APPENDIX D

Aquifer Hydraulic Conductivity Testing Results

Table D.1 - Aquifer Hydraulic Conductivity Estimates from Slug Tests

Table D.1 - Aquifer Hydraulic Conductivity Estimates from Slug Tests

Project No. 090057-310.3, Vashon Island Closed Landfill, Vashon Island, King County, Washington

Monitoring Well	**MW-24**						**MW-13**							
Organized by Unit	**B**						**Cc1**							
Well Depth in Feet	**90.0**						**113.0**							
Screen Length in Feet	**10.0**						**5.0**							
Depth to Screen in Feet	**80.0**						**108.0**							
Depth to Aquitard in Feet	**91**						**115**							
Depth to Water in Feet	**87.93**						**99.92**							
Depth to Sandpack in Feet	**77.0**						**106.0**							
Slug Displacement (H_o) in Feet	**1.02**	**0.82**	**0.71**	**1.20**	**1.11**	**1.50**	**0.81**	**1.06**	**1.39**	**1.90**	**0.83**	**0.70**	**1.57**	**1.35**
Porosity (n)	**0.20**						**0.20**							
Radius of Casing (r_c) in Feet	**0.08**						**0.08**							
Radius of Borehole (r_w) in Feet	**0.33**						**0.33**							
Saturated Aquifer Thickness (H) in Feet	2.6						15.1							
Saturated Well Thickness (L_w) in Feet	2.1						13.1							
Effective Radius (r_{eff}) in Feet	0.167						0.083							
Effective Screen Length (L_e) in Feet	2.1						5.0							
Slug Size	12" H20	12" H20	12" H20	12" H20	12" H20	24 "H20	12" H20	12" H20	12" H20	12" H20	12" H20	24 "H20	12" H20	24 "H20
Rising/Falling Head Test	Falling	Falling	Falling	Rising	Rising	Rising	Falling	Falling	Falling	Falling	Rising	Rising	Rising	Rising
Fully Submerged Sandpack	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Transiently Exposed Sandpack	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No
Transiently Exposed Screen	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No
Partially Submerged Screen	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No
Bouwer and Rice Analysis Parameters														
Normalized Head at t_1 (y_1) in Feet	0.08	0.07	0.08	0.06	0.15	0.07	0.53	0.48	0.57	0.41	0.56	0.69	0.56	0.62
Time - t_1 in Seconds	20.0	25.7	30.00	20.00	20.00	20.00	8.00	5.00	8.00	7.88	8.00	8.00	8.00	8.00
Normalized Head at t_2 (y_2) in Feet	0.03	0.03	0.05	0.05	0.13	0.05	0.16	0.14	0.19	0.14	0.18	0.22	0.19	0.21
Time - t_2 in Seconds	88.9	87.3	85.12	28.00	39.00	40.00	44.75	40.00	39.87	39.87	39.87	39.75	40.00	40.00
L_e/r_w	6.2						15.0							
Coefficient A [a]	1.7						2.0							
Coefficient B [a]	0.3						0.3							
Coefficient C [a]	1.0						1.4							
$\ln(R_e/r_w)$ [b]	1.1						2.1							
Calculated K in cm/sec	3.5E-03	3.2E-03	2.1E-03	5.7E-03	1.9E-03	3.0E-03	1.5E-03	1.6E-03	1.5E-03	1.5E-03	1.6E-03	1.6E-03	1.6E-03	1.5E-03
Calculated K in ft/day	10.0	9.1	6.0	16.0	5.4	8.6	4.2	4.5	4.3	4.2	4.5	4.5	4.4	4.3
Geometric Mean K in cm/sec	3.04E-03						1.54E-03							
Geometric Mean K in ft/day	8.6						4.4							
Geometric Mean K in ft/min	6.0E-03						3.0E-03							
Screened Interval Soil Type	SM; very dense, silty, fine to medium SAND						SM; very dense, silty SAND							

Notes:

Data analysis by method of Bouwer and Rice (1976; 1989)

Bold values are entered from field data and other values are calculated.

All depths are below ground surface

[a] The Bouwer and Rice A, B, and C coefficients are calculated using regression equations of Van Rooy (1988).

[b] R_e/r_w is the effective radial distance over which y is dissipated, divided by the radial distance of well development.

* MW-25 has a broken well screen, and results may not reflect true hydraulic conductivity

Table D.1 - Aquifer Hydraulic Conductivity Estimates from Slug Tests

Project No. 090057-310.3, Vashon Island Closed Landfill, Vashon Island, King County, Washington

Monitoring Well	MW-2						MW-20								MW-21					
Organized by Unit	Cc2						Cc2								Cc2					
Well Depth in Feet	85.0						133.0								111.0					
Screen Length in Feet	5.0						5.0								10.0					
Depth to Screen in Feet	80.0						127.0								100.0					
Depth to Aquitard in Feet	86						133								111					
Depth to Water in Feet	74.08						122.14								106.67					
Depth to Sandpack in Feet	67.0						124.0								95.0					
Slug Displacement (H_o) in Feet	0.35	0.20	0.40	0.25	0.33	0.32	0.83	0.76	1.73	1.73	0.82	1.20	1.43	1.07	0.66	0.62	1.03	1.09	0.92	0.98
Porosity (n)	0.20						0.20								0.20					
Radius of Casing (r_c) in Feet	0.13						0.08								0.08					
Radius of Borehole (r_w) in Feet	0.33						0.33								0.33					
Saturated Aquifer Thickness (H) in Feet	11.4						11.0								4.5					
Saturated Well Thickness (L_w) in Feet	10.9						9.9								3.3					
Effective Radius (r_{eff}) in Feet	0.186						0.083								0.167					
Effective Screen Length (L_e) in Feet	5.0						5.0								3.3					
Slug Size	12" H20	12" H20	24" H20	12" H20	12" H20	24 "H20	12" H20	12" H20	12" H20	12" H20	12" H20	12" H20	12" H20	24 "H20	12" H20	12" H20	12" H20	12" H20	12" H20	24 "H20
Rising/Falling Head Test	Falling	Falling	Falling	Rising	Rising	Rising	Falling	Falling	Falling	Falling	Rising	Rising	Rising	Rising	Falling	Falling	Falling	Falling	Rising	Rising
Fully Submerged Sandpack	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Transiently Exposed Sandpack	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Transiently Exposed Screen	No	No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Partially Submerged Screen	No	No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Bouwer and Rice Analysis Parameters																				
Normalized Head at t_1 (y_1) in Feet	0.20	0.24	0.24	0.19	0.14	0.31	0.48	0.52	0.36	0.37	0.52	0.35	0.47	0.59	0.09	0.12	0.08	0.09	0.05	0.06
Time - t_1 in Seconds	10.5	10.5	30.37	25.00	30.00	30.00	19.62	24.12	30.37	28.87	21.50	28.63	30.00	30.00	19.6	24.0	29.50	30.00	40.00	40.00
Normalized Head at t_2 (y_2) in Feet	0.12	0.12	0.19	0.14	0.11	0.25	0.22	0.25	0.15	0.18	0.48	0.18	0.23	0.30	0.03	0.05	0.03	0.04	0.02	0.03
Time - t_2 in Seconds	84.0	84.0	89.62	90.12	89.62	90.63	89.13	89.13	90.37	88.87	28.00	89.75	99.25	89.75	84.3	86.6	86.50	89.13	80.00	79.38
L_e/r_w	15.0						15.0								10.0					
Coefficient A [a]	2.0						2.0								1.8					
Coefficient B [a]	0.3						0.3								0.3					
Coefficient C [a]	1.4						1.4								1.2					
$\ln(R_e/r_w)$ [b]	2.2						2.3								1.6					
Calculated K in cm/sec	1.5E-03	2.1E-03	9.3E-04	1.1E-03	1.1E-03	8.5E-04	5.4E-04	5.5E-04	7.3E-04	5.8E-04	5.8E-04	5.4E-04	5.2E-04	5.4E-04	3.0E-03	2.7E-03	3.0E-03	2.4E-03	4.5E-03	4.0E-03
Calculated K in ft/day	4.4	6.1	2.6	3.1	3.3	2.4	1.5	1.5	2.1	1.6	1.6	1.5	1.5	1.5	8.6	7.8	8.6	6.9	12.6	11.3
Geometric Mean K in cm/sec	1.22E-03						5.68E-04								3.20E-03					
Geometric Mean K in ft/day	3.5						1.6								9.1					
Geometric Mean K in ft/min	2.4E-03						1.1E-03								6.3E-03					
Screened Interval Soil Type	ML; dense SILT with clay						SP; dense, fine SAND								SM; very dense, silty, fine to medium SAND					

Table D.1 - Aquifer Hydraulic Conductivity Estimates from Slug Tests

Project No. 090057-310.3, Vashon Island Closed Landfill, Vashon Island, King County, Washington

Monitoring Well	**MW-33**								**MW-35**							
Organized by Unit	**Cc2**								**Cc2**							
Well Depth in Feet	**137.3**								**124.5**							
Screen Length in Feet	**10.0**								**10.0**							
Depth to Screen in Feet	**127.3**								**114.5**							
Depth to Aquitard in Feet	**124**								**125**							
Depth to Water in Feet	**112.51**								**117.00**							
Depth to Sandpack in Feet	**124.2**								**111.5**							
Slug Displacement (H_o) in Feet	**0.16**	**0.15**	**0.42**	**0.41**	**0.16**	**0.15**	**0.57**	**0.36**	**0.63**	**1.11**	**1.14**	**0.57**	**0.28**	**0.47**	**0.28**	**0.13**
Porosity (n)	**0.20**								**0.20**							
Radius of Casing (r_c) in Feet	**0.17**								**0.17**							
Radius of Borehole (r_w) in Feet	**0.33**								**0.33**							
Saturated Aquifer Thickness (H) in Feet	11.0								8.0							
Saturated Well Thickness (L_w) in Feet	24.8								7.5							
Effective Radius (r_{eff}) in Feet	0.167								0.211							
Effective Screen Length (L_e) in Feet	10.0								7.5							
Slug Size	12" H20	12" H20	24 "H20	24 "H20	12" H20	12" H21	12" H20	24 "H20	12" H20	12" H20	12" H2O	24 "H20	25 "H20	12" H20	12" H20	24 "H20
Rising/Falling Head Test	Falling	Falling	Falling	Falling	Rising	Rising	Rising	Rising	Falling	Falling	Falling	Falling	Falling	Rising	Rising	Rising
Fully Submerged Sandpack	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No
Transiently Exposed Sandpack	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Transiently Exposed Screen	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Partially Submerged Screen	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bouwer and Rice Analysis Parameters																
Normalized Head at t_1 (y_1) in Feet	0.96	0.99	0.74	0.75	0.98	1.00	0.59	0.99	0.27	0.13	0.06	0.13	0.43	0.32	0.24	0.83
Time - t_1 in Seconds	3.00	4.00	2.00	3.90	4.20	4.00	7.90	4.30	10.00	10.12	13.38	14.88	15.00	14.62	15.13	5.00
Normalized Head at t_2 (y_2) in Feet	0.64	0.68	0.43	0.49	0.75	0.77	0.45	0.63	0.13	0.05	0.01	0.06	0.11	0.12	0.10	0.17
Time - t_2 in Seconds	23.60	21.80	24.80	23.40	15.70	16.00	25.50	24.20	37.00	39.75	66.00	38.62	56.38	42.12	37.88	46.50
L_e/r_w	30.00								22.50							
Coefficient A [a]	2.5								2.2							
Coefficient B [a]	0.4								0.4							
Coefficient C [a]	1.9								1.7							
$\ln(R_e/r_w)$ [b]	2.7								2.2							
Calculated K in cm/sec	2.2E-03	2.4E-03	2.7E-03	2.4E-03	2.6E-03	2.5E-03	1.8E-03	2.6E-03	5.1E-03	6.3E-03	7.4E-03	7.0E-03	6.6E-03	7.1E-03	7.9E-03	7.5E-03
Calculated K in ft/day	6.3	6.9	7.6	6.8	7.4	7.0	5.1	7.5	14.6	18.0	20.9	19.9	18.6	20.3	22.3	21.4
Geometric Mean K in cm/sec	2.40E-03								6.82E-03							
Geometric Mean K in ft/day	6.8								19.3							
Geometric Mean K in ft/min	4.7E-03								1.3E-02							
Screened Interval Soil Type	SP; fine sand with trace silt								SP; fine sand with trace silt							

Table D.1 - Aquifer Hydraulic Conductivity Estimates from Slug Tests

Project No. 090057-310.3, Vashon Island Closed Landfill, Vashon Island, King County, Washington

Monitoring Well	**MW-36**								**MW-25***					
Organized by Unit	**Cc3**								**D**					
Well Depth in Feet	**164.0**								**263.3**					
Screen Length in Feet	**10.0**								**14.5**					
Depth to Screen in Feet	**154.0**								**248.5**					
Depth to Aquitard in Feet	**165**								**275**					
Depth to Water in Feet	**146.10**								**243.15**					
Depth to Sandpack in Feet	**152.0**								**245.0**					
Slug Displacement (H_o) in Feet	**0.62**	**0.39**	**1.03**	**1.20**	**0.28**	**0.33**	**0.68**	**0.69**	**0.48**	**1.33**	**1.34**	**0.31**	**0.77**	**0.70**
Porosity (n)	**0.20**								**0.20**					
Radius of Casing (r_c) in Feet	**0.17**								**0.17**					
Radius of Borehole (r_w) in Feet	**0.33**								**0.33**					
Saturated Aquifer Thickness (H) in Feet	18.9								32.3					
Saturated Well Thickness (L_w) in Feet	17.9								19.9					
Effective Radius (r_{eff}) in Feet	0.167								0.167					
Effective Screen Length (L_e) in Feet	10.0								14.5					
Slug Size	12" H20	12" H20	24 "H20	24 "H20	12" H20	12" H21	12" H20	24 "H20	12" H20	12" H20	12" H20	12" H20	12" H20	12" H20
Rising/Falling Head Test	Falling	Falling	Falling	Falling	Rising	Rising	Rising	Rising	Falling	Falling	Falling	Rising	Rising	Rising
Fully Submerged Sandpack	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Transiently Exposed Sandpack	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Transiently Exposed Screen	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Partially Submerged Screen	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Bouwer and Rice Analysis Parameters														
Normalized Head at t_1 (y_1) in Feet	0.20	0.32	0.40	0.36	0.50	0.39	0.66	0.72	0.35	0.24	0.26	0.51	0.43	0.48
Time - t_1 in Seconds	4.62	5.13	6.00	6.13	5.00	5.38	5.00	5.12	16.4	64.2	61.50	60.00	59.50	60.00
Normalized Head at t_2 (y_2) in Feet	0.05	0.07	0.11	0.09	0.21	0.16	0.15	0.17	0.10	0.17	0.23	0.21	0.40	0.43
Time - t_2 in Seconds	28.37	30.00	29.62	29.75	19.38	19.63	30.75	29.88	718.3	238.6	96.63	657.38	94.50	97.37
L_e/r_w	30.00								43.50					
Coefficient A [a]	2.5								2.9					
Coefficient B [a]	0.4								0.5					
Coefficient C [a]	1.9								2.4					
$\ln(R_e/r_w)$ [b]	2.7								2.7					
Calculated K in cm/sec	7.1E-03	7.2E-03	6.3E-03	6.5E-03	7.0E-03	6.9E-03	6.6E-03	6.7E-03	1.4E-04	1.5E-04	1.9E-04	1.2E-04	2.0E-04	2.1E-04
Calculated K in ft/day	20.2	20.4	17.8	18.5	19.7	19.6	18.6	18.9	0.4	0.4	0.5	0.3	0.6	0.6
Geometric Mean K in cm/sec	6.78E-03								1.64E-04					
Geometric Mean K in ft/day	19.2								0.5					
Geometric Mean K in ft/min	1.3E-02								3.2E-04					
Screened Interval Soil Type	SP; dense, slightly gravelly fine sand								GP-GM; Very dense, slightly silty gravel					

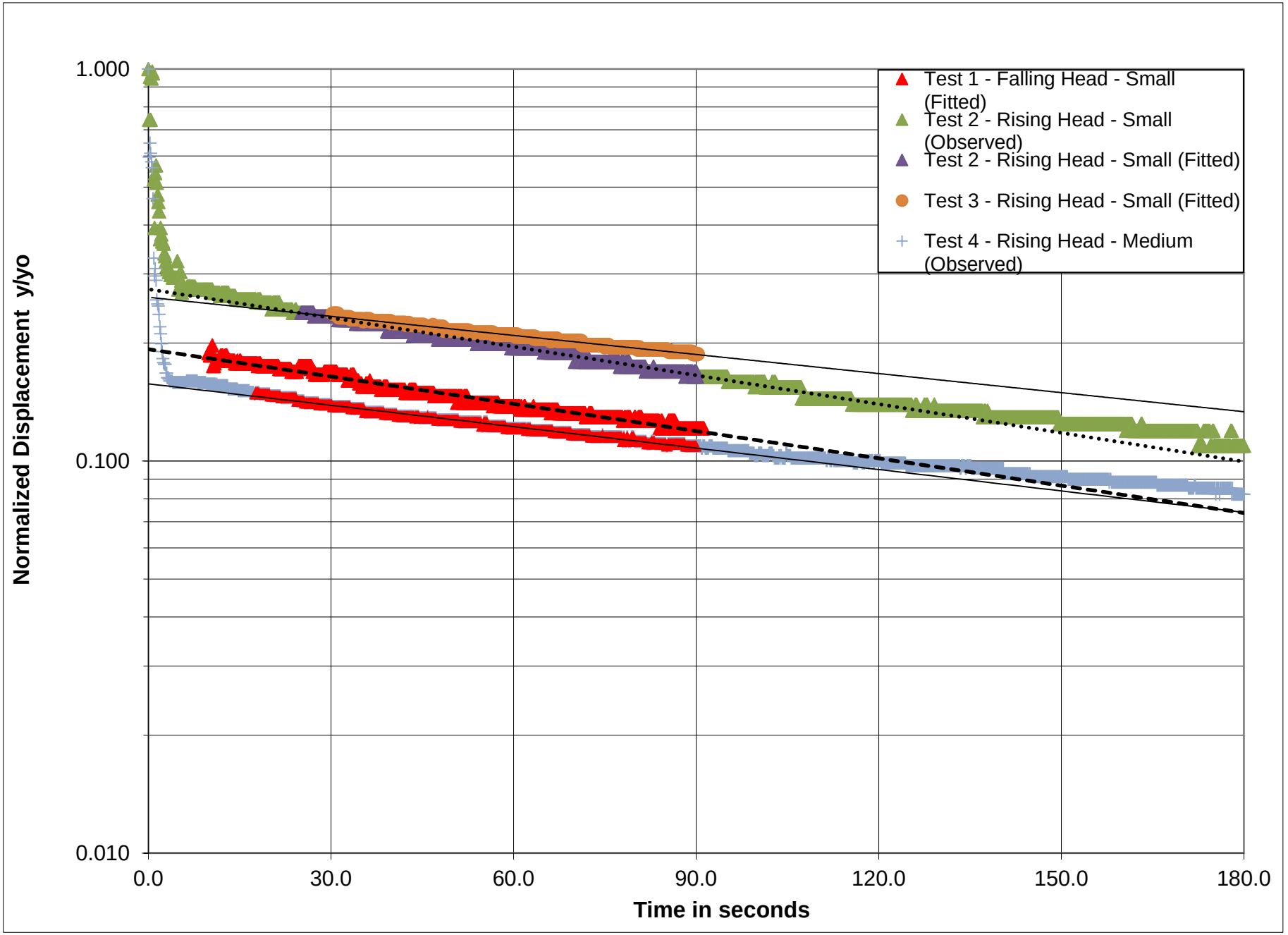
Table D.1 - Aquifer Hydraulic Conductivity Estimates from Slug Tests

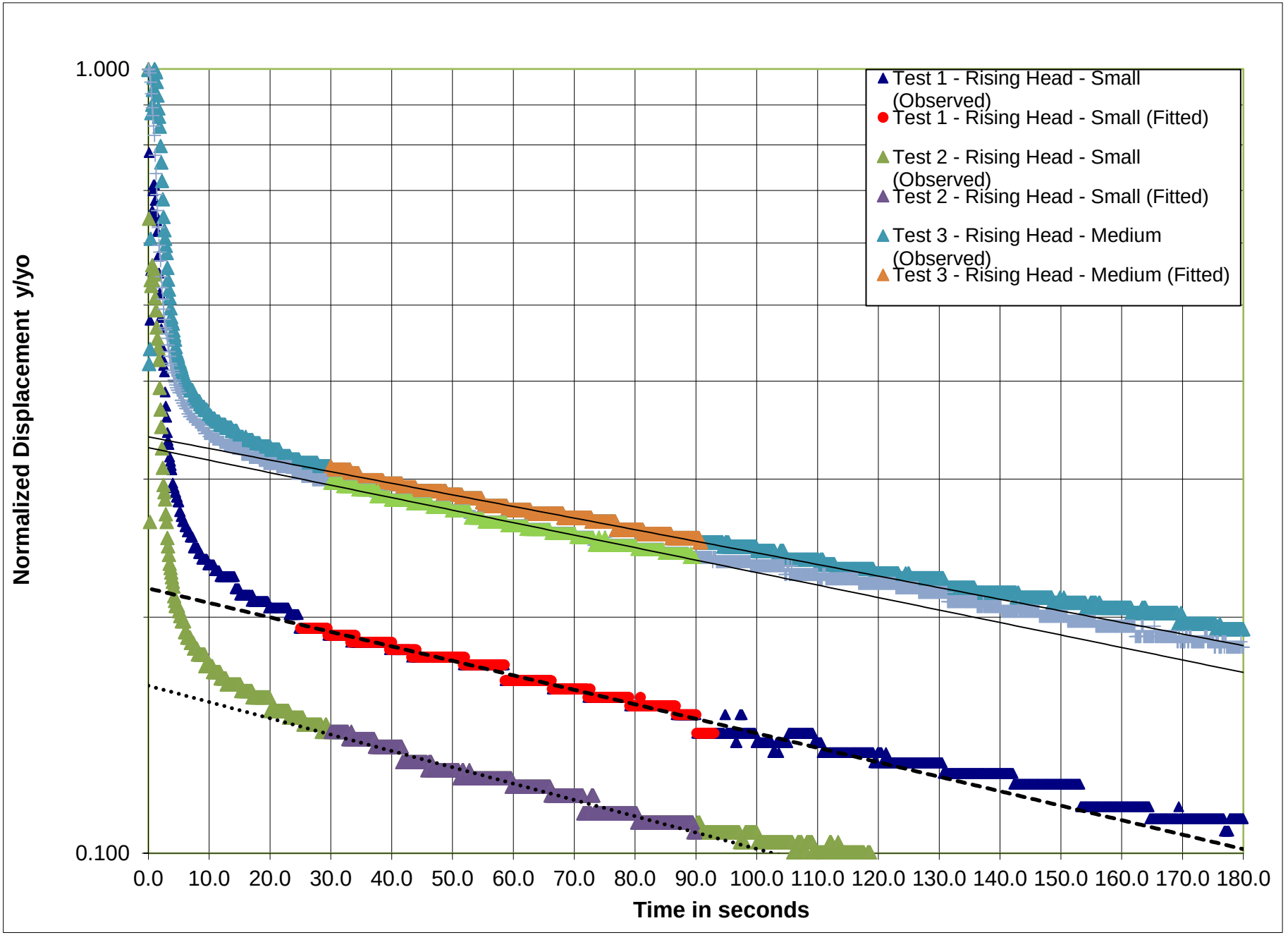
Project No. 090057-310.3, Vashon Island Closed Landfill, Vashon Island, King County, Washington

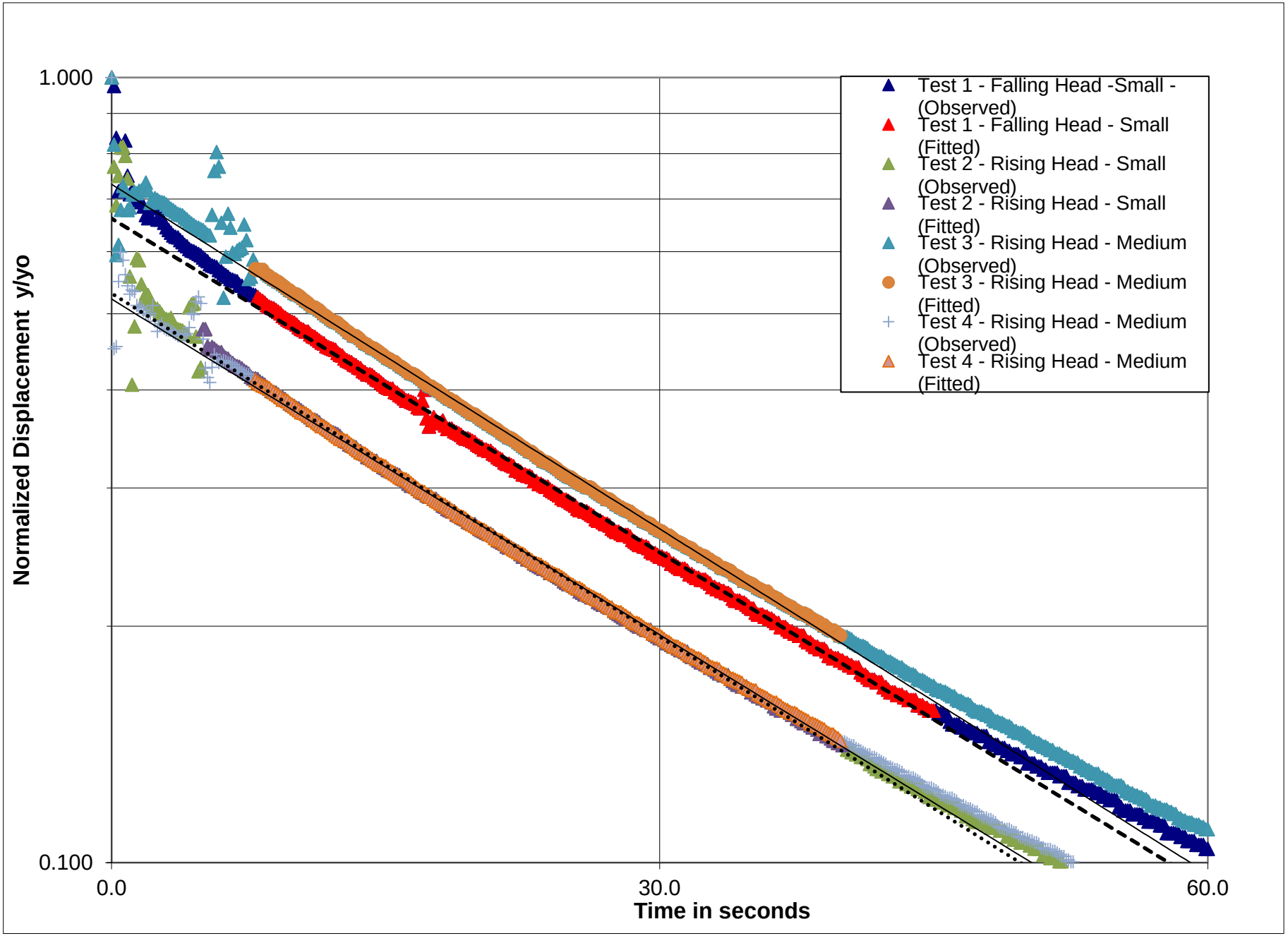
Monitoring Well	**MW-26**								**MW-34**					
Organized by Unit	**D**								**D**					
Well Depth in Feet	**267.4**								**245.6**					
Screen Length in Feet	**14.1**								**10.0**					
Depth to Screen in Feet	**246.1**								**235.0**					
Depth to Aquitard in Feet	**267**								**248**					
Depth to Water in Feet	**247.76**								**203.15**					
Depth to Sandpack in Feet	**242.3**								**232.0**					
Slug Displacement (H_o) in Feet	**0.44**	**0.46**	**0.53**	**0.69**	**0.28**	**0.29**	**0.47**	**0.47**	**0.69**	**0.53**	**0.59**	**0.41**	**0.37**	**0.37**
Porosity (n)	**0.20**								**0.20**					
Radius of Casing (r_c) in Feet	**0.17**								**0.17**					
Radius of Borehole (r_w) in Feet	**0.33**								**0.33**					
Saturated Aquifer Thickness (H) in Feet	19.6								44.4					
Saturated Well Thickness (L_w) in Feet	12.4								41.9					
Effective Radius (r_{eff}) in Feet	0.211								0.167					
Effective Screen Length (L_e) in Feet	12.4								10.0					
Slug Size	12" H20	12" H20	12" H2O	24 "H20	25 "H20	12" H20	12" H20	24 "H20	12" H20	12" H20	24 "H20	12" H20	12" H20	24 "H20
Rising/Falling Head Test	Falling	Falling	Falling	Falling	Falling	Rising	Rising	Rising	Falling	Falling	Falling	Rising	Rising	Rising
Fully Submerged Sandpack	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Transiently Exposed Sandpack	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Transiently Exposed Screen	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Partially Submerged Screen	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Bouwer and Rice Analysis Parameters														
Normalized Head at t_1 (y_1) in Feet	0.31	0.43	0.53	0.41	0.68	0.67	0.66	0.65	0.33	0.47	0.46	0.64	0.69	0.72
Time - t_1 in Seconds	5.00	3.00	5.00	5.00	3.00	3.00	3.00	3.00	21.50	17.00	13.50	19.63	18.75	20.25
Normalized Head at t_2 (y_2) in Feet	0.08	0.16	0.14	0.11	0.17	0.17	0.16	0.17	0.21	0.28	0.23	0.40	0.38	0.50
Time - t_2 in Seconds	14.87	10.00	15.00	15.00	12.87	12.87	13.00	12.75	61.50	60.00	70.00	59.00	69.50	50.00
L_e/r_w	37.32								30.00					
Coefficient A [a]	2.7								2.5					
Coefficient B [a]	0.4								0.4					
Coefficient C [a]	2.2								1.9					
$\ln(R_e/r_w)$ [b]	2.2								3.0					
Calculated K in cm/sec	1.6E-02	1.6E-02	1.6E-02	1.6E-02	1.7E-02	1.6E-02	1.6E-02	1.6E-02	1.5E-03	1.5E-03	1.6E-03	1.6E-03	1.5E-03	1.6E-03
Calculated K in ft/day	46.3	45.8	44.7	44.8	47.8	46.7	46.8	46.0	4.2	4.2	4.5	4.4	4.3	4.5
Geometric Mean K in cm/sec	1.63E-02								1.54E-03					
Geometric Mean K in ft/day	46.1								4.4					
Geometric Mean K in ft/min	3.2E-02								3.0E-03					
Screened Interval Soil Type	GP & GC; sandy fine GRAVEL and clayey GRAVEL								SP; slightly gravelly, fine sand					

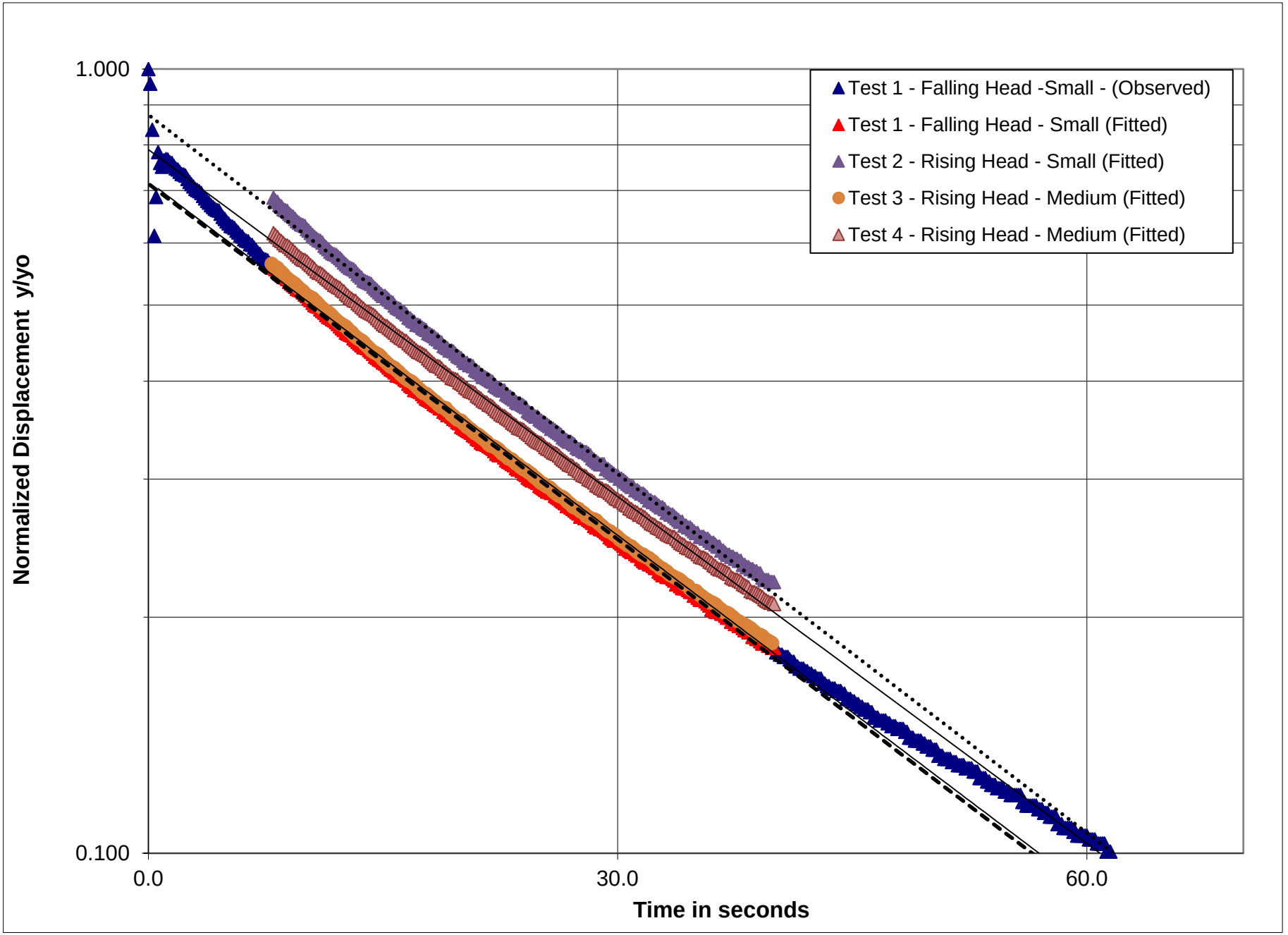
APPENDIX D.2

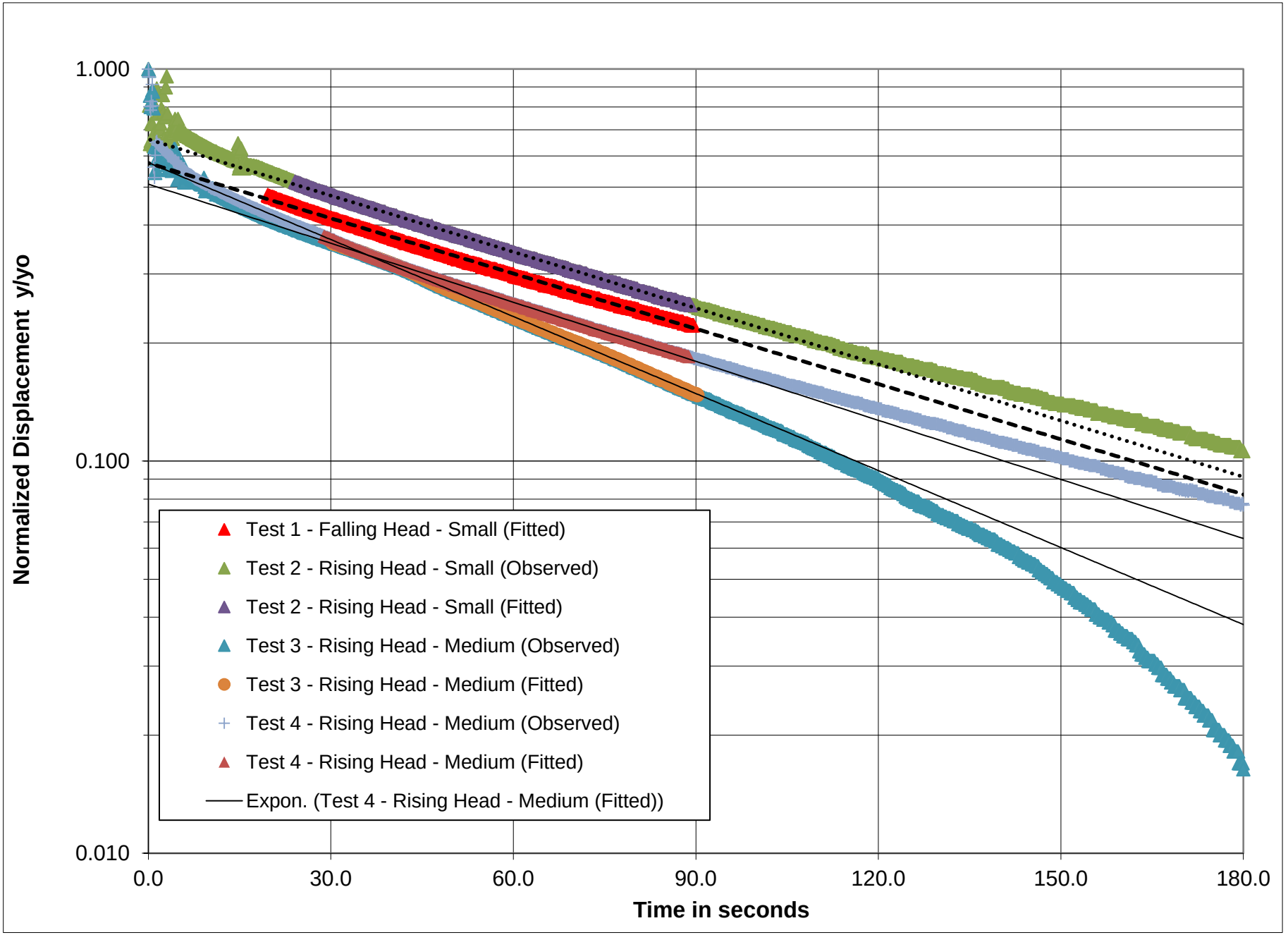
Slug Test Recovery Curve Figures (Provided on CD)

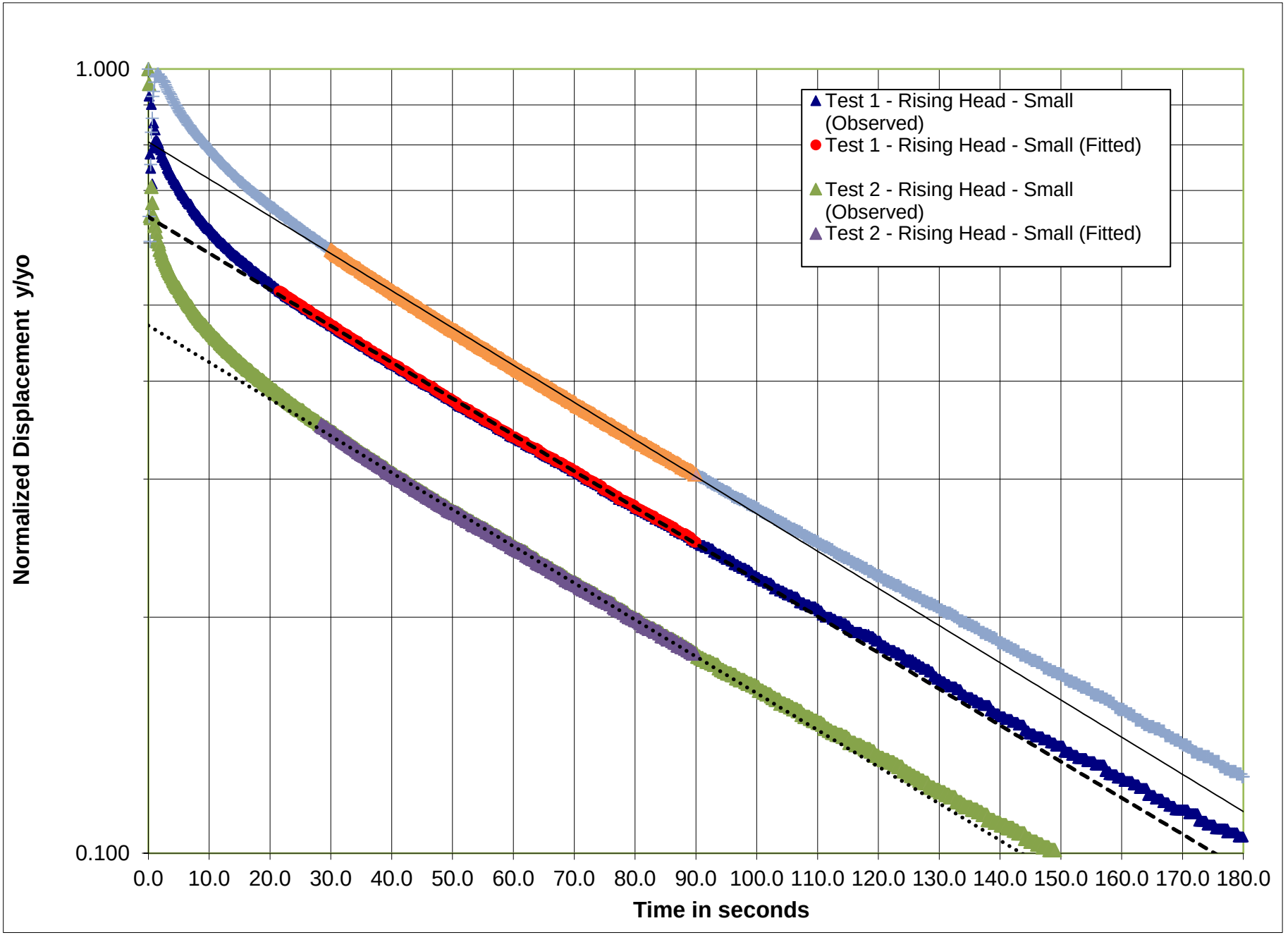

1.000
0.100
0.010
Normalized Displacement y/yo
0.0
30.0
60.0
90.0
120.0
150.0
180.0
Time in seconds
Test 1 - Falling Head - Small (Fitted)
Test 2 - Rising Head - Small (Observed)
Test 2 - Rising Head - Small (Fitted)
Test 3 - Rising Head - Small (Fitted)
Test 4 - Rising Head - Medium (Observed)


1.000
0.100
Normalized Displacement y/yo
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
110.0
120.0
130.0
140.0
150.0
160.0
170.0
180.0
Time in seconds
Test 1 - Rising Head - Small (Observed)
Test 1 - Rising Head - Small (Fitted)
Test 2 - Rising Head - Small (Observed)
Test 2 - Rising Head - Small (Fitted)
Test 3 - Rising Head - Medium (Observed)
Test 3 - Rising Head - Medium (Fitted)


1.000
0.100
0.0
30.0
60.0
Normalized Displacement y/yo
Time in seconds
Test 1 - Falling Head -Small - (Observed)
Test 1 - Falling Head - Small (Fitted)
Test 2 - Rising Head - Small (Observed)
Test 2 - Rising Head - Small (Fitted)
Test 3 - Rising Head - Medium (Observed)
Test 3 - Rising Head - Medium (Fitted)
Test 4 - Rising Head - Medium (Observed)
Test 4 - Rising Head - Medium (Fitted)


1.000
0.100
0.0
30.0
60.0
Normalized Displacement y/yo
Time in seconds
Test 1 - Falling Head -Small - (Observed)
Test 1 - Falling Head - Small (Fitted)
Test 2 - Rising Head - Small (Fitted)
Test 3 - Rising Head - Medium (Fitted)
Test 4 - Rising Head - Medium (Fitted)


1.000
0.100
0.010
Normalized Displacement y/yo
0.0
30.0
60.0
90.0
120.0
150.0
180.0
Time in seconds
Test 1 - Falling Head - Small (Fitted)
Test 2 - Rising Head - Small (Observed)
Test 2 - Rising Head - Small (Fitted)
Test 3 - Rising Head - Medium (Observed)
Test 3 - Rising Head - Medium (Fitted)
Test 4 - Rising Head - Medium (Observed)
Test 4 - Rising Head - Medium (Fitted)
Expon. (Test 4 - Rising Head - Medium (Fitted))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Normalized Displacement y/yo
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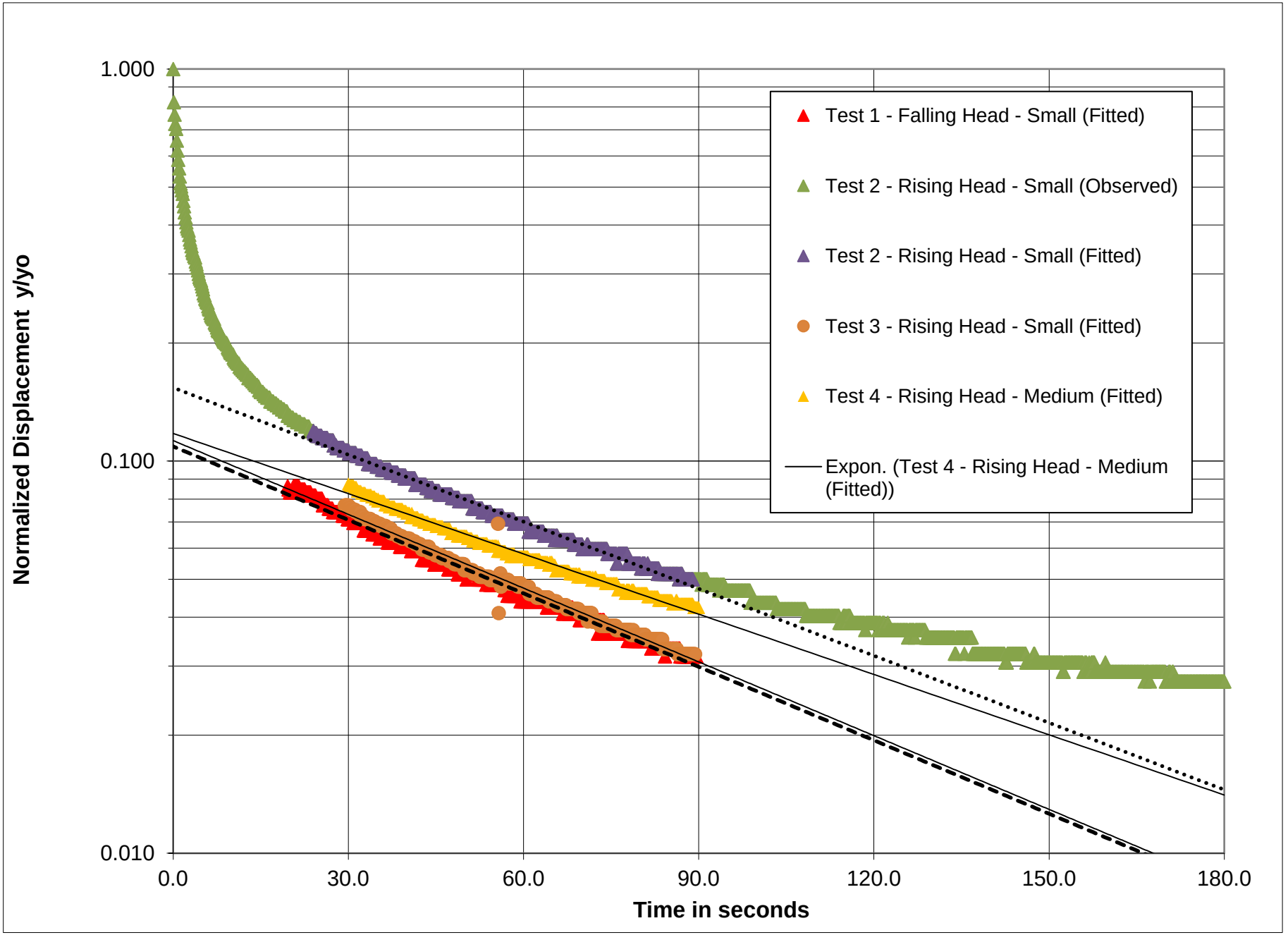
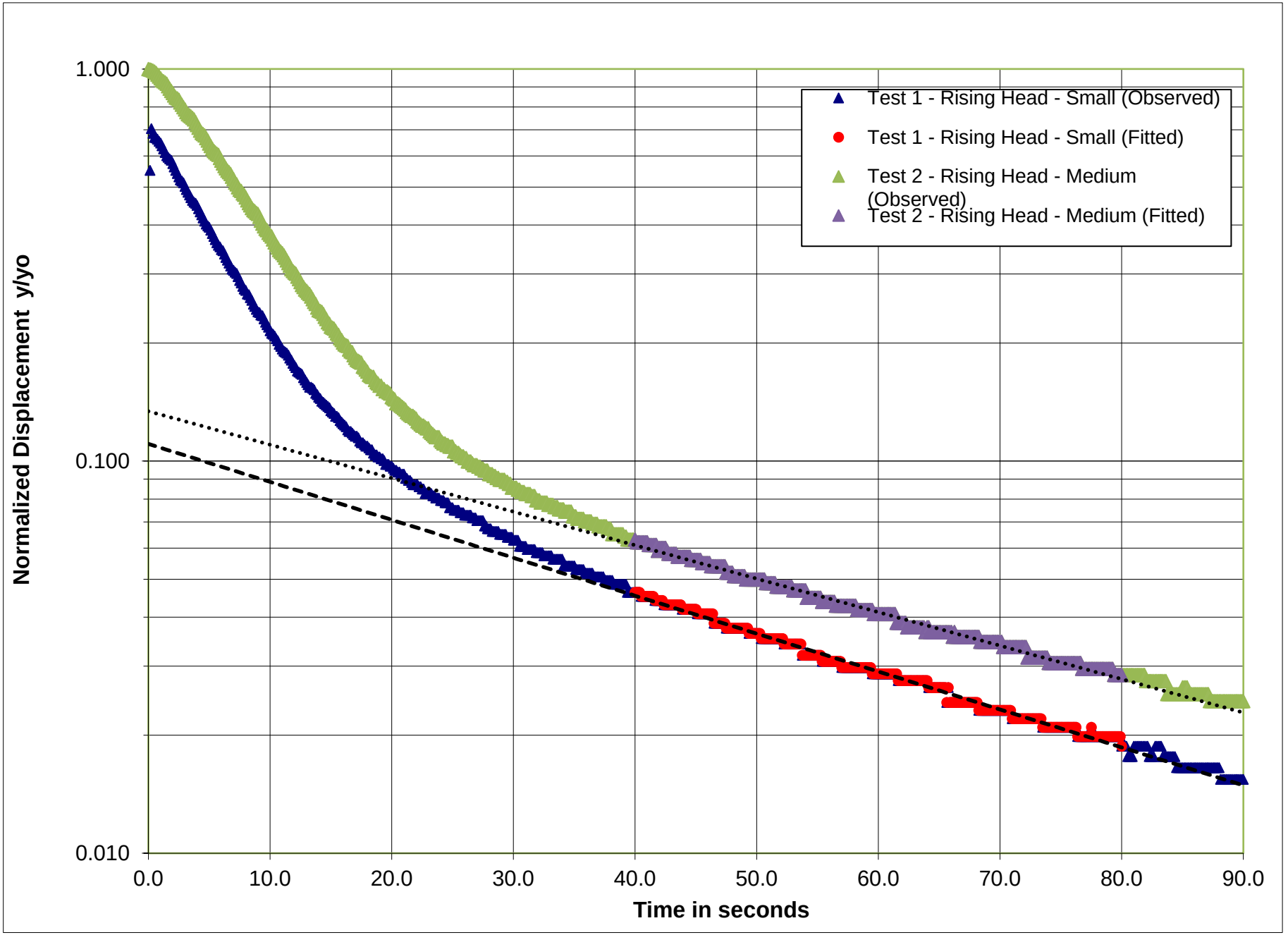
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
110.0
120.0
130.0
140.0
150.0
160.0
170.0
180.0
Time in seconds
Test 1 - Rising Head - Small (Observed)
Test 1 - Rising Head - Small (Fitted)
Test 2 - Rising Head - Small (Observed)
Test 2 - Rising Head - Small (Fitted)


1.000
0.100
0.010
Normalized Displacement y/yo
0.0
30.0
60.0
90.0
120.0
150.0
180.0
Time in seconds
Test 1 - Falling Head - Small (Fitted)
Test 2 - Rising Head - Small (Observed)
Test 2 - Rising Head - Small (Fitted)
Test 3 - Rising Head - Small (Fitted)
Test 4 - Rising Head - Medium (Fitted)
Expon. (Test 4 - Rising Head - Medium (Fitted))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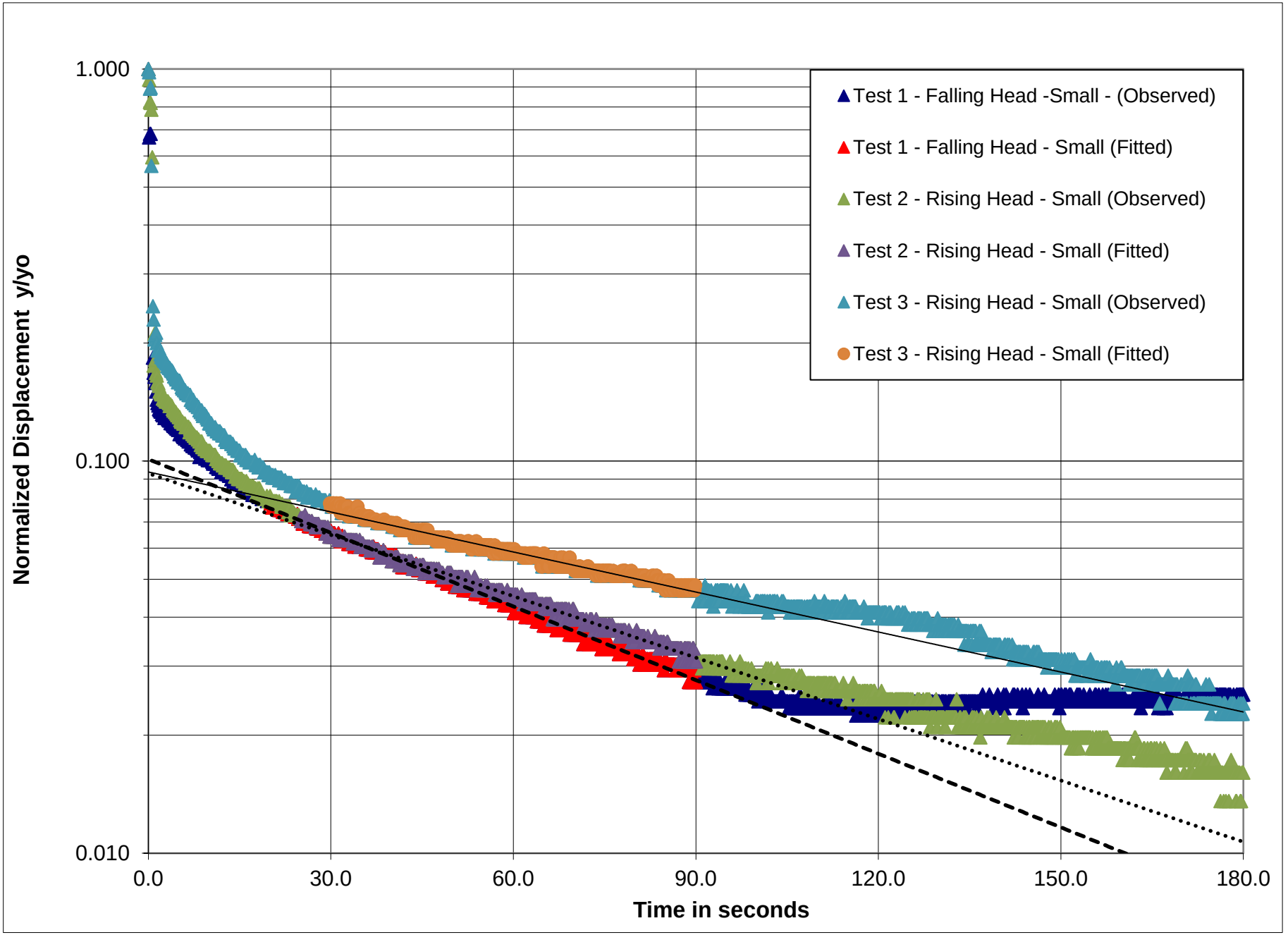
0.100
0.010
Normalized Displacement y/yo
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
Time in seconds
Test 1 - Rising Head - Small (Observed)
Test 1 - Rising Head - Small (Fitted)
Test 2 - Rising Head - Medium (Observed)
Test 2 - Rising Head - Medium (Fitted)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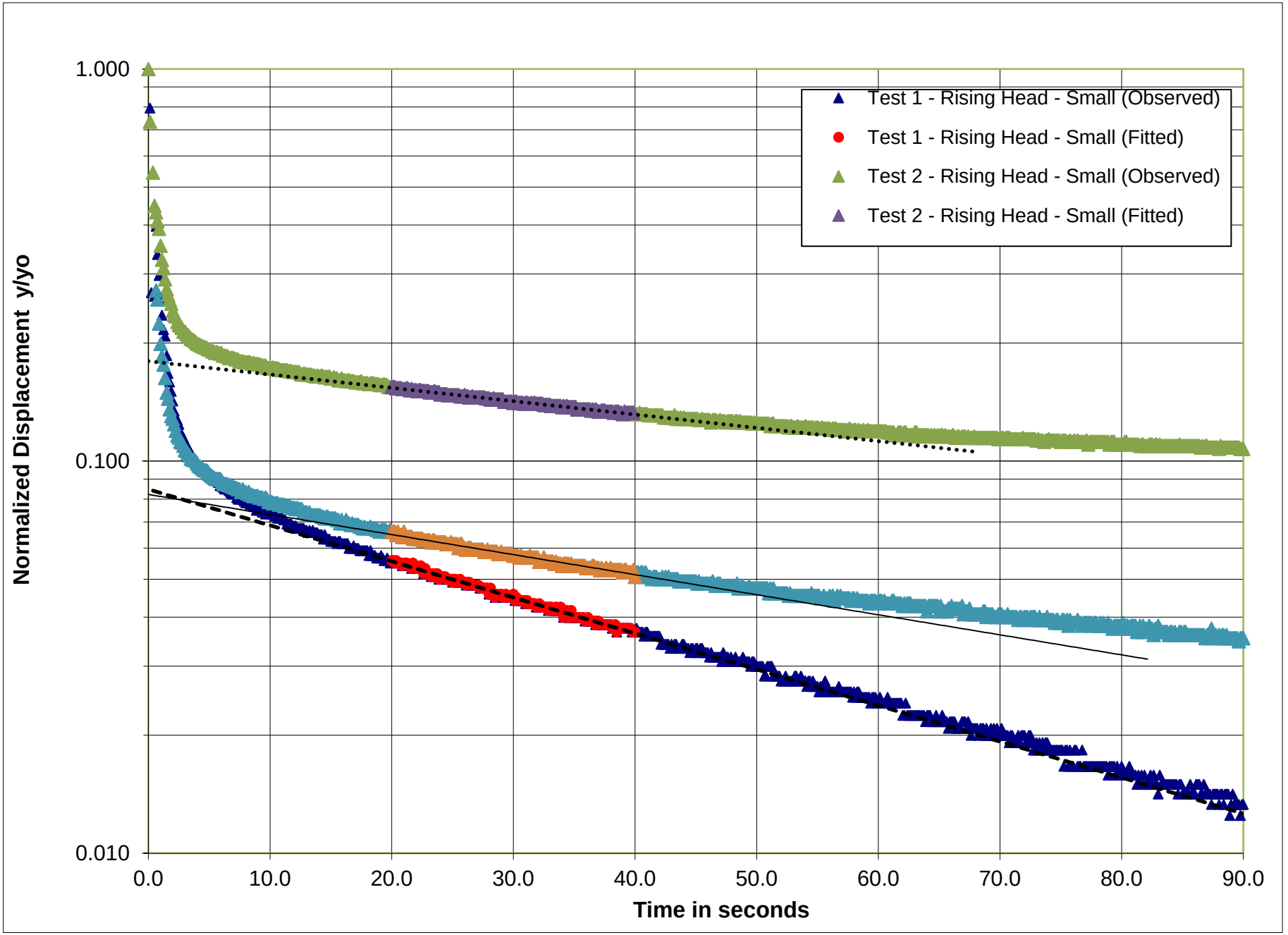
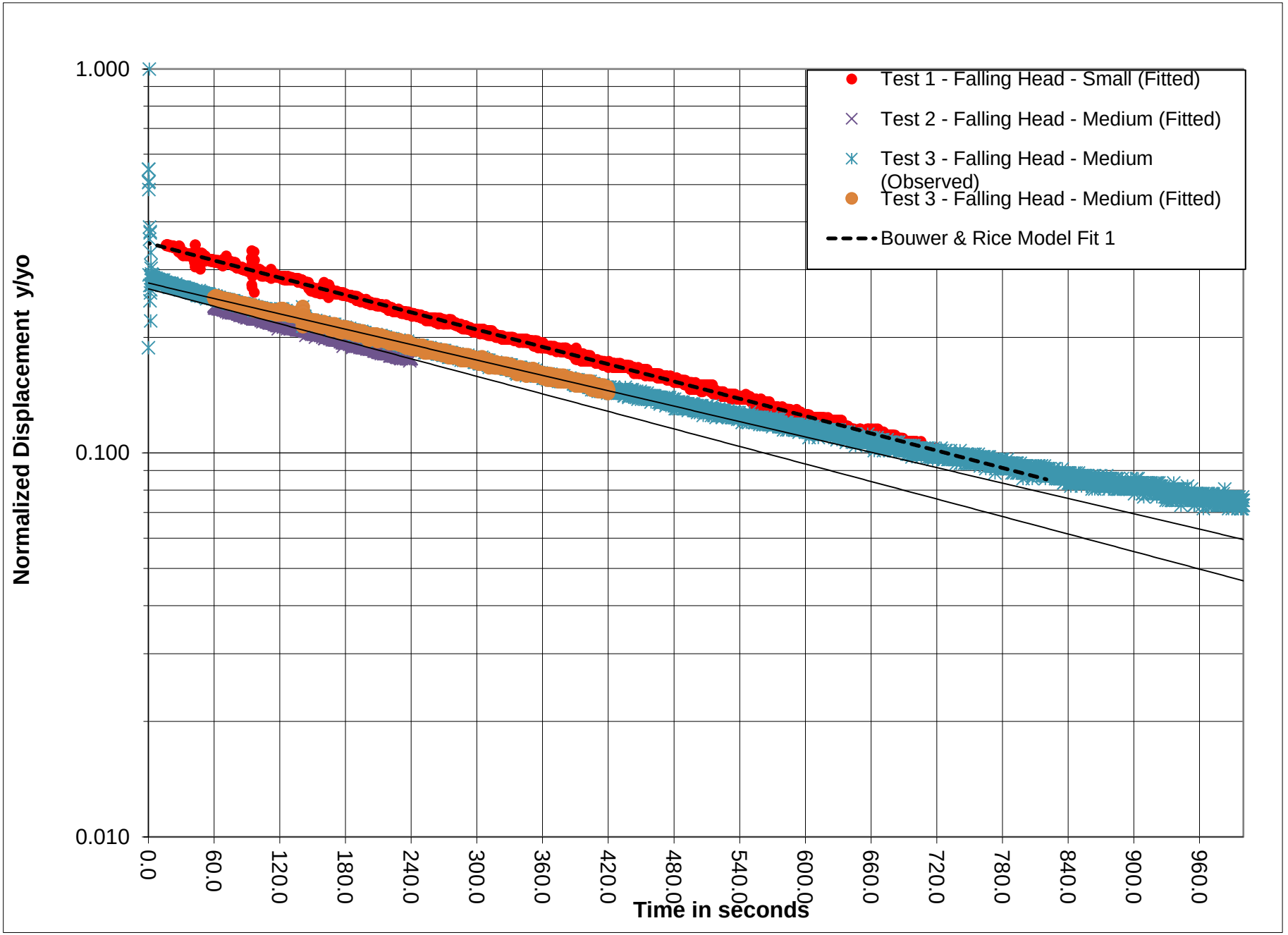
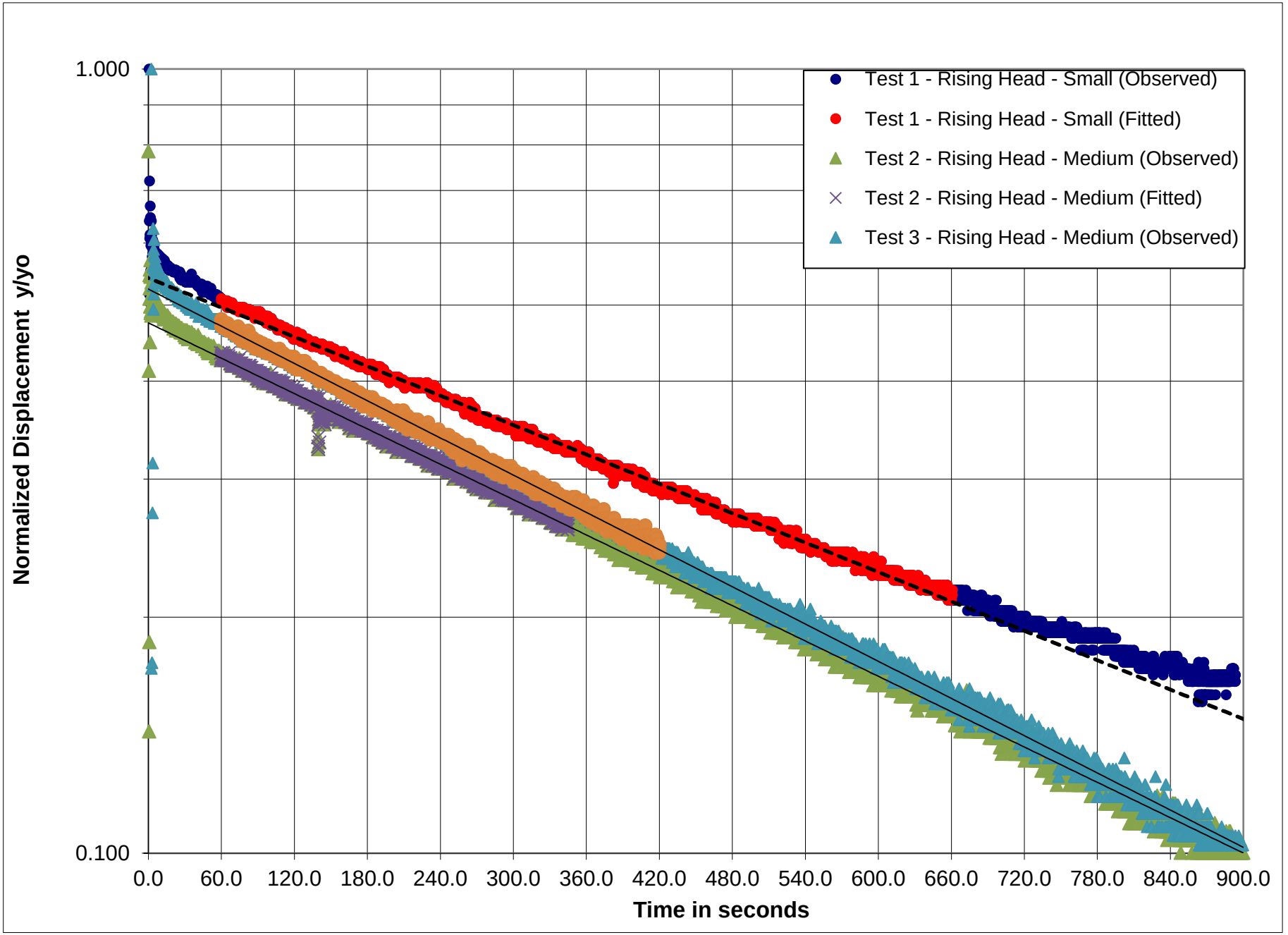
0.100
0.010
Normalized Displacement y/yo
0.0
30.0
60.0
90.0
120.0
150.0
180.0
Time in seconds
Test 1 - Falling Head -Small - (Observed)
Test 1 - Falling Head - Small (Fitted)
Test 2 - Rising Head - Small (Observed)
Test 2 - Rising Head - Small (Fitted)
Test 3 - Rising Head - Small (Observed)
Test 3 - Rising Head - Small (Fitted)


1.000
0.100
0.010
Normalized Displacement y/yo
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
Time in seconds
Test 1 - Rising Head - Small (Observed)
Test 1 - Rising Head - Small (Fitted)
Test 2 - Rising Head - Small (Observed)
Test 2 - Rising Head - Small (Fitted)


1.000
0.100
0.010
Normalized Displacement y/yo
0.0
60.0
120.0
180.0
240.0
300.0
360.0
420.0
480.0
540.0
600.0
660.0
720.0
780.0
840.0
900.0
960.0
Time in seconds
Test 1 - Falling Head - Small (Fitted)
Test 2 - Falling Head - Medium (Fitted)
Test 3 - Falling Head - Medium (Observed)
Test 3 - Falling Head - Medium (Fitted)
Bouwer & Rice Model Fit 1


1.000
0.100
Normalized Displacement y/yo
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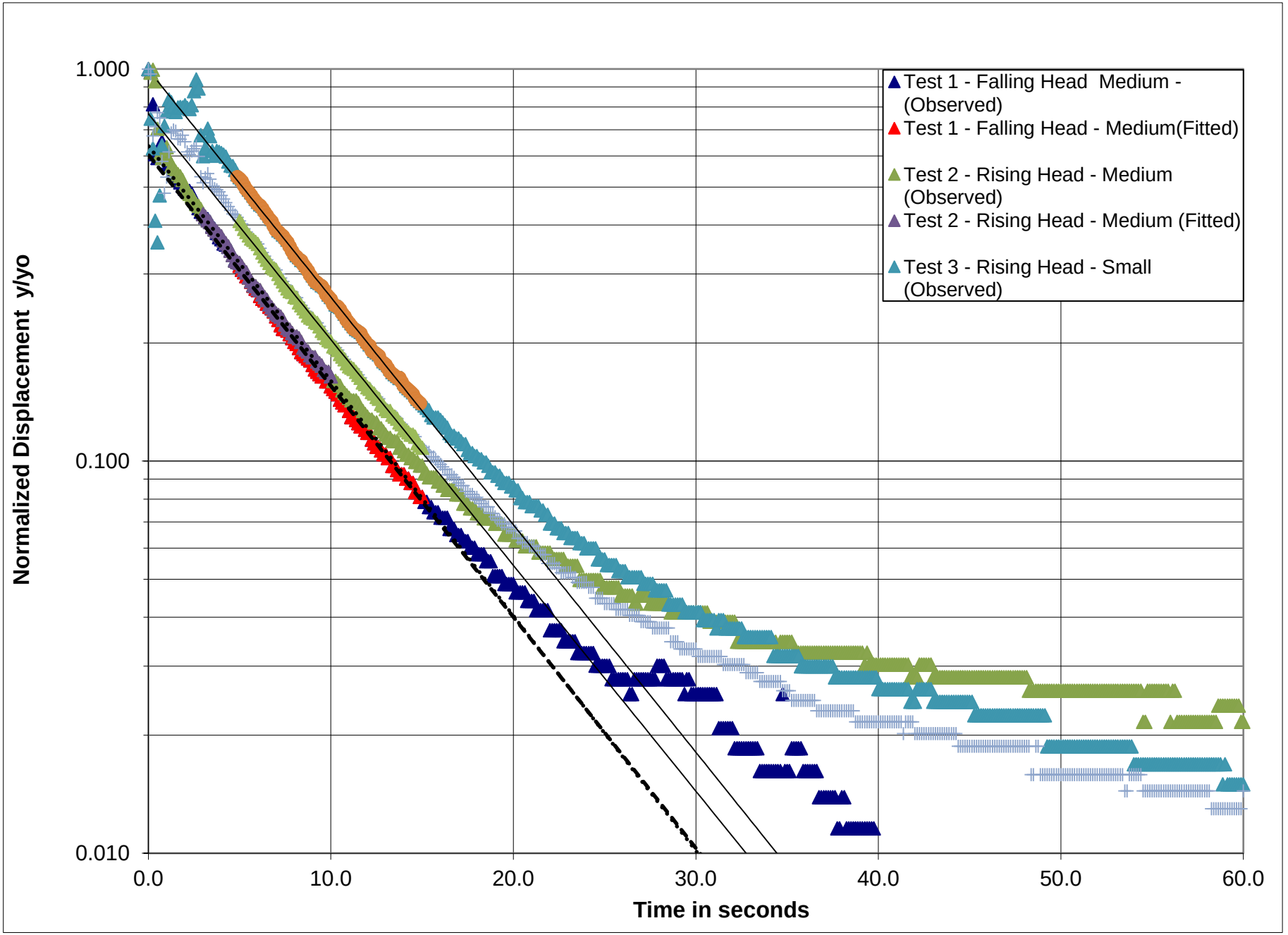
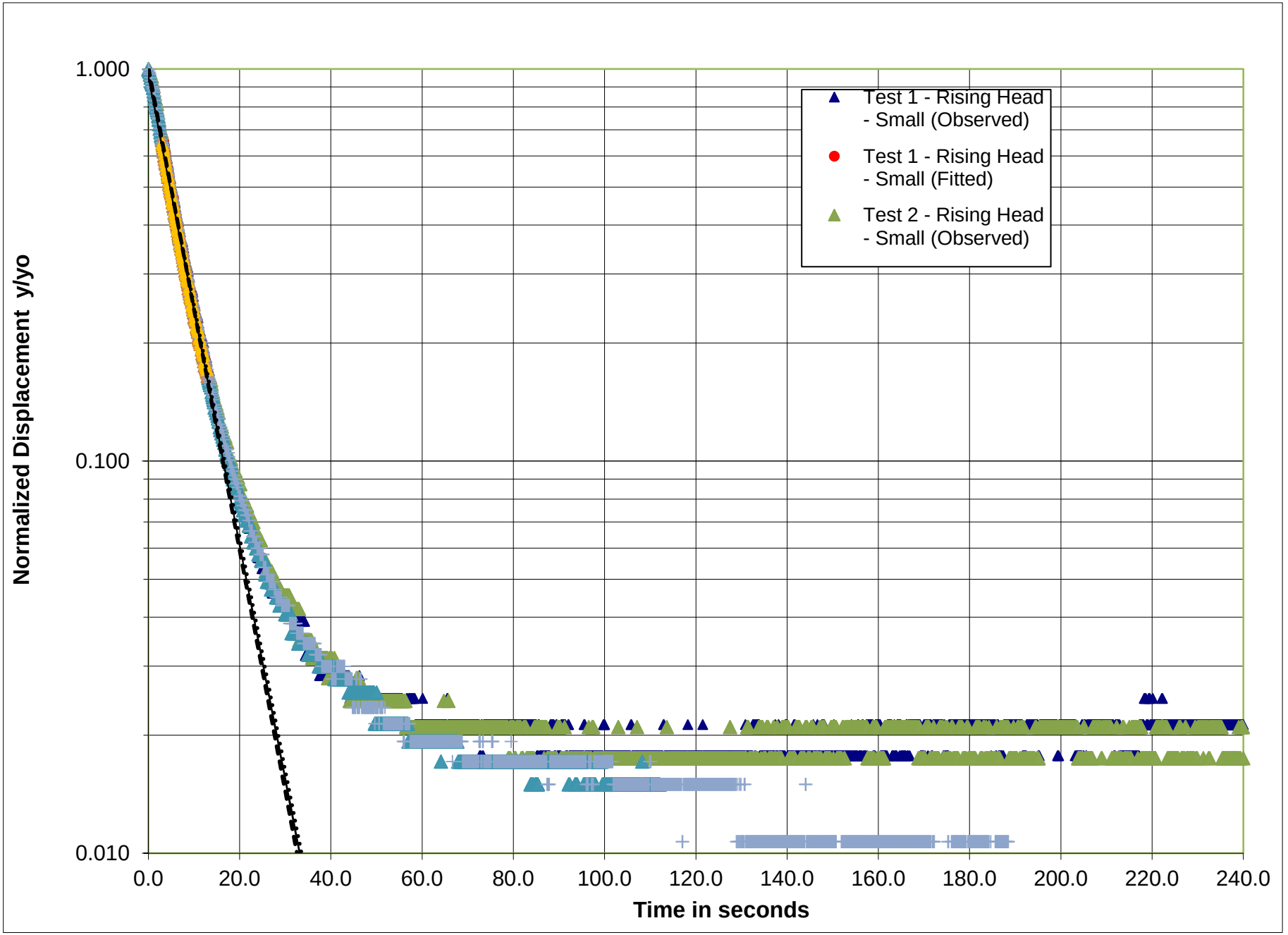
60.0
120.0
180.0
240.0
300.0
360.0
420.0
480.0
540.0
600.0
660.0
720.0
780.0
840.0
900.0
Time in seconds
Test 1 - Rising Head - Small (Observed)
Test 1 - Rising Head - Small (Fitted)
Test 2 - Rising Head - Medium (Observed)
Test 2 - Rising Head - Medium (Fitted)
Test 3 - Rising Head - Medium (Observed)


1.000
0.100
0.010
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Normalized Displacement y/yo
Time in seconds
Test 1 - Falling Head Medium - (Observed)
Test 1 - Falling Head - Medium(Fitted)
Test 2 - Rising Head - Medium (Observed)
Test 2 - Rising Head - Medium (Fitted)
Test 3 - Rising Head - Small (Observed)


1.000
0.100
0.010
Normalized Displacement y/yo
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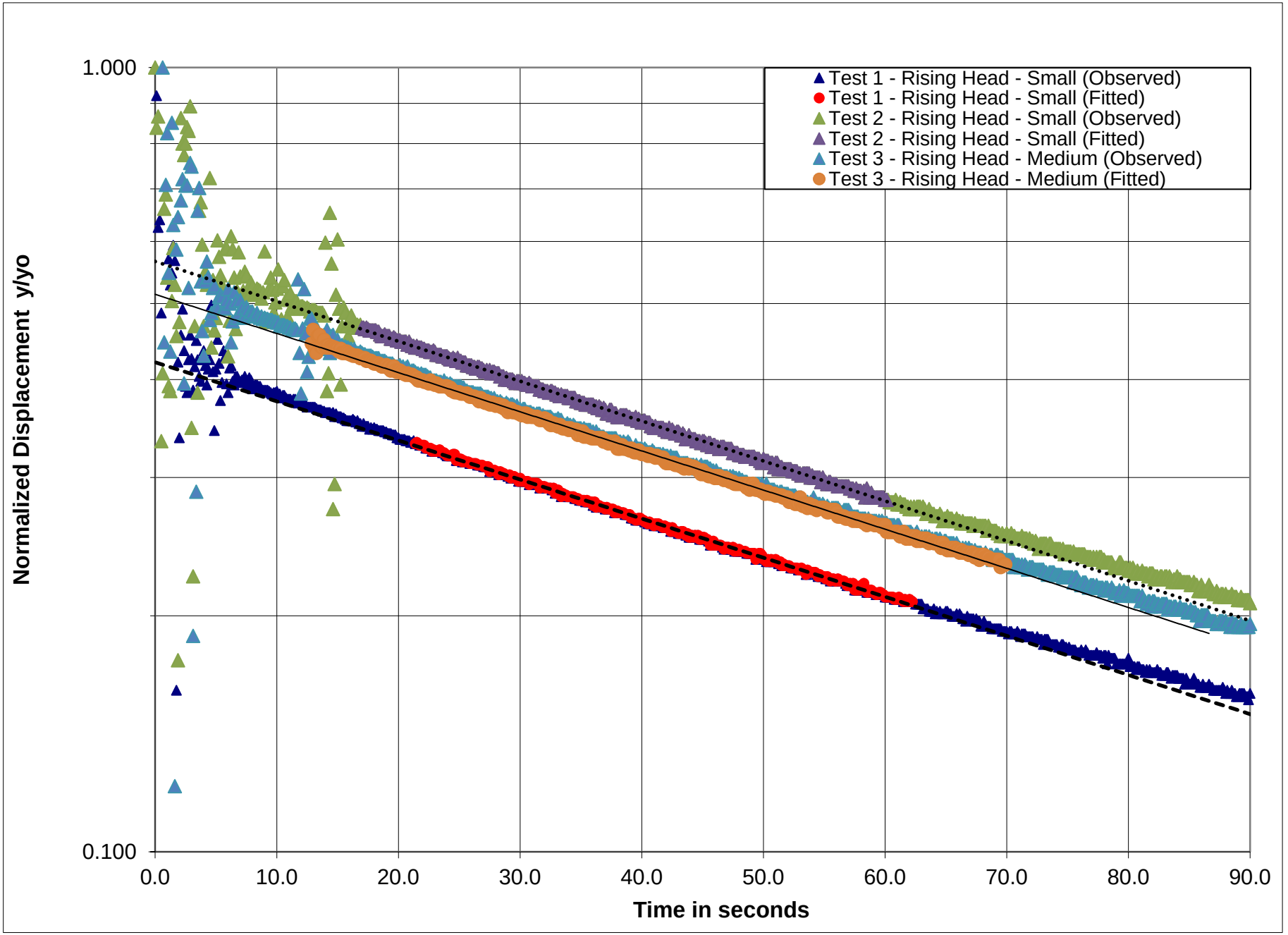
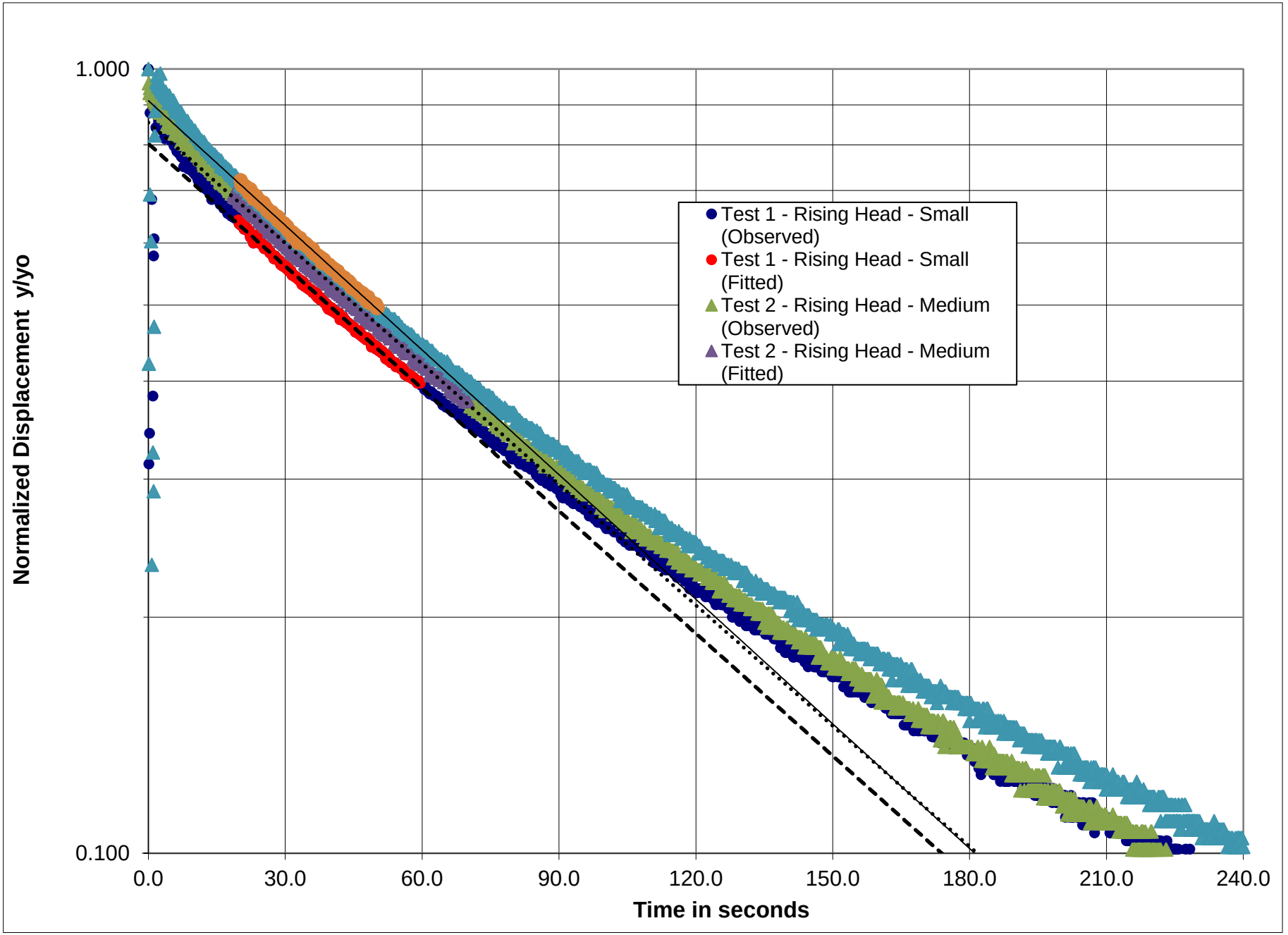
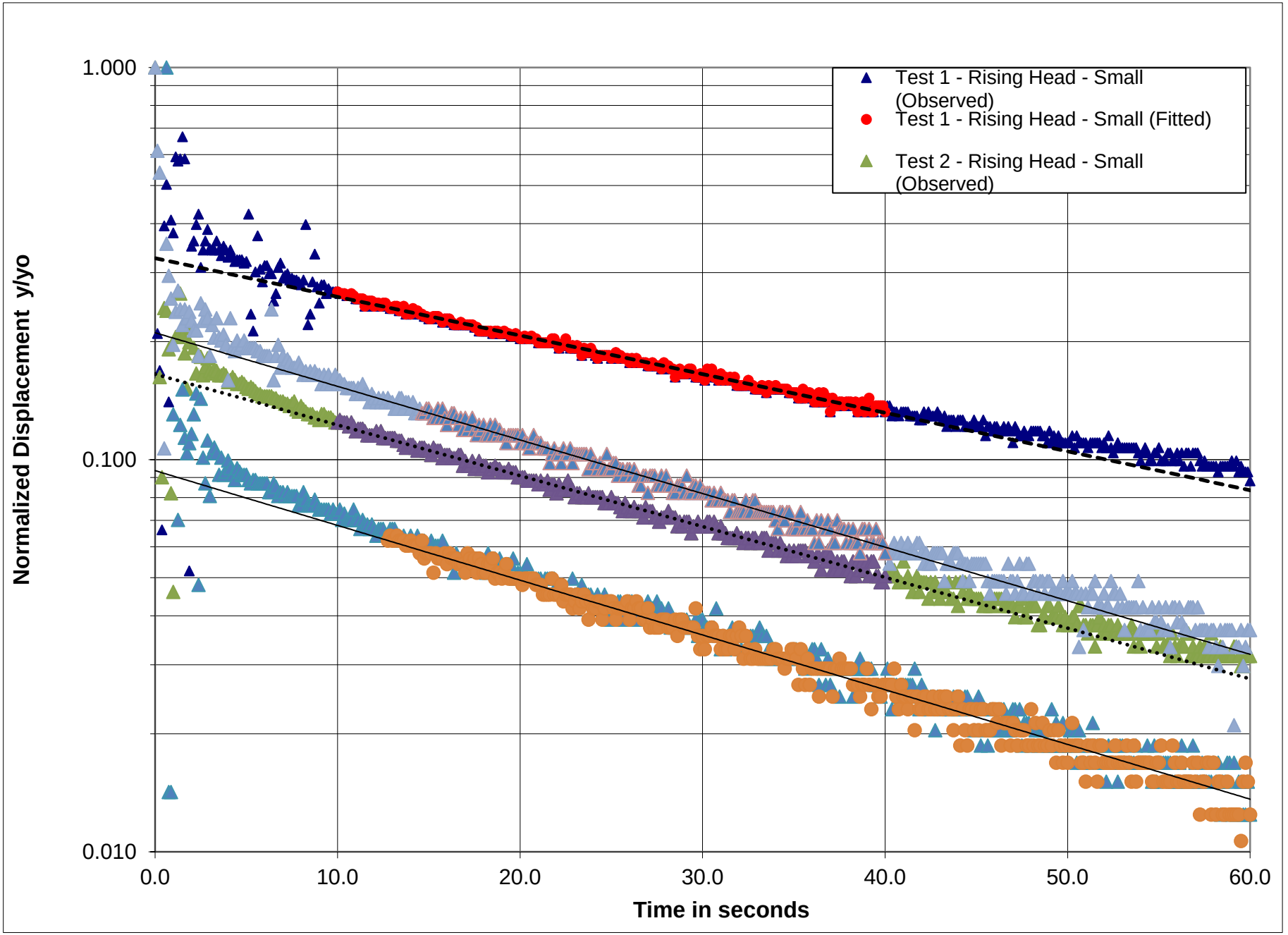
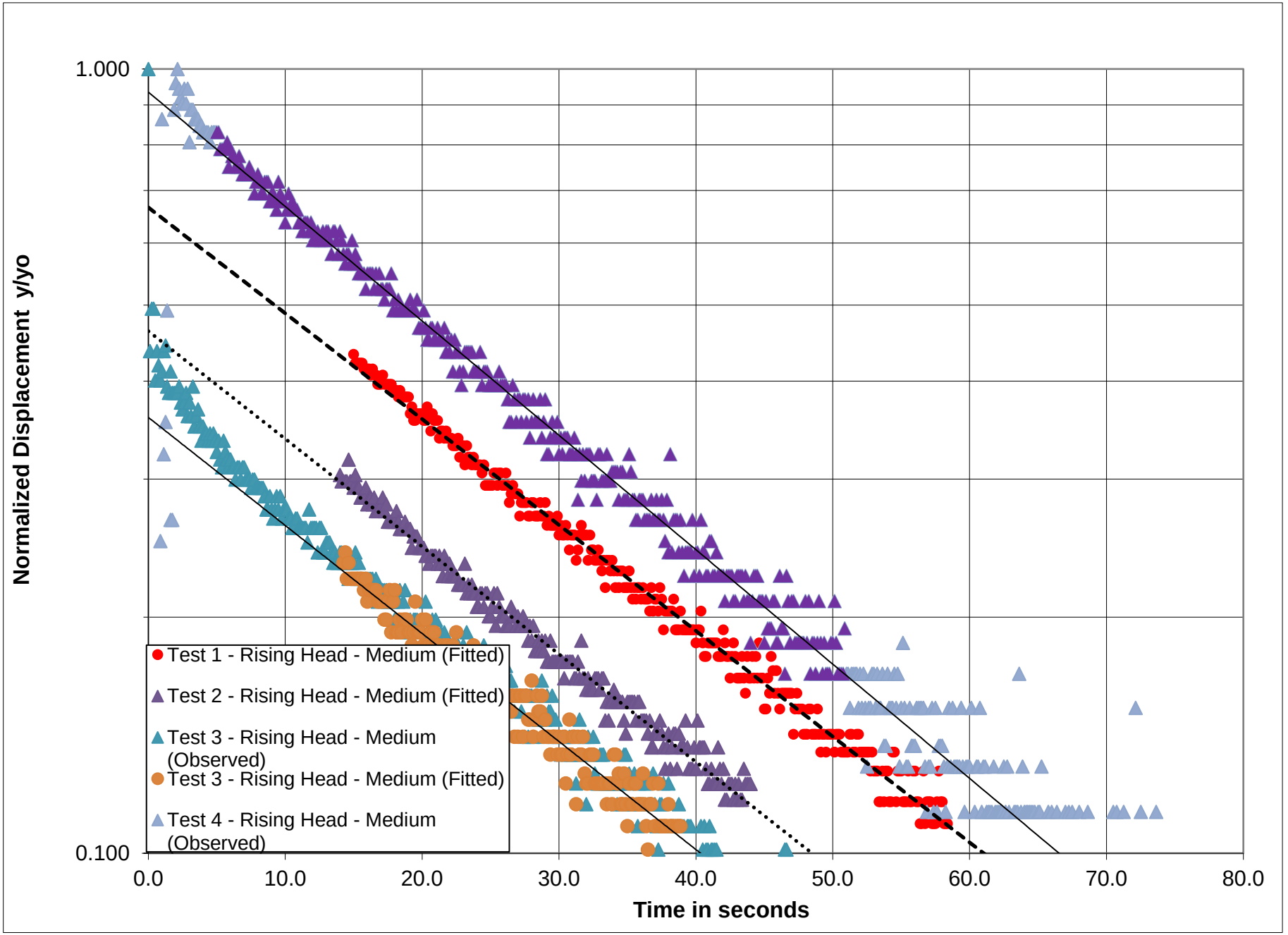
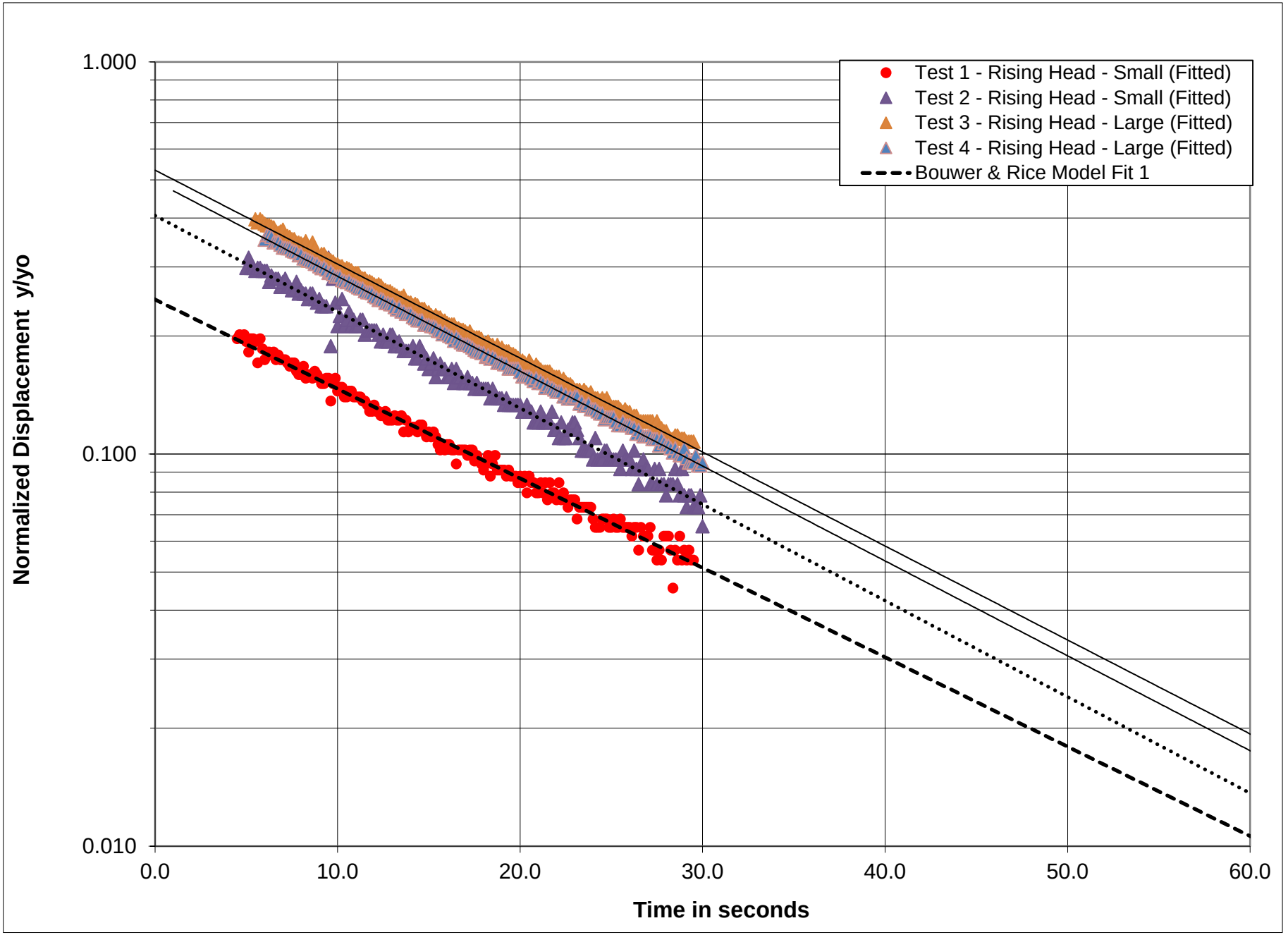
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0
180.0
200.0
220.0
240.0
Time in seconds
Test 1 - Rising Head - Small (Observed)
Test 1 - Rising Head - Small (Fitted)
Test 2 - Rising Head - Small (Observed)

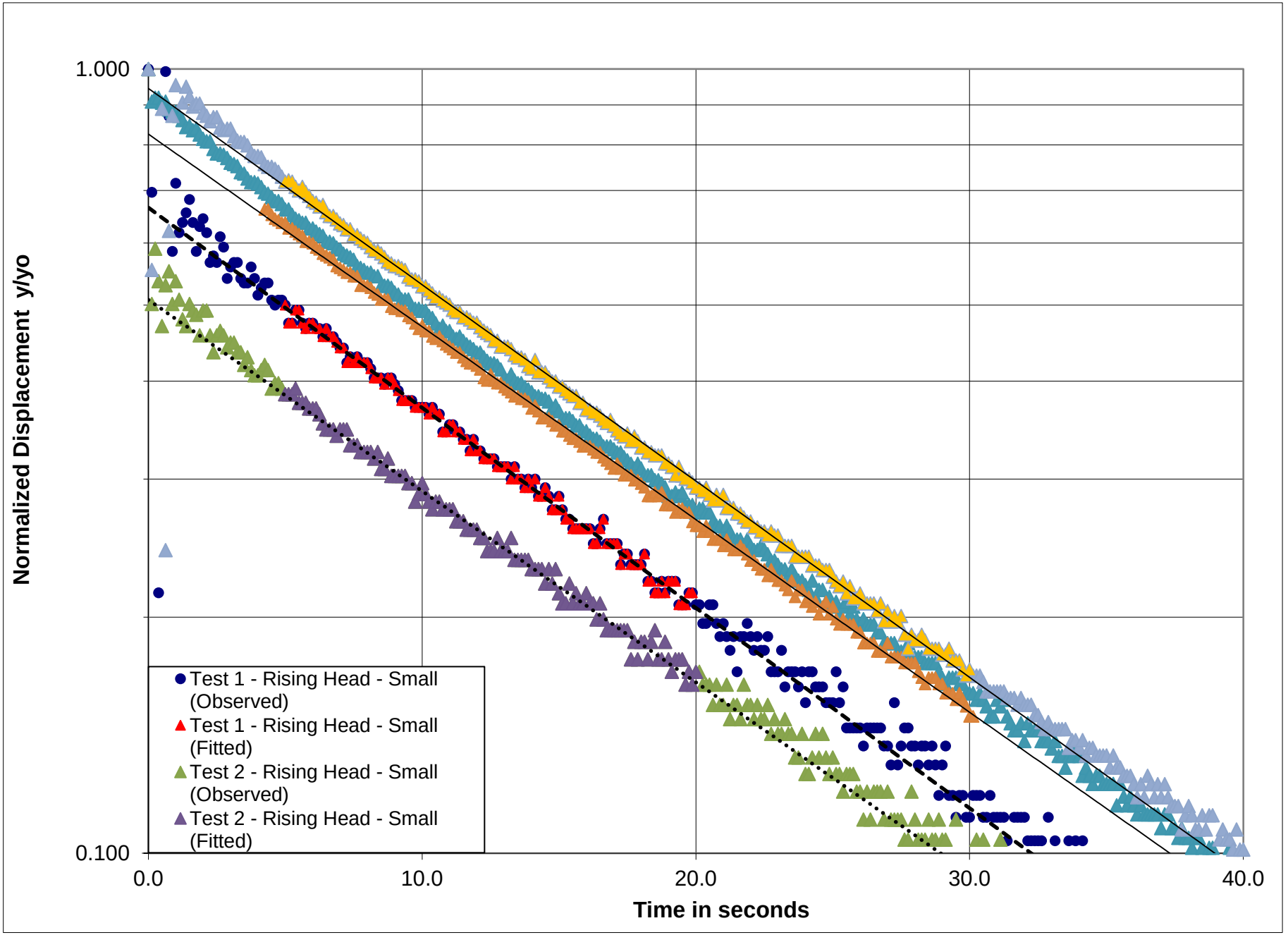

1.000
0.100
Normalized Displacement y/yo
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
Time in seconds
Test 1 - Rising Head - Small (Observed)
Test 1 - Rising Head - Small (Fitted)
Test 2 - Rising Head - Small (Observed)
Test 2 - Rising Head - Small (Fitted)
Test 3 - Rising Head - Medium (Observed)
Test 3 - Rising Head - Medium (Fitted)

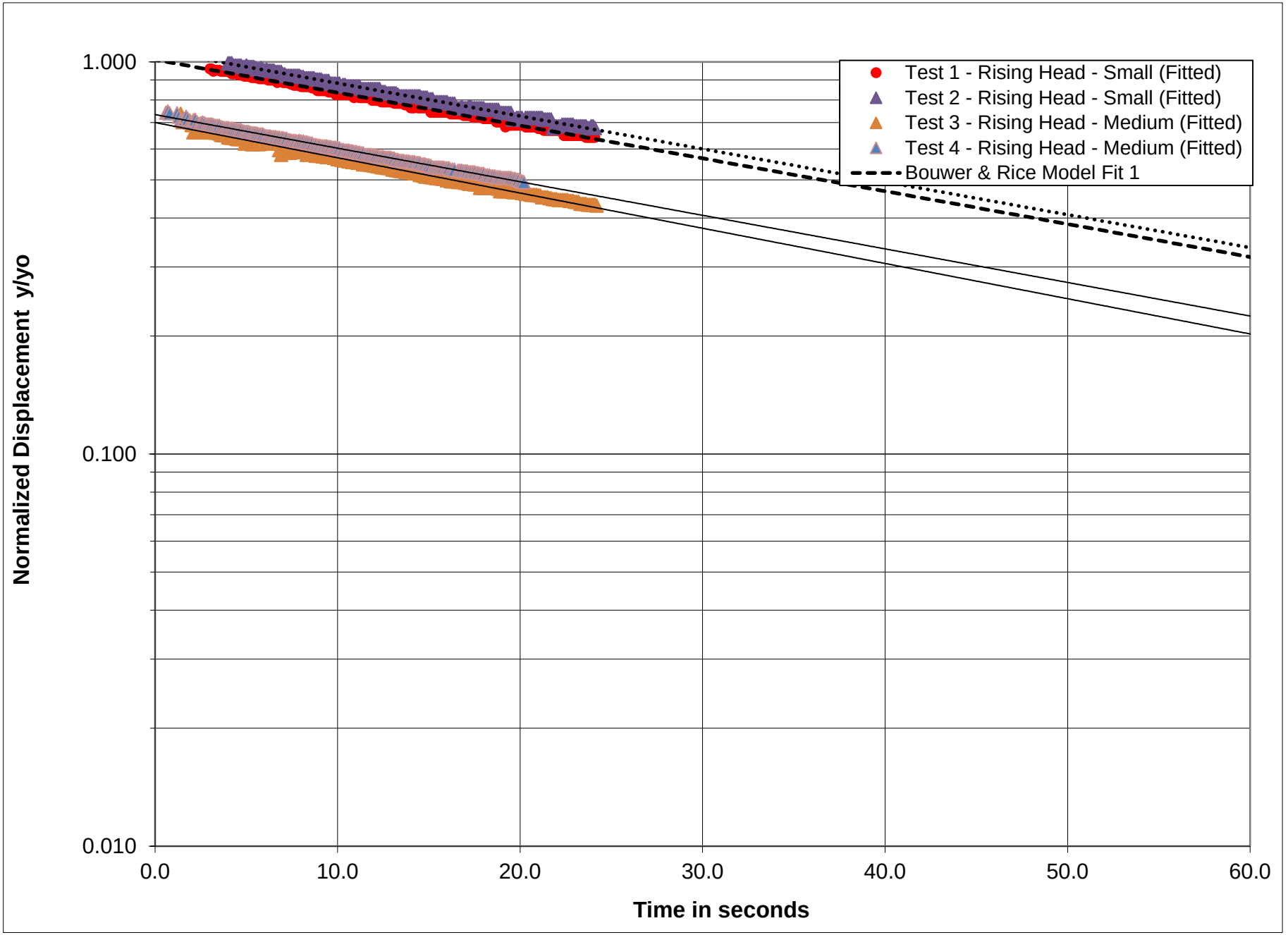

1.000
0.100
Normalized Displacement y/yo
0.0
30.0
60.0
90.0
120.0
150.0
180.0
210.0
240.0
Time in seconds
Test 1 - Rising Head - Small (Observed)
Test 1 - Rising Head - Small (Fitted)
Test 2 - Rising Head - Medium (Observed)
Test 2 - Rising Head - Medium (Fitted)

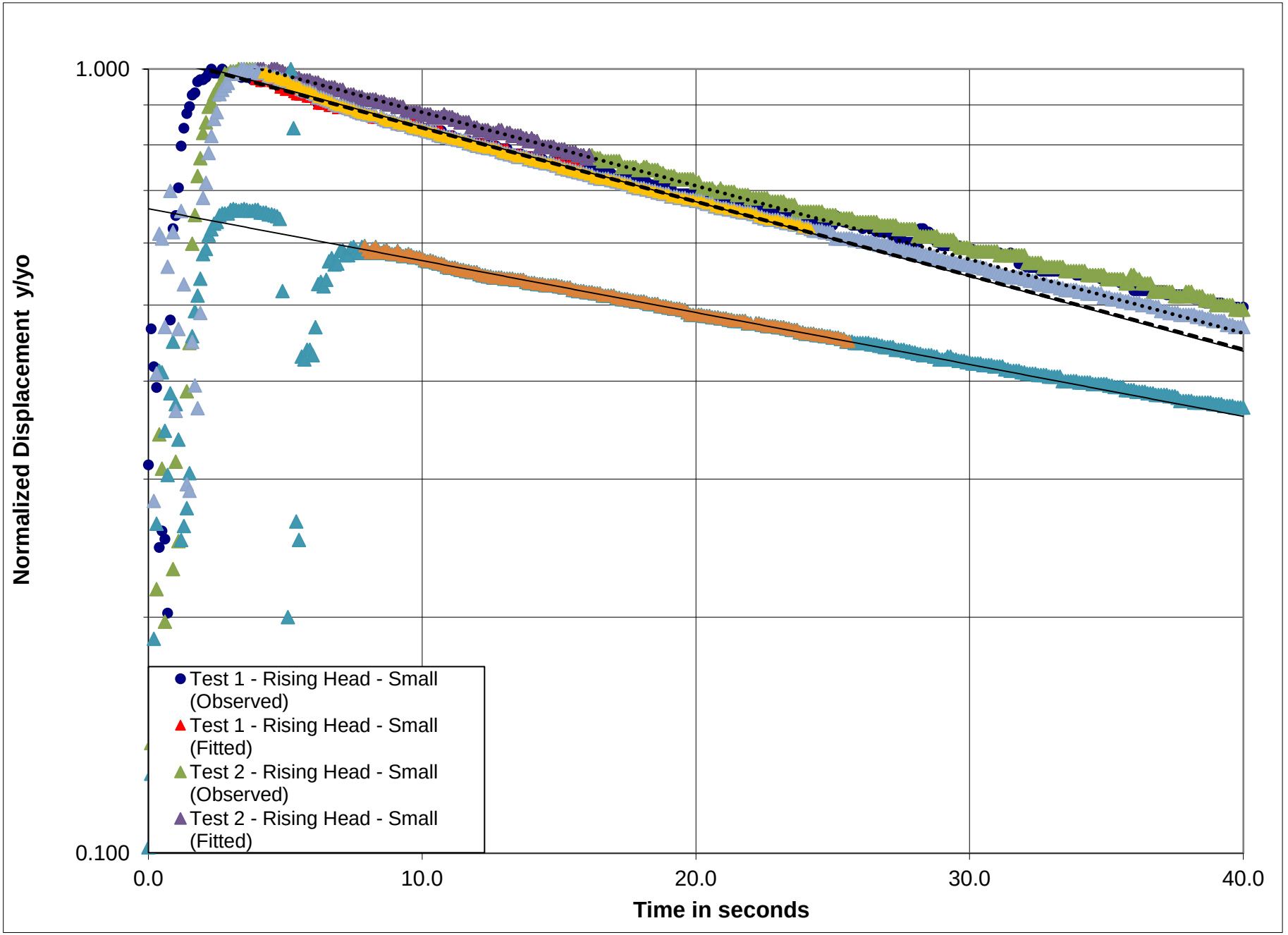

1.000
0.100
0.010
Normalized Displacement y/yo
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Time in seconds
Test 1 - Rising Head - Small (Observed)
Test 1 - Rising Head - Small (Fitted)
Test 2 - Rising Head - Small (Observed)


1.000
0.100
Normalized Displacement y/yo
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
Time in seconds
Test 1 - Rising Head - Medium (Fitted)
Test 2 - Rising Head - Medium (Fitted)
Test 3 - Rising Head - Medium (Observed)
Test 3 - Rising Head - Medium (Fitted)
Test 4 - Rising Head - Medium (Observed)


1.000
0.100
0.010
Normalized Displacement y/yo
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Time in seconds
Test 1 - Rising Head - Small (Fitted)
Test 2 - Rising Head - Small (Fitted)
Test 3 - Rising Head - Large (Fitted)
Test 4 - Rising Head - Large (Fitted)
Bouwer & Rice Model Fit 1


1.000
0.100
Normalized Displacement y/yo
0.0
10.0
20.0
30.0
40.0
Time in seconds
Test 1 - Rising Head - Small (Observed)
Test 1 - Rising Head - Small (Fitted)
Test 2 - Rising Head - Small (Observed)
Test 2 - Rising Head - Small (Fitted)


1.000
0.100
0.010
Normalized Displacement y/yo
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Time in seconds
Test 1 - Rising Head - Small (Fitted)
Test 2 - Rising Head - Small (Fitted)
Test 3 - Rising Head - Medium (Fitted)
Test 4 - Rising Head - Medium (Fitted)
Bouwer & Rice Model Fit 1


1.000
0.100
Normalized Displacement y/yo
0.0
10.0
20.0
30.0
40.0
Time in seconds
Test 1 - Rising Head - Small (Observed)
Test 1 - Rising Head - Small (Fitted)
Test 2 - Rising Head - Small (Observed)
Test 2 - Rising Head - Small (Fitted)