	47	85.1	1.97 (0.80,4.85)	0.140
		Low plus High RH	96	83.3	1.76 (0.90,3.42)	0.096
18-53	α-1-C Hemoglobin (Nondiabetics)	Comparison	912	18.4		
		Background RH	332	17.8	1.01 (0.73,1.41)	0.934
		Low RH	209	17.2	0.91 (0.61,1.35)	0.631
		High RH	213	16.4	0.82 (0.55,1.22)	0.324
		Low plus High RH	422	16.8	0.86 (0.63,1.17)	0.338
18-54	Urinary Protein (Diabetics)	Comparison	147	16.3		
		Background RH	42	16.7	1.26 (0.49,3.28)	0.631
		Low RH	49	8.2	0.44 (0.14,1.36)	0.151
		High RH	47	12.8	0.68 (0.26,1.83)	0.447
		Low plus High RH	96	10.4	0.56 (0.25,1.24)	0.152
18-56	Serum Proinsulin (Diabetics)	Comparison	143	44.1		
		Background RH	39	28.2	0.61 (0.27,1.35)	0.219
		Low RH	46	43.5	0.99 (0.50,1.95)	0.965
		High RH	45	48.9	1.17 (0.59,2.32)	0.656
		Low plus High RH	91	46.2	1.07 (0.63,1.84)	0.800
18-58	Serum C Peptide (Diabetics)	Comparison	143	63.6		
		Background RH	39	56.4	0.82 (0.38,1.74)	0.597
		Low RH	46	69.6	1.47 (0.70,3.08)	0.308
		High RH	45	53.3	0.65 (0.32,1.31)	0.228
		Low plus High RH	91	61.5	0.97 (0.55,1.70)	0.914

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
18-60	Total Testosterone	Comparison	1,056	5.2		
		Background RH	364	2.7	0.69 (0.34,1.38)	0.289
		Low RH	256	4.3	0.70 (0.35,1.39)	0.308
		High RH	259	7.3	1.14 (0.65,2.01)	0.645
		Low plus High RH	515	5.8	0.93 (0.58,1.49)	0.751
18-62	Free Testosterone	Comparison	1,056	19.3		
		Background RH	364	13.5	0.74 (0.52,1.04)	0.084
		Low RH	256	14.8	0.69 (0.47,1.02)	0.061
		High RH	259	19.7	0.91 (0.64,1.29)	0.582
		Low plus High RH	515	17.3	0.80 (0.60,1.06)	0.121
18-63	Sex Hormone Binding Globulin	Comparison	1,056	18.6		
		Background RH	364	17.9	1.02 (0.74,1.39)	0.922
		Low RH	256	15.2	0.77 (0.53,1.12)	0.174
		High RH	259	15.1	0.74 (0.51,1.07)	0.112
		Low plus High RH	515	15.1	0.75 (0.56,1.01)	0.054
18-64	Total Testosterone to Sex Hormone Binding Globulin Ratio	Comparison	1,056	9.6		
		Background RH	364	7.7	0.83 (0.53,1.29)	0.408
		Low RH	256	9.8	0.96 (0.61,1.53)	0.876
		High RH	259	10.0	1.02 (0.64,1.61)	0.941
		Low plus High RH	515	9.9	0.99 (0.69,1.42)	0.957
18-66	Estradiol	Comparison	1,063	4.5		
		Background RH	374	2.7	0.62 (0.31,1.25)	0.180
		Low RH	260	3.8	0.82 (0.41,1.64)	0.571
		High RH	260	4.2	0.89 (0.45,1.74)	0.729
		Low plus High RH	520	4.0	0.85 (0.50,1.44)	0.553
18-68	Luteinizing Hormone (LH)	Comparison	1,063	2.2		
		Background RH	374	2.4	1.10 (0.50,2.42)	0.811
		Low RH	260	1.2	0.50 (0.15,1.69)	0.267
		High RH	260	1.2	0.53 (0.16,1.78)	0.303
		Low plus High RH	520	1.2	0.51 (0.21,1.28)	0.153
18-70	Follicle Stimulating Hormone	Comparison	1,063	3.7		
		Background RH	374	5.3	1.44 (0.82,2.52)	0.204
		Low RH	260	5.8	1.56 (0.84,2.89)	0.159
		High RH	260	3.5	0.96 (0.46,2.02)	0.918
		Low plus High RH	520	4.6	1.27 (0.75,2.14)	0.378
19-4	Composite Skin Test Diagnosis	Comparison	1,019	2.9		
		Background RH	358	6.1	1.93 (1.09,3.43)	0.024
		Low RH	252	4.0	1.37 (0.65,2.85)	0.407
		High RH	254	2.0	0.71 (0.27,1.87)	0.491
		Low plus High RH	506	3.0	1.05 (0.55,1.98)	0.886

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
19-15	Double	Comparison	404	4.5		
	Labelled Cells:	Background RH	141	2.8	0.52 (0.17,1.58)	0.246
	CD5 with	Low RH	95	8.4	1.96 (0.81,4.72)	0.134
	CD20 (Zero vs.	High RH	108	3.7	0.96 (0.31,2.93)	0.939
	Nonzero)	Low plus High RH	203	5.9	1.45 (0.68,3.12)	0.338
19-16	Double	Comparison	404	10.6		
	Labelled Cells:	Background RH	141	10.6	1.04 (0.55,1.96)	0.905
	CD4 with CD8	Low RH	95	10.5	1.03 (0.49,2.14)	0.945
	(Zero vs.	High RH	108	12.0	1.04 (0.53,2.05)	0.902
	Nonzero)	Low plus High RH	203	11.3	1.04 (0.60,1.79)	0.900
19-17	Double	Comparison	404	3.5		
	Labelled Cells:	Background RH	141	2.8	0.79 (0.25,2.47)	0.685
	CD3 with	Low RH	95	2.1	0.62 (0.14,2.78)	0.529
	CD16+56	High RH	108	6.4	1.92 (0.74,4.96)	0.177
	(Zero vs.	Low plus High RH	203	4.4	1.30 (0.55,3.07)	0.553
	Nonzero)					
19-22	Lupus Panel:	Comparison	1,051	17.1		
	Antinuclear	Background RH	367	15.5	0.88 (0.63,1.22)	0.445
	Antibody	Low RH	256	14.8	0.84 (0.58,1.23)	0.378
		High RH	255	11.4	0.63 (0.41,0.96)	0.030
		Low plus High RH	511	13.1	0.73 (0.54,1.00)	0.047
19-23	Lupus Panel:	Comparison	1,051	2.8		
	Thyroid	Background RH	367	3.5	1.31 (0.67,2.56)	0.431
	Microsomal	Low RH	256	5.9	2.14 (1.13,4.07)	0.020
	Antibody	High RH	255	4.7	1.74 (0.87,3.47)	0.119
		Low plus High RH	511	5.3	1.94 (1.13,3.33)	0.016
19-24	Lupus Panel:	Comparison	1,051	3.1		
	MSK Smooth	Background RH	367	3.8	1.32 (0.69,2.51)	0.405
	Muscle	Low RH	256	4.3	1.37 (0.68,2.75)	0.383
	Antibody	High RH	255	1.2	0.34 (0.10,1.11)	0.073
		Low plus High RH	511	2.7	0.83 (0.44,1.57)	0.563
19-25	Lupus Panel:	Comparison	1,051	0.3		
	MSK	Background RH	367	0.3	1.41 (0.14,14.30)	0.770
	Mitochondrial	Low RH	256	0.4	1.04 (0.10,10.50)	0.971
	Antibody	High RH	255	0.0	--	--
		Low plus High RH	511	0.2	0.49 (0.05,5.04)	0.545
19-26	Lupus Panel:	Comparison	1,051	2.4		
	MSK Parietal	Background RH	367	1.4	0.60 (0.23,1.60)	0.312
	Antibody	Low RH	256	3.1	1.29 (0.57,2.91)	0.537
		High RH	255	2.4	0.94 (0.38,2.33)	0.891
		Low plus High RH	511	2.7	1.11 (0.57,2.17)	0.753

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
19-27	Lupus Panel: Rheumatoid Factor	Comparison	1,051	16.8		
		Background RH	367	16.1	0.96 (0.70,1.33)	0.823
		Low RH	256	18.4	1.11 (0.78,1.58)	0.575
		High RH	255	10.6	0.57 (0.37,0.88)	0.012
		Low plus High RH	511	14.5	0.83 (0.62,1.11)	0.211
19-28	Lupus Panel: B Cell Clones Detected by Serum Protein Electrophoresis	Comparison	1,051	1.9		
		Background RH	367	3.3	1.97 (0.94,4.12)	0.072
		Low RH	256	1.6	0.77 (0.26,2.29)	0.640
		High RH	255	2.4	1.13 (0.45,2.88)	0.789
		Low plus High RH	511	2.0	0.95 (0.44,2.07)	0.906
19-29	Lupus Panel: Other Antibodies (ANA and MSK)	Comparison	1,048	4.3		
		Background RH	365	3.3	0.77 (0.40,1.49)	0.444
		Low RH	255	2.4	0.53 (0.22,1.26)	0.150
		High RH	254	3.5	0.81 (0.39,1.68)	0.566
		Low plus High RH	509	2.9	0.67 (0.37,1.21)	0.184
19-30	Lupus Panel: Summary Index	Comparison	1,050	41.4		
		Background RH	366	39.6	0.96 (0.75,1.22)	0.720
		Low RH	255	40.4	0.94 (0.71,1.25)	0.685
		High RH	254	31.1	0.62 (0.46,0.84)	0.002
		Low plus High RH	509	35.8	0.77 (0.62,0.96)	0.021
20-3	Asthma	Comparison	1,056	2.7		
		Background RH	370	4.3	1.59 (0.85,2.97)	0.150
		Low RH	257	3.9	1.46 (0.70,3.04)	0.314
		High RH	257	3.9	1.43 (0.69,3.00)	0.336
		Low plus High RH	514	3.9	1.45 (0.81,2.59)	0.215
20-4	Bronchitis	Comparison	1,040	17.5		
		Background RH	364	21.4	1.27 (0.94,1.72)	0.116
		Low RH	251	17.9	1.04 (0.72,1.49)	0.847
		High RH	254	17.7	1.02 (0.71,1.47)	0.902
		Low plus High RH	505	17.8	1.03 (0.78,1.36)	0.838
20-5	Pneumonia	Comparison	1,020	12.5		
		Background RH	350	10.6	0.85 (0.58,1.26)	0.424
		Low RH	243	8.2	0.62 (0.38,1.01)	0.055
		High RH	252	6.7	0.49 (0.29,0.83)	0.008
		Low plus High RH	495	7.5	0.55 (0.37,0.81)	0.002
20-6	Thorax and Lung Abnormalities	Comparison	1,063	10.4		
		Background RH	374	15.2	1.48 (1.04,2.09)	0.028
		Low RH	260	11.9	1.14 (0.74,1.75)	0.514
		High RH	260	13.8	1.44 (0.96,2.17)	0.078
		Low plus High RH	520	12.9	1.29 (0.93,1.78)	0.133

Table Q-1-7. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[ab]	p-Value[a]
20-7	X Ray Interpretation	Comparison	1,063	13.7		
		Background RH	374	14.4	1.06 (0.75,1.48)	0.756
		Low RH	260	13.5	0.98 (0.66,1.45)	0.901
		High RH	259	11.6	0.83 (0.54,1.26)	0.376
		Low plus High RH	519	12.5	0.90 (0.66,1.23)	0.515

[a] Adjusted for percent body fat at the time of duty in SEA and change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin.

[b] Relative risk and confidence interval relative to Comparisons.

--: Estimated relative risk, confidence interval, and p-value not presented due to the sparse number of abnormalities.

Note: RH = Ranch Hand.
Comparison: Current Dioxin $\leq$ 10 ppt.
Background (Ranch Hand): Current Dioxin $\leq$ 10 ppt.
Low (Ranch Hand): Current Dioxin $>$ 10 ppt, 10 ppt $<$ Initial Dioxin $\leq$ 143 ppt.
High (Ranch Hand): Current Dioxin $>$ 10 ppt, Initial Dioxin $>$ 143 ppt.

Table Q-1-8.
Summary of Unadjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter	Model[a]	Est. Relative Risk (95% C.I.)	p-Value
9-3	Self-Perception of Health	4	1.26 (1.09,1.45)	0.002
		5	1.26 (1.11,1.43)	<0.001
		6	1.18 (1.03,1.36)	0.018
9-4	Appearance of Illness or Distress	4	0.89 (0.63,1.24)	0.469
		5	0.88 (0.67,1.16)	0.372
		6	0.89 (0.63,1.24)	0.268
9-5	Relative Age Appearance	4	1.08 (0.89,1.32)	0.430
		5	1.04 (0.88,1.24)	0.618
		6	1.05 (0.87,1.27)	0.605
9-8	Body Fat	4	1.41 (1.26,1.56)	<0.001
		5	1.37 (1.25,1.51)	<0.001
		6	1.35 (1.22,1.50)	<0.001
9-9	Body Fat with Adjustment for Caloric Intake	4	1.41 (1.26,1.56)	<0.001
		5	1.37 (1.25,1.51)	<0.001
		6	1.35 (1.22,1.50)	<0.001
9-11	Sedimentation Rate	4	1.15 (1.02,1.29)	0.019
		5	1.15 (1.03,1.27)	0.009
		6	1.10 (0.99,1.23)	0.082
10-3	Skin Neoplasms	4	0.88 (0.79,0.97)	0.011
		5	0.92 (0.85,1.01)	0.065
		6	0.86 (0.78,0.95)	0.002
10-4	Malignant Skin Neoplasms	4	0.86 (0.75,1.00)	0.038
		5	0.91 (0.81,1.03)	0.132
		6	0.86 (0.76,0.98)	0.021
10-5	Benign Skin Neoplasms	4	0.90 (0.80,1.01)	0.082
		5	0.93 (0.85,1.03)	0.160
		6	0.89 (0.80,0.99)	0.029
10-6	Skin Neoplasms of Uncertain Behavior or Unspecified Nature	4	0.91 (0.46,1.82)	0.789
		5	0.93 (0.52,1.64)	0.790
		6	0.96 (0.52,1.79)	0.896
10-7	Basal Cell Carcinomas (All Sites Combined)	4	0.86 (0.74,1.01)	0.057
		5	0.91 (0.81,1.04)	0.166
		6	0.86 (0.75,0.99)	0.032
10-8	Basal Cell Carcinomas (Ear, Face, Head, and Neck)	4	0.81 (0.68,0.97)	0.016
		5	0.87 (0.76,1.00)	0.056
		6	0.82 (0.70,0.95)	0.009
10-9	Basal Cell Carcinomas (Trunk)	4	0.97 (0.77,1.23)	0.801
		5	0.97 (0.78,1.20)	0.780
		6	0.95 (0.74,1.23)	0.714

Table Q-1-8. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter	Model[a]	Est. Relative Risk (95% C.I.)	p-Value
10-10	Basal Cell Carcinomas (Upper Extremities)	4	0.82 (0.56,1.18)	0.271
		5	0.87 (0.65,1.16)	0.340
		6	0.86 (0.63,1.18)	0.360
10-11	Basal Cell Carcinomas (Lower Extremities)	4	0.60 (0.13,2.74)	0.491
		5	1.06 (0.34,3.32)	0.923
		6	0.34 (0.07,1.74)	0.188
10-12	Squamous Cell Carcinomas	4	0.91 (0.61,1.35)	0.628
		5	0.97 (0.69,1.35)	0.834
		6	0.89 (0.62,1.28)	0.539
10-13	Nonmelanomas	4	0.86 (0.74,0.99)	0.034
		5	0.91 (0.81,1.03)	0.131
		6	0.85 (0.75,0.97)	0.016
10-14	Melanomas	4	0.98 (0.64,1.50)	0.934
		5	0.99 (0.69,1.42)	0.944
		6	1.02 (0.69,1.51)	0.938
10-15	Systemic Neoplasms	4	1.02 (0.91,1.14)	0.746
		5	1.02 (0.93,1.12)	0.668
		6	1.01 (0.91,1.12)	0.875
10-16	Malignant Systemic Neoplasms	4	0.94 (0.76,1.17)	0.585
		5	0.99 (0.82,1.18)	0.872
		6	0.95 (0.78,1.15)	0.585
10-17	Benign Systemic Neoplasms	4	1.02 (0.91,1.16)	0.712
		5	1.01 (0.91,1.12)	0.829
		6	1.02 (0.91,1.14)	0.765
10-18	Systemic Neoplasms of Uncertain Behavior or Unspecified Nature	4	0.88 (0.60,1.28)	0.487
		5	0.88 (0.65,1.19)	0.404
		6	0.83 (0.60,1.14)	0.255
10-19	Malignant Systemic Neoplasms (Eye, Ear, Face, Head, and Neck)	4	0.99 (0.63,1.56)	0.976
		5	0.97 (0.66,1.42)	0.855
		6	1.06 (0.70,1.61)	0.793
10-20	Malignant Systemic Neoplasms (Oral Cavity, Pharynx, and Larynx)	4	1.47 (0.80,2.69)	0.229
		5	1.43 (0.82,2.50)	0.213
		6	1.43 (0.79,2.59)	0.251
10-21	Malignant Systemic Neoplasms (Esophagus)	4	--	--
		5	--	--
		6	--	--
10-22	Malignant Systemic Neoplasms (Brain)	4	0.78 (0.18,3.33)	0.726
		5	0.66 (0.26,1.64)	0.416
		6	--	--

Table Q-1-8. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter	Model[a]	Est. Relative Risk (95% C.I.)	p-Value
10-23	Malignant Systemic Neoplasms (Thymus, Heart, and Mediastinum)	4	0.43 (0.10,1.91)	0.271
		5	0.58 (0.26,1.31)	0.259
		6	0.63 (0.22,1.81)	0.449
10-24	Malignant Systemic Neoplasms (Thyroid Gland)	4	0.88 (0.32,2.37)	0.789
		5	0.90 (0.40,2.01)	0.796
		6	0.95 (0.39,2.28)	0.902
10-25	Malignant Systemic Neoplasms (Bronchus and Lung)	4	0.80 (0.45,1.45)	0.460
		5	0.92 (0.57,1.47)	0.719
		6	0.80 (0.48,1.31)	0.378
10-26	Malignant Systemic Neoplasms (Colon and Rectum)	4	1.03 (0.57,1.87)	0.923
		5	1.14 (0.68,1.90)	0.628
		6	0.97 (0.55,1.72)	0.919
10-27	Malignant Systemic Neoplasms (Kidney and Bladder)	4	0.98 (0.56,1.71)	0.941
		5	1.03 (0.64,1.66)	0.895
		6	0.97 (0.58,1.62)	0.915
10-28	Malignant Systemic Neoplasms (Prostate)	4	0.93 (0.65,1.33)	0.697
		5	0.99 (0.73,1.33)	0.928
		6	0.92 (0.67,1.28)	0.625
10-29	Malignant Systemic Neoplasms (Testicles)	4	1.20 (0.58,2.50)	0.636
		5	1.32 (0.69,2.53)	0.409
		6	1.11 (0.54,2.31)	0.774
10-30	Malignant Systemic Neoplasms (Ill-Defined Sites)	4	--	--
		5	--	--
		6	--	--
10-31	Malignant Systemic Neoplasms (Connective and Other Soft Tissue)	4	--	--
		5	--	--
		6	--	--
10-32	Carcinomas in Situ of the Penis, Other, and Unspecified Sites	4	0.89 (0.22,3.60)	0.864
		5	0.88 (0.28,2.73)	0.826
		6	0.99 (0.28,3.47)	0.991
10-33	Hodgkin's Disease	4	0.64 (0.14,2.90)	0.553
		5	0.73 (0.27,2.00)	0.563
		6	0.78 (0.25,2.44)	0.684
10-34	Leukemia	4	1.10 (0.30,4.06)	0.885
		5	1.01 (0.32,3.22)	0.984
		6	1.25 (0.36,4.34)	0.728
10-35	Non-Hodgkin's Lymphoma	4	0.57 (0.13,2.61)	0.462
		5	0.67 (0.26,1.71)	0.450
		6	0.74 (0.25,2.26)	0.624

Table Q-1-8. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter	Model[a]	Est. Relative Risk (95% C.I.)	p-Value
10-36	Other Malignant Systemic Neoplasms of Lymphoid and Histiocytic Tissue	4	0.57 (0.13,2.61)	0.462
		5	0.67 (0.26,1.71)	0.450
		6	0.74 (0.25,2.26)	0.624
10-37	Multiple Myeloma	4	0.82 (0.20,3.44)	0.781
		5	0.89 (0.29,2.75)	0.835
		6	0.87 (0.26,2.92)	0.817
10-38	Skin or Systemic Neoplasms	4	0.93 (0.85,1.02)	0.141
		5	0.96 (0.89,1.04)	0.358
		6	0.92 (0.84,1.00)	0.049
10-39	Prostate-Specific Antigen (Below vs. At or Above Sensitivity Limit)	4	0.97 (0.73,1.29)	0.824
		5	1.02 (0.80,1.30)	0.870
		6	0.95 (0.73,1.23)	0.677
10-41	Prostate-Specific Antigen	4	0.99 (0.78,1.25)	0.904
		5	1.03 (0.84,1.26)	0.808
		6	0.98 (0.79,1.23)	0.886
11-3	Inflammatory Diseases	4	1.20 (0.63,2.27)	0.586
		5	1.14 (0.64,2.03)	0.654
		6	1.23 (0.66,2.27)	0.521
11-4	Hereditary and Degenerative Diseases	4	0.86 (0.70,1.06)	0.145
		5	0.89 (0.75,1.04)	0.148
		6	0.86 (0.72,1.03)	0.096
11-5	Peripheral Disorders	4	1.07 (0.95,1.21)	0.253
		5	1.06 (0.95,1.17)	0.294
		6	1.06 (0.95,1.19)	0.286
11-6	Other Neurological Disorders	4	1.14 (1.02,1.27)	0.022
		5	1.09 (0.99,1.20)	0.070
		6	1.14 (1.03,1.27)	0.011
11-7	Smell	4	0.61 (0.39,0.93)	0.018
		5	0.69 (0.52,0.91)	0.015
		6	0.68 (0.50,0.92)	0.019
11-8	Visual Fields	4	--	--
		5	--	--
		6	--	--
11-9	Light Reaction	4	1.38 (0.80,2.39)	0.260
		5	1.37 (0.83,2.26)	0.221
		6	1.30 (0.76,2.23)	0.346
11-10	Ocular Movement	4	1.07 (0.65,1.76)	0.805
		5	1.07 (0.69,1.66)	0.753
		6	1.06 (0.66,1.70)	0.810

Table Q-1-8. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter	Model[a]	Est. Relative Risk (95% C.I.)	p-Value
11-11	Facial Sensation	4	1.52 (0.76,3.04)	0.251
		5	1.47 (0.77,2.78)	0.248
		6	1.50 (0.76,2.98)	0.253
11-12	Jaw Clench	4	--	--
		5	--	--
		6	--	--
11-13	Smile	4	1.49 (0.97,2.28)	0.079
		5	1.38 (0.93,2.05)	0.115
		6	1.51 (0.99,2.31)	0.062
11-14	Palpebral Fissure	4	1.09 (0.70,1.68)	0.717
		5	1.06 (0.72,1.56)	0.761
		6	1.11 (0.73,1.68)	0.629
11-15	Balance	4	1.08 (0.60,1.95)	0.788
		5	1.10 (0.66,1.84)	0.717
		6	1.05 (0.60,1.83)	0.877
11-16	Gag Reflex	4	--	--
		5	--	--
		6	--	--
11-17	Speech	4	1.24 (0.71,2.18)	0.461
		5	1.22 (0.73,2.03)	0.446
		6	1.21 (0.70,2.10)	0.490
11-18	Palate and Uvula Movement	4	--	--
		5	--	--
		6	--	--
11-19	Neck Range of Motion	4	1.01 (0.89,1.15)	0.832
		5	1.03 (0.92,1.15)	0.650
		6	1.00 (0.89,1.13)	0.968
11-20	Cranial Nerve Index Without Range of Motion	4	1.05 (0.84,1.29)	0.683
		5	1.03 (0.85,1.24)	0.782
		6	1.02 (0.83,1.24)	0.884
11-21	Pin Prick	4	1.19 (0.98,1.44)	0.079
		5	1.18 (0.99,1.40)	0.064
		6	1.18 (0.98,1.42)	0.079
11-22	Light Touch	4	1.12 (0.92,1.38)	0.264
		5	1.14 (0.95,1.36)	0.165
		6	1.10 (0.91,1.34)	0.335
11-23	Muscle Status	4	0.99 (0.76,1.28)	0.923
		5	0.99 (0.80,1.24)	0.954
		6	1.00 (0.78,1.27)	0.971

Table Q-1-8. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter	Model[a]	Est. Relative Risk (95% C.I.)	p-Value
11-24	Patellar Reflex	4	1.29 (0.88,1.88)	0.204
		5	1.21 (0.86,1.71)	0.275
		6	1.33 (0.92,1.92)	0.138
11-25	Achilles Reflex	4	1.02 (0.88,1.18)	0.804
		5	1.02 (0.90,1.16)	0.744
		6	1.00 (0.87,1.15)	0.974
11-26	Biceps Reflex	4	1.10 (0.67,1.81)	0.704
		5	1.04 (0.67,1.61)	0.871
		6	1.20 (0.75,1.92)	0.459
11-27	Babinski Reflex	4	0.47 (0.20,1.13)	0.087
		5	0.64 (0.38,1.08)	0.131
		6	0.63 (0.36,1.11)	0.154
11-30	Tremor	4	0.97 (0.73,1.28)	0.819
		5	0.98 (0.78,1.24)	0.898
		6	0.96 (0.75,1.24)	0.750
11-31	Coordination	4	0.97 (0.71,1.32)	0.829
		5	0.99 (0.76,1.29)	0.949
		6	0.95 (0.72,1.26)	0.726
11-32	Romberg Sign	4	1.08 (0.60,1.95)	0.788
		5	1.10 (0.66,1.84)	0.717
		6	1.05 (0.60,1.83)	0.877
11-33	Gait	4	1.01 (0.79,1.29)	0.945
		5	1.02 (0.83,1.26)	0.854
		6	1.00 (0.80,1.26)	0.970
11-34	Central Nervous System (CNS) Index	4	1.00 (0.83,1.22)	0.959
		5	1.03 (0.87,1.21)	0.721
		6	0.99 (0.83,1.18)	0.869
12-3	Psychoses	4	1.10 (0.84,1.43)	0.495
		5	1.13 (0.89,1.42)	0.324
		6	1.06 (0.82,1.37)	0.650
12-4	Alcohol Dependence	4	0.98 (0.83,1.17)	0.851
		5	0.99 (0.85,1.14)	0.865
		6	0.95 (0.81,1.11)	0.511
12-5	Drug Dependence	4	0.36 (0.08,1.54)	0.176
		5	0.55 (0.25,1.21)	0.202
		6	0.58 (0.23,1.47)	0.320
12-6	Anxiety	4	1.13 (1.00,1.28)	0.056
		5	1.12 (1.00,1.25)	0.041
		6	1.09 (0.97,1.22)	0.154

Table Q-1-8. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter	Model[a]	Est. Relative Risk (95% C.I.)	p-Value
12-7	Other Neuroses	4	1.12 (1.02,1.23)	0.013
		5	1.12 (1.03,1.21)	0.005
		6	1.07 (0.98,1.17)	0.139
12-8	SCL-90-R Anxiety	4	1.26 (1.07,1.49)	0.005
		5	1.26 (1.09,1.46)	0.002
		6	1.22 (1.04,1.43)	0.013
12-9	SCL-90-R Depression	4	1.10 (0.95,1.27)	0.207
		5	1.11 (0.97,1.26)	0.125
		6	1.04 (0.90,1.19)	0.613
12-10	SCL-90-R Hostility	4	1.28 (1.07,1.53)	0.008
		5	1.27 (1.08,1.49)	0.004
		6	1.23 (1.04,1.46)	0.019
12-11	SCL-90-R Interpersonal Sensitivity	4	1.19 (1.03,1.37)	0.022
		5	1.18 (1.04,1.35)	0.012
		6	1.15 (1.00,1.32)	0.058
12-12	SCL-90-R Obsessive-Compulsive Behavior	4	1.02 (0.88,1.18)	0.766
		5	1.02 (0.90,1.15)	0.809
		6	0.99 (0.87,1.13)	0.893
12-13	SCL-90-R Paranoid Ideation	4	1.08 (0.90,1.28)	0.420
		5	1.09 (0.93,1.27)	0.280
		6	1.06 (0.90,1.25)	0.506
12-14	SCL-90-R Phobic Anxiety	4	1.15 (0.98,1.35)	0.089
		5	1.13 (0.99,1.30)	0.080
		6	1.08 (0.93,1.26)	0.293
12-15	SCL-90-R Psychoticism	4	1.07 (0.92,1.25)	0.371
		5	1.08 (0.94,1.23)	0.275
		6	1.05 (0.91,1.21)	0.526
12-16	SCL-90-R Somatization	4	1.15 (0.99,1.33)	0.064
		5	1.16 (1.02,1.32)	0.023
		6	1.09 (0.95,1.25)	0.227
12-17	SCL-90-R Global Severity Index	4	1.19 (1.02,1.38)	0.024
		5	1.18 (1.03,1.35)	0.014
		6	1.12 (0.97,1.29)	0.118
12-18	SCL-90-R Positive Symptom Total	4	1.17 (1.02,1.35)	0.027
		5	1.17 (1.03,1.33)	0.013
		6	1.10 (0.97,1.27)	0.149
12-19	SCL-90-R Positive Symptom Distress Index	4	1.14 (0.97,1.35)	0.118
		5	1.15 (0.99,1.33)	0.059
		6	1.08 (0.92,1.26)	0.359

Table Q-1-8. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter	Model[a]	Est. Relative Risk (95% C.I.)	p-Value
13-3	Hepatitis (Non-A, Non-B, or Non-C)	4	1.00 (0.71,1.42)	0.991
		5	0.92 (0.69,1.25)	0.608
		6	1.00 (0.72,1.39)	0.988
13-4	Jaundice	4	0.50 (0.34,0.74)	<0.001
		5	0.62 (0.49,0.79)	<0.001
		6	0.59 (0.46,0.77)	<0.001
13-5	Acute and Subacute Necrosis of the Liver	4	--	--
		5	--	--
		6	--	--
13-6	Alcoholic Chronic Liver Disease and Cirrhosis	4	1.05 (0.86,1.28)	0.655
		5	1.04 (0.88,1.24)	0.633
		6	1.01 (0.84,1.22)	0.905
13-7	Nonalcoholic Chronic Liver Disease and Cirrhosis	4	1.15 (0.78,1.70)	0.480
		5	1.17 (0.82,1.65)	0.388
		6	1.13 (0.78,1.64)	0.530
13-8	Liver Abscess and Sequelae for Chronic Liver Disease	4	--	--
		5	--	--
		6	--	--
13-9	Other Liver Disorders	4	1.15 (1.04,1.27)	0.007
		5	1.14 (1.05,1.24)	0.003
		6	1.11 (1.01,1.21)	0.033
13-10	Hepatomegaly	4	1.00 (0.70,1.44)	0.994
		5	0.96 (0.70,1.30)	0.773
		6	0.97 (0.69,1.35)	0.850
13-11	Current Hepatomegaly	4	1.25 (0.72,2.20)	0.440
		5	1.26 (0.76,2.09)	0.380
		6	1.23 (0.72,2.12)	0.457
13-13	AST	4	1.13 (0.86,1.50)	0.393
		5	1.16 (0.91,1.49)	0.237
		6	1.08 (0.83,1.41)	0.578
13-15	ALT	4	1.24 (1.02,1.50)	0.031
		5	1.23 (1.04,1.46)	0.017
		6	1.19 (0.99,1.43)	0.063
13-17	GGT	4	1.13 (1.01,1.26)	0.033
		5	1.14 (1.03,1.26)	0.009
		6	1.09 (0.98,1.21)	0.131
13-19	Alkaline Phosphatase	4	1.03 (0.84,1.27)	0.762
		5	1.03 (0.86,1.22)	0.776
		6	0.97 (0.80,1.18)	0.764

Table Q-1-8. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter	Model[a]	Est. Relative Risk (95% C.I.)	p-Value
13-21	Total Bilirubin	4	0.94 (0.76,1.16)	0.550
		5	0.97 (0.81,1.16)	0.768
		6	0.92 (0.76,1.12)	0.415
13-22	Direct Bilirubin	4	0.86 (0.56,1.32)	0.488
		5	1.00 (0.70,1.42)	0.990
		6	0.70 (0.48,1.02)	0.075
13-24	LDH	4	1.07 (0.94,1.21)	0.340
		5	1.06 (0.95,1.19)	0.312
		6	1.04 (0.92,1.17)	0.561
13-26	Cholesterol	4	1.06 (0.94,1.21)	0.332
		5	1.18 (1.06,1.32)	0.003
		6	0.94 (0.83,1.07)	0.360
13-28	HDL Cholesterol	4	1.04 (0.90,1.20)	0.613
		5	1.07 (0.94,1.22)	0.277
		6	0.97 (0.84,1.12)	0.676
13-30	Cholesterol-HDL Ratio	4	1.18 (1.08,1.30)	<0.001
		5	1.24 (1.14,1.35)	<0.001
		6	1.06 (0.96,1.16)	0.261
13-32	Triglycerides	4	1.19 (1.04,1.37)	0.013
		5	1.35 (1.19,1.53)	<0.001
		6	1.01 (0.86,1.17)	0.949
13-34	Creatine Kinase	4	1.08 (0.95,1.23)	0.254
		5	1.06 (0.95,1.19)	0.305
		6	1.07 (0.95,1.21)	0.248
13-36	Serum Amylase	4	0.91 (0.75,1.11)	0.343
		5	0.92 (0.78,1.08)	0.309
		6	0.96 (0.81,1.14)	0.628
13-37	Antibodies for Hepatitis A	4	1.06 (0.97,1.17)	0.209
		5	1.06 (0.98,1.15)	0.152
		6	1.05 (0.96,1.15)	0.292
13-38	Serological Evidence of Present or Prior Hepatitis B Infection	4	1.13 (0.98,1.30)	0.098
		5	1.11 (0.98,1.26)	0.109
		6	1.10 (0.96,1.26)	0.152
13-39	Antibodies for Hepatitis C	4	0.73 (0.35,1.53)	0.394
		5	0.73 (0.44,1.21)	0.245
		6	0.89 (0.47,1.70)	0.727
13-40	Stool Hemoccult	4	1.05 (0.77,1.41)	0.774
		5	1.09 (0.84,1.42)	0.522
		6	1.01 (0.76,1.34)	0.962

Table Q-1-8. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter	Model[a]	Est. Relative Risk (95% C.I.)	p-Value
13-42	Prealbumin	4	0.87 (0.57,1.33)	0.514
		5	0.78 (0.56,1.08)	0.147
		6	0.97 (0.65,1.44)	0.882
13-44	Albumin	4	1.13 (0.86,1.50)	0.387
		5	1.08 (0.84,1.39)	0.529
		6	1.09 (0.84,1.43)	0.516
13-46	α-1 Acid Glycoprotein	4	1.12 (0.82,1.52)	0.494
		5	1.09 (0.83,1.43)	0.555
		6	1.12 (0.84,1.51)	0.441
13-50	α-2 Macroglobulin	4	1.18 (0.56,2.46)	0.668
		5	1.18 (0.61,2.28)	0.623
		6	1.11 (0.55,2.27)	0.771
13-52	Apolipoprotein B	4	1.09 (0.98,1.21)	0.100
		5	1.16 (1.06,1.27)	0.001
		6	0.98 (0.89,1.09)	0.719
13-54	C_3 Complement	4	0.68 (0.49,0.94)	0.014
		5	0.70 (0.56,0.87)	0.003
		6	0.86 (0.65,1.13)	0.282
13-56	C_4 Complement	4	0.86 (0.48,1.54)	0.608
		5	0.83 (0.53,1.31)	0.430
		6	0.94 (0.56,1.56)	0.808
13-58	Haptoglobin	4	0.98 (0.86,1.12)	0.800
		5	1.00 (0.89,1.12)	0.999
		6	0.95 (0.84,1.08)	0.440
13-60	Transferrin	4	0.86 (0.75,1.00)	0.049
		5	0.89 (0.79,1.00)	0.053
		6	0.88 (0.77,1.00)	0.048
14-3	Occurrence of Acne (Lifetime)	4	0.96 (0.84,1.10)	0.577
		5	0.98 (0.87,1.10)	0.691
		6	0.96 (0.85,1.09)	0.514
14-4	Acne Relative to Time of Duty in SEA (Pre- and Post-SEA and Post-SEA vs. Pre-SEA and None)	4	0.96 (0.84,1.09)	0.520
		5	0.97 (0.87,1.09)	0.619
		6	0.96 (0.84,1.08)	0.470
14-5	Acne Relative to Time of Duty in SEA (Post-SEA vs. None)	4	0.96 (0.84,1.10)	0.563
		5	0.98 (0.87,1.10)	0.695
		6	0.96 (0.84,1.09)	0.498
14-6	Acne Relative to Time of Duty in SEA (Pre- and Post-SEA vs. Pre-SEA)	4	0.88 (0.48,1.61)	0.671
		5	0.88 (0.52,1.48)	0.625
		6	0.91 (0.50,1.66)	0.757

Table Q-1-8. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands – Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter	Model[a]	Est. Relative Risk (95% C.I.)	p-Value
14-8	Location of Acne (Post-SEA)	4	0.94 (0.84,1.04)	0.207
		5	0.94 (0.86,1.03)	0.186
		6	0.93 (0.84,1.03)	0.144
14-10	Location of Acne (Pre- and Post-SEA and Post-SEA)	4	0.95 (0.86,1.05)	0.321
		5	0.95 (0.88,1.04)	0.265
		6	0.95 (0.86,1.04)	0.226
14-11	Other Abnormalities	4	0.89 (0.79,1.01)	0.062
		5	0.93 (0.84,1.03)	0.180
		6	0.89 (0.79,0.99)	0.038
14-12	Dermatology Index	4	0.94 (0.86,1.03)	0.167
		5	0.94 (0.87,1.01)	0.099
		6	0.95 (0.88,1.04)	0.253
15-3	Verified Essential Hypertension	4	1.18 (1.08,1.30)	<0.001
		5	1.19 (1.10,1.29)	<0.001
		6	1.14 (1.04,1.24)	0.005
15-4	Verified Heart Disease (excluding Essential Hypertension)	4	0.87 (0.80,0.96)	0.004
		5	0.89 (0.82,0.97)	0.004
		6	0.89 (0.81,0.97)	0.005
15-5	Verified Myocardial Infarction	4	1.03 (0.86,1.23)	0.773
		5	1.05 (0.90,1.22)	0.567
		6	1.00 (0.85,1.19)	0.978
15-7	Systolic Blood Pressure	4	1.11 (0.98,1.25)	0.103
		5	1.11 (1.00,1.23)	0.061
		6	1.10 (0.98,1.23)	0.124
15-8	Heart Sounds	4	1.03 (0.92,1.15)	0.631
		5	1.03 (0.94,1.13)	0.549
		6	1.04 (0.93,1.15)	0.496
15-9	Overall Electrocardiograph	4	1.03 (0.92,1.16)	0.561
		5	1.04 (0.95,1.15)	0.388
		6	1.02 (0.91,1.13)	0.764
15-10	ECG: Right Bundle Branch Block (RBBB)	4	1.25 (0.87,1.81)	0.233
		5	1.20 (0.86,1.67)	0.283
		6	1.26 (0.89,1.80)	0.200
15-11	ECG: Left Bundle Branch Block	4	--	--
		5	--	--
		6	--	--
15-12	ECG: Nonspecific ST- and T-Wave Changes	4	1.09 (0.96,1.24)	0.200
		5	1.09 (0.98,1.23)	0.128
		6	1.06 (0.94,1.20)	0.331

Table Q-1-8. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1).

Table Ref.	Clinical Parameter	Model[a]	Est. Relative Risk (95% C.I.)	p-Value
15-13	ECG: Bradycardia	4	0.70 (0.53,0.94)	0.012
		5	0.76 (0.62,0.94)	0.011
		6	0.79 (0.63,1.00)	0.053
15-14	ECG: Tachycardia	4	--	--
		5	--	--
		6	--	--
15-15	ECG: Arrhythmia	4	1.14 (0.93,1.40)	0.225
		5	1.12 (0.93,1.34)	0.239
		6	1.10 (0.90,1.35)	0.336
15-16	ECG: Evidence of Prior Myocardial Infarction	4	1.12 (0.88,1.43)	0.361
		5	1.16 (0.94,1.44)	0.176
		6	1.06 (0.84,1.34)	0.623
15-17	ECG: Other Diagnoses	4	1.12 (0.74,1.70)	0.585
		5	1.12 (0.78,1.61)	0.554
		6	1.11 (0.75,1.64)	0.615
15-19	Diastolic Blood Pressure	4	1.21 (0.94,1.57)	0.154
		5	1.18 (0.94,1.49)	0.167
		6	1.22 (0.95,1.56)	0.125
15-20	Funduscopic Examination	4	1.17 (0.99,1.39)	0.076
		5	1.17 (1.00,1.37)	0.045
		6	1.14 (0.96,1.34)	0.132
15-21	Carotid Bruits	4	0.78 (0.54,1.13)	0.183
		5	0.84 (0.63,1.11)	0.223
		6	0.76 (0.56,1.03)	0.087
15-22	Radial Pulses	4	0.55 (0.25,1.20)	0.122
		5	0.70 (0.42,1.16)	0.192
		6	0.65 (0.38,1.12)	0.150
15-23	Femoral Pulses	4	1.04 (0.68,1.58)	0.869
		5	1.08 (0.75,1.56)	0.688
		6	1.02 (0.69,1.52)	0.915
15-24	Popliteal Pulses	4	1.17 (0.86,1.60)	0.330
		5	1.24 (0.94,1.64)	0.128
		6	1.11 (0.81,1.50)	0.521
15-25	Dorsalis Pedis Pulses	4	1.01 (0.86,1.18)	0.905
		5	1.01 (0.88,1.16)	0.895
		6	1.00 (0.87,1.16)	0.964
15-26	Posterior Tibial Pulses	4	1.01 (0.79,1.28)	0.949
		5	1.05 (0.86,1.30)	0.610
		6	0.98 (0.79,1.23)	0.880

Table Q-1-8. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter	Model[a]	Est. Relative Risk (95% C.I.)	p-Value
15-27	Leg Pulses	4	1.00 (0.86,1.17)	0.986
		5	1.00 (0.88,1.14)	0.962
		6	0.94 (0.75,1.19)	0.621
15-28	Peripheral Pulses	4	0.99 (0.85,1.16)	0.936
		5	1.00 (0.88,1.14)	0.966
		6	0.99 (0.86,1.14)	0.883
15-29	Kidney, Urethra, and Bladder (KUB) X Ray (Excluding Kidney Stones)	4	1.01 (0.91,1.11)	0.885
		5	1.01 (0.93,1.10)	0.818
		6	0.99 (0.91,1.09)	0.892
15-30	Intermittent Claudication and Vascular Insufficiency (ICVI) Index	4	1.01 (0.79,1.29)	0.920
		5	1.11 (0.90,1.37)	0.330
		6	0.94 (0.75,1.19)	0.621
16-10	Hematocrit	4	1.16 (0.82,1.64)	0.417
		5	1.08 (0.80,1.48)	0.608
		6	1.22 (0.87,1.71)	0.247
16-12	Platelet Count	4	1.63 (1.11,2.39)	0.014
		5	1.55 (1.09,2.20)	0.017
		6	1.60 (1.09,2.34)	0.016
16-14	Prothrombin Time	4	0.82 (0.48,1.41)	0.462
		5	0.83 (0.55,1.25)	0.386
		6	0.92 (0.58,1.46)	0.712
16-15	RBC Morphology	4	1.02 (0.93,1.12)	0.619
		5	1.02 (0.95,1.11)	0.578
		6	1.04 (0.95,1.13)	0.417
16-17	Absolute Neutrophils (bands) (Zero vs. Nonzero)	4	1.01 (0.90,1.14)	0.876
		5	1.00 (0.91,1.11)	0.933
		6	1.03 (0.92,1.15)	0.589
16-20	Absolute Eosinophils (Zero vs. Nonzero)	4	1.13 (0.97,1.30)	0.116
		5	1.12 (0.98,1.27)	0.085
		6	1.11 (0.97,1.27)	0.144
16-21	Absolute Basophils (Zero vs. Nonzero)	4	0.98 (0.90,1.08)	0.715
		5	0.99 (0.91,1.07)	0.767
		6	0.98 (0.90,1.07)	0.673
17-3	Kidney Disease	4	1.02 (0.90,1.15)	0.729
		5	1.02 (0.92,1.14)	0.685
		6	1.01 (0.90,1.13)	0.918
17-4	Kidney Stones	4	0.91 (0.70,1.20)	0.510
		5	0.94 (0.75,1.18)	0.613
		6	0.94 (0.74,1.20)	0.623

Table Q-1-8. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter	Model[a]	Est. Relative Risk (95% C.I.)	p-Value
17-5	Urinary Protein	4	1.09 (0.88,1.36)	0.417
		5	1.09 (0.90,1.32)	0.361
		6	1.07 (0.88,1.31)	0.500
17-6	Urinary Red Blood Cell Count	4	1.18 (0.92,1.50)	0.197
		5	1.16 (0.93,1.44)	0.194
		6	1.16 (0.92,1.46)	0.224
17-7	Urinary White Blood Cell Count	4	1.08 (0.84,1.40)	0.533
		5	1.06 (0.85,1.33)	0.579
		6	1.10 (0.87,1.40)	0.424
18-3	Past Thyroid Disease	4	0.95 (0.78,1.17)	0.644
		5	0.99 (0.83,1.17)	0.874
		6	0.94 (0.79,1.13)	0.543
18-4	Composite Diabetes Indicator	4	1.19 (1.05,1.34)	0.005
		5	1.20 (1.08,1.34)	<0.001
		6	1.12 (1.00,1.26)	0.050
18-7	Thyroid Gland	4	0.67 (0.34,1.30)	0.222
		5	0.78 (0.48,1.26)	0.332
		6	0.72 (0.44,1.18)	0.219
18-10	Retinopathy Results (Diabetics)	4	1.51 (0.97,2.36)	0.076
		5	1.43 (0.95,2.15)	0.088
		6	1.47 (0.93,2.31)	0.103
18-11	Neuropathy Results (Diabetics)	4	1.14 (0.83,1.57)	0.424
		5	1.09 (0.83,1.44)	0.535
		6	1.17 (0.85,1.61)	0.321
18-12	Radial Pulses (Doppler) (Diabetics)	4	0.58 (0.22,1.53)	0.271
		5	0.71 (0.38,1.30)	0.307
		6	0.78 (0.37,1.61)	0.515
18-13	Femoral Pulses (Doppler) (Diabetics)	4	0.90 (0.49,1.63)	0.715
		5	0.98 (0.61,1.60)	0.950
		6	0.86 (0.50,1.50)	0.606
18-14	Popliteal Pulses (Doppler) (Diabetics)	4	1.02 (0.65,1.62)	0.920
		5	1.09 (0.74,1.61)	0.647
		6	0.97 (0.62,1.51)	0.884
18-15	Dorsalis Pedis Pulses (Doppler) (Diabetics)	4	1.10 (0.83,1.46)	0.522
		5	1.07 (0.84,1.36)	0.605
		6	1.04 (0.78,1.37)	0.807
18-16	Posterior Tibial Pulses (Doppler) (Diabetics)	4	0.99 (0.67,1.45)	0.943
		5	1.03 (0.74,1.42)	0.874
		6	0.98 (0.68,1.41)	0.899

Table Q-1-8. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter	Model[a]	Est. Relative Risk (95% C.I.)	p-Value
18-17	Leg Pulses (Doppler) (Diabetics)	4	1.11 (0.84,1.46)	0.476
		5	1.07 (0.84,1.35)	0.585
		6	1.06 (0.81,1.38)	0.677
18-18	Peripheral Pulses (Doppler) (Diabetics)	4	1.07 (0.81,1.41)	0.631
		5	1.04 (0.82,1.31)	0.746
		6	1.03 (0.79,1.34)	0.834
18-20	Thyroid Stimulating Hormone (TSH)	4	1.15 (0.87,1.53)	0.327
		5	1.16 (0.90,1.50)	0.242
		6	1.12 (0.85,1.47)	0.428
18-22	Thyroxine (T_4)	4	1.08 (0.60,1.95)	0.789
		5	1.13 (0.68,1.89)	0.639
		6	1.05 (0.60,1.83)	0.868
18-23	Anti-Thyroid Antibodies	4	1.03 (0.82,1.30)	0.776
		5	1.06 (0.87,1.29)	0.563
		6	1.01 (0.82,1.26)	0.903
18-25	Fasting Glucose (All Participants)	4	1.18 (1.04,1.34)	0.011
		5	1.21 (1.08,1.36)	0.001
		6	1.11 (0.98,1.26)	0.092
18-27	Fasting Glucose (Diabetics)	4	1.13 (0.89,1.44)	0.316
		5	1.15 (0.94,1.41)	0.172
		6	1.05 (0.83,1.32)	0.701
18-29	Fasting Glucose (Nondiabetics)	4	1.02 (0.77,1.34)	0.907
		5	1.05 (0.82,1.33)	0.714
		6	0.99 (0.76,1.28)	0.920
18-31	2-Hour Postprandial Glucose (Nondiabetics)	4	1.27 (1.11,1.46)	0.001
		5	1.28 (1.13,1.45)	<0.001
		6	1.23 (1.08,1.41)	0.002
18-32	Fasting Urinary Glucose (All Participants)	4	1.58 (1.25,1.99)	<0.001
		5	1.62 (1.30,2.01)	<0.001
		6	1.48 (1.17,1.87)	0.001
18-33	Fasting Urinary Glucose (Diabetics)	4	1.46 (1.11,1.92)	0.005
		5	1.44 (1.13,1.84)	0.002
		6	1.37 (1.05,1.80)	0.018
18-34	Fasting Urinary Glucose (Nondiabetics)	4	--	--
		5	--	--
		6	--	--
18-35	2-Hour Postprandial Urinary Glucose (Nondiabetics)	4	1.16 (1.03,1.32)	0.018
		5	1.17 (1.05,1.31)	0.005
		6	1.11 (0.98,1.24)	0.095

Table Q-1-8. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter	Model[a]	Est. Relative Risk (95% C.I.)	p-Value
18-39	Serum Insulin (Diabetics)	4	0.73 (0.58,0.93)	0.008
		5	0.78 (0.63,0.95)	0.011
		6	0.78 (0.62,0.98)	0.029
18-43	Serum Glucagon (All Participants)	4	0.98 (0.45,2.14)	0.964
		5	0.96 (0.49,1.86)	0.900
		6	1.05 (0.51,2.16)	0.894
18-45	Serum Glucagon (Diabetics)	4	0.87 (0.40,1.89)	0.722
		5	0.87 (0.48,1.56)	0.643
		6	1.03 (0.51,2.06)	0.938
18-47	Serum Glucagon (Nondiabetics)	4	--	--
		5	--	--
		6	--	--
18-49	α-1-C Hemoglobin (All Participants)	4	1.10 (0.99,1.21)	0.071
		5	1.11 (1.02,1.22)	0.016
		6	1.05 (0.95,1.15)	0.352
18-51	α-1-C Hemoglobin (Diabetics)	4	1.23 (0.92,1.64)	0.142
		5	1.20 (0.95,1.51)	0.116
		6	1.09 (0.84,1.42)	0.512
18-53	α-1-C Hemoglobin (Nondiabetics)	4	0.99 (0.86,1.12)	0.824
		5	1.01 (0.90,1.13)	0.921
		6	0.97 (0.86,1.10)	0.648
18-54	Urinary Protein (Diabetics)	4	1.11 (0.80,1.53)	0.538
		5	1.10 (0.83,1.46)	0.486
		6	1.08 (0.79,1.48)	0.619
18-56	Serum Proinsulin (Diabetics)	4	1.23 (0.97,1.55)	0.077
		5	1.24 (1.01,1.52)	0.031
		6	1.11 (0.88,1.40)	0.359
18-58	Serum C Peptide (Diabetics)	4	0.96 (0.77,1.21)	0.731
		5	0.98 (0.81,1.19)	0.860
		6	1.01 (0.82,1.26)	0.909
18-60	Total Testosterone	4	1.25 (1.02,1.54)	0.033
		5	1.27 (1.05,1.53)	0.012
		6	1.20 (0.99,1.47)	0.071
18-62	Free Testosterone	4	1.20 (1.06,1.35)	0.004
		5	1.15 (1.04,1.29)	0.009
		6	1.21 (1.07,1.36)	0.002
18-63	Sex Hormone Binding Globulin	4	1.00 (0.88,1.13)	0.994
		5	1.02 (0.92,1.14)	0.666
		6	0.98 (0.87,1.10)	0.709

Table Q-1-8. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter	Model[a]	Est. Relative Risk (95% C.I.)	p-Value
18-64	Total Testosterone to Sex Hormone Binding Globulin Ratio	4	1.05 (0.90,1.23)	0.514
		5	1.03 (0.90,1.18)	0.630
		6	1.08 (0.93,1.25)	0.327
18-66	Estradiol	4	1.12 (0.88,1.42)	0.370
		5	1.08 (0.87,1.33)	0.485
		6	1.05 (0.84,1.32)	0.676
18-68	Luteinizing Hormone (LH)	4	0.87 (0.60,1.26)	0.454
		5	0.92 (0.68,1.24)	0.576
		6	0.86 (0.62,1.18)	0.356
18-70	Follicle Stimulating Hormone (FSH)	4	0.97 (0.79,1.20)	0.787
		5	1.00 (0.84,1.20)	0.973
		6	0.96 (0.79,1.16)	0.653
19-4	Composite Skin Test Diagnosis	4	0.72 (0.56,0.93)	0.008
		5	0.78 (0.65,0.94)	0.012
		6	0.78 (0.63,0.95)	0.014
19-15	Double Labelled Cells: CD5 with CD20 (Zero vs. Nonzero)	4	1.04 (0.73,1.47)	0.834
		5	1.06 (0.78,1.44)	0.699
		6	1.03 (0.74,1.43)	0.883
19-16	Double Labelled Cells: CD4 with CD8 (Zero vs. Nonzero)	4	1.02 (0.81,1.29)	0.852
		5	1.03 (0.84,1.27)	0.763
		6	1.02 (0.81,1.27)	0.884
19-17	Double Labelled Cells: CD3 with CD16+56 (Zero vs. Nonzero)	4	1.53 (1.06,2.22)	0.024
		5	1.56 (1.11,2.21)	0.010
		6	1.46 (1.01,2.10)	0.042
19-22	Lupus Panel: Antinuclear Antibody (ANA)	4	0.90 (0.79,1.03)	0.137
		5	0.93 (0.84,1.04)	0.233
		6	0.90 (0.80,1.02)	0.099
19-23	Lupus Panel: Thyroid Microsomal Antibody	4	1.08 (0.87,1.34)	0.478
		5	1.10 (0.91,1.32)	0.327
		6	1.06 (0.86,1.29)	0.587
19-24	Lupus Panel: MSK Smooth Muscle Antibody	4	0.78 (0.59,1.03)	0.070
		5	0.85 (0.68,1.05)	0.143
		6	0.81 (0.64,1.02)	0.082
19-25	Lupus Panel: MSK Mitochondrial Antibody	4	0.44 (0.15,1.26)	0.126
		5	0.58 (0.32,1.04)	0.114
		6	0.63 (0.31,1.26)	0.243
19-26	Lupus Panel: MSK Parietal Antibody	4	1.17 (0.87,1.57)	0.319
		5	1.16 (0.89,1.51)	0.279
		6	1.16 (0.87,1.55)	0.307

Table Q-1-8. (Continued)
Summary of Unadjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter	Model[a]	Est. Relative Risk (95% C.I.)	p-Value
19-27	Lupus Panel: Rheumatoid Factor	4	0.87 (0.76,0.99)	0.038
		5	0.88 (0.79,0.98)	0.023
		6	0.91 (0.81,1.03)	0.126
19-28	Lupus Panel: B Cell Clones Detected by Serum Protein Electrophoresis	4	0.85 (0.63,1.16)	0.297
		5	0.88 (0.69,1.12)	0.306
		6	0.82 (0.63,1.07)	0.147
19-29	Lupus Panel: Other Antibodies (ANA and MSK)	4	1.07 (0.83,1.39)	0.595
		5	1.05 (0.83,1.31)	0.697
		6	1.10 (0.87,1.41)	0.424
19-30	Lupus Panel: Summary Index	4	0.90 (0.82,0.99)	0.028
		5	0.92 (0.85,1.00)	0.042
		6	0.91 (0.83,0.99)	0.030
20-3	Asthma	4	1.05 (0.84,1.32)	0.653
		5	1.00 (0.82,1.21)	0.973
		6	1.06 (0.85,1.30)	0.619
20-4	Bronchitis	4	0.92 (0.81,1.03)	0.143
		5	0.94 (0.85,1.04)	0.238
		6	0.91 (0.82,1.01)	0.089
20-5	Pneumonia	4	0.87 (0.73,1.03)	0.104
		5	0.90 (0.78,1.04)	0.145
		6	0.89 (0.77,1.04)	0.156
20-6	Thorax and Lung Abnormalities	4	0.94 (0.82,1.07)	0.334
		5	0.95 (0.85,1.07)	0.408
		6	0.94 (0.84,1.06)	0.339
20-7	X Ray Interpretation	4	0.94 (0.82,1.07)	0.339
		5	0.97 (0.87,1.09)	0.651
		6	0.92 (0.82,1.04)	0.197

[a] Model 4: Log_2 (lipid-adjusted current dioxin + 1).
Model 5: Log_2 (whole-weight current dioxin + 1).
Model 6: Log_2 (whole-weight current dioxin + 1), adjusted for log_2 total lipids.

--: Estimated relative risk, confidence interval, and p-value not presented due to the sparse number of abnormalities.

Note: Relative risk for a twofold increase in current dioxin.

Table Q-1-9.
Summary of Unadjusted Results for Polychotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Contrast	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
13-48	α-1 Antitrypsin	Low vs. Normal	All	2.2	1.7	1.35 (0.73,2.49)	0.419
			Officer	3.6	2.6	1.40 (0.64,3.06)	0.520
			Enlisted Flyer	1.2	0.5	2.45 (0.22,27.22)	0.866
			Enlisted Groundcrew	1.4	1.3	1.16 (0.39,3.49)	0.999
		High vs. Normal	All	1.8	1.3	1.43 (0.72,2.85)	0.393
			Officer	1.9	1.0	1.96 (0.62,6.22)	0.387
			Enlisted Flyer	1.9	1.5	1.22 (0.24,6.14)	0.999
			Enlisted Groundcrew	1.7	1.4	1.19 (0.43,3.30)	0.947
16-4	Red Blood Cell (RBC) Count	Low vs. Normal	All	3.5	2.3	1.56 (0.94,2.58)	0.087
			Officer	4.7	3.4	1.39 (0.70,2.76)	0.345
			Enlisted Flyer	2.5	1.5	1.64 (0.36,7.43)	0.522
			Enlisted Groundcrew	2.9	1.6	1.87 (0.78,4.48)	0.161
		High vs. Normal	All	1.3	1.3	0.97 (0.46,2.03)	0.926
			Officer	0.6	0.8	0.70 (0.13,3.82)	0.676
			Enlisted Flyer	0.6	2.5	0.25 (0.03,2.11)	0.201
			Enlisted Groundcrew	2.1	1.4	1.58 (0.61,4.13)	0.354
16-6	White Blood Cell (WBC) Count	Low vs. Normal	All	3.8	3.6	1.07 (0.69,1.67)	0.756
			Officer	3.9	4.2	0.92 (0.46,1.84)	0.819
			Enlisted Flyer	5.6	3.0	1.93 (0.67,5.56)	0.221
			Enlisted Groundcrew	3.1	3.3	0.95 (0.46,1.95)	0.891
		High vs. Normal	All	6.2	5.1	1.24 (0.87,1.79)	0.237
			Officer	3.9	3.0	1.29 (0.62,2.71)	0.498
			Enlisted Flyer	9.3	8.5	1.14 (0.55,2.36)	0.728
			Enlisted Groundcrew	7.1	5.7	1.26 (0.76,2.11)	0.370

Table Q-1-9. (Continued)
Summary of Unadjusted Results for Polychotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Contrast	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
16-8	Hemoglobin	Low vs. Normal	All	3.0	2.4	1.24 (0.74,2.08)	0.419
			Officer	2.5	3.6	0.69 (0.31,1.56)	0.374
			Enlisted Flyer	3.7	1.5	2.57 (0.63,10.47)	0.186
			Enlisted Groundcrew	3.1	1.7	1.81 (0.79,4.16)	0.164
		High vs. Normal	All	2.3	1.5	1.59 (0.85,2.95)	0.144
			Officer	3.0	1.4	2.17 (0.83,5.67)	0.112
			Enlisted Flyer	1.9	0.5	3.86 (0.40,37.64)	0.245
			Enlisted Groundcrew	1.9	1.9	1.01 (0.40,2.54)	0.980
18-5	Diabetic Severity	No Treatment vs. Nondiabetic	All	8.2	8.7	0.96 (0.71,1.30)	0.770
			Officer	8.0	6.4	1.30 (0.77,2.19)	0.329
			Enlisted Flyer	8.0	11.8	0.66 (0.32,1.35)	0.254
			Enlisted Groundcrew	8.5	9.6	0.88 (0.57,1.38)	0.587
		Diet Only vs. Nondiabetic	All	3.2	2.5	1.28 (0.77,2.11)	0.346
			Officer	3.6	1.8	2.07 (0.87,4.90)	0.098
			Enlisted Flyer	2.5	3.5	0.70 (0.20,2.43)	0.570
			Enlisted Groundcrew	3.1	2.8	1.10 (0.52,2.31)	0.805
		Oral Hypoglycemic vs. Nondiabetic	All	1.8	1.9	0.96 (0.51,1.80)	0.907
			Officer	0.8	2.4	0.36 (0.10,1.28)	0.114
			Enlisted Flyer	3.1	1.0	3.05 (0.58,16.13)	0.190
			Enlisted Groundcrew	2.1	1.8	1.22 (0.49,3.03)	0.674
		Insulin Dependent vs. Nondiabetic	All	1.8	0.9	1.93 (0.91,4.06)	0.084
			Officer	2.7	1.0	2.86 (0.97,8.46)	0.057
			Enlisted Flyer	1.9	1.5	1.22 (0.24,6.14)	0.811
			Enlisted Groundcrew	1.0	0.7	1.35 (0.27,6.76)	0.714

Table Q-1-9. (Continued)
Summary of Unadjusted Results for Polychotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Contrast	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
18-37	Serum Insulin (All Participants)	Low vs. Normal	All	4.4	4.6	0.92 (0.61,1.40)	0.703
			Officer	3.8	5.8	0.68 (0.35,1.34)	0.265
			Enlisted Flyer	4.3	3.5	1.05 (0.26,4.27)	0.947
			Enlisted Groundcrew	5.0	4.0	1.17 (0.40,3.40)	0.772
		High vs. Normal	All	56.0	57.2	0.94 (0.79,1.12)	0.508
			Officer	56.4	53.4	1.09 (0.82,1.44)	0.561
			Enlisted Flyer	58.0	64.9	0.75 (0.48,1.17)	0.206
			Enlisted Groundcrew	54.9	57.9	0.90 (0.69,1.16)	0.410
18-41	Serum Insulin (Nondiabetics)	Low vs. Normal	All	5.2	5.2	0.94 (0.62,1.44)	0.782
			Officer	4.5	6.5	0.67 (0.34,1.33)	0.254
			Enlisted Flyer	5.1	3.0	1.37 (0.31,6.06)	0.677
			Enlisted Groundcrew	5.8	4.7	1.16 (0.40,3.37)	0.784
		High vs. Normal	All	55.2	57.6	0.90 (0.75,1.09)	0.287
			Officer	53.2	52.3	0.99 (0.74,1.34)	0.966
			Enlisted Flyer	59.1	68.1	0.70 (0.43,1.15)	0.157
			Enlisted Groundcrew	55.4	58.8	0.89 (0.67,1.18)	0.404
20-11	Loss of Vital Capacity	Mild vs. None	All	5.4	6.5	0.81 (0.57,1.17)	0.263
			Officer	4.6	5.4	0.86 (0.46,1.60)	0.628
			Enlisted Flyer	4.3	8.9	0.46 (0.19,1.13)	0.089
			Enlisted Groundcrew	6.4	6.6	0.96 (0.58,1.60)	0.880
		Moderate or Severe vs. None	All	1.1	1.3	0.78 (0.36,1.71)	0.535
			Officer	0.8	0.8	1.02 (0.23,4.59)	0.978
			Enlisted Flyer	1.2	2.5	0.47 (0.09,2.46)	0.371
			Enlisted Groundcrew	1.2	1.4	0.85 (0.27,2.60)	0.770

Table Q-1-9. (Continued)
Summary of Unadjusted Results for Polychotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Contrast	Occupational Category	Percent Abnormal RH	Percent Abnormal C	Est. Relative Risk (95% C.I.)	p-Value
20-12	Obstructive Abnormality	Mild vs. None	All	36.8	35.9	1.06 (0.89,1.27)	0.493
			Officer	40.7	38.8	1.11 (0.84,1.48)	0.454
			Enlisted Flyer	44.4	41.9	1.23 (0.80,1.91)	0.344
			Enlisted Groundcrew	30.5	31.1	0.96 (0.73,1.27)	0.786
		Moderate or Severe vs. None	All	7.7	6.6	1.21 (0.87,1.69)	0.256
			Officer	7.4	6.0	1.31 (0.75,2.28)	0.335
			Enlisted Flyer	12.4	7.9	1.82 (0.88,3.77)	0.106
			Enlisted Groundcrew	6.2	6.6	0.91 (0.54,1.54)	0.737

Note: RH = Ranch Hand
C = Comparison.

Table Q-1-10.
Summary of Unadjusted Results for Polychotomous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Ref.	Clinical Parameter	Contrast	Est. Relative Risk (95% C.I.)[a]	p-Value[a]
13-48	α-1 Antitrypsin	Low vs. Normal	0.90 (0.51,1.57)	0.703
		High vs. Normal	0.75 (0.38,1.47)	0.404
16-4	Red Blood Cell (RBC) Count	Low vs. Normal	0.80 (0.52,1.22)	0.305
		High vs. Normal	1.03 (0.59,1.79)	0.918
16-6	White Blood Cell (WBC) Count	Low vs. Normal	0.94 (0.67,1.33)	0.740
		High vs. Normal	0.90 (0.67,1.20)	0.457
16-8	Hemoglobin	Low vs. Normal	0.91 (0.59,1.40)	0.669
		High vs. Normal	1.09 (0.71,1.67)	0.689
18-5	Diabetic Severity	No Treatment vs. Normal	0.88 (0.70,1.12)	0.311
		Diet only vs. Normal	1.00 (0.73,1.39)	0.979
		Oral Hypoglycemics vs. Normal	1.44 (1.03,2.00)	0.032
		Insulin Dependent vs. Normal	0.83 (0.50,1.38)	0.467
18-37	Serum Insulin (All Participants)	Low vs. Normal	0.80 (0.54,1.20)	0.242
		High vs. Normal	0.96 (0.83,1.10)	0.571
18-41	Serum Insulin (Nondiabetics)	Low vs. Normal	0.88 (0.59,1.30)	0.550
		High vs. Normal	1.10 (0.94,1.30)	0.215
20-11	Loss of Vital Capacity	Mild vs. None	1.05 (0.80,1.37)	0.720
		Moderate or Severe vs. None	0.80 (0.45,1.43)	0.452
20-12	Obstructive Abnormality	Mild vs. None	0.86 (0.74,1.00)	0.044
		Moderate or Severe vs. None	0.80 (0.60,1.06)	0.115

[a] Adjusted for percent body fat at the time of duty in SEA and change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin.

Note: Relative risk for a twofold increase in initial dioxin.

Table Q-1-11.
Summary of Unadjusted Results for Polychotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Contrast	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[a]	p-Value[a]
13-48	α-1 Antitrypsin	Low vs. Normal	Comparison	1,043	1.9		
			Background RH	369	3.0	1.51 (0.71,3.22)	0.283
			Low RH	257	1.6	0.83 (0.28,2.45)	0.736
			High RH	258	1.6	0.83 (0.28,2.45)	0.735
			Low plus High RH	515	1.6	0.83 (0.36,1.90)	0.658
		High vs. Normal	Comparison	1,043	1.3		
			Background RH	369	2.2	1.72 (0.70,4.22)	0.234
			Low RH	257	2.0	1.24 (0.43,3.53)	0.692
			High RH	258	0.4	0.20 (0.02,1.67)	0.138
			Low plus High RH	515	1.2	0.71 (0.26,1.92)	0.498
16-4	Red Blood Cell (RBC) Count	Low vs. Normal	Comparison	1,061	2.4		
			Background RH	371	4.3	1.91 (1.00,3.65)	0.049
			Low RH	259	4.6	1.95 (0.96,3.95)	0.063
			High RH	258	1.6	0.64 (0.22,1.86)	0.410
			Low plus High RH	517	3.1	1.29 (0.68,2.45)	0.436
		High vs. Normal	Comparison	1,061	1.3		
			Background RH	371	0.8	0.77 (0.22,2.73)	0.686
			Low RH	259	1.5	1.06 (0.33,3.38)	0.919
			High RH	258	1.2	0.66 (0.18,2.39)	0.525
			Low plus High RH	517	1.4	0.84 (0.33,2.17)	0.722
16-6	White Blood Cell (WBC) Count	Low vs. Normal	Comparison	1,061	3.3		
			Background RH	371	3.5	0.95 (0.49,1.83)	0.884
			Low RH	259	4.6	1.51 (0.77,2.97)	0.232
			High RH	258	3.9	1.31 (0.64,2.70)	0.462
			Low plus High RH	517	4.3	1.41 (0.82,2.45)	0.217
		High vs. Normal	Comparison	1,061	5.3		
			Background RH	371	5.9	1.07 (0.64,1.78)	0.808
			Low RH	259	7.0	1.41 (0.81,2.45)	0.223
			High RH	258	5.0	1.01 (0.54,1.87)	0.987
			Low plus High RH	517	6.0	1.21 (0.77,1.90)	0.418

Table Q-1-11. (Continued)
Summary of Unadjusted Results for Polychotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Contrast	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[a]	p-Value[a]
16-8	Hemoglobin	Low vs. Normal	Comparison	1,061	2.3		
			Background RH	371	3.5	1.63 (0.81,3.25)	0.170
			Low RH	259	3.9	1.65 (0.78,3.51)	0.192
			High RH	258	1.2	0.49 (0.15,1.67)	0.256
			Low plus High RH	517	2.5	1.08 (0.54,2.14)	0.835
		High vs. Normal	Comparison	1,061	1.5		
			Background RH	371	1.9	1.44 (0.58,3.55)	0.434
			Low RH	259	1.9	1.25 (0.45,3.46)	0.667
			High RH	258	2.3	1.37 (0.53,3.58)	0.516
			Low plus High RH	517	2.1	1.31 (0.60,2.87)	0.493
18-5	Diabetic Severity	No Treatment vs. Normal	Comparison	1,060	8.1		
			Background RH	374	7.0	1.04 (0.65,1.66)	0.863
			Low RH	258	10.9	1.30 (0.82,2.07)	0.270
			High RH	260	7.7	0.85 (0.51,1.43)	0.545
			Low plus High RH	518	9.3	1.07 (0.73,1.56)	0.740
		Diet Only vs. Normal	Comparison	1,060	2.8		
			Background RH	374	2.1	0.92 (0.42,2.05)	0.845
			Low RH	258	4.3	1.46 (0.72,2.99)	0.298
			High RH	260	4.2	1.34 (0.65,2.74)	0.430
			Low plus High RH	518	4.3	1.40 (0.79,2.47)	0.251
		Oral Hypoglycemics vs. Normal	Comparison	1,060	1.9		
			Background RH	374	0.0	--	--
			Low RH	258	1.9	0.92 (0.33,2.53)	0.870
			High RH	260	4.6	1.94 (0.91,4.16)	0.088
			Low plus High RH	518	3.3	1.46 (0.74,2.87)	0.275
		Insulin Dependent vs. Normal	Comparison	1,060	1.1		
			Background RH	374	2.1	2.24 (0.89,5.61)	0.086
			Low RH	258	1.9	1.51 (0.52,4.39)	0.447
			High RH	260	1.5	1.11 (0.34,3.61)	0.862
			Low plus High RH	518	1.7	1.31 (0.54,3.20)	0.555

Table Q-1-11. (Continued)
Summary of Unadjusted Results for Polychotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Contrast	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[a]	p-Value[a]
18-37	Serum Insulin (All Participants)	Low vs. Normal	Comparison	1,060	4.7		
			Background RH	374	5.1	0.82 (0.47,1.44)	0.489
			Low RH	258	4.3	0.92 (0.46,1.84)	0.804
			High RH	260	3.5	0.82 (0.39,1.75)	0.611
			Low plus High RH	518	3.9	0.87 (0.50,1.52)	0.626
		High vs. Normal	Comparison	1,060	58.2		
			Background RH	374	50.0	0.82 (0.64,1.05)	0.113
			Low RH	258	58.9	0.99 (0.74,1.33)	0.944
			High RH	260	61.2	0.97 (0.72,1.30)	0.835
			Low plus High RH	518	60.0	0.98 (0.78,1.23)	0.858
18-41	Serum Insulin (Nondiabetics)	Low vs. Normal	Comparison	912	5.3		
			Background RH	332	5.7	0.84 (0.48,1.49)	0.560
			Low RH	209	5.3	0.95 (0.47,1.93)	0.893
			High RH	213	4.2	0.98 (0.46,2.11)	0.960
			Low plus High RH	422	4.7	0.97 (0.55,1.70)	0.907
		High vs. Normal	Comparison	912	58.2		
			Background RH	332	48.2	0.75 (0.57,0.99)	0.040
			Low RH	209	56.9	0.89 (0.64,1.24)	0.490
			High RH	213	64.3	1.10 (0.79,1.54)	0.571
			Low plus High RH	422	60.7	0.99 (0.77,1.28)	0.934
20-11	Loss of Vital Capacity	Mild vs. None	Comparison	1,062	6.5		
			Background RH	373	5.4	0.94 (0.56,1.57)	0.802
			Low RH	260	5.4	0.77 (0.43,1.40)	0.397
			High RH	260	5.8	0.77 (0.43,1.38)	0.384
			Low plus High RH	520	5.6	0.77 (0.49,1.21)	0.263
		Moderate or Severe vs. None	Comparison	1,062	1.5		
			Background RH	373	0.5	0.41 (0.09,1.79)	0.233
			Low RH	260	1.9	1.19 (0.43,3.30)	0.738
			High RH	260	1.2	0.65 (0.19,2.28)	0.504
			Low plus High RH	520	1.5	0.91 (0.38,2.16)	0.833

Table Q-1-11. (Continued)
Summary of Unadjusted Results for Polychotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Contrast	Dioxin Category	n	Percent Abnormal	Est. Relative Risk (95% C.I.)[a]	p-Value[a]
20-12	Obstructive Abnormality	Mild vs. None	Comparison	1,062	35.4		
			Background RH	373	39.9	1.21 (0.94,1.56)	0.136
			Low RH	260	36.2	1.08 (0.81,1.45)	0.604
			High RH	260	31.5	0.85 (0.63,1.14)	0.268
			Low plus High RH	520	33.9	0.96 (0.76,1.20)	0.701
		Moderate or Severe vs. None	Comparison	1,062	7.1		
			Background RH	373	8.9	1.30 (0.83,2.03)	0.251
			Low RH	260	8.8	1.29 (0.78,2.14)	0.328
			High RH	260	5.4	0.74 (0.40,1.35)	0.321
			Low plus High RH	520	7.1	1.00 (0.66,1.53)	0.987

[a] Adjusted for percent body fat at the time of duty in SEA and change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin.

--: Estimated relative risk, confidence interval, and p-value not presented due to the sparse number of abnormalities.

Note: Relative risk and confidence interval relative to Comparisons.
RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table Q-1-12.
Summary of Unadjusted Results for Polychotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter	Contrast	Model[a]	Est. Relative Risk (95% C.I.)	p-Value
13-48	α-1 Antitrypsin	Low vs. Normal	4	0.82 (0.59,1.14)	0.236
			5	0.88 (0.67,1.14)	0.335
			6	0.88 (0.67,1.15)	0.344
		High vs. Normal	4	0.70 (0.47,1.05)	0.082
			5	0.76 (0.57,1.01)	0.056
			6	0.86 (0.62,1.20)	0.390
16-4	Red Blood Cell (RBC) Count	Low vs. Normal	4	0.87 (0.67,1.12)	0.285
			5	0.89 (0.72,1.09)	0.268
			6	0.90 (0.73,1.12)	0.359
		High vs. Normal	4	1.18 (0.79,1.77)	0.423
			5	1.16 (0.81,1.67)	0.417
			6	1.20 (0.82,1.75)	0.356
16-6	White Blood Cell (WBC) Count	Low vs. Normal	4	1.00 (0.79,1.26)	0.984
			5	1.00 (0.82,1.22)	0.982
			6	1.02 (0.82,1.25)	0.873
		High vs. Normal	4	0.88 (0.73,1.08)	0.224
			5	0.93 (0.79,1.09)	0.380
			6	0.91 (0.76,1.07)	0.259
16-8	Hemoglobin	Low vs. Normal	4	0.92 (0.70,1.21)	0.542
			5	0.92 (0.73,1.16)	0.477
			6	0.94 (0.74,1.20)	0.634
		High vs. Normal	4	1.13 (0.83,1.54)	0.448
			5	1.14 (0.86,1.50)	0.359
			6	1.15 (0.86,1.53)	0.340
18-5	Diabetic Severity	No Treatment vs. Nondiabetic	4	1.10 (0.93,1.29)	0.266
			5	1.11 (0.97,1.29)	0.140
			6	1.12 (0.96,1.30)	0.155
		Diet Only vs. Nondiabetic	4	1.27 (1.00,1.62)	0.052
			5	1.35 (1.08,1.68)	0.007
			6	1.30 (1.04,1.63)	0.020
		Oral Hypoglycemic vs. Nondiabetic	4	2.17 (1.59,2.96)	<0.001
			5	2.12 (1.57,2.85)	<0.001
			6	2.16 (1.59,2.93)	<0.001
		Insulin Dependent vs. Nondiabetic	4	0.75 (0.52,1.08)	0.120
			5	0.80 (0.61,1.05)	0.114
			6	0.78 (0.59,1.03)	0.075

Table Q-1-12. (Continued)
Summary of Unadjusted Results for Polychotomous Variables
Models 4, 5, and 6: Ranch Hands – Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter	Contrast	Model[a]	Est. Relative Risk (95% C.I.)	p-Value
18-37	Serum Insulin (All Participants)	Low vs. Normal	4	0.77 (0.60,0.99)	0.038
			5	0.80 (0.67,0.97)	0.021
			6	0.79 (0.65,0.97)	0.021
		High vs. Normal	4	1.12 (1.02,1.24)	0.016
			5	1.14 (1.05,1.24)	0.002
			6	1.12 (1.02,1.22)	0.013
18-41	Serum Insulin (Nondiabetics)	Low vs. Normal	4	0.83 (0.64,1.07)	0.148
			5	0.85 (0.70,1.03)	0.105
			6	0.83 (0.68,1.03)	0.089
		High vs. Normal	4	1.24 (1.11,1.38)	<0.001
			5	1.26 (1.14,1.38)	<0.001
			6	1.22 (1.10,1.34)	<0.001
20-11	Loss of Vital Capacity	Mild vs. None	4	1.12 (0.93,1.36)	0.231
			5	1.13 (0.96,1.34)	0.150
			6	1.14 (0.95,1.36)	0.151
		Moderate or Severe vs. None	4	1.09 (0.72,1.66)	0.681
			5	1.08 (0.75,1.56)	0.668
			6	1.11 (0.76,1.63)	0.584
20-12	Obstructive Abnormality	Mild vs. None	4	0.84 (0.76,0.92)	<0.001
			5	0.88 (0.81,0.96)	0.003
			6	0.86 (0.79,0.94)	0.001
		Moderate or Severe vs. None	4	0.80 (0.67,0.96)	0.015
			5	0.84 (0.72,0.98)	0.022
			6	0.83 (0.71,0.97)	0.018

[a] Model 4: Log_2 (lipid-adjusted current dioxin + 1).
Model 5: Log_2 (whole-weight current dioxin + 1).
Model 6: Log_2 (whole-weight current dioxin + 1), adjusted for log_2 total lipids.

Note: Relative risk for a twofold increase in current dioxin.

Table Q-1-13.
Summary of Adjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Adj. Mean RH	Adj. Mean C	Difference of Adj. Means (95% C.I.)	p-Value
9-6	Body Fat (Percent)[a]	All	21.75	21.91	-0.16 --	0.449
		Officer	21.61	21.38	0.23 --	0.511
		Enlisted Flyer	21.71	21.91	-0.21 --	0.699
		Enlisted Groundcrew	21.94	22.44	-0.50 --	0.131
9-7	Body Fat (Percent) with Adjustment for Caloric Intake[a]	All	21.72	21.90	-0.18 --	0.400
		Officer	21.63	21.39	0.23 --	0.495
		Enlisted Flyer	21.62	21.87	-0.26 --	0.626
		Enlisted Groundcrew	21.94	22.46	-0.53 --	0.110
9-10	Sedimentation Rate (mm/hr)[b]	All	8.31	7.96	0.35 --	0.232
		Officer	6.93	6.91	0.02 --	0.946
		Enlisted Flyer	8.75	8.80	-0.05 --	0.945
		Enlisted Groundcrew	9.27	8.43	0.84 --	0.078
10-40	Prostate-Specific Antigen (ng/ml)[a] (Measurements at or Above Sensitivity Limit)	All	****	****	****	****
		Officer	****	****	****	****
		Enlisted Flyer	****	****	****	****
		Enlisted Groundcrew	****	****	****	****
11-28	Vibrotactile Threshold Measurement of Right Great Toe (microns)[a]	All	16.28	16.48	-0.19 --	0.798
		Officer	13.32	14.86	-1.54 --	0.136
		Enlisted Flyer	17.46	17.22	0.23 --	0.904
		Enlisted Groundcrew	18.62	17.46	1.16 --	0.349
11-29	Vibrotactile Threshold Measurement of Left Great Toe (microns)[a]	All	15.77	15.46	0.31 --	0.664
		Officer	13.15	13.40	-0.25 --	0.797
		Enlisted Flyer	15.90	17.04	-1.14 --	0.540
		Enlisted Groundcrew	18.09	16.58	1.52 --	0.205
13-12	AST (U/L)[a]	All	22.87	23.41	-0.55 --	0.138
		Officer	23.55	24.15	-0.61 --	0.319
		Enlisted Flyer	21.33	22.90	-1.57 --	0.071
		Enlisted Groundcrew	23.41	23.51	-0.11 --	0.851

Table Q-1-13. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Adj. Mean RH	Adj. Mean C	Difference of Adj. Means (95% C.I.)	p-Value
13-14	ALT (U/L)[a]	All	26.12	27.03	-0.91 --	0.080
		Officer	26.81	27.22	-0.40 --	0.633
		Enlisted Flyer	24.59	27.39	-2.79 --	0.026
		Enlisted Groundcrew	26.17	26.80	-0.63 --	0.423
13-16	GGT (U/L)[a]	All	34.86	34.13	0.73 --	0.429
		Officer	33.70	32.90	0.80 --	0.571
		Enlisted Flyer	34.35	35.74	-1.40 --	0.545
		Enlisted Groundcrew	35.80	34.36	1.44 --	0.305
13-18	Alkaline Phosphatase (U/L)[a]	All	71.05**	68.85**	2.20 --**	0.005**
		Officer	67.51**	66.08**	1.43 --**	0.231**
		Enlisted Flyer	70.53**	71.07**	-0.54 --**	0.782**
		Enlisted Groundcrew	74.24**	70.29**	3.95 --**	0.001**
13-20	Total Bilirubin (mg/dl)[a]	All	0.61	0.62	-0.01 --	0.600
		Officer	0.64	0.63	0.01 --	0.645
		Enlisted Flyer	0.58	0.61	-0.03 --	0.221
		Enlisted Groundcrew	0.62	0.63	-0.01 --	0.637
13-23	LDH (U/H)[a]	All	145.33**	144.97**	0.36 --**	0.743**
		Officer	143.05**	143.55**	-0.49 --**	0.779**
		Enlisted Flyer	142.49**	146.51**	-4.03 --**	0.139**
		Enlisted Groundcrew	148.97**	146.15**	2.81 --**	0.096**
13-25	Cholesterol (mg/dl)[a]	All	216.07**	215.49**	0.58 --**	0.729**
		Officer	213.61**	211.20**	2.41 --**	0.365**
		Enlisted Flyer	217.80**	220.84**	-3.04 --**	0.473**
		Enlisted Groundcrew	215.66**	215.40**	0.26 --**	0.918**
13-27	HDL Cholesterol (mg/dl)[a]	All	42.61**	42.81**	-0.20 --**	0.656**
		Officer	44.29**	44.56**	-0.27 --**	0.727**
		Enlisted Flyer	42.55**	41.47**	1.08 --**	0.335**
		Enlisted Groundcrew	41.49**	42.11**	-0.62 --**	0.356**

Table Q-1-13. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Adj. Mean RH	Adj. Mean C	Difference of Adj. Means (95% C.I.)	p-Value
13-29	Cholesterol-HDL Ratio[a]	All	5.07	5.03	0.04 --	0.565
		Officer	4.82	4.74	0.08 --	0.411
		Enlisted Flyer	5.10	5.30	-0.20 --	0.199
		Enlisted Groundcrew	5.20	5.12	0.08 --	0.383
13-31	Triglycerides (mg/dl)[a]	All	131.89**	129.01**	2.88 --**	0.362**
		Officer	125.96**	116.29**	9.67 --**	0.039**
		Enlisted Flyer	128.58**	143.70**	-15.12 --**	0.062**
		Enlisted Groundcrew	135.38**	132.62**	2.76 --**	0.572**
13-33	Creatine Kinase (U/L)[a]	All	168.64**	169.72**	-1.08 --**	0.780**
		Officer	175.29**	170.67**	4.62 --**	0.464**
		Enlisted Flyer	158.25**	167.76**	-9.52 --**	0.299**
		Enlisted Groundcrew	167.41**	169.93**	-2.53 --**	0.663**
13-35	Serum Amylase (U/L)[a]	All	82.89	83.05	-0.17 --	0.895
		Officer	81.74	85.58	-3.84 --	0.058
		Enlisted Flyer	82.86	80.81	2.05 --	0.503
		Enlisted Groundcrew	84.79	82.54	2.25 --	0.238
13-41	Prealbumin (mg/dl)	All	27.80**	27.75**	0.05 (-0.32,0.42)**	0.788**
		Officer	28.23**	28.14**	0.09 (-0.51,0.68)**	0.777**
		Enlisted Flyer	27.92**	27.78**	0.14 (-0.78,1.06)**	0.765**
		Enlisted Groundcrew	27.28**	27.29**	-0.01 (-0.57,0.55)**	0.964**
13-43	Albumin (mg/dl)	All	3,910.13**	3,922.27**	-12.15 (-38.06,13.77)	0.358**
		Officer	3,919.44**	3,942.55**	-23.11 (-64.59,18.37)	0.275**
		Enlisted Flyer	3,916.15**	3,919.14**	-2.98 (-66.92,60.95)	0.927**
		Enlisted Groundcrew	3,904.03**	3,909.48**	-5.45 (-44.42,33.53)	0.784**
13-45	α-1 Acid Glycoprotein (mg/dl)[a]	All	55.35	55.30	0.04 --	0.933
		Officer	52.38	53.15	-0.77 --	0.338
		Enlisted Flyer	56.26	56.20	0.06 --	0.967
		Enlisted Groundcrew	57.49	56.67	0.82 --	0.316

Table Q-1-13. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Adj. Mean RH	Adj. Mean C	Difference of Adj. Means (95% C.I.)	p-Value
13-47	α-1 Antitrypsin (mg/dl)	All	148.79	146.63	2.16 (-0.12,4.44)	0.063
		Officer	142.60	141.20	1.40 (-2.26,5.05)	0.454
		Enlisted Flyer	152.05	148.56	3.49 (-2.13,9.12)	0.223
		Enlisted Groundcrew	152.18	149.83	2.34 (-1.08,5.77)	0.180
13-49	α-2 Macroglobulin (mg/dl)[a]	All	128.91	129.75	-0.84 --	0.476
		Officer	123.85	125.02	-1.17 --	0.518
		Enlisted Flyer	129.05	132.68	-3.63 --	0.216
		Enlisted Groundcrew	133.00	132.47	0.53 --	0.770
13-51	Apolipoprotein B (mg/dl)[a]	All	151.01	151.66	-0.65 --	0.685
		Officer	154.09	154.31	-0.22 --	0.934
		Enlisted Flyer	149.06	155.23	-6.17 --	0.120
		Enlisted Groundcrew	147.92	146.95	0.97 --	0.678
13-53	C_3 Complement (mg/dl)[a]	All	116.09	116.52	-0.43 --	0.566
		Officer	113.58	112.94	0.64 --	0.588
		Enlisted Flyer	115.38	118.03	-2.65 --	0.157
		Enlisted Groundcrew	118.63	119.22	-0.59 --	0.612
13-55	C_4 Complement (mg/dl)[a]	All	23.17	23.29	-0.12 --	0.617
		Officer	22.66	22.84	-0.19 --	0.619
		Enlisted Flyer	23.49	23.13	0.36 --	0.548
		Enlisted Groundcrew	23.56	23.80	-0.24 --	0.515
13-57	Haptoglobin (mg/dl)	All	110.05	105.36	4.69 (0.88,8.50)	0.016
		Officer	97.01	93.56	3.45 (-2.65,9.55)	0.267
		Enlisted Flyer	115.13	111.57	3.56 (-5.84,12.97)	0.458
		Enlisted Groundcrew	117.54	111.35	6.20 (0.47,11.93)	0.034
13-59	Transferrin (mg/dl)[a]	All	288.88	285.27	3.60 --	0.040
		Officer	287.22	283.03	4.20 --	0.132
		Enlisted Flyer	285.86	289.37	-3.52 --	0.417
		Enlisted Groundcrew	290.98	285.27	5.71 --	0.031

Table Q-1-13. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Adj. Mean RH	Adj. Mean C	Difference of Adj. Means (95% C.I.)	p-Value
15-6	Systolic Blood Pressure (mm Hg)	All	125.55	126.47	-0.92 (-2.35,0.51)	0.206
		Officer	125.80	126.66	-0.87 (-3.17,1.43)	0.461
		Enlisted Flyer	125.36	125.81	-0.45 (-3.98,3.08)	0.802
		Enlisted Groundcrew	125.44	126.57	-1.13 (-3.27,1.00)	0.297
15-18	Diastolic Blood Pressure (mm Hg)	All	74.01**	74.46**	-0.46 (-1.24,0.33)**	0.257**
		Officer	74.24**	74.54**	-0.31 (-1.57,0.96)**	0.635**
		Enlisted Flyer	74.72**	75.01**	-0.29 (-2.22,1.65)**	0.772**
		Enlisted Groundcrew	73.65**	74.31**	-0.66 (-1.84,0.52)**	0.273**
16-3	Red Blood Cell (RBC) Count (million/mm^3)	All	****	****	****	****
		Officer	****	****	****	****
		Enlisted Flyer	****	****	****	****
		Enlisted Groundcrew	****	****	****	****
16-5	White Blood Cell (WBC) Count (thousand/mm^3)[a]	All	6.66**	6.63**	0.03 --**	0.690**
		Officer	6.37**	6.34**	0.03 --**	0.771**
		Enlisted Flyer	6.66**	6.73**	-0.08 --**	0.656**
		Enlisted Groundcrew	6.93**	6.87**	0.06 --**	0.551**
16-7	Hemoglobin (gm/dl)	All	15.62**	15.63**	-0.00 (-0.09,0.08)**	0.944**
		Officer	15.61**	15.57**	0.05 (-0.09,0.18)**	0.509**
		Enlisted Flyer	15.60**	15.69**	-0.09 (-0.30,0.11)**	0.384**
		Enlisted Groundcrew	15.63**	15.64**	-0.01 (-0.14,0.11)**	0.849**
16-9	Hematocrit (percent)	All	45.82**	45.84**	-0.02 (-0.28,0.24)**	0.879**
		Officer	45.73**	45.57**	0.16 (-0.26,0.57)**	0.451**
		Enlisted Flyer	45.75**	46.01**	-0.26 (-0.89,0.38)**	0.423**
		Enlisted Groundcrew	45.90**	45.99**	-0.09 (-0.47,0.30)**	0.658**
16-11	Platelet Count (thousand/mm^3)[c]	All	251.0**	246.1**	4.8 --**	0.036**
		Officer	242.6	246.2	-3.6 --	0.324
		Enlisted Flyer	256.2	242.2	13.9 --	0.014
		Enlisted Groundcrew	256.7	247.8	8.9 --	0.010

Table Q-1-13. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Adj. Mean RH	Adj. Mean C	Difference of Adj. Means (95% C.I.)	p-Value
16-13	Prothrombin Time (seconds)[a]	All	12.05	12.04	0.01 --	0.662
		Officer	12.02	12.00	0.02 --	0.582
		Enlisted Flyer	12.10	12.02	0.08 --	0.155
		Enlisted Groundcrew	12.04	12.07	-0.02 --	0.481
16-16	Absolute Neutrophils (segs) (thousand/mm^3)[a]	All	3.568	3.543	0.025 --	0.608
		Officer	3.397	3.354	0.044 --	0.561
		Enlisted Flyer	3.524	3.607	-0.084 --	0.490
		Enlisted Groundcrew	3.750	3.700	0.050 --	0.519
16-17	Absolute Neutrophils (bands) (thousand/mm^3)[a] (Nonzero Measurements)	All	0.169	0.169	-0.001 --	0.916
		Officer	0.227	0.213	0.014 --	0.272
		Enlisted Flyer	0.124	0.148	-0.024 --	0.038
		Enlisted Groundcrew	0.161	0.160	0.001 --	0.946
16-18	Absolute Lymphocytes (thousand/mm^3)[a]	All	1.934	1.953	-0.019 --	0.517
		Officer	1.850	1.875	-0.025 --	0.577
		Enlisted Flyer	1.931	1.997	-0.066 --	0.643
		Enlisted Groundcrew	2.008	2.003	0.005 --	0.918
16-19	Absolute Monocytes (thousand/mm^3)[c]	All	0.450**	0.444**	0.006 --**	0.527**
		Officer	0.459**	0.446**	0.013 --**	0.426**
		Enlisted Flyer	0.435**	0.442**	-0.007 --**	0.780**
		Enlisted Groundcrew	0.451**	0.445**	0.006 --**	0.696**
16-20	Absolute Eosinophils (thousand/mm^3)[a] (Nonzero Measurements)	All	0.158	0.162	-0.004 --	0.373
		Officer	0.159	0.162	-0.004 --	0.661
		Enlisted Flyer	0.149	0.168	-0.018 --	0.133
		Enlisted Groundcrew	0.160	0.160	0.000 --	0.999
16-21	Absolute Basophils (thousand/mm^3)[a] (Nonzero Measurements)	All	0.085	0.084	0.001 --	0.653
		Officer	0.083	0.080	0.003 --	0.360
		Enlisted Flyer	0.081	0.089	-0.008 --	0.094
		Enlisted Groundcrew	0.086	0.083	0.003 --	0.386

Table Q-1-13. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Adj. Mean RH	Adj. Mean C	Difference of Adj. Means (95% C.I.)	p-Value
17-8	Serum Creatinine (mg/dl)[a]	All	1.0031**	1.0028**	0.0002 --**	0.972**
		Officer	1.0057**	1.0047**	0.0010 --**	0.929**
		Enlisted Flyer	0.9817**	0.9782**	0.0036 --**	0.831**
		Enlisted Groundcrew	1.0235**	1.0252**	-0.0017 --**	0.873**
17-9	Urine Specific Gravity	All	1.0189	1.0192	-0.0002 (-0.0008,0.0003)	0.430
		Officer	1.0187	1.0186	0.0001 (-0.0007,0.0010)	0.762
		Enlisted Flyer	1.0181	1.0190	-0.0010 (-0.0023,0.0004)	0.152
		Enlisted Groundcrew	1.0198	1.0200	-0.0002 (-0.0010,0.0006)	0.554
18-6	Time to Diabetes Onset (years)[d]	All	--	--	0.0041 (0.0499)[d]	0.935
		Officer	--	--	-0.0664 (0.0790)[d]	0.400
		Enlisted Flyer	--	--	0.1638 (0.1169)[d]	0.161
		Enlisted Groundcrew	--	--	0.0046 (0.0774)[d]	0.953
18-8	Testicular Volume: Minimum (cm^3)	All	15.07	15.00	0.07 (-0.39,0.52)	0.769
		Officer	15.20	15.05	0.15 (-0.59,0.88)	0.694
		Enlisted Flyer	15.18	15.24	-0.06 (-1.17,1.06)	0.923
		Enlisted Groundcrew	14.95	14.91	0.04 (-0.64,0.73)	0.901
18-9	Testicular Volume: Total (cm^3)[c]	All	32.08	32.15	-0.07 --	0.872
		Officer	32.23	32.48	-0.25 --	0.730
		Enlisted Flyer	32.52	33.04	-0.51 --	0.642
		Enlisted Groundcrew	31.90	31.67	0.23 --	0.727
18-19	Thyroid Stimulating Hormone (TSH) (μIU/ml)[a]	All	1.41	1.37	0.04 --	0.282
		Officer	1.47	1.40	0.07 --	0.280
		Enlisted Flyer	1.28	1.32	-0.04 --	0.645
		Enlisted Groundcrew	1.44	1.39	0.05 --	0.377
18-21	Thyroxine (T_4) (μg/dl)	All	7.81	7.85	-0.04 (-0.15,0.07)	0.456
		Officer	7.48	7.59	-0.11 (-0.29,0.07)	0.224
		Enlisted Flyer	7.96	7.94	0.02 (-0.26,0.29)	0.892
		Enlisted Groundcrew	8.00	8.01	-0.01 (-0.17,0.16)	0.945

Table Q-1-13. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Adj. Mean RH	Adj. Mean C	Difference of Adj. Means (95% C.I.)	p-Value
18-24	Fasting Glucose (mg/dl)[a] (All Participants)	All	107.69	107.68	0.01 --	0.993
		Officer	101.25	100.44	0.81 --	0.540
		Enlisted Flyer	111.29	114.42	-3.13 --	0.167
		Enlisted Groundcrew	109.74	109.36	0.38 --	0.779
18-26	Fasting Glucose (mg/dl)[a] (Diabetics)	All	156.94**	159.79**	-2.85 --**	0.613**
		Officer	165.33**	170.82**	-5.49 --**	0.589**
		Enlisted Flyer	153.01**	156.69**	-3.68 --**	0.781**
		Enlisted Groundcrew	152.28**	153.02**	-0.74 --**	0.926**
18-28	Fasting Glucose (mg/dl)[a] (Nondiabetics)	All	99.18**	99.20**	-0.02 --**	0.957**
		Officer	99.27	98.88	0.40 --	0.523
		Enlisted Flyer	98.01	100.46	-2.45 --	0.012
		Enlisted Groundcrew	99.45	98.95	0.49 --	0.400
18-30	2-Hour Postprandial Glucose (mg/dl)[a] (Nondiabetics)	All	****	****	****	****
		Officer	****	****	****	****
		Enlisted Flyer	****	****	****	****
		Enlisted Groundcrew	****	****	****	****
18-36	Serum Insulin (mIU/ml)[a] (All Participants)	All	37.38**	36.92**	0.91 --**	0.472**
		Officer	44.11**	40.68**	3.43 --**	0.134**
		Enlisted Flyer	30.04**	34.27**	-4.23 --**	0.114**
		Enlisted Groundcrew	38.52**	37.30**	1.22 --**	0.524**
18-38	Serum Insulin (mIU/ml)[a] (Diabetics)	All	49.23	42.96	6.27 --	0.149
		Officer	53.16	43.45	9.72 --	0.506
		Enlisted Flyer	44.35	46.39	-2.05 --	0.838
		Enlisted Groundcrew	48.45	41.54	6.90 --	0.274
18-40	Serum Insulin (mIU/ml)[a] (Nondiabetics)	All	58.55**	58.64**	-0.08 --**	0.968**
		Officer	64.42**	61.81**	2.61 --**	0.463**
		Enlisted Flyer	48.88**	56.22**	-7.34 --**	0.113**
		Enlisted Groundcrew	60.47**	59.82**	0.65 --**	0.839**

Table Q-1-13. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Adj. Mean RH	Adj. Mean C	Difference of Adj. Means (95% C.I.)	p-Value
18-42	Serum Glucagon (pg/ml)[a] (All Participants)	All	59.82	60.50	-0.69 --	0.326
		Officer	59.08	59.61	-0.53 --	0.632
		Enlisted Flyer	57.37	60.99	-3.62 --	0.028
		Enlisted Groundcrew	62.02	61.66	0.36 --	0.735
18-44	Serum Glucagon (pg/ml)[a] (Diabetics)	All	70.27**	69.68**	0.58 --**	0.824**
		Officer	70.22**	68.62**	1.61 --**	0.709**
		Enlisted Flyer	62.58**	70.89**	-8.31 --**	0.158**
		Enlisted Groundcrew	75.61**	71.94**	3.67 --**	0.372**
18-46	Serum Glucagon (pg/ml)[a] (Nondiabetics)	All	54.55	55.51	-0.96 --	0.139
		Officer	53.83	54.80	-0.97 --	0.346
		Enlisted Flyer	52.82	55.76	-2.93 --	0.059
		Enlisted Groundcrew	56.28	56.45	-0.17 --	0.865
18-48	α-1-C Hemoglobin (percent)[a] (All Participants)	All	7.56	7.55	0.01 --	0.873
		Officer	7.05	7.04	0.01 --	0.892
		Enlisted Flyer	7.87	7.97	-0.10 --	0.433
		Enlisted Groundcrew	7.73	7.69	0.04 --	0.557
18-50	α-1-C Hemoglobin (percent)[a] (Diabetics)	All	****	****	****	****
		Officer	****	****	****	****
		Enlisted Flyer	****	****	****	****
		Enlisted Groundcrew	****	****	****	****
18-52	α-1-C Hemoglobin (percent)[a] (Nondiabetics)	All	7.07**	7.09**	-0.02 --**	0.381**
		Officer	6.96**	7.01**	-0.05 --**	0.288**
		Enlisted Flyer	7.13**	7.17**	-0.04 --**	0.558**
		Enlisted Groundcrew	7.11**	7.11**	0.00 --**	0.967**
18-55	Serum Proinsulin (ng/ml)[c] (Diabetics)	All	0.809	0.785	0.023 --	0.790
		Officer	0.757	0.856	-0.099 --	0.507
		Enlisted Flyer	0.792	0.679	0.113 --	0.738
		Enlisted Groundcrew	0.871	0.794	0.077 --	0.738

Table Q-1-13. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Adj. Mean RH	Adj. Mean C	Difference of Adj. Means (95% C.I.)	p-Value
18-57	Serum C Peptide (ng/ml) (Diabetics)	All	7.57	6.72	0.85 (-0.09,1.78)	0.077
		Officer	7.36	6.94	0.42 (-1.16,1.20)	0.604
		Enlisted Flyer	7.39	6.61	0.78 (-1.41,2.98)	0.484
		Enlisted Groundcrew	7.84	6.64	1.20 (-0.19,2.60)	0.092
18-59	Total Testosterone (ng/dl)[c]	All	510.0	498.9	11.1 --**	0.131**
		Officer	502.3	485.9	16.5 --**	0.159**
		Enlisted Flyer	528.0	490.3	37.7 --**	0.038**
		Enlisted Groundcrew	509.5	513.0	-3.5 --**	0.753**
18-61	Free Testosterone (pg/ml)[c]	All	19.56	19.22	0.34 --	0.170
		Officer	20.17	19.76	0.41 --	0.311
		Enlisted Flyer	20.10	19.09	1.01 --	0.097
		Enlisted Groundcrew	18.67	18.63	0.04 --	0.921
18-65	Estradiol (pg/ml)[c]	All	34.22	34.21	0.01 --	0.995
		Officer	33.52	33.93	-0.41 --	0.655
		Enlisted Flyer	35.43	34.24	1.19 --	0.409
		Enlisted Groundcrew	34.11	34.18	-0.06 --	0.940
18-67	Luteinizing Hormone (LH) (mIU/ml)[a]	All	4.03	3.90	0.13 --	0.148
		Officer	3.94	3.79	0.15 --	0.288
		Enlisted Flyer	4.06	3.85	0.21 --	0.347
		Enlisted Groundcrew	4.12	4.04	0.08 --	0.547
18-69	Follicle Stimulating Hormone (FSH) (mIU/ml)[a]	All	4.37	4.31	0.06 --	0.631
		Officer	4.28	4.21	0.07 --	0.717
		Enlisted Flyer	4.42	4.13	0.29 --	0.336
		Enlisted Groundcrew	4.49	4.53	-0.04 --	0.838
19-5	CD3 Cells (cells/mm^3)[a]	All	1,483.4	1,459.0	24.4 --	0.544
		Officer	1,481.5	1,388.3	93.2 --	0.134
		Enlisted Flyer	1,410.0	1,532.3	-122.3 --	0.201
		Enlisted Groundcrew	1,523.1	1,491.5	31.6 --	0.619

Table Q-1-13. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Adj. Mean RH	Adj. Mean C	Difference of Adj. Means (95% C.I.)	p-Value
19-6	CD4 Cells (cells/mm^3)[a]	All	956.9	937.2	19.7 --	0.454
		Officer	973.8	920.5	53.3 --	0.204
		Enlisted Flyer	900.8	976.3	-75.5 --	0.227
		Enlisted Groundcrew	966.3	937.5	28.8 --	0.484
19-7	CD5 Cells (cells/mm^3)[a]	All	1,513.7	1,477.1	36.6 --	0.377
		Officer	1,528.9	1,431.6	97.3 --	0.134
		Enlisted Flyer	1,437.1	1,559.9	-122.8 --	0.217
		Enlisted Groundcrew	1,538.1	1,490.2	47.9 --	0.460
19-8	CD8 Cells (cells/mm^3)[a]	All	628.8	632.6	-3.8 --	0.851
		Officer	626.2	602.7	23.5 --	0.453
		Enlisted Flyer	597.5	691.9	-94.4 --	0.055
		Enlisted Groundcrew	646.0	635.7	10.3 --	0.745
19-9	CD14 Cells (cells/mm^3)[a]	All	484.7**	487.5**	-2.8 --	0.784**
		Officer	478.1**	461.6**	16.5 --	0.300**
		Enlisted Flyer	449.8**	505.9**	-56.1 --	0.021**
		Enlisted Groundcrew	510.7**	509.6**	1.1 --	0.952**
19-10	CD16+56 Cells (cells/mm^3)[a]	All	254.0	267.8	-13.8 --	0.171
		Officer	256.8	253.5	3.3 --	0.832
		Enlisted Flyer	235.5	272.3	-36.8 --	0.115
		Enlisted Groundcrew	260.0	279.1	-19.1 --	0.236
19-11	CD20 Cells (cells/mm^3)[e]	All	232.9**	218.3**	14.6 --**	0.083**
		Officer	222.6**	203.4**	19.2 --**	0.129**
		Enlisted Flyer	234.6**	236.9**	-2.3 --**	0.914**
		Enlisted Groundcrew	235.9**	219.6**	16.3 --**	0.211**
19-12	CD25 Cells (cells/mm^3)[a]	All	276.3**	275.5**	0.8 --**	0.936**
		Officer	277.6	270.3	7.3 --	0.605
		Enlisted Flyer	241.5	291.4	-49.9 --	0.015
		Enlisted Groundcrew	295.4	278.1	17.3 --	0.228

Table Q-1-13. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Adj. Mean RH	Adj. Mean C	Difference of Adj. Means (95% C.I.)	p-Value
19-13	CD4-CD8 Ratio[a]	All	1.532**	1.470**	0.062 --**	0.154**
		Officer	1.605**	1.545**	0.060 --**	0.417**
		Enlisted Flyer	1.549**	1.413**	0.136 --**	0.186**
		Enlisted Groundcrew	1.469**	1.434**	0.035 --**	0.584**
19-14	Double Labelled Cells: CD3 with CD25 (cells/mm^3)[a]	All	218.8**	218.3**	0.5 --**	0.949**
		Officer	217.8	214.6	3.1 --	0.783
		Enlisted Flyer	190.6	229.4	-38.8 --	0.022
		Enlisted Groundcrew	237.1	221.1	16.0 --	0.185
19-15	Double Labelled Cells: CD5 with CD20 (cells/mm^3)[a] (Nonzero Measurements)	All	55.1	50.9	4.2 --	0.162
		Officer	52.8	48.4	4.4 --	0.342
		Enlisted Flyer	53.0	53.6	-0.6 --	0.939
		Enlisted Groundcrew	58.6	52.1	6.6 --	0.174
19-16	Double Labelled Cells: CD4 with CD8 (cells/mm^3)[a] (Nonzero Measurements)	All	30.0	30.4	-0.4 --	0.769
		Officer	28.9	30.4	-1.5 --	0.498
		Enlisted Flyer	29.7	29.0	0.7 --	0.814
		Enlisted Groundcrew	31.3	31.1	0.2 --	0.927
19-17	Double Labelled Cells: CD3 with CD16+56 (cells/mm^3)[a] (Nonzero Measurements)	All	91.5	93.3	-1.8 --	0.771
		Officer	98.1	93.3	4.8 --	0.637
		Enlisted Flyer	84.9	89.9	-5.0 --	0.720
		Enlisted Groundcrew	88.9	95.8	-6.9 --	0.475
19-18	TLC (cells/mm^3)[a]	All	2,063.9	2,043.8	20.1 --	0.672
		Officer	2,021.4	1,961.9	59.5 --	0.413
		Enlisted Flyer	1,974.4	2,108.8	-134.4 --	0.230
		Enlisted Groundcrew	2,152.6	2,104.5	48.1 --	0.525
19-19	IgA (mg/dl)[a]	All	215.5	217.0	-1.5 --	0.729
		Officer	206.4	210.7	-4.3 --	0.528
		Enlisted Flyer	212.8	212.1	0.7 --	0.954
		Enlisted Groundcrew	228.4	228.1	0.3 --	0.970

Table Q-1-13. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter (units)	Occupational Category	Adj. Mean RH	Adj. Mean C	Difference of Adj. Means (95% C.I.)	p-Value
19-20	IgG (mg/dl)[a]	All	1,123.2	1,141.5	-18.3 --	0.092
		Officer	1,101.2	1,124.7	-23.5 --	0.169
		Enlisted Flyer	1,100.6	1,141.7	-41.1 --	0.119
		Enlisted Groundcrew	1,160.6	1,165.4	-4.8 --	0.770
19-21	IgM (mg/dl)[a]	All	97.0**	98.3**	-1.3 --**	0.579**
		Officer	98.1**	97.5**	0.6 --**	0.868**
		Enlisted Flyer	94.2**	103.0**	-8.8 --**	0.127**
		Enlisted Groundcrew	97.2**	97.4**	-0.2 --**	0.950**
20-8	FVC (Percent of Predicted)	All	95.3	95.6	-0.2 (-1.4,0.9)	0.665
		Officer	96.4	96.8	-0.4 (-2.2,1.4)	0.677
		Enlisted Flyer	96.0	94.4	1.6 (-1.2,4.4)	0.255
		Enlisted Groundcrew	94.3	95.1	-0.8 (-2.5,0.9)	0.341
20-9	FEV_1 (Percent of Predicted)	All	91.1	94.5	-0.4 (-1.7,0.9)	0.531
		Officer	92.6	93.0	-0.5 (-2.6,1.6)	0.659
		Enlisted Flyer	90.5	90.6	-0.1 (-3.4,3.1)	0.938
		Enlisted Groundcrew	90.3	90.8	-0.5 (-2.5,1.5)	0.633
20-10	Ratio of Observed FEV_1 to Observed FVC[f]	All	0.772	0.772	-0.001 --	0.853
		Officer	0.770	0.772	-0.002 --	0.633
		Enlisted Flyer	0.768	0.776	-0.008 --	0.232
		Enlisted Groundcrew	0.775	0.772	0.004 --	0.371

[a] Means transformed from natural logarithm scale; difference of means after transformation to original scale; confidence interval not given because analysis was performed on natural logarithm scale; p-value based on difference of means on natural logarithm scale.

[b] Means transformed from natural logarithm (clinical parameter + 0.1) scale; difference of means after transformation to original scale; confidence interval not given because analysis was performed on natural logarithm (clinical parameter + 0.1) scale; p-value based on difference of means on natural logarithm (clinical parameter + 0.1) scale.

[c] Means transformed from square root scale; difference of means after transformation to original scale; confidence interval not given because analysis was performed on square root scale; p-value based on difference of means on square root scale.

[d] Coefficient and standard error for Ranch Hand versus Comparison contrast in a failure time analysis model, using a censored Weibull distribution.

[e] Means transformed from natural logarithm (clinical parameter + 1) scale; difference of means after transformation to original scale; confidence interval not given because analysis was performed on natural logarithm (clinical parameter + 1) scale; p-value based on difference of means on natural logarithm (clinical parameter + 1) scale.

[f] Means transformed from natural logarithm (1 - clinical parameter) scale; difference of means after transformation to original scale; confidence interval not given because analysis was performed on natural logarithm (1 - clinical parameter) scale; p-value based on difference of means on natural logarithm (1 - clinical parameter) scale.

--: Adjusted means, difference of adjusted means, and confidence interval not presented because analysis was performed on censored Weibull distribution.

** Group-by-covariate interaction ($p \leq 0.05$); adjusted mean, difference of adjusted means, confidence interval, and p-value derived from a model fitted after deletion of this interaction.

**** Group-by-covariate interaction ($p \leq 0.01$); adjusted mean, difference of adjusted means, confidence interval, and p-value not presented.

Note: RH = Ranch Hand
C = Comparison.

Table Q-1-14.
Summary of Adjusted Results for Continuous Variables
Model 2: Ranch Hands − Log_2 (Initial Dioxin)

Table Ref.	Clinical Parameter (units)	R^2	Adj. Slope (Std. Error)[a]	p-Value[a]
9-6	Body Fat (Percent)[b]	0.731	-0.0065 (0.0042)	0.123
9-7	Body Fat (Percent) with Adjustment for Caloric Intake[b]	0.734	-0.0062 (0.0042)	0.135
9-10	Sedimentation Rate[c]	0.071	0.0506 (0.0297)	0.089
10-40	Prostate-Specific Antigen (ng/ml)[b] (Measurements at or Above Sensitivity Limit)	0.140	-0.036 (0.026)**	0.179**
11-28	Vibrotactile Threshold Measurement of Right Great Toe (microns)[b]	0.165	0.0325 (0.0419)**	0.438**
11-29	Vibrotactile Threshold Measurement of Left Great Toe (microns)[b]	0.194	0.0079 (0.0375)**	0.833**
13-12	AST (U/L)[b]	0.094	0.0110 (0.0140)**	0.433**
13-14	ALT (U/L)[b]	0.088	0.0171 (0.0175)	0.328
13-16	GGT (U/L)[b]	0.111	0.0329 (0.0243)**	0.177**
13-18	Alkaline Phosphatase (U/L)[b]	0.038	-0.0076 (0.0094)**	0.422**
13-20	Total Bilirubin (mg/dl)[b]	0.020	0.0013 (0.0159)	0.934
13-23	LDH (U/L)[b]	0.032	-0.0012 (0.0067)	0.863
13-25	Cholesterol (mg/dl)[b]	0.033	0.0113 (0.0064)**	0.080**
13-27	HDL Cholesterol (mg/dl)[b]	0.195	-0.0052 (0.0090)	0.563
13-29	Cholesterol-HDL Ratio[b]	0.162	0.0142 (0.0105)**	0.178**
13-31	Triglycerides (mg/dl)[b]	0.065	0.0403 (0.0218)**	0.065**
13-33	Creatine Kinase (U/L)[b]	0.124	0.0217 (0.0167)	0.196
13-35	Serum Amylase (U/L)[b]	0.132	-0.0273 (0.0123)	0.027
13-41	Prealbumin (mg/dl)	0.077	-0.0977 (0.1530)**	0.524**
13-43	Albumin (mg/dl)	0.071	8.1440 (10.6839)**	0.446**
13-45	α-1 Acid Glycoprotein (mg/dl)[b]	0.098	-0.0134 (0.0081)**	0.097**
13-47	α-1 Antitrypsin (mg/dl)	0.116	0.1019 (1.0141)**	0.920**
13-49	α-2 Macroglobulin (mg/dl)[b]	0.150	0.0105 (0.0075)**	0.165**
13-51	Apolipoprotein B (mg/dl)[b]	0.028	0.0202 (0.0085)**	0.018**
13-53	C_3 Complement (mg/dl)[b]	0.090	0.0105 (0.0049)	0.031
13-55	C_4 Complement (mg/dl)[b]	0.088	0.0020 (0.0097)**	0.834**
13-57	Haptoglobin (mg/dl)	0.087	-1.3155 (1.7467)**	0.452**
13-59	Transferrin (mg/dl)[b]	0.035	0.0032 (0.0052)**	0.532**
15-6	Systolic Blood Pressure (mm Hg)	0.172	****	****

Table Q-1-14. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Ref.	Clinical Parameter (units)	R^2	Adj. Slope (Std. Error)[a]	p-Value[a]
15-18	Diastolic Blood Pressure (mm Hg)	0.106	****	****
16-3	Red Blood Cell (RBC) Count (million/mm^3)	0.055	0.0127 (0.0135)	0.347
16-5	White Blood Cell (WBC) Count (thousand/mm^3)[b]	0.283	0.0019 (0.0098)**	0.846**
16-7	Hemoglobin (gm/dl)	0.071	0.0496 (0.0369)	0.179
16-9	Hematocrit (percent)	0.062	0.2117 (0.1110)	0.057
16-11	Platelet Count (thousand/mm^3)[d]	0.086	0.0645 (0.0580)	0.267
16-13	Prothrombin Time (seconds)[b]	0.073	0.0051 (0.0016)**	0.002**
16-16	Absolute Neutrophils (segs) (thousand/mm^3)[b]	0.223	0.0006 (0.0132)**	0.962**
16-17	Absolute Neutrophils (bands) (thousand/mm^3)[b] (Nonzero Measurements)	0.140	-0.0228 (0.0330)**	0.490**
16-18	Absolute Lymphocytes (thousand/mm^3)[b]	0.094	0.0041 (0.0144)	0.773
16-19	Absolute Monocytes (thousand/mm^3)[d]	0.066	0.0094 (0.0058)	0.104
16-20	Absolute Eosinophils (thousand/mm^3)[b] (Nonzero Measurements)	0.041	-0.0037 (0.0267)	0.890
16-21	Absolute Basophils (thousand/mm^3)[b] (Nonzero Measurements)	0.093	0.0334 (0.0197)	0.092
17-8	Serum Creatinine (mg/dl)[b]	0.061	-0.0086 (0.0069)**	0.214**
17-9	Urine Specific Gravity	0.048	0.0003 (0.0002)**	0.231**
18-6	Time to Diabetes Onset (years)[e]	--	-0.0344 (0.0329)	0.295
18-8	Testicular Volume: Minimum (cm^3)	0.063	-0.3887 (0.2218)**	0.080**
18-9	Testicular Volume: Total (cm^3)[d]	0.078	-0.0708 (0.0374)**	0.059**
18-19	Thyroid Stimulating Hormone (TSH) (μIU/ml)[b]	0.032	-0.0017 (0.0213)	0.937
18-21	Thyroxine (T_4) (μg/dl)	0.023	-0.0101 (0.0500)	0.839
18-24	Fasting Glucose (mg/dl)[b] (All Participants)	0.201	0.0248 (0.0083)**	0.003**
18-26	Fasting Glucose (mg/dl)[b] (Diabetics)	0.343	0.0431 (0.0225)	0.059
18-28	Fasting Glucose (mg/dl)[b] (Nondiabetics)	0.115	0.0006 (0.0038)**	0.880**
18-30	2-Hour Postprandial Glucose (mg/dl)[b] (Nondiabetics)	0.162	0.0216 (0.0106)	0.041
18-36	Serum Insulin (mIU/ml)[b] (All Participants)	0.347	0.0484 (0.0310)	0.119
18-38	Serum Insulin (mIU/ml)[b] (Diabetics)	0.596	-0.0906 (0.610)	0.142
18-40	Serum Insulin (mIU/ml)[b] (Nondiabetics)	0.272	0.0729 (0.0344)	0.035
18-42	Serum Glucagon (pg/ml)[b] (All Participants)	0.084	0.0003 (0.0105)**	0.974**

Table Q-1-14. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Ref.	Clinical Parameter (units)	R^2	Adj. Slope (Std. Error)[a]	p-Value[a]
18-44	Serum Glucagon (pg/ml)[b] (Diabetics)	0.153	-0.0338 (0.0283)	0.237
18-46	Serum Glucagon (pg/ml)[b] (Nondiabetics)	0.026	0.0199 (0.0097)	0.041
18-48	α-1-C Hemoglobin (percent)[b] (All Participants)	0.195	****	****
18-50	α-1-C Hemoglobin (percent)[b] (Diabetics)	0.524	0.0300 (0.0193)	0.124
18-52	α-1-C Hemoglobin (percent)[b] (Nondiabetics)	0.105	0.0007 (0.0036)	0.837
18-55	Serum Proinsulin (ng/ml)[d] (Diabetics)	0.490	-0.003 (0.025)	0.891
18-57	Serum C Peptide (ng/ml) (Diabetics)	0.673	-0.569 (0.309)	0.069
18-59	Total Testosterone (ng/dl)[d]	0.184	-0.1868 (0.1456)**	0.200**
18-61	Free Testosterone (pg/ml)[d]	0.201	-0.038 (0.025)	0.121
18-65	Estradiol (pg/ml)[d]	0.033	0.074 (0.039)	0.057
18-67	Luteinizing Hormone (LH) (mIU/ml)[b]	0.031	-0.032 (0.017)	0.061
18-69	Follicle Stimulating Hormone (FSH) (mIU/ml)[b]	0.053	-0.003 (0.023)	0.903
19-5	CD3 Cells (cells/mm^3)[b]	0.558	-0.010 (0.031)**	0.760**
19-6	CD4 Cells (cells/mm^3)[b]	0.518	-0.008 (0.026)	0.770
19-7	CD5 Cells (cells/mm^3)[b]	0.558	-0.008 (0.032)**	0.809**
19-8	CD8 Cells (cells/mm^3)[b]	0.136	****	****
19-9	CD14 Cells (cells/mm^3)[b]	0.471	0.009 (0.024)	0.714
19-10	CD16+56 Cells (cells/mm^3)[b]	0.506	0.015 (0.049)**	0.752**
19-11	CD20 Cells (cells/mm^3)[f]	0.204	-0.009 (0.033)**	0.783**
19-12	CD25 Cells (cells/mm^3)[b]	0.596	-0.012 (0.033)	0.729
19-13	CD4-CD8 Ratio[b]	0.072	-0.017 (0.026)	0.526
19-14	Double Labelled Cells: CD3 with CD25 (cells/mm^3)[b] (Nonzero Measurements)	0.587	-0.029 (0.036)	0.422
19-15	Double Labelled Cells: CD5 with CD20 (cells/mm^3)[b] (Nonzero Measurements)	0.533	-0.040 (0.066)	0.542
19-16	Double Labelled Cells: CD4 with CD8 (cells/mm^3)[b] (Nonzero Measurements)	0.107	0.018 (0.037)**	0.628**
19-17	Double Labelled Cells: CD3 with CD16+56 (cells/mm^3)[b] (Nonzero Measurements)	0.523	-0.129 (0.081)	0.115
19-18	TLC (cells/mm^3)[b]	0.578	****	****
19-19	IgA (mg/dl)[b]	0.035	0.032 (0.016)	0.052
19-20	IgG (mg/dl)[b]	0.109	-0.001 (0.009)	0.943

Table Q-1-14. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Ref.	Clinical Parameter (units)	R^2	Adj. Slope (Std. Error)[a]	p-Value[a]
19-21	IgM (mg/dl)[b]	0.057	0.032 (0.022)	0.145
20-8	FVC (Percent of Predicted)	0.167	-1.068 (0.502)	0.034
20-9	FEV_1 (Percent of Predicted)	0.159	****	****
20-10	Ratio of Observed FEV_1 to Observed FVC[g]	0.201	-0.016 (0.012)	0.165

[a] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and the covariates specified in the referenced chapter table.

[b] Slope and standard error based on natural logarithm of clinical parameter versus log_2 (initial dioxin).

[c] Slope and standard error based on natural logarithm of (clinical parameter + 0.1) versus log_2 (initial dioxin).

[d] Slope and standard error based on square root of clinical parameter versus log_2 (initial dioxin).

[e] Slope and standard error based on time to diabetes onset versus log_2 (initial dioxin) under a censored Weibull distribution.

[f] Slope and standard error based on natural logarithm of (clinical parameter + 1) versus log_2 (initial dioxin).

[g] Slope and standard error based on natural logarithm of (1 - clinical parameter) versus log_2 (initial dioxin).

--: R-squared not presented because analysis was based on a censored Weibull distribution.

** Log_2 (initial dioxin)-by-covariate interaction ($p \leq 0.05$); adjusted slope, standard error, and p-value derived from a model fitted after deletion of this interaction.

**** Log_2 (initial dioxin)-by-covariate interaction ($p \leq 0.01$); adjusted slope, standard error, and p-value not presented.

Table Q-1-15.
Summary of Adjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Adj. Mean[a]	Difference of Adj. Mean vs. Comparisons (95% C.I.)	p-Value
9-6	Body Fat (Percent)[b]	0.785	Comparison	1,063	22.01		
			Background RH	374	21.82	-0.19 --	0.194
			Low RH	260	22.14	0.13 --	0.415
			High RH	260	21.70	-0.30 --	0.064
			Low plus High RH	520	21.92	-0.08 --	0.509
9-7	Body Fat (Percent) with Adjustment for Caloric Intake[b]	0.787	Comparison	1,061	22.01**		
			Background RH	374	21.82**	-0.19 --**	0.183**
			Low RH	260	22.14**	0.13 --**	0.446**
			High RH	258	21.72**	-0.29 --**	0.076**
			Low plus High RH	518	21.93**	-0.08 --**	0.520**
9-10	Sedimentation Rate (mm/hr)[c]	0.085	Comparison	1,062	8.02		
			Background RH	374	8.01	-0.01 --	0.980
			Low RH	259	8.70	0.68 --	0.163
			High RH	260	8.76	0.74 --	0.145
			Low plus High RH	519	8.73	0.71 --	0.064
10-40	Prostate-Specific Antigen (ng/ml)[b] (Measurements at or Above Sensitivity Limit)	0.106	Comparison	1,014	****		
			Background RH	356	****	****	****
			Low RH	244	****	****	****
			High RH	245	****	****	****
			Low plus High RH	489	****	****	****
11-28	Vibrotactile Threshold Measurement of Right Great Toe (microns)[b]	0.171	Comparison	1,040	17.35**		
			Background RH	365	16.11**	-1.24 --**	0.266**
			Low RH	253	17.13**	-0.22 --**	0.864**
			High RH	250	18.40**	1.05 --**	0.448**
			Low plus High RH	503	17.76**	0.40 --**	0.696**
11-29	Vibrotactile Threshold Measurement of Left Great Toe (microns)[b]	0.193	Comparison	1,042	15.71		
			Background RH	366	15.45	-0.26 --	0.801
			Low RH	253	16.32	0.62 --	0.603
			High RH	250	16.45	0.75 --	0.545
			Low plus High RH	503	16.39	0.68 --	0.466

Table Q-1-15. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Adj. Mean[a]	Difference of Adj. Mean vs. Comparisons (95% C.I.)	p-Value
13-12	AST (U/L)[b]	0.056	Comparison	1,025	23.20		
			Background RH	362	22.73	-0.47 --	0.370
			Low RH	251	22.91	-0.29 --	0.616
			High RH	251	22.79	-0.41 --	0.496
			Low plus High RH	502	22.85	-0.35 --	0.442
13-14	ALT (U/L)[b]	0.082	Comparison	1,025	27.56		
			Background RH	362	26.25	-1.31 --	0.072
			Low RH	251	27.47	-0.09 --	0.913
			High RH	251	27.09	-0.47 --	0.581
			Low plus High RH	502	27.28	-0.28 --	0.667
13-16	GGT (U/L)[b]	0.119	Comparison	1,025	34.34**		
			Background RH	362	32.60**	-1.75 --**	0.162**
			Low RH	251	36.99**	2.65 --**	0.080**
			High RH	251	37.67**	3.33 --**	0.031**
			Low plus High RH	502	37.33**	2.99 --**	0.011**
13-18	Alkaline Phosphatase (U/L)[b]	0.040	Comparison	1,027	67.48**		
			Background RH	366	69.68**	2.20 --**	0.043**
			Low RH	254	70.87**	3.38 --**	0.006**
			High RH	254	68.96**	1.47 --**	0.239**
			Low plus High RH	508	69.90**	2.42 --**	0.011**
13-20	Total Bilirubin (mg/dl)[b]	0.019	Comparison	1,027	0.62		
			Background RH	367	0.63	0.00 --	0.888
			Low RH	254	0.62	-0.01 --	0.700
			High RH	254	0.60	-0.03 --	0.114
			Low plus High RH	508	0.61	-0.02 --	0.198
13-23	LDH (U/L)[b]	0.044	Comparison	1,024	147.47**		
			Background RH	362	147.90**	0.43 --**	0.793**
			Low RH	251	147.40**	-0.07 --**	0.971**
			High RH	251	146.55**	-0.92 --**	0.625**
			Low plus High RH	502	146.98**	-0.50 --**	0.729**

Table Q-1-15. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Adj. Mean[a]	Difference of Adj. Mean vs. Comparisons (95% C.I.)	p-Value
13-25	Cholesterol (mg/dl)[b]	0.035	Comparison	1,025	218.97**		
			Background RH	362	219.72**	0.75 --**	0.757**
			Low RH	251	218.49**	-0.48 --**	0.861**
			High RH	251	221.45**	2.48 --**	0.381**
			Low plus High RH	502	219.96**	1.00 --**	0.641**
13-27	HDL Cholesterol (mg/dl)[b]	0.137	Comparison	1,016	42.57**		
			Background RH	358	43.01**	0.44 --**	0.495**
			Low RH	247	42.60**	0.03 --**	0.967**
			High RH	246	41.72**	-0.85 --**	0.250**
			Low plus High RH	493	42.16**	-0.41 --**	0.463**
13-29	Cholesterol-HDL Ratio[b]	0.088	Comparison	1,018	5.08**		
			Background RH	363	5.05**	-0.03 --**	0.761**
			Low RH	250	5.07**	-0.00 --**	0.967**
			High RH	249	5.21**	0.14 --**	0.177**
			Low plus High RH	499	5.14**	0.07 --**	0.387**
13-31	Triglycerides (mg/dl)[b]	0.073	Comparison	1,025	130.78		
			Background RH	362	127.25	-3.53 --	0.423
			Low RH	251	132.05	1.27 --	0.802
			High RH	251	142.50	11.72 --	0.031
			Low plus High RH	502	137.17	6.39 --	0.112
13-33	Creatine Kinase (U/L)[b]	0.133	Comparison	1,025	170.02**		
			Background RH	362	168.64**	-1.38 --**	0.801**
			Low RH	251	167.25**	-2.77 --**	0.650**
			High RH	251	172.64**	2.61 --**	0.684**
			Low plus High RH	502	169.92**	-0.10 --**	0.983**
13-35	Serum Amylase (U/L)[b]	0.080	Comparison	1,027	81.69		
			Background RH	367	79.25	-2.44 --	0.162
			Low RH	254	84.37	2.69 --	0.184
			High RH	254	80.36	-1.33 --	0.514
			Low plus High RH	508	82.34	0.65 --	0.676

Table Q-1-15. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Adj. Mean[a]	Difference of Adj. Mean vs. Comparisons (95% C.I.)	p-Value
13-41	Prealbumin (mg/dl)	0.059	Comparison	1,025	27.75**		
			Background RH	362	27.58**	-0.17 (-0.71,0.37)**	0.537**
			Low RH	251	27.82**	0.07 (-0.54,0.67)**	0.827**
			High RH	251	27.93**	0.17 (-0.45,0.80)**	0.589**
			Low plus High RH	502	27.87**	0.12 (-0.35,0.59)**	0.620**
13-43	Albumin (mg/dl)	0.064	Comparison	1,027	3,936.55**		
			Background RH	367	3,916.86**	-19.68 (-56.12,16.75)**	0.290**
			Low RH	254	3,921.28**	-15.27 (-56.22,25.69)**	0.465**
			High RH	254	3,962.35**	25.80 (-16.50,68.11)**	0.232**
			Low plus High RH	508	3,941.82**	5.27 (26.79,37.33)**	0.747**
13-45	α-1 Acid Glycoprotein (mg/dl)[b]	0.048	Comparison	1,025	54.41**		
			Background RH	362	53.95**	-0.46 --**	0.535**
			Low RH	251	55.19**	0.78 --**	0.350**
			High RH	251	54.55**	0.15 --**	0.864**
			Low plus High RH	502	54.87**	0.46 --**	0.477**
13-47	α-1 Antitrypsin (mg/dl)	0.083	Comparison	1,025	146.42		
			Background RH	362	150.72	4.30 (1.03,7.56)	0.010
			Low RH	251	147.32	0.90 (-2.77,4.56)	0.632
			High RH	251	146.25	-0.17 (-3.96,3.62)	0.929
			Low plus High RH	502	146.78	0.36 (-2.50,3.23)	0.804
13-49	α-2 Macroglobulin (mg/dl)[b]	0.110	Comparison	1,025	129.92		
			Background RH	362	130.31	0.39 --	0.819
			Low RH	251	126.98	-2.95 --	0.118
			High RH	251	127.67	-2.25 --	0.249
			Low plus High RH	502	127.32	-2.60 --	0.078
13-51	Apolipoprotein B (mg/dl)[b]	0.028	Comparison	1,025	152.03		
			Background RH	362	150.68	-1.34 --	0.556
			Low RH	251	149.75	-2.27 --	0.373
			High RH	251	154.41	2.38 --	0.374
			Low plus High RH	502	152.06	0.04 --	0.986

Table Q-1-15. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Adj. Mean[a]	Difference of Adj. Mean vs. Comparisons (95% C.I.)	p-Value
13-53	C_3 Complement (mg/dl)[b]	0.122	Comparison	1,043	116.25		
			Background RH	369	114.16	-2.09 --	0.043
			Low RH	257	117.32	1.07 --	0.361
			High RH	258	117.42	1.17 --	0.335
			Low plus High RH	515	117.37	1.12 --	0.223
13-55	C_4 Complement (mg/dl)[b]	0.035	Comparison	1,025	23.06		
			Background RH	362	22.85	-0.20 --	0.554
			Low RH	251	23.17	0.11 --	0.772
			High RH	251	22.78	-0.28 --	0.487
			Low plus High RH	502	22.98	-0.08 --	0.785
13-57	Haptoglobin (mg/dl)	0.058	Comparison	1,025	103.77		
			Background RH	362	109.06	5.29 (-0.12,10.71)	0.056
			Low RH	251	105.79	2.02 (-4.05,8.10)	0.514
			High RH	251	109.06	5.29 (-0.99,11.57)	0.099
			Low plus High RH	502	107.42	3.66 (-1.10,8.41)	0.132
13-59	Transferrin (mg/dl)[b]	0.029	Comparison	1,025	286.52		
			Background RH	362	287.12	0.60 --	0.812
			Low RH	251	292.58	6.06 --	0.035
			High RH	251	295.17	8.65 --	0.003
			Low plus High RH	502	293.87	7.35 --	0.001
15-6	Systolic Blood Pressure (mm Hg)	0.180	Comparison	1,034	126.43		
			Background RH	365	125.49	-0.94 (-2.97,1.09)	0.365
			Low RH	250	125.45	-0.98 (-3.31,1.35)	0.410
			High RH	254	126.04	-0.39 (-2.74,1.96)	0.745
			Low plus High RH	504	125.75	-0.69 (-2.49,1.12)	0.455
15-18	Diastolic Blood Pressure (mm Hg)	0.103	Comparison	1,034	73.91**		
			Background RH	363	73.27**	-0.64 (-1.76,0.48)**	0.265**
			Low RH	249	73.19**	-0.71 (-2.01,0.58)**	0.279**
			High RH	256	74.00**	0.09 (-1.19,1.38)**	0.887**
			Low plus High RH	505	73.60**	-0.31 (-1.30,0.69)**	0.546**

Table Q-1-15. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Adj. Mean[a]	Difference of Adj. Mean vs. Comparisons (95% C.I.)	p-Value
16-3	Red Blood Cell (RBC) Count (million/mm^3)	0.062	Comparison	1,059	5.060**		
			Background RH	370	5.057**	-0.003 (-0.049,0.043)**	0.897**
			Low RH	259	5.030**	-0.030 (-0.082,0.021)**	0.246**
			High RH	258	5.015**	-0.045 (-0.098,0.008)**	0.095**
			Low plus High RH	517	5.023**	-0.038 (-0.078,0.002)**	0.065**
16-5	White Blood Cell (WBC) Count (thousand/mm^3)[b]	0.250	Comparison	1,059	6.62		
			Background RH	370	6.64	0.03 --	0.792
			Low RH	259	6.66	0.04 --	0.726
			High RH	258	6.64	0.02 --	0.828
			Low plus High RH	517	6.65	0.03 --	0.713
16-7	Hemoglobin (gm/dl)	0.090	Comparison	1,059	15.65**		
			Background RH	370	15.68**	0.03 (-0.09,0.15)**	0.615**
			Low RH	259	15.57**	-0.08 (-0.21,0.06)**	0.259**
			High RH	258	15.66**	0.01 (-0.13,0.15)**	0.863**
			Low plus High RH	517	15.62**	-0.03 (-0.14,0.07)**	0.544*
16-9	Hematocrit (percent)	0.090	Comparison	1,059	45.88**		
			Background RH	370	45.98**	0.10 (-0.27,0.47)**	0.591**
			Low RH	259	45.56**	-0.31 (-0.72,0.10)**	0.138**
			High RH	258	45.89**	0.02 (-0.41,0.44)**	0.935**
			Low plus High RH	517	45.73**	-0.15 (-0.47,0.18)**	0.370**
16-11	Platelet Count (thousand/mm^3)[d]	0.045	Comparison	1,058	245.8		
			Background RH	370	246.0	0.2 --	0.949
			Low RH	259	247.8	2.1 --	0.575
			High RH	258	258.5	12.7 --	<0.001
			Low plus High RH	517	253.1	7.3 --	0.010
16-13	Prothrombin Time (seconds)[b]	0.051	Comparison	977	11.97**		
			Background RH	341	12.01**	0.04 --**	0.157**
			Low RH	234	11.92**	-0.05 --**	0.131**
			High RH	240	11.95**	-0.02 --**	0.590**
			Low plus High RH	474	11.93**	-0.03 --**	0.188**

Table Q-1-15. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Adj. Mean[a]	Difference of Adj. Mean vs. Comparisons (95% C.I.)	p-Value
16-16	Absolute Neutrophils (segs) (thousand/mm^3)[b]	0.203	Comparison	1,059	3.561		
			Background RH	370	3.559	-0.002 --	0.974
			Low RH	259	3.578	0.017 --	0.836
			High RH	258	3.595	0.034 --	0.681
			Low plus High RH	517	3.586	0.025 --	0.686
16-17	Absolute Neutrophils (bands) (thousand/mm^3)[b] (Nonzero Measurements)	0.140	Comparison	884	0.171		
			Background RH	308	0.169	-0.002 --	0.828
			Low RH	213	0.172	0.001 --	0.902
			High RH	215	0.170	-0.001 --	0.927
			Low plus High RH	428	0.171	0.000 --	0.985
16-18	Absolute Lymphocytes (thousand/mm^3)[b]	0.084	Comparison	1,059	1.931		
			Background RH	370	1.932	0.001 --	0.970
			Low RH	259	1.910	-0.021 --	0.662
			High RH	258	1.897	-0.034 --	0.484
			Low plus High RH	517	1.904	-0.027 --	0.459
16-19	Absolute Monocytes (thousand/mm^3)[d]	0.039	Comparison	1,059	0.449		
			Background RH	370	0.461	0.012 --	0.430
			Low RH	259	0.445	-0.004 --	0.789
			High RH	258	0.479	0.030 --	0.079
			Low plus High RH	517	0.462	0.013 --	0.332
16-20	Absolute Eosinophils (thousand/mm^3)[b] (Nonzero Measurements)	0.035	Comparison	934	0.162		
			Background RH	336	0.164	0.002 --	0.797
			Low RH	230	0.154	-0.008 --	0.354
			High RH	231	0.149	-0.013 --	0.103
			Low plus High RH	461	0.151	-0.011 --	0.098
16-21	Absolute Basophils (thousand/mm^3)[b] (Nonzero Measurements)	0.060	Comparison	571	0.084		
			Background RH	200	0.087	0.003 --	0.304
			Low RH	144	0.081	-0.003 --	0.316
			High RH	143	0.086	0.002 --	0.653
			Low plus High RH	287	0.083	-0.001 --	0.719

Table Q-1-15. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Adj. Mean[a]	Difference of Adj. Mean vs. Comparisons (95% C.I.)	p-Value
17-8	Serum Creatinine (mg/dl)[b]	0.053	Comparison	1,062	0.9953**		
			Background RH	373	0.9872**	-0.0081--**	0.424**
			Low RH	260	1.0095**	0.0142--**	0.217**
			High RH	260	0.9893**	-0.0060--**	0.606**
			Low plus High RH	520	1.0001**	0.0048--**	0.624**
17-9	Urine Specific Gravity	0.029	Comparison	1,061	1.0191		
			Background RH	373	1.0190	-0.0001 (-0.0009,0.0007)	0.820
			Low RH	259	1.0188	-0.0003 (-0.0011,0.0006)	0.549
			High RH	259	1.0188	-0.0003 (-0.0012,0.0006)	0.507
			Low plus High RH	518	1.0188	-0.0003 (-0.0010,0.0004)	0.414
18-6	Time to Diabetes Onset (years)[c]	--	Comparison	1,044	--		
			Background RH	368	--	0.0908 (0.0785)[e]	0.247
			Low RH	252	--	-0.0554 (0.0725)[e]	0.445
			High RH	254	--	-0.0791 (0.0744)[e]	0.287
			Low plus High RH	506	--	-0.0667 (0.0580)[e]	0.250
18-8	Testicular Volume: Minimum (cm^3)	0.032	Comparison	1,057	15.11		
			Background RH	368	15.27	0.16 (-0.49,0.80)	0.634
			Low RH	256	15.24	0.13 (-0.61,0.87)	0.734
			High RH	257	14.81	-0.30 (-1.05,0.44)	0.423
			Low plus High RH	513	15.04	-0.09 (-0.66,0.48)	0.767
18-9	Testicular Volume: Total (cm^3)[d]	0.026	Comparison	1,057	32.45		
			Background RH	368	32.60	0.15 --	0.818
			Low RH	256	32.50	0.05 --	0.945
			High RH	257	31.51	-0.94 --	0.194
			Low plus High RH	513	32.03	-0.42 --	0.427
18-19	Thyroid Stimulating Hormone (TSH) ($\mu g/dl$)[b]	0.025	Comparison	1,027	1.36		
			Background RH	365	1.37	0.02 --	0.739
			Low RH	254	1.38	0.03 --	0.655
			High RH	255	1.46	0.10 --	0.105
			Low plus High RH	509	1.42	0.06 --	0.175

Table Q-1-15. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Adj. Mean[a]	Difference of Adj. Mean vs. Comparisons (95% C.I.)	p-Value
18-21	Thyroxine (T_4) (μg/dl)	0.033	Comparison	1,026	7.75		
			Background RH	365	7.76	0.01 (-0.15,0.17)	0.874
			Low RH	253	7.79	0.04 (-0.14,0.22)	0.645
			High RH	255	7.61	-0.14 (-0.32,0.05)	0.143
			Low plus High RH	508	7.70	-0.05 (-0.19,0.09)	0.500
18-24	Fasting Glucose (mg/dl)[b] (All Participants)	0.128	Comparison	1,045	107.43**		
			Background RH	368	107.14**	-0.29 --**	0.820**
			Low RH	252	106.65**	-0.77 --**	0.588**
			High RH	254	110.16**	2.74 --**	0.067**
			Low plus High RH	506	108.40**	0.97 --**	0.385**
18-26	Fasting Glucose (mg/dl)[b] (Diabetics)	0.359	Comparison	147	159.30		
			Background RH	39	161.35	2.05 --	0.825
			Low RH	48	146.68	-12.62 --	0.112
			High RH	46	168.57	9.26 --	0.289
			Low plus High RH	94	157.01	-2.29 --	0.718
18-28	Fasting Glucose (mg/dl)[b] (Nondiabetics)	0.076	Comparison	897	****		
			Background RH	329	****	****	****
			Low RH	203	****	****	****
			High RH	208	****	****	****
			Low plus High RH	411	****	****	****
18-30	2-Hour Postprandial Glucose (mg/dl)[b] (Nondiabetics)	0.157	Comparison	896	104.72**		
			Background RH	328	104.03**	-0.70 --**	0.689**
			Low RH	203	105.13**	0.40 --**	0.845**
			High RH	208	108.06**	3.34 --**	0.119**
			Low plus High RH	411	106.60**	1.88 --**	0.245**
18-36	Serum Insulin (mIU/ml)[b] (All Participants)	0.292	Comparison	1,044	****		
			Background RH	368	****	****	****
			Low RH	251	****	****	****
			High RH	254	****	****	****
			Low plus High RH	505	****	****	****

Table Q-1-15. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Adj. Mean[a]	Difference of Adj. Mean vs. Comparisons (95% C.I.)	p-Value
18-38	Serum Insulin (mIU/ml)[b] (Diabetics)	0.540	Comparison	147	40.11		
			Background RH	39	42.66	2.55 --	0.691
			Low RH	48	54.49	14.39 --	0.027
			High RH	46	38.42	-1.69 --	0.763
			Low plus High RH	94	45.60	5.49 --	0.245
18-40	Serum Insulin (mIU/ml)[b] (Nondiabetics)	0.247	Comparison	897	58.41**		
			Background RH	329	55.85**	-2.56 --**	0.365**
			Low RH	203	56.80**	-1.61 --**	0.631**
			High RH	208	64.38**	5.97 --**	0.104**
			Low plus High RH	411	60.51**	2.10 --**	0.437**
18-42	Serum Glucagon (pg/ml)[b] (All Participants)	0.078	Comparison	944	60.81**		
			Background RH	330	59.66**	-1.16 --**	0.251
			Low RH	223	59.72**	-1.10 --**	0.337
			High RH	218	61.03**	0.21 --**	0.858
			Low plus High RH	441	60.36**	-0.45 --**	0.616
18-44	Serum Glucagon (pg/ml)[b] (Diabetics)	0.230	Comparison	132	68.44**		
			Background RH	38	72.37**	3.93 --**	0.363**
			Low RH	45	68.82**	0.38 --**	0.920**
			High RH	38	63.62**	-4.82 --**	0.233**
			Low plus High RH	83	66.39**	-2.05 --**	0.497**
18-46	Serum Glucagon (pg/ml)[b] (Nondiabetics)	0.014	Comparison	825	56.24		
			Background RH	298	54.48	-1.76 --	0.051
			Low RH	183	54.75	-1.49 --	0.171
			High RH	186	57.23	0.99 --	0.371
			Low plus High RH	369	55.98	-0.25 --	0.767
18-48	α-1-C Hemoglobin (percent)[b] (All Participants)	0.123	Comparison	1,045	7.58**		
			Background RH	368	7.57**	-0.01 --**	0.929**
			Low RH	252	7.53**	-0.05 --**	0.576**
			High RH	254	7.69**	0.11 --**	0.185**
			Low plus High RH	506	7.61**	0.03 --**	0.602**

Table Q-1-15. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Adj. Mean[a]	Difference of Adj. Mean vs. Comparisons (95% C.I.)	p-Value
18-50	α-1-C Hemoglobin (percent)[b] (Diabetics)	0.320	Comparison	148	10.22		
			Background RH	42	10.32	0.10 --	0.822
			Low RH	49	10.02	-0.20 --	0.621
			High RH	47	10.78	0.56 --	0.195
			Low plus High RH	96	10.38	0.16 --	0.605
18-52	α-1-C Hemoglobin (percent)[b] (Nondiabetics)	0.064	Comparison	898	7.12		
			Background RH	329	7.12	0.00 --	0.902
			Low RH	204	7.05	-0.07 --	0.132
			High RH	208	7.05	-0.07 --	0.142
			Low plus High RH	412	7.05	-0.07 --	0.053
18-55	Serum Proinsulin (ng/ml)[d] (Diabetics)	0.380	Comparison	143	0.738		
			Background RH	36	0.689	-0.049 --	0.723
			Low RH	45	0.692	-0.046 --	0.709
			High RH	44	0.790	0.052 --	0.688
			Low plus High RH	89	0.740	0.001 --	0.988
18-57	Serum C Peptide (ng/ml) (Diabetics)	0.645	Comparison	143	6.34**		
			Background RH	36	6.28**	-0.05 (-1.69,1.58)**	0.948**
			Low RH	45	8.28**	1.94 (0.53,3.37)**	0.008**
			High RH	44	6.75**	0.42 (-1.06,1.90)**	0.579**
			Low plus High RH	89	7.53**	1.19 (0.07,2.31)**	0.038**
18-59	Total Testosterone (ng/dl)[d]	0.135	Comparison	1,056	514.4		
			Background RH	364	545.9	31.5 --	0.004
			Low RH	256	529.5	15.1 --	0.214
			High RH	259	491.4	-23.0 --	0.061
			Low plus High RH	515	510.2	-4.2 --	0.651
18-61	Free Testosterone (pg/ml)[d]	0.147	Comparison	1,055	19.27		
			Background RH	364	19.75	0.48 --	0.184
			Low RH	255	19.66	0.39 --	0.336
			High RH	259	19.18	-0.09 --	0.826
			Low plus High RH	514	19.42	0.15 --	0.640

Table Q-1-15. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Adj. Mean[a]	Difference of Adj. Mean vs. Comparisons (95% C.I.)	p-Value
18-65	Estradiol (pg/ml)[d]	0.017	Comparison	1,063	34.80		
			Background RH	374	34.39	-0.41 --	0.621
			Low RH	260	34.23	-0.57 --	0.549
			High RH	260	35.11	0.31 --	0.752
			Low plus High RH	520	34.67	-0.13 --	0.856
18-67	Luteinizing Hormone (LH) (mIU/ml)[b]	0.049	Comparison	1,063	3.82		
			Background RH	374	3.94	0.12 --	0.322
			Low RH	260	4.15	0.33 --	0.019
			High RH	260	3.73	-0.09 --	0.516
			Low plus High RH	520	4.00	0.18 --	0.286
18-69	Follicle Stimulating Hormone (FSH) (mIU/ml)[b]	0.072	Comparison	1,063	4.10		
			Background RH	374	4.08	-0.02 --	0.923
			Low RH	260	4.35	0.25 --	0.187
			High RH	260	4.18	0.08 --	0.644
			Low plus High RH	520	4.27	0.17 --	0.249
19-5	CD3 Cells (cells/mm^3)[b]	0.248	Comparison	400	1,445.2**		
			Background RH	140	1,507.9**	62.7 --**	0.301**
			Low RH	95	1,419.6**	-25.6 --**	0.700**
			High RH	106	1,492.2**	47.0 --**	0.472**
			Low plus High RH	201	1,457.4**	12.2 --**	0.809**
19-6	CD4 Cells (cells/mm^3)[b]	0.254	Comparison	403	922.5**		
			Background RH	141	960.5**	38.0 --**	0.331**
			Low RH	95	916.7**	-5.8 --**	0.893**
			High RH	108	962.1**	39.6 --**	0.348**
			Low plus High RH	203	940.6**	18.1 --**	0.583**
19-7	CD5 Cells (cells/mm^3)[b]	0.243	Comparison	400	1,486.5**		
			Background RH	140	1,548.0**	61.5 --**	0.326**
			Low RH	95	1,464.2**	-22.3 --**	0.745**
			High RH	106	1,552.3**	65.8 --**	0.333**
			Low plus High RH	201	1,510.0**	23.5 --**	0.655**

Table Q-1-15. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Adj. Mean[a]	Difference of Adj. Mean vs. Comparisons (95% C.I.)	p-Value
19-8	CD8 Cells (cells/mm^3)[b]	0.079	Comparison	400	633.6**		
			Background RH	140	645.3**	11.7 --**	0.705**
			Low RH	95	606.3**	-27.3 --**	0.413**
			High RH	106	618.4**	-15.2 --**	0.645**
			Low plus High RH	201	612.7**	-20.9 --**	0.409**
19-9	CD14 Cells (cells/mm^3)[b]	0.314	Comparison	403	****		
			Background RH	141	****	****	****
			Low RH	95	****	****	****
			High RH	108	****	****	****
			Low plus High RH	203	****	****	****
19-10	CD16+56 Cells (cells/mm^3)[b]	0.216	Comparison	399	248.0**		
			Background RH	139	242.0**	-6.0 --**	0.678**
			Low RH	94	219.3**	-28.7 --**	0.063**
			High RH	106	236.8**	-11.2 --**	0.465**
			Low plus High RH	200	228.4**	-19.6 --**	0.097**
19-11	CD20 Cells (cells/mm^3)[f]	0.113	Comparison	400	214.0		
			Background RH	140	245.1	31.1 --	0.013
			Low RH	95	223.9	9.9 --	0.452
			High RH	106	220.2	6.2 --	0.628
			Low plus High RH	201	222.0	8.0 --	0.424
19-12	CD25 Cells (cells/mm^3)[b]	0.421	Comparison	399	268.2**		
			Background RH	139	276.4**	8.2 --**	0.540**
			Low RH	94	266.9**	-1.3 --**	0.933**
			High RH	106	270.1**	1.9 --**	0.895**
			Low plus High RH	200	268.6**	0.4 --**	0.970**
19-13	CD4-CD8 Ratio[b]	0.042	Comparison	399	1.479		
			Background RH	139	1.499	0.020 --	0.756
			Low RH	94	1.576	0.097 --	0.185
			High RH	106	1.566	0.087 --	0.222
			Low plus High RH	200	1.571	0.092 --	0.097

Table Q-1-15. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Adj. Mean[a]	Difference of Adj. Mean vs. Comparisons (95% C.I.)	p-Value
19-14	Double Labelled Cells: CD3 with CD25 (cells/mm^3)[b]	0.410	Comparison	399	212.7**		
			Background RH	139	221.1**	8.4 --**	0.456**
			Low RH	94	211.6**	-1.1 --**	0.931**
			High RH	106	215.3**	2.6 --**	0.827**
			Low plus High RH	200	213.5**	0.8 --**	0.926**
19-15	Double Labelled Cells: CD5 with CD20 (cells/mm^3)[b] (Nonzero Measurements)	0.179	Comparison	382	49.7		
			Background RH	136	51.4	1.7 --	0.681
			Low RH	87	56.2	6.5 --	0.207
			High RH	102	55.2	5.5 --	0.242
			Low plus High RH	189	55.7	6.0 --	0.115
19-16	Double Labelled Cells: CD4 with CD8 (cells/mm^3)[b] (Nonzero Measurements)	0.103	Comparison	360	31.8**		
			Background RH	126	34.8**	2.93 --**	0.230**
			Low RH	85	29.0**	-2.86 --**	0.251**
			High RH	95	29.7**	-2.10 --**	0.390**
			Low plus High RH	180	29.4**	-2.46 --**	0.192**
19-17	Double Labelled Cells: CD3 with CD16+56 (cells/mm^3)[b] (Nonzero Measurements)	0.204	Comparison	387	100.9		
			Background RH	136	106.0	5.1 --	0.603
			Low RH	93	101.3	0.4 --	0.974
			High RH	99	85.0	-15.9 --	0.103
			Low plus High RH	192	92.5	-8.4 --	0.294
19-18	TLC (cells/mm^3)[b]	0.236	Comparison	400	2,022.4**		
			Background RH	140	2,066.7**	44.3 --**	0.507**
			Low RH	95	1,998.6**	-23.8 --**	0.757**
			High RH	106	2,034.4**	12.0 --**	0.870**
			Low plus High RH	201	2,017.4**	-5.0 --**	0.931**
19-19	IgA (mg/dl)[b]	0.021	Comparison	1,051	228.2**		
			Background RH	367	226.4**	-1.8 --**	0.780**
			Low RH	256	221.7**	-6.5 --**	0.365**
			High RH	255	226.2**	-2.0 --**	0.795**
			Low plus High RH	511	224.0**	-4.2 --**	0.453**

Table Q-1-15. (Continued)
Summary of Adjusted Results for Continuous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter (units)	R^2	Dioxin Category	n	Adj. Mean[a]	Difference of Adj. Mean vs. Comparisons (95% C.I.)	p-Value
19-20	IgG (mg/dl)[b]	0.73	Comparison	1,035	1,138.7**		
			Background RH	364	1,126.9**	-11.8 --**	0.451**
			Low RH	253	1,111.2**	-27.5 --**	0.112**
			High RH	251	1,115.1**	-23.6 --**	0.189**
			Low plus High RH	504	1,113.1**	-25.6 --**	0.060**
19-21	IgM (mg/dl)[b]	0.028	Comparison	1,035	****		
			Background RH	365	****	****	****
			Low RH	253	****	****	****
			High RH	251	****	****	****
			Low plus High RH	504	****	****	****
20-8	FVC (Percent of Predicted)	0.168	Comparison	1,060	95.7		
			Background RH	372	96.1	0.3 (-1.3,1.9)	0.698
			Low RH	260	95.5	-0.3 (-2.1,1.5)	0.766
			High RH	260	94.5	-1.3 (-3.1,0.6)	0.183
			Low plus High RH	520	95.0	-0.8 (-2.2,0.7)	0.298
20-9	FEV_1 (Percent of Predicted)	0.196	Comparison	1,060	91.5		
			Background RH	372	90.5	-1.0 (-2.9,0.9)	0.315
			Low RH	260	91.4	-0.1 (-2.2,2.1)	0.932
			High RH	260	90.9	-0.6 (-2.8,1.6)	0.583
			Low plus High RH	520	91.2	-0.3 (-2.0,1.3)	0.684
20-10	Ratio of Observed FEV_1 to Observed FVC[g]	0.248	Comparison	1,060	0.773**		
			Background RH	372	0.766**	-0.007 --**	0.070**
			Low RH	260	0.776**	0.003 --**	0.536**
			High RH	260	0.777**	0.004 --**	0.400**
			Low plus High RH	520	0.776**	0.003 --**	0.344**

[a] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat at the time of duty in SEA to the date of the blood draw for dioxin, and the covariates specified in the referenced chapter table.

[b] Means transformed from natural logarithm scale; difference of means after transformation to original scale; confidence interval not given because analysis was performed on natural logarithm scale; p-value based on difference of means on natural logarithm scale.

[c] Means transformed from natural logarithm (clinical parameter + 0.1) scale; difference of means after transformation to original scale; confidence interval not given because analysis was performed on natural logarithm (clinical parameter + 0.1) scale; p-value based on difference of means on natural logarithm (clinical parameter + 0.1) scale.

[d] Means transformed from square root scale; difference of means after transformation to original scale; confidence interval not given because analysis was performed on square root scale; p-value based on difference of means on square root scale.

[e] Coefficient and standard error for Ranch Hand versus Comparison contrast in a failure time analysis model, using a censored Weibull distribution.

[f] Means transformed from natural logarithm (clinical parameter + 1) scale; difference of means after transformation to original scale; confidence interval not given because analysis was performed on natural logarithm (clinical parameter + 1) scale; p-value based on difference of means on natural logarithm (clinical parameter + 1) scale.

[g] Means transformed from natural logarithm (1 - clinical parameter) scale; difference of means after transformation to original scale; confidence interval not given because analysis was performed on natural logarithm (1 - clinical parameter) scale; p-value based on difference of means on natural logarithm (1 - clinical parameter) scale.

--: R-squared, adjusted mean, difference of adjusted means, and confidence interval not presented because analysis was based on a censored Weibull distribution.

** Categorized dioxin-by-covariate interaction ($p \leq 0.05$); adjusted mean, difference of adjusted means, confidence interval, and p-value derived from a model fitted after deletion of this interaction.

**** Categorized dioxin-by-covariate interaction ($p \leq 0.01$); adjusted mean, difference of adjusted means, confidence interval, and p-value not presented.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table Q-1-16.
Summary of Adjusted Results for Continuous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter (units)	Model[a]	R^2	Adj. Slope (Std. Error)	p-Value
9-6	Body Fat (Percent)[b]	4	0.114	0.0619 (0.0059)**	0.001**
		5	0.123	0.0541 (0.0049)	<0.001
		6	0.111	0.0521 (0.0053)	<0.001
9-7	Body Fat (Percent) with	4	0.132	0.0604 (0.0059)**	0.001**
	Adjustment for Caloric Intake[b]	5	0.140	0.0528 (0.0049)	<0.001
		6	0.135	0.0527 (0.0050)	<0.001
9-10	Sedimentation Rate (mm/hr)[c]	4	0.077	0.0443 (0.0220)	0.045
		5	0.081	0.0507 (0.0186)	0.006
		6	0.095	0.0269 (0.0200)	0.180
10-40	Prostate-Specific Antigen (ng/ml)[b]	4	0.098	-0.018 (0.017)	0.275
	(Measurements at or Above	5	0.099	-0.019 (0.014)	0.186
	Sensitivity Limit)	6	0.101	-0.015 (0.016)	0.353
11-28	Vibrotactile Threshold	4	0.171	0.0290 (0.0295)**	0.326**
	Measurement of Right Great Toes	5	0.169	0.0243 (0.0249)**	0.328**
	(microns)[b]	6	0.168	0.0178 (0.0269)**	0.508**
11-29	Vibrotactile Threshold	4	0.207	0.0226 (0.0291)**	0.439**
	Measurement of Left Great Toes	5	0.200	0.0167 (0.0240)**	0.487**
	(microns)[b]	6	0.200	0.0183 (0.0262)**	0.485**
13-12	AST (U/L)[b]	4	0.080	0.0137 (0.0094)**	0.147**
		5	0.081	0.0135 (0.0080)**	0.090**
		6	0.083	0.0115 (0.0086)**	0.184**
13-14	ALT (U/L)[b]	4	0.070	0.0504 (0.0118)	<0.001
		5	0.073	0.0450 (0.0099)	<0.001
		6	0.072	0.0434 (0.0108)	<0.001
13-16	GGT (U/L)[b]	4	0.088	0.0620 (0.0159)**	<0.001**
		5	0.097	0.0645 (0.0134)**	<0.001**
		6	0.124	0.0448 (0.0144)**	0.002**
13-18	Alkaline Phosphatase (U/L)[b]	4	0.045	-0.0100 (0.0067)**	0.136**
		5	0.046	-0.0078 (0.0057)**	0.167**
		6	0.051	-0.0118 (0.0061)**	0.054**
13-20	Total Bilirubin (mg/dl)[b]	4	0.022	0.0031 (0.0106)**	0.774**
		5	0.017	0.0065 (0.0090)	0.469
		6	0.019	0.0019 (0.0097)	0.847
13-23	LDH (U/L)[b]	4	0.020	0.0020 (0.0045)	0.654
		5	0.020	0.0017 (0.0038)	0.660
		6	0.020	0.0009 (0.0041)	0.820
13-25	Cholesterol (mg/dl)[b]	4	0.041	0.0066 (0.0043)	0.129
		5	0.059	0.0155 (0.0036)	<0.001
		6	0.294	-0.0055 (0.0036)	0.129

Table Q-1-16. (Continued)
Summary of Adjusted Results for Continuous Variables
Models 4, 5, and 6: Ranch Hands – Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter (units)	Model[a]	R^2	Adj. Slope (Std. Error)	p-Value
13-27	HDL Cholesterol (mg/dl)[b]	4	0.131	-0.0218 (0.0067)**	0.001**
		5	0.141	-0.0225 (0.0057)**	<0.001**
		6	0.165	-0.0138 (0.0060)**	0.022**
13-29	Cholesterol-HDL Ratio[b]	4	0.069	0.0281 (0.0069)**	<0.001**
		5	0.091	0.0395 (0.0058)**	<0.001**
		6	0.283	0.0094 (0.0056)**	0.093**
13-31	Triglycerides (mg/dl)[b]	4	0.048	0.0729 (0.0149)**	<0.001**
		5	0.116	0.1049 (0.0124)**	<0.001**
		6	0.401	0.0298 (0.0110)**	0.007**
13-33	Creatine Kinase (U/L)[b]	4	0.089	0.0392 (0.0130)	0.003
		5	0.090	0.0350 (0.0110)	0.002
		6	0.088	0.0324 (0.0119)	0.006
13-35	Serum Amylase (U/L)[b]	4	0.045	-0.0238 (0.0092)	0.010
		5	0.046	-0.0220 (0.0078)	0.005
		6	0.049	-0.0160 (0.0084)	0.058
13-41	Prealbumin (mg/dl)	4	0.055	-0.0277 (0.1080)**	0.798**
		5	0.065	0.1569 (0.0994)**	0.115**
		6	0.087	-0.1088 (0.0978)**	0.266**
13-43	Albumin (mg/dl)	4	0.047	-3.4551 (8.0212)**	0.667**
		5	0.047	0.3387 (6.7815)**	0.960**
		6	0.051	-4.8440 (7.3150)**	0.508**
13-45	α-1 Acid Glycoprotein (mg/dl)[b]	4	0.078	-0.0095 (0.0057)**	0.092**
		5	0.072	-0.0040 (0.0048)	0.398
		6	0.087	-0.0105 (0.0051)	0.040
13-47	α-1 Antitrypsin (mg/dl)	4	0.097	-2.0421 (0.7054)**	0.004**
		5	0.102	-2.1148 (0.5949)**	<0.001**
		6	0.099	-1.7231 (0.6417)**	0.007**
13-49	α-2 Macroglobulin (mg/dl)[b]	4	0.115	-0.0155 (0.0056)	0.006
		5	0.114	-0.0126 (0.0047)	0.008
		6	0.114	-0.0139 (0.0051)	0.007
13-51	Apolipoprotein B (mg/dl)[b]	4	0.019	0.0132 (0.0059)	0.026
		5	0.046	0.0246 (0.0050)**	<0.001**
		6	0.280	-0.0026 (0.0048)	0.581
13-53	C_3 Complement (mg/dl)[b]	4	0.077	0.0233 (0.0039)	<0.001
		5	0.102	0.0245 (0.0032)**	<0.001**
		6	0.149	0.0154 (0.0034)	<0.001
13-55	C_4 Complement (mg/dl)[b]	4	0.046	0.0071 (0.0064)	0.267
		5	0.058	0.0129 (0.0054)**	0.018**
		6	0.078	0.0006 (0.0058)	0.920

Table Q-1-16. (Continued)
Summary of Adjusted Results for Continuous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter (units)	Model[a]	R^2	Adj. Slope (Std. Error)	p-Value
13-57	Haptoglobin (mg/dl)	4	0.062	-1.3884 (1.1494)	0.227
		5	0.061	-0.0936 (0.9707)	0.352
		6	0.066	-1.5966 (1.0468)	0.128
13-59	Transferrin (mg/dl)[b]	4	0.042	0.0090 (0.0036)	0.012
		5	0.047	0.0102 (0.0030)	0.001
		6	0.057	0.0066 (0.0032)	0.040
15-6	Systolic Blood Pressure (mm Hg)	4	0.183	0.027 (0.420)**	0.948**
		5	0.177	0.100 (0.362)	0.783
		6	0.176	0.056 (0.387)	0.885
15-18	Diastolic Blood Pressure (mm Hg)	4	0.117	0.310 (0.265)	0.241
		5	0.117	0.291 (0.228)	0.202
		6	0.117	0.267 (0.243)	0.243
16-3	Red Blood Cell (RBC) Count (million/mm^3)	4	0.058	0.0118 (0.0090)	0.190
		5	0.059	0.0130 (0.0077)	0.089
		6	0.064	0.0063 (0.0083)	0.445
16-5	White Blood Cell (WBC) Count (thousand/mm^3)[b]	4	0.263	0.0013 (0.0067)**	0.850**
		5	0.264	0.0014 (0.0056)**	0.803**
		6	0.265	-0.0009 (0.0061)**	0.879**
16-7	Hemoglobin (gm/dl)	4	0.095	0.0166 (0.0239)	0.487
		5	0.095	0.0202 (0.0204)	0.322
		6	0.099	0.0048 (0.0221)	0.826
16-9	Hematocrit (percent)	4	0.091	0.0783 (0.0731)	0.285
		5	0.091	0.0824 (0.0624)	0.187
		6	0.094	0.0414 (0.0678)	0.542
16-11	Platelet Count (thousand/mm^3)[d]	4	0.056	-0.0093 (0.0452)	0.836
		5	0.056	0.0105 (0.0380)	0.782
		6	0.058	-0.0050 (0.0415)	0.904
16-13	Prothrombin Time (seconds)[b]	4	0.041	0.0001 (0.0009)	0.910
		5	0.041	-0.0004 (0.0008)	0.633
		6	0.048	0.0004 (0.0009)	0.626
16-16	Absolute Neutrophils (segs) (thousand/mm^3)[b]	4	0.208	0.0068 (0.0090)**	0.451**
		5	0.210	0.0051 (0.0076)**	0.498**
		6	0.209	0.0042 (0.0083)**	0.615**
16-17	Absolute Neutrophils (bands) (thousand/mm^3)[b] (Nonzero Measurements)	4	0.076	0.0053 (0.0226)	0.814
		5	0.076	0.0052 (0.0188)	0.782
		6	0.079	-0.0078 (0.0207)	0.707
16-18	Absolute Lymphocytes (thousand/mm^3)[b]	4	0.115	-0.0061 (0.0095)	0.524
		5	0.115	-0.0035 (0.0080)	0.660
		6	0.116	-0.0075 (0.0087)	0.388

Table Q-1-16. (Continued)
Summary of Adjusted Results for Continuous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter (units)	Model[a]	R^2	Adj. Slope (Std. Error)	p-Value
16-19	Absolute Monocytes (thousand/mm^3)[d]	4	0.047	0.0065 (0.0041)	0.120
		5	0.047	0.0053 (0.0035)	0.134
		6	0.048	0.0058 (0.0038)	0.133
16-20	Absolute Eosinophils (thousand/mm^3)[b] (Nonzero Measurements)	4	0.046	-0.0221 (0.0178)	0.213
		5	0.046	-0.0191 (0.0151)	0.205
		6	0.046	-0.0212 (0.0164)	0.197
16-21	Absolute Basophils (thousand/mm^3)[b] (Nonzero Measurements)	4	0.067	0.0014 (0.0139)	0.921
		5	0.077	0.0020 (0.0119)**	0.869**
		6	0.086	-0.0079 (0.0128)**	0.537**
17-8	Serum Creatinine (mg/dl)[b]	4	0.035	0.0017 (0.0044)	0.697
		5	0.035	0.0027 (0.0037)	0.473
		6	0.035	0.0010 (0.0040)	0.796
17-9	Urine Specific Gravity	4	0.007	0.0004 (0.0001)	0.013
		5	0.008	0.0003 (0.0001)	0.007
		6	0.013	0.0002 (0.0002)	0.123
18-6	Time to Diabetes Onset (years)[c]	4	--	-0.0889 (0.0277)	0.001
		5	--	-0.0925 (0.0251)	<0.001
		6	--	-0.0663 (0.0263)	0.012
18-8	Testicular Volume: Minimum (cm^3)	4	0.040	-0.2301 (0.1312)	0.080
		5	0.039	-0.1428 (0.1121)	0.203
		6	0.049	-0.2411 (0.1352)**	0.075**
18-9	Testicular Volume: Total (cm^3)[d]	4	0.041	-0.0432 (0.0221)	0.051
		5	0.039	-0.0288 (0.0189)	0.128
		6	0.042	-0.0424 (0.0205)	0.039
18-19	Thyroid Stimulating Hormone (TSH) (μIU/ml)[b]	4	0.029	0.0265 (0.0165)	0.108
		5	0.030	0.0265 (0.0139)	0.056
		6	0.031	0.0233 (0.0150)	0.121
18-21	Thyroxine (T_4) (μg/dl)	4	0.030	-0.0228 (0.0350)	0.515
		5	0.030	-0.0243 (0.0295)	0.411
		6	0.031	-0.0215 (0.0320)	0.503
18-24	Fasting Glucose (mg/dl) (All Participants)[b]	4	0.102	0.0217 (0.0054)	<0.001
		5	0.112	0.0214 (0.0046)**	<0.001**
		6	0.117	0.0122 (0.0044)	0.005
18-26	Fasting Glucose (mg/dl) (Diabetics)[b]	4	0.400	0.0442 (0.0219)	0.046
		5	0.408	0.0429 (0.0177)	0.017
		6	0.421	0.0266 (0.0204)	0.195
18-28	Fasting Glucose (mg/dl) (Nondiabetics)[b]	4	0.083	0.0001 (0.0026)	0.975
		5	0.083	0.0009 (0.0022)	0.688
		6	0.057	-0.0014 (0.0021)	0.510

Table Q-1-16. (Continued)
Summary of Adjusted Results for Continuous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter (units)	Model[a]	R^2	Adj. Slope (Std. Error)	p-Value
18-30	2-Hour Postprandial Glucose (mg/dl) (Nondiabetics)[b]	4	0.170	0.0177 (0.0071)	0.012
		5	0.174	0.0189 (0.0061)	0.002
		6	0.182	0.0134 (0.0064)	0.038
18-36	Serum Insulin (mIU/ml) (All Participants)[b]	4	0.316	0.0374 (0.0220)	0.090
		5	0.318	0.0455 (0.0186)	0.015
		6	0.328	0.0203 (0.0197)**	0.303**
18-38	Serum Insulin (mIU/ml) (Diabetics)[b]	4	0.589	-0.0750 (0.0539)	0.166
		5	0.589	-0.0633 (0.0449)	0.161
		6	0.597	-0.0449 (0.0507)	0.378
18-40	Serum Insulin (mIU/ml) (Nondiabetics)[b]	4	0.273	0.0529 (0.0235)	0.025
		5	0.278	0.0646 (0.0200)	0.001
		6	0.303	0.0351 (0.0208)	0.092
18-42	Serum Glucagon (pg/ml) (All Participants)[b]	4	0.085	****	****
		5	0.078	0.0019 (0.0059)	0.044
		6	0.080	0.0084 (0.0064)	0.187
18-44	Serum Glucagon (pg/ml) (Diabetics)[b]	4	0.096	0.0008 (0.0215)	0.970
		5	0.099	0.0095 (0.0173)	0.585
		6	0.106	-0.0005 (0.0201)	0.978
18-46	Serum Glucagon (pg/ml) (Nondiabetics)[b]	4	0.026	0.0147 (0.0073)	0.044
		5	0.028	0.0138 (0.0062)	0.027
		6	0.028	0.0123 (0.0067)	0.065
18-48	α-1-C Hemoglobin (percent) (All Participants)[b]	4	0.106	0.0113 (0.0045)**	0.012**
		5	0.132	0.0121 (0.0039)**	0.002**
		6	0.147	0.0064 (0.0041)**	0.124**
18-50	α-1-C Hemoglobin (percent) (Diabetics)[b]	4	0.475	0.0237 (0.0164)	0.152
		5	0.476	0.0196 (0.0134)	0.145
		6	0.468	0.0168 (0.0155)	0.281
18-52	α-1-C Hemoglobin (percent) (Nondiabetics)[b]	4	0.057	-0.0037 (0.0027)**	0.174**
		5	0.047	-0.0014 (0.0022)	0.519
		6	0.050	-0.0028 (0.0024)	0.233
18-55	Serum Proinsulin (ng/ml) (Diabetics)[d]	4	0.463	0.004 (0.021)	0.854
		5	0.464	0.011 (0.017)	0.529
		6	0.479	-0.006 (0.019)	0.775
18-57	Serum C Peptide (ng/ml) (Diabetics)	4	0.689	-0.234 (0.255)	0.360
		5	0.690	-0.212 (0.212)	0.319
		6	0.691	-0.125 (0.241)	0.605
18-59	Total Testosterone (ng/dl)[d]	4	0.161	****	****
		5	0.166	-0.3396 (0.0912)**	<0.001**
		6	0.168	-0.2262 (0.0976)**	0.021**

Table Q-1-16. (Continued)
Summary of Adjusted Results for Continuous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter (units)	Model[a]	R^2	Adj. Slope (Std. Error)	p-Value
18-61	Free Testosterone (pg/ml)[d]	4	0.162	-0.009 (0.018)	0.627
		5	0.162	-0.006 (0.015)	0.683
		6	0.093	-0.009 (0.016)	0.599
18-65	Estradiol (pg/ml)[d]	4	0.023	0.024 (0.027)	0.370
		5	0.023	0.021 (0.023)	0.362
		6	0.027	0.008 (0.025)	0.757
18-67	Luteinizing Hormone (LH) (mIU/ml)[b]	4	0.027	-0.013 (0.012)	0.264
		5	0.027	-0.011 (0.010)	0.280
		6	0.027	-0.012 (0.011)	0.264
18-69	Follicle Stimulating Hormone (FSH) (mIU/ml)[b]	4	0.066	0.012 (0.016)	0.423
		5	0.066	0.013 (0.013)	0.317
		6	0.067	0.006 (0.014)	0.664
19-5	CD3 Cells (cells/mm^3)[b]	4	0.353	-0.000 (0.016)	0.988
		5	0.353	0.003 (0.014)	0.855
		6	0.366	-0.008 (0.015)	0.616
19-6	CD4 Cells (cells/mm^3)[b]	4	0.333	0.001 (0.017)	0.972
		5	0.333	0.004 (0.014)	0.790
		6	0.340	-0.006 (0.016)	0.719
19-7	CD5 Cells (cells/mm^3)[b]	4	0.346	0.002 (0.016)	0.919
		5	0.346	0.005 (0.014)	0.750
		6	0.350	-0.003 (0.015)	0.836
19-8	CD8 Cells (cells/mm^3)[b]	4	0.068	-0.007 (0.022)**	0.742**
		5	0.048	-0.006 (0.016)	0.728
		6	0.048	-0.008 (0.017)	0.663
19-9	CD14 Cells (cells/mm^3)[b]	4	0.345	-0.007 (0.016)	0.650
		5	0.345	0.000 (0.014)	0.992
		6	0.354	-0.011 (0.015)	0.461
19-10	CD16+56 Cells (cells/mm^3)[b]	4	0.258	0.004 (0.024)	0.869
		5	0.257	-0.001 (0.021)	0.967
		6	0.258	0.003 (0.023)	0.882
19-11	CD20 Cells (cells/mm^3)[f]	4	0.136	0.008 (0.020)	0.696
		5	0.137	0.012 (0.017)	0.480
		6	0.142	0.002 (0.019)	0.927
19-12	CD25 Cells (cells/mm^3)[b]	4	0.457	-0.006 (0.020)	0.762
		5	0.448	0.002 (0.017)	0.915
		6	0.472	-0.014 (0.019)**	0.449**
19-13	CD4-CD8 Ratio[b]	4	0.022	0.003 (0.017)	0.868
		5	0.022	0.006 (0.015)	0.657
		6	0.030	-0.003 (0.016)	0.833

Table Q-1-16. (Continued)
Summary of Adjusted Results for Continuous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter (units)	Model[a]	R^2	Adj. Slope (Std. Error)	p-Value
19-14	Double Labelled Cells: CD3 with CD25 (cells/mm^3)[b]	4	0.449	-0.005 (0.022)	0.826
		5	0.449	-0.000 (0.019)	0.986
		6	0.471	-0.017 (0.020)**	0.397**
19-15	Double Labelled Cells: CD5 with CD20 (cells/mm^3)[b] (Nonzero Measurements)	4	0.321	0.063 (0.033)	0.060
		5	0.322	0.058 (0.029)	0.044
		6	0.324	0.048 (0.031)	0.120
19-16	Double Labelled Cells: CD4 with CD8 (cells/mm^3)[b] (Nonzero Measurements)	4	0.083	-0.011 (0.027)	0.697
		5	0.063	0.005 (0.041)	0.906
		6	0.064	-0.002 (0.044)	0.956
19-17	Double Labelled Cells: CD3 with CD16+56 (cells/mm^3)[b] (Nonzero Measurements)	4	0.339	-0.086 (0.042)	0.040
		5	0.340	-0.077 (0.036)	0.032
		6	0.343	-0.060 (0.039)	0.122
19-18	TLC (cells/mm^3)[b]	4	0.352	0.005 (0.013)	0.684
		5	0.352	0.006 (0.011)	0.566
		6	0.361	0.002 (0.012)	0.869
19-19	IgA (mg/dl)[b]	4	0.026	0.008 (0.012)	0.530
		5	0.025	0.001 (0.010)	0.945
		6	0.033	0.014 (0.011)	0.202
19-20	IgG (mg/dl)[b]	4	0.085	-0.003 (0.006)	0.598
		5	0.086	-0.007 (0.005)	0.206
		6	0.091	-0.002 (0.006)	0.714
19-21	IgM (mg/dl)[b]	4	0.038	-0.001 (0.013)**	0.954**
		5	0.033	-0.005 (0.011)	0.685
		6	0.039	0.004 (0.012)	0.761
20-8	FVC (Percent of Predicted)	4	0.179	-0.385 (0.360)	0.286
		5	0.180	-0.367 (0.305)	0.228
		6	0.183	-0.172 (0.329)	0.600
20-9	FEV_1 (Percent of Predicted)	4	0.190	0.447 (0.448)	0.318
		5	0.185	0.301 (0.379)	0.428
		6	0.192	0.536 (0.409)	0.190
20-10	Ratio of Observed FEV_1 to Observed FVC[g]	4	0.233	-0.025 (0.007)	0.001
		5	0.232	-0.020 (0.006)	0.001
		6	0.232	-0.022 (0.007)	0.001

[a] Model 4: Log_2 (lipid-adjusted current dioxin + 1).
Model 5: Log_2 (whole-weight current dioxin + 1).
Model 6: Log_2 (whole-weight current dioxin + 1), adjusted for log_2 total lipids.

[b] Slope and standard error based on natural logarithm of clinical parameter versus log_2 (current dioxin + 1).

[c] Slope and standard error based on square root of clinical parameter versus log_2 (current dioxin + 1).

[d] Slope and standard error based on natural logarithm of (clinical parameter + 0.1) versus $\log_2$ (current dioxin + 1).

[e] Slope and standard error based on time to diabetes onset versus $\log_2$ (current dioxin + 1) under a censored Weibull distribution.

[f] Slope and standard error based on natural logarithm of (clinical parameter + 1) versus $\log_2$ (current dioxin + 1).

[g] Slope and standard error based on natural logarithm of (1 - clinical parameter) versus $\log_2$ (current dioxin + 1).

** Log_2 (current dioxin + 1)-by-covariate interaction ($p \leq 0.05$); adjusted slope, standard error, and p-value derived from a model fitted after deletion of this interaction.

**** Log_2 (current dioxin + 1)-by-covariate interaction ($p \leq 0.01$); adjusted means, adjusted slope, standard error, and p-value not presented.

Table Q-1-17.
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
9-3	Self-Perception of Health	All	1.44 (1.07,1.94)	0.016
		Officer	1.03 (0.38,1.82)	0.926
		Enlisted Flyer	1.68 (0.87,3.25)	0.121
		Enlisted Groundcrew	1.62 (1.07,2.45)	0.023
9-4	Appearance of Illness or Distress	All	1.44 (0.77,2.68)	0.093
		Officer	1.85 (0.64,5.37)	0.258
		Enlisted Flyer	3.10 (0.60,16.07)	0.178
		Enlisted Groundcrew	0.91 (0.36,2.28)	0.841
9-5	Relative Age Appearance	All	0.86 (0.60,1.23)	0.416
		Officer	0.75 (0.35,1.58)	0.449
		Enlisted Flyer	1.36 (0.64,2.92)	0.425
		Enlisted Groundcrew	0.75 (0.46,1.24)	0.264
9-8	Body Fat	All	0.99 (0.82,1.20)	0.927
		Officer	1.04 (0.75,1.44)	0.805
		Enlisted Flyer	1.12 (0.68,1.83)	0.655
		Enlisted Groundcrew	1.09 (0.82,1.43)	0.558
9-9	Body Fat with Adjustment for Caloric Intake	All	0.99 (0.82,1.21)	0.952
		Officer	0.96 (0.69,1.32)	0.792
		Enlisted Flyer	1.04 (0.64,1.70)	0.877
		Enlisted Groundcrew	1.01 (0.77,1.34)	0.926
9-11	Sedimentation Rate	All	1.02 (0.82,1.28)	0.839
		Officer	1.06 (0.71,1.56)	0.782
		Enlisted Flyer	0.96 (0.58,1.58)	0.859
		Enlisted Groundcrew	1.03 (0.75,1.42)	0.859
10-3	Skin Neoplasms	All	1.19 (0.98,1.45)	0.074
		Officer	1.20 (0.90,1.61)	0.221
		Enlisted Flyer	1.32 (0.81,2.15)	0.259
		Enlisted Groundcrew	1.14 (0.85,1.55)	0.382
10-4	Malignant Skin Neoplasms	All	1.17 (0.90,1.54)	0.244
		Officer	1.26 (0.87,1.84)	0.228
		Enlisted Flyer	1.29 (0.67,2.46)	0.445
		Enlisted Groundcrew	0.99 (0.61,1.61)	0.972
10-5	Benign Skin Neoplasms	All	1.20 (0.97,1.49)	0.109
		Officer	1.19 (0.84,1.67)	0.372
		Enlisted Flyer	1.56 (0.89,2.74)	0.160
		Enlisted Groundcrew	1.12 (0.81,1.54)	0.543
10-6	Skin Neoplasms of Uncertain Behavior or Unspecified Nature	All	0.89 (0.25,3.17)	0.854
		Officer	0.88 (0.14,5.32)	0.886
		Enlisted Flyer	--	--
		Enlisted Groundcrew	0.96 (0.16,5.77)	0.960

Table Q-1-17. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
10-7	Basal Cell Carcinomas (All Sites Combined)	All	1.11 (0.82,1.48)	0.502
		Officer	1.18 (0.78,1.77)	0.434
		Enlisted Flyer	1.24 (0.63,2.44)	0.541
		Enlisted Groundcrew	0.93 (0.54,1.58)	0.778
10-8	Basal Cell Carcinomas (Ear, Face, Head, and Neck)	All	1.21 (0.88,1.68)	0.244
		Officer	1.35 (0.86,2.14)	0.196
		Enlisted Flyer	1.15 (0.55,2.42)	0.703
		Enlisted Groundcrew	1.04 (0.58,1.86)	0.893
10-9	Basal Cell Carcinomas (Trunk)	All	0.90 (0.50,1.61)	0.714
		Officer	0.92 (0.46,1.87)	0.823
		Enlisted Flyer	1.62 (0.43,6.17)	0.478
		Enlisted Groundcrew	0.58 (0.18,1.86)	0.359
10-10	Basal Cell Carcinomas (Upper Extremities)	All	1.16 (0.60,2.24)	0.662
		Officer	1.32 (0.60,2.91)	0.489
		Enlisted Flyer	1.36 (0.08,22.19)	0.829
		Enlisted Groundcrew	0.71 (0.17,2.89)	0.633
10-11	Basal Cell Carcinomas (Lower Extremities)	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
10-12	Squamous Cell Carcinomas	All	1.92 (0.69,5.35)	0.208
		Officer	1.44 (0.42,4.99)	0.564
		Enlisted Flyer	2.13 (0.26,17.61)	0.483
		Enlisted Groundcrew	3.47 (0.67,18.00)	0.138
10-13	Nonmelanomas	All	1.17 (0.88,1.54)	0.282
		Officer	1.22 (0.83,1.80)	0.310
		Enlisted Flyer	1.30 (0.68,2.49)	0.430
		Enlisted Groundcrew	1.00 (0.60,1.66)	0.997
10-14	Melanomas	All	1.37 (0.58,3.26)	0.474
		Officer	1.57 (0.47,5.21)	0.465
		Enlisted Flyer	--	--
		Enlisted Groundcrew	1.24 (0.35,4.35)	0.740
10-15	Systemic Neoplasms	All	1.03 (0.84,1.27)	0.772
		Officer	0.90 (0.64,1.25)	0.520
		Enlisted Flyer	1.13 (0.69,1.85)	0.640
		Enlisted Groundcrew	1.13 (0.82,1.57)	0.459
10-16	Malignant Systemic Neoplasms	All	1.16 (0.77,1.75)	0.479
		Officer	0.94 (0.53,1.66)	0.820
		Enlisted Flyer	1.51 (0.65,3.52)	0.340
		Enlisted Groundcrew	1.37 (0.60,3.14)	0.454

Table Q-1-17. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
10-17	Benign Systemic Neoplasms	All	1.06 (0.84,1.34)	0.607
		Officer	0.84 (0.58,1.24)	0.384
		Enlisted Flyer	1.15 (0.67,1.98)	0.602
		Enlisted Groundcrew	1.23 (0.87,1.74)	0.240
10-18	Systemic Neoplasms of Uncertain Behavior or Unspecified Nature	All	0.92 (0.47,1.78)	0.803
		Officer	1.26 (0.53,3.01)	0.599
		Enlisted Flyer	--	--
		Enlisted Groundcrew	0.75 (0.25,2.27)	0.616
10-19	Malignant Systemic Neoplasms (Eye, Ear, Face, Head, and Neck)	All	1.34 (0.55,3.24)	0.519
		Officer	2.28 (0.54,9.62)	0.263
		Enlisted Flyer	0.61 (0.11,3.37)	0.571
		Enlisted Groundcrew	1.37 (0.27,6.79)	0.703
10-20	Malignant Systemic Neoplasms (Oral Cavity, Pharynx, and Larynx)	All	1.00 (0.28,3.58)	0.995
		Officer	0.77 (0.07,8.57)	0.828
		Enlisted Flyer	1.42 (0.20,10.30)	0.727
		Enlisted Groundcrew	0.72 (0.06,8.06)	0.791
10-21	Malignant Systemic Neoplasms (Esophagus)	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
10-22	Malignant Systemic Neoplasms (Brain)	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
10-23	Malignant Systemic Neoplasms (Thymus, Heart, and Mediastinum)	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
10-24	Malignant Systemic Neoplasms (Thyroid Gland)	All	1.36 (0.19,9.66)	0.999
		Officer	2.80 (0.25,30.90)	0.774
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
10-25	Malignant Systemic Neoplasms (Bronchus and Lung)	All	1.95 (0.54,7.04)	0.301
		Officer	5.53 (0.60,50.64)	0.130
		Enlisted Flyer	0.62 (0.05,7.02)	0.700
		Enlisted Groundcrew	1.18 (0.07,20.41)	0.911
10-26	Malignant Systemic Neoplasms (Colon and Rectum)	All	1.69 (0.45,6.33)	0.432
		Officer	1.38 (0.28,6.91)	0.692
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--

Table Q-1-17. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
10-27	Malignant Systemic Neoplasms (Kidney and Bladder)	All	2.00 (0.58,6.89)	0.268
		Officer	0.89 (0.20,3.92)	0.881
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
10-28	Malignant Systemic Neoplasms (Prostate)	All	0.95 (0.49,1.84)	0.869
		Officer	0.80 (0.34,1.87)	0.605
		Enlisted Flyer	1.24 (0.30,5.17)	0.775
		Enlisted Groundcrew	1.29 (0.25,6.67)	0.762
10-29	Malignant Systemic Neoplasms (Testicles)	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
10-30	Malignant Systemic Neoplasms (Ill-Defined Sites)	All	0.45 (0.05,4.37)	0.467
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
10-31	Malignant Systemic Neoplasms (Connective and Other Soft Tissue)	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
10-32	Carcinomas in Situ of the Penis, Other, and Unspecified Sites	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
10-33	Hodgkin's Disease	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
10-34	Leukemia	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
10-35	Non-Hodgkin's Lymphoma	All	0.32 (0.03,2.95)	0.267
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
10-36	Malignant Systemic Neoplasms of Lymphoid and Histiocytic Tissue	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--

Table Q-1-17. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
10-37	Multiple Myeloma	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
10-38	Skin or Systemic Neoplasms	All	1.16 (0.97,1.38)	0.096
		Officer	1.08 (0.82,1.42)	0.597
		Enlisted Flyer	1.16 (0.76,1.77)	0.497
		Enlisted Groundcrew	1.24 (0.95,1.61)	0.112
10-39	Prostate-Specific Antigen (Below vs. At or Above Sensitivity Limit)	All	0.83 (0.49,1.42)	0.498
		Officer	0.72 (0.33,1.57)	0.405
		Enlisted Flyer	1.67 (0.37,7.57)	0.508
		Enlisted Groundcrew	0.82 (0.35,1.89)	0.639
10-41	Prostate-Specific Antigen	All	****	****
		Officer	****	****
		Enlisted Flyer	****	****
		Enlisted Groundcrew	****	****
11-3	Inflammatory Diseases	All	4.05 (0.82,20.09)	0.136
		Officer	2.72 (0.25,30.09)	0.792
		Enlisted Flyer	--	0.388
		Enlisted Groundcrew	2.76 (0.25,30.48)	0.782
11-4	Hereditary and Degenerative Diseases	All	1.08 (0.75,1.57)	0.683
		Officer	1.06 (0.56,1.99)	0.861
		Enlisted Flyer	0.73 (0.31,1.71)	0.465
		Enlisted Groundcrew	1.30 (0.75,2.25)	0.356
11-5	Peripheral Disorders	All	1.01 (0.80,1.28)	0.923
		Officer	1.15 (0.79,1.67)	0.455
		Enlisted Flyer	0.95 (0.55,1.64)	0.850
		Enlisted Groundcrew	0.92 (0.65,1.32)	0.663
11-6	Other Neurological Disorders	All	1.14 (0.91,1.43)	0.269
		Officer	1.04 (0.63,1.70)	0.891
		Enlisted Flyer	1.07 (0.67,1.70)	0.779
		Enlisted Groundcrew	1.21 (0.89,1.63)	0.223
11-7	Smell	All	1.10 (0.54,2.25)	0.790
		Officer	0.59 (0.18,1.95)	0.391
		Enlisted Flyer	1.24 (0.25,6.22)	0.797
		Enlisted Groundcrew	1.94 (0.61,6.16)	0.262
11-8	Visual Fields	All	0.45 (0.05,4.32)	0.837
		Officer	--	0.619
		Enlisted Flyer	--	--
		Enlisted Groundcrew	1.38 (0.09,22.05)	0.999

Table Q-1-17. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
11-9	Light Reaction	All	2.27 (0.54,9.50)	0.255
		Officer	0.64 (0.06,7.14)	0.720
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
11-10	Ocular Movement	All	1.56 (0.52,4.67)	0.423
		Officer	1.01 (0.23,4.55)	0.987
		Enlisted Flyer	--	--
		Enlisted Groundcrew	2.07 (0.35,12.44)	0.428
11-11	Facial Sensation	All	4.06 (0.42,39.10)	0.419
		Officer	--	--
		Enlisted Flyer	--	0.999
		Enlisted Groundcrew	--	0.148
11-12	Jaw Clench	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
11-13	Smile	All	1.52 (0.59,3.97)	0.533
		Officer	0.58 (0.15,2.26)	0.639
		Enlisted Flyer	--	0.910
		Enlisted Groundcrew	6.94 (0.81,59.66)	0.102
11-14	Palpebral Fissure	All	1.01 (0.43,2.41)	0.999
		Officer	0.68 (0.17,2.74)	0.836
		Enlisted Flyer	2.53 (0.23,28.10)	0.844
		Enlisted Groundcrew	1.01 (0.29,4.12)	0.999
11-15	Balance	All	1.03 (0.31,3.43)	0.960
		Officer	1.18 (0.16,8.55)	0.872
		Enlisted Flyer	--	--
		Enlisted Groundcrew	3.89 (0.40,38.26)	0.244
11-16	Gag Reflex	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
11-17	Speech	All	4.06 (0.81,20.20)	0.063
		Officer	1.40 (0.09,22.59)	0.814
		Enlisted Flyer	--	--
		Enlisted Groundcrew	5.45 (0.60,49.56)	0.132
11-18	Palate and Uvula Movement	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--

Table Q-1-17. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
11-19	Neck Range of Motion	All	1.01 (0.79,1.31)	0.919
		Officer	1.19 (0.82,1.74)	0.362
		Enlisted Flyer	0.58 (0.33,1.04)	0.067
		Enlisted Groundcrew	1.14 (0.73,1.76)	0.571
11-20	Cranial Nerve Index Without Range of Motion	All	1.21 (0.78,1.87)**	0.395**
		Officer	0.79 (0.39,1.57)	0.495
		Enlisted Flyer	0.62 (0.20,1.91)	0.404
		Enlisted Groundcrew	2.36 (1.19,4.71)	0.014
11-21	Pin Prick	All	0.98 (0.67,1.43)	0.911
		Officer	0.93 (0.50,1.72)	0.819
		Enlisted Flyer	0.56 (0.23,1.34)	0.194
		Enlisted Groundcrew	1.36 (0.74,2.48)	0.317
11-22	Light Touch	All	1.23 (0.80,1.88)	0.347
		Officer	0.80 (0.44,1.46)	0.465
		Enlisted Flyer	1.07 (0.46,2.47)	0.874
		Enlisted Groundcrew	1.26 (0.73,2.16)	0.413
11-23	Muscle Status	All	1.31 (0.80,2.14)	0.291
		Officer	1.50 (0.65,3.44)	0.340
		Enlisted Flyer	0.59 (0.20,1.76)	0.340
		Enlisted Groundcrew	1.75 (0.81,3.78)	0.158
11-24	Patellar Reflex	All	0.40 (0.19,0.83)**	0.009**
		Officer	0.21 (0.06,0.79)**	0.021**
		Enlisted Flyer	0.05 (0.00,0.98)**	0.048**
		Enlisted Groundcrew	1.10 (0.40,2.99)**	0.854**
11-25	Achilles Reflex	All	1.05 (0.78,1.41)	0.767
		Officer	1.18 (0.75,1.86)	0.486
		Enlisted Flyer	0.95 (0.47,1.93)	0.893
		Enlisted Groundcrew	0.96 (0.59,1.56)	0.868
11-26	Biceps Reflex	All	0.64 (0.26,1.60)	0.332
		Officer	1.05 (0.32,3.51)	0.932
		Enlisted Flyer	--	--
		Enlisted Groundcrew	0.44 (0.09,2.21)	0.319
11-27	Babinski Reflex	All	0.57 (0.15,2.17)	0.388
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	1.52 (0.30,7.67)	0.614
11-30	Tremor	All	1.09 (0.65,1.83)	0.754
		Officer	0.55 (0.24,1.28)	0.166
		Enlisted Flyer	3.84 (0.76,19.35)	0.104
		Enlisted Groundcrew	1.49 (0.67,3.33)	0.332

Table Q-1-17. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
11-31	Coordination	All	1.13 (0.62,2.03)	0.695
		Officer	1.00 (0.40,2.53)	0.999
		Enlisted Flyer	0.47 (0.09,2.48)	0.374
		Enlisted Groundcrew	1.70 (0.69,4.19)	0.251
11-32	Romberg Sign	All	1.03 (0.31,3.43)	0.960
		Officer	1.18 (0.16,8.55)	0.872
		Enlisted Flyer	--	--
		Enlisted Groundcrew	3.89 (0.40,38.26)	0.244
11-33	Gait	All	1.14 (0.71,1.83)	0.597
		Officer	0.89 (0.39,2.01)	0.776
		Enlisted Flyer	0.84 (0.29,2.43)	0.753
		Enlisted Groundcrew	1.59 (0.78,3.23)	0.205
11-34	Central Nervous System (CNS) Index	All	1.03 (0.72,1.48)	0.875
		Officer	0.80 (0.44,1.46)	0.465
		Enlisted Flyer	1.07 (0.46,2.47)	0.874
		Enlisted Groundcrew	1.26 (0.73,2.16)	0.413
12-3	Psychoses	All	1.04 (0.62,1.73)	0.888
		Officer	1.10 (0.40,3.01)	0.849
		Enlisted Flyer	2.10 (0.60,7.41)	0.247
		Enlisted Groundcrew	0.80 (0.40,1.63)	0.545
12-4	Alcohol Dependence	All	1.17 (0.84,1.64)**	0.355**
		Officer	0.92 (0.49,1.73)**	0.789**
		Enlisted Flyer	1.21 (0.58,2.53)**	0.621**
		Enlisted Groundcrew	1.32 (0.82,2.12)**	0.256**
12-5	Drug Dependence	All	0.36 (0.04,3.23)	0.317
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	0.49 (0.05,4.84)	0.517
12-6	Anxiety	All	1.09 (0.85,1.39)	0.499
		Officer	1.07 (0.62,1.85)	0.809
		Enlisted Flyer	1.04 (0.59,1.82)	0.899
		Enlisted Groundcrew	1.11 (0.81,1.52)	0.506
12-7	Other Neuroses	All	1.22 (1.02,1.47)**	0.034**
		Officer	1.00 (0.73,1.36)**	0.999**
		Enlisted Flyer	1.30 (0.84,2.01)**	0.242**
		Enlisted Groundcrew	1.39 (1.06,1.81)**	0.017**
12-8	SCL-90-R Anxiety	All	1.44 (1.02,2.05)	0.039
		Officer	1.62 (0.73,3.62)	0.238
		Enlisted Flyer	1.92 (0.89,4.16)	0.098
		Enlisted Groundcrew	1.26 (0.81,1.98)	0.306

Table Q-1-17. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
12-9	SCL-90-R Depression	All	1.21 (0.90,1.63)	0.210
		Officer	1.38 (0.77,2.47)	0.282
		Enlisted Flyer	1.55 (0.81,2.97)	0.184
		Enlisted Groundcrew	1.02 (0.67,1.55)	0.927
12-10	SCL-90-R Hostility	All	1.43 (0.96,2.14)**	0.078**
		Officer	0.64 (0.22,1.86)**	0.411**
		Enlisted Flyer	2.04 (0.89,4.67)**	0.091**
		Enlisted Groundcrew	1.53 (0.91,2.57)**	0.106**
12-11	SCL-90-R Interpersonal Sensitivity	All	1.20 (0.90,1.61)	0.223
		Officer	1.00 (0.52,1.92)	0.994
		Enlisted Flyer	1.44 (0.74,2.81)	0.280
		Enlisted Groundcrew	1.21 (0.82,1.76)	0.337
12-12	SCL-90-R Obsessive-Compulsive Behavior	All	1.35 (1.00,1.80)	0.047
		Officer	1.28 (0.71,2.28)	0.412
		Enlisted Flyer	1.45 (0.76,2.74)	0.258
		Enlisted Groundcrew	1.34 (0.90,1.99)	0.149
12-13	SCL-90-R Paranoid Ideation	All	1.65 (1.13,2.41)**	0.010**
		Officer	1.46 (0.62,3.42)**	0.386**
		Enlisted Flyer	2.23 (0.94,5.31)**	0.070**
		Enlisted Groundcrew	1.55 (0.95,2.53)**	0.078**
12-14	SCL-90-R Phobic Anxiety	All	1.10 (0.80,1.52)	0.563
		Officer	0.99 (0.42,2.36)	0.982
		Enlisted Flyer	1.19 (0.58,2.43)	0.642
		Enlisted Groundcrew	1.10 (0.74,1.63)	0.638
12-15	SCL-90-R Psychoticism	All	1.16 (0.86,1.58)	0.329
		Officer	1.08 (0.57,2.03)	0.815
		Enlisted Flyer	1.57 (0.77,3.19)	0.210
		Enlisted Groundcrew	1.09 (0.73,1.63)	0.674
12-16	SCL-90-R Somatization	All	1.45 (1.07,1.98)	0.018
		Officer	1.59 (0.80,3.15)	0.183
		Enlisted Flyer	1.39 (0.70,2.76)	0.349
		Enlisted Groundcrew	1.43 (0.96,2.14)	0.081
12-17	SCL-90-R Global Severity Index	All	1.38 (1.01,1.88)	0.044
		Officer	1.30 (0.66,2.55)	0.445
		Enlisted Flyer	1.73 (0.86,3.48)	0.124
		Enlisted Groundcrew	1.31 (0.87,1.95)	0.195
12-18	SCL-90-R Positive Symptom Total	All	1.25 (0.93,1.66)	0.135
		Officer	1.06 (0.58,1.93)	0.850
		Enlisted Flyer	1.49 (0.76,2.89)	0.244
		Enlisted Groundcrew	1.26 (0.86,1.84)	0.241

Table Q-1-17. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
12-19	SCL-90-R Positive Symptom Distress Index	All	1.02 (0.74,1.41)	0.881
		Officer	1.07 (0.55,2.08)	0.847
		Enlisted Flyer	0.90 (0.45,1.80)	0.775
		Enlisted Groundcrew	1.06 (0.69,1.63)	0.797
13-3	Hepatitis (Non-A, Non-B, and Non-C)	All	1.05 (0.55,2.03)	0.878
		Officer	1.11 (0.29,4.18)	0.879
		Enlisted Flyer	2.03 (0.48,8.58)	0.334
		Enlisted Groundcrew	0.78 (0.31,1.97)	0.593
13-4	Jaundice	All	0.62 (0.35,1.11)**	0.100**
		Officer	0.64 (0.29,1.42)**	0.269**
		Enlisted Flyer	2.34 (0.41,13.39)**	0.341**
		Enlisted Groundcrew	0.36 (0.12,1.08)**	0.068**
13-5	Acute and Subacute Necrosis of the Liver	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
13-6	Alcoholic Chronic Liver Disease and Cirrhosis	All	0.93 (0.62,1.40)	0.733
		Officer	1.46 (0.73,2.92)	0.283
		Enlisted Flyer	0.92 (0.36,2.40)	0.871
		Enlisted Groundcrew	0.68 (0.37,1.23)	0.202
13-7	Nonalcoholic Chronic Liver Disease and Cirrhosis	All	1.36 (0.63,2.96)	0.434
		Officer	2.34 (0.56,9.88)	0.246
		Enlisted Flyer	1.27 (0.18,9.26)	0.810
		Enlisted Groundcrew	1.02 (0.35,2.96)	0.973
13-8	Liver Abscess and Sequelae of Chronic Liver Disease	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
13-9	Other Liver Disorders	All	1.11 (0.92,1.34)	0.272
		Officer	1.14 (0.84,1.54)	0.398
		Enlisted Flyer	0.87 (0.54,1.41)	0.579
		Enlisted Groundcrew	1.18 (0.89,1.56)	0.240
13-10	Hepatomegaly	All	0.61 (0.33,1.11)**	0.098**
		Officer	0.54 (0.19,1.57)**	0.261**
		Enlisted Flyer	2.61 (0.64,10.66)**	0.182**
		Enlisted Groundcrew	0.33 (0.12,0.90)**	0.031**
13-11	Current Hepatomegaly	All	0.87 (0.31,2.46)	0.785
		Officer	0.66 (0.12,3.63)	0.633
		Enlisted Flyer	--	--
		Enlisted Groundcrew	0.79 (0.19,3.35)	0.747

Table Q-1-17. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
13-13	AST	All	0.85 (0.51,1.41)**	0.519**
		Officer	0.94 (0.45,1.96)**	0.875**
		Enlisted Flyer	0.39 (0.08,1.95)**	0.253**
		Enlisted Groundcrew	0.93 (0.41,2.13)**	0.869**
13-15	ALT	All	0.77 (0.53,1.10)**	0.140**
		Officer	1.01 (0.56,1.80)**	0.979**
		Enlisted Flyer	0.68 (0.26,1.75)**	0.422**
		Enlisted Groundcrew	0.65 (0.38,1.09)**	0.099**
13-17	GGT	All	1.13 (0.91,1.42)	0.266
		Officer	1.18 (0.82,1.70)	0.363
		Enlisted Flyer	0.96 (0.55,1.67)	0.891
		Enlisted Groundcrew	1.16 (0.84,1.61)	0.375
13-19	Alkaline Phosphatase	All	1.49 (0.97,2.29)	0.072
		Officer	1.03 (0.45,2.39)	0.941
		Enlisted Flyer	0.81 (0.28,2.34)	0.699
		Enlisted Groundcrew	2.14 (1.19,3.84)	0.011
13-21	Total Bilirubin	All	1.10 (0.74,1.63)	0.632
		Officer	1.12 (0.62,2.03)	0.702
		Enlisted Flyer	0.78 (0.25,2.45)	0.674
		Enlisted Groundcrew	1.20 (0.66,2.16)	0.549
13-22	Direct Bilirubin	All	0.59 (0.31,1.15)	0.111
		Officer	1.12 (0.46,2.73)	0.810
		Enlisted Flyer	0.67 (0.06,7.53)	0.742
		Enlisted Groundcrew	0.24 (0.07,0.84)	0.026
13-24	LDH	All	1.05 (0.82,1.34)**	0.696**
		Officer	1.01 (0.67,1.52)**	0.976**
		Enlisted Flyer	1.00 (0.55,1.82)**	0.999**
		Enlisted Groundcrew	1.11 (0.77,1.59)**	0.585**
13-26	Cholesterol	All	1.15 (0.90,1.47)**	0.252**
		Officer	1.14 (0.74,1.74)**	0.557**
		Enlisted Flyer	1.60 (0.91,2.80)**	0.101**
		Enlisted Groundcrew	1.03 (0.72,1.46)**	0.889**
13-28	HDL Cholesterol	All	1.34 (1.00,1.79)	0.048
		Officer	1.61 (1.00,2.59)	0.048
		Enlisted Flyer	0.76 (0.37,1.56)	0.450
		Enlisted Groundcrew	1.42 (0.92,2.19)	0.110
13-30	Cholesterol-HDL Ratio	All	1.07 (0.90,1.28)	0.435
		Officer	1.10 (0.83,1.44)	0.520
		Enlisted Flyer	0.90 (0.57,1.40)	0.637
		Enlisted Groundcrew	1.12 (0.86,1.47)	0.400

Table Q-1-17. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
13-32	Triglycerides	All	1.22 (0.92,1.61)	0.162
		Officer	1.58 (1.00,2.49)	0.050
		Enlisted Flyer	1.21 (0.64,2.29)	0.549
		Enlisted Groundcrew	0.97 (0.63,1.48)	0.877
13-34	Creatine Kinase	All	1.02 (0.79,1.32)**	0.871**
		Officer	1.24 (0.82,1.89)**	0.308**
		Enlisted Flyer	0.74 (0.38,1.45)**	0.384**
		Enlisted Groundcrew	0.97 (0.67,1.41)**	0.878**
13-36	Serum Amylase	All	0.90 (0.64,1.27)	0.555
		Officer	0.72 (0.43,1.20)	0.203
		Enlisted Flyer	1.05 (0.31,3.57)	0.934
		Enlisted Groundcrew	1.11 (0.67,1.85)	0.687
13-37	Antibodies for Hepatitis A	All	0.95 (0.79,1.15)	0.634
		Officer	1.01 (0.73,1.40)	0.937
		Enlisted Flyer	1.11 (0.72,1.72)	0.634
		Enlisted Groundcrew	0.86 (0.65,0.13)	0.283
13-38	Serological Evidence of Present or Prior Hepatitis B Infection	All	0.65 (0.50,0.84)	<0.001
		Officer	0.54 (0.31,0.94)	0.030
		Enlisted Flyer	0.60 (0.34,1.07)	0.082
		Enlisted Groundcrew	0.71 (0.50,1.01)	0.060
13-39	Antibodies for Hepatitis C	All	0.46 (0.21,1.03)**	0.048**
		Officer	0.60 (0.15,2.33)**	0.457**
		Enlisted Flyer	--	--
		Enlisted Groundcrew	0.55 (0.19,1.59)**	0.272**
13-40	Stool Hemoccult	All	1.35 (0.74,2.45)**	0.332**
		Officer	1.59 (0.61,4.18)**	0.346**
		Enlisted Flyer	--	--
		Enlisted Groundcrew	1.42 (0.64,3.13)**	0.384**
13-42	Prealbumin	All	0.97 (0.44,2.13)	0.938
		Officer	0.51 (0.16,1.66)	0.265
		Enlisted Flyer	1.55 (0.21,11.58)	0.670
		Enlisted Groundcrew	2.07 (0.52,8.20)	0.301
13-44	Albumin	All	1.08 (0.61;1.89)**	0.794**
		Officer	1.61 (0.57,4.50)**	0.366**
		Enlisted Flyer	0.50 (0.13,1.95)**	0.316**
		Enlisted Groundcrew	1.13 (0.51,2.49)**	0.756**
13-46	α-1 Acid Glycoprotein	All	0.80 (0.46,1.40)**	0.439**
		Officer	0.51 (0.18,1.43)**	0.199**
		Enlisted Flyer	1.06 (0.35,3.22)**	0.923**
		Enlisted Groundcrew	0.95 (0.41,2.18)**	0.899**

Table Q-1-17. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
13-50	α-2 Macroglobulin	All	0.96 (0.26,3.55)	0.952
		Officer	--	--
		Enlisted Flyer	0.86 (0.07,10.63)	0.906
		Enlisted Groundcrew	2.18 (0.32,14.70)	0.424
13-52	Apolipoprotein B	All	1.05 (0.87,1.28)	0.597
		Officer	1.04 (0.77,1.40)	0.789
		Enlisted Flyer	0.79 (0.46,1.34)	0.376
		Enlisted Groundcrew	1.16 (0.87,1.55)	0.311
13-54	C_3 Complement	All	1.10 (0.64,1.90)**	0.734**
		Officer	0.86 (0.38,1.91)**	0.704**
		Enlisted Flyer	0.71 (0.20,2.49)**	0.594**
		Enlisted Groundcrew	2.14 (0.79,5.84)**	0.137**
13-56	C_4 Complement	All	0.86 (0.30,2.44)	0.775
		Officer	1.41 (0.28,7.02)	0.677
		Enlisted Flyer	0.23 (0.03,1.95)	0.177
		Enlisted Groundcrew	2.73 (0.24,30.55)	0.415
13-58	Haptoglobin	All	1.20 (0.92,1.56)	0.181
		Officer	1.10 (0.68,1.77)	0.690
		Enlisted Flyer	1.10 (0.62,1.94)	0.755
		Enlisted Groundcrew	1.32 (0.90,1.93)	0.157
13-60	Transferrin	All	0.81 (0.63,1.06)**	0.120**
		Officer	0.74 (0.49,1.11)**	0.144**
		Enlisted Flyer	1.21 (0.67,2.20)**	0.524**
		Enlisted Groundcrew	0.74 (0.49,1.12)**	0.153**
14-3	Occurrence of Acne (Lifetime)	All	1.21 (0.94,1.54)	0.135
		Officer	1.18 (0.79,1.77)	0.428
		Enlisted Flyer	0.75 (0.41,1.39)	0.364
		Enlisted Groundcrew	1.43 (1.00,2.05)	0.051
14-4	Acne Relative to Time of Duty in SEA (Pre- and Post-SEA and Post-SEA vs. Pre-SEA and None)	All	1.20 (0.94,1.53)	0.145
		Officer	1.15 (0.77,1.72)	0.507
		Enlisted Flyer	0.67 (0.36,1.23)	0.196
		Enlisted Groundcrew	1.51 (1.05,2.17)	0.025
14-5	Acne Relative to Time of Duty in SEA (Post-SEA vs. None)	All	1.22 (0.95,1.56)	0.116
		Officer	1.19 (0.79,1.80)	0.401
		Enlisted Flyer	0.74 (0.40,1.37)	0.331
		Enlisted Groundcrew	1.47 (1.02,2.12)	0.041
14-6	Acne Relative to Time of Duty in SEA (Pre- and Post-SEA vs. Pre-SEA)	All	****	****
		Officer	****	****
		Enlisted Flyer	****	****
		Enlisted Groundcrew	****	****

Table Q-1-17. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
14-8	Location of Acne (Post-SEA)	All	1.07 (0.88,1.31)	0.474
		Officer	1.04 (0.76,1.41)	0.821
		Enlisted Flyer	0.79 (0.49,1.27)	0.326
		Enlisted Groundcrew	1.26 (0.93,1.70)	0.139
14-10	Location of Acne (Pre- and Post-SEA and Post-SEA)	All	1.03 (0.86,1.24)	0.753
		Officer	0.92 (0.69,1.23)	0.575
		Enlisted Flyer	0.88 (0.56,1.38)	0.577
		Enlisted Groundcrew	1.21 (0.91,1.59)	0.184
14-11	Other Abnormalities	All	1.10 (0.88,1.39)	0.400
		Officer	1.14 (0.77,1.68)	0.516
		Enlisted Flyer	0.81 (0.44,1.47)	0.482
		Enlisted Groundcrew	1.18 (0.85,1.64)	0.310
14-12	Dermatology Index	All	****	****
		Officer	****	****
		Enlisted Flyer	****	****
		Enlisted Groundcrew	****	****
15-3	Verified Essential Hypertension	All	0.99 (0.82,1.20)	0.952
		Officer	0.83 (0.61,1.13)	0.245
		Enlisted Flyer	1.35 (0.85,2.12)	0.202
		Enlisted Groundcrew	1.03 (0.77,1.38)	0.837
15-4	Verified Heart Disease (excluding Essential Hypertension)	All	1.07 (0.90,1.28)**	0.423**
		Officer	1.00 (0.76,1.34)**	0.962**
		Enlisted Flyer	1.51 (0.98,2.33)**	0.059**
		Enlisted Groundcrew	1.00 (0.77,1.30)**	0.996**
15-5	Verified Myocardial Infarction	All	0.96 (0.67,1.36)**	0.810**
		Officer	0.71 (0.39,1.30)**	0.269**
		Enlisted Flyer	1.23 (0.58,2.61)**	0.580**
		Enlisted Groundcrew	1.08 (0.62,1.85)**	0.793**
15-7	Systolic Blood Pressure	All	0.93 (0.72,1.19)**	0.540**
		Officer	0.79 (0.53,1.16)**	0.224**
		Enlisted Flyer	1.15 (0.63,2.08)**	0.649**
		Enlisted Groundcrew	1.00 (0.67,1.48)**	0.990**
15-8	Heart Sounds	All	1.04 (0.84,1.28)**	0.732**
		Officer	1.10 (0.79,1.52)**	0.567**
		Enlisted Flyer	1.34 (0.78,2.30)**	0.290**
		Enlisted Groundcrew	0.89 (0.64,1.24)**	0.504**
15-9	Overall Electrocardiograph	All	0.82 (0.67,1.02)	0.074
		Officer	0.76 (0.55,1.05)	0.099
		Enlisted Flyer	1.07 (0.65,1.73)	0.801
		Enlisted Groundcrew	0.79 (0.56,1.12)	0.185

Table Q-1-17. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
15-10	ECG: Right Bundle Branch Block (RBBB)	All	0.82 (0.39,1.71)**	0.594**
		Officer	0.36 (0.07,1.76)**	0.207**
		Enlisted Flyer	3.45 (0.65,18.14)**	0.144**
		Enlisted Groundcrew	0.65 (0.22,1.94)**	0.438**
15-11	ECG: Left Bundle Branch Block (LBBB)	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
15-12	ECG: Nonspecific ST- and T-Wave Changes	All	0.95 (0.74,1.22)	0.670
		Officer	0.98 (0.67,1.46)	0.939
		Enlisted Flyer	1.22 (0.71,2.09)	0.478
		Enlisted Groundcrew	0.79 (0.52,1.18)	0.245
15-13	ECG: Bradycardia	All	1.41 (0.83,2.37)	0.203
		Officer	1.01 (0.48,2.10)	0.990
		Enlisted Flyer	8.46 (1.03,69.75)	0.047
		Enlisted Groundcrew	1.38 (0.57,3.37)	0.478
15-14	ECG: Tachycardia	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
15-15	ECG: Arrhythmia	All	1.02 (0.68,1.54)	0.912
		Officer	0.92 (0.49,1.72)	0.799
		Enlisted Flyer	0.78 (0.29,2.07)	0.614
		Enlisted Groundcrew	1.30 (0.68,2.50)	0.423
15-16	ECG: Evidence of Prior Myocardial Infarction	All	0.92 (0.57,1.49)**	0.738**
		Officer	0.75 (0.36,1.56)**	0.440**
		Enlisted Flyer	1.13 (0.38,3.36)**	0.822**
		Enlisted Groundcrew	1.06 (0.47,2.35)**	0.896**
15-17	ECG: Other Diagnoses	All	2.68 (0.91,7.93)	0.064
		Officer	2.10 (0.34,12.85)	0.422
		Enlisted Flyer	2.37 (0.21,26.38)	0.484
		Enlisted Groundcrew	3.38 (0.65,17.63)	0.149
15-19	Diastolic Blood Pressure	All	0.85 (0.51,1.40)	0.516
		Officer	1.02 (0.46,2.26)	0.963
		Enlisted Flyer	1.41 (0.42,4.78)	0.581
		Enlisted Groundcrew	0.58 (0.26,1.28)	0.177
15-20	Funduscopic Examination	All	1.33 (0.93,1.89)	0.116
		Officer	1.45 (0.78,2.70)	0.237
		Enlisted Flyer	2.06 (0.94,4.53)	0.072
		Enlisted Groundcrew	1.01 (0.60,1.71)	0.961

Table Q-1-17. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
15-21	Carotid Bruits	All	1.52 (0.75,3.09)	0.245
		Officer	0.84 (0.27,2.60)	0.759
		Enlisted Flyer	2.57 (0.46,14.31)	0.282
		Enlisted Groundcrew	2.22 (0.71,6.98)	0.172
15-22	Radial Pulses	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
15-23	Femoral Pulses	All	1.90 (0.71,5.08)	0.196
		Officer	2.40 (0.41,14.06)	0.333
		Enlisted Flyer	0.79 (0.12,5.01)	0.803
		Enlisted Groundcrew	3.16 (0.58,17.23)	0.183
15-24	Popliteal Pulses	All	2.47 (1.12,5.47)	0.022
		Officer	2.48 (0.64,9.66)	0.191
		Enlisted Flyer	1.63 (0.34,7.79)	0.542
		Enlisted Groundcrew	3.24 (0.91,11.50)	0.070
15-25	Dorsalis Pedis Pulses	All	1.20 (0.87,1.66)	0.279
		Officer	1.12 (0.66,1.91)	0.664
		Enlisted Flyer	0.76 (0.35,1.65)	0.492
		Enlisted Groundcrew	1.53 (0.93,2.50)	0.091
15-26	Posterior Tibial Pulses	All	1.63 (0.96,2.76)	0.070
		Officer	1.18 (0.49,2.84)	0.718
		Enlisted Flyer	1.65 (0.53,5.13)	0.391
		Enlisted Groundcrew	2.14 (0.93,4.88)	0.073
15-27	Leg Pulses	All	1.16 (0.85,1.60)	0.347
		Officer	1.13 (0.67,1.90)	0.659
		Enlisted Flyer	0.83 (0.40,1.72)	0.615
		Enlisted Groundcrew	1.39 (0.87,2.22)	0.171
15-28	Peripheral Pulses	All	1.16 (0.85,1.58)	0.352
		Officer	1.14 (0.68,1.91)	0.620
		Enlisted Flyer	0.81 (0.39,1.69)	0.574
		Enlisted Groundcrew	1.35 (0.86,2.12)	0.193
15-29	Kidney, Urethra, and Bladder (KUB) X Ray (Excluding Kidney Stones)	All	0.96 (0.79,1.16)	0.665
		Officer	1.07 (0.79,1.46)	0.647
		Enlisted Flyer	1.19 (0.75,1.88)	0.461
		Enlisted Groundcrew	0.78 (0.58,1.06)	0.109
15-30	Intermittent Claudication and Vascular Insufficiency (ICVI) Index	All	1.63 (0.95,2.79)	0.074
		Officer	1.96 (0.82,4.69)	0.130
		Enlisted Flyer	1.87 (0.57,6.16)	0.304
		Enlisted Groundcrew	1.28 (0.55,2.95)	0.563

Table Q-1-17. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
16-10	Hematocrit	All	1.42 (0.70,2.88)	0.330
		Officer	0.77 (0.28,2.12)	0.615
		Enlisted Flyer	4.97 (0.55,45.30)	0.155
		Enlisted Groundcrew	2.28 (0.63,8.27)	0.208
16-12	Platelet Count	All	1.45 (0.65,3.20)	0.362
		Officer	0.47 (0.05,4.58)	0.517
		Enlisted Flyer	1.17 (0.16,8.42)	0.875
		Enlisted Groundcrew	1.95 (0.76,4.99)	0.167
16-14	Prothrombin Time	All	1.56 (0.56,4.34)	0.393
		Officer	1.41 (0.35,5.73)	0.628
		Enlisted Flyer	1.18 (0.16,8.62)	0.868
		Enlisted Groundcrew	2.77 (0.25,30.72)	0.406
16-15	RBC Morphology	All	0.93 (0.79,1.11)	0.436
		Officer	0.99 (0.75,1.30)	0.945
		Enlisted Flyer	1.13 (0.74,1.73)	0.558
		Enlisted Groundcrew	0.82 (0.64,1.07)	0.144
16-17	Absolute Neutrophils (Zero vs. Nonzero)	All	1.03 (0.82,1.29)	0.817
		Officer	1.11 (0.76,1.61)	0.587
		Enlisted Flyer	0.82 (0.47,1.44)	0.500
		Enlisted Groundcrew	1.05 (0.75,1.46)	0.791
16-20	Absolute Eosinophils (Zero vs. Nonzero)	All	0.76 (0.58,0.99)	0.050
		Officer	0.59 (0.38,0.90)	0.018
		Enlisted Flyer	0.64 (0.32,1.31)	0.293
		Enlisted Groundcrew	1.01 (0.68,1.51)	0.999
16-21	Absolute Basophils (Zero vs. Nonzero)	All	0.99 (0.83,1.17)	0.875
		Officer	0.95 (0.72,1.25)	0.713
		Enlisted Flyer	0.89 (0.58,1.35)	0.580
		Enlisted Groundcrew	1.06 (0.82,1.36)	0.672
17-3	Kidney Disease	All	1.08 (0.86,1.36)	0.526
		Officer	1.25 (0.85,1.83)	0.256
		Enlisted Flyer	1.13 (0.64,2.00)	0.681
		Enlisted Groundcrew	0.95 (0.68,1.33)	0.752
17-4	Kidney Stones	All	1.11 (0.67,1.83)	0.684
		Officer	0.90 (0.43,1.89)	0.777
		Enlisted Flyer	1.25 (0.39,3.95)	0.709
		Enlisted Groundcrew	1.37 (0.59,3.20)	0.462
17-5	Urinary Protein	All	1.00 (0.66,1.51)	0.999
		Officer	1.52 (0.73,3.16)	0.263
		Enlisted Flyer	0.70 (0.25,1.96)	0.493
		Enlisted Groundcrew	0.87 (0.49,1.55)	0.634

Table Q-1-17. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
17-6	Urinary Red Blood Cell Count	All	1.41 (0.84,2.35)	0.190
		Officer	2.04 (0.72,5.80)	0.179
		Enlisted Flyer	1.27 (0.31,5.17)	0.741
		Enlisted Groundcrew	1.24 (0.65,2.38)	0.518
17-7	Urinary White Blood Cell Count	All	1.38 (0.84,2.27)	0.208
		Officer	0.91 (0.34,2.42)	0.850
		Enlisted Flyer	0.87 (0.32,2.36)	0.792
		Enlisted Groundcrew	2.23 (1.07,4.67)	0.033
18-3	Past Thyroid Disease	All	0.92 (0.63,1.33)**	0.655**
		Officer	1.08 (0.61,1.90)**	0.791**
		Enlisted Flyer	1.48 (0.52,4.18)**	0.463**
		Enlisted Groundcrew	0.68 (0.39,1.22)**	0.196**
18-4	Composite Diabetes Indicator	All	1.09 (0.84,1.41)	0.504
		Officer	1.30 (0.85,1.97)	0.223
		Enlisted Flyer	0.86 (0.47,1.59)	0.630
		Enlisted Groundcrew	1.04 (0.71,1.53)	0.849
18-7	Thyroid Gland	All	0.67 (0.23,1.95)	0.628
		Officer	0.90 (0.15,5.41)	0.999
		Enlisted Flyer	--	--
		Enlisted Groundcrew	0.81 (0.19,3.40)	0.999
18-10	Retinopathy Results (Diabetics)	All	1.42 (0.35,5.79)**	0.623**
		Officer	0.72 (0.07,7.47)**	0.787**
		Enlisted Flyer	--	--
		Enlisted Groundcrew	0.67 (0.08,5.63)**	0.710**
18-11	Neuropathy Results (Diabetics)	All	1.45 (0.58,3.59)	0.425
		Officer	1.02 (0.18,5.80)	0.984
		Enlisted Flyer	0.52 (0.09,3.14)	0.474
		Enlisted Groundcrew	3.38 (0.80,14.30)	0.098
18-12	Radial Pulses (Doppler) (Diabetics)	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
18-13	Femoral Pulses (Doppler) (Diabetics)	All	1.53 (0.40,5.91)	0.533
		Officer	--	--
		Enlisted Flyer	0.58 (0.04,7.72)	0.680
		Enlisted Groundcrew	0.70 (0.06,8.25)	0.775
18-14	Popliteal Pulses (Doppler) (Diabetics)	All	2.28 (0.65,8.03)	0.189
		Officer	--	--
		Enlisted Flyer	0.47 (0.03,6.39)	0.572
		Enlisted Groundcrew	1.31 (0.17,10.31)	0.799

Table Q-1-17. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
18-15	Dorsalis Pedis Pulses (Doppler) (Diabetics)	All	1.16 (0.59,2.30)	0.668
		Officer	1.33 (0.44,4.07)	0.616
		Enlisted Flyer	0.62 (0.13,2.92)	0.543
		Enlisted Groundcrew	1.42 (0.49,4.07)	0.515
18-16	Posterior Tibial Pulses (Doppler) (Diabetics)	All	1.37 (0.53,3.51)	0.519
		Officer	2.35 (0.50,11.13)	0.281
		Enlisted Flyer	0.25 (0.02,2.78)	0.262
		Enlisted Groundcrew	1.84 (0.41,8.21)	0.425
18-17	Leg Pulses (Doppler) (Diabetics)	All	1.17 (0.59,2.32)	0.661
		Officer	1.41 (0.45,4.44)	0.554
		Enlisted Flyer	0.49 (0.10,2.31)	0.366
		Enlisted Groundcrew	1.51 (0.53,4.29)	0.435
18-18	Peripheral Pulses (Doppler) (Diabetics)	All	1.12 (0.58,2.18)	0.733
		Officer	1.39 (0.47,4.06)	0.553
		Enlisted Flyer	0.49 (0.10,2.27)	0.359
		Enlisted Groundcrew	1.40 (0.50,3.90)	0.524
18-20	Thyroid Stimulating Hormone (TSH)	All	1.00 (0.57,1.75)	0.999
		Officer	0.62 (0.26,1.46)	0.273
		Enlisted Flyer	2.50 (0.45,13.87)	0.294
		Enlisted Groundcrew	1.35 (0.55,3.27)	0.512
18-22	Thyroxine (T_4)	All	1.00 (0.35,2.91)	0.996
		Officer	1.35 (0.39,4.70)	0.880
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
18-23	Anti-Thyroid Antibodies	All	1.62 (0.99,2.64)	0.071
		Officer	1.36 (0.64,2.89)	0.545
		Enlisted Flyer	3.01 (0.77,11.85)	0.183
		Enlisted Groundcrew	1.57 (0.74,3.33)	0.325
18-25	Fasting Glucose (All Participants)	All	1.01 (0.78,1.32)	0.912
		Officer	1.03 (0.68,1.58)	0.874
		Enlisted Flyer	0.88 (0.47,1.65)	0.693
		Enlisted Groundcrew	1.06 (0.71,1.59)	0.784
18-27	Fasting Glucose (Diabetics)	All	0.96 (0.58,1.60)	0.878
		Officer	0.87 (0.37,2.05)	0.745
		Enlisted Flyer	1.29 (0.38,4.33)	0.682
		Enlisted Groundcrew	0.94 (0.45,1.97)	0.867
18-29	Fasting Glucose (Nondiabetics)	All	0.92 (0.57,1.48)	0.719
		Officer	0.70 (0.32,1.53)	0.371
		Enlisted Flyer	0.75 (0.21,2.74)	0.665
		Enlisted Groundcrew	1.25 (0.61,2.56)	0.542

Table Q-1-17. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
18-31	2-Hour Postprandial Glucose (All Participants)	All	1.26 (0.95,1.68)**	0.115**
		Officer	1.30 (0.81,2.10)**	0.274**
		Enlisted Flyer	0.80 (0.42,1.55)**	0.514**
		Enlisted Groundcrew	1.48 (0.98,2.25)**	0.064**
18-32	Fasting Urinary Glucose (All Participants)	All	1.00 (0.61,1.66)	0.994
		Officer	0.83 (0.35,1.95)	0.664
		Enlisted Flyer	0.64 (0.19,2.20)	0.477
		Enlisted Groundcrew	1.37 (0.66,2.86)	0.397
18-33	Fasting Urinary Glucose (Diabetics)	All	0.81 (0.44,1.48)	0.490
		Officer	0.59 (0.21,1.66)	0.319
		Enlisted Flyer	0.60 (0.14,2.63)	0.501
		Enlisted Groundcrew	1.14 (0.48,2.74)	0.768
18-34	Fasting Urinary Glucose (Nondiabetics)	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
18-35	2-Hour Postprandial Urinary Glucose (Nondiabetics)	All	1.01 (0.80,1.28)	0.914
		Officer	1.10 (0.72,1.66)	0.659
		Enlisted Flyer	0.85 (0.49,1.48)	0.578
		Enlisted Groundcrew	1.02 (0.73,1.43)	0.890
18-39	Serum Insulin (Diabetics)	All	1.36 (0.79,2.33)	0.269
		Officer	2.00 (0.78,5.15)	0.148
		Enlisted Flyer	0.77 (0.22,2.69)	0.686
		Enlisted Groundcrew	1.29 (0.59,2.82)	0.518
18-43	Serum Glucagon (All Participants)	All	4.63 (0.45,47.67)	0.161
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	4.63 (0.45,47.50)	0.161
18-45	Serum Glucagon (Diabetics)	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
18-47	Serum Glucagon (Nondiabetics)	All	--	--
		Officer	--	--
		Enlisted Flyer	--	--
		Enlisted Groundcrew	--	--
18-49	α-1-C Hemoglobin (All Participants)	All	1.05 (0.86,1.29)	0.626
		Officer	1.08 (0.77,1.50)	0.660
		Enlisted Flyer	0.75 (0.47,1.22)	0.249
		Enlisted Groundcrew	0.99 (0.73,1.33)	0.934

Table Q-1-17. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
18-51	α-1-C Hemoglobin (Diabetics)	All	1.22 (0.65,2.29)	0.533
		Officer	1.11 (0.37,3.26)	0.855
		Enlisted Flyer	0.60 (0.13,2.79)	0.516
		Enlisted Groundcrew	1.76 (0.63,4.90)	0.277
18-53	α-1-C Hemoglobin (Nondiabetics)	All	0.98 (0.77,1.25)	0.850
		Officer	0.93 (0.61,1.40)	0.715
		Enlisted Flyer	0.76 (0.44,1.32)	0.328
		Enlisted Groundcrew	1.13 (0.79,1.62)	0.489
18-54	Urinary Protein (Diabetics)	All	0.84 (0.42,1.69)**	0.618**
		Officer	1.04 (0.31,3.48)**	0.945**
		Enlisted Flyer	1.50 (0.26,8.84)**	0.651**
		Enlisted Groundcrew	0.61 (0.23,1.63)**	0.323**
18-56	Serum Proinsulin (Diabetics)	All	0.79 (0.47,1.33)	0.368
		Officer	0.78 (0.33,1.89)	0.588
		Enlisted Flyer	0.45 (0.13,1.55)	0.204
		Enlisted Groundcrew	1.03 (0.48,2.21)	0.938
18-58	Serum C Peptide (Diabetics)	All	1.39 (0.78,2.48)	0.259
		Officer	1.17 (0.44,3.11)	0.752
		Enlisted Flyer	1.48 (0.39,5.63)	0.565
		Enlisted Groundcrew	1.50 (0.64,3.53)	0.348
18-60	Total Testosterone	All	0.83 (0.55,1.25)**	0.374**
		Officer	0.99 (0.51,1.93)**	0.973**
		Enlisted Flyer	0.50 (0.17,1.45)**	0.202**
		Enlisted Groundcrew	0.82 (0.45,1.49)**	0.514**
18-62	Free Testosterone	All	0.76 (0.60,0.95)	0.017
		Officer	0.76 (0.52,1.10)	0.145
		Enlisted Flyer	0.39 (0.20,0.76)	0.006
		Enlisted Groundcrew	0.91 (0.65,1.26)	0.570
18-63	Sex Hormone Binding Globulin	All	0.80 (0.63,1.00)	0.048
		Officer	0.88 (0.62,1.25)	0.479
		Enlisted Flyer	0.76 (0.42,1.37)	0.355
		Enlisted Groundcrew	0.74 (0.52,1.04)	0.080
18-64	Total Testosterone to Sex Hormone Binding Globulin Ratio	All	0.85 (0.63,1.13)	0.262
		Officer	0.75 (0.47,1.18)	0.211
		Enlisted Flyer	0.70 (0.35,1.38)	0.297
		Enlisted Groundcrew	1.05 (0.67,1.66)	0.835
18-66	Estradiol	All	0.94 (0.61,1.46)	0.785
		Officer	0.67 (0.31,1.44)	0.301
		Enlisted Flyer	1.02 (0.39,2.65)	0.970
		Enlisted Groundcrew	1.17 (0.62,2.33)	0.627

Table Q-1-17. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
19-26	Lupus Panel: MSK Parietal Antibody	All	0.87 (0.50,1.51)**	0.618**
		Officer	1.87 (0.92,3.80)**	0.084**
		Enlisted Flyer	1.14 (0.36,3.62)**	0.828**
		Enlisted Groundcrew	1.18 (0.57,2.46)**	0.659**
19-27	Lupus Panel: Rheumatoid Factor	All	0.90 (0.71,1.14)	0.371
		Officer	0.72 (0.50,1.04)	0.082
		Enlisted Flyer	0.81 (0.45,1.45)	0.472
		Enlisted Groundcrew	1.16 (0.81,1.67)	0.405
19-28	Lupus Panel: B Cell Clones Detected by Serum Protein Electrophoresis	All	1.35 (0.74,2.45)	0.328
		Officer	2.05 (0.83,5.08)	0.120
		Enlisted Flyer	1.25 (0.39,3.95)	0.706
		Enlisted Groundcrew	0.69 (0.21,2.30)	0.546
19-29	Lupus Panel: Other Antibodies (ANA and MSK)	All	0.76 (0.48,1.21)	0.246
		Officer	0.64 (0.31,1.33)	0.228
		Enlisted Flyer	0.89 (0.33,2.40)	0.814
		Enlisted Groundcrew	0.84 (0.39,1.80)	0.653
19-30	Lupus Panel: Summary Index	All	0.87 (0.73,1.04)	0.124
		Officer	0.88 (0.67,1.16)	0.368
		Enlisted Flyer	0.97 (0.63,1.49)	0.875
		Enlisted Groundcrew	0.83 (0.63,1.09)	0.179
20-3	Asthma	All	1.44 (0.89,2.32)	0.139
		Officer	1.73 (0.82,3.64)	0.149
		Enlisted Flyer	0.61 (0.11,3.36)	0.574
		Enlisted Groundcrew	1.42 (0.72,2.79)	0.310
20-4	Bronchitis	All	1.21 (0.97,1.51)	0.092
		Officer	0.99 (0.68,1.44)	0.943
		Enlisted Flyer	1.75 (1.05,2.93)	0.033
		Enlisted Groundcrew	1.22 (0.88,1.70)	0.237
20-5	Pneumonia	All	0.68 (0.51,0.91)	0.008
		Officer	0.57 (0.36,0.90)	0.017
		Enlisted Flyer	0.99 (0.50,1.94)	0.965
		Enlisted Groundcrew	0.68 (0.43,1.07)	0.096
20-6	Thorax and Lung Abnormalities	All	1.36 (1.03,1.81)	0.033
		Officer	1.40 (0.83,2.36)	0.206
		Enlisted Flyer	2.07 (1.12,3.82)	0.021
		Enlisted Groundcrew	1.11 (0.74,1.67)	0.602
20-7	X Ray Interpretation	All	0.98 (0.76,1.25)	0.861
		Officer	0.96 (0.64,1.45)	0.846
		Enlisted Flyer	1.34 (0.77,2.35)	0.302
		Enlisted Groundcrew	0.86 (0.59,1.25)	0.432

** Group-by-covariate interaction ($p \leq 0.05$); adjusted relative risk, confidence interval, and p-value derived from a model fitted after deletion of this interaction.

**** Group-by-covariate interaction ($p \leq 0.01$); adjusted relative risk, confidence interval, and p-value not presented.

--: Adjusted relative risk, confidence interval, and p-value not presented due to the sparse number of abnormalities.

Note: RH = Ranch Hand
C = Comparison.

Table Q-1-18.
Summary of Adjusted Results for Dichotomous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Reference	Clinical Parameter	Adj. Relative Risk (95% C.I.)[a]	p-Value[a]
9-3	Self-Perception of Health	1.19 (0.96,1.47)	0.120
9-4	Appearance of Illness or Distress	0.93 (0.56,1.54)	0.762
9-5	Relative Age Appearance	1.22 (0.90,1.65)	0.209
9-8	Body Fat	0.91 (0.72,1.16)	0.437
9-9	Body Fat with Adjustment for Caloric Intake	0.91 (0.72,1.16)	0.460
9-11	Sedimentation Rate	1.06 (0.89,1.25)	0.509
10-3	Skin Neoplasms	0.76 (0.64,0.89)	<0.001
10-4	Malignant Skin Neoplasms	****	****
10-5	Benign Skin Neoplasms	0.86 (0.72,1.02)	0.085
10-6	Skin Neoplasms of Uncertain Behavior or Unspecified Nature	--	--
10-7	Basal Cell Carcinomas (All Sites Combined)	0.75 (0.57,0.97)	0.023
10-8	Basal Cell Carcinomas (Ear, Face, Head, and Neck)	0.68 (0.51,0.92)	0.006
10-9	Basal Cell Carcinomas (Trunk)	0.86 (0.57,1.28)	0.439
10-10	Basal Cell Carcinomas (Upper Extremities)	0.57 (0.29,1.14)	0.081
10-11	Basal Cell Carcinomas (Lower Extremities)	--	--
10-12	Squamous Cell Carcinomas	0.78 (0.36,1.68)	0.512
10-13	Nonmelanomas	0.76 (0.59,0.99)**	0.032**
10-14	Melanomas	0.43 (0.19,0.99)	0.021
10-15	Systemic Neoplasms	1.01 (0.86,1.20)	0.876
10-16	Malignant Systemic Neoplasms	****	****
10-17	Benign Systemic Neoplasms	1.00 (0.83,1.20)	0.989
10-18	Systemic Neoplasms of Uncertain Behavior or Unspecified Nature	0.91 (0.54,1.52)	0.709
10-19	Malignant Systemic Neoplasms (Eye, Ear, Face, Head, and Neck)	****	****
10-20	Malignant Systemic Neoplasms (Oral Cavity, Pharynx, and Larynx)	1.50 (0.63,3.59)	0.356
10-21	Malignant Systemic Neoplasms (Esophagus)	--	--
10-22	Malignant Systemic Neoplasms (Brain)	--	--
10-23	Malignant Systemic Neoplasms (Thymus, Heart, and Mediastinum)	--	--
10-24	Malignant Systemic Neoplasms (Thyroid Gland)	0.13 (0.01,2.16)	0.044

Table Q-1-18. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Reference	Clinical Parameter	Adj. Relative Risk (95% C.I.)[a]	p-Value[a]
10-25	Malignant Systemic Neoplasms (Bronchus and Lung)	0.44 (0.13,1.46)	0.120
10-26	Malignant Systemic Neoplasms (Colon and Rectum)	0.70 (0.22,2.26)	0.525
10-27	Malignant Systemic Neoplasms (Kidney and Bladder)	0.66 (0.21,2.10)	0.455
10-28	Malignant Systemic Neoplasms (Prostate)	0.94 (0.51,1.74)	0.835
10-29	Malignant Systemic Neoplasms (Testicles)	0.61 (0.20,1.87)	0.353
10-30	Malignant Systemic Neoplasms (Ill-Defined Sites)	--	--
10-31	Malignant Systemic Neoplasms (Connective and Other Soft Tissue)	--	--
10-32	Carcinomas in Situ of the Penis, Other, and Unspecified Sites	--	--
10-33	Hodgkin's Disease	--	--
10-34	Leukemia	--	--
10-35	Non-Hodgkin's Lymphoma	--	--
10-36	Other Malignant Systemic Neoplasms of Lymphoid and Histiocytic Tissue	--	--
10-37	Multiple Myeloma	--	--
10-38	Skin or Systemic Neoplasms	0.84 (0.73,0.96)	0.012
10-39	Prostate-Specific Antigen (Below vs. At or Above Sensitivity Limit)	0.94 (0.60,1.48)	0.794
10-41	Prostate-Specific Antigen	0.69 (0.46,1.05)	0.064
11-3	Inflammatory Diseases	0.85 (0.35,2.03)	0.705
11-4	Hereditary and Degenerative Diseases	0.85 (0.59,1.22)**	0.379**
11-5	Peripheral Disorders	1.06 (0.88,1.27)	0.531
11-6	Other Neurological Disorders	0.96 (0.80,1.15)	0.649
11-7	Smell	0.69 (0.31,1.55)	0.341
11-8	Visual Fields	--	--
11-9	Light Reaction	1.43 (0.64,3.20)	0.384
11-10	Ocular Movement	0.83 (0.40,1.72)	0.609
11-11	Facial Sensation	--	--
11-12	Jaw Clench	--	--
11-13	Smile	1.29 (0.75,2.22)	0.363
11-14	Palpebral Fissure	1.04 (0.55,1.94)	0.909
11-15	Balance	1.42 (0.63,3.19)	0.414

Table Q-1-18. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Reference	Clinical Parameter	Adj. Relative Risk (95% C.I.)[a]	p-Value[a]
11-16	Gag Reflex	--	--
11-17	Speech	1.33 (0.63,2.79)	0.470
11-18	Palate and Uvula Movement	--	--
11-19	Neck Range of Motion	1.02 (0.81,1.29)	0.867
11-20	Cranial Nerve Index Without Range of Motion	1.19 (0.84,1.70)**	0.335**
11-21	Pin Prick	0.92 (0.66,1.28)	0.604
11-22	Light Touch	0.97 (0.72,1.29)	0.821
11-23	Muscle Status	1.10 (0.74,1.62)	0.637
11-24	Patellar Reflex	1.19 (0.71,2.02)	0.516
11-25	Achilles Reflex	1.06 (0.84,1.34)**	0.612**
11-26	Biceps Reflex	0.69 (0.29,1.66)	0.389
11-27	Babinski Reflex	--	--
11-30	Tremor	1.47 (0.90,2.40)	0.129
11-31	Coordination	1.02 (0.65,1.61)	0.918
11-32	Romberg Sign	1.42 (0.63,3.19)	0.414
11-33	Gait	1.24 (0.86,1.80)**	0.260**
11-34	Central Nervous System (CNS) Index	1.22 (0.92,1.62)	0.181
12-3	Psychoses	0.81 (0.54,1.22)	0.302
12-4	Alcohol Dependence	1.06 (0.81,1.40)	0.666
12-5	Drug Dependence	--	--
12-6	Anxiety	0.94 (0.77,1.16)**	0.574**
12-7	Other Neuroses	1.03 (0.89,1.19)	0.714
12-8	SCL-90-R Anxiety	1.04 (0.81,1.35)**	0.740**
12-9	SCL-90-R Depression	1.20 (0.96,1.50)	0.115
12-10	SCL-90-R Hostility	1.16 (0.87,1.53)	0.310
12-11	SCL-90-R Interpersonal Sensitivity	1.00 (0.79,1.27)**	0.996**
12-12	SCL-90-R Obsessive-Compulsive Behavior	1.05 (0.83,1.34)**	0.674**
12-13	SCL-90-R Paranoid Ideation	0.98 (0.74,1.31)	0.914
12-14	SCL-90-R Phobic Anxiety	1.27 (1.00,1.61)	0.051
12-15	SCL-90-R Psychoticism	1.07 (0.85,1.35)	0.555
12-16	SCL-90-R Somatization	1.20 (0.98,1.47)	0.087
12-17	SCL-90-R Global Severity Index	1.16 (0.94,1.43)**	0.182**

Table Q-1-18. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Reference	Clinical Parameter	Adj. Relative Risk (95% C.I.)[a]	p-Value[a]
12-18	SCL-90-R Positive Symptom Total	1.03 (0.82,1.30)**	0.778**
12-19	SCL-90-R Positive Symptom Distress Index	1.18 (0.94,1.48)	0.169
13-3	Hepatitis (Non-A, Non-B, or Non-C)	1.02 (0.59,1.75)	0.944
13-4	Jaundice	1.47 (0.66,3.31)	0.372
13-5	Acute and Subacute Necrosis of the Liver	--	--
13-6	Alcoholic Chronic Liver Disease and Cirrhosis	1.02 (0.74,1.39)**	0.915**
13-7	Nonalcoholic Chronic Liver Disease and Cirrhosis	0.87 (0.47,1.59)	0.640
13-8	Liver Abscess and Sequelae of Chronic Liver Disease	--	--
13-9	Other Liver Disorders	1.18 (1.00,1.40)**	0.046**
13-10	Hepatomegaly	1.00 (0.55,1.82)	0.991
13-11	Current Hepatomegaly	0.83 (0.38,1.81)	0.632
13-13	AST	0.92 (0.60,1.40)**	0.679**
13-15	ALT	1.20 (0.93,1.55)	0.173
13-17	GGT	1.01 (0.85,1.20)	0.909
13-19	Alkaline Phosphatase	0.93 (0.67,1.31)**	0.695**
13-21	Total Bilirubin	0.88 (0.64,1.22)**	0.449**
13-22	Direct Bilirubin	0.73 (0.36,1.46)	0.348
13-24	LDH	1.12 (0.93,1.35)	0.222
13-26	Cholesterol	1.07 (0.88,1.31)**	0.480**
13-28	HDL Cholesterol	1.05 (0.85,1.30)	0.638
13-30	Cholesterol-HDL Ratio	1.05 (0.89,1.25)	0.547
13-32	Triglycerides	1.15 (0.95,1.40)	0.156
13-34	Creatine Kinase	1.08 (0.85,1.37)	0.519
13-36	Serum Amylase	0.89 (0.61,1.31)**	0.558**
13-37	Antibodies for Hepatitis A	1.00 (0.84,1.18)	0.974
13-38	Serological Evidence of Present or Prior Hepatitis B Infection	1.13 (0.89,1.43)	0.308
13-39	Antibodies for Hepatitis C	0.97 (0.14,6.98)	0.979
13-40	Stool Hemoccult	0.83 (0.50,1.36)	0.449
13-42	Prealbumin	1.38 (0.77,2.49)	0.282
13-44	Albumin	1.11 (0.76,1.62)	0.599
13-46	α-1 Acid Glycoprotein	1.08 (0.64,1.84)**	0.772**

Table Q-1-18. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Reference	Clinical Parameter	Adj. Relative Risk (95% C.I.)[a]	p-Value[a]
13-50	α-2 Macroglobulin	1.38 (0.53,3.59)	0.508
13-52	Apolipoprotein B	1.05 (0.87,1.26)**	0.605**
13-54	C_3 Complement	0.74 (0.39,1.41)	0.337
13-56	C_4 Complement	1.18 (0.52,2.65)	0.695
13-58	Haptoglobin	1.01 (0.81,1.27)**	0.918**
13-60	Transferrin	0.94 (0.72,1.22)	0.630
14-3	Occurrence of Acne (Lifetime)	0.93 (0.74,1.18)	0.559
14-4	Acne Relative to Time of Duty in SEA (Pre- and Post-SEA and Post-SEA vs. Pre-SEA and None)	0.92 (0.73,1.16)	0.470
14-5	Acne Relative to Time of Duty in SEA (Post-SEA vs. None)	0.93 (0.73,1.17)	0.525
14-6	Acne Relative to Time of Duty in SEA (Pre- and Post-SEA vs. Pre-SEA)	--	--
14-8	Location of Acne (Post-SEA)	1.00 (0.86,1.18)	0.961
14-10	Location of Acne (Pre- and Post-SEA and Post-SEA)	1.09 (0.94,1.27)	0.252
14-11	Other Abnormalities	****	****
14-12	Dermatology Index	0.92 (0.79,1.07)	0.282
15-3	Verified Essential Hypertension	1.13 (0.96,1.32)	0.143
15-4	Verified Heart Disease (excluding Essential Hypertension)	0.92 (0.80,1.07)**	0.274**
15-5	Myocardial Infarction	1.15 (0.88,1.51)	0.296
15-7	Systolic Blood Pressure	1.04 (0.86,1.25)	0.691
15-8	Heart Sounds	0.99 (0.83,1.17)**	0.895**
15-9	Overall Electrocardiograph	0.99 (0.83,1.19)**	0.951**
15-10	ECG: Right Bundle Branch Block (RBBB)	1.32 (0.77,2.28)**	0.323**
15-11	ECG: Left Bundle Branch Block	--	--
15-12	ECG: Nonspecific ST- and T-Wave	1.05 (0.86,1.29)	0.613
15-13	ECG: Bradycardia	0.52 (0.28,0.99)	0.030
15-14	ECG: Tachycardia	--	--
15-15	ECG: Arrhythmia	1.03 (0.76,1.40)**	0.826**
15-16	ECG: Evidence of Prior Myocardial Infarction	1.08 (0.76,1.53)**	0.668**
15-17	ECG: Other Diagnoses	1.36 (0.78,2.38)	0.288
15-19	Diastolic Blood Pressure	1.17 (0.82,1.67)	0.406

Table Q-1-18. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Reference	Clinical Parameter	Adj. Relative Risk (95% C.I.)[a]	p-Value[a]
15-20	Funduscopic Examination	1.07 (0.81,1.43)**	0.624**
15-21	Carotid Bruits	0.64 (0.34,1.21)**	0.146**
15-22	Radial Pulses	--	--
15-23	Femoral Pulses	0.46 (0.22,0.98)	0.020
15-24	Popliteal Pulses	0.83 (0.48,1.44)	0.502
15-25	Dorsalis Pedis Pulses	0.91 (0.69,1.20)**	0.488**
15-26	Posterior Tibial Pulses	0.77 (0.46,1.28)**	0.298**
15-27	Leg Pulses	0.92 (0.71,1.21)**	0.555**
15-28	Peripheral Pulses	0.92 (0.71,1.21)**	0.555**
15-29	Kidney, Urethra, and Bladder (KUB) X Ray (Excluding Kidney Stones)	1.09 (0.92,1.29)	0.305
15-30	Intermittent Claudication and Vascular Insufficiency (ICVI) Index	1.07 (0.72,1.58)	0.745
16-10	Hematocrit	1.33 (0.79,2.24)	0.287
16-12	Platelet Count	1.17 (0.71,1.93)	0.550
16-14	Prothrombin Time	0.58 (0.16,2.12)	0.346
16-15	RBC Morphology	1.02 (0.89,1.17)	0.773
16-17	Absolute Neutrophils (bands) (Zero vs. Nonzero)	0.93 (0.78,1.12)**	0.448**
16-20	Absolute Eosinophils (Zero vs. Nonzero)	1.04 (0.82,1.31)**	0.769**
16-21	Absolute Basophils (Zero vs. Nonzero)	0.97 (0.85,1.11)	0.669
17-3	Kidney Disease	0.97 (0.81,1.15)	0.717
17-4	Kidney Stones	0.65 (0.39,1.07)**	0.069**
17-5	Urinary Protein	1.14 (0.85,1.54)	0.383
17-6	Urinary Red Blood Cell Count	1.21 (0.86,1.69)	0.282
17-7	Urinary White Blood Cell Count	0.94 (0.66,1.34)	0.736
18-3	Past Thyroid Disease	1.17 (0.84,1.62)	0.365
18-4	Composite Diabetes Indicator	1.21 (0.98,1.50)**	0.075**
18-7	Thyroid Gland	--	--
18-10	Retinopathy Results (Diabetics)	--	--
18-11	Neuropathy Results (Diabetics)	1.20 (0.72,1.99)	0.476
18-12	Radial Pulses (Doppler) (Diabetics)	--	--
18-13	Femoral Pulses (Doppler) (Diabetics)	0.73 (0.34,1.57)	0.399

Table Q-1-18. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Reference	Clinical Parameter	Adj. Relative Risk (95% C.I.)[a]	p-Value[a]
18-14	Popliteal Pulses (Doppler) (Diabetics)	0.89 (0.45,1.77)	0.732
18-15	Dorsalis Pulses (Doppler) (Diabetics)	1.20 (0.76,1.89)	0.448
18-16	Posterior Tibial Pulses (Doppler) (Diabetics)	0.76 (0.43,1.34)	0.317
18-17	Leg Pulses (Doppler) (Diabetics)	1.19 (0.82,1.73)	0.366
18-18	Peripheral Pulses (Doppler) (Diabetics)	1.19 (0.82,1.73)	0.366
18-20	Thyroid Stimulating Hormone (TSH)	1.44 (0.97,2.15)	0.076
18-22	Thyroxine (T_4)	6.55 (1.02,42.10)	0.028
18-23	Anti-Thyroid Antibodies	0.89 (0.62,1.29)	0.543
18-25	Fasting Glucose (All Participants)	1.03 (0.84,1.27)	0.747
18-27	Fasting Glucose (Diabetics)	0.89 (0.61,1.28)	0.518
18-29	Fasting Glucose (Nondiabetics)	0.73 (0.46,1.15)	0.153
18-31	2-Hour Postprandial Glucose (Nondiabetics)	1.19 (0.96,1.47)**	0.112**
18-32	Fasting Urinary Glucose (All Participants)	1.97 (1.25,3.11)	0.002
18-33	Fasting Urinary Glucose (Diabetics)	2.13 (1.11,4.07)	0.009
18-34	Fasting Urinary Glucose (Nondiabetics)	--	--
18-35	2-Hour Postprandial Urinary Glucose (Nondiabetics)	1.18 (0.98,1.41)	0.074
18-39	Serum Insulin (Diabetics)	0.66 (0.43,1.03)**	0.057**
18-43	Serum Glucagon (All Participants)	0.93 (0.16,5.22)	0.930
18-45	Serum Glucagon (Diabetics)	1.26 (0.21,7.72)	0.808
18-47	Serum Glucagon (Nondiabetics)	--	--
18-49	α-1-C Hemoglobin (All Participants)	1.10 (0.92,1.32)**	0.300**
18-51	α-1-C Hemoglobin (Diabetics)	1.04 (0.66,1.63)	0.870
18-53	α-1-C Hemoglobin (Nondiabetics)	1.00 (0.82,1.23)	0.996
18-54	Urinary Protein (Diabetics)	1.13 (0.72,1.79)	0.586
18-56	Serum Proinsulin (Diabetics)	1.26 (0.79,1.99)	0.317
18-58	Serum C Peptide (Diabetics)	0.74 (0.48,1.12)	0.138
18-60	Total Testosterone	1.16 (0.84,1.59)**	0.364**
18-62	Free Testosterone	1.15 (0.94,1.41)	0.180
18-63	Sex Hormone Binding Globulin	0.99 (0.80,1.22)	0.887
18-64	Total Testosterone to Sex Hormone Binding Globulin Ratio	1.08 (0.86,1.36)	0.486
18-66	Estradiol	1.19 (0.85,1.67)	0.308

Table Q-1-18. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Reference	Clinical Parameter	Adj. Relative Risk (95% C.I.)[a]	p-Value[a]
18-68	Luteinizing Hormone (LH)	1.92 (1.04,3.52)	0.042
18-70	Follicle Stimulating Hormone (FSH)	1.15 (0.83,1.60)	0.408
19-4	Composite Skin Test Diagnosis	0.74 (0.47,1.16)	0.163
19-15	Double Labelled Cells: CD5 with CD20 (Zero vs. Nonzero)	0.57 (0.30,1.09)	0.068
19-16	Double Labelled Cells: CD4 with CD8 (Zero vs. Nonzero)	0.96 (0.68,1.37)**	0.829**
19-17	Double Labelled Cells: CD3 with CD16+56 (Zero vs. Nonzero)	****	****
19-22	Lupus Panel: Antinuclear Antibody (ANA)	1.02 (0.82,1.27)	0.865
19-23	Lupus Panel: Thyroid Microsomal Antibody	0.82 (0.59,1.14)**	0.228**
19-24	Lupus Panel: MSK Smooth Muscle Antibody	0.57 (0.33,0.97)	0.022
19-25	Lupus Panel: MSK Mitochondrial Antibody	--	--
19-26	Lupus Panel: MSK Parietal Antibody	0.88 (0.59,1.33)	0.533
19-27	Lupus Panel: Rheumatoid Factor	0.80 (0.64,1.01)**	0.058**
19-28	Lupus Panel: B Cell Clones Detected by Serum Protein Electrophoresis	1.30 (0.78,2.17)	0.325
19-29	Lupus Panel: Other Antibodies (ANA and MSK)	1.12 (0.76,1.67)	0.569
19-30	Lupus Panel: Summary Index	0.97 (0.83,1.13)	0.658
20-3	Asthma	1.11 (0.77,1.62)	0.573
20-4	Bronchitis	1.00 (0.84,1.19)	0.979
20-5	Pneumonia	0.87 (0.67,1.14)	0.309
20-6	Thorax and Lung Abnormalities	1.11 (0.87,1.42)	0.399
20-7	X-Ray Interpretation	0.85 (0.67,1.07)	0.162

[a] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified in the referenced chapter title.

** Log_2 (initial dioxin)-by-covariate interaction ($p \leq 0.05$); adjusted relative risk, confidence interval, and p-value derived from a model fitted after deletion of this interaction.

**** Log_2 (initial dioxin)-by-covariate interaction ($p \leq 0.01$); adjusted relative risk, confidence interval, and p-value not given.

--: Adjusted relative risk, confidence interval, and p-value not presented due to the sparse number of abnormalities.

Note: Relative risk for a twofold increase in initial dioxin.

Table Q-1-19.
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
9-3	Self-Perception of Health	Comparison	1,061		
		Background RH	374	1.29 (0.79,2.11)	0.302
		Low RH	260	1.44 (0.90,2.31)	0.131
		High RH	260	1.84 (1.20,2.84)	0.005
		Low plus High RH	520	1.65 (1.15,2.36)	0.006
9-4	Appearance of Illness or Distress	Comparison	1,063		
		Background RH	374	1.38 (0.58,3.28)	0.473
		Low RH	260	1.32 (0.51,3.46)	0.570
		High RH	260	1.11 (0.36,3.44)	0.854
		Low plus High RH	520	1.23 (0.55,2.77)	0.618
9-5	Relative Age Appearance	Comparison	1,063		
		Background RH	374	0.86 (0.48,1.53)	0.600
		Low RH	260	0.66 (0.34,1.27)	0.212
		High RH	260	0.97 (0.57,1.67)	0.925
		Low plus High RH	520	0.83 (0.53,1.30)	0.408
9-8	Body Fat	Comparison	1,063		
		Background RH	374	0.88 (0.53,1.46)	0.623
		Low RH	260	1.24 (0.77,1.98)	0.374
		High RH	260	1.08 (0.68,1.72)	0.754
		Low plus High RH	520	1.15 (0.80,1.66)	0.442
9-9	Body Fat with Adjustment for Caloric Intake	Comparison	1,061		
		Background RH	374	0.91 (0.55,1.51)	0.707
		Low RH	260	1.20 (0.75,1.94)	0.441
		High RH	258	1.06 (0.66,1.69)	0.816
		Low plus High RH	518	1.13 (0.78,1.63)	0.521
9-10	Sedimentation Rate	Comparison	1,062		
		Background RH	374	0.87 (0.61,1.23)	0.423
		Low RH	259	1.27 (0.90,1.79)	0.169
		High RH	260	1.10 (0.77,1.57)	0.616
		Low plus High RH	519	1.18 (0.90,1.56)	0.224
10-3	Skin Neoplasms	Comparison	988		
		Background RH	354	1.26 (0.96,1.64)	0.090
		Low RH	229	1.44 (1.06,1.96)	0.021
		High RH	245	0.79 (0.57,1.11)	0.170
		Low plus High RH	474	1.08 (0.85,1.38)	0.526
10-4	Malignant Skin Neoplasms	Comparison	984		
		Background RH	354	1.19 (0.82,1.73)**	0.355**
		Low RH	228	1.45 (0.96,2.20)**	0.077**
		High RH	244	0.79 (0.47,1.32)**	0.362**
		Low plus High RH	472	1.13 (0.79,1.60)**	0.509**
10-5	Benign Skin Neoplasms	Comparison	1,056		
		Background RH	371	1.30 (0.97,1.75)	0.082
		Low RH	255	1.17 (0.83,1.66)	0.365
		High RH	258	0.92 (0.64,1.33)	0.661
		Low plus High RH	513	1.04 (0.79,1.38)	0.761

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
10-6	Skin Neoplasms of Uncertain Behavior or Unspecified Nature	Comparison	994		
		Background RH	355	1.42 (0.26,7.65)	0.685
		Low RH	230	0.76 (0.09,6.74)	0.805
		High RH	244	0.69 (0.08,6.07)	0.738
		Low plus High RH	474	0.72 (0.14,3.81)	0.702
10-7	Basal Cell Carcinoma (All Sites Combined)	Comparison	984		
		Background RH	354	1.12 (0.75,1.67)	0.593
		Low RH	228	1.41 (0.91,2.20)	0.126
		High RH	244	0.71 (0.40,1.25)	0.238
		Low plus High RH	472	1.07 (0.73,1.56)	0.732
10-8	Basal Cell Carcinomas (Ear, Face, Head, and Neck)	Comparison	984		
		Background RH	354	1.29 (0.84,2.00)	0.246
		Low RH	228	1.51 (0.93,2.46)	0.098
		High RH	244	0.68 (0.35,1.32)	0.256
		Low plus High RH	472	1.11 (0.73,1.70)	0.618
10-9	Basal Cell Carcinomas (Trunk)	Comparison	982		
		Background RH	354	0.67 (0.30,1.49)**	0.324**
		Low RH	228	1.08 (0.48,2.45)**	0.851**
		High RH	244	0.74 (0.29,1.91)**	0.530**
		Low plus High RH	472	0.92 (0.45,1.88)**	0.818**
10-10	Basal Cell Carcinomas (Upper Extremities)	Comparison	983		
		Background RH	354	1.30 (0.55,3.09)	0.549
		Low RH	228	0.87 (0.29,2.66)	0.810
		High RH	244	0.73 (0.21,2.59)	0.625
		Low plus High RH	472	0.81 (0.33,1.98)	0.638
10-11	Basal Cell Carcinomas (Lower Extremities)	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
10-12	Squamous Cell Carcinomas	Comparison	1,002		
		Background RH	356	2.54 (0.72,8.95)	0.146
		Low RH	232	2.57 (0.63,10.52)	0.189
		High RH	245	1.68 (0.31,9.18)	0.551
		Low plus High RH	477	2.17 (0.61,7.73)	0.231
10-13	Nonmelanomas	Comparison	984		
		Background RH	354	1.19 (0.81,1.75)	0.366
		Low RH	228	1.47 (0.96,2.24)	0.078
		High RH	244	0.74 (0.43,1.28)	0.283
		Low plus High RH	472	1.11 (0.77,1.59)	0.570

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
10-14	Melanomas	Comparison	991		
		Background RH	355	0.97 (0.25,3.76)	0.964
		Low RH	230	2.34 (0.74,7.40)	0.148
		High RH	245	0.93 (0.19,4.53)	0.930
		Low plus High RH	475	1.64 (0.58,4.63)	0.351
10-15	Systemic Neoplasms	Comparison	1,062		
		Background RH	372	0.89 (0.65,1.20)	0.437
		Low RH	255	1.12 (0.80,1.55)	0.513
		High RH	259	1.08 (0.76,1.53)	0.671
		Low plus High RH	514	1.10 (0.85,1.43)	0.481
10-16	Malignant Systemic Neoplasms	Comparison	1,060		
		Background RH	371	0.94 (0.51,1.73)	0.834
		Low RH	255	1.72 (0.98,3.01)	0.060
		High RH	259	0.90 (0.41,1.99)	0.801
		Low plus High RH	514	1.37 (0.83,2.26)	0.220
10-17	Benign Systemic Neoplasms	Comparison	1,062		
		Background RH	372	0.99 (0.72,1.38)	0.976
		Low RH	255	1.02 (0.70,1.48)	0.931
		High RH	259	1.15 (0.79,1.68)	0.464
		Low plus High RH	514	1.08 (0.81,1.44)	0.605
10-18	Systemic Neoplasms of Uncertain Behavior or Unspecified Nature	Comparison	1,062		
		Background RH	372	0.88 (0.34,2.24)	0.785
		Low RH	255	1.03 (0.38,2.80)	0.957
		High RH	259	0.72 (0.21,2.48)	0.599
		Low plus High RH	514	0.89 (0.38,2.05)	0.776
10-19	Malignant Systemic Neoplasms (Eye, Ear, Face, Head, and Neck)	Comparison	1,060		
		Background RH	371	1.43 (0.34,5.98)**	0.623**
		Low RH	255	2.32 (0.62,8.63)**	0.210**
		High RH	259	1.86 (0.36,9.71)**	0.460**
		Low plus High RH	514	2.14 (0.66,6.90)**	0.202**
10-20	Malignant Systemic Neoplasms (Oral Cavity, Pharynx, and Larynx)	Comparison	1,062		
		Background RH	372	0.62 (0.07,5.55)	0.673
		Low RH	255	0.77 (0.09,6.84)	0.811
		High RH	259	2.57 (0.47,14.00)	0.275
		Low plus High RH	514	1.44 (0.33,6.32)	0.626
10-21	Malignant Systemic Neoplasms (Esophagus)	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
10-22	Malignant Systemic Neoplasms (Brain)	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
10-23	Malignant Systemic Neoplasms (Thymus, Heart, and Mediastinum)	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
10-24	Malignant Systemic Neoplasms (Thyroid Gland)	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
10-25	Malignant Systemic Neoplasms (Bronchus and Lung)	Comparison	1,060		
		Background RH	371	2.37 (0.48,11.64)	0.286
		Low RH	255	2.15 (0.42,10.93)	0.357
		High RH	259	--	--
		Low plus High RH	514	1.20 (0.24,5.98)	0.828
10-26	Malignant Systemic Neoplasms (Colon and Rectum)	Comparison	1,062		
		Background RH	372	1.14 (0.12,11.07)	0.910
		Low RH	255	5.12 (1.13,23.27)	0.034
		High RH	259	--	--
		Low plus High RH	514	2.48 (0.55,11.23)	0.239
10-27	Malignant Systemic Neoplasms (Kidney and Bladder)	Comparison	1,060		
		Background RH	371	1.83 (0.31,10.94)	0.507
		Low RH	255	3.59 (0.70,18.42)	0.125
		High RH	259	2.01 (0.21,19.12)	0.545
		Low plus High RH	514	2.95 (0.67,12.98)	0.152
10-28	Malignant Systemic Neoplasms (Prostate)	Comparison	1,062		
		Background RH	372	****	****
		Low RH	255	****	****
		High RH	259	****	****
		Low plus High RH	514	****	****
10-29	Malignant Systemic Neoplasms (Testicles)	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
10-30	Malignant Systemic Neoplasms (Ill-Defined Sites)	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
10-31	Malignant Systemic Neoplasms (Connective and Other Soft Tissue)	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
10-32	Carcinomas in Situ of the Penis, Other, and Unspecified Sites	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
10-33	Hodgkin's Disease	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
10-34	Leukemia	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
10-35	Non-Hodgkin's Lymphoma	Comparison	1,044		
		Background RH	365	0.84 (0.06,12.57)	0.900
		Low RH	250	--	--
		High RH	252	--	--
		Low plus High RH	512	--	--
10-36	Other Malignant Systemic Neoplasms of Lymphoid and Histiocytic Tissue	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
10-37	Multiple Myeloma	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
10-38	Skin or Systemic Neoplasms	Comparison	1,055		
		Background RH	368	1.10 (0.87,1.41)	0.426
		Low RH	250	1.25 (0.95,1.66)	0.115
		High RH	257	0.97 (0.73,1.29)	0.837
		Low plus High RH	507	1.10 (0.89,1.37)	0.371
10-39	Prostate-Specific Antigen (Below vs. At or Above Sensitivity Limit)	Comparison	1,062		
		Background RH	372	0.89 (0.43,1.84)	0.749
		Low RH	255	0.71 (0.29,1.73)	0.456
		High RH	259	0.98 (0.42,2.27)	0.957
		Low plus High RH	514	0.83 (0.43,1.61)	0.589
10-41	Prostate-Specific Antigen	Comparison	1,044		
		Background RH	365	0.31 (0.13,0.69)**	0.005**
		Low RH	250	0.84 (0.42,1.66)**	0.611**
		High RH	252	0.76 (0.34,1.71)**	0.511**
		Low plus High RH	502	0.81 (0.45,1.46)**	0.480**
11-3	Inflammatory Diseases	Comparison	1,054		
		Background RH	373	1.19 (0.11,13.33)	0.889
		Low RH	260	2.23 (0.20,24.93)	0.516
		High RH	256	4.72 (0.62,35.64)	0.133
		Low plus High RH	516	3.39 (0.55,20.96)	0.188
11-4	Hereditary and Degenerative Diseases	Comparison	1,043		
		Background RH	366	1.19 (0.72,1.99)	0.498
		Low RH	254	1.00 (0.55,1.83)	0.997
		High RH	250	0.76 (0.38,1.49)	0.420
		Low plus High RH	504	0.88 (0.54,1.44)	0.606
11-5	Peripheral Disorders	Comparison	1,058		
		Background RH	369	0.93 (0.66,1.30)	0.662
		Low RH	260	0.97 (0.68,1.40)	0.881
		High RH	257	1.04 (0.71,1.53)	0.824
		Low plus High RH	517	1.01 (0.75,1.34)	0.971
11-6	Other Neurological Disorders	Comparison	1,056		
		Background RH	370	1.13 (0.79,1.60)	0.506
		Low RH	259	1.09 (0.76,1.55)	0.649
		High RH	257	1.02 (0.72,1.45)	0.902
		Low plus High RH	516	1.05 (0.80,1.38)	0.714
11-7	Smell	Comparison	1,062		
		Background RH	373	1.49 (0.61,3.65)**	0.379**
		Low RH	260	1.00 (0.32,3.09)**	0.996**
		High RH	257	0.31 (0.04,2.37)**	0.257**
		Low plus High RH	517	0.69 (0.24,1.95)**	0.482**

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
11-8	Visual Fields	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
11-9	Light Reaction	Comparison	1,060		
		Background RH	372	1.07 (0.10,11.97)	0.956
		Low RH	260	5.05 (0.70,36.61)	0.109
		High RH	257	5.31 (0.72,39.12)	0.101
		Low plus High RH	517	5.18 (0.93,28.94)	0.061
11-10	Ocular Movement	Comparison	1,060		
		Background RH	372	1.16 (0.22,6.06)	0.863
		Low RH	260	2.41 (0.57,10.21)	0.232
		High RH	257	1.64 (0.31,8.59)	0.556
		Low plus High RH	517	2.03 (0.58,7.11)	0.266
11-11	Facial Sensation	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
11-12	Jaw Clench	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
11-13	Smile	Comparison	1,062		
		Background RH	373	1.58 (0.28,8.75)	0.603
		Low RH	260	2.98 (0.66,13.48)	0.155
		High RH	257	2.84 (0.62,12.94)	0.176
		Low plus High RH	517	2.91 (0.81,10.45)	0.101
11-14	Palpebral Fissure	Comparison	1,062		
		Background RH	373	1.35 (0.41,4.46)	0.624
		Low RH	260	1.35 (0.36,5.04)	0.657
		High RH	257	0.86 (0.18,4.04)	0.848
		Low plus High RH	517	1.10 (0.36,3.32)	0.866
11-15	Balance	Comparison	1,061		
		Background RH	373	1.10 (0.21,5.83)	0.912
		Low RH	259	0.61 (0.07,5.45)	0.662
		High RH	257	1.72 (0.31,9.61)	0.539
		Low plus High RH	516	1.06 (0.24,4.70)	0.935

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
11-16	Gag Reflex	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
11-17	Speech	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
11-18	Palate and Uvula Movement	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
11-19	Neck Range of Motion	Comparison	1,062		
		Background RH	373	0.98 (0.68,1.42)**	0.919**
		Low RH	260	1.04 (0.70,1.56)**	0.836**
		High RH	256	1.32 (0.84,2.05)**	0.225**
		Low plus High RH	516	1.15 (0.83,1.59)**	0.399**
11-20	Cranial Nerve Index Without Range of Motion	Comparison	1,057		
		Background RH	371	1.26 (0.67,2.36)**	0.476**
		Low RH	259	1.46 (0.76,2.79)**	0.255**
		High RH	256	1.27 (0.61,2.62)**	0.520**
		Low plus High RH	515	1.37 (0.80,2.35)**	0.253**
11-21	Pin Prick	Comparison	1,013		
		Background RH	360	0.88 (0.49,1.58)	0.672
		Low RH	245	1.19 (0.68,2.08)	0.552
		High RH	246	0.92 (0.49,1.75)	0.803
		Low plus High RH	491	1.06 (0.67,1.69)	0.804
11-22	Light Touch	Comparison	1,013		
		Background RH	361	1.15 (0.63,2.09)	0.646
		Low RH	245	1.22 (0.65,2.28)	0.544
		High RH	246	1.33 (0.69,2.56)	0.394
		Low plus High RH	491	1.27 (0.76,2.10)	0.358
11-23	Muscle Status	Comparison	1,062		
		Background RH	373	1.08 (0.54,2.19)**	0.821**
		Low RH	260	1.26 (0.56,2.85)**	0.578**
		High RH	257	1.52 (0.67,3.44)**	0.317**
		Low plus High RH	517	1.38 (0.73,2.61)**	0.327**

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
11-24	Patellar Reflex	Comparison	1,040		
		Background RH	363	0.09 (0.01,0.75)**	0.025**
		Low RH	254	0.38 (0.12,1.19)**	0.098**
		High RH	250	0.81 (0.29,2.28)**	0.688**
		Low plus High RH	504	0.55 (0.25,1.22)**	0.143**
11-25	Achilles Reflex	Comparison	1,040		
		Background RH	363	1.05 (0.68,1.62)**	0.825**
		Low RH	253	1.01 (0.63,1.61)**	0.972**
		High RH	250	1.11 (0.68,1.81)**	0.684**
		Low plus High RH	503	1.10 (0.76,1.59)**	0.603**
11-26	Biceps Reflex	Comparison	1,062		
		Background RH	373	--	--
		Low RH	260	1.42 (0.52,3.90)	0.492
		High RH	257	0.30 (0.04,2.36)	0.251
		Low plus High RH	517	0.93 (0.36,2.43)	0.885
11-27	Babinski Reflex	Comparison	1,061		
		Background RH	373	0.83 (0.16,4.33)	0.826
		Low RH	260	0.52 (0.06,4.43)	0.552
		High RH	257	--	--
		Low plus High RH	517	0.25 (0.03,2.13)	0.206
11-30	Tremor	Comparison	1,044		
		Background RH	366	1.16 (0.58,2.33)	0.674
		Low RH	254	0.57 (0.20,1.65)	0.303
		High RH	250	1.30 (0.58,2.93)	0.530
		Low plus High RH	504	0.91 (0.46,1.81)	0.785
11-31	Coordination	Comparison	1,062		
		Background RH	373	0.75 (0.31,1.79)	0.516
		Low RH	259	1.12 (0.47,2.69)	0.797
		High RH	257	1.41 (0.55,3.58)	0.475
		Low plus High RH	516	1.24 (0.61,2.50)	0.556
11-32	Romberg Sign	Comparison	1,061		
		Background RH	373	1.10 (0.21,5.83)	0.912
		Low RH	259	0.61 (0.07,5.45)	0.662
		High RH	257	1.72 (0.31,9.61)	0.539
		Low plus High RH	516	1.06 (0.24,4.70)	0.935
11-33	Gait	Comparison	1,043		
		Background RH	366	1.13 (0.60,2.14)	0.706
		Low RH	254	0.52 (0.20,1.35)	0.182
		High RH	250	1.48 (0.75,2.94)	0.259
		Low plus High RH	504	0.96 (0.53,1.73)	0.889

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
11-34	Central Nervous System (CNS) Index	Comparison	1,044		
		Background RH	366	0.98 (0.59,1.62)	0.940
		Low RH	253	0.64 (0.33,1.23)	0.181
		High RH	250	1.30 (0.75,2.26)	0.356
		Low plus High RH	503	0.88 (0.56,1.40)	0.593
12-3	Psychoses	Comparison	1,047		
		Background RH	366	0.76 (0.33,1.77)	0.525
		Low RH	256	1.21 (0.56,2.58)	0.631
		High RH	258	0.95 (0.44,2.06)	0.897
		Low plus High RH	514	1.07 (0.59,1.94)	0.834
12-4	Alcohol Dependence	Comparison	1,047		
		Background RH	366	1.34 (0.83,2.16)	0.227
		Low RH	256	1.16 (0.67,1.98)	0.599
		High RH	258	1.04 (0.61,1.80)	0.879
		Low plus High RH	514	1.10 (0.72,1.67)	0.666
12-5	Drug Dependence	Comparison	1,047		
		Background RH	366	1.21 (0.11,13.45)	0.787
		Low RH	256	--	--
		High RH	258	--	--
		Low plus High RH	514	--	--
12-6	Anxiety	Comparison	1,044		
		Background RH	364	1.27 (0.88,1.84)	0.203
		Low RH	255	0.91 (0.60,1.37)	0.639
		High RH	257	1.02 (0.71,1.46)	0.915
		Low plus High RH	512	0.97 (0.72,1.31)	0.840
12-7	Other Neuroses	Comparison	1,022		
		Background RH	352	1.09 (0.81,1.46)**	0.574**
		Low RH	247	1.27 (0.92,1.75)**	0.142**
		High RH	248	1.08 (0.78,1.51)**	0.630**
		Low plus High RH	495	1.18 (0.90,1.54)**	0.222**
12-8	SCL-90-R Anxiety	Comparison	1,031		
		Background RH	359	1.33 (0.76,2.34)	0.318
		Low RH	249	1.30 (0.73,2.31)	0.373
		High RH	251	1.67 (1.02,2.73)	0.041
		Low plus High RH	500	1.50 (0.99,2.29)	0.056
12-9	SCL-90-R Depression	Comparison	1,031		
		Background RH	359	1.35 (0.87,2.09)	0.177
		Low RH	249	0.75 (0.43,1.30)	0.309
		High RH	251	1.43 (0.92,2.22)	0.108
		Low plus High RH	500	1.10 (0.75,1.59)	0.629

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
12-18	SCL-90-R Positive Symptom Total	Comparison	1,031		
		Background RH	359	1.32 (0.84,2.06)	0.224
		Low RH	249	1.13 (0.70,1.82)	0.614
		High RH	251	1.32 (0.86,2.03)	0.207
		Low plus High RH	500	1.23 (0.87,1.75)	0.247
12-19	SCL-90-R Positive Symptom Distress Index	Comparison	1,046		
		Background RH	366	1.07 (0.64,1.78)	0.793
		Low RH	255	1.07 (0.63,1.80)	0.808
		High RH	258	1.04 (0.64,1.70)	0.865
		Low plus High RH	513	1.05 (0.71,1.56)	0.793
13-3	Hepatitis (Non-A, Non-B, or Non-C)	Comparison	1,055		
		Background RH	370	1.22 (0.47,3.16)	0.689
		Low RH	258	1.18 (0.43,3.23)	0.753
		High RH	258	0.72 (0.24,2.19)	0.567
		Low plus High RH	516	0.92 (0.41,2.08)	0.848
13-4	Jaundice	Comparison	1,035		
		Background RH	363	1.28 (0.63,2.57)	0.496
		Low RH	253	0.13 (0.02,0.97)	0.046
		High RH	254	0.30 (0.07,1.31)	0.109
		Low plus High RH	507	0.21 (0.06,0.70)	0.011
13-5	Acute and Subacute Necrosis of the Liver	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
13-6	Alcoholic Chronic Liver Disease and Cirrhosis	Comparison	987		
		Background RH	347	0.98 (0.54,1.77)**	0.951**
		Low RH	239	0.86 (0.45,1.64)**	0.649**
		High RH	228	0.84 (0.43,1.61)**	0.593**
		Low plus High RH	467	0.85 (0.52,1.39)**	0.517**
13-7	Nonalcoholic Chronic Liver Disease and Cirrhosis	Comparison	1,062		
		Background RH	374	1.26 (0.39,4.03)	0.698
		Low RH	260	1.37 (0.42,4.41)	0.602
		High RH	260	0.71 (0.19,2.64)	0.612
		Low plus High RH	520	0.99 (0.38,2.59)	0.980
13-8	Liver Abscess and Sequelae for Chronic Liver Disease	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
13-9	Other Liver Disorders	Comparison	1,036		
		Background RH	365	0.96 (0.72,1.27)**	0.761**
		Low RH	253	1.03 (0.75,1.40)**	0.860**
		High RH	253	1.37 (1.00,1.86)**	0.048**
		Low plus High RH	506	1.18 (0.93,1.50)**	0.169**
13-10	Hepatomegaly	Comparison	1,043		
		Background RH	367	0.51 (0.19,1.38)	0.186
		Low RH	254	0.26 (0.06,1.09)	0.066
		High RH	252	1.02 (0.43,2.44)	0.958
		Low plus High RH	506	0.61 (0.28,1.32)	0.211
13-11	Current Hepatomegaly	Comparison	1,025		
		Background RH	364	0.41 (0.05,3.34)	0.405
		Low RH	252	0.51 (0.06,4.17)	0.532
		High RH	251	1.27 (0.32,4.97)	0.735
		Low plus High RH	503	0.92 (0.27,3.11)	0.890
13-13	AST	Comparison	1,025		
		Background RH	362	0.91 (0.41,2.05)**	0.824**
		Low RH	251	1.24 (0.57,2.71)**	0.587**
		High RH	251	0.52 (0.19,1.42)**	0.201**
		Low plus High RH	502	0.85 (0.43,1.65)**	0.628**
13-15	ALT	Comparison	1,027		
		Background RH	367	0.72 (0.40,1.29)**	0.272**
		Low RH	254	0.71 (0.37,1.34)**	0.291**
		High RH	254	0.84 (0.49,1.45)**	0.538**
		Low plus High RH	508	0.78 (0.50,1.23)**	0.285**
13-17	GGT	Comparison	1,025		
		Background RH	362	0.98 (0.70,1.38)**	0.920**
		Low RH	251	1.27 (0.89,1.81)**	0.191**
		High RH	251	1.31 (0.92,1.87)**	0.129**
		Low plus High RH	502	1.29 (0.98,1.70)**	0.070**
13-19	Alkaline Phosphatase	Comparison	1,043		
		Background RH	369	1.98 (1.07,3.67)	0.030
		Low RH	257	1.85 (0.98,3.51)	0.059
		High RH	258	1.26 (0.63,2.54)	0.516
		Low plus High RH	515	1.54 (0.90,2.63)	0.112
13-21	Total Bilirubin	Comparison	1,025		
		Background RH	362	1.17 (0.68,2.00)	0.572
		Low RH	251	0.97 (0.51,1.86)	0.934
		High RH	251	0.90 (0.47,1.73)	0.753
		Low plus High RH	502	0.94 (0.57,1.55)	0.796

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
13-22	Direct Bilirubin	Comparison	1,027		
		Background RH	367	0.67 (0.24,1.86)	0.441
		Low RH	254	0.62 (0.21,1.89)	0.403
		High RH	254	0.34 (0.08,1.49)	0.151
		Low plus High RH	508	0.49 (0.19,1.23)	0.127
13-24	LDH	Comparison	1,024		
		Background RH	362	1.12 (0.77,1.62)**	0.549**
		Low RH	251	0.83 (0.54,1.26)**	0.383**
		High RH	251	1.05 (0.70,1.57)**	0.801**
		Low plus High RH	502	0.94 (0.68,1.29)**	0.689**
13-26	Cholesterol	Comparison	1,027		
		Background RH	367	1.22 (0.84,1.76)**	0.294**
		Low RH	254	1.24 (0.84,1.84)**	0.285**
		High RH	254	1.25 (0.84,1.84)**	0.271**
		Low plus High RH	508	1.24 (0.91,1.69)**	0.165**
13-28	HDL Cholesterol	Comparison	1,016		
		Background RH	358	1.41 (0.93,2.14)**	0.108**
		Low RH	247	1.03 (0.62,1.69)**	0.916**
		High RH	246	1.40 (0.90,2.18)**	0.141**
		Low plus High RH	493	1.21 (0.84,1.75)**	0.300**
13-30	Cholesterol-HDL Ratio	Comparison	1,018		
		Background RH	363	1.03 (0.80,1.33)	0.803
		Low RH	250	1.02 (0.76,1.37)	0.882
		High RH	249	1.22 (0.89,1.66)	0.216
		Low plus High RH	499	1.11 (0.88,1.39)	0.381
13-32	Triglycerides	Comparison	1,043		
		Background RH	369	0.99 (0.65,1.50)	0.959
		Low RH	257	1.07 (0.68,1.69)	0.759
		High RH	258	1.56 (1.03,2.36)	0.036
		Low plus High RH	515	1.31 (0.93,1.83)	0.121
13-34	Creatine Kinase	Comparison	1,025		
		Background RH	362	1.04 (0.70,1.54)**	0.835**
		Low RH	251	0.84 (0.54,1.30)**	0.425**
		High RH	251	1.19 (0.78,1.83)**	0.417**
		Low plus High RH	502	1.00 (0.72,1.39)**	0.997**
13-36	Serum Amylase	Comparison	1,043		
		Background RH	369	0.71 (0.44,1.15)**	0.160**
		Low RH	257	0.82 (0.47,1.42)**	0.481**
		High RH	258	0.74 (0.38,1.44)**	0.379**
		Low plus High RH	515	0.79 (0.50,1.24)**	0.304**

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
13-37	Antibodies for Hepatitis A	Comparison	1,063		
		Background RH	374	1.03 (0.78,1.37)	0.827
		Low RH	260	0.91 (0.67,1.24)	0.552
		High RH	260	0.94 (0.69,1.29)	0.720
		Low plus High RH	520	0.93 (0.73,1.18)	0.535
13-38	Serological Evidence of Present or Prior Hepatitis B Infection	Comparison	1,045		
		Background RH	367	0.77 (0.52,1.16)**	0.211**
		Low RH	254	0.58 (0.37,0.92)**	0.020**
		High RH	253	0.65 (0.42,0.98)**	0.041**
		Low plus High RH	507	0.62 (0.44,0.86)**	0.004**
13-39	Antibodies for Hepatitis C	Comparison	1,063		
		Background RH	374	0.33 (0.08,1.49)	0.151
		Low RH	260	0.17 (0.02,1.46)	0.107
		High RH	260	0.27 (0.04,2.11)	0.212
		Low plus High RH	520	0.21 (0.05,0.99)	0.048
13-40	Stool Hemoccult	Comparison	987		
		Background RH	351	0.80 (0.30,2.14)	0.657
		Low RH	241	2.49 (1.06,5.85)	0.037
		High RH	236	1.14 (0.35,3.68)	0.825
		Low plus High RH	477	1.87 (0.87,4.02)	0.110
13-42	Prealbumin	Comparison	1,027		
		Background RH	367	1.35 (0.50,3.62)	0.555
		Low RH	254	0.23 (0.03,1.84)	0.168
		High RH	254	0.90 (0.24,3.34)	0.879
		Low plus High RH	508	0.52 (0.17,1.65)	0.268
13-44	Albumin	Comparison	1,043		
		Background RH	369	1.26 (0.58,2.77)	0.559
		Low RH	257	1.05 (0.44,2.48)	0.917
		High RH	258	0.86 (0.34,2.15)	0.743
		Low plus High RH	515	0.95 (0.47,1.90)	0.887
13-46	α-1 Acid Glycoprotein	Comparison	1,025		
		Background RH	362	0.53 (0.22,1.33)**	0.177**
		Low RH	251	0.88 (0.36,2.17)**	0.782**
		High RH	251	1.04 (0.42,2.58)**	0.941**
		Low plus High RH	502	0.95 (0.47,1.91)**	0.887**
13-50	α-2 Macroglobulin	Comparison	1,027		
		Background RH	367	0.50 (0.05,4.72)	0.546
		Low RH	254	--	--
		High RH	254	1.13 (0.20,6.35)	0.890
		Low plus High RH	508	0.53 (0.10,2.85)	0.462

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
13-52	Apolipoprotein B	Comparison	1,025		
		Background RH	362	1.02 (0.77,1.34)	0.915
		Low RH	251	0.99 (0.72,1.35)	0.950
		High RH	251	1.29 (0.92,1.82)	0.141
		Low plus High RH	502	1.12 (0.87,1.44)	0.376
13-54	C_3 Complement	Comparison	1,027		
		Background RH	367	1.25 (0.63,2.46)**	0.520**
		Low RH	254	0.74 (0.28,1.97)**	0.544**
		High RH	254	0.40 (0.12,1.37)**	0.144**
		Low plus High RH	508	0.56 (0.25,1.28)**	0.169**
13-56	C_4 Complement	Comparison	1,027		
		Background RH	367	0.96 (0.24,3.78)	0.954
		Low RH	254	0.85 (0.17,4.11)	0.838
		High RH	254	0.55 (0.06,4.75)	0.585
		Low plus High RH	508	0.72 (0.18,2.87)	0.644
13-58	Haptoglobin	Comparison	1,025		
		Background RH	362	1.17 (0.80,1.73)	0.417
		Low RH	251	0.93 (0.59,1.45)	0.735
		High RH	251	1.32 (0.87,2.00)	0.196
		Low plus High RH	502	1.11 (0.80,1.55)	0.536
13-60	Transferrin	Comparison	1,025		
		Background RH	362	0.94 (0.66,1.34)**	0.730**
		Low RH	251	0.64 (0.41,1:00)**	0.052**
		High RH	251	0.61 (0.38,0.98)**	0.042**
		Low plus High RH	502	0.63 (0.44,0.89)**	0.009**
14-3	Occurrence of Acne (Lifetime)	Comparison	1,063		
		Background RH	374	1.19 (0.83,1.72)	0.349
		Low RH	260	1.09 (0.72,1.66)	0.683
		High RH	260	1.04 (0.70,1.55)	0.829
		Low plus High RH	520	1.07 (0.78,1.46)	0.688
14-4	Acne Relative to Time of Duty in SEA (Pre- and Post-SEA and Post-SEA vs. Pre-SEA and None)	Comparison	1,063		
		Background RH	374	1.26 (0.87,1.84)	0.219
		Low RH	260	1.07 (0.71,1.61)	0.761
		High RH	260	1.00 (0.67,1.50)	0.995
		Low plus High RH	520	1.03 (0.75,1.41)	0.841
14-5	Acne Relative to Time of Duty in SEA (Post-SEA vs. None)	Comparison	946		
		Background RH	337	1.21 (0.83,1.75)	0.317
		Low RH	237	1.11 (0.73,1.70)	0.622
		High RH	233	1.07 (0.72,1.60)	0.735
		Low plus High RH	470	1.09 (0.80,1.50)	0.592

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
14-6	Acne Relative to Time of Duty in SEA (Pre- and Post-SEA vs. Pre-SEA)	Comparison	117		
		Background RH	37	1.37 (0.14,13.90)	0.786
		Low RH	23	0.32 (0.05,1.99)	0.222
		High RH	27	0.82 (0.08,8.19)	0.865
		Low plus High RH	50	0.48 (0.10,2.36)	0.367
14-8	Location of Acne (Post-SEA)	Comparison	797		
		Background RH	293	1.11 (0.84,1.46)	0.472
		Low RH	205	1.00 (0.73,1.37)	0.984
		High RH	194	1.01 (0.73,1.40)	0.936
		Low plus High RH	399	1.00 (0.78,1.29)	0.970
14-10	Location of Acne (Pre- and Post-SEA and Post-SEA)	Comparison	910		
		Background RH	329	1.06 (0.82,1.37)	0.665
		Low RH	226	0.89 (0.66,1.20)	0.446
		High RH	220	1.01 (0.75,1.37)	0.950
		Low plus High RH	446	0.95 (0.75,1.19)	0.646
14-11	Other Abnormalities	Comparison	1,061		
		Background RH	374	1.41 (1.00,1.99)	0.052
		Low RH	260	1.13 (0.77,1.68)	0.525
		High RH	260	0.98 (0.67,1.41)	0.896
		Low plus High RH	520	1.05 (0.78,1.40)	0.749
14-12	Dermatology Index	Comparison	1,062		
		Background RH	374	1.26 (0.98,1.61)**	0.070**
		Low RH	260	0.80 (0.60,1.06)**	0.124**
		High RH	260	0.77 (0.58,1.03)**	0.075**
		Low plus High RH	520	0.79 (0.63,0.98)**	0.031**
15-3	Verified Essential Hypertension	Comparison	1,006		
		Background RH	355	0.95 (0.72,1.25)	0.709
		Low RH	238	0.83 (0.61,1.14)	0.254
		High RH	248	1.20 (0.88,1.63)	0.254
		Low plus High RH	486	1.00 (0.79,1.27)	0.998
15-4	Verified Heart Disease (excluding Essential Hypertension)	Comparison	1,034		
		Background RH	366	1.09 (0.85,1.39)	0.515
		Low RH	248	1.10 (0.82,1.46)	0.533
		High RH	256	0.80 (0.60,1.06)	0.126
		Low plus High RH	504	0.94 (0.75,1.17)	0.556
15-5	Myocardial Infarction	Comparison	1,026		
		Background RH	361	1.00 (0.59,1.71)**	0.995**
		Low RH	245	0.79 (0.43,1.44)**	0.439**
		High RH	251	1.30 (0.74,2.27)**	0.355**
		Low plus High RH	496	1.02 (0.65,1.59)**	0.941**

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
15-7	Systolic Blood Pressure	Comparison	1,034		
		Background RH	365	0.86 (0.60,1.24)	0.428
		Low RH	250	0.87 (0.59,1.29)	0.489
		High RH	254	1.12 (0.76,1.66)	0.572
		Low plus High RH	504	0.98 (0.73,1.33)	0.916
15-8	Heart Sounds	Comparison	1,041		
		Background RH	367	1.00 (0.73,1.35)**	0.984**
		Low RH	253	1.10 (0.79,1.55)**	0.572**
		High RH	259	1.13 (0.80,1.60)**	0.483**
		Low plus High RH	512	1.12 (0.86,1.46)**	0.415**
15-9	Overall Electrocardiograph	Comparison	1,043		
		Background RH	370	0.62 (0.45,0.85)	0.003
		Low RH	254	0.88 (0.63,1.23)	0.454
		High RH	259	0.79 (0.54,1.14)	0.201
		Low plus High RH	513	0.84 (0.64,1.10)	0.194
15-10	ECG: Right Bundle Branch Block (RBBB)	Comparison	1,042		
		Background RH	369	0.54 (0.15,1.89)**	0.332**
		Low RH	254	0.90 (0.29,2.80)**	0.855**
		High RH	259	1.56 (0.55,4.42)**	0.407**
		Low plus High RH	513	1.18 (0.50,2.76)**	0.706**
15-11	ECG: Left Bundle Branch Block (LBBB)	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
15-12	ECG: Nonspecific ST- and T-Wave Changes	Comparison	1,042		
		Background RH	369	0.68 (0.46,1.01)**	0.057**
		Low RH	254	0.95 (0.64,1.40)**	0.778**
		High RH	259	1.04 (0.69,1.57)**	0.860**
		Low plus High RH	513	0.99 (0.72,1.35)**	0.932**
15-13	ECG: Bradycardia	Comparison	1,036		
		Background RH	367	2.15 (1.12,4.14)**	0.021**
		Low RH	249	1.43 (0.61,3.31)**	0.408**
		High RH	254	0.45 (0.13,1.60)**	0.219**
		Low plus High RH	503	0.92 (0.43,1.95)**	0.829**
15-14	ECG: Tachycardia	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
15-15	ECG: Arrhythmia	Comparison	1,036		
		Background RH	367	0.65 (0.33,1.28)**	0.208**
		Low RH	250	1.24 (0.67,2.28)**	0.496**
		High RH	254	1.54 (0.81,2.90)**	0.187**
		Low plus High RH	504	1.36 (0.84,2.23)**	0.215**
15-16	ECG: Evidence of Prior Myocardial Infarction	Comparison	1,021		
		Background RH	361	0.82 (0.39,1.72)	0.593
		Low RH	244	0.76 (0.32,1.78)	0.527
		High RH	250	1.47 (0.71,3.05)	0.298
		Low plus High RH	494	1.08 (0.59,1.98)	0.803
15-17	ECG: Other Diagnoses	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
15-19	Diastolic Blood Pressure	Comparison	1,034		
		Background RH	364	****	****
		Low RH	248	****	****
		High RH	256	****	****
		Low plus High RH	504	****	****
15-20	Funduscopic Examination	Comparison	1,032		
		Background RH	363	1.45 (0.85,2.46)	0.171
		Low RH	246	1.00 (0.54,1.83)	0.987
		High RH	255	1.54 (0.89,2.67)	0.121
		Low plus High RH	501	1.25 (0.80,1.96)	0.321
15-21	Carotid Bruits	Comparison	1,028		
		Background RH	364	1.23 (0.48,3.14)**	0.667**
		Low RH	248	1.65 (0.61,4.43)**	0.321**
		High RH	252	1.13 (0.32,4.05)**	0.852**
		Low plus High RH	500	1.43 (0.60,3.39)**	0.417**
15-22	Radial Pulses	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
15-23	Femoral Pulses	Comparison	1,043		
		Background RH	370	0.61 (0.07,5.45)	0.660
		Low RH	254	5.89 (1.73,20.00)	0.005
		High RH	259	1.37 (0.25,7.62)	0.716
		Low plus High RH	513	3.46 (1.09,11.00)	0.035

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
15-24	Popliteal Pulses	Comparison	1,042		
		Background RH	370	0.46 (0.09,2.30)	0.345
		Low RH	254	2.63 (0.93,7.46)	0.069
		High RH	259	3.54 (1.27,9.87)	0.016
		Low plus High RH	513	3.04 (1.27,7.26)	0.012
15-25	Dorsalis Pedis Pulses	Comparison	1,042		
		Background RH	368	1.12 (0.72,1.74)**	0.613**
		Low RH	254	0.91 (0.54,1.54)**	0.728**
		High RH	258	1.39 (0.85,2.27)**	0.194**
		Low plus High RH	512	1.13 (0.76,1.67)**	0.559**
15-26	Posterior Tibial Pulses	Comparison	1,033		
		Background RH	366	1.03 (0.47,2.29)**	0.937**
		Low RH	250	1.55 (0.69,3.48)**	0.285**
		High RH	254	2.36 (1.08,5.15)**	0.031**
		Low plus High RH	504	1.90 (1.00,3.62)**	0.050**
15-27	Leg Pulses	Comparison	1,019		
		Background RH	358	1.15 (0.75,1.76)	0.532
		Low RH	244	0.81 (0.47,1.38)	0.429
		High RH	246	1.36 (0.84,2.20)	0.215
		Low plus High RH	490	1.06 (0.71,1.57)	0.781
15-28	Peripheral Pulses	Comparison	1,033		
		Background RH	364	1.10 (0.72,1.67)	0.659
		Low RH	250	0.82 (0.49,1.38)	0.455
		High RH	253	1.34 (0.83,2.15)	0.230
		Low plus High RH	503	1.05 (0.72,1.55)	0.786
15-29	Kidney, Urethra, and Bladder (KUB) X Ray (Excluding Kidney Stones)	Comparison	1,028		
		Background RH	363	0.97 (0.73,1.28)	0.811
		Low RH	248	0.82 (0.59,1.12)	0.204
		High RH	251	0.90 (0.65,1.26)	0.537
		Low plus High RH	499	0.85 (0.67,1.10)	0.215
15-30	Intermittent Claudication and Vascular Insufficiency (ICVI) Index	Comparison	1,010		
		Background RH	354	1.24 (0.59,2.60)**	0.577**
		Low RH	239	1.26 (0.54,2.95)**	0.594**
		High RH	244	1.42 (0.62,3.25)**	0.400**
		Low plus High RH	483	1.34 (0.69,2.60)**	0.385**
16-10	Hematocrit	Comparison	1,059		
		Background RH	370	2.27 (0.84,6.14)	0.106
		Low RH	259	1.40 (0.43,4.56)	0.580
		High RH	258	1.38 (0.36,5.32)	0.638
		Low plus High RH	517	1.39 (0.51,3.76)	0.516

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
16-12	Platelet Count	Comparison	1,058		
		Background RH	371	0.34 (0.04,2.70)	0.306
		Low RH	259	0.91 (0.19,4.29)	0.905
		High RH	258	3.10 (1.13,8.54)	0.029
		Low plus High RH	517	2.02 (0.78,5.21)	0.145
16-14	Prothrombin Time	Comparison	977		
		Background RH	341	2.38 (0.49,11.52)	0.280
		Low RH	234	1.81 (0.36,9.14)	0.474
		High RH	240	1.29 (0.10,16.11)	0.846
		Low plus High RH	474	1.67 (0.36,7.69)	0.513
16-15	RBC Morphology	Comparison	1,061		
		Background RH	371	0.78 (0.61,1.00)	0.049
		Low RH	259	0.90 (0.68,1.19)	0.469
		High RH	258	1.05 (0.79,1.40)	0.749
		Low plus High RH	517	0.97 (0.78,1.20)	0.779
16-17	Absolute Neutrophils (bands) (Zero vs. Nonzero)	Comparison	1,059		
		Background RH	370	****	****
		Low RH	259	****	****
		High RH	258	****	****
		Low plus High RH	517	****	****
16-20	Absolute Eosinophils (Zero vs. Nonzero)	Comparison	1,059		
		Background RH	371	0.80 (0.53,1.20)	0.276
		Low RH	259	0.91 (0.59,1.40)	0.653
		High RH	258	0.83 (0.53,1.29)	0.400
		Low plus High RH	517	0.87 (0.62,1.21)	0.401
16-21	Absolute Basophils (Zero vs. Nonzero)	Comparison	1,059		
		Background RH	371	0.98 (0.77,1.25)	0.869
		Low RH	259	0.93 (0.71,1.22)	0.595
		High RH	258	0.94 (0.71,1.24)	0.659
		Low plus High RH	517	0.93 (0.76,1.16)	0.530
17-3	Kidney Disease	Comparison	1,040		
		Background RH	363	1.11 (0.79,1.55)	0.560
		Low RH	253	1.01 (0.69,1.47)	0.960
		High RH	256	1.06 (0.72,1.54)	0.773
		Low plus High RH	509	1.03 (0.77,1.38)	0.828
17-4	Kidney Stones	Comparison	1,063		
		Background RH	374	0.97 (0.46,2.03)	0.929
		Low RH	260	1.49 (0.71,3.14)	0.291
		High RH	260	1.23 (0.53,2.89)	0.630
		Low plus High RH	520	1.37 (0.74,2.56)	0.316

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
17-5	Urinary Protein	Comparison	1,061		
		Background RH	373	1.55 (0.85,2.83)	0.153
		Low RH	259	0.60 (0.28,1.28)	0.188
		High RH	259	0.76 (0.38,1.51)	0.427
		Low plus High RH	518	0.68 (0.39,1.18)	0.168
17-6	Urinary Red Blood Cell Count	Comparison	1,062		
		Background RH	374	1.17 (0.50,2.75)**	0.712**
		Low RH	259	1.10 (0.44,2.79)**	0.835**
		High RH	259	2.98 (1.45,6.14)**	0.003**
		Low plus High RH	518	1.97 (1.05,3.68)**	0.035**
17-7	Urinary White Blood Cell Count	Comparison	1,062		
		Background RH	374	1.21 (0.55,2.68)	0.640
		Low RH	259	1.37 (0.62,2.99)	0.434
		High RH	259	1.47 (0.68,3.18)	0.333
		Low plus High RH	518	1.42 (0.76,2.62)	0.270
18-3	Past Thyroid Disease	Comparison	1,056		
		Background RH	371	1.17 (0.72,1.91)**	0.524**
		Low RH	257	0.64 (0.32,1.25)**	0.191**
		High RH	258	0.88 (0.47,1.64)**	0.678**
		Low plus High RH	515	0.75 (0.46,1.23)**	0.254**
18-4	Composite Diabetes Indicator	Comparison	1,044		
		Background RH	367	0.94 (0.63,1.41)**	0.774**
		Low RH	252	1.21 (0.82,1.79)**	0.340**
		High RH	254	1.27 (0.85,1.92)**	0.243**
		Low plus High RH	506	1.24 (0.91,1.69)**	0.174**
18-7	Thyroid Gland	Comparison	1,030		
		Background RH	365	1.23 (0.37,4.07)	0.740
		Low RH	254	--	--
		High RH	255	0.45 (0.06,3.61)	0.453
		Low plus High RH	509	0.23 (0.03,1.81)	0.162
18-10	Retinopathy Results (Diabetics)	Comparison	146		
		Background RH	38	1.99 (0.25,15.93)	0.515
		Low RH	48	0.57 (0.05,6.79)	0.660
		High RH	46	2.66 (0.43,16.38)	0.292
		Low plus High RH	94	1.46 (0.28,7.74)	0.654
18-11	Neuropathy Results (Diabetics)	Comparison	148		
		Background RH	42	2.04 (0.49,8.50)	0.329
		Low RH	49	0.35 (0.07,1.81)	0.210
		High RH	47	3.23 (0.89,11.77)	0.076
		Low plus High RH	96	1.22 (0.41,3.64)	0.721

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
18-12	Radial Pulses (Doppler) (Diabetics)	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
18-13	Femoral Pulses (Doppler) (Diabetics)	Comparison	148		
		Background RH	42	1.25 (0.11,13.91)	0.857
		Low RH	49	2.93 (0.53,16.20)	0.217
		High RH	47	0.45 (0.03,6.25)	0.554
		Low plus High RH	96	1.49 (0.30,7.41)	0.627
18-14	Popliteal Pulses (Doppler) (Diabetics)	Comparison	148		
		Background RH	42	0.45 (0.04,5.58)	0.530
		Low RH	49	1.50 (0.28,7.97)	0.632
		High RH	47	2.62 (0.53,12.91)	0.235
		Low plus High RH	96	1.99 (0.52,7.62)	0.317
18-15	Dorsalis Pedis Pulses (Doppler) (Diabetics)	Comparison	145		
		Background RH	42	0.57 (0.17,1.89)	0.354
		Low RH	47	0.39 (0.11,1.34)	0.133
		High RH	46	2.73 (1.11,6.72)	0.029
		Low plus High RH	93	1.21 (0.56,2.62)	0.631
18-16	Posterior Tibial Pulses (Doppler) (Diabetics)	Comparison	148		
		Background RH	42	0.43 (0.06,3.00)	0.395
		Low RH	49	1.18 (0.30,4.75)	0.812
		High RH	47	3.45 (0.94,12.61)	0.062
		Low plus High RH	96	1.98 (0.67,5.90)	0.218
18-17	Leg Pulses (Doppler) (Diabetics)	Comparison	145		
		Background RH	42	0.56 (0.17,1.88)	0.348
		Low RH	47	0.39 (0.11,1.34)	0.134
		High RH	46	3.07 (1.27,7.47)	0.013
		Low plus High RH	93	1.31 (0.61,2.80)	0.486
18-18	Peripheral Pulses (Doppler) (Diabetics)	Comparison	145		
		Background RH	42	0.70 (0.23,2.17)	0.539
		Low RH	47	0.35 (0.10,1.22)	0.099
		High RH	46	2.95 (1.21,7.16)	0.017
		Low plus High RH	93	1.22 (0.57,2.60)	0.605
18-20	Thyroid Stimulating Hormone (TSH)	Comparison	1,027		
		Background RH	365	0.88 (0.40,1.92)	0.753
		Low RH	254	0.50 (0.15,1.67)	0.260
		High RH	255	1.72 (0.78,3.80)	0.176
		Low plus High RH	509	1.06 (0.53,2.15)	0.862

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
18-22	Thyroxine (T_4)	Comparison	1,027		
		Background RH	365	0.52 (0.11,2.54)	0.423
		Low RH	254	0.45 (0.06,3.69)	0.459
		High RH	255	2.15 (0.36,12.81)	0.400
		Low plus High RH	509	0.91 (0.23,3.57)	0.895
18-23	Anti-Thyroid Antibodies	Comparison	1,027		
		Background RH	365	1.48 (0.74,2.94)	0.266
		Low RH	254	1.97 (0.97,3.98)	0.060
		High RH	255	1.64 (0.78,3.48)	0.195
		Low plus High RH	509	1.80 (1.00,3.24)	0.048
18-25	Fasting Glucose (All Participants)	Comparison	1,045		
		Background RH	368	0.80 (0.53,1.21)	0.281
		Low RH	252	1.09 (0.73,1.62)	0.684
		High RH	254	1.18 (0.78,1.80)	0.430
		Low plus High RH	506	1.13 (0.82,1.56)	0.450
18-27	Fasting Glucose (Diabetics)	Comparison	147		
		Background RH	39	1.08 (0.48,2.46)**	0.847**
		Low RH	48	0.82 (0.38,1.77)**	0.615**
		High RH	46	1.07 (0.47,2.43)**	0.871**
		Low plus High RH	94	0.93 (0.50,1.72)**	0.813**
18-29	Fasting Glucose (Nondiabetics)	Comparison	898		
		Background RH	329	0.71 (0.33,1.52)	0.373
		Low RH	204	1.15 (0.56,2.39)	0.705
		High RH	208	0.58 (0.22,1.56)	0.284
		Low plus High RH	412	0.88 (0.47,1.66)	0.701
18-31	2-Hour Postprandial Glucose (Nondiabetics)	Comparison	896		
		Background RH	328	0.99 (0.63,1.54)	0.961
		Low RH	203	1.24 (0.79,1.96)	0.352
		High RH	208	1.67 (1.07,2.59)	0.023
		Low plus High RH	411	1.44 (1.02,2.04)	0.040
18-32	Fasting Urinary Glucose (All Participants)	Comparison	1,058		
		Background RH	374	0.64 (0.26,1.56)**	0.327**
		Low RH	256	0.72 (0.32,1.64)**	0.431**
		High RH	259	1.66 (0.84,3.28)**	0.141**
		Low plus High RH	515	1.14 (0.64,2.02)**	0.661**
18-33	Fasting Urinary Glucose (Diabetics)	Comparison	146		
		Background RH	39	****	****
		Low RH	48	****	****
		High RH	46	****	****
		Low plus High RH	94	****	****

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
18-34	Fasting Urinary Glucose (Nondiabetics)	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
18-35	2-Hour Postprandial Urinary Glucose (Nondiabetics)	Comparison	910		
		Background RH	331	1.09 (0.77,1.54)	0.620
		Low RH	208	1.08 (0.73,1.60)	0.699
		High RH	213	1.21 (0.83,1.77)	0.315
		Low plus High RH	421	1.15 (0.85,1.55)	0.366
18-39	Serum Insulin (Diabetics)	Comparison	148		
		Background RH	42	1.16 (0.52,2.61)**	0.719**
		Low RH	49	1.96 (0.87,4.40)**	0.105**
		High RH	47	0.76 (0.35,1.66)**	0.491**
		Low plus High RH	96	1.21 (0.66,2.21)**	0.535**
18-43	Serum Glucagon (All Participants)	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
18-45	Serum Glucagon (Diabetics)	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
18-47	Serum Glucagon (Nondiabetics)	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
18-49	α-1-C Hemoglobin (All Participants)	Comparison	1,045		
		Background RH	368	1.07 (0.79,1.44)	0.675
		Low RH	252	1.02 (0.74,1.41)	0.898
		High RH	254	1.07 (0.77,1.49)	0.699
		Low plus High RH	506	1.04 (0.81,1.34)	0.742
18-51	α-1-C Hemoglobin (Diabetics)	Comparison	148		
		Background RH	42	0.96 (0.40,2.32)	0.935
		Low RH	49	1.52 (0.61,3.84)	0.371
		High RH	47	2.16 (0.81,5.78)	0.126
		Low plus High RH	96	1.80 (0.87,3.72)	0.113

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
18-53	α-1-C Hemoglobin (Nondiabetics)	Comparison	898		
		Background RH	329	1.10 (0.78,1.56)	0.580
		Low RH	204	0.84 (0.56,1.26)	0.395
		High RH	208	0.82 (0.54,1.26)	0.372
		Low plus High RH	412	0.83 (0.60,1.14)	0.255
18-54	Urinary Protein (Diabetics)	Comparison	146		
		Background RH	39	1.48 (0.52,4.23)	0.463
		Low RH	48	0.39 (0.12,1.30)	0.125
		High RH	46	0.80 (0.28,2.28)	0.676
		Low plus High RH	94	0.57 (0.25,1.32)	0.190
18-56	Serum Proinsulin (Diabetics)	Comparison	143		
		Background RH	39	0.57 (0.24,1.40)	0.221
		Low RH	46	0.99 (0.46,2.12)	0.979
		High RH	45	0.82 (0.36,1.83)	0.617
		Low plus High RH	91	0.91 (0.49,1.68)	0.749
18-58	Serum C Peptide (Diabetics)	Comparison	143		
		Background RH	39	****	****
		Low RH	46	****	****
		High RH	45	****	****
		Low plus High RH	91	****	****
18-60	Total Testosterone	Comparison	1,055		
		Background RH	364	0.64 (0.32,1.30)**	0.222**
		Low RH	255	0.65 (0.32,1.30)**	0.222**
		High RH	259	1.29 (0.73,2.29)**	0.386**
		Low plus High RH	514	0.95 (0.59,1.54)**	0.830**
18-62	Free Testosterone	Comparison	1,055		
		Background RH	364	0.74 (0.52,1.05)	0.089
		Low RH	255	0.72 (0.49,1.06)	0.093
		High RH	259	0.90 (0.63,1.30)	0.588
		Low plus High RH	514	0.81 (0.61,1.08)	0.147
18-63	Sex Hormone Binding Globulin	Comparison	1,055		
		Background RH	364	1.03 (0.75,1.41)	0.845
		Low RH	255	0.74 (0.51,1.08)	0.199
		High RH	259	0.73 (0.50,1.06)	0.101
		Low plus High RH	514	0.73 (0.55,0.98)	0.038
18-64	Total Testosterone to Sex Hormone Binding Globulin Ratio	Comparison	1,056		
		Background RH	364	0.78 (0.50,1.21)	0.263
		Low RH	256	0.90 (0.57,1.44)	0.671
		High RH	259	1.19 (0.75,1.91)	0.457
		Low plus High RH	515	1.03 (0.72,1.48)	0.865

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
18-66	Estradiol	Comparison	1,063		
		Background RH	374	0.65 (0.32,1.31)	0.230
		Low RH	260	0.82 (0.41,1.66)	0.590
		High RH	260	0.82 (0.42,1.62)	0.569
		Low plus High RH	520	0.82 (0.49,1.40)	0.469
18-68	Luteinizing Hormone (LH)	Comparison	1,063		
		Background RH	374	0.99 (0.44,2.21)	0.978
		Low RH	260	0.45 (0.13,1.56)	0.208
		High RH	260	0.74 (0.22,2.58)	0.640
		Low plus High RH	520	0.56 (0.22,1.43)	0.226
18-70	Follicle Stimulating Hormone (FSH)	Comparison	1,063		
		Background RH	374	1.32 (0.75,2.32)	0.341
		Low RH	260	1.47 (0.79,2.75)	0.230
		High RH	260	1.25 (0.58,2.66)	0.569
		Low plus High RH	520	1.38 (0.81,2.35)	0.242
19-4	Composite Skin Test Diagnosis	Comparison	1,004		
		Background RH	356	1.80 (1.01,3.20)**	0.047**
		Low RH	249	1.41 (0.67,2.97)**	0.363**
		High RH	250	0.78 (0.30,2.06)**	0.435**
		Low plus High RH	499	1.11 (0.59,2.12)**	0.744**
19-15	Double Labelled Cells: CD5 with CD20 (Zero vs. Nonzero)	Comparison	400		
		Background RH	140	0.49 (0.16,1.53)	0.219
		Low RH	95	2.05 (0.82,5.13)	0.126
		High RH	106	1.29 (0.41,4.07)	0.666
		Low plus High RH	201	1.70 (0.77,3.77)	0.187
19-16	Double Labelled Cells: CD4 with CD8 (Zero vs. Nonzero)	Comparison	404		
		Background RH	141	1.15 (0.61,2.18)	0.671
		Low RH	95	1.18 (0.56,2.49)	0.622
		High RH	108	0.94 (0.48,1.86)	0.867
		Low plus High RH	203	1.04 (0.60,1.79)	0.893
19-17	Double Labelled Cells: CD3 with CD16+56 (Zero vs. Nonzero)	Comparison	403		
		Background RH	141	0.77 (0.25,2.41)	0.652
		Low RH	95	0.70 (0.15,3.17)	0.642
		High RH	108	1.85 (0.71,4.81)	0.204
		Low plus High RH	203	1.35 (0.57,3.20)	0.501
19-22	Lupus Panel: Antinuclear Antibody (ANA)	Comparison	1,033		
		Background RH	361	****	****
		Low RH	250	****	****
		High RH	248	****	****
		Low plus High RH	498	****	****

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
19-23	Lupus Panel: Thyroid Microsomal Antibody	Comparison	1,033		
		Background RH	361	****	****
		Low RH	250	****	****
		High RH	248	****	****
		Low plus High RH	498	****	****
19-24	Lupus Panel: MSK Smooth Muscle Antibody	Comparison	1,051		
		Background RH	367	1.27 (0.67,2.43)	0.467
		Low RH	256	1.27 (0.63,2.58)	0.503
		High RH	255	0.37 (0.11,1.23)	0.105
		Low plus High RH	511	0.84 (0.44,1.60)	0.594
19-25	Lupus Panel: MSK Mitochondrial Antibody	Comparison	--		
		Background RH	--	--	--
		Low RH	--	--	--
		High RH	--	--	--
		Low plus High RH	--	--	--
19-26	Lupus Panel: MSK Parietal Antibody	Comparison	1,035		
		Background RH	365	0.55 (0.21,1.45)	0.226
		Low RH	253	1.21 (0.54,2.74)	0.643
		High RH	251	1.01 (0.40,2.51)	0.989
		Low plus High RH	504	1.12 (0.57,2.18)	0.750
19-27	Lupus Panel: Rheumatoid Factor	Comparison	1,035		
		Background RH	365	0.95 (0.68,1.32)**	0.744**
		Low RH	253	1.08 (0.75,1.55)**	0.670**
		High RH	251	0.62 (0.40,0.97)**	0.035**
		Low plus High RH	504	0.86 (0.63,1.16)**	0.312**
19-28	Lupus Panel: B Cell Clones Detected by Serum Protein Electrophoresis	Comparison	1,051		
		Background RH	367	1.79 (0.84,3.83)	0.134
		Low RH	256	0.70 (0.23,2.07)	0.514
		High RH	255	1.36 (0.51,3.64)	0.534
		Low plus High RH	511	0.97 (0.44,2.13)	0.943
19-29	Lupus Panel: Other Antibodies (ANA and MSK)	Comparison	1,046		
		Background RH	365	0.77 (0.40,1.49)	0.438
		Low RH	255	0.54 (0.23,1.29)	0.168
		High RH	254	0.78 (0.38,1.63)	0.510
		Low plus High RH	509	0.66 (0.37,1.21)	0.180
19-30	Lupus Panel: Summary Index	Comparison	1,048		
		Background RH	366	0.90 (0.70,1.15)	0.397
		Low RH	255	0.89 (0.67,1.18)	0.408
		High RH	254	0.70 (0.52,0.94)	0.019
		Low plus High RH	509	0.79 (0.63,0.99)	0.040

Table Q-1-19. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[ab]	p-Value[a]
20-3	Asthma	Comparison	1,054		
		Background RH	369	1.48 (0.77,2.84)	0.237
		Low RH	257	1.29 (0.58,2.85)	0.534
		High RH	257	1.28 (0.58,2.82)	0.547
		Low plus High RH	514	1.28 (0.69,2.38)	0.431
20-4	Bronchitis	Comparison	1,038		
		Background RH	363	1.40 (1.02,1.91)	0.036
		Low RH	251	0.98 (0.68,1.41)	0.917
		High RH	254	0.96 (0.66,1.40)	0.841
		Low plus High RH	505	0.97 (0.73,1.29)	0.844
20-5	Pneumonia	Comparison	1,018		
		Background RH	349	0.85 (0.57,1.26)	0.421
		Low RH	243	0.59 (0.36,0.97)	0.038
		High RH	252	0.50 (0.29,0.86)	0.012
		Low plus High RH	495	0.55 (0.37,0.81)	0.002
20-6	Thorax and Lung Abnormalities	Comparison	1,061		
		Background RH	373	1.68 (1.12,2.50)	0.011
		Low RH	260	1.10 (0.69,1.75)	0.683
		High RH	260	1.26 (0.80,1.99)	0.316
		Low plus High RH	520	1.18 (0.82,1.69)	0.368
20-7	X Ray Interpretation	Comparison	1,063		
		Background RH	374	1.12 (0.79,1.59)**	0.530**
		Low RH	260	0.92 (0.62,1.38)**	0.690**
		High RH	259	0.79 (0.51,1.21)**	0.279**
		Low plus High RH	519	0.86 (0.62,1.18)**	0.343**

[a] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified in the referenced chapter table.

[b] Relative risk and confidence interval relative to Comparisons.

** Categorized dioxin-by-covariate interaction ($p \leq 0.05$); adjusted relative risk, confidence interval, and p-value derived from a model fitted after deletion of this interaction.

**** Categorized dioxin-by-covariate interaction ($p \leq 0.01$); adjusted relative risk, confidence interval, and p-value not presented.

--: Adjusted analysis not performed due to sparse number of abnormalities; sample size, adjusted relative risk, confidence interval, and p-value not presented due to the sparse number of abnormalities.

Note: RH = Ranch Hand.
Comparison: Current Dioxin ≤ 10 ppt.
Background (Ranch Hand): Current Dioxin ≤ 10 ppt.
Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.
High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Table Q-1-20.
Summary of Adjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Reference	Clinical Parameter	Model[a]	Adj. Relative Risk (95% C.I.)	p-Value
9-3	Self-Perception of Health	4	1.17 (0.99,1.38)**	0.065**
		5	1.18 (1.02,1.37)**	0.024**
		6	1.09 (0.93,1.27)**	0.291**
9-4	Appearance of Illness or Distress	4	0.95 (0.66,1.36)**	0.779**
		5	0.92 (0.69,1.24)**	0.596**
		6	0.89 (0.65,1.22)**	0.484**
9-5	Relative Age Appearance	4	0.97 (0.78,1.21)**	0.785**
		5	0.95 (0.79,1.14)	0.591
		6	0.95 (0.77,1.16)	0.599
9-8	Body Fat	4	1.45 (1.28,1.65)**	<0.001**
		5	1.37 (1.25,1.51)	<0.001
		6	1.36 (1.22,1.51)	<0.001
9-9	Body Fat with Adjustment for Caloric Intake	4	1.44 (1.27,1.64)**	<0.001**
		5	1.37 (1.24,1.50)	<0.001
		6	1.35 (1.22,1.49)	<0.001
9-11	Sedimentation Rate	4	1.12 (0.98,1.28)	0.090
		5	1.19 (1.07,1.33)	0.001
		6	1.08 (0.95,1.21)	0.223
10-3	Skin Neoplasms	4	0.90 (0.81,1.00)	0.056
		5	0.94 (0.86,1.03)**	0.175**
		6	0.88 (0.79,0.97)**	0.008**
10-4	Malignant Skin Neoplasms	4	0.94 (0.81,1.09)	0.428
		5	0.99 (0.87,1.12)	0.819
		6	0.92 (0.80,1.06)	0.234
10-5	Benign Skin Neoplasms	4	0.88 (0.78,0.99)	0.034
		5	0.91 (0.82,1.01)**	0.075**
		6	0.87 (0.78,0.97)**	0.012**
10-6	Skin Neoplasms of Uncertain Behavior or Unspecified Nature	4	--	--
		5	--	--
		6	--	--
10-7	Basal Cell Carcinomas (All Sites Combined)	4	0.93 (0.79,1.09)	0.350
		5	0.97 (0.85,1.11)	0.669
		6	0.91 (0.78,1.05)**	0.194**
10-8	Basal Cell Carcinomas (Ear, Face, Head, and Neck)	4	0.88 (0.73,1.05)	0.151
		5	0.93 (0.81,1.08)	0.347
		6	0.87 (0.74,1.02)	0.079
10-9	Basal Cell Carcinomas (Trunk)	4	1.09 (0.83,1.43)**	0.551**
		5	1.05 (0.82,1.33)**	0.713**
		6	1.07 (0.83,1.38)**	0.613**

Table Q-1-20. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Reference	Clinical Parameter	Model[a]	Adj. Relative Risk (95% C.I.)	p-Value
10-10	Basal Cell Carcinomas (Upper Extremities)	4	0.88 (0.59,1.32)	0.538
		5	0.93 (0.68,1.27)	0.643
		6	0.92 (0.64,1.30)	0.620
10-11	Basal Cell Carcinomas (Lower Extremities)	4	--	--
		5	--	--
		6	--	--
10-12	Squamous Cell Carcinomas	4	0.98 (0.64,1.50)	0.921
		5	1.03 (0.72,1.48)	0.864
		6	1.01 (0.69,1.46)	0.970
10-13	Nonmelanomas	4	0.93 (0.79,1.08)	0.319
		5	0.98 (0.86,1.11)	0.692
		6	0.91 (0.79,1.04)	0.176
10-14	Melanomas	4	1.01 (0.64,1.57)	0.982
		5	1.01 (0.69,1.48)	0.950
		6	1.03 (0.69,1.54)	0.869
10-15	Systemic Neoplasms	4	1.10 (0.97,1.23)	0.130
		5	1.08 (0.98,1.20)	0.135
		6	1.08 (0.97,1.20)	0.185
10-16	Malignant Systemic Neoplasms	4	1.06 (0.85,1.37)**	0.537**
		5	1.10 (0.90,1.35)**	0.359**
		6	1.08 (0.87,1.34)**	0.506**
10-17	Benign Systemic Neoplasms	4	1.01 (0.89,1.15)	0.841
		5	1.00 (0.90,1.12)	0.940
		6	1.01 (0.90,1.14)	0.870
10-18	Systemic Neoplasms of Uncertain Behavior or Unspecified Nature	4	0.92 (0.62,1.37)**	0.689**
		5	0.91 (0.66,1.25)**	0.552**
		6	0.86 (0.61,1.21)**	0.389**
10-19	Malignant Systemic Neoplasms (Eye, Ear, Face, Head, and Neck)	4	1.11 (0.70,1.75)	0.672
		5	1.05 (0.71,1.58)	0.795
		6	1.17 (0.76,1.81)	0.489
10-20	Malignant Systemic Neoplasms (Oral Cavity, Pharynx, and Larynx)	4	1.79 (0.96,3.33)	0.076
		5	1.72 (0.96,3.09)	0.070
		6	1.73 (0.94,3.19)	0.087
10-21	Malignant Systemic Neoplasms (Esophagus)	4	--	--
		5	--	--
		6	--	--
10-22	Malignant Systemic Neoplasms (Brain)	4	--	--
		5	--	--
		6	--	--

Table Q-1-20. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Reference	Clinical Parameter	Model[a]	Adj. Relative Risk (95% C.I.)	p-Value
10-23	Malignant Systemic Neoplasms (Thymus, Heart, and Mediastinum)	4	0.40 (0.08,2.03)	0.232
		5	0.53 (0.21,1.33)	0.216
		6	0.61 (0.18,2.09)	0.448
10-24	Malignant Systemic Neoplasms (Thyroid Gland)	4	0.87 (0.32,2.36)	0.774
		5	0.90 (0.38,2.11)	0.804
		6	0.91 (0.37,2.25)	0.843
10-25	Malignant Systemic Neoplasms (Bronchus and Lung)	4	0.97 (0.54,1.75)	0.906
		5	1.06 (0.66,1.70)	0.817
		6	0.89 (0.53,1.49)	0.668
10-26	Malignant Systemic Neoplasms (Colon and Rectum)	4	1.34 (0.65,2.73)	0.440
		5	1.44 (0.78,2.65)	0.250
		6	1.21 (0.61,2.43)	0.589
10-27	Malignant Systemic Neoplasms (Kidney and Bladder)	4	1.03 (0.58,1.82)	0.914
		5	1.09 (0.67,1.77)	0.731
		6	0.99 (0.58,1.71)	0.978
10-28	Malignant Systemic Neoplasms (Prostate)	4	1.04 (0.68,1.58)**	0.862**
		5	1.08 (0.76,1.55)**	0.662**
		6	1.02 (0.70,1.49)**	0.924**
10-29	Malignant Systemic Neoplasms (Testicles)	4	1.24 (0.60,2.57)	0.532
		5	1.33 (0.69,2.57)	0.384
		6	1.16 (0.57,2.36)	0.691
10-30	Malignant Systemic Neoplasms (Ill-Defined Sites)	4	--	--
		5	--	--
		6	--	--
10-31	Malignant Systemic Neoplasms (Connective and Other Soft Tissue)	4	--	--
		5	--	--
		6	--	--
10-32	Carcinomas in Situ of the Penis, Other, and Unspecified Sites	4	--	--
		5	--	--
		6	--	--
10-33	Hodgkin's Disease	4	0.74 (0.11,4.90)	0.746
		5	0.70 (0.13,3.61)	0.661
		6	0.73 (0.12,4.43)	0.725
10-34	Leukemia	4	--	--
		5	--	--
		6	--	--
10-35	Non-Hodgkin's Lymphoma	4	0.52 (0.09,3.05)	0.480
		5	0.59 (0.18,1.94)	0.430
		6	0.52 (0.11,2.39)	0.440

Table Q-1-20. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Reference	Clinical Parameter	Model[a]	Adj. Relative Risk (95% C.I.)	p-Value
10-36	Other Malignant Systemic Neoplasms of Lymphoid and Histiocytic Tissue	4	0.52 (0.09,3.05)	0.480
		5	0.59 (0.18,1.94)	0.430
		6	0.52 (0.11,2.39)	0.440
10-37	Multiple Myeloma	4	--	--
		5	--	--
		6	--	--
10-38	Skin or Systemic Neoplasms	4	0.98 (0.89,1.08)**	0.651**
		5	1.00 (0.92,1.09)**	0.970**
		6	0.96 (0.87,1.04)**	0.313**
10-39	Prostate-Specific Antigen (Below vs. At or Above Sensitivity Limit)	4	0.99 (0.75,1.32)	0.962
		5	1.04 (0.82,1.33)	0.722
		6	0.97 (0.75,1.26)	0.834
10-41	Prostate-Specific Antigen	4	1.08 (0.81,1.44)**	0.593**
		5	1.12 (0.87,1.44)**	0.384**
		6	1.07 (0.82,1.40)**	0.610**
11-3	Inflammatory Diseases	4	1.10 (0.57,2.10)	0.781
		5	1.06 (0.60,1.88)	0.833
		6	1.13 (0.61,2.09)	0.706
11-4	Hereditary and Degenerative Diseases	4	0.79 (0.63,0.98)	0.030
		5	0.83 (0.70,0.98)	0.033
		6	0.76 (0.62,0.93)	0.009
11-5	Peripheral Disorders	4	1.10 (0.95,1.28)**	0.204**
		5	1.07 (0.94,1.21)**	0.311**
		6	1.09 (0.95,1.25)**	0.202**
11-6	Other Neurological Disorders	4	0.96 (0.84,1.09)	0.547
		5	0.94 (0.84,1.05)	0.268
		6	0.99 (0.88,1.11)	0.834
11-7	Smell	4	0.61 (0.39,0.93)	0.018
		5	0.69 (0.52,0.91)	0.015
		6	0.68 (0.50,0.92)	0.019
11-8	Visual Fields	4	--	--
		5	--	--
		6	--	--
11-9	Light Reaction	4	1.38 (0.80,2.39)	0.260
		5	1.37 (0.83,2.26)	0.221
		6	1.30 (0.76,2.23)	0.346
11-10	Ocular Movement	4	1.07 (0.64,1.79)	0.786
		5	1.08 (0.69,1.69)	0.735
		6	1.07 (0.66,1.72)	0.786

Table Q-1-20. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Reference	Clinical Parameter	Model[a]	Adj. Relative Risk (95% C.I.)	p-Value
11-11	Facial Sensation	4	1.52 (0.76,3.04)	0.251
		5	1.47 (0.77,2.78)	0.248
		6	1.50 (0.76,2.98)	0.253
11-12	Jaw Clench	4	--	--
		5	--	--
		6	--	--
11-13	Smile	4	1.49 (0.97,2.28)	0.079
		5	1.38 (0.93,2.05)	0.115
		6	1.51 (0.99,2.31)	0.062
11-14	Palpebral Fissure	4	1.09 (0.70,1.68)	0.717
		5	1.06 (0.72,1.56)	0.761
		6	1.11 (0.73,1.68)	0.629
11-15	Balance	4	1.26 (0.66,2.42)	0.490
		5	1.25 (0.70,2.22)	0.455
		6	1.20 (0.65,2.24)	0.565
11-16	Gag Reflex	4	--	--
		5	--	--
		6	--	--
11-17	Speech	4	1.05 (0.57,1.92)	0.882
		5	1.05 (0.62,1.78)	0.858
		6	1.04 (0.58,1.85)	0.903
11-18	Palate and Uvula Movement	4	--	--
		5	--	--
		6	--	--
11-19	Neck Range of Motion	4	1.14 (0.96,1.35)	0.127
		5	1.12 (0.97,1.30)	0.112
		6	1.12 (0.95,1.31)	0.166
11-20	Cranial Nerve Index Without Range of Motion	4	0.97 (0.77,1.24)	0.815
		5	0.96 (0.79,1.18)	0.713
		6	0.96 (0.77,1.19)	0.693
11-21	Pin Prick	4	1.17 (0.91,1.50)**	0.220**
		5	1.15 (0.93,1.43)**	0.195**
		6	1.17 (0.92,1.48)**	0.186**
11-22	Light Touch	4	1.15 (0.89,1.48)	0.272
		5	1.15 (0.93,1.44)	0.192
		6	1.14 (0.90,1.44)	0.284
11-23	Muscle Status	4	1.06 (0.81,1.40)	0.661
		5	1.05 (0.83,1.33)	0.692
		6	1.07 (0.83,1.38)	0.604

Table Q-1-20. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Reference	Clinical Parameter	Model[a]	Adj. Relative Risk (95% C.I.)	p-Value
11-24	Patellar Reflex	4	1.55 (0.99,2.41)	0.058
		5	1.41 (0.94,2.12)	0.098
		6	1.58 (1.03,2.45)	0.039
11-25	Achilles Reflex	4	1.08 (0.89,1.32)	0.411
		5	1.06 (0.90,1.25)	0.487
		6	1.06 (0.89,1.27)	0.515
11-26	Biceps Reflex	4	1.76 (0.87,3.55)	0.115
		5	1.43 (0.78,2.65)	0.245
		6	1.98 (0.95,4.14)	0.059
11-27	Babinski Reflex	4	0.43 (0.19,0.98)	0.039
		5	0.59 (0.35,0.98)	0.062
		6	0.60 (0.34,1.05)	0.092
11-30	Tremor	4	0.95 (0.70,1.29)**	0.735**
		5	0.98 (0.78,1.24)	0.898
		6	0.96 (0.75,1.24)	0.750
11-31	Coordination	4	1.04 (0.75,1.45)	0.809
		5	1.05 (0.79,1.39)	0.734
		6	1.02 (0.75,1.38)	0.919
11-32	Romberg Sign	4	1.26 (0.66,2.42)	0.490
		5	1.25 (0.70,2.22)	0.455
		6	1.20 (0.65,2.24)	0.565
11-33	Gait	4	0.94 (0.71,1.24)	0.662
		5	0.96 (0.76,1.22)	0.753
		6	0.95 (0.73,1.22)	0.673
11-34	Central Nervous System (CNS) Index	4	0.93 (0.75,1.16)	0.519
		5	0.97 (0.81,1.17)	0.766
		6	0.92 (0.76,1.12)	0.407
12-3	Psychoses	4	1.00 (0.76,1.32)	0.983
		5	1.04 (0.82,1.32)	0.749
		6	0.98 (0.76,1.27)	0.881
12-4	Alcohol Dependence	4	0.86 (0.72,1.03)	0.097
		5	0.89 (0.77,1.03)	0.122
		6	0.84 (0.72,0.99)	0.036
12-5	Drug Dependence	4	--	--
		5	--	--
		6	--	--
12-6	Anxiety	4	0.94 (0.82,1.07)	0.343
		5	0.96 (0.85,1.08)	0.495
		6	0.92 (0.81,1.04)	0.197

Table Q-1-20. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands – Log_2 (Current Dioxin + 1)

Table Reference	Clinical Parameter	Model[a]	Adj. Relative Risk (95% C.I.)	p-Value
12-7	Other Neuroses	4	0.98 (0.88,1.10)**	0.777**
		5	1.01 (0.92,1.11)**	0.816**
		6	0.95 (0.85,1.05)**	0.301**
12-8	SCL-90-R Anxiety	4	1.13 (0.96,1.34)**	0.146**
		5	1.15 (0.99,1.34)**	0.069**
		6	1.10 (0.94,1.30)**	0.240**
12-9	SCL-90-R Depression	4	1.00 (0.86,1.18)**	0.961**
		5	1.02 (0.89,1.17)**	0.783**
		6	0.95 (0.82,1.10)**	0.507**
12-10	SCL-90-R Hostility	4	1.08 (0.89,1.33)	0.431
		5	1.10 (0.92,1.32)	0.275
		6	1.05 (0.86,1.27)	0.645
12-11	SCL-90-R Interpersonal Sensitivity	4	1.05 (0.90,1.22)	0.560
		5	1.06 (0.93,1.21)	0.381
		6	1.02 (0.88,1.18)	0.813
12-12	SCL-90-R Obsessive-Compulsive Behavior	4	0.94 (0.81,1.10)**	0.456**
		5	0.95 (0.84,1.08)**	0.461**
		6	0.93 (0.81,1.07)**	0.295**
12-13	SCL-90-R Paranoid Ideation	4	0.92 (0.76,1.12)**	0.405**
		5	0.96 (0.82,1.13)**	0.639**
		6	0.92 (0.77,1.10)**	0.378**
12-14	SCL-90-R Phobic Anxiety	4	0.96 (0.81,1.14)	0.635
		5	0.98 (0.84,1.13)	0.731
		6	0.92 (0.78,1.08)	0.297
12-15	SCL-90-R Psychoticism	4	0.95 (0.80,1.13)**	0.559**
		5	0.98 (0.84,1.13)	0.747
		6	0.94 (0.81,1.10)	0.471
12-16	SCL-90-R Somatization	4	1.05 (0.90,1.22)**	0.545**
		5	1.08 (0.94,1.23)**	0.283**
		6	1.00 (0.87,1.16)**	0.996**
12-17	SCL-90-R Global Severity Index	4	1.08 (0.92,1.26)**	0.354**
		5	1.08 (0.95,1.24)**	0.242**
		6	1.02 (0.88,1.18)**	0.779**
12-18	SCL-90-R Positive Symptom Total	4	1.05 (0.91,1.22)	0.494
		5	1.07 (0.94,1.21)	0.330
		6	1.00 (0.87,1.15)	0.984
12-19	SCL-90-R Positive Symptom Distress Index	4	1.10 (0.92,1.30)	0.302
		5	1.11 (0.95,1.29)	0.172
		6	1.03 (0.88,1.22)	0.683

Table Q-1-20. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Reference	Clinical Parameter	Model[a]	Adj. Relative Risk (95% C.I.)	p-Value
13-3	Hepatitis (Non-A, Non-B, or Non-C)	4	0.91 (0.64,1.30)	0.602
		5	0.86 (0.65,1.15)	0.321
		6	0.93 (0.67,1.27)	0.638
13-4	Jaundice	4	0.48 (0.32,0.74)	<0.001
		5	0.61 (0.47,0.79)	<0.001
		6	0.59 (0.44,0.77)	<0.001
13-5	Acute and Subacute Necrosis of the Liver	4	--	--
		5	--	--
		6	--	--
13-6	Alcoholic Chronic Liver Disease and Cirrhosis	4	1.03 (0.83,1.27)	0.782
		5	1.03 (0.86,1.23)	0.745
		6	1.00 (0.83,1.21)	0.986
13-7	Nonalcoholic Chronic Liver Disease and Cirrhosis	4	1.10 (0.74,1.63)	0.651
		5	1.12 (0.79,1.59)	0.525
		6	1.07 (0.73,1.57)	0.722
13-8	Liver Abscess and Sequelae of Chronic Liver Disease	4	--	--
		5	--	--
		6	--	--
13-9	Other Liver Disorders	4	1.19 (1.06,1.34)**	0.004**
		5	1.18 (1.06,1.31)**	0.001**
		6	1.14 (1.02,1.27)**	0.018**
13-10	Hepatomegaly	4	0.92 (0.61,1.39)	0.683
		5	0.88 (0.63,1.23)	0.462
		6	0.89 (0.61,1.29)	0.534
13-11	Current Hepatomegaly	4	1.21 (0.71,2.09)	0.495
		5	1.21 (0.75,1.97)	0.438
		6	1.19 (0.70,2.03)	0.517
13-13	AST	4	1.19 (0.82,1.71)**	0.352**
		5	1.22 (0.88,1.69)**	0.231**
		6	1.14 (0.81,1.61)**	0.451**
13-15	ALT	4	1.30 (1.01,1.66)	0.035
		5	1.28 (1.03,1.60)	0.024
		6	1.25 (0.99,1.59)	0.058
13-17	GGT	4	1.14 (1.01,1.29)**	0.040**
		5	1.15 (1.03,1.28)**	0.012**
		6	1.09 (0.97,1.23)**	0.133**
13-19	Alkaline Phosphatase	4	0.90 (0.73,1.12)	0.360
		5	0.92 (0.77,1.10)	0.374
		6	0.86 (0.71,1.05)	0.148

Table Q-1-20. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Reference	Clinical Parameter	Model[a]	Adj. Relative Risk (95% C.I.)	p-Value
13-21	Total Bilirubin	4	0.93 (0.75,1.16)**	0.527**
		5	0.97 (0.81,1.17)**	0.776**
		6	0.92 (0.75,1.12)**	0.388**
13-22	Direct Bilirubin	4	1.19 (0.68,2.11)**	0.539**
		5	1.42 (0.86,2.35)**	0.156**
		6	0.88 (0.54,1.44)**	0.621**
13-24	LDH	4	1.08 (0.94,1.23)	0.278
		5	1.07 (0.95,1.20)	0.277
		6	1.05 (0.93,1.19)	0.461
13-26	Cholesterol	4	1.02 (0.88,1.19)	0.781
		5	1.18 (1.03,1.36)**	0.002**
		6	0.95 (0.82,1.09)	0.431
13-28	HDL Cholesterol	4	1.05 (0.90,1.21)**	0.555**
		5	1.13 (0.98,1.29)**	0.085**
		6	1.00 (0.87,1.16)**	0.951**
13-30	Cholesterol-HDL Ratio	4	1.15 (1.04,1.27)	0.006
		5	1.23 (1.12,1.34)	<0.001
		6	1.02 (0.93,1.13)	0.672
13-32	Triglycerides	4	1.32 (1.11,1.57)	0.002
		5	1.60 (1.35,1.90)	<0.001
		6	1.11 (0.92,1.33)	0.293
13-34	Creatine Kinase	4	1.16 (0.99,1.37)	0.070
		5	1.13 (0.98,1.30)	0.097
		6	1.14 (0.98,1.33)	0.090
13-36	Serum Amylase	4	0.90 (0.72,1.14)	0.394
		5	0.91 (0.76,1.10)	0.340
		6	0.95 (0.78,1.17)	0.660
13-37	Antibodies for Hepatitis A	4	1.01 (0.90,1.14)	0.818
		5	1.01 (0.92,1.12)	0.782
		6	1.01 (0.90,1.12)	0.897
13-38	Serological Evidence of Present or Prior Hepatitis B Infection	4	0.97 (0.82,1.14)**	0.674**
		5	0.97 (0.85,1.11)**	0.677**
		6	0.96 (0.82,1.11)**	0.554**
13-39	Antibodies for Hepatitis C	4	0.65 (0.30,1.39)	0.252
		5	0.65 (0.38,1.13)	0.154
		6	0.78 (0.42,1.47)	0.461
13-40	Stool Hemoccult	4	1.12 (0.77,1.62)	0.554
		5	1.15 (0.83,1.60)	0.379
		6	1.09 (0.77,1.55)	0.631

Table Q-1-20. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Reference	Clinical Parameter	Model[a]	Adj. Relative Risk (95% C.I.)	p-Value
13-42	Prealbumin	4	0.83 (0.52,1.31)**	0.417**
		5	0.75 (0.54,1.04)**	0.104**
		6	1.00 (0.66,1.52)**	0.984**
13-44	Albumin	4	1.13 (0.86,1.49)	0.393
		5	1.08 (0.84,1.38)	0.541
		6	1.09 (0.84,1.42)	0.510
13-46	α-1 Acid Glycoprotein	4	0.99 (0.69,1.43)**	0.973**
		5	0.99 (0.73,1.34)**	0.960**
		6	1.01 (0.72,1.40)**	0.971**
13-50	α-2 Macroglobulin	4	1.18 (0.56,2.46)	0.668
		5	1.18 (0.61,2.28)	0.623
		6	1.11 (0.55,2.27)	0.771
13-52	Apolipoprotein B	4	1.09 (0.98,1.21)	0.100
		5	1.17 (1.07,1.28)**	<0.001**
		6	0.98 (0.89,1.09)	0.719
13-54	C_3 Complement	4	0.68 (0.47,0.97)**	0.032**
		5	0.66 (0.51,0.85)	0.003
		6	0.85 (0.62,1.17)	0.330
13-56	C_4 Complement	4	0.86 (0.48,1.53)	0.595
		5	0.82 (0.51,1.32)	0.421
		6	0.91 (0.54,1.54)	0.732
13-58	Haptoglobin	4	0.88 (0.76,1.03)	0.110
		5	0.93 (0.82,1.06)	0.288
		6	0.87 (0.76,1.00)	0.044
13-60	Transferrin	4	0.84 (0.71,0.99)	0.043
		5	0.86 (0.75,0.99)	0.041
		6	0.85 (0.73,0.99)	0.039
14-3	Occurrence of Acne (Lifetime)	4	0.97 (0.83,1.13)	0.687
		5	0.98 (0.86,1.12)	0.752
		6	0.97 (0.84,1.12)	0.676
14-4	Acne Relative to Time of Duty in SEA (Pre- and Post-SEA and Post-SEA vs. Pre-SEA and None)	4	0.95 (0.81,1.11)	0.513
		5	0.96 (0.84,1.10)	0.558
		6	0.95 (0.82,1.11)	0.527
14-5	Acne Relative to Time of Duty in SEA (Post-SEA vs. None)	4	0.97 (0.82,1.14)	0.677
		5	0.98 (0.85,1.12)	0.734
		6	0.97 (0.83,1.12)	0.670
14-6	Acne Relative to Time of Duty in SEA (Pre- and Post-SEA vs. Pre-SEA)	4	--	--
		5	--	--
		6	--	--

Table Q-1-20. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Reference	Clinical Parameter	Model[a]	Adj. Relative Risk (95% C.I.)	p-Value
14-8	Location of Acne (Post-SEA)	4	0.97 (0.87,1.08)	0.607
		5	0.94 (0.84,1.04)	0.202
		6	0.94 (0.84,1.05)	0.236
14-10	Location of Acne (Pre- and Post-SEA and Post-SEA)	4	0.94 (0.84,1.05)	0.265
		5	0.94 (0.85,1.03)	0.178
		6	0.94 (0.85,1.04)	0.222
14-11	Other Abnormalities	4	0.93 (0.81,1.07)	0.318
		5	0.97 (0.86,1.09)	0.566
		6	0.93 (0.81,1.06)	0.264
14-12	Dermatology Index	4	0.85 (0.77,0.95)	0.003
		5	0.87 (0.79,0.95)	0.002
		6	0.87 (0.79,0.96)	0.006
15-3	Verified Essential Hypertension	4	1.14 (1.02,1.28)	0.021
		5	1.15 (1.04,1.27)	0.005
		6	1.11 (1.00,1.23)	0.049
15-4	Verified Heart Disease (excluding Essential Hypertension)	4	0.92 (0.84,1.01)	0.079
		5	0.93 (0.85,1.00)	0.062
		6	0.93 (0.85,1.01)	0.100
15-5	Myocardial Infarction	4	1.02 (0.82,1.27)**	0.826**
		5	1.03 (0.86,1.24)**	0.762**
		6	1.12 (0.93,1.35)**	0.228**
15-7	Systolic Blood Pressure	4	1.05 (0.91,1.21)	0.540
		5	1.04 (0.91,1.17)	0.584
		6	1.06 (0.92,1.21)	0.426
15-8	Heart Sounds	4	1.09 (0.96,1.23)	0.178
		5	1.08 (0.97,1.20)	0.155
		6	1.09 (0.97,1.22)	0.139
15-9	Overall Electrocardiograph	4	1.11 (0.98,1.26)	0.112
		5	1.09 (0.97,1.22)**	0.130**
		6	1.09 (0.97,1.23)**	0.154**
15-10	ECG: Right Bundle Branch Block (RBBB)	4	1.49 (1.00,2.21)	0.054
		5	1.37 (0.96,1.97)	0.082
		6	1.51 (1.02,2.25)	0.038
15-11	ECG: Left Bundle Branch Block (LBBB)	4	--	--
		5	--	--
		6	--	--
15-12	ECG: Nonspecific ST- and T-Wave Changes	4	1.20 (1.03,1.40)	0.017
		5	1.18 (1.03,1.34)	0.015
		6	1.17 (1.02,1.35)	0.028

Table Q-1-20. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Reference	Clinical Parameter	Model[a]	Adj. Relative Risk (95% C.I.)	p-Value
15-13	ECG: Bradycardia	4	0.77 (0.57,1.04)**	0.074**
		5	0.76 (0.61,0.96)**	0.020**
		6	0.78 (0.61,1.00)**	0.049**
15-14	ECG: Tachycardia	4	--	--
		5	--	--
		6	--	--
15-15	ECG: Arrhythmia	4	1.25 (1.00,1.56)	0.052
		5	1.20 (0.99,1.47)**	0.067**
		6	1.21 (0.97,1.50)**	0.087**
15-16	ECG: Evidence of Prior Myocardial Infarction	4	1.25 (0.97,1.63)	0.095
		5	1.31 (1.04,1.65)	0.020
		6	1.17 (0.91,1.51)	0.225
15-17	ECG: Other Diagnoses	4	1.18 (0.72,1.94)**	0.501**
		5	1.25 (0.81,1.93)**	0.304**
		6	1.22 (0.76,1.96)**	0.392**
15-19	Diastolic Blood Pressure	4	1.25 (0.87,1.79)	0.219
		5	1.20 (0.87,1.65)	0.255
		6	1.26 (0.89,1.78)	0.176
15-20	Funduscopic Examination	4	1.21 (1.00,1.46)	0.054
		5	1.19 (1.01,1.42)	0.042
		6	1.21 (1.01,1.45)	0.037
15-21	Carotid Bruits	4	****	****
		5	****	****
		6	****	****
15-22	Radial Pulses	4	0.55 (0.25,1.20)	0.122
		5	0.70 (0.42,1.16)	0.192
		6	0.65 (0.38,1.12)	0.150
15-23	Femoral Pulses	4	1.00 (0.67,1.49)	0.996
		5	1.03 (0.74,1.42)	0.877
		6	1.00 (0.69,1.44)	0.988
15-24	Popliteal Pulses	4	1.30 (0.92,1.85)	0.145
		5	****	****
		6	1.22 (0.85,1.77)**	0.277**
15-25	Dorsalis Pedis Pulses	4	1.11 (0.93,1.33)	0.245
		5	1.10 (0.94,1.28)	0.237
		6	1.10 (0.93,1.29)	0.264
15-26	Posterior Tibial Pulses	4	1.20 (0.93,1.57)	0.171
		5	1.23 (0.98,1.54)	0.072
		6	1.17 (0.92,1.50)	0.207

Table Q-1-20. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Reference	Clinical Parameter	Model[a]	Adj. Relative Risk (95% C.I.)	p-Value
15-27	Leg Pulses	4	1.10 (0.93,1.30)	0.278
		5	1.09 (0.94,1.26)	0.256
		6	1.09 (0.93,1.28)	0.272
15-28	Peripheral Pulses	4	1.09 (0.92,1.29)	0.342
		5	1.08 (0.93,1.25)	0.324
		6	1.08 (0.93,1.26)	0.326
15-29	Kidney, Urethra, and Bladder (KUB) X Ray (Excluding Kidney Stones)	4	****	****
		5	****	****
		6	****	****
15-30	Intermittent Claudication and Vascular Insufficiency (ICVI) Index	4	1.11 (0.86,1.43)	0.447
		5	1.19 (0.96,1.49)	0.109
		6	1.03 (0.81,1.32)	0.808
16-10	Hematocrit	4	1.16 (0.82,1.65)	0.404
		5	1.10 (0.79,1.51)	0.582
		6	1.21 (0.86,1.70)	0.282
16-12	Platelet Count	4	1.63 (1.11,2.39)	0.014
		5	1.42 (0.98,2.05)	0.062
		6	0.76 (0.42,1.38)	0.377
16-14	Prothrombin Time	4	0.88 (0.46,1.68)**	0.698**
		5	0.82 (0.48,1.42)	0.483
		6	0.98 (0.54,1.78)	0.950
16-15	RBC Morphology	4	1.10 (0.99,1.22)	0.083
		5	1.08 (0.99,1.19)	0.090
		6	1.11 (1.00,1.22)	0.045
16-17	Absolute Neutrophils (bands) (Zero vs. Nonzero)	4	****	****
		5	****	****
		6	****	****
16-20	Absolute Eosinophils (Zero vs. Nonzero)	4	1.14 (0.99,1.32)	0.082
		5	1.13 (0.99,1.28)	0.065
		6	1.12 (0.96,1.32)**	0.155**
16-21	Absolute Basophils (Zero vs. Nonzero)	4	0.98 (0.90,1.08)	0.715
		5	0.99 (0.91,1.07)	0.767
		6	0.98 (0.90,1.07)	0.673
17-3	Kidney Disease	4	1.07 (0.94,1.21)	0.313
		5	1.06 (0.95,1.18)	0.329
		6	1.05 (0.93,1.18)	0.480
17-4	Kidney Stones	4	0.96 (0.72,1.27)	0.766
		5	0.98 (0.77,1.24)	0.850
		6	0.98 (0.76,1.27)	0.898

Table Q-1-20. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands – Log_2 (Current Dioxin + 1)

Table Reference	Clinical Parameter	Model[a]	Adj. Relative Risk (95% C.I.)	p-Value
17-5	Urinary Protein	4	1.08 (0.85,1.36)**	0.538**
		5	1.06 (0.86,1.30)**	0.576**
		6	1.07 (0.86,1.34)**	0.536**
17-6	Urinary Red Blood Cell Count	4	1.13 (0.86,1.50)**	0.384**
		5	1.12 (0.87,1.43)**	0.371**
		6	1.11 (0.86,1.45)**	0.417**
17-7	Urinary White Blood Cell Count	4	0.95 (0.72,1.24)	0.684
		5	0.95 (0.75,1.19)	0.644
		6	0.98 (0.76,1.26)	0.881
18-3	Past Thyroid Disease	4	0.99 (0.80,1.23)**	0.954**
		5	1.02 (0.85,1.22)	0.834
		6	0.98 (0.81,1.19)	0.842
18-4	Composite Diabetes Indicator	4	1.26 (1.09,1.46)	0.002
		5	1.27 (1.11,1.45)	<0.001
		6	1.16 (1.01,1.34)	0.041
18-7	Thyroid Gland	4	0.69 (0.35,1.34)	0.258
		5	0.80 (0.49,1.29)	0.372
		6	0.74 (0.44,1.23)	0.265
18-10	Retinopathy Results (Diabetics)	4	1.64 (0.93,2.88)	0.066
		5	1.53 (0.91,2.57)	0.079
		6	1.62 (0.93,2.83)	0.067
18-11	Neuropathy Results (Diabetics)	4	1.01 (0.65,1.56)	0.973
		5	1.00 (0.70,1.43)	0.995
		6	1.13 (0.73,1.74)	0.572
18-12	Radial Pulses (Doppler) (Diabetics)	4	--	--
		5	--	--
		6	--	--
18-13	Femoral Pulses (Doppler) (Diabetics)	4	0.89 (0.51,1.55)	0.674
		5	0.98 (0.63,1.51)	0.911
		6	0.87 (0.52,1.44)	0.579
18-14	Popliteal Pulses (Doppler) (Diabetics)	4	0.97 (0.65,1.45)	0.878
		5	1.04 (0.74,1.45)	0.821
		6	0.93 (0.63,1.37)	0.712
18-15	Dorsalis Pedis Pulses (Doppler) (Diabetics)	4	1.33 (0.90,1.74)	0.183
		5	****	****
		6	****	****
18-16	Posterior Tibial Pulses (Doppler) (Diabetics)	4	1.04 (0.69,1.56)	0.860
		5	1.09 (0.79,1.51)	0.587
		6	1.09 (0.79,1.51)	0.587

Table Q-1-20. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Reference	Clinical Parameter	Model[a]	Adj. Relative Risk (95% C.I.)	p-Value
18-17	Leg Pulses (Doppler) (Diabetics)	4	1.20 (0.87,1.66)	0.263
		5	1.16 (0.89,1.52)**	0.271**
		6	1.14 (0.84,1.55)	0.391
18-18	Peripheral Pulses (Doppler) (Diabetics)	4	****	****
		5	1.12 (0.86,1.44)	0.399
		6	1.10 (0.81,1.49)**	0.534**
18-20	Thyroid Stimulating Hormone (TSH)	4	1.15 (0.87,1.52)	0.330
		5	1.16 (0.90,1.48)	0.252
		6	1.16 (0.90,1.49)	0.257
18-22	Thyroxine (T_4)	4	3.22 (1.08,9.63)	0.030
		5	2.60 (1.11,6.10)	0.025
		6	2.83 (0.97,8.24)	0.043
18-23	Anti-Thyroid Antibodies	4	1.02 (0.80,1.30)	0.866
		5	1.05 (0.85,1.29)	0.644
		6	1.00 (0.80,1.25)	0.999
18-25	Fasting Glucose (All Participants)	4	1.18 (1.01,1.38)	0.038
		5	1.22 (1.06,1.40)	0.005
		6	1.11 (0.96,1.29)	0.156
18-27	Fasting Glucose (Diabetics)	4	****	****
		5	****	****
		6	****	****
18-29	Fasting Glucose (Nondiabetics)	4	0.92 (0.68,1.24)	0.583
		5	0.96 (0.75,1.24)	0.772
		6	0.90 (0.68,1.18)	0.439
18-31	2-Hour Postprandial Glucose (Nondiabetics)	4	1.27 (1.08,1.50)**	0.004**
		5	1.28 (1.10,1.49)**	0.002**
		6	1.23 (1.05,1.44)**	0.011**
18-32	Fasting Urinary Glucose (All Participants)	4	1.70 (1.30,2.23)	<0.001
		5	1.72 (1.33,2.21)**	<0.001**
		6	1.63 (1.26,2.11)**	<0.001**
18-33	Fasting Urinary Glucose (Diabetics)	4	1.49 (1.09,2.03)	0.010
		5	1.44 (1.10,1.89)	0.005
		6	1.39 (1.03,1.88)	0.027
18-34	Fasting Urinary Glucose (Nondiabetics)	4	--	--
		5	--	--
		6	--	--
18-35	2-Hour Postprandial Urinary Glucose (Nondiabetics)	4	1.13 (0.99,1.28)	0.075
		5	1.17 (1.04,1.32)	0.011
		6	1.03 (0.90,1.19)**	0.636**

Table Q-1-20. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Reference	Clinical Parameter	Model[a]	Adj. Relative Risk (95% C.I.)	p-Value
18-39	Serum Insulin (Diabetics)	4	****	****
		5	****	****
		6	****	****
18-43	Serum Glucagon (All Participants)	4	0.95 (0.36,2.54)	0.920
		5	0.90 (0.37,2.20)	0.821
		6	1.00 (0.38,2.64)	0.998
18-45	Serum Glucagon (Diabetics)	4	0.78 (0.41,1.48)	0.433
		5	0.39 (0.07,2.19)	0.128
		6	1.03 (0.53,1.99)	0.927
18-47	Serum Glucagon (Nondiabetics)	4	--	--
		5	--	--
		6	--	--
18-49	α-1-C Hemoglobin (All Participants)	4	1.08 (0.96,1.21)	0.212
		5	1.10 (0.99,1.21)**	0.072**
		6	1.02 (0.91,1.14)**	0.713**
18-51	α-1-C Hemoglobin (Diabetics)	4	1.41 (0.96,2.09)	0.070
		5	1.42 (1.01,2.02)	0.035
		6	1.24 (0.84,1.83)	0.267
18-53	α-1-C Hemoglobin (Nondiabetics)	4	0.93 (0.81,1.07)	0.307
		5	0.96 (0.85,1.09)	0.525
		6	0.92 (0.81,1.05)	0.206
18-54	Urinary Protein (Diabetics)	4	1.01 (0.71,1.44)	0.947
		5	1.02 (0.77,1.37)	0.878
		6	1.04 (0.75,1.44)	0.826
18-56	Serum Proinsulin (Diabetics)	4	****	****
		5	****	****
		6	****	****
18-58	Serum C Peptide (Diabetics)	4	0.75 (0.53,1.08)	0.111
		5	0.79 (0.59,1.06)**	0.118**
		6	0.84 (0.60,1.17)**	0.296**
18-60	Total Testosterone	4	1.13 (0.85,1.49)**	0.398**
		5	1.11 (0.90,1.36)	0.322
		6	1.06 (0.85,1.31)	0.632
18-62	Free Testosterone	4	1.10 (0.94,1.29)	0.227
		5	1.05 (0.92,1.21)	0.468
		6	1.12 (0.97,1.30)	0.131
18-63	Sex Hormone Binding Globulin	4	0.97 (0.85,1.11)	0.655
		5	1.02 (0.92,1.14)	0.666
		6	0.98 (0.87,1.10)	0.709

Table Q-1-20. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Reference	Clinical Parameter	Model[a]	Adj. Relative Risk (95% C.I.)	p-Value
18-64	Total Testosterone to Sex Hormone Binding Globulin Ratio	4	1.14 (0.96,1.34)	0.136
		5	1.09 (0.95,1.26)	0.227
		6	1.16 (0.99,1.36)	0.067
18-66	Estradiol	4	****	****
		5	1.08 (0.85,1.39)**	0.527**
		6	1.04 (0.80,1.35)**	0.793**
18-68	Luteinizing Hormone (LH)	4	0.97 (0.64,1.48)	0.883
		5	1.00 (0.70,1.41)	0.982
		6	0.81 (0.56,1.17)	0.281
18-70	Follicle Stimulating (FSH)	4	1.07 (0.85,1.35)	0.543
		5	1.09 (0.89,1.32)	0.409
		6	1.05 (0.85,1.30)	0.676
19-4	Composite Skin Test Diagnosis	4	0.76 (0.59,0.98)	0.029
		5	0.82 (0.68,0.99)	0.037
		6	0.80 (0.64,0.99)**	0.047**
19-15	Double Labelled Cells: CD5 with CD20 (Zero vs. Nonzero)	4	1.02 (0.72,1.44)	0.912
		5	1.05 (0.78,1.42)	0.738
		6	1.00 (0.72,1.39)	0.367
19-16	Double Labelled Cells: CD4 with CD8 (Zero vs. Nonzero)	4	0.97 (0.76,1.23)	0.769
		5	0.98 (0.80,1.21)	0.882
		6	0.96 (0.77,1.21)	0.736
19-17	Double Labelled Cells: CD3 with CD16+56 (Zero vs. Nonzero)	4	****	****
		5	****	****
		6	****	****
19-22	Lupus Panel: Antinuclear Antibody (ANA)	4	0.95 (0.82,1.09)**	0.431**
		5	0.97 (0.86,1.09)**	0.554**
		6	0.94 (0.83,1.07)**	0.341**
19-23	Lupus Panel: Thyroid Microsomal Antibody	4	1.09 (0.88,1.34)**	0.449**
		5	1.10 (0.92,1.32)	0.302
		6	1.07 (0.88,1.30)	0.507
19-24	Lupus Panel: MSK Smooth Muscle Antibody	4	0.80 (0.60,1.07)	0.131
		5	0.87 (0.69,1.09)	0.232
		6	0.83 (0.65,1.06)	0.151
19-25	Lupus Panel: MSK Mitochondrial Antibody	4	--	--
		5	--	--
		6	--	--
19-26	Lupus Panel: MSK Parietal Antibody	4	1.29 (0.94,1.77)	0.118
		5	1.25 (0.95,1.66)	0.114
		6	1.29 (0.95,1.76)	0.104

Table Q-1-20. (Continued)
Summary of Adjusted Results for Dichotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Reference	Clinical Parameter	Model[a]	Adj. Relative Risk (95% C.I.)	p-Value
19-27	Lupus Panel: Rheumatoid Factor	4	0.83 (0.72,0.96)	0.013
		5	0.85 (0.75,0.96)	0.008
		6	0.88 (0.77,1.00)	0.053
19-28	Lupus Panel: B Cell Clones	4	0.91 (0.66,1.27)	0.572
	Detected by Serum Protein	5	0.92 (0.71,1.20)**	0.543**
	Electrophoresis	6	0.87 (0.65,1.16)**	0.340**
19-29	Lupus Panel: Other Antibodies	4	1.07 (0.83,1.39)	0.595
	(ANA and MSK)	5	1.05 (0.83,1.31)	0.697
		6	1.11 (0.87,1.41)**	0.417**
19-30	Lupus Panel: Summary Index	4	0.94 (0.85,1.04)	0.248
		5	0.95 (0.88,1.04)	0.259
		6	0.95 (0.87,1.04)	0.294
20-3	Asthma	4	1.06 (0.80,1.42)**	0.674**
		5	0.99 (0.78,1.27)	0.962
		6	1.01 (0.80,1.27)**	0.965**
20-4	Bronchitis	4	0.84 (0.74,0.96)**	0.011**
		5	0.89 (0.79,0.99)**	0.031**
		6	0.84 (0.74,0.94)**	0.004**
20-5	Pneumonia	4	0.86 (0.72,1.03)	0.095
		5	0.89 (0.77,1.03)	0.127
		6	0.90 (0.76,1.05)	0.173
20-6	Thorax and Lung Abnormalities	4	0.93 (0.79,1.09)**	0.369**
		5	0.95 (0.83,1.08)	0.446
		6	0.97 (0.83,1.12)	0.665
20-7	X Ray Interpretation	4	****	****
		5	0.95 (0.84,1.09)**	0.478**
		6	0.88 (0.77,1.02)**	0.085**

[a] Model 4: Log_2 (lipid-adjusted current dioxin + 1).
Model 5: Log_2 (whole-weight current dioxin + 1).
Model 6: Log_2 (whole-weight current dioxin + 1), adjusted for log_2 total lipids.

** Log_2 (current dioxin + 1)-by-covariate interaction ($p \leq 0.05$); adjusted relative risk, confidence interval, and p-value derived from a model fitted after deletion of this interaction.

**** Log_2 (current dioxin + 1)-by-covariate interaction ($p \leq 0.01$); adjusted relative risk, confidence interval, and p-value not presented.

--: Adjusted relative risk, confidence interval, and p-value not presented due to the sparse number of abnormalities.

Note: Relative risk for a twofold increase in current dioxin.

Table Q-1-21.
Summary of Adjusted Results for Polychotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Contrast	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
13-48	α-1 Antitrypsin	Low vs. Normal	All	1.34 (0.73,2.49)	0.347
			Officer	1.37 (0.62,3.00)	0.434
			Enlisted Flyer	2.50 (0.23,27.60)	0.456
			Enlisted Groundcrew	1.13 (0.38,3.41)	0.824
		High vs. Normal	All	1.35 (0.66,2.73)	0.409
			Officer	2.06 (0.64,6.61)	0.224
			Enlisted Flyer	1.19 (0.24,6.05)	0.831
			Enlisted Groundcrew	0.98 (0.33,2.90)	0.975
16-4	Red Blood Cell (RBC) Count	Low vs. Normal	All	1.55 (0.93,2.57)	0.092
			Officer	1.37 (0.69,2.74)	0.366
			Enlisted Flyer	1.62 (0.36,7.39)	0.530
			Enlisted Groundcrew	1.87 (0.78,4.51)	0.160
		High vs. Normal	All	0.96 (0.46,2.03)	0.919
			Officer	0.68 (0.12,3.72)	0.654
			Enlisted Flyer	0.25 (0.03,2.21)	0.213
			Enlisted Groundcrew	1.59 (0.61,4.18)	0.346
16-6	White Blood Cell (WBC) Count	Low vs. Normal	All	1.11 (0.70,1.75)	0.654
			Officer	0.92 (0.46,1.85)	0.815
			Enlisted Flyer	1.95 (0.66,5.77)	0.226
			Enlisted Groundcrew	1.05 (0.50,2.20)	0.903
		High vs. Normal	All	1.18 (0.80,1.74)	0.400
			Officer	1.33 (0.60,2.95)	0.480
			Enlisted Flyer	0.97 (0.44,2.10)	0.931
			Enlisted Groundcrew	1.24 (0.72,2.13)	0.443

Table Q-1-21. (Continued)
Summary of Adjusted Results for Polychotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Contrast	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
16-8	Hemoglobin	Low vs. Normal	All	1.26 (0.75,2.13)	0.386
			Officer	0.68 (0.30,1.54)	0.355
			Enlisted Flyer	2.59 (0.63,10.65)	0.187
			Enlisted Groundcrew	1.95 (0.83,4.55)	0.123
		High vs. Normal	All	1.56 (0.83,2.93)	0.170
			Officer	2.33 (0.86,6.31)	0.095
			Enlisted Flyer	3.44 (0.34,35.03)	0.297
			Enlisted Groundcrew	0.97 (0.39,2.46)	0.955
18-5	Diabetic Severity	No Treatment vs. Nondiabetic	All	0.94 (0.68,1.29)	0.684
			Officer	1.19 (0.69,2.06)	0.528
			Enlisted Flyer	0.69 (0.33,1.45)	0.323
			Enlisted Groundcrew	0.89 (0.56,1.42)	0.627
		Diet Only vs. Nondiabetic	All	1.27 (0.76,2.13)	0.365
			Officer	2.02 (0.85,4.84)	0.113
			Enlisted Flyer	0.66 (0.19,2.36)	0.525
			Enlisted Groundcrew	1.13 (0.53,2.43)	0.755
		Oral Hypoglycemic vs. Nondiabetic	All	0.99 (0.52,1.88)	0.965
			Officer	0.35 (0.09,1.26)	0.106
			Enlisted Flyer	2.93 (0.53,16.05)	0.216
			Enlisted Groundcrew	1.35 (0.53,3.44)	0.535
		Insulin Dependent vs. Nondiabetic	All	1.82 (0.85,3.88)	0.124
			Officer	2.77 (0.93,8.25)	0.067
			Enlisted Flyer	0.86 (0.14,5.26)	0.869
			Enlisted Groundcrew	1.39 (0.34,5.65)	0.647

Table Q-1-21. (Continued)
Summary of Adjusted Results for Polychotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Contrast	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
18-37	Serum Insulin (All Participants)	Low vs. Normal	All	0.92 (0.60,1.40)**	0.705**
			Officer	0.73 (0.37,1.44)**	0.360**
			Enlisted Flyer	1.00 (0.33,3.03)**	0.995**
			Enlisted Groundcrew	1.11 (0.59,2.09)**	0.739**
		High vs. Normal	All	0.96 (0.80,1.15)**	0.630**
			Officer	1.08 (0.81,1.45)**	0.594**
			Enlisted Flyer	0.74 (0.47,1.18)**	0.207**
			Enlisted Groundcrew	0.94 (0.71,1.24)**	0.641**
18-41	Serum Insulin (Nondiabetics)	Low vs. Normal	All	0.87 (0.56,1.34)**	0.529**
			Officer	0.64 (0.32,1.28)**	0.203**
			Enlisted Flyer	1.08 (0.31,3.81)**	0.903**
			Enlisted Groundcrew	1.09 (0.57,2.06)**	0.795**
		High vs. Normal	All	0.88 (0.72,1.08)**	0.217**
			Officer	0.95 (0.69,1.30)**	0.731**
			Enlisted Flyer	0.66 (0.39,1.11)**	0.116**
			Enlisted Groundcrew	0.91 (0.67,1.25)**	0.569**
20-11	Loss of Vital Capacity	Mild vs. None	All	0.80 (0.55,1.16)	0.248
			Officer	0.80 (0.42,1.53)	0.503
			Enlisted Flyer	0.39 (0.16,0.99)	0.048
			Enlisted Groundcrew	1.05 (0.62,1.78)	0.861
		Moderate or Severe vs. None	All	0.78 (0.35,1.73)	0.538
			Officer	1.01 (0.22,4.60)	0.989
			Enlisted Flyer	0.37 (0.07,1.99)	0.244
			Enlisted Groundcrew	0.95 (0.03,3.02)	0.930

Table Q-1-21. (Continued)
Summary of Adjusted Results for Polychotomous Variables
Model 1: Ranch Hands versus Comparisons

Table Ref.	Clinical Parameter	Contrast	Occupational Category	Adj. Relative Risk (95% C.I.)	p-Value
20-12	Obstructive Abnormality	Mild vs. None	All	1.17 (0.86,1.28)**	0.624**
			Officer	1.08 (0.79,1.47)**	0.638**
			Enlisted Flyer	1.24 (0.77,2.01)**	0.379**
			Enlisted Groundcrew	0.97 (0.71,1.31)**	0.821**
		Moderate or Severe vs. None	All	1.05 (0.81,1.69)**	0.396**
			Officer	1.20 (0.65,2.21)**	0.552**
			Enlisted Flyer	1.77 (0.81,3.87)**	0.155**
			Enlisted Groundcrew	0.93 (0.53,1.65)**	0.809**

** Group-by-covariate interaction ($p \leq 0.05$); adjusted relative risk, confidence interval, and p-value derived from a model fitted after deletion of this interaction.

Note: RH = Ranch Hand
C = Comparison.

Table Q-1-22.
Summary of Adjusted Results for Polychotomous Variables
Model 2: Ranch Hands – Log_2 (Initial Dioxin)

Table Ref.	Clinical Parameter	Contrast	Adj. Relative Risk (95% C.I.)[a]	p-Value[a]
13-48	α-1 Antitrypsin	Low vs. Normal	0.90 (0.51,1.57)	0.703
		High vs. Normal	0.75 (0.38,1.47)	0.404
16-4	Red Blood Cell (RBC) Count	Low vs. Normal	0.81 (0.53,1.24)	0.333
		High vs. Normal	1.06 (0.60,1.90)	0.833
16-6	White Blood Cell (WBC) Count	Low vs. Normal	0.94 (0.60,1.46)	0.778
		High vs. Normal	0.75 (0.52,1.08)	0.127
16-8	Hemoglobin	Low vs. Normal	0.93 (0.61,1.42)	0.732
		High vs. Normal	1.07 (0.68,1.68)	0.765
18-5	Diabetic Severity	No Treatment vs. Normal	1.00 (0.75,1.33)	0.982
		Diet Only vs. Normal	1.29 (0.86,1.95)	0.224
		Oral Hypoglycemics vs. Normal	2.37 (1.42,3.96)	0.001
		Insulin Dependent vs. Normal	1.24 (0.60,2.57)	0.566
18-37	Serum Insulin	Low vs. Normal	0.67 (0.44,1.00)	0.064
		High vs. Normal	1.10 (0.91,1.20)	0.406
18-41	Serum Insulin	Low vs. Normal	0.90 (0.55,1.50)**	0.685**
		High vs. Normal	1.20 (1.00,1.50)**	0.047**
20-11	Loss of Vital Capacity	Mild vs. None	1.16 (0.85,1.59)	0.353
		Moderate or Severe vs. None	0.80 (0.36,1.77)	0.574
20-12	Obstructive Abnormality	Mild vs. None	0.98 (0.82,1.16)	0.795
		Moderate or Severe vs. None	0.97 (0.70,1.34)	0.850

[a] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and the covariates specified in the referenced chapter table.

** Log_2 (initial dioxin)-by-covariate interaction ($p \leq 0.05$); adjusted relative risk, confidence interval, and p-value derived from a model fitted after deletion of this interaction.

Note: Relative risk for a twofold increase in initial dioxin.

Table Q-1-23.
Summary of Adjusted Results for Polychotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Contrast	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[a]	p-Value[a]
13-48	α-1 Antitrypsin	Low vs. Normal	Comparison	1,043		
			Background RH	369	1.24 (0.57,2.66)	0.586
			Low RH	257	0.92 (0.31,2.75)	0.881
			High RH	258	1.19 (0.37,3.81)	0.765
			Low plus High RH	515	1.03 (0.44,2.42)	0.945
		High vs. Normal	Comparison	1,043		
			Background RH	369	1.81 (0.71,4.57)	0.211
			Low RH	257	1.16 (0.40,3.38)	0.791
			High RH	258	0.23 (0.03,1.80)	0.160
			Low plus High RH	515	0.70 (0.26,1.93)	0.493
16-4	Red Blood Cell (RBC) Count	Low vs. Normal	Comparison	1,061		
			Background RH	371	1.77 (0.93,3.39)	0.084
			Low RH	259	1.80 (0.88,3.66)	0.107
			High RH	258	0.75 (0.26,2.20)	0.603
			Low plus High RH	517	1.33 (0.70,2.54)	0.383
		High vs. Normal	Comparison	1,061		
			Background RH	371	0.79 (0.22,2.84)	0.723
			Low RH	259	0.98 (0.31,3.15)	0.974
			High RH	258	0.75 (0.20,2.77)	0.668
			Low plus High RH	517	0.87 (0.34,2.24)	0.769
16-6	White Blood Cell (WBC) Count	Low vs. Normal	Comparison	1,059		
			Background RH	371	1.06 (0.54,2.11)	0.861
			Low RH	259	1.26 (0.62,2.58)	0.521
			High RH	258	1.37 (0.63,3.00)	0.431
			Low plus High RH	517	1.31 (0.73,2.34)	0.369
		High vs. Normal	Comparison	1,059		
			Background RH	371	1.11 (0.63,1.96)	0.709
			Low RH	259	1.53 (0.86,2.75)	0.151
			High RH	258	0.79 (0.41,1.52)	0.477
			Low plus High RH	517	1.11 (0.69,1.80)	0.664

Table Q-1-23. (Continued)
Summary of Adjusted Results for Polychotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Contrast	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[a]	p-Value[a]
18-37	Serum Insulin (All Participants)	Low vs. Normal	Comparison	1,044		
			Background RH	368	0.72 (0.40,1.30)**	0.275**
			Low RH	251	0.82 (0.39,1.73)**	0.609**
			High RH	254	0.78 (0.35,1.74)**	0.540**
			Low plus High RH	505	0.80 (0.45,1.45)**	0.466**
		High vs. Normal	Comparison	1,044		
			Background RH	368	0.81 (0.62,1.06)**	0.127**
			Low RH	251	0.95 (0.70,1.29)**	0.736**
			High RH	254	0.99 (0.72,1.37)**	0.972**
			Low plus High RH	505	0.97 (0.76,1.23)**	0.805**
18-41	Serum Insulin (Nondiabetics)	Low vs. Normal	Comparison	897		
			Background RH	329	****	****
			Low RH	203	****	****
			High RH	208	****	****
			Low plus High RH	411	****	****
		High vs. Normal	Comparison	897		
			Background RH	329	****	****
			Low RH	203	****	****
			High RH	208	****	****
			Low plus High RH	411	****	****
20-11	Loss of Vital Capacity	Mild vs. None	Comparison	1,060		
			Background RH	372	0.94 (0.55,1.62)	0.833
			Low RH	260	0.67 (0.36,1.23)	0.196
			High RH	260	0.84 (0.46,1.54)	0.582
			Low plus High RH	520	0.75 (0.47,1.19)	0.220
		Moderate or Severe vs. None	Comparison	1,060		
			Background RH	372	0.43 (0.10,1.95)	0.277
			Low RH	260	0.97 (0.34,2.77)	0.952
			High RH	260	0.74 (0.20,2.67)	0.643
			Low plus High RH	520	0.87 (0.36,2.11)	0.754

Table Q-1-23. (Continued)
Summary of Adjusted Results for Polychotomous Variables
Model 3: Ranch Hands and Comparisons by Dioxin Category

Table Ref.	Clinical Parameter	Contrast	Dioxin Category	n	Adj. Relative Risk (95% C.I.)[a]	p-Value[a]
20-12	Obstructive Abnormality	Mild vs. None	Comparison	1,060		
			Background RH	372	1.14 (0.86,1.51)**	0.360**
			Low RH	260	0.96 (0.70,1.32)**	0.822**
			High RH	260	1.05 (0.74,1.47)**	0.798**
			Low plus High RH	520	1.00 (0.78,1.29)**	0.997**
		Moderate or Severe vs. None	Comparison	1,060		
			Background RH	372	1.30 (0.78,2.16)**	0.307**
			Low RH	260	1.08 (0.62,1.89)**	0.785**
			High RH	260	0.85 (0.44,1.66)**	0.631**
			Low plus High RH	520	0.98 (0.62,1.56)**	0.938**

[a] Adjusted for percent body fat at the time of duty in SEA, change in percent body fat from the time of duty in SEA to the date of the blood draw for dioxin, and covariates specified in the referenced chapter table.

** Categorized dioxin-by-covariate interaction ($p \leq 0.05$); adjusted relative risk, confidence interval, and p-value derived from a model fitted after deletion of this interaction.

**** Categorized dioxin-by-covariate interaction ($p \leq 0.01$); adjusted relative risk, confidence interval, and p-value not presented.

--: Adjusted relative risk, confidence interval, and p-value not presented due to the sparse number of abnormalities.

Note: Relative risk and confidence interval relative to Comparisons.
RH = Ranch Hand.
Comparison: Current Dioxin $\leq$ 10 ppt.
Background (Ranch Hand): Current Dioxin $\leq$ 10 ppt.
Low (Ranch Hand): Current Dioxin $>$ 10 ppt, 10 ppt $<$ Initial Dioxin $\leq$ 143 ppt.
High (Ranch Hand): Current Dioxin $>$ 10 ppt, Initial Dioxin $>$ 143 ppt.

Table Q-1-24.
Summary of Adjusted Results for Polychotomous Variables
Models 4, 5, and 6: Ranch Hands − Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter	Contrast	Model[a]	Adj. Relative Risk (95% C.I.)	p-Value
13-48	α-1 Antitrypsin	Low vs. Normal	4	0.88 (0.62,1.24)	0.449
			5	0.93 (0.70,1.23)	0.604
			6	0.88 (0.67,1.15)	0.344
		High vs. Normal	4	0.67 (0.45,1.01)	0.054
			5	0.74 (0.55,0.98)	0.035
			6	0.86 (0.62,1.20)	0.390
16-4	Red Blood Cell (RBC) Count	Low vs. Normal	4	0.88 (0.68,1.15)	0.349
			5	0.90 (0.73,1.11)	0.331
			6	0.92 (0.73,1.15)	0.447
		High vs. Normal	4	1.21 (0.79,1.86)	0.377
			5	1.20 (0.82,1.76)	0.354
			6	1.23 (0.82,1.84)	0.308
16-6	White Blood Cell (WBC) Count	Low vs. Normal	4	1.04 (0.77,1.39)**	0.821**
			5	1.06 (0.82,1.37)**	0.660**
			6	1.04 (0.80,1.36)**	0.769**
		High vs. Normal	4	0.79 (0.65,0.98)**	0.029**
			5	0.87 (0.74,1.02)**	0.081**
			6	0.83 (0.70,0.99)**	0.034**
16-8	Hemoglobin	Low vs. Normal	4	0.91 (0.68,1.23)	0.548
			5	0.91 (0.70,1.18)	0.486
			6	0.93 (0.71,1.22)	0.610
		High vs. Normal	4	1.20 (0.88,1.65)	0.242
			5	1.19 (0.90,1.56)	0.219
			6	1.23 (0.92,1.64)	0.165
18-5	Diabetic Severity	No Treatment vs. Nondiabetic	4	1.04 (0.83,1.30)**	0.718**
			5	1.08 (0.89,1.31)**	0.453**
			6	****	****
		Diet Only vs. Nondiabetic	4	1.61 (1.14,2.28)**	0.007**
			5	1.77 (1.29,2.44)**	<0.001**
			6	****	****
		Oral Hypoglycemic vs. Nondiabetic	4	3.96 (2.17,7.21)**	<0.001**
			5	3.90 (2.20,6.89)**	<0.001**
			6	****	****
		Insulin Dependent vs. Nondiabetic	4	0.71 (0.43,1.17)**	0.177**
			5	0.78 (0.55,1.11)**	0.168**
			6	****	****

Table Q-1-24. (Continued)
Summary of Adjusted Results for Polychotomous Variables
Models 4, 5, and 6: Ranch Hands – Log_2 (Current Dioxin + 1)

Table Ref.	Clinical Parameter	Contrast	Model[a]	Adj. Relative Risk (95% C.I.)	p-Value
18-37	Serum Insulin (All Participants)	Low vs. Normal	4	0.86 (0.68,1.10)**	0.223**
			5	0.88 (0.73,1.07)**	0.198**
			6	0.86 (0.71,1.06)	0.156
		High vs. Normal	4	1.05 (0.94,1.17)**	0.407**
			5	1.07 (0.97,1.17)**	0.157**
			6	1.04 (0.94,1.15)	0.451
18-41	Serum Insulin (Nondiabetics)	Low vs. Normal	4	0.93 (0.72,1.20)	0.581
			5	0.93 (0.76,1.15)	0.520
			6	****	****
		High vs. Normal	4	1.19 (1.06,1.35)	0.005
			5	1.22 (1.09,1.36)	<0.001
			6	****	****
20-11	Loss of Vital Capacity	Mild vs. None	4	1.12 (0.90,1.40)**	0.297**
			5	1.12 (0.93,1.36)**	0.229**
			6	1.15 (0.94,1.40)	0.187
		Moderate or Severe vs. None	4	1.05 (0.62,1.78)**	0.852**
			5	1.05 (0.67,1.66)**	0.826**
			6	1.05 (0.64,1.72)	0.839
20-12	Obstructive Abnormality	Mild vs. None	4	0.88 (0.77,1.01)	0.061
			5	0.91 (0.82,1.02)	0.123
			6	0.91 (0.81,1.03)	0.135
		Moderate or Severe vs. None	4	0.86 (0.67,1.09)	0.206
			5	0.88 (0.72,1.08)	0.228
			6	0.89 (0.72,1.11)	0.303

[a] Model 4: Log_2 (lipid-adjusted current dioxin + 1).
Model 5: Log_2 (whole-weight current dioxin + 1).
Model 6: Log_2 (whole-weight current dioxin + 1), adjusted for log_2 total lipids.

** Log_2 (current dioxin + 1)-by-covariate interaction ($0.01 < p \leq 0.05$); adjusted relative risk, confidence interval, and p-value derived from a model fitted after deletion of this interaction.

**** Log_2 (current dioxin + 1)-by-covariate interaction ($p \leq 0.01$); adjusted relative risk, confidence interval, and p-value not presented.

Note: Relative risk for a twofold increase in current dioxin.

APPENDIX Q-2.

Graphical Presentations of Continuous Clinical Parameters versus Current Dioxin

This appendix contains bivariate scatterplots describing the relationship between selected clinical parameters and lipid-adjusted current dioxin. The clinical parameter transformation used in the statistical analysis has been used in the scatterplots, and consequently the axis marks are equally spaced on the transformed scale. The axis marks for current lipid-adjusted dioxin are equally spaced for twofold increases, because a logarithmic (base 2) transformation was used. For the scatterplots, the reference line indicates the general relationship, unadjusted for any covariates, between the (transform of the) clinical parameter and $\log_2$ (current lipid-adjusted dioxin + 1). Participants excluded from the analyses are not displayed on these scatterplots, and consequently the graphical displays parallel the unadjusted Model 4 analyses of these selected clinical parameters.

A listing of the clinical parameter presented in each graphical display, along with a reference to a table in Chapters 9 through 20 and the transformation used on the clinical parameter, is given below.

Appendix Q-2 Figure	Chapter 9 through 20 Reference Table	Clinical Parameter (units)	Transformation
Q-2-1	9-6	Body Fat (percent)	Natural logarithm
Q-2-2	9-10	Sedimentation Rate (mm/hr)	Natural logarithm
Q-2-3	10-40	Prostate-Specific Antigen (ng/ml) (Measurements at or Above Sensitivity Limit)	Natural logarithm
Q-2-4	11-28	Vibrotactile Threshold Measurement of Right Great Toe (microns)	Natural logarithm
Q-2-5	11-29	Vibrotactile Threshold Measurement of Left Great Toe (microns)	Natural logarithm
Q-2-6	13-25	Cholesterol (mg/dl)	Natural logarithm
Q-2-7	13-27	HDL Cholestrol (mg/dl)	Natural logarithm
Q-2-8	13-31	Triglycerides (mg/dl)	Natural logarithm
Q-2-9	16-5	White Blood Cell (WBC) Count (thousand/mm^3)	Natural logarithm
Q-2-10	16-11	Platelet Count (thousand/mm^3)	Square root
Q-2-11	18-19	Thyroid Stimulating Hormone (TSH) (μIU/ml)	Natural logarithm
Q-2-12	18-21	Thyroxine (T_4) (μg/dl)	--
Q-2-13	18-24	Fasting Glucose (mg/dl) (All Participants)	Natural logarithm

Appendix Q-2 Figure	Chapter 9 through 20 Reference Table	Clinical Parameter (units)	Transformation
Q-2-14	18-30	2-Hour Postprandial Glucose (mg/dl) (Nondiabetics)	Natural logarithm
Q-2-15	18-38	Serum Insulin (mIU/ml) (Diabetics)	Natural logarithm
Q-2-16	18-40	Serum Insulin (mIU/ml) (Nondiabetics)	Natural logarithm
Q-2-17	18-59	Total Testosterone (ng/dl)	Square root
Q-2-18	19-6	CD4 Cells (cells/mm^3)	Natural logarithm
Q-2-19	19-8	CD8 Cells (cells/mm^3)	Natural logarithm
Q-2-20	19-13	CD4-CD8 Ratio	Natural logarithm
Q-2-21	19-19	IgA (mg/dl)	Natural logarithm
Q-2-22	19-20	IgG (mg/dl)	Natural logarithm
Q-2-23	19-21	IgM (mg/dl)	Natural logarithm
Q-2-24	20-8	Forced Vital Capacity (FVC) (percent of predicted)	--
Q-2-25	20-9	Forced Expiratory Volume in 1 Second (FEV_1) (percent of predicted)	--
Q-2-26	20-10	Ratio of Observed FEV_1 to Observed FVC	Natural logarithm (1 - clinical parameter)

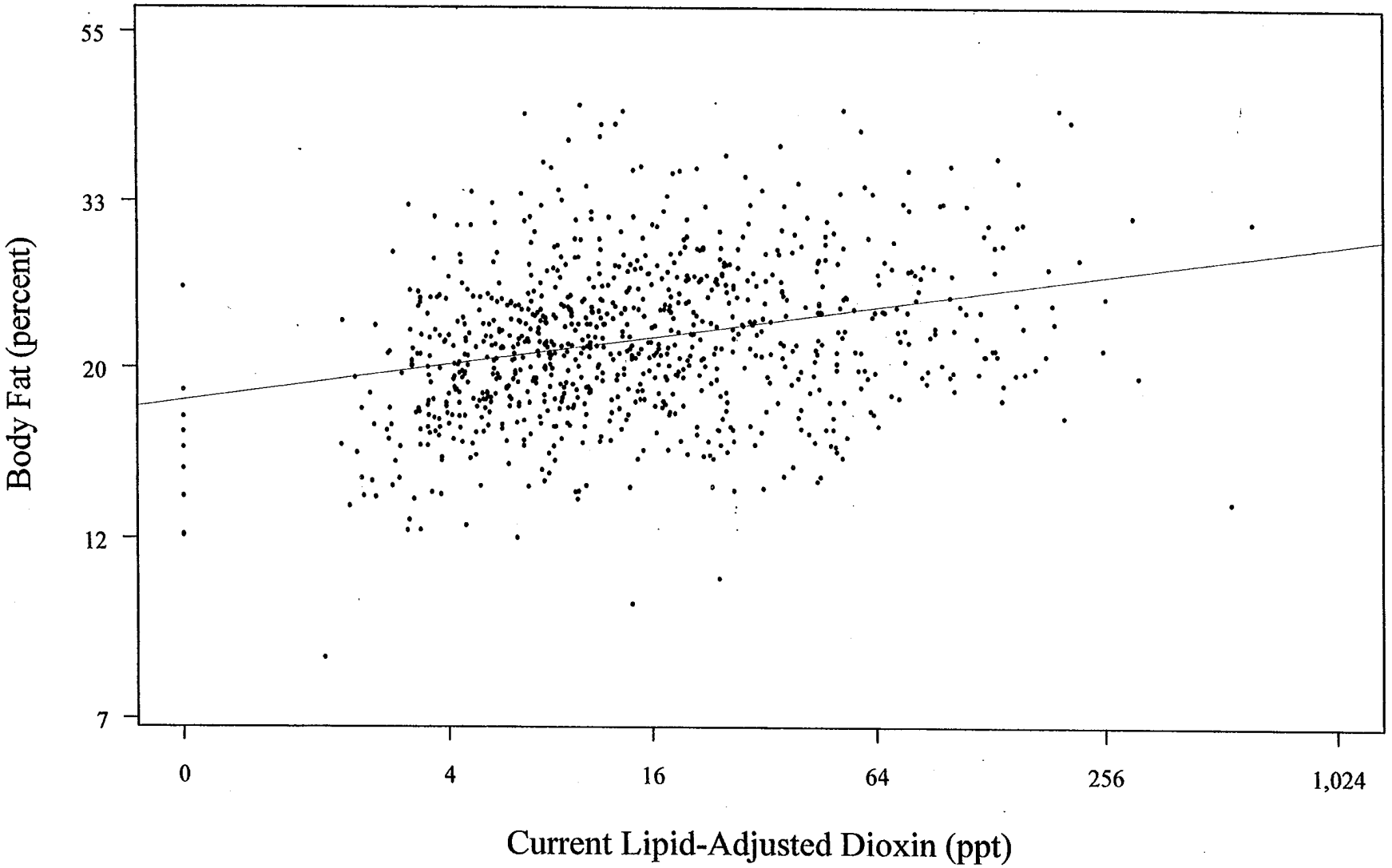


Figure Q-2-1.
Body Fat versus Current Lipid-Adjusted Dioxin (Table 9-6)

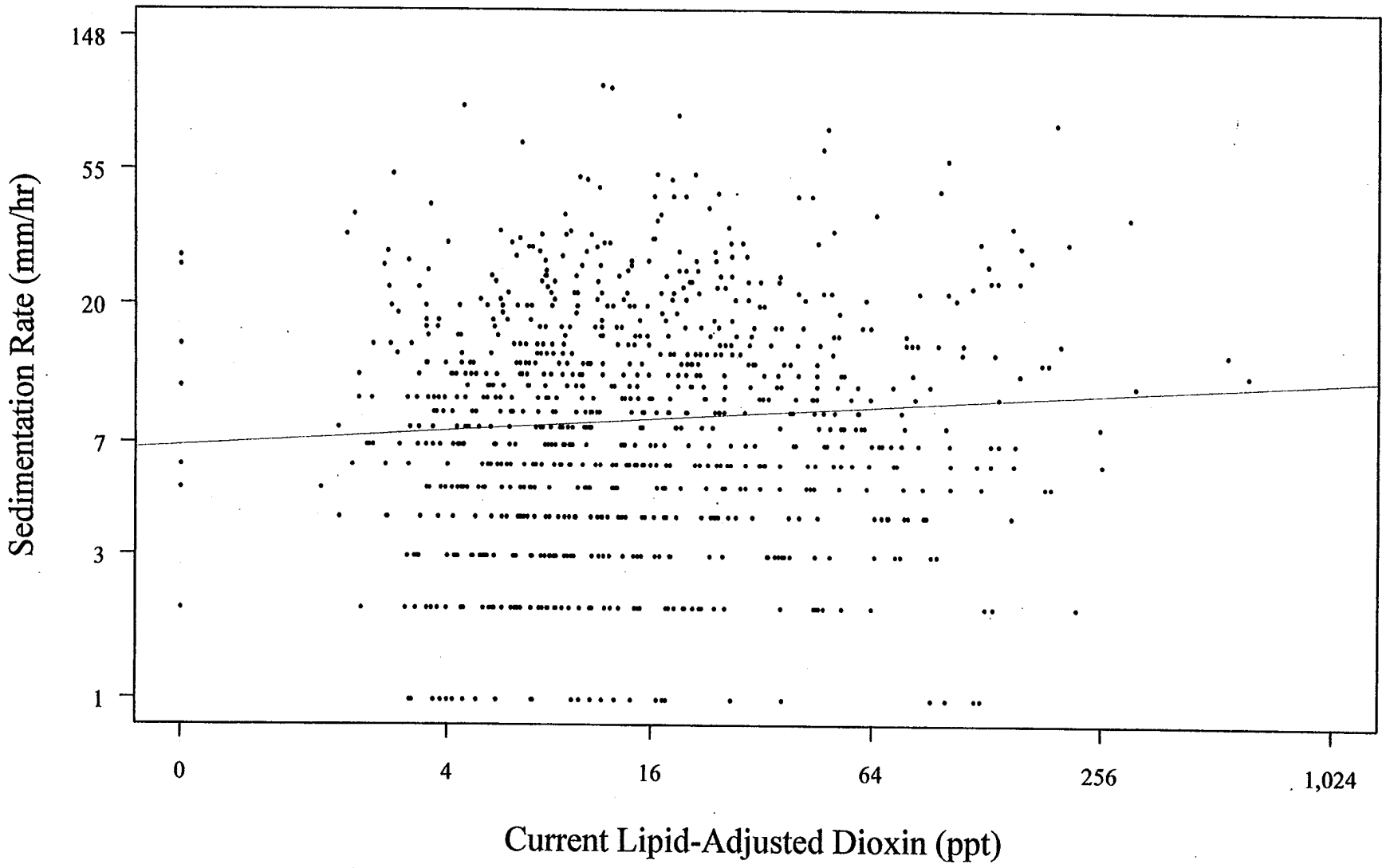


Figure Q-2-2.
Sedimentation Rate versus Current Lipid-Adjusted Dioxin (Table 9-10)

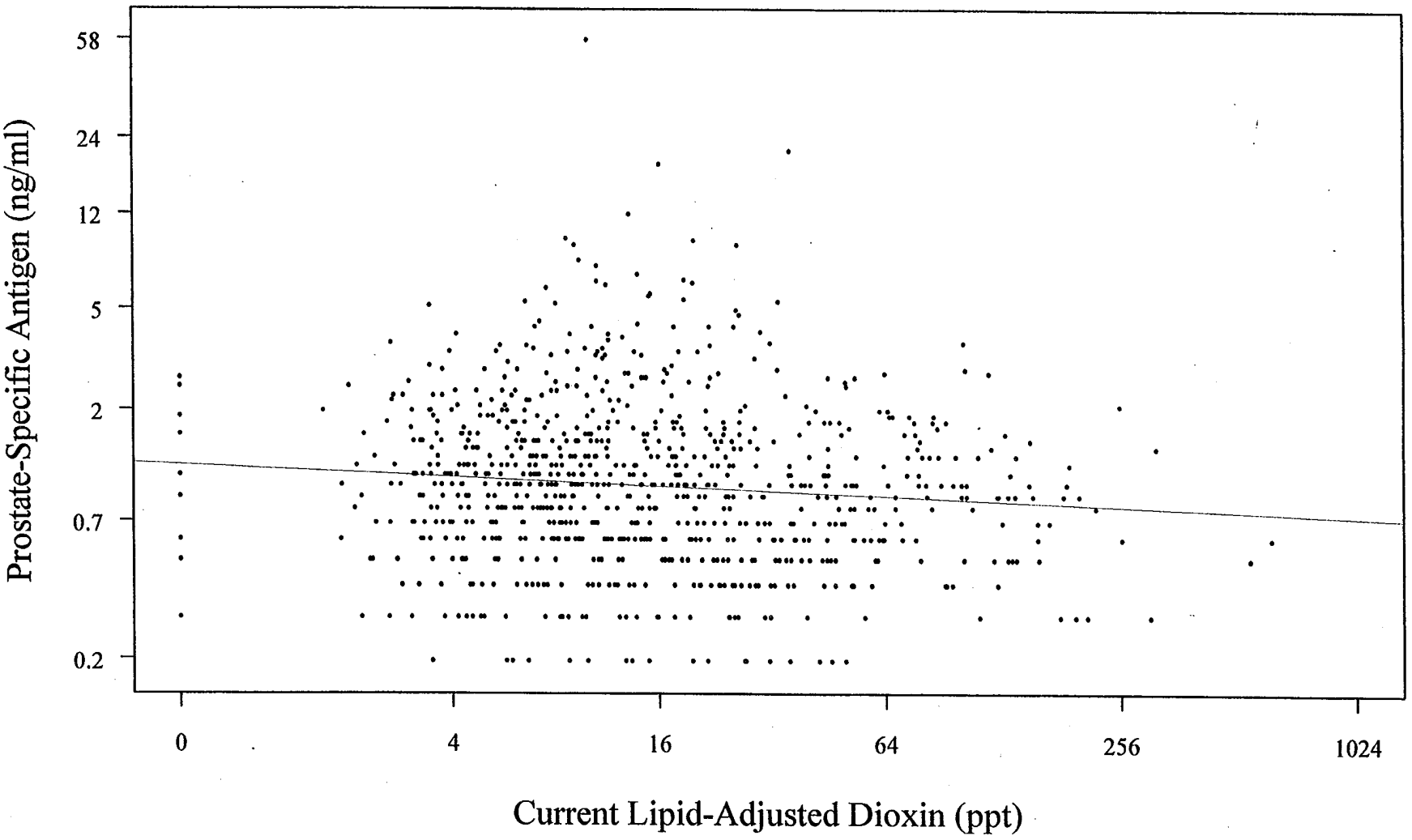


Figure Q-2-3.
Prostate-Specific Antigen versus Current Lipid-Adjusted Dioxin (Table 10-40)
Measurements at or Above Sensitivity Limit (0.2 ng/ml)

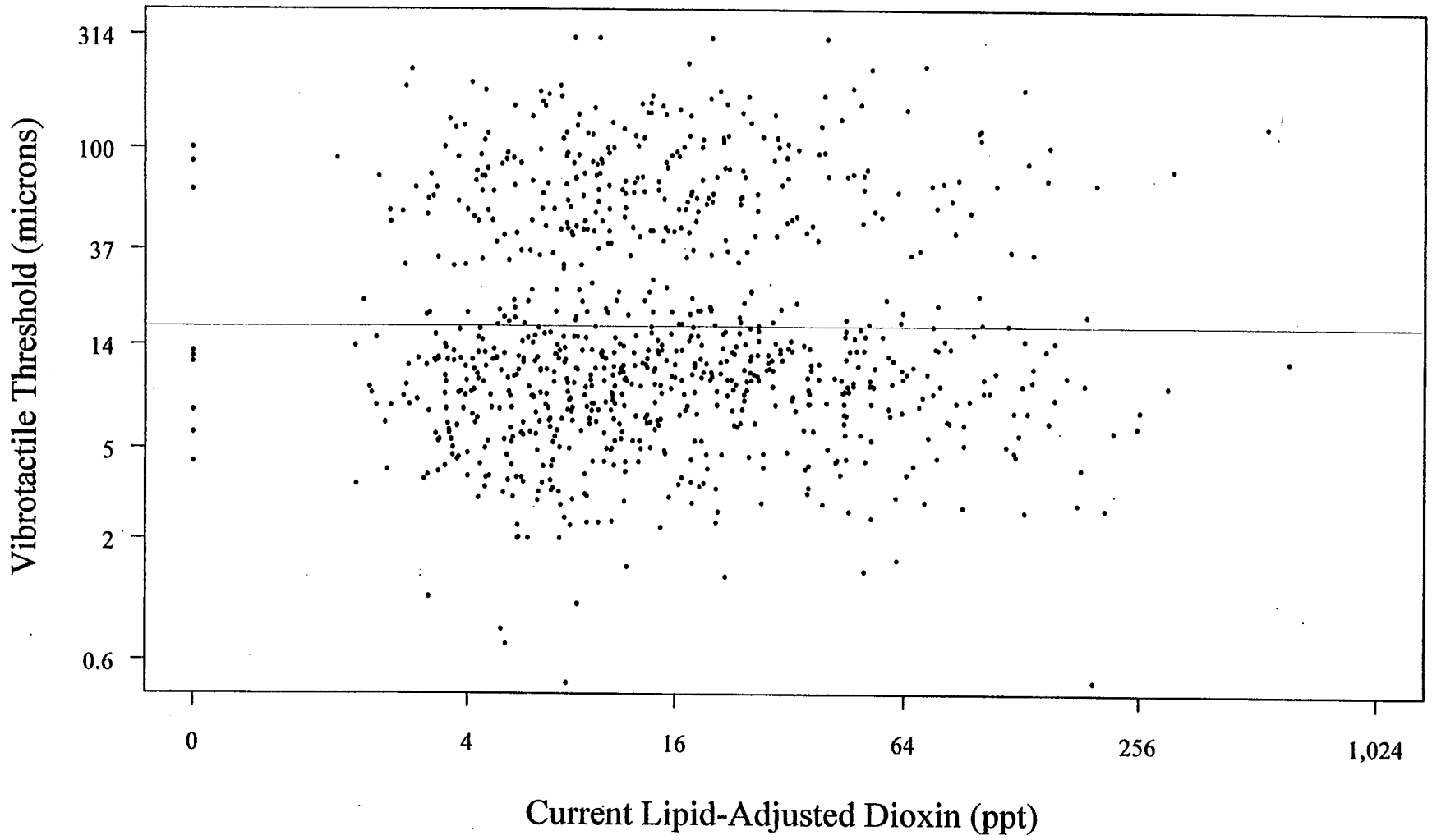


Figure Q-2-4.
Vibrotactile Threshold Measurement of Right Great Toe
versus Current Lipid-Adjusted Dioxin (Table 11-28)

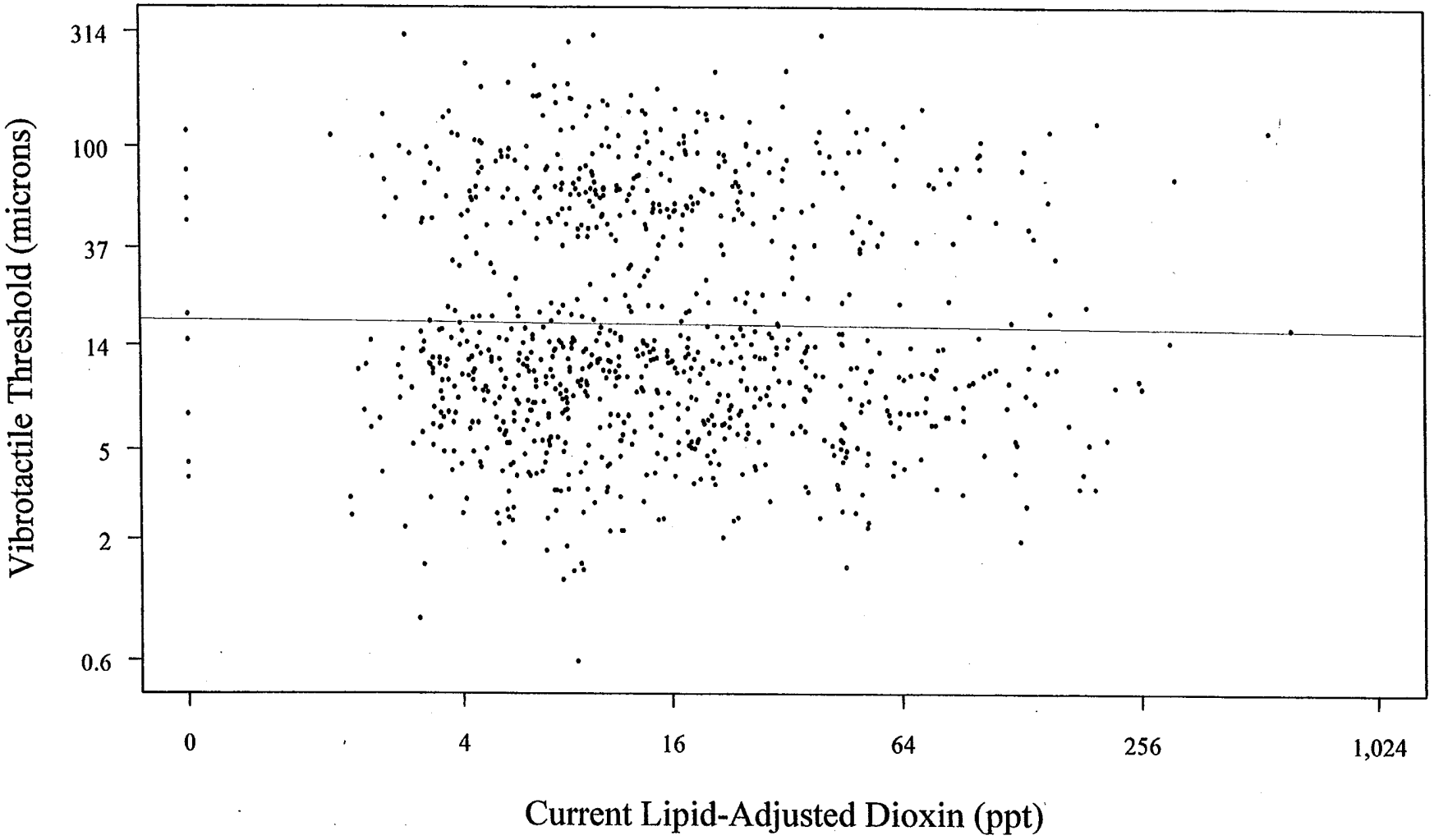


Figure Q-2-5.
Vibrotactile Threshold Measurement of Left Great Toe
versus Current Lipid-Adjusted Dioxin (Table 11-29)

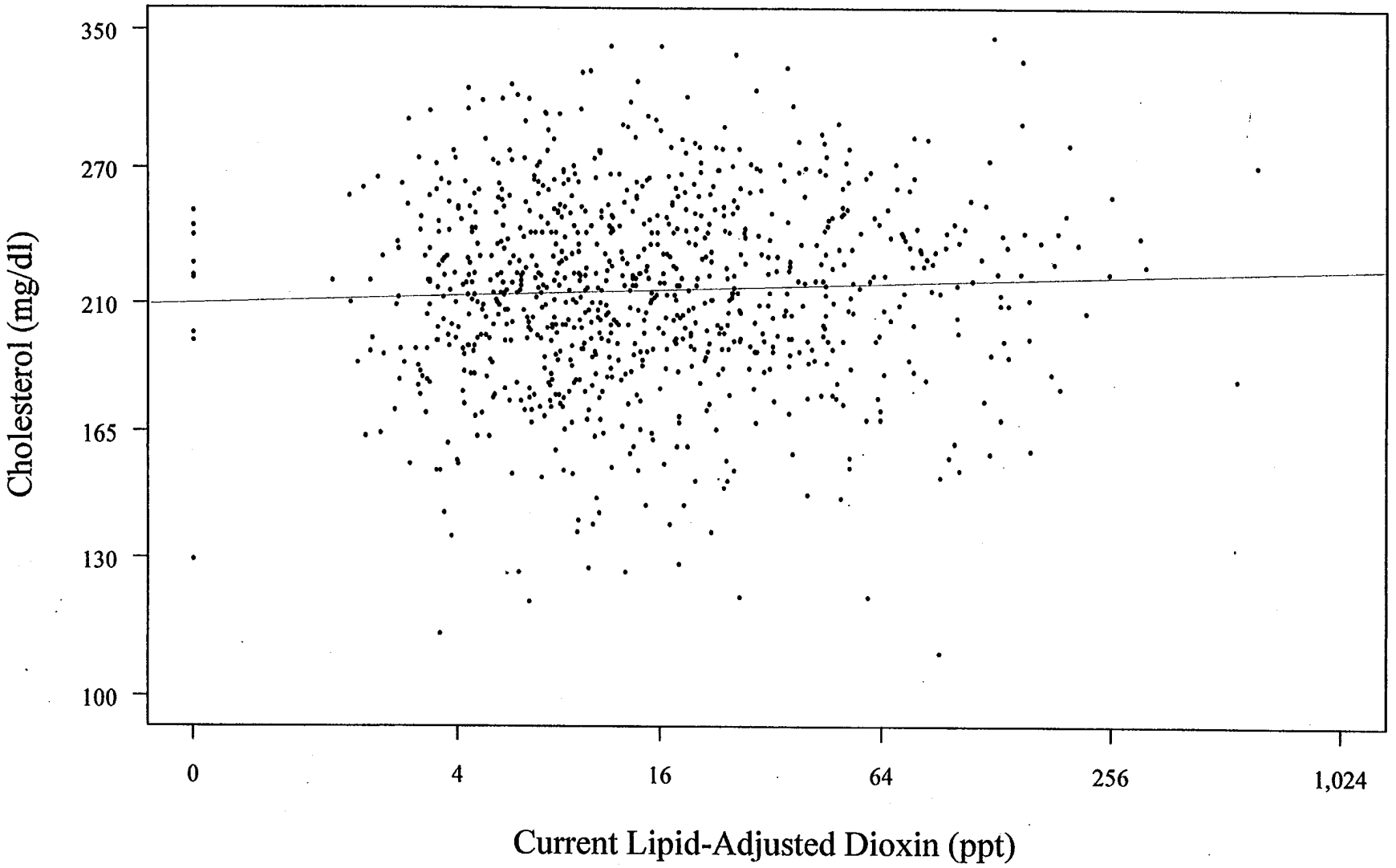


Figure Q-2-6.
Cholesterol versus Current Lipid-Adjusted Dioxin (Table 13-25)

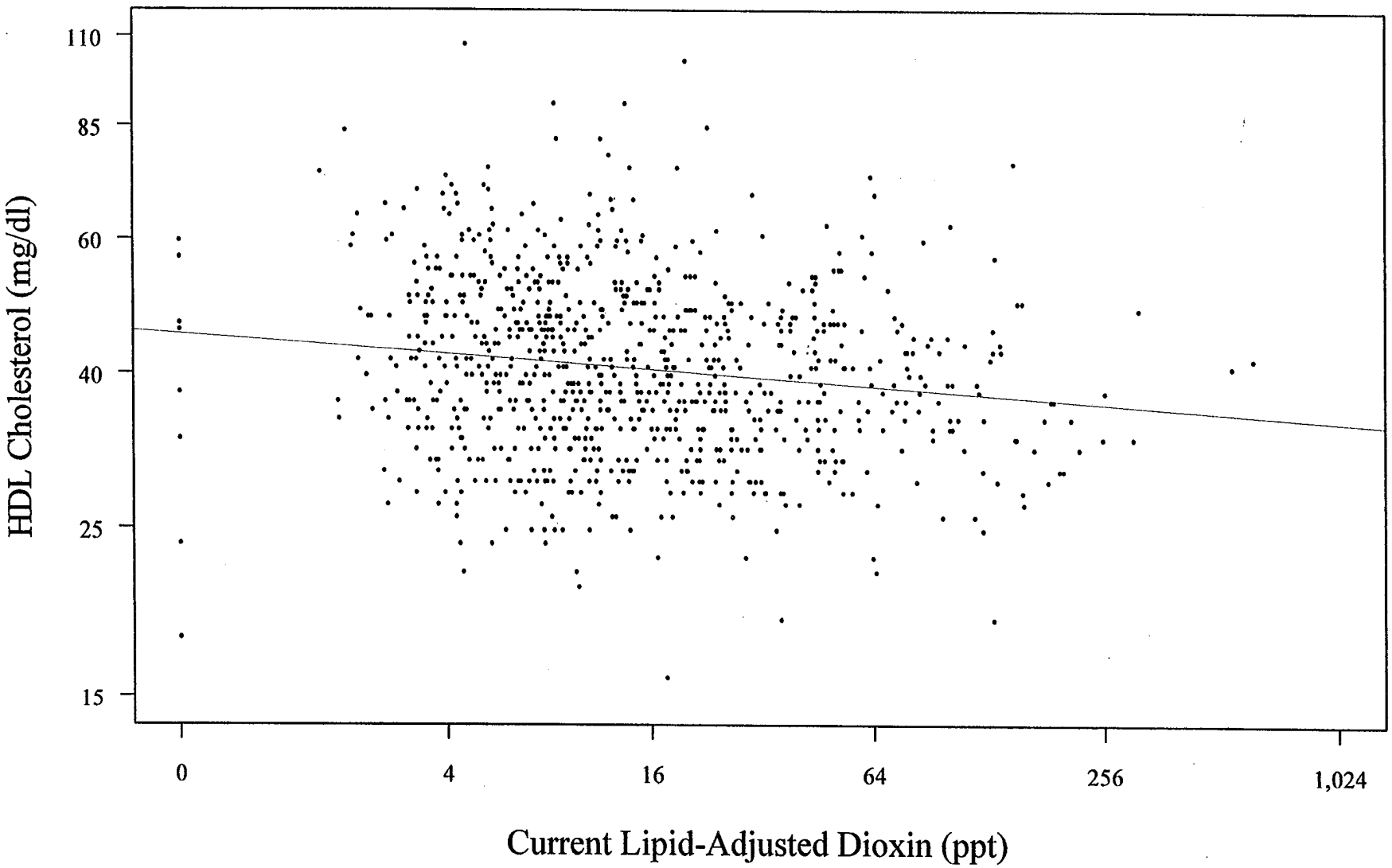


Figure Q-2-7.
HDL Cholesterol versus Current Lipid-Adjusted Dioxin (Table 13-27)

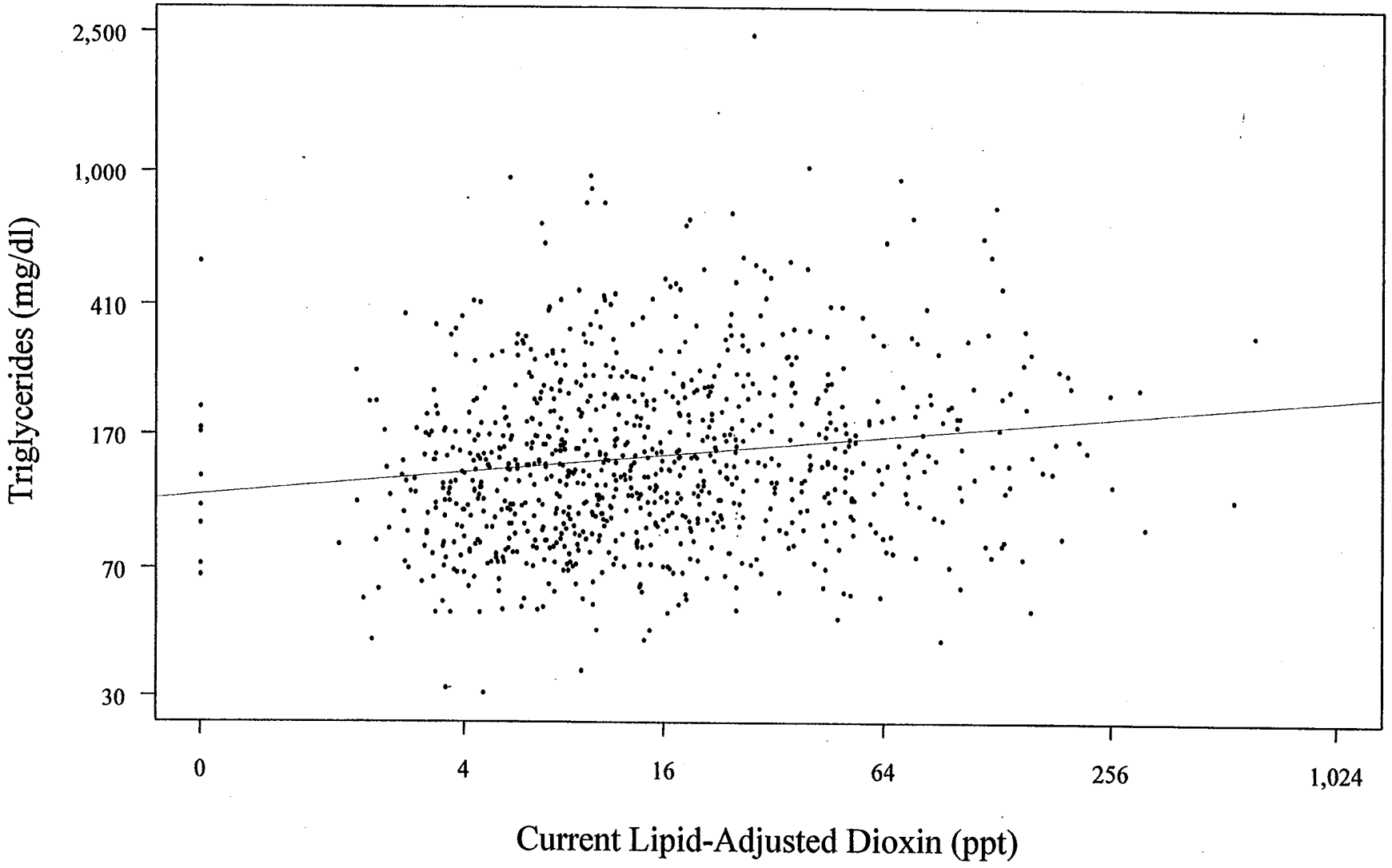


Figure Q-2-8.
Triglycerides versus Current Lipid-Adjusted Dioxin (Table 13-31)

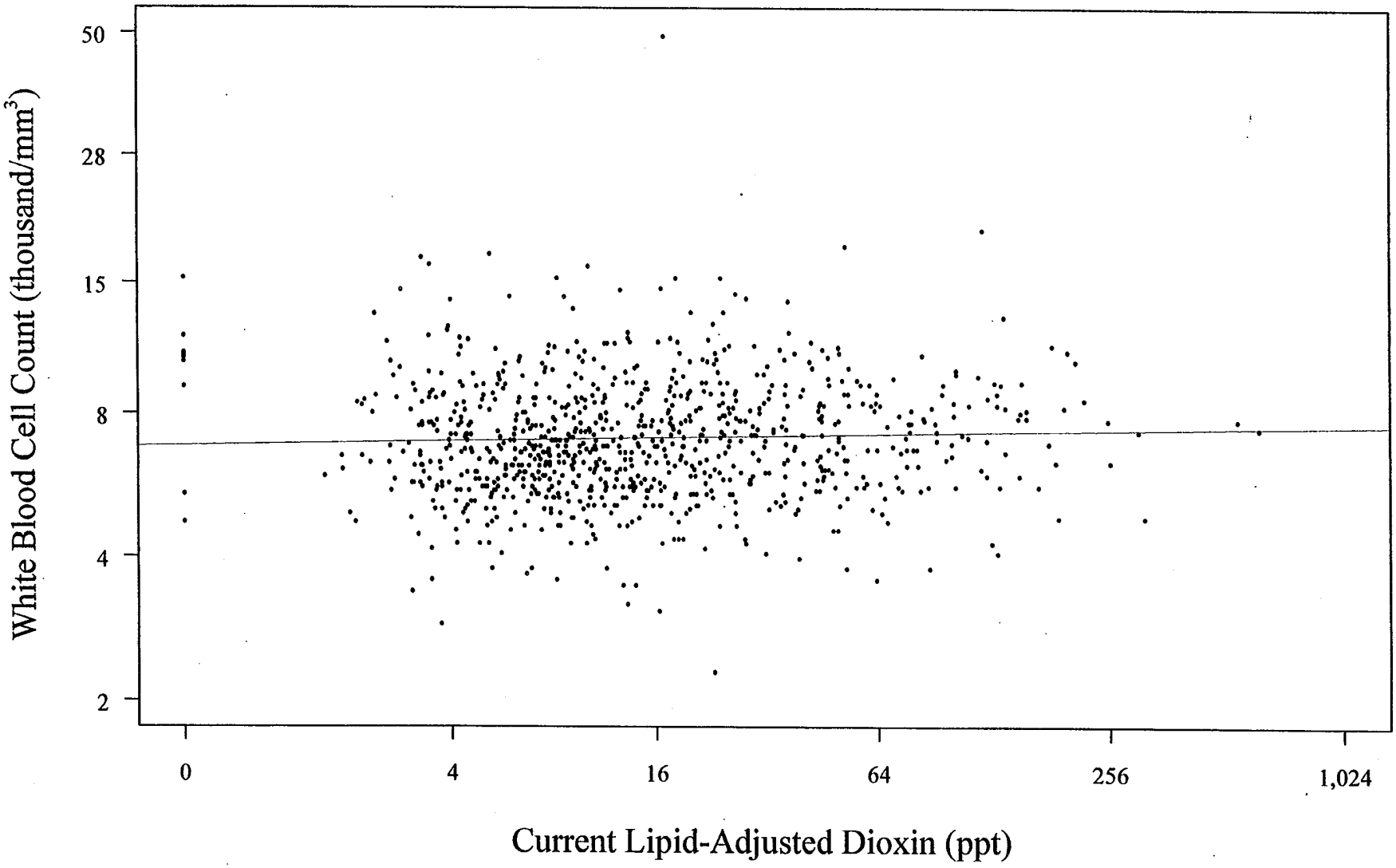


Figure Q-2-9.
White Blood Cell Count versus Current Lipid-Adjusted Dioxin (Table 16-5)

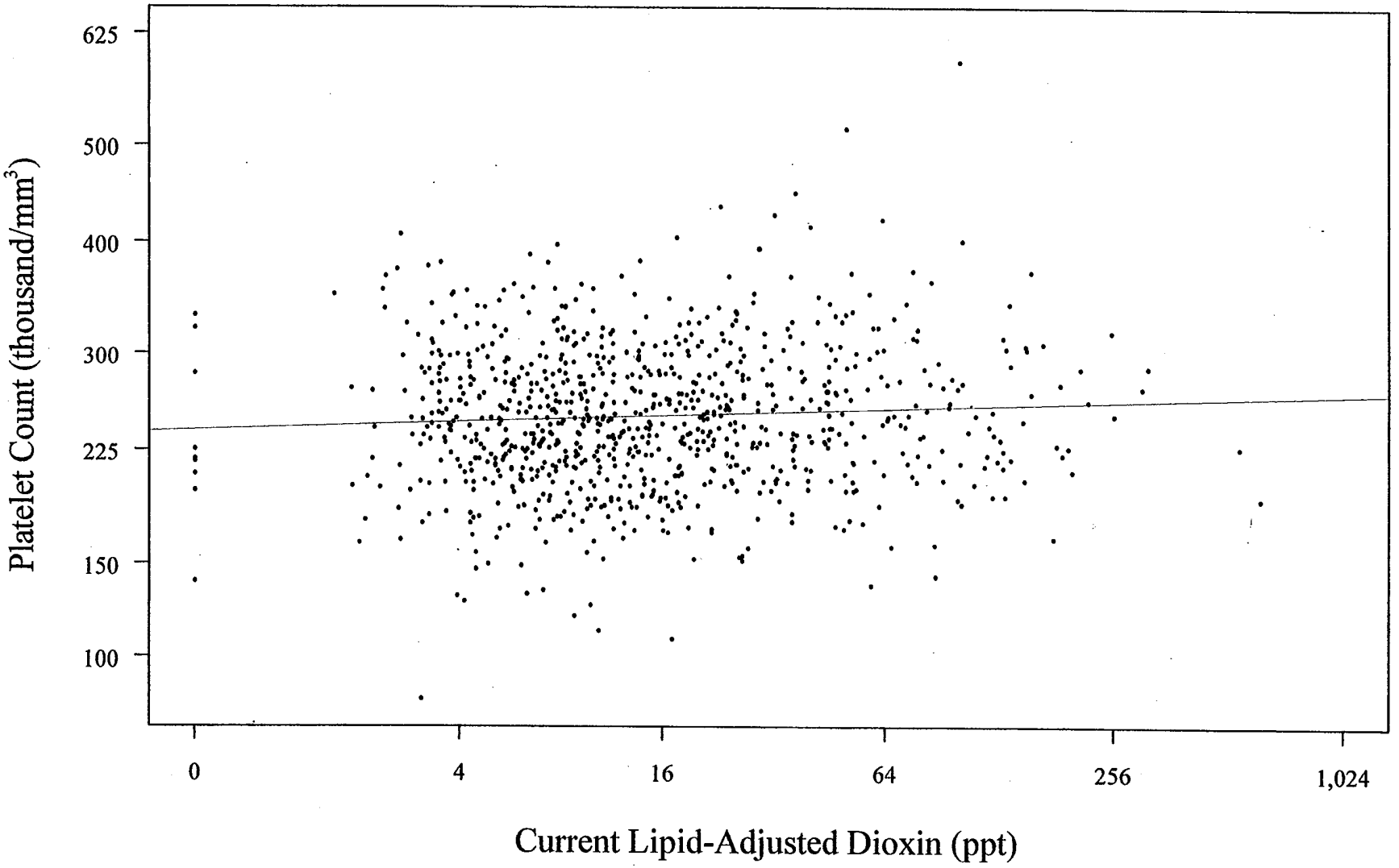


Figure Q-2-10.
Platelet Count versus Current Lipid-Adjusted Dioxin (Table 16-11)

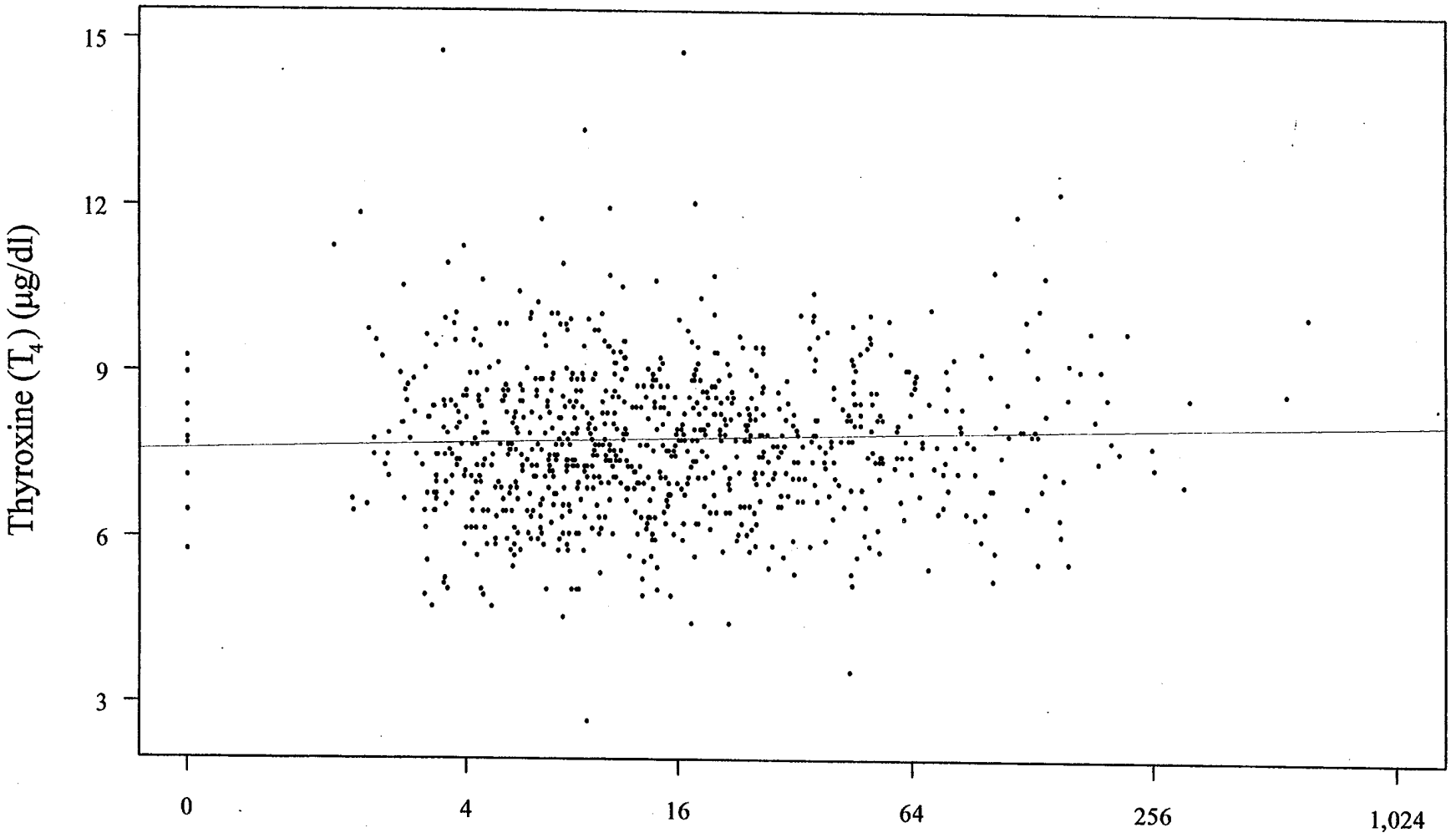


Figure Q-2-12.
Thyroxine (T_4) versus Current Lipid-Adjusted Dioxin (Table 18-21)

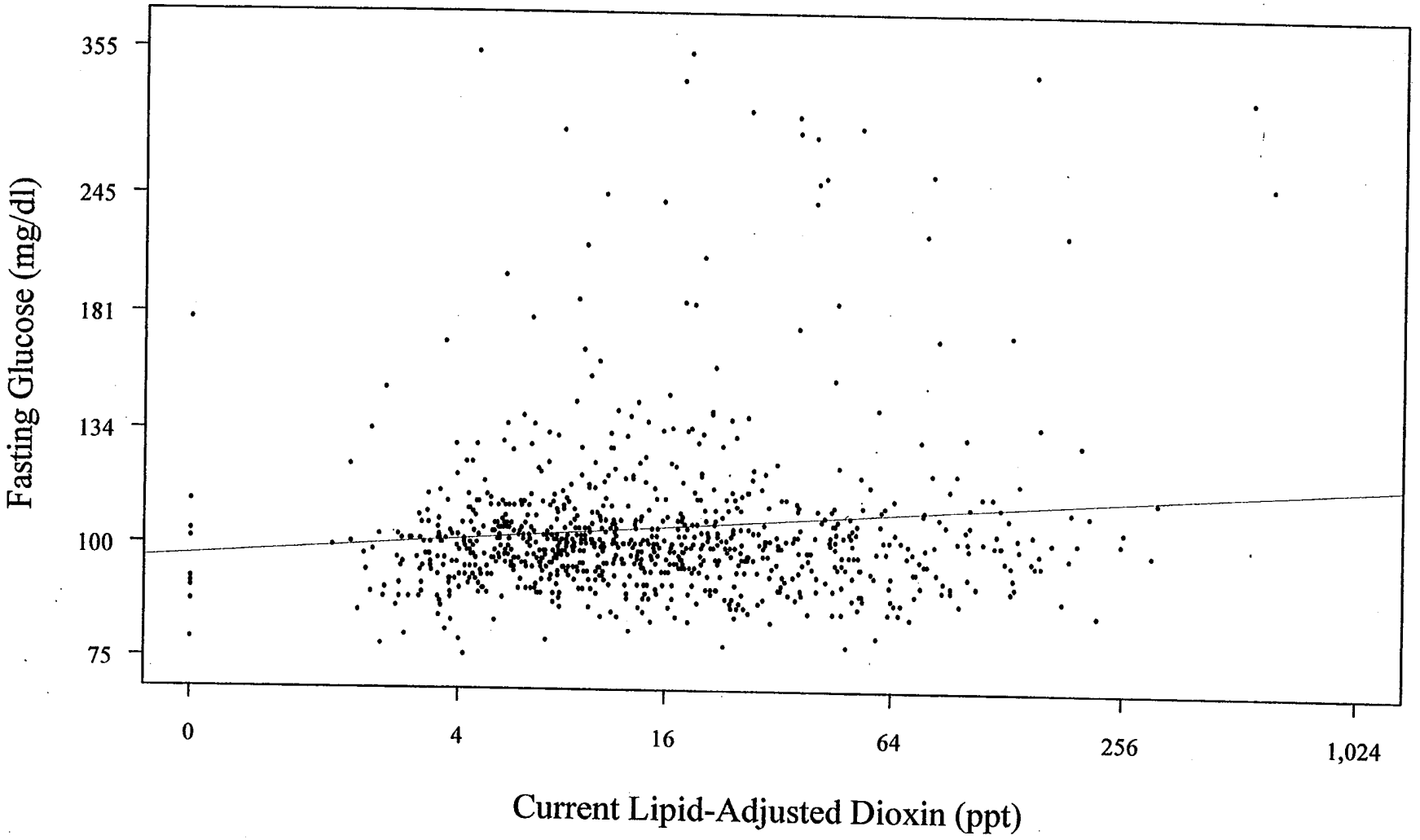


Figure Q-2-13.
Fasting Glucose versus Current Lipid-Adjusted Dioxin (Table 18-24)
(All Participants)

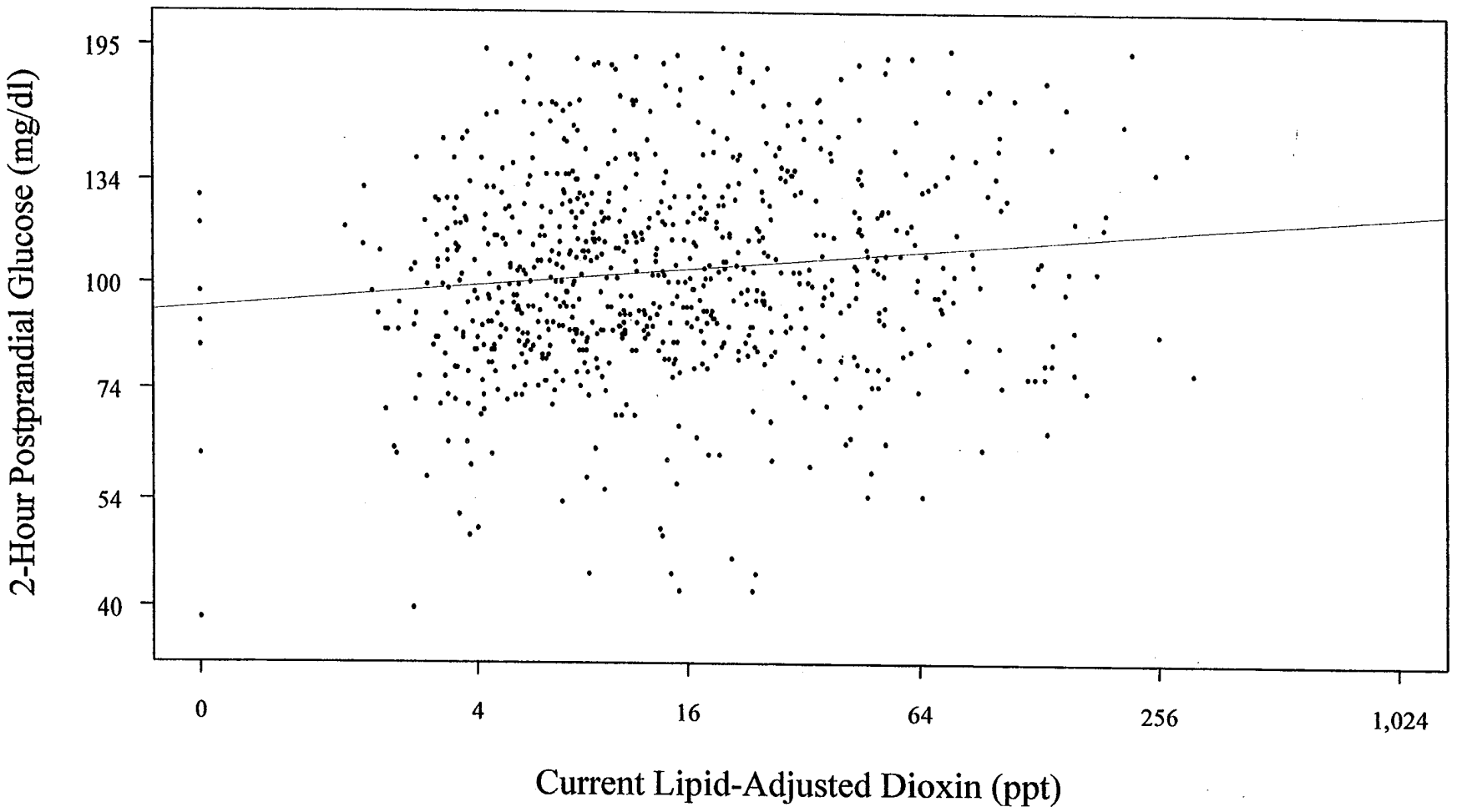


Figure Q-2-14.
2-Hour Postprandial Glucose versus
Current Lipid-Adjusted Dioxin (Table 18-30)
(Nondiabetics)

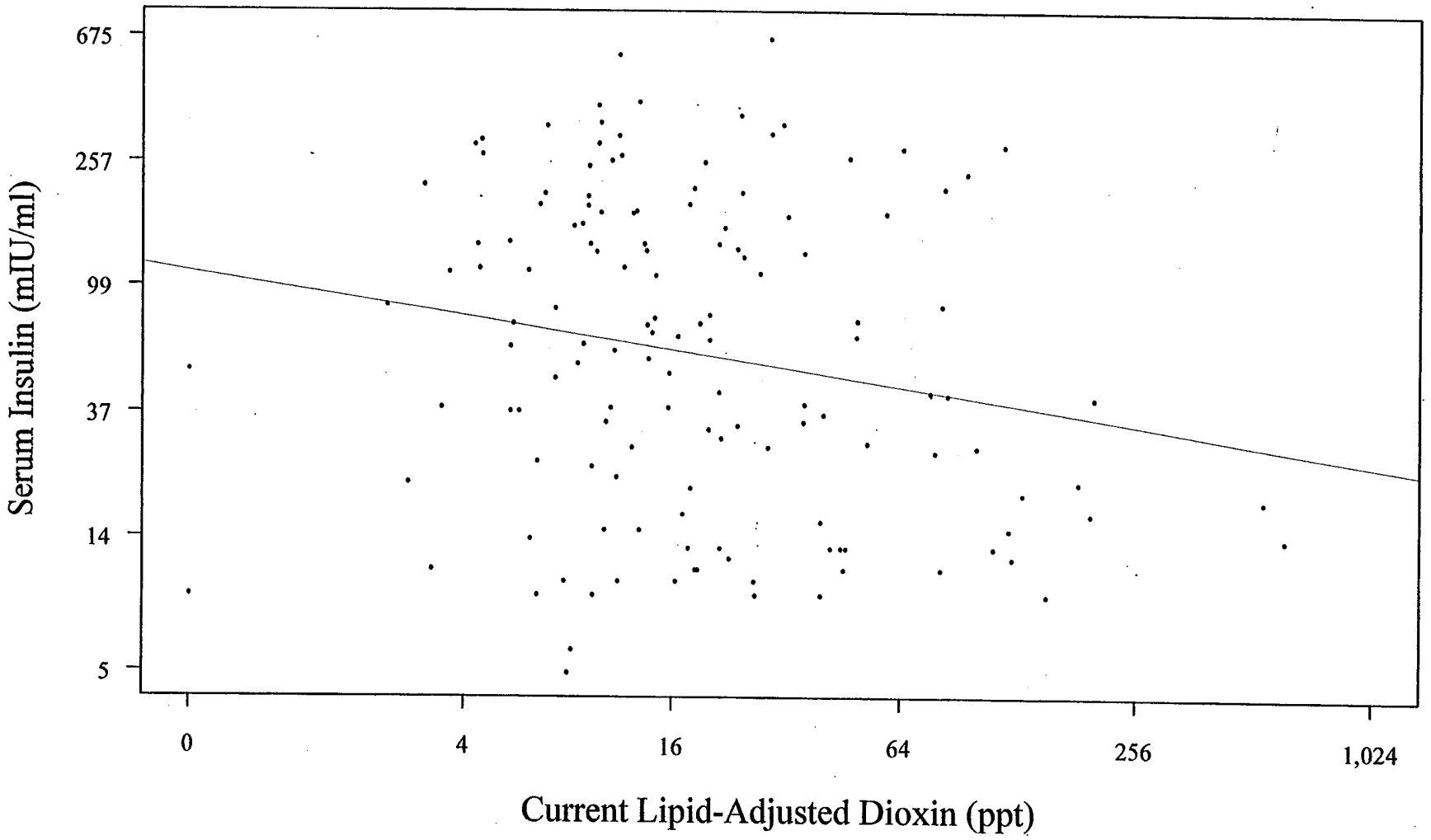


Figure Q-2-15.
Serum Insulin versus Current Lipid-Adjusted Dioxin (Table 18-38)
(Diabetics)

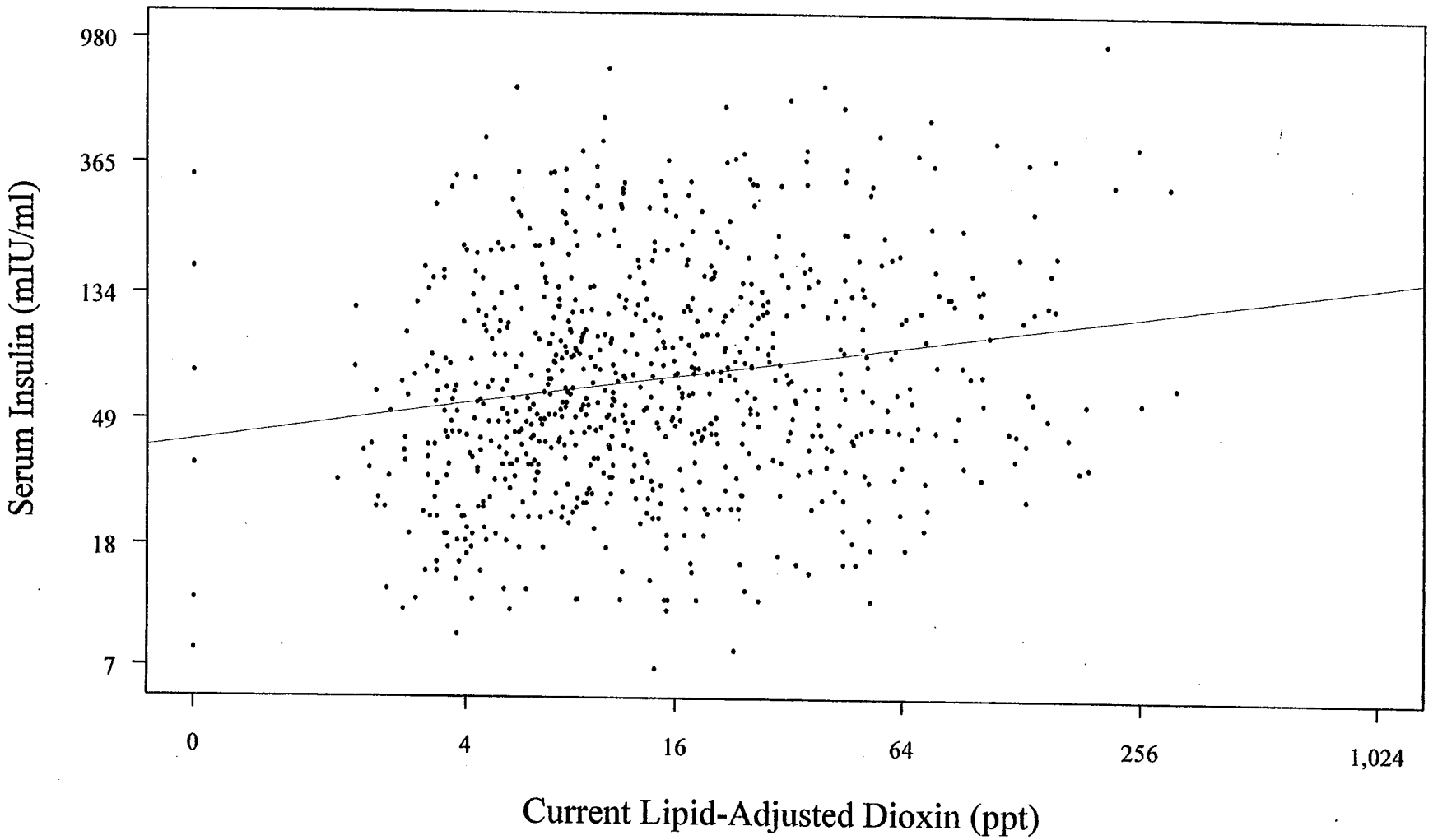


Figure Q-2-16.
Serum Insulin versus Current Lipid-Adjusted Dioxin (Table 18-40)
(Nondiabetics)

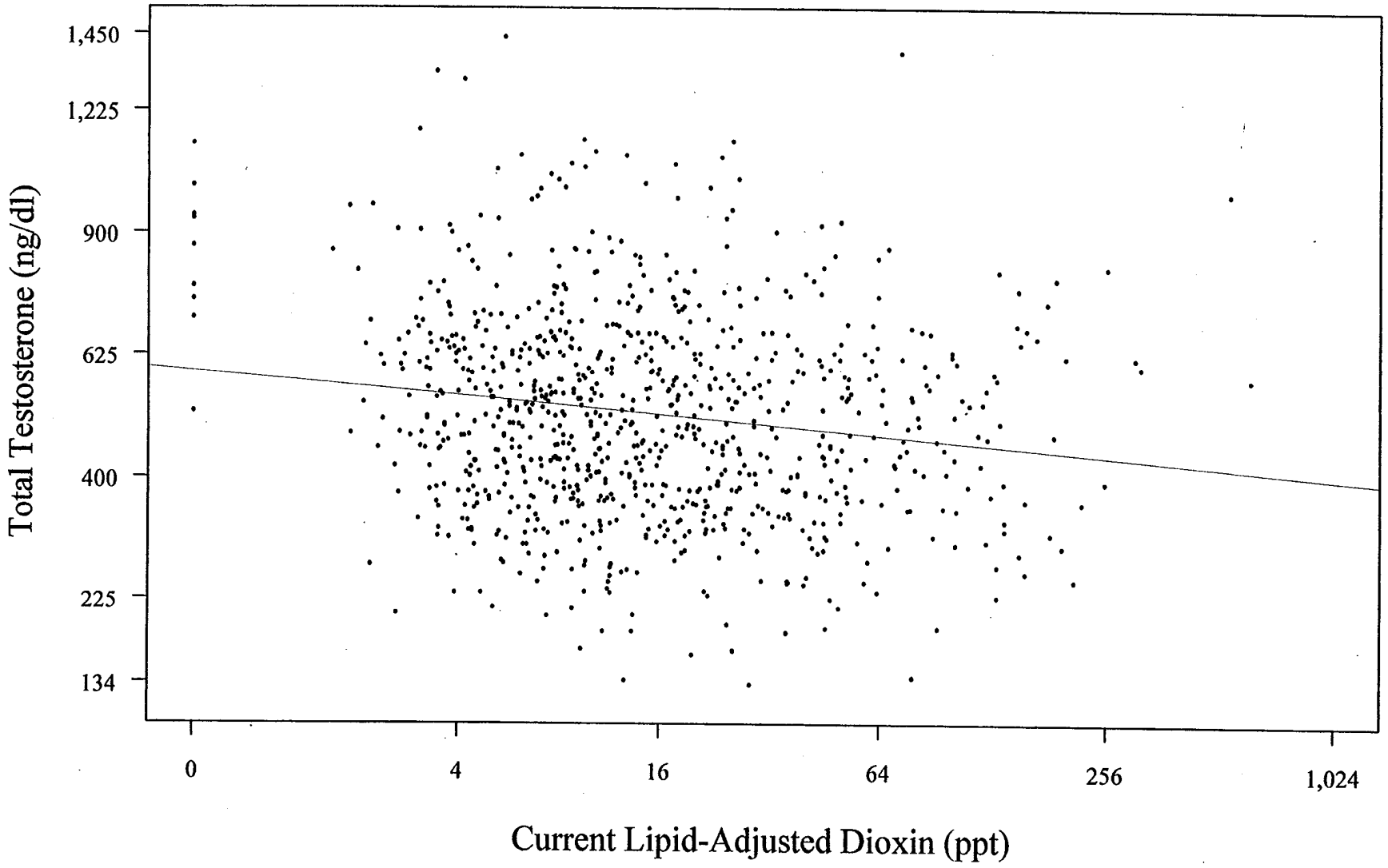


Figure Q-2-17.
Total Testosterone versus Current Lipid-Adjusted Dioxin (Table 18-59)

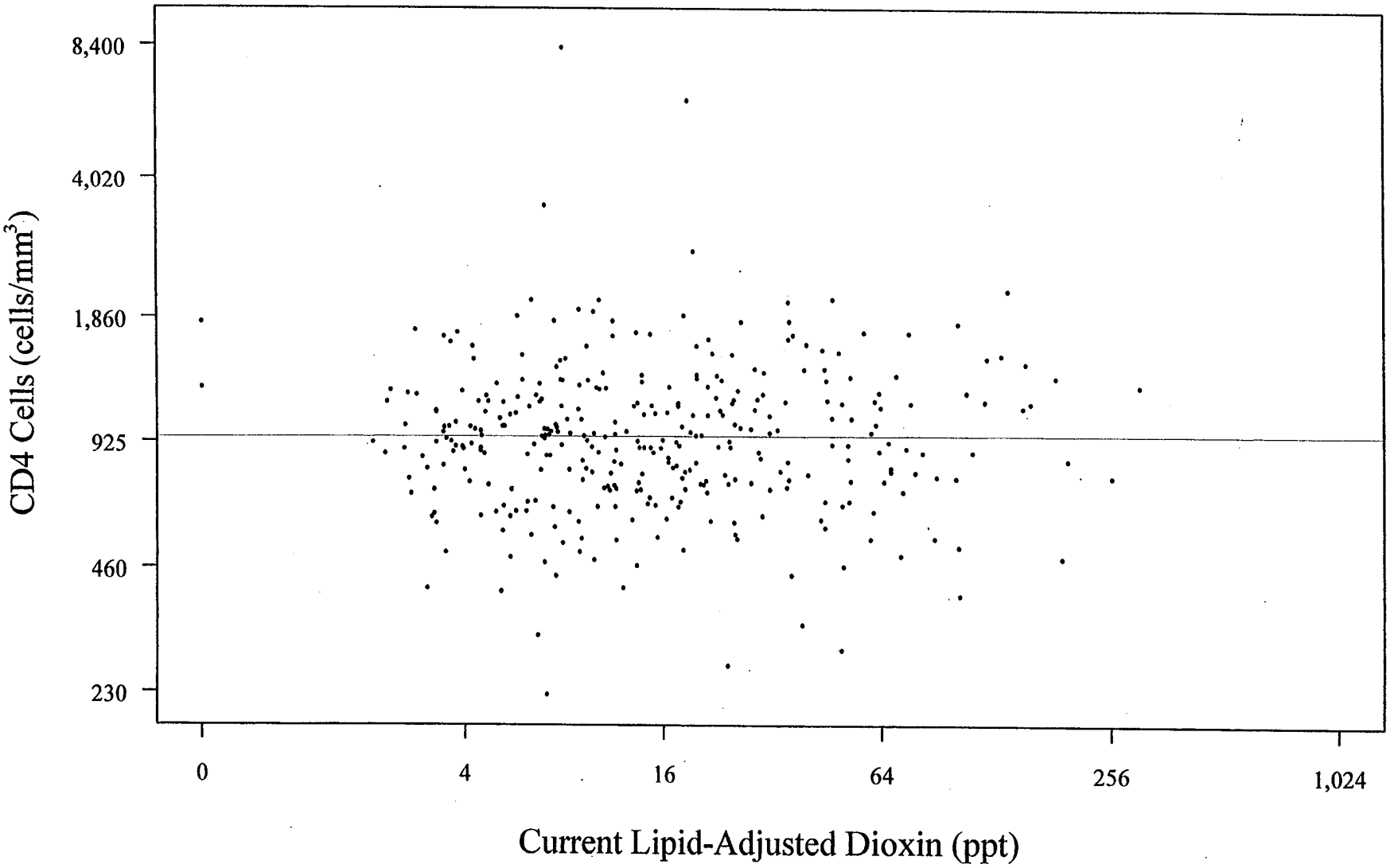


Figure Q-2-18.
CD4 Cells versus Current Lipid-Adjusted Dioxin (Table 19-6)

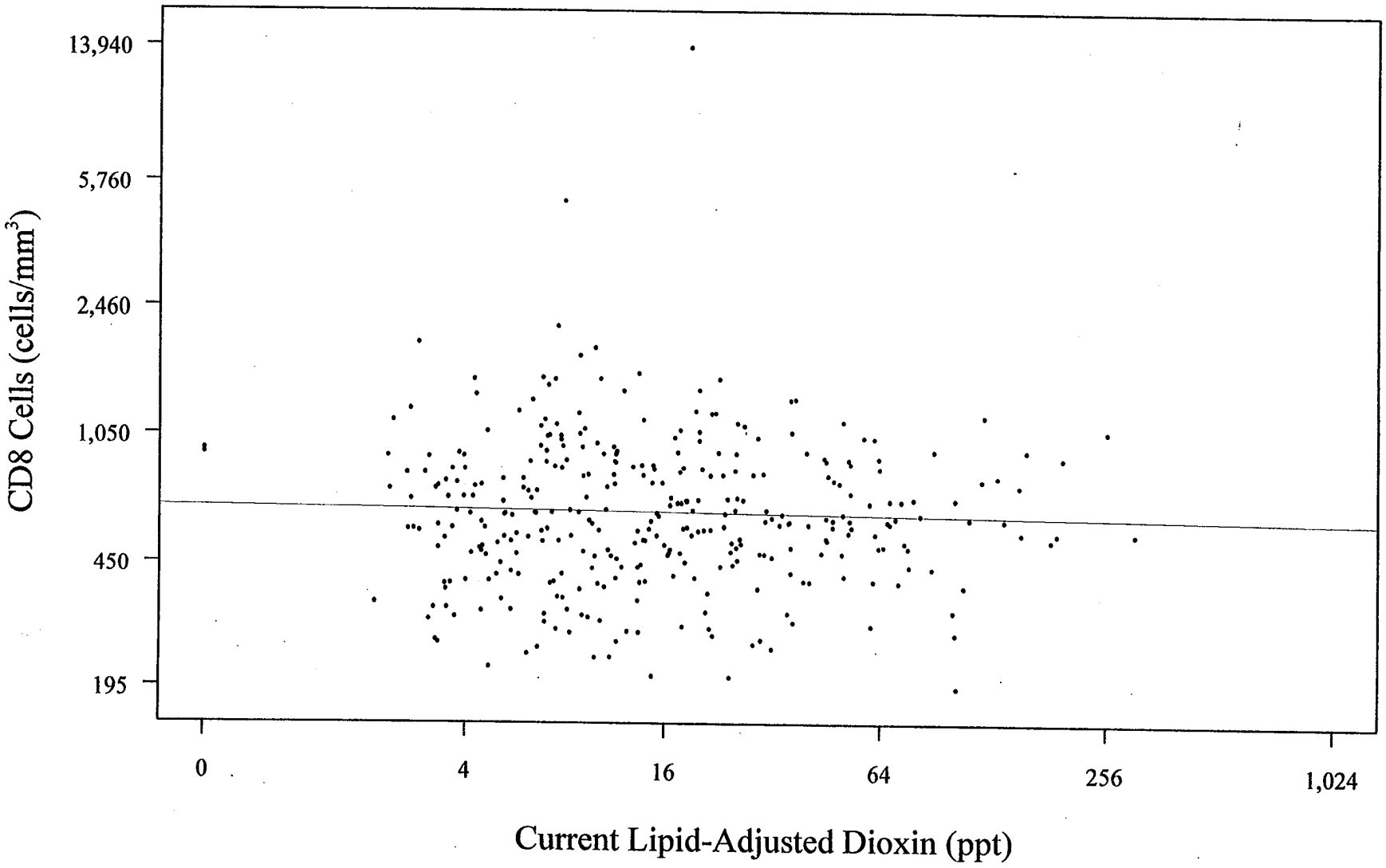


Figure Q-2-19.
CD8 Cells versus Current Lipid-Adjusted Dioxin (Table 19-8)

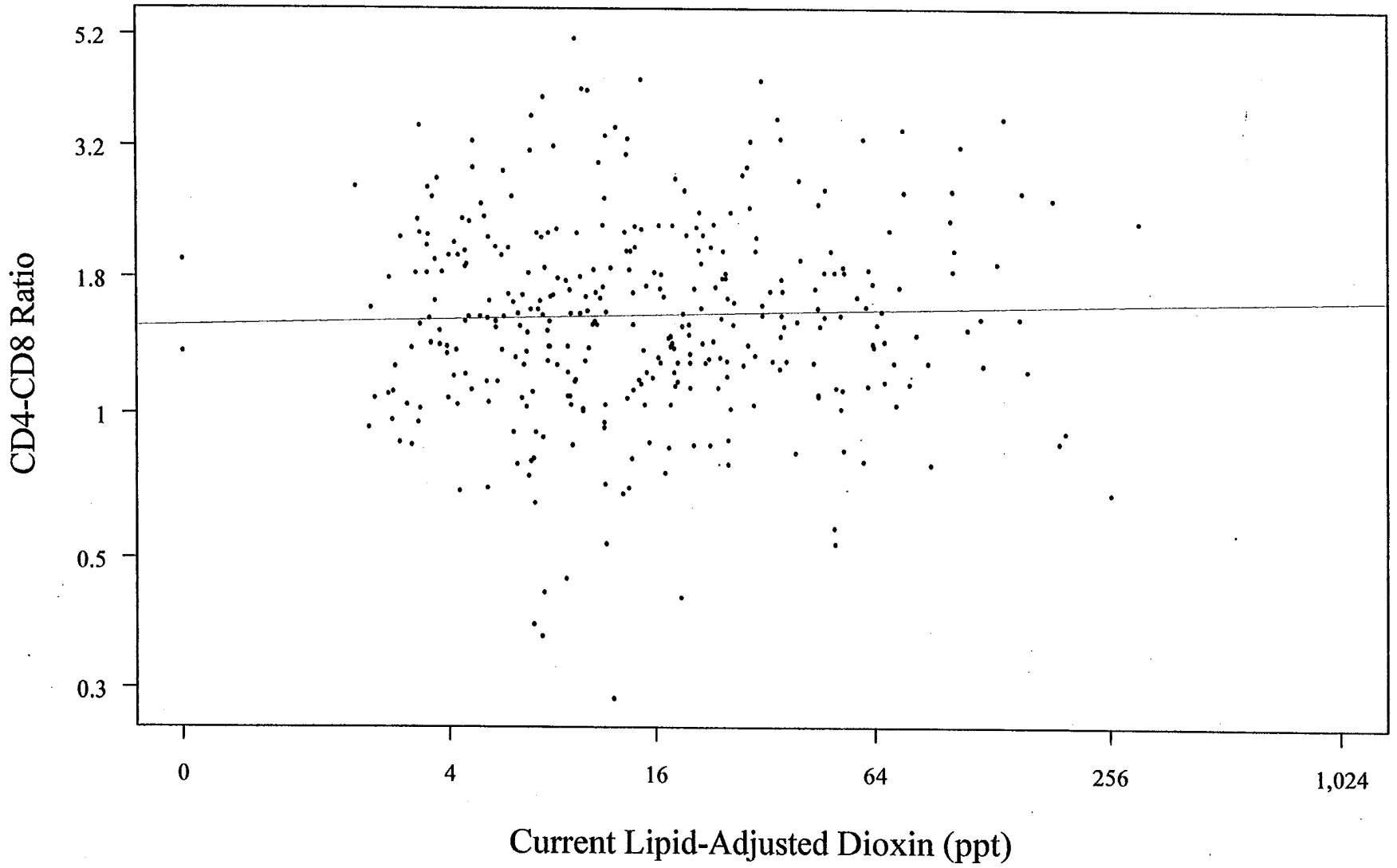


Figure Q-2-20.
CD4-CD8 Ratio versus Current Lipid-Adjusted Dioxin (Table 19-13)

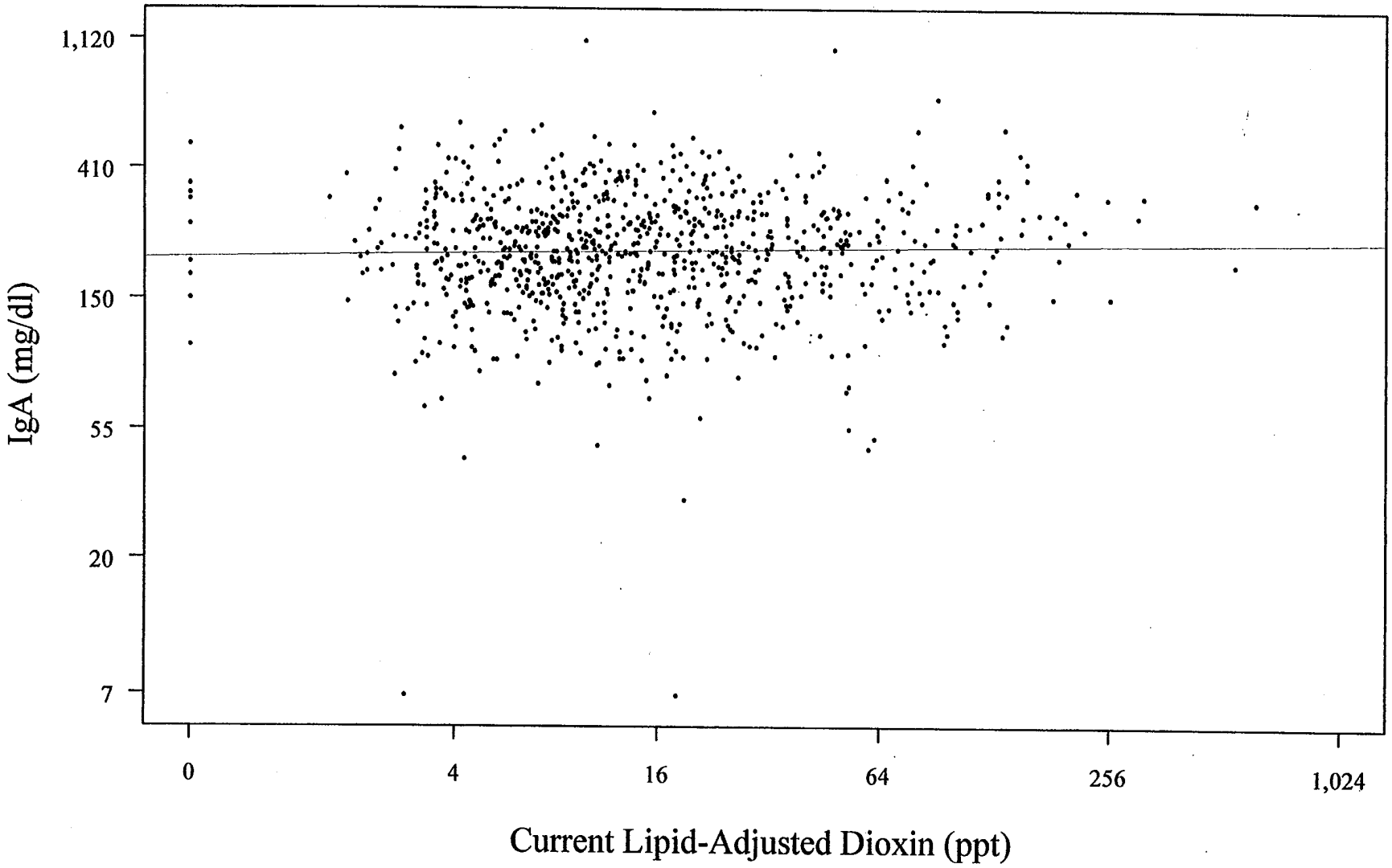
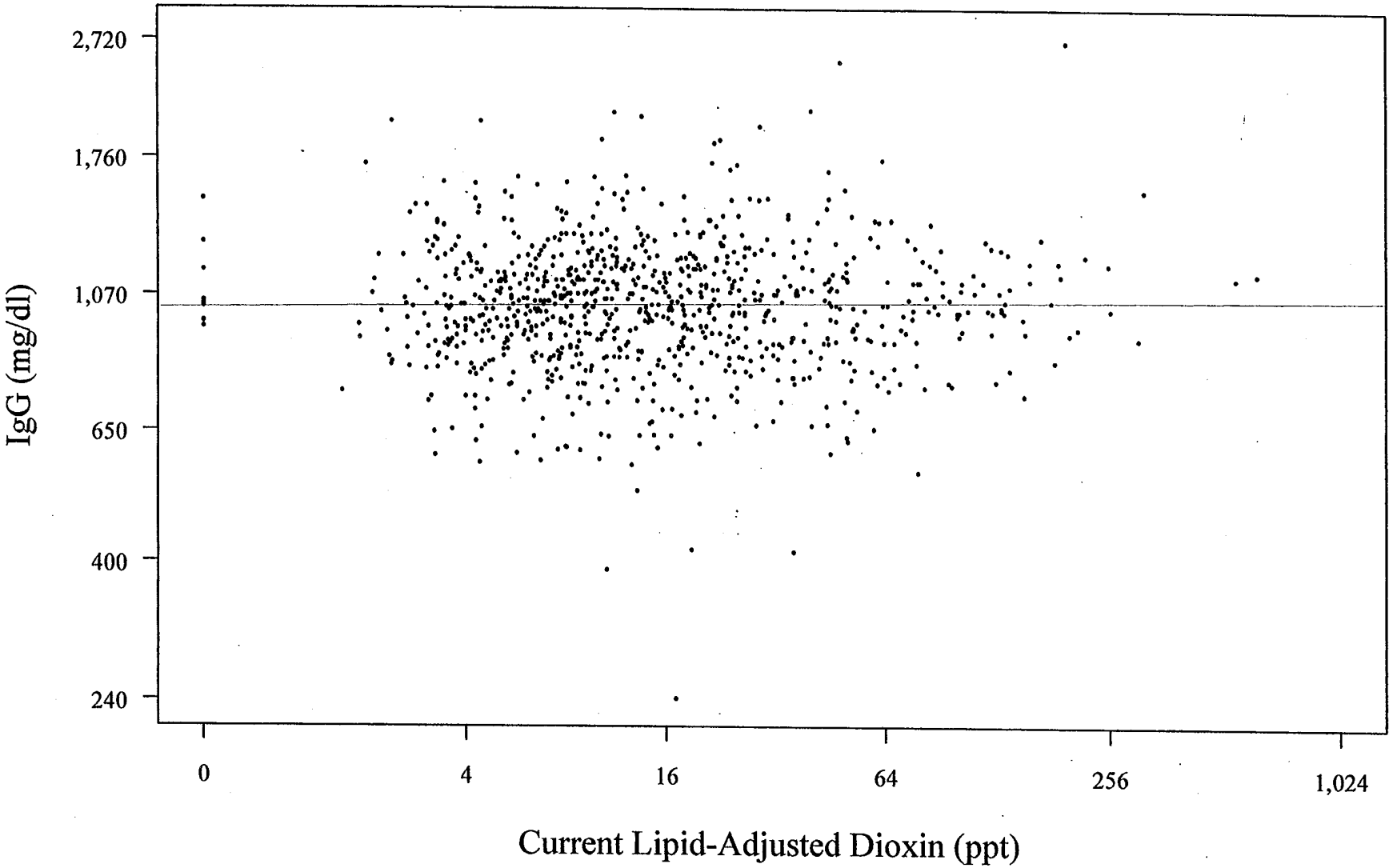


Figure Q-2-21.
IgA versus Current Lipid-Adjusted Dioxin (Table 19-19)



Q-2-24

Figure Q-2-22.
IgG versus Current Lipid-Adjusted Dioxin (Table 19-20)

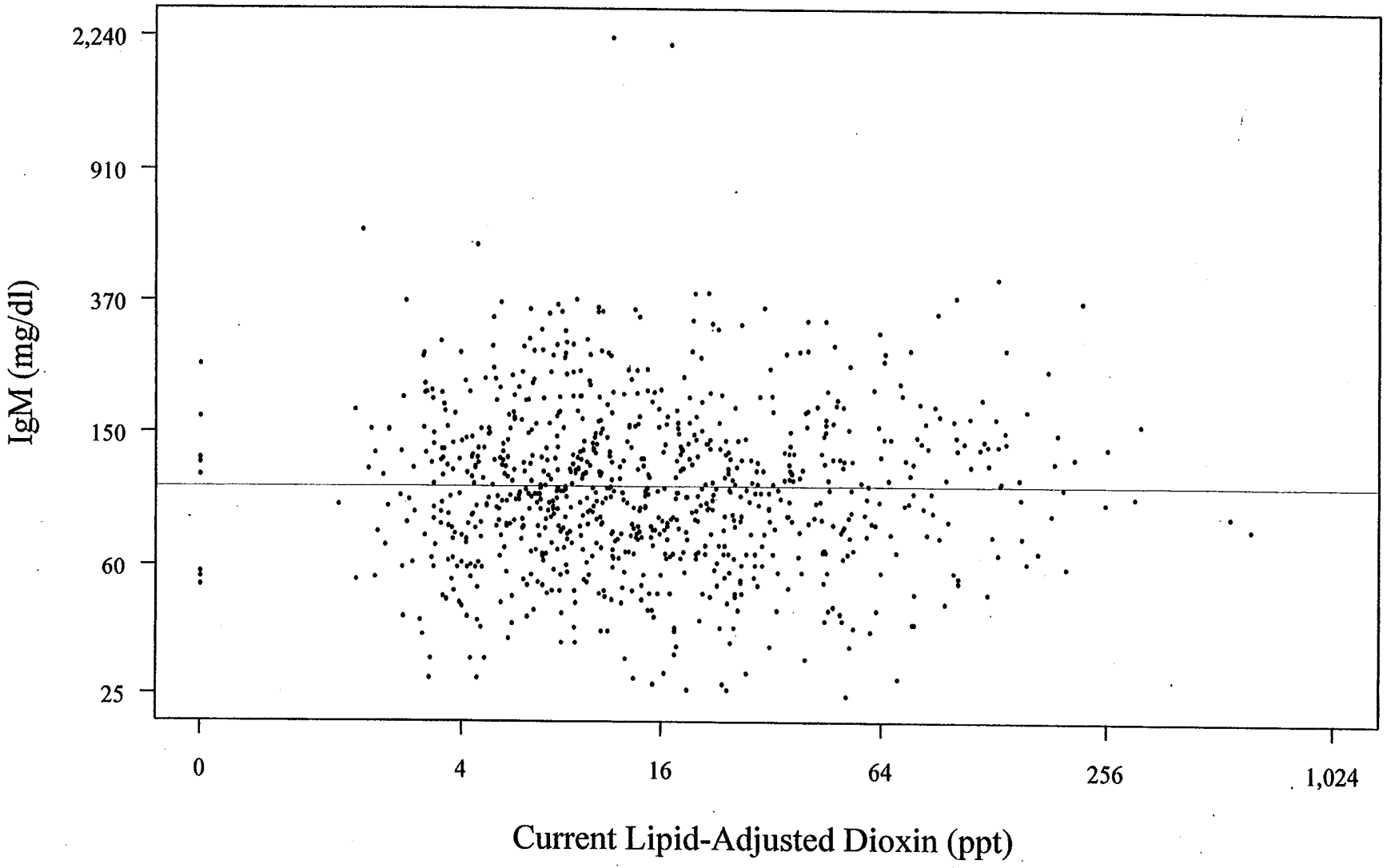


Figure Q-2-23.
IgM versus Current Lipid-Adjusted Dioxin (Table 19-21)

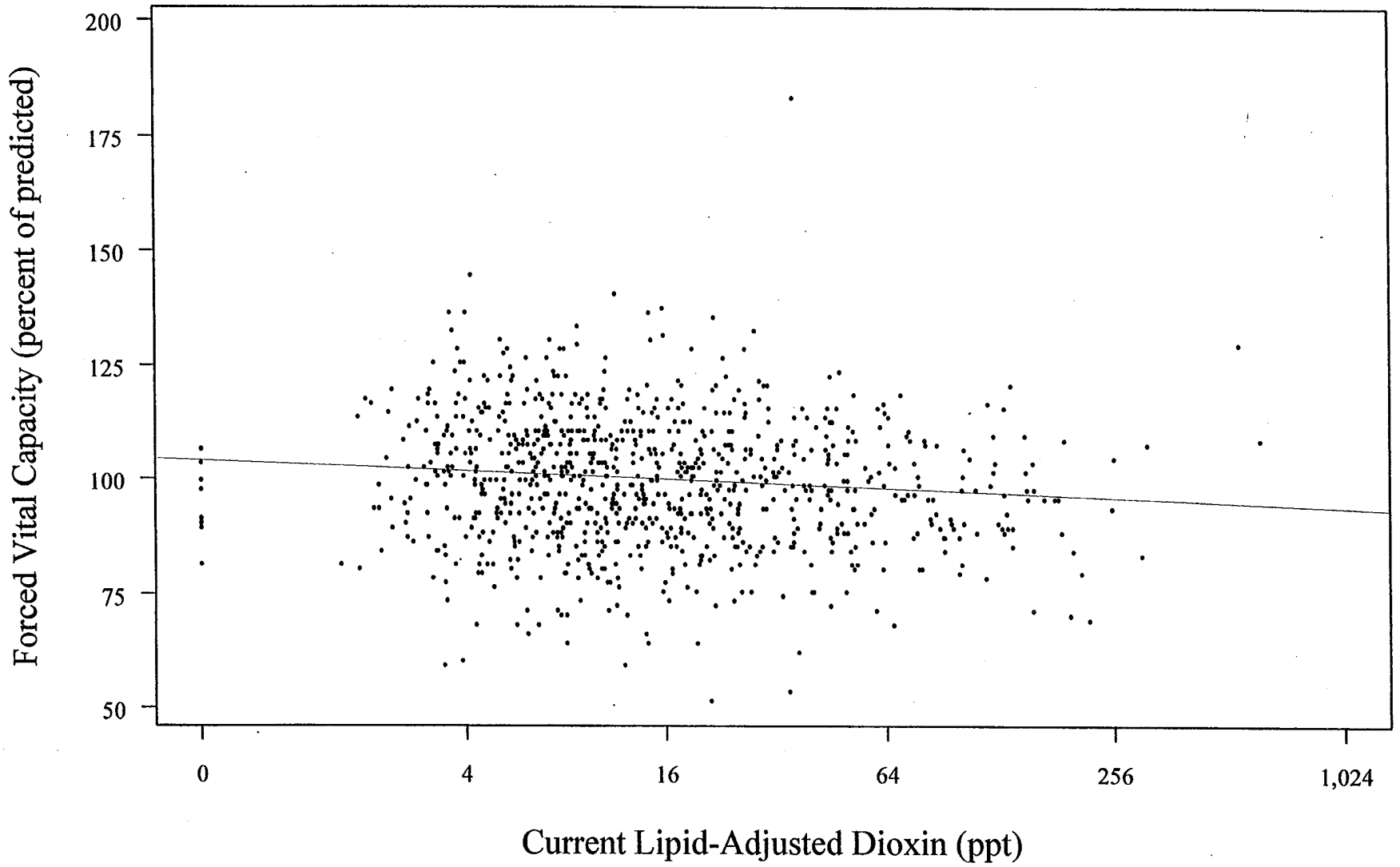


Figure Q-2-24.
Forced Vital Capacity versus Current Lipid-Adjusted Dioxin (Table 20-8)

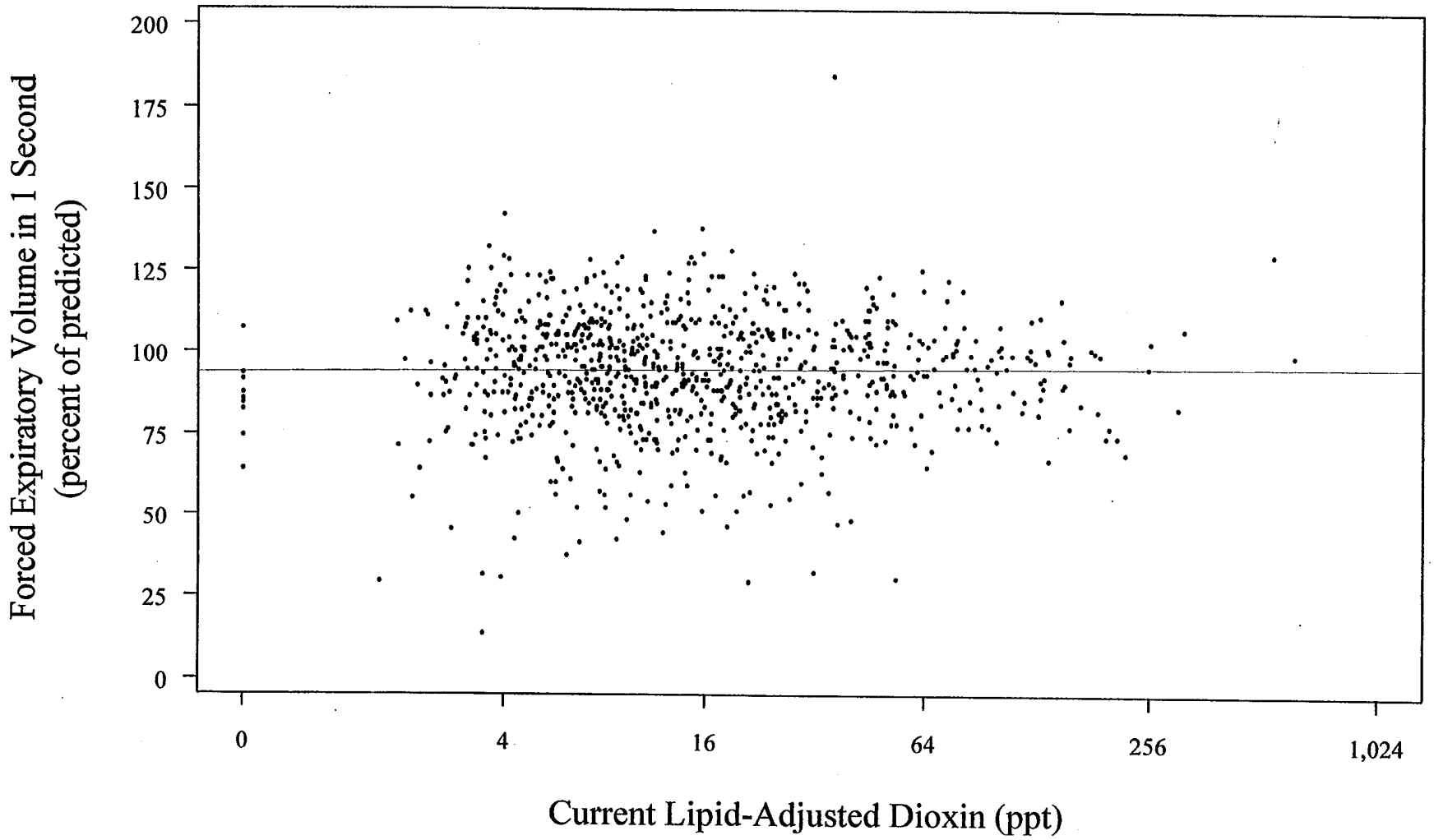


Figure Q-2-25.
Forced Expiratory Volume in 1 Second versus
Current Lipid-Adjusted Dioxin (Table 20-9)

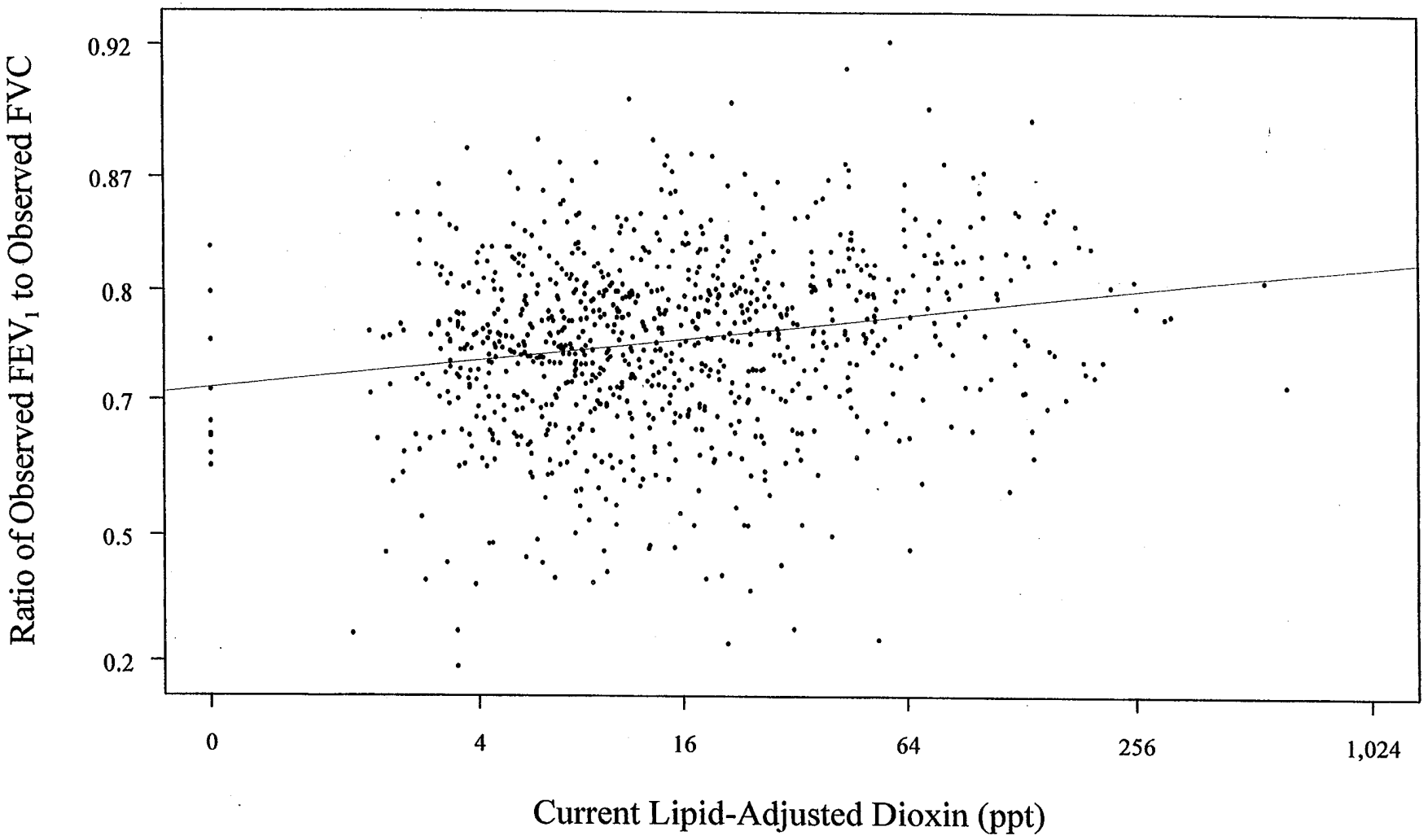


Figure Q-2-26.
Ratio of Observed FEV_1 to Observed FVC
versus Current Lipid-Adjusted Dioxin (Table 20-10)

APPENDIX R.

Glossary of Abbreviations and Acronyms

****

A

A = adjusted analyses

ACA = automated chemical analyzer

ACTH = adrenocorticotropic hormone

Adj. Mean = adjusted mean

Adj. RR = adjusted relative risk

Adj. Slope = adjusted slope

AFB = Air Force base

AFHS = Air Force Health Study

AGE = age at the 1992 physical examination

Ah = aryl hydrocarbon

AIDS = acquired immunodeficiency syndrome

ALC = current alcohol use

ALT = alanine aminotransferase

AST = aspartate aminotransferase

****

B

BMDP®-4F = BMDP log-linear program

BMDP®-LR = BMDP logistic regression program

BMDP®-PR = BMDP polychotomous logistic regression program

****

C

C = Celsius

C = Comparison

C = continuous analysis only

CALINT = caloric intake

CDC = Centers for Disease Control

CHD = chronic heart disease

CHOL = cholesterol

CHOL/HDL = cholesterol-HDL ratio

C.I. = confidence interval

CMI = Cornell Medical Index

CNF = cranial nerve function

CNS = Central Nervous System

COV = covariate (missing data)

cpm = counts per minute

CS = chi-square contingency table analysis (continuity-adjusted for 2x2 tables)

CSMOK = current cigarette smoking

CURR = $\log_2$ (current dioxin + 1)

CV = coefficient of variation

****

D

D = discrete analysis only

DC = degreasing chemical exposure

D/C = discrete and continuous analyses for dependent variables; appropriate form for analysis (either discrete or continuous) for covariates

DCH = delayed cutaneous hypersensitivity

DEP = dependent variable (missing data)

DIAB = diabetic class

DNA = deoxyribonucleic acid

DRKYR = lifetime alcohol history

DXCAT = categorized dioxin

****

E

ECG = electrocardiograph or electrocardiogram

EDUC = education

ESR = erythrocyte sedimentation rate

Est. RR = estimated relative risk

EXC = exclusion

****

F

FC = fully compliant at Baseline

FEV = forced expiratory volume

FEV_1 = forced expiratory volume in 1 second

FIR CUSUM = fast initial response cumulative sum

FSH = follicle stimulating hormone

FTI = free thyroxine index

FVC = forced vital capacity

****

G

GGT = gamma glutamyl transferase

GLM = general linear models analysis

GML = good result, missing lipids

GND = good result, below limit of detection

GNQ = good result, below limit of quantification

GnRH = gonadotropin-releasing hormone

GRc = glucocorticoid

GSI = global severity index

G-6-PD = glucose-6-phosphate dehydrogenase

****

H

HB_sA_g = hepatitis B surface antigen

HDL = high-density lipoprotein

HIV = human immunosuppressant virus

HPF = high-power field

HRB = Halstead-Reitan battery

HRTDIS = family history of heart disease

HRTDIS50 = family history of heart disease before age 50

****

I

IC = industrial chemical exposure

ICD = International Classification of Disease

ICD-9 = International Classification of Disease, 9th Edition

ICD-9-CM = International Classification of Disease, 9th Edition, Clinical Modification

ICVI = intermittent claudication and vascular insufficiency

IL = Interleukin

IL-2 = Interleukin-2

INIT = $\log_2$ (initial dioxin)

INS = insecticide exposure

IQ = intelligence quotient

****

JK

KUB = kidney, urethra, and bladder

****

L

L = longitudinal analysis

LAB = 1992 laboratory results

LAB-AF = 1992 Brooks AFB laboratory results

LAT = average lifetime residential latitude

LBBB = left bundle branch block

LDH = lactic dehydrogenase

LH = luteinizing hormone

LR = logistic regression analysis

LWINE = lifetime wine history

****

M

MCH = mean corpuscular hemoglobin

MCHC = mean corpuscular hemoglobin concentration

MCMI = Millon Clinical Multiaxial Inventory

MCV = mean corpuscular volume

MIL = Air Force military records

MLC = mixed lymphocyte culture

MMPI = Minnesota Multiphasic Personality Inventory

MR-V = medical records (verified)

MSK = mouse stomach kidney

****

N

NHL = non-Hodgkin's lymphoma

NIH = National Institutes of Health

NIOSH = National Institute for Occupational Safety and Health

NKC = natural killer cell

NORC = National Opinion Research Center

NR = no result

NS = new to study since Baseline (Chapter 5)

NS = not significant

NS* = marginally significant

****

O

OCC = occupation

OMR = optical mark recognition

****

P

PACKYR = lifetime cigarette smoking history

PBF = percent body fat

PC = partially compliant at Baseline

PCT = porphyria cutanea tarda

PE = physical examination

PHA = phytohemagglutinin

ppm = parts per million

ppq = parts per quadrillion

ppt = parts per trillion

PR = polychotomous logistic regression analysis

PSA = prostate-specific antigen

PSDI = positive symptom distress index

PST = positive symptom total

PTSD = post-traumatic stress disorder

PWM = pokeweed mitogen

****

Q

QA = quality assurance

QC = quality control

QRC = Quality Review Committee

Q-SR = health questionnaire (self-reported)

Q-V = health questionnaire (verified)

****

R

R = refusal at Baseline

R^2 = coefficient of determination

RACE = race

RBBB = right bundle branch block

RBC = red blood cell

RBC per HPF = red blood cells per high powered field

RH = Ranch Hand

RIA = radioimmunoassay

RPM = revolutions per minute

RR = relative risk

RVN = Republic of Vietnam

****

S

SAIC = Science Applications International Corporation

SAS®-GLM = SAS® general linear model

SCL-90-R = Symptom Check List-90-Revised

SCRF = Scripps Clinic and Research Foundation

SCS = Selected Cancers Study

SEA = Southeast Asia

SEAACNE = presence of pre-SEA acne

SIRL = Scripps Immunology Reference Laboratory

SKIN = skin color

Std. Error = standard error

STS = soft tissue sarcoma

SUN2HR = reaction of skin to sun after at least 2 hours after first exposure (assuming several preceding episodes)

SUNREAC = sun-reaction index

SUNRPT = reaction of skin to sun after repeated exposure

****

T

T_4 = serum thyroxin

T_3% = triiodothyronine percent

TCDD = 2,3,7,8-tetrachlorodibenzo-p-dioxin

TLC = total lymphocyte count

TSH = thyroid stimulating hormone

TT = two-sample t-test

2,4-D = dichlorophenoxyacetic acid

2,4,5-T = 2,4,5-trichlorophenoxyacetic acid

****

UVW

U = unadjusted analyses

UNL = unlocatable at Baseline

USAF = United States Air Force

VA = Veterans' Administration

VES = Vietnam Experience Study

WBC = white blood cell

WBC per HPF = white blood cells per high-powered field

WHO = World Health Organization

WINE = current wine use