APPENDIX

Figure 1A: Transect One: Soil Concentration (mg/kg) Depth Profile for Phenanthrene (top) and Fluoranthene at t=0 (figure1A.gif, 100K)

Figure 2A: Transect One: Ground Water Concentration (ppb) Depth Profile for Phenanthrene (top) and Fluoranthene at t=4 Mos. (figure2A.gif, 107K)

Figure 3A: Transect One: Soil Concentration (mg/kg) Depth Profile for Pyrene (top) and Chrysene at t=0 (figure3A.gif, 104K)

Figure 4A: Transect One: Ground Water Concentration (ppb) Depth Profile for Pyrene (top) and Chrysene at t=4 Mos. (figure4A.gif, 97K)

Figure 5A: Transect One: Ground Water Concentration (ppb) Depth Profile for Benzo(b)fluoranthene at t=4 Mos. (figure5A.gif, 77K)

Figure 6A: Transect Two: Soil Concentration (mg/kg) Depth Profile for Phenanthrene (top) and Fluoranthene at t=0 (figure6A.gif, 110K)

Figure 7A: Ground Water Concentration (ppb) Depth Profile for Phenanthrene (top) and Fluoranthene along a line from ML-16 to ML-15 at t=4 Mos. (figure7A.gif, 99K)

Figure 8A: Transect Two: Soil Concentration (mg/kg) Depth Profile for Pyrene (top) and Chrysene at t=0 (figure8A.gif, 107K)

Figure 9A: Ground Water Concentration (ppb) Depth Profile for Pyrene (top) and Chrysene along a line from ML-16 to ML-15 at t=4 Mos. (figure9A.gif, 91K)

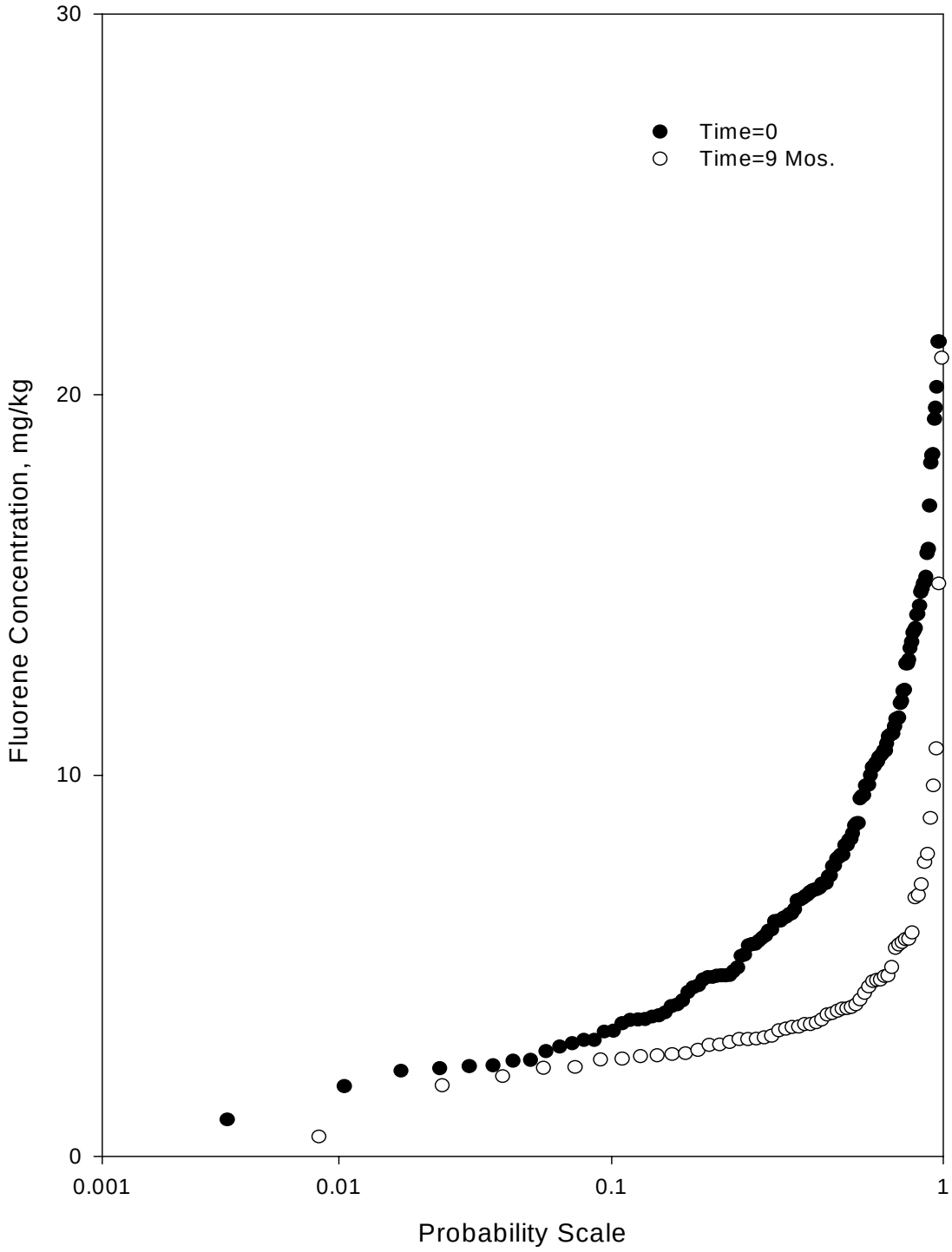

Figure 10A: Fluorene Probability Plot Containing All t=0 and t=9 Mos. Grass Plot Data

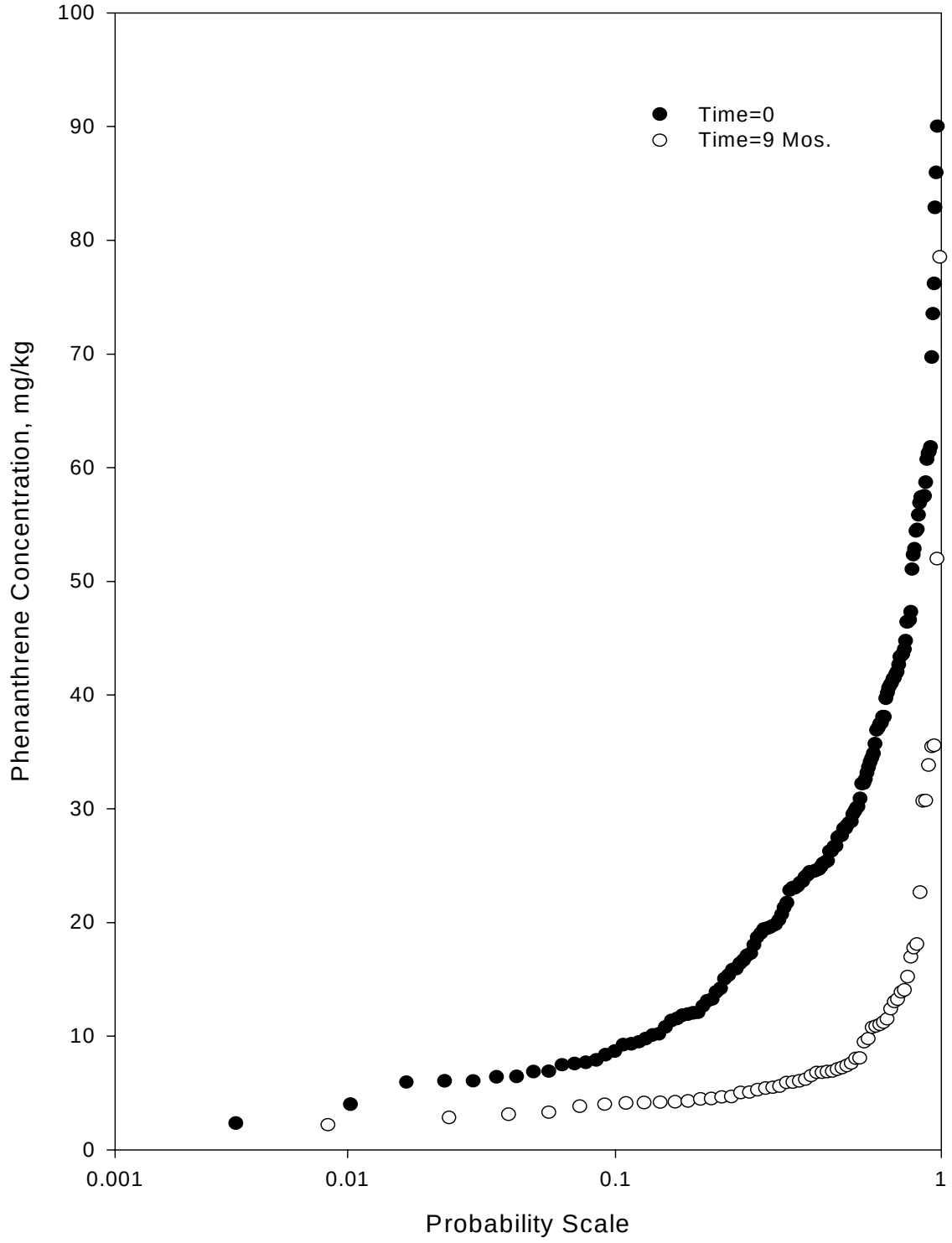

Figure 11A: Phenanthrene Probability Plot Containing All t=0 and t=9 Mos. Grass Plot Data

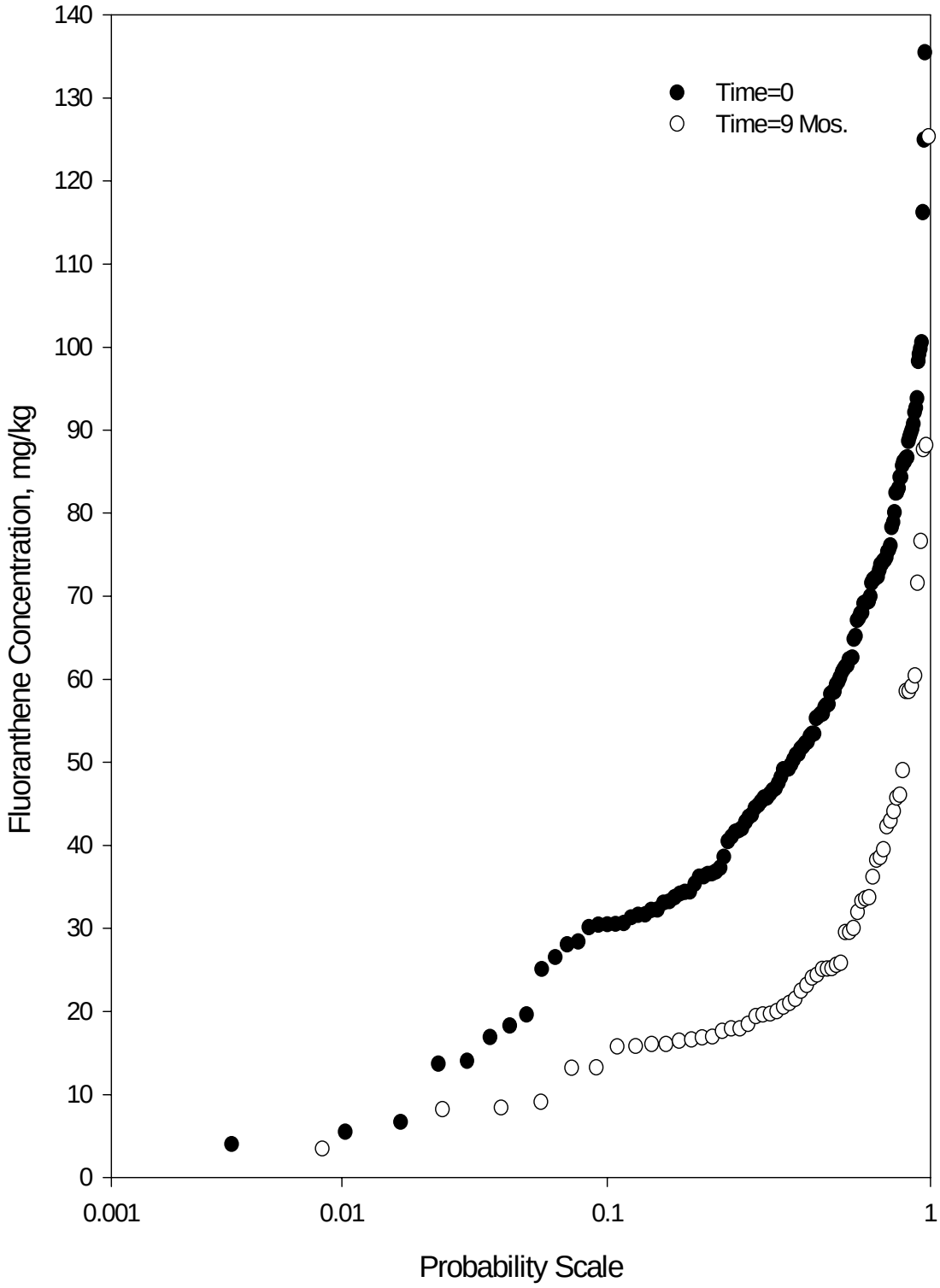

Figure 12A: Fluoranthene Probability Plot Containing All t=0 and t=9 Mos. Grass Plot Data

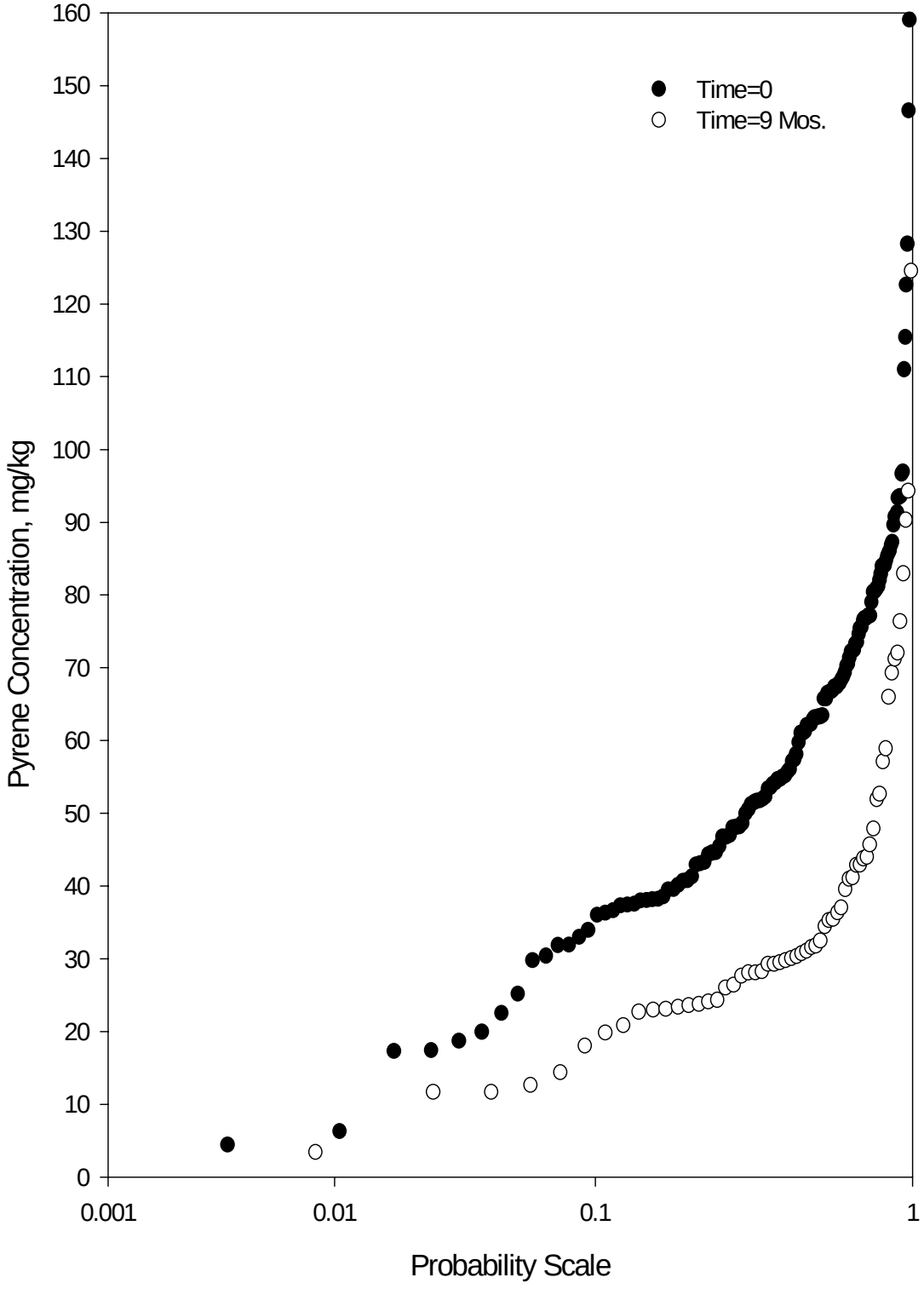

Figure 13A: Pyrene Probability Plot Containing All t=0 and t=9 Mos. Grass Plot Data

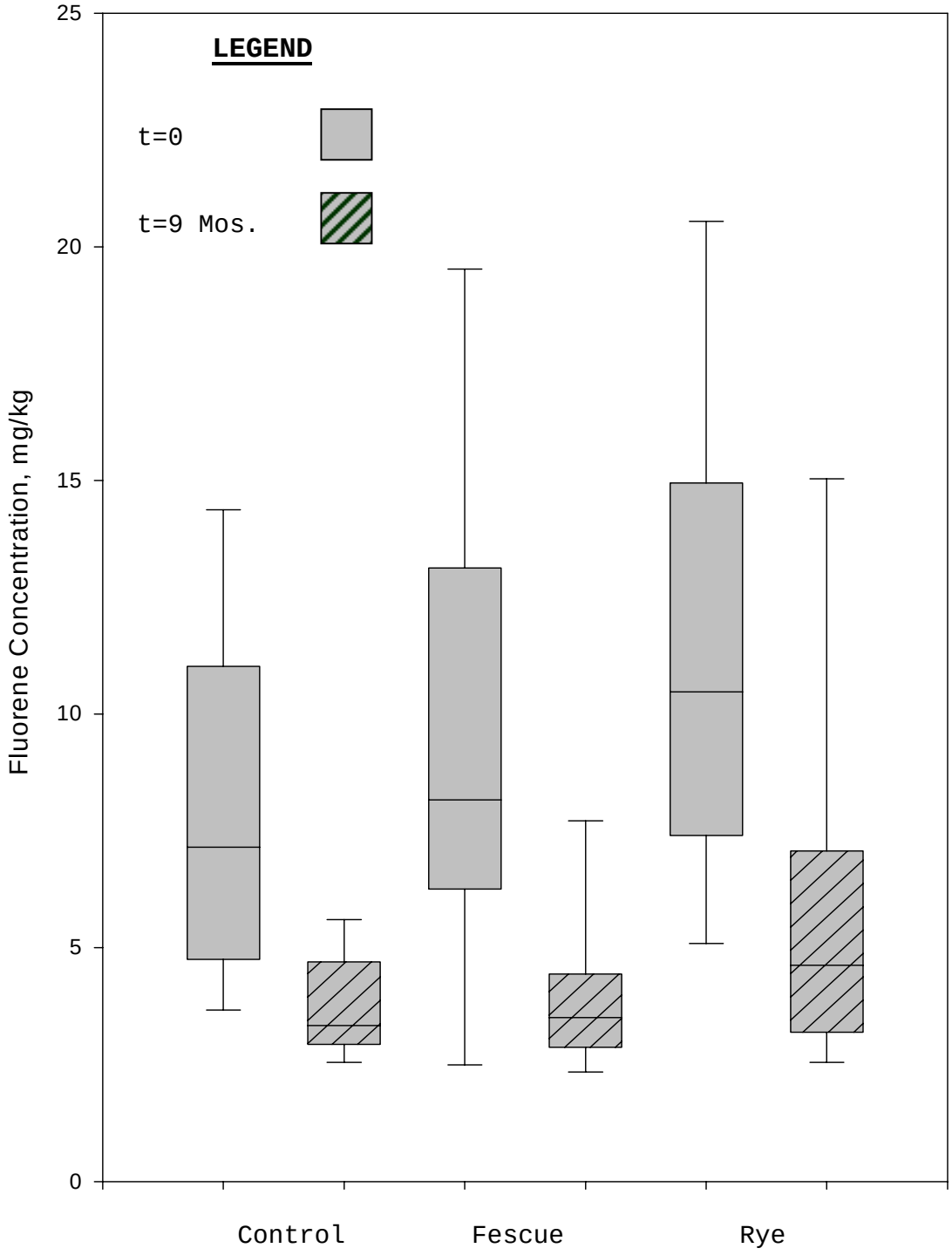

Figure 14A: Comparison of Grass Plot Treatments:
Fluorene Concentrations at t=0 and t=9 Mos.

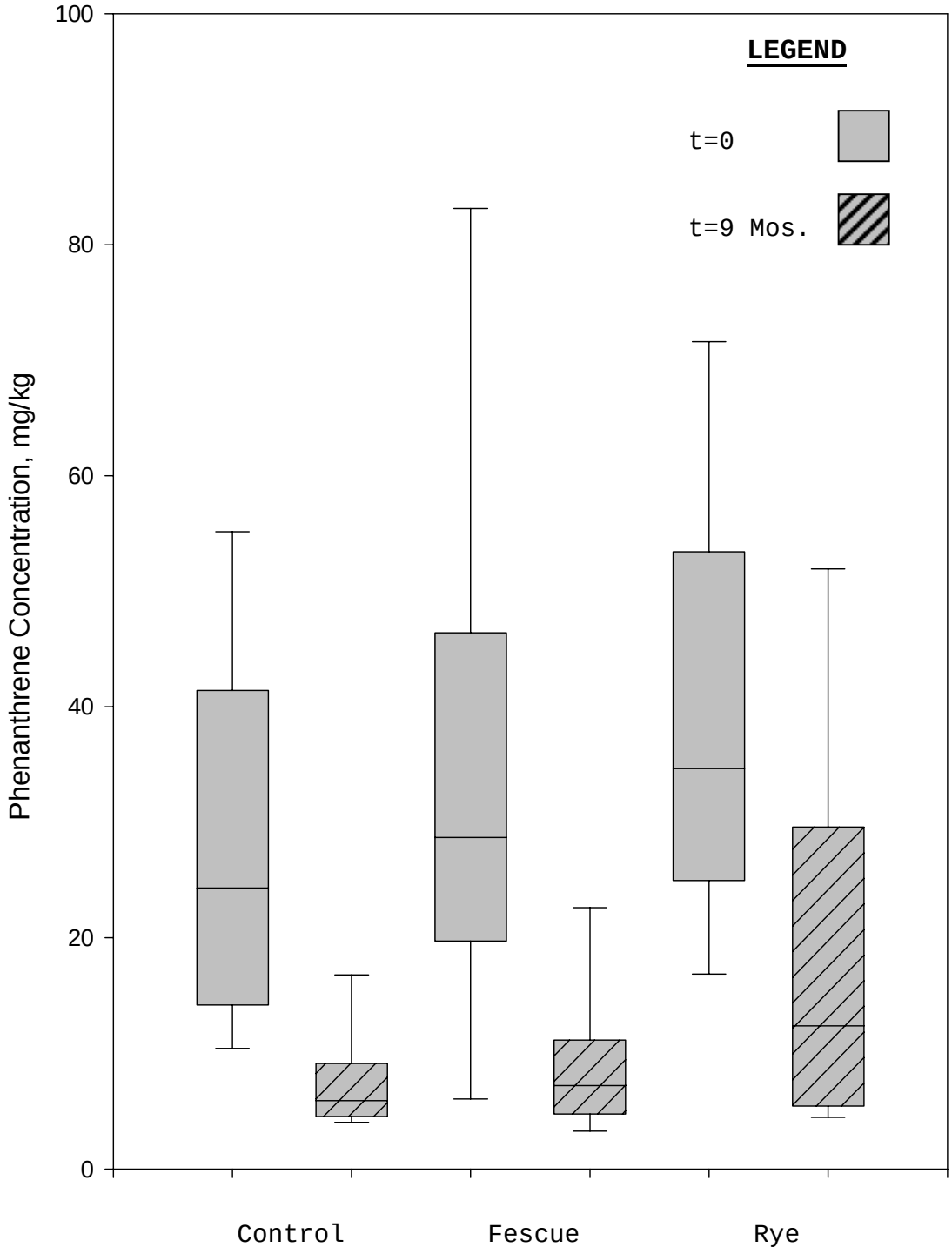

Figure 15A: Comparison of Grass Plot Treatments: Phenanthrene Concentrations at t=0 and t=9 Mos.

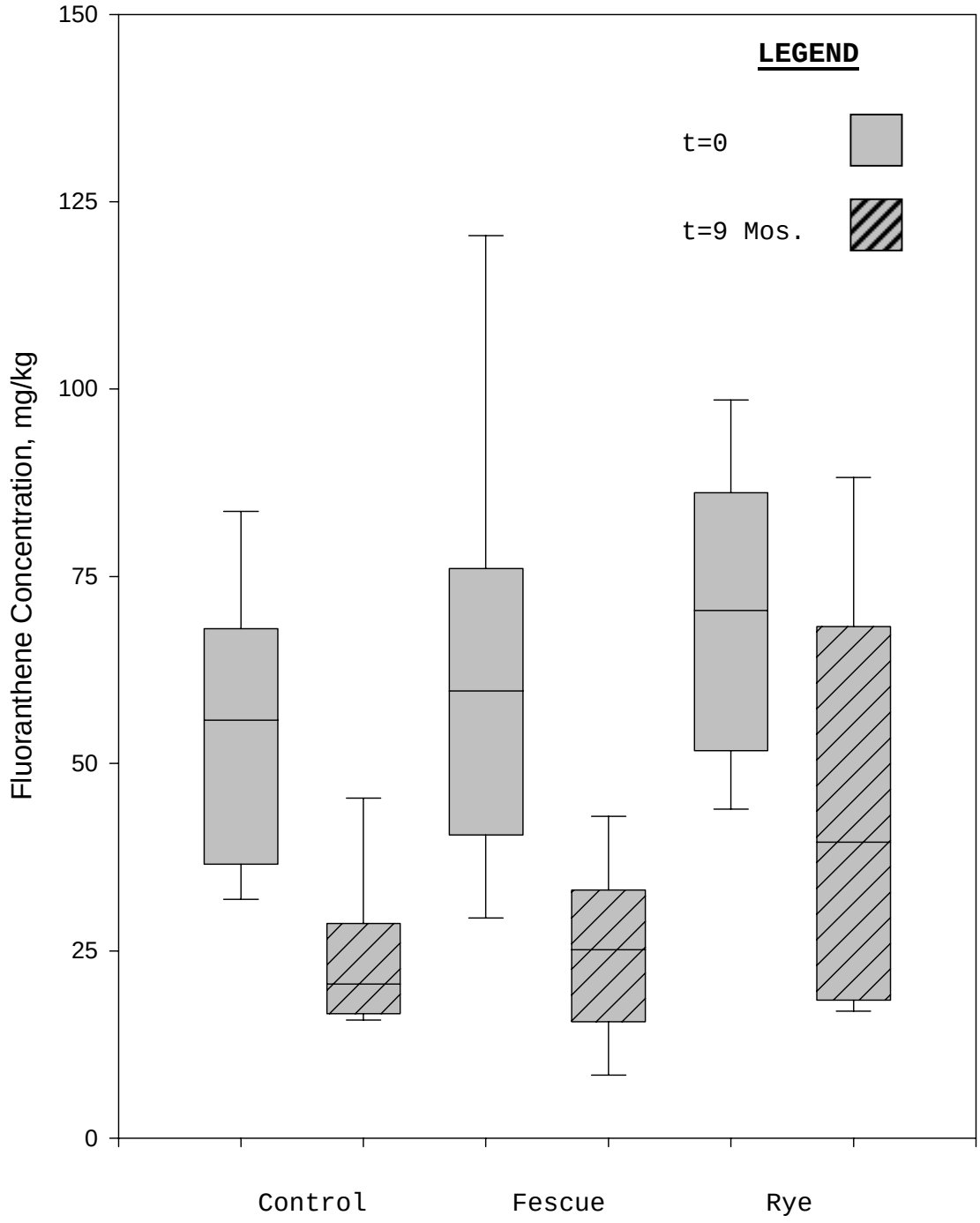

Figure 16A: Comparison of Grass Plot Treatments: Fluoranthene Concentrations at t=0 and t=9 Mos.

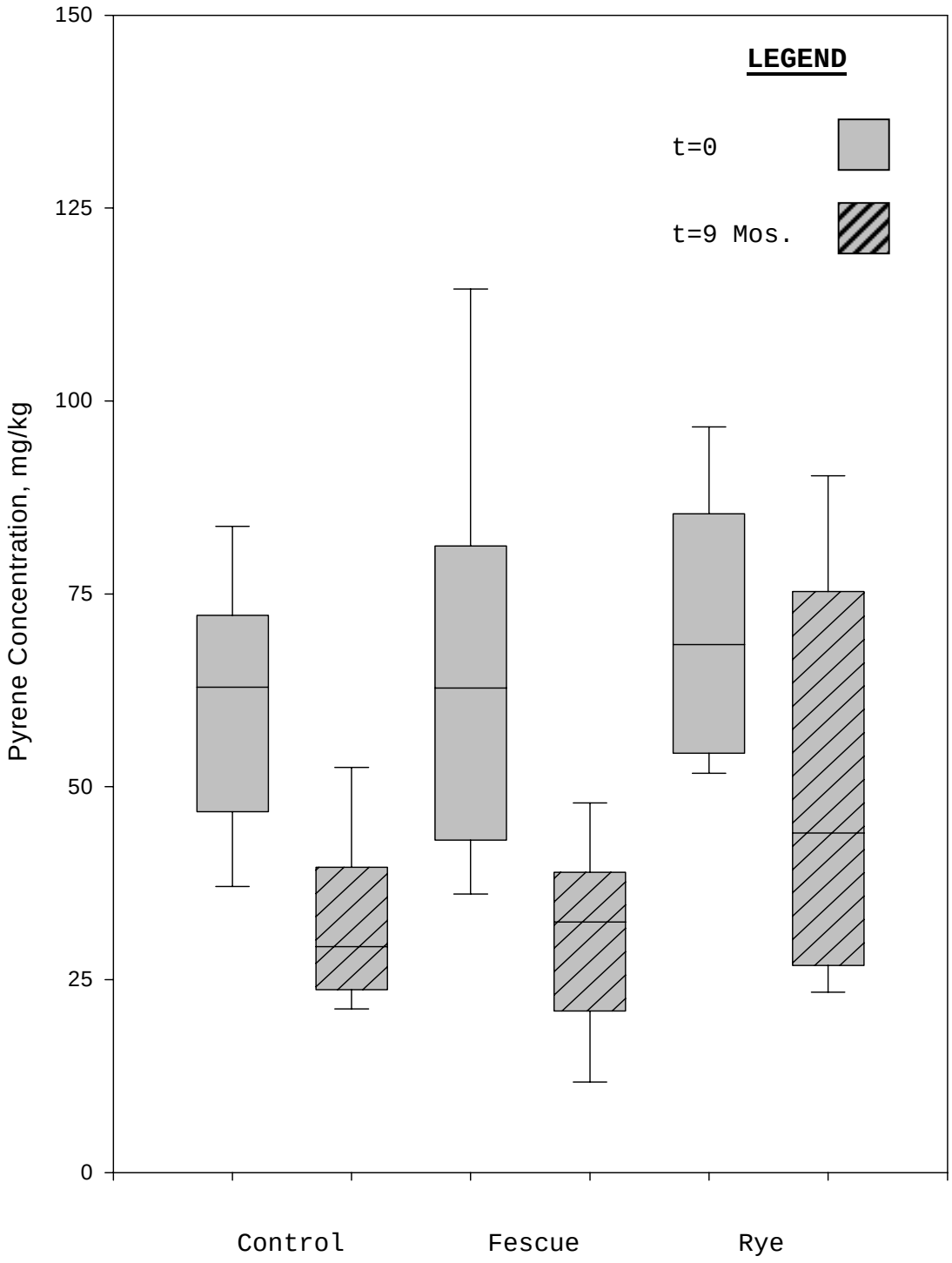

Figure 17A: Comparison of Grass Plot Treatments:
Pyrene Concentrations at t=0 and t=9 Mos.

Figures 18A and 19A: The Relationship of Grass Plot Soil PAH Concentrations to PAH Aqueous Solubility and Log K_{ow}

Figure 20A: The Relationship between Grass Plot PAH Reductions over the Nine Month Study Period and PAH Aqueous Solubility (figure20A.gif, 36K)

Figure 21A: Grass Plot Chrysene Ratio Reductions with Respect to Site Concentrated Creosote Chrysene Ratios (figure21A.gif, 89K)

Figure 22A: Comparison of Paired Grass Plot Data PAH Reductions over the Nine Month Study Period and Initial PAH Concentration (figure22A.gif, 37K)

Table 1A: Mean Percent Reduction of PAHs After 64 and 258 days in the Ferro *et al*. (1997) Greenhouse Study (table1A.gif, 44K)

Table 2A: Soil Boring Profile Reference Table	
Soil Boring ID	**Linear Distance from SB-8, feet**
SB-7	10
ML-2	22
ML-3	50.5
SB-6	78
ML-14	87
SB-5	90
ML-4	103
SB-4	117
SB-3	146.5
SB-2	164
SB-1	174.5
Soil Boring ID	**Linear Distance from SB-16, feet**
SB-19	16
SB-15	32
SB-18	53
SB-17	54
SB-14	77
P6	78
SB-13	95
SB-12	96
SB-11	117
SB-10	147
SB-9	152

Table 3A: Ground Water Profile Reference Table	
MLS ID	**Linear Distance from ML-3, feet**
ML-4	41
ML-12	87
ML-11	135
ML-10	200
MLS ID	**Linear Distance from ML-16, feet**
ML-7	38
ML-15	88

Table 4A: Transect One T=0 Soil Boring Data
Page One (table4A1.gif, 59K)

Page Two (table4A2.gif, 58K)

Page 3 (table4A3.gif, 68K)

Page 4 (table4A4.gif, 28K)

Table 5A: Transect Two T=0 Soil Boring Data

Page One (table5A1.gif, 55K)

Page Two (table5A2.gif, 52K)

Page 3 (table5A3.gif, 74K)

Table 6A: Transect One T=4 Mos. Ground Water Data

(table6A.gif, 57K)

Table 7A: T=4 Mos. Ground Water Data for the ML-16 to ML-15 Line (table7A.gif, 36K)

Ground Water Velocity Calculations

A form of Darcy's Law was used to calculate the average linear ground water velocity at the Site. The equation (from Fetter, 1994) is below:

$$V = -K/n_e * (dh/dl)$$

where: v= average linear velocity, L/T
K= hydraulic conductivity, L/T
n_e= effective porosity, dim
dh/dl(i)= hydraulic gradient, L/L

Assumptions: n_e=0.30
K= 0.1 m/day
i= 0.019-0.042 ft/ft (from Geraghty & Miller, 1997, Water Table Contour Map)

For hydraulic gradient=0.019:

v=(0.1 m/d * 100cm/m * 0.019)/0.30

v=0.63 cm/day

For hydraulic gradient=0.042:

v=(0.1 m/d * 100cm/m * 0.042)/0.30

v=1.4 cm/day

*This range of ground water velocities applies at the site when the ground water collection trench is not operational. It is likely that ground water velocities will be higher when the trench is operational, especially in areas of close proximity to the trench.

VITA

Glendon Joseph Fetterolf was born on May 29, 1974, in Richmond, Virginia. He attended West Point High School, West Point, VA, until 10th grade. The last two years of high school were spent at Christ Church School near Urbanna, VA. In May 1992, he graduated with honors and received several accolades. He began his college career at Virginia Polytechnic Institute and State University in August of 1992. In May 1996, he graduated from Virginia Polytechnic Institute and State University with a B.S. in Civil Engineering-Environmental Option. In August 1996, he began work on a Master's Degree in Environmental Engineering. In July 1998, he will begin work with Black & Veatch in Charlotte, NC, as a staff engineer.