Supplementary Table 1. Known or Possible Carcinogens
Assessed, Northern Chile, 2007-2010

Acrylic	Coke oven	Silica
Arsenic	Fiberglass	Soot
Asbestos	Mining work	Trichloroethylene
Bis(chloromethyl) ether	Nickel	Vapors
Benzene	Other chemicals	Welding
Beryllium	Other solvents	Wood dust
Cadmium	Radon	Zinc
Chromium		

Supplementary Table 2. Odds Ratios for Bladder and Lung Cancer in Relation to Various Levels of Arsenic Concentrations in Water, by Smoking Status (Never Smokers Versus 10 Cigarettes Per Day), Northern Chile, 2007-2010

Smoking category	Arsenic (μg/L)[a]	Controls	Bladder cancer			Lung cancer		
			Cases	OR[b]	(95% CI)	Cases	OR[b]	(95% CI)
Never-smoker	<11	79	6	1.00		16	1.00	
	11-91	79	13	2.66	(0.91- 7.83)	15	0.68	(0.29- 1.58)
	92-335	50	27	7.01	(2.61-18.82)	10	0.93	(0.37- 2.36)
	>335	34	19	8.86	(2.99-26.23)	18	2.04	(0.84- 4.95)
Smoked >10 cigs/day	<11	45	14	4.12	(1.30-13.06)	28	3.75	(1.65- 8.50)
	11-91	47	14	4.72	(1.54-14.49)	36	4.39	(2.01- 9.56)
	92-335	28	16	7.08	(2.35-21.30)	52	12.4	(5.29-29.07)
	>335	18	33	23.21	(8.15-66.10)	46	16.26	(6.53-40.48)
Synergy Index				2.02	(0.92-4.47)		4.03	(1.73-9.36)

Abbreviations: CI, confidence interval; OR, odds ratios.
[a] Quartiles of average lifetime exposure up to 1971, the end of the high exposure period in Antofagasta.
[b] Adjusted for age, sex, socioeconomic status, and secondhand tobacco smoke exposure.

Supplementary Table 3. Odds Ratios for Bladder and Lung Cancer in Relation to Various Levels of Arsenic Concentrations in Water, by Smoking Status (Never Smokers Versus 20 Cigarettes Per Day), Northern Chile, 2007-2010

Smoking category	Arsenic (μg/L)[a]	Controls	Bladder cancer			Lung cancer		
			Cases	OR[b]	(95% CI)	Cases	OR[b]	(95% CI)
Never-smoker	<11	79	6	1.00		16	1.00	
	11-91	79	13	2.66	(0.91- 7.83)	15	0.68	(0.29- 1.58)
	92-335	50	27	7.01	(2.61-18.82)	10	0.93	(0.37- 2.36)
	>335	34	19	8.86	(2.99-26.23)	18	2.04	(0.84- 4.95)
Smoked >20 cigs/day	<11	19	8	4.30	(1.22-15.17)	11	3.53	(1.27- 9.82)
	11-91	17	4	2.44	(0.54-11.08)	19	7.45	(2.79-19.86)
	92-335	9	3	4.04	(0.75-21.75)	14	9.02	(2.85-28.57)
	>335	6	10	21.38	(5.27-86.78)	19	20.65	(6.00-71.04)
Synergy Index				1.82	(0.55-6.06)		5.50	(1.52-19.89)

Abbreviations: CI, confidence interval; OR, odds ratios.
[a] Quartiles of average lifetime exposure up to 1971, the end of the high exposure period in Antofagasta.
[b] Adjusted for age, sex, socioeconomic status, and secondhand tobacco smoke exposure.

Supplementary Table 4. Odds Ratios for Bladder Cancer By Tertiles of Average Arsenic Concentrations in Water Prior to 1971[a], by Smoking Status, Northern Chile, 2007-2010

Smoking category	Arsenic (µg/L)	Controls	Cases	Unadjusted OR (95% CI)		Adjusted OR[b] (95% CI)	
Never smoker	0-34	109	14	1.00		1.00	
	35-260	84	20	1.85	(0.88- 3.88)	1.92	(0.90- 4.11)
	>260	49	31	4.93	(2.41-10.07)	5.27	(2.51-11.07)
Smoked >10 cigs/day	0-34	58	19	2.55	(1.19- 5.46)	2.83	(1.22- 6.58)
	35-260	59	18	2.38	(1.10- 5.11)	2.28	(0.98- 5.31)
	>260	21	41	15.20	(7.07-32.69)	15.30	(6.75-34.67)

Abbreviations: CI, confidence interval; OR, odds ratios.
Measure of interaction on an additive scale: Rothman Synergy Index (95% CI) =2.34 (1.12-4.91).
[a] 1971 was the end of the high exposure period in Antofagasta.
[b] Adjusted for age, sex, socioeconomic status, and secondhand tobacco smoke exposure.

Supplementary Table 5. Odds Ratios for Lung Cancer By Tertiles of Average Arsenic Concentrations in Water Prior to 1971[a], by Smoking Status, Northern Chile, 2007-2010

Smoking category	Arsenic (µg/L)	Controls	Cases	Unadjusted OR (95% CI)		Adjusted OR[b] (95% CI)	
Never smoker	0-34	109	22	1.00		1.00	
	35-260	84	18	1.06	(0.54- 2.11)	0.87	(0.42- 1.81)
	>260	49	19	1.92	(0.95- 3.87)	1.67	(0.78- 3.56)
Smoked >10 cigs/day	0-34	58	37	3.16	(1.71- 5.85)	4.36	(2.12- 8.99)
	35-260	59	63	5.29	(2.96- 9.45)	6.94	(3.48-13.83)
	>260	21	62	14.63	(7.45-28.71)	20.80	(9.03-47.91)

Abbreviations: CI, confidence interval; OR, odds ratios.
Measure of interaction on an additive scale: Rothman Synergy Index (95% CI) = 4.91 (2.33-10.38).
[a] 1971 was the end of the high exposure period in Antofagasta.
[b] Adjusted for age, sex, socioeconomic status, and secondhand tobacco smoke exposure.

Supplementary Table 6. Odds Ratios for Bladder Cancer in By Tertiles of Cumulative Arsenic Exposure[a], Stratified by Smoking Status, Northern Chile, 2007-2010

Smoking category	Arsenic (µg/L-years)	Controls	Cases	Unadjusted OR (95% CI)		Adjusted OR[b] (95% CI)	
Never smoker	0-2589	109	10	1.00		1.00	
	2590-9915	77	18	2.55	(1.12- 5.82)	3.03	(1.28- 7.15)
	>9915	56	37	7.20	(3.34-15.54)	8.42	(3.60-19.69)
Smoked >10 cigs/day	0-2589	60	19	3.45	(1.51- 7.90)	4.33	(1.69-11.10)
	2590-9915	52	22	4.61	(2.04-10.44)	4.45	(1.88-10.54)
	>9915	26	37	15.51	(6.84-35.19)	18.92	(7.42-48.28)

Abbreviations: CI, confidence interval; OR, odds ratios.
Measure of interaction on an additive scale: Rothman Synergy Index (95% CI) = 1.67 (0.86-3.23).
[a] Cumulative exposure in µg/L-years was calculated by summing the yearly concentrations for all years of a subject's life, excluding the 5 years before diagnosis (for cases) or ascertainment (for controls).
[b] Adjusted for age, sex, socioeconomic status, and secondhand tobacco smoke exposure.

Supplementary Table 7. Odds Ratios for Lung Cancer in By Tertiles of Cumulative Arsenic Exposure[a], Stratified by Smoking Status, Northern Chile, 2007-2010

Smoking category	Arsenic (µg/L-years)	Controls	Cases	Unadjusted OR (95% CI)		Adjusted OR[b] (95% CI)	
Never smoker	0-2589	109	19	1.00		1.00	
	2590-9915	77	19	1.42	(0.70- 2.85)	1.28	(0.59- 2.77)
	>9915	56	21	2.15	(1.07- 4.33)	2.18	(1.01- 4.69)
Smoked >10 cigs/day	0-2589	60	42	4.02	(2.15- 7.52)	5.50	(2.63-11.47)
	2590-9915	52	64	7.06	(3.84-12.99)	8.59	(4.23-17.42)
	>9915	26	56	12.36	(6.30-24.23)	18.29	(7.82-42.78)

Abbreviations: CI, confidence interval; OR, odds ratios.
Measure of interaction on an additive scale: Rothman Synergy Index (95% CI) = 3.04 (1.56-5.93).
[a] Cumulative exposure in µg/L-years was calculated by summing the yearly concentrations for all years of a subject's life, excluding the 5 years before diagnosis (for cases) or ascertainment (for controls).
[b] Adjusted for age, sex, socioeconomic status, and secondhand tobacco smoke exposure.

Supplementary Table 8. Odds Ratios in Men for Lung Cancer in Relation to Arsenic Concentrations in Water, by Exposure to Any Known or Suspected Lung Carcinogen[a], Northern Chile, 2007-2010

Any carcinogen exposure	Arsenic < 11 ug/L[b]		Arsenic > 335 ug/L[b]		OR[c] (95% CI) for arsenic within any carcinogen strata
	Cases/ controls	OR[c] (95% CI)	Cases/ controls	OR[c] (95% CI)	
No	6/66	1.00	19/35	5.24 (1.79-15.33)	5.24 (1.79-15.33)
Yes	11/69	1.75 (0.57-5.43)	27/25	12.07 (3.79-38.45)	9.73 (3.39-27.93)
OR[b] (95% CI) for any carcinogen within arsenic strata		1.75 (0.57-5.43)		2.08 (0.85-5.08)	

Abbreviations: CI, confidence interval; OR, odds ratios.
Measure of interaction on an additive scale: Rothman Synergy Index (95% CI) = 2.22 (0.90-5.47).
Measurement on a multiplicative scale: ratio of ORs (95% CI) = 1.45 (0.36-5.87).
[a] Self-reported exposure to any of the known or suspected lung carcinogens listed in Table 7 or beryllium, bis(chloromethyl) ether, chromium, and cadmium.
[b] These are the lower and upper quartiles of average lifetime exposure up to 1971, the end of the high exposure period in Antofagasta.
[c] Adjusted for age, smoking, socioeconomic status.

Supplementary Table 9. Odds Ratios in Men for Lung Cancer in Relation to Arsenic Concentrations in Water, by Exposure to Wood Dust[a], Northern Chile, 2007-2010

Wood dust exposure	Arsenic < 11 ug/L[b]		Arsenic > 335 ug/L[b]		OR[c] (95% CI) for arsenic within carcinogen strata
	Cases/ controls	OR[c] (95% CI)	Cases/ controls	OR[c] (95% CI)	
No	9/104	1.00	34/53	7.60 (3.22-17.92)	7.60 (3.22-17.92)
Yes	8/31	2.52 (0.82-7.73)	12/7	26.47 (6.00-116.8)	8.59 (1.50-49.13)
OR[b] (95% CI) for wood dust within arsenic strata		2.52 (0.82-7.73)		2.82 (0.86-9.17)	

Abbreviations: CI, confidence interval; OR, odds ratios.
Measure of interaction on an additive scale: Rothman Synergy Index (95% CI) = 3.14 (1.06-9.29).
Measurement on a multiplicative scale: ratio of ORs (95% CI) = 1.19 (0.29-5.85).
[a] Self-reported exposure to wood dust.
[b] These are the lower and upper quartiles of average lifetime exposure up to 1971, the end of the high exposure period in Antofagasta.
[c] Adjusted for age, smoking, socioeconomic status.