PLAINTIFF'S
EXHIBIT
AL-1217

SUBAPPENDIX A

CHARACTERIZATION OF EXPOSURES IN ALUMINUM SMELTING PLANTS

Notes on Methods of Sampling and Analysis

The following is a brief summary of the various methods of sampling and analysis that were used to measure the occupational exposures received by the employees included in the Tripartite Mortality Study. All values represent nominal eight-hour time-weighted average exposures. No corrections were made to concentration values where sample durations were somewhat less than eight hours. To assist in the interpretation of sampling data, comments on possible analytical errors are also given.

BENZENE SOLUBLES

Sample Collection

Particulate matter is captured on a 37 mm glass fiber filter, backed up with a silver membrane filter. Both filters are preweighed.

Analyses

Benzene Soluble Fraction

Method: Benzene solubles are ultrasonically extracted from the filters with 3-5 ml. of benzene. Following filtration, the benzene is evaporated and the residue weighed.

Possible errors: The method is non-specific and its limit of sensitivity is not much below 0.1 mg/m^3.

Particulate Polycyclic Organic Matter (PPOM) - GC

Method: The benzene solubles residue is dissolved in carbon disulfide and aliquots are subjected to gas chromatographic analysis. Detection of the compounds emerging from the column is accomplished by a flame ionization detector. The PPOM (GC) values are usually less than the benzene soluble concentrations since GC analysis minimizes interference from non-PPOM organic matter.

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Possible errors: Although the method greatly reduces the ambiguity of the benzene solubles determination, it still is subject to some interferences from non-PPOM organic materials. Such interferences are always positive. For example, the presence of lubricant mists in the sampled air may result in insignificant to moderate interference, depending upon their specific chemical compositions. The sensitivity of the flame ionization detector to the many compounds that make up a lubricant is highly variable.

B(a)P

Method: The method is the same as that for PPOM (GC). The B(a)P emerging from the column can be measured either by fluorescence or flame ionization detection (FID).

Possible errors: B(e)P can interfere when detection is made by FID. However, determinations by fluorescence can be accepted with reasonable confidence since the wavelength of the measured fluorescence is specific for B(a)P.

PPOM (HPLC)

Method: The benzene solubles' residue is dissolved in cyclohexane and an aliquot is injected into a pressure liquid chromatographic system. Detection is accomplished by UV absorption.

Possible errors: Where differences exist, PPOM (HPLC) values are usually less than benzene soluble concentration since the HPLC determination effectively separates all non-PPOM materials that are commonly present. There are, however, some differences in the response of individual PPOM's to the UV detector. If one looks at individual compounds, these differences can be significant; but for total PPOM values, the deviations from actual concentrations will be slight - either positive or negative.

B(a)P (HPLC)

Method: The method is the same as for PPOM (HPLC) with the exception that detection is by fluorescence.

Possible errors: The determinations by this method can be accepted with reasonable confidence since the determination is specific for B(a)P.

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TOTAL PARTICULATES AND PARTICULATE FLUORIDE

Sample Collection

Particulates are captured on a 37 mm mixed cellulose ester membrane filter.

Analysis

Total Particulates

Method: Particulates are determined by weight difference - the difference of the filter weight prior to and following sample collection. Filters are weighed on a laboratory balance capable of detecting weight changes of at least 0.01 mg.

Possible errors: Although errors from moisture pick-up (i.e., from humidity in the air) by the filter or collected particulate are possible, they normally are of small consequence and can be disregarded. At the concentrations found in smelting plant operations, the determination of total particulates is reasonably precise and accurate.

Particulate Fluoride

Method: Collected particulates are fused with sodium hydroxide. After dissolution of the fused material into a buffered aqueous solution, fluoride is determined with a specific ion electrode.

Possible errors: The method of determination is specific and provides a reasonably precise and accurate determination of fluoride.

GASEOUS FLUORIDE

Sample Collection

Gaseous fluoride (HF) is captured on a 37 mm cellulose pad which has been impregnated with a sodium carbonate-glycerol mixture.

Analysis

Method: Fluoride is extracted from the impregnated pad with a buffered aqueous solution. Determination is made with a specific ion electrode.

Possible errors: The method of determination is specific and provides a reasonably precise and accurate determination of fluoride.

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SULFUR DIOXIDE

Sample Collection

Sulfur dioxide is captured on the same treated pad used to collect gaseous fluoride.

Analysis

Method: Sulfur dioxide is extracted from the impregnated pad and oxidized to sulfate. Sulfate is determined turbidimetrically or by titration with barium perchlorate.

Possible errors: Removal by a membrane pre-filter of any particulate sulfates that may be present makes the method reasonably specific. Although the effects of other gaseous sulfur compounds, which may occur in small amounts, has not been studied, their likelihood of being present in significant concentrations is remote. The concentration of sulfur dioxide as determined by these procedures should be reasonably dependable.

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SUBAPPENDIX B

ENCLOSURE FACTOR CALCULATION FOR PLANT 4 (NP)

1) Utilizing Benzene solubles (Parma) data from Rooms 50-57 (partially enclosed pots) 1973, and dividing by 2, standardizes the Parma data relative to Benzene soluble (gravimetric) data.

2) Dividing this figure by the data developed from all rooms, 1976-1978 (fully enclosed pots) yields an enclosure factor for partial vs. full enclosure.

EXAMPLE:

$$\frac{\left(\frac{1.27}{2}\right)}{0.24} = 2.6$$

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SUBAPPENDIX C

FINAL MULTIPLIER CALCULATION FOR PLANT 4 (NP)

The enclosure factor is multiplied by the quotient of time worked during the particular time period and time worked in 1977. (This quotient represents an adjustment for increased work time during the early years of operation.)

EXAMPLE: $2.6 \times \frac{6 \text{ hours (1957-61)}}{4.5 \text{ hours (1977)}} = 3.5$

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TABLE 1

JOB GROUPS WITH AVAILABLE EXPOSURE

Area of Work	Type of Work	Manual Code
Potroom	Pot Tending	1.1
	Tapping	1.2
	Tapping and Carbon Changing	1.3
	Craning	1.4
	Other Potroom	1.9
Carbon or Paste	Green Carbon or Paste Plant	2.1
	Pot Lining	2.2
	Baked Carbon	2.3
	Rodding	2.4
	Other Carbon Plant Jobs	2.9
Ingot	Ingot	3.0
Maintenance	Maintenance	4.1
Electrical	Electrical Maintenance	5.1
	JOB GROUPS WITH NO EXPOSURE	
Cryolite	Manufacturing Cryolite	6.1
	Fume System Operation	6.2
Laboratory	Analytical Procedures	7.1
Other	Service Functions	8.1
	Steam Turbine Operation	-
	Office	-
Unknown	-	9
Power Generation	Rectifier Station Operating	10.1
	Steam/Turbine Operating	10.2
	Diesel Station Operating and Maintenance	10.3
	Other Power	-
Nonstudy Job or Plant	Nonstudy Job Within Plant	-
	Job at Plant Not in the Study	-
Not Specified	Laborer	-
	Dolly Operator	-

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TABLE 2 (Page 1 of 2)

TRIPARTITE MORTALITY STUDY
POTROOM JOBS (Other Than ANODE)
PLANTS #04, 015, 06

DATES:	1941-50	46-50	50-57	53-57	54-57	57-61	61-73	61-75	61-77	68-77	73-77	75-77
PLANT: SP (#04)	(NOT ENCLOSED)					(PARTIALLY ENC.)					(FULLY ENC.)	
Time worked	8		7			6	4.5				4.5	
Enclosure Factor	4.5		4.5			3.7	3.7					
Multiplier	8.0		7.0			4.9	3.7				1.0	
PLANT: NP (#04)						(PARTIALLY ENC.)					(FULLY ENC.)	
Time worked						6	4.5				4.5	
Enclosure Factor						2.6	2.6					
Multiplier						3.5	2.6				1.0	
PLANT: SP (#015)	(NOT ENCLOSED)		(FULLY ENCLOSED)									
Time worked	8		7			6			4.5			
Enclosure Factor	8(2.5)											
Multiplier	4.5		1.6			1.3			1.0			
PLANT: NP (#015)											(FULLY ENCLOSED)	
Time worked											4.5	
Enclosure Factor												
Multiplier											1.0	
PLANT: (#06)					(PARTIALLY ENCLOSED)							
Time worked					2	6			4.5			
Enclosure Factor												
Multiplier					1.6	1.3			1.0			

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TABLE 2 Page 1 of 2

TRIPARTITE MORTALITY STUDY
POTROOM JOBS (Other Than ANODE)
PLANTS #010, 07

DATES:	1941-50	46-50	50-57	53-57	54-57	57-61	61-73	61-75	61-77	68-77	73-77	75-77
PLANT: _____ (#010)				(PARTIALLY ENCLOSED)								(FULLY E
Time worked				7		6		4.5				NO DATA
Enclosure Factor Multiplier				1.6		1.3		1.0				
PLANT: _____ (#07)		(NOT						ENCLOSED)				
Time worked		8	7			6		4.5				
Enclosure Factor Multiplier		1.8	1.6			1.3		1.0				
PLANT:												
Time worked												
Enclosure Factor Multiplier												
PLANT:												
Time worked												
Enclosure Factor Multiplier												
PLANT:												
Time worked												
Enclosure Factor Multiplier												

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29-Aug-01 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 1 YEARS: 1900-27

JCB CODE	WORK AREA		EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1	POTMAN	0.03	0.01	0.02	14.00	2.30	0.30
2	1.2	TAPPER	0.01	0.01	0.01	16.00	3.00	0.60
3	1.3	TCC	0.00	0.03	0.01	18.00	3.00	0.60
9	1.4	CRANE	0.04	0.01	0.01	16.00	4.00	0.90
10	1.9	OTHER	0.02	0.01	0.01	13.00	1.20	0.30
14	2.1	GREEN	0.80	0.32	0.64	50.00	0.00	0.00
15	2.2	POT LINING	0.80	0.32	0.10	18.00	2.00	0.00
17	2.3	BAKED	0.36	0.12	0.12	30.00	0.00	0.00
22	2.4	RODDING	0.40	0.04	0.04	10.00	0.00	0.00
23	2.9	OTHER	0.60	0.04	0.04	20.00	0.00	0.00
24	3.0	INGOT	0.00	0.00	0.00	0.00	0.00	0.00
29	4.1	MAINTENANCE	0.40	0.05	0.08	14.00	0.00	0.00
31	5.1	ELEC. MAINT.	0.16	0.02	0.04	5.00	0.00	0.00

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EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 1 YEARS: 1928-52

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.03	0.01	0.02	9.00	1.70	0.30
2	1.2 TAPPER	0.02	0.01	0.01	13.00	2.50	0.60
3	1.3 TCC	0.08	0.03	0.02	14.00	2.10	0.60
9	1.4 CRANE	0.04	0.01	0.01	7.00	3.00	0.90
10	1.9 OTHER	0.02	0.01	0.01	5.00	0.90	0.30
14	2.1 GREEN	0.40	0.16	0.32	13.00	0.00	0.00
15	2.2 POT LINING	0.40	0.16	0.05	8.00	1.50	0.00
17	2.3 BAKED	0.18	0.06	0.06	15.00	0.00	0.00
22	2.4 RODDING	0.20	0.02	0.10	8.00	0.00	0.00
23	2.9 OTHER	0.30	0.02	0.10	14.00	0.00	0.00
24	3.0 INGOT	0.15	0.01	0.02	2.00	0.00	0.00
29	4.1 MAINTENANCE	0.40	0.05	0.08	3.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.16	0.02	0.04	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

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29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 1 YEARS: 1953-73

JCB CODE	WORK AREA		EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1	POTMAN	0.03	0.02	0.01	3.00	0.53	0.15
2	1.2	TAPPER	0.01	0.01	0.01	3.00	1.00	0.10
3	1.3	TCC	0.13	0.03	0.01	9.00	1.78	0.37
9	1.4	CRANE	0.04	0.02	0.01	3.00	0.78	0.10
10	1.9	OTHER	0.02	0.01	0.01	2.00	0.50	0.10
14	2.1	GREEN	0.19	0.10	0.12	3.00	0.00	0.00
15	2.2	POT LINING	0.29	0.11	0.02	4.00	0.40	0.00
17	2.3	BAKED	0.09	0.03	0.02	4.00	0.00	0.00
22	2.4	PODDING	0.10	0.01	0.01	6.00	0.00	0.00
23	2.9	OTHER	0.15	0.05	0.06	5.00	0.00	0.00
24	3.0	INGOT	0.15	0.01	0.01	2.00	0.00	0.00
29	4.1	MAINTENANCE	0.25	0.03	0.04	3.00	0.00	0.00
31	5.1	ELEC. MAINT.	0.10	0.01	0.02	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0442

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 2 YEARS: 1900-39

JOB CODE	WORK AREA		EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1	PUTMAN	0.03	0.01	0.02	14.00	2.30	0.30
2	1.2	TAPPER	0.01	0.01	0.01	16.00	3.00	0.60
3	1.3	TCC	0.08	0.03	0.01	18.00	3.00	0.60
9	1.4	CRANE	0.04	0.01	0.01	16.00	4.00	0.90
10	1.9	OTHER	0.02	0.01	0.01	13.00	1.20	0.30
14	2.1	GREEN	0.80	0.32	0.64	50.00	0.00	0.00
15	2.2	POT LINING	0.80	0.32	0.10	18.00	2.00	0.00
17	2.3	BAKED	0.36	0.12	0.12	30.00	0.00	0.00
22	2.4	RODDING	0.40	0.04	0.04	10.00	0.00	0.00
23	2.9	OTHER	0.60	0.04	0.04	20.00	0.00	0.00
24	3.0	INGOT	0.00	0.00	0.00	0.00	0.00	0.00
29	4.1	MAINTENANCE	0.40	0.05	0.08	14.00	0.00	0.00
31	5.1	ELEC. MAINT.	0.16	0.02	0.04	5.00	0.00	0.00

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EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

29-Aug-01 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 2 YEARS: 1940-63

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.03	0.01	0.02	9.00	1.70	0.30
2	1.2 TAPPER	0.02	0.01	0.01	13.00	2.50	0.60
3	1.3 TCC	0.08	0.03	0.02	14.00	2.10	0.60
9	1.4 CRANE	0.04	0.01	0.01	7.00	3.00	0.90
10	1.9 OTHER	0.02	0.01	0.01	5.00	0.90	0.30
14	2.1 GREEN	0.40	0.16	0.32	13.00	0.00	0.00
15	2.2 POT LINING	0.40	0.16	0.05	8.00	1.50	0.00
17	2.3 BAKED	0.18	0.06	0.06	15.00	0.00	0.00
22	2.4 RODDING	0.20	0.02	0.10	8.00	0.00	0.00
23	2.9 OTHER	0.30	0.02	0.10	14.00	0.00	0.00
24	3.0 INGOT	0.15	0.01	0.02	2.00	0.00	0.00
29	4.1 MAINTENANCE	0.40	0.05	0.08	3.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.16	0.02	0.04	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0444

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 2 YEARS: 1964-73

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.03	0.02	0.01	3.00	0.53	0.15
2	1.2 TAPPER	0.01	0.01	0.01	3.00	1.00	0.10
3	1.3 TCC	0.13	0.03	0.01	9.00	1.78	0.37
9	1.4 CRANE	0.04	0.02	0.01	3.00	0.78	0.10
10	1.9 OTHER	0.02	0.01	0.01	2.00	0.50	0.10
14	2.1 GREEN	0.19	0.10	0.12	3.00	0.00	0.00
15	2.2 POT LINING	0.29	0.11	0.02	4.00	0.40	0.00
17	2.3 BAKED	0.09	0.03	0.02	4.00	0.00	0.00
22	2.4 RODDING	0.10	0.01	0.01	6.00	0.00	0.00
23	2.9 OTHER	0.15	0.05	0.06	5.00	0.00	0.00
24	3.0 INGOT	0.15	0.01	0.01	2.00	0.00	0.00
29	4.1 MAINTENANCE	0.25	0.03	0.04	3.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.10	0.01	0.02	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0445

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 3 YEARS: 1900-27

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.03	0.01	0.02	14.00	2.30	0.30
2	1.2 TAPPER	0.01	0.01	0.01	16.00	3.00	0.60
3	1.3 TCC	0.08	0.03	0.01	18.00	3.00	0.60
9	1.4 CRANE	0.04	0.01	0.01	16.00	4.00	0.90
10	1.9 OTHER	0.02	0.01	0.01	13.00	1.20	0.30
14	2.1 GREEN	0.80	0.32	0.64	50.00	0.00	0.00
15	2.2 POT LINING	0.80	0.32	0.10	18.00	2.00	0.00
17	2.3 BAKED	0.36	0.12	0.12	30.00	0.00	0.00
22	2.4 PODDING	0.40	0.04	0.04	10.00	0.00	0.00
23	2.9 OTHER	0.60	0.04	0.04	20.00	0.00	0.00
24	3.0 INGOT	0.00	0.00	0.00	0.00	0.00	0.00
29	4.1 MAINTENANCE	0.40	0.05	0.08	14.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.16	0.02	0.04	5.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0446

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 3 YEARS: 1928-49

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.03	0.01	0.02	9.00	1.70	0.30
2	1.2 TAPPER	0.02	0.01	0.01	13.00	2.50	0.60
3	1.3 TCC	0.08	0.03	0.02	14.00	2.10	0.60
9	1.4 CRANE	0.04	0.01	0.01	7.00	3.00	0.90
10	1.9 OTHER	0.02	0.01	0.01	5.00	0.90	0.30
14	2.1 GREEN	0.40	0.16	0.32	13.00	0.00	0.00
15	2.2 POT LINING	0.40	0.16	0.05	8.00	1.50	0.00
17	2.3 BAKED	0.18	0.06	0.06	15.00	0.00	0.00
22	2.4 RODDING	0.20	0.02	0.10	8.00	0.00	0.00
23	2.9 OTHER	0.30	0.02	0.10	14.00	0.00	0.00
24	3.0 INGOT	0.15	0.01	0.02	2.00	0.00	0.00
29	4.1 MAINTENANCE	0.40	0.05	0.08	3.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.16	0.02	0.04	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0447

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 3 YEARS: 1950-73

JOB CODE	WORK AREA		EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1	POTMAN	0.03	0.02	0.01	3.00	0.53	0.15
2	1.2	TAPPER	0.01	0.01	0.01	3.00	1.00	0.10
3	1.3	TCC	0.13	0.03	0.01	9.00	1.78	0.37
9	1.4	CRANE	0.04	0.02	0.01	3.00	0.78	0.10
10	1.9	OTHER	0.02	0.01	0.01	2.00	0.50	0.10
14	2.1	GREEN	0.19	0.10	0.12	3.00	0.00	0.00
15	2.2	POT LINING	0.29	0.11	0.02	4.00	0.40	0.00
17	2.3	BAKED	0.09	0.03	0.02	4.00	0.00	0.00
22	2.4	RODDING	0.10	0.01	0.01	6.00	0.00	0.00
23	2.9	OTHER	0.15	0.05	0.06	5.00	0.00	0.00
24	3.0	INGOT	0.15	0.01	0.01	2.00	0.00	0.00
29	4.1	MAINTENANCE	0.25	0.03	0.04	3.00	0.00	0.00
31	5.1	ELEC. MAINT.	0.10	0.01	0.02	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0448

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 4 YEARS: 1900-50

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	1.44	0.24	9.12	24.00	2.88	0.32
2	1.2 TAPPER	0.64	0.08	6.64	16.00	7.52	4.16
3	1.3 TCC	2.38	0.49	12.05	66.00	6.89	0.25
9	1.4 CRANE	1.12	0.32	18.16	16.00	1.60	0.32
10	1.9 OTHER	0.80	0.16	12.80	40.00	1.84	0.24
14	2.1 GREEN	0.44	0.13	2.05	7.60	0.00	0.00
15	2.2 POT LINING	0.50	0.16	0.74	4.00	0.00	0.00
17	2.3 BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4 RODDING	0.11	0.02	0.36	7.60	0.00	0.00
23	2.9 OTHER	0.28	0.10	0.11	9.50	0.00	0.00
24	3.0 INGOT	0.10	0.03	0.69	2.60	0.52	0.00
29	4.1 MAINTENANCE	0.22	0.02	1.09	4.80	0.00	0.00
31	5.1 ELEC. MAINT.	0.18	0.05	0.83	4.80	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0449

29-Aug-01 DICSTAT...ALUMINUM EXPOSURE DATA...PLANT: 4 YEARS: 1951-57

JOB CODE	WORK AREA		EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1	POTMAN	1.26	0.21	7.98	21.00	2.52	0.28
2	1.2	TAPPER	0.56	0.07	5.81	14.00	6.58	3.64
3	1.3	TCC	2.06	0.43	10.44	57.00	5.96	0.21
9	1.4	CRANE	0.98	0.28	15.89	14.00	1.40	0.28
10	1.9	OTHER	0.70	0.14	11.20	35.00	1.61	0.21
14	2.1	GREEN	0.37	0.11	1.73	6.40	0.00	0.00
15	2.2	POT LINING	0.50	0.16	0.74	4.00	0.00	0.00
17	2.3	BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4	RODDING	0.10	0.02	0.30	6.40	0.00	0.00
23	2.9	OTHER	0.24	0.08	0.10	8.00	0.00	0.00
24	3.0	INGOT	0.10	0.02	0.64	2.40	0.48	0.00
29	4.1	MAINTENANCE	0.18	0.02	0.91	4.00	0.00	0.00
31	5.1	ELEC. MAINT.	0.15	0.04	0.69	4.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0450

29-Aug-01 BICSTAT...ALUMINUM EXPOSURE DATA...PLANT: 4 YEARS: 1958-61

JOB CODE	WORK AREA		EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1	POTMAN	0.79	0.13	5.36	17.75	1.76	0.20
2	1.2	TAPPER	0.39	0.04	3.42	10.49	4.61	2.55
3	1.3	TCC	1.65	0.41	9.38	53.98	4.96	0.18
9	1.4	CRANE	0.62	0.17	9.40	8.37	0.98	0.20
10	1.9	OTHER	0.43	0.08	6.63	20.62	1.13	0.15
14	2.1	GREEN	0.25	0.08	1.19	4.40	0.00	0.00
15	2.2	POT LINING	0.50	0.08	0.74	4.00	0.00	0.00
17	2.3	BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4	RODDING	0.07	0.01	0.21	4.40	0.00	0.00
23	2.9	OTHER	0.16	0.06	0.07	5.50	0.00	0.00
24	3.0	INGOT	0.08	0.02	0.53	2.00	0.40	0.00
29	4.1	MAINTENANCE	0.18	0.02	0.91	4.00	0.00	0.00
31	5.1	ELEC. MAINT.	0.15	0.04	0.69	4.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0451

29-Aug-01 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 4 YEARS: 1962-73

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.59	0.09	4.02	13.27	1.33	0.15
2	1.2 TAPPER	0.30	0.03	2.56	7.48	3.48	1.92
3	1.3 TCC	0.95	0.24	5.43	31.30	2.94	0.10
9	1.4 CRANE	0.46	0.12	7.04	5.92	0.74	0.15
10	1.9 OTHER	0.32	0.06	4.96	15.72	0.85	0.11
14	2.1 GREEN	0.23	0.07	1.08	4.00	0.00	0.00
15	2.2 POT LINING	0.25	0.07	0.37	2.00	0.00	0.00
17	2.3 BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4 RODDING	0.06	0.01	0.19	4.00	0.00	0.00
23	2.9 OTHER	0.15	0.05	0.06	5.00	0.00	0.00
24	3.0 INGOT	0.08	0.02	0.53	2.00	0.40	0.00
29	4.1 MAINTENANCE	0.18	0.02	0.91	4.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.15	0.04	0.69	4.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0452

29-Aug-01 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 5 YEARS: 1900-53

JOB CODE	WORK AREA		EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1	POTMAN	0.60	0.09	5.00	30.00	1.20	0.13
2	1.2	TAPPER	0.30	0.03	5.00	8.00	3.15	1.74
3	1.3	TCC	0.80	0.20	8.00	27.22	3.00	0.11
9	1.4	CRANE	0.30	0.11	8.00	11.83	0.67	0.13
10	1.9	OTHER	0.60	0.06	8.00	16.73	0.77	0.10
14	2.1	GREEN	0.80	0.37	6.00	8.76	0.00	0.00
15	2.2	POT LINING	0.60	0.21	0.30	4.90	0.00	0.00
17	2.3	BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4	RODDING	0.12	0.02	0.39	8.16	0.00	0.00
23	2.9	OTHER	0.31	0.10	0.12	10.20	0.00	0.00
24	3.0	INGOT	0.20	0.04	1.50	2.40	0.48	0.00
29	4.1	MAINTENANCE	0.18	0.02	0.91	4.00	0.00	0.00
31	5.1	ELEC. MAINT.	0.15	0.04	0.69	4.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0453

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 5 YEARS: 1954-54

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.60	0.09	5.00	30.00	0.94	0.10
2	1.2 TAPPER	0.30	0.03	5.00	8.00	2.46	1.36
3	1.3 TCC	0.80	0.20	8.00	30.00	2.39	0.08
9	1.4 CRANE	0.30	0.11	8.00	5.00	0.52	0.10
10	1.9 OTHER	0.60	0.06	8.00	12.00	0.60	0.08
14	2.1 GREEN	0.80	0.37	6.00	9.00	0.00	0.00
15	2.2 POT LINING	0.60	0.21	0.30	5.00	0.00	0.00
17	2.3 BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4 POOLING	0.12	0.02	0.36	8.16	0.00	0.00
23	2.9 OTHER	0.28	0.09	0.11	9.40	0.00	0.00
24	3.0 INGOT	0.20	0.04	1.50	6.00	0.48	0.00
29	4.1 MAINTENANCE	0.22	0.02	1.00	4.25	0.00	0.00
31	5.1 ELEC. MAINT.	0.18	0.04	0.70	4.25	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0454

29-Aug-81 BIOSTAT..,ALUMINUM EXPOSURE DATA...PLANT: 5 YEARS: 1955-57

JOB CODE	WORK AREA		EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1	POTMAN	0.50	0.07	3.00	20.00	0.83	0.09
2	1.2	TAPPER	0.25	0.02	3.00	4.00	2.16	1.20
3	1.3	TCC	0.70	0.18	5.00	30.00	2.13	0.08
9	1.4	CRANE	0.25	0.09	5.00	5.00	0.46	0.09
10	1.9	OTHER	0.50	0.05	5.00	12.00	0.53	0.07
14	2.1	GREEN	0.55	0.26	2.00	9.00	0.00	0.00
15	2.2	POT LINING	0.50	0.17	0.20	5.00	0.00	0.00
17	2.3	BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4	RODDING	0.12	0.02	0.34	7.52	0.00	0.00
23	2.9	OTHER	0.27	0.09	0.11	9.03	0.00	0.00
24	3.0	INGOT	0.20	0.04	1.00	6.00	0.48	0.00
29	4.1	MAINTENANCE	0.22	0.02	1.00	4.38	0.00	0.00
31	5.1	ELEC. MAINT.	0.18	0.04	0.70	4.38	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0455

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 5 YEARS: 1958-61

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.40	0.06	3.00	20.00	0.65	0.07
2	1.2 TAPPER	0.20	0.02	3.00	4.00	1.70	0.94
3	1.3 TCC	0.50	0.14	5.00	20.00	1.77	0.06
9	1.4 CRANE	0.20	0.08	5.00	3.00	0.36	0.07
10	1.9 OTHER	0.40	0.04	5.00	8.00	0.42	0.05
14	2.1 GREEN	0.30	0.14	2.00	3.00	0.00	0.00
15	2.2 POT LINING	0.40	0.14	0.20	2.00	0.00	0.00
17	2.3 BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4 RODDING	0.08	0.02	0.23	5.92	0.00	0.00
23	2.9 OTHER	0.18	0.06	0.07	6.13	0.00	0.00
24	3.0 INGOT	0.20	0.04	1.00	4.00	0.40	0.00
29	4.1 MAINTENANCE	0.18	0.02	0.91	4.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.15	0.04	0.69	4.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0456

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 5 YEARS: 1962-68

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.40	0.06	3.00	20.00	0.50	0.06
2	1.2 TAPPER	0.20	0.02	3.00	4.00	1.30	0.72
3	1.3 TCC	0.50	0.14	5.00	20.00	1.15	0.04
9	1.4 CRANE	0.20	0.08	5.00	3.00	0.28	0.06
10	1.9 OTHER	0.40	0.04	5.00	8.00	0.32	0.04
14	2.1 GREEN	0.30	0.14	2.00	3.00	0.00	0.00
15	2.2 POT LINING	0.40	0.14	0.20	2.00	0.00	0.00
17	2.3 BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4 RODDING	0.07	0.01	0.21	4.72	0.00	0.00
23	2.9 OTHER	0.17	0.06	0.07	5.62	0.00	0.00
24	3.0 INGOT	0.20	0.04	1.00	4.00	0.40	0.00
29	4.1 MAINTENANCE	0.18	0.02	0.91	4.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.15	0.04	0.69	4.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0457

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 5 YEARS: 1969-73

JOB CODE	WORK AREA		EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1	POTMAN	0.30	0.04	2.30	15.00	0.50	0.06
2	1.2	TAPPER	0.15	0.01	2.30	4.00	1.30	0.72
3	1.3	TCC	0.39	0.10	3.90	15.00	1.15	0.04
9	1.4	CRANE	0.16	0.06	3.90	3.00	0.28	0.06
10	1.9	OTHER	0.30	0.03	3.90	6.00	0.32	0.04
14	2.1	GREEN	0.23	0.10	1.50	3.00	0.00	0.00
15	2.2	POT LINING	0.30	0.10	0.15	2.00	0.00	0.00
17	2.3	BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4	RODDING	0.07	0.01	0.21	4.50	0.00	0.00
23	2.9	OTHER	0.15	0.05	0.06	5.00	0.00	0.00
24	3.0	INGOT	0.10	0.02	0.75	3.00	0.40	0.00
29	4.1	MAINTENANCE	0.18	0.02	0.91	4.00	0.00	0.00
31	5.1	ELEC. MAINT.	0.15	0.04	0.69	4.00	0.00	0.00

511971 0458

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

29-Aug-81 DICSTAT...ALUMINUM EXPOSURE DATA...PLANT: 6 YEARS: 1900-57

JOB CODE	WORK AREA		EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1	POTMAN	0.32	0.05	2.35	10.00	0.58	0.06
2	1.2	TAPPER	0.18	0.02	1.31	5.00	1.50	0.83
3	1.3	TCC	0.41	0.13	2.65	16.00	1.51	0.05
9	1.4	CRANE	0.26	0.06	3.63	3.00	0.32	0.06
10	1.9	OTHER	0.18	0.03	2.56	8.00	0.37	0.05
14	2.1	GREEN	0.37	0.11	1.73	6.40	0.00	0.00
15	2.2	POT LINING	0.50	0.16	0.74	4.00	0.00	0.00
17	2.3	BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4	RODDING	0.10	0.02	0.30	6.40	0.00	0.00
23	2.9	OTHER	0.24	0.08	0.10	8.00	0.00	0.00
24	3.0	INGOT	0.10	0.02	0.64	2.40	0.48	0.00
29	4.1	MAINTENANCE	0.22	0.02	1.09	4.80	0.00	0.00
31	5.1	ELEC. MAINT.	0.18	0.05	0.83	4.80	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0459

29-Aug-81 DIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 6 YEARS: 1958-81

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.26	0.04	1.91	3.00	0.47	0.05
2	1.2 TAPPER	0.14	0.01	1.07	4.00	1.22	0.68
3	1.3 TCC	0.34	0.10	2.20	14.00	1.26	0.04
9	1.4 CRANE	0.21	0.05	2.95	3.00	0.26	0.05
10	1.9 OTHER	0.14	0.03	2.08	7.00	0.30	0.04
14	2.1 GREEN	0.25	0.08	1.19	4.40	0.00	0.00
15	2.2 POT LINING	0.50	0.08	0.74	4.00	0.00	0.00
17	2.3 BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4 PODDING	0.07	0.01	0.21	4.40	0.00	0.00
23	2.9 OTHER	0.16	0.06	0.07	5.50	0.00	0.00
24	3.0 INGOT	0.08	0.02	0.53	2.00	0.40	0.00
29	4.1 MAINTENANCE	0.18	0.02	0.91	4.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.15	0.04	0.69	4.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0460

29-Aug-01 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 6 YEARS: 1962-73

JOB CODE	WORK AREA		EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1	POTMAN	0.20	0.03	1.47	6.00	0.36	0.04
2	1.2	TAPPER	0.11	0.01	0.82	3.00	0.94	0.52
3	1.3	TCC	0.23	0.07	1.47	9.00	0.84	0.03
9	1.4	CRANE	0.16	0.04	2.27	2.00	0.20	0.04
10	1.9	OTHER	0.11	0.02	1.60	5.00	0.23	0.03
14	2.1	GREEN	0.23	0.07	1.08	4.00	0.00	0.00
15	2.2	POT LINING	0.25	0.07	0.37	2.00	0.00	0.00
17	2.3	BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4	RODDING	0.06	0.01	0.19	4.00	0.00	0.00
23	2.9	OTHER	0.15	0.05	0.06	5.00	0.00	0.00
24	3.0	INSPECT	0.08	0.02	0.53	2.00	0.40	0.00
29	4.1	MAINTENANCE	0.18	0.02	0.91	4.00	0.00	0.00
31	5.1	ELEC. MAINT.	0.15	0.04	0.69	4.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0461

29-Aug-01 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 7 YEARS: 1900-50

JOB CODE	WORK AREA		EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1	POTMAN	0.09	0.02	0.02	14.40	1.44	0.72
2	1.2	TAPPER	0.00	0.00	0.00	0.00	0.00	0.00
3	1.3	TCC	0.19	0.02	0.02	23.10	1.89	0.42
9	1.4	CRANE	0.13	0.02	0.02	10.80	1.44	0.90
10	1.9	OTHER	0.04	0.02	0.02	3.60	0.00	0.54
14	2.1	GREEN	0.44	0.04	0.59	5.70	0.00	0.00
15	2.2	POT LINING	0.18	0.04	0.04	6.00	0.00	0.00
17	2.3	BAKED	0.25	0.02	0.04	20.90	0.00	0.00
22	2.4	PODDING	0.17	0.02	0.04	11.40	0.00	0.00
23	2.9	OTHER	0.19	0.04	0.08	9.50	0.00	0.00
24	3.0	INCOT	0.20	0.03	0.01	2.60	0.00	0.00
29	4.1	MAINTENANCE	0.30	0.02	0.04	3.60	0.00	0.00
31	5.1	ELEC. MAINT.	0.12	0.01	0.02	1.20	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0462

29-Aug-81 BICSTAT...ALUMINUM EXPOSURE DATA...PLANT: 7 YEARS: 1951-57

JOB CODE	WORK AREA		EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1	POTMAN	0.08	0.02	0.02	12.80	1.28	0.64
2	1.2	TAPPER	0.00	0.00	0.00	0.00	0.00	0.00
3	1.3	TCC	0.16	0.02	0.02	19.80	1.62	0.36
9	1.4	CRANE	0.11	0.02	0.02	9.60	1.28	0.80
10	1.9	OTHER	0.03	0.02	0.02	3.20	0.00	0.48
14	2.1	GREEN	0.37	0.03	0.50	4.80	0.00	0.00
15	2.2	POT LINING	0.18	0.04	0.04	6.00	0.00	0.00
17	2.3	BAKED	0.21	0.02	0.03	17.60	0.00	0.00
22	2.4	RODDING	0.14	0.02	0.03	9.60	0.00	0.00
23	2.9	OTHER	0.16	0.03	0.06	8.00	0.00	0.00
24	3.0	INGOT	0.18	0.02	0.01	2.40	0.00	0.00
29	4.1	MAINTENANCE	0.25	0.02	0.03	3.00	0.00	0.00
31	5.1	ELEC. MAINT.	0.10	0.01	0.02	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0463

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.07	0.01	0.01	10.40	1.04	0.52
2	1.2 TAPPER	0.00	0.00	0.00	0.00	0.00	0.00
3	1.3 TCC	0.14	0.02	0.02	16.50	1.35	0.30
9	1.4 CRANE	0.09	0.01	0.01	7.80	1.04	0.65
10	1.9 OTHER	0.03	0.01	0.01	2.60	0.00	0.39
14	2.1 GREEN	0.25	0.02	0.34	3.30	0.00	0.00
15	2.2 POT LINING	0.18	0.04	0.04	6.00	0.00	0.00
17	2.3 BAKED	0.14	0.01	0.02	12.10	0.00	0.00
22	2.4 RODDING	0.10	0.01	0.02	6.60	0.00	0.00
23	2.9 OTHER	0.11	0.02	0.04	5.50	0.00	0.00
24	3.0 INGOT	0.17	0.02	0.01	2.20	0.00	0.00
29	4.1 MAINTENANCE	0.25	0.02	0.03	3.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.10	0.01	0.02	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0464

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 7 YEARS: 1962-73

JOB CODE	WORK AREA		EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1	PUTMAN	0.05	0.01	0.01	8.00	0.80	0.40
2	1.2	TAPPER	0.00	0.00	0.00	0.00	0.00	0.00
3	1.3	TCC	0.09	0.01	0.01	11.00	0.90	0.20
9	1.4	CRANE	0.07	0.01	0.01	6.00	0.80	0.50
10	1.9	OTHER	0.02	0.01	0.01	2.00	0.00	0.30
14	2.1	GREEN	0.23	0.02	0.31	3.00	0.00	0.00
15	2.2	POT LINING	0.09	0.02	0.02	3.00	0.00	0.00
17	2.3	BAKED	0.13	0.01	0.02	11.00	0.00	0.00
22	2.4	RODDING	0.09	0.01	0.02	6.00	0.00	0.00
23	2.9	OTHER	0.10	0.02	0.04	5.00	0.00	0.00
24	3.0	INGOT	0.15	0.02	0.01	2.00	0.00	0.00
29	4.1	MAINTENANCE	0.25	0.02	0.03	3.00	0.00	0.00
31	5.1	ELEC. MAINT.	0.10	0.01	0.02	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0465

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: B YEARS: 1900-73

JCB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.03	0.02	0.01	3.00	0.53	0.15
2	1.2 TAPPER	0.01	0.01	0.01	3.00	1.00	0.10
3	1.3 TCC	0.13	0.03	0.01	9.00	1.78	0.37
9	1.4 CRANE	0.04	0.02	0.01	3.00	0.78	0.10
10	1.9 OTHER	0.02	0.01	0.01	2.00	0.50	0.10
14	2.1 GREEN	0.19	0.10	0.12	3.00	0.00	0.00
15	2.2 POT LINING	0.29	0.11	0.02	4.00	0.40	0.00
17	2.3 BAKED	0.09	0.03	0.02	4.00	0.00	0.00
22	2.4 RODDING	0.10	0.01	0.01	6.00	0.00	0.00
23	2.9 OTHER	0.15	0.05	0.06	5.00	0.00	0.00
24	3.0 INGOT	0.15	0.01	0.01	2.00	0.00	0.00
29	4.1 MAINTENANCE	0.25	0.03	0.04	3.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.10	0.01	0.02	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0466

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 9 YEARS: 1900-73

JOB CODE	WORK AREA		EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1	POTMAN	0.34	0.31	8.15	25.00	1.40	0.30
2	1.2	TAPPER	0.30	0.30	9.00	10.00	1.50	0.20
3	1.3	TCC	0.31	0.28	10.50	6.00	0.56	0.20
9	1.4	CRANE	0.20	0.20	6.00	5.00	0.50	0.20
10	1.9	OTHER	0.20	0.10	3.00	3.00	0.50	0.10
14	2.1	GREEN	0.24	0.10	0.22	3.00	0.00	0.00
15	2.2	POT LINING	0.06	0.06	0.50	1.00	0.40	0.00
17	2.3	BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4	RODDING	0.00	0.00	0.00	0.00	0.00	0.00
23	2.9	OTHER	0.15	0.10	2.00	5.00	0.00	0.00
24	3.0	INGOT	0.15	0.01	0.02	2.00	0.00	0.00
29	4.1	MAINTENANCE	0.30	0.05	0.06	4.00	0.00	0.00
31	5.1	ELEC. MAINT.	0.15	0.02	0.03	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0467

29-Aug-01 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 10 YEARS: 1900-57

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.32	0.05	2.35	10.00	0.58	0.06
2	1.2 TAPPER	0.18	0.02	1.31	5.00	1.50	0.83
3	1.3 TCC	0.41	0.13	2.65	16.00	1.51	0.05
9	1.4 CRANE	0.26	0.06	3.63	3.00	0.32	0.06
10	1.9 OTHER	0.18	0.03	2.56	8.00	0.37	0.05
14	2.1 GREEN	0.37	0.11	1.73	6.40	0.00	0.00
15	2.2 POT LINING	0.50	0.16	0.74	4.00	0.00	0.00
17	2.3 BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4 RODDING	0.10	0.02	0.30	6.40	0.00	0.00
23	2.9 OTHER	0.24	0.08	0.10	8.00	0.00	0.00
24	3.0 INGOT	0.10	0.02	0.64	2.40	0.48	0.00
29	4.1 MAINTENANCE	0.22	0.02	1.09	4.80	0.00	0.00
31	5.1 ELEC. MAINT.	0.18	0.05	0.83	4.80	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0468

29-Aug-81 DIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 10 YEARS: 1950-61

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.26	0.04	1.91	8.00	0.47	0.05
2	1.2 TAPPER	0.14	0.01	1.07	4.00	1.22	0.68
3	1.3 TCC	0.34	0.10	2.20	14.00	1.26	0.04
9	1.4 CRANE	0.21	0.05	2.95	3.00	0.26	0.05
10	1.9 OTHER	0.14	0.03	2.08	7.00	0.30	0.04
14	2.1 GREEN	0.25	0.08	1.19	4.40	0.00	0.00
15	2.2 POT LINING	0.50	0.08	0.74	4.00	0.00	0.00
17	2.3 BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4 RODDING	0.07	0.01	0.21	4.40	0.00	0.00
23	2.9 OTHER	0.16	0.06	0.07	5.50	0.00	0.00
24	3.0 INGOT	0.08	0.02	0.53	2.00	0.40	0.00
29	4.1 MAINTENANCE	0.18	0.02	0.91	4.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.15	0.04	0.69	4.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0469

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 10 YEARS: 1962-73

JCB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.20	0.03	1.47	6.00	0.36	0.04
2	1.2 TAPPER	0.11	0.01	0.82	3.00	0.94	0.52
3	1.3 TCC	0.23	0.07	1.47	9.00	0.84	0.03
9	1.4 CRANE	0.16	0.04	2.27	2.00	0.20	0.04
10	1.9 OTHER	0.11	0.02	1.60	5.00	0.23	0.03
14	2.1 GREEN	0.23	0.07	1.08	4.00	0.00	0.00
15	2.2 POT LINING	0.25	0.07	0.37	2.00	0.00	0.00
17	2.3 BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4 RODDING	0.06	0.01	0.19	4.00	0.00	0.00
23	2.9 OTHER	0.15	0.05	0.06	5.00	0.00	0.00
24	3.0 INGOT	0.08	0.02	0.53	2.00	0.40	0.00
29	4.1 MAINTENANCE	0.18	0.02	0.91	4.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.15	0.04	0.69	4.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0470

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 12 YEARS: 1900-51

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.03	0.01	0.02	10.50	2.00	0.30
2	1.2 TAPPER	0.02	0.01	0.01	4.40	0.60	0.60
3	1.3 TCC	0.08	0.03	0.02	15.00	3.50	0.60
9	1.4 CRANE	0.04	0.01	0.01	4.00	2.50	0.90
10	1.9 OTHER	0.02	0.01	0.01	6.30	2.30	0.30
14	2.1 GREEN	0.21	0.16	0.32	3.90	0.00	0.00
15	2.2 POT LINING	1.06	0.16	0.05	7.70	0.00	0.00
17	2.3 BAKED	0.07	0.06	0.06	10.00	0.00	0.00
22	2.4 RODDING	0.20	0.02	0.10	4.50	0.00	0.00
23	2.9 OTHER	0.30	0.02	0.10	14.00	0.00	0.00
24	3.0 INGOT	0.15	0.01	0.02	3.00	0.00	0.00
29	4.1 MAINTENANCE	0.10	0.05	0.08	4.10	0.00	0.00
31	5.1 ELEC. MAINT.	0.16	0.02	0.04	5.10	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0471

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 12 YEARS: 1952-55

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.03	0.02	0.01	9.50	1.50	0.15
2	1.2 TAPPER	0.01	0.01	0.01	4.40	0.60	0.10
3	1.3 TCC	0.13	0.03	0.01	11.00	2.50	0.37
9	1.4 CRANE	0.04	0.02	0.01	3.00	1.20	0.10
10	1.9 OTHER	0.02	0.01	0.01	6.30	1.90	0.10
14	2.1 GREEN	0.21	0.10	0.12	3.90	0.00	0.00
15	2.2 POT LINING	1.06	0.11	0.02	7.70	0.00	0.00
17	2.3 BAKED	0.07	0.03	0.02	10.00	0.00	0.00
22	2.4 PODDING	0.10	0.01	0.01	4.50	0.00	0.00
23	2.9 OTHER	0.15	0.05	0.06	5.00	0.00	0.00
24	3.0 INGOT	0.15	0.01	0.01	2.00	0.00	0.00
29	4.1 MAINTENANCE	0.25	0.03	0.04	3.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.10	0.01	0.02	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0472

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 12 YEARS: 1956-60

JOB CODE	WORK AREA		EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1	POTMAN	0.03	0.02	0.01	8.50	1.50	0.15
2	1.2	TAPPER	0.01	0.01	0.01	4.40	0.60	0.10
3	1.3	TCC	0.13	0.03	0.01	13.00	2.20	0.37
9	1.4	CRANE	0.04	0.02	0.01	3.00	1.20	0.10
10	1.9	OTHER	0.02	0.01	0.01	6.30	1.90	0.10
14	2.1	GREEN	0.21	0.10	0.12	3.90	0.00	0.00
15	2.2	POT LINING	0.80	0.11	0.02	5.00	0.00	0.00
17	2.3	BAKED	0.07	0.03	0.02	8.00	0.00	0.00
22	2.4	RODDING	0.10	0.01	0.01	4.50	0.00	0.00
23	2.9	OTHER	0.15	0.05	0.06	5.00	0.00	0.00
24	3.0	INGOT	0.15	0.01	0.01	2.00	0.00	0.00
29	4.1	MAINTENANCE	0.25	0.03	0.04	3.00	0.00	0.00
31	5.1	ELEC. MAINT.	0.10	0.01	0.02	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0473

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 12 YEARS: 1961-69

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.03	0.02	0.01	8.50	1.50	0.15
2	1.2 TAPPER	0.01	0.01	0.01	4.40	0.60	0.10
3	1.3 TCC	0.13	0.03	0.01	12.00	1.80	0.37
9	1.4 CRANE	0.04	0.02	0.01	3.00	1.20	0.10
10	1.9 OTHER	0.02	0.01	0.01	6.30	1.90	0.10
14	2.1 GREEN	0.21	0.10	0.12	3.90	0.00	0.00
15	2.2 POT LINING	0.30	0.11	0.02	5.00	0.00	0.00
17	2.3 BAKED	0.07	0.03	0.02	8.00	0.00	0.00
22	2.4 RODDING	0.10	0.01	0.01	4.50	0.00	0.00
23	2.9 OTHER	0.15	0.05	0.06	5.00	0.00	0.00
24	3.0 INGOT	0.15	0.01	0.01	2.00	0.00	0.00
29	4.1 MAINTENANCE	0.25	0.03	0.04	3.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.10	0.01	0.02	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0474

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 12 YEARS: 1965-65

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.03	0.02	0.01	8.50	1.50	0.15
2	1.2 TAPPER	0.01	0.01	0.01	4.40	0.60	0.10
3	1.3 TCC	0.13	0.03	0.01	12.00	1.80	0.37
9	1.4 CRANE	0.04	0.02	0.01	3.00	1.20	0.10
10	1.9 OTHER	0.02	0.01	0.01	6.30	1.90	0.10
14	2.1 GREEN	0.21	0.10	0.12	3.90	0.00	0.00
15	2.2 POT LINING	0.72	0.11	0.02	4.50	0.00	0.00
17	2.3 BAKED	0.07	0.03	0.02	8.00	0.00	0.00
22	2.4 RODDING	0.10	0.01	0.01	4.50	0.00	0.00
23	2.9 OTHER	0.15	0.05	0.06	5.00	0.00	0.00
24	3.0 INGOT	0.15	0.01	0.01	2.00	0.00	0.00
29	4.1 MAINTENANCE	0.25	0.03	0.04	3.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.10	0.01	0.02	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0475

29-Aug-01 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 12 YEARS: 1966-66

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.03	0.02	0.01	8.50	1.50	0.15
2	1.2 TAPPER	0.01	0.01	0.01	3.30	0.30	0.10
3	1.3 TCC	0.13	0.03	0.01	12.00	1.80	0.37
9	1.4 CRANE	0.04	0.02	0.01	3.00	1.20	0.10
10	1.9 OTHER	0.02	0.01	0.01	6.30	1.90	0.10
14	2.1 GREEN	0.21	0.10	0.12	3.90	0.00	0.00
15	2.2 POT LINING	0.72	0.11	0.02	4.50	0.00	0.00
17	2.3 BAKED	0.07	0.03	0.02	8.00	0.00	0.00
22	2.4 RODDING	0.10	0.01	0.01	4.50	0.00	0.00
23	2.9 OTHER	0.15	0.05	0.06	5.00	0.00	0.00
24	3.0 INGOT	0.15	0.01	0.01	2.00	0.00	0.00
29	4.1 MAINTENANCE	0.25	0.03	0.04	3.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.10	0.01	0.02	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0476

29-Aug-81 DICSTAT...ALUMINUM EXPOSURE DATA...PLANT: 12 YEARS: 1967-67

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.03	0.02	0.01	3.20	0.50	0.15
2	1.2 TAPPER	0.01	0.01	0.01	3.30	0.30	0.10
3	1.3 TCC	0.13	0.03	0.01	12.00	1.80	0.37
9	1.4 CRANE	0.04	0.02	0.01	3.00	1.20	0.10
10	1.9 OTHER	0.02	0.01	0.01	6.30	1.90	0.10
14	2.1 GREEN	0.21	0.10	0.12	3.90	0.00	0.00
15	2.2 POT LINING	0.72	0.11	0.02	4.50	0.00	0.00
17	2.3 BAKED	0.07	0.03	0.02	8.00	0.00	0.00
22	2.4 RODDING	0.10	0.01	0.01	4.50	0.00	0.00
23	2.9 OTHER	0.15	0.05	0.06	5.00	0.00	0.00
24	3.0 INGOT	0.15	0.01	0.01	2.00	0.00	0.00
29	4.1 MAINTENANCE	0.25	0.03	0.04	3.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.10	0.01	0.02	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0477

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 12 YEARS: 1968-68

JOB CODE	WORK AREA		EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1	POTMAN	0.03	0.02	0.01	3.20	0.50	0.15
2	1.2	TAPPER	0.01	0.01	0.01	3.30	0.30	0.10
3	1.3	TCC	0.13	0.03	0.01	10.00	1.50	0.37
9	1.4	CRANE	0.04	0.02	0.01	2.00	1.20	0.10
10	1.9	OTHER	0.02	0.01	0.01	6.30	1.90	0.10
14	2.1	GREEN	0.21	0.10	0.12	3.90	0.00	0.00
15	2.2	POT LINING	0.72	0.11	0.02	4.50	0.00	0.00
17	2.3	BAKED	0.07	0.03	0.02	8.00	0.00	0.00
22	2.4	RODDING	0.10	0.01	0.01	4.50	0.00	0.00
23	2.9	OTHER	0.15	0.05	0.06	5.00	0.00	0.00
24	3.0	INGOT	0.15	0.01	0.01	2.00	0.00	0.00
29	4.1	MAINTENANCE	0.25	0.03	0.04	3.00	0.00	0.00
31	5.1	ELEC. MAINT.	0.10	0.01	0.02	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0478

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 12 YEARS: 1969-71

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.03	0.02	0.01	3.20	0.50	0.15
2	1.2 TAPPER	0.01	0.01	0.01	3.30	0.30	0.10
3	1.3 TCC	0.13	0.03	0.01	10.00	1.50	0.37
9	1.4 CRANE	0.04	0.02	0.01	2.00	0.60	0.10
10	1.9 OTHER	0.02	0.01	0.01	4.90	0.50	0.10
14	2.1 GREEN	0.21	0.10	0.12	3.90	0.00	0.00
15	2.2 POT LINING	0.72	0.11	0.02	4.50	0.00	0.00
17	2.3 BAKED	0.07	0.03	0.02	8.00	0.00	0.00
22	2.4 RODDING	0.10	0.01	0.01	4.50	0.00	0.00
21	2.9 OTHER	0.15	0.05	0.06	5.00	0.00	0.00
24	3.0 INGOT	0.15	0.01	0.01	2.00	0.00	0.00
29	4.1 MAINTENANCE	0.25	0.03	0.04	3.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.10	0.01	0.02	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0479

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 12 YEARS: 1972-73

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.03	0.02	0.01	1.60	0.20	0.15
2	1.2 TAPPER	0.01	0.01	0.01	2.20	0.20	0.10
3	1.3 TCC	0.13	0.03	0.01	7.80	1.00	0.37
9	1.4 CRANE	0.04	0.02	0.01	1.00	0.20	0.10
10	1.9 OTHER	0.02	0.01	0.01	4.90	0.50	0.10
14	2.1 GREEN	0.21	0.10	0.12	3.90	0.00	0.00
15	2.2 POT LINING	0.72	0.11	0.02	4.50	0.00	0.00
17	2.3 BAKED	0.07	0.03	0.02	8.00	0.00	0.00
22	2.4 RODDING	0.10	0.01	0.01	4.50	0.00	0.00
23	2.9 OTHER	0.15	0.05	0.06	5.00	0.00	0.00
24	3.0 INGOT	0.15	0.01	0.01	2.00	0.00	0.00
29	4.1 MAINTENANCE	0.25	0.03	0.04	3.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.10	0.01	0.02	1.00	0.00	0.00

511971 0480

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

29-Aug-81 DICSTAT...ALUMINUM EXPOSURE DATA...PLANT: 13 YEARS: 1900-73

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.03	0.02	0.01	3.00	0.53	0.15
2	1.2 TAPPER	0.01	0.01	0.01	3.00	1.00	0.10
3	1.3 TCC	0.13	0.03	0.01	9.00	1.78	0.37
9	1.4 CRANE	0.04	0.02	0.01	3.00	0.78	0.10
10	1.9 OTHER	0.02	0.01	0.01	2.00	0.50	0.10
14	2.1 GREEN	0.19	0.10	0.12	3.00	0.00	0.00
15	2.2 POT LINING	0.29	0.11	0.02	4.00	0.40	0.00
17	2.3 BAKED	0.09	0.03	0.02	4.00	0.00	0.00
22	2.4 RODDING	0.10	0.01	0.01	6.00	0.00	0.00
23	2.9 OTHER	0.15	0.05	0.06	5.00	0.00	0.00
24	3.0 INGOT	0.15	0.01	0.01	2.00	0.00	0.00
29	4.1 MAINTENANCE	0.25	0.03	0.04	3.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.10	0.01	0.02	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0481

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 14 YEARS: 1900-49

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.03	0.01	0.02	9.00	1.70	0.30
2	1.2 TAPPER	0.02	0.01	0.01	13.00	2.50	0.60
3	1.3 TCC	0.08	0.03	0.02	14.00	2.10	0.60
9	1.4 CRANE	0.04	0.01	0.01	7.00	3.00	0.90
10	1.9 OTHER	0.02	0.01	0.01	5.00	0.90	0.30
14	2.1 GREEN	0.40	0.16	0.32	13.00	0.00	0.00
15	2.2 POT LINING	0.40	0.16	0.05	8.00	1.50	0.00
17	2.3 BAKED	0.18	0.06	0.06	15.00	0.00	0.00
22	2.4 RODDING	0.20	0.02	0.10	8.00	0.00	0.00
23	2.9 OTHER	0.30	0.02	0.10	14.00	0.00	0.00
24	3.0 INGOT	0.15	0.01	0.02	2.00	0.00	0.00
29	4.1 MAINTENANCE	0.40	0.05	0.08	3.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.16	0.02	0.04	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0482

29-Aug-81 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 14 YEARS: 1950-73

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.03	0.02	0.01	3.00	0.53	0.15
2	1.2 TAPPER	0.01	0.01	0.01	3.00	1.00	0.10
3	1.3 TCC	0.13	0.03	0.01	9.00	1.78	0.37
9	1.4 CRANE	0.04	0.02	0.01	3.00	0.78	0.10
10	1.9 OTHER	0.02	0.01	0.01	2.00	0.50	0.10
14	2.1 GREEN	0.19	0.10	0.12	3.00	0.00	0.00
15	2.2 POT LINING	0.29	0.11	0.02	4.00	0.40	0.00
17	2.3 BAKED	0.99	0.03	0.02	4.00	0.00	0.00
22	2.4 RODDING	0.10	0.01	0.01	6.00	0.00	0.00
23	2.9 OTHER	0.15	0.05	0.06	5.00	0.00	0.00
24	3.0 INGOT	0.15	0.01	0.01	2.00	0.00	0.00
29	4.1 MAINTENANCE	0.25	0.03	0.04	3.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.10	0.01	0.02	1.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

5119971 0483

29-Aug-81 BICSTAT...ALUMINUM EXPOSURE DATA...PLANT: 15 YEARS: 1900-50

JOB CODE	WORK AREA		EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1	POTMAN	1.44	0.27	13.68	24.00	1.62	0.18
2	1.2	TAPPER	0.64	0.18	3.69	16.00	4.23	2.34
3	1.3	TCC	2.40	0.41	6.03	66.00	3.44	0.12
9	1.4	CRANE	1.12	0.32	10.22	16.00	0.90	0.18
10	1.9	OTHER	0.80	0.09	7.20	40.00	1.04	0.14
14	2.1	GREEN	0.69	0.21	3.24	12.00	0.00	0.00
15	2.2	POT LINING	0.50	0.24	1.26	0.00	0.00	0.00
17	2.3	BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4	RODDING	0.18	0.03	0.57	12.00	0.00	0.00
23	2.9	OTHER	0.45	0.15	0.18	15.00	0.00	0.00
24	3.0	INGOT	0.10	0.03	0.69	2.60	0.52	0.00
29	4.1	MAINTENANCE	0.22	0.02	1.09	4.80	0.00	0.00
31	5.1	ELEC. MAINT.	0.18	0.05	0.83	4.80	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0484

29-Aug-81 BICSTAT...ALUMINUM EXPOSURE DATA...PLANT: 15 YEARS: 1951-57

JOB CODE	WORK AREA		EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1	POTMAN	0.51	0.20	4.86	26.00	0.58	0.06
2	1.2	TAPPER	0.24	0.06	1.31	5.00	1.50	0.83
3	1.3	TCC	0.63	0.18	2.65	13.00	1.51	0.05
9	1.4	CRANE	0.27	0.06	3.63	10.00	0.32	0.06
10	1.9	OTHER	0.16	0.03	2.56	8.00	0.37	0.05
14	2.1	GREEN	0.60	0.18	2.81	10.40	0.00	0.00
15	2.2	POT LINING	0.50	0.24	1.26	6.00	0.00	0.00
17	2.3	BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4	REDDING	0.16	0.03	0.49	10.40	0.00	0.00
23	2.9	OTHER	0.39	0.13	0.16	13.00	0.00	0.00
24	3.0	INGOT	0.10	0.02	0.64	2.40	0.48	0.00
29	4.1	MAINTENANCE	0.18	0.02	0.91	4.00	0.00	0.00
31	5.1	ELEC. MAINT.	0.15	0.04	0.69	4.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0485

29-Aug-91 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 15 YEARS: 1958-61

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.42	0.08	3.95	21.00	0.47	0.05
2	1.2 TAPPER	0.20	0.05	1.07	4.00	1.22	0.68
3	1.3 TCC	0.52	0.15	2.20	10.50	1.26	0.04
9	1.4 CRANE	0.22	0.05	2.95	8.00	0.26	0.05
10	1.9 OTHER	0.13	0.03	2.08	7.00	0.30	0.04
14	2.1 GREEN	0.39	0.12	1.84	6.80	0.00	0.00
15	2.2 POT LINING	0.50	0.12	1.26	6.00	0.00	0.00
17	2.3 BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4 RODDING	0.10	0.02	0.32	6.80	0.00	0.00
23	2.9 OTHER	0.26	0.08	0.10	8.50	0.00	0.00
24	3.0 INGOT	0.08	0.02	0.53	2.00	0.40	0.00
29	4.1 MAINTENANCE	0.18	0.02	0.91	4.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.15	0.04	0.69	4.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

511971 0486

29-Aug-81 DICSTAT...ALUMINUM EXPOSURE DATA...PLANT: 15 YEARS: 1962-68

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.32	0.06	3.04	21.00	0.36	0.04
2	1.2 TAPPER	0.15	0.04	2.01	3.00	0.94	0.52
3	1.3 TCC	0.35	0.10	1.47	7.00	0.84	0.03
9	1.4 CRANE	0.17	0.04	2.27	6.00	0.20	0.04
10	1.9 OTHER	0.10	0.02	1.60	5.00	0.23	0.03
14	2.1 GREEN	0.37	0.11	1.73	6.40	0.00	0.00
15	2.2 POT LINING	0.40	0.11	0.63	3.20	0.00	0.00
17	2.3 BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4 RODDING	0.10	0.02	0.30	6.40	0.00	0.00
23	2.9 OTHER	0.24	0.08	0.10	8.00	0.00	0.00
24	3.0 INGOT	0.08	0.02	0.53	2.00	0.40	0.00
29	4.1 MAINTENANCE	0.18	0.02	0.91	4.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.15	0.04	0.69	4.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

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29-Aug-01 BIOSTAT...ALUMINUM EXPOSURE DATA...PLANT: 15 YEARS: 1969-73

JOB CODE	WORK AREA	EXPOSURE VALUES (1)	(2)	(3)	(4)	(5)	(6)
1	1.1 POTMAN	0.25	0.06	3.04	9.80	0.36	0.04
2	1.2 TAPPER	0.13	0.04	2.01	3.00	0.94	0.52
3	1.3 TCC	0.28	0.10	1.47	7.00	0.84	0.03
9	1.4 CRANE	0.16	0.04	2.27	6.00	0.20	0.04
10	1.9 OTHER	0.10	0.02	1.60	5.00	0.23	0.03
14	2.1 GREEN	0.37	0.11	1.73	6.40	0.00	0.00
15	2.2 POT LINING	0.40	0.11	0.59	3.20	0.00	0.00
17	2.3 BAKED	0.00	0.00	0.00	0.00	0.00	0.00
22	2.4 RODDING	0.10	0.02	0.30	6.40	0.00	0.00
23	2.9 OTHER	0.15	0.05	0.06	5.00	0.00	0.00
24	3.0 INGOT	0.08	0.02	0.53	2.00	0.40	0.00
29	4.1 MAINTENANCE	0.18	0.02	0.91	4.00	0.00	0.00
31	5.1 ELEC. MAINT.	0.15	0.04	0.69	4.00	0.00	0.00

EXPOSURE VALUES KEY:

(1) HYDROCARBONS: BENZENE SOLUBLES
(2) HYDROCARBONS: PARTICULATE POLYCYCLICS: TOTAL
(3) HYDROCARBONS: PARTICULATE POLYCYCLICS: BAP
(4) PARTICULATES: TOTAL
(5) FLUORIDES: TOTAL
(6) SO2

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APPENDIX III

Mortality Rates

The preliminary investigations for the present study used a total U.S. male population as the control group. Total U.S. rates are available from several sources. Monson has tabulated 63 causes of death, NIOSH has tabulated rates for 89 causes of death, and Marsh and Preininger have used a summarization based on 53 causes of death. In the latter case, the 53 causes of death have been tabulated only for white males and are not available for non-whites. Both the Monson rates and the NIOSH rates assume that the cause of death is coded to the revision using the ICDA rules in effect at the time of the death. Marsh's rates make use of the comparability ratio when they feel it is appropriate and for causes of death for which the comparability ratio is close to 1 they use the Monson rates directly.

In the present report the basis for the preliminary analysis was 59 selected causes of death, all of which made use of comparability ratios. Table A3.1 shows the 59 selected causes of death for which SMR's were computed. These rates were then used as input into the OCMAP program. For 36 of the 59 causes the Monson rates were used as a basis, and a comparability ratio was applied to adjust for the changing in rules between the Seventh and Eighth Revision. Three additional categories which were remainder categories were obtained by the appropriate subtraction of the Monson rates and a comparability ratio applied to them. For the remaining 20 causes of death, total deaths were keypunched from U.S. Vital Statistics Source Books. As a population base for the age specific and calendar year groups, the NIOSH population data was used. Starting in 1968 the appropriate comparability ratio was applied to adjust for differences in the coding rules between the Seventh and Eighth Revisions. Table A3.2 shows the comparability ratios that were used for the 59 selected causes of death.

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Table A3.1

ICD Code and Basic Rates Used

for 59 Selected Causes of Death

Cause of Death	ICD Code (Seventh Revision)	Rates
All Causes	1-999	Monson
All Infective and Parasitic Diseases	1-138	Monson
Tuberculosis	1-19	Monson
Remainder	20-138	Monson
All Malignant Neoplasms	140-205	Monson
Cancer of Buccal Cavity and Pharynx	140-148	Monson
Cancer of Digestive Organs	150-159	Monson
Cancer of Esophagus	150	Monson
Cancer of Stomach	151	Monson
Cancer of Large Intestine	153	Monson
Cancer of Rectum	154	Monson
Cancer of Liver	155,156.1	Monson
Cancer of Pancreas	157	Monson
Remainder	152,158,159	By subtraction
Cancer of Respiratory System	160-164	Monson
Cancer of Larynx	161	Monson
Cancer of Lung	162,163	Monson
Remainder	160,164	By subtraction
Cancer of Prostate	177	Monson
Cancer of Other Genitals	178-179	Monson
Cancer of Kidney	180	Monson
Cancer of Bladder	181	Monson
All Lymphopoietic Cancer	200-205	Monson
Lymphosarcoma and Reticulosarcoma	200	Monson
Hodgkin's Disease	201	Monson
Leukemia and Aleukemia	204	Monson
Remainder	202,203,205	Monson
Remainder of Malignant Neoplasms	156.2,165,170,190-199	By subtraction
Benign and Unspecified Neoplasms	210-239	Monson
Diabetes	260	Monson
Major Cardiovascular Disease*	330-334,400-456	Rockette
Cerebrovascular Disease	330-334	Rockette
Diseases of the Heart	400-456	Rockette
Rheumatic Heart Disease	400-402,410-416	Rockette
Hypertensive Heart Disease	440-443	Rockette
Ischemic Heart Disease	420,422.1	Rockette
Endocarditis and Myocardial Insufficiency	421,422.0,422.2	Rockette
All Other Heart Disease	430-434	Rockette
Hypertension	444-447	Rockette

*The expected for this category was obtained by summing the appropriate subcategories.

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Table A3.1 (continued)

Cause of Death	ICD Code (Seventh Revision)	Rates
Arteriosclerosis	450	Rockette
Other Diseases of the Arteries	451-456	Rockette
Nonmalignant Respiratory Disease	470-527	Rockette
Influenza and Pneumonia	480-483,490-493	Rockette
Chronic Bronchitis*	501-502	Rockette
Emphysema*	527.1	Rockette
Remainder	470-475,500,510-526, 527.0,527.2	Rockette
Asthma*	241	Rockette
Gastric and Duodenal Ulcer	540,541	Monson
Cirrhosis	581	Monson
Nephritis	590-594	Monson
Ill-Defined Causes	780-795	Monson
All External Causes	E800-E999	Monson
All Accidents	E800-E962	Monson
Motor Vehicle Accidents	E810-E835	Monson
Other Accidents	E800-E802,E840-E962	Monson
Suicide	E963,E970-979	Monson
Homicide	E964,E980-985	Rockette
All Other Causes	Remainder	

*A combined category of emphysema, bronchitis and asthma was also used.

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Table A3.2

Comparability Ratios for

59 Selected Causes of Death

ICD Code (Seventh Revision)	Comparability Ratio
1-999	1.000
1-138	1.130
1-19	1.053
20-138	1.200
140-205	0.998
140-148	0.944
150-159	1.035
150	1.009
151	0.984
153	1.001
154	0.999
155,156.1	1.506
157	0.998
152,158,159	1.114
160-164	0.969
161	1.002
162,163	0.968
160,164	0.986
177	0.986
178-179	0.997
180	0.980
181	0.986
200-205	0.994
200	0.975
201	0.970
204	1.003
202,203,205	1.012
156.2,165,170,190-199	0.981
210-239	1.033
260	1.006
330-334,400-456*	1.001
330-334	1.019
400-456	1.000
400-402,410-416	0.879
440-443	2.577
420,422.1	0.941
421,422.0,422.2	1.208
430-434	1.248
444-447	1.220
450	1.119
451-456	0.646
470-527	0.997
480-483,490-493	1.007
501-502	0.936

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*The expected value for this category was obtained by summing the appropriate subcategories.

Table A3.2 (continued)

ICD Code (Seventh Revision)	Comparability Ratio
527.1	0.953
470-475,500,510-526,527.0,527.2	1.000
241	1.437
540,541	0.979
581	1.003
590-594	1.360
780-795	1.006
E800-E999	0.954
E800-E962	1.080
E810-E835	1.027
E800-E802,E840-E962	1.131
E963,E970-E979	1.065
E964,E980-E985	1.007
Remainder All Causes	0.954

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Table A.4.1 Observed and Expected Deaths and Standardized Mortality Ratios for Selected Causes for Plant #1

Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	1114	1015.74	109.7**	41	42.22	97.1	1155	1057.96	109.2**
All Infective and Parasitic Diseases	6	13.14	45.7*	0	1.32	-	6	14.46	41.5*
Tuberculosis	0	7.43	-	0	0.80	-	0	8.23	-
Remainder of Infective and Parasitic Diseases	6	5.74	104.6	0	0.52	-	6	6.26	95.9
All Malignant Neoplasms	200	197.85	101.1	3	7.58	39.6	203	205.43	98.8
Cancer of Buccal Cavity and Pharynx	1	6.33	15.8	0	0.27	-	1	6.60	15.1*
Digestive Cancer	60	59.90	100.2	1	2.62	38.2	61	62.51	97.6
Cancer of Esophagus	7	4.81	145.7	0	0.49	-	7	5.29	132.3
Cancer of Stomach	21	11.93	176.0*	1	0.72	138.0	22	12.65	173.9*
Cancer of Large Intestine	15	18.13	82.8	0	0.48	-	15	18.60	80.6
Cancer of Rectum	8	7.05	113.5	0	0.18	-	8	7.23	110.6
Cancer of Liver	1	5.19	19.3	0	0.27	-	1	5.46	18.3
Cancer of Pancreas	8	11.28	70.9	0	0.43	-	8	11.71	68.3
Remainder of Cancer of Digestive Organs	0	1.40	-	0	-0.04	-	0	1.44	-
Respiratory Cancer	68	63.60	106.9	0	2.28	-	68	65.88	103.2
Cancer of Larynx	2	3.13	63.9	0	0.14	-	2	3.27	61.2
Cancer of Lung	66	59.76	110.4	0	2.11	-	66	61.87	106.7
Remainder of Cancer of Respiratory System	0	0.73	-	0	0.03	-	0	0.76	-
Cancer of Prostate	14	13.52	103.6	1	0.80	125.6	15	14.31	104.8
Other Genital Cancer	2	0.94	212.8	0	0.04	-	2	0.98	204.4
Cancer of Kidney	6	4.88	122.9	0	0.12	-	6	5.00	120.1
Cancer of Bladder	6	6.41	93.7	0	0.18	-	6	6.59	91.1
Lymphopoietic Cancer	23	18.96	121.3	1	0.52	193.7	24	19.48	123.2
Lymphosarcoma and Reticulosarcoma	8	4.44	180.2	0	0.09	-	8	4.53	176.5
Hodgkins Disease	2	2.23	89.7	0	0.05	-	2	2.28	87.6
Leukemia and Aleukemia	11	7.79	141.2	0	0.18	-	11	7.98	137.9
All Other Lymphopoietic Cancer	2	4.35	46.0	1	0.18	541.3	3	4.53	66.2
Other Malignant Neoplasms	20	22.71	88.1	0	0.76	-	20	23.47	85.2
Benign & Unspec. Neoplasms	4	2.57	155.9	0	0.11	-	4	2.67	149.7
Diabetes Mellitus	17	14.65	116.1	2	0.68	292.3	19	15.33	123.9
Major Cardiovascular Disease	656	551.90	118.9**	26	20.89	124.5	682	572.79	119.1**

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Table A.4.1 (continued)

Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	96	77.88	123.3	0	4.81	-	96	82.70	116.1
Diseases of the Heart	529	450.16	117.5**	25	14.91	167.7*	554	465.06	119.1**
Rheumatic Heart Disease	2	10.40	19.2**	1	0.29	341.3	3	10.70	28.0*
Ischemic Heart Disease	488	388.74	125.5**	23	10.60	217.0**	511	399.34	128.0**
Endocarditis & Myocard. Insufficiency	7	6.47	108.2	0	0.41	-	7	6.88	101.8
Hypertensive Heart Disease	23	18.33	125.5	1	2.34	42.7	24	20.67	116.1
All Other Heart Disease	9	20.17	44.6**	0	1.43	-	9	21.61	41.7**
Hypertension	3	4.20	71.3	0	0.54	-	3	4.74	63.3
Arteriosclerosis	13	9.28	140.0	0	0.34	-	13	9.63	135.1
Other Diseases of the Arteries	15	10.38	144.6	1	0.29	350.6	16	10.66	150.1
Nonmalignant Respiratory Disease	62	58.54	105.9	0	2.43	-	62	60.97	101.7
Influenza and Pneumonia	25	23.60	105.9	0	1.53	-	25	25.13	99.5
Bronchitis, Asthma and Emphysema	31	22.26	139.3	0	0.49	-	31	22.75	136.3
Bronchitis	3	3.42	87.7	0	0.07	-	3	3.49	85.9
Asthma	7	2.79	250.7*	0	0.15	-	7	2.95	237.7
Emphysema	21	16.91	124.2	0	0.30	-	21	17.21	122.0
Other Nonmalignant Respiratory Disease	13	15.74	82.6	0	0.57	-	13	16.32	79.7
Gastric and Duo. Ulcer	6	8.10	74.1	0	0.26	-	6	8.36	71.8
Cirrhosis of the Liver	15	23.88	62.8	1	0.90	110.8	16	24.78	64.6
Nephritis	6	6.76	88.8	0	0.69	-	6	7.44	80.6
Ill-defined Causes	4	10.69	37.4*	0	1.33	-	4	12.02	33.3*
All External Causes	78	75.99	102.6	9	3.95	227.9*	87	79.94	108.8
All Accidents	59	54.10	109.1	8	2.59	309.2*	67	56.69	118.2
Motor Vehicle Accidents	36	23.15	155.5*	4	1.01	395.3*	40	24.16	165.5**
Other Accidents	23	31.12	73.9	4	1.59	252.3	27	32.70	82.6
Suicide	18	19.99	90.0	1	0.23	436.1	19	20.22	93.9
Homocide	1	4.46	22.4	0	1.32	-	1	5.78	17.3*
All Other Causes	53	84.91	62.4**	0	3.93	-	53	88.84	59.7**

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Table A.4.2 Observed and Expected Deaths and Standardized Mortality Ratios for Selected Causes for Plant #2

Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	178	190.90	93.2	149	162.16	91.9	327	353.06	92.6
All Infective and Parasitic Diseases	0	2.40	-	4	5.13	77.9	4	7.53	53.1
Tuberculosis	0	1.35	-	2	3.16	63.2	2	4.51	44.3
Remainder of Infective and Parasitic Diseases	0	1.06	-	2	1.96	102.0	2	3.02	66.2
All Malignant Neoplasms	29	36.52	79.4	25	28.76	86.9	54	65.28	82.7
Cancer of Buccal Cavity and Pharynx	1	1.14	87.9	0	1.06	-	1	2.20	45.5
Digestive Cancer	13	11.24	115.7	5	9.75	51.3	18	20.99	85.8
Cancer of Esophagus	0	0.88	-	0	1.88	-	0	2.75	-
Cancer of Stomach	3	2.26	132.8	1	2.62	38.1	4	4.88	82.0
Cancer of Large Intestine	3	3.44	87.3	2	1.78	112.4	5	5.22	95.8
Cancer of Rectum	0	1.33	-	0	0.68	-	0	2.00	-
Cancer of Liver	1	0.97	102.9	0	1.03	-	1	2.00	50.1
Cancer of Pancreas	5	2.09	239.1	2	1.62	123.4	7	3.71	188.6
Remainder of Cancer of Digestive Organs	1	0.25	392.5	0	0.16	-	1	0.41	241.1
Respiratory Cancer	7	11.41	61.3	12	8.89	134.9	19	20.30	93.6
Cancer of Larynx	0	0.57	-	2	0.54	370.9	2	1.11	180.9
Cancer of Lung	7	10.72	65.3	9	8.25	109.1	16	18.97	84.4
Remainder of Cancer of Respiratory System	0	0.13	-	1	0.11	925.0	1	0.24	416.7
Cancer of Prostate	0	2.82	-	4	2.78	143.8	4	5.60	71.4
Other Genital Cancer	0	0.16	-	0	0.15	-	0	0.31	-
Cancer of Kidney	2	0.88	226.9	1	0.45	224.6	3	1.33	226.1
Cancer of Bladder	1	1.25	79.8	0	0.64	-	1	1.90	52.7
Lymphopoietic Cancer	2	3.47	57.7	2	2.01	99.7	4	5.47	73.1
Lymphosarcoma and Reticulosarcoma	0	0.80	-	1	0.36	278.8	1	1.16	86.5
Hodgkins Disease	0	0.38	-	0	0.22	-	0	0.61	-
Leukemia and Aleukemia	2	1.46	137.3	0	0.71	-	2	2.16	92.5
All Other Lymphopoietic Cancer	0	0.80	-	1	0.71	140.6	1	1.51	66.1
Other Malignant Neoplasms	3	4.05	74.1	1	2.96	33.8	4	7.01	57.1
Benign & Unspec. Neoplasms	2	0.46	436.8	0	0.41	-	2	0.87	230.5
Diabetes Mellitus	1	2.78	36.0	4	2.64	151.8	5	5.41	92.4
Major Cardiovascular Disease	107	106.00	100.9	71	77.39	91.7	178	183.39	97.1

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Table A.4.2 (continued)

Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	9	15.83	56.8	15	17.55	85.4	24	33.39	71.9
Diseases of the Heart	95	85.27	111.4	53	55.49	95.5	148	140.75	105.1
Rheumatic Heart Disease	0	1.81	-	0	1.18	-	0	2.99	-
Ischemic Heart Disease	84	73.74	113.9	45	39.56	113.7	129	113.30	113.9
Endocarditis & Myocard. Insufficiency	1	1.22	81.9	0	1.47	-	1	2.69	37.2
Hypertensive Heart Disease	3	3.57	83.9	7	8.41	83.2	10	11.99	83.4
All Other Heart Disease	7	3.80	184.2	1	5.58	17.9*	8	9.38	85.3
Hypertension	1	0.83	120.1	2	2.11	94.8	3	2.94	102.0
Arteriosclerosis	1	2.07	48.3	1	1.17	85.5	2	3.24	61.7
Other Diseases of the Arteries	1	2.00	50.0	0	1.07	-	1	3.07	32.5
Nonmalignant Respiratory Disease	15	11.41	131.5	12	9.33	128.6	27	20.74	130.2
Influenza and Pneumonia	5	4.71	106.1	7	5.84	119.8	12	10.55	113.7
Bronchitis, Asthma and Emphysema	4	4.27	93.7	2	1.86	107.3	6	6.14	97.8
Bronchitis	2	0.66	301.2	0	0.27	-	2	0.94	213.7
Asthma	1	0.51	194.4	1	0.59	169.3	2	1.11	181.0
Emphysema	1	3.24	30.8	1	1.10	90.6	2	4.35	46.0
Other Nonmalignant Respiratory Disease	7	2.99	234.1	4	2.25	177.8	11	5.25	209.5*
Gastric and Duo. Ulcer	0	1.50	-	0	0.98	-	0	2.48	-
Cirrhosis of the Liver	2	4.05	49.3	1	3.94	25.3	3	8.00	37.5
Nephritis	1	1.24	80.5	1	2.66	37.6	2	3.90	51.3
Ill-defined Causes	2	1.94	102.9	3	5.15	58.2	5	7.09	70.5
All External Causes	8	13.03	61.4	19	17.48	108.7	27	30.51	88.5
All Accidents	3	9.34	32.1*	10	11.08	90.3	13	20.42	63.7
Motor Vehicle Accidents	1	3.92	25.5	6	4.38	137.0	7	8.29	84.4
Other Accidents	2	5.46	36.7	4	6.74	59.3	6	12.20	49.2
Suicide	3	3.40	88.2	1	1.00	100.0	4	4.40	90.9
Homocide	2	0.74	270.5	8	6.20	129.0	10	6.94	144.1
All Other Causes	10	16.71	59.8	8	15.69	51.0	18	32.41	55.5**

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Table A.4.3 Observed and Expected Deaths and Standardized Mortality Ratios for Selected Causes for Plant #4

Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	150	156.78	95.7	139	175.09	79.4**	289	331.87	87.1*
All Infective and Parasitic Diseases	0	1.89	-	4	5.34	74.9	4	7.22	55.4
Tuberculosis	0	1.02	-	3	3.24	92.5	3	4.26	70.5
Remainder of Infective and Parasitic Diseases	0	0.88	-	1	2.08	48.0	1	2.96	33.7
All Malignant Neoplasms	27	31.03	87.0	19	30.90	61.5*	46	61.92	74.3*
Cancer of Buccal Cavity and Pharynx	0	1.02	-	0	1.11	-	0	2.13	-
Digestive Cancer	7	8.73	80.2	7	10.45	67.0	14	19.18	73.0
Cancer of Esophagus	1	0.74	134.5	1	1.97	50.8	2	2.71	73.8
Cancer of Stomach	3	1.61	186.7	3	2.82	106.4	6	4.43	135.6
Cancer of Large Intestine	0	2.67	-	0	1.94	-	0	4.61	-
Cancer of Rectum	1	0.99	101.0	0	0.73	-	1	1.72	58.0
Cancer of Liver	0	0.74	-	0	1.10	-	0	1.84	-
Cancer of Pancreas	2	1.73	115.9	3	1.74	172.4	5	3.47	144.3
Remainder of Cancer of Digestive Organs	0	0.23	-	0	0.17	-	0	0.40	-
Respiratory Cancer	6	10.53	57.0	6	9.42	63.7	12	19.96	60.1
Cancer of Larynx	0	0.49	-	2	0.57	353.0	2	1.06	189.3
Cancer of Lung	6	9.93	60.4	4	8.74	45.7	10	18.67	53.6*
Remainder of Cancer of Respiratory System	0	0.12	-	0	0.12	-	0	0.23	-
Cancer of Prostate	2	1.54	129.6	1	3.19	31.4	3	4.73	63.4
Other Genital Cancer	0	0.21	-	0	0.15	-	0	0.37	-
Cancer of Kidney	0	0.80	-	1	0.48	210.1	1	1.28	78.2
Cancer of Bladder	1	0.84	119.5	0	0.70	-	1	1.54	65.1
Lymphopoietic Cancer	7	3.20	218.7	2	2.16	92.4	9	5.36	167.8
Lymphosarcoma and Reticulosarcoma	2	0.75	266.8	1	0.38	262.6	3	1.13	265.4
Hodgkins Disease	1	0.45	224.5	1	0.24	423.0	2	0.68	293.3
Leukemia and Aleukemia	3	1.25	239.7	0	0.77	-	3	2.02	148.5
All Other Lymphopoietic Cancer	1	0.73	137.9	0	0.77	-	1	1.50	66.9
Other Malignant Neoplasms	4	4.01	99.6	2	3.15	63.5	6	7.16	83.7
Benign & Unspec. Neoplasms	0	0.44	-	0	0.43	-	0	0.87	-
Diabetes Mellitus	2	2.21	90.5	5	2.86	174.9	7	5.07	138.1
Major Cardiovascular Disease	80	78.60	101.8	55	83.58	65.8**	135	162.18	83.2*

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Table A.4.3 (continued)

Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	7	9.73	72.0	14	19.08	73.4	21	28.81	72.9
Diseases of the Heart	67	65.95	101.6	41	59.79	68.6*	108	125.75	85.9
Rheumatic Heart Disease	0	1.75	-	0	1.22	-	0	2.97	-
Ischemic Heart Disease	52	56.84	91.5	26	42.91	60.6**	78	99.75	78.2*
Endocarditis & Myocard. Insufficiency	0	0.79	-	0	1.52	-	0	2.31	-
Hypertensive Heart Disease	3	2.19	137.3	8	8.89	90.0	11	11.08	99.3
All Other Heart Disease	12	3.29	365.2**	7	6.06	115.6	19	9.34	203.4**
Hypertension	0	0.55	-	0	2.22	-	0	2.76	-
Arteriosclerosis	2	0.92	216.5	0	1.33	-	2	2.25	88.8
Other Diseases of the Arteries	4	1.45	276.1	0	1.16	-	4	2.61	153.1
Nonmalignant Respiratory Disease	11	8.37	131.4	11	10.09	109.1	22	18.46	119.2
Influenza and Pneumonia	0	3.27	-	4	6.30	63.5	4	9.57	41.8
Bronchitis, Asthma and Emphysema	8	3.15	253.8*	4	2.01	198.9	12	5.16	232.4*
Bronchitis	2	0.48	418.2	0	0.29	-	2	0.77	258.7
Asthma	1	0.37	269.7	0	0.62	-	1	0.99	100.6
Emphysema	5	2.36	212.2	4	1.20	333.5	9	3.56	253.1*
Other Nonmalignant Respiratory Disease	4	2.36	169.5	3	2.44	123.0	7	4.81	145.5
Gastric & Duo. Ulcer	0	1.15	-	0	1.04	-	0	2.19	-
Cirrhosis of the Liver	0	4.80	-	0	4.24	-	0	9.04	-
Nephritis	2	1.04	193.2	5	2.81	178.1	7	3.84	182.2
Ill-defined Causes	2	1.89	105.7	16	5.57	287.2**	18	7.46	241.2**
All External Causes	19	16.72	113.6	14	19.07	73.4	33	35.79	92.2
All Accidents	14	11.75	119.2	6	11.94	50.2	20	23.69	84.4
Motor Vehicle Accidents	9	5.30	169.9	6	4.72	127.0	15	10.02	149.7
Other Accidents	5	6.47	77.2	0	7.27	-	5	13.74	36.4*
Suicide	3	4.39	68.3	1	1.11	89.9	4	5.51	72.7
Homocide	2	1.33	150.5	7	6.91	101.3	9	8.24	109.2
All Other Causes	6	13.43	44.7*	10	17.59	56.9	16	31.03	51.6**

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Table A.4.4 Observed and Expected Deaths and Standardized Mortality Ratios for Selected Causes for Plant #5

Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	209	231.51	90.3	27	58.37	46.3**	236	289.88	81.4**
All Infective and Parasitic Diseases	4	2.38	167.9	0	1.44	-	4	3.82	104.6
Tuberculosis	3	1.14	262.6	0	0.86	-	3	2.00	150.2
Remainder of Infective and Parasitic Diseases	1	1.25	79.8	0	0.58	-	1	1.83	54.6
All Malignant Neoplasms	49	45.39	107.9	7	9.33	75.1	56	54.72	102.3
Cancer of Buccal Cavity and Pharynx	0	1.58	-	0	0.45	-	0	2.04	-
Digestive Cancer	10	11.39	87.8	1	2.88	34.7	11	14.27	77.1
Cancer of Esophagus	1	1.06	94.5	0	0.70	-	1	1.76	56.8
Cancer of Stomach	3	1.91	157.4	0	0.64	-	3	2.55	117.9
Cancer of Large Intestine	3	3.50	85.7	0	0.51	-	3	4.01	74.9
Cancer of Rectum	0	1.22	-	0	0.18	-	0	1.40	-
Cancer of Liver	0	0.90	-	0	0.33	-	0	1.22	-
Cancer of Pancreas	3	2.41	124.6	0	0.49	-	3	2.89	103.7
Remainder of Cancer of Digestive Organs	0	0.35	-	1	0.05	1901.3	1	0.41	246.9
Respiratory Cancer	25	16.31	153.2	1	3.39	29.5	26	19.70	132.0
Cancer of Larynx	0	0.70	-	0	0.20	-	0	0.90	-
Cancer of Lung	25	15.43	162.0*	1	3.15	31.7	26	18.58	139.9
Remainder of Cancer of Respiratory System	0	0.18	-	0	0.04	-	0	0.23	-
Cancer of Prostate	1	0.95	104.8	1	0.39	258.6	2	1.34	149.2
Other Genital Cancer	0	0.48	-	0	0.05	-	0	0.53	-
Cancer of Kidney	1	1.29	77.7	0	0.16	-	1	1.44	69.2
Cancer of Bladder	1	0.81	122.9	0	0.14	-	1	0.96	104.7
Lymphopoietic Cancer	2	5.32	37.6	2	0.74	270.4	4	6.06	66.0
Lymphosarcoma and Reticulosarcoma	0	1.28	-	0	0.13	-	0	1.40	-
Hodgkins Disease	1	0.93	107.7	0	0.10	-	1	1.03	96.9
Leukemia and Aleukemia	0	1.95	-	1	0.26	386.1	1	2.21	45.3
All Other Lymphopoietic Cancer	1	1.12	89.1	1	0.24	409.7	2	1.37	146.3
Other Malignant Neoplasms	9	6.97	129.1	2	1.08	185.2	11	8.06	136.5
Benign & Unspec. Neoplasms	1	0.75	133.4	1	0.15	686.5	2	0.90	223.3
Diabetes Mellitus	0	3.13	-	2	0.94	213.3	2	4.07	49.2
Major Cardiovascular Disease	90	102.69	87.6	10	21.80	45.9**	100	124.50	80.3*

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Table A.4.4 (continued)

Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	8	9.81	81.6	1	4.46	22.4	9	14.27	63.1
Diseases of the Heart	80	90.09	88.8	8	16.07	49.8*	88	106.16	82.9
Rheumatic Heart Disease	2	2.94	68.1	0	0.44	-	2	3.38	59.2
Ischemic Heart Disease	72	77.03	93.5	7	11.62	60.2	79	88.65	89.1
Endocarditis & Myocard. Insufficiency	2	0.85	234.0	0	0.29	-	2	1.15	174.7
Hypertensive Heart Disease	2	2.05	97.6	1	1.98	50.6	3	4.03	74.5
All Other Heart Disease	2	5.28	37.8	0	2.13	-	2	7.42	27.0*
Hypertension	1	0.63	157.9	1	0.78	127.8	2	1.42	141.3
Arteriosclerosis	0	0.54	-	0	0.15	-	0	0.69	-
Other Diseases of the Arteries	1	1.62	61.7	0	0.34	-	1	1.96	51.0
Nonmalignant Respiratory Disease	9	10.14	88.8	1	3.25	30.7	10	13.39	74.7
Influenza and Pneumonia	3	4.20	71.5	0	2.01	-	3	6.21	48.3
Bronchitis, Asthma and Emphysema	4	3.39	118.0	1	0.60	166.1	5	3.99	125.2
Bronchitis	0	0.52	-	0	0.08	-	0	0.61	-
Asthma	0	0.43	-	0	0.23	-	0	0.66	-
Emphysema	4	2.40	166.8	1	0.32	313.3	5	2.72	184.0
Other Nonmalignant Respiratory Disease	2	3.04	65.8	0	0.89	-	2	3.93	50.9
Gastric & Duo. Ulcer	1	1.48	67.6	0	0.32	-	1	1.80	55.6
Cirrhosis of the Liver	3	10.08	29.8*	0	2.65	-	3	12.73	23.6**
Nephritis	1	1.60	62.4	1	0.90	111.3	2	2.50	80.0
Ill-defined Causes	2	3.36	59.6	0	2.02	-	2	5.38	37.2
All External Causes	38	36.69	103.6	3	11.52	26.1**	41	48.20	85.1
All Accidents	30	25.62	117.1	1	6.37	15.7*	31	31.99	96.9
Motor Vehicle Accidents	17	11.95	142.3	1	2.57	38.9	18	14.52	124.0
Other Accidents	13	13.71	94.8	0	3.82	-	13	17.54	74.1
Suicide	8	9.58	83.5	0	0.72	-	8	10.30	77.7
Homocide	0	3.24	-	2	5.09	39.3	2	8.32	24.0*
All Other Causes	11	19.53	56.3	2	6.78	29.5	13	26.31	49.4**

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Table A.4.5 Observed and Expected Deaths and Standardized Mortality Ratios for Selected Causes for Plant #6

Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	55	76.59	71.8*	19	24.09	78.9	74	100.67	73.5**
All Infective and Parasitic Diseases	2	0.76	262.7	0	0.60	-	2	1.36	147.1
Tuberculosis	0	0.38	-	0	0.36	-	0	0.74	-
Remainder of Infective and Parasitic Diseases	2	0.38	522.0	0	0.24	-	2	0.62	323.2
All Malignant Neoplasms	16	15.80	101.2	3	4.42	67.9	19	20.22	93.9
Cancer of Buccal Cavity and Pharynx	1	0.56	179.2	0	0.21	-	1	0.76	130.9
Digestive Cancer	2	4.15	48.2	1	1.39	71.8	3	5.54	54.1
Cancer of Esophagus	0	0.39	-	0	0.34	-	0	0.73	-
Cancer of Stomach	0	0.69	-	0	0.31	-	0	1.01	-
Cancer of Large Intestine	0	1.27	-	1	0.24	411.5	1	1.52	65.9
Cancer of Rectum	0	0.45	-	0	0.09	-	0	0.54	-
Cancer of Liver	0	0.34	-	0	0.15	-	0	0.49	-
Cancer of Pancreas	2	0.87	230.3	0	0.24	-	2	1.11	180.5
Remainder of Cancer of Digestive Organs	0	0.12	-	0	0.02	-	0	0.14	-
Respiratory Cancer	3	5.78	51.9	1	1.61	62.2	4	7.39	54.1
Cancer of Larynx	0	0.26	-	0	0.09	-	0	0.35	-
Cancer of Lung	3	5.47	54.9	1	1.50	66.8	4	6.96	57.4
Remainder of Cancer of Respiratory System	0	0.06	-	0	0.02	-	0	0.08	-
Cancer of Prostate	1	0.50	199.0	0	0.22	-	1	0.72	139.0
Other Genital Cancer	1	0.11	938.3	0	0.02	-	1	0.13	784.5
Cancer of Kidney	0	0.43	-	0	0.07	-	0	0.51	-
Cancer of Bladder	0	0.34	-	0	0.08	-	0	0.42	-
Lymphopoietic Cancer	4	1.65	243.1	0	0.32	-	4	1.96	203.9
Lymphosarcoma and Reticulosarcoma	1	0.40	250.4	0	0.06	-	1	0.45	220.0
Hodgkins Disease	1	0.24	420.7	0	0.04	-	1	0.28	361.6
Leukemia and Aleukemia	2	0.61	328.2	0	0.11	-	2	0.71	279.9
All Other Lymphopoietic Cancer	0	0.38	-	0	0.11	-	0	0.50	-
Other Malignant Neoplasms	4	2.19	182.6	1	0.49	203.8	5	2.68	186.5
Benign & Unspec. Neoplasms	1	0.23	437.9	0	0.06	-	1	0.29	341.6
Diabetes Mellitus	0	1.05	-	0	0.41	-	0	1.46	-
Major Cardiovascular Disease	23	36.82	62.5*	6	10.12	59.3	29	46.94	61.8*

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Table A.4.5 (continued)

Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	0	3.78	-	0	2.09	-	0	5.87	-
Diseases of the Heart	23	31.92	72.1	6	7.47	80.3	29	39.39	73.6
Rheumatic Heart Disease	0	0.90	-	0	0.18	-	0	1.07	-
Ischemic Heart Disease	21	27.54	76.2	5	5.49	91.0	26	33.04	78.7
Endocarditis & Myocard. Insufficiency	0	0.29	-	0	0.12	-	0	0.41	-
Hypertensive Heart Disease	0	0.79	-	1	0.94	106.6	1	1.73	57.9
All Other Heart Disease	2	1.73	115.4	0	0.89	-	2	2.62	76.2
Hypertension	0	0.22	-	0	0.33	-	0	0.55	-
Arteriosclerosis	0	0.26	-	0	0.08	-	0	0.34	-
Other Diseases of the Arteries	0	0.64	-	0	0.15	-	0	0.79	-
Nonmalignant Respiratory Disease	1	3.83	26.1	1	1.39	72.0	2	5.22	38.4
Influenza and Pneumonia	0	1.44	-	1	0.83	119.9	1	2.27	44.0
Bronchitis, Asthma and Emphysema	1	1.42	70.3	0	0.28	-	1	1.71	58.6
Bronchitis	0	0.22	-	0	0.04	-	0	0.26	-
Asthma	0	0.15	-	0	0.09	-	0	0.24	-
Emphysema	1	1.04	96.6	0	0.16	-	1	1.19	83.8
Other Nonmalignant Respiratory Disease	0	1.13	-	0	0.37	-	0	1.50	-
Gastric & Duo. Ulcer	1	0.51	195.4	0	0.14	-	1	0.65	153.4
Cirrhosis of the Liver	0	2.93	-	0	0.94	-	0	3.87	-
Nephritis	0	0.49	-	0	0.38	-	0	0.86	-
Ill-defined Causes	3	1.03	292.2	2	0.81	247.5	5	1.83	272.5
All External Causes	6	8.87	67.7	5	3.40	147.1	11	12.27	89.7
All Accidents	3	6.17	48.6	4	2.06	194.5	7	8.23	85.1
Motor Vehicle Accidents	1	2.74	36.5	4	0.80	501.7*	5	3.54	141.3
Other Accidents	2	3.44	58.1	0	1.27	-	2	4.71	42.4
Suicide	1	2.41	41.5	0	0.20	-	1	2.61	38.3
Homocide	2	0.69	288.1	1	1.34	74.6	3	2.04	147.4
All Other Causes	2	6.49	30.8	2	2.64	75.7	4	9.13	43.8

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Table A.4.6 Observed and Expected Deaths and Standardized Mortality Ratios for Selected Causes for Plant #7

Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	129	194.57	66.3**	40	89.89	44.5**	169	284.45	59.4**
All Infective and Parasitic Diseases	0	2.30	-	0	2.52	-	0	4.82	-
Tuberculosis	0	1.25	-	0	1.51	-	0	2.75	-
Remainder of Infective and Parasitic Diseases	0	1.06	-	0	1.01	-	0	2.07	-
All Malignant Neoplasms	24	39.44	60.8*	10	16.78	59.6	34	56.22	60.5**
Cancer of Buccal Cavity and Pharynx	0	1.34	-	0	0.64	-	0	1.99	-
Digestive Cancer	4	10.96	36.5*	1	5.52	18.1	5	16.48	30.3**
Cancer of Esophagus	0	0.97	-	0	1.14	-	0	2.10	-
Cancer of Stomach	0	1.95	-	0	1.38	-	0	3.33	-
Cancer of Large Intestine	1	3.36	29.8	1	1.02	98.4	2	4.38	45.7
Cancer of Rectum	0	1.24	-	0	0.37	-	0	1.61	-
Cancer of Liver	0	0.93	-	0	0.59	-	0	1.51	-
Cancer of Pancreas	3	2.20	136.1	0	0.95	-	3	3.15	95.2
Remainder of Cancer of Digestive Organs	0	0.29	-	0	0.09	-	0	0.37	-
Respiratory Cancer	12	13.81	86.9	5	5.52	90.5	17	19.34	87.9
Cancer of Larynx	0	0.64	-	0	0.32	-	0	0.96	-
Cancer of Lung	12	13.03	92.1	5	5.14	97.3	17	18.17	93.6
Remainder of Cancer of Respiratory System	0	0.15	-	0	0.07	-	0	0.21	-
Cancer of Prostate	3	1.85	162.5	3	1.41	212.9	6	3.26	184.3
Other Genital Cancer	0	0.23	-	0	0.08	-	0	0.31	-
Cancer of Kidney	1	1.03	97.0	0	0.27	-	1	1.30	77.0
Cancer of Bladder	0	1.04	-	0	0.35	-	0	1.39	-
Lymphopoietic Cancer	0	3.96	-	1	1.17	85.3	1	5.13	19.5
Lymphosarcoma and Reticulosarcoma	0	0.94	-	0	0.20	-	0	1.15	-
Hodgkins Disease	0	0.53	-	0	0.13	-	0	0.65	-
Leukemia and Aleukemia	0	1.52	-	1	0.40	248.9	1	1.92	52.0
All Other Lymphopoietic Cancer	0	0.93	-	0	0.44	-	0	1.37	-
Other Malignant Neoplasms	4	5.04	79.3	0	1.76	-	4	6.80	58.8
Benign & Unspec. Neoplasms	2	0.56	359.6	0	0.23	-	2	0.79	254.3
Diabetes Mellitus	0	2.72	-	1	1.53	65.2	1	4.25	23.5
Major Cardiovascular Disease	82	98.70	83.1	13	41.50	31.3**	95	140.20	67.8**

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Table A.4.6 (continued)

Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	11	11.72	93.9	1	9.13	10.9**	12	20.85	57.6
Diseases of the Heart	67	83.41	80.3	11	30.13	36.5**	78	113.54	68.7**
Rheumatic Heart Disease	0	2.28	-	0	0.64	-	0	2.92	-
Ischemic Heart Disease	62	72.04	86.1	6	22.02	27.2**	68	94.06	72.3**
Endocarditis & Myocard. Insufficiency	0	0.90	-	0	0.61	-	0	1.51	-
Hypertensive Heart Disease	1	2.54	39.3	4	4.09	97.8	5	6.64	75.3
All Other Heart Disease	4	4.15	96.3	1	3.24	30.8	5	7.40	67.6
Hypertension	0	0.66	-	0	1.13	-	0	1.79	-
Arteriosclerosis	0	1.10	-	1	0.50	201.0	1	1.60	62.5
Other Diseases of the Arteries	4	1.81	220.6	0	0.61	-	4	2.42	165.1
Nonmalignant Respiratory Disease	3	10.60	28.3*	1	5.18	19.3	4	15.78	25.4**
Influenza and Pneumonia	1	4.03	24.8	0	3.12	-	1	7.15	14.0*
Bronchitis, Asthma and Emphysema	2	4.04	49.5	0	1.08	-	2	5.12	39.1
Bronchitis	1	0.61	164.1	0	0.16	-	1	0.77	130.6
Asthma	0	0.43	-	0	0.33	-	0	0.76	-
Emphysema	1	3.01	33.2	0	0.64	-	1	3.65	27.4
Other Nonmalignant Respiratory Disease	0	3.01	-	1	1.34	74.6	1	4.35	23.0
Gastric & Duo. Ulcer	0	1.43	-	0	0.53	-	0	1.96	-
Cirrhosis of the Liver	2	6.07	33.0	0	2.49	-	2	8.55	23.4*
Nephritis	1	1.29	77.3	1	1.41	71.1	2	2.70	74.1
Ill-defined Causes	3	2.35	127.8	0	2.88	-	3	5.22	57.4
All External Causes	7	18.73	37.4**	10	10.09	99.1	17	28.83	59.0*
All Accidents	7	13.19	53.1	4	6.36	62.9	11	19.55	56.3
Motor Vehicle Accidents	2	5.80	34.5	1	2.49	40.1	3	8.29	36.2
Other Accidents	5	7.43	67.3	3	3.90	76.9	8	11.33	70.6
Suicide	0	5.00	-	0	0.59	-	0	5.59	-
Homocide	0	1.27	-	6	3.66	163.8	6	4.93	121.7
All Other Causes	5	16.67	30.0**	4	9.52	42.0	9	26.19	34.4**

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Table A.4.7 Observed and Expected Deaths and Standardized Mortality Ratios for Selected Causes for Plant #8

Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	72	122.54	58.8**	21	38.16	55.0**	93	160.70	57.9**
All Infective and Parasitic Diseases	0	1.27	-	0	0.94	-	0	2.21	-
Tuberculosis	0	0.62	-	0	0.55	-	0	1.17	-
Remainder of Infective and Parasitic Diseases	0	0.65	-	0	0.38	-	0	1.04	-
All Malignant Neoplasms	17	24.39	69.7	3	6.73	44.6	20	31.13	64.3*
Cancer of Buccal Cavity and Pharynx	0	0.84	-	0	0.30	-	0	1.14	-
Digestive Cancer	3	6.27	47.8	2	2.13	93.9	5	8.40	59.5
Cancer of Esophagus	0	0.58	-	0	0.49	-	0	1.07	-
Cancer of Stomach	0	1.05	-	0	0.49	-	0	1.55	-
Cancer of Large Intestine	1	1.93	51.7	0	0.38	-	1	2.32	43.2
Cancer of Rectum	0	0.68	-	0	0.14	-	0	0.82	-
Cancer of Liver	0	0.51	-	0	0.23	-	0	0.74	-
Cancer of Pancreas	2	1.31	152.6	2	0.36	548.1	4	1.68	238.8
Remainder of Cancer of Digestive Organs	0	0.19	-	0	0.04	-	0	0.22	-
Respiratory Cancer	4	8.74	45.8	0	2.38	-	4	11.12	36.0*
Cancer of Larynx	0	0.38	-	0	0.14	-	0	0.52	-
Cancer of Lung	4	8.26	48.4	0	2.22	-	4	10.48	38.2*
Remainder of Cancer of Respiratory System	0	0.10	-	0	0.03	-	0	0.13	-
Cancer of Prostate	1	0.69	144.4	0	0.39	-	1	1.08	92.5
Other Genital Cancer	0	0.23	-	0	0.03	-	0	0.26	-
Cancer of Kidney	2	0.67	298.3	0	0.11	-	2	0.78	256.1
Cancer of Bladder	1	0.50	201.4	0	0.12	-	1	0.62	162.5
Lymphopoietic Cancer	2	2.74	73.0	0	0.50	-	2	3.23	61.8
Lymphosarcoma and Reticulosarcoma	0	0.65	-	0	0.09	-	0	0.73	-
Hodgkins Disease	1	0.45	222.0	0	0.06	-	1	0.51	195.3
Leukemia and Aleukemia	1	1.02	98.4	0	0.17	-	1	1.19	84.3
All Other Lymphopoietic Cancer	0	0.60	-	0	0.18	-	0	0.77	-
Other Malignant Neoplasms	4	3.57	112.0	1	0.75	133.8	5	4.32	115.8
Benign & Unspec. Neoplasms	1	0.38	263.5	0	0.10	-	1	0.48	209.9
Diabetes Mellitus	1	1.68	59.6	0	0.64	-	1	2.32	43.1
Major Cardiovascular Disease	34	55.88	60.8**	6	15.81	38.0**	40	71.68	55.8**

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Table A.4.7 (continued)

Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	0	5.69	-	5	3.32	150.4	5	9.01	55.5
Diseases of the Heart	33	48.53	68.0*	1	11.62	8.6**	34	60.14	56.5**
Rheumatic Heart Disease	0	1.47	-	0	0.27	-	0	1.75	-
Ischemic Heart Disease	30	41.64	72.0	0	8.52	-	30	50.16	59.8**
Endocarditis & Myocard. Insufficiency	0	0.46	-	0	0.20	-	0	0.66	-
Hypertensive Heart Disease	0	1.19	-	0	1.46	-	0	2.65	-
All Other Heart Disease	3	2.75	109.0	1	1.46	71.5	4	4.15	96.3
Hypertension	0	0.34	-	0	0.49	-	0	0.84	-
Arteriosclerosis	0	0.37	-	0	0.14	-	0	0.50	-
Other Diseases of the Arteries	1	0.95	105.4	0	0.24	-	1	1.19	84.1
Nonmalignant Respiratory Disease	0	5.78	-	1	2.17	46.1	1	7.95	12.6**
Influenza and Pneumonia	0	2.27	-	0	1.31	-	0	3.57	-
Bronchitis, Asthma and Emphysema	0	2.06	-	1	0.44	229.8	1	2.49	40.1
Bronchitis	0	0.31	-	0	0.06	-	0	0.37	-
Asthma	0	0.24	-	0	0.15	-	0	0.38	-
Emphysema	0	1.49	-	1	0.24	412.1	1	1.73	57.9
Other Nonmalignant Respiratory Disease	0	1.73	-	0	0.59	-	0	2.31	-
Gastric and Duo. Ulcer	0	0.80	-	0	0.21	-	0	1.01	-
Cirrhosis of the Liver	1	4.85	20.6	0	1.47	-	1	6.32	15.8*
Nephritis	0	0.82	-	0	0.58	-	0	1.40	-
Ill-defined Causes	1	1.71	58.3	1	1.28	78.0	2	3.00	66.7
All External Causes	12	17.82	67.3	6	5.91	101.5	18	23.73	75.8
All Accidents	8	12.47	64.2	5	3.45	145.0	13	15.92	81.7
Motor Vehicle Accidents	8	5.80	137.9	4	1.37	291.7	12	7.17	167.3
Other Accidents	0	6.68	-	1	2.09	47.8	1	8.77	11.4**
Suicide	3	4.65	64.5	0	0.36	-	3	5.01	59.9
Homocide	1	1.59	63.0	1	2.43	41.1	2	4.02	49.8
All Other Causes	5	10.48	47.7	4	4.23	94.7	9	14.71	61.2

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Table A.4.8 Observed and Expected Deaths and Standardized Mortality Ratios for Selected Causes for Plant #10

Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	90	94.02	95.7	16	34.50	46.4**	106	128.52	82.5*
All Infective and Parasitic Diseases	0	0.99	-	0	0.88	-	0	1.88	-
Tuberculosis	0	0.49	-	0	0.54	-	0	1.03	-
Remainder of Infective and Parasitic Diseases	0	0.51	-	0	0.34	-	0	0.85	-
All Malignant Neoplasms	16	18.62	85.9	1	6.17	16.2*	17	24.79	68.6
Cancer of Buccal Cavity and Pharynx	0	0.65	-	0	0.29	-	0	0.94	-
Digestive Cancer	2	4.72	42.4	0	1.93	-	2	6.65	30.1
Cancer of Esophagus	0	0.44	-	0	0.47	-	0	0.91	-
Cancer of Stomach	0	0.79	-	0	0.43	-	0	1.23	-
Cancer of Large Intestine	0	1.45	-	0	0.33	-	0	1.78	-
Cancer of Rectum	0	0.51	-	0	0.12	-	0	0.63	-
Cancer of Liver	0	0.37	-	0	0.21	-	0	0.59	-
Cancer of Pancreas	2	0.99	201.1	0	0.33	-	2	1.33	150.7
Remainder of Cancer of Digestive Organs	0	0.14	-	0	0.03	-	0	0.18	-
Respiratory Cancer	6	6.72	89.3	1	2.25	44.4	7	8.98	78.0
Cancer of Larynx	0	0.29	-	0	0.13	-	0	0.42	-
Cancer of Lung	6	6.36	94.4	1	2.10	47.7	7	8.46	82.8
Remainder of Cancer of Respiratory System	0	0.07	-	0	0.03	-	0	0.10	-
Cancer of Prostate	0	0.42	-	0	0.28	-	0	0.70	-
Other Genital Cancer	0	0.18	-	0	0.03	-	0	0.21	-
Cancer of Kidney	0	0.53	-	0	0.10	-	0	0.63	-
Cancer of Bladder	3	0.34	872.0*	0	0.10	-	3	0.45	673.7*
Lymphopoietic Cancer	3	2.14	140.2	0	0.45	-	3	2.59	115.8
Lymphosarcoma and Reticulosarcoma	2	0.52	385.2	0	0.08	-	2	0.60	333.6
Hodgkins Disease	1	0.36	275.6	0	0.06	-	1	0.42	237.3
Leukemia and Aleukemia	0	0.78	-	0	0.15	-	0	0.93	-
All Other Lymphopoietic Cancer	0	0.46	-	0	0.16	-	0	0.62	-
Other Malignant Neoplasms	2	2.81	71.2	0	0.69	-	2	3.50	57.1
Benign & Unspec. Neoplasms	0	0.31	-	0	0.09	-	0	0.40	-
Diabetes Mellitus	2	1.28	156.8	1	0.58	173.4	3	1.85	162.0
Major Cardiovascular Disease	42	42.64	98.5	11	14.23	77.3	53	56.85	93.2

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Table A.4.8 (continued)

Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	6	4.10	146.3	0	2.92	-	6	7.02	85.5
Diseases of the Heart	35	37.35	93.7	11	10.49	104.9	46	47.84	96.2
Rheumatic Heart Disease	0	1.23	-	0	0.26	-	0	1.49	-
Ischemic Heart Disease	30	31.97	93.8	10	7.66	130.5	40	39.63	100.9
Endocarditis & Myocard. Insufficiency	0	0.36	-	0	0.18	-	0	0.54	-
Hypertensive Heart Disease	0	0.86	-	0	1.33	-	0	2.19	-
All Other Heart Disease	5	2.14	233.8	1	1.26	79.2	6	3.40	176.4
Hypertension	0	0.27	-	0	0.49	-	0	0.75	-
Arteriosclerosis	0	0.24	-	0	0.11	-	0	0.34	-
Other Diseases of the Arteries	1	0.68	147.6	0	0.22	-	1	0.90	111.4
Nonmalignant Respiratory Disease	0	4.20	-	1	1.99	50.2	1	6.19	16.1
Influenza and Pneumonia	0	1.73	-	1	1.21	82.5	1	2.94	34.0
Bronchitis, Asthma and Emphysema	0	1.43	-	0	0.40	-	0	1.82	-
Bronchitis	0	0.22	-	0	0.06	-	0	0.27	-
Asthma	0	0.18	-	0	0.14	-	0	0.32	-
Emphysema	0	1.01	-	0	0.22	-	0	1.23	-
Other Nonmalignant Respiratory Disease	0	1,25	-	0	0.54	-	0	1,79	-
Gastric and Duo. Ulcer	1	0.62	161.7	0	0.20	-	1	0.82	121.9
Cirrhosis of the Liver	0	4.04	-	0	1.39	-	0	5.43	-
Nephritis	1	0.66	151.2	0	0.55	-	1	1.21	82.8
Ill-defined Causes	1	1.34	74.9	0	1.16	-	1	2.50	40.0
All External Causes	20	13.85	144.4	1	5.18	19.3	21	19.03	110.3
All Accidents	14	9.66	144.9	1	3.11	32.2	15	12.77	117.5
Motor Vehicle Accidents	6	4.44	135.2	0	1.21	-	6	5.65	106.2
Other Accidents	8	5.24	152.6	1	1.91	52.3	9	7.15	125.8
Suicide	5	3.66	136.7	0	0.30	-	5	3.96	126.2
Homocide	1	1.14	87.8	0	2.07	-	1	3.20	31.2
All Other Causes	7	7.83	89.4	1	3.77	26.5	8	11.61	68.9

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Table A.4.9 Observed and Expected Deaths and Standardized Mortality Ratios for Selected Causes for Plant #12

Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	299	371.93	80.4**	4	4.89	81.8	303	376.82	80.4**
All Infective and Parasitic Diseases	2	4.39	45.5	0	0.11	-	2	4.50	44.4
Tuberculosis	1	2.36	42.3	0	0.07	-	1	2.43	41.1
Remainder of Infective and Parasitic Diseases	1	2.04	49.0	0	0.05	-	1	2.09	47.9
All Malignant Neoplasms	77	74.32	103.6	1	0.89	112.7	78	75.21	103.7
Cancer of Buccal Cavity and Pharynx	1	2.48	40.3	0	0.04	-	1	2.52	39.7
Digestive Cancer	18	21.01	85.7	0	0.28	-	18	21.28	84.6
Cancer of Esophagus	2	1.81	110.7	0	0.06	-	2	1.87	106.9
Cancer of Stomach	4	3.86	103.7	0	0.06	-	4	3.92	102.0
Cancer of Large Intestine	3	6.42	46.7	0	0.05	-	3	6.47	46.4
Cancer of Rectum	1	2.39	41.8	0	0.02	-	1	2.41	41.5
Cancer of Liver	1	1.78	56.2	0	0.03	-	1	1.81	55.2
Cancer of Pancreas	7	4.15	168.5	0	0.05	-	7	4.20	166.6
Remainder of Cancer of Digestive Organs	0	0.54	-	0	0.01	-	0	0.55	-
Respiratory Cancer	28	25.44	110.1	1	0.32	312.0	29	25.76	112.6
Cancer of Larynx	0	1.19	-	1	0.02	5392.9*	1	1.21	82.8
Cancer of Lung	28	23.98	116.8	0	0.30	-	28	24.27	115.4
Remainder of Cancer of Respiratory System	0	0.28	-	0	0.00	-	0	0.28	-
Cancer of Prostate	5	3.81	131.3	0	0.05	-	5	3.86	129.6
Other Genital Cancer	1	0.45	223.1	0	0.00	-	1	0.45	221.2
Cancer of Kidney	3	1.92	156.4	0	0.01	-	3	1.93	155.3
Cancer of Bladder	1	2.04	49.1	0	0.02	-	1	2.05	48.7
Lymphopoietic Cancer	13	7.46	174.3	0	0.06	-	13	7.52	172.8
Lymphosarcoma and Reticulosarcoma	5	1.76	284.1	0	0.01	-	5	1.77	282.3
Hodgkins Disease	2	0.99	201.5	0	0.01	-	2	1.00	200.0
Leukemia and Aleukemia	4	2.92	137.2	0	0.02	-	4	2.94	136.1
All Other Lymphopoietic Cancer	2	1.72	116.0	0	0.02	-	2	1.75	114.5
Other Malignant Neoplasms	7	9.41	74.4	0	0.10	-	7	9.51	73.6
Benign & Unspec. Neoplasms	4	1.03	389.3*	0	0.01	-	4	1.04	384.7*
Diabetes Mellitus	4	5.25	76.2	0	0.08	-	4	5.33	75.0
Major Cardiovascular Disease	141	190.19	74.1**	2	2.02	99.0	143	192.21	74.4**

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Table A.4.9 (continued)

Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	23	23.73	96.9	0	0.42	-	23	24.15	95.3
Diseases of the Heart	116	159.22	72.9**	2	1.49	134.6	118	160.71	73.4**
Rheumatic Heart Disease	3	4.11	72.9	0	0.03	-	3	4.15	72.3
Ischemic Heart Disease	101	137.43	73.5**	2	1.11	180.9	103	138.54	74.3**
Endocarditis & Myocard. Insufficiency	1	1.88	53.3	0	0.02	-	1	1.90	52.6
Hypertensive Heart Disease	5	5.29	94.4	0	0.17	-	5	5.47	91.5
All Other Heart Disease	6	7.83	76.7	0	0.19	-	6	8.01	74.9
Hypertension	0	1.32	-	0	0.06	-	0	1.38	-
Arteriosclerosis	1	2.42	41.3	0	0.02	-	1	2.44	41.1
Other Diseases of the Arteries	1	3.50	28.6	0	0.03	-	1	3.53	28.3
Nonmalignant Respiratory Disease	26	20.26	128.3	0	0.28	-	26	20.54	126.6
Influenza and Pneumonia	7	7.89	88.8	0	0.16	-	7	8.05	87.0
Bronchitis, Asthma and Emphysema	14	7.67	182.4	0	0.06	-	14	7.73	181.1
Bronchitis	0	1.17	-	0	0.01	-	0	1.17	-
Asthma	1	0.87	115.0	0	0.02	-	1	0.89	112.7
Emphysema	13	5.75	226.2*	0	0.03	-	13	5.78	225.0*
Other Nonmalignant Respiratory Disease	6	5.67	105.8	0	0.08	-	6	5.75	104.3
Gastric and Duo. Ulcer	2	2.75	72.7	0	0.03	-	2	2.78	72.0
Cirrhosis of the Liver	4	11.09	36.1*	1	0.20	501.0	5	11.29	44.3
Nephritis	1	2.45	40.9	0	0.07	-	1	2.52	39.7
Ill-defined Causes	1	4.40	22.7	0	0.17	-	1	4.57	21.9
All External Causes	24	35.91	66.8*	0	0.74	-	24	36.65	65.5*
All Accidents	15	25.33	59.2*	0	0.43	-	15	25.77	58.2*
Motor Vehicle Accidents	4	11.23	35.6*	0	0.17	-	4	11.40	35.1*
Other Accidents	11	14.17	77.6	0	0.27	-	11	14.44	76.2
Suicide	8	9.48	84.4	0	0.04	-	8	9.53	84.0
Homocide	1	2.56	39.0	0	0.31	-	1	2.87	34.8
All Other Causes	12	31.71	37.8**	0	0.58	-	12	32.29	37.2**

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Table A.4.10 Observed and Expected Deaths and Standardized Mortality Ratios for Selected Causes for Plant #13

Cause of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	92	125.12	73.5**	0	0.84	-	92	125.96	73.0**
All Infective and Parasitic Diseases	0	1.26	-	0	0.02	-	0	1.28	-
Tuberculosis	0	0.62	-	0	0.01	-	0	0.63	-
Remainder of Infective and Parasitic Diseases	0	0.65	-	0	0.01	-	0	0.66	-
All Malignant Neoplasms	20	25.39	78.8	0	0.17	-	20	25.56	78.3
Cancer of Buccal Cavity and Pharynx	0	0.86	-	0	0.01	-	0	0.87	-
Digestive Cancer	3	6.76	44.4	0	0.05	-	3	6.81	44.1
Cancer of Esophagus	0	0.61	-	0	0.01	-	0	0.62	-
Cancer of Stomach	0	1.15	-	0	0.01	-	0	1.16	-
Cancer of Large Intestine	0	2.10	-	0	0.01	-	0	2.10	-
Cancer of Rectum	0	0.74	-	0	0.00	-	0	0.74	-
Cancer of Liver	0	0.56	-	0	0.01	-	0	0.56	-
Cancer of Pancreas	3	1.39	215.5	0	0.01	-	3	1.40	214.1
Remainder of Cancer of Digestive Organs	0	0.19	-	0	0.00	-	0	0.19	-
Respiratory Cancer	11	9.06	121.4	0	0.06	-	11	9.12	120.6
Cancer of Larynx	0	0.40	-	0	0.00	-	0	0.41	-
Cancer of Lung	10	8.57	116.7	0	0.05	-	10	8.62	116.0
Remainder of Cancer of Respiratory System	1	0.09	1054.2	0	0.00	-	1	0.10	1046.6
Cancer of Prostate	1	0.98	101.8	0	0.01	-	1	0.99	100.7
Other Genital Cancer	0	0.19	-	0	0.00	-	0	0.19	-
Cancer of Kidney	0	0.68	-	0	0.00	-	0	0.68	-
Cancer of Bladder	1	0.60	167.2	0	0.00	-	1	0.60	166.3
Lymphopoietic Cancer	2	2.67	75.0	0	0.01	-	2	2.68	74.7
Lymphosarcoma and Reticulosarcoma	0	0.63	-	0	0.00	-	0	0.63	-
Hodgkins Disease	0	0.39	-	0	0.00	-	0	0.39	-
Leukemia and Aleukemia	2	1.01	198.4	0	0.00	-	2	1.01	197.7
All Other Lymphopoietic Cancer	0	0.62	-	0	0.00	-	0	0.62	-
Other Malignant Neoplasms	2	3.46	57.8	0	0.02	-	2	3.48	57.5
Benign & Unspec. Neoplasms	0	0.36	-	0	0.00	-	0	0.36	-
Diabetes Mellitus	1	1.75	57.2	0	0.01	-	1	1.76	56.8
Major Cardiovascular Disease	38	60.18	63.1**	0	0.37	-	38	60.55	62.8**

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Table A.4.10 (continued)

All Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	3	6.69	44.8	0	0.08	-	3	6.77	44.3
Diseases of the Heart	34	51.49	66.0*	0	0.27	-	34	51.76	65.7*
Rheumatic Heart Disease	1	1.38	72.3	0	0.01	-	1	1.39	72.0
Ischemic Heart Disease	32	44.43	72.0	0	0.20	-	32	44.63	71.7
Endocarditis & Myocard. Insufficiency	1	0.48	207.0	0	0.00	-	1	0.49	205.3
Hypertensive Heart Disease	0	1.36	-	0	0.03	-	0	1.40	-
All Other Heart Disease	0	2.79	-	0	0.03	-	0	2.82	-
Hypertension	0	0.37	-	0	0.01	-	0	0.38	-
Arteriosclerosis	0	0.54	-	0	0.00	-	0	0.54	-
Other Diseases of the Arteries	1	1.09	91.7	0	0.01	-	1	1.10	91.2
Nonmalignant Respiratory Disease	7	6.48	108.1	0	0.05	-	7	6.52	107.3
Influenza and Pneumonia	2	2.44	82.0	0	0.03	-	2	2.47	81.1
Bronchitis, Asthma and Emphysema	4	2.43	164.4	0	0.01	-	4	2.44	163.7
Bronchitis	0	0.37	-	0	0.00	-	0	0.37	-
Asthma	0	0.24	-	0	0.00	-	0	0.25	-
Emphysema	4	1.79	223.3	0	0.01	-	4	1.80	222.6
Other Nonmalignant Respiratory Disease	1	1.88	53.2	0	0.01	-	1	1.90	52.6
Gastric and Duo. Ulcer	0	0.83	-	0	0.00	-	0	0.84	-
Cirrhosis of the Liver	4	4.42	90.5	0	0.03	-	4	4.45	89.9
Nephritis	0	0.79	-	0	0.01	-	0	0.80	-
Ill-defined Causes	2	1.65	121.5	0	0.03	-	2	1.67	119.5
All External Causes	14	14.97	93.5	0	0.11	-	14	15.08	92.8
All Accidents	13	10.49	124.0	0	0.07	-	13	10.55	123.2
Motor Vehicle Accidents	4	4.77	83.9	0	0.03	-	4	4.79	83.5
Other Accidents	9	5.74	156.8	0	0.04	-	9	5.78	155.7
Suicide	1	3.97	25.2	0	0.01	-	1	3.97	25.2
Homocide	0	1.27	-	0	0.04	-	0	1.31	-
All Other Causes	6	10.99	54.6	0	0.10	-	6	11.09	54.1

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Table A.4.11 Observed and Expected Deaths and Standardized Mortality Ratios for Selected Causes for Plant #14

Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	291	391.90	74.3**	3	5.65	53.1	294	397.54	74.0**
All Infective and Parasitic Diseases	2	4.78	41.9	0	0.15	-	2	4.93	40.6
Tuberculosis	1	2.64	37.8	0	0.09	-	1	2.74	36.5
Remainder of Infective and Parasitic Diseases	1	2.15	46.6	0	0.06	-	1	2.21	45.3
All Malignant Neoplasms	67	77.72	86.2	0	1.02	-	67	78.74	85.1
Cancer of Buccal Cavity and Pharynx	2	2.53	79.0	0	0.05	-	2	2.58	77.7
Digestive Cancer	25	22.83	109.5	0	0.33	-	25	23.16	107.9
Cancer of Esophagus	2	1.90	105.5	0	0.07	-	2	1.97	101.5
Cancer of Stomach	5	4.33	115.4	0	0.08	-	5	4.41	113.4
Cancer of Large Intestine	5	7.00	71.5	0	0.06	-	5	7.05	70.9
Cancer of Rectum	2	2.64	75.9	0	0.02	-	2	2.66	75.3
Cancer of Liver	3	1.96	153.1	0	0.04	-	3	1.99	150.8
Cancer of Pancreas	7	4.41	158.6	0	0.06	-	7	4.47	156.7
Remainder of Cancer of Digestive Organs	1	0.55	182.7	0	0.01	-	1	0.55	180.9
Respiratory Cancer	21	25.84	81.3	0	0.36	-	21	26.20	80.1
Cancer of Larynx	1	1.24	80.5	0	0.02	-	1	1.26	79.2
Cancer of Lung	20	24.32	82.2	0	0.33	-	20	24.66	81.1
Remainder of Cancer of Respiratory System	0	0.28	-	0	0.00	-	0	0.29	-
Cancer of Prostate	1	4.90	20.4	0	0.06	-	1	4.96	20.2
Other Genital Cancer	0	0.37	-	0	0.00	-	0	0.38	-
Cancer of Kidney	4	1.94	205.9	0	0.02	-	4	1.96	204.1
Cancer of Bladder	1	2.39	41.9	0	0.02	-	1	2.41	41.5
Lymphopoietic Cancer	5	7.47	66.9	0	0.07	-	5	7.55	66.2
Lymphosarcoma and Reticulosarcoma	1	1.74	57.3	0	0.01	-	1	1.76	56.9
Hodgkins Disease	0	0.88	-	0	0.01	-	0	0.89	-
Leukemia and Aleukemia	4	3.01	132.8	0	0.02	-	4	3.04	131.7
All Other Lymphopoietic Cancer	0	1.77	-	0	0.03	-	0	1.80	-
Other Malignant Neoplasms	8	9.15	87.4	0	0.11	-	8	9.26	86.4
Benign & Unspec. Neoplasms	1	1.01	98.7	0	0.02	-	1	1.03	97.2
Diabetes Mellitus	1	5.61	17.8*	0	0.09	-	1	5.71	17.5*
Major Cardiovascular Disease	174	209.73	83.0*	2	2.40	83.3	176	212.12	83.0*

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Table A.4.11 (continued)

Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	18	28.45	63.3*	0	0.51	-	18	28.96	62.2*
Diseases of the Heart	148	172.50	85.8	2	1.76	113.3	150	174.26	86.1
Rheumatic Heart Disease	0	4.06	-	0	0.04	-	0	4.10	-
Ischemic Heart Disease	130	149.21	87.1	1	1.28	78.0	131	150.49	87.0
Endocarditis & Myocard. Insufficiency	3	2.17	138.3	1	0.03	2919.2	4	2.20	181.5
Hypertensive Heart Disease	10	6.32	158.2	0	0.23	-	10	6.55	152.6
All Other Heart Disease	5	8.08	61.9	0	0.20	-	5	8.28	60.4
Hypertension	1	1.53	65.6	0	0.07	-	1	1.60	62.5
Arteriosclerosis	2	3.29	60.8	0	0.02	-	2	3.31	60.4
Other Diseases of the Arteries	5	3.96	126.3	0	0.04	-	5	3.99	125.2
Nonmalignant Respiratory Disease	19	22.72	83.6	0	0.32	-	19	23.04	82.5
Influenza and Pneumonia	7	8.92	78.5	0	0.20	-	7	9.11	76.8
Bronchitis, Asthma and Emphysema	9	8.67	103.8	0	0.06	-	9	8.74	103.0
Bronchitis	2	1.33	150.8	0	0.01	-	2	1.34	149.8
Asthma	1	0.97	103.3	0	0.02	-	1	0.99	101.1
Emphysema	6	6.55	91.6	0	0.04	-	6	6.58	91.1
Other Nonmalignant Respiratory Disease	4	6.22	64.3	0	0.08	-	4	6.30	63.5
Gastric and Duo. Ulcer	2	2.99	66.8	0	0.03	-	2	3.03	66.1
Cirrhosis of the Liver	2	9.93	20.1**	0	0.20	-	2	10.13	19.7**
Nephritis	1	2.54	39.4	0	0.09	-	1	2.63	38.0
Ill-defined Causes	1	4.31	23.2	0	0.19	-	1	4.49	22.3
All External Causes	14	30.51	45.9**	1	0.80	125.3	15	31.31	47.9**
All Accidents	8	21.66	36.9**	0	0.48	-	8	22.14	36.1**
Motor Vehicle Accidents	4	9.25	43.2	0	0.19	-	4	9.44	42.4
Other Accidents	4	12.48	32.0*	0	0.29	-	4	12.77	31.3**
Suicide	6	8.10	74.0	1	0.05	2120.3	7	8.15	85.9
Homocide	0	1.89	-	0	0.31	-	0	2.20	-
All Other Causes	6	33.96	17.7**	0	0.60	-	6	34.56	17.4**

511971 0515

Table A.4.12 Observed and Expected Deaths and Standardized Mortality Ratios for Selected Causes for Plant #15

Causes of Death	Whites			Non-Whites			Total		
	Obs.	Exp.	SMR	Obs.	Exp.		Obs.	Exp.	SMR
All Causes	91	128.62	70.8**	1	2.58	38.7	92	131.20	70.1**
All Infective and Parasitic Diseases	1	1.42	70.3	0	0.07	-	1	1.49	67.2
Tuberculosis	0	0.74	-	0	0.04	-	0	0.78	-
Remainder of Infective and Parasitic Diseases	1	0.68	146.1	0	0.03	-	1	0.71	140.2
All Malignant Neoplasms	23	26.02	88.4	0	0.47	-	23	26.49	86.8
Cancer of Buccal Cavity and Pharynx	0	0.87	-	0	0.02	-	0	0.88	-
Digestive Cancer	8	7.30	109.5	0	0.16	-	8	7.46	107.2
Cancer of Esophagus	1	0.64	157.1	0	0.03	-	1	0.66	150.5
Cancer of Stomach	2	1.31	152.3	0	0.04	-	2	1.36	147.5
Cancer of Large Intestine	1	2.25	44.5	0	0.03	-	1	2.28	43.9
Cancer of Rectum	2	0.82	242.9	0	0.01	-	2	0.83	239.7
Cancer of Liver	1	0.62	161.6	0	0.02	-	1	0.63	157.5
Cancer of Pancreas	1	1.46	68.6	0	0.03	-	1	1.48	67.4
Remainder of Cancer of Digestive Organs	0	0.19	-	0	0.00	-	0	0.19	-
Respiratory Cancer	10	9.02	110.9	0	0.14	-	10	9.15	109.2
Cancer of Larynx	0	0.42	-	0	0.01	-	0	0.43	-
Cancer of Lung	10	8.51	117.6	0	0.13	-	10	8.63	115.8
Remainder of Cancer of Respiratory System	0	0.10	-	0	0.00	-	0	0.10	-
Cancer of Prostate	0	1.33	-	0	0.06	-	0	1.39	-
Other Genital Cancer	0	0.15	-	0	0.00	-	0	0.15	-
Cancer of Kidney	0	0.67	-	0	0.01	-	0	0.68	-
Cancer of Bladder	1	0.71	140.5	0	0.01	-	1	0.72	138.4
Lymphopoietic Cancer	4	2.58	155.1	0	0.03	-	4	2.61	153.2
Lymphosarcoma and Reticulosarcoma	0	0.60	-	0	0.01	-	0	0.61	-
Hodgkins Disease	0	0.33	-	0	0.00	-	0	0.34	-
Leukemia and Aleukemia	1	1.01	99.5	0	0.01	-	1	1.02	98.4
All Other Lymphopoietic Cancer	3	0.61	491.9*	0	0.01	-	3	0.62	482.6
Other Malignant Neoplasms	0	3.27	-	0	0.05	-	0	3.32	-
Benign & Unspec. Neoplasms	0	0.35	-	0	0.01	-	0	0.36	-
Diabetes Mellitus	0	1.82	-	0	0.04	-	0	1.86	-
Major Cardiovascular Disease	45	65.61	68.6**	1	1.26	79.4	46	66.88	68.8**

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Table A.4.12 (continued)

Causes of Death	White			Non-White			Total		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	8	8.12	98.5	0	0.29	-	8	8.42	95.1
Diseases of the Heart	35	55.00	63.6*	1	0.90	111.2	36	55.90	64.4**
Rheumatic Heart Disease	1	1.37	73.2	0	0.02	-	1	1.38	72.4
Ischemic Heart Disease	29	47.57	61.0**	1	0.66	150.5	30	48.24	62.2**
Endocarditis & Myocard. Insufficiency	1	0.61	164.7	0	0.02	-	1	0.63	159.8
Hypertensive Heart Disease	1	1.76	56.7	0	0.12	-	1	1.89	53.0
All Other Heart Disease	3	2.73	110.0	0	0.09	-	3	2.82	106.4
Hypertension	0	0.44	-	0	0.03	-	0	0.47	-
Arteriosclerosis	1	0.82	121.9	0	0.02	-	1	0.84	118.6
Other Diseases of the Arteries	1	1.23	81.3	0	0.02	-	1	1.25	80.2
Nonmalignant Respiratory Disease	7	7.11	98.4	0	0.15	-	7	7.26	96.4
Influenza and Pneumonia	2	2.68	74.6	0	0.09	-	2	2.78	72.1
Bronchitis, Asthma and Emphysema	4	2.74	146.1	0	0.03	-	4	2.77	144.4
Bronchitis	2	0.41	483.0	0	0.00	-	2	0.42	477.7
Asthma	0	0.29	-	0	0.01	-	0	0.29	-
Emphysema	2	2.06	97.1	0	0.02	-	2	2.08	96.2
Other Nonmalignant Respiratory Disease	1	2.02	49.5	0	0.04	-	1	2.05	48.8
Gastric and Duo. Ulcer	1	0.93	107.8	0	0.01	-	1	0.94	106.2
Cirrhosis of the Liver	0	3.81	-	0	0.06	-	0	3.87	-
Nephritis	0	0.81	-	0	0.04	-	0	0.85	-
Ill-defined Causes	0	1.54	-	0	0.08	-	0	1.62	-
All External Causes	12	12.25	98.0	0	0.24	-	12	12.49	96.0
All Accidents	11	8.63	127.5	0	0.16	-	11	8.78	125.3
Motor Vehicle Accidents	3	3.82	78.5	0	0.06	-	3	3.88	77.3
Other Accidents	8	4.82	165.8	0	0.10	-	8	4.92	162.6
Suicide	1	3.26	30.7	0	0.01	-	1	3.27	30.6
Homocide	0	0.92	-	0	0.09	-	0	1.00	-
All Other Causes	2	11.04	18.1**	0	0.30	-	2	11.33	17.6**

511971 0517

APPENDIX V

Frequency Distribution of Underlying Cause of Death by Process, Plant and Race

UNDERLYING CAUSE OF DEATH FREQUENCY

ALL PLANTS

COD	TOTAL	WHITE	NONWHITE
1.0	1	1	0
2.1	10	5	5
19.2	1	1	0
22.0	3	3	0
23.0	1	1	0
46.1	1	0	1
53.4	9	8	1
57.0	1	1	0
82.3	1	1	0
92.0	1	1	0
96.9	1	1	0
134.5	1	0	1
141.0	1	1	0
141.9	1	1	0
146.0	3	3	0
148.0	1	1	0
150.0	19	18	1
151.0	55	48	7
152.0	1	0	1
152.9	1	1	0
153.0	8	7	1
153.1	3	3	0
153.2	1	0	1
153.3	6	6	0
153.8	34	28	6
153.9	1	1	0
154.0	16	15	1
155.0	2	2	0
155.1	6	6	0
155.3	1	1	0
156.1	2	1	1
156.2	8	7	1
157.0	63	55	8
158.0	1	1	0
160.2	1	0	1
161.0	10	4	6
162.1	120	110	10
162.3	1	1	0
163.0	151	134	17
164.0	1	1	0
165.0	7	7	0
170.0	1	0	1
177.0	51	40	11
178.0	3	3	0
179.1	1	1	0
180.0	26	24	2
181.0	19	19	0

511971 0518

UNDERLYING CAUSE OF DEATH FREQUENCY

ALL PLANTS

COD	TOTAL	WHITE	NONWHITE
190.4	1	1	0
190.7	1	1	0
190.9	3	3	0
191.3	2	1	1
191.4	2	1	1
193.0	23	23	0
193.9	1	1	0
194.0	4	4	0
195.0	1	1	0
196.0	1	1	0
196.3	1	1	0
197.3	1	1	0
197.9	1	1	0
199.0	1	1	0
199.1	1	1	0
199.2	32	29	3
200.0	3	3	0
200.1	10	9	1
200.2	9	8	1
201.0	11	10	1
202.1	2	2	0
203.0	16	12	4
204.0	8	8	0
204.1	6	5	1
204.2	4	4	0
204.3	22	22	0
204.4	3	1	2
223.0	5	4	1
224.0	1	1	0
227.0	1	1	0
228.0	1	1	0
230.0	2	2	0
231.0	1	1	0
237.0	8	8	0
241.0	13	12	1
252.0	1	0	1
260.0	49	33	16
270.0	1	1	0
272.0	1	1	0
286.5	1	1	0
287.0	3	3	0
289.2	1	1	0
290.0	2	1	1
291.0	1	1	0
292.4	1	1	0
292.5	1	1	0
294.0	1	1	0

511971 0519

UNDERLYING CAUSE OF DEATH FREQUENCY

ALL PLANTS

COD	TOTAL	WHITE	NONWHITE
296.0	1	0	1
299.0	2	2	0
305.0	1	1	0
307.0	1	1	0
309.0	1	1	0
322.0	4	3	1
322.1	5	3	2
322.2	1	1	0
330.0	28	26	2
331.0	164	136	28
332.0	71	61	10
334.0	30	27	3
340.1	1	0	1
340.2	1	1	0
340.3	4	3	1
343.0	2	2	0
345.0	4	4	0
350.0	5	5	0
353.1	3	3	0
355.0	5	4	1
356.1	5	5	0
362.0	1	1	0
401.0	1	1	0
410.0	7	6	1
410.9	2	2	0
411.0	1	1	0
416.0	1	1	0
420.0	155	139	16
420.1	1336	1213	123
420.2	1	1	0
420.4	1	1	0
421.1	11	10	1
421.4	1	1	0
422.1	26	21	5
422.2	5	5	0
430.0	2	2	0
431.0	1	1	0
433.0	13	12	1
433.1	8	8	0
434.1	8	7	1
434.2	2	1	1
434.3	2	2	0
434.4	45	34	11
434.5	2	2	0
440.0	1	0	1
441.0	2	1	1
442.0	16	11	5

511971 0520

UNDERLYING CAUSE OF DEATH FREQUENCY

ALL PLANTS

COD	TOTAL	WHITE	NONWHITE
443.0	69	46	23
444.0	1	1	0
445.0	4	0	4
446.0	8	6	2
450.0	25	22	3
450.1	1	1	0
451.0	32	31	1
452.0	5	5	0
454.0	2	2	0
456.0	3	3	0
463.0	2	2	0
464.0	3	2	1
465.0	11	8	3
466.0	3	2	1
467.2	3	3	0
480.0	10	8	2
481.0	4	4	0
490.0	21	18	3
491.0	25	21	4
492.0	4	3	1
493.0	15	9	6
500.0	3	3	0
502.0	7	7	0
502.1	5	5	0
518.0	2	2	0
520.0	1	1	0
521.0	1	0	1
523.3	2	2	0
525.0	14	13	1
526.0	3	3	0
527.1	82	71	11
527.2	31	25	6
535.0	1	0	1
539.1	1	1	0
540.0	7	7	0
540.1	5	5	0
541.0	8	8	0
541.1	3	3	0
542.0	4	4	0
545.0	3	3	0
550.0	1	0	1
560.4	1	1	0
561.0	1	1	0
561.1	1	1	0
561.5	1	1	0
570.1	2	2	0
570.2	5	5	0

511971 0521

UNDERLYING CAUSE OF DEATH FREQUENCY

ALL PLANTS

COD	TOTAL	WHITE	NONWHITE
570.3	2	2	0
570.5	4	2	2
571.1	4	4	0
572.1	6	5	1
572.2	3	3	0
576.0	2	1	1
577.0	1	1	0
578.0	6	6	0
581.0	27	26	1
581.1	14	12	2
583.0	3	3	0
584.0	2	1	1
585.0	4	3	1
586.0	2	2	0
587.0	10	9	1
587.1	2	1	1
590.0	3	1	2
591.0	1	1	0
592.0	19	13	6
593.0	6	4	2
600.0	13	12	1
602.0	4	4	0
603.0	1	0	1
606.0	1	0	1
609.0	2	2	0
610.0	4	1	3
611.0	1	1	0
617.0	1	1	0
692.1	1	1	0
705.5	1	0	1
722.0	3	2	1
723.0	1	1	0
725.0	1	0	1
731.0	1	1	0
754.3	1	1	0
757.1	1	0	1
780.2	2	1	1
782.4	5	5	0
782.9	1	1	0
783.1	1	1	0
788.9	1	1	0
792.0	1	1	0
795.2	2	1	1
795.3	3	0	3
795.4	29	14	15
795.5	13	9	4
822.4	1	1	0

511971 0522

UNDERLYING CAUSE OF DEATH FREQUENCY

ALL PLANTS

COD	TOTAL	WHITE	NONWHITE
823.0	1	1	0
823.1	1	1	0
823.3	1	0	1
823.4	106	81	25
825.0	33	31	2
883.0	1	1	0
904.9	1	1	0
912.3	1	1	0
914.0	1	1	0
929.4	1	0	1
936.0	82	72	10
936.3	31	27	4
936.9	2	2	0
976.0	1	1	0
978.0	8	8	0
979.0	67	63	4
983.0	40	13	27
983.4	1	1	0
TOTAL	3954	3414	540

511971 0523

UNDERLYING CAUSE OF DEATH FREQUENCY

PREBAKE (W 12)

COD	TOTAL	WHITE	NONWHITE
1.0	1	1	0
2.1	2	0	2
19.2	1	1	0
22.0	1	1	0
23.0	1	1	0
46.1	1	0	1
53.4	6	5	1
57.0	1	1	0
141.0	1	1	0
141.9	1	1	0
146.0	2	2	0
148.0	1	1	0
150.0	11	11	0
151.0	35	33	2
152.9	1	1	0
153.0	5	5	0
153.1	2	2	0
153.3	6	6	0
153.8	17	14	3
153.9	1	1	0
154.0	11	11	0
155.0	2	2	0
155.1	3	3	0
155.3	1	1	0
156.2	5	5	0
157.0	39	35	4
158.0	1	1	0
160.2	1	0	1
161.0	6	3	3
162.1	81	76	5
162.3	1	1	0
163.0	79	73	5
164.0	1	1	0
165.0	5	5	0
177.0	33	25	8
178.0	2	2	0
179.1	1	1	0
180.0	19	18	1
181.0	11	11	0
190.4	1	1	0
190.7	1	1	0
191.3	2	1	1
191.4	1	0	1
193.0	10	10	0
193.9	1	1	0
194.0	1	1	0
196.0	1	1	0

511971 0524

UNDERLYING CAUSE OF DEATH FREQUENCY

PREBAKE (W 12)

COD	TOTAL	WHITE	NONWHITE
196.3	1	1	0
197.9	1	1	0
199.0	1	1	0
199.1	1	1	0
199.2	18	18	0
200.0	3	3	0
200.1	4	4	0
200.2	8	7	1
201.0	5	5	0
203.0	6	4	2
204.0	2	2	0
204.1	4	4	0
204.2	3	3	0
204.3	14	14	0
204.4	2	1	1
223.0	3	3	0
227.0	1	1	0
228.0	1	1	0
230.0	2	2	0
231.0	1	1	0
237.0	6	6	0
241.0	11	10	1
260.0	32	25	7
286.5	1	1	0
287.0	1	1	0
289.2	1	1	0
290.0	2	1	1
291.0	1	1	0
292.5	1	1	0
294.0	1	1	0
299.0	2	2	0
307.0	1	1	0
322.0	2	2	0
322.1	2	2	0
322.2	1	1	0
330.0	13	12	1
331.0	101	85	16
332.0	47	44	3
334.0	20	19	1
340.1	1	0	1
340.2	1	1	0
340.3	2	1	1
343.0	1	1	0
345.0	3	3	0
350.0	3	3	0
352.1	1	1	0
355.0	3	3	0

511971 0525

UNDERLYING CAUSE OF DEATH FREQUENCY

PREBAKE (W 12)

COD	TOTAL	WHITE	NONWHITE
356.1	5	5	0
401.0	1	1	0
410.0	6	5	1
420.0	102	96	6
420.1	884	814	70
420.2	1	1	0
420.4	1	1	0
421.1	8	7	1
421.4	1	1	0
422.1	16	15	1
422.2	5	5	0
430.0	2	2	0
433.0	7	7	0
433.1	6	6	0
434.1	7	6	1
434.2	1	1	0
434.3	2	2	0
434.4	11	9	2
434.5	1	1	0
441.9	2	1	1
442.0	13	10	3
443.0	39	31	8
445.0	2	0	2
446.0	5	5	0
450.0	19	17	2
451.0	22	21	1
452.0	4	4	0
454.0	2	2	0
456.0	1	1	0
463.0	1	1	0
465.0	4	3	1
466.0	1	0	1
467.2	2	2	0
480.0	5	4	1
481.0	2	2	0
490.0	16	15	1
491.0	20	18	2
492.0	2	2	0
493.0	9	6	3
500.0	1	1	0
502.0	4	4	0
502.1	4	4	0
518.0	2	2	0
520.0	1	1	0
523.3	2	2	0
525.0	7	7	0
526.0	2	2	0

511971 0526

UNDERLYING CAUSE OF DEATH FREQUENCY

PREBAKE (W 12)

COD	TOTAL	WHITE	NONWHITE
527.1	48	46	2
527.2	21	16	5
540.0	3	3	0
540.1	3	3	0
541.0	3	3	0
541.1	1	1	0
542.0	2	2	0
545.0	1	1	0
560.4	1	1	0
561.0	1	1	0
561.5	1	1	0
570.1	1	1	0
570.2	4	4	0
570.3	1	1	0
570.5	2	1	1
571.1	2	2	0
572.1	4	3	1
572.2	3	3	0
576.0	2	1	1
578.0	5	5	0
581.0	21	20	1
581.1	12	10	2
585.0	4	3	1
586.0	1	1	0
587.0	7	7	0
587.1	2	1	1
591.0	1	1	0
592.0	10	8	2
593.0	1	1	0
600.0	8	7	1
602.0	4	4	0
603.0	1	0	1
609.0	2	2	0
610.0	1	0	1
611.0	1	1	0
617.0	1	1	0
705.5	1	0	1
722.0	2	2	0
725.0	1	0	1
731.0	1	1	0
754.3	1	1	0
757.1	1	0	1
780.2	2	1	1
782.4	4	4	0
782.9	1	1	0
783.1	1	1	0
792.0	1	1	0

511971 0527

UNDERLYING CAUSE OF DEATH FREQUENCY

PREBAKE (W 12)

COD	TOTAL	WHITE	NONWHITE
795.2	1	1	0
795.4	4	1	3
795.5	4	4	0
822.4	1	1	0
823.3	1	0	1
823.4	52	40	12
825.0	20	18	2
929.4	1	0	1
936.0	50	43	7
936.3	15	11	4
978.9	4	4	0
979.0	38	35	3
983.0	19	4	15
983.4	1	1	0
TOTAL	2433	2175	259

511971 0528

UNDERLYING CAUSE OF DEATH FREQUENCY

PREBAKE (W/O 12)

COD	TOTAL	WHITE	NONWHITE
1.0	1	1	0
2.1	2	0	2
22.0	1	1	0
23.0	1	1	0
46.1	1	0	1
53.4	6	5	1
141.0	1	1	0
141.9	1	1	0
146.0	2	2	0
150.0	9	9	0
151.0	31	29	2
152.9	1	1	0
153.0	4	4	0
153.1	2	2	0
153.3	6	6	0
153.8	15	12	3
153.9	1	1	0
154.0	10	10	0
155.0	2	2	0
155.1	2	2	0
155.3	1	1	0
156.2	4	4	0
157.0	32	28	4
158.0	1	1	0
160.2	1	0	1
161.0	5	3	2
162.1	66	61	5
162.3	1	1	0
163.0	66	57	9
164.0	1	1	0
165.0	4	4	0
177.0	28	20	8
178.0	1	1	0
179.1	1	1	0
180.0	16	15	1
181.0	10	10	0
190.4	1	1	0
190.7	1	1	0
191.3	2	1	1
191.4	1	0	1
193.0	9	9	0
193.9	1	1	0
194.0	1	1	0
196.0	1	1	0
196.3	1	1	0
197.9	1	1	0
199.1	1	1	0

511971 0529

UNDERLYING CAUSE OF DEATH FREQUENCY

PREBAKE (W/C 12)

COD	TOTAL	WHITE	NONWHITE
199.2	15	15	0
200.0	3	3	0
200.1	4	4	0
200.2	3	2	1
201.0	3	3	0
203.0	4	2	2
204.0	1	1	0
204.1	2	2	0
204.2	3	3	0
204.3	13	13	0
204.4	2	1	1
227.0	1	1	0
228.0	1	1	0
230.0	2	2	0
231.0	1	1	0
237.0	5	5	0
241.0	10	9	1
260.0	28	21	7
286.5	1	1	0
287.0	1	1	0
289.2	1	1	0
290.0	2	1	1
291.0	1	1	0
292.5	1	1	0
294.0	1	1	0
299.0	1	1	0
322.0	2	2	0
322.1	2	2	0
322.2	1	1	0
330.0	10	9	1
331.0	86	70	16
332.0	43	40	3
334.0	19	18	1
340.1	1	0	1
340.2	1	1	0
340.3	2	1	1
343.0	1	1	0
345.0	2	2	0
350.0	3	3	0
353.1	1	1	0
355.0	1	1	0
356.1	4	4	0
401.0	1	1	0
410.0	3	2	1
420.0	96	91	5
420.1	788	719	69
420.2	1	1	0

511971 0530

UNDERLYING CAUSE OF DEATH FREQUENCY

PREBAKE (W/O 12)

COD	TOTAL	WHITE	NONWHITE
420.4	1	1	0
421.1	8	7	1
421.4	1	1	0
422.1	15	14	1
422.2	4	4	0
433.0	6	6	0
433.1	5	5	0
434.1	7	6	1
434.3	1	1	0
434.4	11	9	2
434.5	1	1	0
441.0	2	1	1
442.0	13	10	3
443.0	34	26	8
445.0	2	0	2
446.0	5	5	0
450.0	18	16	2
451.0	21	20	1
452.0	4	4	0
454.0	2	2	0
456.0	1	1	0
463.0	1	1	0
465.0	4	3	1
466.0	1	0	1
467.2	1	1	0
480.0	5	4	1
481.0	2	2	0
490.0	13	12	1
491.0	16	14	2
492.0	2	2	0
493.0	9	6	3
500.0	1	1	0
502.0	4	4	0
502.1	4	4	0
518.0	2	2	0
520.0	1	1	0
523.3	2	2	0
525.0	6	6	0
526.0	1	1	0
527.1	35	33	2
527.2	17	12	5
540.0	1	1	0
540.1	3	3	0
541.0	3	3	0
541.1	1	1	0
542.0	2	2	0
545.0	1	1	0

511971 0531

UNDERLYING CAUSE OF DEATH FREQUENCY

PREBAKE (W/O 12)

COD	TOTAL	WHITE	NONWHITE
560.4	1	1	0
561.0	1	1	0
561.5	1	1	0
570.1	1	1	0
570.2	4	4	0
570.3	1	1	0
570.5	2	1	1
571.1	2	2	0
572.1	3	2	1
572.2	3	3	0
576.0	2	1	1
578.0	5	5	0
581.0	18	17	1
581.1	10	9	1
585.0	3	2	1
586.0	1	1	0
587.0	7	7	0
587.1	2	1	1
591.0	1	1	0
592.0	9	7	2
593.0	1	1	0
600.0	7	6	1
602.0	4	4	0
603.0	1	0	1
609.0	2	2	0
610.0	1	0	1
705.5	1	0	1
722.0	2	2	0
725.0	1	0	1
.0	1	1	0
.3	1	1	0
.1	1	0	1
.2	2	1	1
.4	4	4	0
.9	1	1	0
.0	1	1	0
.2	1	1	0
.4	4	1	3
.5	4	4	0
.4	1	1	0
.3	1	0	1
.4	49	37	12
.0	19	17	2
.4	1	0	1
936.0	42	35	7
936.3	12	8	4
978.0	4	4	0

511971 0532

UNDERLYING CAUSE OF DEATH FREQUENCY

PREBAKE (W/O 12)

COD	TOTAL	WHITE	NONWHITE
979.0	30	27	3
983.0	18	3	15
983.4	1	1	0
TOTAL	2130	1876	254

511971 0533

UNDERLYING CAUSE OF DEATH FREQUENCY

HORIZONTAL SCOPPERG

COD	TOTAL	WHITE	NONWHITE
2.1	6	3	3
22.0	1	1	0
53.4	1	1	0
82.3	1	1	0
92.1	1	1	0
134.5	1	0	1
146.0	1	1	0
150.2	4	3	1
151.0	11	8	3
152.0	1	0	1
153.8	5	4	1
154.0	3	3	0
155.1	1	1	0
156.2	3	2	1
157.0	13	10	3
161.0	2	[illegible]	2
162.1	16	13	3
163.0	41	37	4
165.0	2	2	0
170.0	1	0	1
177.0	6	4	2
178.0	1	1	0
180.0	2	1	1
181.0	6	6	0
193.0	4	4	0
194.0	2	2	0
195.0	1	1	0
197.3	1	1	0
199.2	10	7	3
200.1	6	5	1
201.0	5	4	1
202.1	2	2	0
203.0	4	3	1
204.0	2	2	0
204.1	1	0	1
204.2	1	1	0
204.3	3	3	0
223.0	2	1	1
237.0	1	1	0
241.0	1	1	0
252.0	1	0	1
260.0	12	4	8
270.0	1	1	0
287.0	2	2	0
292.4	1	1	0
296.0	1	0	1
309.0	1	1	0

511971 0534

UNDERLYING CAUSE OF DEATH FREQUENCY

HORIZONTAL SODERBERG

COD	TOTAL	WHITE	NONWHITE
322.0	1	0	1
322.1	1	0	1
330.0	10	10	0
331.0	20	12	8
332.0	10	4	6
334.0	4	3	1
340.3	1	1	0
345.0	1	1	0
350.0	1	1	0
353.1	2	2	0
355.0	2	1	1
410.0	1	1	0
410.9	2	2	0
420.0	29	23	6
420.1	219	179	40
421.1	3	3	0
422.1	5	2	3
432.0	2	2	0
433.1	1	1	0
434.1	1	1	0
434.2	1	0	1
434.4	27	20	7
440.0	1	0	1
442.0	1	0	1
443.0	14	6	8
444.0	1	1	0
445.0	1	0	1
450.0	2	2	0
450.1	1	1	0
451.0	6	6	0
456.0	1	1	0
463.0	1	1	0
464.0	1	0	1
465.0	4	2	2
466.0	2	2	0
480.0	1	1	0
481.0	1	1	0
490.0	2	1	1
491.0	1	0	1
492.0	2	1	1
493.0	4	1	3
500.0	1	1	0
502.0	3	3	0
502.1	1	1	0
521.0	1	0	1
525.0	4	3	1
527.1	17	12	5

511971 0535

UNDERLYING CAUSE OF DEATH FREQUENCY

HORIZONTAL SCOREBERG

COD	TOTAL	WHITE	NONWHITE
527.2	4	3	1
535.0	1	0	1
540.0	2	2	0
540.1	1	1	0
541.0	1	1	0
542.0	1	1	0
545.0	2	2	0
550.0	1	0	1
570.1	1	1	0
572.1	2	2	0
578.0	1	1	0
581.0	2	2	0
581.1	1	1	0
583.0	3	3	0
584.0	1	0	1
587.0	2	1	1
590.0	1	0	1
592.0	5	1	4
593.0	4	3	1
606.0	1	0	1
610.0	2	0	2
723.0	1	1	0
782.4	1	1	0
788.9	1	1	0
795.2	1	0	1
795.3	3	0	3
795.4	15	5	10
795.5	5	1	4
822.0	1	1	0
823.1	1	1	0
823.4	37	26	11
825.0	8	8	0
883.0	1	1	0
904.9	1	1	0
936.0	23	22	1
936.3	10	10	0
936.9	2	2	0
976.0	1	1	0
978.0	3	3	0
979.0	15	14	1
983.0	15	5	10
TOTAL	797	595	202

511971 0536

UNDERLYING CAUSE OF DEATH FREQUENCY

VERTICAL SODERBERG

COD	TOTAL	WHITE	NONWHITE
2.1	1	1	0
53.4	2	2	0
96.9	1	1	0
151.0	2	2	0
153.0	1	1	0
153.8	3	3	0
154.0	1	1	0
162.1	3	3	0
163.0	4	4	0
177.0	2	2	0
180.0	1	1	0
181.0	2	2	0
190.9	2	2	0
193.0	2	2	0
194.0	1	1	0
201.0	1	1	0
203.0	2	2	0
204.1	1	1	0
204.3	3	3	0
224.0	1	1	0
322.1	1	1	0
330.0	1	1	0
331.0	8	7	1
334.0	2	2	0
420.0	1	1	0
420.1	34	32	2
423.0	2	2	0
424.4	3	3	0
434.5	1	1	0
451.0	1	1	0
467.2	1	1	0
480.0	1	1	0
481.0	1	1	0
493.0	2	2	0
500.0	1	1	0
525.0	2	2	0
527.1	3	3	0
527.2	2	2	0
540.0	1	1	0
570.5	1	1	0
571.1	2	2	0
581.0	1	1	0
587.0	1.	1	0
592.0	1	1	0
823.4	8	7	1
936.0	3	3	0
936.3	2	2	0

511971 0537

UNDERLYING CAUSE OF DEATH FREQUENCY

VERTICAL SODERBERG

COD	TOTAL	WHITE	NONWHITE
979.0	2	2	0
983.0	1	0	1
TOTAL	126	121	5

511971 0538

UNDERLYING CAUSE OF DEATH FREQUENCY

SODERBERG

COD	TOTAL	WHITE	NONWHITE
2.1	7	4	3
22.0	1	1	0
53.4	3	3	0
82.3	1	1	0
92.0	1	1	0
96.9	1	1	0
134.5	1	0	1
146.0	1	1	0
150.2	4	3	1
151.0	13	10	3
152.0	1	0	1
153.0	1	1	0
153.8	8	7	1
154.0	4	4	0
155.1	1	1	0
156.2	3	2	1
157.0	13	10	3
161.0	2	0	2
162.1	19	16	3
163.0	45	41	4
165.0	2	2	0
170.0	1	0	1
177.0	8	6	2
178.0	1	1	0
180.0	3	2	1
181.0	8	8	0
190.9	2	2	0
193.0	6	6	0
194.0	3	3	0
195.0	1	1	0
197.3	1	1	0
199.2	10	7	3
200.1	6	5	1
201.0	6	5	1
202.1	2	2	0
203.0	6	5	1
204.0	2	2	0
204.1	2	1	1
204.2	1	1	0
204.3	6	6	0
223.0	2	1	1
224.0	1	1	0
237.0	1	1	0
241.0	1	1	0
252.0	1	0	1
260.0	12	4	8
270.0	1	1	0

511971 0539

UNDERLYING CAUSE OF DEATH FREQUENCY

SODERBERG

COD	TOTAL	WHITE	NONWHITE
287.0	2	2	0
292.4	1	1	0
296.0	1	0	1
309.0	1	1	0
322.0	1	0	1
322.1	2	1	1
330.0	11	11	0
331.0	28	19	9
332.0	10	4	6
334.0	6	5	1
340.3	1	1	0
345.0	1	1	0
350.0	1	1	0
353.1	2	2	0
355.0	2	1	1
410.0	1	1	0
410.9	2	2	0
420.0	30	24	6
420.1	253	211	42
421.1	3	3	0
422.1	5	2	3
433.0	4	4	0
433.1	1	1	0
434.1	1	1	0
434.2	1	0	1
434.4	30	23	7
434.5	1	1	0
440.0	1	0	1
442.0	1	0	1
443.0	14	6	8
444.0	1	1	0
445.0	1	0	1
450.0	2	2	0
450.1	1	1	0
451.0	7	7	0
456.0	1	1	0
463.0	1	1	0
464.0	1	0	1
465.0	4	2	2
466.0	2	2	0
467.2	1	1	0
480.0	2	2	0
481.0	2	2	0
490.0	2	1	1
491.0	1	0	1
492.0	2	1	1
493.0	6	3	3

511971 0540

UNDERLYING CAUSE OF DEATH FREQUENCY

SODERBERG

COD	TOTAL	WHITE	NONWHITE
500.0	2	2	0
502.0	3	3	0
502.1	1	1	0
521.0	1	0	1
525.0	6	5	1
527.1	20	15	5
527.2	6	5	1
535.0	1	0	1
540.0	3	3	0
540.1	1	1	0
541.0	1	1	0
542.0	1	1	0
545.0	2	2	0
550.0	1	0	1
570.1	1	1	0
570.5	1	1	0
571.1	2	2	0
572.1	2	2	0
578.0	1	1	0
581.0	3	3	0
581.1	1	1	0
583.0	3	3	0
584.0	1	0	1
587.0	3	2	1
590.0	1	0	1
592.0	6	2	4
593.0	4	3	1
606.0	1	0	1
610.0	2	0	2
723.0	1	1	0
782.4	1	1	0
788.9	1	1	0
795.2	1	0	1
795.3	3	0	3
795.4	15	5	10
795.5	5	1	4
823.0	1	1	0
823.1	1	1	0
823.4	45	33	12
825.0	8	8	0
883.0	1	1	0
904.9	1	1	0
936.0	26	25	1
936.3	12	12	0
936.9	2	2	0
976.0	1	1	0
978.0	3	3	0

511971 0541

UNDERLYING CAUSE OF DEATH FREQUENCY

SODERBERG

COD	TOTAL	WHITE	NONWHITE
979.0	17	16	1
983.0	16	5	11
TOTAL	923	716	207

511971 0542

UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT C1

COD	TOTAL	WHITE	NONWHITE
23.0	1	1	0
53.4	5	5	0
141.9	1	1	0
150.0	7	7	0
151.0	22	21	1
153.0	3	3	0
153.1	1	1	0
153.3	4	4	0
153.8	6	6	0
153.9	1	1	0
154.0	8	8	0
155.1	1	1	0
156.2	3	3	0
157.0	8	8	0
161.0	2	2	0
162.1	41	41	0
162.3	1	1	0
163.0	24	24	0
177.0	15	14	1
178.0	1	1	0
179.1	1	1	0
180.0	6	6	0
181.0	6	6	0
193.0	2	2	0
194.0	1	1	0
196.0	1	1	0
196.3	1	1	0
199.1	1	1	0
199.2	11	11	0
200.0	3	3	0
200.1	3	3	0
200.2	2	2	0
201.0	2	2	0
203.0	3	2	1
204.0	1	1	0
204.1	2	2	0
204.2	2	2	0
204.3	5	5	0
204.4	1	1	0
227.0	1	1	0
230.0	1	1	0
237.0	2	2	0
241.0	7	7	0
260.0	19	17	2
286.5	1	1	0
291.0	1	1	0
294.0	1	1	0

511971 0543

UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT 01

COD	TOTAL	WHITE	NONWHITE
299.0	1	1	0
322.0	2	2	0
330.0	4	4	0
331.0	48	48	0
332.0	32	32	0
334.0	12	12	0
340.2	1	1	0
343.0	1	1	0
345.0	1	1	0
350.0	3	3	0
356.1	2	2	0
401.0	1	1	0
410.0	2	1	1
420.0	57	56	1
420.1	445	423	22
420.2	1	1	0
420.4	1	1	0
421.1	4	4	0
421.4	1	1	0
422.1	7	7	0
422.2	2	2	0
423.0	3	3	0
423.1	1	1	0
424.1	3	3	0
424.3	1	1	0
424.4	1	1	0
441.0	1	1	0
442.0	9	8	1
443.0	14	14	0
446.0	3	3	0
450.0	13	13	0
451.0	13	12	1
452.0	2	2	0
454.0	1	1	0
463.0	1	1	0
465.0	1	1	0
467.2	1	1	0
480.0	3	3	0
481.0	1	1	0
490.0	9	9	0
491.0	8	8	0
492.0	2	2	0
493.0	2	2	0
502.0	1	1	0
502.1	2	2	0
518.0	1	1	0
520.0	1	1	0

511971 0544

UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT C1

COD	TOTAL	WHITE	NONWHITE
523.3	2	2	0
525.0	3	3	0
527.1	21	21	0
527.2	6	6	0
540.1	2	2	0
541.0	3	3	0
541.1	1	1	0
542.0	2	2	0
561.0	1	1	0
561.5	1	1	0
570.1	1	1	0
570.2	4	4	0
570.3	1	1	0
570.5	1	1	0
571.1	1	1	0
572.1	1	1	0
572.2	1	1	0
576.0	1	1	0
578.0	4	4	0
581.0	12	11	1
581.1	4	4	0
587.0	4	4	0
587.1	1	1	0
591.0	1	1	0
592.0	4	4	0
593.0	1	1	0
600.0	4	4	0
602.0	3	3	0
609.0	1	1	0
722.0	2	2	0
731.0	1	1	0
754.3	1	1	0
780.2	1	1	0
782.4	1	1	0
792.0	1	1	0
795.5	1	1	0
822.4	1	1	0
823.4	29	26	3
825.0	10	9	1
936.0	20	18	2
936.3	7	5	2
978.0	2	2	0
979.0	17	16	1
983.0	1	1	0
TOTAL	1155	1114	41

511971 0545

UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT 02

COD	TOTAL	WHITE	NONWHITE
2.1	2	0	2
46.1	1	0	1
53.4	1	0	1
146.0	1	1	0
151.0	4	3	1
153.0	1	1	0
153.3	1	1	0
153.8	3	1	2
155.3	1	1	0
157.0	7	5	2
158.0	1	1	0
160.2	1	0	1
161.0	2	0	2
162.1	5	2	3
163.0	11	5	6
177.0	4	0	4
180.0	3	2	1
181.0	1	1	0
191.3	1	0	1
193.0	1	1	0
193.9	1	1	0
197.9	1	1	0
200.2	1	0	1
203.0	1	0	1
204.3	2	2	0
230.0	1	1	0
231.0	1	1	0
241.0	2	1	1
260.0	5	1	4
290.0	2	1	1
330.0	1	1	0
331.0	18	6	12
332.0	3	1	2
334.0	2	1	1
340.3	1	0	1
420.0	6	2	4
420.1	118	78	40
421.1	1	1	0
422.1	5	4	1
433.0	1	1	0
433.1	3	3	0
434.1	3	2	1
434.4	1	1	0
441.0	1	0	1
442.0	3	1	2
443.0	6	2	4
445.0	2	0	2

511971 0546

UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT 02

COD	TOTAL	WHITE	NONWHITE
446.0	1	1	0
450.0	2	1	1
451.0	1	1	0
465.0	2	2	0
480.0	2	1	1
490.0	2	1	1
491.0	4	2	2
492.0	4	1	3
502.0	2	2	0
518.0	1	1	0
526.0	1	1	0
527.1	2	1	1
527.2	9	5	4
545.0	1	1	0
560.4	1	1	0
572.1	1	1	0
576.0	1	0	1
578.0	1	1	0
581.0	1	1	0
581.1	2	1	1
586.0	1	1	0
592.0	2	1	1
600.0	3	2	1
603.0	1	0	1
610.0	1	0	1
725.0	1	0	1
757.1	1	0	1
780.2	1	0	1
795.2	1	1	0
795.4	3	1	2
823.4	6	1	5
825.0	1	0	1
936.0	5	1	4
936.3	1	1	0
978.0	1	1	0
979.0	3	2	1
983.0	9	1	8
983.4	1	1	0
TOTAL	327	178	149

511971 0547

UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT 03

COD	TOTAL	WHITE	NONWHITE
2.1	1	1	0
22.0	1	1	0
150.0	4	4	0
151.0	7	5	2
153.0	2	1	1
153.1	1	1	0
153.2	1	0	1
153.8	9	7	2
154.0	1	0	1
155.1	2	2	0
156.1	2	1	1
157.0	11	10	1
161.0	2	1	1
162.1	20	18	2
163.0	27	23	4
177.0	10	9	1
180.0	4	4	0
190.9	1	1	0
191.4	1	1	0
193.0	7	7	0
199.2	4	4	0
200.2	1	1	0
203.0	4	3	1
204.0	4	4	0
204.3	2	2	0
204.4	1	0	1
237.0	1	1	0
241.0	1	1	0
260.0	5	4	1
272.0	1	1	0
305.0	1	1	0
322.0	1	1	0
322.1	1	0	1
330.0	4	3	1
331.0	35	32	3
332.0	14	13	1
334.0	4	3	1
340.3	1	1	0
343.0	1	1	0
350.0	1	1	0
362.0	1	1	0
411.0	1	1	0
416.0	1	1	0
420.0	23	19	4
420.1	199	188	11
422.1	5	4	1
431.0	1	1	0

511971 0548

UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT 03

COD	TOTAL	WHITE	NONWHITE
433.0	2	1	1
433.1	1	1	0
434.4	4	2	2
442.0	2	1	1
443.0	16	9	7
445.0	1	0	1
446.0	3	1	2
450.0	4	3	1
451.0	3	3	0
452.0	1	1	0
456.0	1	1	0
464.0	2	2	0
465.0	3	3	0
480.0	3	2	1
490.0	3	2	1
491.0	4	3	1
525.0	1	1	0
526.0	1	1	0
527.1	14	10	4
527.2	4	4	0
539.1	1	1	0
540.0	1	1	0
540.1	1	1	0
541.0	4	4	0
541.1	2	2	0
542.0	1	1	0
561.1	1	1	0
570.2	1	1	0
570.3	1	1	0
570.5	1	0	1
577.0	1	1	0
581.0	3	3	0
581.1	1	1	0
584.0	1	1	0
586.0	1	1	0
590.0	2	1	1
592.0	3	3	0
593.0	1	0	1
600.0	5	5	0
610.0	1	1	0
692.1	1	1	0
722.0	1	0	1
795.4	10	8	2
795.5	4	4	0
823.4	9	8	1
825.0	5	5	0
912.3	1	1	0

511971 0549

UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT 03

COD	TOTAL	WHITE	NONWHITE
914.0	1	1	0
936.0	6	4	2
936.3	4	4	0
978.0	1	1	0
979.0	12	12	0
983.0	5	4	1
TOTAL	598	523	75

511971 0550

UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT 04

COD	TOTAL	WHITE	NONWHITE
2.1	3	0	3
134.5	1	0	1
150.0	2	1	1
151.0	6	3	3
154.0	1	1	0
157.0	5	2	3
161.0	2	0	2
162.1	2	1	1
163.0	8	5	3
170.0	1	0	1
177.0	3	2	1
180.0	1	0	1
181.0	1	1	0
193.0	1	1	0
199.2	4	3	1
200.1	3	2	1
201.0	2	1	1
203.0	1	1	0
204.0	1	1	0
204.3	2	2	0
241.0	1	1	0
260.0	7	2	5
322.1	1	0	1
330.0	3	3	0
331.0	8	1	7
332.0	8	2	6
334.0	2	1	1
350.0	1	1	0
355.0	2	1	1
420.0	10	7	3
420.1	67	45	22
422.1	1	0	1
434.4	19	12	7
442.0	1	0	1
443.0	10	3	7
450.0	1	1	0
450.1	1	1	0
451.0	4	4	0
463.0	1	1	0
465.0	2	0	2
491.0	1	0	1
492.0	1	0	1
493.0	2	0	2
500.0	1	1	0
502.0	1	1	0
502.1	1	1	0
521.0	1	0	1

511971 0551

UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT 04

COD	TOTAL	WHITE	NONWHITE
525.0	2	1	1
527.1	9	5	4
527.2	3	2	1
535.0	1	0	1
550.0	1	0	1
572.1	1	1	0
583.0	2	2	0
584.0	1	0	1
590.0	1	0	1
592.0	5	1	4
593.0	1	1	0
606.0	1	0	1
610.0	2	0	2
795.2	1	0	1
795.3	3	0	3
795.4	10	1	9
795.5	4	1	3
823.0	1	1	0
823.4	14	8	6
936.0	3	3	0
936.3	1	1	0
936.9	1	1	0
979.0	4	3	1
983.0	9	2	7
TOTAL	289	150	139

511971 0552

UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT C5

COD	TOTAL	WHITE	NONWHITE
2.1	3	3	0
53.4	1	1	0
150.0	1	1	0
151.0	3	3	0
152.0	1	0	1
153.8	3	3	0
156.2	3	2	1
157.0	3	3	0
162.1	5	5	0
163.0	21	20	1
165.8	2	2	0
177.0	2	1	1
180.0	1	1	0
181.0	1	1	0
193.0	1	1	0
195.0	1	1	0
197.3	1	1	0
199.2	3	2	1
201.0	1	1	0
202.1	1	1	0
203.0	1	0	1
204.1	1	0	1
223.0	2	1	1
260.0	2	0	2
270.0	1	1	0
287.0	1	1	0
296.0	1	0	1
309.0	1	1	0
322.0	1	0	1
330.0	2	2	0
331.0	6	5	1
334.0	1	1	0
353.1	1	1	0
410.9	2	2	0
420.0	9	7	2
420.1	68	63	5
421.1	2	2	0
422.1	2	2	0
433.0	1	1	0
434.4	1	1	0
443.0	3	2	1
444.0	1	1	0
445.0	1	0	1
456.0	1	1	0
465.0	2	2	0
480.0	1	1	0
481.0	1	1	0

511971 0553

UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT C5

COD	TOTAL	WHITE	NONWHITE
493.0	1	1	0
525.0	1	1	0
527.1	5	4	1
527.2	1	1	0
540.0	1	1	0
570.1	1	1	0
572.1	1	1	0
578.0	1	1	0
581.0	2	2	0
581.1	1	1	0
583.0	1	1	0
587.0	1	1	0
593.0	2	1	1
782.4	1	1	0
795.4	1	1	0
823.1	1	1	0
823.4	10	9	1
825.0	7	7	0
904.9	1	1	0
936.0	8	8	0
936.3	4	4	0
976.0	1	1	0
978.0	3	3	0
979.0	4	4	0
983.0	2	0	2
TOTAL	236	209	27

511971 0554

UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT 06

COD	TOTAL	WHITE	NONWHITE
22.0	1	1	0
92.0	1	1	0
146.0	1	1	0
152.8	1	0	1
157.0	2	2	0
162.1	2	1	1
163.0	2	2	0
177.0	1	1	0
178.0	1	1	0
193.0	1	1	0
194.0	2	2	0
199.2	2	1	1
200.1	1	1	0
201.0	1	1	0
204.0	1	1	0
204.2	1	1	0
237.0	1	1	0
252.0	1	0	1
345.0	1	1	0
420.0	3	2	1
420.1	23	19	4
434.4	2	2	0
440.0	1	0	1
490.0	1	0	1
527.1	1	1	0
541.0	1	1	0
587.0	1	0	1
723.0	1	1	0
795.4	4	3	1
795.5	1	0	1
823.4	5	1	4
936.0	2	2	0
979.0	1	1	0
983.0	3	2	1
TOTAL	74	55	19

511971 0555

UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT 07

COD	TOTAL	WHITE	NONWHITE
153.8	2	1	1
157.0	3	3	0
162.1	5	3	2
163.0	12	9	3
165.0	1	1	0
177.3	6	3	3
180.0	1	1	0
193.0	2	2	0
199.2	1	1	0
204.4	1	0	1
237.0	2	2	0
260.0	1	0	1
287.0	1	1	0
330.0	2	2	0
331.0	7	6	1
332.0	1	1	0
334.0	2	2	0
340.1	1	0	1
340.3	1	1	0
356.1	1	1	0
420.0	3	3	0
420.1	65	59	6
433.0	2	2	0
433.1	1	1	0
434.1	1	1	0
434.4	1	0	1
443.0	5	1	4
450.0	1	0	1
451.0	3	3	0
452.0	1	1	0
465.0	1	0	1
466.0	1	0	1
493.0	1	1	0
502.1	1	1	0
527.1	1	1	0
527.2	1	0	1
572.2	1	1	0
581.0	1	1	0
581.1	1	1	0
587.1	1	0	1
592.0	2	1	1
602.0	1	1	0
782.4	3	3	0
823.4	2	1	1
825.0	1	1	0
929.4	1	0	1
936.0	5	4	1

511971 0556

UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT 07

COD	TOTAL	WHITE	NONWHITE
936.3	2	1	1
983.0	6	0	6
TOTAL	169	129	40

511971 0557

UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT 08

COD	TOTAL	WHITE	NONWHITE
153.3	1	1	0
157.0	4	2	2
163.0	4	4	0
165.0	1	1	0
177.0	1	1	0
180.0	2	2	0
181.0	1	1	0
191.4	1	0	1
193.0	2	2	0
199.2	1	1	0
201.0	1	1	0
204.3	1	1	0
228.0	1	1	0
260.0	1	1	0
289.2	1	1	0
292.5	1	1	0
322.1	2	2	0
330.0	1	0	1
331.0	3	0	3
332.0	1	0	1
420.0	1	1	0
420.1	27	27	0
422.1	2	2	0
434.4	4	3	1
451.0	1	1	0
527.1	1	0	1
570.5	1	0	1
572.1	1	0	1
581.1	1	1	0
585.0	2	1	1
705.5	1	0	1
782.9	1	1	0
795.4	1	0	1
823.3	1	0	1
823.4	7	4	3
825.0	4	4	0
936.3	1	0	1
978.0	1	1	0
979.0	2	2	0
983.0	2	1	1
TOTAL	93	72	21

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UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT 09

COD	TOTAL	WHITE	NONWHITE
2.1	1	1	0
53.4	2	2	0
96.9	1	1	0
151.0	2	2	0
152.0	1	1	0
153.8	3	3	0
154.0	1	1	0
162.1	3	3	0
163.0	4	4	0
177.0	2	2	0
180.0	1	1	0
181.0	2	2	0
190.9	2	2	0
193.0	2	2	0
194.0	1	1	0
201.0	1	1	0
203.0	2	2	0
204.1	1	1	0
204.3	3	3	0
224.0	1	1	0
322.1	1	1	0
330.0	1	1	0
331.0	8	7	1
334.0	2	2	0
420.0	1	1	0
420.1	34	32	2
423.0	2	2	0
434.4	3	3	0
434.5	1	1	0
451.0	1	1	0
467.2	1	1	0
480.0	1	1	0
481.0	1	1	0
493.0	2	2	0
500.0	1	1	0
525.0	2	2	0
527.1	3	3	0
527.2	2	2	0
540.0	1	1	0
570.5	1	1	0
571.1	2	2	0
581.0	1	1	0
587.0	1	1	0
592.0	1	1	0
823.4	8	7	1
936.0	3	3	0
936.3	2	2	0

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UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT 09

COD	TOTAL	WHITE	NONWHITE
579.0	2	2	0
983.0	1	0	1
TOTAL	126	121	5

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UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT 16

COD	TOTAL	WHITE	NONWHITE
157.0	2	2	0
162.1	4	3	1
163.0	3	3	0
181.0	3	3	0
193.0	1	1	0
199.2	1	1	0
200.1	2	2	0
201.0	1	1	0
260.0	3	2	1
287.0	1	1	0
292.4	1	1	0
330.0	2	2	0
331.0	4	4	0
340.3	1	1	0
420.0	2	2	0
420.1	36	28	8
422.1	2	0	2
433.0	1	1	0
433.1	1	1	0
434.1	1	1	0
434.2	1	0	1
434.4	2	2	0
451.0	1	1	0
464.0	1	0	1
466.0	2	2	0
493.0	1	0	1
540.0	1	1	0
545.0	2	2	0
593.0	1	1	0
788.9	1	1	0
823.4	6	6	0
883.0	1	1	0
936.0	5	4	1
936.3	3	3	0
979.0	5	5	0
983.0	1	1	0
TOTAL	106	90	16

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UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT 12

COD	TOTAL	WHITE	NONWHITE
19.2	1	1	0
57.0	1	1	0
148.0	1	1	0
150.0	2	2	0
151.0	4	4	0
153.0	1	1	0
153.8	2	2	0
154.0	1	1	0
155.1	1	1	0
156.2	1	1	0
157.0	7	7	0
161.0	1	0	1
162.1	15	15	0
163.0	13	13	0
165.0	1	1	0
177.0	5	5	0
178.0	1	1	0
180.0	3	3	0
181.0	1	1	0
193.0	1	1	0
199.0	1	1	0
199.2	3	3	0
200.2	5	5	0
201.0	2	2	0
203.0	2	2	0
204.0	1	1	0
204.1	2	2	0
204.3	1	1	0
223.0	3	3	0
237.0	1	1	0
241.0	1	1	0
260.0	4	4	0
299.0	1	1	0
307.0	1	1	0
330.0	3	3	0
331.0	15	15	0
332.0	4	4	0
334.0	1	1	0
345.0	1	1	0
355.0	2	2	0
356.1	1	1	0
410.0	3	3	0
420.0	6	5	1
420.1	96	95	1
422.1	1	1	0
422.2	1	1	0
430.0	2	2	0

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UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT 12

COD	TOTAL	WHITE	NONWHITE
433.0	1	1	0
433.1	1	1	0
434.2	1	1	0
434.3	1	1	0
443.0	5	5	0
450.0	1	1	0
451.0	1	1	0
467.2	1	1	0
490.0	3	3	0
491.0	4	4	0
525.0	1	1	0
526.0	1	1	0
527.1	13	13	0
527.2	4	4	0
540.0	2	2	0
572.1	1	1	0
581.0	3	3	0
581.1	2	1	1
585.0	1	1	0
592.0	1	1	0
600.0	1	1	0
611.0	1	1	0
617.0	1	1	0
783.1	1	1	0
823.4	3	3	0
825.0	1	1	0
926.0	8	8	0
926.3	3	3	0
979.0	8	8	0
983.0	1	1	0
TOTAL	303	299	4

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UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT 13

COD	TOTAL	WHITE	NONWHITE
157.0	3	3	0
162.1	5	5	0
163.0	5	5	0
164.0	1	1	0
177.0	1	1	0
181.0	1	1	0
190.4	1	1	0
199.2	1	1	0
204.3	2	2	0
260.0	1	1	0
332.0	1	1	0
334.0	2	2	0
345.0	1	1	0
353.1	1	1	0
356.1	1	1	0
410.0	1	1	0
420.0	1	1	0
420.1	31	31	0
421.1	1	1	0
456.0	1	1	0
491.0	1	1	0
493.0	1	1	0
527.1	4	4	0
527.2	1	1	0
571.1	1	1	0
581.0	3	3	0
581.1	1	1	0
587.0	2	2	0
795.5	2	2	0
823.4	2	2	0
825.0	2	2	0
936.0	8	8	0
936.3	1	1	0
979.0	1	1	0
TOTAL	92	92	0

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UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT 14

COD	TOTAL	WHITE	NONWHITE
1.0	1	1	0
22.0	1	1	0
141.0	1	1	0
146.0	1	1	0
150.9	2	2	0
151.0	5	5	0
152.9	1	1	0
153.1	1	1	0
153.8	4	4	0
154.0	2	2	0
155.0	2	2	0
155.1	1	1	0
156.2	1	1	0
157.0	7	7	0
161.0	1	1	0
162.1	10	10	0
163.0	10	10	0
165.0	2	2	0
177.0	1	1	0
180.0	4	4	0
181.0	1	1	0
190.7	1	1	0
191.3	1	1	0
193.0	2	2	0
199.2	1	1	0
200.1	1	1	0
204.2	1	1	0
204.3	3	3	0
237.0	1	1	0
241.0	1	1	0
260.0	1	1	0
322.2	1	1	0
330.0	2	2	0
331.0	10	10	0
332.0	5	5	0
334.0	1	1	0
355.0	1	1	0
420.0	28	28	0
420.1	102	101	1
421.1	2	1	1
422.1	1	1	0
422.2	2	2	0
434.4	4	4	0
434.5	1	1	0
442.0	1	1	0
443.0	9	9	0
446.0	1	1	0

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UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT 14

COD	TOTAL	WHITE	NONWHITE
450.0	2	2	0
451.0	3	3	0
452.0	1	1	0
454.0	1	1	0
481.0	1	1	0
490.0	2	2	0
491.0	3	3	0
493.0	1	1	0
500.0	1	1	0
502.0	1	1	0
502.1	1	1	0
525.0	3	3	0
527.1	6	6	0
540.0	1	1	0
540.1	1	1	0
572.2	1	1	0
581.0	1	1	0
581.1	1	1	0
585.0	1	1	0
587.0	1	1	0
592.0	1	1	0
609.0	1	1	0
795.5	1	1	0
823.4	3	3	0
825.0	1	1	0
936.0	4	4	0
979.0	7	6	1
TOTAL	294	291	3

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UNDERLYING CAUSE OF DEATH FREQUENCY

PLANT 15

COD	TOTAL	WHITE	NONWHITE
82.3	1	1	0
150.0	1	1	0
151.0	2	2	0
153.8	1	1	0
154.0	2	2	0
155.1	1	1	0
157.0	1	1	0
162.1	3	3	0
163.0	7	7	0
181.0	1	1	0
202.1	1	1	0
203.0	2	2	0
204.3	1	1	0
330.0	3	3	0
331.0	2	2	0
332.0	2	2	0
334.0	1	1	0
353.1	1	1	0
410.0	1	1	0
420.0	5	5	0
420.1	25	24	1
421.1	1	1	0
434.4	3	3	0
443.0	1	1	0
450.0	1	1	0
451.0	1	1	0
490.0	1	1	0
492.0	1	1	0
502.0	2	2	0
525.0	1	1	0
527.1	2	2	0
540.1	1	1	0
542.0	1	1	0
823.4	2	2	0
825.0	1	1	0
936.0	5	5	0
936.3	2	2	0
936.9	1	1	0
979.0	1	1	0
TOTAL	92	91	1

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APPENDIX VI

The purpose of this section is to replicate the findings in the EEH study in regard to respiratory cancer. This is made difficult for the following reasons:

1. The members of the cohort are different because we added more than a thousand men in our quality control phase and eliminated more than 1400 men who failed to meet the cohort definition.
2. The effect of the different composition of the two cohorts cannot be resolved directly since the EEH tape had no personal identifiers for cohort members.
3. The definition that EEH used to group jobs and to group processes differed from the definitions that we used.

Nevertheless, we feel such a comparison is important since the EEH study reported a higher SMR in the potrooms than the present study. Specifically, the SMR within the potroom for the horizontal Soderberg was 162 in the EEH study, and for the prebake potroom it was 132. The EEH study grouped a man to a major job within a major process. A man was considered to be grouped in a major process if he spent more than 50% of his time in that process and, likewise, he was assigned to a job if he spent more than 50% of his time in that job. In this section we will attempt to replicate the EEH finding using their definitions. In doing this, we will restrict ourselves to the horizontal Soderberg process, since it is for this process that the two cohorts are most identical. Specifically, very few men were added in the quality control phase for these plants and, likewise, few men were eliminated on the basis of the failure to meet cohort criteria. Comparisons of mortality are made through December 31, 1973 since this was the date used by EEH. In their grouping of plants using the horizontal Soderberg, EEH grouped Plant 4, 5, 10

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and 15 and excluded plant 6 since they considered it a mixed process due to its partial prebake line.

Table A6.1 shows the observed and expected values and standardized mortality ratios for all causes, all malignant neoplasms and all respiratory cancers as reported by EEH. In the same Table are values for the Tripartite Cohort through 1973. The SMR's are reported both adjusted and unadjusted by the factor accounting for missing death certificates in the two studies. The observed deaths for respiratory cancers in the two studies are exactly the same. However, the expected number of deaths as reported by the Tripartite Study is slightly higher than that reported by EEH. In fact, the expected value for all the disease categories given in Table A6.1 by EEH is approximately 4% lower than those given for the Tripartite Study. It is not possible to determine the reason for this discrepancy with the information available. It could be due to either the computation of person years or the rates used in the analysis.

Table A6.1

Comparison of Standardized Mortality Ratios
for the EEH Study and the Tripartite Cohort

	EEH				Tripartite			
	Obs.	Exp.	SMR	SMR Adj.	Obs.	Exp.	SMR	SMR Adj.
All Causes	498	603.42	82	82	496	623.64	80	81
Malignant Neoplasms	88	107.21	82	85	92	110.99	83	84
Respiratory Cancer	33	34.94	94	98	33	36.4	91	92

Although the agreement is fairly good between the observed deaths and differs by only 4% in the expected deaths when evaluations are done for the total process, this is not the case when an attempt is made to investigate mortality patterns by job area. The SMR of 162 reported by EEH was an adjusted SMR based on 21 observed deaths with an expected of 13.41. When the

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Causes of Death	<20 Years Obs.	Exp.	SMR	≥20 Years Obs.	Exp.	SMR
All Causes	167	179.88	92.8	988	878.08	112.5**
All Infective and Parasitic Diseases	0	4.26	-	6	10.20	58.8
Tuberculosis	0	2.70	-	0	5.53	-
Remainder of Infective and Parasitic Diseases	0	1.56	-	6	4.70	127.7
All Malignant Neoplasms	33	30.59	107.9	170	174.84	97.2
Cancer of Buccal Cavity and Pharynx	1	1.06	94.3	0	5.54	-
Digestive Cancer	6	9.43	63.6	55	53.08	103.6
Cancer of Esophagus	1	0.75	133.2	6	4.54	132.2
Cancer of Stomach	2	2.28	87.9	20	10.38	192.7*
Cancer of Large Intestine	1	2.50	40.0	14	16.11	86.9
Cancer of Rectum	1	1.17	85.3	7	6.06	115.6
Cancer of Liver	1	0.85	117.9	0	4.62	-
Cancer of Pancreas	0	1.66	-	8	10.05	79.6
Remainder of Cancer of Digestive Organs	0	0.23	-	0	1.21	-
Respiratory Cancer	11	8.71	126.4	57	57.17	99.7
Cancer of Larynx	0	0.47	-	2	2.79	71.6
Cancer of Lung	11	8.08	136.2	55	53.79	102.2
Remainder of Cancer of Respiratory System	0	0.15	-	0	0.60	-
Cancer of Prostate	3	1.17	257.0	12	13.14	91.3
Other Genital Cancer	0	0.41	-	2	0.57	353.8
Cancer of Kidney	1	0.79	126.1	5	4.20	119.0
Cancer of Bladder	1	0.78	128.5	5	5.81	86.1
Lymphopoietic Cancer	5	3.83	130.7	19	15.65	121.4
Lymphosarcoma and Reticulosarcoma	2	0.94	212.4	6	3.59	167.1
Hodgkins Disease	0	0.78	-	2	1.50	133.0
Leukemia and Aleukemia	2	1.50	133.2	9	6.48	139.0
All Other Lymphopoietic Cancer	1	0.60	166.6	2	3.93	50.9
Other Malignant Neoplasms	5	4.39	114.0	15	19.08	78.6
Benign and Unspec. Neoplasms	0	0.64	-	4	2.03	196.9
Diabetes Mellitus	1	2.40	41.7	18	12.93	139.2
Major Cardiovascular Disease	84	84.67	99.2	598	488.13	122.5**

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Table A 7.1 Plant #1

Causes of Death	<20 Years			≥20 Years		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	6	10.61	56.6	90	72.09	124.9*
Diseases of the Heart	78	71.05	109.8	476	394.01	120.8**
Rheumatic Heart Disease	0	3.23	-	3	7.47	40.2
Ischemic Heart Disease	73	58.82	124.1	438	340.52	128.6**
Endocarditis & Myocard. Insufficiency	0	1.75	-	7	5.13	136.5
Hypertensive Heart Disease	5	4.10	122.1	19	16.58	114.6
All Other Heart Disease	0	2.93	-	9	18.67	48.2*
Hypertension	0	0.92	-	3	3.82	78.5
Arteriosclerosis	0	0.78	-	13	8.85	146.9
Other Diseases of the Arteries	0	1.31	-	16	9.36	171.0
Nonmalignant Respiratory Disease	5	7.28	68.7	57	53.69	106.2
Influenza and Pneumonia	2	3.83	52.3	23	21.30	108.0
Bronchitis, Asthma and Emphysema	2	2.22	90.1	29	20.53	141.2
Bronchitis	0	0.34	-	3	3.16	95.1
Asthma	0	0.74	-	7	2.20	317.6*
Emphysema	2	1.64	122.0	19	15.57	122.0
Other Nonmalignant Respiratory Disease	1	1.98	50.5	12	14.33	83.7
Gastric and Duo. Ulcer	4	1.84	217.4	2	6.52	30.7
Cirrhosis of the Liver	0	5.28	-	16	19.50	82.1
Nephritis	2	1.96	101.9	4	5.48	73.0
Ill-defined Causes	1	2.19	45.7	3	9.84	30.5*
All External Causes	29	28.44	102.0	58	51.50	112.6
All Accidents	24	20.00	120.0	43	36.69	117.2
Motor Vehicle Accidents	14	9.66	145.0	26	14.50	179.3**
Other Accidents	10	10.33	96.8	17	22.37	76.0
Suicide	5	6.50	76.9	14	13.72	102.0
Homocide	0	2.38	-	1	3.40	29.4
All Other Causes	8	10.56	75.8	45	78.28	58.5**

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Table A 7.2 Plant #2

Causes of Death	<20 Years Obs.	<20 Years Exp.	<20 Years SMR	≥20 Years Obs.	≥20 Years Exp.	≥20 Years SMR
All Causes	23	40.22	57.2**	304	312.85	97.2
All Infective and Parasitic Diseases	0	1.91	-	4	5.63	71.1
Tuberculosis	0	1.34	-	2	3.17	63.1
Remainder of Infective and Parasitic Diseases	0	0.57	-	2	2.45	81.6
All Malignant Neoplasms	2	4.87	41.1	52	60.41	86.1
Cancer of Buccal Cavity and Pharynx	0	0.18	-	1	2.01	49.7
Digestive Cancer	1	1.55	64.6	17	19.44	87.4
Cancer of Esophagus	0	0.20	-	0	2.55	-
Cancer of Stomach	0	0.43	-	4	4.45*	89.9
Cancer of Large Intestine	0	0.32	-	5	4.90	102.1
Cancer of Rectum	0	0.15	-	0	1.85	-
Cancer of Liver	0	0.17	-	1	1.83	54.7
Cancer of Pancreas	0	0.24	-	7	3.47	201.8
Remainder of Cancer of Digestive Organs	1	0.03	2995.8	0	0.38	-
Respiratory Cancer	1	1.31	76.3	18	18.99	94.8
Cancer of Larynx	0	0.08	-	2	1.02	195.3
Cancer of Lung	1	1.20	83.1	15	17.76	84.4
Remainder of Cancer of Respiratory System	0	0.03	-	1	0.21	465.6
Cancer of Prostate	0	0.12	-	4	5.48	73.0
Other Genital Cancer	0	0.08	-	0	0.23	-
Cancer of Kidney	0	0.11	-	3	1.21	247.1
Cancer of Bladder	0	0.09	-	1	1.80	55.5
Lymphopoietic Cancer	0	0.68	-	4	4.80	83.4
Lymphosarcoma and Reticulosarcoma	0	0.15	-	1	1.01	99.4
Hodgkins Disease	0	0.16	-	0	0.45	-
Leukemia and Aleukemia	0	0.25	-	2	1.91	104.7
All Other Lymphopoietic Cancer	0	0.11	-	1	1.40	71.5
Other Malignant Neoplasms	0	0.74	-	4	6.27	63.8
Benign and Unspec. Neoplasms	0	0.15	-	2	0.72	276.9
Diabetes Mellitus	0	0.48	-	5	4.93	101.4
Major Cardiovascular Disease	10	14.98	66.8	168	168.41	99.8

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Causes of Death	<20 Years			≥20 Years		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	1	2.58	38.7	23	30.80	74.7
Diseases of the Heart	8	11.51	69.5	140	129.24	108.3
Rheumatic Heart Disease	0	0.68	-	0	2.31	-
Ischemic Heart Disease	6	7.79	77.0	123	105.51	116.6
Endocarditis & Myocard. Insufficiency	0	0.48	-	1	2.21	45.3
Hypertensive Heart Disease	2	1.67	120.0	8	10.32	77.5
All Other Heart Disease	0	0.90	-	8	8.48	94.3
Hypertension	1	0.58	173.3	2	2.36	84.6
Arteriosclerosis	0	0.09	-	2	3.15	63.5
Other Diseases of the Arteries	0	0.22	-	1	2.86	35.0
Nonmalignant Respiratory Disease	2	1.91	105.0	25	18.83	132.8
Influenza and Pneumonia	1	1.33	75.3	11	9.22	119.2
Bronchitis, Asthma and Emphysema	1	0.33	304.6	5	5.81	86.1
Bronchitis	0	0.04	-	2	0.89	224.1
Asthma	0	0.17	-	2	0.93	214.8
Emphysema	1	0.16	639.8	1	4.19	23.9
Other Nonmalignant Respiratory Disease	0	0.42	-	11	4.82	228.2*
Gastric and Duo. Ulcer	0	0.34	-	0	2.14	-
Cirrhosis of the Liver	0	1.30	-	3	6.70	44.8
Nephritis	1	0.75	132.5	1	3.15	31.8
Ill-defined Causes	1	0.98	102.3	4	6.12	65.4
All External Causes	6	9.85	60.9	21	20.66	101.6
All Accidents	4	6.01	66.6	9	14.41	62.4
Motor Vehicle Accidents	4	2.77	144.2	3	5.52	54.3
Other Accidents	0	3.23	-	6	8.97	66.9
Suicide	1	1.16	86.4	3	3.24	92.5
Homocide	1	2.90	34.5	9	4.04	223.0*
All Other Causes	1	2.83	35.3	17	29.58	57.5*

511971 0573

Table A 7.3 Plant #4

Causes of Death	<20 Years Obs.	<20 Years Exp.	<20 Years SMR	≥20 Years Obs.	≥20 Years Exp.	≥20 Years SMR
All Causes	94	130.84	71.8**	195	201.02	97.0
All Infective and Parasitic Diseases	2	4.29	46.6	2	2.93	68.2
Tuberculosis	2	2.75	72.8	1	1.51	66.2
Remainder of Infective and Parasitic Diseases	0	1.54	-	1	1.42	70.5
All Malignant Neoplasms	14	20.20	69.3	32	41.73	76.7
Cancer of Buccal Cavity and Pharynx	0	0.74	-	0	1.39	-
Digestive Cancer	5	6.54	76.5	9	12.65	71.2
Cancer of Esophagus	0	0.82	-	2	1.89	106.0
Cancer of Stomach	3	1.77	169.6	3	2.66	112.9
Cancer of Large Intestine	0	1.42	-	0	3.19	-
Cancer of Rectum	0	0.63	-	1	1.09	91.8
Cancer of Liver	0	0.64	-	0	1.20	-
Cancer of Pancreas	2	1.10	181.9	3	2.37	126.8
Remainder of Cancer of Digestive Organs	0	0.15	-	0	0.25	-
Respiratory Cancer	1	5.87	17.0*	11	14.08	78.1
Cancer of Larynx	0	0.35	-	2	0.71	281.4
Cancer of Lung	1	5.44	18.4	9	13.24	68.0
Remainder of Cancer of Respiratory System	0	0.09	-	0	0.14	-
Cancer of Prostate	0	1.00	-	3	3.73	80.5
Other Genital Cancer	0	0.22	-	0	0.14	-
Cancer of Kidney	0	0.46	-	1	0.82	121.7
Cancer of Bladder	0	0.46	-	1	1.07	93.4
Lymphopoietic Cancer	6	2.18	274.6*	3	3.18	94.4
Lymphosarcoma and Reticulosarcoma	1	0.50	199.3	2	0.63	318.1
Hodgkins Disease	2	0.40	494.7	0	0.28	-
Leukemia and Aleukemia	2	0.83	242.0	1	1.19	83.8
All Other Lymphopoietic Cancer	1	0.45	224.2	0	1.05	-
Other Malignant Neoplasms	2	2.68	74.7	4	4.49	89.2
Benign and Unspec. Neoplasms	0	0.40	-	0	0.47	-
Diabetes Mellitus	0	1.70	-	7	3.37	207.7
Major Cardiovascular Disease	41	58.30	70.3*	94	103.88	90.5

511971 0574

Table A 7.3 Plant #4

Causes of Death	<20 Years			≥20 Years		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	5	9.97	50.1	16	18.83	85.0
Diseases of the Heart	34	45.57	74.6	74	80.18	92.3
Rheumatic Heart Disease	0	1.69	-	0	1.28	-
Ischemic Heart Disease	25	33.75	74.1	53	66.01	80.3
Endocarditis & Myocard. Insufficiency	0	1.45	-	0	0.86	-
Hypertensive Heart Disease	3	5.54	54.2	8	5.54	144.4
All Other Heart Disease	6	3.05	196.7	13	6.29	206.6*
Hypertension	0	1.33	-	0	1.43	-
Arteriosclerosis	1	0.59	169.5	1	1.66	60.1
Other Diseases of the Arteries	1	0.84	119.4	3	1.78	169.0
Nonmalignant Respiratory Disease	4	6.13	65.2	18	12.33	146.0
Influenza and Pneumonia	1	3.85	26.0	3	5.72	52.5
Bronchitis, Asthma and Emphysema	3	1.39	215.6	9	3.77	238.7*
Bronchitis	1	0.20	492.5	1	0.57	175.4
Asthma	1	0.51	194.7	0	0.48	-
Emphysema	1	0.89	112.0	8	2.66	300.5*
Other Nonmalignant Respiratory Disease	1	1.42	70.4	6	3.39	177.0
Gastric and Duo. Ulcer	0	1.06	-	0	1.14	-
Cirrhosis of the Liver	0	3.98	-	0	5.06	-
Nephritis	0	1.87	-	7	1.97	355.6**
Ill-defined Causes	7	2.85	245.6	11	4.61	238.4*
All External Causes	19	21.97	86.5	14	13.82	101.3
All Accidents	11	14.06	78.3	9	9.64	93.4
Motor Vehicle Accidents	9	6.36	141.4	6	3.66	164.1
Other Accidents	2	7.70	26.0*	3	6.04	49.6
Suicide	3	3.42	87.8	1	2.09	47.8
Homocide	5	5.25	95.2	4	2.99	133.9
All Other Causes	6	8.97	66.9	10	22.06	45.3**

511971 0575

Table A 7.4 Plant #5

Causes of Death	<20 Years Obs.	<20 Years Exp.	<20 Years SMR	≥20 Years Obs.	≥20 Years Exp.	≥20 Years SMR
All Causes	156	195.40	79.8**	80	94.48	84.7
All Infective and Parasitic Diseases	3	2.92	102.6	1	0.90	111.1
Tuberculosis	3	1.66	181.2	0	0.34	-
Remainder of Infective and Parasitic Diseases	0	1.26	-	1	0.57	176.7
All Malignant Neoplasms	34	33.21	102.4	22	21.51	102.3
Cancer of Buccal Cavity and Pharynx	0	1.24	-	0	0.79	-
Digestive Cancer	7	8.65	80.9	4	5.62	71.2
Cancer of Esophagus	0	1.01	-	1	0.75	133.3
Cancer of Stomach	1	1.64	60.8	2	0.90	221.8
Cancer of Large Intestine	3	2.36	127.3	0	1.65	-
Cancer of Rectum	0	0.88	-	0	0.51	-
Cancer of Liver	0	0.75	-	0	0.47	-
Cancer of Pancreas	2	1.73	115.3	1	1.16	86.2
Remainder of Cancer of Digestive Organs	1	0.26	382.6	0	0.14	-
Respiratory Cancer	14	11.22	124.8	12	8.48	141.5
Cancer of Larynx	0	0.52	-	0	0.38	-
Cancer of Lung	14	10.54	132.9	12	8.05	149.2
Remainder of Cancer of Respiratory System	0	0.16	-	0	0.06	-
Cancer of Prostate	0	0.59	-	2	0.75	267.1
Other Genital Cancer	0	0.44	-	0	0.08	-
Cancer of Kidney	1	0.88	113.1	0	0.56	-
Cancer of Bladder	1	0.53	189.0	0	0.43	-
Lymphopoietic Cancer	4	4.20	95.3	0	1.87	-
Lymphosarcoma and Reticulosarcoma	0	1.02	-	0	0.39	-
Hodgkins Disease	1	0.85	117.1	0	0.18	—
Leukemia and Aleukemia	1	1.54	65.0	0	0.67	-
All Other Lymphopoietic Cancer	2	0.77	259.3	0	0.60	-
Other Malignant Neoplasms	7	5.30	132.1	4	2.76	144.9
Benign and Unspec. Neoplasms	2	0.63	315.8	0	0.26	-
Diabetes Mellitus	0	2.70	-	2	1.36	146.5
Major Cardiovascular Disease	65	79.84	81.4	35	44.65	78.4

511971 0576

Causes of Death	<20 Years			≥20 Years		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	5	9.23	54.2	4	5.04	79.4
Diseases of the Heart	58	67.91	85.4	30	38.25	78.4
Rheumatic Heart Disease	2	2.66	75.2	0	0.72	-
Ischemic Heart Disease	53	56.22	94.3	26	32.43	80.2
Endocarditis & Myocard. Insufficiency	1	0.91	109.3	1	0.23	434.2
Hypertensive Heart Disease	1	3.00	33.4	2	1.03	194.2
All Other Heart Disease	1	4.45	22.5	1	2.97	33.6
Hypertension	2	1.10	181.3	0	0.31	-
Arteriosclerosis	0	0.38	-	0	0.31	-
Other Diseases of the Arteries	0	1.22	-	1	0.74	135.8
Nonmalignant Respiratory Disease	6	8.51	70.5	4	4.88	82.0
Influenza and Pneumonia	2	4.34	46.1	1	1.87	53.6
Bronchitis, Asthma and Emphysema	2	2.46	81.4	3	1.54	195.4
Bronchitis	0	0.37	-	0	0.23	-
Asthma	0	0.52	-	0	0.14	-
Emphysema	2	1.60	125.3	3	1.12	267.6
Other Nonmalignant Respiratory Disease	2	2.27	88.1	0	1.65	-
Gastric and Duo. Ulcer	1	1.36	73.7	0	0.44	-
Cirrhosis of the Liver	2	8.71	23.0*	1	4.02	24.9
Nephritis	0	1.92	-	2	0.58	347.3
Ill-defined Causes	1	3.70	27.0	1	1.68	59.6
All External Causes	33	39.46	83.6	8	8.74	91.5
All Accidents	25	26.16	95.6	6	5.83	103.0
Motor Vehicle Accidents	16	12.26	130.5	2	2.26	88.6
Other Accidents	9	13.92	64.7	4	3.61	110.7
Suicide	6	8.04	74.6	2	2.26	88.4
Homocide	2	6.95	28.8	0	1.37	-
All Other Causes	9	16.57	54.3	4	9.75	41.0

511971 0577

Table A 7.5 Plant #6

Causes of Death	<20 Years Obs.	<20 Years Exp.	<20 Years SMR	≥20 Years Obs.	≥20 Years Exp.	≥20 Years SMR
All Causes	54	67.28	80.3	20	33.39	59.9*
All Infective and Parasitic Diseases	1	1.04	96.5	1	0.32	308.8
Tuberculosis	0	0.62	-	0	0.12	-
Remainder of Infective and Parasitic Diseases	1	0.42	240.9	1	0.20	490.8
All Malignant Neoplasms	13	12.45	104.4	6	7.77	77.2
Cancer of Buccal Cavity and Pharynx	1	0.49	204.9	0	0.28	-
Digestive Cancer	2	3.45	58.0	1	2.09	47.8
Cancer of Esophagus	0	0.44	-	0	0.28	-
Cancer of Stomach	0	0.67	-	0	0.34	-
Cancer of Large Intestine	1	0.90	110.6	0	0.61	-
Cancer of Rectum	0	0.35	-	0	0.19	-
Cancer of Liver	0	0.31	-	0	0.18	-
Cancer of Pancreas	1	0.68	146.7	1	0.43	234.4
Remainder of Cancer of Digestive Organs	0	0.09	-	0	0.05	-
Respiratory Cancer	2	4.38	45.7	2	3.02	66.3
Cancer of Larynx	0	0.22	-	0	0.14	-
Cancer of Lung	2	4.10	48.7	2	2.86	69.9
Remainder of Cancer of Respiratory System	0	0.06	-	0	0.02	-
Cancer of Prostate	0	0.35	-	1	0.37	267.3
Other Genital Cancer	1	0.10	969.9	0	0.02	-
Cancer of Kidney	0	0.32	-	0	0.19	-
Cancer of Bladder	0	0.24	-	0	0.18	-
Lymphopoietic Cancer	4	1.32	303.3	0	0.64	-
Lymphosarcoma and Reticulosarcoma	1	0.33	304.8	0	0.13	-
Hodgkins Disease	1	0.22	447.3	0	0.05	-
Leukemia and Aleukemia	2	0.48	417.2	0	0.24	-
All Other Lymphopoietic Cancer	0	0.28	-	0	0.21	-
Other Malignant Neoplasms	3	1.75	171.2	2	0.93	215.4
Benign and Unspec. Neoplasms	1	0.20	494.7	0	0.09	-
Diabetes Mellitus	0	0.95	-	0	0.51	-
Major Cardiovascular Disease	22	30.72	71.6	7	16.23	43.1*

511971 0578

Table A 7.5 Plant #6

Causes of Death	<20 Years			≥20 Years		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	0	3.82	-	0	2.06	-
Diseases of the Heart	22	25.78	85.3	7	13.61	51.4
Rheumatic Heart Disease	0	0.84	-	0	0.23	-
Ischemic Heart Disease	20	21.50	93.0	6	11.54	52.0
Endocarditis & Myocard. Insufficiency	0	0.33	-	0	0.08	-
Hypertensive Heart Disease	1	1.32	76.0	0	0.41	-
All Other Heart Disease	1	1.55	64.3	1	1.07	93.6
Hypertension	0	0.43	-	0	0.12	-
Arteriosclerosis	0	0.19	-	0	0.15	-
Other Diseases of the Arteries	0	0.50	-	0	0.29	-
Nonmalignant Respiratory Disease	1	3.31	30.3	1	1.91	52.4
Influenza and Pneumonia	0	1.57	-	1	0.70	142.5
Bronchitis, Asthma and Emphysema	1	1.09	91.7	0	0.62	-
Bronchitis	0	0.16	-	0	0.09	-
Asthma	0	0.19	-	0	0.05	-
Emphysema	1	0.74	135.3	0	0.45	-
Other Nonmalignant Respiratory Disease	0	0.85	-	0	0.66	-
Gastric and Duo. Ulcer	0	0.50	-	1	0.16	642.4
Cirrhosis of the Liver	0	2.67	-	0	1.20	-
Nephritis	0	0.64	-	0	0.22	-
Ill-defined Causes	3	1.25	240.5	2	0.59	340.3
All External Causes	10	9.75	102.6	1	2.52	39.7
All Accidents	7	6.53	107.3	0	1.70	-
Motor Vehicle Accidents	5	2.90	172.2	0	0.64	-
Other Accidents	2	3.64	55.0	0	1.08	-
Suicide	1	2.00	50.1	0	0.61	-
Homocide	2	1.63	122.9	1	0.41	245.5
All Other Causes	3	5.51	54.5	1	3.63	27.6

511971 0579

Table A 7.0 Plant #7

Causes of Death	<20 Years Obs.	<20 Years Exp.	<20 Years SMR	≥20 Years Obs.	≥20 Years Exp.	≥20 Years SMR
All Causes	61	129.09	47.3**	108	155.37	69.5**
All Infective and Parasitic Diseases	0	3.18	-	0	1.64	-
Tuberculosis	0	2.04	-	0	0.72	-
Remainder of Infective and Parasitic Diseases	0	1.14	-	0	0.93	-
All Malignant Neoplasms	8	21.97	36.4**	26	34.25	75.9
Cancer of Buccal Cavity and Pharynx	0	0.85	-	0	1.13	-
Digestive Cancer	1	6.75	14.8*	4	9.73	41.1
Cancer of Esophagus	0	0.86	-	0	1.25	-
Cancer of Stomach	0	1.59	-	0	1.74	-
Cancer of Large Intestine	0	1.59	-	2	2.78	71.9
Cancer of Rectum	0	0.69	-	0	0.91	-
Cancer of Liver	0	0.64	-	0	0.87	-
Cancer of Pancreas	1	1.22	81.9	2	1.93	103.7
Remainder of Cancer of Digestive Organs	0	0.16	-	0	0.21	-
Respiratory Cancer	4	6.97	57.4	13	12.37	105.1
Cancer of Larynx	0	0.38	-	0	0.58	-
Cancer of Lung	4	6.48	61.7	13	11.69	111.2
Remainder of Cancer of Respiratory System	0	0.11	-	0	0.11	-
Cancer of Prostate	1	0.82	122.0	5	2.44	205.3
Other Genital Cancer	0	0.21	-	0	0.10	-
Cancer of Kidney	0	0.53	-	1	0.76	130.9
Cancer of Bladder	0	0.50	-	0	0.89	-
Lymphopoietic Cancer	1	2.36	42.4	0	2.77	-
Lymphosarcoma and Reticulosarcoma	0	0.59	-	0	0.56	-
Hodgkins Disease	0	0.42	-	0	0.23	-
Leukemia and Aleukemia	1	0.88	113.9	0	1.05	-
All Other Lymphopoietic Cancer	0	0.47	-	0	0.90	-
Other Malignant Neoplasms	1	2.95	33.9	3	3.86	77.8
Benign and Unspec. Neoplasms	1	0.42	237.5	1	0.37	273.6
Diabetes Mellitus	1	1.76	56.9	0	2.50	-
Major Cardiovascular Disease	30	60.01	50.0**	65	80.20	81.0

511971 0580

Causes of Death	<20 Years			≥20 Years		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	2	8.66	23.1*	10	12.19	82.0
Diseases of the Heart	26	48.85	53.2**	52	64.69	80.4
Rheumatic Heart Disease	0	1.88	-	0	1.04	-
Ischemic Heart Disease	24	39.13	61.3*	44	54.93	80.1
Endocarditis & Myocard. Insufficiency	0	1.03	-	0	0.48	-
Hypertensive Heart Disease	1	4.03	24.8	4	2.61	153.4
All Other Heart Disease	1	2.70	37.0	4	4.69	85.3
Hypertension	0	1.07	-	0	0.72	-
Arteriosclerosis	0	0.48	-	1	1.12	89.0
Other Diseases of the Arteries	2	0.95	211.4	2	1.48	135.4
Nonmalignant Respiratory Disease	0	6.16	-	4	9.61	41.6
Influenza and Pneumonia	0	3.38	-	1	3.77	26.5
Bronchitis, Asthma and Emphysema	0	1.83	-	2	3.29	60.9
Bronchitis	0	0.26	-	1	0.50	199.7
Asthma	0	0.49	-	0	0.27	-
Emphysema	0	1.22	-	1	2.43	41.1
Other Nonmalignant Respiratory Disease	0	1.46	-	1	2.89	34.6
Gastric and Duo. Ulcer	0	1.15	-	0	0.81	-
Cirrhosis of the Liver	1	4.18	23.9	1	4.37	22.9
Nephritis	0	1.56	-	2	1.14	174.7
Ill-defined Causes	1	2.46	40.7	2	2.77	72.3
All External Causes	13	18.80	69.1	4	10.03	39.9
All Accidents	8	12.49	64.0	3	7.06	42.5
Motor Vehicle Accidents	2	5.61	35.6	1	2.68	37.4
Other Accidents	6	6.89	87.1	2	4.44	45.1
Suicide	0	3.43	-	0	2.16	-
Homocide	5	3.35	149.4	1	1.58	63.1
All Other Causes	6	8.73	68.8	3	17.47	17.2**

511971 0581

Table A 7.7 Plant #8

Causes of Death	<20 Years Obs.	<20 Years Exp.	<20 Years SMR	≥20 Years Obs.	≥20 Years Exp.	≥20 Years SMR
All Causes	54	100.94	53.5**	39	59.76	65.3**
All Infective and Parasitic Diseases	0	1.60	-	0	0.60	-
Tuberculosis	0	0.93	-	0	0.25	-
Remainder of Infective and Parasitic Diseases	0	0.67	-	0	0.36	-
All Malignant Neoplasms	8	17.59	45.5*	12	13.54	88.6
Cancer of Buccal Cavity and Pharynx	0	0.66	-	0	0.48	-
Digestive Cancer	3	4.76	63.0	2	3.64	54.9
Cancer of Esophagus	0	0.60	-	0	0.47	-
Cancer of Stomach	0	0.94	-	0	0.60	-
Cancer of Large Intestine	0	1.25	-	1	1.07	93.5
Cancer of Rectum	0	0.48	-	0	0.34	-
Cancer of Liver	0	0.43	-	0	0.31	-
Cancer of Pancreas	3	0.93	321.1	1	0.74	135.0
Remainder of Cancer of Digestive Organs	0	0.13	-	0	0.09	-
Respiratory Cancer	2	5.93	33.7	2	5.19	38.5
Cancer of Larynx	0	0.29	-	0	0.23	-
Cancer of Lung	2	5.56	36.0	2	4.92	40.7
Remainder of Cancer of Respiratory System	0	0.09	-	0	0.04	-
Cancer of Prostate	1	0.44	226.1	0	0.64	-
Other Genital Cancer	0	0.22	-	0	0.05	-
Cancer of Kidney	0	0.45	-	2	0.33	597.7
Cancer of Bladder	0	0.31	-	1	0.30	330.0
Lymphopoietic Cancer	1	2.08	48.0	1	1.15	86.9
Lymphosarcoma and Reticulosarcoma	0	0.50	-	0	0.23	-
Hodgkins Disease	1	0.41	245.7	0	0.11	-
Leukemia and Aleukemia	0	0.76	-	1	0.42	236.4
All Other Lymphopoietic Cancer	0	0.41	-	0	0.37	-
Other Malignant Neoplasms	1	2.66	37.5	4	1.65	241.8
Benign and Unspec Neoplasms	1	0.32	315.8	0	0.16	-
Diabetes Mellitus	0	1.43	-	1	0.90	111.7
Major Cardiovascular Disease	25	42.71	58.5**	15	28.97	51.8**

511971 0582

Table A 7.7 Plant #8

Causes of Death	<20 Years			>20 Years		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	4	5.40	74.1	1	3.61	27.7
Diseases of the Heart	21	35.76	58.7*	13	24.38	53.3*
Rheumatic Heart Disease	0	1.29	-	0	0.45	-
Ischemic Heart Disease	18	29.45	61.1*	12	20.71	57.9
Endocarditis & Myocard. Insufficiency	0	0.50	-	0	0.16	-
Hypertensive Heart Disease	0	1.91	-	0	0.74	-
All Other Heart Disease	3	2.32	129.3	1	1.83	54.6
Hypertension	0	0.62	-	0	0.21	-
Arteriosclerosis	0	0.25	-	0	0.26	-
Other Diseases of the Arteries	0	0.68	-	1	0.51	194.7
Nonmalignant Respiratory Disease	1	4.63	21.6	0	3.32	-
Influenza and Pneumonia	0	2.33	-	0	1.24	-
Bronchitis, Asthma and Emphysema	1	1.40	71.6	0	1.10	-
Bronchitis	0	0.21	-	0	0.16	-
Asthma	0	0.28	-	0	0.10	-
Emphysema	1	0.92	108.8	0	0.81	-
Other Nonmalignant Respiratory Disease	0	1.20	-	0	1.11	-
Gastric and Duo. Ulcer	0	0.71	-	0	0.30	-
Cirrhosis of the Liver	0	4.11	-	1	2.21	45.3
Nephritis	0	1.01	-	0	0.39	-
Ill-defined Causes	1	1.97	50.9	1	1.03	97.0
All External Causes	11	18.78	58.6	7	4.95	141.3
All Accidents	10	12.60	79.4	3	3.32	90.4
Motor Vehicle Accidents	9	5.90	152.6	3	1.28	234.8
Other Accidents	1	6.71	14.9*	0	2.07	-
Suicide	0	3.78	-	3	1.23	244.6
Homocide	1	3.23	30.9	1	0.79	127.3
All Other Causes	7	8.38	83.5	2	6.33	31.6

511971 0583

Table A 7.8 Plant #10

Causes of Death	<20 Years Obs.	<20 Years Exp.	<20 Years SMR	≥20 Years Obs.	≥20 Years Exp.	≥20 Years SMR
All Causes	64	78.88	81.1	42	49.64	84.6
All Infective and Parasitic Diseases	0	1.37	-	0	0.51	-
Tuberculosis	0	0.83	-	0	0.20	-
Remainder of Infective and Parasitic Diseases	0	0.53	-	0	0.31	-
All Malignant Neoplasms	10	13.50	74.1	7	11.29	62.0
Cancer of Buccal Cavity and Pharynx	0	0.52	-	0	0.42	-
Digestive Cancer	1	3.66	27.3	1	2.99	33.4
Cancer of Esophagus	0	0.48	-	0	0.44	-
Cancer of Stomach	0	0.73	-	0	0.49	-
Cancer of Large Intestine	0	0.94	-	0	0.84	-
Cancer of Rectum	0	0.36	-	0	0.26	-
Cancer of Liver	0	0.33	-	0	0.26	-
Cancer of Pancreas	1	0.72	139.8	1	0.61	163.5
Remainder of Cancer of Digestive Organs	0	0.10	-	0	0.07	-
Respiratory Cancer	4	4.55	88.0	3	4.43	67.7
Cancer of Larynx	0	0.22	-	0	0.20	-
Cancer of Lung	4	4.26	93.9	3	4.20	71.5
Remainder of Cancer of Respiratory System	0	0.07	-	0	0.03	-
Cancer of Prostate	0	0.28	-	0	0.42	-
Other Genital Cancer	0	0.17	-	0	0.04	-
Cancer of Kidney	0	0.35	-	0	0.28	-
Cancer of Bladder	1	0.23	440.1	2	0.22	917.0*
Lymphopoietic Cancer	2	1.63	122.4	1	0.96	104.6
Lymphosarcoma and Reticulosarcoma	1	0.40	248.2	1	0.20	508.7
Hodgkins Disease	1	0.33	302.9	0	0.09	-
Leukemia and Aleukemia	0	0.59	-	0	0.34	-
All Other Lymphopoietic Cancer	0	0.31	-	0	0.31	-
Other Malignant Neoplasms	2	2.07	96.7	0	1.43	-
Benign and Unspec. Neoplasms	0	0.26	-	0	0.14	-
Diabetes Mellitus	3	1.11	269.5	0	0.74	-
Major Cardiovascular Disease	28	33.52	83.5	25	23.33	107.2

511971 0584

Table A 7.8 Plant #10

Causes of Death	<20 Years			≥20 Years		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	2	4.22	47.4	4	2.80	142.8
Diseases of the Heart	26	28.05	92.7	20	19.79	101.1
Rheumatic Heart Disease	0	1.12	-	0	0.37	-
Ischemic Heart Disease	25	22.94	109.0	15	16.69	89.9
Endocarditis & Myocard. Insufficiency	0	0.41	-	0	0.12	-
Hypertensive Heart Disease	0	1.58	-	0	0.61	-
All Other Heart Disease	1	1.78	56.1	5	1.62	309.1*
Hypertension	0	0.56	-	0	0.19	-
Arteriosclerosis	0	0.17	-	0	0.17	-
Other Diseases of the Arteries	0	0.52	-	1	0.38	264.8
Nonmalignant Respiratory Disease	0	3.64	-	1	2.56	39.1
Influenza and Pneumonia	0	1.91	-	1	1.03	97.3
Bronchitis, Asthma and Emphysema	0	1.05	-	0	0.78	-
Bronchitis	0	0.16	-	0	0.12	-
Asthma	0	0.23	-	0	0.08	-
Emphysema	0	0.67	-	0	0.56	-
Other Nonmalignant Respiratory Disease	0	0.92	-	0	0.85	-
Gastric and Duo. Ulcer	0	0.59	-	1	0.23	429.9
Cirrhosis of the Liver	0	3.33	-	0	2.10	-
Nephritis	0	0.87	-	1	0.34	297.1
Ill-defined Causes	0	1.55	-	1	0.95	105.7
All External Causes	18	14.42	124.8	3	4.61	65.0
All Accidents	12	9.69	123.8	3	3.08	97.6
Motor Vehicle Accidents	4	4.46	89.7	2	1.19	168.2
Other Accidents	8	5.24	152.6	1	1.91	52.3
Suicide	5	2.84	176.0	0	1.12	-
Homocide	1	2.41	41.5	0	0.79	-
All Other Causes	5	6.34	78.8	3	5.26	57.0

511971 0585

Causes of Death	<20 Years Obs.	Exp.	SMR	≥20 Years Obs.	Exp.	SMR
All Causes	156	189.49	82.3*	147	187.33	78.5**
All Infective and Parasitic Diseases	2	3.07	65.2	0	1.44	-
Tuberculosis	1	1.86	53.7	0	0.57	-
Remainder of Infective and Parasitic Diseases	1	1.21	83.0	0	0.88	-
All Malignant Neoplasms	48	34.77	138.1*	30	40.44	74.2
Cancer of Buccal Cavity and Pharynx	0	1.25	-	1	1.27	78.8
Digestive Cancer	14	10.17	137.7	4	11.11	36.0*
Cancer of Esophagus	2	0.86	232.4	0	1.01	-
Cancer of Stomach	3	2.14	140.2	1	1.78	56.2
Cancer of Large Intestine	2	2.85	70.2	1	3.62	27.6
Cancer of Rectum	1	1.22	81.7	0	1.18	-
Cancer of Liver	1	0.88	113.0	0	0.93	-
Cancer of Pancreas	5	1.93	258.9	2	2.27	88.1
Remainder of Cancer of Digestive Organs	0	0.27	-	0	0.27	-
Respiratory Cancer	17	11.10	153.1	12	14.65	81.9
Cancer of Larynx	0	0.57	-	1	0.64	155.9
Cancer of Lung	17	10.38	163.8	11	13.90	79.2
Remainder of Cancer of Respiratory System	0	0.16	-	0	0.12	-
Cancer of Prostate	2	1.29	154.5	3	2.56	117.0
Other Genital Cancer	1	0.33	302.2	0	0.12	-
Cancer of Kidney	3	0.92	324.6	0	1.01	-
Cancer of Bladder	1	0.86	116.0	0	1.19	-
Lymphopoietic Cancer	6	3.94	152.4	7	3.59	195.1
Lymphosarcoma and Reticulosarcoma	3	1.01	298.2	2	0.77	261.4
Hodgkins Disease	1	0.69	144.2	0	0.31	326.0
Leukemia and Aleukemia	2	1.53	131.0	2	1.41	141.7
All Other Lymphopoietic Cancer	0	0.70	-	2	1.05	191.1
Other Malignant Neoplasms	4	4.83	82.8	3	4.68	64.1
Benign and Unspec. Neoplasms	4	0.60	670.6**	0	0.44	-
Diabetes Mellitus	2	2.57	77.7	2	2.76	72.5
Major Cardiovascular Disease	67	92.40	72.5**	76	99.79	76.2*

511971 0586

Table A 7.9 Plant #12

Causes of Death	<20 Years			≥20 Years		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	6	10.76	55.7	17	13.38	127.0
Diseases of the Heart	60	78.43	76.5*	58	82.27	70.5**
Rheumatic Heart Disease	2	2.81	71.2	1	1.34	74.7
Ischemic Heart Disease	51	67.14	76.0*	52	71.40	72.8*
Endocarditis & Myocard. Insufficiency	1	1.34	74.8	0	0.56	-
Hypertensive Heart Disease	3	3.31	90.6	2	2.15	92.8
All Other Heart Disease	3	3.27	91.7	3	4.74	63.2
Hypertension	0	0.78	-	0	0.60	-
Arteriosclerosis	0	0.88	-	1	1.56	64.2
Other Diseases of the Arteries	1	1.55	64.4	0	1.98	-
Nonmalignant Respiratory Disease	8	8.49	94.2	18	12.05	149.4
Influenza and Pneumonia	2	3.84	52.1	5	4.21	118.7
Bronchitis, Asthma and Emphysema	6	3.15	190.7	8	4.58	174.5
Bronchitis	0	0.47	-	0	0.70	-
Asthma	1	0.63	157.7	0	0.25	-
Emphysema	5	2.31	216.9	8	3.47	230.3
Other Nonmalignant Respiratory Disease	1	2.16	46.3	5	3.58	140.0
Gastric and Duo. Ulcer	1	1.75	57.1	1	1.03	97.5
Cirrhosis of the Liver	3	6.10	49.2	2	5.19	38.5
Nephritis	1	1.58	63.3	0	0.94	-
Ill-defined Causes	0	2.29	-	1	2.28	43.9
All External Causes	17	25.12	67.7	7	11.53	60.7
All Accidents	10	17.54	57.0	5	8.22	60.8
Motor Vehicle Accidents	3	8.23	36.5	1	3.17	31.5
Other Accidents	7	9.32	75.1	4	5.12	78.1
Suicide	6	6.24	96.1	2	3.28	60.9
Homocide	1	1.95	51.3	0	0.92	-
All Other Causes	2	12.47	16.0**	10	19.82	50.5*

511971 0587

Table A 7.10 Plant #13

Causes of Death	<20 Years Obs.	<20 Years Exp.	<20 Years SMR	≥20 Years Obs.	≥20 Years Exp.	≥20 Years SMR
All Causes	45	75.18	59.9**	47	50.79	92.5
All Infective and Parasitic Diseases	0	0.89	-	0	0.39	-
Tuberculosis	0	0.49	-	0	0.14	-
Remainder of Infective and Parasitic Diseases	0	0.41	-	0	0.25	-
All Malignant Neoplasms	9	14.18	63.5	11	11.38	96.7
Cancer of Buccal Cavity and Pharynx	0	0.50	-	0	0.37	-
Digestive Cancer	2	3.78	52.9	1	3.03	33.1
Cancer of Esophagus	0	0.33	-	0	0.29	-
Cancer of Stomach	0	0.69	-	0	0.47	-
Cancer of Large Intestine	0	1.12	-	0	0.99	-
Cancer of Rectum	0	0.43	-	0	0.31	-
Cancer of Liver	0	0.32	-	0	0.25	-
Cancer of Pancreas	2	0.77	258.8	1	0.63	159.1
Remainder of Cancer of Digestive Organs	0	0.11	-	0	0.08	-
Respiratory Cancer	5	4.84	103.4	6	4.29	140.0
Cancer of Larynx	0	0.23	-	0	0.18	-
Cancer of Lung	4	4.55	88.0	6	4.07	147.3
Remainder of Cancer of Respiratory System	1	0.06	1564.7	0	0.03	-
Cancer of Prostate	0	0.40	-	1	0.60	167.9
Other Genital Cancer	0	0.15	-	0	0.04	-
Cancer of Kidney	0	0.38	-	0	0.29	-
Cancer of Bladder	0	0.30	-	1	0.30	331.0
Lymphopoietic Cancer	0	1.66	-	2	1.01	197.1
Lymphosarcoma and Reticulosarcoma	0	0.42	-	0	0.21	-
Hodgkins Disease	0	0.30	-	0	0.09	-
Leukemia and Aleukemia	0	0.62	-	2	0.39	516.5
All Other Lymphopoietic Cancer	0	0.31	-	0	0.31	-
Other Malignant Neoplasms	2	2.11	94.9	0	1.37	-
Benign and Unspec. Neoplasms	0	0.23	-	0	0.13	-
Diabetes Mellitus	0	1.03	-	1	0.73	137.2
Major Cardiovascular Disease	18	34.55	52.1**	20	26.01	76.9

511971 0588

Table A 7.10 Plant #13

Causes of Death	<20 Years			≥20 Years		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	2	3.62	55.3	1	3.15	31.7
Diseases of the Heart	16	29.85	53.6**	18	21.91	82.2
Rheumatic Heart Disease	1	1.01	99.4	0	0.38	-
Ischemic Heart Disease	14	25.73	54.4*	18	18.91	95.2
Endocarditis & Myocard. Insufficiency	1	0.35	283.5	0	0.13	-
Hypertensive Heart Disease	0	0.90	-	0	0.50	-
All Other Heart Disease	0	1.44	-	0	1.38	-
Hypertension	0	0.24	-	0	0.14	-
Arteriosclerosis	0	0.24	-	0	0.31	-
Other Diseases of the Arteries	0	0.60	-	1	0.50	200.4
Nonmalignant Respiratory Disease	2	3.45	58.0	5	3.08	162.4
Influenza and Pneumonia	1	1.42	70.4	1	1.05	95.7
Bronchitis, Asthma and Emphysema	1	1.33	75.1	3	1.11	269.8
Bronchitis	0	0.20	-	0	0.17	-
Asthma	0	0.18	-	0	0.07	-
Emphysema	1	0.96	104.3	3	0.84	357.9
Other Nonmalignant Respiratory Disease	0	0.89	-	1	1.01	99.0
Gastric and Duo. Ulcer	0	0.58	-	0	0.26	-
Cirrhosis of the Liver	3	2.81	107.0	1	1.64	60.9
Nephritis	0	0.55	-	0	0.25	-
Ill-defined Causes	2	1.01	197.5	0	0.66	-
All External Causes	8	11.53	69.4	6	3.55	169.1
All Accidents	8	8.08	99.0	5	2.47	202.3
Motor Vehicle Accidents	2	3.84	52.1	2	0.95	209.9
Other Accidents	6	4.24	141.5	3	1.54	195.1
Suicide	0	2.92	-	1	1.05	94.9
Homocide	0	1.00	-	0	0.31	-
All Other Causes	3	5.82	51.5	3	5.27	56.9

511971 0589

Causes of Death	<20 Years Obs.	<20 Years Exp.	<20 Years SMR	20+ Years Obs.	20+ Years Exp.	20+ Years SMR
All Causes	78	139.48	55.9**	216	258.07	83.7**
All Infective and Parasitic Diseases	0	2.77	-	2	2.16	92.7
Tuberculosis	0	1.74	-	1	0.99	100.8
Remainder of Infective and Parasitic Diseases	0	1.03	-	1	1.18	84.9
All Malignant Neoplasms	25	25.22	99.1	42	53.51	78.5
Cancer of Buccal Cavity and Pharynx	0	0.91	-	2	1.67	120.0
Digestive Cancer	13	7.79	116.9	12	15.37	78.1
Cancer of Esophagus	1	0.64	156.9	1	1.33	75.0
Cancer of Stomach	3	1.78	168.6	2	2.63	76.0
Cancer of Large Intestine -	3	2.11	142.0	2	4.94	40.5
Cancer of Rectum	1	0.96	103.6	1	1.69	59.1
Cancer of Liver	2	0.69	289.6	1	1.30	77.0
Cancer of Pancreas	2	1.41	141.5	5	3.06	163.7
Remainder of Cancer of Digestive Organs	1	0.18	541.0	0	0.37	-
Respiratory Cancer	7	7.70	90.9	14	18.51	75.7
Cancer of Larynx	0	0.42	-	1	0.85	118.0
Cancer of Lung	7	7.16	97.7	13	17.50	74.3
Remainder of Cancer of Respiratory System	0	0.12	-	0	0.17	-
Cancer of Prostate	0	1.04	-	1	3.92	25.5
Other Genital Cancer	0	0.23	-	0	0.15	-
Cancer of Kidney	0	0.66	-	4	1.30	308.7
Cancer of Bladder	0	0.68	-	1	1.73	57.9
Lymphopoietic Cancer	2	2.81	71.3	3	4.74	63.2
Lymphosarcoma and Reticulosarcoma	0	0.71	-	1	1.04	95.9
Hodgkins Disease	0	0.49	-	0	0.40	-
Leukemia and Aleukemia	2	1.11	180.7	2	1.93	103.6
All Other Lymphopoietic Cancer	0	0.49	-	0	1.30	-
Other Malignant Neoplasms	3	3.38	88.8	5	5.88	85.0
Benign and Unspec. Neoplasms	0	0.45	-	1	0.58	172.1
Diabetes Mellitus	0	1.87	-	1	3.84	26.0
Major Cardiovascular Disease	41	69.78	58.8**	135	142.34	94.8

511971 0590

Table A 7.11 Plant #14

Causes of Death	<20 Years			>20 Years		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	3	8.51	35.3	15	20.45	73.3
Diseases of the Heart	37	58.80	62.9**	113	115.46	97.9
Rheumatic Heart Disease	0	2.21	-	0	1.89	-
Ischemic Heart Disease	31	49.83	62.2**	100	100.67	99.3
Endocarditis & Myocard. Insufficiency	2	1.23	162.4	2	0.97	205.8
Hypertensive Heart Disease	2	2.95	67.7	8	3.60	222.3
All Other Heart Disease	2	2.31	86.7	3	5.98	50.2
Hypertension	0	0.64	-	1	0.96	104.3
Arteriosclerosis	0	0.70	-	2	2.61	76.5
Other Diseases of the Arteries	1	1.13	88.2	4	2.86	139.9
Nonmalignant Respiratory Disease	3	6.07	49.4	16	16.97	94.3
Influenza and Pneumonia	1	2.89	34.6	6	6.22	96.5
Bronchitis, Asthma and Emphysema	1	2.12	47.1	8	6.61	121.0
Bronchitis	0	0.32	-	2	1.01	197.2
Asthma	0	0.56	-	1	0.43	230.7
Emphysema	1	1.60	62.4	5	4.98	100.4
Other Nonmalignant Respiratory Disease	1	1.62	61.7	3	4.65	64.5
Gastric and Duo. Ulcer	0	1.42	-	2	1.61	124.2
Cirrhosis of the Liver	1	4.09	24.5	1	6.04	16.6*
Nephritis	0	1.27	-	1	1.36	73.4
Ill-defined Causes	1	1.59	63.0	0	2.90	-
All External Causes	5	17.22	29.0**	10	14.09	71.0
All Accidents	3	11.97	25.1**	5	10.17	49.2
Motor Vehicle Accidents	2	5.55	36.0	2	3.89	51.4
Other Accidents	1	6.42	15.6*	3	6.35	47.2
Suicide	2	4.27	46.9	5	3.88	128.7
Homocide	0	1.27	-	0	0.93	-
All Other Causes	2	8.35	24.0*	4	26.21	15.3**

511971 0591

Table A 7.12 [illegible]

Causes of Death	<20 Years Obs.	<20 Years Exp.	<20 Years SMR	≥20 Years Obs.	≥20 Years Exp.	≥20 Years SMR
All Causes	44	72.02	61.1**	48	59.19	81.1
All Infective and Parasitic Diseases	1	1.03	96.7	0	0.46	-
Tuberculosis	0	0.61	-	0	0.18	-
Remainder of Infective and Parasitic Diseases	1	0.43	233.0	0	0.28	-
All Malignant Neoplasms	11	13.33	82.5	12	13.16	91.2
Cancer of Buccal Cavity and Pharynx	0	0.47	-	0	0.41	-
Digestive Cancer	4	3.86	103.5	4	3.60	111.2
Cancer of Esophagus	0	0.33	-	1	0.33	299.3
Cancer of Stomach	0	0.78	-	2	0.57	350.0
Cancer of Large Intestine	0	1.11	-	1	1.17	85.4
Cancer of Rectum	2	0.46	436.8	0	0.38	-
Cancer of Liver	1	0.33	299.6	0	0.30	-
Cancer of Pancreas	1	0.74	134.4	0	0.74	
Remainder of Cancer of Digestive Organs	0	0.10	-	0	0.09	-
Respiratory Cancer	4	4.33	92.4	6	4.83	124.3
Cancer of Larynx	0	0.22	-	0	0.21	-
Cancer of Lung	4	4.05	98.7	6	4.58	131.0
Remainder of Cancer of Respiratory System	0	0.06	-	0	0.04	-
Cancer of Prostate	0	0.56	-	0	0.83	-
Other Genital Cancer	0	0.12	-	0	0.04	-
Cancer of Kidney	0	0.35	-	0	0.32	-
Cancer of Bladder	1	0.34	295.8	0	0.38	-
Lymphopoietic Cancer	2	1.47	136.5	2	1.15	174.6
Lymphosarcoma and Reticulosarcoma	0	0.37	-	0	0.24	-
Hodgkins Disease	0	0.24	-	0	0.09	-
Leukemia and Aleukemia	1	0.57	175.4	0	0.45	-
All Other Lymphopoietic Cancer	1	0.28	363.0	2	0.35	577.9
Other Malignant Neoplasms	0	1.81	-	0	1.51	-
Benign and Unspec. Neoplasms	0	0.22	-	0	0.14	-
Diabetes Mellitus	0	0.98	-	0	0.88	-
Major Cardiovascular Disease	19	35.59	53.4**	27	31.29	86.3

511971 0592

Table A 7.12 Plant #15

Causes of Death	<20 Years			≥20 Years		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	1	4.29	23.3	7	4.13	169.5
Diseases of the Heart	17	29.99	56.7*	19	25.91	73.3
Rheumatic Heart Disease	0	0.96	-	1	0.42	237.5
Ischemic Heart Disease	16	25.80	62.0	14	22.44	62.4
Endocarditis & Myocard. Insufficiency	1	0.46	218.1	0	0.17	-
Hypertensive Heart Disease	0	1.22	-	1	0.66	151.1
All Other Heart Disease	0	1.28	-	3	1.54	195.0
Hypertension	0	0.29	-	0	0.18	-
Arteriosclerosis	1	0.41	243.0	0	0.43	-
Other Diseases of the Arteries	0	0.61	-	1	0.64	157.2
Nonmalignant Respiratory Disease	4	3.40	117.6	3	3.86	77.7
Influenza and Pneumonia	2	1.48	134.9	0	1.29	-
Bronchitis, Asthma and Emphysema	1	1.29	77.4	3	1.48	203.2
Bronchitis	1	0.20	511.4	1	0.22	448.2
Asthma	0	0.22	-	0	0.08	-
Emphysema	0	0.96	-	2	1.12	178.3
Other Nonmalignant Respiratory Disease	1	0.86	116.3	0	1.20	-
Gastric and Duo. Ulcer	0	0.63	-	1	0.32	315.7
Cirrhosis of the Liver	0	2.26	-	0	1.61	-
Nephritis	0	0.55	-	0	0.30	-
Ill-defined Causes	0	0.88	-	0	0.74	-
All External Causes	8	9.06	88.3	4	3.43	116.5
All Accidents	7	6.33	110.6	4	2.45	163.1
Motor Vehicle Accidents	1	2.95	33.9	2	0.93	214.5
Other Accidents	6	3.38	177.5	2	1.54	129.8
Suicide	1	2.29	43.7	0	0.99	-
Homocide	0	0.73	-	0	0.27	-
All Other Causes	1	5.03	19.9	1	6.30	15.9*

511971 0593

Causes of Death	1950-1959			1960-1969			1970-1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	172	215.79	79.7**	485	418.92	115.8**	498	423.24	117.7**
All Infective and Parasitic Diseases	1	6.55	15.3*	2	4.70	42.6	3	3.21	93.5
Tuberculosis	0	4.18	-	0	2.91	-	0	1.14	-
Remainder of Infective and Parasitic Diseases	1	2.37	42.1	2	1.77	112.8	3	2.11	142.1
All Malignant Neoplasms	30	37.42	80.2	76	78.48	96.8	97	89.53	108.3
Cancer of Buccal Cavity and Pharynx	0	1.35	-	1	2.64	37.9	0	2.61	-
Digestive Cancer	8	13.21	60.6	25	24.45	102.2	28	24.86	112.63
Cancer of Esophagus	2	1.01	197.8	0	2.04	-	5	2.24	223.6
Cancer of Stomach	3	3.63	82.6	12	5.04	238.3*	7	3.99	175.5
Cancer of Large Intestine	0	3.25	-	8	7.09	112.9	7	8.27	84.6
Cancer of Rectum	2	1.74	115.0	2	2.90	68.9	4	2.59	154.6
Cancer of Liver	1	1.25	79.9	0	2.16	-	0	2.05	-
Cancer of Pancreas	0	2.11	-	3	4.62	65.0	5	4.99	100.3
Remainder of Cancer of Digestive Organs	0	0.23	-	0	0.62	-	0	0.59	-
Respiratory Cancer	8	9.83	81.3	23	24.89	92.4	37	31.16	118.7
Cancer of Larynx	1	0.64	156.7	0	1.28	-	1	1.35	74.2
Cancer of Lung	7	9.01	77.7	23	23.29	98.7	36	29.57	121.7
Remainder of Cancer of Respiratory System	0	0.19	-	0	0.31	-	0	0.26	-
Cancer of Prostate	0	1.92	-	6	5.32	112.8	9	7.07	127.3
Other Genital Cancer	0	0.32	-	1	0.38	262.6	1	0.28	360.2
Cancer of Kidney	2	0.96	209.4	2	1.93	103.6	2	2.11	94.7
Cancer of Bladder	1	1.20	83.3	3	2.53	118.7	2	2.86	70.0
Lymphopoietic Cancer	6	4.03	149.0	8	7.52	106.4	10	7.93	126.1
Lymphosarcoma and Reticulosarcoma	3	0.99	303.3	3	2.00	149.6	2	1.54	130.0
Hodgkins Disease	1	0.69	144.4	0	0.97	-	1	0.62	161.6
Leukemia and Aleukemia	2	1.64	121.7	4	3.13	127.8	5	3.20	156.1
All Other Lymphopoietic Cancer	0	0.70	-	1	1.41	70.7	2	2.42	82.7
Other Malignant Neoplasms	5	4.60	108.6	7	8.77	79.9	8	10.10	79.2
Benign and Unspec. Neoplasms	1	0.73	137.0	1	1.01	98.6	2	0.93	215.7
Diabetes Mellitus	1	2.76	36.2	8	6.15	130.1	10	6.42	155.7
Major Cardiovascular Disease	98	113.60	86.3	305	230.22	132.5**	279	229.06	121.8**

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Causes of Death	1950-1959			1960-1969			1970-1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	6	15.62	38.4*	47	32.45	144.8*	43	34.62	124.2
Diseases of the Heart	92	93.84	98.1	233	187.40	124.3**	229	183.92	124.5**
Rheumatic Heart Disease	2	3.87	51.6	1	4.18	23.9	0	2.64	-
Ischemic Heart Disease	86	76.25	112.8	211	164.16	128.5**	214	158.93	134.7**
Endocarditis & Myocard. Insufficiency	0	3.20	-	6	2.52	238.1	1	1.16	86.2
Hypertensive Heart Disease	4	7.06	56.6	12	8.63	139.1	8	4.98	160.6
All Other Heart Disease	0	3.36	-	3	6.85	43.8	6	11.40	52.6
Hypertension	0	1.25	-	3	1.98	151.5	0	1.51	-
Arteriosclerosis	0	1.35	-	9	3.84	234.5*	4	4.44	90.1
Other Diseases of the Arteries	0	1.54	-	13	4.55	286.0**	3	4.57	65.6
Nonmalignant Respiratory Disease	6	8.21	73.1	22	23.78	92.5	34	28.98	117.3
Influenza and Pneumonia	4	4.63	86.4	13	9.64	134.8	8	10.85	73.7
Bronchitis, Asthma and Emphysema	3	2.06	145.4	6	10.43	57.5	22	10.26	214.5**
Bronchitis	0	0.34	-	1	1.57	63.6	2	1.58	126.5
Asthma	2	1.22	164.2	0	1.25	-	5	0.48	1042.9**
Emphysema	1	1.91	52.3	5	7.51	66.6	15	7.79	192.6*
Other Nonmalignant Respiratory Disease	1	2.74	36.5	3	5.01	59.9	9	8.57	105.0
Gastric and Duo. Ulcer	2	2.55	78.5	2	3.70	54.1	2	2.11	94.8
Cirrhosis of the Liver	3	4.91	61.1	4	9.76	41.0	9	10.11	89.0
Nephritis	2	2.53	79.1	2	2.69	74.3	2	2.22	90.2
Ill-defined Causes	0	2.15	-	3	4.65	64.5	1	5.23	19.1
All External Causes	22	23.35	94.2	33	31.89	103.5	32	24.70	129.6
All Accidents	18	16.45	109.4	22	22.33	98.5	27	17.91	150.8
Motor Vehicle Accidents	10	7.66	130.5	14	9.69	144.4	16	6.81	235.0**
Other Accidents	8	8.79	91.0	8	12.65	63.2	11	11.26	97.7
Suicide	4	5.50	72.7	10	8.06	124.0	5	6.66	75.1
Homocide	0	1.41	-	1	2.04	49.0	0	2.33	-
All Other Causes	4	9.92	40.3	27	27.63	97.7	22	51.29	42.9**

511971 0595

Causes of Death	1950-1959			1960-1969			1970-1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
11 Causes	53	72.20	73.4*	115	138.94	82.8*	159	141.92	112.0
All Infective and Parasitic Diseases	2	3.40	58.9	0	2.47	-	2	1.67	119.7
Tuberculosis	1	2.26	44.2	0	1.55	-	1	0.70	142.8
Remainder of Infective and Parasitic Diseases	1	1.14	87.9	0	0.91	-	1	0.98	102.4
All Malignant Neoplasms	8	10.89	73.4	24	24.60	97.6	22	29.78	73.9
Cancer of Buccal Cavity and Pharynx	1	0.39	257.1	0	0.86	-	0	0.95	-
Digestive Cancer	1	4.10	24.4	7	8.16	85.8	10	8.73	114.5
Cancer of Esophagus	0	0.43	-	0	1.06	-	0	1.26	-
Cancer of Stomach	0	1.28	-	3	1.95	153.7	1	1.65	60.6
Cancer of Large Intestine	1	0.83	120.8	0	1.98	-	4	2.41	165.8
Cancer of Rectum	0	0.45	-	0	0.80	-	0	0.76	-
Cancer of Liver	0	0.42	-	1	0.77	129.5	0	0.80	-
Cancer of Pancreas	0	0.61	-	2	1.44	138.5	5	1.65	302.5
Remainder of Cancer of Digestive Organs	0	0.07	-	1	0.17	581.2	0	0.17	-
Respiratory Cancer	3	2.69	111.6	11	7.53	146.0	5	10.08	49.6
Cancer of Larynx	1	0.20	505.5	1	0.42	237.6	0	0.49	-
Cancer of Lung	2	2.44	81.9	9	7.01	128.3	5	9.51	52.6
Remainder of Cancer of Respiratory System	0	0.05	-	1	0.10	997.0	0	0.09	-
Cancer of Prostate	0	0.70	-	2	2.04	98.0	2	2.86	70.0
Other Genital Cancer	1	0.09	-	0	0.12	-	0	0.10	-
Cancer of Kidney	1	0.24	414.6	1	0.51	195.7	1	0.57	174.1
Cancer of Bladder	0	0.34	-	0	0.75	-	1	0.81	122.8
Lymphopoietic Cancer	1	1.08	92.9	1	2.08	48.1	2	2.32	86.3
Lymphosarcoma and Reticulosarcoma	0	0.25	-	0	0.51	-	1	0.40	252.6
Hodgkins Disease	0	0.18	-	0	0.25	-	0	0.17	-
Leukemia and Aleukemia	1	0.43	233.6	1	0.83	120.3	0	0.90	-
All Other Lymphopoietic Cancer	0	0.22	-	0	0.48	-	1	0.81	123.0
Other Malignant Neoplasms	1	1.27	78.9	2	2.54	78.7	1	3.20	31.3
Benign and Unspec. Neoplasms	1	0.23	431.8	0	0.34	-	1	0.30	335.1
Diabetes Mellitus	2	0.85	235.3	2	2.14	93.7	1	2.43	41.2
Major Cardiovascular Disease	25	35.98	69.5	62	73.66	84.2	91	73.75	123.4

511971 0596

Causes of Death	1950-1959			1960-1969			1970-1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	0	6.48	-	11	13.34	82.5	13	13.57	95.8
Diseases of the Heart	23	27.76	82.8	49	56.45	86.8	76	56.54	134.4*
Rheumatic Heart Disease	0	1.11	-	0	1.13	-	0	0.75	-
Ischemic Heart Disease	18	19.81	90.9	43	46.06	93.4	68	47.43	143.4**
Endocarditis & Myocard. Insufficiency	0	1.31	-	1	0.96	104.6	0	0.42	-
Hypertensive Heart Disease	4	4.04	99.0	2	5.26	38.1	4	2.69	148.5
All Other Heart Disease	1	1.49	67.1	3	3.03	98.9	4	4.86	82.3
Hypertension	1	0.83	120.6	0	1.26	-	2	0.85	235.6
Arteriosclerosis	1	0.44	225.3	1	1.31	76.3	0	1.48	-
Other Diseases of the Arteries	0	0.46	-	1	1.30	76.9	0	1.31	-
Nonmalignant Respiratory Disease	2	3.22	62.2	8	8.22	97.3	17	9.30	182.7*
Influenza and Pneumonia	2	2.18	91.8	5	4.13	121.1	5	4.25	117.7
Bronchitis, Asthma and Emphysema	1	0.60	168.0	4	2.84	140.6	1	2.70	37.1
Bronchitis	0	0.09	-	2	0.43	470.3	0	0.42	-
Asthma	1	0.38	263.1	1	0.49	204.8	0	0.24	-
Emphysema	0	0.46	-	1	1.92	52.2	1	1.97	50.8
Other Nonmalignant Respiratory Disease	0	0.82	-	0	1.76	-	11	2.67	412.0**
Gastric and Duo. Ulcer	0	0.72	-	0	1.10	-	0	0.66	-
Cirrhosis of the Liver	0	1.35	-	0	3.16	-	3	3.49	86.0
Nephritis	1	1.26	79.5	0	1.40	-	1	1.25	80.1
Ill-defined Causes	3	1.32	227.5	1	2.83	35.3	1	2.94	34.0
All External Causes	6	9.18	65.4	11	11.75	93.6	10	9.58	104.4
All Accidents	4	5.91	67.7	5	7.92	63.1	4	6.59	60.7
Motor Vehicle Accidents	2	2.65	75.5	3	3.21	93.5	2	2.44	82.0
Other Accidents	2	3.26	61.4	2	4.73	42.3	2	4.21	47.5
Suicide	2	1.22	81.8	2	1.72	116.2	1	1.46	68.5
Homocide	1	2.10	47.7	4	2.49	160.6	5	2.35	212.6
All Other Causes	2	3.42	58.5	6	9.85	60.9	10	19.14	52.2*

511971 0597

Table A 8.3 Plant #4

Causes of Death	1950-1959			1960-1969			1970-1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	33	55.40	59.6**	114	125.60	90.8	142	150.86	94.1
All Infective and Parasitic Diseases	0	2.93	-	3	2.45	122.5	1	1.85	54.0
Tuberculosis	0	1.95	-	3	1.54	195.0	0	0.77	-
Remainder of Infective and Parasitic Diseases	0	0.98	-	0	0.90	-	1	1.09	92.1
All Malignant Neoplasms	7	7.94	88.2	14	22.06	63.5	25	31.93	78.3
Cancer of Buccal Cavity and Pharynx	0	0.29	-	0	0.81	-	0	1.04	-
Digestive Cancer	3	2.99	100.2	3	7.10	42.2	8	9.09	88.0
Cancer of Esophagus	0	0.36	-	1	1.01	98.9	1	1.34	74.4
Cancer of Stomach	1	0.97	103.0	2	1.73	115.5	3	1.72	174.1
Cancer of Large Intestine	0	0.55	-	0	1.61	-	0	2.45	-
Cancer of Rectum	0	0.30	-	0	0.65	-	1	0.77	129.5
Cancer of Liver	0	0.32	-	0	0.68	-	0	0.84	-
Cancer of Pancreas	2	0.45	446.8	0	1.27	-	3	1.75	171.5
Remainder of Cancer of Digestive Organs	0	0.05	-	0	0.16	-	0	0.19	-
Respiratory Cancer	0	1.93	-	5	6.91	72.4	7	11.12	63.0
Cancer of Larynx	0	0.15	-	2	0.38	521.1	0	0.53	-
Cancer of Lung	0	1.75	-	3	6.43	46.7	7	10.50	66.7
Remainder of Cancer of Respiratory System	0	0.03	-	0	0.10	-	0	0.10	-
Cancer of Prostate	0	0.51	-	1	1.56	64.1	2	2.66	75.1
Other Genital Cancer	0	0.08	-	0	0.14	-	0	0.14	-
Cancer of Kidney	0	0.17	-	0	0.46	-	1	0.65	153.7
Cancer of Bladder	0	0.22	-	1	0.57	176.8	0	0.75	-
Lymphopoietic Cancer	3	0.81	372.1	3	1.96	153.3	3	2.60	115.3
Lymphosarcoma and Reticulosarcoma	1	0.19	539.5	1	0.48	207.1	1	0.46	216.4
Hodgkins Disease	0	0.14	-	1	0.29	340.7	1	0.24	409.4
Leukemia and Aleukemia	1	0.31	324.3	1	0.74	135.4	1	0.97	102.8
All Other Lymphopoietic Cancer	1	0.17	593.5	0	0.44	-	0	0.89	-
Other Malignant Neoplasms	1	0.95	105.6	1	2.54	39.4	4	3.68	108.7
Benign and Unspec. Neoplasms	0	0.19	-	0	0.34	-	0	0.34	-
Diabetes Mellitus	0	0.62	-	2	1.91	105.0	5	2.54	196.7
Major Cardiovascular Disease	10	26.61	37.6**	61	62.29	97.9	64	73.28	87.3

511971 0598

Causes of Death	1950-1959			1960-1969			1970-1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	1	5.11	19.6	8	11.08	72.2	12	12.61	95.1
Diseases of the Heart	8	20.14	39.7**	50	48.14	103.9	50	57.47	87.0
Rheumatic Heart Disease	0	0.88	-	0	1.19	-	0	0.90	-
Ischemic Heart Disease	6	13.57	44.2*	43	38.36	112.1	29	47.82	60.6**
Endocarditis & Myocard. Insufficiency	0	1.02	-	0	0.86	-	0	0.43	-
Hypertensive Heart Disease	1	3.44	29.1	3	4.92	61.0	7	2.72	257.4*
All Other Heart Disease	1	1.22	81.7	4	2.86	139.9	14	5.26	266.2**
Hypertension	0	0.72	-	0	1.19	-	0	0.85	-
Arteriosclerosis	0	0.31	-	1	0.85	117.8	1	1.10	91.2
Other Diseases of the Arteries	1	0.33	302.9	2	1.03	194.7	1	1.25	79.7
Nonmalignant Respiratory Disease	1	2.54	39.4	9	6.94	129.7	12	8.98	133.6
Influenza and Pneumonia	1	1.81	55.1	0	3.67	-	3	4.08	73.5
Bronchitis, Asthma and Emphysema	0	0.41	-	7	2.21	316.4*	5	2.54	197.0
Bronchitis	0	0.06	-	1	0.32	307.7	1	0.39	257.1
Asthma	0	0.27	-	0	0.45	-	1	0.27	372.0
Emphysema	0	0.30	-	6	1.43	419.6**	3	1.83	163.9
Other Nonmalignant Respiratory Disease	0	0.58	-	2	1.52	131.6	5	2.70	185.2
Gastric and Dub. Ulcer	0	0.53	-	0	0.97	-	0	0.69	-
Cirrhosis of the Liver	0	1.07	-	0	3.39	-	0	4.59	-
Nephritis	0	1.07	-	4	1.42	282.6	3	1.36	221.0
Ill-defined Causes	1	1.15	86.6	7	2.91	240.9	10	3.40	293.9**
All External Causes	9	7.79	115.5	11	13.98	78.7	13	14.02	92.7
All Accidents	5	5.00	100.0	5	9.33	53.6	10	9.37	106.8
Motor Vehicle Accidents	3	2.24	133.8	5	4.01	124.7	7	3.77	185.7
Other Accidents	2	2.76	72.5	0	5.33	-	3	5.66	53.0
Suicide	1	0.94	106.4	3	2.10	143.1	0	2.47	-
Homocide	3	1.89	158.5	3	2.99	100.4	3	3.36	89.3
All Other Causes	5	2.70	185.4	3	9.05	33.1*	8	19.28	41.5**

511971 0599

Causes of Death	1950-1959			1960-1969			1970-1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	4	10.97	36.5*	81	104.64	77.4*	151	174.27	86.6
All Infective and Parasitic Diseases	0	0.41	-	2	1.62	123.5	2	1.80	111.3
Tuberculosis	0	0.24	-	2	1.04	192.6	1	0.72	139.4
Remainder of Infective and Parasitic Diseases	0	0.17	-	0	0.57	-	1	1.09	91.8
All Malignant Neoplasms	1	1.42	70.3	19	16.96	112.1	36	36.34	99.1
Cancer of Buccal Cavity and Pharynx	0	0.05	-	0	0.64	-	0	1.35	-
Digestive Cancer	0	0.40	-	3	4.51	66.5	8	9.36	85.5
Cancer of Esophagus	0	0.03	-	0	0.50	-	1	1.23	81.1
Cancer of Stomach	0	0.10	-	1	0.92	109.2	2	1.53	130.8
Cancer of Large Intestine	0	0.10	-	2	1.19	167.5	1	2.71	36.9
Cancer of Rectum	0	0.05	-	0	0.48	-	0	0.87	-
Cancer of Liver	0	0.04	-	0	0.40	-	0	0.79	-
Cancer of Pancreas	0	0.07	-	0	0.90	-	3	1.93	155.6
Remainder of Cancer of Digestive Organs	0	0.01	-	0	0.13	-	1	0.26	378.7
Respiratory Cancer	0	0.32	-	8	5.41	148.0	18	13.98	128.8
Cancer of Larynx	0	0.02	-	0	0.26	-	0	0.62	-
Cancer of Lung	0	0.29	-	8	5.05	158.3	18	13.24	136.0
Remainder of Cancer of Respiratory System	0	0.01	-	0	0.09	-	0	0.13	-
Cancer of Prostate	0	0.01	-	0	0.26	-	2	1.07	187.0
Other Genital Cancer	0	0.05	-	0	0.26	-	0	0.21	-
Cancer of Kidney	0	0.03	-	0	0.45	-	1	0.96	104.6
Cancer of Bladder	0	0.02	-	0	0.27	-	1	0.66	151.2
Lymphopoietic Cancer	1	0.29	342.6	3	2.30	130.2	0	3.47	-
Lymphosarcoma and Reticulosarcoma	0	0.06	-	0	0.61	-	0	0.73	-
Hodgkins Disease	0	0.08	-	1	0.53	188.5	0	0.42	-
Leukemia and Aleukemia	0	0.11	-	1	0.84	119.0	0	1.26	-
All Other Lymphopoietic Cancer	1	0.04	2369.4	1	0.32	315.2	0	1.01	-
Other Malignant Neoplasms	0	0.26	-	5	2.81	177.9	6	4.99	120.2
Benign and Unspec. Neoplasms	0	0.06	-	1	0.37	270.3	1	0.47	213.8
Diabetes Mellitus	0	0.14	-	0	1.45	-	2	2.48	80.6
Major Cardiovascular Disease	1	3.83	26.1	33	43.59	75.7	66	77.07	85.6

511971 0600

Table A -

Causes of Death	1950-1959			1960-1969			1970-1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	0	0.48	-	4	4.97	80.4	5	8.82	56.7
Diseases of the Heart	1	3.20	31.3	28	37.07	75.5	59	65.88	89.6
Rheumatic Heart Disease	0	0.31	-	1	1.67	59.9	1	1.39	71.7
Ischemic Heart Disease	1	2.39	41.8	26	30.83	84.3	52	55.42	93.8
Endocarditis & Myocard. Insufficiency	0	0.10	-	0	0.58	-	2	0.46	432.3
Hypertensive Heart Disease	0	0.23	-	1	1.90	52.5	2	1.89	105.9
All Other Heart Disease	0	0.16	-	0	1.91	-	2	5.35	37.4
Hypertension	0	0.09	-	1	0.68	147.7	1	0.65	154.6
Arteriosclerosis	0	0.01	-	0	0.19	-	0	0.49	-
Other Diseases of the Arteries	0	0.05	-	0	0.68	-	1	1.23	81.4
Nonmalignant Respiratory Disease	0	0.40	-	2	4.51	44.4	8	8.48	94.3
Influenza and Pneumonia	0	0.28	-	1	2.36	42.4	2	3.57	56.1
Bronchitis, Asthma and Emphysema	0	0.05	-	0	1.39	-	5	2.54	196.6
Bronchitis	0	0.01	-	0	0.21	-	0	0.39	-
Asthma	0	0.04	-	0	0.32	-	0	0.29	-
Emphysema	0	0.04	-	0	0.86	-	5	1.81	275.5
Other Nonmalignant Respiratory Disease	0	0.10	-	1	1.10	90.9	1	2.73	36.6
Gastric and Duo. Ulcer	0	0.12	-	0	0.85	-	1	0.83	120.0
Cirrhosis of the Liver	1	0.34	297.0	0	4.36	-	2	8.03	24.9*
Nephritis	0	0.20	-	0	1.15	-	2	1.15	173.6
Ill-defined Causes	0	0.17	-	0	1.88	-	2	3.33	60.0
All External Causes	1	3.18	31.4	21	21.51	97.6	19	23.51	80.8
All Accidents	1	2.24	44.7	16	14.54	110.1	14	15.21	92.0
Motor Vehicle Accidents	0	1.16	-	11	6.93	158.6	7	6.42	109.0
Other Accidents	1	1.08	92.6	5	7.60	65.8	7	8.85	79.1
Suicide	0	0.55	-	3	4.42	67.8	5	5.33	93.8
Homocide	0	0.40	-	2	3.02	66.2	0	4.90	-
All Other Causes	0	0.66	-	3	7.36	40.8	10	18.28	54.7

511971 0601

Table A 8.5 Plant #6

Causes of Death	1950-1959			1960-1969			1970-1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	1	2.96	33.8	33	39.66	83.2	40	58.06	68.9*
All Infective and Parasitic Diseases	0	0.12	-	1	0.65	153.1	1	0.59	169.3
Tuberculosis	0	0.07	-	0	0.43	-	0	0.24	-
Remainder of Infective and Parasitic Diseases	0	0.04	-	1	0.22	449.0	1	0.35	283.8
All Malignant Neoplasms	0	0.41	-	10	6.87	145.5	9	12.94	69.5
Cancer of Buccal Cavity and Pharynx	0	0.01	-	0	0.28	-	1	0.47	212.4
Digestive Cancer	0	0.13	-	2	1.95	102.5	1	3.46	28.9
Cancer of Esophagus	0	0.01	-	0	0.24	-	0	0.47	-
Cancer of Stomach	0	0.03	-	0	0.40	-	0	0.57	-
Cancer of Large Intestine	0	0.03	-	1	0.49	202.9	0	0.99	-
Cancer of Rectum	0	0.01	-	0	0.20	-	0	0.32	-
Cancer of Liver	0	0.01	-	0	0.18	-	0	0.30	-
Cancer of Pancreas	0	0.02	-	1	0.38	262.3	1	0.71	141.7
Remainder of Cancer of Digestive Organs	0	0.00	-	0	0.05	-	0	0.09	-
Respiratory Cancer	0	0.10	-	1	2.31	43.3	3	4.98	60.2
Cancer of Larynx	0	0.01	-	0	0.12	-	0	0.23	-
Cancer of Lung	0	0.10	-	1	2.16	46.4	3	4.71	63.7
Remainder of Cancer of Respiratory System	0	0.00	-	0	0.03	-	0	0.04	-
Cancer of Prostate	0	0.01	-	0	0.16	-	1	0.55	180.7
Other Genital Cancer	0	0.01	-	1	0.07	1483.3	0	0.05	-
Cancer of Kidney	0	0.01	-	0	0.18	-	0	0.32	-
Cancer of Bladder	0	0.01	-	0	0.13	-	0	0.28	-
Lymphopoietic Cancer	0	0.07	-	3	0.78	385.8	1	1.12	89.7
Lymphosarcoma and Reticulosarcoma	0	0.02	-	1	0.21	474.6	0	0.23	-
Hodgkins Disease	0	0.02	-	1	0.15	663.4	0	0.11	-
Leukemia and Aleukemia	0	0.02	-	1	0.28	351.9	1	0.41	246.6
All Other Lymphopoietic Cancer	0	0.01	-	0	0.13	-	0	0.35	-
Other Malignant Neoplasms	0	0.07	-	3	1.00	298.6	2	1.61	124.2
Benign and Unspec. Neoplasms	0	0.01	-	1	0.13	774.9	0	0.15	-
Diabetes Mellitus	0	0.03	-	0	0.55	-	0	0.88	-
Major Cardiovascular Disease	0	1.18	-	12	18.04	66.5	17	27.71	61.3*

511971 0602

Table A 8.5 Plant #6

Causes of Death	1950–1959			1960–1969			1970–1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	0	0.15	-	0	2.21	-	0	3.51	-
Diseases of the Heart	0	0.98	-	12	15.15	79.2	17	23.26	73.1
Rheumatic Heart Disease	0	0.08	-	0	0.57	-	0	0.43	-
Ischemic Heart Disease	0	0.75	-	11	12.61	87.2	15	19.68	76.2
Endocarditis & Myocard. Insufficiency	0	0.03	-	0	0.23	-	0	0.15	-
Hypertensive Heart Disease	0	0.08	-	0	0.92	-	1	0.73	137.5
All Other Heart Disease	0	0.05	-	1	0.76	131.1	1	1.81	55.1
Hypertension	0	0.03	-	0	0.29	-	0	0.23	-
Arteriosclerosis	0	0.00	-	0	0.10	-	0	0.23	-
Other Diseases of the Arteries	0	0.02	-	0	0.29	-	0	0.48	-
Nonmalignant Respiratory Disease	0	0.11	-	1	1.89	53.0	1	3.21	31.1
Influenza and Pneumonia	0	0.08	-	0	0.94	-	1	1.26	79.6
Bronchitis, Asthma and Emphysema	0	0.02	-	1	0.64	155.9	0	1.04	-
Bronchitis	0	0.00	-	0	0.09	-	0	0.16	-
Asthma	0	0.01	-	0	0.13	-	0	0.10	-
Emphysema	0	0.02	-	1	0.41	241.9	0	0.76	-
Other Nonmalignant Respiratory Disease	0	0.03	-	0	0.44	-	0	1.04	-
Gastric and Duo. Ulcer	0	0.03	-	0	0.34	-	1	0.28	352.8
Cirrhosis of the Liver	0	0.09	-	0	1.53	-	0	2.24	-
Nephritis	0	0.05	-	0	0.42	-	0	0.40	-
Ill-defined Causes	0	0.05	-	0	0.73	-	5	1.06	471.5**
All External Causes	1	0.68	147.8	6	6.19	96.9	4	5.40	74.1
All Accidents	1	0.46	215.2	4	4.14	96.6	2	3.62	55.2
Motor Vehicle Accidents	1	0.23	437.8	3	1.87	160.7	1	1.44	69.2
Other Accidents	0	0.24	-	1	2.28	44.0	1	2.20	45.4
Suicide	0	0.12	-	1	1.25	79.9	0	1.24	-
Homocide	0	0.09	-	1	0.95	104.8	2	0.99	202.5
All Other Causes	0	0.17	-	2	2.73	73.3	2	6.23	32.1

511971 0603

Table A 8.6 Plant #7

Causes of Death	1950-1959			1960-1969			1970-1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	0	34.57	-	63	106.01	59.4**	106	143.87	73.7**
All Infective and Parasitic Diseases	0	1.53	-	0	1.78	-	0	1.51	-
Tuberculosis	0	1.00	-	0	1.14	-	0	0.61	-
Remainder of Infective and Parasitic Diseases	0	0.53	-	0	0.64	-	0	0.90	-
All Malignant Neoplasms	0	5.06	-	11	19.33	56.9	23	31.84	72.2
Cancer of Buccal Cavity and Pharynx	0	0.19	-	0	0.75	-	0	1.05	-
Digestive Cancer	0	1.70	-	2	5.89	33.9	3	8.89	33.7*
Cancer of Esophagus	0	0.17	-	0	0.75	-	0	1.18	-
Cancer of Stomach	0	0.48	-	0	1.29	-	0	1.56	-
Cancer of Large Intestine	0	0.37	-	1	1.45	68.8	1	2.55	39.2
Cancer of Rectum	0	0.19	-	0	0.60	-	0	0.81	-
Cancer of Liver	0	0.17	-	0	0.55	-	0	0.79	-
Cancer of Pancreas	0	0.27	-	1	1.11	90.2	2	1.77	113.1
Remainder of Cancer of Digestive Organs	0	0.03	-	0	0.14	-	0	0.20	-
Respiratory Cancer	0	1.31	-	6	6.42	93.4	11	11.61	94.7
Cancer of Larynx	0	0.08	-	0	0.34	-	0	0.54	-
Cancer of Lung	0	1.19	-	6	5.99	100.2	11	10.98	100.2
Remainder of Cancer of Respiratory System	0	0.03	-	0	0.09	-	0	0.10	-
Cancer of Prostate	0	0.15	-	1	0.89	112.9	5	2.22	225.6
Other Genital Cancer	0	0.08	-	0	0.13	-	0	0.11	-
Cancer of Kidney	0	0.13	-	0	0.46	-	1	0.71	141.3
Cancer of Bladder	0	0.12	-	0	0.47	-	0	0.80	-
Lymphopoietic Cancer	0	0.67	-	1	1.86	53.7	0	2.60	-
Lymphosarcoma and Reticulosarcoma	0	0.16	-	0	0.49	-	0	0.49	-
Hodgkins Disease	0	0.14	-	0	0.29	-	0	0.22	-
Leukemia and Aleukemia	0	0.25	-	1	0.70	142.9	0	0.97	-
All Other Lymphopoietic Cancer	0	0.12	-	0	0.38	-	0	0.87	-
Other Malignant Neoplasms	0	0.72	-	1	2.43	41.1	3	3.65	82.2
Benign and Unspec. Neoplasms	0	0.15	-	1	0.31	327.2	1	0.34	298.4
Diabetes Mellitus	0	0.40	-	1	1.54	65.1	0	2.32	-
Major Cardiovascular Disease	0	15.37	-	33	52.46	62.9**	62	72.37	85.7

511971 0604

Table A 8.6 Plant #7

Causes of Death	1950-1959			1960-1969			1970-1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	0	2.27	-	4	7.56	52.9	8	11.02	72.6
Diseases of the Heart	0	12.44	-	27	42.70	63.2*	51	58.40	87.3
Rheumatic Heart Disease	0	0.75	-	0	1.23	-	0	0.93	-
Ischemic Heart Disease	0	9.22	-	24	35.48	67.6	44	49.36	89.1
Endocarditis & Myocard. Insufficiency	0	0.47	-	0	0.65	-	0	0.39	-
Hypertensive Heart Disease	0	1.37	-	2	3.08	64.9	3	2.19	137.1
All Other Heart Disease	0	0.63	-	1	2.14	46.7	4	4.63	86.5
Hypertension-	0	0.35	-	0	0.78	-	0	0.66	-
Arteriosclerosis	0	0.10	-	0	0.52	-	1	0.98	101.9
Other Diseases of the Arteries	0	0.20	-	2	0.90	221.4	2	1.31	152.1
Nonmalignant Respiratory Disease	0	1.40	-	0	5.56	-	4	8.81	45.4
Influenza and Pneumonia	0	0.95	-	0	2.66	-	1	3.54	28.3
Bronchitis, Asthma and Emphysema	0	0.25	-	0	2.03	-	2	2.84	70.5
Bronchitis	0	0.03	-	0	0.30	-	1	0.43	230.8
Asthma	0	0.17	-	0	0.36	-	0	0.23	-
Emphysema	0	0.20	-	0	1.36	-	1	2.10	47.7
Other Nonmalignant Respiratory Disease	0	0.37	-	0	1.25	-	1	2.73	36.6
Gastric and Duo. Ulcer	0	0.38	-	0	0.89	-	0	0.69	-
Cirrhosis of the Liver	0	0.92	-	1	3.32	30.1	1	4.31	23.2
Nephritis	0	0.59	-	1	1.04	96.5	1	1.08	92.8
Ill-defined Causes	0	0.56	-	2	1.99	100.7	1	2.67	37.4
All External Causes	0	6.20	-	10	11.99	83.4	7	10.64	65.8
All Accidents	0	4.19	-	8	8.07	99.2	3	7.29	41.1
Motor Vehicle Accidents	0	1.99	-	2	3.49	57.3	1	2.81	35.6
Other Accidents	0	2.20	-	6	4.59	130.8	2	4.54	44.0
Suicide	0	1.05	-	0	2.34	-	0	2.20	-
Homocide	0	0.99	-	2	1.89	105.6	4	2.05	195.1
All Other Causes	0	1.85	-	3	7.26	41.3	6	17.09	35.1**

511971 0605

Table A 8.7 Plant #6

Causes of Death	1950-1959			1960-1969			1970-1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	2	6.82	29.3	32	59.56	53.7**	59	94.32	62.6**
All Infective and Parasitic Diseases	0	0.26	-	0	0.98	-	0	0.97	-
Tuberculosis	0	0.16	-	0	0.63	-	0	0.39	-
Remainder of Infective and Parasitic Diseases	0	0.10	-	0	0.35	-	0	0.59	-
All Malignant Neoplasms	1	0.97	103.4	6	10.10	59.4	13	20.06	64.8
Cancer of Buccal Cavity and Pharynx	0	0.03	-	0	0.39	-	0	0.71	-
Digestive Cancer	0	0.29	-	2	2.83	70.6	3	5.28	56.8
Cancer of Esophagus	0	0.03	-	0	0.35	-	0	0.70	-
Cancer of Stomach	0	0.08	-	0	0.59	-	0	0.88	-
Cancer of Large Intestine	0	0.07	-	0	0.72	-	1	1.53	65.4
Cancer of Rectum	0	0.03	-	0	0.30	-	0	0.49	-
Cancer of Liver	0	0.03	-	0	0.26	-	0	0.45	-
Cancer of Pancreas	0	0.05	-	2	0.55	363.2	2	1.07	186.1
Remainder of Cancer of Digestive Organs	0	0.01	-	0	0.08	-	0	0.14	-
Respiratory Cancer	1	0.24	411.7	1	3.31	30.2	2	7.57	26.4*
Cancer of Larynx	0	0.01	-	0	0.17	-	0	0.34	-
Cancer of Lung	1	0.22	448.7	1	3.09	32.4	2	7.17	27.9
Remainder of Cancer of Respiratory System	0	0.01	-	0	0.05	-	0	0.07	-
Cancer of Prostate	0	0.01	-	0	0.24	-	1	0.82	121.5
Other Genital Cancer	0	0.02	-	0	0.12	-	0	0.12	-
Cancer of Kidney	0	0.02	-	0	0.26	-	2	0.50	402.3
Cancer of Bladder	0	0.02	-	0	0.19	-	1	0.41	246.0
Lymphopoietic Cancer	0	0.16	-	1	1.21	82.5	1	1.86	146.3
Lymphosarcoma and Reticulosarcoma	0	0.04	-	0	0.32	-	0	0.38	-
Hodgkins Disease	0	0.04	-	1	0.25	395.3	0	0.22	-
Leukemia and Aleukemia	0	0.06	-	0	0.44	-	1	0.68	146.3
All Other Lymphopoietic Cancer	0	0.03	-	0	0.19	-	0	0.55	-
Other Malignant Neoplasms	0	0.16	-	2	1.53	131.0	3	2.63	113.9
Benign and Unspec. Neoplasms	0	0.03	-	1	0.20	507.5	0	0.25	-
Diabetes Mellitus	0	0.08	-	0	0.84	-	1	1.40	71.2
Major Cardiovascular Disease	0	2.74	-	13	26.19	49.6**	27	42.75	63.2*

511971 0606

Table A 8.7 Plant #8

Causes of Death	1950-1959			1960-1969			1970-1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	0	0.35	-	3	3.28	91.6	2	5.39	37.1
Diseases of the Heart	0	2.28	-	10	21.92	45.6**	24	35.93	66.8*
Rheumatic Heart Disease	0	0.18	-	0	0.86	-	0	0.71	-
Ischemic Heart Disease	0	1.75	-	10	18.15	55.1	20	30.26	66.1
Endocarditis & Myocard. Insufficiency	0	0.07	-	0	0.34	-	0	0.25	-
Hypertensive Heart Disease	0	0.18	-	0	1.35	-	0	1.12	-
All Other Heart Disease	0	0.11	-	0	1.14	-	4	2.90	137.7
Hypertension	0	0.06	-	0	0.42	-	0	0.36	-
Arteriosclerosis	0	0.01	-	0	0.15	-	0	0.34	-
Other Diseases of the Arteries	0	0.04	-	0	0.42	-	1	0.73	137.3
Nonmalignant Respiratory Disease	0	0.25	-	1	2.76	36.2	0	4.93	-
Influenza and Pneumonia	0	0.17	-	0	1.40	-	0	2.00	-
Bronchitis, Asthma and Emphysema	0	0.04	-	1	0.91	110.0	0	1.54	-
Bronchitis	0	0.01	-	0	0.13	-	0	0.24	-
Asthma	0	0.03	-	0	0.20	-	0	0.16	-
Emphysema	0	0.03	-	1	0.58	172.7	0	1.11	-
Other Nonmalignant Respiratory Disease	0	0.07	-	0	0.66	-	0	1.59	-
Gastric and Duo. Ulcer	0	0.08	-	0	0.49	-	0	0.45	-
Cirrhosis of the Liver	0	0.21	-	0	2.28	-	1	3.84	26.1
Nephritis	0	0.11	-	0	0.64	-	0	0.65	-
Ill-defined Causes	0	0.10	-	0	1.11	-	2	1.78	112.2
All External Causes	1	1.58	63.2	7	10.49	66.7	10	11.66	85.8
All Accidents	1	1.10	91.1	7	7.05	99.2	5	7.76	64.4
Motor Vehicle Accidents	1	0.55	181.1	6	3.30	181.9	5	3.32	150.5
Other Accidents	0	0.55	-	1	3.76	26.6	0	4.47	-
Suicide	0	0.28	-	0	2.08	-	3	2.65	113.2
Homocide	0	0.20	-	0	1.60	-	2	2.22	90.1
All Other Causes	0	0.39	-	4	4.10	97.6	5	10.22	48.9

511971 0607

Table A 8.8 Plant #10

Causes of Death	1950-1959			1960-1969			1970-1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	0	6.19	-	37	48.99	75.5	69	73.34	94.1
All Infective and Parasitic Diseases	0	0.24	-	0	0.85	-	0	0.78	-
Tuberculosis	0	0.15	-	0	0.56	-	0	0.32	-
Remainder of Infective and Parasitic Diseases	0	0.10	-	0	0.29	-	0	0.46	-
All Malignant Neoplasms	0	0.78	-	5	7.95	62.9	12	16.05	74.7
Cancer of Buccal Cavity and Pharynx	0	0.02	-	0	0.31	-	0	0.61	-
Digestive Cancer	0	0.22	-	1	2.19	45.6	1	4.24	23.6
Cancer of Esophagus	0	0.02	-	0	0.28	-	0	0.62	-
Cancer of Stomach	0	0.06	-	0	0.46	-	0	1.18	-
Cancer of Large Intestine	0	0.05	-	0	0.55	-	0	0.71	-
Cancer of Rectum	0	0.03	-	0	0.22	-	0	0.38	-
Cancer of Liver	0	0.02	-	0	0.20	-	0	0.36	-
Cancer of Pancreas	0	0.04	-	1	0.43	234.2	1	0.86	115.7
Remainder of Cancer of Digestive Organs	0	0.01	-	0	0.06	-	0	0.11	-
Respiratory Cancer	0	0.17	-	2	2.57	77.8	5	6.23	80.2
Cancer of Larynx	0	0.01	-	0	0.13	-	0	0.29	-
Cancer of Lung	0	0.16	-	2	2.40	83.3	5	5.90	84.8
Remainder of Cancer of Respiratory System	0	0.01	-	0	0.04	-	0	0.06	-
Cancer of Prostate	0	0.01	-	0	0.14	-	0	0.55	-
Other Genital Cancer	0	0.03	-	0	0.11	-	0	0.07	-
Cancer of Kidney	0	0.02	-	0	0.21	-	0	0.41	-
Cancer of Bladder	0	0.01	-	0	0.13	-	3	0.30	998.9**
Lymphopoietic Cancer	0	0.16	-	1	1.10	98.7	2	1.42	141.1
Lymphosarcoma and Reticulosarcoma	0	0.03	-	0	0.27	-	2	0.30	675.5
Hodgkins Disease	0	0.04	-	1	0.22	446.2	0	0.15	-
Leukemia and Aleukemia	0	0.06	-	0	0.37	-	0	0.51	-
All Other Lymphopoietic Cancer	0	0.02	-	0	0.15	-	0	0.44	-
Other Malignant Neoplasms	0	0.14	-	1	1.26	79.3	1	2.10	47.6
Benign and Unspec. Neoplasms	0	0.03	-	0	0.17	-	0	0.20	-
Diabetes Mellitus	0	0.08	-	2	0.69	291.2	1	1.09	92.0
Major Cardiovascular Disease	0	2.13	-	18	20.83	86.4	35	33.90	103.2

511971 0608

Causes of Death	1950–1959			1960–1969			1970–1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	0	0.29	-	2	2.61	76.7	4	4.12	97.0
Diseases of the Heart	0	1.74	-	16	17.40	92.0	30	28.70	104.5
Rheumatic Heart Disease	0	0.17	-	0	0.75	-	0	0.57	-
Ischemic Heart Disease	0	1.26	-	15	14.23	105.4	25	24.14	103.6
Endocarditis & Myocard. Insufficiency	0	0.06	-	0	0.28	-	0	0.19	-
Hypertensive Heart Disease	0	0.16	-	0	1.12	-	0	0.92	-
All Other Heart Disease	0	0.09	-	1	0.96	104.3	5	2.35	213.0
Hypertension	0	0.06	-	0	0.39	-	0	0.30	-
Arteriosclerosis	0	0.01	-	0	0.10	-	0	0.24	-
Other Diseases of the Arteries	0	0.03	-	0	0.33	-	1	0.54	184.8
Nonmalignant Respiratory Disease	0	0.24	-	0	2.23	-	1	3.72	26.9
Influenza and Pneumonia	0	0.17	-	0	1.20	-	1	1.57	63.9
Bronchitis, Asthma and Emphysema	0	0.04	-	0	0.66	-	0	1.12	-
Bronchitis	0	0.00	-	0	0.10	-	0	0.17	-
Asthma	0	0.02	-	0	0.16	-	0	0.13	-
Emphysema	0	0.02	-	0	0.40	-	0	0.80	-
Other Nonmalignant Respiratory Disease	0	0.05	-	0	0.53	-	0	1.19	-
Gastric and Duo. Ulcer	0	0.06	-	0	0.40	-	1	0.35	282.0
Cirrhosis of the Liver	0	0.18	-	0	2.03	-	0	3.23	-
Nephritis	0	0.12	-	0	0.57	-	1	0.52	193.6
Ill-defined Causes	0	0.10	-	0	0.97	-	1	1.43	70.0
All External Causes	0	1.82	-	11	9.33	117.9	10	7.88	126.9
All Accidents	0	1.27	-	8	6.25	128.1	7	5.25	133.3
Motor Vehicle Accidents	0	0.65	-	3	2.88	104.3	3	2.12	141.6
Other Accidents	0	0.61	-	5	3.37	148.3	4	3.17	126.3
Suicide	0	0.29	-	2	1.83	109.2	3	1.84	163.3
Homocide	0	0.26	-	1	1.49	67.2	0	1.45	-
All Other Causes	0	0.38	-	1	3.47	28.8	7	7.76	90.2

511971 0609

Causes of Death	1950-1959			1960-1969			1970-1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	26	48.76	53.3**	140	141.27	99.1	137	186.79	73.3**
All Infective and Parasitic Diseases	0	1.48	-	2	1.60	125.3	0	1.43	-
Tuberculosis	0	0.92	-	1	1.00	100.1	0	0.51	-
Remainder of Infective and Parasitic Diseases	0	0.55	-	1	0.59	168.6	0	0.94	-
All Malignant Neoplasms	8	8.19	97.6	42	26.52	158.4**	28	40.49	69.2*
Cancer of Buccal Cavity and Pharynx	0	0.30	-	0	0.95	-	1	1.27	78.8
Digestive Cancer	3	2.72	110.3	11	7.74	142.2	4	10.83	36.9*
Cancer of Esophagus	1	0.20	506.0	0	0.66	-	1	1.02	98.2
Cancer of Stomach	1	0.71	140.0	2	1.51	132.1	1	1.69	59.1
Cancer of Large Intestine	0	0.69	-	2	2.23	89.5	1	3.54	28.2
Cancer of Rectum	0	0.36	-	1	0.93	108.0	0	1.12	-
Cancer of Liver	0	0.25	-	1	0.68	147.8	0	0.88	-
Cancer of Pancreas	1	0.45	222.4	5	1.52	328.5*	1	2.23	44.8
Remainder of Cancer of Digestive Organs	0	0.05	-	0	0.21	-	0	0.28	-
Respiratory Cancer	1	2.17	46.2	18	8.74	205.9**	10	14.85	67.4
Cancer of Larynx	0	0.13	-	0	0.44	-	1	0.64	157.2
Cancer of Lung	1	1.99	50.3	18	8.19	219.8**	9	14.10	63.8
Remainder of Cancer of Respiratory System	0	0.05	-	0	0.11	-	0	0.12	-
Cancer of Prostate	0	0.32	-	2	1.19	167.9	3	2.35	127.6
Other Genital Cancer	0	0.10	-	1	0.19	528.3	0	0.16	-
Cancer of Kidney	2	0.22	922.9*	0	0.70	-	1	1.02	98.0
Cancer of Bladder	0	0.23	-	1	0.71	140.8	0	1.11	-
Lymphopoietic Cancer	2	1.03	194.1	6	2.80	214.3	5	3.69	135.4
Lymphosarcoma and Reticulosarcoma	1	0.25	401.1	3	0.77	390.6	1	0.75	132.7
Hodgkins Disease	1	0.21	485.8	1	0.45	222.2	0	0.34	-
Leukemia and Aleukemia	0	0.40	-	2	1.10	181.2	2	1.43	139.9
All Other Lymphopoietic Cancer	0	0.17	-	0	0.48	-	2	1.10	181.8
Other Malignant Neoplasms	0	1.12	-	3	3.47	86.4	4	4.92	81.3
Benign and Unspec. Neoplasms	0	0.19	-	4	0.40	1009.0**	0	0.45	-
Diabetes Mellitus	1	0.61	164.0	1	1.99	50.2	2	2.73	73.2
Major Cardiovascular Disease	11	23.94	46.0**	69	72.49	95.2	63	95.78	65.8**

511971 0610

Table A 8.9 Plant #12

Causes of Death	1950-1959			1960-1969			1970-1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	1	2.96	33.7	9	8.65	104.1	13	12.53	103.7
Diseases of the Heart	10	20.17	49.6*	59	61.07	96.6	49	79.47	61.7**
Rheumatic Heart Disease	1	1.05	94.9	2	1.77	113.3	0	1.33	-
Ischemic Heart Disease	7	16.55	42.3*	53	53.22	99.0	43	68.47	62.8**
Endocarditis & Myocard. Insufficiency	0	0.61	-	1	0.79	125.8	0	0.49	-
Hypertensive Heart Disease	1	1.25	80.2	1	2.32	43.1	3	1.90	158.0
All Other Heart Disease	1	0.71	141.3	2	2.25	88.8	3	5.05	59.4
Hypertension	0	0.25	-	0	0.57	-	0	0.56	-
Arteriosclerosis	0	0.23	-	0	0.84	-	1	1.37	72.9
Other Diseases of the Arteries	0	0.32	-	1	1.36	73.3	0	1.85	-
Nonmalignant Respiratory Disease	0	1.74	-	10	7.21	138.7	16	11.58	138.1
Influenza and Pneumonia	0	1.00	-	3	2.90	103.3	4	4.15	96.4
Bronchitis, Asthma and Emphysema	0	0.42	-	8	3.15	254.1*	6	4.16	144.3
Bronchitis	0	0.07	-	0	0.47	-	0	0.64	-
Asthma	0	0.25	-	1	0.41	244.3	0	0.23	-
Emphysema	0	0.40	-	7	2.24	312.4*	6	3.14	191.1
Other Nonmalignant Respiratory Disease	0	0.57	-	0	1.59	-	6	3.59	167.1
Gastric and Duo. Ulcer	0	0.59	-	1	1.25	79.9	1	0.93	107.1
Cirrhosis of the Liver	0	1.30	-	1	4.24	23.6	4	5.75	69.5
Nephritis	0	0.59	-	1	0.98	101.7	0	0.94	-
Ill-defined Causes	0	0.48	-	0	1.64	-	1	2.46	40.7
All External Causes	5	6.95	72.0	7	15.25	45.9*	12	14.46	83.0
All Accidents	3	4.97	60.4	4	10.61	37.7*	8	10.19	78.5
Motor Vehicle Accidents	0	2.41	-	1	4.87	20.5	3	4.11	73.0
Other Accidents	3	2.56	117.4	3	5.74	52.3	5	6.14	81.4
Suicide	1	1.62	61.7	3	3.89	77.2	4	4.02	99.5
Homocide	1	0.36	281.1	0	1.01	-	0	1.51	-
All Other Causes	1	2.45	40.9	1	9.24	10.8**	10	20.61	48.5*

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Table A 8.10 Plant #13

Causes of Death	1950-1959			1960-1969			1970-1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	2	5.64	35.5	28	45.60	61.4**	62	74.72	83.0
All Infective and Parasitic Diseases	0	0.17	-	0	0.53	-	0	0.58	-
Tuberculosis	0	0.10	-	0	0.33	-	0	0.20	-
Remainder of Infective and Parasitic Diseases	0	0.07	-	0	0.20	-	0	0.39	-
All Malignant Neoplasms	0	0.89	-	5	8.45	59.1	15	16.21	92.6
Cancer of Buccal Cavity and Pharynx	0	0.03	-	0	0.31	-	0	0.52	-
Digestive Cancer	0	0.27	-	1	2.33	42.9	2	4.21	47.5
Cancer of Esophagus	0	0.02	-	0	0.20	-	0	0.40	-
Cancer of Stomach	0	0.07	-	0	0.44	-	0	0.65	-
Cancer of Large Intestine	0	0.07	-	0	0.67	-	1	1.37	-
Cancer of Rectum	0	0.03	-	0	0.28	-	0	0.43	-
Cancer of Liver	0	0.02	-	0	0.20	-	0	0.34	-
Cancer of Pancreas	0	0.05	-	1	0.47	210.9	2	0.88	227.1
Remainder of Cancer of Digestive Organs	0	0.01	-	0	0.07	-	0	0.12	-
Respiratory Cancer	0	0.23	-	3	2.84	105.8	8	6.05	132.2
Cancer of Larynx	0	0.01	-	0	0.14	-	0	0.26	-
Cancer of Lung	0	0.22	-	2	2.66	75.2	8	5.75	139.2
Remainder of Cancer of Respiratory System	0	0.01	-	1	0.04	2568.3	0	0.05	-
Cancer of Prostate	0	0.02	-	0	0.24	-	1	0.74	135.2
Other Genital Cancer	0	0.02	-	0	0.08	-	0	0.09	-
Cancer of Kidney	0	0.02	-	0	0.23	-	0	0.42	-
Cancer of Bladder	0	0.02	-	0	0.19	-	1	0.40	252.0
Lymphopoietic Cancer	0	0.14	-	0	0.98	-	2	1.55	128.8
Lymphosarcoma and Reticulosarcoma	0	0.03	-	0	0.27	-	0	0.32	-
Hodgkins Disease	0	0.03	-	0	0.18	-	0	0.17	-
Leukemia and Aleukemia	0	0.05	-	0	0.37	-	2	0.59	340.5
All Other Lymphopoietic Cancer	0	0.02	-	0	0.15	-	0	0.44	-
Other Malignant Neoplasms	0	0.14	-	1	1.24	80.5	1	2.10	47.7
Benign and Unspec. Neoplasms	0	0.03	-	0	0.14	-	0	0.19	-
Diabetes Mellitus	0	0.07	-	0	0.63	-	1	1.06	94.0
Major Cardiovascular Disease	1	2.43	41.1	12	21.84	54.9*	25	36.27	68.9

511971 0612

Causes of Death	1950–1959			1960–1969			1970–1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	0	0.26	-	1	2.24	44.6	2	4.26	46.9
Diseases of the Heart	1	2.10	47.6	11	18.90	58.2	22	30.76	71.5
Rheumatic Heart Disease	0	0.15	-	0	0.67	-	1	0.57	175.0
Ischemic Heart Disease	1	1.72	58.2	10	16.49	60.6	21	26.42	79.5
Endocarditis & Myocard. Insufficiency	0	0.05	-	1	0.24	411.6	0	0.19	-
Hypertensive Heart Disease	0	0.10	-	0	0.63	-	0	0.67	-
All Other Heart Disease	0	0.08	-	0	0.73	-	0	2.02	-
Hypertension	0	0.03	-	0	0.16	-	0	0.19	-
Arteriosclerosis	0	0.01	-	0	0.15	-	0	0.38	-
Other Diseases of the Arteries	0	0.03	-	0	0.39	-	1	0.68	147.8
Nonmalignant Respiratory Disease	0	0.19	-	1	2.10	47.6	6	4.23	141.8
Influenza and Pneumonia	0	0.11	-	0	0.86	-	2	1.49	134.5
Bronchitis, Asthma and Emphysema	0	0.04	-	1	0.89	112.8	3	1.51	198.1
Bronchitis	0	0.01	-	0	0.13	-	0	0.23	-
Asthma	0	0.02	-	0	0.13	-	0	0.10	-
Emphysema	0	0.04	-	1	0.62	161.2	3	1.14	264.2
Other Nonmalignant Respiratory Disease	0	0.05	-	0	0.49	-	1	1.36	73.5
Gastric and Duo. Ulcers	0	0.07	-	0	0.40	-	0	0.37	-
Cirrhosis of the Liver	0	0.18	-	1	1.62	61.8	3	2.65	113.1
Nephritis	0	0.08	-	0	0.35	-	0	0.37	-
Ill-defined Causes	0	0.06	-	2	0.57	349.9	0	1.04	-
All External Causes	0	1.14	-	4	6.37	62.8	10	7.57	132.2
All Accidents	0	0.83	-	4	4.44	90.1	9	5.28	170.4
Motor Vehicle Accidents	0	0.42	-	2	2.10	95.1	2	2.27	88.2
Other Accidents	0	0.41	-	2	2.34	85.5	7	3.03	230.7
Suicide	0	0.25	-	0	1.61	-	1	2.11	47.4
Homocide	0	0.06	-	0	0.43	-	0	0.83	-
All Other Causes	1	0.30	328.1	3	3.00	100.0	2	7.78	25.7

511971 0613

Causes of Death	1950-1959			1960-1969			1970-1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	39	62.11	62.8**	108	150.94	71.6**	147	184.49	79.7**
All Infective and Parasitic Diseases	0	1.90	-	1	1.65	60.5	1	1.37	72.8
Tuberculosis	0	1.22	-	1	1.03	96.7	0	0.48	-
Remainder of Infective and Parasitic Diseases	0	0.68	-	0	0.62	-	1	0.91	110.4
All Malignant Neoplasms	14	10.65	131.5	23	28.50	80.7	30	39.59	75.8
Cancer of Buccal Cavity and Pharynx	0	0.39	-	1	1.00	99.8	1	1.19	84.3
Digestive Cancer	6	3.63	165.3	9	8.66	103.9	10	10.87	92.0
Cancer of Esophagus	0	0.27	-	1	0.72	138.8	1	0.98	101.7
Cancer of Stomach	2	0.97	206.1	1	1.73	57.9	2	1.71	116.8
Cancer of Large Intestine	1	0.91	109.5	2	2.52	79.3	2	3.62	55.3
Cancer of Rectum	0	0.48	-	2	1.04	192.6	0	1.14	-
Cancer of Liver	2	0.34	588.2	0	0.76	-	1	0.89	112.1
Cancer of Pancreas	0	0.59	-	3	1.67	179.5	4	2.20	181.5
Remainder of Cancer of Digestive Organs	1	0.07	1537.8	0	0.22	-	0	0.26	-
Respiratory Cancer	5	2.84	175.9	6	9.27	64.7	10	14.09	71.0
Cancer of Larynx	0	0.18	-	1	0.47	211.0	0	0.61	-
Cancer of Lung	5	2.61	191.8	5	8.69	57.6	10	13.37	74.8
Remainder of Cancer of Respiratory System	0	0.06	-	0	0.11	-	0	0.11	-
Cancer of Prostate	0	0.45	-	0	1.65	-	1	2.86	35.0
Other Genital Cancer	0	0.11	-	0	0.15	-	0	0.12	-
Cancer of Kidney	0	0.28	-	2	0.73	275.3	2	0.95	210.2
Cancer of Bladder	0	0.32	-	0	0.86	-	1	1.23	81.5
Lymphopoietic Cancer	1	1.24	80.4	3	2.79	107.4	1	3.51	28.5
Lymphosarcoma and Reticulosarcoma	0	0.31	-	1	0.76	131.8	0	0.69	-
Hodgkins Disease	0	0.23	-	0	0.38	-	0	0.28	-
Leukemia and Aleukemia	1	0.50	201.9	2	1.14	175.5	1	1.40	71.3
All Other Lymphopoietic Cancer	0	0.21	-	0	0.51	-	0	1.07	-
Other Malignant Neoplasms	2	1.39	143.9	2	3.35	59.6	4	4.52	88.6
Benign and Unspec. Neoplasms	0	0.23	-	0	0.38	-	1	0.42	240.7
Diabetes Mellitus	0	0.78	-	0	2.16	-	1	2.76	36.2
Major Cardiovascular Disease	19	31.54	60.2*	68	81.62	83.3	89	98.97	89.9

511971 0614

Table A 6.11 Page [illegible]

Causes of Death	1950-1959			1960-1969			1970-1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	1	3.99	25.1	6	10.68	56.2	11	14.29	77.0
Diseases of the Heart	18	26.48	68.0	58	67.50	85.9	74	80.28	92.2
Rheumatic Heart Disease	0	1.27	-	0	1.64	-	0	1.19	-
Ischemic Heart Disease	17	21.72	78.3	49	59.36	82.5	65	69.40	93.7
Endocarditis & Myocard. Insufficiency	0	0.83	-	2	0.87	229.1	2	0.50	400.8
Hypertensive Heart Disease	1	1.74	57.6	4	2.77	144.6	5	2.05	243.8
All Other Heart Disease	0	0.93	-	3	2.42	124.1	2	4.94	40.5
Hypertension	0	0.33	-	0	0.65	-	1	0.62	162.3
Arteriosclerosis	0	0.30	-	1	1.21	82.5	1	1.80	55.5
Other Diseases of the Arteries	0	0.43	-	3	1.58	189.4	2	1.98	101.0
Nonmalignant Respiratory Disease	2	2.27	88.0	7	8.29	84.4	10	12.47	80.2
Influenza and Pneumonia	1	1.28	78.2	2	3.29	60.8	4	4.54	88.1
Bronchitis, Asthma and Emphysema	0	0.57	-	4	3.68	108.6	5	4.48	111.6
Bronchitis	0	0.09	-	1	0.55	180.6	1	0.69	144.9
Asthma	0	0.34	-	0	0.44	-	1	0.21	472.3
Emphysema	0	0.53	-	3	2.65	113.1	3	3.40	88.2
Other Nonmalignant Respiratory Disease	1	0.76	131.6	1	1.78	56.2	2	3.76	53.2
Gastric and Duo. Ulcer	0	0.76	-	1	1.34	74.5	1	0.92	108.2
Cirrhosis of the Liver	0	1.60	-	0	3.90	-	2	4.63	43.2
Nephritis	0	0.73	-	0	0.96	-	1	0.94	106.8
Ill-defined Causes	0	0.60	-	1	1.64	61.0	0	2.25	-
All External Causes	3	7.71	38.9	6	12.51	48.0	6	11.08	54.1
All Accidents	3	5.44	55.1	3	8.70	34.5	2	7.99	25.0*
Motor Vehicle Accidents	2	2.56	78.2	1	3.82	26.2	1	3.06	32.7
Other Accidents	1	2.88	34.7	2	4.89	40.9	1	5.00	20.0
Suicide	0	1.86	-	3	3.26	92.2	4	3.03	131.8
Homocide	0	0.41	-	0	0.75	-	0	1.04	-
All Other Causes	1	2.99	33.4	1	9.96	10.0**	4	21.61	18.5**

511971 0615

Causes of Death	1950-1959			1960-1969			1970-1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
All Causes	5	13.95	35.9*	32	50.01	64.0**	55	67.24	81.8
All Infective and Parasitic Diseases	0	0.41	-	0	0.56	-	1	0.51	194.5
Tuberculosis	0	0.25	-	0	0.35	-	0	0.18	-
Remainder of Infective and Parasitic Diseases	0	0.16	-	0	0.21	-	1	0.34	293.2
All Malignant Neoplasms	0	2.34	-	9	9.37	96.1	14	14.78	94.7
Cancer of Buccal Cavity and Pharynx	0	0.09	-	0	0.34	-	0	0.46	-
Digestive Cancer	0	0.77	-	3	2.75	109.1	5	3.94	127.0
Cancer of Esophagus	0	0.06	-	0	0.24	-	1	0.37	270.3
Cancer of Stomach	0	0.20	-	0	0.54	-	2	0.61	326.4
Cancer of Large Intestine	0	0.20	-	0	0.79	-	1	1.29	77.6
Cancer of Rectum	0	0.10	-	2	0.33	609.4	0	0.41	-
Cancer of Liver	0	0.07	-	0	0.24	-	1	0.32	309.0
Cancer of Pancreas	0	0.13	-	1	0.54	185.5	0	0.82	-
Remainder of Cancer of Digestive Organs	0	0.02	-	0	0.08	-	0	0.10	-
Respiratory Cancer	0	0.62	-	3	3.09	97.2	7	5.44	128.6
Cancer of Larynx	0	0.04	-	0	0.16	-	0	0.23	-
Cancer of Lung	0	0.57	-	3	2.89	103.9	7	5.17	135.4
Remainder of Cancer of Respiratory System	0	0.01	-	0	0.04	-	0	0.04	-
Cancer of Prostate	0	0.09	-	0	0.45	-	0	0.85	-
Other Genital Cancer	0	0.03	-	0	0.06	-	0	0.06	-
Cancer of Kidney	0	0.06	-	0	0.24	-	0	0.37	-
Cancer of Bladder	0	0.06	-	1	0.26	391.9	0	0.40	-
Lymphopoietic Cancer	0	0.29	-	2	0.96	207.9	2	1.35	147.6
Lymphosarcoma and Reticulosarcoma	0	0.07	-	0	0.26	-	0	0.27	-
Hodgkins Disease	0	0.06	-	0	0.15	-	0	0.13	-
Leukemia and Aleukemia	0	0.11	-	1	0.38	262.6	0	0.52	-
All Other Lymphopoietic Cancer	0	0.05	-	1	0.17	594.3	2	0.40	496.3
Other Malignant Neoplasms	0	0.32	-	0	1.21	0	0	1.79	-
Benign and Unspec. Neoplasms	0	0.05	-	0	0.14	-	0	0.16	-
Diabetes Mellitus	0	0.17	-	0	0.70	-	0	0.99	-
Major Cardiovascular Disease	3	6.87	43.7	12	26.06	46.0**	31	33.95	91.3

511971 0616

Table A 6.12 Plant #15

Causes of Death	1950-1959			1960-1969			1970-1977		
	Obs.	Exp.	SMR	Obs.	Exp.	SMR	Obs.	Exp.	SMR
Cerebrovascular Disease	1	0.87	115.6	0	3.21	-	7	4.34	161.4
Diseases of the Heart	2	5.77	34.7	11	21.80	50.5**	23	28.33	81.2
Rheumatic Heart Disease	0	0.30	-	0	0.60	-	1	0.48	207.9
Ischemic Heart Disease	2	4.74	42.2	10	19.09	52.4*	18	24.41	73.7
Endocarditis & Myocard. Insufficiency	0	0.17	-	1	0.29	348.9	0	0.17	-
Hypertensive Heart Disease	0	0.36	-	0	0.86	-	1	0.66	151.4
All Other Heart Disease	0	0.20	-	0	0.81	-	3	1.81	165.9
Hypertension	0	0.07	-	0	0.21	-	0	0.19	-
Arteriosclerosis	0	0.07	-	1	0.36	280.2	0	0.42	-
Other Diseases of the Arteries	0	0.09	-	0	0.48	-	1	0.67	148.8
Nonmalignant Respiratory Disease	1	0.51	196.3	4	2.59	154.5	2	4.16	48.0
Influenza and Pneumonia	1	0.29	339.8	0	1.06	-	1	1.42	70.3
Bronchitis, Asthma and Emphysema	0	0.12	-	3	1.12	269.0	1	1.53	65.3
Bronchitis	0	0.02	-	2	0.17	1197.2*	0	0.23	-
Asthma	0	0.07	-	0	0.14	-	0	0.08	-
Emphysema	0	0.13	-	1	0.79	125.8	1	1.16	86.2
Other Nonmalignant Respiratory Disease	0	0.16	-	1	0.56	236.5	0	1.32	-
Gastric and Duo. Ulcer	0	0.17	-	0	0.44	-	1	0.33	299.0
Cirrhosis of the Liver	0	0.38	-	0	1.45	-	0	2.04	-
Nephritis	0	0.17	-	0	0.34	-	0	0.34	-
Ill-defined Causes	0	0.14	-	0	0.58	-	0	0.90	-
All External Causes	1	1.97	50.9	7	5.01	139.6	4	5.51	72.6
All Accidents	1	1.40	71.4	6	3.49	171.8	4	3.89	102.9
Motor Vehicle Accidents	0	0.68	-	2	1.58	126.8	1	1.63	61.5
Other Accidents	1	0.72	138.7	4	1.92	208.6	3	2.28	131.4
Suicide	0	0.46	-	1	1.29	77.6	0	1.52	-
Homocide	0	0.11	-	0	0.32	-	0	0.58	-
All Other Causes	0	0.70	-	0	3.36	-	2	7.27	27.5*

511971 0617

APPENDIX 1A
Table A9.1

Standardized Mortality Ratios for Lung Cancer by Time Since First Employment and Cumulative Employment for Workers in the Prebake Process

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	2	0	0	0	0	0	2
	Exp	0.00	4.50	0.00	0.00	0.00	0.00	0.00	4.50
	SMR (Sig)	---	44.4	---	---	---	---	---	44.4
	At Risk	0	6920	0	0	0	0	0	6920
	Person Yrs	0.0	28029.4	0.0	0.0	0.0	0.0	0.0	28029.0
10-19	Obs	0	10	12	5	0	0	0	27
	Exp	0.00	7.19	11.69	9.64	0.00	0.00	0.00	28.52
	SMR (Sig)	---	139.1	102.6	51.9	---	---	---	94.7
	At Risk	0	6777	5533	4116	0	0	0	8227
	Person Yrs	0.0	20974.2	27960.4	15404.5	0.0	0.0	0.0	64419.1
20-29	Obs	0	12	7	11	11	8	0	49
	Exp	0.00	7.09	6.92	14.92	16.61	6.10	0.00	52.45
	SMR (Sig)	---	152.0	101.1	73.7	66.2	131.1	---	93.4
	At Risk	0	1415	1411	4310	3200	1581	0	7051
	Person Yrs	0.0	8127.1	6751.8	13158.2	16458.5	5428.6	0.0	49934.2
30+	Obs	0	4	4	3	15	10	19	55
	Exp	0.00	2.38	3.46	5.28	6.89	11.81	27.48	57.29
	SMR (Sig)	---	168.4	115.7	56.9	217.8 *	84.7	69.1	96.0
	At Risk	0	309	406	579	962	1838	1115	3624
	Person Yrs	0.0	1400.9	1903.3	2607.6	3556.7	6781.6	13363.6	29701.7
TOTAL	Obs	0	28	23	19	26	18	19	133
	Exp	0.00	21.96	22.07	29.84	23.50	17.91	27.48	142.76
	SMR (Sig)	---	127.5	104.2	63.7 *	110.6	100.5	69.1	93.2
	At Risk	0	8065	5940	4909	3404	2006	1115	9625
	Person Yrs	0.0	50548.5	36615.5	31330.4	20015.2	12210.1	13363.6	172084.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0618

Table A9.2

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Workers in the Horizontal Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	1	0	0	0	0	0	1
	Exp	0.00	4.24	0.00	0.00	0.00	0.00	0.00	4.24
	SMR (Sig)	---	23.6	---	---	---	---	---	23.6
	At Risk	0	6318	0	0	0	0	0	6318
	Person Yrs	0.0	27931.6	0.0	0.0	0.0	0.0	0.0	27933.7
10-19	Obs	0	2	12	10	0	0	0	24
	Exp	0.00	3.51	9.88	10.76	0.00	0.00	0.00	24.15
	SMR (Sig)	---	57.0	121.5	92.9	---	---	---	99.4
	At Risk		3908	4750	3700	0	0	0	6147
	Person Yrs	0.0	10420.3	25051.8	16205.8	0.0	0.0	0.0	51678.0
20-29	Obs	0	1	1	11	10	3	0	26
	Exp	0.00	1.90	2.40	8.19	12.90	2.30	0.00	27.68
	SMR (Sig)	---	52.7	41.7	134.4	77.5	130.5	---	93.9
	At Risk	0	468	515	2330	2167	364	0	4509
	Person Yrs	0.0	1893.3	1891.7	6315.6	11415.0	1490.2	0.0	23006.0
30+	Obs	0	0	0	0	1	4	1	6
	Exp	0.00	0.29	0.30	0.73	1.11	1.82	1.00	5.24
	SMR (Sig)	---	---	---	---	90.3	220.0	99.6	114.5
	At Risk	0	35	31	77	123	258	84	535
	Person Yrs	0.0	146.6	133.8	265.5	457.8	821.0	456.5	2281.1
TOTAL	Obs	0	4	13	21	11	7	1	57
	Exp	0.00	9.93	12.57	19.67	14.01	4.12	1.00	61.31
	SMR (Sig)	---	40.3	103.4	106.7	78.5	170.0	99.6	93.0
	At Risk	0	6533	4783	3812	2177	376	84	6534
	Person Yrs	0.0	40351.8	27077.4	22786.9	11872.8	2311.2	456.5	104898.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0619

Standardized Mortality Ratios for Lung Cancer by Time Since First Employment and Cumulative Employment for Workers in the Vertical Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.80	0.00	0.00	0.00	0.00	0.00	0.80
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	1342	0	0	0	0	0	1342
	Person Yrs	0.0	6036.5	0.0	0.0	0.0	0.0	0.0	6036.8
10-19	Obs	0	1	1	0	0	0	0	2
	Exp	0.00	0.97	1.88	1.90	0.00	0.00	0.00	4.76
	SMR (Sig)	---	102.7	53.1	---	---	---	---	42.0
	At Risk	0	1134	1006	817	0	0	0	1316
	Person Yrs	0.0	2720.0	5349.2	3359.9	0.0	0.0	0.0	11429.0
20-29	Obs	0	1	1	3	0	0	0	5
	Exp	0.00	0.98	0.55	2.03	3.07	0.06	0.00	6.69
	SMR (Sig)	---	102.2	182.6	147.5	---	---	---	74.7
	At Risk	0	150	89	744	516	14	0	1038
	Person Yrs	0.0	869.6	404.8	1758.1	3204.8	57.7	0.0	6314.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.00	0.03	0.03	0.05	0.04	0.20	0.34
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	0	2	3	7	14	11	26
	Person Yrs	0.0	0.0	16.1	7.5	37.8	30.9	94.4	194.7
TOTAL	Obs	0	2	2	3	0	0	0	7
	Exp	0.00	2.75	2.46	3.97	3.12	0.10	0.20	12.60
	SMR (Sig)	---	72.6	81.3	75.7	---	---	---	55.6
	At Risk	0	1360	1008	826	516	18	11	1369
	Person Yrs	0.0	9646.1	5770.1	5125.5	3242.6	96.6	94.4	23975.5

* Significant at 5% Level; ** Significant at 1% Level

511971 0620

Table A9.4

Standardized Mortality Ratios for Lung Cancer by Time Since First Employment and Cumulative Employment for Workers in Plant #3

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.28
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	1182	0	0	0	0	0	1182
	Person Yrs	0.0	3174.9	0.0	0.0	0.0	0.0	0.0	3174.9
10-19	Obs	0	0	1	2	0	0	0	3
	Exp	0.00	0.70	1.83	1.76	0.00	0.00	0.00	4.30
	SMR (Sig)	---	---	54.5	113.5	---	---	---	69.8
	At Risk	0	1295	1591	1183	0	0	0	2027
	Person Yrs	0.0	4490.6	7357.4	4517.8	0.0	0.0	0.0	16365.8
20-29	Obs	0	0	3	4	4	3	0	14
	Exp	0.00	1.43	2.48	3.60	4.83	3.43	0.00	15.77
	SMR (Sig)	---	---	121.0	111.2	82.8	87.4	---	88.8
	At Risk	0	297	554	1188	1233	928	0	2132
	Person Yrs	0.0	1977.0	3069.6	4331.1	6040.3	3363.6	0.0	18781.6
30+	Obs	0	1	2	2	4	10	11	30
	Exp	0.00	0.36	1.55	2.75	2.86	6.32	14.07	27.91
	SMR (Sig)	---	274.4	128.7	72.8	139.8	158.3	78.2	107.5
	At Risk	0	76	220	262	330	857	666	1744
	Person Yrs	0.0	252.8	959.9	1385.1	1452.5	3378.2	6954.9	14383.5
TOTAL	Obs	0	1	6	8	8	13	11	47
	Exp	0.00	2.77	5.87	8.10	7.69	9.75	14.07	48.25
	SMR (Sig)	---	36.0	102.3	98.7	104.0	133.4	78.2	97.4
	At Risk	0	1583	1715	1508	1287	1080	666	2418
	Person Yrs	0.0	9855.3	11396.9	10234.0	7492.8	6741.8	6954.9	52705.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0621

Table A9.5

Standardized Mortality Ratios for Lung Cancer by Time Since First Employment and Cumulative Employment for Workers in Plant #12

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	2	0	0	0	0	0	2
	Exp	0.00	1.69	0.00	0.00	0.00	0.00	0.00	1.69
	SMR (Sig)	---	118.2	---	---	---	---	---	118.2
	At Risk	0	1832	0	0	0	0	0	1832
	Person Yrs	0.0	7755.0	0.0	0.0	0.0	0.0	0.0	7755.2
10-19	Obs	0	0	7	8	0	0	0	15
	Exp	0.00	1.37	4.37	2.95	0.00	0.00	0.00	8.69
	SMR (Sig)	---	---	160.4	270.8 *	---	---	---	172.7
	At Risk	0	1588	1486	1071	0	0	0	1847
	Person Yrs	0.0	3677.1	8092.1	4123.6	0.0	0.0	0.0	15892.8
20-29	Obs	0	2	4	1	4	0	0	11
	Exp	0.00	0.48	1.77	4.00	5.02	1.49	0.00	12.76
	SMR (Sig)	---	414.4	225.7	25.0	79.6	---	---	86.2
	At Risk	0	70	282	1017	637	239	0	1384
	Person Yrs	0.0	394.6	1045.3	2895.5	3968.1	1013.6	0.0	9357.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.05	0.08	0.17	0.35	0.48	0.00	1.13
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	15	26	44	112	210	0	407
	Person Yrs	0.0	19.7	31.7	52.3	123.3	247.4	0.0	474.4
TOTAL	Obs	0	4	11	9	4	0	0	28
	Exp	0.00	3.59	6.22	7.12	5.37	1.97	0.00	24.27
	SMR (Sig)	---	111.3	176.8	126.4	74.5	---	---	115.4
	At Risk	0	1883	1489	1104	637	239	0	1883
	Person Yrs	0.0	11846.4	9209.1	7071.5	4091.5	1261.0	0.0	33479.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0622

Table A...

Standardized Mortality Ratios for Lung Cancer by Time Since First Employment and Cumulative Employment for Potroom Workers in the Prebake Process

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	3	0	0	0	0	0	0	3
	Exp	2.59	1.99	0.00	0.00	0.00	0.00	0.00	4.58
	SMR (Sig)	115.6	---	---	---	---	---	---	65.5
	At Risk	2996	2622	0	0	0	0	0	4481
	Person Yrs	10223.5	10888.5	0.0	0.0	0.0	0.0	0.0	21112.0
10-19	Obs	4	6	3	4	0	0	0	17
	Exp	7.74	3.92	4.74	3.47	0.00	0.00	0.00	19.87
	SMR (Sig)	51.7	153.2	63.3	115.3	---	---	---	85.6
	At Risk	2176	2665	1979	1392	0	0	0	5041
	Person Yrs	15111.0	9255.0	10256.7	5249.7	0.0	0.0	0.0	39872.4
20-29	Obs	13	7	2	5	6	1	0	34
	Exp	10.29	4.21	3.36	5.57	5.30	1.94	0.00	30.67
	SMR (Sig)	126.3	166.4	59.5	89.8	113.2	51.5	---	110.9
	At Risk	1484	679	569	1472	919	439	0	4116
	Person Yrs	10154.0	3913.3	2863.4	4544.1	4819.0	1575.3	0.0	27869.1
30+	Obs	16	2	1	2	4	1	7	33
	Exp	12.19	1.95	1.88	1.67	1.77	3.02	7.46	29.93
	SMR (Sig)	131.3	102.8	53.1	119.7	225.9	33.1	93.9	110.2
	At Risk	764	163	159	156	223	496	281	1696
	Person Yrs	6316.4	953.2	982.2	799.2	905.8	1714.3	3522.2	15233.4
TOTAL	Obs	36	15	6	11	10	2	7	87
	Exp	32.92	12.06	9.98	10.71	7.07	4.96	7.46	85.06
	SMR (Sig)	109.7	124.4	60.1	102.7	141.4	40.3	93.9	102.3
	At Risk	3792	3058	2122	1599	961	530	281	5937
	Person Yrs	41805.0	25049.9	14102.4	10592.9	5724.8	3289.6	3522.2	104086.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0623

Table A9.7

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Potroom Workers in the Horizontal Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	2	1	0	0	0	0	0	3
	Exp	1.45	1.67	0.00	0.00	0.00	0.00	0.00	3.11
	SMR (Sig)	138.3	60.0	---	---	---	---	---	96.4
	At Risk	2902	2090	0	0	0	0	0	4239
	Person Yrs	8172.9	12163.0	0.0	0.0	0.0	0.0	0.0	20335.9
10-19	Obs	2	4	8	3	0	0	0	17
	Exp	4.29	3.21	4.67	3.73	0.00	0.00	0.00	15.90
	SMR (Sig)	46.6	124.7	171.4	80.4	---	---	---	106.9
	At Risk	1186	2199	2092	1443	0	0	0	4023
	Person Yrs	8627.7	7947.1	11489.5	5972.8	0.0	0.0	0.0	34037.0
20-29	Obs	3	0	2	7	2	2	0	16
	Exp	3.09	2.29	2.39	4.26	4.35	1.01	0.00	17.40
	SMR (Sig)	97.1	---	83.7	164.3	45.9	197.4	---	92.0
	At Risk	613	457	482	1103	754	168	0	2907
	Person Yrs	2650.9	1881.0	1976.3	3464.9	3938.6	658.3	0.0	14570.0
30+	Obs	0	0	0	0	0	2	1	3
	Exp	0.23	0.29	0.41	0.59	0.60	0.98	0.36	3.45
	SMR (Sig)	---	---	---	---	---	204.4	281.0	86.9
	At Risk	33	34	36	61	78	138	28	375
	Person Yrs	109.7	120.5	159.4	230.9	256.2	452.5	144.5	1481.8
TOTAL	Obs	7	5	10	10	2	4	1	39
	Exp	9.06	7.46	7.46	8.58	4.96	1.99	0.36	39.87
	SMR (Sig)	77.3	67.0	134.0	116.5	40.4	200.8	281.0	97.8
	At Risk	2954	3085	2121	1524	758	176	28	4361
	Person Yrs	19561.2	22119.6	13625.2	9668.7	4194.8	1110.8	144.5	70424.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0624

Table A9.6

Standardized Mortality Ratios for Lung Cancer by Time Since First Employment and Cumulative Employment for Potroom Workers in the Vertical Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.29	0.23	0.00	0.00	0.00	0.00	0.00	0.51
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	529	638	0	0	0	0	0	892
	Person Yrs	1632.1	2673.5	0.0	0.0	0.0	0.0	0.0	4305.6
10-19	Obs	0	1	0	0	0	0	0	1
	Exp	1.04	0.39	0.00	0.77	0.00	0.00	0.00	3.00
	SMR (Sig)	---	255.5	---	---	---	---	---	33.4
	At Risk	249	586	500	415	0	0	0	871
	Person Yrs	2072.5	1526.4	2738.6	1614.1	0.0	0.0	0.0	7961.7
20-29	Obs	0	0	0	2	0	0	0	2
	Exp	0.86	0.41	0.27	1.07	1.25	0.01	0.00	3.87
	SMR (Sig)	---	---	---	187.2	---	---	---	51.7
	At Risk	146	83	67	407	241	3	0	702
	Person Yrs	840.6	476.7	267.6	1105.4	1450.0	8.4	0.0	4148.7
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.00	0.05	0.02	0.01	0.02	0.05	0.16
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	1	0	1	2	2	5	3	8
	Person Yrs	8.5	0.0	20.6	11.1	8.6	15.2	20.9	85.0
TOTAL	Obs	0	1	0	2	0	0	0	3
	Exp	2.20	1.03	1.11	1.86	1.26	0.03	0.05	7.54
	SMR (Sig)	---	97.2	---	107.6	---	---	---	39.8
	At Risk	536	649	510	430	242	5	3	905
	Person Yrs	4553.7	4686.6	3026.9	2730.6	1458.6	23.6	20.9	16501.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0625

Table A9

Standardized Mortality Ratios for Lung Cancer by Time Since First Employment and Cumulative Employment for Potroom Workers in Plant #3

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.22	0.27	0.00	0.00	0.00	0.00	0.00	0.48
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	324	702	0	0	0	0	0	883
	Person Yrs	1190.7	2003.6	0.0	0.0	0.0	0.0	0.0	3194.3
10-19	Obs	2	0	3	1	0	0	0	6
	Exp	0.72	0.60	1.21	1.08	0.00	0.00	0.00	3.61
	SMR (Sig)	277.7	---	247.8	92.8	---	---	---	166.4
	At Risk	201	646	846	649	0	0	0	1315
	Person Yrs	2120.5	2422.0	4194.0	2563.5	0.0	0.0	0.0	11300.0
20-29	Obs	1	0	1	2	3	3	0	10
	Exp	2.06	1.08	1.55	1.82	2.88	2.03	0.00	11.41
	SMR (Sig)	48.6	---	64.7	110.0	104.2	147.8	---	87.7
	At Risk	207	182	239	622	664	519	0	1418
	Person Yrs	2262.0	1261.6	1487.8	1859.6	3363.8	1909.9	0.0	12144.7
30+	Obs	2	1	1	0	2	6	4	16
	Exp	2.76	0.63	0.92	1.19	1.13	3.44	6.14	16.22
	SMR (Sig)	72.4	157.7	108.6	---	177.7	174.4	65.2	98.7
	At Risk	156	59	108	106	130	468	317	1032
	Person Yrs	1339.4	365.5	488.5	530.8	524.9	1821.9	3063.6	8134.7
TOTAL	Obs	5	1	5	3	5	9	4	32
	Exp	5.76	2.57	3.68	4.09	4.01	5.47	6.14	31.71
	SMR (Sig)	86.8	38.9	136.0	73.3	124.8	164.5	65.2	100.9
	At Risk	500	862	891	765	690	573	317	1579
	Person Yrs	6912.7	6052.8	6170.3	4953.9	3888.7	3731.8	3063.6	34773.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0626

Standardized Mortality Ratios for Lung Cancer by Time Since First Employment and Cumulative Employment for Potroom Workers in Plant #12

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	1	2	0	0	0	0	0	3
	Exp	0.92	0.58	0.00	0.00	0.00	0.00	0.00	1.50
	SMR (Sig)	109.0	345.7	---	---	---	---	---	200.5
	At Risk	893	754	0	0	0	0	0	1432
	Person Yrs	3453.2	3030.7	0.0	0.0	0.0	0.0	0.0	6484.0
10-19	Obs	3	2	3	0	0	0	0	8
	Exp	3.13	1.05	1.71	0.95	0.00	0.00	0.00	6.83
	SMR (Sig)	96.0	190.9	175.4	---	---	---	---	117.1
	At Risk	657	748	574	339	0	0	0	1413
	Person Yrs	5117.2	2574.8	3249.5	1333.6	0.0	0.0	0.0	12275.0
20-29	Obs	5	2	2	0	2	0	0	11
	Exp	2.87	1.02	1.30	1.80	1.69	0.30	0.00	8.98
	SMR (Sig)	173.9	196.6	154.0	---	118.1	---	---	122.4
	At Risk	398	136	197	339	179	48	0	1052
	Person Yrs	2224.3	856.2	947.1	1282.7	1212.4	195.1	0.0	6717.7
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.14	0.09	0.05	0.12	0.14	0.10	0.00	0.64
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	67	40	18	40	46	44	0	255
	Person Yrs	66.9	43.3	19.3	48.3	48.0	49.2	0.0	275.0
TOTAL	Obs	9	6	5	0	2	0	0	22
	Exp	7.06	2.74	3.06	2.87	1.83	0.39	0.00	17.95
	SMR (Sig)	127.5	219.4	163.3	---	109.1	---	---	122.5
	At Risk	911	835	578	356	179	48	0	1467
	Person Yrs	10861.7	6504.9	4215.9	2664.5	1260.4	244.3	0.0	25751.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0627

Table A9.1

Standardized Mortality Ratios for Lung Cancer by Time Since First Employment and Cumulative Employment for Carbon Department Workers in the Prebake Process

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	6	0	0	0	0	0	0	6
	Exp	4.83	1.05	0.00	0.00	0.00	0.00	0.00	5.87
	SMR (Sig)	124.3	---	---	---	---	---	---	102.1
	At Risk	2469	934	0	0	0	0	0	2898
	Person Yrs	13033.0	3883.0	0.0	0.0	0.0	0.0	0.0	16916.0
10-19	Obs	8	3	1	0	0	0	0	12
	Exp	8.35	1.97	2.00	1.19	0.00	0.00	0.00	13.50
	SMR (Sig)	95.8	152.5	50.0	---	---	---	---	88.9
	At Risk	1979	949	606	379	0	0	0	2986
	Person Yrs	12666.1	3309.8	3196.1	1498.8	0.0	0.0	0.0	20670.9
20-29	Obs	9	2	0	1	1	1	0	14
	Exp	7.10	1.76	1.32	1.80	1.75	0.50	0.00	14.23
	SMR (Sig)	126.7	113.3	---	55.4	57.2	201.8	---	98.4
	At Risk	995	244	175	385	261	115	0	1788
	Person Yrs	6539.9	1482.6	897.3	1210.3	1402.5	376.5	0.0	11909.0
30+	Obs	8	0	0	1	2	0	1	12
	Exp	8.46	0.97	0.41	0.65	0.52	1.12	1.78	13.91
	SMR (Sig)	94.5	---	---	153.9	385.8	---	56.3	86.3
	At Risk	481	70	46	47	57	133	68	808
	Person Yrs	4353.4	470.8	204.9	284.0	246.2	580.5	804.3	6944.2
TOTAL	Obs	31	5	1	2	3	1	1	44
	Exp	28.74	5.75	3.73	3.64	2.27	1.62	1.78	47.52
	SMR (Sig)	107.9	86.9	26.8	54.9	132.3	61.9	56.3	92.6
	At Risk	2913	1091	637	437	274	140	68	3550
	Person Yrs	36592.5	9146.1	4298.4	2993.2	1648.7	957.0	804.3	56440.1

* Significant at 5% Level; ** Significant at 1% Level

511971 0628

Standardized Mortality Ratios for Lung Cancer by Time Since First Employment and Cumulative Employment for Carbon Department Workers in the Horizontal Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	1	1	0	0	0	0	0	2
	Exp	2.36	0.40	0.00	0.00	0.00	0.00	0.00	2.75
	SMR (Sig)	42.5	251.2	---	---	---	---	---	72.6
	At Risk	1630	300	0	0	0	0	0	1682
	Person Yrs	9392.0	1251.8	0.0	0.0	0.0	0.0	0.0	10643.8
10-19	Obs	7	1	0	1	0	0	0	9
	Exp	5.44	0.78	0.64	0.34	0.00	0.00	0.00	7.20
	SMR (Sig)	128.7	128.6	---	293.3	---	---	---	125.0
	At Risk	1162	263	168	106	0	0	0	1451
	Person Yrs	8882.3	1267.8	1007.6	419.9	0.0	0.0	0.0	11517.5
20-29	Obs	5	0	0	0	0	0	0	5
	Exp	3.90	0.49	0.21	0.32	0.28	0.02	0.00	5.21
	SMR (Sig)	128.1	---	---	---	---	---	---	95.9
	At Risk	560	84	45	80	45	2	0	781
	Person Yrs	2704.5	366.6	161.6	234.0	227.3	9.6	0.0	3703.5
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.21	0.00	0.00	0.01	0.00	0.04	0.00	0.27
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	38	2	1	1	1	2	0	45
	Person Yrs	88.1	1.3	1.4	6.6	0.1	11.6	0.0	109.1
TOTAL	Obs	13	2	0	1	0	0	0	16
	Exp	11.90	1.67	0.86	0.67	0.28	0.05	0.00	15.43
	SMR (Sig)	109.2	120.0	---	148.6	---	---	---	103.7
	At Risk	1635	328	169	109	45	2	0	1687
	Person Yrs	21066.8	2827.5	1170.6	660.4	227.4	21.2	0.0	25973.9

* Significant at 5% Level; ** Significant at 1% Level

511971 0629

Standardized Mortality Ratios for Lung Cancer by Time Since First Employment and Cumulative Employment for Carbon Department Workers in the Vertical Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.20	0.05	0.00	0.00	0.00	0.00	0.00	0.25
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	305	59	0	0	0	0	0	401
	Person Yrs	1756.2	266.5	0.0	0.0	0.0	0.0	0.0	2022.7
10-19	Obs	0	0	0	0	0	0	0	0
	Exp	1.15	0.08	0.11	0.09	0.00	0.00	0.00	1.44
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	336	57	31	25	0	0	0	395
	Person Yrs	3066.5	198.1	166.2	101.1	0.0	0.0	0.0	3531.9
20-29	Obs	1	0	0	0	0	0	0	1
	Exp	1.68	0.05	0.05	0.13	0.08	0.00	0.00	1.99
	SMR (Sig)	59.6	---	---	---	---	---	---	50.3
	At Risk	267	11	5	22	11	0	0	305
	Person Yrs	1703.2	54.6	21.9	71.6	69.5	0.0	0.0	1920.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	1	0	0	0	0	0	0	1
	Person Yrs	8.5	0.0	0.0	0.0	0.0	0.0	0.0	8.5
TOTAL	Obs	1	0	0	0	0	0	0	1
	Exp	3.04	0.19	0.16	0.22	0.08	0.00	0.00	3.69
	SMR (Sig)	32.9	---	---	---	---	---	---	27.1
	At Risk	386	61	31	26	11	0	0	402
	Person Yrs	6534.5	519.2	188.1	172.6	69.5	0.0	0.0	7484.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0630

Standardized Mortality Ratios for Lung Cancer by Time Since First Employment and Cumulative Employment for Carbon Department Workers in Plant #3

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.49	0.10	0.00	0.00	0.00	0.00	0.00	0.58
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	405	203	0	0	0	0	0	554
	Person Yrs	1937.0	670.4	0.0	0.0	0.0	0.0	0.0	2607.4
10-19	Obs	0	1	1	0	0	0	0	2
	Exp	1.64	0.27	0.46	0.28	0.00	0.00	0.00	2.66
	SMR (Sig)	---	368.5	219.3	---	---	---	---	75.3
	At Risk	470	212	109	119	0	0	0	749
	Person Yrs	3605.8	901.9	1004.7	468.3	0.0	0.0	0.0	5980.7
20-29	Obs	1	1	0	1	0	0	0	3
	Exp	3.47	0.61	0.54	0.56	0.70	0.41	0.00	6.30
	SMR (Sig)	28.8	163.1	---	177.0	---	---	---	47.7
	At Risk	427	89	77	109	110	73	0	706
	Person Yrs	3448.8	673.6	464.1	437.8	585.5	294.7	0.0	5904.5
30+	Obs	2	0	1	1	0	3	3	10
	Exp	4.30	0.63	0.31	0.31	0.41	0.50	0.74	7.20
	SMR (Sig)	46.5	---	318.2	322.8	---	602.4 *	407.1	138.9
	At Risk	297	40	34	27	33	60	36	495
	Person Yrs	2205.3	316.0	157.4	146.5	165.3	221.7	357.8	3569.8
TOTAL	Obs	3	2	2	2	0	3	3	15
	Exp	9.90	1.61	1.31	1.16	1.11	0.90	0.74	16.73
	SMR (Sig)	30.3 *	124.5	152.4	172.5	---	331.6	407.1	89.6
	At Risk	610	279	196	150	115	79	36	865
	Person Yrs	11196.9	2562.0	1626.2	1052.6	750.8	516.3	357.8	18062.5

* Significant at 5% Level; ** Significant at 1% Level

511971 0631

Table ...5

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Carbon Department Workers in Plant #12

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	1	1	0	0	0	0	0	2
	Exp	1.46	0.32	0.00	0.00	0.00	0.00	0.00	1.79
	SMR (Sig)	68.4	310.1	---	---	---	---	---	112.0
	At Risk	790	316	0	0	0	0	0	899
	Person Yrs	3641.8	1240.4	0.0	0.0	0.0	0.0	0.0	4882.2
10-19	Obs	2	1	0	1	0	0	0	4
	Exp	2.67	0.57	0.75	0.38	0.00	0.00	0.00	4.36
	SMR (Sig)	75.0	176.7	---	264.9	---	---	---	91.7
	At Risk	509	315	228	141	0	0	0	816
	Person Yrs	3821.7	1110.2	1282.2	503.8	0.0	0.0	0.0	6718.0
20-29	Obs	1	0	0	0	0	0	0	1
	Exp	1.77	0.39	0.49	0.71	0.50	0.09	0.00	3.96
	SMR (Sig)	56.6	---	---	---	---	---	---	25.3
	At Risk	270	59	71	142	69	13	0	528
	Person Yrs	1440.2	312.9	345.7	563.6	426.2	55.4	0.0	3143.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.08	0.03	0.03	0.04	0.02	0.02	0.00	0.22
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	36	8	9	14	8	9	0	84
	Person Yrs	39.4	10.0	9.5	17.2	7.4	10.5	0.0	94.1
TOTAL	Obs	4	2	0	1	0	0	0	7
	Exp	5.98	1.31	1.27	1.13	0.53	0.11	0.00	10.32
	SMR (Sig)	66.9	152.5	---	88.4	---	---	---	67.8
	At Risk	805	348	229	152	69	13	0	914
	Person Yrs	8943.1	2673.5	1637.5	1084.6	433.6	65.9	0.0	14838.1

* Significant at 5% Level; ** Significant at 1% Level

511971 0632

Standardized Mortality Ratios for Lung Cancer by Time Since First Employment and Cumulative Employment for Potroom and Carbon Department Workers in the Prebake Process

Cause of Death: CANCER OF LUNG

Latency		Cumulative-Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	1	0	0	0	0	0	0	1
	Exp	2.35	2.61	0.00	0.00	0.00	0.00	0.00	4.96
	SMR (Sig)	42.5	---	---	---	---	---	---	20.2
	At Risk	2647	3550	0	0	0	0	0	5173
	Person Yrs	8799.5	14768.3	0.0	0.0	0.0	0.0	0.0	23567.8
10-19	Obs	5	9	3	5	0	0	0	21
	Exp	6.38	5.06	6.26	4.85	0.00	0.00	0.00	22.56
	SMR (Sig)	78.3	150.0	47.9	103.1	---	---	---	93.1
	At Risk	1974	3588	2645	1880	0	0	0	5895
	Person Yrs	13045.9	12114.3	13582.0	7103.2	0.0	0.0	0.0	45845.4
20-29	Obs	11	8	3	6	7	2	0	37
	Exp	8.52	5.24	4.18	7.64	7.48	2.53	0.00	35.60
	SMR (Sig)	129.1	152.6	71.8	78.6	93.6	78.9	---	103.9
	At Risk	1274	856	734	1996	1270	582	0	4738
	Person Yrs	8964.2	4886.7	3627.7	6181.8	6623.9	2055.9	0.0	32340.2
30+	Obs	17	2	1	1	6	1	9	37
	Exp	11.47	2.50	1.08	2.31	2.68	4.42	9.86	35.11
	SMR (Sig)	148.3	80.1	53.3	43.3	223.7	22.6	91.3	105.4
	At Risk	712	209	190	220	326	681	376	2213
	Person Yrs	6032.5	1302.4	1010.9	1137.6	1354.2	2481.8	4657.7	17977.0
TOTAL	Obs	34	18	7	12	13	3	9	96
	Exp	28.72	15.41	12.32	14.79	10.16	6.95	9.86	98.23
	SMR (Sig)	118.4	116.8	56.8	81.1	127.9	43.1	91.3	97.7
	At Risk	3379	4136	2823	2179	1334	726	376	6856
	Person Yrs	36842.1	33071.6	18220.5	14422.6	7978.1	4537.7	4657.7	119730.3

* Significant at 5% Level; ** Significant at 1% Level

511971 0633

Table A9.17

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Potroom and Carbon Department Workers in the Horizontal Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative-Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	2	1	0	0	0	0	0	3
	Exp	1.21	1.87	0.00	0.00	0.00	0.00	0.00	3.08
	SMR (Sig)	164.7	53.6	---	---	---	---	---	97.4
	At Risk	2690	3210	0	0	0	0	0	4398
	Person Yrs	7120.3	13633.1	0.0	0.0	0.0	0.0	0.0	20761.4
10-19	Obs	1	5	8	3	0	0	0	17
	Exp	3.63	3.41	5.14	4.38	0.00	0.00	0.00	16.56
	SMR (Sig)	27.6	146.8	155.5	68.4	---	---	---	102.7
	At Risk	1040	2371	2328	1669	0	0	0	4191
	Person Yrs	7570.8	8356.8	12742.3	6979.9	0.0	0.0	0.0	35649.8
20-29	Obs	3	0	2	5	5	2	0	17
	Exp	2.67	2.46	2.24	4.61	5.14	1.21	0.00	18.33
	SMR (Sig)	112.2	---	89.3	108.5	97.3	165.9	---	92.7
	At Risk	546	483	468	1234	877	195	0	3074
	Person Yrs	2279.6	1950.7	1883.8	3772.3	4637.3	768.6	0.0	15332.3
30+	Obs	0	0	0	0	0	2	1	3
	Exp	0.10	0.26	0.34	0.55	0.61	1.11	0.43	3.49
	SMR (Sig)	---	---	---	---	---	179.6	231.3	86.0
	At Risk	25	31	32	55	90	156	34	378
	Person Yrs	88.7	112.0	142.1	213.2	256.5	510.7	176.3	1499.5
TOTAL	Obs	6	6	10	8	5	4	1	40
	Exp	7.70	8.00	7.72	9.54	5.75	2.32	0.43	41.46
	SMR (Sig)	78.0	75.0	129.5	83.8	87.0	172.5	231.3	96.5
	At Risk	2736	3389	2355	1737	881	203	34	4522
	Person Yrs	17067.4	24052.6	14768.3	10965.4	4893.8	1279.3	176.3	73243.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0634

Table A9,18

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Potroom and Carbon Department Workers in the Vertical Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.25	0.30	0.00	0.00	0.00	0.00	0.00	0.56
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	340	711	0	0	0	0	0	945
	Person Yrs	1416.8	3114.1	0.0	0.0	0.0	0.0	0.0	4531.0
10-19	Obs	0	1	0	0	0	0	0	1
	Exp	0.93	0.45	0.87	0.95	0.00	0.00	0.00	3.19
	SMR (Sig)	---	224.6	---	---	---	---	---	31.3
	At Risk	232	634	545	462	0	0	0	928
	Person Yrs	1891.1	1634.7	2945.6	1860.7	0.0	0.0	0.0	8332.1
20-29	Obs	0	0	0	2	0	0	0	2
	Exp	0.71	0.50	0.27	1.09	1.54	0.01	0.00	4.12
	SMR (Sig)	---	---	---	182.9	---	---	---	48.6
	At Risk	120	99	56	434	281	3	0	726
	Person Yrs	698.9	554.1	283.8	1071.7	1714.0	8.6	0.0	4331.1
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.03	0.00	0.05	0.02	0.01	0.02	0.05	0.17
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	2	0	1	2	2	5	3	9
	Person Yrs	17.0	0.0	20.6	11.1	8.6	15.2	20.9	93.5
TOTAL	Obs	0	1	0	2	0	0	0	3
	Exp	1.91	1.25	1.19	2.06	1.54	0.03	0.05	8.03
	SMR (Sig)	---	80.1	---	96.9	---	---	---	37.3
	At Risk	346	717	548	466	282	5	3	959
	Person Yrs	4023.9	5302.9	3250.0	2943.5	1722.7	23.8	20.9	17287.7

Significant at 5% Level; ** Significant at 1% Level

511971 0635

Table A9.19

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Potroom and Carbon Department Workers in Plant #3

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.16	0.30	0.00	0.00	0.00	0.00	0.00	0.46
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	318	858	0	0	0	0	0	1048
	Person Yrs	1080.3	2444.7	0.0	0.0	0.0	0.0	0.0	3533.0
10-19	Obs	1	0	2	2	0	0	0	5
	Exp	0.67	0.76	1.54	1.28	0.00	0.00	0.00	4.25
	SMR (Sig)	150.2	---	129.7	156.2	---	---	---	117.7
	At Risk	315	830	1025	774	0	0	0	1610
	Person Yrs	2236.4	3117.6	5125.6	3014.2	0.0	0.0	0.0	13493.8
20-29	Obs	1	1	1	2	4	2	0	11
	Exp	2.04	1.54	2.02	2.24	3.53	2.39	0.00	13.74
	SMR (Sig)	49.0	65.1	49.6	89.5	113.3	83.8	---	80.0
	At Risk	298	250	312	722	793	608	0	1695
	Person Yrs	2391.3	1744.0	1927.5	2342.7	4007.7	2237.0	0.0	14650.1
30+	Obs	1	1	3	1	2	8	9	25
	Exp	3.29	0.89	1.12	1.67	1.50	3.91	7.42	19.88
	SMR (Sig)	30.4	112.2	267.9	59.8	126.4	204.6	121.3	125.8
	At Risk	184	80	142	136	163	531	383	1265
	Person Yrs	1615.3	502.5	592.6	705.1	710.5	2076.7	3719.0	10001.7
TOTAL	Obs	3	2	6	5	6	10	9	41
	Exp	6.15	3.49	4.68	5.19	5.11	6.30	7.42	38.33
	SMR (Sig)	48.8	57.3	128.3	96.4	117.4	158.8	121.3	107.0
	At Risk	515	1101	1086	929	822	670	383	1911
	Person Yrs	7331.2	7008.8	7645.8	6142.0	4718.2	4313.7	3719.0	41678.6

* Significant at 5% Level; ** Significant at 1% Level

511971 0636

Table A9.20

Standardized Mortality Ratios for Lung Concer by Time Since First Employment and Cumulative Employment for Potroom and Carbon Department Workers in Plant #12

Cause of Death: CANCER CF LUNG

Latency		Cumulative Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Cbs	0	2	0	0	0	0	0	2
	Exp	0.59	C.92	0.00	0.00	0.00	0.00	0.00	1.51
	SMR (Sig)	---	218.2	---	---	---	---	---	132.9
	At Risk	730	1130	0	0	0	0	0	1568
	Person Yrs	2196.6	4514.2	0.0	0.0	0.0	0.0	0.0	6710.8
10-19	Cbs	2	2	5	1	0	0	0	10
	Exp	2.08	1.37	2.55	1.43	0.00	0.00	0.00	7.43
	SMR (Sig)	96.0	146.5	196.3	70.0	---	---	---	134.7
	At Risk	432	1072	841	520	0	0	0	1566
	Person Yrs	3277.1	3515.5	4819.3	1985.5	0.0	0.0	0.0	13597.5
20-29	Cbs	5	1	3	0	2	0	0	11
	Exp	2.06	1.35	1.63	2.59	2.36	0.44	0.00	10.43
	SMR (Sig)	243.3	73.9	183.9	---	84.6	---	---	105.5
	At Risk	259	165	262	514	272	70	0	1181
	Person Yrs	1526.9	1053.2	1257.2	1934.1	1794.2	284.6	0.0	7850.2
30+	Cbs	0	0	0	0	0	0	0	0
	Exp	0.16	C.12	0.07	0.16	0.18	0.13	0.00	0.82
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	63	45	26	53	60	59	0	306
	Person Yrs	71.8	49.2	27.6	62.6	64.6	67.4	0.0	343.3
TOTAL	Cbs	7	5	8	1	2	0	0	23
	Exp	4.88	3.76	4.24	4.17	2.54	0.57	0.00	20.17
	SMR (Sig)	143.3	133.0	188.5	24.0	78.6	---	---	114.0
	At Risk	748	1198	844	542	272	70	0	1611
	Person Yrs	7072.5	9132.1	6104.1	3982.2	1858.8	352.0	0.0	28501.7

Significant at 5% Level; ** Significant at 1% Level

511971 0637

Table A9.21

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Potmen in the Prebake Process

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	2	0	0	0	0	0	0	2
	Exp	0.67	1.55	0.00	0.00	0.00	0.00	0.00	2.22
	SMR (Sig)	300.0	---	---	---	---	---	---	90.2
	At Risk	1699	2284	0	0	0	0	0	3028
	Person Yrs	4156.9	9435.7	0.0	0.0	0.0	0.0	0.0	13592.6
10-19	Obs	3	5	1	3	0	0	0	12
	Exp	2.24	3.10	4.25	3.15	0.00	0.00	0.00	12.73
	SMR (Sig)	134.0	161.2	23.6	95.4	---	---	---	94.3
	At Risk	902	2352	1007	1291	0	0	0	3453
	Person Yrs	5549.3	7973.3	9422.7	4900.3	0.0	0.0	0.0	27844.6
20-29	Obs	4	6	2	5	6	1	0	24
	Exp	3.73	3.55	3.11	5.13	4.93	1.82	0.00	22.27
	SMR (Sig)	107.2	169.1	64.4	97.6	121.7	54.8	---	107.8
	At Risk	627	581	519	1377	869	418	0	3027
	Person Yrs	3980.3	3354.0	2650.5	4220.4	4542.0	1482.9	0.0	20270.2
30+	Obs	8	2	1	2	3	1	7	24
	Exp	7.06	1.61	1.81	1.67	1.73	2.95	7.16	23.98
	SMR (Sig)	113.4	124.5	55.1	119.8	173.9	33.9	97.7	100.1
	At Risk	368	140	153	155	215	477	271	1444
	Person Yrs	3632.9	839.6	950.7	799.1	881.1	1670.0	3387.4	12160.8
TOTAL	Obs	17	13	4	10	9	2	7	62
	Exp	13.69	9.81	9.16	9.94	6.66	4.77	7.16	61.20
	SMR (Sig)	124.1	132.5	43.7	100.6	135.2	41.9	97.7	101.3
	At Risk	2136	2656	1941	1488	911	507	271	4098
	Person Yrs	17318.4	21642.4	13024.0	9919.8	5423.1	3152.9	3387.4	73868.1

Significant at 5% Level; ** Significant at 1% Level

511971 0638

Table A9.22

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Potmen in the Horizontal Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.33	1.11	0.00	0.00	0.00	0.00	0.00	1.44
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	1489	2009	0	0	0	0	0	2397
	Person Yrs	2623.0	8448.6	0.0	0.0	0.0	0.0	0.0	11071.6
10-19	Obs	0	1	6	3	0	0	0	10
	Exp	1.09	1.76	3.34	3.00	0.00	0.00	0.00	9.20
	SMR (Sig)	---	56.8	179.5	100.0	---	---	---	108.8
	At Risk	325	1431	1614	1173	0	0	0	2312
	Person Yrs	2355.2	4724.3	8667.4	4913.5	0.0	0.0	0.0	20660.4
20-29	Obs	2	0	1	5	2	2	0	12
	Exp	1.06	1.27	1.75	3.41	3.56	0.81	0.00	11.85
	SMR (Sig)	188.9	---	57.3	146.8	56.1	247.3	---	101.3
	At Risk	179	251	343	877	635	136	0	1881
	Person Yrs	804.3	1115.7	1457.9	2792.1	3303.4	529.4	0.0	10082.9
30+	Obs	0	0	0	0	0	1	1	2
	Exp	0.09	0.21	0.31	0.50	0.47	0.76	0.29	2.63
	SMR (Sig)	---	---	---	---	---	132.1	345.7	76.1
	At Risk	9	22	26	49	62	110	23	271
	Person Yrs	33.6	91.3	119.6	190.7	204.7	359.3	119.8	1118.9
TOTAL	Obs	2	1	7	8	2	3	1	24
	Exp	2.57	4.35	5.40	6.91	4.04	1.57	0.29	25.12
	SMR (Sig)	77.8	23.0	129.7	115.8	49.5	191.6	345.7	95.5
	At Risk	1511	2143	1637	1237	639	143	23	2478
	Person Yrs	5896.0	14360.0	10244.9	7896.3	3508.1	888.7	119.8	42933.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0639

Table A9.23

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Potmen in the Vertical Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.09	0.21	0.00	0.00	0.00	0.00	0.00	0.29
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	364	572	0	0	0	0	0	698
	Person Yrs	749.0	2417.7	0.0	0.0	0.0	0.0	0.0	3166.7
10-19	Obs	0	1	0	0	0	0	0	1
	Exp	0.41	0.33	0.73	0.74	0.00	0.00	0.00	2.20
	SMR (Sig)	---	300.1	---	---	---	---	---	45.4
	At Risk	123	535	472	395	0	0	0	688
	Person Yrs	1076.3	1334.3	2536.5	1537.3	0.0	0.0	0.0	6484.4
20-29	Obs	0	0	0	2	0	0	0	2
	Exp	0.64	0.37	0.26	1.00	1.17	0.01	0.00	3.45
	SMR (Sig)	---	---	---	200.2	---	---	---	57.9
	At Risk	100	72	58	389	230	3	0	618
	Person Yrs	624.4	424.2	251.9	1045.3	1379.2	8.4	0.0	3733.5
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.00	0.05	0.02	0.01	0.02	0.05	0.14
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	0	1	2	2	5	3	7
	Person Yrs	0.0	0.0	20.6	11.1	8.6	15.2	20.9	76.5
TOTAL	Obs	0	1	0	2	0	0	0	3
	Exp	1.14	0.92	1.03	1.75	1.18	0.03	0.05	6.10
	SMR (Sig)	---	109.2	---	114.0	---	---	---	49.2
	At Risk	366	581	474	407	231	5	3	706
	Person Yrs	2449.7	4176.2	2809.0	2593.8	1387.8	23.6	20.9	13461.1

* Significant at 5% Level; ** Significant at 1% Level

511971 0640

Table A9.24

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Potmen in Plant #3

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.10	0.22	0.00	0.00	0.00	0.00	0.00	0.32
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	239	671	0	0	0	0	0	784
	Person Yrs	801.6	1899.4	0.0	0.0	0.0	0.0	0.0	2701.0
10-19	Obs	1	0	3	1	0	0	0	5
	Exp	0.43	0.51	1.15	1.04	0.00	0.00	0.00	3.13
	SMR (Sig)	232.1	---	261.3	95.8	---	---	---	159.8
	At Risk	180	623	816	629	0	0	0	1167
	Person Yrs	1322.4	2313.2	4041.6	2473.9	0.0	0.0	0.0	10151.0
20-29	Obs	1	0	1	2	3	3	0	10
	Exp	1.32	1.02	1.46	1.76	2.81	1.96	0.00	10.34
	SMR (Sig)	75.7	---	68.3	113.5	106.8	153.1	---	96.7
	At Risk	182	174	228	611	644	500	0	1272
	Person Yrs	1426.3	1206.1	1422.4	1814.2	3262.8	1830.0	0.0	10961.9
30+	Obs	1	1	1	0	2	6	4	15
	Exp	1.51	0.60	0.86	1.16	1.10	3.35	5.96	14.54
	SMR (Sig)	66.3	167.8	115.9	---	181.6	179.2	67.1	103.2
	At Risk	93	54	105	104	129	459	305	942
	Person Yrs	758.7	338.0	460.8	516.8	518.9	1779.6	2959.9	7340.7
TOTAL	Obs	3	1	5	3	5	9	4	30
	Exp	3.36	2.34	3.47	3.97	3.91	5.31	5.96	28.32
	SMR (Sig)	89.3	42.7	143.9	75.7	127.9	169.6	67.1	105.9
	At Risk	353	926	861	743	670	554	305	1399
	Person Yrs	4308.9	5756.8	5932.8	4804.9	3781.7	3609.6	2959.9	31154.5

* Significant at 5% Level; ** Significant at 1% Level

511971 0641

Table A9.25

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Potmen in Plant #12

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	2	0	0	0	0	0	2
	Exp	0.24	0.53	0.00	0.00	0.00	0.00	0.00	0.77
	SMR (Sig)	---	377.0	---	---	---	---	---	259.4
	At Risk	379	634	0	0	0	0	0	844
	Person Yrs	1012.9	2619.4	0.0	0.0	0.0	0.0	0.0	3632.2
10-19	Obs	3	2	3	0	0	0	0	8
	Exp	0.97	0.86	1.59	0.90	0.00	0.00	0.00	4.32
	SMR (Sig)	308.7	233.9	188.4	---	---	---	---	185.2
	At Risk	221	619	518	322	0	0	0	855
	Person Yrs	1678.2	2017.4	2948.2	1262.7	0.0	0.0	0.0	7906.6
20-29	Obs	4	1	2	0	2	0	0	9
	Exp	1.36	0.90	1.13	1.76	1.58	0.26	0.00	7.00
	SMR (Sig)	293.2	111.3	176.5	---	126.4	---	---	128.6
	At Risk	138	111	166	324	168	42	0	722
	Person Yrs	1044.4	741.3	810.0	1246.6	1144.9	170.1	0.0	5157.4
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.12	0.09	0.04	0.12	0.13	0.08	0.00	0.57
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	61	39	15	39	44	38	0	236
	Person Yrs	58.7	41.8	15.6	46.8	45.1	40.5	0.0	248.4
TOTAL	Obs	7	5	5	0	2	0	0	19
	Exp	2.70	2.37	2.77	2.78	1.71	0.33	0.00	12.66
	SMR (Sig)	259.6 *	210.8	180.7	---	117.0	---	---	150.1
	At Risk	390	697	521	338	168	42	0	869
	Person Yrs	3794.1	5419.9	3773.9	2556.1	1189.9	210.7	0.0	16944.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0642

Table A9.26

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Anodemen in the Prebake Process

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.16	0.74	0.00	0.00	0.00	0.00	0.00	0.90
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	779	1429	0	0	0	0	0	1621
	Person Yrs	1277.3	5929.3	0.0	0.0	0.0	0.0	0.0	7206.6
10-19	Obs	1	1	2	2	0	0	0	6
	Exp	0.49	1.15	2.21	1.99	0.00	0.00	0.00	5.84
	SMR (Sig)	202.6	87.2	90.4	100.5	---	---	---	102.7
	At Risk	231	1436	1226	911	0	0	0	1831
	Person Yrs	1366.3	3956.3	6270.7	3502.0	0.0	0.0	0.0	15135.3
20-29	Obs	0	2	1	2	4	1	0	10
	Exp	0.79	1.35	1.41	2.82	3.30	1.31	0.00	10.98
	SMR (Sig)	---	148.0	70.9	70.9	121.3	76.3	---	91.1
	At Risk	112	246	274	952	629	319	0	1607
	Person Yrs	746.8	1473.9	1442.3	2761.3	3243.9	1118.8	0.0	10787.1
30+	Obs	2	0	1	2	2	1	5	13
	Exp	0.48	0.85	0.84	0.93	1.02	2.10	5.57	11.80
	SMR (Sig)	410.6	---	118.4	214.0	195.9	47.6	89.8	110.2
	At Risk	42	71	79	89	142	359	210	745
	Person Yrs	243.7	456.2	469.2	482.6	553.2	1224.6	2641.1	6070.7
TOTAL	Obs	3	3	4	6	6	2	5	29
	Exp	1.92	4.09	4.47	5.75	4.32	3.41	5.57	29.52
	SMR (Sig)	156.1	73.3	89.5	104.4	138.9	58.6	89.8	98.2
	At Risk	852	1635	1279	1027	657	381	210	2123
	Person Yrs	3634.1	11855.6	8182.3	6745.9	3797.1	2343.4	2641.1	39199.6

* Significant at 5% Level; ** Significant at 1% Level

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Table A9.27

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Anodemen in the Horizontal Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	1	0	0	0	0	0	1
	Exp	0.30	0.92	0.00	0.00	0.00	0.00	0.00	1.23
	SMR (Sig)	---	108.3	---	---	---	---	---	81.6
	At Risk	1314	1912	0	0	0	0	0	2257
	Person Yrs	2345.8	8185.1	0.0	0.0	0.0	0.0	0.0	10530.9
10-19	Obs	0	3	6	0	0	0	0	9
	Exp	0.02	1.55	2.95	2.17	0.00	0.00	0.00	7.69
	SMR (Sig)	---	193.5	203.6	---	---	---	---	117.1
	At Risk	299	1448	1428	981	0	0	0	2180
	Person Yrs	1887.8	4728.8	7988.7	4091.0	0.0	0.0	0.0	18696.3
20-29	Obs	1	0	2	6	1	2	0	12
	Exp	0.73	1.19	1.53	2.60	2.66	0.44	0.00	9.15
	SMR (Sig)	136.4	---	131.0	230.8	37.6	452.9	---	131.1
	At Risk	128	258	342	744	512	83	0	1655
	Person Yrs	611.8	1051.8	1347.0	2290.1	2585.0	314.9	0.0	8200.6
30+	Obs	0	0	0	0	0	0	1	1
	Exp	0.00	0.22	0.19	0.28	0.35	0.47	0.22	1.79
	SMR (Sig)	---	---	---	---	---	---	460.4	55.7
	At Risk	14	23	19	31	46	73	17	205
	Person Yrs	39.1	52.9	70.9	118.0	159.1	234.3	87.2	801.6
TOTAL	Obs	1	4	8	6	1	2	1	23
	Exp	1.93	3.88	4.66	5.25	3.01	0.91	0.22	19.86
	SMR (Sig)	51.7	103.1	171.7	114.4	33.3	219.0	460.4	115.8
	At Risk	1334	2029	1445	1031	514	87	17	2318
	Person Yrs	4884.5	14058.6	9406.6	6499.2	2744.2	549.2	87.2	38229.4

* Significant at 5% Level; ** Significant at 1% Level

511971 0644

Table A9.20

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Anodemen in the Vertical Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.06	0.00	0.00	0.00	0.00	0.00	0.07
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	150	236	0	0	0	0	0	252
	Person Yrs	116.7	1012.9	0.0	0.0	0.0	0.0	0.0	1129.6
10-19	Obs	0	0	0	0	0	0	0	0
	Exp	0.02	0.08	0.21	0.27	0.00	0.00	0.00	0.59
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	15	222	200	175	0	0	0	250
	Person Yrs	116.7	465.5	1062.2	716.9	0.0	0.0	0.0	2361.2
20-29	Obs	0	0	0	1	0	0	0	1
	Exp	0.06	0.10	0.09	0.34	0.57	0.00	0.00	1.17
	SMR (Sig)	---	---	---	296.6	---	---	---	85.8
	At Risk	11	23	18	169	118	0	0	224
	Person Yrs	79.7	150.5	94.0	407.9	765.4	0.0	0.0	1497.5
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	0	0	0	0	0	0	0
	Person Yrs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	Obs	0	0	0	1	0	0	0	1
	Exp	0.09	0.25	0.30	0.61	0.57	0.00	0.00	1.82
	SMR (Sig)	---	---	---	164.7	---	---	---	55.0
	At Risk	150	239	200	178	118	0	0	252
	Person Yrs	313.1	1628.9	1156.2	1124.8	765.4	0.0	0.0	4988.3

* Significant at 5% Level; ** Significant at 1% Level

511971 0645

Table A9.

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Anodemen in Plant #3

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.06	0.00	0.00	0.00	0.00	0.00	0.06
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	32	261	0	0	0	0	0	266
	Person Yrs	55.8	579.5	0.0	0.0	0.0	0.0	0.0	635.3
10-19	Obs	0	0	0	0	0	0	0	0
	Exp	0.02	0.06	0.39	0.53	0.00	0.00	0.00	1.00
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	10	236	456	405	0	0	0	507
	Person Yrs	69.9	521.1	2044.2	1611.2	0.0	0.0	0.0	4246.4
20-29	Obs	0	0	0	2	2	3	0	7
	Exp	0.08	0.06	0.32	0.71	1.58	1.38	0.00	4.13
	SMR (Sig)	---	---	---	283.1	126.5	217.8	---	169.3
	At Risk	10	25	82	377	440	373	0	508
	Person Yrs	90.8	131.1	429.0	970.3	2164.5	1389.3	0.0	5175.0
30+	Obs	0	0	0	0	2	2	4	8
	Exp	0.11	0.21	0.39	0.54	0.72	2.29	4.81	9.08
	SMR (Sig)	---	---	---	---	277.3	87.3	83.1	88.1
	At Risk	10	14	32	54	82	338	245	537
	Person Yrs	64.4	137.0	213.2	262.0	361.4	1240.9	2428.9	4707.8
TOTAL	Obs	0	0	0	2	4	5	4	15
	Exp	0.22	0.40	1.10	1.78	2.30	3.67	4.81	14.28
	SMR (Sig)	---	---	---	112.4	173.7	136.3	83.1	105.1
	At Risk	41	335	478	466	459	414	245	639
	Person Yrs	280.8	1360.8	2686.3	2843.5	2525.9	2630.3	2428.9	14764.5

* Significant at 5% Level; ** Significant at 1% Level

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Table A9.30

Standardized Mortality Ratios for Lung Cancer by Time Since First Employment and Cumulative Employment for Anodemen in Plant #12

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.08	0.31	0.00	0.00	0.00	0.00	0.00	0.38
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	254	533	0	0	0	0	0	641
	Person Yrs	504.6	2092.5	0.0	0.0	0.0	0.0	0.0	2597.1
10-19	Obs	0	1	1	0	0	0	0	2
	Exp	0.29	0.60	0.99	0.53	0.00	0.00	0.00	2.41
	SMR (Sig)	---	166.9	101.4	---	---	---	---	83.2
	At Risk	116	534	405	234	0	0	0	661
	Person Yrs	718.7	1878.6	2245.4	883.8	0.0	0.0	0.0	5726.5
20-29	Obs	1	2	2	0	1	0	0	6
	Exp	0.40	0.59	0.73	0.98	1.07	0.19	0.00	3.96
	SMR (Sig)	249.6	337.4	275.6	---	93.2	---	---	151.5
	At Risk	56	85	141	233	118	32	0	505
	Person Yrs	340.0	521.4	607.6	873.0	797.5	131.8	0.0	3271.3
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.04	0.06	0.03	0.07	0.09	0.06	0.00	0.35
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	18	23	10	25	31	31	0	138
	Person Yrs	20.5	25.2	9.8	32.2	31.9	33.5	0.0	153.0
TOTAL	Obs	1	3	3	0	1	0	0	8
	Exp	0.81	1.56	1.74	1.58	1.16	0.25	0.00	7.09
	SMR (Sig)	123.7	192.7	172.6	---	86.3	---	---	112.8
	At Risk	264	588	406	246	118	32	0	667
	Person Yrs	1583.9	4517.6	2862.8	1789.0	829.4	165.2	0.0	11747.9

* Significant at 5% Level; ** Significant at 1% Level

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APPENDIX X
Table A10.1

Standardized Mortality Ratios for Leukemia and Aleukemia by Time Since First Employment and Cumulative Employment for Workers in the Prebake Process

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	1.09	0.00	0.00	0.00	0.00	0.00	1.09
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	6920	0	0	0	0	0	6920
	Person Yrs	0.0	28029.4	0.0	0.0	0.0	0.0	0.0	29029.0
10-19	Obs	0	2	1	2	0	0	0	5
	Exp	0.00	1.13	1.75	1.16	0.00	0.00	0.00	4.04
	SMR (Sig)	---	176.8	57.0	173.1	---	---	---	123.8
	At Risk	0	6777	5533	4116	0	0	0	8227
	Person Yrs	0.0	20974.2	27960.4	15484.5	0.0	0.0	0.0	64419.1
20-29	Obs	0	1	1	3	3	0	0	8
	Exp	0.00	0.83	0.84	1.60	1.64	0.59	0.00	5.50
	SMR (Sig)	---	119.9	118.7	187.5	183.3	---	---	145.4
	At Risk	0	1415	1411	4310	3200	1581	0	7051
	Person Yrs	0.0	8137.1	6751.8	13158.2	16458.5	5428.6	0.0	49934.2
30+	Obs	0	0	0	0	3	0	5	8
	Exp	0.00	0.23	0.42	0.67	0.81	1.22	3.32	6.67
	SMR (Sig)	---	---	---	---	370.4	---	150.8	119.9
	At Risk	0	309	406	579	862	1038	1115	3674
	Person Yrs	0.0	1400.8	1903.3	2687.6	3556.7	6701.6	13363.6	29701.7
TOTAL	Obs	0	3	2	5	6	0	5	21
	Exp	0.00	3.28	3.02	3.43	2.45	1.81	3.32	17.30
	SMR (Sig)	---	91.5	66.2	145.9	245.2	---	150.8	121.4
	At Risk	0	6065	5948	4909	3404	2006	1115	9625
	Person Yrs	0.0	58548.5	36615.5	31330.4	20015.2	12210.1	13363.6	172084.0

* Significant at 5% Level; ** Significant at 1% Level

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Table A10,2

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Employment
for Workers in the Horizontal Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	1	0	0	0	0	0	1
	Exp	0.00	1.02	0.00	0.00	0.00	0.00	0.00	1.02
	SMR (Sig)	---	97.8	---	---	---	---	---	97.7
	At Risk	0	6318	0	0	0	0	0	6318
	Person Yrs	0.0	27931.6	0.0	0.0	0.0	0.0	0.0	27933.7
10-19	Obs	0	0	3	2	0	0	0	5
	Exp	0.00	0.51	1.36	1.11	0.00	0.00	0.00	2.98
	SMR (Sig)	---	---	220.8	180.2	---	---	---	167.7
	At Risk	0	2908	4750	3700	0	0	0	6147
	Person Yrs	0.0	10420.3	25051.9	16205.8	0.0	0.0	0.0	51678.0
20-29	Obs	0	0	1	0	0	0	0	1
	Exp	0.00	0.17	0.26	0.73	1.09	0.18	0.00	2.44
	SMR (Sig)	---	---	334.4	---	---	---	---	41.0
	At Risk	0	468	515	2330	2167	364	0	4509
	Person Yrs	0.0	1853.3	1891.7	6315.6	11415.0	1490.2	0.0	23006.0
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.02	0.03	0.08	0.10	0.14	0.07	0.45
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	35	31	77	123	258	84	535
	Person Yrs	0.0	146.6	133.8	265.5	457.8	821.0	456.5	2281.1
TOTAL	Obs	0	1	4	2	0	0	0	7
	Exp	0.00	1.73	1.65	1.92	1.20	0.32	0.07	6.89
	SMR (Sig)	---	57.7	242.8	103.9	---	---	---	101.6
	At Risk	0	6533	4793	3812	2177	376	84	6534
	Person Yrs	0.0	40391.8	27077.4	22786.9	11872.8	2311.2	456.5	104898.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0649

Table A10.3

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Employment
for Workers in the Vertical Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.22
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	1342	0	0	0	0	0	1342
	Person Yrs	0.0	6036.5	0.0	0.0	0.0	0.0	0.0	6036.8
10-19	Obs	0	2	0	0	0	0	0	2
	Exp	0.00	0.15	0.29	0.22	0.00	0.00	0.00	0.66
	SMR (Sig)	---	1333.0 *	---	---	---	---	---	304.2
	At Risk	0	1134	1006	817	0	0	0	1316
	Person Yrs	0.0	2720.0	5349.2	3359.9	0.0	0.0	0.0	11429.0
20-29	Obs	0	2	0	0	0	0	0	2
	Exp	0.00	0.10	0.06	0.20	0.28	0.01	0.00	0.64
	SMR (Sig)	---	1959.9 **	---	---	---	---	---	310.3
	At Risk	0	150	89	744	516	14	0	1038
	Person Yrs	0.0	889.6	404.9	1758.1	3204.8	57.7	0.0	6314.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.03
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	0	2	3	7	14	11	26
	Person Yrs	0.0	0.0	16.1	7.5	37.8	38.9	94.4	194.7
TOTAL	Obs	0	4	0	0	0	0	0	4
	Exp	0.00	0.48	0.35	0.42	0.28	0.01	0.02	1.56
	SMR (Sig)	---	838.7 **	---	---	---	---	---	256.3
	At Risk	0	1360	1008	826	516	18	11	1369
	Person Yrs	0.0	9646.1	5770.1	5125.5	3242.6	96.6	94.4	23975.5

* Significant at 5% Level; ** Significant at 1% Level

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Table A10.4

Standardized Mortality Ratios for Leukemia and Aleukemia by Time Since First Employment and Cumulative Employment for Workers in Plant #3

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.11
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	1182	0	0	0	0	0	1182
	Person Yrs	0.0	3174.9	0.0	0.0	0.0	0.0	0.0	3174.9
10-19	Obs	0	0	2	1	0	0	0	3
	Exp	0.00	0.17	0.37	0.29	0.00	0.00	0.00	0.83
	SMR (Sig)	---	---	538.9	344.9	---	---	---	361.6
	At Risk	0	1295	1581	1183	0	0	0	2027
	Person Yrs	0.0	4490.6	7357.4	4517.8	0.0	0.0	0.0	16365.8
20-29	Obs	0	0	1	0	0	1	0	2
	Exp	0.00	0.14	0.28	0.44	0.56	0.37	0.00	1.79
	SMR (Sig)	---	---	356.1	---	---	273.7	---	111.9
	At Risk	0	297	554	1188	1233	928	0	2132
	Person Yrs	0.0	1977.0	3069.6	4331.1	6040.3	3363.6	0.0	18781.6
30+	Obs	0	0	0	0	0	0	2	2
	Exp	0.00	0.03	0.15	0.30	0.32	0.66	1.54	3.01
	SMR (Sig)	---	---	---	---	---	---	129.8	66.4
	At Risk	0	76	220	263	330	857	666	1744
	Person Yrs	0.0	252.8	959.9	1305.1	1452.5	3378.2	6954.9	14303.5
TOTAL	Obs	0	0	3	1	0	1	2	7
	Exp	0.00	0.45	0.81	1.03	0.88	1.03	1.54	5.74
	SMR (Sig)	---	---	372.0	97.2	---	97.5	129.8	122.0
	At Risk	0	1503	1715	1508	1207	1080	666	2418
	Person Yrs	0.0	9855.3	11386.9	10234.0	7492.8	6741.8	6954.9	52705.8

* Significant at 5% Level; ** Significant at 1% Level

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Table A10.5

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Employment
for Workers in Plant #12

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.37	0.00	0.00	0.00	0.00	0.00	0.37
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	1932	0	0	0	0	0	1832
	Person Yrs	0.0	7755.0	0.0	0.0	0.0	0.0	0.0	7755.2
10-19	Obs	0	0	1	1	0	0	0	2
	Exp	0.00	0.21	0.60	0.35	0.00	0.00	0.00	1.16
	SMR (Sig)	---	---	167.5	285.8	---	---	---	172.1
	At Risk		1588	1486	1071	0	0	0	1847
	Person Yrs	0.0	3677.1	8092.1	4123.6	0.0	0.0	0.0	15892.8
20-29	Obs	0	0	0	1	0	1	0	2
	Exp	0.00	0.05	0.22	0.44	0.47	0.13	0.00	1.30
	SMR (Sig)	---	---	---	229.0	---	799.9	---	154.2
	At Risk	0	78	292	1017	637	239	0	1384
	Person Yrs	0.0	394.6	1085.3	2895.6	3968.1	1013.6	0.0	9357.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.01	0.01	0.02	0.03	0.04	0.00	0.11
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	15	26	44	112	210	0	407
	Person Yrs	0.0	10.7	31.7	52.3	123.3	247.4	0.0	474.4
TOTAL	Obs	0	0	1	2	0	1	0	4
	Exp	0.00	0.64	0.82	0.81	0.50	0.16	0.00	2.94
	SMR (Sig)	---	---	121.3	246.8	---	608.8	---	136.1
	At Risk	0	1883	1489	1104	637	239	0	1883
	Person Yrs	0.0	11846.4	9209.1	7071.5	4091.5	1261.0	0.0	33479.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0652

Table A10.6

Standardized Mortality Ratios for Leukemia and Aleukemia by Time Since First Employment and Cumulative Employment for Potroom Workers in the Prebake Process

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.45	0.43	0.00	0.00	0.00	0.00	0.00	0.88
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	2956	2622	0	0	0	0	0	4481
	Person Yrs	10223.5	10868.5	0.0	0.0	0.0	0.0	0.0	21112.0
10-19	Obs	1	0	0	0	0	0	0	1
	Exp	1.02	0.54	0.62	0.38	0.00	0.00	0.00	2.56
	SMR (Sig)	98.5	---	---	---	---	---	---	39.0
	At Risk	2176	2665	1979	1392	0	0	0	5041
	Person Yrs	15111.0	9255.0	10256.7	5249.7	0.0	0.0	0.0	39872.4
20-29	Obs	1	0	0	2	3	0	0	6
	Exp	1.13	0.42	0.34	0.52	0.48	0.18	0.00	3.07
	SMR (Sig)	88.8	---	---	387.2	618.8 *	---	---	195.7
	At Risk	1484	679	569	1472	919	439	0	4116
	Person Yrs	10154.0	3913.3	2863.4	4544.1	4819.0	1575.3	0.0	27869.1
30+	Obs	3	0	0	0	0	1	1	5
	Exp	1.41	0.21	0.21	0.18	0.18	0.32	0.90	3.40
	SMR (Sig)	212.2	---	---	---	---	316.2	111.5	147.0
	At Risk	764	163	159	156	223	496	281	1896
	Person Yrs	6316.4	953.2	992.2	799.2	905.8	1714.3	3522.2	15233.4
TOTAL	Obs	5	0	0	2	3	1	1	12
	Exp	4.00	1.61	1.17	1.08	0.66	0.49	0.90	9.91
	SMR (Sig)	124.9	---	---	185.3	453.3	202.9	111.5	121.1
	At Risk	3792	3058	2122	1599	961	530	281	5937
	Person Yrs	41805.0	25049.9	14102.4	10592.9	5724.8	3289.6	3522.2	104086.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0653

Table A10.7

Standardized Mortality Ratios for Leukemia and Aleukemia by Time Since First Employment and Cumulative Employment for Potroom Workers in the Horizontal Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	1	0	0	0	0	0	1
	Exp	0.31	0.43	0.00	0.00	0.00	0.00	0.00	0.73
	SMR (Sig)	---	234.6	---	---	---	---	---	136.5
	At Risk	2902	2890	0	0	0	0	0	4239
	Person Yrs	8172.9	12163.0	0.0	0.0	0.0	0.0	0.0	20335.9
10-19	Obs	2	1	2	0	0	0	0	5
	Exp	0.50	0.41	0.61	0.38	0.00	0.00	0.00	1.90
	SMR (Sig)	401.9	246.2	328.8	---	---	---	---	263.7
	At Risk	1196	2199	2092	1443	0	0	0	4023
	Person Yrs	9627.7	7947.1	11489.5	5972.8	0.0	0.0	0.0	34037.0
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.27	0.20	0.22	0.36	0.36	0.07	0.00	1.48
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	613	457	482	1103	754	168	0	2907
	Person Yrs	2650.9	1881.0	1976.3	3464.9	3938.6	658.3	0.0	14570.0
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.02	0.02	0.04	0.05	0.05	0.07	0.02	0.28
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	33	34	36	61	78	138	28	375
	Person Yrs	109.7	123.5	159.4	230.9	256.2	452.5	144.5	1481.8
TOTAL	Obs	2	2	2	0	0	0	0	6
	Exp	1.10	1.05	0.87	0.80	0.41	0.14	0.02	4.38
	SMR (Sig)	182.6	189.7	230.0	---	---	---	---	136.9
	At Risk	2954	3085	2121	1524	758	176	28	4361
	Person Yrs	19561.2	22119.6	13625.2	9668.7	4194.8	1110.8	144.5	70424.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0654

Table A10,8

Standardized Moratlity Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Employment
for Potroom Workers in the Vertical Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.07	C.09	0.00	0.00	0.00	0.00	0.00	0.15
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	529	638	0	0	0	0	0	892
	Person Yrs	1632.1	2673.5	0.0	0.0	0.0	0.0	0.0	4305.6
10-19	Obs	2	0	0	0	0	0	0	2
	Exp	0.13	C.07	0.13	0.09	0.00	0.00	0.00	0.41
	SMR (Sig)	1552.9 *	---	---	---	---	---	---	483.8
	At Risk	249	586	508	415	0	0	0	871
	Person Yrs	2072.5	1536.4	2738.6	1614.1	0.0	0.0	0.0	7961.7
20-29	Obs	0	1	0	0	0	0	0	1
	Exp	0.00	C.04	0.02	0.10	0.11	0.00	0.00	0.35
	SMR (Sig)	---	2660.9	---	---	---	---	---	282.9
	At Risk	146	83	67	407	241	3	0	702
	Person Yrs	840.6	476.7	267.6	1105.4	1450.0	8.4	0.0	4148.7
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	C.00	0.01	0.00	0.00	0.00	0.00	0.02
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	1	0	1	2	2	5	3	8
	Person Yrs	0.5	0.0	20.6	11.1	8.6	15.2	20.9	85.0
TOTAL	Obs	2	1	0	0	0	0	0	3
	Exp	0.28	C.19	0.15	0.19	0.12	0.00	0.00	0.93
	SMR (Sig)	727.1	525.0	---	---	---	---	---	321.1
	At Risk	536	649	510	430	242	5	3	905
	Person Yrs	4553.7	4686.6	3026.9	2730.6	1458.6	23.6	20.9	16501.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0655

Table A1

Standardized Mortality Ratios for Leukemia and Aleukemia by Time Since First Employment and Cumulative Employment for Potroom Workers in Plant #3

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative-Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.05	C.08	0.00	0.00	0.00	0.00	0.00	0.12
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	324	702	0	0	0	0	0	883
	Person Yrs	1190.7	2003.6	0.0	0.0	0.0	0.0	0.0	3194.3
10-19	Obs	0	1	0	1	0	0	0	2
	Exp	0.12	C.11	0.22	0.16	0.00	0.00	0.00	0.60
	SMR (Sig)	---	924.4	---	625.9	---	---	---	332.3
	At Risk	231	646	846	649	0	0	0	1315
	Person Yrs	2120.5	2422.0	4194.0	2563.5	0.0	0.0	0.0	11300.0
20-29	Obs	0	0	0	0	0	1	0	1
	Exp	0.22	C.11	0.16	0.19	0.31	0.20	0.00	1.20
	SMR (Sig)	---	---	---	---	---	491.0	---	83.5
	At Risk	287	182	239	622	664	519	0	1418
	Person Yrs	2262.0	1261.6	1497.8	1859.6	3363.8	1909.9	0.0	12144.7
30+	Obs	1	0	0	0	0	1	0	2
	Exp	0.28	C.07	0.09	0.12	0.13	0.36	0.65	1.71
	SMR (Sig)	353.5	---	---	---	---	278.7	---	117.3
	At Risk	156	59	108	106	130	468	317	1032
	Person Yrs	1339.4	365.5	488.5	530.8	524.9	1821.9	3063.6	8134.7
TOTAL	Obs	1	1	0	1	0	2	0	5
	Exp	0.67	C.36	0.47	0.47	0.44	0.56	0.65	3.63
	SMR (Sig)	149.9	274.5	---	211.7	---	355.6	---	137.8
	At Risk	500	862	891	765	690	573	317	1579
	Person Yrs	6912.7	6052.8	6170.3	4953.9	3888.7	3731.8	3063.6	34773.7

Significant at 5% Level; ** Significant at 1% Level

511971 0656

Table A10.10

Standardized Mortality Ratios for Leukemia and Aleukemia by Time Since First Employment and Cumulative Employment for Potroom Workers in Plant #12

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.17	0.13	0.00	0.00	0.00	0.00	0.00	0.30
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	393	754	0	0	0	0	0	1432
	Person Yrs	3453.2	3030.7	0.0	0.0	0.0	0.0	0.0	6484.0
10-19	Obs	0	0	0	1	0	0	0	1
	Exp	0.39	0.15	0.22	0.11	0.00	0.00	0.00	0.88
	SMR (Sig)	---	---	---	909.9	---	---	---	113.9
	At Risk	657	748	574	339	0	0	0	1413
	Person Yrs	5117.2	2574.8	3249.5	1333.6	0.0	0.0	0.0	12275.0
20-29	Obs	1	0	0	1	0	0	0	2
	Exp	0.29	0.10	0.13	0.18	0.15	0.02	0.00	0.88
	SMR (Sig)	340.3	---	---	548.8	---	---	---	226.4
	At Risk	398	136	197	339	179	48	0	1052
	Person Yrs	2224.3	856.2	947.1	1282.7	1212.4	195.1	0.0	6717.7
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.06
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	67	40	19	40	46	44	0	255
	Person Yrs	66.9	43.3	19.3	48.3	48.0	49.2	0.0	275.0
TOTAL	Obs	1	0	0	2	0	0	0	3
	Exp	0.87	0.39	0.36	0.30	0.17	0.03	0.00	2.13
	SMR (Sig)	114.6	---	---	657.1	---	---	---	141.0
	At Risk	911	835	570	396	179	48	0	1467
	Person Yrs	10861.7	6504.9	4215.9	2664.5	1260.4	244.3	0.0	25751.7

Significant at 5% Level; ** Significant at 1% Level

511971 0657

Table A10.11

Standardized Mortality Ratios for Leukemia and Aleukemia by Time Since First Employment and Cumulative Employment for Carbon Department Workers in the Prebake Process

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.66	C.18	0.00	0.00	0.00	0.00	0.00	0.84
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	2469	934	0	0	0	0	0	3688
	Person Yrs	13033.0	3883.0	0.0	0.0	0.0	0.0	0.0	16916.0
10-19	Obs	1	1	1	0	0	0	0	3
	Exp	0.94	C.23	0.23	0.13	0.00	0.00	0.00	1.52
	SMR (Sig)	106.7	441.3	429.8	---	---	---	---	197.2
	At Risk	1979	949	606	379	0	0	0	3986
	Person Yrs	12666.1	3309.8	3196.1	1498.8	0.0	0.0	0.0	20670.9
20-29	Obs	1	0	0	0	0	0	0	1
	Exp	0.74	C.16	0.13	0.17	0.17	0.05	0.00	1.42
	SMR (Sig)	134.8	---	---	---	---	---	---	70.5
	At Risk	995	244	175	385	261	115	0	1708
	Person Yrs	6539.9	1482.6	897.3	1210.3	1402.5	376.5	0.0	11909.0
30+	Obs	0	0	0	0	C	0	0	0
	Exp	0.93	C.10	0.05	0.10	0.07	0.14	0.21	1.63
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	491	70	46	47	57	133	63	808
	Person Yrs	4353.4	470.8	204.9	284.0	246.2	580.5	804.3	6944.2
TOTAL	Obs	2	1	1	0	C	C	0	4
	Exp	3.32	C.67	0.41	0.39	0.23	0.19	0.21	5.41
	SMR (Sig)	60.3	150.1	242.8	---	---	---	---	74.0
	At Risk	3913	1091	637	437	274	140	63	3550
	Person Yrs	36592.5	9146.1	4290.4	2993.2	1640.7	957.0	804.3	56440.1

Significant at 5% Level; ** Significant at 1% Level

511971 0658

Table A10.12

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Employment
for Carbon Department Workers in the Horizontal Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.40	0.06	0.00	0.00	0.00	0.00	0.00	0.46
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	1630	300	0	0	0	0	0	1682
	Person Yrs	9392.0	1251.0	0.0	0.0	0.0	0.0	0.0	10643.8
10-19	Obs	1	0	0	0	0	0	0	1
	Exp	0.59	0.05	0.07	0.03	0.00	0.00	0.00	0.78
	SMR (Sig)	169.0	---	---	---	---	---	---	127.8
	At Risk	1162	263	168	106	0	0	0	1451
	Person Yrs	9882.3	1207.9	1007.6	419.9	0.0	0.0	0.0	11517.5
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.34	0.05	0.02	0.03	0.02	0.00	0.00	0.46
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	560	84	45	80	45	2	0	781
	Person Yrs	2704.5	366.6	161.6	234.0	227.3	9.6	0.0	3703.5
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	38	2	1	1	1	2	0	45
	Person Yrs	80.1	1.3	1.4	6.6	0.1	11.6	0.0	109.1
TOTAL	Obs	1	0	0	0	0	0	0	1
	Exp	1.35	0.20	0.09	0.06	0.02	0.00	0.00	1.72
	SMR (Sig)	74.1	---	---	---	---	---	---	58.0
	At Risk	1635	329	169	109	45	2	0	1687
	Person Yrs	21066.8	2827.5	1170.6	660.4	227.4	21.2	0.0	25973.9

Significant at 5% Level; ** Significant at 1% Level

511971 0659

Table A10.13

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Employment
for Carbon Department Workers in the Vertical Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative-Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.07
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	335	59	0	0	0	0	0	401
	Person Yrs	1756.2	266.5	0.0	0.0	0.0	0.0	0.0	2022.7
10-19	Obs	0	2	0	0	0	0	0	2
	Exp	0.16	0.01	0.01	0.01	0.00	0.00	0.00	0.19
	SMR (Sig)	---	17827.9 **	---	---	---	---	---	1042.3 *
	At Risk	336	57	31	25	0	0	0	395
	Person Yrs	3066.5	198.1	166.2	101.1	0.0	0.0	0.0	3531.9
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.15	0.01	0.01	0.01	0.01	0.00	0.00	0.19
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	267	11	5	22	11	0	0	305
	Person Yrs	1703.2	54.6	21.9	71.6	69.5	0.0	0.0	1920.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	1	0	0	0	0	0	0	1
	Person Yrs	8.5	0.0	0.0	0.0	0.0	0.0	0.0	8.5
TOTAL	Obs	0	2	0	0	0	0	0	2
	Exp	0.37	0.03	0.02	0.02	0.01	0.00	0.00	0.45
	SMR (Sig)	---	7153.0 **	---	---	---	---	---	443.9
	At Risk	396	61	31	26	11	0	0	402
	Person Yrs	6534.5	519.2	188.1	172.6	69.5	0.0	0.0	7484.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0660

Table A10.14

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Employment
for Carbon Department Workers in Plant #3

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.12
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	405	203	0	0	0	0	0	554
	Person Yrs	1937.0	670.4	0.0	0.0	0.0	0.0	0.0	2607.4
10-19	Obs	0	0	1	0	0	0	0	1
	Exp	0.23	0.04	0.06	0.04	0.00	0.00	0.00	0.37
	SMR (Sig)	---	---	1572.5	---	---	---	---	270.2
	At Risk	470	212	180	119	0	0	0	749
	Person Yrs	3605.8	901.9	1004.7	469.3	0.0	0.0	0.0	5980.7
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.36	0.06	0.05	0.06	0.07	0.04	0.00	0.64
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	427	89	77	109	110	73	0	706
	Person Yrs	3440.9	673.6	464.1	437.8	585.5	294.7	0.0	5904.5
30+	Obs	0	0	0	0	0	0	1	1
	Exp	0.44	0.06	0.03	0.03	0.04	0.05	0.07	0.73
	SMR (Sig)	---	---	---	---	---	---	1444.4	137.5
	At Risk	297	40	34	27	33	60	36	495
	Person Yrs	2205.3	316.0	157.4	146.5	165.3	221.7	357.8	3569.8
TOTAL	Obs	0	0	1	0	0	0	1	2
	Exp	1.12	0.19	0.15	0.13	0.11	0.08	0.07	1.85
	SMR (Sig)	---	---	670.5	---	---	---	1444.4	107.9
	At Risk	610	279	196	150	115	79	36	865
	Person Yrs	11196.9	2562.0	1626.2	1052.6	750.6	516.3	357.8	18062.5

* Significant at 5% Level; ** Significant at 1% Level

511971 0661

Table A10,15

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Employment
for Carbon Department Workers in Plant #12

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative-Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.21	0.06	0.00	0.00	0.00	0.00	0.00	0.28
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	790	316	0	0	0	0	0	899
	Person Yrs	3641.8	1240.4	0.0	0.0	0.0	0.0	0.0	4882.2
10-19	Obs	1	0	0	0	0	0	0	1
	Exp	0.31	0.00	0.10	0.05	0.00	0.00	0.00	0.54
	SMR (Sig)	321.0	---	---	---	---	---	---	184.4
	At Risk	509	315	220	141	0	0	0	816
	Person Yrs	3021.7	1110.2	1282.2	503.8	0.0	0.0	0.0	6718.0
20-29	Obs	0	0	0	0	1	0	0	1
	Exp	0.18	0.04	0.06	0.08	0.05	0.01	0.00	0.42
	SMR (Sig)	---	---	---	---	2112.1	---	---	238.1
	At Risk	270	59	71	142	69	13	0	528
	Person Yrs	1440.2	312.9	345.7	563.6	426.2	55.4	0.0	3143.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.02
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	36	8	9	14	8	9	0	84
	Person Yrs	39.4	10.0	9.5	17.2	7.4	10.5	0.0	94.1
TOTAL	Obs	1	0	0	0	1	0	0	2
	Exp	0.71	0.19	0.16	0.13	0.05	0.01	0.00	1.26
	SMR (Sig)	140.7	---	---	---	2024.8	---	---	158.5
	At Risk	805	340	229	152	69	13	0	914
	Person Yrs	8943.1	2673.5	1637.5	1084.6	433.6	65.9	0.0	14838.1

* Significant at 5% Level; ** Significant at 1% Level

511971 0662

Table A10,16

Standardized Mortality Ratios for Leukemia and Aleukemia by Time Since First Employment and Cumulative Employment for Potroom and Carbon Department Workers in the Prebake Process

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative-Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.41	0.58	0.00	0.00	0.00	0.00	0.00	0.99
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	2647	3550	0	0	0	0	0	5173
	Person Yrs	8799.5	14760.3	0.0	0.0	0.0	0.0	0.0	23567.8
10-19	Obs	1	1	1	0	0	0	0	3
	Exp	0.38	0.70	0.82	0.53	0.00	0.00	0.00	2.93
	SMR (Sig)	114.3	143.5	121.4	---	---	---	---	102.5
	At Risk	1974	3588	2645	1880	0	0	0	5895
	Person Yrs	13045.9	12114.3	13582.0	7103.2	0.0	0.0	0.0	45845.4
20-29	Obs	1	0	0	2	3	0	0	6
	Exp	0.96	0.52	0.42	0.72	0.69	0.23	0.00	3.54
	SMR (Sig)	104.1	---	---	278.4	435.6	---	---	169.5
	At Risk	1274	856	734	1996	1270	582	0	4738
	Person Yrs	8964.2	4886.7	3627.7	6181.8	6623.9	2055.9	0.0	32340.2
30+	Obs	3	0	0	0	0	1	1	5
	Exp	1.33	0.28	0.21	0.26	0.28	0.46	1.18	4.00
	SMR (Sig)	225.5	---	---	---	---	215.3	84.5	124.9
	At Risk	712	209	190	220	326	681	376	2213
	Person Yrs	6032.5	1302.4	1010.9	1137.6	1354.2	2481.8	4657.7	17977.0
TOTAL	Obs	5	1	1	2	3	1	1	14
	Exp	3.57	2.08	1.45	1.51	0.97	0.69	1.18	11.46
	SMR (Sig)	140.0	48.1	68.9	132.2	310.3	144.1	84.5	122.2
	At Risk	3379	4136	2023	2179	1334	726	376	6656
	Person Yrs	36842.1	33071.6	10220.5	14422.6	7978.1	4537.7	4657.7	119730.3

* Significant at 5% Level; ** Significant at 1% Level

511971 0663

Table A10,17

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since Frist Employment and Cumulative Employment
for Potroom and Carbon Department Workers in the Horizontal Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	1	0	0	0	0	0	1
	Exp	0.26	0.48	0.00	0.00	0.00	0.00	0.00	0.74
	SMR (Sig)	---	208.4	---	---	---	---	---	134.4
	At Risk	2690	3210	0	0	0	0	0	4398
	Person Yrs	7128.3	13633.1	0.0	0.0	0.0	0.0	0.0	20761.4
10-19	Obs	2	0	3	0	0	0	0	5
	Exp	0.43	0.43	0.68	0.45	0.00	0.00	0.00	1.99
	SMR (Sig)	466.8	---	441.7	---	---	---	---	251.4
	At Risk	1040	2371	2328	1669	0	0	0	4191
	Person Yrs	7570.8	8356.8	12742.3	6979.9	0.0	0.0	0.0	35649.8
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.23	0.21	0.21	0.40	0.43	0.09	0.00	1.56
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	546	483	468	1234	877	195	0	3074
	Person Yrs	2279.6	1950.7	1893.8	3772.3	4637.3	768.6	0.0	15332.3
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.02	0.02	0.03	0.06	0.05	0.08	0.03	0.28
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	25	31	32	55	80	156	34	378
	Person Yrs	80.7	112.0	142.1	213.2	256.5	510.7	176.3	1499.5
TOTAL	Obs	2	1	3	0	0	0	0	6
	Exp	0.94	1.14	0.92	0.90	0.47	0.16	0.03	4.58
	SMR (Sig)	212.8	87.5	325.9	---	---	---	---	131.1
	At Risk	2736	2389	2355	1737	881	203	34	4522
	Person Yrs	17067.4	24052.6	14760.3	10965.4	4893.8	1279.3	176.3	73243.0

Significant at 5% Level; ** Significant at 1% Level

511971 0664

Table A10.18

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Employment
for Potroom and Carbon Department Workers in the Vertical Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative-Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.06	0.10	0.00	0.00	0.00	0.00	0.00	0.16
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	340	711	0	0	0	0	0	945
	Person Yrs	1416.8	3114.1	0.0	0.0	0.0	0.0	0.0	4531.0
10-19	Obs	1	2	0	0	0	0	0	3
	Exp	0.11	0.07	0.14	0.11	0.00	0.00	0.00	0.44
	SMR (Sig)	873.3	2723.8 **	---	---	---	---	---	685.3 *
	At Risk	232	634	545	462	0	0	0	928
	Person Yrs	1891.1	1634.7	2945.6	1860.7	0.0	0.0	0.0	8332.1
20-29	Obs	0	1	0	0	0	0	0	1
	Exp	0.06	0.05	0.03	0.10	0.14	0.00	0.00	0.38
	SMR (Sig)	---	2082.2	---	---	---	---	---	263.9
	At Risk	120	99	56	434	281	3	0	726
	Person Yrs	698.9	554.1	283.8	1071.7	1714.0	8.6	0.0	4331.1
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	2	0	1	2	2	5	3	9
	Person Yrs	17.0	0.0	20.6	11.1	8.6	15.2	20.9	93.5
TOTAL	Obs	1	3	0	0	0	0	0	4
	Exp	0.24	0.23	0.17	0.21	0.14	0.00	0.00	0.99
	SMR (Sig)	421.0	1325.2 **	---	---	---	---	---	402.3 *
	At Risk	346	717	548	466	282	5	3	959
	Person Yrs	4023.9	5302.9	3250.0	2943.5	1722.7	23.8	20.9	17287.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0665

Table A10.19

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Employment
for Potroom and Carbon Department Workers in Plant #3

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative-Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.04	0.09	0.00	0.00	0.00	0.00	0.00	0.13
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	310	858	0	0	0	0	0	1048
	Person Yrs	1089.3	2444.7	0.0	0.0	0.0	0.0	0.0	3533.0
10-19	Obs	0	1	1	1	0	0	0	3
	Exp	0.12	0.14	0.27	0.19	0.00	0.00	0.00	0.71
	SMR (Sig)	---	730.0	368.4	525.7	---	---	---	419.9
	At Risk	315	830	1025	774	0	0	0	1610
	Person Yrs	2236.4	3117.6	5125.6	3014.2	0.0	0.0	0.0	13493.8
20-29	Obs	0	0	0	0	0	1	0	1
	Exp	0.23	0.19	0.21	0.24	0.38	0.24	0.00	1.44
	SMR (Sig)	---	---	---	---	---	416.7	---	69.3
	At Risk	298	250	312	722	793	608	0	1695
	Person Yrs	2391.3	1744.0	1927.5	2342.7	4007.7	2237.0	0.0	14650.1
30+	Obs	0	0	0	0	0	1	1	2
	Exp	0.33	0.10	0.11	0.17	0.18	0.39	0.77	2.06
	SMR (Sig)	---	---	---	---	---	253.7	129.6	97.2
	At Risk	184	80	142	136	163	531	383	1265
	Person Yrs	1615.3	502.5	592.6	785.1	710.5	2076.7	3719.0	10001.7
TOTAL	Obs	0	1	1	1	0	2	1	6
	Exp	0.72	0.48	0.59	0.60	0.56	0.63	0.77	4.35
	SMR (Sig)	---	210.0	169.7	166.6	---	315.3	129.6	138.0
	At Risk	515	1101	1086	929	822	670	383	1911
	Person Yrs	7331.2	7809.8	7645.8	6142.0	4718.2	4313.7	3719.0	41678.6

Significant at 5% Level; ** Significant at 1% Level

511971 0666

Table A10.20

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Employment
for Potroom and Carbon Department Workers in Plant #12

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.11	0.21	0.00	0.00	0.00	0.00	0.00	0.31
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	730	1130	0	0	0	0	0	1568
	Person Yrs	2196.6	4514.2	0.0	0.0	0.0	0.0	0.0	6710.8
10-19	Obs	1	0	0	1	0	0	0	2
	Exp	0.26	0.20	0.34	0.17	0.00	0.00	0.00	0.98
	SMR (Sig)	381.2	---	---	590.6	---	---	---	204.4
	At Risk	432	1072	841	520	0	0	0	1566
	Person Yrs	3277.1	3515.5	4819.3	1985.5	0.0	0.0	0.0	13597.5
20-29	Obs	0	0	0	1	0	1	0	2
	Exp	0.21	0.14	0.17	0.28	0.22	0.04	0.00	1.05
	SMR (Sig)	---	---	---	362.3	---	2694.8	---	191.1
	At Risk	259	165	262	514	272	70	0	1181
	Person Yrs	1526.9	1053.2	1257.2	1934.1	1794.2	284.6	0.0	7850.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.02	0.01	0.01	0.02	0.02	0.01	0.00	0.08
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	63	45	26	53	60	59	0	306
	Person Yrs	71.8	49.2	27.6	62.6	64.6	67.4	0.0	343.3
TOTAL	Obs	1	0	0	2	0	1	0	4
	Exp	0.60	0.56	0.52	0.46	0.23	0.05	0.00	2.42
	SMR (Sig)	167.7	---	---	432.3	---	2076.4	---	165.1
	At Risk	748	1198	844	542	272	70	0	1611
	Person Yrs	7072.5	9132.1	6104.1	3982.2	1858.8	352.0	0.0	28501.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0667

Table A10.21

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Employment
for Potmen in the Prebake Process

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.15	0.37	0.00	0.00	0.00	0.00	0.00	0.52
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	1699	2204	0	0	0	0	0	3028
	Person Yrs	4156.9	9435.7	0.0	0.0	0.0	0.0	0.0	13592.6
10-19	Obs	0	0	0	0	0	0	0	0
	Exp	0.32	0.44	0.57	0.35	0.00	0.00	0.00	1.68
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	902	2352	1007	1291	0	0	0	3453
	Person Yrs	5548.3	7973.3	9422.7	4900.3	0.0	0.0	0.0	27844.6
20-29	Obs	1	0	0	2	3	0	0	6
	Exp	0.41	0.35	0.31	0.48	0.45	0.17	0.00	2.17
	SMR (Sig)	243.5	---	---	418.8	661.6 *	---	---	276.6 *
	At Risk	627	581	519	1377	869	418	0	3027
	Person Yrs	3900.3	3354.0	2650.5	4220.4	4542.0	1482.9	0.0	20270.2
30+	Obs	1	0	0	0	0	1	1	3
	Exp	0.07	0.16	0.20	0.18	0.17	0.31	0.86	2.76
	SMR (Sig)	114.4	---	---	---	---	322.5	115.8	108.5
	At Risk	368	140	153	155	215	477	271	1444
	Person Yrs	3032.9	839.6	950.7	799.1	881.1	1670.0	3387.4	12160.8
TOTAL	Obs	2	0	0	2	3	1	1	9
	Exp	1.76	1.32	1.08	1.01	0.63	0.48	0.86	7.13
	SMR (Sig)	113.7	---	---	198.5	478.3	210.2	115.8	126.2
	At Risk	2136	2656	1941	1488	911	507	271	4098
	Person Yrs	17310.4	21642.4	13024.0	9919.8	5423.1	3152.9	3387.4	73866.1

* Significant at 5% Level; ** Significant at 1% Level

511971 0668

Table A10.22

Standardized Mortality Ratios for Leukemia and Aleukemia by Time Since First Employment and Cumulative Employment for Potmen in the Horizontal Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.09	0.29	0.00	0.00	0.00	0.00	0.00	0.39
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	1499	2009	0	0	0	0	0	2397
	Person Yrs	2623.0	8448.6	0.0	0.0	0.0	0.0	0.0	11071.6
10-19	Obs	0	0	2	0	0	0	0	2
	Exp	0.14	0.23	0.45	0.31	0.00	0.00	0.00	1.13
	SMR (Sig)	---	---	446.3	---	---	---	---	177.4
	At Risk	325	1431	1614	1173	0	0	0	2312
	Person Yrs	2355.2	4724.3	8667.4	4913.5	0.0	0.0	0.0	20660.4
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.10	0.11	0.16	0.29	0.29	0.06	0.00	1.00
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	179	251	343	877	635	136	0	1881
	Person Yrs	894.3	1115.7	1457.9	2792.1	3303.4	529.4	0.0	10082.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.02	0.03	0.05	0.03	0.05	0.02	0.20
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	9	22	26	49	62	110	23	271
	Person Yrs	33.6	91.3	119.6	190.7	204.7	359.3	119.8	1118.9
TOTAL	Obs	0	0	2	0	0	0	0	2
	Exp	0.33	0.66	0.64	0.64	0.33	0.10	0.02	2.71
	SMR (Sig)	---	---	314.4	---	---	---	---	73.8
	At Risk	1511	2143	1637	1237	639	143	23	2478
	Person Yrs	5906.9	14380.0	10244.9	7896.3	3508.1	888.7	119.8	42933.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0669

Table A10.23

Standardized Mortality Ratios for Leukemia and Aleukemia by Time Since First Employment and Cumulative Employment for Potmen in the Vertical Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.03	0.08	0.00	0.00	0.00	0.00	0.00	0.11
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	364	572	0	0	0	0	0	698
	Person Yrs	749.0	2417.7	0.0	0.0	0.0	0.0	0.0	3166.7
10-19	Obs	0	0	0	0	0	0	0	0
	Exp	0.06	0.06	0.12	0.09	0.00	0.00	0.00	0.32
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	123	535	472	395	0	0	0	688
	Person Yrs	1076.3	1334.3	2536.5	1537.3	0.0	0.0	0.0	6484.4
20-29	Obs	0	1	0	0	0	0	0	1
	Exp	0.06	0.03	0.02	0.09	0.11	0.00	0.00	0.32
	SMR (Sig)	---	2937.1	---	---	---	---	---	316.8
	At Risk	100	72	58	389	230	3	0	618
	Person Yrs	624.4	424.2	251.9	1045.3	1379.2	8.4	0.0	3733.5
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	0	1	2	2	5	3	7
	Person Yrs	0.0	0.0	20.6	11.1	8.6	15.2	20.9	76.5
TOTAL	Obs	0	1	0	0	0	0	0	1
	Exp	0.14	0.17	0.14	0.18	0.11	0.00	0.00	0.76
	SMR (Sig)	---	585.2	---	---	---	---	---	132.3
	At Risk	366	581	474	407	231	5	3	706
	Person Yrs	2449.7	4176.2	2809.0	2593.8	1387.8	23.6	20.9	13461.1

Significant at 5% Level; ** Significant at 1% Level

511971 0670

Table A10.24

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Employment
for Potmen in Plant #3

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.03	0.07	0.00	0.00	0.00	0.00	0.00	0.10
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	239	671	0	0	0	0	0	784
	Person Yrs	801.6	1859.4	0.0	0.0	0.0	0.0	0.0	2701.0
10-19	Obs	0	1	0	1	0	0	0	2
	Exp	0.07	0.10	0.21	0.15	0.00	0.00	0.00	0.53
	SMR (Sig)	---	1012.7	---	648.9	---	---	---	376.0
	At Risk	100	623	816	629	0	0	0	1167
	Person Yrs	1322.4	2313.2	4041.6	2473.9	0.0	0.0	0.0	10151.0
20-29	Obs	0	0	0	0	0	1	0	1
	Exp	0.14	0.10	0.15	0.18	0.30	0.20	0.00	1.06
	SMR (Sig)	---	---	---	---	---	509.7	---	93.0
	At Risk	192	174	228	611	644	500	0	1272
	Person Yrs	1426.3	1206.1	1422.4	1814.2	3262.8	1830.0	0.0	10961.9
30+	Obs	0	0	0	0	0	1	0	1
	Exp	0.16	0.07	0.09	0.12	0.13	0.35	0.63	1.54
	SMR (Sig)	---	---	---	---	---	285.6	---	64.8
	At Risk	93	54	105	104	129	459	305	942
	Person Yrs	758.7	338.0	460.8	516.8	518.9	1779.6	2959.9	7340.7
TOTAL	Obs	0	1	0	1	0	2	0	4
	Exp	0.40	0.34	0.45	0.46	0.43	0.55	0.63	3.25
	SMR (Sig)	---	295.3	---	219.3	---	366.1	---	123.1
	At Risk	353	826	961	743	670	554	305	1399
	Person Yrs	4308.9	5756.8	5932.8	4804.9	3781.7	3609.6	2959.9	31154.5

* Significant at 5% Level; ** Significant at 1% Level

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Table A10.25

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Employment
for Potmen in Plant #12

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative-Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.05	0.12	0.00	0.00	0.00	0.00	0.00	0.17
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	379	634	0	0	0	0	0	844
	Person Yrs	1012.9	2619.4	0.0	0.0	0.0	0.0	0.0	3632.2
10-19	Obs	0	0	0	1	0	0	0	1
	Exp	0.14	0.12	0.21	0.10	0.00	0.00	0.00	0.57
	SMR (Sig)	---	---	---	957.1	---	---	---	176.5
	At Risk	221	619	518	322	0	0	0	855
	Person Yrs	1678.2	2017.4	2948.2	1262.7	0.0	0.0	0.0	7906.6
20-29	Obs	1	0	0	1	0	0	0	2
	Exp	0.14	0.09	0.11	0.18	0.14	0.02	0.00	0.69
	SMR (Sig)	694.6	---	---	559.0	---	---	---	291.4
	At Risk	130	111	166	324	168	42	0	722
	Person Yrs	1044.4	741.3	810.0	1246.6	1144.9	170.1	0.0	5157.4
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.06
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	61	39	15	39	44	38	0	236
	Person Yrs	58.7	41.8	15.6	46.8	45.1	40.5	0.0	248.4
TOTAL	Obs	1	0	0	2	0	0	0	3
	Exp	0.34	0.33	0.32	0.30	0.15	0.03	0.00	1.48
	SMR (Sig)	290.1	---	---	677.3	---	---	---	203.0
	At Risk	330	697	521	338	168	42	0	869
	Person Yrs	3794.1	5419.9	3773.9	2556.1	1189.9	210.7	0.0	16944.7

* Significant at 5% Level; ** Significant at 1% Level

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Table A10.26

Standardized Mortality Ratios for Leukemia and Aleukemia by Time Since First Employment and Cumulative Employment for Anodemen in the Prebake Process

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.04	0.21	0.00	0.00	0.00	0.00	0.00	0.25
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	779	1429	0	0	0	0	0	1621
	Person Yrs	1277.3	5929.3	0.0	0.0	0.0	0.0	0.0	7206.6
10-19	Obs	0	0	0	0	0	0	0	0
	Exp	0.07	0.18	0.32	0.23	0.00	0.00	0.00	0.80
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	231	1436	1226	911	0	0	0	1831
	Person Yrs	1366.3	3956.3	6270.7	3502.0	0.0	0.0	0.0	15135.3
20-29	Obs	1	0	0	0	2	0	0	3
	Exp	0.08	0.14	0.14	0.26	0.30	0.12	0.00	1.03
	SMR (Sig)	1314.2	---	---	---	656.6	---	---	289.9
	At Risk	112	246	274	952	629	319	0	1697
	Person Yrs	746.8	1473.9	1442.3	2761.3	3243.9	1118.8	0.0	10787.1
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.04	0.09	0.10	0.10	0.10	0.22	0.66	1.31
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	42	71	79	89	142	359	210	745
	Person Yrs	243.7	456.2	469.2	482.6	553.2	1224.6	2641.1	6070.7
TOTAL	Obs	1	0	0	0	2	0	0	3
	Exp	0.23	0.62	0.55	0.59	0.40	0.34	0.66	3.39
	SMR (Sig)	433.9	---	---	---	495.6	---	---	88.4
	At Risk	852	1635	1279	1027	657	381	210	2123
	Person Yrs	3634.1	11855.6	9182.3	6745.9	3797.1	2343.4	2641.1	39199.6

* Significant at 5% Level; ** Significant at 1% Level

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Table A10.27

Standardized Mortality Ratios for Leukemia and Aleukemia by Time Since First Employment and Cumulative Employment for Anodemen in the Horizontal Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	1	0	0	0	0	0	1
	Exp	0.08	0.27	0.00	0.00	0.00	0.00	0.00	0.35
	SMR (Sig)	---	364.4	---	---	---	---	---	281.8
	At Risk	1314	1912	0	0	0	0	0	2257
	Person Yrs	2345.8	8185.1	0.0	0.0	0.0	0.0	0.0	10530.9
10-19	Obs	0	1	1	0	0	0	0	2
	Exp	0.10	0.22	0.40	0.25	0.00	0.00	0.00	0.98
	SMR (Sig)	---	449.2	247.5	---	---	---	---	203.6
	At Risk	299	1446	1428	981	0	0	0	2180
	Person Yrs	1897.8	4728.8	7988.7	4091.0	0.0	0.0	0.0	18696.3
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.07	0.11	0.15	0.22	0.22	0.03	0.00	0.80
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	128	258	342	744	512	83	0	1655
	Person Yrs	611.8	1051.8	1347.0	2290.1	2585.0	314.9	0.0	8200.6
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.02	0.02	0.02	0.03	0.03	0.01	0.14
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	14	23	19	31	46	73	17	205
	Person Yrs	39.1	92.9	70.9	118.0	159.1	234.3	87.2	801.6
TOTAL	Obs	0	2	1	0	0	0	0	3
	Exp	0.26	0.62	0.57	0.50	0.25	0.06	0.01	2.28
	SMR (Sig)	---	320.2	175.2	---	---	---	---	131.5
	At Risk	1334	2029	1445	1031	514	87	17	2318
	Person Yrs	4904.5	14058.6	9406.6	6499.2	2744.2	549.2	87.2	38229.4

* Significant at 5% Level; ** Significant at 1% Level

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Table A10.28

Standardized Mortality Ratios for Leukemia and Aleukemia by Time Since First Employment and Cumulative Employment for Anodemen in the Vertical Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative-Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.03
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	150	236	0	0	0	0	0	252
	Person Yrs	116.7	1012.9	0.0	0.0	0.0	0.0	0.0	1129.6
10-19	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.02	0.04	0.04	0.00	0.00	0.00	0.10
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	15	222	200	175	0	0	0	250
	Person Yrs	116.7	465.5	1062.2	716.9	0.0	0.0	0.0	2361.2
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.01	0.01	0.03	0.05	0.00	0.00	0.11
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	11	23	18	169	118	0	0	224
	Person Yrs	79.7	150.5	94.0	407.9	765.4	0.0	0.0	1497.5
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	0	0	0	0	0	0	0
	Person Yrs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.06	0.05	0.07	0.05	0.00	0.00	0.24
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	150	239	200	178	118	0	0	252
	Person Yrs	313.1	1628.9	1156.2	1124.8	765.4	0.0	0.0	4988.3

* Significant at 5% Level; ** Significant at 1% Level

Table A10.29

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Employment
for Anodemen in Plant #3

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	32	261	0	0	0	0	0	266
	Person Yrs	55.8	579.5	0.0	0.0	0.0	0.0	0.0	635.3
10-19	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.02	0.09	0.09	0.00	0.00	0.00	0.20
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	10	236	456	405	0	0	0	507
	Person Yrs	69.9	521.1	2044.2	1611.2	0.0	0.0	0.0	4246.4
20-29	Obs	0	0	0	0	0	1	0	1
	Exp	0.01	0.01	0.04	0.08	0.18	0.14	0.00	0.46
	SMR (Sig)	---	---	---	---	---	713.4	---	219.1
	At Risk	10	25	82	377	440	373	0	588
	Person Yrs	90.8	131.1	429.0	970.3	2164.5	1389.3	0.0	5175.0
30+	Obs	0	0	0	0	0	1	0	1
	Exp	0.01	0.02	0.04	0.05	0.08	0.24	0.49	0.93
	SMR (Sig)	---	---	---	---	---	416.4	---	107.5
	At Risk	10	14	32	54	82	338	245	537
	Person Yrs	64.4	137.0	213.2	262.0	361.4	1240.9	2428.9	4707.8
TOTAL	Obs	0	0	0	0	0	2	0	2
	Exp	0.03	0.07	0.17	0.22	0.26	0.38	0.49	1.61
	SMR (Sig)	---	---	---	---	---	525.9	---	124.3
	At Risk	41	335	478	466	459	414	245	639
	Person Yrs	200.0	1368.8	2686.3	2843.5	2525.9	2630.3	2428.9	14764.5

* Significant at 5% Level; ** Significant at 1% Level

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Table A10.30

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Employment
for Anodemen in Plant #12

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.02	0.08	0.00	0.00	0.00	0.00	0.00	0.10
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	254	533	0	0	0	0	0	641
	Person Yrs	504.6	2052.5	0.0	0.0	0.0	0.0	0.0	2597.1
10-19	Obs	0	0	0	0	0	0	0	0
	Exp	0.04	0.09	0.13	0.06	0.00	0.00	0.00	0.33
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	116	534	405	234	0	0	0	661
	Person Yrs	718.7	1870.6	2245.4	883.8	0.0	0.0	0.0	5726.5
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.04	0.06	0.07	0.09	0.10	0.02	0.00	0.37
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	56	65	141	233	118	32	0	505
	Person Yrs	340.0	521.4	607.6	873.0	797.5	131.8	0.0	3271.3
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.01	0.00	0.01	0.01	0.01	0.00	0.03
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	10	23	10	25	31	31	0	130
	Person Yrs	20.5	35.2	9.8	32.2	31.9	33.5	0.0	153.0
TOTAL	Obs	0	0	0	0	0	0	0	0
	Exp	0.11	0.23	0.20	0.16	0.10	0.02	0.00	0.83
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	264	588	406	246	118	32	0	667
	Person Yrs	1583.9	4517.6	2862.8	1789.0	829.4	165.2	0.0	11747.9

* Significant at 5% Level; ** Significant at 1% Level

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APPENDIX XI

Table A11,1

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to Benzene Solubles
for Workers in the Prebake Process

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0	.0001	5	13	34	53	69+	TOTAL
<10	Obs	1	0	1	0	0	0	0	2
	Exp	0.45	1.76	1.70	0.59	0.00	0.00	0.00	4.50
	SMR (Sig)	220.0	---	58.8	---	---	---	---	44.4
	At Risk	693	3635	3416	1173	0	0	0	6920
	Person Yrs	2694.3	11703.8	10756.0	2804.9	0.0	0.0	0.0	28029.0
10-19	Obs	2	9	8	8	0	0	0	27
	Exp	2.65	8.07	8.61	7.61	1.36	0.02	0.00	28.52
	SMR (Sig)	75.6	111.5	92.9	102.4	---	---	---	94.7
	At Risk	733	3019	3907	2776	656	41	0	8227
	Person Yrs	5683.0	10622.1	21108.4	16330.7	2631.0	33.9	0.0	64419.1
20-29	Obs	4	10	17	14	3	1	0	49
	Exp	4.22	11.14	13.41	16.33	5.34	1.78	0.23	52.45
	SMR (Sig)	94.8	89.8	126.8	85.8	56.1	56.1	---	93.4
	At Risk	570	1658	2304	2364	890	364	93	7651
	Person Yrs	3831.8	10367.4	13368.1	15124.2	5197.5	1768.0	267.3	49534.2
30+	Obs	2	11	11	19	5	4	3	55
	Exp	4.17	7.72	13.37	14.54	6.76	4.24	6.49	57.29
	SMR (Sig)	48.0	142.5	82.3	130.7	74.0	94.4	46.2	96.0
	At Risk	259	587	950	1174	465	358	248	3624
	Person Yrs	2119.3	3979.4	7177.2	7663.5	3403.3	2146.3	3212.6	29701.7
TOTAL	Obs	9	30	37	41	8	5	3	133
	Exp	11.49	28.69	37.09	39.27	13.46	6.04	6.72	142.76
	SMR (Sig)	78.4	104.6	99.8	104.4	59.4	82.8	44.6	93.2
	At Risk	891	4544	5425	3496	1093	448	250	9625
	Person Yrs	14318.4	44682.7	52409.7	42003.2	11221.8	3960.2	3480.0	172084.0

* Significant at 5% Level; ** Significant at 1% Level

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Table All.2

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to Benzene Solubles
for Workers in the Horizontal Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0	.0001	5	13	34	53	69+	TOTAL
<10	Obs	0	0	0	1	0	0	0	1
	Exp	0.45	0.27	1.06	1.31	0.20	0.09	0.10	4.24
	SMR (Sig)	---	---	---	76.5	---	---	---	23.6
	At Risk	617	713	2936	3269	1090	247	276	6318
	Person Yrs	2561.8	2167.0	10298.5	10712.9	1383.4	330.5	489.7	27933.7
10-19	Obs	1	1	0	16	4	2	0	24
	Exp	1.05	1.11	3.08	10.79	3.41	1.82	2.08	24.15
	SMR (Sig)	94.1	89.9	---	148.3	117.3	110.0	---	99.4
	At Risk	474	420	1686	3117	1541	936	545	6147
	Person Yrs	3537.6	2598.0	7180.4	21958.7	8099.1	3456.3	4188.8	51678.0
20-29	Obs	2	1	3	5	7	3	5	26
	Exp	2.12	0.94	2.00	10.04	3.36	3.64	5.58	27.68
	SMR (Sig)	94.5	106.4	149.6	49.8	208.5	82.5	89.6	93.9
	At Risk	304	104	449	1868	691	682	567	4509
	Person Yrs	1590.0	814.9	1857.2	8154.0	3013.0	3287.1	4287.8	23006.0
30+	Obs	1	1	0	1	0	1	2	6
	Exp	0.40	0.06	0.19	0.77	0.42	0.25	1.16	5.24
	SMR (Sig)	250.0	1626.8	---	130.1	---	392.7	63.3	114.5
	At Risk	32	9	19	81	45	27	329	535
	Person Yrs	161.9	27.6	90.6	323.0	203.0	107.5	1367.5	2281.1
TOTAL	Obs	4	3	3	23	11	6	7	57
	Exp	4.82	2.38	7.13	22.91	7.38	5.76	10.92	61.31
	SMR (Sig)	83.0	125.9	42.1	100.4	149.0	104.1	64.1	93.0
	At Risk	624	787	3173	4086	1793	1102	609	6534
	Person Yrs	7851.3	5567.4	19416.7	41048.7	13497.6	7161.4	10335.8	104898.8

* Significant at 5% Level; ** Significant at 1% Level

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Table A11.3

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to Benzene Solubles
for Workers in the Vertical Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0	.0001	5	13	34	53	69+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.16	0.10	0.24	0.30	0.00	0.00	0.00	0.80
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	163	208	1092	778	0	0	0	1342
	Person Yrs	655.7	615.8	2294.0	2471.3	0.0	0.0	0.0	6036.8
10-19	Obs	0	0	0	2	0	0	0	2
	Exp	0.70	0.48	0.44	2.24	0.90	0.00	0.00	4.76
	SMR (Sig)	---	---	---	89.3	---	---	---	42.0
	At Risk	128	132	321	927	399	0	0	1316
	Person Yrs	1085.5	852.5	1432.7	6340.6	1677.6	0.0	0.0	11429.0
20-29	Obs	1	1	0	1	2	0	0	5
	Exp	0.85	0.61	0.48	2.17	2.31	0.27	0.00	6.69
	SMR (Sig)	118.3	162.9	---	46.2	86.4	---	---	74.7
	At Risk	96	83	92	387	451	59	0	1038
	Person Yrs	615.9	453.2	514.1	2016.7	2399.9	275.2	0.0	6314.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.06	0.04	0.05	0.06	0.11	0.03	0.00	0.34
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	6	5	3	6	7	3	0	26
	Person Yrs	33.9	29.6	19.6	27.1	67.3	17.4	0.0	194.7
TOTAL	Obs	1	1	0	3	2	0	0	7
	Exp	1.77	1.23	1.21	4.76	3.33	0.30	0.00	12.60
	SMR (Sig)	56.6	81.2	---	63.0	60.1	---	---	55.6
	At Risk	170	231	1129	939	465	61	0	1369
	Person Yrs	2391.0	2031.1	4260.4	10855.7	4144.8	292.5	0.0	23975.5

* Significant at 5% Level; ** Significant at 1% Level

511971 0680

Table All.4

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to Benzene Solubles
for Workers in Plant 12

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0	.0001	5	13	34	53	69+	TOTAL
<10	Obs	0	2	0	0	0	0	0	2
	Exp	0.17	0.77	0.40	0.28	0.06	0.02	0.00	1.69
	SMR (Sig)	---	259.0	---	---	---	---	---	118.2
	At Risk	165	1120	717	317	71	21	4	1832
	Person Yrs	765.4	3802.3	2015.2	951.8	189.7	30.0	0.9	7755.2
10-19	Obs	2	5	2	5	1	0	0	15
	Exp	0.63	2.70	2.45	2.11	0.48	0.13	0.19	8.69
	SMR (Sig)	319.7	185.4	81.6	236.6	208.2	---	---	172.7
	At Risk	155	775	912	570	170	71	51	1847
	Person Yrs	1163.6	4740.1	5396.6	3406.3	651.8	251.5	283.1	15892.8
20-29	Obs	0	5	4	1	1	0	0	11
	Exp	0.89	2.65	3.55	3.34	1.68	0.23	0.43	12.76
	SMR (Sig)	---	188.9	112.6	30.0	59.6	---	---	86.2
	At Risk	96	283	490	448	150	38	51	1304
	Person Yrs	635.1	1558.0	2826.8	2733.7	1048.9	170.5	344.1	9357.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.13	0.17	0.26	0.25	0.24	0.05	0.02	1.13
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	39	51	106	106	81	17	7	407
	Person Yrs	55.6	63.3	111.1	121.5	93.6	22.0	7.5	474.4
TOTAL	Obs	2	12	6	6	2	0	0	28
	Exp	1.81	6.29	6.67	5.98	2.46	0.42	0.65	24.27
	SMR (Sig)	110.4	190.8	90.0	100.4	81.2	---	---	115.4
	At Risk	170	1162	1090	685	240	93	55	1883
	Person Yrs	2619.7	10203.6	10349.7	7213.2	1984.0	474.0	635.5	33479.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0681

Table A11.5

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to PPOM
for Workers in the Prebake Process

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0	.0001	6	13	32	55	94+	TOTAL
<10	Obs	1	1	0	0	0	0	0	2
	Exp	0.45	2.39	1.37	0.25	0.04	0.00	0.00	4.50
	SMR (Sig)	220.0	41.9	---	---	---	---	---	44.4
	At Risk	693	5116	2830	655	112	2	0	6920
	Person Yrs	2684.3	15910.3	7726.6	1518.2	198.5	1.1	0.0	28029.0
10-19	Obs	2	11	7	6	0	1	0	27
	Exp	2.65	7.73	11.06	6.29	0.56	0.23	0.01	28.52
	SMR (Sig)	75.6	142.3	63.3	95.4	---	443.9	---	94.7
	At Risk	703	2709	4414	2235	287	97	9	8227
	Person Yrs	5683.0	19841.3	24879.3	12391.7	1110.5	498.8	14.5	64419.1
20-29	Obs	4	13	17	14	1	0	0	49
	Exp	4.22	10.10	16.85	17.34	3.07	0.62	0.25	52.45
	SMR (Sig)	94.8	128.7	100.9	80.7	32.5	---	---	93.4
	At Risk	570	1596	2700	2650	561	127	39	7051
	Person Yrs	3831.9	10206.5	15661.0	16303.8	3032.5	643.8	254.4	49934.2
30+	Obs	2	11	12	22	4	2	2	55
	Exp	4.17	8.41	10.49	20.99	8.22	3.63	1.39	57.29
	SMR (Sig)	48.0	130.8	114.4	104.9	48.7	55.2	143.6	96.0
	At Risk	259	636	945	1430	536	156	61	3624
	Person Yrs	2119.3	4426.4	5799.2	10683.9	4249.6	1747.8	675.5	29701.7
TOTAL	Obs	9	36	36	42	5	3	2	133
	Exp	11.49	28.62	39.77	44.87	11.89	4.47	1.65	142.76
	SMR (Sig)	78.4	125.8	90.5	93.6	42.1 *	67.1	121.1	93.2
	At Risk	891	6252	9296	7411	812	248	65	9625
	Person Yrs	14318.4	50364.4	54066.2	40097.6	8581.5	2891.6	944.4	172064.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0682

Table A11.6

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to PPOM
for Workers in the Horizontal Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0	.0001	6	13	32	55	94+	TOTAL
<10	Obs	0	0	0	0	1	0	0	1
	Exp	0.45	1.07	1.23	0.92	0.38	0.16	0.03	4.24
	SMR (Sig)	---	---	---	---	265.7	---	---	23.6
	At Risk	617	1320	2650	2564	1118	479	83	6318
	Person Yrs	2561.8	5959.5	7613.7	8038.8	2740.8	832.0	139.2	27933.7
10-19	Obs	1	1	4	10	6	2	0	24
	Exp	1.85	1.85	5.83	6.93	3.68	2.57	1.44	24.15
	SMR (Sig)	54.1	54.2	68.6	144.2	163.1	77.8	---	99.4
	At Risk	474	809	1927	2739	1576	972	418	6147
	Person Yrs	3537.6	4214.7	11332.1	15234.8	9409.1	5351.0	2598.6	51678.0
20-29	Obs	2	2	1	4	4	7	3	26
	Exp	2.12	1.37	2.62	8.74	4.44	3.57	4.82	27.68
	SMR (Sig)	94.5	146.3	152.6	45.8	90.1	196.0	62.2	93.9
	At Risk	304	284	543	1613	925	641	457	4509
	Person Yrs	1590.0	1250.0	2098.5	7193.1	4204.1	2999.6	3670.7	23006.0
30+	Obs	1	1	0	0	2	1	1	6
	Exp	0.40	0.09	0.20	0.85	0.41	0.62	2.67	5.24
	SMR (Sig)	250.0	1118.0	---	---	483.4	161.3	37.4	114.5
	At Risk	32	14	24	86	45	70	273	535
	Person Yrs	161.9	44.4	103.1	354.5	201.3	283.4	1132.5	2281.1
TOTAL	Obs	4	4	8	14	13	10	4	57
	Exp	4.82	4.37	9.88	17.44	8.91	6.92	8.97	61.31
	SMR (Sig)	83.0	91.4	81.0	80.3	145.9	144.6	44.6	93.0
	At Risk	624	1930	3007	3514	1938	1090	479	6534
	Person Yrs	7851.3	11508.6	21147.4	30821.2	16563.4	9466.0	7540.9	104890.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0683

Table A11.7

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to PPOM
for Workers in the Vertical Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0	.C001	6	13	32	55	94+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.16	0.11	0.12	0.20	0.06	0.12	0.03	0.80
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	163	200	333	442	454	485	220	1342
	Person Yrs	655.7	790.3	841.2	1312.7	662.1	1626.4	188.4	6036.8
10-19	Obs	0	0	0	1	0	1	0	2
	Exp	0.70	0.47	0.30	1.07	0.48	0.52	1.22	4.76
	SMR (Sig)	---	---	---	93.1	---	190.5	---	42.0
	At Risk	128	150	155	369	260	365	412	1316
	Person Yrs	1005.5	925.7	776.6	2304.2	1195.2	1532.9	3608.9	11429.0
20-29	Obs	1	1	0	1	0	0	2	5
	Exp	0.85	0.55	0.24	1.18	0.04	0.89	2.13	6.69
	SMR (Sig)	118.3	181.4	---	84.7	---	---	93.7	74.7
	At Risk	96	80	52	154	142	151	404	1038
	Person Yrs	615.9	453.8	254.3	868.9	843.8	846.8	2431.4	6314.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.06	0.01	0.05	0.06	0.00	0.01	0.14	0.34
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	6	3	2	7	1	3	7	26
	Person Yrs	33.9	13.2	21.2	32.8	2.2	13.0	78.4	194.7
TOTAL	Obs	1	1	0	2	0	1	2	7
	Exp	1.77	1.14	0.72	2.52	1.38	1.55	3.52	12.60
	SMR (Sig)	56.6	87.6	---	79.4	---	64.4	56.8	55.6
	At Risk	170	224	374	501	593	599	430	1369
	Person Yrs	2391.0	2143.0	1893.3	4518.6	2703.4	4019.1	6307.1	23975.5

* Significant at 5% Level; ** Significant at 1% Level

511971 0684

Table A11.8

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to PPOM
for Workers in Plant 12

Cause of Death: CANCER OF LUNG

Latency		Cumulative-Exposure 0	.0001	6	13	32	55	94+	TOTAL
<10	Obs	0	2	0	0	0	0	0	2
	Exp	0.17	0.86	0.39	0.23	0.05	0.00	0.00	1.69
	SMR (Sig)	---	231.7	---	---	---	---	---	118.2
	At Risk	165	1281	776	206	48	0	0	1832
	Person Yrs	765.4	4116.4	2018.6	769.1	85.7	0.0	0.0	7755.2
10-19	Obs	2	4	6	1	1	1	0	15
	Exp	0.63	1.94	3.39	2.11	0.45	0.17	0.00	8.69
	SMR (Sig)	319.7	205.9	177.1	47.4	223.5	580.7	---	172.7
	At Risk	155	793	1030	623	126	55	0	1847
	Person Yrs	1163.6	3611.6	6739.1	3469.6	694.0	215.0	0.0	15892.8
20-29	Obs	0	4	3	4	0	0	0	11
	Exp	0.89	1.29	3.71	5.69	0.70	0.46	0.05	12.76
	SMR (Sig)	---	311.2	81.0	70.4	---	---	---	86.2
	At Risk	96	164	525	603	89	55	7	1384
	Person Yrs	635.1	840.2	2649.5	4352.4	475.2	360.3	36.5	9357.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.13	0.07	0.23	0.58	0.10	0.02	0.01	1.13
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	39	25	85	215	33	8	2	407
	Person Yrs	55.6	28.3	99.0	241.3	42.1	7.3	1.9	474.4
TOTAL	Obs	2	10	9	5	1	1	0	28
	Exp	1.91	4.16	7.71	8.61	1.29	0.65	0.05	24.27
	SMR (Sig)	110.4	240.3 *	116.8	58.1	77.5	155.0	---	115.4
	At Risk	170	1325	1201	778	159	60	7	1883
	Person Yrs	2619.7	8604.4	11505.2	8832.5	1296.9	582.6	38.4	33479.7

* Significant at 5% Level; ** Significant at 1% Level

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Table A11.9

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to BAP
for Workers in the Prebake Process

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0	.0001	10	100	500	1000	2000+	TOTAL
<10	Obs	1	1	0	0	0	0	0	2
	Exp	0.45	3.94	0.11	0.00	0.00	0.00	0.00	4.50
	SMR (Sig)	220.0	25.4	---	---	---	---	---	44.4
	At Risk	693	6179	237	0	0	0	0	6920
	Person Yrs	2684.3	24919.9	424.8	0.0	0.0	0.0	0.0	28029.0
10-19	Obs	2	23	2	0	0	0	0	27
	Exp	2.65	23.04	2.81	0.03	0.00	0.00	0.00	28.52
	SMR (Sig)	75.6	99.8	71.2	---	---	---	---	94.7
	At Risk	733	7134	945	7	0	0	0	8227
	Person Yrs	5683.0	52731.2	5972.6	32.3	0.0	0.0	0.0	64419.1
20-29	Obs	4	38	5	2	0	0	0	49
	Exp	4.22	38.44	9.65	0.15	0.00	0.00	0.00	52.45
	SMR (Sig)	94.8	98.9	51.8	1377.5 *	---	---	---	93.4
	At Risk	570	5412	1329	11	0	0	0	7051
	Person Yrs	3831.8	36406.1	9609.0	87.2	0.0	0.0	0.0	49934.2
30+	Obs	2	37	16	0	0	0	0	55
	Exp	4.17	31.56	21.29	0.26	0.00	0.00	0.00	57.29
	SMR (Sig)	48.0	117.2	75.1	---	---	---	---	96.0
	At Risk	259	2310	1119	13	0	0	0	3624
	Person Yrs	2119.3	16720.7	10739.7	122.0	0.0	0.0	0.0	29701.7
TOTAL	Obs	9	99	23	2	0	0	0	133
	Exp	11.49	96.98	33.86	0.44	0.00	0.00	0.00	142.76
	SMR (Sig)	78.4	102.1	67.9	458.6	---	---	---	93.2
	At Risk	891	8251	1604	18	0	0	0	9625
	Person Yrs	14318.4	130777.9	26746.2	241.5	0.0	0.0	0.0	172084.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0686

Table A11.10

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to BAP
for Workers in the Horizontal Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0	.0001	10	100	500	1000	2000+	TOTAL
<10	Obs	0	0	0	0	1	0	0	1
	Exp	0.45	0.04	1.27	1.97	0.49	0.12	0.00	4.24
	SMR (Sig)	---	---	---	---	205.1	---	---	23.6
	At Risk	617	210	2325	4156	1576	348	15	6318
	Person Yrs	2561.8	400.5	7185.8	13518.7	3730.0	524.3	12.6	27933.7
10-19	Obs	1	0	1	13	6	1	0	24
	Exp	1.85	0.28	2.32	11.85	4.54	2.70	0.62	24.15
	SMR (Sig)	54.1	---	43.2	109.7	176.4	37.0	---	99.4
	At Risk	474	136	985	3238	1817	974	218	6147
	Person Yrs	3537.6	654.0	5169.6	23675.2	11506.1	5657.5	1077.9	51678.0
20-29	Obs	2	0	0	12	6	3	3	26
	Exp	2.12	0.30	1.70	10.09	5.06	4.45	3.17	27.68
	SMR (Sig)	94.5	---	---	110.2	118.6	67.4	94.7	93.9
	At Risk	304	55	336	1963	979	791	284	4509
	Person Yrs	1590.0	252.2	1477.9	8860.1	4529.7	3855.2	2392.8	23006.0
30+	Obs	1	0	1	1	0	1	2	6
	Exp	0.40	0.01	0.10	1.11	0.31	0.90	2.40	5.24
	SMR (Sig)	250.0	---	956.8	89.7	---	111.0	83.5	114.5
	At Risk	32	5	13	106	39	108	240	535
	Person Yrs	161.9	8.2	49.0	483.1	139.4	411.6	1028.0	2281.1
TOTAL	Obs	4	0	2	26	15	5	5	57
	Exp	4.82	0.64	5.38	25.72	10.40	8.17	6.18	61.31
	SMR (Sig)	83.0	---	37.1	101.1	144.3	61.2	80.9	93.0
	At Risk	624	266	2449	4620	2072	1053	306	6534
	Person Yrs	7851.3	1314.8	13882.3	46545.2	20305.2	10486.6	4511.4	104898.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0687

Table A11.11

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to PAP
for Workers in the Vertical Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0	.0001	10	100	500	1000	2000+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.16	0.27	0.09	0.11	0.14	0.03	0.00	0.80
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	163	361	173	371	530	256	0	1342
	Person Yrs	655.7	1551.8	587.1	1100.9	1839.7	301.6	0.0	6036.8
10-19	Obs	0	0	1	0	1	0	0	2
	Exp	0.70	0.82	0.94	0.48	0.55	0.99	0.28	4.76
	SMR (Sig)	---	---	106.8	---	183.2	---	---	42.0
	At Risk	128	334	252	214	345	433	228	1316
	Person Yrs	1085.5	1665.2	1773.2	1426.2	1649.8	3194.1	614.9	11429.0
20-29	Obs	1	2	0	0	0	1	1	5
	Exp	0.85	0.92	1.29	0.67	0.68	0.94	1.35	6.69
	SMR (Sig)	118.3	218.2	---	---	---	106.0	74.2	74.7
	At Risk	96	124	172	117	135	200	262	1038
	Person Yrs	615.9	736.3	978.2	712.7	696.0	954.8	1621.1	6314.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.06	0.10	0.02	0.01	0.00	0.13	0.01	0.34
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	6	7	5	1	1	7	1	26
	Person Yrs	33.9	39.6	25.8	8.5	4.8	76.1	6.0	194.7
TOTAL	Obs	1	2	1	0	1	1	1	7
	Exp	1.77	2.11	2.34	1.27	1.37	2.10	1.64	12.60
	SMR (Sig)	56.6	94.9	42.8	---	72.8	47.5	61.0	55.6
	At Risk	170	383	297	388	610	456	265	1369
	Person Yrs	2391.0	4012.9	3364.3	3248.3	4190.3	4526.6	2242.0	23975.5

* Significant at 5% Level; ** Significant at 1% Level

511971 0688

Table A11.12

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to BAP
for Workers in Plant 12

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0	.0001	10	100	500	1000	2000+	TOTAL
<10	Obs	0	2	0	0	0	0	0	2
	Exp	0.17	1.48	0.04	0.00	0.00	0.00	0.00	1.69
	SMR (Sig)	---	135.1	---	---	---	---	---	118.2
	At Risk	165	1658	39	0	0	0	0	1832
	Person Yrs	765.4	6866.0	123.9	0.0	0.0	0.0	0.0	7755.2
10-19	Obs	2	9	4	0	0	0	0	15
	Exp	0.63	7.22	0.84	0.00	0.00	0.00	0.00	8.69
	SMR (Sig)	319.7	124.7	475.0 *	---	---	---	---	172.7
	At Risk	155	1656	166	0	0	0	0	1847
	Person Yrs	1163.6	13689.0	1039.4	0.0	0.0	0.0	0.0	15892.8
20-29	Obs	0	11	0	0	0	0	0	11
	Exp	0.89	9.33	2.54	0.00	0.00	0.00	0.00	12.76
	SMR (Sig)	---	117.8	---	---	---	---	---	86.2
	At Risk	96	1140	204	0	0	0	0	1304
	Person Yrs	635.1	7109.7	1612.4	0.0	0.0	0.0	0.0	9357.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.13	0.62	0.38	0.00	0.00	0.00	0.00	1.13
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	39	242	126	0	0	0	0	407
	Person Yrs	55.6	264.2	154.6	0.0	0.0	0.0	0.0	474.4
TOTAL	Obs	2	22	4	0	0	0	0	28
	Exp	1.81	18.65	3.81	0.00	0.00	0.00	0.00	24.27
	SMR (Sig)	110.4	117.9	105.0	---	---	---	---	115.4
	At Risk	170	1707	222	0	0	0	0	1883
	Person Yrs	2619.7	27929.8	2930.2	0.0	0.0	0.0	0.0	33479.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0689

Table A11.13

Standardized Mortality Ratios for Lung Cancer by Time Since First Employment and Cumulative Exposure to Total Particulates for Workers in the Prebake Process

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0	7	16	29	55	93	135+	TOTAL
<10	Obs	2	0	0	0	0	0	0	2
	Exp	1.91	1.62	0.52	0.39	0.07	0.00	0.00	4.50
	SMR (Sig)	104.6	---	---	---	---	---	---	44.4
	At Risk	4219	3475	1397	775	138	0	0	6920
	Person Yrs	12442.3	9751.1	3646.3	1951.0	238.3	0.0	0.0	28029.0
10-19	Obs	9	7	5	2	4	0	0	27
	Exp	7.22	8.54	6.49	4.17	1.75	0.35	0.00	28.52
	SMR (Sig)	124.7	82.0	77.1	47.9	228.5	---	---	94.7
	At Risk	2056	2887	2760	1601	636	114	0	8227
	Person Yrs	17366.6	20726.8	13420.6	9391.5	3075.5	437.9	0.0	64419.1
20-29	Obs	12	14	10	4	6	3	0	49
	Exp	11.35	9.16	14.19	9.60	5.77	2.03	0.34	52.45
	SMR (Sig)	105.8	152.8	70.5	41.6	103.9	147.6	---	93.4
	At Risk	1691	1691	2201	1548	801	315	51	7051
	Person Yrs	11306.1	9355.1	13266.4	8964.2	5214.4	1598.1	230.0	49934.2
30+	Obs	11	8	10	9	7	6	4	55
	Exp	10.43	5.90	9.85	11.56	7.94	7.78	3.83	57.29
	SMR (Sig)	105.5	135.6	101.5	77.8	88.2	77.1	104.6	96.0
	At Risk	731	522	786	909	551	359	131	3624
	Person Yrs	5430.6	3243.1	5123.5	6054.7	4121.6	3882.0	1838.3	29701.7
TOTAL	Obs	34	29	25	15	17	9	4	133
	Exp	30.91	25.22	31.04	25.73	15.53	10.16	4.17	142.76
	SMR (Sig)	110.0	115.0	80.5	58.3 *	109.5	88.5	96.0	93.2
	At Risk	5089	4984	3817	2465	1040	475	136	9625
	Person Yrs	46553.6	43076.1	35456.9	26061.3	12649.8	5918.0	2068.2	172084.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0690

Table A11.14

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to Total Particulates
for Workers in the Horizontal Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative-Exposure 0	7	16	29	55	93	135+	TOTAL
<10	Obs	0	0	0	0	1	0	0	1
	Exp	0.75	1.83	0.63	0.50	0.44	0.06	0.03	4.24
	SMR (Sig)	---	---	---	---	229.6	---	---	23.6
	At Risk	1366	2777	1789	1804	1200	167	81	6318
	Person Yrs	4974.6	10224.9	4523.7	4763.8	3040.3	268.9	129.5	27933.7
10-19	Obs	1	2	8	5	4	3	1	24
	Exp	3.09	3.05	7.41	3.91	2.65	2.64	1.40	24.15
	SMR (Sig)	32.4	65.5	108.0	128.0	150.8	113.5	71.4	99.4
	At Risk	836	2119	2171	1797	1609	1010	503	6147
	Person Yrs	6349.4	7730.8	13954.2	8264.1	7391.5	5662.2	2325.9	51678.0
20-29	Obs	3	3	4	2	5	3	6	26
	Exp	3.17	1.81	4.04	7.34	3.14	2.76	5.41	27.68
	SMR (Sig)	94.5	165.5	99.0	27.2 *	159.2	108.5	111.0	93.9
	At Risk	499	425	934	1194	626	541	624	4509
	Person Yrs	2476.8	1717.8	3348.8	5833.1	2875.6	2479.5	4274.4	23006.0
30+	Obs	2	0	0	1	0	0	3	6
	Exp	0.46	0.19	0.15	0.82	0.56	0.54	2.52	5.24
	SMR (Sig)	432.0	---	---	121.3	---	---	119.1	114.5
	At Risk	42	18	23	82	48	69	264	535
	Person Yrs	191.2	95.5	72.9	354.9	230.6	254.6	1081.3	2281.1
TOTAL	Obs	6	5	12	8	10	6	10	57
	Exp	7.48	6.89	12.23	12.57	6.79	6.00	9.35	61.31
	SMR (Sig)	80.2	72.7	98.1	63.6	147.3	99.9	106.9	93.0
	At Risk	1378	3031	2985	2913	1744	1110	656	6534
	Person Yrs	13991.9	19769.0	21899.6	19215.9	13545.9	8665.2	7811.2	104098.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0691

Table A11.15

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to Total Particulates
for Workers in the Vertical Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0	7	16	29	55	93	135+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.35	0.25	0.05	0.08	0.07	0.00	0.00	0.80
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	551	467	251	451	266	0	0	1342
	Person Yrs	2007.9	1622.7	640.6	1085.5	680.1	0.0	0.0	6036.8
10-19	Obs	0	0	1	1	0	0	0	2
	Exp	1.50	0.72	1.00	0.38	0.32	0.48	0.35	4.76
	SMR (Sig)	---	---	99.8	261.2	---	---	---	42.0
	At Risk	357	429	345	202	367	274	192	1316
	Person Yrs	2783.1	1805.9	2130.7	1463.6	1288.3	1309.4	648.1	11429.0
20-29	Obs	2	1	0	0	0	1	1	5
	Exp	1.69	0.80	1.30	1.07	0.34	0.37	1.11	6.69
	SMR (Sig)	118.2	124.7	---	---	---	268.6	89.9	74.7
	At Risk	225	117	209	195	88	84	196	1038
	Person Yrs	1342.6	671.1	1054.7	1235.7	490.1	399.0	1121.8	6314.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.13	0.05	0.01	0.06	0.02	0.07	0.00	0.34
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	12	5	2	5	3	2	0	26
	Person Yrs	73.9	19.6	15.3	34.8	16.8	34.4	0.0	194.7
TOTAL	Obs	2	1	1	1	0	1	1	7
	Exp	3.68	1.82	2.37	1.59	0.76	0.91	1.47	12.60
	SMR (Sig)	54.4	54.9	42.2	62.9	---	109.4	68.2	55.6
	At Risk	570	537	470	591	379	296	199	1369
	Person Yrs	6207.5	4119.3	3841.2	3819.6	2475.2	1742.7	1769.9	23975.5

Significant at 5% Level; ** Significant at 1% Level

511971 0692

Table A11.16

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to Total Particulates
for Workers in Plant 12

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0	7	16	29	55	93	135+	TOTAL
<10	Obs	0	0	2	0	0	0	0	2
	Exp	0.35	0.59	0.61	0.13	0.00	0.00	0.00	1.69
	SMR (Sig)	---	---	327.3	---	---	---	---	118.2
	At Risk	436	1081	900	329	0	0	0	1832
	Person Yrs	1642.7	2651.5	2841.0	619.9	0.0	0.0	0.0	7755.2
10-19	Obs	3	2	5	5	0	0	0	15
	Exp	1.15	1.48	2.57	3.13	0.35	0.00	0.00	8.69
	SMR (Sig)	261.5	135.1	194.3	159.6	---	---	---	172.7
	At Risk	326	599	953	791	160	0	0	1847
	Person Yrs	2183.7	2748.7	4067.3	5571.6	521.5	0.0	0.0	15892.8
20-29	Obs	1	2	3	3	2	0	0	11
	Exp	1.44	1.00	2.54	5.27	2.52	0.00	0.00	12.76
	SMR (Sig)	69.5	200.2	118.2	56.9	79.4	---	---	86.2
	At Risk	169	149	351	655	233	0	0	1384
	Person Yrs	1061.5	741.8	1756.3	3973.9	1823.6	0.0	0.0	9357.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.16	0.06	0.17	0.45	0.30	0.00	0.00	1.13
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	50	24	57	161	115	0	0	407
	Person Yrs	60.0	27.0	65.4	186.3	127.7	0.0	0.0	474.4
TOTAL	Obs	4	4	10	8	2	0	0	28
	Exp	3.10	3.13	5.89	8.98	3.18	0.00	0.00	24.27
	SMR (Sig)	129.2	127.8	169.8	89.1	63.0	---	---	115.4
	At Risk	448	1164	1309	875	236	0	0	1883
	Person Yrs	4955.9	6169.0	9530.0	10351.8	2472.9	0.0	0.0	33479.7

Significant at 5% Level; ** Significant at 1% Level

511971 0693

Table A11.17

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to Fluorides
for Workers in the Prebake Process

Cause of Death: CANCER OF LUNG

Latency		Cumulative-Exposure 0	.0001	1	10	60	101	149+	TOTAL
<10	Obs	2	0	0	0	0	0	0	2
	Exp	2.14	0.33	0.43	1.57	0.03	0.00	0.00	4.50
	SMR (Sig)	93.3	---	---	---	---	---	---	44.4
	At Risk	3006	654	1577	2623	203	0	0	6920
	Person Yrs	11923.8	2105.3	3606.5	10236.4	157.1	0.0	0.0	28029.0
10-19	Obs	10	2	2	8	4	1	0	27
	Exp	12.25	2.33	2.32	8.79	2.42	0.39	0.01	28.52
	SMR (Sig)	81.6	85.7	86.2	91.0	165.1	253.3	---	94.7
	At Risk	3395	936	1022	2961	1035	284	15	8227
	Person Yrs	26173.5	5895.8	5862.8	19756.9	5743.5	948.1	38.5	64419.1
20-29	Obs	21	7	2	10	7	1	1	49
	Exp	21.94	4.88	3.79	12.14	6.09	2.81	0.79	52.45
	SMR (Sig)	95.7	143.3	52.7	82.3	114.9	35.5	127.1	93.4
	At Risk	2750	777	665	1798	916	484	224	7051
	Person Yrs	19854.6	5417.9	4169.3	10979.4	5650.7	2830.8	1023.6	49934.2
30+	Obs	15	9	10	5	3	6	7	55
	Exp	21.93	6.88	5.31	6.93	3.61	3.85	8.78	57.29
	SMR (Sig)	68.4	130.9	188.2	72.1	83.2	155.7	79.8	96.0
	At Risk	1379	167	324	559	354	320	336	3624
	Person Yrs	10972.6	3842.2	2840.8	3672.2	1882.0	1993.5	4498.4	29701.7
TOTAL	Obs	48	18	14	23	14	8	8	133
	Exp	58.26	14.42	11.86	29.44	12.15	7.06	9.57	142.76
	SMR (Sig)	82.4	124.8	118.0	78.1	115.3	113.3	83.6	93.2
	At Risk	3990	1253	2077	3386	1262	548	351	9625
	Person Yrs	68924.6	17261.1	16479.3	44644.8	13441.3	5772.4	5560.5	172084.0

Significant at 5% Level; ** Significant at 1% Level

511971 0694

Table A11.18

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to Fluorides
for Workers in the Horizontal Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0	.0001	1	10	60	101	149+	TOTAL
<10	Obs	0	0	0	1	0	0	0	1
	Exp	1.87	0.17	0.52	1.51	0.11	0.03	0.02	4.24
	SMR (Sig)	---	---	---	66.2	---	---	---	23.6
	At Risk	1915	373	1799	3150	408	95	55	6318
	Person Yrs	8426.7	1156.0	4921.1	12402.4	710.0	149.2	88.3	27933.7
10-19	Obs	1	2	2	14	2	0	0	24
	Exp	7.96	1.09	1.06	9.99	1.73	0.79	0.73	24.15
	SMR (Sig)	50.2	183.4	187.6	140.1	115.3	---	---	99.4
	At Risk	1732	313	819	3130	833	383	241	6147
	Person Yrs	13613.9	2089.0	4850.2	23938.0	4075.3	1739.3	1372.4	51678.0
20-29	Obs	6	0	3	8	7	0	2	26
	Exp	8.07	1.00	1.66	9.87	2.53	1.53	3.02	27.68
	SMR (Sig)	74.4	---	180.8	81.0	276.2 *	---	66.3	93.9
	At Risk	1154	183	340	1958	506	224	279	4509
	Person Yrs	5999.0	846.8	1508.4	8835.7	2262.6	1242.8	2310.6	23006.0
30+	Obs	2	1	0	1	0	0	2	6
	Exp	1.35	0.05	0.11	0.36	0.47	0.86	2.03	5.24
	SMR (Sig)	147.6	1945.2	---	278.9	---	---	98.4	114.5
	At Risk	124	8	10	43	50	92	213	535
	Person Yrs	572.6	29.3	13.2	174.4	208.3	381.1	872.1	2281.1
TOTAL	Obs	12	3	5	24	9	0	4	57
	Exp	19.26	2.31	4.16	21.73	4.85	3.20	5.00	61.31
	SMR (Sig)	62.3	129.7	120.3	110.4	185.4	---	69.0	93.0
	At Risk	1980	499	1912	3456	923	453	292	6534
	Person Yrs	28612.2	4121.1	11323.0	45430.5	7256.2	3512.4	4643.3	104898.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0695

Table A11.19

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to Fluorides
for Workers in the Vertical Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0	.0001	1	10	60	101	149+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.43	0.05	0.07	0.26	0.00	0.00	0.00	0.80
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	471	116	257	690	0	0	0	1342
	Person Yrs	2022.9	359.2	673.4	2941.3	0.0	0.0	0.0	6036.8
10-19	Obs	1	0	0	1	0	0	0	2
	Exp	1.90	0.35	0.36	1.35	0.79	0.00	0.00	4.76
	SMR (Sig)	52.7	---	---	74.0	---	---	---	42.0
	At Risk	408	108	126	694	299	16	0	1316
	Person Yrs	3139.8	868.8	965.5	4654.7	1797.9	2.3	0.0	11429.0
20-29	Obs	3	0	0	0	2	0	0	5
	Exp	2.33	0.45	0.53	1.74	1.08	0.56	0.00	6.69
	SMR (Sig)	128.9	---	---	---	185.5	---	---	74.7
	At Risk	269	76	76	331	291	110	0	1038
	Person Yrs	1687.2	421.6	464.8	1999.1	1134.4	607.8	0.0	6314.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.15	0.02	0.02	0.07	0.08	0.00	0.00	0.34
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	14	1	3	5	4	0	0	26
	Person Yrs	77.1	10.7	14.4	42.0	50.5	0.0	0.0	194.7
TOTAL	Obs	4	0	0	1	2	0	0	7
	Exp	4.81	0.86	0.98	3.42	1.96	0.56	0.00	12.60
	SMR (Sig)	83.2	---	---	29.2	102.2	---	---	55.6
	At Risk	402	127	267	707	319	110	0	1369
	Person Yrs	6927.0	1700.3	2118.2	9637.1	2982.8	610.1	0.0	23975.5

Significant at 5% Level; ** Significant at 1% Level

511971 0696

Table A11.20

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to Fluorides
for Workers in Plant 12

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0	.0001	1	10	60	101	149+	TOTAL
<10	Obs	0	0	0	2	0	0	0	2
	Exp	0.56	0.12	0.20	0.69	0.12	0.00	0.00	1.69
	SMR (Sig)	---	---	---	289.1	---	---	---	118.2
	At Risk	463	177	318	969	277	8	0	1832
	Person Yrs	2060.8	545.0	1078.7	3383.1	683.1	4.4	0.0	7755.2
10-19	Obs	6	0	1	4	4	0	0	15
	Exp	2.17	0.60	1.18	2.05	2.03	0.64	0.02	8.69
	SMR (Sig)	276.0 *	---	84.5	195.1	197.0	---	---	172.7
	At Risk	418	142	311	758	548	212	18	1847
	Person Yrs	3396.8	1030.6	2331.1	4445.9	3622.5	1042.5	23.0	15892.8
20-29	Obs	0	0	2	4	3	1	1	11
	Exp	3.19	0.67	1.34	2.22	2.49	2.37	0.48	12.76
	SMR (Sig)	---	---	148.9	180.2	120.5	42.3	206.6	86.2
	At Risk	283	87	202	300	316	207	40	1384
	Person Yrs	2109.6	526.5	1145.5	1781.0	1861.9	1579.0	353.6	9357.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.40	0.03	0.07	0.17	0.12	0.25	0.09	1.13
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	126	10	35	68	46	87	35	407
	Person Yrs	160.7	12.2	37.6	76.5	49.9	94.8	42.7	474.4
TOTAL	Obs	6	0	3	10	7	1	1	28
	Exp	6.32	1.41	2.00	5.14	4.76	3.25	0.59	24.27
	SMR (Sig)	95.0	---	197.1	194.7	147.1	30.7	169.1	115.4
	At Risk	469	199	347	1024	558	232	40	1883
	Person Yrs	7720.0	2114.3	4593.1	9606.5	6217.8	2720.0	419.3	33479.7

Significant at 5% Level; ** Significant at 1% Level

511971 0697

Table A11.21

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to SO_2
for Workers in the Prebake Process

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0	.0001	1	7	29	39	55+	TOTAL
<10	Obs	2	0	0	0	0	0	0	2
	Exp	2.06	0.51	0.70	1.04	0.14	0.05	0.00	4.50
	SMR (Sig)	97.1	---	---	---	---	---	---	44.4
	At Risk	2962	994	1555	2215	363	143	7	6920
	Person Yrs	11562.1	3455.9	4707.6	7362.9	709.4	226.4	4.8	28029.0
10-19	Obs	10	4	3	6	1	1	2	27
	Exp	11.57	3.45	2.91	7.04	1.43	1.34	0.78	28.52
	SMR (Sig)	86.5	115.9	103.1	85.2	69.9	74.9	255.1	94.7
	At Risk	3362	1326	1193	2429	895	648	302	8227
	Person Yrs	25301.6	8467.2	6613.2	16482.7	3468.3	2725.0	1341.1	64419.1
20-29	Obs	18	8	4	9	2	3	5	49
	Exp	20.74	6.74	4.58	10.06	2.73	3.26	4.33	52.45
	SMR (Sig)	86.8	118.7	87.3	89.5	73.3	92.0	115.4	93.4
	At Risk	2673	1030	709	1518	531	504	555	7051
	Person Yrs	19410.4	7107.8	4491.4	9431.5	2783.3	2945.9	3763.8	49934.2
30+	Obs	16	10	9	3	3	6	8	55
	Exp	23.33	8.54	4.76	5.66	1.90	2.59	10.50	57.29
	SMR (Sig)	68.6	117.1	189.2	53.0	158.1	231.4	76.2	96.0
	At Risk	1428	569	304	468	192	237	517	3624
	Person Yrs	11723.0	4749.2	2471.4	3044.8	998.2	1342.3	5372.8	29701.7
TOTAL	Obs	46	22	16	18	6	10	15	133
	Exp	57.70	19.24	12.95	23.81	6.20	7.24	15.62	142.76
	SMR (Sig)	79.7	114.4	123.6	75.6	96.8	138.1	96.0	93.2
	At Risk	3999	1714	2058	2948	1192	841	681	9625
	Person Yrs	67997.2	23800.1	18283.6	36321.8	7959.2	7239.6	10482.5	172084.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0698

Table A11.22

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to SO_2
for Workers in the Horizontal Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative-Exposure 0	.0001	1	7	29	39	55+	TOTAL
<10	Obs	0	0	0	1	0	0	0	1
	Exp	2.03	0.45	1.40	0.30	0.02	0.02	0.02	4.24
	SMR (Sig)	---	---	---	333.6	---	---	---	23.6
	At Risk	2262	1028	2634	834	112	92	69	6318
	Person Yrs	10067.6	3973.5	11036.2	2300.8	218.7	195.4	141.5	27933.7
10-19	Obs	8	1	10	4	0	0	1	24
	Exp	9.07	2.62	7.16	4.15	0.50	0.18	0.48	24.15
	SMR (Sig)	88.2	38.1	139.7	96.3	---	---	210.4	99.4
	At Risk	2084	854	2336	1433	289	165	171	6147
	Person Yrs	16867.2	6242.9	15923.7	9817.2	1080.3	537.8	1208.9	51678.0
20-29	Obs	8	3	4	8	1	1	1	26
	Exp	8.96	2.31	6.39	6.19	1.60	1.09	1.14	27.68
	SMR (Sig)	89.3	129.8	62.6	129.2	62.5	92.1	87.6	93.9
	At Risk	1423	495	1247	1026	228	141	169	4509
	Person Yrs	6957.0	2085.8	5465.8	5311.4	1293.8	833.1	1059.0	23006.0
30+	Obs	2	1	0	1	0	1	1	6
	Exp	1.38	0.12	0.19	1.15	0.90	0.95	0.54	5.24
	SMR (Sig)	145.4	806.4	---	86.9	---	105.0	183.5	114.5
	At Risk	126	15	26	131	102	90	55	535
	Person Yrs	582.2	59.4	92.9	514.0	365.7	410.2	256.7	2281.1
TOTAL	Obs	18	5	14	14	1	2	3	57
	Exp	21.44	5.51	15.14	11.80	3.01	2.23	2.18	61.31
	SMR (Sig)	84.0	90.8	92.5	118.7	33.2	89.6	137.4	93.0
	At Risk	2328	1101	2761	1571	430	291	181	6534
	Person Yrs	34474.0	12361.7	32518.6	17043.5	2958.5	1976.4	2666.1	104898.8

Significant at 5% Level; ** Significant at 1% Level

511971 0699

Table A11.23

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to SO_2
for Workers in the Vertical Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0	.0001	1	7	29	39	55+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.44	0.07	0.10	0.19	0.00	0.00	0.00	0.80
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	496	155	303	565	0	0	0	1342
	Person Yrs	2157.7	562.7	1017.1	2299.3	0.0	0.0	0.0	6036.8
10-19	Obs	1	0	0	1	0	0	0	2
	Exp	1.98	0.51	0.41	1.27	0.51	0.09	0.00	4.76
	SMR (Sig)	50.5	---	---	79.0	---	---	---	42.0
	At Risk	444	133	185	615	281	117	0	1316
	Person Yrs	3395.7	1110.0	1237.3	4464.5	1082.2	139.3	0.0	11429.0
20-29	Obs	3	0	0	0	2	0	0	5
	Exp	2.46	0.64	0.59	1.33	0.86	0.82	0.00	6.69
	SMR (Sig)	122.2	---	---	---	233.2	---	---	74.7
	At Risk	297	96	103	279	198	150	0	1038
	Person Yrs	1822.2	522.0	621.1	1473.5	991.9	884.2	0.0	6314.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.18	0.00	0.01	0.07	0.07	0.00	0.00	0.34
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	17	0	2	6	4	1	0	26
	Person Yrs	98.0	0.0	9.0	43.0	42.1	1.8	0.0	194.7
TOTAL	Obs	4	0	0	1	2	0	0	7
	Exp	5.06	1.22	1.11	2.86	1.45	0.91	0.00	12.60
	SMR (Sig)	79.1	---	---	35.0	138.2	---	---	55.6
	At Risk	509	164	308	628	325	151	0	1369
	Person Yrs	7474.5	2154.6	2884.5	8280.4	2116.2	1025.2	0.0	23975.5

Significant at 5% Level; ** Significant at 1% Level

511971 0700

Table A11.24

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Exposure to SO_2
for Workers in Plant 12

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0	.0001	1	7	29	39	55+	TOTAL
<10	Obs	0	0	1	1	0	0	0	2
	Exp	0.56	0.28	0.30	0.53	0.03	0.00	0.00	1.69
	SMR (Sig)	---	---	334.7	188.5	---	---	---	118.2
	At Risk	463	389	545	726	59	2	0	1832
	Person Yrs	2060.8	1416.7	1470.5	2637.6	161.0	0.6	0.0	7755.2
10-19	Obs	6	1	3	5	0	0	0	15
	Exp	2.17	1.59	1.12	3.30	0.35	0.16	0.00	8.69
	SMR (Sig)	276.0 *	63.0	268.9	151.7	---	---	---	172.7
	At Risk	418	372	348	747	150	63	0	1847
	Person Yrs	3396.8	2952.1	2296.7	6180.6	803.2	263.4	0.0	15892.8
20-29	Obs	0	1	1	8	1	0	0	11
	Exp	3.19	1.73	1.32	4.56	1.03	0.90	0.03	12.76
	SMR (Sig)	---	57.8	76.0	175.3	97.5	---	---	86.2
	At Risk	283	251	181	531	115	83	5	1384
	Person Yrs	2109.6	1390.4	1126.9	3304.0	748.0	650.5	27.8	9357.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.40	0.08	0.09	0.30	0.12	0.14	0.01	1.13
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	126	27	47	109	41	53	4	407
	Person Yrs	160.7	31.6	49.4	123.2	43.1	62.1	4.4	474.4
TOTAL	Obs	6	2	5	14	1	0	0	28
	Exp	6.32	3.67	2.82	8.69	1.52	1.20	0.04	24.27
	SMR (Sig)	95.0	54.5	177.0	161.0	65.7	---	---	115.4
	At Risk	469	417	591	802	183	84	5	1883
	Person Yrs	7728.0	5790.8	4951.6	12245.3	1755.2	976.6	32.2	33479.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0701

Table A11.25

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to Benzene Solubles
for Workers in the Prebake Process

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	.0001	5	13	34	53	69+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.11	0.44	0.40	0.13	0.00	0.00	0.00	1.09
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	693	3635	3416	1173	0	0	0	6920
	Person Yrs	2604.3	11703.8	10756.0	2804.9	0.0	0.0	0.0	28029.0
10-19	Obs	0	2	2	1	0	0	0	5
	Exp	0.41	1.15	1.19	1.08	0.20	0.00	0.00	4.04
	SMR (Sig)	---	174.1	167.4	92.9	---	---	---	123.8
	At Risk	733	3019	3907	2776	656	41	0	8227
	Person Yrs	5683.0	18632.1	21100.4	16330.7	2631.0	31.9	0.0	64419.1
20-29	Obs	1	2	2	3	0	0	0	8
	Exp	0.52	1.18	1.33	1.66	0.50	0.20	0.03	5.50
	SMR (Sig)	193.1	169.5	149.9	181.2	---	---	---	145.4
	At Risk	570	1658	2304	2364	890	364	93	7051
	Person Yrs	3831.0	10367.4	13368.1	15124.2	5187.5	1788.0	267.3	49934.2
30+	Obs	2	0	3	1	0	1	1	8
	Exp	0.52	0.89	1.50	1.62	0.80	0.47	0.85	6.67
	SMR (Sig)	381.5	---	199.5	61.7	---	210.7	117.2	119.9
	At Risk	259	587	950	1174	465	358	248	3624
	Person Yrs	2119.3	3979.4	7177.2	7663.5	3403.3	2146.3	3212.6	29701.7
TOTAL	Obs	3	4	7	5	0	1	1	21
	Exp	1.57	3.66	4.44	4.48	1.58	0.68	0.89	17.30
	SMR (Sig)	191.1	109.3	157.8	111.5	---	147.5	112.9	121.4
	At Risk	881	4544	5425	3496	1093	448	250	9625
	Person Yrs	14318.4	44682.7	52409.7	42003.2	11221.8	3968.2	3480.0	172084.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0702

Table A11.26

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to Benzene Solubles
for Workers in the Horizontal Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	.0001	5	13	34	53	69+	TOTAL
<10	Obs	0	0	0	1	0	0	0	1
	Exp	0.10	0.07	0.40	0.36	0.05	0.01	0.02	1.02
	SMR (Sig)	---	---	---	274.1	---	---	---	97.7
	At Risk	617	713	2936	3269	1600	247	278	6318
	Person Yrs	2561.8	2167.0	10208.5	10712.9	1383.4	330.5	489.7	27933.7
10-19	Obs	0	1	1	1	1	1	0	5
	Exp	0.23	0.14	0.40	1.28	0.45	0.21	0.27	2.98
	SMR (Sig)	---	711.4	252.8	77.9	220.9	478.2	---	167.7
	At Risk	474	420	1606	3117	1541	936	546	6147
	Person Yrs	3537.6	2558.0	7130.4	21858.7	8690.1	3456.3	4188.8	51670.0
20-29	Obs	0	0	0	0	0	0	1	1
	Exp	0.19	0.09	0.18	0.89	0.26	0.32	0.49	2.44
	SMR (Sig)	---	---	---	---	---	---	204.6	41.0
	At Risk	304	184	449	1868	691	682	567	4509
	Person Yrs	1590.0	814.9	1857.2	8154.0	3013.0	3287.1	4289.8	23006.0
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.04	0.01	0.02	0.09	0.03	0.02	0.25	0.45
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	32	9	19	81	45	27	329	535
	Person Yrs	161.9	27.6	90.6	323.0	203.0	107.5	1367.5	2281.1
TOTAL	Obs	0	1	1	2	1	1	1	7
	Exp	0.57	0.30	0.99	2.63	0.82	0.56	1.02	6.89
	SMR (Sig)	---	331.3	101.1	76.1	121.8	179.0	97.6	101.6
	At Risk	624	787	3173	4086	1793	1102	608	6534
	Person Yrs	7851.3	5567.4	19416.7	41048.7	13497.6	7181.4	10335.8	104898.8

Significant at 5% Level; ** Significant at 1% Level

511971 0703

Table A11.27

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to Benzene Solubles
for Workers in the Vertical Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative-Exposure 0	.0001	5	13	34	53	69+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.03	0.02	0.09	0.09	0.00	0.00	0.00	0.22
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	163	208	1092	778	0	0	0	1342
	Person Yrs	655.7	615.8	2294.0	2471.3	0.0	0.0	0.0	6036.8
10-19	Obs	0	1	1	0	0	0	0	2
	Exp	0.09	0.06	0.07	0.33	0.10	0.00	0.00	0.66
	SMR (Sig)	---	1550.8	1443.0	---	---	---	---	304.2
	At Risk	128	132	321	927	399	0	0	1316
	Person Yrs	1035.5	852.5	1432.7	6340.6	1677.6	0.0	0.0	11429.0
20-29	Obs	0	1	0	1	0	0	0	2
	Exp	0.09	0.06	0.05	0.21	0.21	0.02	0.00	0.64
	SMR (Sig)	---	1583.8	---	475.4	---	---	---	310.3
	At Risk	96	83	92	307	451	59	0	1038
	Person Yrs	615.9	493.2	514.1	2016.7	2399.9	275.2	0.0	6314.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.03
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	6	5	3	6	7	3	0	26
	Person Yrs	33.9	29.6	19.6	27.1	67.3	17.4	0.0	194.7
TOTAL	Obs	0	2	1	1	0	0	0	4
	Exp	0.22	0.15	0.20	0.64	0.33	0.03	0.00	1.56
	SMR (Sig)	---	1303.3 *	501.6	156.6	---	---	---	256.2
	At Risk	170	231	1121	939	465	61	0	1369
	Person Yrs	2091.0	2031.1	4260.4	10856.7	4144.8	292.5	0.0	23975.5

* Significant at 5% Level; ** Significant at 1% Level

511971 0704

Table A11.28

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to Benzene Solubles
for Workers in Plant 12

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	.0001	5	13	34	53	69+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.04	0.17	0.09	0.05	0.01	0.00	0.00	0.37
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	165	1120	717	317	71	21	4	1832
	Person Yrs	765.4	3002.3	2015.2	951.8	189.7	30.0	0.9	7755.2
10-19	Obs	0	1	0	0	1	0	0	2
	Exp	0.09	0.35	0.33	0.28	0.06	0.02	0.03	1.16
	SMR (Sig)	---	283.0	---	---	1548.8	---	---	172.1
	At Risk	155	775	912	570	170	71	51	1847
	Person Yrs	1163.6	4740.1	5396.6	3406.3	651.8	251.5	283.1	15892.8
20-29	Obs	0	1	0	0	1	0	0	2
	Exp	0.09	0.28	0.35	0.35	0.17	0.02	0.05	1.30
	SMR (Sig)	---	359.4	---	---	592.0	---	---	154.2
	At Risk	96	283	490	448	150	38	51	1304
	Person Yrs	635.1	1598.0	2826.8	2733.7	1048.9	170.5	344.1	9357.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.02	0.03	0.03	0.02	0.00	0.00	0.11
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	39	51	106	106	81	17	7	407
	Person Yrs	55.6	63.3	111.1	121.5	93.6	22.0	7.5	474.4
TOTAL	Obs	0	2	0	0	2	0	0	4
	Exp	0.23	0.82	0.79	0.71	0.27	0.05	0.07	2.94
	SMR (Sig)	---	243.5	---	---	742.6	---	---	136.1
	At Risk	170	1162	1090	685	240	93	55	1883
	Person Yrs	2619.7	10203.6	10349.7	7213.2	1984.0	474.0	635.5	33479.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0705

Table A11.29

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to PPOM
for Workers in the Prebake Process

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	.0001	6	13	32	55	94+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.11	0.60	0.30	0.06	0.01	0.00	0.00	1.09
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	693	5116	2830	655	112	2	0	6920
	Person Yrs	2684.3	15910.3	7726.6	1518.2	188.5	1.1	0.0	28029.0
10-19	Obs	0	3	1	1	0	0	0	5
	Exp	0.41	1.17	1.48	0.87	0.07	0.03	0.00	4.04
	SMR (Sig)	---	256.1	67.6	115.0	---	---	---	123.8
	At Risk	733	3709	4414	2235	287	97	9	8227
	Person Yrs	5683.0	19841.3	24879.3	12391.7	1110.5	498.8	14.5	64419.1
20-29	Obs	1	0	3	4	0	0	0	8
	Exp	0.52	2.12	1.68	1.76	0.34	0.07	0.03	5.50
	SMR (Sig)	193.1	---	178.9	227.6	---	---	---	145.4
	At Risk	570	1596	2700	2650	561	127	39	7051
	Person Yrs	3831.8	10206.5	15661.0	16303.8	3032.9	643.8	254.4	49934.2
30+	Obs	2	0	3	1	2	0	0	8
	Exp	0.52	0.96	1.18	2.40	0.92	0.50	0.18	6.67
	SMR (Sig)	301.5	---	253.4	41.7	217.6	---	---	119.9
	At Risk	250	636	945	1430	538	156	61	3624
	Person Yrs	2119.3	4426.4	5799.2	10683.9	4249.6	1747.8	675.5	29701.7
TOTAL	Obs	3	3	7	6	2	0	0	21
	Exp	1.57	3.85	4.64	5.09	1.34	0.60	0.21	17.30
	SMR (Sig)	191.1	77.9	150.7	117.9	149.8	---	---	121.4
	At Risk	801	6252	5296	3411	812	248	65	9625
	Person Yrs	14318.4	50384.4	54066.2	40997.6	8581.5	2891.6	944.4	172084.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0706

Table A11.30

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to PPOM
for Workers in the Horizontal Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	.0001	6	13	32	55	94+	TOTAL
<10	Obs	0	0	0	1	0	0	0	1
	Exp	0.10	0.23	0.28	0.27	0.10	0.04	0.01	1.02
	SMR (Sig)	---	---	---	370.8	---	---	---	97.7
	At Risk	617	1820	2650	2564	1118	479	83	6318
	Person Yrs	2561.8	5959.5	7613.7	8038.8	2748.8	832.0	139.2	27933.7
10-19	Obs	0	1	2	0	0	2	0	5
	Exp	0.23	0.24	0.71	0.83	0.48	0.32	0.18	2.98
	SMR (Sig)	---	424.3	283.1	---	---	625.8	---	167.7
	At Risk	474	909	1927	2739	1576	972	418	6147
	Person Yrs	3537.6	4214.7	11332.1	15234.8	9409.1	5351.0	2598.6	51678.0
20-29	Obs	0	0	0	0	0	0	1	1
	Exp	0.19	0.12	0.25	0.75	0.39	0.32	0.42	2.44
	SMR (Sig)	---	---	---	---	---	---	236.8	41.0
	At Risk	304	284	543	1613	925	641	457	4509
	Person Yrs	1590.0	1250.0	2098.5	7193.1	4204.1	2959.6	3670.7	23006.0
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.04	0.01	0.02	0.09	0.04	0.05	0.21	0.45
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	32	14	24	86	45	70	273	535
	Person Yrs	161.9	44.4	103.1	354.5	201.3	283.4	1132.5	2281.1
TOTAL	Obs	0	1	2	1	0	2	1	7
	Exp	0.57	0.60	1.25	1.94	1.00	0.72	0.82	6.89
	SMR (Sig)	---	167.6	159.7	51.7	---	277.8	121.8	101.6
	At Risk	624	1930	3007	3514	1938	1090	479	6534
	Person Yrs	7851.3	11508.6	21147.4	30821.2	16563.4	9466.0	7540.9	104698.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0707

Table A11.31

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to PPOM
for Workers in the Vertical Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	.0001	6	13	32	55	94+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.03	0.03	0.03	0.05	0.02	0.05	0.01	0.22
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	163	200	333	442	454	485	220	1342
	Person Yrs	655.7	750.3	841.2	1312.7	662.1	1626.4	188.4	6036.8
10-19	Obs	0	0	1	1	0	0	0	2
	Exp	0.09	0.06	0.04	0.15	0.07	0.08	0.18	0.66
	SMR (Sig)	---	---	2329.4	684.0	---	---	---	304.2
	At Risk	128	150	155	369	260	365	412	1316
	Person Yrs	1085.5	925.7	776.6	2304.2	1195.2	1532.9	3608.9	11429.0
20-29	Obs	0	1	0	0	0	1	0	2
	Exp	0.09	0.06	0.02	0.12	0.08	0.08	0.19	0.64
	SMR (Sig)	---	1735.2	---	---	---	1244.8	---	310.3
	At Risk	96	80	52	154	142	151	404	1038
	Person Yrs	615.9	453.8	254.3	868.9	843.8	846.8	2431.4	6314.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.03
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	6	3	2	7	1	3	7	26
	Person Yrs	33.9	13.2	21.2	32.8	2.2	13.0	78.4	194.7
TOTAL	Obs	0	1	1	1	0	1	0	4
	Exp	0.22	0.15	0.10	0.33	0.17	0.21	0.39	1.56
	SMR (Sig)	---	669.5	960.5	307.4	---	477.8	---	256.3
	At Risk	170	224	374	501	593	599	430	1369
	Person Yrs	2391.0	2143.0	1893.3	4518.6	2703.4	4019.1	6307.1	23975.5

* Significant at 5% Level; ** Significant at 1% Level

511971 0708

Table A11.32

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to PPOM
for Workers in Plant 12

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	.0001	6	13	32	55	94+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.04	0.18	0.09	0.04	0.01	0.00	0.00	0.37
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	165	1281	776	286	48	0	0	1832
	Person Yrs	765.4	4116.4	2018.6	769.1	85.7	0.0	0.0	7755.2
10-19	Obs	0	0	1	0	1	0	0	2
	Exp	0.09	0.25	0.45	0.28	0.07	0.02	0.00	1.16
	SMR (Sig)	---	---	223.1	---	1502.0	---	---	172.1
	At Risk	155	793	1030	623	126	55	0	1647
	Person Yrs	1161.6	3611.6	6739.1	3469.6	694.0	215.0	0.0	15892.8
20-29	Obs	0	0	1	0	1	0	0	2
	Exp	0.09	0.14	0.38	0.57	0.07	0.05	0.00	1.30
	SMR (Sig)	---	---	264.3	---	1390.8	---	---	154.2
	At Risk	96	164	525	603	89	55	7	1384
	Person Yrs	635.1	840.2	2649.5	4352.4	475.2	360.3	36.5	9357.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.01	0.02	0.06	0.01	0.00	0.00	0.11
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	39	25	85	215	33	8	2	407
	Person Yrs	55.6	20.3	98.0	241.3	42.1	7.3	1.9	474.4
TOTAL	Obs	0	0	2	0	2	0	0	4
	Exp	0.23	0.58	0.94	0.56	0.16	0.07	0.00	2.94
	SMR (Sig)	---	---	212.5	---	1286.2 *	---	---	136.1
	At Risk	170	1325	1201	778	159	60	7	1803
	Person Yrs	2619.7	8604.4	11595.2	8032.5	1296.9	582.6	38.4	33479.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0709

Table A11.33

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to BAP
for Workers in the Prebake Process

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	.0001	10	100	500	1000	2000+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.11	0.95	0.02	0.00	0.00	0.00	0.00	1.09
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	693	6179	237	0	0	0	0	6920
	Person Yrs	2684.3	24919.9	424.8	0.0	0.0	0.0	0.0	28029.0
10-19	Obs	0	5	0	0	0	0	0	5
	Exp	0.41	3.19	0.43	0.00	0.00	0.00	0.00	4.04
	SMR (Sig)	---	156.7	---	---	---	---	---	123.8
	At Risk	733	7134	945	7	0	0	0	8227
	Person Yrs	5683.0	52731.2	5972.6	32.3	0.0	0.0	0.0	64419.1
20-29	Obs	1	6	1	0	0	0	0	8
	Exp	0.52	3.91	1.06	0.01	0.00	0.00	0.00	5.50
	SMR (Sig)	193.1	153.5	94.2	---	---	---	---	145.4
	At Risk	570	5412	1329	11	0	0	0	7051
	Person Yrs	3831.8	36406.1	9609.0	87.2	0.0	0.0	0.0	49934.2
30+	Obs	2	4	2	0	0	0	0	8
	Exp	0.52	3.54	2.57	0.03	0.00	0.00	0.00	6.67
	SMR (Sig)	391.5	112.9	77.8	---	---	---	---	119.9
	At Risk	259	2310	1119	13	0	0	0	3624
	Person Yrs	2119.3	16720.7	10739.7	122.0	0.0	0.0	0.0	29701.7
TOTAL	Obs	3	15	3	0	0	0	0	21
	Exp	1.57	11.59	4.09	0.05	0.00	0.00	0.00	17.30
	SMR (Sig)	191.1	129.4	73.4	---	---	---	---	121.4
	At Risk	831	8251	1604	18	0	0	0	9625
	Person Yrs	14310.4	130777.9	26746.2	241.5	0.0	0.0	0.0	172084.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0710

Table A11.34

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to PAP
for Workers in the Horizontal Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	.0001	10	100	500	1000	2000+	TOTAL
<10	Obs	0	0	0	1	0	0	0	1
	Exp	0.10	0.01	0.28	0.47	0.13	0.02	0.00	1.02
	SMR (Sig)	---	---	---	210.8	---	---	---	97.7
	At Risk	617	210	2375	4156	1576	348	15	6318
	Person Yrs	2561.8	400.5	7185.8	13518.7	3730.0	524.3	12.6	27933.7
10-19	Obs	0	0	2	1	1	1	0	5
	Exp	0.23	0.04	0.30	1.40	0.60	0.33	0.08	2.98
	SMR (Sig)	---	---	668.7	71.3	166.9	303.3	---	167.7
	At Risk	474	136	995	3238	1017	974	218	6147
	Person Yrs	3537.6	654.0	5169.6	23675.2	11906.1	5657.5	1077.9	51678.0
20-29	Obs	0	0	0	0	0	1	0	1
	Exp	0.19	0.03	0.16	0.96	0.43	0.39	0.27	2.44
	SMR (Sig)	---	---	---	---	---	255.8	---	41.0
	At Risk	394	55	336	1983	979	791	284	4509
	Person Yrs	1590.0	252.2	1477.9	8868.1	4529.7	3895.2	2392.8	23006.0
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.00	0.01	0.12	0.03	0.07	0.19	0.45
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	32	5	13	106	39	108	240	535
	Person Yrs	161.9	8.2	49.0	483.1	139.4	411.6	1028.0	2281.1
TOTAL	Obs	0	0	2	2	1	2	0	7
	Exp	0.57	0.08	0.74	2.96	1.19	0.82	0.54	6.89
	SMR (Sig)	---	---	269.0	67.6	84.1	244.8	---	101.6
	At Risk	624	266	2449	4620	2072	1053	306	6534
	Person Yrs	7851.3	1314.8	13832.3	46545.2	20305.2	10488.6	4511.4	104898.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0711

Table A11,35

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to BAP
for Workers in the Vertical Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	.0001	10	100	500	1000	2000+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.03	0.06	0.02	0.04	0.06	0.01	0.00	0.22
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	163	361	173	371	530	256	0	1342
	Person Yrs	655.7	1551.8	587.1	1100.9	1839.7	301.6	0.0	6036.8
10-19	Obs	0	0	2	0	0	0	0	2
	Exp	0.09	0.11	0.12	0.07	0.08	0.15	0.03	0.66
	SMR (Sig)	---	---	1704.7 *	---	---	---	---	304.2
	At Risk	128	334	252	214	345	433	228	1316
	Person Yrs	1085.5	1685.2	1773.2	1426.2	1649.8	3194.1	614.9	11429.0
20-29	Obs	0	0	1	0	1	0	0	2
	Exp	0.09	0.10	0.12	0.06	0.06	0.08	0.12	0.64
	SMR (Sig)	---	---	819.6	---	1621.6	---	---	310.3
	At Risk	96	124	172	117	135	200	262	1038
	Person Yrs	615.9	736.3	978.2	712.7	696.0	954.8	1621.1	6314.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.03
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	6	7	5	1	1	7	1	26
	Person Yrs	33.9	39.6	25.8	8.5	4.8	76.1	6.0	194.7
TOTAL	Obs	0	0	3	0	1	0	0	4
	Exp	0.22	0.29	0.26	0.17	0.20	0.26	0.16	1.56
	SMR (Sig)	---	---	1139.0 **	---	496.7	---	---	256.3
	At Risk	170	383	297	388	610	456	265	1369
	Person Yrs	2391.0	4012.9	3364.3	3248.3	4190.3	4526.6	2242.0	23975.5

* Significant at 5% Level; ** Significant at 1% Level

511971 0712

Table A11.36

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to BAP
for Workers in Plant 12

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	.0001	10	100	500	1000	2000+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.04	0.32	0.01	0.00	0.00	0.00	0.00	0.37
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	165	1658	39	0	0	0	0	1832
	Person Yrs	765.4	6866.0	123.9	0.0	0.0	0.0	0.0	7755.2
10-19	Obs	0	2	0	0	0	0	0	2
	Exp	0.09	0.96	0.11	0.00	0.00	0.00	0.00	1.16
	SMR (Sig)	---	207.5	---	---	---	---	---	172.1
	At Risk	155	1656	166	0	0	0	0	1847
	Person Yrs	1163.6	13689.8	1039.4	0.0	0.0	0.0	0.0	15892.8
20-29	Obs	0	1	1	0	0	0	0	2
	Exp	0.09	0.94	0.26	0.00	0.00	0.00	0.00	1.30
	SMR (Sig)	---	105.9	377.9	---	---	---	---	154.2
	At Risk	96	1140	204	0	0	0	0	1384
	Person Yrs	635.1	7109.7	1612.4	0.0	0.0	0.0	0.0	9357.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.06	0.04	0.00	0.00	0.00	0.00	0.11
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	39	242	126	0	0	0	0	407
	Person Yrs	55.6	284.2	134.6	0.0	0.0	0.0	0.0	474.4
TOTAL	Obs	0	3	1	0	0	0	0	4
	Exp	0.23	2.29	0.42	0.00	0.00	0.00	0.00	2.94
	SMR (Sig)	---	130.8	239.2	---	---	---	---	136.1
	At Risk	170	1707	222	0	0	0	0	1883
	Person Yrs	2619.7	27929.8	2930.2	0.0	0.0	0.0	0.0	33479.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0713

Table A11.37

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to Total Particulates
for Workers in the Prebake Process

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	7	16	29	55	93	135+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.48	0.38	0.14	0.08	0.01	0.00	0.00	1.09
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	4219	3475	1397	775	138	0	0	6920
	Person Yrs	12442.3	9751.1	3646.3	1951.0	238.3	0.0	0.0	28029.0
10-19	Obs	3	0	0	2	0	0	0	5
	Exp	1.12	1.24	0.87	0.57	0.20	0.03	0.00	4.04
	SMR (Sig)	266.8	---	---	351.7	---	---	---	123.8
	At Risk	2856	3887	2760	1601	638	114	0	8227
	Person Yrs	17366.6	20726.8	13420.6	9391.5	3075.5	437.9	0.0	64419.1
20-29	Obs	1	1	3	2	1	0	0	8
	Exp	1.32	0.99	1.49	0.94	0.55	0.17	0.03	5.50
	SMR (Sig)	75.5	100.9	201.4	211.9	181.5	---	---	145.4
	At Risk	1691	1691	2201	1548	801	315	51	7051
	Person Yrs	11306.1	9355.1	13266.4	8964.2	5214.4	1598.1	230.0	49934.2
30+	Obs	2	0	3	1	0	2	0	8
	Exp	1.24	0.64	1.17	1.25	0.84	1.00	0.52	6.67
	SMR (Sig)	161.7	---	256.0	79.8	---	199.5	---	119.9
	At Risk	731	522	786	909	551	359	131	3624
	Person Yrs	5439.6	3243.1	5123.5	6054.7	4121.6	3882.0	1830.3	29701.7
TOTAL	Obs	6	1	6	5	1	2	0	21
	Exp	4.16	3.25	3.67	2.85	1.61	1.21	0.55	17.30
	SMR (Sig)	144.2	30.8	163.5	175.4	62.2	165.3	---	121.4
	At Risk	5090	4094	3817	2405	1046	475	136	9625
	Person Yrs	46553.6	43076.1	35456.9	26361.3	12649.8	5918.0	2068.2	172084.0

Significant at 5% Level; ** Significant at 1% Level

511971 0714

Table A11.38

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to Total Particulates
for Workers in the Horizontal Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	7	16	29	55	93	135+	TOTAL
<10	Obs	0	0	1	0	0	0	0	1
	Exp	0.18	0.40	0.16	0.16	0.11	0.01	0.01	1.02
	SMR (Sig)	---	---	642.5	---	---	---	---	97.7
	At Risk	1366	2777	1709	1884	1200	167	81	6318
	Person Yrs	4974.6	10224.9	4523.7	4763.8	3040.3	268.9	129.5	27933.7
10-19	Obs	0	2	1	0	0	2	0	5
	Exp	0.39	0.40	0.87	0.45	0.36	0.33	0.17	2.98
	SMR (Sig)	---	454.3	114.3	---	---	607.7	---	167.7
	At Risk	836	2119	2171	1797	1609	1010	563	6147
	Person Yrs	6349.4	7730.8	13954.2	8264.1	7391.5	5662.2	2325.9	51678.0
20-29	Obs	0	0	0	0	0	0	1	1
	Exp	0.29	0.16	0.37	0.63	0.27	0.25	0.47	2.44
	SMR (Sig)	---	---	---	---	---	---	214.9	41.0
	At Risk	499	425	934	1194	626	541	624	4509
	Person Yrs	2476.8	1717.8	3348.8	5033.1	2875.6	2479.5	4274.4	23006.0
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.04	0.02	0.01	0.09	0.05	0.04	0.19	0.45
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	42	18	23	82	48	69	264	535
	Person Yrs	191.2	95.5	72.9	354.9	230.6	254.6	1081.3	2281.1
TOTAL	Obs	0	2	2	0	0	2	1	7
	Exp	0.91	0.98	1.41	1.32	0.80	0.63	0.83	6.89
	SMR (Sig)	---	203.5	141.7	---	---	316.8	120.1	101.6
	At Risk	1388	3031	2905	2913	1744	1118	656	6534
	Person Yrs	13991.9	19769.0	21079.6	19215.9	13549.9	8665.2	7811.2	104698.8

Significant at 5% Level; ** Significant at 1% Level

511971 0715

Table A11.39

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to Total Particulates
for Workers in the Vertical Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	7	16	29	55	93	135+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.08	0.06	0.02	0.03	0.02	0.00	0.00	0.22
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	551	467	251	451	266	0	0	1342
	Person Yrs	2007.9	1622.7	640.6	1085.5	680.1	0.0	0.0	6036.8
10-19	Obs	2	0	0	0	0	0	0	2
	Exp	0.20	0.11	0.13	0.06	0.06	0.07	0.04	0.66
	SMR (Sig)	1012.9 *	---	---	---	---	---	---	304.2
	At Risk	367	429	345	202	367	274	192	1316
	Person Yrs	2793.1	1005.9	2130.7	1463.6	1288.3	1309.4	648.1	11429.0
20-29	Obs	1	0	0	0	1	0	0	2
	Exp	0.18	0.08	0.12	0.10	0.03	0.03	0.10	0.64
	SMR (Sig)	566.4	---	---	---	2965.1	---	---	310.3
	At Risk	225	127	209	195	88	84	196	1038
	Person Yrs	1342.6	671.1	1054.7	1235.7	490.1	399.0	1121.8	6314.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.03
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	12	5	2	5	3	2	0	26
	Person Yrs	73.9	19.6	15.3	34.8	16.8	34.4	0.0	194.7
TOTAL	Obs	3	0	0	0	1	0	0	4
	Exp	0.47	0.26	0.27	0.20	0.11	0.11	0.14	1.56
	SMR (Sig)	639.7 *	---	---	---	879.6	---	---	256.3
	At Risk	570	537	470	561	375	200	199	1369
	Person Yrs	6207.9	4119.3	3811.2	3819.6	2475.2	1742.7	1769.9	23975.5

* Significant at 5% level; ** Significant at 1% level

511971 0716

Table A11.40

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to Total Particulates
for Workers in Plant 12

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	7	16	29	55	93	135+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.07	0.13	0.14	0.03	0.00	0.00	0.00	0.37
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	436	1081	980	329	0	0	0	1832
	Person Yrs	1642.7	2651.5	2841.0	619.9	0.0	0.0	0.0	7755.2
10-19	Obs	0	0	1	0	1	0	0	2
	Exp	0.16	0.19	0.36	0.41	0.04	0.00	0.00	1.16
	SMR (Sig)	---	---	280.0	---	2387.3	---	---	172.1
	At Risk	326	599	953	791	160	0	0	1847
	Person Yrs	2183.7	2740.7	4867.3	5571.6	521.5	0.0	0.0	15892.8
20-29	Obs	0	0	0	1	1	0	0	2
	Exp	0.14	0.11	0.28	0.53	0.24	0.00	0.00	1.30
	SMR (Sig)	---	---	---	189.9	423.2	---	---	154.2
	At Risk	169	149	351	655	233	0	0	1384
	Person Yrs	1061.5	741.8	1756.3	3973.9	1823.6	0.0	0.0	9357.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.01	0.02	0.04	0.03	0.00	0.00	0.11
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	50	24	57	161	115	0	0	407
	Person Yrs	68.0	27.0	65.4	186.3	127.7	0.0	0.0	474.4
TOTAL	Obs	0	0	1	1	2	0	0	4
	Exp	0.39	0.43	0.80	1.01	0.31	0.00	0.00	2.94
	SMR (Sig)	---	---	125.5	99.0	651.7	---	---	136.1
	At Risk	448	1164	1309	875	236	0	0	1883
	Person Yrs	4955.9	6169.0	9530.0	10351.8	2472.9	0.0	0.0	33479.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0717

Table A11.41

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to Fluorides
for Workers in the Prebake Process

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	.0001	1	10	60	101	149+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.49	0.08	0.12	0.39	0.01	0.00	0.00	1.09
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	3006	654	1577	2623	203	0	0	6920
	Person Yrs	11923.8	2105.3	3606.5	10236.4	157.1	0.0	0.0	28029.0
10-19	Obs	4	1	0	0	0	0	0	5
	Exp	1.79	0.35	0.33	1.18	0.33	0.06	0.00	4.04
	SMR (Sig)	223.9	284.6	---	---	---	---	---	123.8
	At Risk	3395	936	1022	2961	1035	284	15	8227
	Person Yrs	26173.5	5855.8	5862.8	19756.9	5743.5	948.1	38.5	64419.1
20-29	Obs	3	0	1	1	2	0	1	8
	Exp	2.43	0.55	0.41	1.20	0.56	0.27	0.09	5.50
	SMR (Sig)	123.5	---	243.7	83.6	355.2	---	1133.9	145.4
	At Risk	2750	777	665	1798	916	404	224	7051
	Person Yrs	19854.6	5417.9	4169.3	10979.4	5658.7	2830.8	1023.6	49934.2
30+	Obs	2	1	2	1	0	0	2	8
	Exp	2.70	0.74	0.64	0.76	0.36	0.39	1.08	6.67
	SMR (Sig)	74.0	134.7	312.0	130.9	---	---	185.3	119.9
	At Risk	1379	467	324	559	354	320	336	3624
	Person Yrs	10972.6	3842.2	2840.8	3672.2	1882.0	1993.5	4498.4	29701.7
TOTAL	Obs	9	2	3	2	2	0	3	21
	Exp	7.41	1.72	1.51	3.53	1.26	0.71	1.17	17.30
	SMR (Sig)	121.5	116.2	199.3	56.7	159.2	---	256.5	121.4
	At Risk	3990	1253	2077	3386	1262	548	351	9625
	Person Yrs	68924.6	17261.1	16479.3	44644.8	13441.3	5772.4	5560.5	172084.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0718

Table A11,42

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to Fluorides
for Workers in the Horizontal Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	.0001	1	10	60	101	149+	TOTAL
<10	Obs	0	0	0	1	0	0	0	1
	Exp	0.37	0.04	0.16	0.42	0.03	0.01	0.00	1.02
	SMR (Sig)	---	---	---	236.7	---	---	---	97.7
	At Risk	1915	373	1799	3150	408	95	55	6318
	Person Yrs	8426.7	1156.0	4921.1	12482.4	710.0	149.2	88.3	27933.7
10-19	Obs	0	1	2	1	1	0	0	5
	Exp	0.96	0.13	0.24	1.23	0.22	0.10	0.09	2.98
	SMR (Sig)	---	784.2	823.6	81.0	448.7	---	---	167.7
	At Risk	1732	313	819	3130	833	363	241	6147
	Person Yrs	13613.9	2089.0	4850.2	23938.0	4075.3	1739.3	1372.4	51678.0
20-29	Obs	0	0	0	0	0	0	1	1
	Exp	0.76	0.09	0.15	0.83	0.23	0.13	0.25	2.44
	SMR (Sig)	---	---	---	---	---	---	397.0	41.0
	At Risk	1154	183	340	1958	506	224	279	4509
	Person Yrs	5999.0	846.8	1508.4	8035.7	2262.6	1242.8	2310.6	23006.0
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.14	0.00	0.01	0.03	0.04	0.07	0.15	0.45
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	124	8	10	43	50	92	213	535
	Person Yrs	572.6	29.3	43.2	174.4	208.3	381.1	872.1	2281.1
TOTAL	Obs	0	1	2	2	1	0	1	7
	Exp	2.22	0.26	0.56	2.52	0.52	0.31	0.50	6.09
	SMR (Sig)	---	384.6	360.2	79.3	192.3	---	200.5	101.6
	At Risk	1980	439	1912	3456	923	453	292	6534
	Person Yrs	28612.2	4121.1	11323.0	45430.5	7256.2	3512.4	4643.3	104898.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0719

Table A11.43

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to Fluorides
for Workers in the Vertical Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	.0001	1	10	60	101	149+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.09	0.01	0.02	0.10	0.00	0.00	0.00	0.22
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	471	116	257	690	0	0	0	1342
	Person Yrs	2022.9	359.2	673.4	2941.3	0.0	0.0	0.0	6036.8
10-19	Obs	0	1	1	0	0	0	0	2
	Exp	0.24	0.05	0.05	0.21	0.10	0.00	0.00	0.66
	SMR (Sig)	---	2080.0	1930.1	---	---	---	---	304.2
	At Risk	408	108	126	694	299	16	0	1316
	Person Yrs	3139.8	868.8	965.5	4654.7	1797.9	2.3	0.0	11429.0
20-29	Obs	0	1	0	1	0	0	0	2
	Exp	0.24	0.04	0.05	0.16	0.10	0.05	0.00	0.64
	SMR (Sig)	---	2409.4	---	610.0	---	---	---	310.3
	At Risk	269	76	76	331	291	110	0	1038
	Person Yrs	1687.2	421.6	464.0	1999.1	1134.4	607.8	0.0	6314.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.03
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	14	1	3	5	4	0	0	26
	Person Yrs	77.1	10.7	14.4	42.0	50.5	0.0	0.0	194.7
TOTAL	Obs	0	2	1	1	0	0	0	4
	Exp	0.59	0.10	0.13	0.48	0.20	0.05	0.00	1.56
	SMR (Sig)	---	1965.6 *	796.4	207.3	---	---	---	256.3
	At Risk	402	127	267	707	319	110	0	1369
	Person Yrs	6927.0	1700.3	2118.2	9637.1	2982.8	610.1	0.0	23975.5

* Significant at 5% Level; ** Significant at 1% Level

511971 0720

Table A11.44

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to Fluorides
for Workers in Plant 12

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	.0001	1	10	60	101	149+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.11	0.02	0.04	0.15	0.03	0.00	0.00	0.37
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	463	177	318	969	277	8	0	1832
	Person Yrs	2060.8	545.0	1078.7	3383.1	683.1	4.4	0.0	7755.2
10-19	Obs	1	0	0	0	0	1	0	2
	Exp	0.30	0.07	0.15	0.29	0.26	0.08	0.00	1.16
	SMR (Sig)	328.6	---	---	---	---	1263.3	---	172.1
	At Risk	418	142	311	758	548	212	18	1847
	Person Yrs	3396.8	1030.6	2331.1	4445.9	3622.5	1042.5	23.0	15892.8
20-29	Obs	0	0	0	1	1	0	0	2
	Exp	0.35	0.07	0.14	0.22	0.25	0.22	0.04	1.30
	SMR (Sig)	---	---	---	446.2	404.3	---	---	154.2
	At Risk	293	87	202	300	310	207	40	1384
	Person Yrs	2109.6	526.5	1145.6	1781.0	1861.9	1579.0	353.6	9357.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.04	0.00	0.01	0.02	0.01	0.03	0.01	0.11
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	126	10	35	60	46	87	35	407
	Person Yrs	160.7	12.2	37.6	76.5	49.9	94.8	42.7	474.4
TOTAL	Obs	1	0	0	1	1	1	0	4
	Exp	0.81	0.17	0.34	0.68	0.55	0.33	0.05	2.94
	SMR (Sig)	123.5	---	---	146.3	181.7	304.5	---	136.1
	At Risk	469	199	347	1024	558	232	40	1803
	Person Yrs	7729.0	2114.3	4593.1	9686.5	6217.8	2720.8	419.3	33479.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0721

Table A11.45

Standardized Mortality Ratios for Leukemia and Aleukemia by Time Since First Employment and Cumulative Exposure to SO_2 for Workers in the Prebake Process

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	.C001	1	7	29	39	55+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.47	C.13	0.17	0.27	0.03	0.01	0.00	1.09
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	2962	994	1555	2215	363	143	7	6920
	Person Yrs	11562.1	3455.9	4707.6	7362.9	709.4	226.4	4.8	28029.0
10-19	Obs	4	1	0	0	0	0	0	5
	Exp	1.72	C.50	0.40	0.96	0.19	0.17	0.09	4.04
	SMR (Sig)	232.7	150.4	---	---	---	---	---	123.8
	At Risk	3362	1326	1193	2429	895	648	302	8227
	Person Yrs	25301.6	8467.2	6613.2	16402.7	3468.3	2725.0	1341.1	64419.1
20-29	Obs	3	0	1	2	1	0	1	8
	Exp	2.34	0.74	0.47	0.99	0.26	0.30	0.41	5.50
	SMR (Sig)	129.4	---	212.7	202.1	387.0	---	246.4	145.4
	At Risk	2673	1030	709	1518	531	504	555	7051
	Person Yrs	19410.4	7107.8	4491.4	9431.5	2783.3	2945.9	3763.8	49934.2
30+	Obs	2	1	2	1	C	0	2	8
	Exp	2.36	0.95	0.58	0.60	0.19	0.25	1.25	6.67
	SMR (Sig)	70.0	104.9	347.6	166.8	---	---	160.5	119.9
	At Risk	1428	569	304	468	192	237	517	3624
	Person Yrs	11723.0	4749.2	2471.4	3044.8	998.2	1342.3	5372.8	29701.7
TOTAL	Obs	9	2	3	3	1	0	3	21
	Exp	7.39	2.33	1.61	2.83	0.67	0.73	1.75	17.30
	SMR (Sig)	121.8	85.9	186.1	106.1	149.1	---	171.8	121.4
	At Risk	3999	1714	2058	2948	1192	841	681	9625
	Person Yrs	67997.2	23800.1	18283.6	36321.8	7959.2	7239.6	10482.5	172084.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0722

Table A11.46

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to SO_2
for Workers in the Horizontal Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	.0001	1	7	29	39	55+	TOTAL
<10	Obs	0	0	0	0	1	0	0	1
	Exp	0.42	0.13	0.38	0.08	0.01	0.01	0.01	1.02
	SMR (Sig)	---	---	---	---	14002.9 *	---	---	97.7
	At Risk	2262	1028	2634	834	112	92	69	6318
	Person Yrs	10067.6	3973.5	11036.2	2300.8	218.7	195.4	141.5	27933.7
10-19	Obs	1	2	1	1	0	0	0	5
	Exp	1.11	0.33	0.84	0.55	0.06	0.03	0.06	2.98
	SMR (Sig)	89.9	605.4	118.6	182.5	---	---	---	167.7
	At Risk	2084	854	2336	1433	289	165	171	6147
	Person Yrs	16867.2	6242.9	15923.7	9817.2	1080.3	537.8	1208.9	51678.0
20-29	Obs	0	0	0	1	0	0	0	1
	Exp	0.84	0.20	0.52	0.56	0.14	0.08	0.09	2.44
	SMR (Sig)	---	---	---	177.8	---	---	---	41.0
	At Risk	1423	495	1247	1026	220	141	169	4509
	Person Yrs	6957.0	2085.8	5465.9	5311.4	1293.8	833.1	1059.0	23006.0
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.14	0.01	0.02	0.10	0.07	0.07	0.04	0.45
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	126	15	26	131	102	90	55	535
	Person Yrs	582.2	59.4	92.9	514.0	365.7	410.2	256.7	2281.1
TOTAL	Obs	1	2	1	2	1	0	0	7
	Exp	2.51	0.68	1.76	1.29	0.28	0.18	0.19	6.89
	SMR (Sig)	39.9	295.6	56.7	154.9	359.8	---	---	101.6
	At Risk	2328	1101	2761	1571	430	291	101	6534
	Person Yrs	34474.0	12361.7	32518.6	17943.5	2958.5	1976.4	2666.1	104898.8

Significant at 5% Level; ** Significant at 1% Level

511971 0723

Table A11.47

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to SO_2
for Workers in the Vertical Soderberg

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	.0001	1	7	29	39	55+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.09	0.02	0.03	0.07	0.00	0.00	0.00	0.22
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	496	155	303	565	0	0	0	1342
	Person Yrs	2157.7	562.7	1017.1	2299.3	0.0	0.0	0.0	6036.8
10-19	Obs	1	1	0	0	0	0	0	2
	Exp	0.26	0.07	0.06	0.20	0.06	0.01	0.00	0.66
	SMR (Sig)	389.7	1514.9	---	---	---	---	---	304.2
	At Risk	444	133	185	615	281	117	0	1316
	Person Yrs	3395.7	1110.0	1237.3	4464.5	1082.2	139.3	0.0	11429.0
20-29	Obs	0	1	0	1	0	0	0	2
	Exp	0.26	0.06	0.06	0.12	0.08	0.07	0.00	0.64
	SMR (Sig)	---	1725.8	---	816.5	---	---	---	310.3
	At Risk	207	96	103	279	198	150	0	1038
	Person Yrs	1822.2	522.0	621.1	1473.5	991.9	884.2	0.0	6314.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.03
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	17	0	2	6	4	1	0	26
	Person Yrs	98.8	0.0	9.0	43.0	42.1	1.8	0.0	194.7
TOTAL	Obs	1	2	0	1	0	0	0	4
	Exp	0.63	0.14	0.15	0.41	0.15	0.08	0.00	1.56
	SMR (Sig)	159.7	1385.1 *	---	246.7	---	---	---	256.3
	At Risk	509	164	308	628	325	151	0	1369
	Person Yrs	7474.5	2154.6	2884.5	8280.4	2116.2	1025.2	0.0	23975.5

* Significant at 5% Level; ** Significant at 1% Level

511971 0724

Table A11.48

Standardized Mortality Ratios for Leukemia and Aleukemia
by Time Since First Employment and Cumulative Exposure to SO_2
for Workers in Plant 12

Cause of Death: LEUKEMIA & ALEUKEMIA

Latency		Cumulative Exposure 0	.0001	1	7	29	39	55+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.11	0.06	0.07	0.12	0.01	0.00	0.00	0.37
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	463	389	545	726	59	2	0	1832
	Person Yrs	2060.8	1416.7	1470.5	2637.6	161.0	0.6	0.0	7755.2
10-19	Obs	1	0	0	1	0	0	0	2
	Exp	0.30	0.20	0.16	0.43	0.05	0.02	0.00	1.16
	SMR (Sig)	328.6	---	---	230.0	---	---	---	172.1
	At Risk	418	372	348	747	150	63	0	1847
	Person Yrs	3396.8	2952.1	2296.7	6180.6	803.2	263.4	0.0	15892.8
20-29	Obs	0	0	1	1	0	0	0	2
	Exp	0.35	0.17	0.13	0.46	0.09	0.00	0.00	1.30
	SMR (Sig)	---	---	748.6	217.4	---	---	---	154.2
	At Risk	203	251	181	531	115	83	5	1384
	Person Yrs	2109.6	1350.4	1126.9	3304.0	748.0	650.5	27.8	9357.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.04	0.01	0.01	0.03	0.01	0.01	0.00	0.11
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	126	27	47	109	41	53	4	407
	Person Yrs	160.7	31.6	49.4	123.2	43.1	62.1	4.4	474.4
TOTAL	Obs	1	0	1	2	0	0	0	4
	Exp	0.81	0.44	0.37	1.05	0.16	0.11	0.00	2.94
	SMR (Sig)	123.5	---	273.2	191.1	---	---	---	136.1
	At Risk	469	417	591	802	183	84	5	1883
	Person Yrs	7728.0	5790.8	4951.6	12245.3	1755.2	976.6	32.2	33479.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0725

Table A11.49

Standardized Mortality Ratios for Pancreatic Cancer
by Time Since First Employment and Cumulative Exposure to Benzene Solubles
for Workers in the Prebake Process

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	.0001	5	13	34	53	69+	TOTAL
<10	Obs	0	0	1	0	0	0	0	1
	Exp	0.10	0.35	0.34	0.12	0.00	0.00	0.00	0.92
	SMR (Sig)	---	---	297.7	---	---	---	---	109.2
	At Risk	693	3635	3416	1173	0	0	0	6920
	Person Yrs	2694.3	11703.8	10756.0	2884.9	0.0	0.0	0.0	28029.0
10-19	Obs	0	1	3	3	0	0	0	7
	Exp	0.54	1.50	1.54	1.47	0.28	0.00	0.00	5.32
	SMR (Sig)	---	66.9	194.5	204.7	---	---	---	131.5
	At Risk	733	3019	3907	2776	656	41	0	0227
	Person Yrs	5693.0	18632.1	21100.4	16330.7	2631.0	33.9	0.0	64419.1
20-29	Obs	1	4	3	4	1	0	0	13
	Exp	0.78	1.90	2.22	2.77	0.94	0.33	0.05	8.98
	SMR (Sig)	127.9	210.9	135.3	144.6	106.8	---	---	144.7
	At Risk	570	1658	2304	2364	890	364	93	7051
	Person Yrs	3831.8	10367.4	13360.1	15124.2	5137.5	1708.0	267.3	49934.2
30+	Obs	0	2	1	4	4	0	0	11
	Exp	0.01	1.44	2.53	2.69	1.30	0.78	1.34	10.09
	SMR (Sig)	---	138.7	39.5	148.7	307.9	---	---	101.0
	At Risk	259	587	950	1174	465	358	248	3624
	Person Yrs	2119.3	3979.4	7177.2	7663.5	3403.3	2146.3	3212.6	29701.7
TOTAL	Obs	1	7	8	11	5	0	0	32
	Exp	2.23	5.19	6.63	7.05	2.51	1.12	1.39	26.12
	SMR (Sig)	44.9	134.9	120.7	156.1	198.9	---	---	122.5
	At Risk	081	4544	5425	3496	1093	448	250	9625
	Person Yrs	14318.4	44682.7	52409.7	42003.2	11221.8	3968.2	3480.0	172084.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0726

Table A11.50

Standardized Mortality Ratios for Pancreatic Cancer
by Time Since First Employment and Cumulative Exposure to Benzene Solubles
for Workers in the Horizontal Soderberg

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	.0001	5	13	34	53	69+	TOTAL
<10	Obs	0	0	1	0	0	0	0	1
	Exp	0.09	0.05	0.34	0.26	0.04	0.01	0.03	0.83
	SMR (Sig)	---	---	291.1	---	---	---	---	121.1
	At Risk	617	713	2936	3269	1090	247	270	6318
	Person Yrs	2561.8	2167.0	10280.5	10712.9	1383.4	330.5	489.7	27933.7
10-19	Obs	0	0	2	1	0	2	1	6
	Exp	0.33	0.19	0.52	1.79	0.57	0.30	0.46	4.15
	SMR (Sig)	---	---	387.4	56.0	---	665.8	216.8	144.6
	At Risk	474	420	1606	3117	1541	936	546	6147
	Person Yrs	3537.6	2558.0	7190.4	21858.7	8898.1	3456.3	4188.8	51678.0
20-29	Obs	0	0	0	1	1	1	0	3
	Exp	0.34	0.14	0.30	1.54	0.50	0.54	1.02	4.40
	SMR (Sig)	---	---	---	64.8	198.1	183.9	---	68.2
	At Risk	304	184	449	1868	691	682	567	4509
	Person Yrs	1590.0	814.9	1857.2	8154.0	3013.0	3287.1	4289.8	23006.0
30+	Obs	0	0	1	0	0	0	2	3
	Exp	0.07	0.01	0.03	0.14	0.06	0.04	0.55	0.91
	SMR (Sig)	---	---	3447.6	---	---	---	361.7	330.1
	At Risk	32	9	19	81	45	27	329	535
	Person Yrs	161.9	27.6	90.6	323.0	203.0	107.5	1367.5	2281.1
TOTAL	Obs	0	0	4	2	1	3	3	13
	Exp	0.82	0.39	1.19	3.73	1.18	0.90	2.06	10.28
	SMR (Sig)	---	---	335.6	53.6	84.5	332.8	145.8	126.5
	At Risk	624	787	3173	4086	1793	1102	608	6934
	Person Yrs	7851.3	5567.4	19416.7	41048.7	13497.6	7161.4	10335.8	104890.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0727

Table A11.51

Standardized Mortality Ratios for Pancreatic Cancer
by Time Since First Employment and Cumulative Exposure to Benzene Solubles
for Workers in the Vertical Soderberg

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	.0001	5	13	34	53	69+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.03	0.02	0.05	0.06	0.00	0.00	0.00	0.16
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	163	208	1092	778	0	0	0	1342
	Person Yrs	655.7	615.8	2294.0	2471.3	0.0	0.0	0.0	6036.8
10-19	Obs	0	0	0	0	0	0	0	0
	Exp	0.13	0.08	0.08	0.39	0.15	0.00	0.00	0.82
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	128	132	321	927	399	0	0	1316
	Person Yrs	1085.5	852.5	1432.7	6340.6	1677.6	0.0	0.0	11429.0
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.14	0.10	0.07	0.33	0.34	0.04	0.00	1.02
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	96	83	92	387	451	59	0	1038
	Person Yrs	615.9	493.2	514.1	2016.7	2399.9	275.2	0.0	6314.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.01	0.01	0.01	0.02	0.00	0.00	0.06
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	6	5	3	6	7	3	0	26
	Person Yrs	33.9	29.6	19.6	27.1	67.3	17.4	0.0	194.7
TOTAL	Obs	0	0	0	0	0	0	0	0
	Exp	0.31	0.21	0.20	0.79	0.50	0.04	0.00	2.06
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	170	231	1129	939	465	61	0	1369
	Person Yrs	2391.0	2031.1	4260.4	10855.7	4144.8	292.5	0.0	23975.5

* Significant at 5% Level; ** Significant at 1% Level

511971 0728

Table A11.52

Standardized Mortality Ratios for Pancreatic Cancer
by Time Since First Employment and Cumulative Exposure to Benzene Solubles
for Workers in Plant 12

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	.0001	5	13	34	53	69+	TOTAL
<10	Obs	0	1	0	0	0	0	0	1
	Exp	0.04	0.16	0.00	0.06	0.01	0.00	0.00	0.35
	SMR (Sij)	---	625.4	---	---	---	---	---	281.9
	At Risk	165	1120	717	317	71	21	4	1832
	Person Yrs	765.4	3002.3	2015.2	951.8	189.7	30.0	0.9	7755.2
10-19	Obs	0	4	0	0	0	0	0	4
	Exp	0.12	0.49	0.43	0.39	0.09	0.03	0.04	1.58
	SMR (Sij)	---	822.7 **	---	---	---	---	---	253.7
	At Risk	155	775	912	570	170	71	51	1847
	Person Yrs	1163.6	4740.1	5396.6	3406.3	651.8	251.5	283.1	15892.8
20-29	Obs	0	1	1	0	0	0	0	2
	Exp	0.14	0.45	0.56	0.55	0.28	0.03	0.07	2.09
	SMR (Sij)	---	223.4	177.6	---	---	---	---	95.8
	At Risk	96	283	490	448	150	38	51	1384
	Person Yrs	635.1	1598.0	2826.8	2733.7	1048.9	170.5	344.1	9357.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.02	0.03	0.04	0.04	0.04	0.01	0.00	0.18
	SMR (Sij)	---	---	---	---	---	---	---	---
	At Risk	39	51	106	106	81	17	7	407
	Person Yrs	55.6	63.3	111.1	121.5	93.6	22.0	7.5	474.4
TOTAL	Obs	0	6	1	0	0	0	0	7
	Exp	0.32	1.12	1.11	1.04	0.43	0.07	0.11	4.20
	SMR (Sij)	---	534.2 **	89.8	---	---	---	---	166.6
	At Risk	170	1162	1090	685	240	93	55	1803
	Person Yrs	2619.7	10201.6	10349.7	7213.2	1984.0	474.0	635.5	33479.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0729

Table A11.53

Standardized Mortality Ratios for Pancreatic Cancer
by Time Since First Employment and Cumulative Exposure to PPOM
for Workers in the Prebake Process

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	.0001	6	13	32	55	94+	TOTAL
<10	Obs	0	0	1	0	0	0	0	1
	Exp	0.10	0.48	0.27	0.06	0.01	0.00	0.00	0.92
	SMR (Sig)	---	---	374.6	---	---	---	---	109.2
	At Risk	693	5116	2030	655	112	2	0	6920
	Person Yrs	2694.3	15910.3	7726.6	1518.2	188.5	1.1	0.0	28029.0
10-19	Obs	0	1	4	1	0	1	0	7
	Exp	0.51	1.45	2.00	1.19	0.10	0.04	0.00	5.32
	SMR (Sig)	---	68.9	199.8	84.3	---	2347.0	---	131.5
	At Risk	733	3709	4414	2235	287	97	9	8227
	Person Yrs	5683.0	19841.3	24079.3	12391.7	1110.5	498.8	14.5	64419.1
20-29	Obs	1	2	4	5	0	1	0	13
	Exp	0.78	1.74	2.85	2.91	0.55	0.11	0.05	8.98
	SMR (Sig)	127.9	115.1	140.6	171.9	---	937.2	---	144.7
	At Risk	570	1596	2700	2650	561	127	39	7051
	Person Yrs	3831.3	10206.5	15661.0	16303.8	3032.9	643.8	254.4	49934.2
30+	Obs	0	1	2	7	1	0	0	11
	Exp	0.81	1.55	1.99	3.97	1.52	0.77	0.30	10.89
	SMR (Sig)	---	64.7	100.9	176.4	65.6	---	---	101.0
	At Risk	259	636	945	1430	536	156	61	3624
	Person Yrs	2119.3	4426.4	5799.2	10603.9	4249.6	1747.8	675.5	29701.7
TOTAL	Obs	1	4	11	13	1	2	0	32
	Exp	2.23	5.22	7.10	8.12	2.19	0.92	0.35	26.12
	SMR (Sig)	44.9	76.6	155.0	160.1	45.7	217.5	---	122.5
	At Risk	831	6252	5296	3411	812	248	65	9625
	Person Yrs	14318.4	50364.4	51066.2	40897.6	8591.5	2891.6	944.4	172084.0

* Significant at 5% Level; ** Significant at 1% Level

Interval from Onset of Exposure (Decedents Only)	Cumulative Exposure (Decedents Only)

511971 0730

Table A11.54

Standardized Mortality Ratios for Pancreatic Cancer
by Time Since First Employment and Cumulative Exposure to PPOM
for Workers in the Horizontal Soderberg

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	.0001	6	13	32	55	94+	TOTAL
<10	Obs	0	0	0	1	0	0	0	1
	Exp	0.09	0.20	0.23	0.18	0.08	0.04	0.01	0.83
	SMR (Sig)	---	---	---	544.3	---	---	---	121.1
	At Risk	617	1820	2650	2564	1118	479	83	6318
	Person Yrs	2561.8	5959.5	7613.7	8038.8	2740.8	832.0	139.2	27933.7
10-19	Obs	0	1	1	2	0	0	2	6
	Exp	0.33	0.31	0.99	1.13	0.61	0.47	0.32	4.15
	SMR (Sig)	---	324.3	101.5	176.8	---	---	632.3	144.6
	At Risk	471	809	1927	2739	1576	972	418	6147
	Person Yrs	3537.6	4214.7	11332.1	15234.8	9409.1	5351.0	2598.6	51678.0
20-29	Obs	0	0	0	1	2	0	0	3
	Exp	0.34	0.20	0.42	1.32	0.67	0.57	0.87	4.40
	SMR (Sig)	---	---	---	76.0	299.2	---	---	68.3
	At Risk	304	284	543	1613	925	641	457	4509
	Person Yrs	1590.0	1250.0	2098.5	7193.1	4204.1	2959.6	3670.7	23006.0
30+	Obs	0	1	0	0	0	0	2	3
	Exp	0.07	0.01	0.03	0.15	0.07	0.11	0.47	0.91
	SMR (Sig)	---	6810.1 *	---	---	---	---	424.3	330.1
	At Risk	32	14	24	86	45	70	273	535
	Person Yrs	161.9	44.4	103.1	354.5	201.3	283.4	1132.5	2281.1
TOTAL	Obs	0	2	1	4	2	0	4	13
	Exp	0.82	0.73	1.67	2.78	1.42	1.19	1.67	10.28
	SMR (Sig)	---	275.2	59.9	144.0	140.4	---	239.6	126.5
	At Risk	624	1930	3007	3514	1938	1090	479	6534
	Person Yrs	7851.3	11508.6	21147.4	30821.2	16563.4	9466.0	7540.9	104898.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0731

Table A11.55

Standardized Mortality Ratios for Pancreatic Cancer
by Time Since First Employment and Cumulative Exposure to PPOM
for Workers in the Vertical Soderberg

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	.0001	6	13	32	55	94+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.03	0.02	0.02	0.04	0.01	0.03	0.01	0.16
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	163	200	333	442	454	485	220	1342
	Person Yrs	655.7	750.3	841.2	1312.7	662.1	1626.4	188.4	6036.8
10-19	Obs	0	0	0	0	0	0	0	0
	Exp	0.13	0.08	0.05	0.19	0.08	0.09	0.20	0.82
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	120	150	155	369	260	365	412	1316
	Person Yrs	1085.5	925.7	776.6	2304.2	1195.2	1532.9	3608.9	11429.0
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.14	0.09	0.04	0.19	0.13	0.13	0.31	1.02
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	96	80	52	154	142	151	404	1038
	Person Yrs	615.9	453.8	254.3	868.9	843.8	846.8	2431.4	6314.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.00	0.01	0.01	0.00	0.00	0.02	0.06
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	6	3	2	7	1	3	7	26
	Person Yrs	33.9	13.2	21.2	32.8	2.2	13.0	78.4	194.7
TOTAL	Obs	0	0	0	0	0	0	0	0
	Exp	0.31	0.19	0.12	0.43	0.22	0.25	0.54	2.06
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	170	224	374	501	593	599	430	1369
	Person Yrs	2391.0	2143.0	1893.3	4518.6	2703.4	4019.1	6307.1	23975.5

* Significant at 5% Level; ** Significant at 1% Level

511971 0732

Table A11.56

Standardized Mortality Ratios for Pancreatic Cancer
by Time Since First Employment and Cumulative Exposure to PPOM
for Workers in Plant 12

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	.0001	6	13	32	55	94+	TOTAL
<10	Obs	0	1	0	0	0	0	0	1
	Exp	0.04	0.18	0.08	0.05	0.01	0.00	0.00	0.35
	SMR (Sig)	---	571.0	---	---	---	---	---	281.9
	At Risk	165	1201	776	286	48	0	0	1832
	Person Yrs	765.4	4116.4	2010.6	769.1	85.7	0.0	0.0	7755.2
10-19	Obs	0	1	3	0	0	0	0	4
	Exp	0.12	0.35	0.60	0.39	0.09	0.03	0.00	1.58
	SMR (Sig)	---	289.4	503.9 *	---	---	---	---	253.7
	At Risk	155	793	1030	623	126	55	0	1847
	Person Yrs	1163.6	3611.6	6739.1	3469.6	694.0	215.0	0.0	15892.8
20-29	Obs	0	0	1	1	0	0	0	2
	Exp	0.14	0.22	0.61	0.92	0.12	0.08	0.01	2.09
	SMR (Sig)	---	---	164.7	108.5	---	---	---	95.8
	At Risk	96	164	525	603	89	55	7	1384
	Person Yrs	635.1	848.2	2649.5	4352.4	475.2	360.3	36.5	9357.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.02	0.01	0.04	0.09	0.01	0.00	0.00	0.18
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	39	25	85	215	33	8	2	407
	Person Yrs	55.6	28.3	98.0	241.3	42.1	7.3	1.9	474.4
TOTAL	Obs	0	2	4	1	0	0	0	7
	Exp	0.32	0.75	1.32	1.46	0.23	0.11	0.01	4.20
	SMR (Sig)	---	267.1	302.5	68.6	---	---	---	166.6
	At Risk	170	1325	1201	778	159	60	7	1803
	Person Yrs	2619.7	8604.4	11505.2	8832.5	1296.9	582.6	38.4	33479.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0733

Table A11.57

Standardized Mortality Ratios for Pancreatic Cancer
by Time Since First Employment and Cumulative Exposure to BAP
for Workers in the Prebake Process

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	.0001	10	100	500	1000	2000+	TOTAL
<10	Obs	0	1	0	0	0	0	0	1
	Exp	0.10	0.79	0.02	0.00	0.00	0.00	0.00	0.92
	SMR (Sig)	---	126.7	---	---	---	---	---	109.2
	At Risk	693	6179	237	0	0	0	0	6920
	Person Yrs	2684.3	24919.9	424.9	0.0	0.0	0.0	0.0	28029.0
10-19	Obs	0	6	1	0	0	0	0	7
	Exp	0.54	4.20	0.58	0.00	0.00	0.00	0.00	5.32
	SMR (Sig)	---	142.8	172.6	---	---	---	---	131.5
	At Risk	733	7134	945	7	0	0	0	8227
	Person Yrs	5683.0	52731.2	5972.6	32.3	0.0	0.0	0.0	64419.1
20-29	Obs	1	10	2	0	0	0	0	13
	Exp	0.70	6.44	1.74	0.02	0.00	0.00	0.00	8.98
	SMR (Sig)	127.9	155.3	115.0	---	---	---	---	144.7
	At Risk	570	5412	1329	11	0	0	0	7051
	Person Yrs	3831.8	36406.1	9609.0	87.2	0.0	0.0	0.0	49934.2
30+	Obs	0	8	3	0	0	0	0	11
	Exp	0.81	5.86	4.17	0.05	0.00	0.00	0.00	10.89
	SMR (Sig)	---	136.4	71.9	---	---	---	---	101.0
	At Risk	259	2310	1119	13	0	0	0	3624
	Person Yrs	2119.3	16720.7	10739.7	122.0	0.0	0.0	0.0	29701.7
TOTAL	Obs	1	25	6	0	0	0	0	32
	Exp	2.23	17.29	6.52	0.08	0.00	0.00	0.00	26.12
	SMR (Sig)	44.9	144.6	92.1	---	---	---	---	122.5
	At Risk	891	8251	1604	18	0	0	0	9625
	Person Yrs	14318.4	130777.9	26746.2	241.5	0.0	0.0	0.0	172084.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0734

Table All.58

Standardized Mortality Ratios for Pancreatic Cancer
by Time Since First Employment and Cumulative Exposure to PAP
for Workers in the Horizontal Soderberg

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	.0001	10	100	500	1000	2000+	TOTAL
<10	Obs	0	0	1	0	0	0	0	1
	Exp	0.09	0.01	0.24	0.36	0.10	0.03	0.00	0.83
	SMR (Sig)	---	---	425.0	---	---	---	---	121.1
	At Risk	617	210	2325	4156	1576	348	15	6318
	Person Yrs	2561.0	400.5	7105.8	13518.7	3730.0	524.3	12.6	27933.7
10-19	Obs	0	0	1	3	0	2	0	6
	Exp	0.33	0.05	0.39	1.96	0.76	0.53	0.14	4.15
	SMR (Sig)	---	---	256.0	153.1	---	380.1	---	144.6
	At Risk	474	136	985	3238	1817	974	218	6147
	Person Yrs	3537.6	654.0	5169.6	23675.2	11906.1	5657.5	1077.9	51678.0
20-29	Obs	0	0	0	1	2	0	0	3
	Exp	0.34	0.05	0.26	1.67	0.76	0.74	0.58	4.40
	SMR (Sig)	---	---	---	60.0	262.3	---	---	68.3
	At Risk	394	55	336	1983	979	791	284	4509
	Person Yrs	1590.0	252.2	1477.9	8868.1	4529.7	3895.2	2392.8	23006.0
30+	Obs	0	0	1	0	0	1	1	3
	Exp	0.07	0.00	0.02	0.19	0.06	0.16	0.41	0.91
	SMR (Sig)	---	---	5766.7 *	---	---	626.3	241.2	330.1
	At Risk	32	5	13	106	39	108	240	535
	Person Yrs	161.9	8.2	49.0	463.1	139.4	411.6	1028.0	2281.1
TOTAL	Obs	0	0	3	4	2	3	1	13
	Exp	0.82	0.10	0.90	4.18	1.66	1.46	1.13	10.28
	SMR (Sig)	---	---	332.4	95.7	119.1	205.5	88.5	126.5
	At Risk	624	266	2449	4620	2072	1053	306	6534
	Person Yrs	7851.3	1314.8	13882.3	46545.2	20305.2	10488.6	4511.4	104898.8

Significant at 5% Level; ** Significant at 1% Level

511971 0735

511971 0736

Table A11.59

Standardized Mortality Ratios for Pancreatic Cancer
by Time Since First Employment and Cumulative Exposure to BAP
for Workers in the Vertical Soderberg

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	.0001	10	100	500	1000	2000+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.03	0.05	0.02	0.02	0.03	0.01	0.00	0.16
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	163	361	173	371	530	256	0	1342
	Person Yrs	655.7	1551.8	507.1	1100.9	1839.7	301.6	0.0	6036.8
10-19	Obs	0	0	0	0	0	0	0	0
	Exp	0.13	0.15	0.16	0.08	0.09	0.17	0.04	0.82
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	128	334	252	214	345	433	228	1316
	Person Yrs	1085.5	1685.2	1773.2	1426.2	1649.8	3194.1	614.9	11429.0
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.14	0.15	0.20	0.10	0.10	0.14	0.19	1.02
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	96	124	172	117	135	200	262	1038
	Person Yrs	615.9	736.3	970.2	712.7	696.0	954.8	1621.1	6314.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.02	0.00	0.00	0.00	0.02	0.00	0.06
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	6	7	5	1	1	7	1	26
	Person Yrs	33.9	39.6	25.8	8.5	4.8	76.1	6.0	194.7
TOTAL	Obs	0	0	0	0	0	0	0	0
	Exp	0.31	0.37	0.38	0.21	0.22	0.33	0.24	2.06
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	170	383	297	388	610	456	265	1369
	Person Yrs	2391.0	4012.9	3364.3	3248.3	4190.3	4526.6	2242.0	23975.5

* Significant at 5% Level; ** Significant at 1% Level

511971 0737

Table A11.60

Standardized Mortality Ratios for Pancreatic Cancer
by Time Since First Employment and Cumulative Exposure to EAP
for Workers in Plant 12

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	.0001	10	100	500	1000	2000+	TOTAL
<10	Obs	0	1	0	0	0	0	0	1
	Exp	0.04	0.31	0.01	0.00	0.00	0.00	0.00	0.35
	SMR (Sig)	---	323.6	---	---	---	---	---	281.9
	At Risk	165	1658	39	0	0	0	0	1832
	Person Yrs	765.4	6866.0	123.9	0.0	0.0	0.0	0.0	7755.2
10-19	Obs	0	4	0	0	0	0	0	4
	Exp	0.12	1.30	0.16	0.00	0.00	0.00	0.00	1.58
	SMR (Sig)	---	308.4	---	---	---	---	---	253.7
	At Risk	155	1656	166	0	0	0	0	1847
	Person Yrs	1163.6	13689.8	1039.4	0.0	0.0	0.0	0.0	15892.8
20-29	Obs	0	2	0	0	0	0	0	2
	Exp	0.14	1.52	0.43	0.00	0.00	0.00	0.00	2.09
	SMR (Sig)	---	131.9	---	---	---	---	---	95.8
	At Risk	96	1140	204	0	0	0	0	1384
	Person Yrs	635.1	7109.7	1612.4	0.0	0.0	0.0	0.0	9357.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.02	0.10	0.06	0.00	0.00	0.00	0.00	0.18
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	39	242	126	0	0	0	0	407
	Person Yrs	55.6	264.2	154.6	0.0	0.0	0.0	0.0	474.4
TOTAL	Obs	0	7	0	0	0	0	0	7
	Exp	0.32	3.22	0.66	0.00	0.00	0.00	0.00	4.20
	SMR (Sig)	---	217.1	---	---	---	---	---	166.6
	At Risk	170	1707	222	0	0	0	0	1883
	Person Yrs	2619.7	27929.8	2930.2	0.0	0.0	0.0	0.0	33479.7

* Significant at 5% Level; ** Significant at 1% Level

Table A11.61

Standardized Mortality Ratios for Pancreatic Cancer
by Time Since First Employment and Cumulative Exposure to Total Particulates
for Workers in the Prebake Process

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	7	16	29	55	93	135+	TOTAL
<10	Obs	0	1	0	0	0	0	0	1
	Exp	0.38	0.31	0.11	0.09	0.02	0.00	0.00	0.92
	SMR (Sig)	---	317.9	---	---	---	---	---	109.2
	At Risk	4219	3475	1397	775	138	0	0	6920
	Person Yrs	12442.3	9751.1	3646.3	1951.0	238.3	0.0	0.0	28029.0
10-19	Obs	1	2	2	0	2	0	0	7
	Exp	1.41	1.57	1.17	0.77	0.34	0.07	0.00	5.32
	SMR (Sig)	71.0	127.4	170.9	---	591.6	---	---	131.5
	At Risk	2856	3887	2760	1601	638	114	0	8227
	Person Yrs	17366.6	20726.8	13420.6	9391.5	3075.5	437.9	0.0	64419.1
20-29	Obs	1	5	1	3	2	1	0	13
	Exp	2.02	1.56	2.40	1.59	1.00	0.36	0.06	8.98
	SMR (Sig)	49.6	321.2 *	41.7	189.1	199.2	275.0	---	144.7
	At Risk	1691	1691	2201	1548	801	315	51	7051
	Person Yrs	11306.1	9355.1	13266.4	8964.2	5214.4	1598.1	230.0	49934.2
30+	Obs	0	0	5	2	2	2	0	11
	Exp	1.93	1.05	1.86	2.09	1.48	1.62	0.86	10.89
	SMR (Sig)	---	---	268.5	95.9	134.9	123.7	---	101.0
	At Risk	731	522	706	909	551	359	131	3624
	Person Yrs	5438.6	3243.1	5123.5	6054.7	4121.6	3882.0	1838.3	29701.7
TOTAL	Obs	2	8	8	5	6	3	0	32
	Exp	5.74	4.49	5.54	4.53	2.84	2.05	0.92	26.12
	SMR (Sig)	34.8	178.1	144.4	110.3	211.3	146.5	---	122.5
	At Risk	5089	4984	3917	2405	1046	475	136	9625
	Person Yrs	46553.6	43076.1	35456.9	26361.3	12649.8	5918.0	2068.2	172084.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0738

Table A11.62

Standardized Mortality Ratios for Pancreatic Cancer
by Time Since First Employment and Cumulative Exposure to Total Particulates
for Workers in the Horizontal Soderberg

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	7	16	29	55	93	135+	TOTAL
<10	Obs	0	1	0	0	0	0	0	1
	Exp	0.15	0.34	0.12	0.10	0.09	0.01	0.01	0.83
	SMR (Sig)	---	297.6	---	---	---	---	---	121.1
	At Risk	1366	2777	1789	1884	1200	167	81	6318
	Person Yrs	4974.6	10224.9	4523.7	4763.0	3048.3	268.9	129.5	27933.7
10-19	Obs	0	1	3	0	1	1	0	6
	Exp	0.54	0.51	1.23	0.64	0.47	0.49	0.28	4.15
	SMR (Sig)	---	197.7	243.5	---	213.4	205.5	---	144.6
	At Risk	806	2119	2171	1797	1609	1010	563	6147
	Person Yrs	6349.4	7730.8	13954.2	8264.1	7391.5	5662.2	2325.9	51678.0
20-29	Obs	0	0	0	1	1	1	0	3
	Exp	0.50	0.27	0.63	1.11	0.49	0.46	0.93	4.40
	SMR (Sig)	---	---	---	89.7	202.3	218.0	---	68.3
	At Risk	499	425	934	1194	626	541	624	4509
	Person Yrs	2476.8	1717.8	3348.8	5033.1	2875.6	2479.5	4274.4	23006.0
30+	Obs	1	0	0	0	0	0	2	3
	Exp	0.08	0.03	0.02	0.14	0.10	0.09	0.44	0.91
	SMR (Sig)	1301.6	---	---	---	---	---	457.2	330.1
	At Risk	42	18	23	82	48	69	264	535
	Person Yrs	191.2	95.5	72.9	354.9	230.6	254.6	1081.3	2281.1
TOTAL	Obs	1	2	3	1	2	2	2	13
	Exp	1.26	1.15	2.01	2.00	1.16	1.05	1.65	10.28
	SMR (Sig)	79.1	174.5	149.6	50.0	173.0	189.9	121.1	126.5
	At Risk	1309	3031	2995	2913	1744	1118	656	6534
	Person Yrs	13991.9	19769.0	21899.6	19215.9	13545.9	8665.2	7811.2	104898.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0739

Table A11.63

Standardized Mortality Ratios for Pancreatic Cancer by Time Since First Employment and Cumulative Exposure to Total Particulates for Workers in the Vertical Soderberg

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	7	16	29	55	93	135+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.07	0.05	0.01	0.02	0.01	0.00	0.00	0.16
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	551	467	251	451	266	0	0	1342
	Person Yrs	2007.9	1622.7	640.6	1085.5	680.1	0.0	0.0	6036.8
10-19	Obs	0	0	0	0	0	0	0	0
	Exp	0.27	0.13	0.17	0.07	0.06	0.08	0.06	0.82
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	367	429	345	282	367	274	192	1316
	Person Yrs	2703.1	1805.9	2130.7	1463.6	1288.3	1309.4	649.1	11429.0
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.27	0.13	0.20	0.15	0.05	0.05	0.16	1.02
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	225	117	209	195	88	84	196	1038
	Person Yrs	1342.6	671.1	1054.7	1235.7	490.1	399.0	1121.8	6314.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.02	0.01	0.00	0.01	0.00	0.01	0.00	0.06
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	12	5	2	5	3	2	0	26
	Person Yrs	73.9	19.6	15.3	34.8	16.8	34.4	0.0	194.7
TOTAL	Obs	0	0	0	0	0	0	0	0
	Exp	0.63	0.32	0.38	0.25	0.12	0.14	0.22	2.06
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	570	537	470	591	379	286	199	1369
	Person Yrs	6207.5	4119.3	3841.2	3819.6	2475.2	1742.7	1769.9	23975.5

* Significant at 5% Level; ** Significant at 1% Level

511971 0740

Table A11.64

Standardized Mortality Ratios for Pancreatic Cancer
by Time Since First Employment and Cumulative Exposure to Total Particulates
for Workers in Plant 12

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	7	16	29	55	93	135+	TOTAL
<10	Obs	0	0	1	0	0	0	0	1
	Exp	0.07	0.12	0.13	0.03	0.00	0.00	0.00	0.35
	SMR (Sig)	---	---	763.6	---	---	---	---	281.9
	At Risk	436	1081	900	329	0	0	0	1832
	Person Yrs	1642.7	2651.5	2041.0	619.9	0.0	0.0	0.0	7755.2
10-19	Obs	0	1	0	3	0	0	0	4
	Exp	0.21	0.27	0.48	0.56	0.06	0.00	0.00	1.58
	SMR (Sig)	---	376.6	---	534.2 *	---	---	---	253.7
	At Risk	326	599	953	791	160	0	0	1847
	Person Yrs	2183.7	2748.7	4867.3	5571.6	521.5	0.0	0.0	15892.8
20-29	Obs	0	0	0	1	1	0	0	2
	Exp	0.23	0.17	0.44	0.85	0.40	0.00	0.00	2.09
	SMR (Sig)	---	---	---	117.7	252.2	---	---	95.8
	At Risk	169	149	351	655	233	0	0	1384
	Person Yrs	1061.5	741.8	1756.3	3973.9	1823.6	0.0	0.0	9357.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.02	0.01	0.03	0.07	0.05	0.00	0.00	0.18
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	50	24	57	161	115	0	0	407
	Person Yrs	60.0	27.0	65.4	186.3	127.7	0.0	0.0	474.4
TOTAL	Obs	0	1	1	4	1	0	0	7
	Exp	0.54	0.57	1.08	1.51	0.51	0.00	0.00	4.20
	SMR (Sig)	---	176.0	92.9	264.6	197.7	---	---	166.6
	At Risk	448	1164	1309	875	236	0	0	1083
	Person Yrs	4955.9	6169.0	8530.0	10351.8	2472.9	0.0	0.0	33479.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0741

Table A11.65

Standardized Mortality Ratios for Pancreatic Cancer by Time Since First Employment and Cumulative Exposure to Fluorides for Workers in the Prebake Process

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	.0001	1	10	60	101	149+	TOTAL
<10	Obs	0	1	0	0	0	0	0	1
	Exp	0.44	0.06	0.08	0.32	0.01	0.00	0.00	0.92
	SMR (Sig)	---	1568.5	---	---	---	---	---	109.2
	At Risk	3006	654	1577	2623	203	0	0	6920
	Person Yrs	11923.8	2105.3	3606.5	10236.4	157.1	0.0	0.0	28029.0
10-19	Obs	3	0	1	1	1	1	0	7
	Exp	2.37	0.43	0.42	1.57	0.45	0.08	0.00	5.32
	SMR (Sig)	126.6	---	237.4	63.7	221.4	1307.8	---	131.5
	At Risk	3395	936	1022	2961	1035	284	15	8227
	Person Yrs	26173.5	5855.8	5862.8	19756.9	5743.5	948.1	38.5	64419.1
20-29	Obs	3	2	1	3	2	1	1	13
	Exp	3.87	0.85	0.64	1.99	0.99	0.49	0.15	8.98
	SMR (Sig)	77.5	234.5	155.2	151.3	201.3	205.0	670.4	144.7
	At Risk	2750	777	665	1798	916	484	224	7051
	Person Yrs	19854.6	5417.9	4169.3	10979.4	5658.7	2830.8	1023.6	49934.2
30+	Obs	4	0	0	3	1	1	2	11
	Exp	4.24	1.23	1.02	1.27	0.63	0.71	1.80	10.89
	SMR (Sig)	94.4	---	---	236.7	157.7	140.3	111.4	101.0
	At Risk	1379	467	324	559	354	320	336	3624
	Person Yrs	10972.6	3842.2	2810.8	3672.2	1882.0	1993.5	4498.4	29701.7
TOTAL	Obs	10	3	2	7	4	3	3	32
	Exp	10.92	2.58	2.17	5.14	2.08	1.28	1.95	26.12
	SMR (Sig)	91.6	116.3	92.3	136.1	191.9	234.9	154.1	122.5
	At Risk	3990	1253	2077	3386	1262	548	351	9625
	Person Yrs	68924.6	17261.1	16479.3	44644.8	13441.3	5772.4	5560.5	172084.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0742

Table A11.66

Standardized Mortality Ratios for Pancreatic Cancer
by Time Since First Employment and Cumulative Exposure to Fluorides
for Workers in the Horizontal Soderberg

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	.0001	1	10	60	101	149+	TOTAL
<10	Obs	1	0	0	0	0	0	0	1
	Exp	0.35	0.03	0.10	0.30	0.03	0.01	0.00	0.83
	SMR (Sig)	285.8	---	---	---	---	---	---	121.1
	At Risk	1915	373	1799	3150	408	95	55	6318
	Person Yrs	8426.7	1156.0	4921.1	12492.4	710.0	149.2	88.3	27933.7
10-19	Obs	4	0	0	2	0	0	0	6
	Exp	1.36	0.18	0.31	1.64	0.32	0.17	0.16	4.15
	SMR (Sig)	293.6	---	---	121.8	---	---	---	144.6
	At Risk	1732	313	819	3130	833	363	241	6147
	Person Yrs	13613.9	2069.0	4850.2	23930.0	4075.3	1739.3	1372.4	51678.0
20-29	Obs	0	0	0	2	1	0	0	3
	Exp	1.28	0.15	0.25	1.47	0.41	0.27	0.56	4.40
	SMR (Sig)	---	---	---	135.7	242.0	---	---	68.3
	At Risk	1154	183	340	1958	506	224	279	4509
	Person Yrs	5999.0	846.8	1509.4	8835.7	2262.6	1242.8	2310.6	23006.0
30+	Obs	0	0	1	0	0	1	1	3
	Exp	0.23	0.01	0.02	0.06	0.09	0.15	0.36	0.91
	SMR (Sig)	---	---	4937.6 *	---	---	670.9	281.5	330.1
	At Risk	124	8	10	43	50	92	213	535
	Person Yrs	572.6	29.3	43.2	174.4	208.3	361.1	872.1	2281.1
TOTAL	Obs	5	0	1	4	1	1	1	13
	Exp	3.22	0.38	0.68	3.48	0.85	0.60	1.08	10.28
	SMR (Sig)	155.4	---	147.4	115.0	117.7	167.4	92.4	126.5
	At Risk	1980	439	1912	3456	923	453	292	6534
	Person Yrs	28612.2	4121.1	11323.0	45430.5	7256.2	3512.4	4643.3	104898.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0743

Table A11.67

Standardized Mortality Ratios for Pancreatic Cancer
by Time Since First Employment and Cumulative Exposure to Fluorides
for Workers in the Vertical Soderberg

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	.0001	1	10	60	101	149+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.09	0.01	0.01	0.05	0.00	0.00	0.00	0.16
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	471	116	257	690	0	0	0	1342
	Person Yrs	2022.9	359.2	673.4	2941.3	0.0	0.0	0.0	6036.8
10-19	Obs	0	0	0	0	0	0	0	0
	Exp	0.34	0.06	0.06	0.23	0.13	0.00	0.00	0.82
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	400	108	126	694	299	16	0	1316
	Person Yrs	3139.8	860.8	965.5	4654.7	1797.9	2.3	0.0	11429.0
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.38	0.07	0.08	0.25	0.15	0.08	0.00	1.02
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	269	76	76	331	291	110	0	1038
	Person Yrs	1687.2	421.6	464.8	1999.1	1134.4	607.8	0.0	6314.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.03	0.00	0.00	0.01	0.01	0.00	0.00	0.06
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	14	1	3	5	4	0	0	26
	Person Yrs	77.1	10.7	14.4	42.0	50.5	0.0	0.0	194.7
TOTAL	Obs	0	0	0	0	0	0	0	0
	Exp	0.83	0.14	0.16	0.55	0.30	0.08	0.00	2.06
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	482	127	267	707	319	110	0	1369
	Person Yrs	6927.0	1700.3	2118.2	9637.1	2982.8	610.1	0.0	23975.5

* Significant at 5% Level; ** Significant at 1% Level

511971 0744

Table A11.68

Standardized Mortality Ratios for Pancreatic Cancer
by Time Since First Employment and Cumulative Exposure to Fluorides
for Workers in Plant 12

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	.0001	1	10	60	101	149+	TOTAL
<10	Obs	0	0	0	1	0	0	0	1
	Exp	0.12	0.02	0.04	0.14	0.03	0.00	0.00	0.35
	SMR (Sig)	---	---	---	690.0	---	---	---	281.9
	At Risk	463	177	318	969	277	8	0	1832
	Person Yrs	2060.8	545.0	1078.7	3383.1	683.1	4.4	0.0	7755.2
10-19	Obs	0	0	0	1	3	0	0	4
	Exp	0.42	0.10	0.20	0.37	0.36	0.11	0.00	1.58
	SMR (Sig)	---	---	---	268.8	835.3 *	---	---	253.7
	At Risk	418	142	311	758	548	212	18	1847
	Person Yrs	3396.8	1030.6	2331.1	4445.9	3622.9	1042.5	23.0	15892.8
20-29	Obs	1	0	0	0	1	0	0	2
	Exp	0.55	0.11	0.22	0.36	0.40	0.38	0.07	2.09
	SMR (Sig)	181.9	---	---	---	250.3	---	---	95.8
	At Risk	203	87	202	300	310	207	40	1304
	Person Yrs	2109.6	526.5	1145.6	1781.0	1861.9	1579.0	353.6	9357.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.07	0.01	0.01	0.03	0.02	0.04	0.01	0.18
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	126	10	35	68	46	87	35	407
	Person Yrs	160.7	12.2	37.6	76.5	49.9	94.8	42.7	474.4
TOTAL	Obs	1	0	0	2	4	0	0	7
	Exp	1.16	0.24	0.47	0.90	0.80	0.53	0.09	4.20
	SMR (Sig)	86.2	---	---	221.2	497.7 *	---	---	166.6
	At Risk	469	199	347	1024	558	232	40	1803
	Person Yrs	7720.0	2114.3	4593.1	9686.5	6217.8	2720.8	419.3	33479.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0745

Table A11.69

Standardized Mortality Ratios for Pancreatic Cancer by Time Since First Employment and Cumulative Exposure to SO_2 for Workers in the Prebake Process

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	.0001	1	7	29	39	55+	TOTAL
<10	Obs	0	1	0	0	0	0	0	1
	Exp	0.42	0.10	0.13	0.22	0.03	0.01	0.00	0.92
	SMR (Sig)	---	1003.2	---	---	---	---	---	109.2
	At Risk	2962	994	1555	2215	363	143	7	6920
	Person Yrs	11562.1	3455.9	4707.6	7362.9	709.4	226.4	4.8	28029.0
10-19	Obs	3	0	1	1	0	0	2	7
	Exp	2.25	0.64	0.52	1.26	0.26	0.25	0.15	5.32
	SMR (Sig)	133.1	---	191.8	79.5	---	---	1339.6 *	131.5
	At Risk	3362	1326	1193	2429	895	648	302	8227
	Person Yrs	25301.6	8487.2	6613.2	16402.7	3468.3	2725.0	1341.1	64419.1
20-29	Obs	4	2	0	3	2	0	2	13
	Exp	3.69	1.17	0.76	1.64	0.43	0.55	0.74	8.98
	SMR (Sig)	108.3	171.1	---	183.3	463.7	---	269.6	144.7
	At Risk	2673	1030	709	1518	531	504	555	7051
	Person Yrs	19410.4	7107.8	4491.4	9431.5	2783.3	2945.9	3763.8	49934.2
30+	Obs	4	0	0	3	0	1	3	11
	Exp	4.50	1.56	0.91	1.02	0.34	0.47	2.08	10.89
	SMR (Sig)	88.8	---	---	294.3	---	210.5	144.1	101.0
	At Risk	1428	569	304	468	192	237	517	3624
	Person Yrs	11723.0	4749.2	2471.4	3044.8	998.2	1342.3	5372.8	29701.7
TOTAL	Obs	11	3	1	7	2	1	7	32
	Exp	10.87	3.46	2.33	4.13	1.07	1.29	2.97	26.12
	SMR (Sig)	101.2	86.7	42.9	169.5	187.8	77.8	235.4	122.5
	At Risk	3999	1714	2058	2948	1192	841	681	9625
	Person Yrs	67997.2	23800.1	18283.6	36321.8	7959.2	7239.6	10482.5	172084.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0746

Table A11.70

Standardized Mortality Ratios for Pancreatic Cancer
by Time Since First Employment and Cumulative Exposure to SO_2
for Workers in the Horizontal Soderberg

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative-Exposure 0	.C001	1	7	29	39	55+	TOTAL
<10	Obs	1	0	0	0	0	0	0	1
	Exp	0.39	0.09	0.28	0.07	0.00	0.00	0.00	0.83
	SMR (Sig)	262.6	---	---	---	---	---	---	121.1
	At Risk	2262	1020	2634	834	112	92	69	6318
	Person Yrs	10067.6	3973.5	11036.2	2300.8	218.7	195.4	141.5	27933.7
10-19	Obs	4	0	1	1	0	0	0	6
	Exp	1.54	0.43	1.18	0.77	0.11	0.03	0.09	4.15
	SMR (Sig)	259.8	---	84.7	129.1	---	---	---	144.6
	At Risk	2084	854	2336	1433	209	165	171	6147
	Person Yrs	16867.2	6242.9	15923.7	9817.2	1080.3	537.8	1208.9	51678.0
20-29	Obs	0	0	1	1	0	1	0	3
	Exp	1.41	0.35	0.97	1.01	0.29	0.19	0.19	4.40
	SMR (Sig)	---	---	103.5	99.0	---	537.8	---	68.3
	At Risk	1423	495	1247	1026	228	141	169	4509
	Person Yrs	6957.0	2085.0	5465.8	5311.4	1293.8	833.1	1059.0	23006.0
30+	Obs	0	0	1	0	1	1	0	3
	Exp	0.23	0.02	0.04	0.20	0.16	0.16	0.09	0.91
	SMR (Sig)	---	---	2765.1	---	613.5	614.5	---	330.1
	At Risk	126	15	26	131	102	90	55	535
	Person Yrs	582.2	59.4	92.9	514.0	365.7	410.2	256.7	2281.1
TOTAL	Obs	5	0	3	2	1	2	0	13
	Exp	3.56	0.88	2.46	2.05	0.57	0.38	0.37	10.28
	SMR (Sig)	140.5	---	121.9	97.4	176.5	520.6	---	126.5
	At Risk	2320	1101	2761	1571	430	291	181	6534
	Person Yrs	34474.0	12361.7	32510.6	17943.5	2958.5	1976.4	2666.1	104890.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0747

Table A11.71

Standardized Mortality Ratios for Pancreatic Cancer
by Time Since First Employment and Cumulative Exposure to SO_2
for Workers in the Vertical Soderberg

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	.0001	1	7	29	39	55+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.09	0.01	0.02	0.04	0.00	0.00	0.00	0.16
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	496	155	303	565	0	0	0	1342
	Person Yrs	2157.7	562.7	1017.1	2299.3	0.0	0.0	0.0	6036.8
10-19	Obs	0	0	0	0	0	0	0	0
	Exp	0.35	0.09	0.07	0.22	0.08	0.01	0.00	0.82
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	444	133	105	615	281	117	0	1316
	Person Yrs	3395.7	1110.0	1237.3	4464.5	1082.2	139.3	0.0	11429.0
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.40	0.10	0.09	0.19	0.12	0.12	0.00	1.02
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	297	96	103	279	198	150	0	1038
	Person Yrs	1822.2	522.0	621.1	1473.5	991.9	884.2	0.0	6314.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.03	0.00	0.00	0.01	0.01	0.00	0.00	0.06
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	17	0	2	6	4	1	0	26
	Person Yrs	90.8	0.0	9.0	43.0	42.1	1.8	0.0	194.7
TOTAL	Obs	0	0	0	0	0	0	0	0
	Exp	0.88	0.20	0.18	0.46	0.22	0.13	0.00	2.06
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	509	164	308	628	325	151	0	1369
	Person Yrs	7474.5	2194.6	2884.5	8280.4	2116.2	1025.2	0.0	23975.5

* Significant at 5% Level; ** Significant at 1% Level

511971 0748

Table A11.72

Standardized Mortality Ratios for Pancreatic Cancer
by Time Since First Employment and Cumulative Exposure to SO_2
for Workers in Plant 12

Cause of Death: CANCER OF PANCREAS

Latency		Cumulative Exposure 0	.0001	1	7	29	39	55+	TOTAL
<10	Obs	0	0	0	1	0	0	0	1
	Exp	0.12	0.05	0.06	0.11	0.01	0.00	0.00	0.35
	SMR (Sig)	---	---	---	890.6	---	---	---	281.9
	At Risk	463	309	545	726	59	2	0	1832
	Person Yrs	2060.8	1416.7	1470.5	2637.6	161.0	0.6	0.0	7755.2
10-19	Obs	0	0	1	3	0	0	0	4
	Exp	0.42	0.27	0.21	0.59	0.06	0.03	0.00	1.58
	SMR (Sig)	---	---	406.0	509.9 *	---	---	---	253.7
	At Risk	418	372	348	747	150	63	0	1847
	Person Yrs	3396.8	2952.1	2296.7	6180.6	803.2	263.4	0.0	15892.8
20-29	Obs	1	0	0	1	0	0	0	2
	Exp	0.55	0.28	0.21	0.74	0.16	0.14	0.00	2.09
	SMR (Sig)	181.9	---	---	134.7	---	---	---	95.8
	At Risk	283	251	181	531	115	83	5	1384
	Person Yrs	2109.6	1390.4	1126.9	3304.0	748.0	650.5	27.8	9357.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.07	0.01	0.01	0.05	0.02	0.02	0.00	0.18
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	126	27	47	109	41	53	4	407
	Person Yrs	160.7	31.6	49.4	123.2	43.1	62.1	4.4	474.4
TOTAL	Obs	1	0	1	5	0	0	0	7
	Exp	1.16	0.61	0.49	1.49	0.25	0.19	0.01	4.20
	SMR (Sig)	86.2	---	202.2	334.8 *	---	---	---	166.6
	At Risk	469	417	591	802	183	84	5	1883
	Person Yrs	7728.0	5790.8	4951.6	12245.3	1755.2	976.6	32.2	33479.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0749

APPENDIX XII

Table A12.1

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Tapper Carbon Changers in the Prebake Process

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	1	0	0	0	0	0	0	1
	Exp	1.76	0.72	0.00	0.00	0.00	0.00	0.00	2.47
	SMR (Sig)	57.0	---	---	---	---	---	---	40.5
	At Risk	1795	793	0	0	0	0	0	1876
	Person Yrs	8641.7	3165.2	0.0	0.0	0.0	0.0	0.0	11806.9
10-19	Obs	2	3	2	1	0	0	0	8
	Exp	4.21	2.23	1.28	0.51	0.00	0.00	0.00	8.23
	SMR (Sig)	47.5	134.4	156.4	196.2	---	---	---	97.2
	At Risk	947	888	421	177	0	0	0	1779
	Person Yrs	7037.8	4391.1	2397.4	644.1	0.0	0.0	0.0	14470.4
20-29	Obs	4	4	2	1	0	0	0	11
	Exp	5.04	2.87	1.61	1.22	0.82	0.11	0.00	11.68
	SMR (Sig)	79.4	139.2	124.2	81.8	---	---	---	94.2
	At Risk	632	362	227	200	86	16	0	1393
	Person Yrs	3760.9	2189.0	1294.5	876.8	559.9	63.8	0.0	8744.9
30+	Obs	4	0	1	3	1	0	0	9
	Exp	2.49	1.59	1.29	0.83	0.53	0.23	0.00	6.96
	SMR (Sig)	160.9	---	77.6	363.3	189.5	---	---	129.4
	At Risk	182	106	66	54	40	15	1	458
	Person Yrs	1072.6	661.8	509.1	336.4	200.3	100.1	3.3	2883.7
TOTAL	Obs	11	7	5	5	1	0	0	29
	Exp	13.49	7.42	4.18	2.56	1.35	0.34	0.00	29.33
	SMR (Sig)	81.5	94.4	119.7	195.5	74.1	---	---	98.9
	At Risk	1904	975	452	213	87	18	1	2123
	Person Yrs	20513.1	10407.1	4201.0	1857.3	760.2	163.9	3.3	37905.9

* Significant at 5% Level; ** Significant at 1% Level

511971 0750

Table A12.2

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Anodemen in the Horizontal Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	2	1	0	0	0	0	0	3
	Exp	2.03	0.75	0.00	0.00	0.00	0.00	0.00	2.77
	SMR (Sig)	98.8	134.1	---	---	---	---	---	108.3
	At Risk	2261	782	0	0	0	0	0	2299
	Person Yrs	11114.0	3154.4	0.0	0.0	0.0	0.0	0.0	14268.5
10-19	Obs	4	3	3	1	0	0	0	11
	Exp	5.05	2.05	1.53	0.47	0.00	0.00	0.00	9.09
	SMR (Sig)	79.2	146.6	196.3	214.4	---	---	---	121.0
	At Risk	1209	807	401	158	0	0	0	1958
	Person Yrs	9349.0	4042.2	2385.1	585.7	0.0	0.0	0.0	16362.0
20-29	Obs	3	1	2	2	0	1	0	9
	Exp	3.85	1.34	0.80	0.74	0.21	0.07	0.00	7.01
	SMR (Sig)	77.9	74.5	251.4	270.6	---	1333.6	---	128.4
	At Risk	690	307	167	155	28	9	0	1286
	Person Yrs	3148.8	1179.1	603.2	588.3	152.4	34.0	0.0	5705.8
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.39	0.14	0.10	0.07	0.01	0.05	0.00	0.75
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	48	20	11	9	2	5	0	95
	Person Yrs	167.4	64.3	35.5	29.2	6.4	17.8	0.0	320.5
TOTAL	Obs	9	5	5	3	0	1	0	23
	Exp	11.31	4.28	2.42	1.27	0.21	0.12	0.00	19.62
	SMR (Sig)	79.5	116.8	206.2	235.7	---	825.4	---	117.2
	At Risk	2277	912	410	172	28	9	0	2318
	Person Yrs	23779.2	8440.0	3023.9	1203.1	158.9	51.8	0.0	36656.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0751

Table A12.3

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Anodemen in the Vertical Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.21	0.06	0.00	0.00	0.00	0.00	0.00	0.27
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	252	106	0	0	0	0	0	252
	Person Yrs	1391.3	449.4	0.0	0.0	0.0	0.0	0.0	1840.6
10-19	Obs	0	1	0	0	0	0	0	1
	Exp	0.39	0.18	0.15	0.04	0.00	0.00	0.00	0.76
	SMR (Sig)	---	551.5	---	---	---	---	---	131.8
	At Risk	124	116	63	24	0	0	0	228
	Person Yrs	957.3	536.4	380.0	86.7	0.0	0.0	0.0	1960.5
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.42	0.16	0.09	0.07	0.03	0.00	0.00	0.76
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	78	37	18	21	7	0	0	153
	Person Yrs	437.6	203.2	91.3	81.8	35.8	0.0	0.0	849.7
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	0	0	0	0	0	0	0
	Person Yrs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	Obs	0	1	0	0	0	0	0	1
	Exp	1.02	0.40	0.24	0.11	0.03	0.00	0.00	1.79
	SMR (Sig)	---	249.2	---	---	---	---	---	55.9
	At Risk	252	122	64	24	7	0	0	252
	Person Yrs	2786.1	1189.0	471.4	168.5	35.8	0.0	0.0	4650.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0752

Table A12.4

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Tapper Carbon Changers in Plant #3

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.72	0.12	0.00	0.00	0.00	0.00	0.00	0.83
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	323	220	0	0	0	0	0	424
	Person Yrs	1547.5	627.6	0.0	0.0	0.0	0.0	0.0	2175.1
10-19	Obs	0	0	1	1	0	0	0	2
	Exp	0.93	0.51	0.42	0.25	0.00	0.00	0.00	2.11
	SMR (Sig)	---	---	235.8	398.4	---	---	---	94.6
	At Risk	205	247	210	124	0	0	0	508
	Person Yrs	1626.8	1256.1	1058.9	456.8	0.0	0.0	0.0	4398.6
20-29	Obs	2	1	1	4	1	0	0	9
	Exp	1.96	1.01	0.81	0.68	0.64	0.24	0.00	5.35
	SMR (Sig)	102.0	98.6	123.7	585.5 *	155.5	---	---	168.3
	At Risk	191	106	110	170	115	52	0	526
	Person Yrs	1605.5	815.3	678.4	626.7	599.0	175.0	0.0	4499.8
30+	Obs	2	0	0	1	0	1	0	4
	Exp	2.12	0.84	0.50	0.65	0.56	0.73	0.29	5.69
	SMR (Sig)	94.2	---	---	154.0	---	137.4	---	70.3
	At Risk	137	65	41	47	45	58	19	375
	Person Yrs	940.6	357.3	200.9	296.9	242.1	317.4	127.2	2482.5
TOTAL	Obs	4	1	2	6	1	1	0	15
	Exp	5.73	2.48	1.73	1.58	1.21	0.97	0.29	13.99
	SMR (Sig)	69.8	40.3	115.6	378.9 *	83.0	103.6	---	107.2
	At Risk	415	287	238	188	122	60	19	639
	Person Yrs	5720.3	3056.4	1938.2	1380.4	841.2	492.5	127.2	13556.1

* Significant at 5% Level; ** Significant at 1% Level

511971 0753

Table A12.5

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Tapper Carbon Changers in Plant #12

Cause of Death: CANCER OF LUNG

Latency		Cumulative-Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	1	0	0	0	0	0	0	1
	Exp	0.93	0.11	0.00	0.00	0.00	0.00	0.00	1.04
	SMR (Sig)	107.0	---	---	---	---	---	---	96.0
	At Risk	660	169	0	0	0	0	0	663
	Person Yrs	3472.7	646.2	0.0	0.0	0.0	0.0	0.0	4118.9
10-19	Obs	1	0	1	0	0	0	0	2
	Exp	1.82	0.46	0.24	0.12	0.00	0.00	0.00	2.64
	SMR (Sig)	54.9	---	408.8	---	---	---	---	75.8
	At Risk	442	195	91	50	0	0	0	609
	Person Yrs	3131.7	1067.0	544.7	179.9	0.0	0.0	0.0	4863.3
20-29	Obs	3	2	0	0	0	0	0	5
	Exp	1.80	0.63	0.19	0.27	0.20	0.00	0.00	3.10
	SMR (Sig)	166.5	318.1	---	---	---	---	---	161.2
	At Risk	229	82	35	50	18	1	0	393
	Person Yrs	1300.6	478.5	169.9	220.4	137.8	4.5	0.0	2311.6
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.13	0.05	0.01	0.01	0.01	0.00	0.00	0.21
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	47	19	3	6	6	1	0	82
	Person Yrs	53.1	22.8	3.4	5.5	4.0	0.7	0.0	89.4
TOTAL	Obs	5	2	1	0	0	0	0	8
	Exp	4.68	1.25	0.45	0.40	0.21	0.00	0.00	6.99
	SMR (Sig)	106.7	160.6	224.1	---	---	---	---	114.4
	At Risk	664	203	92	52	18	1	0	667
	Person Yrs	7958.1	2154.4	718.0	405.8	141.8	5.2	0.0	11383.3

* Significant at 5% Level; ** Significant at 1% Level

511971 0754

Table A12.6

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Green Carbon Workers in the Prebake Process

Cause of Death: CANCER OF LUNG

Latency		Cumulative-Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	1	0	0	0	0	0	0	1
	Exp	1.07	0.16	0.00	0.00	0.00	0.00	0.00	1.24
	SMR (Sig)	93.1	---	---	---	---	---	---	80.7
	At Risk	335	88	0	0	0	0	0	360
	Person Yrs	1949.0	344.3	0.0	0.0	0.0	0.0	0.0	2293.3
10-19	Obs	1	1	0	0	0	0	0	2
	Exp	1.31	0.23	0.29	0.13	0.00	0.00	0.00	1.95
	SMR (Sig)	76.6	436.6	---	---	---	---	---	102.3
	At Risk	233	88	66	47	0	0	0	339
	Person Yrs	1756.0	302.8	349.1	166.2	0.0	0.0	0.0	2574.2
20-29	Obs	1	0	0	1	1	0	0	3
	Exp	1.21	0.17	0.18	0.20	0.28	0.06	0.00	2.10
	SMR (Sig)	82.7	---	---	488.0	351.6	---	---	142.7
	At Risk	159	23	22	43	34	13	0	245
	Person Yrs	940.0	137.6	116.8	147.2	200.4	37.3	0.0	1579.3
30+	Obs	3	0	0	0	1	0	0	4
	Exp	0.94	0.22	0.06	0.06	0.11	0.17	0.15	1.71
	SMR (Sig)	318.8	---	---	---	915.6	---	---	233.9
	At Risk	61	10	8	5	10	14	5	104
	Person Yrs	445.2	89.5	35.4	19.3	35.2	72.4	56.5	753.6
TOTAL	Obs	6	1	0	1	2	0	0	10
	Exp	4.53	0.78	0.52	0.40	0.39	0.23	0.15	7.01
	SMR (Sig)	132.4	128.5	---	253.0	508.1	---	---	142.7
	At Risk	386	109	70	51	34	15	5	437
	Person Yrs	5090.2	874.2	501.3	332.8	235.7	109.7	56.5	7200.4

* Significant at 5% Level; ** Significant at 1% Level

511971 0755

Table A12.7

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Paste Plant Workers in the Horizontal Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.36	0.08	0.00	0.00	0.00	0.00	0.00	0.45
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	236	56	0	0	0	0	0	244
	Person Yrs	1409.4	254.3	0.0	0.0	0.0	0.0	0.0	1663.7
10-19	Obs	0	0	0	0	0	0	0	0
	Exp	0.64	0.17	0.11	0.07	0.00	0.00	0.00	0.99
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	121	44	33	24	0	0	0	176
	Person Yrs	913.8	187.5	180.3	98.5	0.0	0.0	0.0	1380.1
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.42	0.05	0.06	0.11	0.03	0.00	0.00	0.67
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	62	10	8	18	8	0	0	102
	Person Yrs	290.9	35.7	36.2	66.1	40.6	0.0	0.0	469.6
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.07	0.00	0.02	0.00	0.00	0.00	0.00	0.09
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	8	1	1	0	0	0	0	10
	Person Yrs	36.9	6.8	6.6	0.0	0.0	0.0	0.0	44.3
TOTAL	Obs	0	0	0	0	0	0	0	0
	Exp	1.49	0.30	0.20	0.18	0.03	0.00	0.00	2.20
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	238	60	33	25	8	0	0	246
	Person Yrs	2651.0	478.3	223.1	164.7	40.6	0.0	0.0	3557.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0756

Table A12.8

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Paste Plant Workers in the Vertical Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.02	0.04	0.00	0.00	0.00	0.00	0.00	0.06
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	46	35	0	0	0	0	0	56
	Person Yrs	144.2	159.2	0.0	0.0	0.0	0.0	0.0	303.4
10-19	Obs	0	0	0	0	0	0	0	0
	Exp	0.07	0.08	0.05	0.05	0.00	0.00	0.00	0.25
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	18	34	11	9	0	0	0	52
	Person Yrs	142.0	140.8	59.0	38.9	0.0	0.0	0.0	380.8
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.07	0.07	0.02	0.06	0.06	0.00	0.00	0.29
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	12	10	2	8	5	0	0	32
	Person Yrs	66.8	56.2	13.7	24.2	35.8	0.0	0.0	196.7
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	1	0	0	0	0	0	0	1
	Person Yrs	7.8	0.0	0.0	0.0	0.0	0.0	0.0	7.8
TOTAL	Obs	0	0	0	0	0	0	0	0
	Exp	0.18	0.19	0.07	0.11	0.06	0.00	0.00	0.61
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	47	35	11	9	5	0	0	57
	Person Yrs	360.8	356.2	72.7	63.2	35.8	0.0	0.0	888.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0757

Table A12.9

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Green Carbon Workers in Plant #3

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.09
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	38	1	0	0	0	0	0	38
	Person Yrs	204.1	5.0	0.0	0.0	0.0	0.0	0.0	209.1
10-19	Obs	0	0	0	0	0	0	0	0
	Exp	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	13	0	1	1	0	0	0	14
	Person Yrs	80.6	0.0	5.0	5.0	0.0	0.0	0.0	90.6
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.10	0.00	0.00	0.00	0.01	0.01	0.00	0.13
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	18	2	1	0	1	1	0	21
	Person Yrs	151.4	6.8	3.1	0.0	5.0	5.0	0.0	171.3
30+	Obs	1	0	0	0	0	0	0	1
	Exp	0.40	0.05	0.00	0.00	0.00	0.00	0.00	0.45
	SMR (Sig)	250.8	---	---	---	---	---	---	221.0
	At Risk	17	1	0	0	0	1	0	19
	Person Yrs	187.2	22.9	0.0	0.0	0.0	0.7	0.0	210.9
TOTAL	Obs	1	0	0	0	0	0	0	1
	Exp	0.61	0.06	0.00	0.00	0.01	0.01	0.00	0.69
	SMR (Sig)	164.4	---	---	---	---	---	---	145.3
	At Risk	57	3	2	1	1	1	0	59
	Person Yrs	623.3	34.7	8.1	5.0	5.0	5.7	0.0	681.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0758

Table A12.10

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Green Carbon Workers in Plant #12

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.42	0.03	0.00	0.00	0.00	0.00	0.00	0.45
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	200	20	0	0	0	0	0	205
	Person Yrs	1207.6	80.1	0.0	0.0	0.0	0.0	0.0	1287.7
10-19	Obs	0	0	0	1	0	0	0	1
	Exp	1.02	0.05	0.06	0.05	0.00	0.00	0.00	1.18
	SMR (Sig)	---	---	---	2170.4	---	---	---	84.8
	At Risk	173	25	16	12	0	0	0	193
	Person Yrs	1432.7	103.4	83.5	36.7	0.0	0.0	0.0	1656.3
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.39	0.08	0.01	0.06	0.04	0.01	0.00	0.59
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	106	9	4	10	4	1	0	126
	Person Yrs	396.4	48.2	11.7	50.2	26.1	4.3	0.0	536.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	5	1	0	1	1	1	0	9
	Person Yrs	5.5	0.3	0.0	0.9	0.3	1.5	0.0	8.5
TOTAL	Obs	0	0	0	1	0	0	0	1
	Exp	1.83	0.17	0.07	0.11	0.04	0.02	0.00	2.23
	SMR (Sig)	---	---	---	939.6	---	---	---	44.9
	At Risk	202	27	17	13	4	1	0	207
	Person Yrs	3042.2	232.8	95.2	87.7	26.4	5.7	0.0	3489.3

* Significant at 5% Level; ** Significant at 1% Level

511971 0759

Table A12.11

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Potlining Workers in the Prebake Process

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	4	0	0	0	0	0	0	4
	Exp	3.39	0.39	0.00	0.00	0.00	0.00	0.00	3.78
	SMR (Sig)	118.1	---	---	---	---	---	---	105.9
	At Risk	1304	266	0	0	0	0	0	1361
	Person Yrs	7442.6	1144.3	0.0	0.0	0.0	0.0	0.0	8586.9
10-19	Obs	4	0	1	0	0	0	0	5
	Exp	4.87	0.57	0.51	0.12	0.00	0.00	0.00	6.07
	SMR (Sig)	82.2	---	194.6	---	---	---	---	82.4
	At Risk	1077	264	137	55	0	0	0	1351
	Person Yrs	6974.2	777.2	791.4	215.1	0.0	0.0	0.0	8757.9
20-29	Obs	6	1	0	0	0	0	0	7
	Exp	4.88	0.35	0.26	0.20	0.14	0.06	0.00	5.89
	SMR (Sig)	122.9	288.6	---	---	---	---	---	118.9
	At Risk	555	48	37	53	32	12	0	683
	Person Yrs	4030.1	261.4	174.9	165.7	154.5	45.9	0.0	4832.5
30+	Obs	1	0	0	1	0	0	0	2
	Exp	3.78	0.12	0.06	0.03	0.04	0.19	0.12	4.34
	SMR (Sig)	26.4	---	---	3089.6	---	---	---	46.1
	At Risk	260	11	9	6	9	15	7	305
	Person Yrs	1768.3	60.7	25.2	17.0	31.1	93.2	55.0	2050.4
TOTAL	Obs	15	1	1	1	0	0	0	18
	Exp	16.92	1.42	0.83	0.36	0.18	0.25	0.12	20.08
	SMR (Sig)	88.7	70.2	120.5	280.2	---	---	---	89.7
	At Risk	1505	297	142	62	33	16	7	1587
	Person Yrs	20215.1	2243.6	991.6	397.8	185.6	139.0	55.0	24227.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0760

Table A12.12

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Pot Service Workers in the Horizontal Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	1	0	0	0	0	0	0	1
	Exp	1.84	0.22	0.00	0.00	0.00	0.00	0.00	2.06
	SMR (Sig)	54.5	---	---	---	---	---	---	48.5
	At Risk	1273	181	0	0	0	0	0	1310
	Person Yrs	7435.9	742.7	0.0	0.0	0.0	0.0	0.0	8178.6
10-19	Obs	6	1	0	1	0	0	0	8
	Exp	4.67	0.40	0.38	0.19	0.00	0.00	0.00	5.64
	SMR (Sig)	128.5	247.5	---	534.9	---	---	---	141.8
	At Risk	1003	167	101	63	0	0	0	1180
	Person Yrs	7835.6	756.3	632.0	228.0	0.0	0.0	0.0	9451.9
20-29	Obs	4	0	0	0	0	0	0	4
	Exp	3.57	0.24	0.14	0.16	0.14	0.00	0.00	4.26
	SMR (Sig)	112.1	---	---	---	---	---	---	94.0
	At Risk	507	50	31	52	24	0	0	646
	Person Yrs	2473.4	227.3	105.0	142.7	110.2	0.0	0.0	3058.6
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.14
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	29	0	1	1	0	0	0	31
	Person Yrs	53.5	0.0	1.4	0.1	0.0	0.0	0.0	55.0
TOTAL	Obs	11	1	0	1	0	0	0	13
	Exp	10.21	0.87	0.53	0.35	0.14	0.00	0.00	12.10
	SMR (Sig)	107.8	115.2	---	285.5	---	---	---	107.5
	At Risk	1276	194	101	63	24	0	0	1313
	Person Yrs	17798.4	1726.3	738.4	370.8	110.2	0.0	0.0	20744.1

* Significant at 5% Level; ** Significant at 1% Level

511971_0761

Table A12.13

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Pot Service Workers in the Vertical Soderberg

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.20	0.02	0.00	0.00	0.00	0.00	0.00	0.23
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	365	25	0	0	0	0	0	365
	Person Yrs	1731.4	108.6	0.0	0.0	0.0	0.0	0.0	1839.9
10-19	Obs	0	0	0	0	0	0	0	0
	Exp	1.14	0.06	0.05	0.03	0.00	0.00	0.00	1.28
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	337	23	18	13	0	0	0	362
	Person Yrs	3056.3	93.5	99.7	50.2	0.0	0.0	0.0	3299.6
20-29	Obs	1	0	0	0	0	0	0	1
	Exp	1.65	0.02	0.00	0.07	0.02	0.00	0.00	1.75
	SMR (Sig)	60.5	---	---	---	---	---	---	57.0
	At Risk	264	5	3	12	4	0	0	283
	Person Yrs	1693.2	20.1	8.7	44.7	22.0	0.0	0.0	1788.6
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	1	0	0	0	0	0	0	1
	Person Yrs	8.5	0.0	0.0	0.0	0.0	0.0	0.0	8.5
TOTAL	Obs	1	0	0	0	0	0	0	1
	Exp	3.01	0.10	0.05	0.10	0.02	0.00	0.00	3.28
	SMR (Sig)	33.2	---	---	---	---	---	---	30.5
	At Risk	366	28	19	14	4	0	0	366
	Person Yrs	6489.3	222.1	108.3	94.9	22.0	0.0	0.0	6936.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0762

Table A12.14

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Potlining Workers in Plant #3

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.35	0.04	0.00	0.00	0.00	0.00	0.00	0.39
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	262	46	0	0	0	0	0	287
	Person Yrs	1499.5	164.1	0.0	0.0	0.0	0.0	0.0	1663.6
10-19	Obs	0	0	0	0	0	0	0	0
	Exp	1.22	0.08	0.14	0.07	0.00	0.00	0.00	1.51
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	300	55	38	26	0	0	0	359
	Person Yrs	2304.1	236.1	208.3	102.4	0.0	0.0	0.0	2850.9
20-29	Obs	2	0	0	0	0	0	0	2
	Exp	2.27	0.11	0.13	0.12	0.18	0.09	0.00	2.90
	SMR (Sig)	88.0	---	---	---	---	---	---	68.9
	At Risk	253	22	19	25	24	15	0	312
	Person Yrs	1995.0	142.6	97.1	81.2	130.8	63.5	0.0	2510.3
30+	Obs	1	0	0	0	0	2	1	4
	Exp	1.95	0.09	0.05	0.01	0.03	0.09	0.08	2.31
	SMR (Sig)	51.2	---	---	---	---	2119.9 **	1209.1	172.8
	At Risk	168	8	6	3	4	11	6	201
	Person Yrs	1018.9	47.7	22.7	6.8	12.8	37.5	39.5	1185.9
TOTAL	Obs	3	0	0	0	0	2	1	6
	Exp	5.80	0.32	0.31	0.20	0.21	0.19	0.08	7.12
	SMR (Sig)	51.7	---	---	---	---	1062.1 *	1209.1	84.3
	At Risk	364	72	44	32	24	15	6	406
	Person Yrs	6817.5	590.5	328.2	190.5	143.6	101.0	39.5	8210.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0763

Table A12.15

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Potlining Workers in Plant #12

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.96	0.08	0.00	0.00	0.00	0.00	0.00	1.04
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	522	81	0	0	0	0	0	526
	Person Yrs	2728.5	228.1	0.0	0.0	0.0	0.0	0.0	2956.7
10-19	Obs	2	0	0	0	0	0	0	2
	Exp	2.29	0.33	0.20	0.06	0.00	0.00	0.00	2.88
	SMR (Sig)	87.2	---	---	---	---	---	---	69.4
	At Risk	429	100	60	31	0	0	0	506
	Person Yrs	3241.0	521.6	309.7	81.7	0.0	0.0	0.0	4154.0
20-29	Obs	1	0	0	0	0	0	0	1
	Exp	1.29	0.15	0.16	0.19	0.08	0.00	0.00	1.87
	SMR (Sig)	77.7	---	---	---	---	---	---	53.4
	At Risk	204	32	27	32	14	0	0	292
	Person Yrs	1053.0	126.8	120.4	141.0	75.1	0.0	0.0	1516.3
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.05
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	16	2	1	1	0	0	0	20
	Person Yrs	15.3	2.1	1.4	0.9	0.0	0.0	0.0	19.7
TOTAL	Obs	3	0	0	0	0	0	0	3
	Exp	4.58	0.56	0.37	0.26	0.08	0.00	0.00	5.85
	SMR (Sig)	65.5	---	---	---	---	---	---	51.3
	At Risk	530	106	61	33	14	0	0	534
	Person Yrs	7037.8	878.6	431.5	223.6	75.1	0.0	0.0	8646.6

* Significant at 5% Level; ** Significant at 1% Level

511971 0764

Table A12.16

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Baked Carbon Workers in the Prebake Process

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	3	0	0	0	0	0	0	3
	Exp	2.06	0.40	0.00	0.00	0.00	0.00	0.00	2.46
	SMR (Sig)	145.3	---	---	---	---	---	---	121.9
	At Risk	895	316	0	0	0	0	0	1032
	Person Yrs	4892.6	1259.1	0.0	0.0	0.0	0.0	0.0	6191.8
10-19	Obs	4	0	0	0	0	0	0	4
	Exp	3.54	0.82	0.82	0.42	0.00	0.00	0.00	5.59
	SMR (Sig)	113.1	---	---	---	---	---	---	71.5
	At Risk	688	320	202	117	0	0	0	1005
	Person Yrs	4685.7	1259.2	1111.6	454.7	0.0	0.0	0.0	7551.2
20-29	Obs	1	2	0	1	0	0	0	4
	Exp	2.79	0.83	0.76	0.81	0.58	0.12	0.00	5.90
	SMR (Sig)	35.9	239.5	---	123.6	---	---	---	67.9
	At Risk	376	110	90	128	69	27	0	673
	Person Yrs	2391.2	641.6	436.0	490.1	392.3	88.0	0.0	4439.2
30+	Obs	5	0	0	0	1	0	0	6
	Exp	3.61	0.28	0.28	0.25	0.29	0.21	0.34	5.27
	SMR (Sig)	138.4	---	---	---	344.8	---	---	114.0
	At Risk	198	22	23	22	25	28	15	310
	Person Yrs	1818.8	141.4	118.9	102.8	129.8	110.4	167.8	2589.9
TOTAL	Obs	13	2	0	1	1	0	0	17
	Exp	12.00	2.33	1.87	1.47	0.87	0.33	0.34	19.21
	SMR (Sig)	108.3	85.7	---	67.8	115.2	---	---	88.5
	At Risk	1068	379	226	139	76	30	15	1253
	Person Yrs	13788.3	3301.4	1666.5	1047.5	522.1	198.4	167.8	20772.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0765

Table A12.17

Standardized Mortality Ratios for Lung Cancer
by Time Since First Employment and Cumulative Employment
for Baked Carbon Workers in Plant #3

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	1	0	0	0	0	0	1
	Exp	0.16	0.05	0.00	0.00	0.00	0.00	0.00	0.21
	SMR (Sig)	---	2221.6	---	---	---	---	---	478.2
	At Risk	99	56	0	0	0	0	0	121
	Person Yrs	401.5	198.1	0.0	0.0	0.0	0.0	0.0	599.6
10-19	Obs	1	1	0	0	0	0	0	2
	Exp	0.28	0.13	0.15	0.08	0.00	0.00	0.00	0.63
	SMR (Sig)	358.1	787.0	---	---	---	---	---	315.2
	At Risk	55	53	46	29	0	0	0	118
	Person Yrs	396.0	231.3	263.4	106.2	0.0	0.0	0.0	996.9
20-29	Obs	2	0	0	0	1	0	0	3
	Exp	0.40	0.26	0.19	0.16	0.23	0.05	0.00	1.29
	SMR (Sig)	499.6	---	---	---	432.7	---	---	231.7
	At Risk	38	21	17	30	23	10	0	101
	Person Yrs	298.8	165.4	108.3	110.6	146.0	30.9	0.0	860.1
30+	Obs	1	0	0	1	0	0	0	2
	Exp	0.43	0.09	0.10	0.06	0.09	0.08	0.02	0.86
	SMR (Sig)	231.6	---	---	1766.0	---	---	---	232.7
	At Risk	24	8	8	6	9	9	2	61
	Person Yrs	194.7	36.2	40.8	24.9	29.5	33.9	8.7	368.7
TOTAL	Obs	4	2	0	1	1	0	0	8
	Exp	1.28	0.52	0.44	0.29	0.32	0.13	0.02	3.00
	SMR (Sig)	313.6	388.1	---	340.7	314.8	---	---	266.8 *
	At Risk	112	70	49	34	24	10	2	142
	Person Yrs	1291.0	631.0	412.5	241.8	175.5	64.7	8.7	2825.3

* Significant at 5% Level; ** Significant at 1% Level

511971 0766

Table A12.18

Standardized Mortality Ratios for Lung Caneer
by Time Since First Employment and Cumulative Employment
for Baked Carbon Workers in Plant #12

Cause of Death: CANCER OF LUNG

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	1	0	0	0	0	0	0	1
	Exp	0.68	0.09	0.00	0.00	0.00	0.00	0.00	0.77
	SMR (Sig)	147.4	---	---	---	---	---	---	130.7
	At Risk	366	99	0	0	0	0	0	391
	Person Yrs	2060.9	415.3	0.0	0.0	0.0	0.0	0.0	2476.2
10-19	Obs	0	0	0	0	0	0	0	0
	Exp	1.01	0.11	0.23	0.10	0.00	0.00	0.00	1.46
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	234	99	71	44	0	0	0	332
	Person Yrs	1619.6	304.0	431.3	154.0	0.0	0.0	0.0	2508.9
20-29	Obs	1	0	0	0	0	0	0	1
	Exp	0.67	0.11	0.16	0.21	0.12	0.02	0.00	1.30
	SMR (Sig)	149.2	---	---	---	---	---	---	77.1
	At Risk	119	16	24	43	19	2	0	200
	Person Yrs	607.6	94.3	140.5	189.3	119.5	8.9	0.0	1160.6
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.04	0.01	0.01	0.02	0.00	0.01	0.00	0.08
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	18	3	2	6	2	1	0	32
	Person Yrs	21.1	4.0	2.1	7.6	0.6	1.5	0.0	36.9
TOTAL	Obs	2	0	0	0	0	0	0	2
	Exp	2.41	0.32	0.40	0.33	0.12	0.02	0.00	3.60
	SMR (Sig)	83.2	---	---	---	---	---	---	55.6
	At Risk	369	106	72	45	19	2	0	394
	Person Yrs	4309.1	817.6	574.0	350.9	120.5	10.4	0.0	6182.6

* Significant at 5% Level; ** Significant at 1% Level

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APPENDIX XIII

Table A13.1

Standardized Mortality Ratios for Emphysema
By Time Since First Employment and Cumulative Employment
for Workers in the Prebake Process

Cause of Death: EMPHYSEMA(528=527.1)

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.59	0.00	0.00	0.00	0.00	0.00	0.59
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	6920	0	0	0	0	0	6920
	Person Yrs	0.0	28028.4	0.0	0.0	0.0	0.0	0.0	28029.0
10-19	Obs	0	3	2	1	0	0	0	6
	Exp	0.00	1.51	2.43	1.96	0.00	0.00	0.00	5.90
	SMR (Sig)	---	198.0	82.4	51.1	---	---	---	101.7
	At Risk	0	6777	5533	4116	0	0	0	8227
	Person Yrs	0.0	20974.2	27960.4	15484.5	0.0	0.0	0.0	64419.1
20-29	Obs	0	4	2	5	2	1	0	14
	Exp	0.00	1.73	1.89	3.69	3.38	1.22	0.00	11.91
	SMR (Sig)	---	231.0	105.6	135.4	59.2	82.3	---	117.6
	At Risk	0	1415	1411	4310	3200	1581	0	7051
	Person Yrs	0.0	8137.1	6751.8	13158.2	16458.5	5420.6	0.0	49934.2
30+	Obs	0	2	2	1	2	3	5	15
	Exp	0.00	0.52	1.01	1.65	2.06	2.98	8.70	16.91
	SMR (Sig)	---	382.3	198.3	60.7	97.1	100.6	57.5	88.7
	At Risk	0	309	406	579	862	1838	1115	3624
	Person Yrs	0.0	1400.8	1903.3	2687.6	3556.7	6781.6	13363.6	29701.7
TOTAL	Obs	0	9	6	7	4	4	5	35
	Exp	0.00	4.36	5.33	7.30	5.43	4.20	8.70	35.32
	SMR (Sig)	---	206.3	112.7	95.9	73.6	95.3	57.5	99.1
	At Risk	0	8065	5948	4909	3404	2006	1115	9625
	Person Yrs	0.0	58548.5	36615.5	31330.4	20015.2	12210.1	13363.6	172084.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0768

Table A13.2

Standardized Mortality Ratios for Emphysema by Time Since First Employment and Cumulative Employment for Workers in the Horizontal Soderberg

Cause of Death: EMPHYSEMA(528=527.1)

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.61	0.00	0.00	0.00	0.00	0.00	0.61
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	6318	0	0	0	0	0	6318
	Person Yrs	0.0	27931.6	0.0	0.0	0.0	0.0	0.0	27933.7
10-19	Obs	0	1	2	1	0	0	0	4
	Exp	0.00	0.59	1.79	1.86	0.00	0.00	0.00	4.25
	SMR (Sig)	---	168.2	111.5	53.8	---	---	---	94.2
	At Risk	0	3908	4750	3700	0	0	0	6147
	Person Yrs	0.0	10420.3	25051.8	16205.8	0.0	0.0	0.0	51678.0
20-29	Obs	0	1	3	5	3	0	0	12
	Exp	0.00	0.31	0.59	1.53	2.09	0.41	0.00	4.94
	SMR (Sig)	---	321.6	512.0 *	325.8 *	143.2	---	---	242.8 *
	At Risk	0	468	515	2330	2167	364	0	4509
	Person Yrs	0.0	1053.3	1891.7	6315.6	11415.0	1490.2	0.0	23006.6
30+	Obs	0	0	0	0	1	0	0	1
	Exp	0.00	0.05	0.06	0.18	0.24	0.30	0.15	0.98
	SMR (Sig)	---	---	---	---	416.6	---	---	101.9
	At Risk	0	35	31	77	123	258	84	535
	Person Yrs	0.0	146.6	133.8	255.5	457.8	821.0	456.5	2261.1
TOTAL	Obs	0	2	5	6	4	0	0	17
	Exp	0.00	1.56	2.44	3.57	2.33	0.72	0.15	10.78
	SMR (Sig)	---	127.9	205.3	167.9	171.3	---	---	157.7
	At Risk	0	6533	4793	3812	2177	376	84	6534
	Person Yrs	0.0	40351.8	27077.4	22786.9	11872.8	2311.2	456.5	104090.8

* Significant at 5% Level; ** Significant at 1% Level

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Table A13.3

Standardized Mortality Ratios for Emphysema
by Time Since First Employment and Cumulative Employment
for Workers in the Vertical Soderberg

Cause of Death: EMPHYSEMA(528=527.1)

Latency		Cumulative-Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	1	0	0	0	0	0	1
	Exp	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.14
	SMR (Sig)	---	693.1	---	---	---	---	---	698.0
	At Risk	0	1342	0	0	0	0	0	1342
	Person Yrs	0.0	6036.5	0.0	0.0	0.0	0.0	0.0	6036.5
10-19	Obs	0	1	0	0	0	0	0	1
	Exp	0.00	0.23	0.39	0.39	0.00	0.00	0.00	1.01
	SMR (Sig)	---	427.2	---	---	---	---	---	98.6
	At Risk	0	1134	1006	817	0	0	0	1316
	Person Yrs	0.0	2720.0	5349.2	3359.9	0.0	0.0	0.0	11429.0
20-29	Obs	0	0	0	1	0	0	0	1
	Exp	0.00	0.22	0.15	0.43	0.48	0.01	0.00	1.29
	SMR (Sig)	---	---	---	233.4	---	---	---	77.3
	At Risk	0	150	89	744	516	14	0	1038
	Person Yrs	0.0	889.6	404.8	1758.1	3204.8	57.7	0.0	6314.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.00	0.01	0.01	0.01	0.01	0.05	0.09
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	0	2	3	7	14	11	26
	Person Yrs	0.0	0.0	16.1	7.5	37.8	38.9	94.4	194.7
TOTAL	Obs	0	2	0	1	0	0	0	3
	Exp	0.00	0.59	0.56	0.83	0.49	0.02	0.05	2.54
	SMR (Sig)	---	337.3	---	121.1	---	---	---	118.1
	At Risk	0	1360	1008	826	516	18	11	1369
	Person Yrs	0.0	9646.1	5770.1	5125.5	3242.6	96.6	94.4	23975.5

* Significant at 5% Level; ** Significant at 1% Level

511971 0770

Table A13.4

Standardized Mortality Ratios for Emphysema
by Time Since First Employment and Cumulative Employment
for Workers in Plant #3

Cause of Death: EMPHYSEMA(528=527.1)

Latency		Cumulative-Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	1182	0	0	0	0	0	1182
	Person Yrs	0.0	3174.9	0.0	0.0	0.0	0.0	0.0	3174.9
10-19	Obs	0	0	0	1	0	0	0	1
	Exp	0.00	0.10	0.30	0.32	0.00	0.00	0.00	0.73
	SMR (Sig)	---	---	---	308.8	---	---	---	137.1
	At Risk	0	1295	1581	1183	0	0	0	2027
	Person Yrs	0.0	4490.6	7357.4	4517.8	0.0	0.0	0.0	16365.8
20-29	Obs	0	0	0	4	0	0	0	4
	Exp	0.00	0.22	0.54	0.92	1.06	0.78	0.00	3.52
	SMR (Sig)	---	---	---	436.1 *	---	---	---	113.6
	At Risk	0	297	554	1188	1233	928	0	2132
	Person Yrs	0.0	1977.0	3069.6	4331.1	6040.3	3363.6	0.0	18781.6
30+	Obs	0	0	0	0	2	3	4	9
	Exp	0.00	0.07	0.34	0.77	0.84	1.70	4.00	7.70
	SMR (Sig)	---	---	---	---	239.3	177.0	100.1	116.9
	At Risk	0	76	220	263	330	857	666	1744
	Person Yrs	0.0	252.8	959.9	1385.1	1452.5	3378.2	6954.9	14383.5
TOTAL	Obs	0	0	0	5	2	3	4	14
	Exp	0.00	0.41	1.19	2.01	1.89	2.47	4.00	11.97
	SMR (Sig)	---	---	---	249.0	105.7	121.3	100.1	117.0
	At Risk	0	1583	1715	1508	1287	1080	666	2418
	Person Yrs	0.0	9855.3	11386.9	10234.0	7492.8	6741.8	6954.9	52705.8

* Significant at 5% Level; ** Significant at 1% Level

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Table A13.5

Standardized Mortality Ratios for Emphysema
by Time Since First Employment and Cumulative Employemnt
for Workers in Plant #12

Cause of Death: EMPHYSEMA(528=527.1)

Latency		Cumulative-Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.24
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	1832	0	0	0	0	0	1832
	Person Yrs	0.0	7755.0	0.0	0.0	0.0	0.0	0.0	7755.2
10-19	Obs	0	2	3	0	0	0	0	5
	Exp	0.00	0.30	1.06	0.71	0.00	0.00	0.00	2.06
	SMR (Sig)	---	673.4	284.2	---	---	---	---	242.4
	At Risk	0	1588	1486	1071	0	0	0	1847
	Person Yrs	0.0	3677.1	8092.1	4123.6	0.0	0.0	0.0	15892.8
20-29	Obs	0	1	3	4	0	0	0	8
	Exp	0.00	0.12	0.57	1.12	1.12	0.28	0.00	3.20
	SMR (Sig)	---	831.0	530.7 *	358.1	---	---	---	249.7 *
	At Risk	0	78	282	1017	637	239	0	1384
	Person Yrs	0.0	394.6	1005.3	2895.5	3968.1	1013.6	0.0	9357.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.01	0.02	0.06	0.09	0.09	0.00	0.27
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	0	15	26	44	112	210	0	407
	Person Yrs	0.0	19.7	31.7	52.3	123.3	247.4	0.0	474.4
TOTAL	Obs	0	3	6	4	0	0	0	13
	Exp	0.00	0.67	1.65	1.88	1.21	0.36	0.00	5.78
	SMR (Sig)	---	445.8	364.6 *	212.4	---	---	---	225.0 *
	At Risk	0	1883	1489	1104	637	239	0	1883
	Person Yrs	0.0	11846.4	9209.1	7071.5	4091.5	1261.0	0.0	33479.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0772

Table A13.6

Standardized Mortality Ratios for Emphysema
by Time Since First Employment and Cumulative Employment
for Potroom Workers in the Prebake Process

Cause of Death: EMPHYSEMA(528=527.1)

Latency		Cumulative Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.44	0.27	0.00	0.00	0.00	0.00	0.00	0.71
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	2996	2622	0	0	0	0	0	4481
	Person Yrs	10223.5	10888.5	0.0	0.0	0.0	0.0	0.0	21112.0
10-19	Obs	4	1	1	0	0	0	0	6
	Exp	1.57	0.80	0.90	0.65	0.00	0.00	0.00	3.92
	SMR (Sig)	254.1	125.5	111.3	---	---	---	---	153.0
	At Risk	2176	2665	1979	1392	0	0	0	5041
	Person Yrs	15111.0	9255.0	10256.7	5249.7	0.0	0.0	0.0	39872.4
20-29	Obs	1	2	1	1	0	0	0	5
	Exp	2.44	0.91	0.76	1.14	1.01	0.36	0.00	6.62
	SMR (Sig)	41.0	220.0	130.8	89.1	---	---	---	75.5
	At Risk	1484	679	569	1472	919	439	0	4116
	Person Yrs	10154.0	3913.3	2863.4	4544.1	4819.0	1575.3	0.0	27869.1
30+	Obs	6	1	2	0	0	0	0	9
	Exp	3.65	0.54	0.49	0.46	0.40	0.72	2.40	8.65
	SMR (Sig)	164.6	185.7	411.0	---	---	---	---	104.0
	At Risk	764	163	159	156	223	496	281	1896
	Person Yrs	6316.4	993.2	982.2	799.2	905.8	1714.3	3522.2	15233.4
TOTAL	Obs	11	4	4	1	0	0	0	20
	Exp	8.11	2.51	2.15	2.24	1.41	1.08	2.40	19.90
	SMR (Sig)	135.7	159.2	186.1	44.6	---	---	---	100.5
	At Risk	3792	3059	2122	1599	961	530	281	5937
	Person Yrs	41805.0	25049.9	14102.4	10592.9	5724.8	3289.6	3522.2	104086.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0773

Table A13.7

Standardized Mortality Ratios for Emphysema by Time Since First Employment and Cumulative Employment for Potroom Workers in the Horizontal Soderberg

Cause of Death: EMPHYSEMA(528=527.1)

Latency		Cumulative-Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.24	0.22	0.00	0.00	0.00	0.00	0.00	0.46
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	2902	2890	0	0	0	0	0	4239
	Person Yrs	8172.9	12163.0	0.0	0.0	0.0	0.0	0.0	20335.9
10-19	Obs	1	1	1	0	0	0	0	3
	Exp	0.73	0.50	0.77	0.59	0.00	0.00	0.00	2.59
	SMR (Sig)	137.4	199.3	130.0	---	---	---	---	116.1
	At Risk	1106	2199	2092	1443	0	0	0	4033
	Person Yrs	8627.7	7947.1	11489.5	5972.9	0.0	0.0	0.0	34037.0
20-29	Obs	0	4	3	2	2	0	0	11
	Exp	0.51	0.38	0.47	0.69	0.67	0.15	0.00	2.87
	SMR (Sig)	---	1044.6 **	644.1 *	289.4	297.5	---	---	382.6 **
	At Risk	613	457	482	1103	754	160	0	2907
	Person Yrs	2650.9	1081.0	1976.3	3464.9	3938.5	659.3	0.0	14570.0
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.04	0.05	0.08	0.11	0.09	0.13	0.05	0.55
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	33	34	36	61	78	138	28	375
	Person Yrs	109.7	120.5	159.4	230.9	256.2	452.5	144.5	1481.8
TOTAL	Obs	1	5	4	2	2	0	0	14
	Exp	1.52	1.15	1.32	1.38	0.76	0.28	0.05	6.47
	SMR (Sig)	65.8	434.7 *	303.3	144.5	262.6	---	---	216.5 *
	At Risk	2954	3085	2121	1524	758	176	28	4361
	Person Yrs	19561.2	22119.6	13625.2	9668.7	4194.8	1110.8	144.5	70124.8

* Significant at 5% Level; ** Significant at 1% Level

511971 0774

Table A13.8

Standardized Mortality Ratios for Emphysema
by Time Since First Employment and Cumulative Employment
for Potroom Workers in the Vertical Soderberg

Cause of Death: EMPHYSEMA(528=527.1)

Latency		Cumulative-Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.06	0.03	0.00	0.00	0.00	0.00	0.00	0.09
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	529	638	0	0	0	0	0	892
	Person Yrs	1632.1	2673.5	0.0	0.0	0.0	0.0	0.0	4305.6
10-19	Obs	0	1	0	0	0	0	0	1
	Exp	0.21	0.06	0.12	0.13	0.00	0.00	0.00	0.53
	SMR (Sig)	---	1676.5	---	---	---	---	---	150.5
	At Risk	249	586	508	415	0	0	0	871
	Person Yrs	2072.5	1535.4	2738.6	1514.1	0.0	0.0	0.0	7961.7
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.15	0.06	0.04	0.17	0.16	0.00	0.00	0.60
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	146	83	67	407	241	3	0	702
	Person Yrs	840.6	476.7	267.6	1105.4	1450.0	8.4	0.0	4148.7
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.04
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	1	0	1	2	2	5	3	8
	Person Yrs	8.5	0.0	20.6	11.1	8.6	15.2	20.9	85.0
TOTAL	Obs	0	1	0	0	0	0	0	1
	Exp	0.42	0.15	0.18	0.31	0.18	0.01	0.01	1.26
	SMR (Sig)	---	669.6	---	---	---	---	---	79.4
	At Risk	536	649	510	430	242	5	3	905
	Person Yrs	4553.7	4686.6	3026.9	2730.6	1458.6	23.6	20.9	16501.0

Significant at 5% Level; ** Significant at 1% Level

511971 0775

Table A13.9

Standardized Mortality Ratios for Emphysema
by Time Since First Employment and Cumulative Employment
for Potroom Workers in Plant #3

Cause of Death: EMPHYSEMA(528=527.1)

Latency		Cumulative-Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Cbs	0	0	0	0	0	0	0	0
	Exp	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.06
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	324	702	0	0	0	0	0	883
	Person Yrs	1190.7	2003.6	0.0	0.0	0.0	0.0	0.0	3194.3
10-19	Cbs	0	0	1	0	0	0	0	1
	Exp	0.12	0.10	0.21	0.19	0.00	0.00	0.00	0.62
	SMR (Sig)	---	---	483.6	---	---	---	---	161.6
	At Risk	281	646	846	649	0	0	0	1315
	Person Yrs	2120.5	2422.0	4194.0	2563.5	0.0	0.0	0.0	11300.0
20-29	Cbs	0	0	0	1	1	0	0	2
	Exp	0.44	0.18	0.36	0.42	0.59	0.44	0.00	2.44
	SMR (Sig)	---	---	---	235.7	168.2	---	---	82.0
	At Risk	297	182	239	622	664	519	0	1418
	Person Yrs	2262.0	1261.6	1487.8	1859.6	3363.8	1909.9	0.0	12144.7
30+	Cbs	0	0	0	0	0	2	3	5
	Exp	0.77	0.17	0.22	0.32	0.33	0.90	1.66	4.37
	SMR (Sig)	---	---	---	---	---	222.0	180.8	114.3
	At Risk	156	59	108	106	130	468	317	1032
	Person Yrs	1339.4	365.5	488.5	530.8	524.9	1821.9	3063.6	8134.7
TOTAL	Cbs	0	0	1	1	1	2	3	8
	Exp	1.37	0.48	0.79	0.93	0.93	1.34	1.66	7.49
	SMR (Sig)	---	---	126.9	107.4	108.0	149.6	180.8	106.8
	At Risk	500	862	891	765	690	573	317	1579
	Person Yrs	6912.7	6052.8	6170.3	4953.9	3888.7	3731.8	3063.6	34773.7

* Significant at 5% Level; ** Significant at 1% Level

511971 0776

Table A13.10

Standardized Mortality Ratios for Emphysema
by Time Since First Employment and Cumulative Employment
for Potroom Workers in Plant #12

Cause of Death: EMPHYSEMA(528=527.1)

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.17	0.09	0.00	0.00	0.00	0.00	0.00	0.25
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	893	754	0	0	0	0	0	1432
	Person Yrs	3453.2	3030.7	0.0	0.0	0.0	0.0	0.0	6484.0
10-19	Obs	4	2	0	0	0	0	0	6
	Exp	0.76	0.23	0.38	0.22	0.00	0.00	0.00	1.59
	SMR (Sig)	529.6 *	882.0 *	---	---	---	---	---	378.4 *
	At Risk	657	748	574	339	0	0	0	1413
	Person Yrs	5117.2	2574.8	3249.5	1333.6	0.0	0.0	0.0	12275.0
20-29	Obs	2	0	2	1	0	0	0	5
	Exp	0.70	0.23	0.32	0.46	0.37	0.05	0.00	2.14
	SMR (Sig)	285.9	---	621.3	217.1	---	---	---	233.4
	At Risk	398	136	197	339	179	48	0	1052
	Person Yrs	2224.3	856.2	947.1	1282.7	1212.4	195.1	0.0	6717.7
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.03	0.02	0.02	0.03	0.04	0.02	0.00	0.15
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	67	40	18	40	46	44	0	255
	Person Yrs	66.9	43.3	19.3	48.3	48.0	49.2	0.0	275.0
TOTAL	Obs	6	2	2	1	0	0	0	11
	Exp	1.65	0.57	0.72	0.71	0.41	0.07	0.00	4.13
	SMR (Sig)	362.8 *	352.8	277.3	140.8	---	---	---	266.3 **
	At Risk	911	835	578	356	179	48	0	1467
	Person Yrs	10861.7	6504.9	4215.9	2664.5	1260.4	244.3	0.0	25751.7

* Significant at 5% Level; ** Significant at 1% Level

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Table A13.11

Standardized Mortality Ratios for Emphysema
by Time Since First Employment and Cumulative Employment
for Carbon Department Workers in the Prebake Process

Cause of Death: EMPHYSEMA(528=527.1)

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	2	0	0	0	0	0	0	2
	Exp	0.85	0.17	0.00	0.00	0.00	0.00	0.00	1.02
	SMR (Sig)	234.9	---	---	---	---	---	---	196.7
	At Risk	2169	934	0	0	0	0	0	2698
	Person Yrs	13033.0	3863.0	0.0	0.0	0.0	0.0	0.0	16916.0
10-19	Obs	4	0	0	0	0	0	0	4
	Exp	1.59	0.39	0.40	0.23	0.00	0.00	0.00	2.60
	SMR (Sig)	253.6	---	---	---	---	---	---	153.9
	At Risk	1979	949	606	379	0	0	0	2986
	Person Yrs	17666.1	3309.8	3196.1	1498.6	0.0	0.0	0.0	20670.9
20-29	Obs	1	2	1	0	0	0	0	4
	Exp	1.59	0.34	0.30	0.41	0.37	0.10	0.00	3.11
	SMR (Sig)	62.8	587.7	329.2	---	---	---	---	128.6
	At Risk	995	244	175	385	261	115	0	1788
	Person Yrs	6539.9	1482.6	897.3	1210.3	1402.5	376.5	0.0	11909.0
30+	Obs	4	0	0	0	0	0	1	5
	Exp	2.52	0.25	0.11	0.21	0.16	0.34	0.55	4.17
	SMR (Sig)	158.7	---	---	---	---	---	181.0	119.9
	At Risk	481	70	46	47	57	133	68	800
	Person Yrs	4353.4	470.8	204.9	284.0	246.2	580.5	804.3	6944.2
TOTAL	Obs	11	2	1	0	0	0	1	15
	Exp	6.54	1.15	0.81	0.88	0.53	0.44	0.55	10.89
	SMR (Sig)	168.2	174.3	123.4	---	---	---	181.0	137.7
	At Risk	2913	1091	637	437	274	140	68	3550
	Person Yrs	36592.5	9146.1	4298.4	2993.2	1648.7	957.0	804.3	56440.1

* Significant at 5% Level; ** Significant at 1% Level

511971 0778

Table A13.12

Standardized Mortality Ratios for Emphysema by Time Since First Employment and Cumulative Employment for Carbon Department Workers in the Horizontal Soderberg

Cause of Death: EMPHYSEMA(528=527.1)

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.38	0.06	0.00	0.00	0.00	0.00	0.00	0.44
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	1630	300	0	0	0	0	0	1682
	Person Yrs	9392.0	1251.8	0.0	0.0	0.0	0.0	0.0	10643.6
10-19	Obs	2	1	0	0	0	0	0	3
	Exp	0.94	0.16	0.11	0.06	0.00	0.00	0.00	1.26
	SMR (Sig)	213.8	637.7	---	---	---	---	---	237.2
	At Risk	1162	263	168	106	0	0	0	1451
	Person Yrs	8882.3	1207.8	1007.6	419.9	0.0	0.0	0.0	11517.5
20-29	Obs	4	0	0	0	0	0	0	4
	Exp	0.71	0.09	0.03	0.06	0.05	0.01	0.00	0.95
	SMR (Sig)	564.7 *	---	---	---	---	---	---	421.9 *
	At Risk	560	84	45	60	45	2	0	781
	Person Yrs	2704.5	366.6	161.6	234.0	227.3	9.6	0.0	3703.5
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.03	0.00	0.00	0.00	0.00	0.01	0.00	0.05
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	38	2	1	1	1	2	0	45
	Person Yrs	89.1	1.3	1.4	6.6	0.1	11.6	0.0	109.1
TOTAL	Obs	6	1	0	0	0	0	0	7
	Exp	2.06	0.31	0.14	0.13	0.05	0.01	0.00	2.70
	SMR (Sig)	291.4 *	322.7	---	---	---	---	---	258.9 *
	At Risk	1635	328	169	109	45	2	0	1687
	Person Yrs	21066.8	2827.5	1170.6	660.4	227.4	21.2	0.0	25973.9

* Significant at 5% Level; ** Significant at 1% Level

511971 0779

Table A13.13

Standardized Mortality Ratios for Emphysema
by Time Since First Employment and Cumulative Employment
for Carbon Department Workers in the Vertical Soderberg

Cause of Death: EMPHYSEMA(528=527.1)

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.04
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	305	59	0	0	0	0	0	401
	Person Yrs	1756.2	266.5	0.0	0.0	0.0	0.0	0.0	2022.7
10-19	Obs	1	0	0	1	0	0	0	2
	Exp	0.20	0.02	0.03	0.02	0.00	0.00	0.00	0.27
	SMR (Sig)	493.8	---	---	4799.3 *	---	---	---	749.7
	At Risk	336	57	31	25	0	0	0	395
	Person Yrs	3066.5	158.1	166.2	101.1	0.0	0.0	0.0	3531.9
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.29	0.01	0.02	0.03	0.02	0.00	0.00	0.36
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	257	11	5	22	11	0	0	305
	Person Yrs	1703.2	54.6	21.9	71.6	69.5	0.0	0.0	1920.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	1	0	0	0	0	0	0	1
	Person Yrs	8.5	0.0	0.0	0.0	0.0	0.0	0.0	8.5
TOTAL	Obs	1	0	0	1	0	0	0	2
	Exp	0.52	0.04	0.04	0.05	0.02	0.00	0.00	0.67
	SMR (Sig)	191.9	---	---	1927.2	---	---	---	296.9
	At Risk	386	61	31	26	11	0	0	492
	Person Yrs	6534.5	519.2	188.1	172.6	69.5	0.0	0.0	7484.0

* Significant at 5% Level; ** Significant at 1% Level

511971 0780

Table A13.14

Standardized Mortality Ratios for Emphysema
by Time Since First Employment and Cumulative Employment
for Carbon Department Workers in Plant #3

Cause of Death: EMPHYSEMA(528=527.1)

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	1	0	0	0	0	0	0	1
	Exp	0.08	0.01	0.00	0.00	0.00	0.00	0.00	0.08
	SMR (Sig)	1294.8	---	---	---	---	---	---	1176.5
	At Risk	405	203	0	0	0	0	0	554
	Person Yrs	1937.0	670.4	0.0	0.0	0.0	0.0	0.0	2607.4
10-19	Obs	1	0	0	0	0	0	0	1
	Exp	0.32	0.04	0.08	0.05	0.00	0.00	0.00	0.49
	SMR (Sig)	316.3	---	---	---	---	---	---	204.1
	At Risk	470	212	180	119	0	0	0	749
	Person Yrs	3605.8	901.9	1004.7	468.3	0.0	0.0	0.0	5980.7
20-29	Obs	1	0	0	1	0	0	0	2
	Exp	0.76	0.10	0.11	0.14	0.16	0.09	0.00	1.36
	SMR (Sig)	131.5	---	---	708.5	---	---	---	146.7
	At Risk	427	89	77	109	110	73	0	706
	Person Yrs	3448.8	673.6	464.1	437.8	585.5	294.7	0.0	5904.5
30+	Obs	1	0	0	0	0	1	0	2
	Exp	1.14	0.16	0.06	0.07	0.11	0.12	0.20	1.86
	SMR (Sig)	88.1	---	---	---	---	865.1	---	107.6
	At Risk	297	40	34	27	33	60	36	495
	Person Yrs	2205.3	316.0	157.4	146.5	165.3	221.7	357.8	3569.8
TOTAL	Obs	4	0	0	1	0	1	0	6
	Exp	2.29	0.31	0.26	0.27	0.27	0.21	0.20	3.80
	SMR (Sig)	174.7	---	---	374.4	---	483.1	---	158.0
	At Risk	610	279	196	150	115	79	36	865
	Person Yrs	11196.9	2562.0	1626.2	1052.6	750.8	516.3	357.8	18062.5

* Significant at 5% Level; ** Significant at 1% Level

511971 0781

Table A13.15

Standardised Mortality Ratios for Emphysema
by Time Since First Employment and Cumulative Employment
for Carbon Department Workers in Plant #12

Cause of Death: EMPHYSEMA(528=527.1)

Latency		Cumulative-Exposure 0- 5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.29	0.05	0.00	0.00	0.00	0.00	0.00	0.34
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	790	316	0	0	0	0	0	899
	Person Yrs	3641.8	1240.4	0.0	0.0	0.0	0.0	0.0	4882.2
10-19	Obs	1	0	0	0	0	0	0	1
	Exp	0.64	0.14	0.20	0.10	0.00	0.00	0.00	1.08
	SMR (Sig)	156.9	---	---	---	---	---	---	92.5
	At Risk	509	315	228	141	0	0	0	816
	Person Yrs	3821.7	1110.2	1282.2	503.8	0.0	0.0	0.0	6718.0
20-29	Obs	3	1	1	1	0	0	0	6
	Exp	0.41	0.11	0.15	0.20	0.11	0.02	0.00	1.00
	SMR (Sig)	738.6 *	900.5	684.4	488.0	---	---	---	602.0 **
	At Risk	270	59	71	142	69	13	0	528
	Person Yrs	1440.2	312.9	345.7	563.6	426.2	55.4	0.0	3143.9
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.06
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	36	8	9	14	8	9	0	84
	Person Yrs	39.4	10.0	9.5	17.2	7.4	10.5	0.0	94.1
TOTAL	Obs	4	1	1	1	0	0	0	7
	Exp	1.35	0.32	0.36	0.32	0.11	0.02	0.00	2.47
	SMR (Sig)	296.8	316.7	281.3	316.5	---	---	---	283.1 *
	At Risk	805	348	229	152	69	13	0	914
	Person Yrs	8943.1	2673.5	1637.5	1084.6	433.6	65.9	0.0	14838.1

* Significant at 5% Level; ** Significant at 1% Level

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Table A13.16

Standardized Mortality Ratios for Emphysema by Time Since First Employment and Cumulative Employment for Potroom and Carbon Department Workers in the Prebake Process

Cause of Death: EMPHYSEMA(528=527.1)

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	1	0	0	0	0	0	0	1
	Exp	0.45	0.36	0.00	0.00	0.00	0.00	0.00	0.81
	SMR (Sig)	224.5	---	---	---	---	---	---	123.9
	At Risk	2647	3550	0	0	0	0	0	5173
	Person Yrs	8799.5	14760.3	0.0	0.0	0.0	0.0	0.0	23567.8
10-19	Obs	2	2	1	0	0	0	0	5
	Exp	1.34	1.01	1.20	0.93	0.00	0.00	0.00	4.48
	SMR (Sig)	149.5	198.0	83.4	---	---	---	---	111.6
	At Risk	1974	3588	2645	1080	0	0	0	9285
	Person Yrs	13045.9	12114.3	13582.0	7103.2	0.0	0.0	0.0	45845.4
20-29	Obs	1	4	1	2	0	0	0	8
	Exp	2.06	1.12	0.93	1.59	1.46	0.47	0.00	7.63
	SMR (Sig)	48.6	356.6	107.2	126.1	---	---	---	104.9
	At Risk	1274	856	734	1996	1270	582	0	4708
	Person Yrs	8964.2	4886.7	3627.7	6101.8	6623.9	2055.9	0.0	32340.2
30+	Obs	8	1	2	0	0	0	1	12
	Exp	3.44	0.69	0.49	0.65	0.65	1.07	3.16	10.14
	SMR (Sig)	232.3 *	145.9	411.3	---	---	---	31.6	118.3
	At Risk	722	209	190	220	326	661	376	2213
	Person Yrs	6032.5	1302.4	1010.9	1137.6	1354.2	2481.8	4657.7	17977.0
TOTAL	Obs	12	7	4	2	0	0	1	26
	Exp	7.29	3.18	2.62	3.17	2.11	1.54	3.16	23.06
	SMR (Sig)	164.7	220.2	152.8	63.1	---	---	31.6	112.8
	At Risk	3379	4136	2823	2179	1334	726	376	0956
	Person Yrs	36842.1	33071.6	18220.5	14422.6	7978.1	4537.7	4657.7	119730.3

* Significant at 5% Level; ** Significant at 1% Level

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Table A13.17

Standardized Mortality Ratios for Emphysema by Time Since First Employment and Cumulative Employment for Potroom and Carbon Department Workers in the Horizontal Soderberg

Cause of Death: EMPHYSEMA(520-527.1)

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.20	0.25	0.00	0.00	0.00	0.00	0.00	0.45
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	2690	3210	0	0	0	0	0	4[illegible]
	Person Yrs	7129.3	13633.1	0.0	0.0	0.0	0.0	0.0	20761.4
10-19	Obs	0	1	2	0	0	0	0	3
	Exp	0.62	0.55	0.86	0.70	0.00	0.00	0.00	2.73
	SMR (Sig)	---	182.7	233.5	---	---	---	---	110.[illegible]
	At Risk	1040	2371	2328	1669	0	0	0	4191
	Person Yrs	7570.0	8356.8	12742.3	6979.9	0.0	0.0	0.0	35649.8
20-29	Obs	0	4	1	4	2	0	0	11
	Exp	0.45	0.41	0.44	0.77	0.80	0.19	0.00	3.06
	SMR (Sig)	---	971.1 **	227.5	519.2 *	249.5	---	---	360.0 **
	At Risk	546	483	468	1234	877	195	0	3074
	Person Yrs	2279.6	1950.7	1893.8	3772.3	4637.3	768.6	0.0	15332.3
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.03	0.05	0.05	0.11	0.09	0.15	0.06	0.56
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	25	31	32	55	80	156	34	378
	Person Yrs	80.7	112.0	142.1	213.2	256.5	510.7	176.3	1499.5
TOTAL	Obs	0	5	3	4	2	0	0	14
	Exp	1.30	1.25	1.36	1.59	0.89	0.34	0.06	6.79
	SMR (Sig)	---	399.3 *	221.1	251.9	224.3	---	---	206.2 *
	At Risk	2735	3389	2355	1737	991	203	34	4522
	Person Yrs	17067.1	24052.6	14760.3	10965.4	4893.8	1279.3	176.3	73243.0

* Significant at 5% Level; ** Significant at 1% Level

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Table A13.18

Standardized Mortality Ratios for Emphysema by Time Since First Employment and Cumulative Employment for Potroom and Carbon Department Workers in the Vertical Soderberg

Cause of Death: EMPHYSEMA(528=527.1)

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.09
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	340	711	0	0	0	0	0	945
	Person Yrs	1416.0	3114.1	0.0	0.0	0.0	0.0	0.0	4521.0
10-19	Obs	0	1	0	1	0	0	0	2
	Exp	0.18	0.08	0.14	0.17	0.00	0.00	0.00	0.57
	SMR (Sig)	---	1302.1	---	576.6	---	---	---	349.2
	At Risk	232	634	545	462	0	0	0	928
	Person Yrs	1991.1	1634.7	2945.6	1860.7	0.0	0.0	0.0	8332.1
20-29	Obs	0	0	0	0	0	0	0	0
	Exp	0.12	0.00	0.05	0.19	0.23	0.00	0.00	0.67
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	120	99	56	434	281	3	0	726
	Person Yrs	698.9	554.1	283.8	1071.7	1714.0	8.6	0.0	4331.1
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.04
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	2	0	1	2	2	5	3	9
	Person Yrs	17.0	0.0	20.6	11.1	8.6	15.2	20.9	93.5
TOTAL	Obs	0	1	0	1	0	0	0	2
	Exp	0.36	0.20	0.20	0.37	0.23	0.01	0.01	1.38
	SMR (Sig)	---	490.5	---	272.5	---	---	---	145.2
	At Risk	346	717	548	465	282	5	3	959
	Person Yrs	4023.9	5302.9	3250.0	2943.5	1722.7	23.8	20.9	17287.7

* Significant at 5% Level; ** Significant at 1% Level

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Table A13.19

Standardized Mortality Ratios for Emphysema by Time Since First Employment and Cumulative Employment for Potroom and Carbon Department Workers in Plant #3

Cause of Death: EMPHYSEMA(528=527.1)

Latency		Cumulative Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.05
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	318	858	0	0	0	0	0	1048
	Person Yrs	1088.3	2444.7	0.0	0.0	0.0	0.0	0.0	3533.0
10-19	Obs	0	0	0	1	0	0	0	1
	Exp	0.11	0.12	0.26	0.23	0.00	0.00	0.00	0.72
	SMR (Sig)	---	---	---	439.1	---	---	---	139.1
	At Risk	315	930	1025	774	0	0	0	1610
	Person Yrs	2236.4	3117.6	5125.6	3014.2	0.0	0.0	0.0	13493.8
20-29	Obs	0	0	0	2	1	0	0	3
	Exp	0.44	0.25	0.45	0.52	0.75	0.52	0.00	2.94
	SMR (Sig)	---	---	---	385.0	133.6	---	---	102.2
	At Risk	298	250	312	722	793	608	0	1695
	Person Yrs	2391.3	1744.0	1927.5	2342.7	4007.7	2237.0	0.0	14650.1
30+	Obs	0	0	0	0	0	2	4	6
	Exp	0.92	0.24	0.25	0.43	0.49	0.99	1.98	5.28
	SMR (Sig)	---	---	---	---	---	202.1	201.6	113.7
	At Risk	194	90	142	136	163	531	383	1265
	Person Yrs	1615.3	502.5	592.6	705.1	710.5	2076.7	3719.0	10001.7
TOTAL	Obs	0	0	0	3	1	2	4	10
	Exp	1.50	0.64	0.97	1.19	1.20	1.51	1.98	8.98
	SMR (Sig)	---	---	---	254.9	83.2	132.6	201.6	111.3
	At Risk	515	1101	1086	929	822	670	383	1911
	Person Yrs	7331.2	7808.8	7645.9	6142.0	4718.2	4313.7	3719.0	41679.6

* Significant at 5% Level; ** Significant at 1% Level

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Table A13.20

Standardized Mortality Ratios for Emphysema by Time Since First Employment and Cumulative Employment for Potroom and Carbon Department Workers in Plant #12

Cause of Death: EMPHYSEMA(528=527.1)

Latency		Cumulative-Exposure 0-5	5-10	10-15	15-20	20-25	25-30	30+	TOTAL
<10	Obs	0	0	0	0	0	0	0	0
	Exp	0.09	0.14	0.00	0.00	0.00	0.00	0.00	0.23
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	730	1130	0	0	0	0	0	1568
	Person Yrs	2196.6	4514.2	0.0	0.0	0.0	0.0	0.0	6710.8
10-19	Obs	3	1	0	0	0	0	0	4
	Exp	0.50	0.29	0.61	0.35	0.00	0.00	0.00	1.76
	SMR (Sig)	596.1 *	343.4	---	---	---	---	---	227.6
	At Risk	432	1072	841	520	0	0	0	1565
	Person Yrs	3277.1	3515.5	4819.3	1985.5	0.0	0.0	0.0	13597.5
20-29	Obs	1	1	3	3	0	0	0	8
	Exp	0.51	0.34	0.42	0.69	0.52	0.08	0.00	2.56
	SMR (Sig)	196.4	298.3	715.9 *	432.7	---	---	---	312.6 **
	At Risk	259	165	262	514	272	70	0	1101
	Person Yrs	1526.9	1053.2	1257.2	1934.1	1794.2	284.6	0.0	7850.2
30+	Obs	0	0	0	0	0	0	0	0
	Exp	0.04	0.03	0.02	0.04	0.05	0.02	0.00	0.20
	SMR (Sig)	---	---	---	---	---	---	---	---
	At Risk	63	45	26	53	60	59	0	306
	Person Yrs	71.8	49.2	27.6	62.6	64.6	67.4	0.0	343.3
TOTAL	Obs	4	2	3	3	0	0	0	12
	Exp	1.14	0.79	1.05	1.08	0.56	0.11	0.00	4.74
	SMR (Sig)	349.6	250.5	285.9	276.5	---	---	---	253.0 **
	At Risk	748	1198	844	542	272	70	0	1611
	Person Yrs	7072.5	9132.1	6104.1	3982.2	1858.8	352.0	0.0	20501.7

* Significant at 5% Level; ** Significant at 1% Level

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