ENVIRONMENTAL STRATEGIES CORPORATION

Four Penn Center West • Suite 315 • Pittsburgh, Pennsylvania 15276 • (412) 787-5100 • Fax (412) 787-8065

PHASE II
RCRA FACILITY INVESTIGATION
AL TECH SPECIALTY STEEL CORPORATION
WATERVLIET, NEW YORK FACILITY

VOLUME 2 OF 3
APPENDICES A THROUGH D

PREPARED

BY

ENVIRONMENTAL STRATEGIES CORPORATION

DECEMBER 30, 1998

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Appendix C - Groundwater Calculations

ENVIRONMENTAL STRATEGIES CORPORATION

Subject: Overburden Seepage Velocity, Main Plant

By: MJ Date: 12/28/98 Checked By: [illegible] Date: 12/28/98

Proj. Name: AL Tech Wtr/t Proj. No.: 483804 Sheet No.: 1 of 1

$V = Ki / n_e$

V_s = southern i_s = 0.036

V_c = northern/central i_c = 0.006

$K = 2.1 \times 10^{-4}$ ft/sec

n_e = 30 to 40 %

$$V_s = \frac{(2.1 \times 10^{-4} \text{ ft/sec})(0.036)}{0.30} = 2.5 \times 10^{-5} \text{ ft/sec or } 794 \text{ ft/yr}$$

$$= \frac{(2.1 \times 10^{-4} \text{ ft/sec})(0.036)}{0.40} = 1.9 \times 10^{-5} \text{ ft/sec or } 596 \text{ ft/yr}$$

$$V_c = \frac{(2.1 \times 10^{-4} \text{ ft/sec})(0.006)}{0.30} = 4.2 \times 10^{-6} \text{ ft/sec or } 132 \text{ ft/yr}$$

$$\frac{(2.1 \times 10^{-4} \text{ ft/sec})(0.006)}{0.40} = 3.15 \times 10^{-6} \text{ ft/sec or } 99 \text{ ft/yr}$$

ENVIRONMENTAL STRATEGIES CORPORATION

Subject Overburden Gradients - Main Plant Area

By MY Date 12/28/98 Checked By [illegible] Date 12/28/98

Proj. Name AL Tech Wtr/It Proj. No. 483804 Sheet No. 1 of 2

SOUTHERN

	GW Elev 09/97
MW-1	58.47
MW-2	38.88

$\Delta h = 19.59$ ft $\quad \Delta l = 570$ ft

i (GRADIENT) $= \Delta h / \Delta l$ or 0.034

	GW Elev 09/97
PZ-5	53.53
PZ-8	36.83

$\Delta h = 16.7$ ft $\quad \Delta l = 680$ ft

i (GRADIENT) $= \Delta h / \Delta l$ or 0.025

	GW Elev 09/97
PZ-5	53.53
OW-7	37.55

$\Delta h = 15.98$ ft $\quad \Delta l = 320$ ft

i (GRADIENT) $= \Delta h / \Delta l$ or 0.05

AVE. GRADIENT (i) = 0.036

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ENVIRONMENTAL STRATEGIES CORPORATION

Subject: Overburden Gradients - Main Plant Area

By: MJ Date: 12/28/98 Checked By: CW Date: 12/28/98

Proj. Name: AL Tech Wtrvlt Proj. No.: 483804 Sheet No.: 2 of 2

CENTRAL

GW Elev 09/97

MW-11	41.65
MW-4	36.9
Δh =	4.75 ft

Δl = 880 ft

i (GRADIENT) = $\Delta h / \Delta l$ or 0.00539

GW Elev 09/97

MW-11	41.65
MW-18	37.59
Δh =	4.06 ft

Δl = 840 ft

i (GRADIENT) = $\Delta h / \Delta l$ or 0.00483

GW Elev 09/97

MW-15	46.35
MW-18	37.59
Δh =	8.76 ft

Δl = 1100 ft

i (GRADIENT) = $\Delta h / \Delta l$ or 0.008

AVE GRADIENT (i) = 0.006

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