APPENDIX E

Exposure Dose Calculations for Exposure to PCE in Water from Dead-End VLAC Water Mains Scituate, Massachusetts

1. Ingestion of Municipal Water Containing PCE by Adults or Children

$$WD = \frac{[C]_{municipal\ water} \times IR \times EF}{BW}$$

Where:

WD	= Water Ingestion Exposure Dose (mg/kg/day)
$[C]_{municipal\ water}$	= Maximum Potential PCE Concentration in Municipal Water (mg/L)
IR	= Water Ingestion Rate (L/day)
EF	= Exposure Factor (unitless)
BW	= Body Weight (kg)

Assumptions:

1) The receptor evaluated was an adult or child ingesting water from dead-end VLAC water mains in Scituate.
2) The maximum concentration of PCE detected in water from VLAC water mains in Scituate was assumed to be 3,500 ppb.
3) The amount of water ingested was assumed to be 2 liters per day for adults and 1 liter per day for children.
4) The exposure factor was determined assuming the receptor consumed water from the municipal supply 7 days per week for 70 years.
5) The average body weight of an adult was assumed to be 70 kilograms. The average body weight of a child was assumed to be 10 kilograms

Exposure Dose Calculation:

$$WD_{adult} = \frac{3{,}500\ ug/L \times 2\ L/day \times 1}{70\ kg} = 100\ ug/kg/day$$

$$WD_{child} = \frac{3{,}500\ ug/L \times 1\ L/day \times 1}{10\ kg} = 350\ ug/kg/day$$