

Table 1.—Summary of contamination history at Camp LeJeune, 1940-1985.

1940s	Base operations begin. Degreasing solvents are used and stored in underground storage tanks at Hadnot Point.
1954	Dry-cleaning operation near base.
1958	Base digs supply well for family housing at Tarawa Terrace near dry-cleaner's septic system.
1982	
April	New laboratory begins analyzing water for disinfection by-products. Unidentified contaminants interfere with analysis.
July	Contaminants detected and identified in two systems.
	Tarawa Terrace 102 ppb PCE Hadnot Point 1400 ppb TCE 15 ppb PCE
1984	
July	Navy samples supply wells located near underground storage tanks.
Nov	Navy notified that a supply well at Hadnot Point is contaminated with benzene.
Dec	Wells in Hadnot Point system sampled. Water drawn only from wells pumping on sampling date. Contaminated wells are taken off line. No contaminants detected in tap water.
1985	
January	
27	Accident at Holcomb Boulevard system.
29	Sampled tap water coming from Hadnot Point being supplied to Holcomb Boulevard.
31	Results of January 29 sampling received. Hadnot Point contamination similar to 1982 levels.
February	
4	Additional contaminated supply wells identified at Hadnot Point.
7	Contaminated wells at Hadnot Point and Tarawa Terrace shut off.
12	Water from Tarawa Terrace determined to contain no VOCs.
22	Water from Hadnot Point determined to contain no VOCs.

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Table 2.—Summary of exposure groups and the estimated concentrations of volatile organic compounds in drinking water.

Exposure Group	Water Distribution System	Housing Area Served	Contaminants	Estimated Contaminant Levels	Period of Exposure
PCE-exposed	Tarawa Terrace	Tarawa Terrace	Tetrachloroethylene Trichloroethylene 1,2-Dichloroethylene	215 ppb 8 ppb 12 ppb	1958-Feb 1985
Long-term TCE-exposed	Hadnot Point	Hospital Point	Trichloroethylene Dichloroethylene Benzene Methylene chloride Vinyl chloride	900-1400 ppb 321-407 ppb 35 ppb* 54 ppb 3 ppb†	? - Feb 1985 (Activities began in 1940s)
Short-term TCE-exposed	Hadnot Point	Midway Park, Berkeley Manor, Paradise Point, Watkins Village	Trichloroethylene Dichloroethylene	900-1148 ppb 321-407 ppb	Jan 27-Feb 7, 1985

* Estimated assuming a dilution factor of 20 from sampling data for well 602.

† Detection limit was 10 ppb.

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Table 3.—Concentrations of VOCs in finished water samples from Tarawa Terrace distribution system.

Sampling Date	Tetrachloroethylene (in ppb)	Trichloroethylene (in ppb)	1,2-Dichloroethylene (in ppb)
5/27/82	80	ND	NA
7/27/82	76	ND	NA
7/27/82	82	ND	NA
7/28/82	104	ND	NA
2/5/85	215	8.1*	12*
2/12/85†	ND*	ND*	ND*
2/19/85†	ND*	ND*	ND*

* Detection limit was 10 ppb.

† This sample was collected after the contaminated well was taken off line.

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Table 4.—Concentrations of VOCs in finished water samples from Hadnot Point distribution.

Sample Date	Sample Source	1,2-DCE (ppb)	PCE (ppb)	TCE (ppb)	Other
5/27/82	Hadnot Point Water System	NA	15	1400	NA
7/27/82	Hadnot Point Water Treatment Plant	NA	< 1	19	NA
7/27/82	Hadnot Point Water Treatment Plant	NA	< 1	21	NA
7/28/82	Hadnot Point Water System	NA	1.0	ND*	NA
12/4/84	Hadnot Point Water Treatment Plant	83	3.9	200	ND*
12/10/84	Hadnot Point Water Treatment Plant	2.3	ND*	2.3	ND*
12/13/84	Hadnot Point Water Treatment Plant	ND*	ND*	ND*	Methylene chloride 54 ppb
12/14/84 -12/19/84	Hadnot Point Water Treatment Plant	ND*	ND*	ND*	ND*
12/19/84	French Creek Building 540	ND*	ND*	1.2	ND*
1/29/85	Holcomb Blvd Water Treatment Plant†	ND*	ND*	339.8	ND*
1/29/85	Married Officers Quarters Bldg 2212†	ND*	ND*	1,040.9	ND*
1/31/85	Hadnot Point Water Treatment Plant	321	ND*	900	ND*
1/31/85	Berkeley Manor Housing Unit 5531†	335	ND*	905	ND*
1/31/85	Berkeley Manor Housing Unit 5677†	368.7	ND*	981	ND*

* Detection limit = 10 ppb.

† Normally supplied by Holcomb Boulevard; received Hadnot Point water during an emergency.

NA = Not analyzed

ND = Not detected

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Table 4.—Continued.

Sample Date	Sample Source	1,2-DCE (ppb)	PCE (ppb)	TCE (ppb)	Other
1/31/85	Paradise Point Officers Club†	332.4	ND*	890.1	ND*
1/31/85	Berkeley Manor Elementary School†	406.6	ND*	1148.4	ND*
1/31/85	Holcomb Blvd Water Treatment Plant†	7.6	ND*	26.8	ND*
2/5/85§	Hadnot Point Water Treatment Plant	150	7.5	429	vinyl chloride 2.9
2/7/85§	Hadnot Point Water Treatment Plant†	5.3	ND*	16.8	ND*
2/7/85§	Holcomb Blvd Water Treatment Plant†	< 2.0	ND*	< 2.0	ND*
2/7/85§	Berkeley Manor School†	44.8	ND*	135.1	ND*
2/7/85§	Married Officers Quarters 2204†	9	ND*	32.4	ND*
2/21/85§	Hadnot Point Water Treatment Plant	ND*	ND*	ND*	ND*
2/21/85§	Holcomb Boulevard Water Treatment Plant	ND*	ND*	ND*	ND*
4/22/85§	Hadnot Point Water Treatment Plant	ND*	ND*	ND*	ND*

* Detection limit = 10 ppb.

† Normally supplied by Holcomb Blvd; received Hadnot Point water during an emergency.

§ All contaminated wells closed by 2/4/85.

NA = Not Analyzed

ND = Not Detected

Table 5A.—Studies of late pregnancy outcomes conducted around hazardous waste sites; exposure defined based on proximity to sites.

Hazardous Waste Site	Sampling Frame and Exposure Ascertainment (Reference)	Confounders Measured	Outcome Studied (Outcome Definition)	Odds Ratio (95% CI) (# Exposed Cases)
Love Canal site Niagara Falls, NY Active dumping: 1920s-1953 Odors: through 1978	Birth records were sampled of white residents of Love Canal homeowners 1940-1978 for at least 9 months prior to birth compared to standard population (upstate New York infants). Exposed areas defined by proximity to site and to swale (37). Telephone logs and census were used to sample Love Canal households 1980 (homeowners and renters) compared to residents other parts of Niagara Falls. All pregnancies examined 1965-1977 (36).	Maternal age, medical history, smoking, alcohol, education, occupation Race, income, education, previous adverse pregnancy, medical history, alcohol, smoking	Low birth weight (weight on birth certificate <2,500g) Low birth weight parental interview (<2,500 g)	Swale area: 1.6 (1.0-2.3) (21)* Near canal: 0.8 (0.4-1.6) (8)* Homeowners: 3.1 (1.3-7.1) (14) Renters: 1.1 (0.5-2.3) (13)
Lipart landfill, Gloucester County, NJ Heaviest dumping: 1967-1969 Earliest odor complaints: 1970	Birth certificates of Manantia, Pitman, Glasboro, and Harrison, New Jersey, residents were reviewed for the years 1961-1985. Residents in the neighborhood adjacent to Lipart landfill compared to residents within the study area who lived > 1 km from the landfill (38).	Maternal age, education, race, parity, previous stillbirths, prenatal care, pregnancy complications, child's sex	Low birth weight birth certificate (<2,500g) Term low birth weight birth certificate (<2,500 g, ≥37 weeks)	1971-1975: 2.9 (1.5-5.3) (9) 1971-1975: 5.1 (2.5-10.6) (7)
Stringfellow landfill Riverside County, CA Active dumping odors Facilities in San Francisco area with evidence of off-site exposure.	Residents since 1980 near Pyrite Chimney compared to controls from Rubidoux. Identified through tax rolls; telephone books, etc. All pregnancies from 1955-1980 studied (39). Ecologic study. Mean birth weight per census tract analyzed. Singleton live births from birth records in San Francisco Bay Area 1983-1985 (40).	Age, ethnicity, income, education, occupation, smoking Maternal age, race, parity, education, income, child's sex	Low birth weight (<2,500 g as reported by family member) Mean birth weight (> 28-weeks from birth certificate)	High: 0.9 (0.3-2.7) (5) Low: 0.8 (0.2-3.9) (2) -.6 gram difference (-12.9-11.5) (6590)

Crude risk ratios and 95% confidence intervals were computed based on numbers provided in text.

CI = Confidence Interval

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Table 5B.—Studies examining late pregnancy outcomes among women exposed to TCE, PCE, or 1,2-DCE in drinking water.

Exposure and Concentration (ppb)	Sampling Frame and Exposure Ascertainment (Reference)	Confounders Measured	Outcome Studied (and Definition)	Odds Ratio (95% Confidence Interval) (# Exposed Cases)
TCE (6-267)* PCE (21)* Chloroform (12)*	Birth certificates were obtained for the years 1975-1979 among Woburn, Massachusetts, residents. Street address on the birth certificate was used to assign residence. Within East Woburn, a water distribution model was used to determine usage areas in which a high, moderate, or no proportion of water was supplied by contaminated wells during pregnancy.	Mother's age, education, and race and sex of infant	SGA (< 10th percentile for gestational age specific weight; determined from birth certificate)	High 3rd trimester exposure: 1.6 (0.9-2.8) (28) Moderate 3rd trimester exposure: 1.3 (0.8-2.1) (64)
TCE (6-267)* PCE (21)* Chloroform (12)*	Pregnancies 1960-1980 in Woburn, Massachusetts, identified by 1982 telephone census. Exposure measurements for supply wells for a single year combined with well usage logs for 30 years. Analysis by continuous estimate of dose in Woburn (43).	Maternal age, smoking, SES defined by census tract	Low birth weight (maternal report less than 6 pounds)	1.0 (0.6-1.8)† (16)
TCE (1.0)§ PCE (0.8)§ DCE (0.2)§	Singleton births and fetal deaths 1985-1988 in New Jersey towns identified by birth records. Monthly, quarterly, or semi-annual exposure measurements made of municipal systems. Maternal exposure based on residence shown on birth certificate (45).	Maternal age, race, education, parity, previous stillbirth or miscarriage, prenatal care, plurality	SGA (< 5th percentile for gestational age specific weight; determined from birth certificate)	TCE 1.0 (0.9-1.1) (396) PCE 1.0 (0.9-1.1) (419) DCE 1.1 (0.9-1.3) (168)

* Maximum values measured in supply wells.

† Crude risk ratios and 95% confidence intervals were computed based on numbers provided in text.

§ Mean values measured in tap water.

CI = Confidence Interval

Table 6.—Frequency of live births in each exposure group included in and eliminated from analyses.*

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Table 6.—Frequency of live births in each exposure group included in and eliminated from analyses.*

Characteristic	# (%) Unexposed	# (%) PCE-Exposed	# (%) Long-Term TCE-Exposed	# (%) Short-Term TCE-Exposed
Total live births	5,890	6,372	32	171
OBSERVATIONS ELIMINATED BECAUSE OF POOR DATA QUALITY				
Moved in/conceived when exposure was undefined	0 (0.0)	6 (0.1)	0 (0.0)	23 (13.5)
Exposure unknown because residential history missing during critical time†	0 (0.0)	4 (0.1)	0 (0.0)	3 (1.8)
Live birth weighing < 350 g	22 (0.4)	22 (0.3)	0 (0.0)	0 (0.0)
Last menstrual period missing	55 (0.9)	56 (0.9)	0 (0.0)	3 (1.8)
Gestational age > 45 weeks	151 (2.6)	172 (2.7)	1 (3.1)	1 (0.6)
Total N used in MBW analyses	5,681 (96.5)	6,131 (96.2)	31 (96.9)	141 (82.5)
Gestational age < 22 weeks§	2 (0.0)	8 (0.1)	0 (0.0)	0 (0.0)
Total N used in SGA analyses	5,679 (96.4)	6,123 (96.1)	31 (96.9)	141 (82.5)

* Individual observations might fall into more than one category.

† Contamination was last observed on February 7, 1985. For births occurring after February 7, 1985, residence at time of birth could not be used to assume imply residence for 1 week or more during exposure.

§ Excluded from SGA analyses.

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Table 7.—Distribution of demographic characteristics among live births to PCE-exposure and unexposed residents.

Characteristic	PCE-Exposed # (%)	Unexposed # (%)
N	6,131	5,681
Mother's Race		
White	4,349 (70.9)	4,487 (79.0)
Black	1,419 (23.1)	1,006 (17.7)
Other	363 (5.9)	188 (3.3)
Sex		
Female	3,062 (49.9)	2,778 (48.9)
Male	3,069 (50.1)	2,903 (51.1)
Year of Birth		
1968-1970	1,047 (17.1)	1,000 (17.6)
1971-1974	1,556 (25.4)	1,507 (26.5)
1975-1980	1,865 (30.4)	1,639 (28.9)
1981-1985	1,663 (27.1)	1,535 (27.0)
Rank and Paygrade		
No Card/Unknown	92 (1.5)	136 (2.4)
E1-E3	633 (10.3)	1,408 (24.7)
E4-E5	3,882 (63.3)	1,896 (33.4)
E6-E9	1,017 (16.6)	1,177 (20.7)
WO	25 (0.4)	67 (1.2)
O1-O3	482 (7.9)	793 (14.0)
O4 or higher	0 (0.0)	204 (3.6)
Parity		
1	1,864 (30.4)	2,223 (39.1)
2 or greater	4,262 (69.5)	3,454 (60.8)
Missing	5 (0.1)	4 (0.1)
Mother's Age (years)		
<20	761 (12.4)	1,235 (21.7)
20-24	3,483 (56.8)	2,406 (42.4)
25-29	1,449 (23.6)	1,349 (23.7)
30-34	366 (6.0)	527 (9.3)
35 +	72 (1.2)	164 (2.9)

Table 7.—Continued.

Characteristic	PCE exposed # (%)	Unexposed # (%)
N	6,131	5,681
Gestational Age		
20-23 weeks	11 (0.2)	10 (0.2)
24-27 weeks	18 (0.3)	19 (0.3)
28-32 weeks	102 (1.7)	78 (1.4)
33-36 weeks	382 (6.2)	348 (6.1)
37-40 weeks	3,526 (57.5)	3,310 (58.3)
41-42 weeks	1,610 (26.3)	1,528 (26.9)
43-45 weeks	482 (7.9)	388 (6.8)
Prenatal Care		
Inadequate	2,070 (33.8)	1,868 (32.9)
Intermediate	2,165 (35.3)	1,863 (32.8)
Adequate	1,228 (20.0)	1,313 (23.1)
Superadequate	285 (4.7)	268 (4.7)
Missing	383 (6.3)	369 (6.5)
Past Fetal Deaths*		
2 or more	254 (4.1)	210 (3.7)
1 or more	1,069 (17.4)	866 (15.2)
None	5,059 (82.5)	4,810 (84.7)
Not reported	3 (0.0)	5 (0.1)
Mother's Education		
0-8 years	168 (2.7)	133 (2.3)
9-11 years	1,333 (21.7)	1,221 (21.5)
12 years	3,327 (54.3)	2,770 (48.8)
13-15 years	979 (16.1)	955 (16.8)
16 or more years	321 (5.2)	600 (10.6)
Unknown	3 (0.0)	2 (0.0)
Father's Education		
0-8 years	57 (0.9)	41 (0.7)
9-11 years	671 (10.9)	702 (12.4)
12 years	4,291 (70.0)	3,342 (58.8)
13-15 years	657 (10.7)	593 (10.5)
16 or more years	448 (7.3)	997 (17.5)
Unknown	7 (0.1)	6 (0.1)

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Table 8.—Distribution of pregnancy outcomes among residents of PCE-exposed and unexposed housing.

Variable	PCE-Exposed	Unexposed	Mean Difference or Odds Ratio and 90% Confidence Interval
Birth weight in grams Mean (St Err)	n = 6,131 3,326 (7.2)	n = 5,681 3,351 (7.4)	-24 (-42, -7)
Frequency SGA/all births ≥ 23 weeks (%)	624/6,123 (10.2)	509/5,679 (9.0)	1.2 (1.0, 1.3)

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Table 9.—Association between duration of exposure to PCE and birth outcome.

Duration of Exposure*	N	MBW (St Err) in Grams	Mean Difference† (90% Confidence Interval)	Frequency SGA Births/All Births ≥ 22 Wks (%)	Odds Ratio (90% Confidence Interval)
Never exposed	5344	3352 (7.5)	0.0	488/5337 (9.1)	1.0
1-3 weeks	189	3346 (37.4)	18 (-40, 76)	15/189 (7.9)	0.9 (0.5, 1.3)
4-10 weeks	598	3293 (24.5)	-16 (-50, 18)	60/596 (10.1)	1.1 (0.9, 1.4)
11-20 weeks	917	3301 (18.8)	-30 (-58, -2)	84/914 (9.2)	1.0 (0.8, 1.2)
21-45 weeks	1555	3350 (13.8)	-29 (-51, -6)	168/1554 (10.8)	1.2 (1.0, 1.4)
Entire pregnancy and < 1 yr before LMP	1996	3326 (12.5)	-15 (-36, 6)	208/1994 (10.4)	1.2 (1.0, 1.3)
Entire pregnancy and ≥ 1 yr before LMP	608	3350 (21.7)	-18 (-52, 16)	61/608 (10.0)	1.1 (0.9, 1.4)

* Unless otherwise noted, duration of exposure is expressed in consecutive weeks before birth.

† Adjusted for gestational age.

MBW = mean birth weight

LMP = last menstrual period

St Err = standard error

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Table 10.--Distribution of pregnancy outcomes among mothers aged 35 years or older residing in PCE-exposed and unexposed housing.

Variable	PCE-Exposed	Unexposed	Mean Difference or Odds Ratio and 90% Confidence Interval
Birth weight in grams Mean (St Err)	n = 72 3,286 (72.0)	n = 164 3,497 (44.0)	-207 (-334, -79)*
Frequency (%) SGA/ all births \geq 22 weeks	11/72 (15.3)	8/164 (4.9)	3.9 (1.6, 9.8)†

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* Adjusted for gestational age and mother's race other than white or African-American.

† Adjusted for officer or warrant officer household; 2 observations were deleted due to missing values regarding officer's household.

St Err = standard error

SGA = small for gestational age.

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Table 11.—Distribution of birth outcomes to mothers with histories of fetal deaths residing in PCE-exposed and unexposed housing.

Variable	PCE-Exposed	Unexposed	Mean Difference or Odds Ratio and 90% Confidence Interval
Birth weight in grams Mean (St Err)	n = 1,069 3,284 (24.4)	n = 866 3,335 (18.7)	-51.1 (-96.8, -5.4)
Frequency SGA/ all births \geq 22 weeks (%)	148/1,067 (13.9)	70/866 (8.1)	1.6 (1.3, 2.1)*

*Adjusted for officer's or warrant officer's household. 11 observations deleted because of missing information regarding officer's household.
St Err = standard error
SGA = small for gestational age

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Table 12.---Association between duration of exposure to PCE and birth outcome among births to mothers with histories of fetal deaths.

Duration of Exposure*	N	MBW (St Err) in Grams	Mean Difference† (90% Confidence Interval)	Frequency SGA Births/ All Births ≥22 wks (%)	Odds Ratio (90% Confidence Interval)§
Never exposed	818	3,332 (21.3)	0	69/818 (8.4)	1.0
1-3 weeks	24	3,277 (123.9)	5 (-162, +173)	4/24 (16.7)	1.9 (0.8, 4.8)
4-10 weeks	73	3,183 (81.2)	-110 (-209, +12)	13/73 (17.8)	2.1 (1.2, 3.7)
11-20 weeks	131	3,318 (53.6)	2 (-74, +78)	19/130 (14.6)	1.7 (1.1, 2.7)
21-45 weeks	287	3,318 (32.6)	-73 (-128, -17)	36/287 (12.5)	1.4 (1.0, 2.0)
Entire pregnancy and < 1 yr before LMP	366	3,269 (33.8)	-55 (-106, -5)	48/368 (12.9)	1.4 (1.0, 2.0)
Entire pregnancy and ≥ 1 yr before LMP	136	3,236 (52.4)	-121 (-196, +46)	23/136 (16.9)	2.0 (1.3, 3.1)

§ Unless otherwise noted, duration of exposure is expressed in consecutive weeks before birth.

† Adjusted for gestational age.

§ Adjusted for officer or warrant officers household. One observations deleted because of missing values for officer or warrant officer's household.

MBW = mean birth weight

St Err = standard error

SGA = small for gestational age

LMP = last menstrual period

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Table 13.—Distribution of demographic characteristics among residents of long-term TCE-exposed and unexposed officers' housing.

Characteristic	Long-Term TCE-Exposed	Unexposed # (%)
N	31	997
Mother's Race		
White	29 (93.5)	960 (96.3)
Black	0 (0.0)	23 (2.3)
Other	2 (6.5)	14 (1.4)
Sex		
Female	19 (61.3)	500 (50.2)
Male	12 (38.7)	497 (49.8)
Year of Birth		
1968-1970	8 (25.8)	211 (21.2)
1971-1974	6 (19.4)	252 (25.3)
1975-1980	7 (22.6)	279 (28.0)
1981-1985	0 (32.3)	255 (25.6)
Rank and Paygrade		
Unknown	3 (9.7)	0
O1-O3	11 (35.5)	793 (79.5)
O4 or higher	17 (54.8)	203 (20.5)
Parity		
1	7 (22.6)	344 (34.6)
2 or greater	24 (77.4)	653 (65.5)
Mother's Age (years)		
< 20	0	2 (0.2)
20-24	3 (9.7)	275 (27.6)
25-29	18 (58.1)	512 (51.4)
30-34	10 (32.3)	160 (16.0)
35 +	0	48 (4.8)
Gestational Age		
20-23 weeks	0	1 (0.1)
24-27 weeks	0	2 (0.2)
28-32 weeks	0	7 (0.7)
33-36 weeks	0	32 (3.2)
37-40 weeks	23 (74.2)	613 (61.5)
41-42 weeks	7 (22.6)	305 (30.6)
43-45 weeks	1 (3.2)	37 (3.7)

Table 13.—Continued.

Characteristic	Long-Term TCE Exposed	Unexposed # (%)
N	31	997
Prenatal Care		
Inadequate	8 (25.9)	197 (19.8)
Intermediate	12 (38.7)	359 (36.1)
Adequate	10 (32.3)	298 (29.9)
Superadequate	1 (3.2)	51 (5.1)
Missing	0	92 (9.3)
Past Fetal Deaths*		
2 or more	2 (6.5)	44 (4.4)
1 or more	7 (22.6)	157 (15.7)
None	24 (77.4)	840 (84.3)
Mother's Education		
0-8 years		1 (0.1)
9-11 years		11 (1.1)
12 years	7 (21.9)	200 (20.1)
13-15 years	13 (40.6)	303 (30.4)
16 or more years	11 (35.5)	481 (48.2)
Unknown		1 (0.1)
Father's Education		
0-8 years	0	1 (0.1)
12 years	0	22 (2.2)
13-15 years	0	58 (5.8)
16 or more years	31 (100.0)	915 (91.8)
Unknown	0	1 (0.1)

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Table 14.—Distribution of pregnancy outcomes among residents of long-term TCE-exposed and unexposed officer's housing.

Variable	Long-Term TCE-Exposed	Unexposed	Mean Difference or Odds Ratio and 90% Confidence Interval
Birth weight in grams Mean (St Err)	n = 31 3,361 (71.8)	n = 997 3,469 (16.9)	-108 (-230, 13)
Frequency SGA/ all births \geq 22 weeks (%)	3/31 (9.7)	68/997 (6.8)	1.5 (0.5, 3.8)

St Err = standard error
SGA = small for gestational age

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Table 15.—Analysis of long-term TCE exposure and MBW by sex of infant and duration of residence in base housing.

	N	MBW (St Err)	Mean Difference (90% Confidence Interval)	One-Tailed p-Value
All Live Births				
Exposed	31	3,361 (71.8)	-139* (-277, -1)	.05
Unexposed	997	3,469 (16.9)		
All Males				
Exposed	12	3,213 (113.3)	-312* (-540, -85)	.01
Unexposed	497	3,527 (25.2)		
All Females				
Exposed	19	3,454 (88.3)	-4† (-171, +163)	.48
Unexposed	500	3,412 (22.3)		
Mothers lived on base ≥20 weeks before birth				
Both Sexes				
Exposed	21	3,352 (95.3)	-144§ (-486, +27)	.08
Unexposed	742	3,473 (19.8)		
Males				
Exposed	9	3,207 (143.6)	-367* (-632, -102)	.01
Unexposed	368	3,525 (30.3)		
Females				
Exposed	12	3,461 (122.9)	+26† (+196, +248)	1.0
Unexposed	374	3,423 (25.5)		

* Final model after adjustment for gestational age.

† Final model after adjustment for gestational age and military paygrade.

§ Final model after adjustment for gestational age, military paygrade, mothers 35 years or older, and year of birth.

MBW = mean birth weight

St Err = standard error

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Table 16.—Distribution of demographic characteristics among live births of residents of short-term TCE--exposed and unexposed housing.

Characteristic	Short-Term TCE-Exposed # (%)	Unexposed # (%)
N	141	868
Mother's Race		647 (74.5)
White	107 (75.9)	193 (29.2)
Black	31 (22.0)	28 (3.8)
Other	3 (2.1)	
Sex		447 (51.5)
Female	69 (48.9)	421 (48.5)
Male	72 (51.1)	
Rank and Paygrade		21 (2.4)
No Card/Unknown	2 (1.4)	344 (39.6)
E1-E3	50 (35.5)	165 (19.0)
E4-E5	28 (19.9)	184 (21.2)
E6-E9	35 (24.8)	10 (1.2)
WO	2 (1.4)	130 (15.0)
O1-O3	23 (16.3)	14 (1.6)
O4 or higher	1 (0.7)	
Parity		293 (33.4)
1	36 (25.5)	575 (66.2)
2 or greater	105 (74.5)	
Mother's Age (years)		114 (13.1)
< 20	16 (11.3)	419 (47.9)
20-24	61 (43.3)	223 (25.7)
25-29	41 (29.1)	93 (10.7)
30-34	19 (13.5)	19 (2.2)
35 +	4 (2.8)	

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Table 16.—Continued.

Characteristic	Short-Term TCE-Exposed # (%)	Unexposed # (%)
N	141	868
Gestational Age		
20-23 weeks	0	2 (0.2)
24-27 weeks	0	3 (0.3)
28-32 weeks	2 (1.4)	13 (1.5)
33-36 weeks	9 (6.4)	58 (6.7)
37-40 weeks	91 (64.5)	532 (61.3)
41-42 weeks	28 (19.9)	203 (23.4)
43-45 weeks	11 (7.8)	57 (6.6)
Prenatal Care		
Inadequate	27 (19.2)	148 (17.1)
Intermediate	33 (23.4)	231 (26.6)
Adequate	60 (42.6)	380 (43.7)
Superadequate	21 (14.9)	108 (12.4)
Missing		1 (0.1)
Past Fetal Deaths*		
2 or more	8 (5.7)	46 (5.3)
1 or more	25 (17.7)	163 (18.8)
None	116 (82.3)	705 (81.2)
Mother's Education		
0-8 years		16 (1.8)
9-11 years	15 (10.6)	134 (15.4)
12 years	75 (53.2)	446 (51.4)
13-15 years	33 (23.4)	192 (22.1)
16 or more years	18 (12.8)	80 (9.2)
Father's Education		
0-8 years	0	1 (0.1)
9-11 years	5 (3.5)	46 (5.3)
12 years	90 (63.8)	568 (65.4)
13-15 years	22 (15.6)	102 (11.8)
16 or more years	24 (17.0)	151 (17.2)
Unknown	0	1 (0.1)

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Table 17.—Distribution of pregnancy outcomes among residents of short-term TCE-exposed and unexposed housing.

Variable	Short-Term TCE-Exposed	Unexposed	Mean Difference or Odds Ratio and 90% Confidence Interval
Birth weight in grams Mean (St Err)	N= 141 3,455 (41.7)	N= 868 3,385 (19.7)	+70 (-6, +146)
Frequency SGA/ all births \geq 22 weeks (%)	5/141 (3.6)	58/868 (6.7)	1.1 (0.2, 1.1)

St Err = standard error

SGA = small for gestational age

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FIGURES

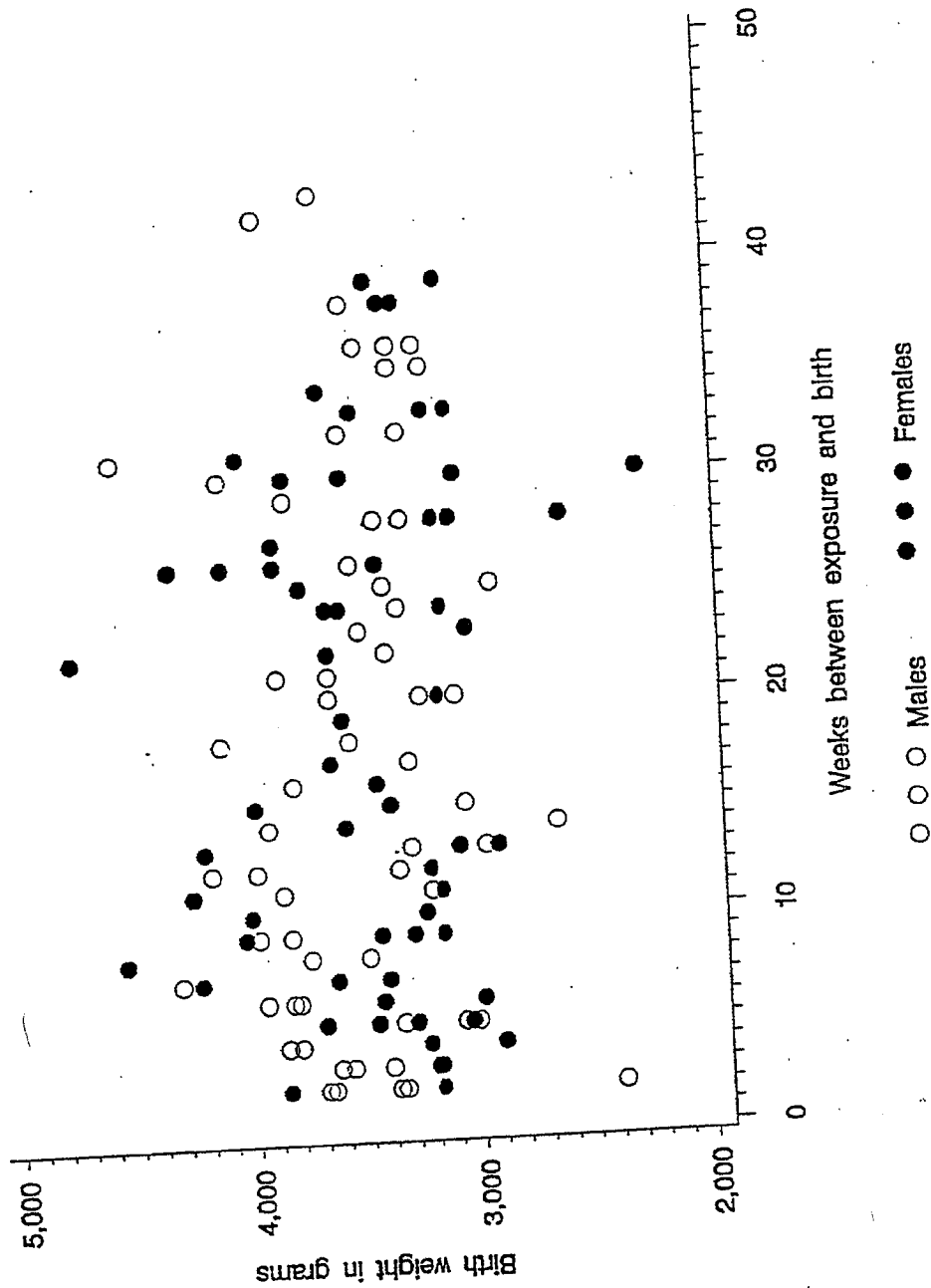
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Figure 1. Time elapsed between short-term exposure to TCE and birth weight among term live births.



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Figure 2. Gestational age at time of short-term exposure to TCE and birth weight among term live births.

