01/20/05	11:34:51	223.5	53.92	-1.847
01/20/05	11:35:05	236.8	53.92	-1.856
01/20/05	11:35:19	250.9	53.92	-1.862
01/20/05	11:35:34	265.8	53.92	-1.867
01/20/05	11:35:49	281.6	53.92	-1.869
01/20/05	11:36:06	298.4	53.94	-1.871
01/20/05	11:36:24	316.2	53.94	-1.873
01/20/05	11:36:43	335.0	53.94	-1.873
01/20/05	11:37:03	354.9	53.94	-1.873
01/20/05	11:37:24	376.0	53.94	-1.873
01/20/05	11:37:46	398.4	53.94	-1.874
01/20/05	11:38:10	422.1	53.94	-1.874
01/20/05	11:38:35	447.2	53.97	-1.876
01/20/05	11:39:02	473.8	53.97	-1.876
01/20/05	11:39:30	502.0	53.97	-1.876
01/20/05	11:40:00	531.9	53.97	-1.874
01/20/05	11:40:31	563.5	53.97	-1.872
01/20/05	11:41:05	597.0	53.97	-1.872
01/20/05	11:41:40	632.5	53.97	-1.872
01/20/05	11:42:18	670.1	53.97	-1.874
01/20/05	11:42:58	709.9	53.99	-1.876
01/20/05	11:43:40	752.1	53.99	-1.876
01/20/05	11:44:25	796.8	53.99	-1.878
01/20/05	11:45:12	844.2	53.99	-1.878
01/20/05	11:46:02	894.4	53.99	-1.880
01/20/05	11:46:55	947.5	53.99	-1.881

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: LL5mw-003	Date Started: 01/20/05	Date Completed: 01/20/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	5444	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 1127.70	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 8.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	~~23.95~~		TOP OF FILTER PACK	8' BGS	
DEPTH TO WATER	14.91		TOP OF SCREEN	11' BGS	
HEIGHT OF WATER COLUMN	9.04		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~15'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY) BEGIN	DATE (MM/DD/YY) END	TIME (HH:MM:SS) BEGIN	TIME (HH:MM:SS) END	DEPTH TO TRANSDUCER	DEPTH TO WATER (FT) BEGIN	DEPTH TO WATER (FT) END	HEIGHT OF WATER COLUMN (FT) BEGIN	HEIGHT OF WATER COLUMN (FT) END
1	LL5mw-003-IN	01/20/05	01/20/05	1114	1135	~22'				
2	LL5mw-003-OUT	01/20/05	01/20/05	1136	1152	~22'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL LOG SCALE	TEST TIME INTERVAL ARITH. SCALE	COMMENTS
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SLS

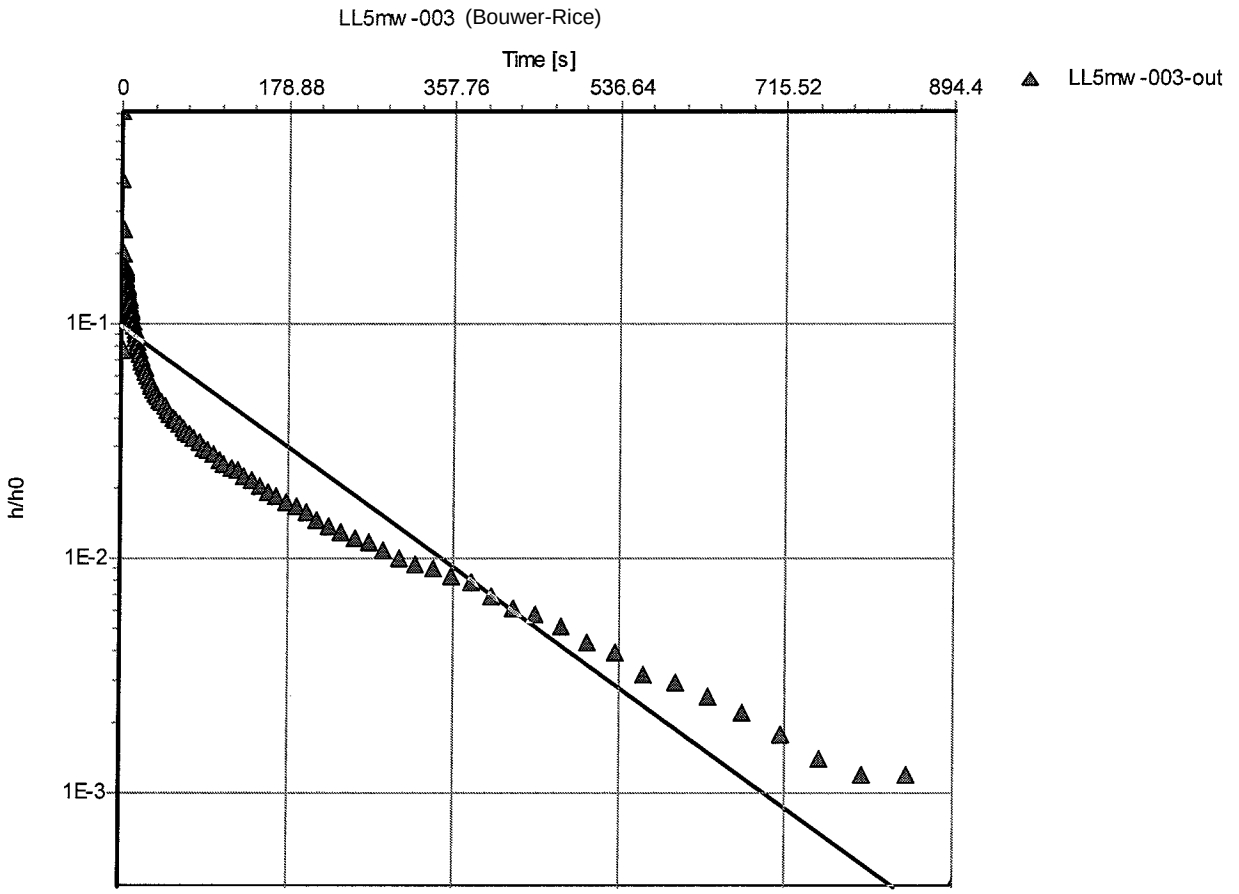
Signature: David K Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **LL5mw-003**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 1.76E-4 [cm/s]

Test parameters:				
	Test Well:	LL5mw-003-out	Aquifer thickness:	9.04 [ft]
	Screen radius:	0.34375 [ft]	Gravel Pack Porosity (%)	25
	Screen length:	10 [ft]		
	Casing radius:	0.08333 [ft]		
	r(eff):	0.186 [ft]		

Comments:

Evaluated by:

Date: 02/24/05

In-Situ Inc. MiniTroll Pro

Report generated: 01/20/05 16:35:13
Report from file: ...\SN05444 2005-01-20 113608 LL5mw-003-Out.bin
Win-Situ Version 4.50

Serial number: 00005444
Firmware Version 3.09
Unit name: MKM 45

Test name: LL5mw-003-Out

Test defined on: 01/19/05 10:40:28
Test started on: 01/20/05 11:36:08
Test stopped on: 01/20/05 11:52:44
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
Maximum time between data points: 600.0 Seconds.
Number of data samples: 109

TOTAL DATA SAMPLES 109

Channel number [1]
Measurement type: Temperature
Channel name: H2O Temp.

Channel number [2]
Measurement type: Pressure
Channel name: H2O Level
Sensor Range: 30 PSIG.
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Feet H2O
Referenced on: test start
Pressure head at reference: 3.297 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
01/20/05	11:36:08		0.0	50.23	0.000
01/20/05	11:36:08		0.3	50.23	1.056
01/20/05	11:36:09		0.6	50.25	-3.841
01/20/05	11:36:09		0.9	50.25	-0.924
01/20/05	11:36:09		1.2	50.25	-2.647
01/20/05	11:36:10		1.5	50.28	-1.749
01/20/05	11:36:10		1.8	50.28	-2.285
01/20/05	11:36:10		2.1	50.28	-2.024
01/20/05	11:36:11		2.4	50.28	-2.192
01/20/05	11:36:11		2.7	50.30	-2.136
01/20/05	11:36:11		3.0	50.30	-2.182
01/20/05	11:36:11		3.3	50.30	-2.190
01/20/05	11:36:12		3.6	50.30	-2.166
01/20/05	11:36:12		3.9	50.30	-2.182
01/20/05	11:36:12		4.2	50.30	-2.216
01/20/05	11:36:13		4.5	50.30	-2.242
01/20/05	11:36:13		4.8	50.30	-2.257
01/20/05	11:36:13		5.1	50.30	-2.270
01/20/05	11:36:14		5.4	50.30	-2.285
01/20/05	11:36:14		5.7	50.30	-2.298

01/20/05	11:36:14	6.0	50.30	-2.311
01/20/05	11:36:14	6.4	50.30	-2.324
01/20/05	11:36:15	6.7	50.30	-2.338
01/20/05	11:36:15	7.1	50.30	-2.353
01/20/05	11:36:16	7.5	50.30	-2.368
01/20/05	11:36:16	8.0	50.30	-2.385
01/20/05	11:36:17	8.4	50.32	-2.401
01/20/05	11:36:17	8.9	50.32	-2.418
01/20/05	11:36:18	9.5	50.32	-2.435
01/20/05	11:36:18	10.0	50.32	-2.452
01/20/05	11:36:19	10.6	50.30	-2.470
01/20/05	11:36:19	11.3	50.30	-2.487
01/20/05	11:36:20	11.9	50.30	-2.506
01/20/05	11:36:21	12.6	50.30	-2.522
01/20/05	11:36:21	13.4	50.30	-2.541
01/20/05	11:36:22	14.2	50.30	-2.558
01/20/05	11:36:23	15.0	50.30	-2.576
01/20/05	11:36:24	15.9	50.30	-2.593
01/20/05	11:36:25	16.8	50.30	-2.610
01/20/05	11:36:26	17.8	50.30	-2.628
01/20/05	11:36:27	18.9	50.30	-2.643
01/20/05	11:36:28	20.0	50.30	-2.658
01/20/05	11:36:29	21.2	50.30	-2.673
01/20/05	11:36:31	22.4	50.30	-2.688
01/20/05	11:36:32	23.8	50.30	-2.701
01/20/05	11:36:33	25.2	50.30	-2.712
01/20/05	11:36:35	26.7	50.30	-2.723
01/20/05	11:36:36	28.2	50.30	-2.736
01/20/05	11:36:38	29.8	50.30	-2.746
01/20/05	11:36:40	31.5	50.30	-2.755
01/20/05	11:36:41	33.3	50.30	-2.764
01/20/05	11:36:43	35.2	50.30	-2.772
01/20/05	11:36:45	37.3	50.30	-2.781
01/20/05	11:36:48	39.5	50.30	-2.790
01/20/05	11:36:50	41.8	50.30	-2.798
01/20/05	11:36:52	44.3	50.30	-2.805
01/20/05	11:36:55	46.9	50.30	-2.812
01/20/05	11:36:58	49.7	50.30	-2.820
01/20/05	11:37:01	52.6	50.30	-2.827
01/20/05	11:37:04	55.7	50.30	-2.837
01/20/05	11:37:07	59.0	50.30	-2.842
01/20/05	11:37:11	62.5	50.30	-2.848
01/20/05	11:37:14	66.2	50.30	-2.855
01/20/05	11:37:18	70.1	50.30	-2.863
01/20/05	11:37:22	74.3	50.30	-2.868
01/20/05	11:37:27	78.7	50.30	-2.874
01/20/05	11:37:31	83.4	50.30	-2.879
01/20/05	11:37:36	88.4	50.30	-2.887
01/20/05	11:37:42	93.7	50.30	-2.892
01/20/05	11:37:47	99.3	50.32	-2.898
01/20/05	11:37:53	105.2	50.30	-2.904
01/20/05	11:38:00	111.5	50.32	-2.909
01/20/05	11:38:06	118.1	50.32	-2.915
01/20/05	11:38:13	125.1	50.32	-2.918
01/20/05	11:38:21	132.6	50.32	-2.924
01/20/05	11:38:29	140.5	50.32	-2.929
01/20/05	11:38:37	148.9	50.32	-2.935
01/20/05	11:38:46	157.8	50.32	-2.941
01/20/05	11:38:55	167.2	50.32	-2.944
01/20/05	11:39:05	177.2	50.32	-2.950
01/20/05	11:39:16	187.8	50.34	-2.953
01/20/05	11:39:27	199.0	50.34	-2.959
01/20/05	11:39:39	210.9	50.34	-2.965

01/20/05	11:39:52	223.5	50.34	-2.968
01/20/05	11:40:05	236.8	50.34	-2.972
01/20/05	11:40:19	250.9	50.37	-2.976
01/20/05	11:40:34	265.8	50.37	-2.979
01/20/05	11:40:50	281.6	50.37	-2.983
01/20/05	11:41:06	298.4	50.37	-2.987
01/20/05	11:41:24	316.2	50.39	-2.990
01/20/05	11:41:43	335.0	50.39	-2.992
01/20/05	11:42:03	354.9	50.39	-2.996
01/20/05	11:42:24	376.0	50.41	-2.998
01/20/05	11:42:46	398.4	50.41	-3.003
01/20/05	11:43:10	422.1	50.41	-3.007
01/20/05	11:43:35	447.2	50.43	-3.009
01/20/05	11:44:02	473.8	50.43	-3.012
01/20/05	11:44:30	502.0	50.43	-3.016
01/20/05	11:45:00	531.9	50.43	-3.018
01/20/05	11:45:32	563.5	50.46	-3.022
01/20/05	11:46:05	597.0	50.46	-3.023
01/20/05	11:46:41	632.5	50.46	-3.025
01/20/05	11:47:18	670.1	50.48	-3.027
01/20/05	11:47:58	709.9	50.48	-3.029
01/20/05	11:48:40	752.1	50.50	-3.031
01/20/05	11:49:25	796.8	50.50	-3.032
01/20/05	11:50:12	844.2	50.52	-3.032
01/20/05	11:51:02	894.4	50.52	-3.036
01/20/05	11:51:56	947.5	50.55	-3.038

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: LL5mw-004	Date Started: 01/20/05	Date Completed: 01/20/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	4926	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 1125.81	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 8.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	25.38		TOP OF FILTER PACK	7.5' BGS	
DEPTH TO WATER	14.07		TOP OF SCREEN	12' BGS	
HEIGHT OF WATER COLUMN	11.31		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~15'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY) BEGIN	DATE (MM/DD/YY) END	TIME (HH:MM:SS) BEGIN	TIME (HH:MM:SS) END	DEPTH TO TRANSDUCER	DEPTH TO WATER (FT) BEGIN	DEPTH TO WATER (FT) END	HEIGHT OF WATER COLUMN (FT) BEGIN	HEIGHT OF WATER COLUMN (FT) END
1	LL5mw-004-IN	01/20/05	01/20/05	1359	1431	~24'				
2	LL5mw-004-OUT	01/20/05	01/20/05	1432	1532	~24'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL LOG SCALE	TEST TIME INTERVAL ARITH. SCALE	COMMENTS
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SGS

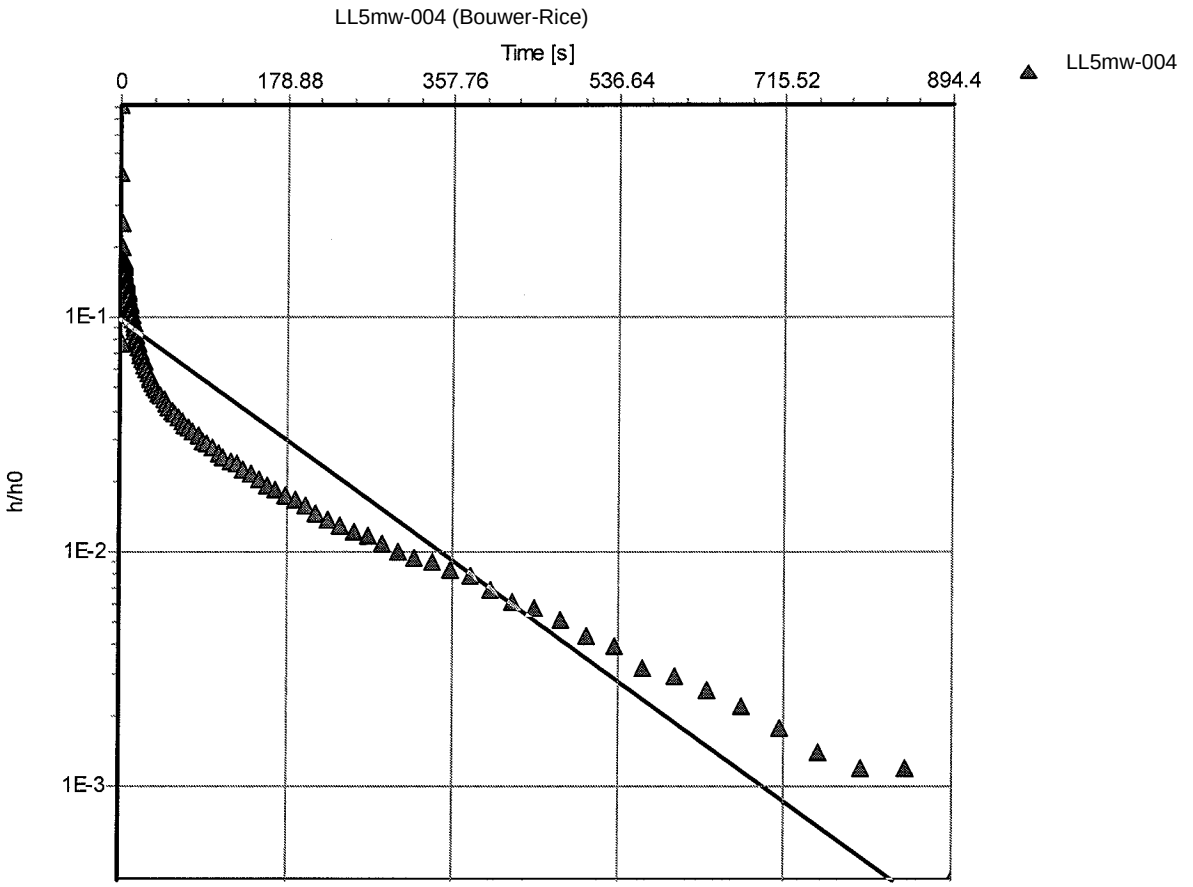
Signature: David K Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **LL5mw-004**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 1.36E-4 [cm/s]

Test parameters:				
	Test Well:	LL5mw-004-out	Aquifer thickness:	9.04 [ft]
	Screen radius:	0.6875 [ft]	Gravel Pack Porosity (%)	25
	Screen length:	10 [ft]		
	Casing radius:	0.0833 [ft]		
	r(eff):	0.351 [ft]		

Comments:

Evaluated by:

Date: 02/24/05

In-Situ Inc. MiniTroll Pro

Report generated: 01/20/05 16:24:52
Report from file: ...\SN04926 2005-01-20 143234 LL5mw-004-Out.bin
Win-Situ Version 4.50

Serial number: 00004926
Firmware Version 3.09
Unit name: miniTROLL

Test name: LL5mw-004-Out

Test defined on: 01/19/05 10:34:49
Test started on: 01/20/05 14:32:34
Test stopped on: 01/20/05 15:32:06
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
  Maximum time between data points: 600.0 Seconds.
  Number of data samples: 132

TOTAL DATA SAMPLES 132

Channel number [1]
  Measurement type: Temperature
  Channel name: OnBoard Temp

Channel number [2]
  Measurement type: Pressure
  Channel name: OnBoard Pressure
  Sensor Range: 30 PSIG.
  Specific gravity: 1.000
  Mode: TOC
  User-defined reference: 0.000 Feet H2O
  Referenced on: test start
  Pressure head at reference: 4.564 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
01/20/05	14:32:34		0.0	51.84	0.000
01/20/05	14:32:35		0.3	51.86	-1.383
01/20/05	14:32:35		0.6	51.89	-3.307
01/20/05	14:32:35		0.9	51.91	-3.019
01/20/05	14:32:36		1.2	51.91	-2.903
01/20/05	14:32:36		1.5	51.91	-2.929
01/20/05	14:32:36		1.8	51.91	-2.947
01/20/05	14:32:37		2.1	51.91	-2.965
01/20/05	14:32:37		2.4	51.93	-2.963
01/20/05	14:32:37		2.7	51.93	-2.971
01/20/05	14:32:37		3.0	51.93	-2.978
01/20/05	14:32:38		3.3	51.93	-2.976
01/20/05	14:32:38		3.6	51.93	-2.982
01/20/05	14:32:38		3.9	51.93	-2.982
01/20/05	14:32:39		4.2	51.93	-2.982
01/20/05	14:32:39		4.5	51.93	-2.987
01/20/05	14:32:39		4.8	51.93	-2.989
01/20/05	14:32:40		5.1	51.93	-2.989
01/20/05	14:32:40		5.4	51.93	-2.993
01/20/05	14:32:40		5.7	51.93	-2.993

01/20/05	14:32:40	6.0	51.93	-2.996
01/20/05	14:32:41	6.4	51.93	-2.998
01/20/05	14:32:41	6.7	51.93	-3.000
01/20/05	14:32:42	7.1	51.93	-3.004
01/20/05	14:32:42	7.5	51.95	-3.007
01/20/05	14:32:42	8.0	51.95	-3.011
01/20/05	14:32:43	8.4	51.95	-3.015
01/20/05	14:32:43	8.9	51.95	-3.018
01/20/05	14:32:44	9.5	51.95	-3.024
01/20/05	14:32:44	10.0	51.93	-3.026
01/20/05	14:32:45	10.6	51.93	-3.031
01/20/05	14:32:46	11.3	51.93	-3.035
01/20/05	14:32:46	11.9	51.93	-3.040
01/20/05	14:32:47	12.6	51.93	-3.046
01/20/05	14:32:48	13.4	51.93	-3.052
01/20/05	14:32:49	14.2	51.91	-3.057
01/20/05	14:32:49	15.0	51.91	-3.065
01/20/05	14:32:50	15.9	51.91	-3.070
01/20/05	14:32:51	16.8	51.91	-3.077
01/20/05	14:32:52	17.8	51.91	-3.085
01/20/05	14:32:53	18.9	51.91	-3.092
01/20/05	14:32:54	20.0	51.91	-3.099
01/20/05	14:32:56	21.2	51.91	-3.109
01/20/05	14:32:57	22.4	51.91	-3.118
01/20/05	14:32:58	23.8	51.91	-3.125
01/20/05	14:33:00	25.2	51.91	-3.134
01/20/05	14:33:01	26.7	51.91	-3.144
01/20/05	14:33:03	28.2	51.91	-3.155
01/20/05	14:33:04	29.8	51.91	-3.164
01/20/05	14:33:06	31.5	51.91	-3.175
01/20/05	14:33:08	33.3	51.91	-3.186
01/20/05	14:33:10	35.2	51.91	-3.197
01/20/05	14:33:12	37.3	51.89	-3.212
01/20/05	14:33:14	39.5	51.89	-3.223
01/20/05	14:33:16	41.8	51.89	-3.236
01/20/05	14:33:19	44.3	51.89	-3.250
01/20/05	14:33:21	46.9	51.89	-3.265
01/20/05	14:33:24	49.7	51.89	-3.280
01/20/05	14:33:27	52.6	51.89	-3.295
01/20/05	14:33:30	55.7	51.89	-3.311
01/20/05	14:33:33	59.0	51.89	-3.326
01/20/05	14:33:37	62.5	51.89	-3.342
01/20/05	14:33:41	66.2	51.86	-3.359
01/20/05	14:33:45	70.1	51.86	-3.376
01/20/05	14:33:49	74.3	51.86	-3.394
01/20/05	14:33:53	78.7	51.86	-3.410
01/20/05	14:33:58	83.4	51.86	-3.431
01/20/05	14:34:03	88.4	51.89	-3.449
01/20/05	14:34:08	93.7	51.89	-3.469
01/20/05	14:34:14	99.3	51.89	-3.489
01/20/05	14:34:20	105.2	51.89	-3.508
01/20/05	14:34:26	111.5	51.89	-3.528
01/20/05	14:34:33	118.1	51.89	-3.548
01/20/05	14:34:40	125.1	51.91	-3.568
01/20/05	14:34:47	132.6	51.91	-3.590
01/20/05	14:34:55	140.5	51.91	-3.612
01/20/05	14:35:03	148.9	51.93	-3.631
01/20/05	14:35:12	157.8	51.93	-3.653
01/20/05	14:35:22	167.2	51.95	-3.675
01/20/05	14:35:32	177.2	51.95	-3.695
01/20/05	14:35:42	187.8	51.98	-3.717
01/20/05	14:35:53	199.0	52.00	-3.739
01/20/05	14:36:05	210.9	52.00	-3.759

01/20/05	14:36:18	223.5	52.02	-3.779
01/20/05	14:36:31	236.8	52.02	-3.799
01/20/05	14:36:45	250.9	52.02	-3.817
01/20/05	14:37:00	265.8	52.04	-3.836
01/20/05	14:37:16	281.6	52.04	-3.852
01/20/05	14:37:33	298.4	52.04	-3.869
01/20/05	14:37:51	316.2	52.07	-3.885
01/20/05	14:38:09	335.0	52.07	-3.900
01/20/05	14:38:29	354.9	52.07	-3.914
01/20/05	14:38:50	376.0	52.09	-3.925
01/20/05	14:39:13	398.4	52.09	-3.936
01/20/05	14:39:37	422.1	52.09	-3.944
01/20/05	14:40:02	447.2	52.11	-3.951
01/20/05	14:40:28	473.8	52.11	-3.958
01/20/05	14:40:56	502.0	52.11	-3.964
01/20/05	14:41:26	531.9	52.11	-3.967
01/20/05	14:41:58	563.5	52.11	-3.971
01/20/05	14:42:31	597.0	52.11	-3.975
01/20/05	14:43:07	632.5	52.11	-3.977
01/20/05	14:43:45	670.1	52.13	-3.978
01/20/05	14:44:24	709.9	52.13	-3.978
01/20/05	14:45:07	752.1	52.11	-3.982
01/20/05	14:45:51	796.8	52.11	-3.982
01/20/05	14:46:39	844.2	52.11	-3.986
01/20/05	14:47:29	894.4	52.11	-3.986
01/20/05	14:48:22	947.5	52.11	-3.986
01/20/05	14:49:18	1003.8	52.11	-3.988
01/20/05	14:50:18	1063.4	52.11	-3.988
01/20/05	14:51:21	1126.6	52.11	-3.988
01/20/05	14:52:28	1193.5	52.11	-3.990
01/20/05	14:53:39	1264.4	52.11	-3.988
01/20/05	14:54:54	1339.5	52.13	-3.988
01/20/05	14:56:13	1419.0	52.13	-3.988
01/20/05	14:57:38	1503.3	52.13	-3.988
01/20/05	14:59:07	1592.6	52.16	-3.987
01/20/05	15:00:42	1687.1	52.18	-3.985
01/20/05	15:02:22	1787.2	52.18	-3.987
01/20/05	15:04:08	1893.3	52.20	-3.985
01/20/05	15:06:00	2005.7	52.22	-3.983
01/20/05	15:07:59	2124.7	52.25	-3.985
01/20/05	15:10:05	2250.8	52.27	-3.985
01/20/05	15:12:19	2384.4	52.31	-3.984
01/20/05	15:14:40	2525.9	52.29	-3.985
01/20/05	15:17:10	2675.8	52.25	-3.985
01/20/05	15:19:49	2834.6	52.25	-3.983
01/20/05	15:22:37	3002.8	52.22	-3.981
01/20/05	15:25:35	3180.9	52.18	-3.980
01/20/05	15:28:44	3369.6	52.16	-3.978
01/20/05	15:32:04	3569.5	52.13	-3.978

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: LL5mw-005	Date Started: 01/20/05	Date Completed: 01/20/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	4886	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 1129.42	RISER CASING I.D. (in.): 2 in

SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 8.25"

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	29.72		TOP OF FILTER PACK	14' BGS	
DEPTH TO WATER	17.79		TOP OF SCREEN	17' BGS	
HEIGHT OF WATER COLUMN	11.93		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2

SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~18'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY) BEGIN	DATE (MM/DD/YY) END	TIME (HH:MM:SS) BEGIN	TIME (HH:MM:SS) END	DEPTH TO TRANSDUCER	DEPTH TO WATER (FT) BEGIN	DEPTH TO WATER (FT) END	HEIGHT OF WATER COLUMN (FT) BEGIN	HEIGHT OF WATER COLUMN (FT) END
1	LL5mw 005-IN	01/20/05	01/20/05	1419	1442	~28'				
2	LL5mw 005-OUT	01/20/05	01/20/05	1442	1542	~28'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL LOG SCALE	TEST TIME INTERVAL ARITH. SCALE	COMMENTS
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SLS

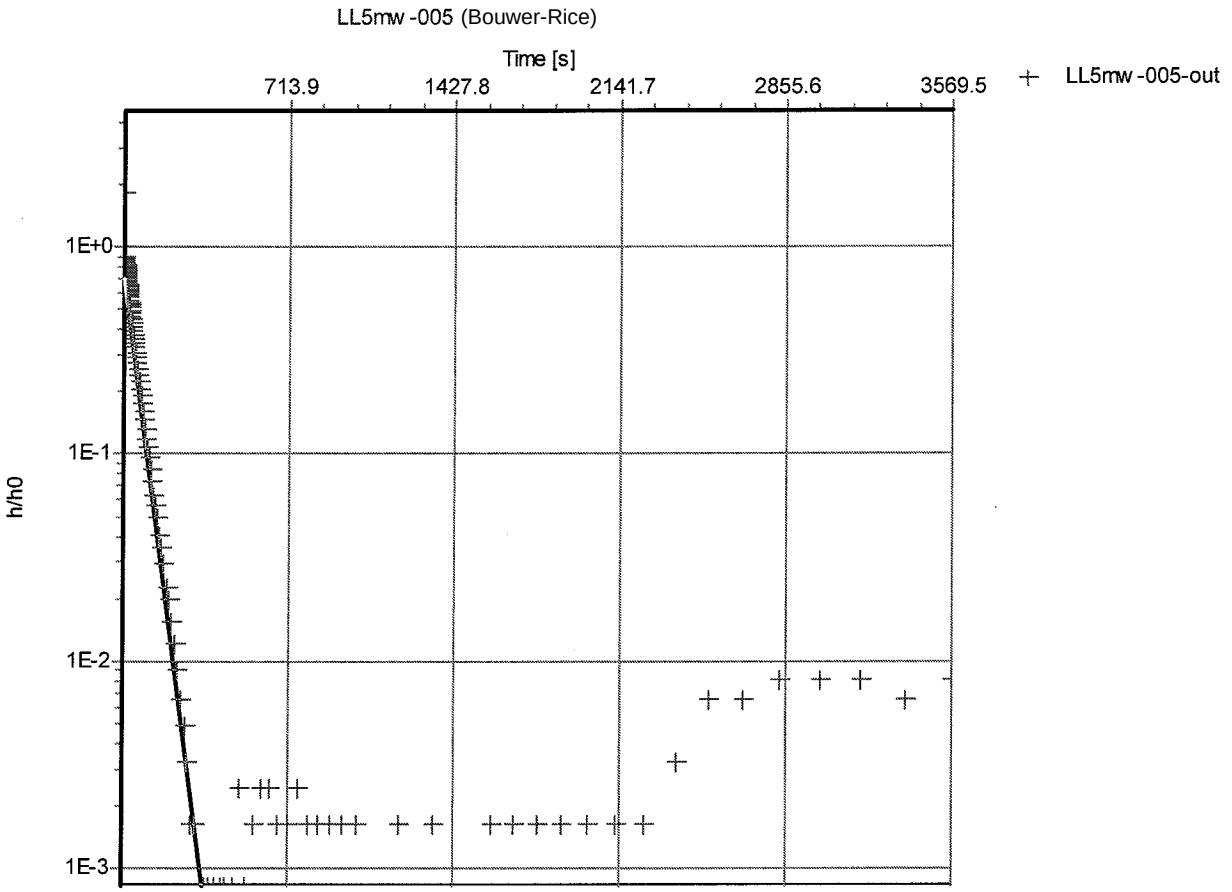
Signature: David K Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **LL5mw-005**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 5.52E-4 [cm/s]

Test parameters:				
	Test Well:	LL5mw-005-out	Aquifer thickness:	11.93 [ft]
	Screen radius:	0.34375 [ft]	Gravel Pack Porosity (%)	25
	Screen length:	10 [ft]		
	Casing radius:	0.08333 [ft]		
	r(eff):	0.186 [ft]		

Comments:

Evaluated by:

Date: 02/24/05

In-Situ Inc. MiniTroll Pro

Report generated: 01/20/05 16:08:22
Report from file: ...\SN04886 2005-01-20 144211 LL5mw-005-Out.bin
Win-Situ Version 4.50

Serial number: 00004886
Firmware Version 3.09
Unit name: MKM 55

Test name: LL5mw-005-Out

Test defined on: 01/19/05 10:38:06
Test started on: 01/20/05 14:42:11
Test stopped on: 01/20/05 15:42:59
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
Maximum time between data points: 600.0 Seconds.
Number of data samples: 132

TOTAL DATA SAMPLES 132

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 30 PSIG.
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Feet H2O
Referenced on: test start
Pressure head at reference: 3.571 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
01/20/05	14:42:11	0.0	53.36	0.000	
01/20/05	14:42:11	0.3	53.36	0.428	
01/20/05	14:42:11	0.6	53.38	-5.970	
01/20/05	14:42:11	0.9	53.40	-2.936	
01/20/05	14:42:12	1.2	53.40	-4.410	
01/20/05	14:42:12	1.5	53.40	-3.949	
01/20/05	14:42:12	1.8	53.40	-4.065	
01/20/05	14:42:13	2.1	53.43	-4.070	
01/20/05	14:42:13	2.4	53.43	-4.100	
01/20/05	14:42:13	2.7	53.43	-4.096	
01/20/05	14:42:14	3.0	53.43	-4.125	
01/20/05	14:42:14	3.3	53.43	-4.120	
01/20/05	14:42:14	3.6	53.43	-4.146	
01/20/05	14:42:14	3.9	53.43	-4.114	
01/20/05	14:42:15	4.2	53.43	-4.166	
01/20/05	14:42:15	4.5	53.43	-4.170	
01/20/05	14:42:15	4.8	53.43	-4.179	
01/20/05	14:42:16	5.1	53.43	-4.186	
01/20/05	14:42:16	5.4	53.43	-4.196	
01/20/05	14:42:16	5.7	53.43	-4.205	

01/20/05	14:42:17	6.0	53.45	-4.210
01/20/05	14:42:17	6.4	53.43	-4.220
01/20/05	14:42:17	6.7	53.45	-4.229
01/20/05	14:42:18	7.1	53.45	-4.238
01/20/05	14:42:18	7.5	53.45	-4.247
01/20/05	14:42:19	8.0	53.45	-4.258
01/20/05	14:42:19	8.4	53.45	-4.269
01/20/05	14:42:20	8.9	53.45	-4.278
01/20/05	14:42:20	9.5	53.45	-4.291
01/20/05	14:42:21	10.0	53.43	-4.301
01/20/05	14:42:21	10.6	53.43	-4.314
01/20/05	14:42:22	11.3	53.43	-4.325
01/20/05	14:42:22	11.9	53.43	-4.338
01/20/05	14:42:23	12.6	53.43	-4.350
01/20/05	14:42:24	13.4	53.43	-4.363
01/20/05	14:42:25	14.2	53.43	-4.378
01/20/05	14:42:26	15.0	53.43	-4.393
01/20/05	14:42:26	15.9	53.40	-4.410
01/20/05	14:42:27	16.8	53.40	-4.424
01/20/05	14:42:28	17.8	53.40	-4.439
01/20/05	14:42:29	18.9	53.40	-4.456
01/20/05	14:42:31	20.0	53.40	-4.474
01/20/05	14:42:32	21.2	53.40	-4.493
01/20/05	14:42:33	22.4	53.40	-4.507
01/20/05	14:42:34	23.8	53.40	-4.526
01/20/05	14:42:36	25.2	53.40	-4.546
01/20/05	14:42:37	26.7	53.40	-4.566
01/20/05	14:42:39	28.2	53.40	-4.583
01/20/05	14:42:40	29.8	53.40	-4.603
01/20/05	14:42:42	31.5	53.40	-4.622
01/20/05	14:42:44	33.3	53.40	-4.644
01/20/05	14:42:46	35.2	53.40	-4.666
01/20/05	14:42:48	37.3	53.40	-4.686
01/20/05	14:42:50	39.5	53.40	-4.708
01/20/05	14:42:52	41.8	53.40	-4.729
01/20/05	14:42:55	44.3	53.40	-4.749
01/20/05	14:42:57	46.9	53.40	-4.771
01/20/05	14:43:00	49.7	53.40	-4.793
01/20/05	14:43:03	52.6	53.40	-4.813
01/20/05	14:43:06	55.7	53.40	-4.836
01/20/05	14:43:10	59.0	53.40	-4.854
01/20/05	14:43:13	62.5	53.40	-4.876
01/20/05	14:43:17	66.2	53.40	-4.898
01/20/05	14:43:21	70.1	53.40	-4.917
01/20/05	14:43:25	74.3	53.38	-4.937
01/20/05	14:43:29	78.7	53.38	-4.956
01/20/05	14:43:34	83.4	53.38	-4.976
01/20/05	14:43:39	88.4	53.38	-4.993
01/20/05	14:43:44	93.7	53.38	-5.009
01/20/05	14:43:50	99.3	53.38	-5.026
01/20/05	14:43:56	105.2	53.38	-5.040
01/20/05	14:44:02	111.5	53.38	-5.055
01/20/05	14:44:09	118.1	53.38	-5.068
01/20/05	14:44:16	125.1	53.38	-5.081
01/20/05	14:44:23	132.6	53.38	-5.094
01/20/05	14:44:31	140.5	53.38	-5.103
01/20/05	14:44:39	148.9	53.38	-5.112
01/20/05	14:44:48	157.8	53.38	-5.122
01/20/05	14:44:58	167.2	53.38	-5.129
01/20/05	14:45:08	177.2	53.38	-5.136
01/20/05	14:45:18	187.8	53.38	-5.144
01/20/05	14:45:30	199.0	53.36	-5.148
01/20/05	14:45:41	210.9	53.36	-5.153

01/20/05	14:45:54	223.5	53.36	-5.157
01/20/05	14:46:07	236.8	53.36	-5.161
01/20/05	14:46:21	250.9	53.36	-5.164
01/20/05	14:46:36	265.8	53.36	-5.166
01/20/05	14:46:52	281.6	53.36	-5.168
01/20/05	14:47:09	298.4	53.36	-5.170
01/20/05	14:47:27	316.2	53.36	-5.170
01/20/05	14:47:46	335.0	53.36	-5.172
01/20/05	14:48:05	354.9	53.36	-5.173
01/20/05	14:48:27	376.0	53.36	-5.173
01/20/05	14:48:49	398.4	53.36	-5.173
01/20/05	14:49:13	422.1	53.36	-5.173
01/20/05	14:49:38	447.2	53.36	-5.173
01/20/05	14:50:04	473.8	53.36	-5.173
01/20/05	14:50:33	502.0	53.34	-5.175
01/20/05	14:51:02	531.9	53.36	-5.173
01/20/05	14:51:34	563.5	53.34	-5.174
01/20/05	14:52:08	597.0	53.34	-5.175
01/20/05	14:52:43	632.5	53.34	-5.175
01/20/05	14:53:21	670.1	53.34	-5.174
01/20/05	14:54:00	709.9	53.34	-5.174
01/20/05	14:54:43	752.1	53.34	-5.175
01/20/05	14:55:27	796.8	53.34	-5.174
01/20/05	14:56:15	844.2	53.34	-5.174
01/20/05	14:57:05	894.4	53.34	-5.174
01/20/05	14:57:58	947.5	53.34	-5.174
01/20/05	14:58:54	1003.8	53.34	-5.174
01/20/05	14:59:54	1063.4	53.34	-5.172
01/20/05	15:00:57	1126.6	53.34	-5.172
01/20/05	15:02:04	1193.5	53.34	-5.174
01/20/05	15:03:15	1264.4	53.34	-5.172
01/20/05	15:04:30	1339.5	53.34	-5.170
01/20/05	15:05:50	1419.0	53.34	-5.172
01/20/05	15:07:14	1503.3	53.34	-5.172
01/20/05	15:08:43	1592.6	53.34	-5.170
01/20/05	15:10:18	1687.1	53.34	-5.170
01/20/05	15:11:58	1787.2	53.36	-5.170
01/20/05	15:13:44	1893.3	53.36	-5.170
01/20/05	15:15:36	2005.7	53.36	-5.170
01/20/05	15:17:35	2124.7	53.36	-5.170
01/20/05	15:19:41	2250.8	53.36	-5.170
01/20/05	15:21:55	2384.4	53.36	-5.168
01/20/05	15:24:16	2525.9	53.36	-5.164
01/20/05	15:26:46	2675.8	53.36	-5.164
01/20/05	15:29:25	2834.6	53.36	-5.162
01/20/05	15:32:13	3002.8	53.36	-5.162
01/20/05	15:35:11	3180.9	53.36	-5.162
01/20/05	15:38:20	3369.6	53.36	-5.164
01/20/05	15:41:40	3569.5	53.36	-5.162

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: LL5mw-006	Date Started: 01/20/05	Date Completed: 01/20/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	5444	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 1128.00	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 8.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	27.05		TOP OF FILTER PACK	11' BGS	
DEPTH TO WATER	18.02		TOP OF SCREEN	14' BGS	
HEIGHT OF WATER COLUMN	9.03		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~19'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY)		TIME (HH:MM:SS)		DEPTH TO TRANSDUCER	DEPTH TO WATER (FT)		HEIGHT OF WATER COLUMN (FT)	
		BEGIN	END	BEGIN	END		BEGIN	END	BEGIN	END
1	LL5mw 006-IN	01/20/05	01/20/05	1409	1436	~26'				
2	LL5mw 006-OUT	01/20/05	01/20/05	1437	1537	~26'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL		COMMENTS
				LOG SCALE	ARITH. SCALE	
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SKS

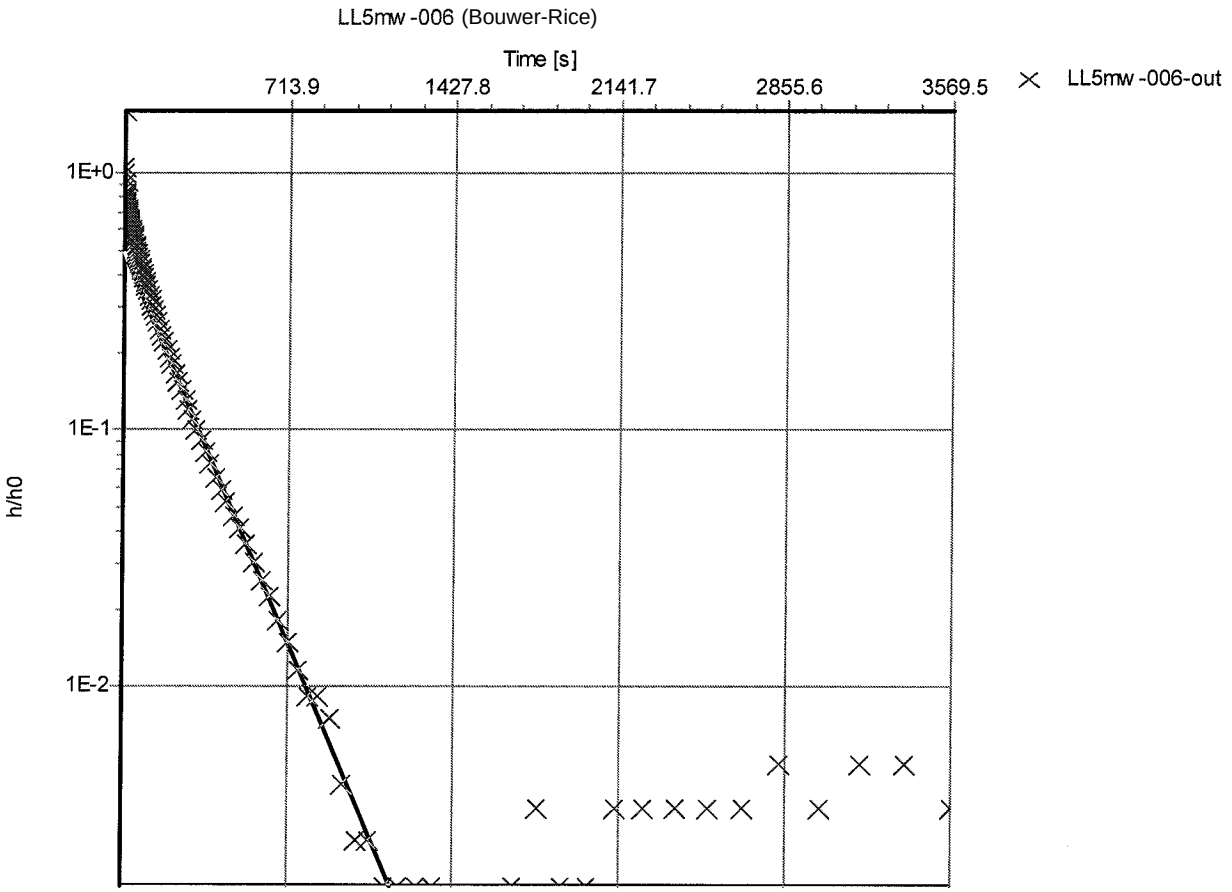
Signature: David K. Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **LL5mw-006**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 1.31E-4 [cm/s]

Test parameters:				
	Test Well:	LL5mw-006-out	Aquifer thickness:	9.03 [ft]
	Screen radius:	0.34375 [ft]	Gravel Pack Porosity (%)	25
	Screen length:	10 [ft]		
	Casing radius:	0.08333 [ft]		
	r(eff):	0.186 [ft]		

Comments:

Evaluated by:

Date: 02/24/05

In-Situ Inc. MiniTroll Pro

Report generated: 01/20/05 16:36:16
Report from file: ...\SN05444 2005-01-20 143706 LL5mw-006-Out.bin
Win-Situ Version 4.50

Serial number: 00005444
Firmware Version 3.09
Unit name: MKM 45

Test name: LL5mw-006-Out

Test defined on: 01/19/05 10:40:49
Test started on: 01/20/05 14:37:06
Test stopped on: 01/20/05 15:37:48
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
Maximum time between data points: 600.0 Seconds.
Number of data samples: 132

TOTAL DATA SAMPLES 132

Channel number [1]
Measurement type: Temperature
Channel name: H2O Temp.

Channel number [2]
Measurement type: Pressure
Channel name: H2O Level
Sensor Range: 30 PSIG.
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Feet H2O
Referenced on: test start
Pressure head at reference: 1.599 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
01/20/05	14:37:06		0.0	52.35	0.000
01/20/05	14:37:06		0.3	52.35	-7.033
01/20/05	14:37:06		0.6	52.37	-3.669
01/20/05	14:37:07		0.9	52.37	-4.823
01/20/05	14:37:07		1.2	52.37	-4.888
01/20/05	14:37:07		1.5	52.37	-4.561
01/20/05	14:37:07		1.8	52.40	-4.752
01/20/05	14:37:08		2.1	52.40	-4.765
01/20/05	14:37:08		2.4	52.40	-4.719
01/20/05	14:37:08		2.7	52.40	-4.762
01/20/05	14:37:09		3.0	52.40	-4.769
01/20/05	14:37:09		3.3	52.40	-4.767
01/20/05	14:37:09		3.6	52.40	-4.760
01/20/05	14:37:10		3.9	52.40	-4.760
01/20/05	14:37:10		4.2	52.42	-4.778
01/20/05	14:37:10		4.5	52.42	-4.789
01/20/05	14:37:10		4.8	52.42	-4.652
01/20/05	14:37:11		5.1	52.42	-4.802
01/20/05	14:37:11		5.4	52.42	-4.750
01/20/05	14:37:11		5.7	52.42	-4.780

01/20/05	14:37:12	6.0	52.42	-4.840
01/20/05	14:37:12	6.4	52.42	-4.834
01/20/05	14:37:12	6.7	52.42	-4.834
01/20/05	14:37:13	7.1	52.42	-4.836
01/20/05	14:37:13	7.5	52.42	-4.842
01/20/05	14:37:14	8.0	52.42	-4.847
01/20/05	14:37:14	8.4	52.42	-4.851
01/20/05	14:37:15	8.9	52.42	-4.856
01/20/05	14:37:15	9.5	52.42	-4.862
01/20/05	14:37:16	10.0	52.42	-4.868
01/20/05	14:37:16	10.6	52.42	-4.875
01/20/05	14:37:17	11.3	52.42	-4.881
01/20/05	14:37:18	11.9	52.42	-4.886
01/20/05	14:37:18	12.6	52.42	-4.894
01/20/05	14:37:19	13.4	52.42	-4.899
01/20/05	14:37:20	14.2	52.42	-4.905
01/20/05	14:37:21	15.0	52.42	-4.912
01/20/05	14:37:21	15.9	52.40	-4.920
01/20/05	14:37:22	16.8	52.42	-4.927
01/20/05	14:37:23	17.8	52.42	-4.936
01/20/05	14:37:24	18.9	52.40	-4.944
01/20/05	14:37:26	20.0	52.40	-4.953
01/20/05	14:37:27	21.2	52.40	-4.963
01/20/05	14:37:28	22.4	52.40	-4.970
01/20/05	14:37:29	23.8	52.42	-4.979
01/20/05	14:37:31	25.2	52.40	-4.989
01/20/05	14:37:32	26.7	52.42	-5.000
01/20/05	14:37:34	28.2	52.42	-5.009
01/20/05	14:37:35	29.8	52.42	-5.020
01/20/05	14:37:37	31.5	52.40	-5.029
01/20/05	14:37:39	33.3	52.42	-5.040
01/20/05	14:37:41	35.2	52.42	-5.052
01/20/05	14:37:43	37.3	52.42	-5.063
01/20/05	14:37:45	39.5	52.40	-5.076
01/20/05	14:37:47	41.8	52.40	-5.089
01/20/05	14:37:50	44.3	52.42	-5.102
01/20/05	14:37:52	46.9	52.40	-5.121
01/20/05	14:37:55	49.7	52.40	-5.135
01/20/05	14:37:58	52.6	52.40	-5.148
01/20/05	14:38:01	55.7	52.40	-5.165
01/20/05	14:38:05	59.0	52.40	-5.178
01/20/05	14:38:08	62.5	52.40	-5.193
01/20/05	14:38:12	66.2	52.40	-5.210
01/20/05	14:38:16	70.1	52.40	-5.225
01/20/05	14:38:20	74.3	52.40	-5.241
01/20/05	14:38:24	78.7	52.40	-5.256
01/20/05	14:38:29	83.4	52.40	-5.273
01/20/05	14:38:34	88.4	52.40	-5.292
01/20/05	14:38:39	93.7	52.40	-5.308
01/20/05	14:38:45	99.3	52.40	-5.323
01/20/05	14:38:51	105.2	52.40	-5.340
01/20/05	14:38:57	111.5	52.40	-5.357
01/20/05	14:39:04	118.1	52.40	-5.375
01/20/05	14:39:11	125.1	52.37	-5.392
01/20/05	14:39:18	132.6	52.40	-5.409
01/20/05	14:39:26	140.5	52.40	-5.427
01/20/05	14:39:34	148.9	52.40	-5.444
01/20/05	14:39:43	157.8	52.40	-5.463
01/20/05	14:39:53	167.2	52.37	-5.479
01/20/05	14:40:03	177.2	52.37	-5.496
01/20/05	14:40:13	187.8	52.37	-5.513
01/20/05	14:40:25	199.0	52.37	-5.530
01/20/05	14:40:36	210.9	52.37	-5.544

01/20/05	14:40:49	223.5	52.40	-5.561
01/20/05	14:41:02	236.8	52.40	-5.574
01/20/05	14:41:16	250.9	52.40	-5.589
01/20/05	14:41:31	265.8	52.40	-5.602
01/20/05	14:41:47	281.6	52.40	-5.615
01/20/05	14:42:04	298.4	52.40	-5.628
01/20/05	14:42:22	316.2	52.37	-5.639
01/20/05	14:42:41	335.0	52.37	-5.650
01/20/05	14:43:00	354.9	52.37	-5.662
01/20/05	14:43:22	376.0	52.37	-5.671
01/20/05	14:43:44	398.4	52.35	-5.682
01/20/05	14:44:08	422.1	52.35	-5.690
01/20/05	14:44:33	447.2	52.35	-5.697
01/20/05	14:44:59	473.8	52.35	-5.704
01/20/05	14:45:28	502.0	52.35	-5.710
01/20/05	14:45:57	531.9	52.35	-5.717
01/20/05	14:46:29	563.5	52.35	-5.723
01/20/05	14:47:03	597.0	52.33	-5.729
01/20/05	14:47:38	632.5	52.33	-5.733
01/20/05	14:48:16	670.1	52.33	-5.738
01/20/05	14:48:55	709.9	52.33	-5.742
01/20/05	14:49:38	752.1	52.33	-5.746
01/20/05	14:50:22	796.8	52.33	-5.749
01/20/05	14:51:10	844.2	52.33	-5.749
01/20/05	14:52:00	894.4	52.33	-5.751
01/20/05	14:52:53	947.5	52.33	-5.755
01/20/05	14:53:49	1003.8	52.35	-5.757
01/20/05	14:54:49	1063.4	52.35	-5.757
01/20/05	14:55:52	1126.6	52.35	-5.758
01/20/05	14:56:59	1193.5	52.35	-5.758
01/20/05	14:58:10	1264.4	52.35	-5.758
01/20/05	14:59:25	1339.5	52.35	-5.758
01/20/05	15:00:45	1419.0	52.35	-5.760
01/20/05	15:02:09	1503.3	52.37	-5.760
01/20/05	15:03:38	1592.6	52.37	-5.760
01/20/05	15:05:13	1687.1	52.37	-5.758
01/20/05	15:06:53	1787.2	52.40	-5.756
01/20/05	15:08:39	1893.3	52.40	-5.758
01/20/05	15:10:31	2005.7	52.40	-5.758
01/20/05	15:12:30	2124.7	52.40	-5.756
01/20/05	15:14:36	2250.8	52.42	-5.756
01/20/05	15:16:50	2384.4	52.40	-5.756
01/20/05	15:19:11	2525.9	52.42	-5.756
01/20/05	15:21:41	2675.8	52.42	-5.756
01/20/05	15:24:20	2834.6	52.44	-5.754
01/20/05	15:27:08	3002.8	52.44	-5.756
01/20/05	15:30:06	3180.9	52.44	-5.754
01/20/05	15:33:15	3369.6	52.42	-5.754
01/20/05	15:36:35	3569.5	52.40	-5.756

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: LL7 mw-001	Date Started: 02/02/05	Date Completed: 02/02/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	4886	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 1129.64	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): ~~8.25~~ 6.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	32.97		TOP OF FILTER PACK	16.5' BGS	
DEPTH TO WATER	18.22		TOP OF SCREEN	19.5' BGS	
HEIGHT OF WATER COLUMN	14.75		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~19'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY)		TIME (HH:MM:SS)		DEPTH TO TRANSDUCER	DEPTH TO WATER (FT)		HEIGHT OF WATER COLUMN (FT)	
		BEGIN	END	BEGIN	END		BEGIN	END	BEGIN	END
1	LL7mw-001-IN	02/02/05	02/02/05	15 19	1534	~31'				
2	LL7mw-001-OUT	02/02/05	02/02/05	1534	1548	~31'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL		COMMENTS
				LOG SCALE	ARITH. SCALE	
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SLSM

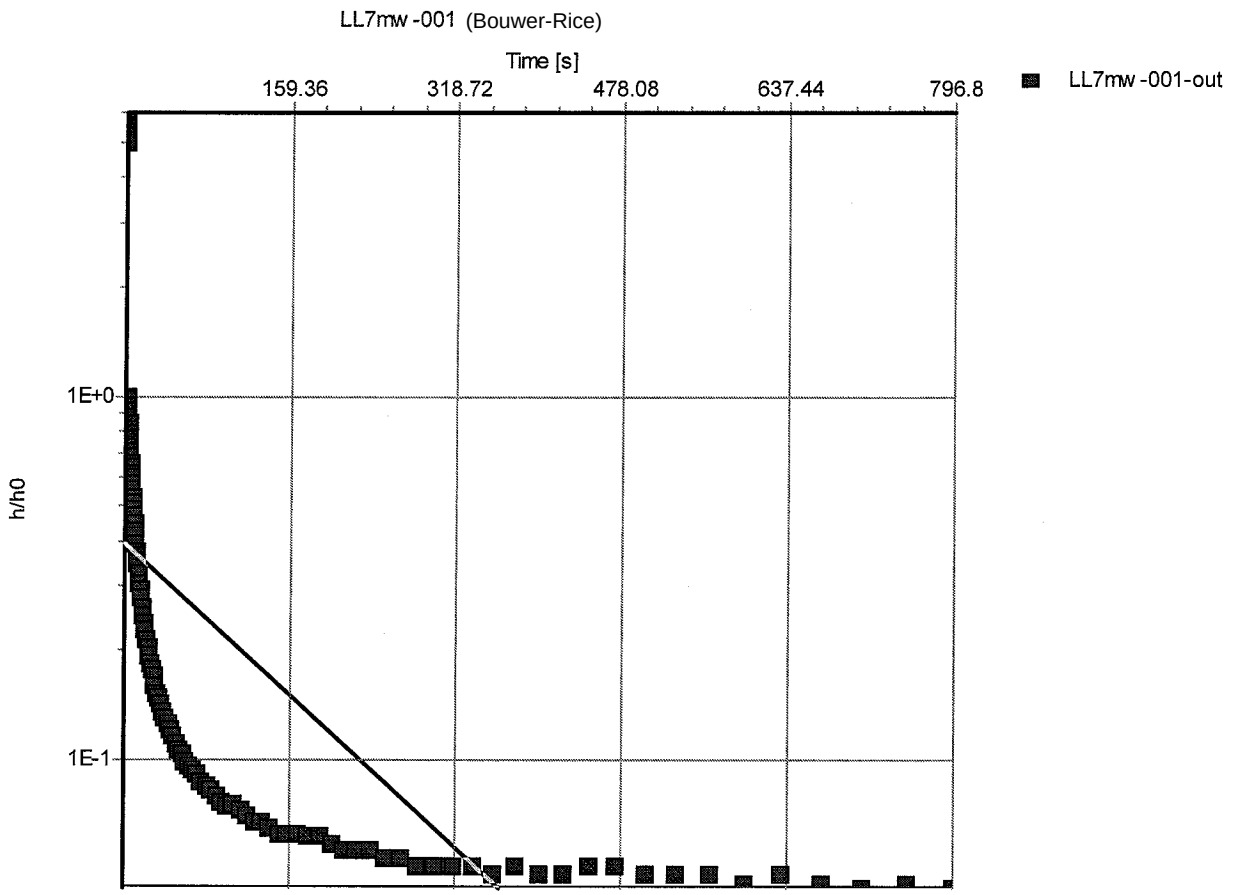
Signature: David K. Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **LL7mw-001**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 1.95E-4 [cm/s]

Test parameters:				
	Test Well:	LL7mw-001-out	Aquifer thickness:	19.88 [ft]
	Screen radius:	0.2604 [ft]	Gravel Pack Porosity (%)	25
	Screen length:	10 [ft]		
	Casing radius:	0.08333 [ft]		
	r(eff):	0.149 [ft]		

Comments:

Evaluated by:

Date: 02/24/05

In-Situ Inc. MiniTroll Pro

Report generated: 02/03/05 08:00:28
Report from file: ...\SN04886 2005-02-02 153418 LL7mw-001-out.bin
Win-Situ Version 4.50

Serial number: 00004886
Firmware Version 3.09
Unit name: MKM 55

Test name: LL7mw-001-out

Test defined on: 02/02/05 08:08:29
Test started on: 02/02/05 15:34:18
Test stopped on: 02/02/05 15:48:38
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
Maximum time between data points: 600.0 Seconds.
Number of data samples: 107

TOTAL DATA SAMPLES 107

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 30 PSIG.
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Feet H2O
Referenced on: test start
Pressure head at reference: 9.288 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
02/02/05	15:34:18	0.0	53.36	0.000	
02/02/05	15:34:18	0.3	53.40	0.716	
02/02/05	15:34:18	0.6	53.40	1.156	
02/02/05	15:34:19	0.9	53.40	0.375	
02/02/05	15:34:19	1.2	53.43	-2.858	
02/02/05	15:34:19	1.5	53.43	-2.691	
02/02/05	15:34:20	1.8	53.45	-2.705	
02/02/05	15:34:20	2.1	53.45	-2.733	
02/02/05	15:34:20	2.4	53.45	-2.757	
02/02/05	15:34:21	2.7	53.45	-2.782	
02/02/05	15:34:21	3.0	53.45	-2.808	
02/02/05	15:34:21	3.3	53.45	-2.832	
02/02/05	15:34:21	3.6	53.45	-2.854	
02/02/05	15:34:22	3.9	53.45	-2.876	
02/02/05	15:34:22	4.2	53.45	-2.899	
02/02/05	15:34:22	4.5	53.45	-2.919	
02/02/05	15:34:23	4.8	53.45	-2.937	
02/02/05	15:34:23	5.1	53.45	-2.954	
02/02/05	15:34:23	5.4	53.45	-2.970	
02/02/05	15:34:24	5.7	53.45	-2.985	

02/02/05	15:34:24	6.0	53.47	-3.000
02/02/05	15:34:24	6.4	53.47	-3.016
02/02/05	15:34:25	6.7	53.47	-3.033
02/02/05	15:34:25	7.1	53.47	-3.050
02/02/05	15:34:25	7.5	53.47	-3.066
02/02/05	15:34:26	8.0	53.47	-3.083
02/02/05	15:34:26	8.4	53.47	-3.097
02/02/05	15:34:27	8.9	53.47	-3.114
02/02/05	15:34:27	9.5	53.47	-3.129
02/02/05	15:34:28	10.0	53.45	-3.140
02/02/05	15:34:29	10.6	53.45	-3.155
02/02/05	15:34:29	11.3	53.45	-3.168
02/02/05	15:34:30	11.9	53.45	-3.175
02/02/05	15:34:30	12.6	53.43	-3.192
02/02/05	15:34:31	13.4	53.43	-3.207
02/02/05	15:34:32	14.2	53.43	-3.223
02/02/05	15:34:33	15.0	53.43	-3.232
02/02/05	15:34:34	15.9	53.43	-3.243
02/02/05	15:34:35	16.8	53.43	-3.254
02/02/05	15:34:36	17.8	53.43	-3.266
02/02/05	15:34:37	18.9	53.43	-3.275
02/02/05	15:34:38	20.0	53.43	-3.282
02/02/05	15:34:39	21.2	53.43	-3.291
02/02/05	15:34:40	22.4	53.43	-3.301
02/02/05	15:34:42	23.8	53.43	-3.308
02/02/05	15:34:43	25.2	53.43	-3.315
02/02/05	15:34:45	26.7	53.43	-3.321
02/02/05	15:34:46	28.2	53.43	-3.326
02/02/05	15:34:48	29.8	53.43	-3.334
02/02/05	15:34:49	31.5	53.43	-3.339
02/02/05	15:34:51	33.3	53.43	-3.343
02/02/05	15:34:53	35.2	53.43	-3.347
02/02/05	15:34:55	37.3	53.43	-3.352
02/02/05	15:34:57	39.5	53.43	-3.356
02/02/05	15:35:00	41.8	53.40	-3.360
02/02/05	15:35:02	44.3	53.43	-3.363
02/02/05	15:35:05	46.9	53.43	-3.367
02/02/05	15:35:08	49.7	53.40	-3.371
02/02/05	15:35:10	52.6	53.40	-3.374
02/02/05	15:35:14	55.7	53.40	-3.376
02/02/05	15:35:17	59.0	53.40	-3.380
02/02/05	15:35:20	62.5	53.40	-3.382
02/02/05	15:35:24	66.2	53.40	-3.384
02/02/05	15:35:28	70.1	53.40	-3.386
02/02/05	15:35:32	74.3	53.40	-3.389
02/02/05	15:35:37	78.7	53.40	-3.391
02/02/05	15:35:41	83.4	53.40	-3.393
02/02/05	15:35:46	88.4	53.40	-3.395
02/02/05	15:35:52	93.7	53.40	-3.397
02/02/05	15:35:57	99.3	53.38	-3.399
02/02/05	15:36:03	105.2	53.40	-3.398
02/02/05	15:36:09	111.5	53.38	-3.400
02/02/05	15:36:16	118.1	53.38	-3.402
02/02/05	15:36:23	125.1	53.38	-3.404
02/02/05	15:36:30	132.6	53.38	-3.404
02/02/05	15:36:38	140.5	53.38	-3.406
02/02/05	15:36:47	148.9	53.38	-3.408
02/02/05	15:36:56	157.8	53.38	-3.408
02/02/05	15:37:05	167.2	53.40	-3.408
02/02/05	15:37:15	177.2	53.40	-3.409
02/02/05	15:37:26	187.8	53.40	-3.409
02/02/05	15:37:37	199.0	53.40	-3.411
02/02/05	15:37:49	210.9	53.40	-3.413

02/02/05	15:38:01	223.5	53.40	-3.413
02/02/05	15:38:15	236.8	53.40	-3.413
02/02/05	15:38:29	250.9	53.40	-3.415
02/02/05	15:38:44	265.8	53.40	-3.415
02/02/05	15:38:59	281.6	53.40	-3.417
02/02/05	15:39:16	298.4	53.40	-3.417
02/02/05	15:39:34	316.2	53.40	-3.417
02/02/05	15:39:53	335.0	53.40	-3.417
02/02/05	15:40:13	354.9	53.40	-3.419
02/02/05	15:40:34	376.0	53.40	-3.417
02/02/05	15:40:56	398.4	53.40	-3.419
02/02/05	15:41:20	422.1	53.40	-3.419
02/02/05	15:41:45	447.2	53.40	-3.417
02/02/05	15:42:12	473.8	53.40	-3.417
02/02/05	15:42:40	502.0	53.40	-3.419
02/02/05	15:43:10	531.9	53.40	-3.419
02/02/05	15:43:41	563.5	53.40	-3.419
02/02/05	15:44:15	597.0	53.40	-3.421
02/02/05	15:44:50	632.5	53.40	-3.419
02/02/05	15:45:28	670.1	53.40	-3.421
02/02/05	15:46:08	709.9	53.40	-3.422
02/02/05	15:46:50	752.1	53.40	-3.421
02/02/05	15:47:35	796.8	53.40	-3.422
02/02/05	15:48:22	844.2	53.40	-3.456

Slug Test Record

Project Name: RVAAP-RI 14

MKM

Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: LL7mw-002	Date Started: 02/02/05	Date Completed: 02/02/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	5444	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 1129.55	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 6.25 in	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	27.04		TOP OF FILTER PACK	10' BGS	
DEPTH TO WATER	14.67		TOP OF SCREEN	15' BGS	
HEIGHT OF WATER COLUMN	12.37		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~15'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY)		TIME (HH:MM:SS)		DEPTH TO TRANSDUCER	DEPTH TO WATER (FT)		HEIGHT OF WATER COLUMN (FT)	
		BEGIN	END	BEGIN	END		BEGIN	END	BEGIN	END
1	LL7mw-002-IN	02/02/05	02/02/05	1446	1507	~26'	—		—	
2	LL7mw-002-OUT	02/02/05	02/02/05	1507	1526	~26'	—		—	

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL		COMMENTS
				LOG SCALE	ARITH. SCALE	
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA √ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: [signature]

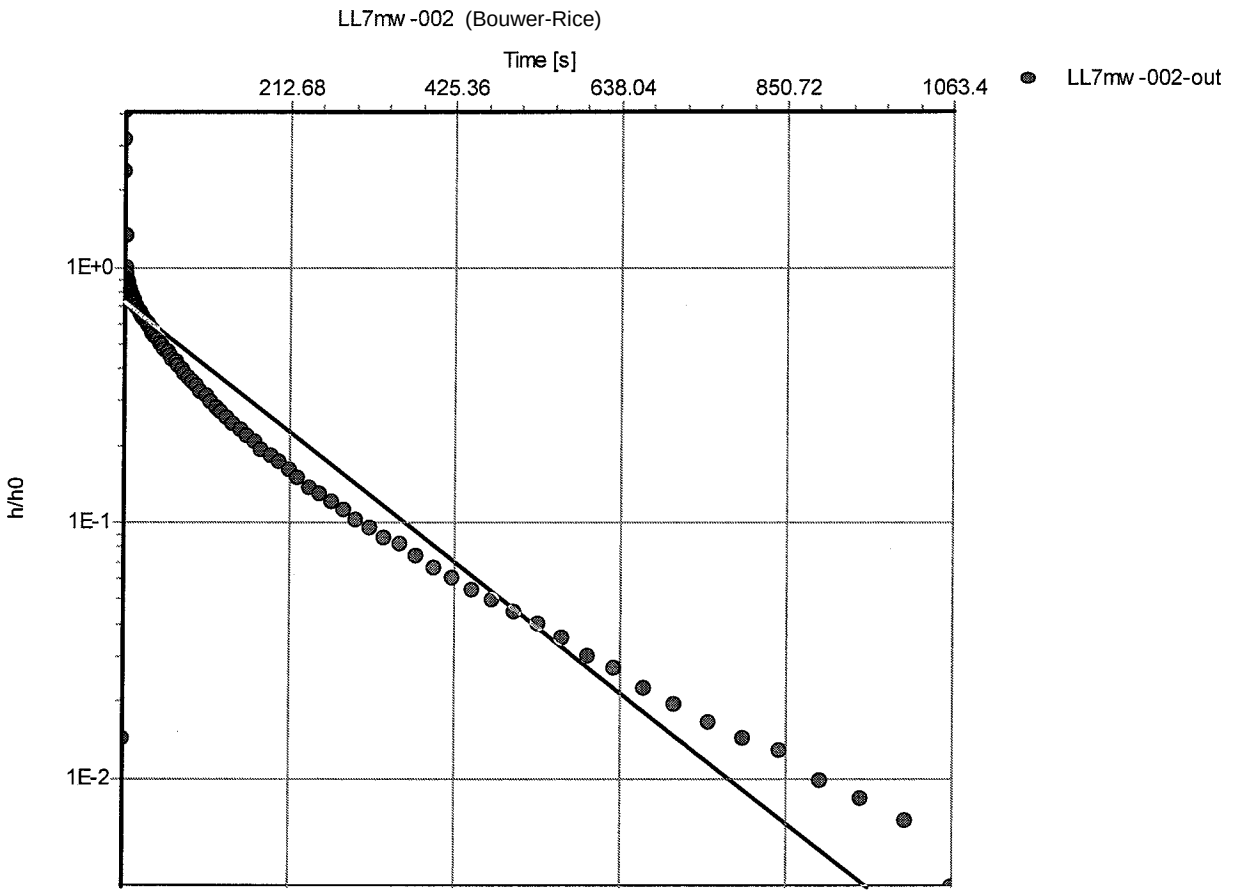
Signature: [signature] Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **LL7mw-002**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 1.72E-4 [cm/s]

Test parameters:				
	Test Well:	LL7mw-002-out	Aquifer thickness:	24.43 [ft]
	Screen radius:	0.2604 [ft]	Gravel Pack Porosity (%)	25
	Screen length:	10 [ft]		
	Casing radius:	0.0833 [ft]		
	r(eff):	0.149 [ft]		

Comments:

Evaluated by:

Date: 02/24/05

In-Situ Inc. MiniTroll Pro

Report generated: 02/02/05 17:37:27
Report from file: ...\SN05444 2005-02-02 150731 LL7mw-002-out.bin
Win-Situ Version 4.50

Serial number: 00005444
Firmware Version 3.09
Unit name: MKM 45

Test name: LL7mw-002-out

Test defined on: 02/02/05 08:18:10
Test started on: 02/02/05 15:07:31
Test stopped on: 02/02/05 15:26:30
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
  Maximum time between data points: 600.0 Seconds.
  Number of data samples: 112

TOTAL DATA SAMPLES 112

Channel number [1]
  Measurement type: Temperature
  Channel name: H2O Temp.

Channel number [2]
  Measurement type: Pressure
  Channel name: H2O Level
  Sensor Range: 30 PSIG.
  Specific gravity: 1.000
  Mode: TOC
  User-defined reference: 0.000 Feet H2O
  Referenced on: test start
  Pressure head at reference: 7.553 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
02/02/05	15:07:31		0.0	49.51	0.000
02/02/05	15:07:31		0.3	49.53	2.009
02/02/05	15:07:31		0.6	49.53	-0.282
02/02/05	15:07:32		0.9	49.55	0.805
02/02/05	15:07:32		1.2	49.55	-3.467
02/02/05	15:07:32		1.5	49.55	-1.663
02/02/05	15:07:33		1.8	49.55	-2.473
02/02/05	15:07:33		2.1	49.58	-2.109
02/02/05	15:07:33		2.4	49.58	-2.300
02/02/05	15:07:34		2.7	49.58	-2.196
02/02/05	15:07:34		3.0	49.58	-2.285
02/02/05	15:07:34		3.3	49.58	-2.243
02/02/05	15:07:34		3.6	49.60	-2.289
02/02/05	15:07:35		3.9	49.58	-2.282
02/02/05	15:07:35		4.2	49.60	-2.300
02/02/05	15:07:35		4.5	49.60	-2.300
02/02/05	15:07:36		4.8	49.60	-2.311
02/02/05	15:07:36		5.1	49.60	-2.321
02/02/05	15:07:36		5.4	49.60	-2.330
02/02/05	15:07:37		5.7	49.60	-2.337

02/02/05	15:07:37	6.0	49.60	-2.343
02/02/05	15:07:37	6.4	49.60	-2.352
02/02/05	15:07:38	6.7	49.60	-2.360
02/02/05	15:07:38	7.1	49.60	-2.371
02/02/05	15:07:38	7.5	49.60	-2.376
02/02/05	15:07:39	8.0	49.62	-2.384
02/02/05	15:07:39	8.4	49.60	-2.395
02/02/05	15:07:40	8.9	49.62	-2.404
02/02/05	15:07:40	9.5	49.60	-2.415
02/02/05	15:07:41	10.0	49.60	-2.419
02/02/05	15:07:41	10.6	49.60	-2.432
02/02/05	15:07:42	11.3	49.60	-2.445
02/02/05	15:07:43	11.9	49.60	-2.454
02/02/05	15:07:43	12.6	49.60	-2.466
02/02/05	15:07:44	13.4	49.60	-2.477
02/02/05	15:07:45	14.2	49.60	-2.486
02/02/05	15:07:46	15.0	49.60	-2.499
02/02/05	15:07:47	15.9	49.60	-2.508
02/02/05	15:07:48	16.8	49.60	-2.521
02/02/05	15:07:49	17.8	49.60	-2.532
02/02/05	15:07:50	18.9	49.60	-2.544
02/02/05	15:07:51	20.0	49.60	-2.557
02/02/05	15:07:52	21.2	49.60	-2.570
02/02/05	15:07:53	22.4	49.60	-2.581
02/02/05	15:07:55	23.8	49.60	-2.594
02/02/05	15:07:56	25.2	49.60	-2.609
02/02/05	15:07:58	26.7	49.60	-2.622
02/02/05	15:07:59	28.2	49.60	-2.635
02/02/05	15:08:01	29.8	49.60	-2.650
02/02/05	15:08:02	31.5	49.62	-2.662
02/02/05	15:08:04	33.3	49.62	-2.677
02/02/05	15:08:06	35.2	49.62	-2.694
02/02/05	15:08:08	37.3	49.62	-2.709
02/02/05	15:08:10	39.5	49.62	-2.726
02/02/05	15:08:13	41.8	49.62	-2.742
02/02/05	15:08:15	44.3	49.62	-2.757
02/02/05	15:08:18	46.9	49.62	-2.776
02/02/05	15:08:21	49.7	49.62	-2.792
02/02/05	15:08:23	52.6	49.62	-2.809
02/02/05	15:08:27	55.7	49.62	-2.826
02/02/05	15:08:30	59.0	49.62	-2.844
02/02/05	15:08:33	62.5	49.62	-2.863
02/02/05	15:08:37	66.2	49.64	-2.880
02/02/05	15:08:41	70.1	49.64	-2.898
02/02/05	15:08:45	74.3	49.64	-2.919
02/02/05	15:08:50	78.7	49.64	-2.937
02/02/05	15:08:54	83.4	49.64	-2.954
02/02/05	15:08:59	88.4	49.64	-2.974
02/02/05	15:09:05	93.7	49.67	-2.993
02/02/05	15:09:10	99.3	49.67	-3.013
02/02/05	15:09:16	105.2	49.67	-3.030
02/02/05	15:09:22	111.5	49.67	-3.050
02/02/05	15:09:29	118.1	49.67	-3.069
02/02/05	15:09:36	125.1	49.69	-3.088
02/02/05	15:09:43	132.6	49.69	-3.104
02/02/05	15:09:51	140.5	49.69	-3.123
02/02/05	15:10:00	148.9	49.71	-3.139
02/02/05	15:10:09	157.8	49.71	-3.156
02/02/05	15:10:18	167.2	49.73	-3.173
02/02/05	15:10:28	177.2	49.73	-3.189
02/02/05	15:10:39	187.8	49.73	-3.204
02/02/05	15:10:50	199.0	49.76	-3.219
02/02/05	15:11:02	210.9	49.76	-3.234

02/02/05	15:11:14	223.5	49.78	-3.249
02/02/05	15:11:28	236.8	49.78	-3.264
02/02/05	15:11:42	250.9	49.78	-3.275
02/02/05	15:11:57	265.8	49.80	-3.288
02/02/05	15:12:12	281.6	49.80	-3.299
02/02/05	15:12:29	298.4	49.80	-3.312
02/02/05	15:12:47	316.2	49.80	-3.321
02/02/05	15:13:06	335.0	49.82	-3.332
02/02/05	15:13:26	354.9	49.82	-3.339
02/02/05	15:13:47	376.0	49.82	-3.349
02/02/05	15:14:09	398.4	49.82	-3.360
02/02/05	15:14:33	422.1	49.82	-3.367
02/02/05	15:14:58	447.2	49.82	-3.375
02/02/05	15:15:25	473.8	49.82	-3.382
02/02/05	15:15:53	502.0	49.80	-3.388
02/02/05	15:16:23	531.9	49.80	-3.395
02/02/05	15:16:54	563.5	49.78	-3.401
02/02/05	15:17:28	597.0	49.78	-3.408
02/02/05	15:18:03	632.5	49.78	-3.412
02/02/05	15:18:41	670.1	49.76	-3.418
02/02/05	15:19:21	709.9	49.76	-3.422
02/02/05	15:20:03	752.1	49.71	-3.426
02/02/05	15:20:48	796.8	49.71	-3.429
02/02/05	15:21:35	844.2	49.71	-3.431
02/02/05	15:22:25	894.4	49.69	-3.435
02/02/05	15:23:18	947.5	49.69	-3.437
02/02/05	15:24:15	1003.8	49.69	-3.439
02/02/05	15:25:14	1063.4	49.67	-3.443
02/02/05	15:26:17	1126.6	49.67	-3.448

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: LL7mw-003	Date Started: 02/02/05	Date Completed: 02/02/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	4926	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 1120.84	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 6.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	33.42		TOP OF FILTER PACK	18' BGS	
DEPTH TO WATER	9.40		TOP OF SCREEN	21' BGS	
HEIGHT OF WATER COLUMN	24.02		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~10'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY) BEGIN	DATE (MM/DD/YY) END	TIME (HH:MM:SS) BEGIN	TIME (HH:MM:SS) END	DEPTH TO TRANSDUCER	DEPTH TO WATER (FT) BEGIN	DEPTH TO WATER (FT) END	HEIGHT OF WATER COLUMN (FT) BEGIN	HEIGHT OF WATER COLUMN (FT) END
1	LL7mw-003-IN	02/02/05	02/02/05	1433	1453	~32'				
2	LL7mw-003-OUT	02/02/05	02/02/05	1453	1512	~32'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL LOG SCALE	TEST TIME INTERVAL ARITH. SCALE	COMMENTS
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: [signature]

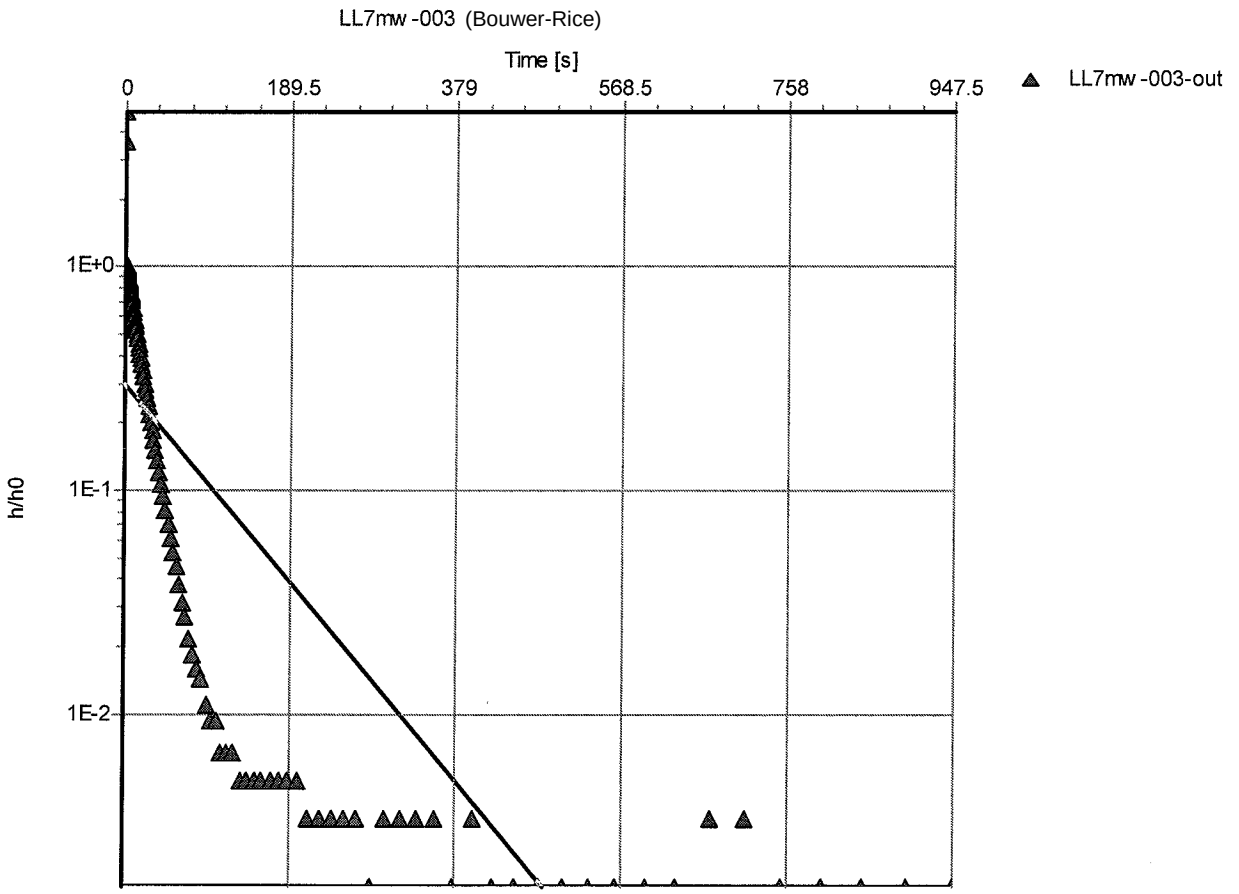
Signature: [signature] Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **LL7mw-003**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 3.82E-4 [cm/s]

Test parameters:				
	Test Well:	LL7mw-003-out	Aquifer thickness:	30.7 [ft]
	Screen radius:	0.2604 [ft]	Gravel Pack Porosity (%)	25
	Screen length:	10 [ft]		
	Casing radius:	0.0833 [ft]		
	r(eff):	0.149 [ft]		

Comments:

Evaluated by:

Date: 02/24/05

In-Situ Inc. MiniTroll Pro

Report generated: 02/02/05 17:43:08
Report from file: ...\SN04926 2005-02-02 145346 LL7mw-003-out.bin
Win-Situ Version 4.50

Serial number: 00004926
Firmware Version 3.09
Unit name: miniTROLL

Test name: LL7mw-003-out

Test defined on: 02/02/05 08:23:48
Test started on: 02/02/05 14:53:46
Test stopped on: 02/02/05 15:12:37
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
Maximum time between data points: 600.0 Seconds.
Number of data samples: 112

TOTAL DATA SAMPLES 112

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 30 PSIG.
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Feet H2O
Referenced on: test start
Pressure head at reference: 15.972 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
02/02/05	14:53:46		0.0	53.17	0.000
02/02/05	14:53:47		0.3	53.21	-2.116
02/02/05	14:53:47		0.6	53.23	-0.573
02/02/05	14:53:47		0.9	53.23	-5.422
02/02/05	14:53:48		1.2	53.23	-5.242
02/02/05	14:53:48		1.5	53.26	-5.199
02/02/05	14:53:48		1.8	53.26	-5.225
02/02/05	14:53:49		2.1	53.26	-5.249
02/02/05	14:53:49		2.4	53.26	-5.271
02/02/05	14:53:49		2.7	53.26	-5.291
02/02/05	14:53:49		3.0	53.26	-5.313
02/02/05	14:53:50		3.3	53.26	-5.334
02/02/05	14:53:50		3.6	53.26	-5.354
02/02/05	14:53:50		3.9	53.28	-5.372
02/02/05	14:53:51		4.2	53.28	-5.392
02/02/05	14:53:51		4.5	53.28	-5.409
02/02/05	14:53:51		4.8	53.28	-5.429
02/02/05	14:53:52		5.1	53.28	-5.445
02/02/05	14:53:52		5.4	53.28	-5.460
02/02/05	14:53:52		5.7	53.28	-5.478

02/02/05	14:53:52	6.0	53.28	-5.495
02/02/05	14:53:53	6.4	53.28	-5.511
02/02/05	14:53:53	6.7	53.28	-5.532
02/02/05	14:53:54	7.1	53.28	-5.550
02/02/05	14:53:54	7.5	53.28	-5.572
02/02/05	14:53:54	8.0	53.28	-5.590
02/02/05	14:53:55	8.4	53.28	-5.616
02/02/05	14:53:55	8.9	53.28	-5.640
02/02/05	14:53:56	9.5	53.28	-5.664
02/02/05	14:53:56	10.0	53.26	-5.681
02/02/05	14:53:57	10.6	53.26	-5.697
02/02/05	14:53:58	11.3	53.23	-5.725
02/02/05	14:53:58	11.9	53.23	-5.747
02/02/05	14:53:59	12.6	53.23	-5.771
02/02/05	14:54:00	13.4	53.23	-5.795
02/02/05	14:54:01	14.2	53.23	-5.820
02/02/05	14:54:01	15.0	53.23	-5.846
02/02/05	14:54:02	15.9	53.23	-5.870
02/02/05	14:54:03	16.8	53.23	-5.896
02/02/05	14:54:04	17.8	53.23	-5.923
02/02/05	14:54:05	18.9	53.23	-5.949
02/02/05	14:54:06	20.0	53.23	-5.975
02/02/05	14:54:08	21.2	53.23	-6.000
02/02/05	14:54:09	22.4	53.23	-6.026
02/02/05	14:54:10	23.8	53.23	-6.052
02/02/05	14:54:12	25.2	53.23	-6.076
02/02/05	14:54:13	26.7	53.23	-6.100
02/02/05	14:54:15	28.2	53.23	-6.122
02/02/05	14:54:16	29.8	53.23	-6.144
02/02/05	14:54:18	31.5	53.23	-6.162
02/02/05	14:54:20	33.3	53.23	-6.184
02/02/05	14:54:22	35.2	53.23	-6.202
02/02/05	14:54:24	37.3	53.23	-6.221
02/02/05	14:54:26	39.5	53.23	-6.239
02/02/05	14:54:28	41.8	53.23	-6.256
02/02/05	14:54:31	44.3	53.23	-6.270
02/02/05	14:54:33	46.9	53.23	-6.285
02/02/05	14:54:36	49.7	53.23	-6.298
02/02/05	14:54:39	52.6	53.23	-6.309
02/02/05	14:54:42	55.7	53.23	-6.318
02/02/05	14:54:45	59.0	53.23	-6.327
02/02/05	14:54:49	62.5	53.23	-6.336
02/02/05	14:54:53	66.2	53.21	-6.344
02/02/05	14:54:57	70.1	53.23	-6.349
02/02/05	14:55:01	74.3	53.21	-6.355
02/02/05	14:55:05	78.7	53.21	-6.359
02/02/05	14:55:10	83.4	53.21	-6.362
02/02/05	14:55:15	88.4	53.21	-6.364
02/02/05	14:55:20	93.7	53.21	-6.368
02/02/05	14:55:26	99.3	53.21	-6.370
02/02/05	14:55:32	105.2	53.21	-6.370
02/02/05	14:55:38	111.5	53.21	-6.373
02/02/05	14:55:45	118.1	53.21	-6.373
02/02/05	14:55:52	125.1	53.21	-6.373
02/02/05	14:55:59	132.6	53.21	-6.375
02/02/05	14:56:07	140.5	53.21	-6.375
02/02/05	14:56:15	148.9	53.21	-6.375
02/02/05	14:56:24	157.8	53.21	-6.375
02/02/05	14:56:34	167.2	53.21	-6.375
02/02/05	14:56:44	177.2	53.21	-6.375
02/02/05	14:56:54	187.8	53.21	-6.375
02/02/05	14:57:05	199.0	53.21	-6.375
02/02/05	14:57:17	210.9	53.21	-6.377

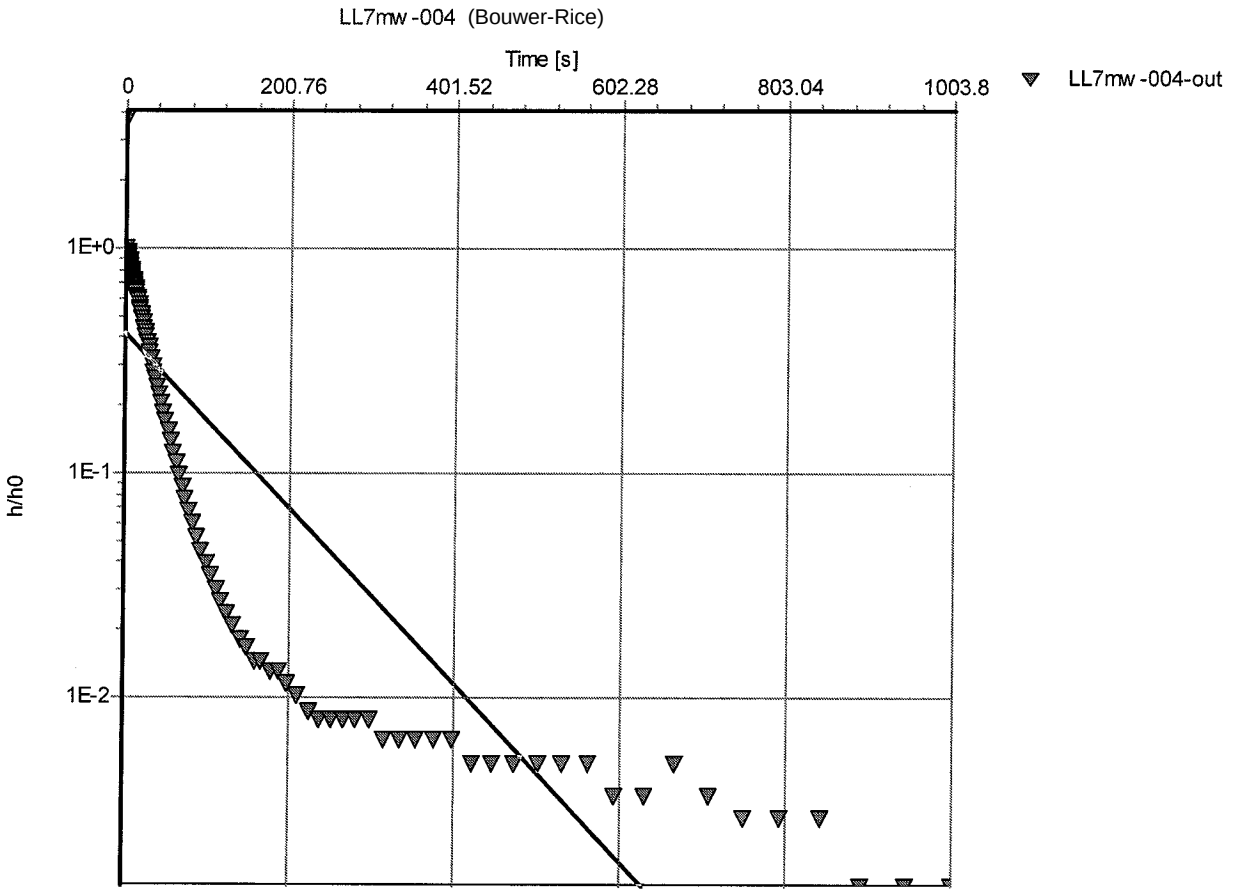
02/02/05	14:57:30	223.5	53.21	-6.377
02/02/05	14:57:43	236.8	53.21	-6.377
02/02/05	14:57:57	250.9	53.21	-6.377
02/02/05	14:58:12	265.8	53.21	-6.377
02/02/05	14:58:28	281.6	53.21	-6.379
02/02/05	14:58:45	298.4	53.19	-6.377
02/02/05	14:59:03	316.2	53.19	-6.377
02/02/05	14:59:21	335.0	53.19	-6.377
02/02/05	14:59:41	354.9	53.21	-6.377
02/02/05	15:00:02	376.0	53.19	-6.379
02/02/05	15:00:25	398.4	53.19	-6.377
02/02/05	15:00:49	422.1	53.21	-6.379
02/02/05	15:01:14	447.2	53.19	-6.379
02/02/05	15:01:40	473.8	53.19	-6.379
02/02/05	15:02:08	502.0	53.19	-6.379
02/02/05	15:02:38	531.9	53.19	-6.379
02/02/05	15:03:10	563.5	53.19	-6.379
02/02/05	15:03:43	597.0	53.19	-6.379
02/02/05	15:04:19	632.5	53.19	-6.379
02/02/05	15:04:57	670.1	53.21	-6.377
02/02/05	15:05:36	709.9	53.19	-6.377
02/02/05	15:06:19	752.1	53.19	-6.379
02/02/05	15:07:03	796.8	53.19	-6.379
02/02/05	15:07:51	844.2	53.19	-6.379
02/02/05	15:08:41	894.4	53.17	-6.379
02/02/05	15:09:34	947.5	53.17	-6.379
02/02/05	15:10:30	1003.8	53.17	-6.381
02/02/05	15:11:30	1063.4	53.17	-6.381
02/02/05	15:12:33	1126.6	53.17	-6.381

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **LL7mw-004**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 3.06E-4 [cm/s]

Test parameters:

Test Well:	LL7mw-004-out	Aquifer thickness:	19.41 [ft]
Screen radius:	0.2604 [ft]	Gravel Pack Porosity (%)	25
Screen length:	10 [ft]		
Casing radius:	0.0833 [ft]		
r(eff):	0.149 [ft]		

Comments:

Evaluated by:

Date: 02/24/05

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: LL7 mw - 004	Date Started: 02/02/05	Date Completed: 02/02/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	4886	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 1126.32	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 6.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	32.08		TOP OF FILTER PACK	15.5' BGS	
DEPTH TO WATER	12.67		TOP OF SCREEN	19.5' BGS	
HEIGHT OF WATER COLUMN	19.41		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~13'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY)		TIME (HH:MM:SS)		DEPTH TO TRANSDUCER	DEPTH TO WATER (FT)		HEIGHT OF WATER COLUMN (FT)	
		BEGIN	END	BEGIN	END		BEGIN	END	BEGIN	END
1	LL7 mw-004-IN	02/02/05	02/02/05	1424	1443	~31'				
2	LL7 mw-004-OUT	02/02/05	02/02/05	1444	1503	~31'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL		COMMENTS
				LOG SCALE	ARITH. SCALE	
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA √OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: EHS

Signature: David K. Earnest Date: 5/6/05

In-Situ Inc. MiniTroll Pro

Report generated: 02/03/05 07:59:33
Report from file: ...\SN04886 2005-02-02 144401 LL7mw-004-out.bin
Win-Situ Version 4.50

Serial number: 00004886
Firmware Version 3.09
Unit name: MKM 55

Test name: LL7mw-004-out

Test defined on: 02/02/05 08:08:01
Test started on: 02/02/05 14:44:01
Test stopped on: 02/02/05 15:03:35
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
Maximum time between data points: 600.0 Seconds.
Number of data samples: 112

TOTAL DATA SAMPLES 112

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 30 PSIG.
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Feet H2O
Referenced on: test start
Pressure head at reference: 12.731 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
02/02/05	14:44:01		0.0	53.43	0.000
02/02/05	14:44:01		0.3	53.47	-0.259
02/02/05	14:44:01		0.6	53.47	0.203
02/02/05	14:44:02		0.9	53.49	-4.110
02/02/05	14:44:02		1.2	53.49	-4.180
02/02/05	14:44:02		1.5	53.49	-4.156
02/02/05	14:44:03		1.8	53.52	-4.165
02/02/05	14:44:03		2.1	53.52	-4.180
02/02/05	14:44:03		2.4	53.52	-4.198
02/02/05	14:44:03		2.7	53.52	-4.215
02/02/05	14:44:04		3.0	53.52	-4.233
02/02/05	14:44:04		3.3	53.52	-4.250
02/02/05	14:44:04		3.6	53.52	-4.264
02/02/05	14:44:05		3.9	53.52	-4.281
02/02/05	14:44:05		4.2	53.52	-4.296
02/02/05	14:44:05		4.5	53.52	-4.309
02/02/05	14:44:06		4.8	53.54	-4.323
02/02/05	14:44:06		5.1	53.54	-4.338
02/02/05	14:44:06		5.4	53.54	-4.353
02/02/05	14:44:06		5.7	53.54	-4.365

02/02/05	14:44:07	6.0	53.54	-4.378
02/02/05	14:44:07	6.4	53.54	-4.393
02/02/05	14:44:07	6.7	53.54	-4.410
02/02/05	14:44:08	7.1	53.54	-4.421
02/02/05	14:44:08	7.5	53.54	-4.446
02/02/05	14:44:09	8.0	53.54	-4.467
02/02/05	14:44:09	8.4	53.54	-4.485
02/02/05	14:44:10	8.9	53.54	-4.502
02/02/05	14:44:10	9.5	53.54	-4.520
02/02/05	14:44:11	10.0	53.52	-4.537
02/02/05	14:44:11	10.6	53.52	-4.555
02/02/05	14:44:12	11.3	53.52	-4.577
02/02/05	14:44:13	11.9	53.52	-4.600
02/02/05	14:44:13	12.6	53.49	-4.622
02/02/05	14:44:14	13.4	53.49	-4.644
02/02/05	14:44:15	14.2	53.49	-4.670
02/02/05	14:44:16	15.0	53.49	-4.692
02/02/05	14:44:17	15.9	53.49	-4.718
02/02/05	14:44:18	16.8	53.49	-4.743
02/02/05	14:44:19	17.8	53.49	-4.771
02/02/05	14:44:20	18.9	53.49	-4.799
02/02/05	14:44:21	20.0	53.49	-4.824
02/02/05	14:44:22	21.2	53.49	-4.854
02/02/05	14:44:23	22.4	53.49	-4.883
02/02/05	14:44:24	23.8	53.49	-4.911
02/02/05	14:44:26	25.2	53.49	-4.939
02/02/05	14:44:27	26.7	53.49	-4.968
02/02/05	14:44:29	28.2	53.49	-4.994
02/02/05	14:44:30	29.8	53.49	-5.023
02/02/05	14:44:32	31.5	53.49	-5.051
02/02/05	14:44:34	33.3	53.49	-5.079
02/02/05	14:44:36	35.2	53.49	-5.104
02/02/05	14:44:38	37.3	53.49	-5.134
02/02/05	14:44:40	39.5	53.49	-5.160
02/02/05	14:44:42	41.8	53.47	-5.186
02/02/05	14:44:45	44.3	53.47	-5.211
02/02/05	14:44:48	46.9	53.47	-5.235
02/02/05	14:44:50	49.7	53.47	-5.259
02/02/05	14:44:53	52.6	53.47	-5.281
02/02/05	14:44:56	55.7	53.47	-5.302
02/02/05	14:45:00	59.0	53.47	-5.324
02/02/05	14:45:03	62.5	53.47	-5.340
02/02/05	14:45:07	66.2	53.47	-5.357
02/02/05	14:45:11	70.1	53.47	-5.374
02/02/05	14:45:15	74.3	53.47	-5.388
02/02/05	14:45:19	78.7	53.47	-5.399
02/02/05	14:45:24	83.4	53.47	-5.410
02/02/05	14:45:29	88.4	53.47	-5.421
02/02/05	14:45:34	93.7	53.47	-5.431
02/02/05	14:45:40	99.3	53.47	-5.438
02/02/05	14:45:46	105.2	53.47	-5.445
02/02/05	14:45:52	111.5	53.47	-5.451
02/02/05	14:45:59	118.1	53.47	-5.456
02/02/05	14:46:06	125.1	53.47	-5.460
02/02/05	14:46:13	132.6	53.45	-5.464
02/02/05	14:46:21	140.5	53.45	-5.468
02/02/05	14:46:30	148.9	53.45	-5.470
02/02/05	14:46:38	157.8	53.45	-5.473
02/02/05	14:46:48	167.2	53.45	-5.473
02/02/05	14:46:58	177.2	53.45	-5.475
02/02/05	14:47:08	187.8	53.47	-5.475
02/02/05	14:47:20	199.0	53.45	-5.477
02/02/05	14:47:32	210.9	53.45	-5.479

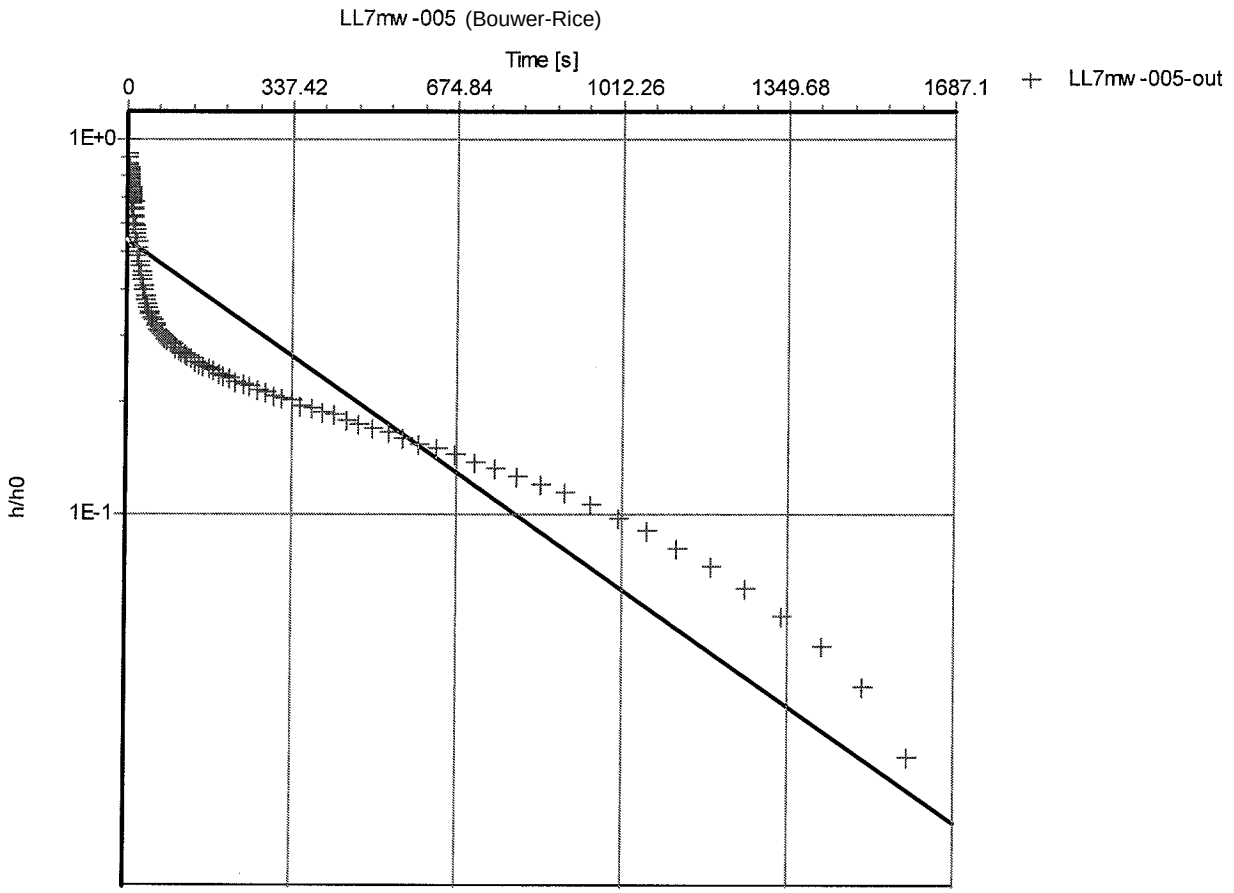
02/02/05	14:47:44	223.5	53.45	-5.481
02/02/05	14:47:57	236.8	53.45	-5.482
02/02/05	14:48:12	250.9	53.45	-5.482
02/02/05	14:48:26	265.8	53.47	-5.482
02/02/05	14:48:42	281.6	53.45	-5.482
02/02/05	14:48:59	298.4	53.47	-5.482
02/02/05	14:49:17	316.2	53.47	-5.484
02/02/05	14:49:36	335.0	53.47	-5.484
02/02/05	14:49:56	354.9	53.47	-5.484
02/02/05	14:50:17	376.0	53.47	-5.484
02/02/05	14:50:39	398.4	53.47	-5.484
02/02/05	14:51:03	422.1	53.47	-5.486
02/02/05	14:51:28	447.2	53.47	-5.486
02/02/05	14:51:54	473.8	53.47	-5.486
02/02/05	14:52:23	502.0	53.47	-5.486
02/02/05	14:52:53	531.9	53.49	-5.486
02/02/05	14:53:24	563.5	53.49	-5.486
02/02/05	14:53:58	597.0	53.49	-5.488
02/02/05	14:54:33	632.5	53.49	-5.488
02/02/05	14:55:11	670.1	53.49	-5.486
02/02/05	14:55:51	709.9	53.49	-5.488
02/02/05	14:56:33	752.1	53.49	-5.489
02/02/05	14:57:17	796.8	53.52	-5.489
02/02/05	14:58:05	844.2	53.52	-5.489
02/02/05	14:58:55	894.4	53.52	-5.491
02/02/05	14:59:48	947.5	53.52	-5.491
02/02/05	15:00:44	1003.8	53.52	-5.491
02/02/05	15:01:44	1063.4	53.52	-5.493
02/02/05	15:02:47	1126.6	53.54	-5.493

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **LL7mw-005**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 6.41E-5 [cm/s]

Test parameters:

Test Well:	LL7mw-005-out	Aquifer thickness:	10.88 [ft]
Screen radius:	0.2604 [ft]	Gravel Pack Porosity (%)	25
Screen length:	10 [ft]		
Casing radius:	0.0833 [ft]		
r(eff):	0.149 [ft]		

Comments:

Evaluated by:

Date: 02/24/05

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.:	LL7mw-005	Date Started:	02/02/05	Date Completed:	02/02/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	5444	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 1135.87	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 6.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	30.22		TOP OF FILTER PACK	15' BGS	
DEPTH TO WATER	19.34		TOP OF SCREEN	18' BGS	
HEIGHT OF WATER COLUMN	10.88		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~20'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY)		TIME (HH:MM:SS)		DEPTH TO TRANSDUCER	DEPTH TO WATER (FT)		HEIGHT OF WATER COLUMN (FT)	
		BEGIN	END	BEGIN	END		BEGIN	END	BEGIN	END
1	LL7 mw 005-IN	02/02/05	02/02/05	1020	1047	~29'				
2	LL7 mw 005-OUT	02/02/05	02/02/05	1047	1118	~29'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL		COMMENTS
				LOG SCALE	ARITH. SCALE	
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by:

Signature: David K. Earnest Date: 5/6/05

In-Situ Inc. MiniTroll Pro

Report generated: 02/02/05 17:36:24
Report from file: ...\SN05444 2005-02-02 104735 LL7mw-005-out.bin
Win-Situ Version 4.50

Serial number: 00005444
Firmware Version 3.09
Unit name: MKM 45

Test name: LL7mw-005-out

Test defined on: 02/02/05 08:17:55
Test started on: 02/02/05 10:47:35
Test stopped on: 02/02/05 11:18:30
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
Maximum time between data points: 600.0 Seconds.
Number of data samples: 120

TOTAL DATA SAMPLES 120

Channel number [1]
Measurement type: Temperature
Channel name: H2O Temp.

Channel number [2]
Measurement type: Pressure
Channel name: H2O Level
Sensor Range: 30 PSIG.
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Feet H2O
Referenced on: test start
Pressure head at reference: 1.407 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
02/02/05	10:47:35	0.0	51.88	0.000	
02/02/05	10:47:35	0.3	51.88	-0.523	
02/02/05	10:47:35	0.6	51.90	-0.783	
02/02/05	10:47:36	0.9	51.90	-0.902	
02/02/05	10:47:36	1.2	51.90	-0.930	
02/02/05	10:47:36	1.5	51.92	-0.967	
02/02/05	10:47:37	1.8	51.92	-0.978	
02/02/05	10:47:37	2.1	51.92	-0.998	
02/02/05	10:47:37	2.4	51.92	-1.008	
02/02/05	10:47:37	2.7	51.92	-1.015	
02/02/05	10:47:38	3.0	51.92	-1.030	
02/02/05	10:47:38	3.3	51.92	-1.039	
02/02/05	10:47:38	3.6	51.92	-1.049	
02/02/05	10:47:39	3.9	51.94	-1.062	
02/02/05	10:47:39	4.2	51.94	-1.069	
02/02/05	10:47:39	4.5	51.94	-1.078	
02/02/05	10:47:40	4.8	51.94	-1.088	
02/02/05	10:47:40	5.1	51.94	-1.097	
02/02/05	10:47:40	5.4	51.94	-1.106	
02/02/05	10:47:40	5.7	51.94	-1.114	

02/02/05	10:47:41	6.0	51.94	-1.123
02/02/05	10:47:41	6.4	51.94	-1.134
02/02/05	10:47:41	6.7	51.94	-1.143
02/02/05	10:47:42	7.1	51.94	-1.155
02/02/05	10:47:42	7.5	51.94	-1.166
02/02/05	10:47:43	8.0	51.94	-1.179
02/02/05	10:47:43	8.4	51.94	-1.192
02/02/05	10:47:44	8.9	51.97	-1.205
02/02/05	10:47:44	9.5	51.94	-1.221
02/02/05	10:47:45	10.0	51.94	-1.234
02/02/05	10:47:45	10.6	51.94	-1.218
02/02/05	10:47:46	11.3	51.94	-1.247
02/02/05	10:47:47	11.9	51.94	-1.268
02/02/05	10:47:47	12.6	51.94	-1.292
02/02/05	10:47:48	13.4	51.94	-1.301
02/02/05	10:47:49	14.2	51.94	-1.333
02/02/05	10:47:50	15.0	51.94	-1.348
02/02/05	10:47:51	15.9	51.94	-1.367
02/02/05	10:47:52	16.8	51.94	-1.387
02/02/05	10:47:53	17.8	51.94	-1.406
02/02/05	10:47:54	18.9	51.94	-1.426
02/02/05	10:47:55	20.0	51.94	-1.445
02/02/05	10:47:56	21.2	51.94	-1.465
02/02/05	10:47:57	22.4	51.94	-1.486
02/02/05	10:47:59	23.8	51.94	-1.506
02/02/05	10:48:00	25.2	51.94	-1.525
02/02/05	10:48:01	26.7	51.94	-1.545
02/02/05	10:48:03	28.2	51.94	-1.562
02/02/05	10:48:05	29.8	51.94	-1.578
02/02/05	10:48:06	31.5	51.94	-1.595
02/02/05	10:48:08	33.3	51.94	-1.612
02/02/05	10:48:10	35.2	51.94	-1.627
02/02/05	10:48:12	37.3	51.92	-1.642
02/02/05	10:48:14	39.5	51.92	-1.655
02/02/05	10:48:17	41.8	51.92	-1.666
02/02/05	10:48:19	44.3	51.92	-1.677
02/02/05	10:48:22	46.9	51.92	-1.686
02/02/05	10:48:24	49.7	51.92	-1.696
02/02/05	10:48:27	52.6	51.92	-1.705
02/02/05	10:48:30	55.7	51.92	-1.713
02/02/05	10:48:34	59.0	51.92	-1.720
02/02/05	10:48:37	62.5	51.92	-1.727
02/02/05	10:48:41	66.2	51.92	-1.733
02/02/05	10:48:45	70.1	51.92	-1.739
02/02/05	10:48:49	74.3	51.92	-1.746
02/02/05	10:48:53	78.7	51.92	-1.750
02/02/05	10:48:58	83.4	51.92	-1.757
02/02/05	10:49:03	88.4	51.92	-1.761
02/02/05	10:49:08	93.7	51.92	-1.766
02/02/05	10:49:14	99.3	51.92	-1.772
02/02/05	10:49:20	105.2	51.92	-1.778
02/02/05	10:49:26	111.5	51.90	-1.783
02/02/05	10:49:33	118.1	51.90	-1.789
02/02/05	10:49:40	125.1	51.90	-1.794
02/02/05	10:49:47	132.6	51.90	-1.798
02/02/05	10:49:55	140.5	51.90	-1.804
02/02/05	10:50:04	148.9	51.90	-1.808
02/02/05	10:50:13	157.8	51.88	-1.813
02/02/05	10:50:22	167.2	51.88	-1.819
02/02/05	10:50:32	177.2	51.88	-1.824
02/02/05	10:50:43	187.8	51.88	-1.830
02/02/05	10:50:54	199.0	51.88	-1.836
02/02/05	10:51:06	210.9	51.88	-1.839

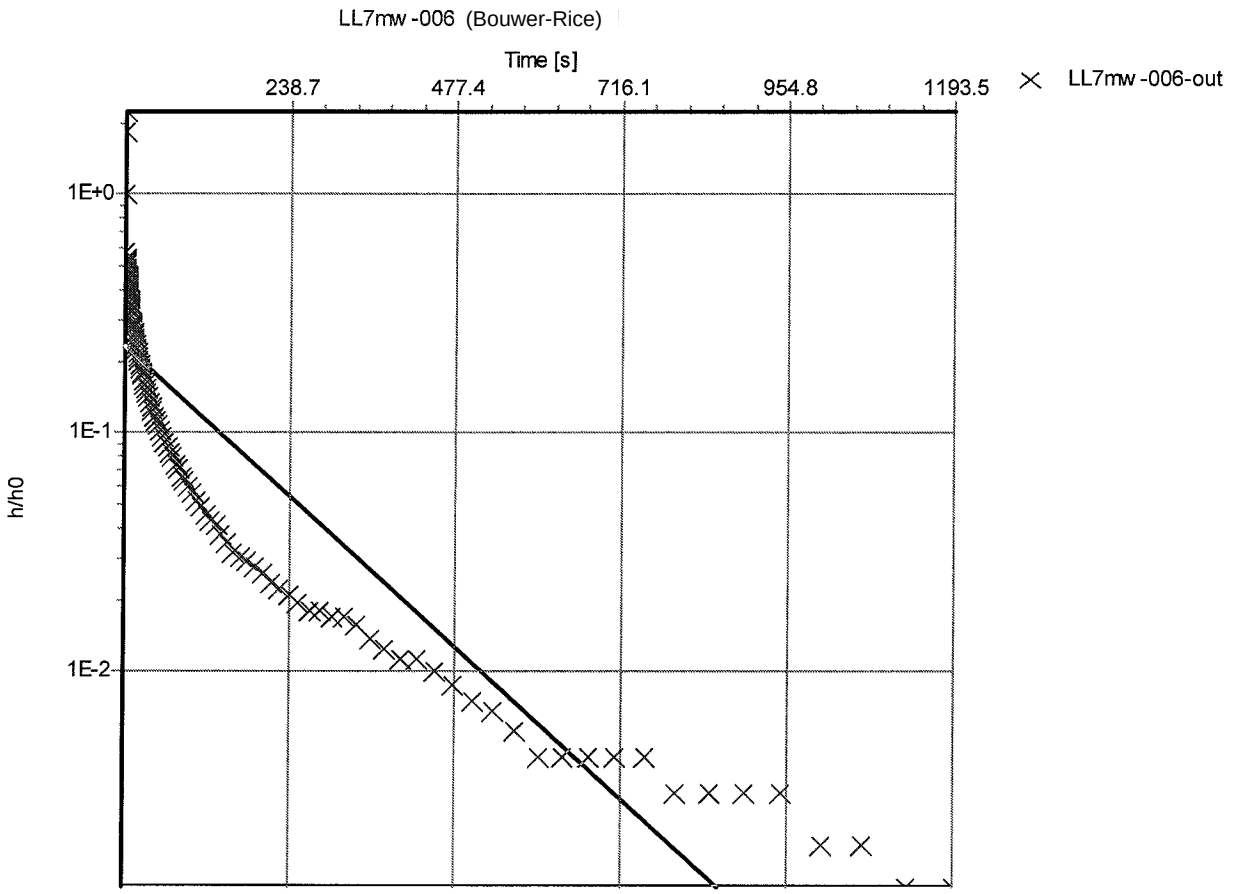
02/02/05	10:51:18	223.5	51.88	-1.845
02/02/05	10:51:32	236.8	51.88	-1.850
02/02/05	10:51:46	250.9	51.88	-1.854
02/02/05	10:52:01	265.8	51.88	-1.860
02/02/05	10:52:16	281.6	51.88	-1.865
02/02/05	10:52:33	298.4	51.88	-1.871
02/02/05	10:52:51	316.2	51.88	-1.876
02/02/05	10:53:10	335.0	51.88	-1.880
02/02/05	10:53:30	354.9	51.88	-1.888
02/02/05	10:53:51	376.0	51.85	-1.891
02/02/05	10:54:13	398.4	51.85	-1.899
02/02/05	10:54:37	422.1	51.83	-1.903
02/02/05	10:55:02	447.2	51.83	-1.910
02/02/05	10:55:29	473.8	51.83	-1.918
02/02/05	10:55:57	502.0	51.83	-1.923
02/02/05	10:56:27	531.9	51.83	-1.929
02/02/05	10:56:58	563.5	51.85	-1.936
02/02/05	10:57:32	597.0	51.85	-1.944
02/02/05	10:58:07	632.5	51.88	-1.951
02/02/05	10:58:45	670.1	51.90	-1.958
02/02/05	10:59:25	709.9	51.90	-1.967
02/02/05	11:00:07	752.1	51.92	-1.975
02/02/05	11:00:52	796.8	51.94	-1.982
02/02/05	11:01:39	844.2	51.97	-1.991
02/02/05	11:02:29	894.4	51.99	-2.000
02/02/05	11:03:22	947.5	52.01	-2.011
02/02/05	11:04:19	1003.8	52.01	-2.023
02/02/05	11:05:18	1063.4	52.04	-2.032
02/02/05	11:06:21	1126.6	52.06	-2.045
02/02/05	11:07:28	1193.5	52.08	-2.057
02/02/05	11:08:39	1264.4	52.08	-2.069
02/02/05	11:09:54	1339.5	52.10	-2.083
02/02/05	11:11:14	1419.0	52.13	-2.096
02/02/05	11:12:38	1503.3	52.13	-2.109
02/02/05	11:14:07	1592.6	52.15	-2.126
02/02/05	11:15:42	1687.1	52.15	-2.143
02/02/05	11:17:22	1787.2	52.17	-2.157

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **LL7mw-006**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 2.11E-4 [cm/s]

Test parameters:

Test Well:	LL7mw-006-out	Aquifer thickness:	21.24 [ft]
Screen radius:	0.2604 [ft]	Gravel Pack Porosity (%)	25
Screen length:	10 [ft]		
Casing radius:	0.0833 [ft]		
r(eff):	0.149 [ft]		

Comments:

Evaluated by:

Date: 02/24/05

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: LL7mw-006	Date Started: 02/02/05	Date Completed: 02/02/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	4926	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 1123.56	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 6.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	30.21		TOP OF FILTER PACK	14.0' BGS	
DEPTH TO WATER	8.97		TOP OF SCREEN	17.5' BGS	
HEIGHT OF WATER COLUMN	21.24		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~10'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY)		TIME (HH:MM:SS)		DEPTH TO TRANSDUCER	DEPTH TO WATER (FT)		HEIGHT OF WATER COLUMN (FT)	
		BEGIN	END	BEGIN	END		BEGIN	END	BEGIN	END
1	LL7mw-006-IN	02/02/05	02/02/05	1041	1107	~29				
2	LL7mw-006-OUT	02/02/05	02/02/05	1108	1129	~29				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL		COMMENTS
				LOG SCALE	ARITH. SCALE	
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: [signature]
Signature: [signature] Date: 5/6/05

In-Situ Inc. MiniTroll Pro

Report generated: 02/02/05 17:42:16
Report from file: ...\SN04926 2005-02-02 110801 LL7mw-006-out.bin
Win-Situ Version 4.50

Serial number: 00004926
Firmware Version 3.09
Unit name: miniTROLL

Test name: LL7mw-006-out

Test defined on: 02/02/05 08:23:26
Test started on: 02/02/05 11:08:01
Test stopped on: 02/02/05 11:29:56
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
Maximum time between data points: 600.0 Seconds.
Number of data samples: 114

TOTAL DATA SAMPLES 114

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 30 PSIG.
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Feet H2O
Referenced on: test start
Pressure head at reference: 16.275 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
02/02/05	11:08:01	0.0	52.69	0.000	
02/02/05	11:08:01	0.3	52.74	0.381	
02/02/05	11:08:02	0.6	52.74	-0.259	
02/02/05	11:08:02	0.9	52.76	-1.581	
02/02/05	11:08:02	1.2	52.76	-2.264	
02/02/05	11:08:03	1.5	52.76	-2.321	
02/02/05	11:08:03	1.8	52.76	-2.332	
02/02/05	11:08:03	2.1	52.78	-2.351	
02/02/05	11:08:04	2.4	52.78	-2.369	
02/02/05	11:08:04	2.7	52.78	-2.389	
02/02/05	11:08:04	3.0	52.78	-2.409	
02/02/05	11:08:04	3.3	52.78	-2.430	
02/02/05	11:08:05	3.6	52.78	-2.448	
02/02/05	11:08:05	3.9	52.78	-2.466	
02/02/05	11:08:05	4.2	52.81	-2.485	
02/02/05	11:08:06	4.5	52.78	-2.499	
02/02/05	11:08:06	4.8	52.78	-2.514	
02/02/05	11:08:06	5.1	52.78	-2.531	
02/02/05	11:08:07	5.4	52.81	-2.543	
02/02/05	11:08:07	5.7	52.81	-2.556	

02/02/05	11:08:07	6.0	52.81	-2.569
02/02/05	11:08:07	6.4	52.81	-2.584
02/02/05	11:08:08	6.7	52.81	-2.597
02/02/05	11:08:08	7.1	52.81	-2.611
02/02/05	11:08:09	7.5	52.81	-2.626
02/02/05	11:08:09	8.0	52.81	-2.641
02/02/05	11:08:10	8.4	52.81	-2.654
02/02/05	11:08:10	8.9	52.81	-2.670
02/02/05	11:08:11	9.5	52.81	-2.683
02/02/05	11:08:11	10.0	52.78	-2.690
02/02/05	11:08:12	10.6	52.78	-2.722
02/02/05	11:08:12	11.3	52.76	-2.716
02/02/05	11:08:13	11.9	52.76	-2.729
02/02/05	11:08:14	12.6	52.76	-2.742
02/02/05	11:08:14	13.4	52.76	-2.757
02/02/05	11:08:15	14.2	52.76	-2.770
02/02/05	11:08:16	15.0	52.76	-2.782
02/02/05	11:08:17	15.9	52.76	-2.795
02/02/05	11:08:18	16.8	52.76	-2.808
02/02/05	11:08:19	17.8	52.76	-2.821
02/02/05	11:08:20	18.9	52.76	-2.832
02/02/05	11:08:21	20.0	52.76	-2.845
02/02/05	11:08:22	21.2	52.76	-2.858
02/02/05	11:08:24	22.4	52.76	-2.869
02/02/05	11:08:25	23.8	52.74	-2.884
02/02/05	11:08:26	25.2	52.74	-2.893
02/02/05	11:08:28	26.7	52.74	-2.902
02/02/05	11:08:29	28.2	52.74	-2.915
02/02/05	11:08:31	29.8	52.74	-2.926
02/02/05	11:08:33	31.5	52.74	-2.935
02/02/05	11:08:34	33.3	52.74	-2.944
02/02/05	11:08:36	35.2	52.74	-2.955
02/02/05	11:08:38	37.3	52.74	-2.966
02/02/05	11:08:41	39.5	52.74	-2.975
02/02/05	11:08:43	41.8	52.74	-2.985
02/02/05	11:08:45	44.3	52.74	-2.994
02/02/05	11:08:48	46.9	52.74	-3.001
02/02/05	11:08:51	49.7	52.74	-3.010
02/02/05	11:08:54	52.6	52.74	-3.020
02/02/05	11:08:57	55.7	52.74	-3.027
02/02/05	11:09:00	59.0	52.74	-3.036
02/02/05	11:09:04	62.5	52.72	-3.042
02/02/05	11:09:07	66.2	52.72	-3.049
02/02/05	11:09:11	70.1	52.72	-3.056
02/02/05	11:09:15	74.3	52.72	-3.064
02/02/05	11:09:20	78.7	52.72	-3.069
02/02/05	11:09:25	83.4	52.72	-3.077
02/02/05	11:09:30	88.4	52.72	-3.082
02/02/05	11:09:35	93.7	52.72	-3.088
02/02/05	11:09:40	99.3	52.69	-3.093
02/02/05	11:09:46	105.2	52.69	-3.099
02/02/05	11:09:53	111.5	52.69	-3.104
02/02/05	11:09:59	118.1	52.69	-3.110
02/02/05	11:10:06	125.1	52.69	-3.114
02/02/05	11:10:14	132.6	52.69	-3.117
02/02/05	11:10:22	140.5	52.69	-3.123
02/02/05	11:10:30	148.9	52.67	-3.127
02/02/05	11:10:39	157.8	52.67	-3.132
02/02/05	11:10:48	167.2	52.67	-3.134
02/02/05	11:10:58	177.2	52.67	-3.136
02/02/05	11:11:09	187.8	52.67	-3.139
02/02/05	11:11:20	199.0	52.67	-3.141
02/02/05	11:11:32	210.9	52.67	-3.145

02/02/05	11:11:45	223.5	52.67	-3.147
02/02/05	11:11:58	236.8	52.67	-3.149
02/02/05	11:12:12	250.9	52.67	-3.152
02/02/05	11:12:27	265.8	52.67	-3.154
02/02/05	11:12:43	281.6	52.67	-3.154
02/02/05	11:13:00	298.4	52.67	-3.156
02/02/05	11:13:17	316.2	52.67	-3.156
02/02/05	11:13:36	335.0	52.67	-3.158
02/02/05	11:13:56	354.9	52.67	-3.161
02/02/05	11:14:17	376.0	52.67	-3.163
02/02/05	11:14:40	398.4	52.65	-3.165
02/02/05	11:15:03	422.1	52.65	-3.165
02/02/05	11:15:28	447.2	52.65	-3.167
02/02/05	11:15:55	473.8	52.60	-3.169
02/02/05	11:16:23	502.0	52.58	-3.171
02/02/05	11:16:53	531.9	52.54	-3.172
02/02/05	11:17:25	563.5	52.49	-3.174
02/02/05	11:17:58	597.0	52.45	-3.176
02/02/05	11:18:34	632.5	52.42	-3.176
02/02/05	11:19:11	670.1	52.42	-3.176
02/02/05	11:19:51	709.9	52.40	-3.176
02/02/05	11:20:33	752.1	52.40	-3.176
02/02/05	11:21:18	796.8	52.40	-3.178
02/02/05	11:22:05	844.2	52.42	-3.178
02/02/05	11:22:56	894.4	52.45	-3.178
02/02/05	11:23:49	947.5	52.45	-3.178
02/02/05	11:24:45	1003.8	52.45	-3.180
02/02/05	11:25:45	1063.4	52.45	-3.180
02/02/05	11:26:48	1126.6	52.47	-3.181
02/02/05	11:27:55	1193.5	52.49	-3.181
02/02/05	11:29:06	1264.4	52.51	-3.183

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: LL8 mw-001	Date Started: 03/18/05	Date Completed: 03/18/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	4886	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 1121.64	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 8.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	27.40		TOP OF FILTER PACK	6.5' BGS	
DEPTH TO WATER	8.22		TOP OF SCREEN	14' BGS	
HEIGHT OF WATER COLUMN	19.18		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~9'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY) BEGIN	DATE (MM/DD/YY) END	TIME (HH:MM:SS) BEGIN	TIME (HH:MM:SS) END	DEPTH TO TRANSDUCER	DEPTH TO WATER (FT) BEGIN	DEPTH TO WATER (FT) END	HEIGHT OF WATER COLUMN (FT) BEGIN	HEIGHT OF WATER COLUMN (FT) END
1	LL8mw-001-IN	03/18/05	03/18/05	1308	1332	~26'				
2	LL8mw-001-OUT	03/18/05	03/18/05	1333	1355	~26'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL LOG SCALE	TEST TIME INTERVAL ARITH. SCALE	COMMENTS
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SRS

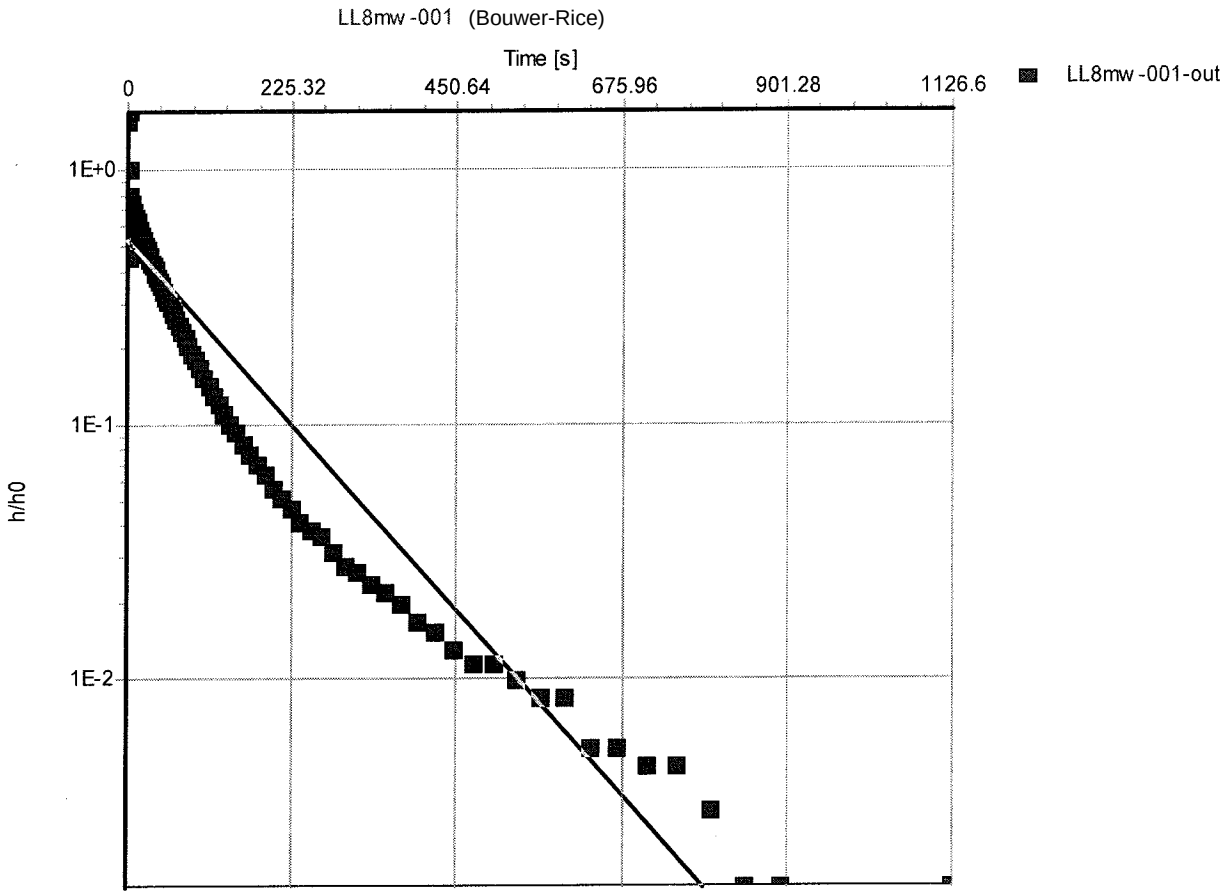
Signature: David K. Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **LL8mw-001**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 2.03E-4 [cm/s]

Test parameters:

Test Well:	LL8mw-001-out	Aquifer thickness:	24.63 [ft]
Screen radius:	0.34375 [ft]	Gravel Pack Porosity (%)	25
Screen length:	10 [ft]		
Casing radius:	0.08333 [ft]		
r(eff):	0.186 [ft]		

Comments:

Evaluated by:

Date: 3/24/2005

In-Situ Inc. MiniTroll Pro

Report generated: 03/21/05 13:20:36
Report from file: ...\SN04886 2005-03-18 133342 LL8mw-001 out.bin
Win-Situ Version 4.50

Serial number: 00004886
Firmware Version 3.09
Unit name: MKM 55

Test name: LL8mw-001 out

Test defined on: 03/18/05 10:44:30
Test started on: 03/18/05 13:33:42
Test stopped on: 03/18/05 13:55:36
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
Maximum time between data points: 600.0 Seconds.
Number of data samples: 114

TOTAL DATA SAMPLES 114

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 30 PSIG.
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Feet H2O
Referenced on: test start
Pressure head at reference: 10.819 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
03/18/05	13:33:42		0.0	52.48	0.000
03/18/05	13:33:42		0.3	52.50	-3.332
03/18/05	13:33:43		0.6	52.52	-5.330
03/18/05	13:33:43		0.9	52.52	-8.290
03/18/05	13:33:43		1.2	52.55	-6.509
03/18/05	13:33:43		1.5	52.55	-5.150
03/18/05	13:33:44		1.8	52.55	-6.820
03/18/05	13:33:44		2.1	52.55	-6.503
03/18/05	13:33:44		2.4	52.57	-6.092
03/18/05	13:33:45		2.7	52.57	-6.553
03/18/05	13:33:45		3.0	52.57	-6.358
03/18/05	13:33:45		3.3	52.57	-6.402
03/18/05	13:33:46		3.6	52.57	-6.442
03/18/05	13:33:46		3.9	52.57	-6.409
03/18/05	13:33:46		4.2	52.57	-6.448
03/18/05	13:33:46		4.5	52.57	-6.439
03/18/05	13:33:47		4.8	52.57	-6.454
03/18/05	13:33:47		5.1	52.57	-6.459
03/18/05	13:33:47		5.4	52.57	-6.466
03/18/05	13:33:48		5.7	52.57	-6.474

03/18/05	13:33:48	6.0	52.59	-6.481
03/18/05	13:33:48	6.4	52.59	-6.486
03/18/05	13:33:49	6.7	52.59	-6.494
03/18/05	13:33:49	7.1	52.59	-6.501
03/18/05	13:33:49	7.5	52.59	-6.510
03/18/05	13:33:50	8.0	52.59	-6.518
03/18/05	13:33:50	8.4	52.59	-6.527
03/18/05	13:33:51	8.9	52.59	-6.538
03/18/05	13:33:51	9.5	52.59	-6.547
03/18/05	13:33:52	10.0	52.57	-6.553
03/18/05	13:33:53	10.6	52.57	-6.562
03/18/05	13:33:53	11.3	52.55	-6.572
03/18/05	13:33:54	11.9	52.55	-6.583
03/18/05	13:33:55	12.6	52.55	-6.594
03/18/05	13:33:55	13.4	52.55	-6.607
03/18/05	13:33:56	14.2	52.55	-6.619
03/18/05	13:33:57	15.0	52.55	-6.631
03/18/05	13:33:58	15.9	52.55	-6.643
03/18/05	13:33:59	16.8	52.55	-6.658
03/18/05	13:34:00	17.8	52.55	-6.671
03/18/05	13:34:01	18.9	52.55	-6.686
03/18/05	13:34:02	20.0	52.55	-6.699
03/18/05	13:34:03	21.2	52.55	-6.715
03/18/05	13:34:04	22.4	52.52	-6.730
03/18/05	13:34:06	23.8	52.55	-6.747
03/18/05	13:34:07	25.2	52.55	-6.761
03/18/05	13:34:09	26.7	52.55	-6.780
03/18/05	13:34:10	28.2	52.55	-6.796
03/18/05	13:34:12	29.8	52.55	-6.813
03/18/05	13:34:13	31.5	52.55	-6.829
03/18/05	13:34:15	33.3	52.52	-6.850
03/18/05	13:34:17	35.2	52.52	-6.866
03/18/05	13:34:19	37.3	52.52	-6.883
03/18/05	13:34:21	39.5	52.52	-6.903
03/18/05	13:34:24	41.8	52.52	-6.924
03/18/05	13:34:26	44.3	52.52	-6.942
03/18/05	13:34:29	46.9	52.52	-6.962
03/18/05	13:34:32	49.7	52.52	-6.983
03/18/05	13:34:35	52.6	52.52	-7.003
03/18/05	13:34:38	55.7	52.52	-7.021
03/18/05	13:34:41	59.0	52.52	-7.041
03/18/05	13:34:44	62.5	52.50	-7.062
03/18/05	13:34:48	66.2	52.50	-7.080
03/18/05	13:34:52	70.1	52.50	-7.099
03/18/05	13:34:56	74.3	52.50	-7.117
03/18/05	13:35:01	78.7	52.50	-7.137
03/18/05	13:35:05	83.4	52.50	-7.156
03/18/05	13:35:10	88.4	52.50	-7.174
03/18/05	13:35:16	93.7	52.50	-7.189
03/18/05	13:35:21	99.3	52.50	-7.206
03/18/05	13:35:27	105.2	52.52	-7.222
03/18/05	13:35:33	111.5	52.52	-7.237
03/18/05	13:35:40	118.1	52.52	-7.253
03/18/05	13:35:47	125.1	52.52	-7.266
03/18/05	13:35:55	132.6	52.52	-7.279
03/18/05	13:36:02	140.5	52.52	-7.292
03/18/05	13:36:11	148.9	52.52	-7.303
03/18/05	13:36:20	157.8	52.52	-7.314
03/18/05	13:36:29	167.2	52.52	-7.325
03/18/05	13:36:39	177.2	52.52	-7.334
03/18/05	13:36:50	187.8	52.52	-7.342
03/18/05	13:37:01	199.0	52.52	-7.351
03/18/05	13:37:13	210.9	52.52	-7.358

03/18/05	13:37:25	223.5	52.52	-7.364
03/18/05	13:37:39	236.8	52.52	-7.371
03/18/05	13:37:53	250.9	52.52	-7.375
03/18/05	13:38:08	265.8	52.55	-7.378
03/18/05	13:38:24	281.6	52.55	-7.384
03/18/05	13:38:40	298.4	52.55	-7.389
03/18/05	13:38:58	316.2	52.55	-7.391
03/18/05	13:39:17	335.0	52.55	-7.395
03/18/05	13:39:37	354.9	52.55	-7.397
03/18/05	13:39:58	376.0	52.55	-7.400
03/18/05	13:40:20	398.4	52.55	-7.404
03/18/05	13:40:44	422.1	52.55	-7.406
03/18/05	13:41:09	447.2	52.57	-7.409
03/18/05	13:41:36	473.8	52.57	-7.411
03/18/05	13:42:04	502.0	52.57	-7.411
03/18/05	13:42:34	531.9	52.57	-7.413
03/18/05	13:43:05	563.5	52.57	-7.415
03/18/05	13:43:39	597.0	52.57	-7.415
03/18/05	13:44:14	632.5	52.57	-7.419
03/18/05	13:44:52	670.1	52.57	-7.419
03/18/05	13:45:32	709.9	52.57	-7.420
03/18/05	13:46:14	752.1	52.57	-7.420
03/18/05	13:46:59	796.8	52.57	-7.422
03/18/05	13:47:46	844.2	52.57	-7.424
03/18/05	13:48:36	894.4	52.57	-7.424
03/18/05	13:49:29	947.5	52.57	-7.426
03/18/05	13:50:26	1003.8	52.59	-7.426
03/18/05	13:51:25	1063.4	52.57	-7.426
03/18/05	13:52:29	1126.6	52.59	-7.428
03/18/05	13:53:35	1193.5	52.59	-7.426
03/18/05	13:54:46	1264.4	52.59	-7.426

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: LL8 mw -002	Date Started: 02/03/05	Date Completed: 02/03/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	5444	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 1124.51	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 8.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	32.44		TOP OF FILTER PACK	16' BGS	
DEPTH TO WATER	14.98		TOP OF SCREEN	20' BGS	
HEIGHT OF WATER COLUMN	17.46		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~15'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY)		TIME (HH:MM:SS)		DEPTH TO TRANSDUCER	DEPTH TO WATER (FT)		HEIGHT OF WATER COLUMN (FT)	
		BEGIN	END	BEGIN	END		BEGIN	END	BEGIN	END
1	LL8 mw-002-IN	02/03/05	02/03/05	1257	1316	~31'				
2	LL8mw-002-OUT	02/03/05	02/03/05	1317	1336	~31'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL		COMMENTS
				LOG SCALE	ARITH. SCALE	
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA √ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: [signature]

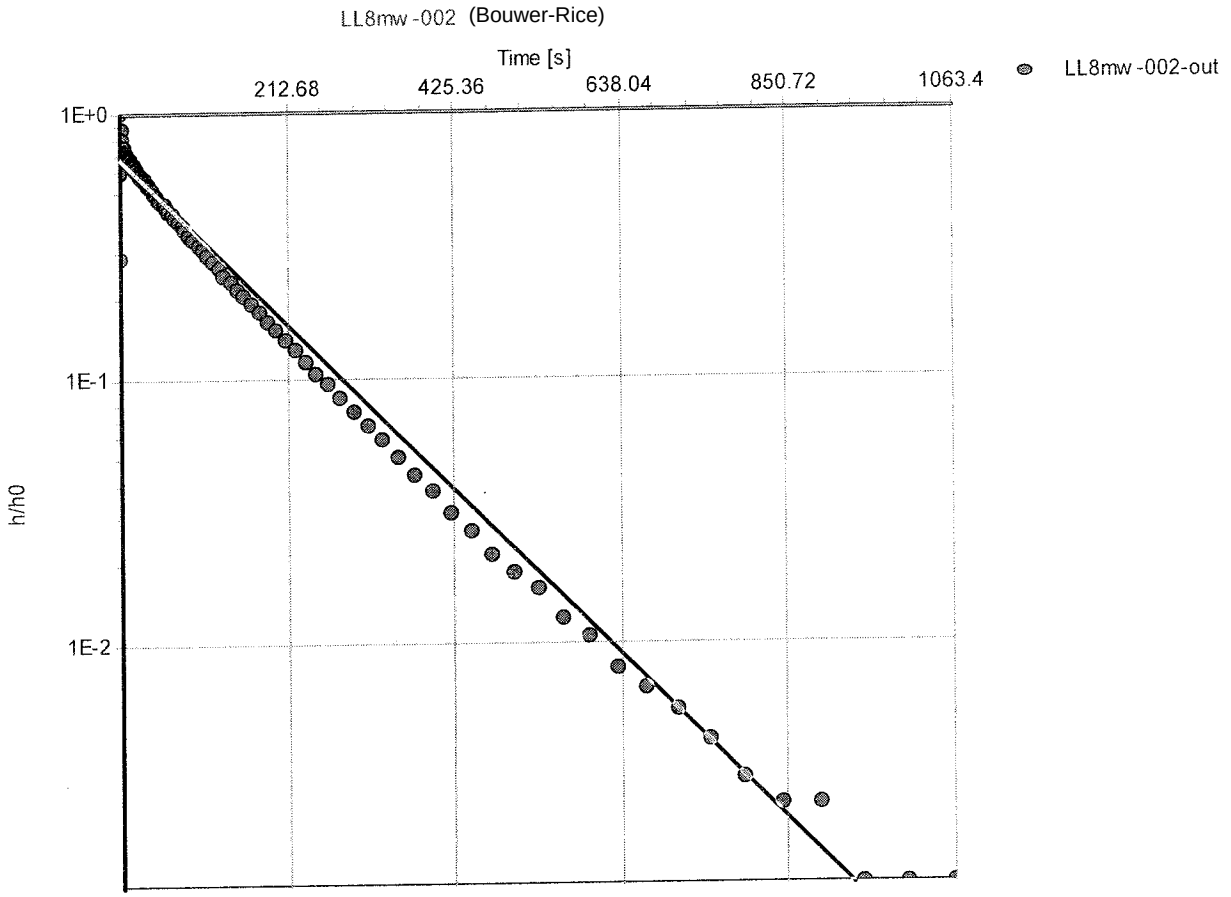
Signature: [signature] Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **LL8mw-002**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 2.08E-4 [cm/s]

Test parameters:

Test Well:	LL8mw-002-out	Aquifer thickness:	30.12 [ft]
Screen radius:	0.34375 [ft]	Gravel Pack Porosity (%)	25
Screen length:	10 [ft]		
Casing radius:	0.08333 [ft]		
r(eff):	0.186 [ft]		

Comments:

Evaluated by:

Date: 2/10/2005

In-Situ Inc. MiniTroll Pro

Report generated: 02/08/05 10:10:48
Report from file: ...\SN05444 2005-02-03 131700 LL8mw-002-out.bin
Win-Situ Version 4.50

Serial number: 00005444
Firmware Version 3.09
Unit name: MKM 45

Test name: LL8mw-002-out

Test defined on: 02/02/05 08:18:26
Test started on: 02/03/05 13:17:00
Test stopped on: 02/03/05 13:36:03
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
  Maximum time between data points: 600.0 Seconds.
  Number of data samples: 112

TOTAL DATA SAMPLES 112

Channel number [1]
  Measurement type: Temperature
  Channel name: H2O Temp.

Channel number [2]
  Measurement type: Pressure
  Channel name: H2O Level
  Sensor Range: 30 PSIG.
  Specific gravity: 1.000
  Mode: TOC
  User-defined reference: 0.000 Feet H2O
  Referenced on: test start
  Pressure head at reference: 13.767 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
02/03/05	13:17:00		0.0	53.10	0.000
02/03/05	13:17:00		0.3	53.14	-1.664
02/03/05	13:17:00		0.6	53.14	-0.496
02/03/05	13:17:01		0.9	53.16	-0.726
02/03/05	13:17:01		1.2	53.16	-1.157
02/03/05	13:17:01		1.5	53.16	-0.696
02/03/05	13:17:02		1.8	53.16	-0.934
02/03/05	13:17:02		2.1	53.16	-0.955
02/03/05	13:17:02		2.4	53.19	-0.828
02/03/05	13:17:02		2.7	53.19	-0.967
02/03/05	13:17:03		3.0	53.19	-0.904
02/03/05	13:17:03		3.3	53.19	-0.912
02/03/05	13:17:03		3.6	53.19	-0.951
02/03/05	13:17:04		3.9	53.19	-0.917
02/03/05	13:17:04		4.2	53.19	-0.945
02/03/05	13:17:04		4.5	53.19	-0.947
02/03/05	13:17:05		4.8	53.19	-0.945
02/03/05	13:17:05		5.1	53.19	-0.958
02/03/05	13:17:05		5.4	53.19	-0.958
02/03/05	13:17:05		5.7	53.19	-0.964

02/03/05	13:17:06	6.0	53.19	-0.969
02/03/05	13:17:06	6.4	53.19	-0.973
02/03/05	13:17:06	6.7	53.19	-0.980
02/03/05	13:17:07	7.1	53.19	-0.984
02/03/05	13:17:07	7.5	53.19	-0.990
02/03/05	13:17:08	8.0	53.21	-0.995
02/03/05	13:17:08	8.4	53.19	-1.003
02/03/05	13:17:09	8.9	53.21	-1.008
02/03/05	13:17:09	9.5	53.21	-1.016
02/03/05	13:17:10	10.0	53.19	-1.016
02/03/05	13:17:10	10.6	53.19	-1.027
02/03/05	13:17:11	11.3	53.19	-1.034
02/03/05	13:17:12	11.9	53.16	-1.038
02/03/05	13:17:12	12.6	53.16	-1.048
02/03/05	13:17:13	13.4	53.16	-1.046
02/03/05	13:17:14	14.2	53.16	-1.061
02/03/05	13:17:15	15.0	53.16	-1.070
02/03/05	13:17:16	15.9	53.16	-1.079
02/03/05	13:17:17	16.8	53.16	-1.088
02/03/05	13:17:18	17.8	53.16	-1.101
02/03/05	13:17:19	18.9	53.16	-1.114
02/03/05	13:17:20	20.0	53.16	-1.127
02/03/05	13:17:21	21.2	53.16	-1.139
02/03/05	13:17:22	22.4	53.16	-1.150
02/03/05	13:17:24	23.8	53.16	-1.161
02/03/05	13:17:25	25.2	53.16	-1.174
02/03/05	13:17:26	26.7	53.16	-1.189
02/03/05	13:17:28	28.2	53.16	-1.200
02/03/05	13:17:30	29.8	53.16	-1.213
02/03/05	13:17:31	31.5	53.16	-1.226
02/03/05	13:17:33	33.3	53.14	-1.243
02/03/05	13:17:35	35.2	53.16	-1.257
02/03/05	13:17:37	37.3	53.16	-1.272
02/03/05	13:17:39	39.5	53.14	-1.289
02/03/05	13:17:42	41.8	53.14	-1.304
02/03/05	13:17:44	44.3	53.16	-1.322
02/03/05	13:17:47	46.9	53.14	-1.339
02/03/05	13:17:49	49.7	53.14	-1.360
02/03/05	13:17:52	52.6	53.14	-1.376
02/03/05	13:17:55	55.7	53.14	-1.397
02/03/05	13:17:59	59.0	53.14	-1.417
02/03/05	13:18:02	62.5	53.14	-1.436
02/03/05	13:18:06	66.2	53.14	-1.456
02/03/05	13:18:10	70.1	53.14	-1.479
02/03/05	13:18:14	74.3	53.14	-1.499
02/03/05	13:18:18	78.7	53.14	-1.521
02/03/05	13:18:23	83.4	53.14	-1.544
02/03/05	13:18:28	88.4	53.14	-1.566
02/03/05	13:18:33	93.7	53.14	-1.588
02/03/05	13:18:39	99.3	53.14	-1.612
02/03/05	13:18:45	105.2	53.14	-1.637
02/03/05	13:18:51	111.5	53.14	-1.659
02/03/05	13:18:58	118.1	53.14	-1.683
02/03/05	13:19:05	125.1	53.12	-1.705
02/03/05	13:19:12	132.6	53.12	-1.730
02/03/05	13:19:20	140.5	53.12	-1.754
02/03/05	13:19:29	148.9	53.12	-1.776
02/03/05	13:19:38	157.8	53.12	-1.798
02/03/05	13:19:47	167.2	53.12	-1.819
02/03/05	13:19:57	177.2	53.12	-1.839
02/03/05	13:20:08	187.8	53.12	-1.862
02/03/05	13:20:19	199.0	53.12	-1.880
02/03/05	13:20:31	210.9	53.12	-1.902

02/03/05	13:20:43	223.5	53.12	-1.921
02/03/05	13:20:57	236.8	53.12	-1.940
02/03/05	13:21:11	250.9	53.12	-1.958
02/03/05	13:21:26	265.8	53.12	-1.973
02/03/05	13:21:41	281.6	53.12	-1.990
02/03/05	13:21:58	298.4	53.12	-2.005
02/03/05	13:22:16	316.2	53.12	-2.019
02/03/05	13:22:35	335.0	53.12	-2.032
02/03/05	13:22:55	354.9	53.12	-2.045
02/03/05	13:23:16	376.0	53.12	-2.057
02/03/05	13:23:38	398.4	53.12	-2.066
02/03/05	13:24:02	422.1	53.12	-2.077
02/03/05	13:24:27	447.2	53.12	-2.084
02/03/05	13:24:54	473.8	53.12	-2.092
02/03/05	13:25:22	502.0	53.12	-2.097
02/03/05	13:25:52	531.9	53.12	-2.101
02/03/05	13:26:23	563.5	53.12	-2.107
02/03/05	13:26:57	597.0	53.12	-2.110
02/03/05	13:27:32	632.5	53.12	-2.114
02/03/05	13:28:10	670.1	53.12	-2.116
02/03/05	13:28:50	709.9	53.12	-2.118
02/03/05	13:29:32	752.1	53.12	-2.120
02/03/05	13:30:17	796.8	53.12	-2.122
02/03/05	13:31:04	844.2	53.12	-2.123
02/03/05	13:31:54	894.4	53.12	-2.123
02/03/05	13:32:47	947.5	53.12	-2.125
02/03/05	13:33:44	1003.8	53.14	-2.125
02/03/05	13:34:43	1063.4	53.14	-2.125
02/03/05	13:35:46	1126.6	53.14	-2.127

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.:	Date Started:	Date Completed:
LI8 mw-003	02/03/05	02/03/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	4926	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT:	REFERENCE POINT ELEVATION:	RISER CASING I.D. (in.):
TIC	1119.05	2 in

SCREEN OR OPEN HOLE I.D. (in):	DIAMETER OF BOREHOLE (IF SCREENED):
2 in	8.25"

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	22.89		TOP OF FILTER PACK	8.5' BGS	
DEPTH TO WATER	9.26		TOP OF SCREEN	10.5' BGS	
HEIGHT OF WATER COLUMN	13.63		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN:	SLUG OUT:
	Test #1	Test #2

SLUG DIMENSIONS:	SLUG VOL (GAL)	SLUG DEPTH (FT)
24 x 1.6" OD		~10'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY)		TIME (HH:MM:SS)		DEPTH TO TRANSDUCER	DEPTH TO WATER (FT)		HEIGHT OF WATER COLUMN (FT)	
		BEGIN	END	BEGIN	END		BEGIN	END	BEGIN	END
1	LI8mw-003-IN	02/03/05	02/03/05	1304	1322	~21'				
2	LI8mw-003-OUT	02/03/05	02/03/05	1322	1344	~21'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL		COMMENTS
				LOG SCALE	ARITH. SCALE	
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SRS

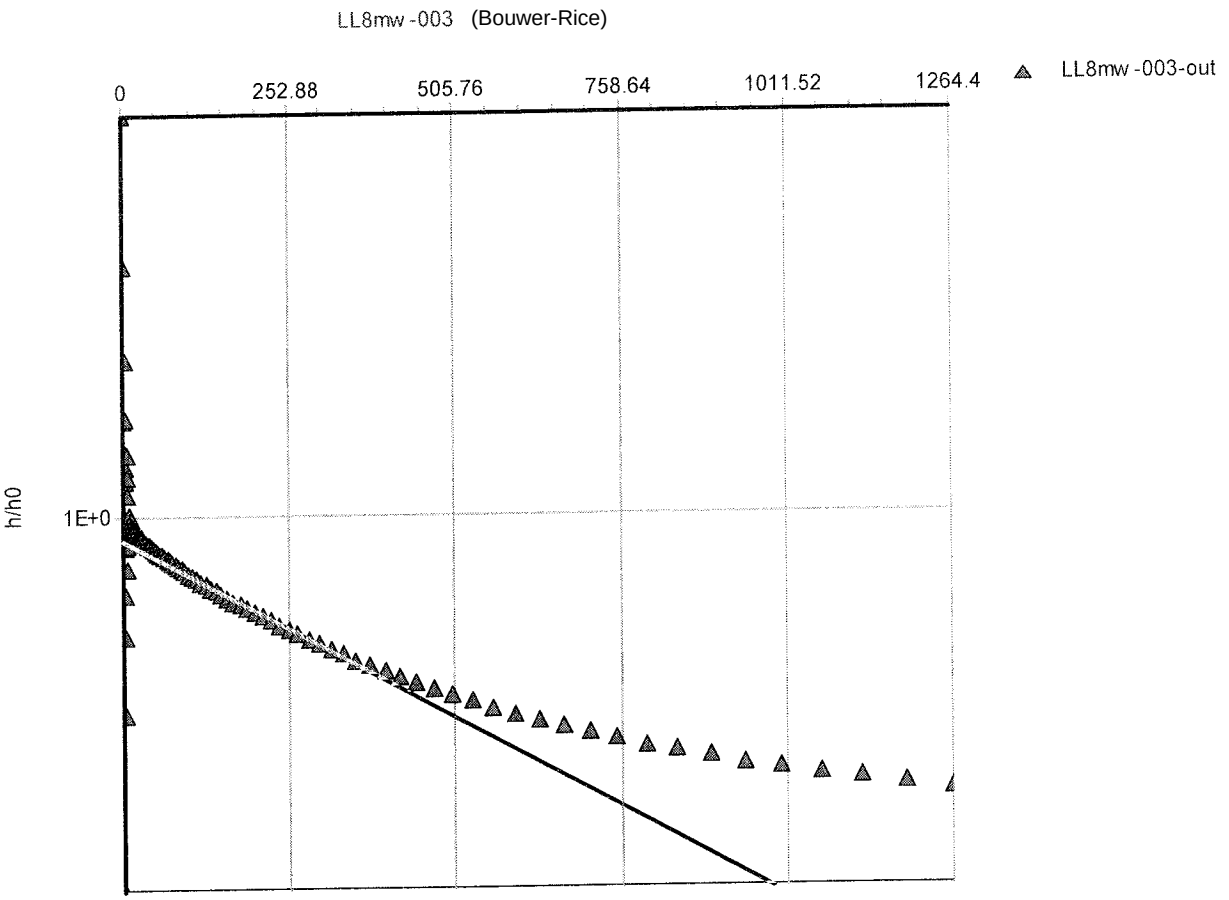
Signature: David K. Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **LL8mw-003**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 1.14E-5 [cm/s]

Test parameters:

Test Well:	LL8mw-003-out	Aquifer thickness:	36.84 [ft]
Screen radius:	0.34375 [ft]	Gravel Pack Porosity (%)	25
Screen length:	10 [ft]		
Casing radius:	0.08333 [ft]		
r(eff):	0.186 [ft]		

Comments:

Evaluated by:

Date: 2/10/2005

In-Situ Inc. MiniTroll Pro

Report generated: 02/08/05 10:16:53
Report from file: ...\SN04926 2005-02-03 132248 LL8mw-003-out.bin
Win-Situ Version 4.50

Serial number: 00004926
Firmware Version 3.09
Unit name: miniTROLL

Test name: LL8mw-003-out

Test defined on: 02/02/05 08:24:12
Test started on: 02/03/05 13:22:48
Test stopped on: 02/03/05 13:44:32
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
Maximum time between data points: 600.0 Seconds.
Number of data samples: 114

TOTAL DATA SAMPLES 114

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 30 PSIG.
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Feet H2O
Referenced on: test start
Pressure head at reference: 10.604 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
02/03/05	13:22:48		0.0	53.53	0.000
02/03/05	13:22:48		0.3	53.55	1.504
02/03/05	13:22:48		0.6	53.57	0.226
02/03/05	13:22:49		0.9	53.57	-1.075
02/03/05	13:22:49		1.2	53.57	-0.093
02/03/05	13:22:49		1.5	53.59	0.824
02/03/05	13:22:50		1.8	53.59	0.116
02/03/05	13:22:50		2.1	53.59	-0.665
02/03/05	13:22:50		2.4	53.59	-0.176
02/03/05	13:22:50		2.7	53.59	0.443
02/03/05	13:22:51		3.0	53.59	0.069
02/03/05	13:22:51		3.3	53.59	-0.457
02/03/05	13:22:51		3.6	53.62	-0.192
02/03/05	13:22:52		3.9	53.59	0.236
02/03/05	13:22:52		4.2	53.62	0.021
02/03/05	13:22:52		4.5	53.62	-0.336
02/03/05	13:22:53		4.8	53.62	-0.172
02/03/05	13:22:53		5.1	53.62	0.105
02/03/05	13:22:53		5.4	53.62	-0.027
02/03/05	13:22:53		5.7	53.62	-0.258

02/03/05	13:22:54	6.0	53.62	-0.156
02/03/05	13:22:54	6.4	53.62	0.030
02/03/05	13:22:55	6.7	53.62	-0.137
02/03/05	13:22:55	7.1	53.62	-0.185
02/03/05	13:22:55	7.5	53.62	-0.025
02/03/05	13:22:56	8.0	53.62	-0.154
02/03/05	13:22:56	8.4	53.62	-0.128
02/03/05	13:22:57	8.9	53.62	-0.088
02/03/05	13:22:57	9.5	53.62	-0.161
02/03/05	13:22:58	10.0	53.62	-0.089
02/03/05	13:22:58	10.6	53.59	-0.150
02/03/05	13:22:59	11.3	53.59	-0.106
02/03/05	13:23:00	11.9	53.59	-0.141
02/03/05	13:23:00	12.6	53.59	-0.128
02/03/05	13:23:01	13.4	53.59	-0.124
02/03/05	13:23:02	14.2	53.59	-0.143
02/03/05	13:23:03	15.0	53.59	-0.139
02/03/05	13:23:04	15.9	53.59	-0.132
02/03/05	13:23:05	16.8	53.59	-0.139
02/03/05	13:23:06	17.8	53.59	-0.145
02/03/05	13:23:07	18.9	53.59	-0.150
02/03/05	13:23:08	20.0	53.59	-0.152
02/03/05	13:23:09	21.2	53.59	-0.152
02/03/05	13:23:10	22.4	53.59	-0.158
02/03/05	13:23:12	23.8	53.59	-0.161
02/03/05	13:23:13	25.2	53.59	-0.161
02/03/05	13:23:14	26.7	53.59	-0.163
02/03/05	13:23:16	28.2	53.59	-0.167
02/03/05	13:23:18	29.8	53.57	-0.171
02/03/05	13:23:19	31.5	53.57	-0.172
02/03/05	13:23:21	33.3	53.57	-0.176
02/03/05	13:23:23	35.2	53.57	-0.180
02/03/05	13:23:25	37.3	53.57	-0.183
02/03/05	13:23:27	39.5	53.57	-0.187
02/03/05	13:23:30	41.8	53.57	-0.191
02/03/05	13:23:32	44.3	53.57	-0.194
02/03/05	13:23:35	46.9	53.57	-0.200
02/03/05	13:23:37	49.7	53.57	-0.204
02/03/05	13:23:40	52.6	53.57	-0.207
02/03/05	13:23:43	55.7	53.55	-0.215
02/03/05	13:23:47	59.0	53.57	-0.218
02/03/05	13:23:50	62.5	53.55	-0.224
02/03/05	13:23:54	66.2	53.57	-0.229
02/03/05	13:23:58	70.1	53.57	-0.235
02/03/05	13:24:02	74.3	53.55	-0.242
02/03/05	13:24:06	78.7	53.55	-0.248
02/03/05	13:24:11	83.4	53.55	-0.253
02/03/05	13:24:16	88.4	53.55	-0.261
02/03/05	13:24:21	93.7	53.55	-0.266
02/03/05	13:24:27	99.3	53.55	-0.276
02/03/05	13:24:33	105.2	53.55	-0.281
02/03/05	13:24:39	111.5	53.55	-0.290
02/03/05	13:24:46	118.1	53.55	-0.299
02/03/05	13:24:53	125.1	53.55	-0.307
02/03/05	13:25:00	132.6	53.55	-0.316
02/03/05	13:25:08	140.5	53.53	-0.325
02/03/05	13:25:17	148.9	53.53	-0.336
02/03/05	13:25:26	157.8	53.55	-0.345
02/03/05	13:25:35	167.2	53.53	-0.357
02/03/05	13:25:45	177.2	53.53	-0.366
02/03/05	13:25:56	187.8	53.53	-0.379
02/03/05	13:26:07	199.0	53.55	-0.389
02/03/05	13:26:19	210.9	53.55	-0.400

02/03/05	13:26:31	223.5	53.55	-0.413
02/03/05	13:26:45	236.8	53.55	-0.426
02/03/05	13:26:59	250.9	53.55	-0.439
02/03/05	13:27:14	265.8	53.57	-0.450
02/03/05	13:27:29	281.6	53.57	-0.466
02/03/05	13:27:46	298.4	53.59	-0.479
02/03/05	13:28:04	316.2	53.62	-0.496
02/03/05	13:28:23	335.0	53.64	-0.508
02/03/05	13:28:43	354.9	53.64	-0.525
02/03/05	13:29:04	376.0	53.66	-0.539
02/03/05	13:29:26	398.4	53.68	-0.556
02/03/05	13:29:50	422.1	53.68	-0.572
02/03/05	13:30:15	447.2	53.71	-0.587
02/03/05	13:30:42	473.8	53.73	-0.603
02/03/05	13:31:10	502.0	53.73	-0.620
02/03/05	13:31:40	531.9	53.75	-0.634
02/03/05	13:32:11	563.5	53.77	-0.652
02/03/05	13:32:45	597.0	53.77	-0.669
02/03/05	13:33:20	632.5	53.77	-0.686
02/03/05	13:33:58	670.1	53.79	-0.700
02/03/05	13:34:38	709.9	53.79	-0.715
02/03/05	13:35:20	752.1	53.82	-0.731
02/03/05	13:36:05	796.8	53.82	-0.748
02/03/05	13:36:52	844.2	53.82	-0.762
02/03/05	13:37:42	894.4	53.82	-0.777
02/03/05	13:38:35	947.5	53.82	-0.792
02/03/05	13:39:32	1003.8	53.82	-0.805
02/03/05	13:40:31	1063.4	53.82	-0.819
02/03/05	13:41:34	1126.6	53.82	-0.830
02/03/05	13:42:41	1193.5	53.84	-0.841
02/03/05	13:43:52	1264.4	53.84	-0.854

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: LL8mw-004	Date Started: 02/03/05	Date Completed: 02/03/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	4926	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 1115.75	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 8.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	22.56		TOP OF FILTER PACK	7' BGS	
DEPTH TO WATER	7.72		TOP OF SCREEN	10' BGS	
HEIGHT OF WATER COLUMN	14.84		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~8'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY) BEGIN	DATE (MM/DD/YY) END	TIME (HH:MM:SS) BEGIN	TIME (HH:MM:SS) END	DEPTH TO TRANSDUCER	DEPTH TO WATER (FT) BEGIN	DEPTH TO WATER (FT) END	HEIGHT OF WATER COLUMN (FT) BEGIN	HEIGHT OF WATER COLUMN (FT) END
1	LL8mw-004-IN	02/03/05	02/03/05	1627	1642	~21'				
2	LL8mw-004-OUT	02/03/05	02/03/05	1642	1659	~21'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL LOG SCALE	TEST TIME INTERVAL ARITH. SCALE	COMMENTS
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: ~~DEPTH~~ DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SRST

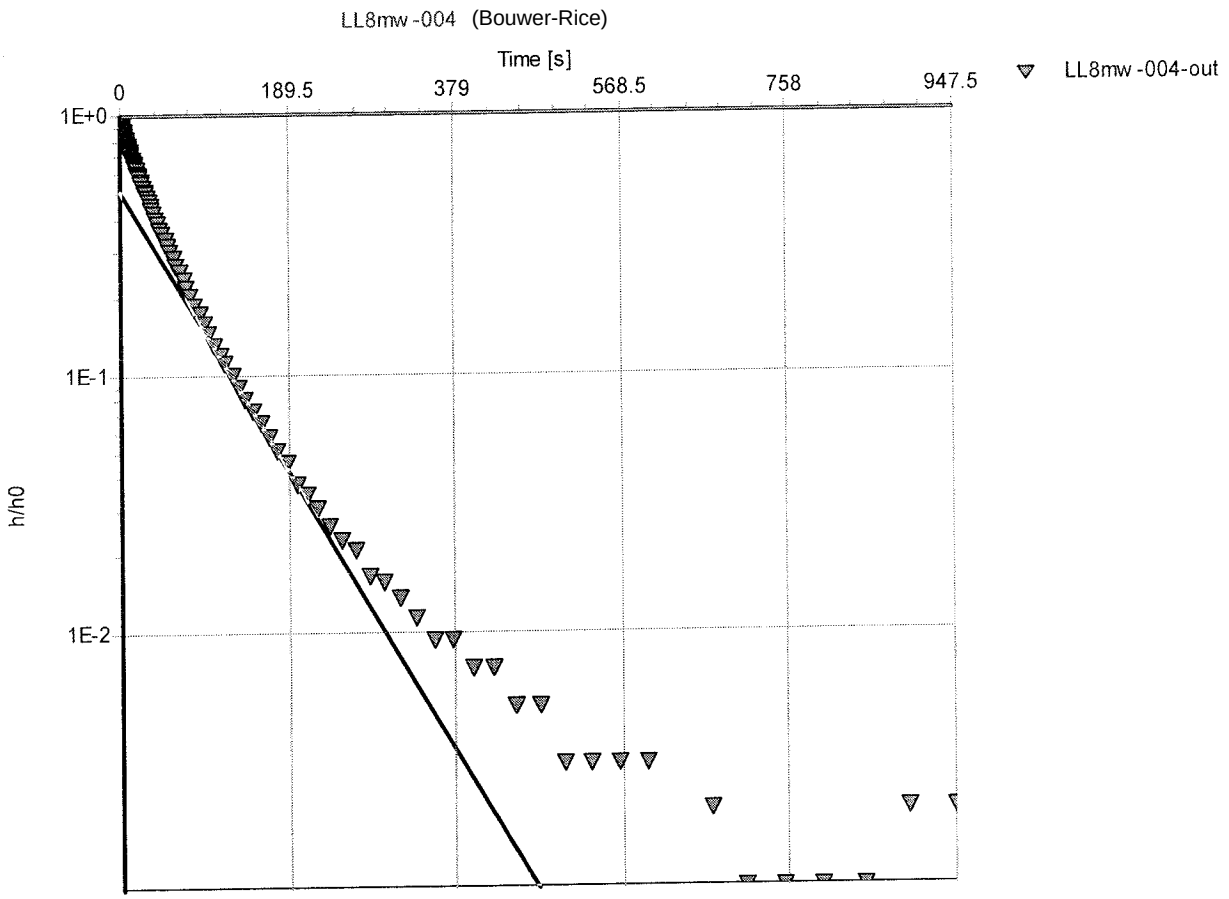
Signature: David K. Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **LL8mw-004**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 3.92E-4 [cm/s]

Test parameters:

Test Well:	LL8mw-004-out	Aquifer thickness:	39.38 [ft]
Screen radius:	0.34375 [ft]	Gravel Pack Porosity (%)	25
Screen length:	10 [ft]		
Casing radius:	0.08333 [ft]		
r(eff):	0.186 [ft]		

Comments:

Evaluated by:

Date: 2/10/2005

In-Situ Inc. MiniTroll Pro

Report generated: 02/08/05 10:16:06
Report from file: ...\SN04926 2005-02-03 164248 LL8mw-004-out.bin
Win-Situ Version 4.50

Serial number: 00004926
Firmware Version 3.09
Unit name: miniTROLL

Test name: LL8mw-004-out

Test defined on: 02/03/05 16:26:44
Test started on: 02/03/05 16:42:48
Test stopped on: 02/03/05 16:59:14
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
Maximum time between data points: 600.0 Seconds.
Number of data samples: 109

TOTAL DATA SAMPLES 109

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 30 PSIG.
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Feet H2O
Referenced on: test start
Pressure head at reference: 9.896 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
02/03/05	16:42:48	0.0	51.05	0.000	
02/03/05	16:42:48	0.3	51.10	-2.295	
02/03/05	16:42:49	0.6	51.10	-2.396	
02/03/05	16:42:49	0.9	51.12	-2.207	
02/03/05	16:42:49	1.2	51.12	-2.190	
02/03/05	16:42:49	1.5	51.12	-2.249	
02/03/05	16:42:50	1.8	51.14	-2.282	
02/03/05	16:42:50	2.1	51.14	-2.282	
02/03/05	16:42:50	2.4	51.14	-2.278	
02/03/05	16:42:51	2.7	51.14	-2.291	
02/03/05	16:42:51	3.0	51.14	-2.304	
02/03/05	16:42:51	3.3	51.14	-2.311	
02/03/05	16:42:52	3.6	51.14	-2.317	
02/03/05	16:42:52	3.9	51.14	-2.324	
02/03/05	16:42:52	4.2	51.14	-2.333	
02/03/05	16:42:52	4.5	51.14	-2.339	
02/03/05	16:42:53	4.8	51.14	-2.346	
02/03/05	16:42:53	5.1	51.17	-2.353	
02/03/05	16:42:53	5.4	51.17	-2.359	
02/03/05	16:42:54	5.7	51.17	-2.366	

02/03/05	16:42:54	6.0	51.17	-2.372
02/03/05	16:42:54	6.4	51.17	-2.381
02/03/05	16:42:55	6.7	51.17	-2.386
02/03/05	16:42:55	7.1	51.17	-2.396
02/03/05	16:42:55	7.5	51.17	-2.403
02/03/05	16:42:56	8.0	51.17	-2.412
02/03/05	16:42:56	8.4	51.17	-2.419
02/03/05	16:42:57	8.9	51.17	-2.429
02/03/05	16:42:57	9.5	51.17	-2.438
02/03/05	16:42:58	10.0	51.14	-2.445
02/03/05	16:42:59	10.6	51.14	-2.453
02/03/05	16:42:59	11.3	51.14	-2.466
02/03/05	16:43:00	11.9	51.14	-2.475
02/03/05	16:43:01	12.6	51.14	-2.486
02/03/05	16:43:01	13.4	51.12	-2.497
02/03/05	16:43:02	14.2	51.12	-2.508
02/03/05	16:43:03	15.0	51.12	-2.521
02/03/05	16:43:04	15.9	51.12	-2.534
02/03/05	16:43:05	16.8	51.12	-2.545
02/03/05	16:43:06	17.8	51.12	-2.559
02/03/05	16:43:07	18.9	51.12	-2.572
02/03/05	16:43:08	20.0	51.12	-2.585
02/03/05	16:43:09	21.2	51.12	-2.600
02/03/05	16:43:10	22.4	51.12	-2.615
02/03/05	16:43:12	23.8	51.12	-2.627
02/03/05	16:43:13	25.2	51.12	-2.644
02/03/05	16:43:15	26.7	51.12	-2.659
02/03/05	16:43:16	28.2	51.12	-2.673
02/03/05	16:43:18	29.8	51.12	-2.688
02/03/05	16:43:19	31.5	51.12	-2.703
02/03/05	16:43:21	33.3	51.10	-2.719
02/03/05	16:43:23	35.2	51.10	-2.734
02/03/05	16:43:25	37.3	51.10	-2.751
02/03/05	16:43:27	39.5	51.10	-2.767
02/03/05	16:43:30	41.8	51.10	-2.784
02/03/05	16:43:32	44.3	51.10	-2.800
02/03/05	16:43:35	46.9	51.10	-2.817
02/03/05	16:43:38	49.7	51.10	-2.833
02/03/05	16:43:40	52.6	51.10	-2.850
02/03/05	16:43:44	55.7	51.10	-2.866
02/03/05	16:43:47	59.0	51.10	-2.881
02/03/05	16:43:50	62.5	51.10	-2.898
02/03/05	16:43:54	66.2	51.10	-2.912
02/03/05	16:43:58	70.1	51.10	-2.929
02/03/05	16:44:02	74.3	51.10	-2.944
02/03/05	16:44:07	78.7	51.10	-2.958
02/03/05	16:44:11	83.4	51.10	-2.973
02/03/05	16:44:16	88.4	51.12	-2.986
02/03/05	16:44:22	93.7	51.12	-3.000
02/03/05	16:44:27	99.3	51.12	-3.013
02/03/05	16:44:33	105.2	51.12	-3.026
02/03/05	16:44:39	111.5	51.14	-3.037
02/03/05	16:44:46	118.1	51.14	-3.046
02/03/05	16:44:53	125.1	51.14	-3.057
02/03/05	16:45:00	132.6	51.17	-3.066
02/03/05	16:45:08	140.5	51.17	-3.075
02/03/05	16:45:17	148.9	51.17	-3.083
02/03/05	16:45:26	157.8	51.17	-3.090
02/03/05	16:45:35	167.2	51.19	-3.097
02/03/05	16:45:45	177.2	51.19	-3.103
02/03/05	16:45:56	187.8	51.19	-3.108
02/03/05	16:46:07	199.0	51.19	-3.116
02/03/05	16:46:19	210.9	51.21	-3.119

02/03/05	16:46:31	223.5	51.21	-3.123
02/03/05	16:46:45	236.8	51.21	-3.127
02/03/05	16:46:59	250.9	51.23	-3.130
02/03/05	16:47:14	265.8	51.23	-3.132
02/03/05	16:47:29	281.6	51.23	-3.136
02/03/05	16:47:46	298.4	51.23	-3.137
02/03/05	16:48:04	316.2	51.23	-3.139
02/03/05	16:48:23	335.0	51.23	-3.141
02/03/05	16:48:43	354.9	51.23	-3.143
02/03/05	16:49:04	376.0	51.23	-3.143
02/03/05	16:49:26	398.4	51.23	-3.145
02/03/05	16:49:50	422.1	51.21	-3.145
02/03/05	16:50:15	447.2	51.21	-3.147
02/03/05	16:50:42	473.8	51.19	-3.147
02/03/05	16:51:10	502.0	51.17	-3.149
02/03/05	16:51:40	531.9	51.14	-3.149
02/03/05	16:52:11	563.5	51.12	-3.149
02/03/05	16:52:45	597.0	51.10	-3.149
02/03/05	16:53:20	632.5	51.03	-3.152
02/03/05	16:53:58	670.1	50.96	-3.150
02/03/05	16:54:38	709.9	50.94	-3.151
02/03/05	16:55:20	752.1	50.90	-3.151
02/03/05	16:56:05	796.8	50.87	-3.151
02/03/05	16:56:52	844.2	50.83	-3.151
02/03/05	16:57:42	894.4	50.81	-3.150
02/03/05	16:58:35	947.5	50.78	-3.150

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: LL8mw-005	Date Started: 02/03/05	Date Completed: 02/03/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	5444	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 1115.73	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 8.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	27.10		TOP OF FILTER PACK	11' BGS	
DEPTH TO WATER	10.43		TOP OF SCREEN	14' BGS	
HEIGHT OF WATER COLUMN	16.67		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~11'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY) BEGIN	DATE (MM/DD/YY) END	TIME (HH:MM:SS) BEGIN	TIME (HH:MM:SS) END	DEPTH TO TRANSDUCER	DEPTH TO WATER (FT) BEGIN	DEPTH TO WATER (FT) END	HEIGHT OF WATER COLUMN (FT) BEGIN	HEIGHT OF WATER COLUMN (FT) END
1	LL8mw-005-IN	02/03/05	02/03/05	1357	1553	~26'				
2	LL8mw-005-OUT	02/03/05	02/03/05	1553	1612	~26'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL LOG SCALE	TEST TIME INTERVAL ARITH. SCALE	COMMENTS
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SKH

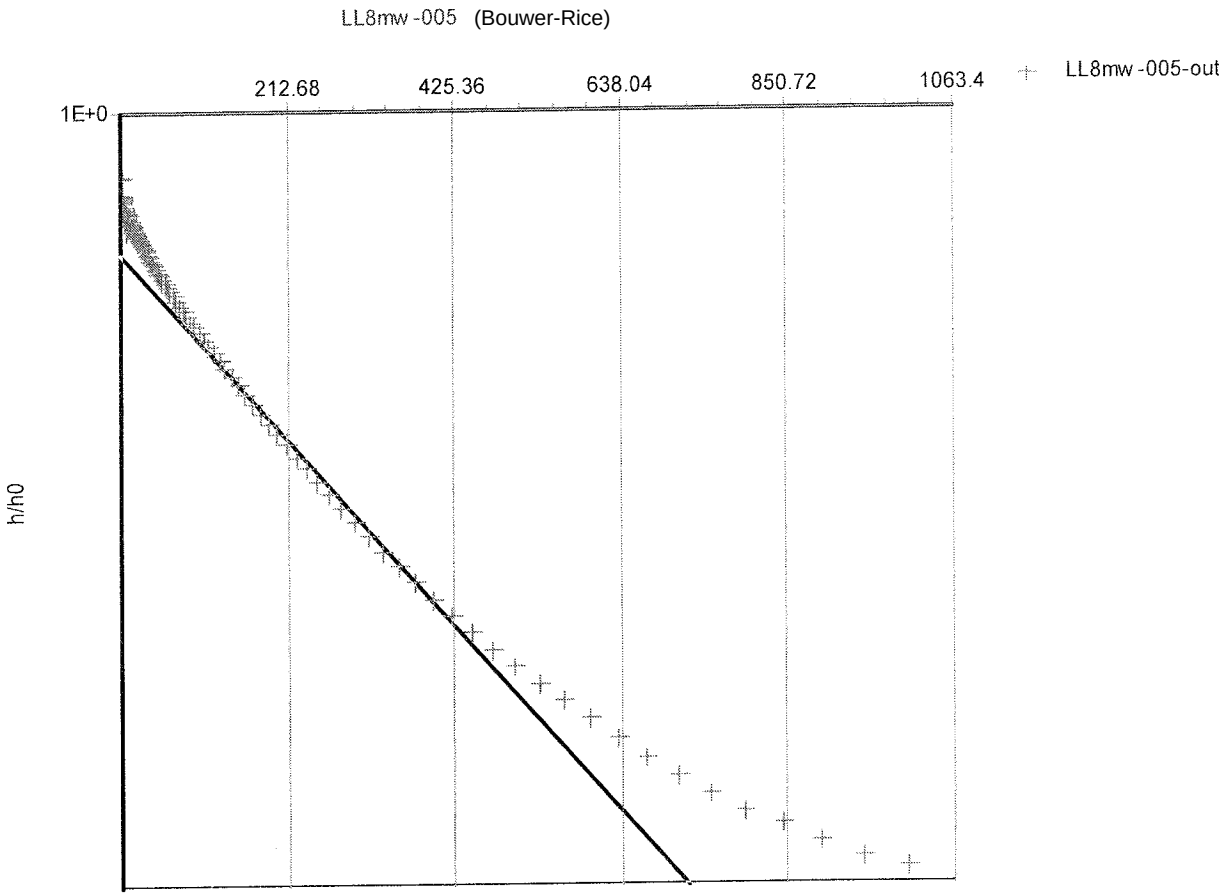
Signature: David K Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **LL8mw-005**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 7.40E-5 [cm/s]

Test parameters:

Test Well:	LL8mw-005-out	Aquifer thickness:	37.67 [ft]
Screen radius:	0.34375 [ft]	Gravel Pack Porosity (%)	25
Screen length:	10 [ft]		
Casing radius:	0.08333 [ft]		
r(eff):	0.186 [ft]		

Comments:

Evaluated by:

Date: 2/10/2005

In-Situ Inc. MiniTroll Pro

Report generated: 02/08/05 10:11:55
Report from file: ...\SN05444 2005-02-03 155357 LL8mw-005-out.bin
Win-Situ Version 4.50

Serial number: 00005444
Firmware Version 3.09
Unit name: MKM 45

Test name: LL8mw-005-out

Test defined on: 02/02/05 08:18:48
Test started on: 02/03/05 15:53:57
Test stopped on: 02/03/05 16:12:09
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
Maximum time between data points: 600.0 Seconds.
Number of data samples: 111

TOTAL DATA SAMPLES 111

Channel number [1]
Measurement type: Temperature
Channel name: H2O Temp.

Channel number [2]
Measurement type: Pressure
Channel name: H2O Level
Sensor Range: 30 PSIG.
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Feet H2O
Referenced on: test start
Pressure head at reference: 15.383 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
02/03/05	15:53:57		0.0	51.52	0.000
02/03/05	15:53:57		0.3	51.54	1.377
02/03/05	15:53:57		0.6	51.54	1.040
02/03/05	15:53:57		0.9	51.56	1.147
02/03/05	15:53:58		1.2	51.56	1.076
02/03/05	15:53:58		1.5	51.56	1.156
02/03/05	15:53:58		1.8	51.56	1.081
02/03/05	15:53:59		2.1	51.58	1.096
02/03/05	15:53:59		2.4	51.58	1.089
02/03/05	15:53:59		2.7	51.58	1.087
02/03/05	15:54:00		3.0	51.58	1.085
02/03/05	15:54:00		3.3	51.58	1.080
02/03/05	15:54:00		3.6	51.58	1.070
02/03/05	15:54:00		3.9	51.58	1.050
02/03/05	15:54:01		4.2	51.58	1.061
02/03/05	15:54:01		4.5	51.58	1.059
02/03/05	15:54:01		4.8	51.58	1.057
02/03/05	15:54:02		5.1	51.61	1.054
02/03/05	15:54:02		5.4	51.58	1.052
02/03/05	15:54:02		5.7	51.61	1.050

02/03/05	15:54:03	6.0	51.61	1.058
02/03/05	15:54:03	6.4	51.61	1.050
02/03/05	15:54:03	6.7	51.61	1.032
02/03/05	15:54:04	7.1	51.61	1.035
02/03/05	15:54:04	7.5	51.61	1.041
02/03/05	15:54:05	8.0	51.61	1.026
02/03/05	15:54:05	8.4	51.61	1.039
02/03/05	15:54:05	8.9	51.61	0.993
02/03/05	15:54:06	9.5	51.61	1.035
02/03/05	15:54:07	10.0	51.58	1.020
02/03/05	15:54:07	10.6	51.58	1.013
02/03/05	15:54:08	11.3	51.58	1.007
02/03/05	15:54:08	11.9	51.58	1.018
02/03/05	15:54:09	12.6	51.58	1.013
02/03/05	15:54:10	13.4	51.58	1.011
02/03/05	15:54:11	14.2	51.58	1.007
02/03/05	15:54:12	15.0	51.58	1.004
02/03/05	15:54:12	15.9	51.56	0.998
02/03/05	15:54:13	16.8	51.58	0.994
02/03/05	15:54:14	17.8	51.56	0.990
02/03/05	15:54:15	18.9	51.56	0.985
02/03/05	15:54:17	20.0	51.56	0.981
02/03/05	15:54:18	21.2	51.56	0.976
02/03/05	15:54:19	22.4	51.56	0.970
02/03/05	15:54:20	23.8	51.56	0.966
02/03/05	15:54:22	25.2	51.56	0.961
02/03/05	15:54:23	26.7	51.56	0.955
02/03/05	15:54:25	28.2	51.56	0.950
02/03/05	15:54:26	29.8	51.56	0.942
02/03/05	15:54:28	31.5	51.56	0.937
02/03/05	15:54:30	33.3	51.56	0.931
02/03/05	15:54:32	35.2	51.56	0.924
02/03/05	15:54:34	37.3	51.56	0.916
02/03/05	15:54:36	39.5	51.56	0.909
02/03/05	15:54:38	41.8	51.56	0.901
02/03/05	15:54:41	44.3	51.56	0.894
02/03/05	15:54:43	46.9	51.56	0.885
02/03/05	15:54:46	49.7	51.54	0.877
02/03/05	15:54:49	52.6	51.54	0.868
02/03/05	15:54:52	55.7	51.54	0.858
02/03/05	15:54:56	59.0	51.54	0.849
02/03/05	15:54:59	62.5	51.54	0.840
02/03/05	15:55:03	66.2	51.54	0.829
02/03/05	15:55:07	70.1	51.54	0.819
02/03/05	15:55:11	74.3	51.52	0.806
02/03/05	15:55:15	78.7	51.52	0.795
02/03/05	15:55:20	83.4	51.52	0.784
02/03/05	15:55:25	88.4	51.49	0.771
02/03/05	15:55:30	93.7	51.49	0.760
02/03/05	15:55:36	99.3	51.49	0.747
02/03/05	15:55:42	105.2	51.47	0.732
02/03/05	15:55:48	111.5	51.47	0.719
02/03/05	15:55:55	118.1	51.45	0.706
02/03/05	15:56:02	125.1	51.45	0.691
02/03/05	15:56:09	132.6	51.45	0.676
02/03/05	15:56:17	140.5	51.43	0.661
02/03/05	15:56:25	148.9	51.43	0.646
02/03/05	15:56:34	157.8	51.40	0.629
02/03/05	15:56:44	167.2	51.40	0.612
02/03/05	15:56:54	177.2	51.40	0.596
02/03/05	15:57:04	187.8	51.40	0.581
02/03/05	15:57:16	199.0	51.40	0.564
02/03/05	15:57:27	210.9	51.40	0.547

02/03/05	15:57:40	223.5	51.38	0.529
02/03/05	15:57:53	236.8	51.38	0.512
02/03/05	15:58:07	250.9	51.38	0.493
02/03/05	15:58:22	265.8	51.38	0.477
02/03/05	15:58:38	281.6	51.36	0.460
02/03/05	15:58:55	298.4	51.36	0.441
02/03/05	15:59:13	316.2	51.36	0.425
02/03/05	15:59:32	335.0	51.36	0.406
02/03/05	15:59:51	354.9	51.36	0.391
02/03/05	16:00:13	376.0	51.38	0.375
02/03/05	16:00:35	398.4	51.38	0.356
02/03/05	16:00:59	422.1	51.38	0.341
02/03/05	16:01:24	447.2	51.40	0.326
02/03/05	16:01:50	473.8	51.40	0.310
02/03/05	16:02:19	502.0	51.43	0.297
02/03/05	16:02:48	531.9	51.40	0.282
02/03/05	16:03:20	563.5	51.40	0.269
02/03/05	16:03:54	597.0	51.40	0.256
02/03/05	16:04:29	632.5	51.43	0.243
02/03/05	16:05:07	670.1	51.43	0.230
02/03/05	16:05:46	709.9	51.43	0.219
02/03/05	16:06:29	752.1	51.43	0.208
02/03/05	16:07:13	796.8	51.43	0.198
02/03/05	16:08:01	844.2	51.43	0.191
02/03/05	16:08:51	894.4	51.43	0.182
02/03/05	16:09:44	947.5	51.43	0.174
02/03/05	16:10:40	1003.8	51.43	0.169
02/03/05	16:11:40	1063.4	51.45	0.161

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: LL8 mw - 006	Date Started: 02/03/05	Date Completed: 02/03/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	4926	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 1117.15	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 8.25	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	27.50		TOP OF FILTER PACK	11' BGS	
DEPTH TO WATER	17.18		TOP OF SCREEN	14' BGS	
HEIGHT OF WATER COLUMN	10.32		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~18'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY)		TIME (HH:MM:SS)		DEPTH TO TRANSDUCER	DEPTH TO WATER (FT)		HEIGHT OF WATER COLUMN (FT)	
		BEGIN	END	BEGIN	END		BEGIN	END	BEGIN	END
1	LL8mw-006-IN	02/03/05	02/03/05	1416	1549	~26'				
2	LL8mw-006-OUT	02/03/05	02/03/05	1549	1618	~26'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL		COMMENTS
				LOG SCALE	ARITH. SCALE	
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SRS

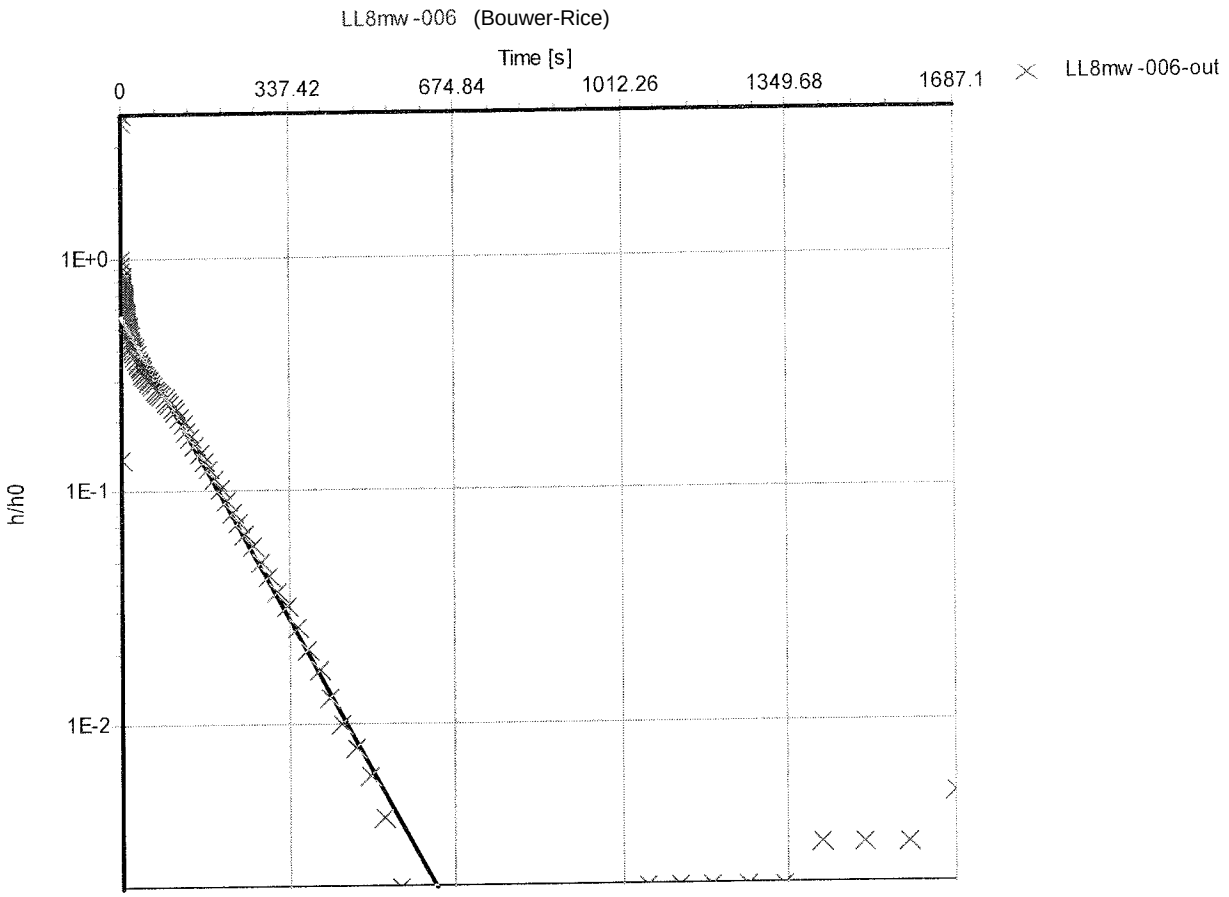
Signature: David K Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **LL8mw-006**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 2.43E-4 [cm/s]

Test parameters:

Test Well:	LL8mw-006-out	Aquifer thickness:	31.92 [ft]
Screen radius:	0.34375 [ft]	Gravel Pack Porosity (%)	25
Screen length:	10 [ft]		
Casing radius:	0.08333 [ft]		
r(eff):	0.186 [ft]		

Comments:

Evaluated by:

Date: 2/10/2005

In-Situ Inc. MiniTroll Pro

Report generated: 02/08/05 10:17:33
Report from file: ...\SN04926 2005-02-03 154937 LL8mw-006-out.bin
Win-Situ Version 4.50

Serial number: 00004926
Firmware Version 3.09
Unit name: miniTROLL

Test name: LL8mw-006-out

Test defined on: 02/02/05 08:24:41
Test started on: 02/03/05 15:49:37
Test stopped on: 02/03/05 16:18:34
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
  Maximum time between data points: 600.0 Seconds.
  Number of data samples: 119

TOTAL DATA SAMPLES 119

Channel number [1]
  Measurement type: Temperature
  Channel name: OnBoard Temp

Channel number [2]
  Measurement type: Pressure
  Channel name: OnBoard Pressure
  Sensor Range: 30 PSIG.
  Specific gravity: 1.000
  Mode: TOC
  User-defined reference: 0.000 Feet H2O
  Referenced on: test start
  Pressure head at reference: 3.002 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
02/03/05	15:49:37		0.0	52.76	0.000
02/03/05	15:49:37		0.3	52.78	-1.331
02/03/05	15:49:38		0.6	52.78	-1.019
02/03/05	15:49:38		0.9	52.78	-4.989
02/03/05	15:49:38		1.2	52.81	-4.124
02/03/05	15:49:38		1.5	52.81	-4.198
02/03/05	15:49:39		1.8	52.81	-4.246
02/03/05	15:49:39		2.1	52.81	-4.270
02/03/05	15:49:39		2.4	52.83	-4.288
02/03/05	15:49:40		2.7	52.83	-4.323
02/03/05	15:49:40		3.0	52.83	-4.334
02/03/05	15:49:40		3.3	52.83	-4.337
02/03/05	15:49:41		3.6	52.83	-4.347
02/03/05	15:49:41		3.9	52.83	-4.358
02/03/05	15:49:41		4.2	52.83	-4.369
02/03/05	15:49:41		4.5	52.83	-4.378
02/03/05	15:49:42		4.8	52.83	-4.383
02/03/05	15:49:42		5.1	52.83	-4.387
02/03/05	15:49:42		5.4	52.83	-4.400
02/03/05	15:49:43		5.7	52.83	-4.411

02/03/05	15:49:43	6.0	52.85	-4.420
02/03/05	15:49:43	6.4	52.85	-4.433
02/03/05	15:49:44	6.7	52.85	-4.448
02/03/05	15:49:44	7.1	52.85	-4.442
02/03/05	15:49:44	7.5	52.85	-4.462
02/03/05	15:49:45	8.0	52.85	-4.484
02/03/05	15:49:45	8.4	52.85	-4.488
02/03/05	15:49:46	8.9	52.85	-4.501
02/03/05	15:49:46	9.5	52.85	-4.512
02/03/05	15:49:47	10.0	52.83	-4.525
02/03/05	15:49:48	10.6	52.83	-4.534
02/03/05	15:49:48	11.3	52.83	-4.547
02/03/05	15:49:49	11.9	52.83	-4.558
02/03/05	15:49:50	12.6	52.83	-4.573
02/03/05	15:49:50	13.4	52.83	-4.586
02/03/05	15:49:51	14.2	52.83	-4.600
02/03/05	15:49:52	15.0	52.83	-4.611
02/03/05	15:49:53	15.9	52.81	-4.624
02/03/05	15:49:54	16.8	52.83	-4.637
02/03/05	15:49:55	17.8	52.83	-4.648
02/03/05	15:49:56	18.9	52.83	-4.661
02/03/05	15:49:57	20.0	52.81	-4.674
02/03/05	15:49:58	21.2	52.81	-4.685
02/03/05	15:49:59	22.4	52.83	-4.701
02/03/05	15:50:01	23.8	52.81	-4.700
02/03/05	15:50:02	25.2	52.81	-4.716
02/03/05	15:50:04	26.7	52.81	-4.709
02/03/05	15:50:05	28.2	52.81	-4.727
02/03/05	15:50:07	29.8	52.81	-4.740
02/03/05	15:50:08	31.5	52.83	-4.736
02/03/05	15:50:10	33.3	52.83	-4.753
02/03/05	15:50:12	35.2	52.81	-4.762
02/03/05	15:50:14	37.3	52.83	-4.771
02/03/05	15:50:16	39.5	52.83	-4.779
02/03/05	15:50:19	41.8	52.81	-4.784
02/03/05	15:50:21	44.3	52.81	-4.794
02/03/05	15:50:24	46.9	52.81	-4.801
02/03/05	15:50:27	49.7	52.81	-4.808
02/03/05	15:50:30	52.6	52.81	-4.814
02/03/05	15:50:33	55.7	52.81	-4.821
02/03/05	15:50:36	59.0	52.81	-4.828
02/03/05	15:50:39	62.5	52.81	-4.834
02/03/05	15:50:43	66.2	52.81	-4.841
02/03/05	15:50:47	70.1	52.81	-4.849
02/03/05	15:50:51	74.3	52.81	-4.854
02/03/05	15:50:56	78.7	52.81	-4.860
02/03/05	15:51:00	83.4	52.81	-4.867
02/03/05	15:51:05	88.4	52.81	-4.873
02/03/05	15:51:11	93.7	52.81	-4.880
02/03/05	15:51:16	99.3	52.81	-4.887
02/03/05	15:51:22	105.2	52.81	-4.895
02/03/05	15:51:28	111.5	52.81	-4.906
02/03/05	15:51:35	118.1	52.81	-4.919
02/03/05	15:51:42	125.1	52.81	-4.931
02/03/05	15:51:50	132.6	52.81	-4.944
02/03/05	15:51:57	140.5	52.81	-4.955
02/03/05	15:52:06	148.9	52.78	-4.968
02/03/05	15:52:15	157.8	52.78	-4.979
02/03/05	15:52:24	167.2	52.78	-4.990
02/03/05	15:52:34	177.2	52.78	-5.001
02/03/05	15:52:45	187.8	52.78	-5.013
02/03/05	15:52:56	199.0	52.78	-5.024
02/03/05	15:53:08	210.9	52.78	-5.035

02/03/05	15:53:20	223.5	52.78	-5.046
02/03/05	15:53:34	236.8	52.78	-5.053
02/03/05	15:53:48	250.9	52.78	-5.062
02/03/05	15:54:03	265.8	52.78	-5.069
02/03/05	15:54:19	281.6	52.78	-5.077
02/03/05	15:54:35	298.4	52.78	-5.084
02/03/05	15:54:53	316.2	52.78	-5.090
02/03/05	15:55:12	335.0	52.76	-5.095
02/03/05	15:55:32	354.9	52.78	-5.101
02/03/05	15:55:53	376.0	52.76	-5.106
02/03/05	15:56:15	398.4	52.78	-5.110
02/03/05	15:56:39	422.1	52.78	-5.114
02/03/05	15:57:04	447.2	52.76	-5.117
02/03/05	15:57:31	473.8	52.76	-5.119
02/03/05	15:57:59	502.0	52.76	-5.121
02/03/05	15:58:29	531.9	52.76	-5.123
02/03/05	15:59:00	563.5	52.76	-5.125
02/03/05	15:59:34	597.0	52.74	-5.127
02/03/05	16:00:09	632.5	52.74	-5.127
02/03/05	16:00:47	670.1	52.74	-5.127
02/03/05	16:01:27	709.9	52.74	-5.127
02/03/05	16:02:09	752.1	52.74	-5.127
02/03/05	16:02:54	796.8	52.74	-5.127
02/03/05	16:03:41	844.2	52.72	-5.127
02/03/05	16:04:31	894.4	52.72	-5.127
02/03/05	16:05:24	947.5	52.72	-5.127
02/03/05	16:06:21	1003.8	52.69	-5.127
02/03/05	16:07:20	1063.4	52.69	-5.125
02/03/05	16:08:24	1126.6	52.69	-5.125
02/03/05	16:09:30	1193.5	52.69	-5.125
02/03/05	16:10:41	1264.4	52.67	-5.125
02/03/05	16:11:56	1339.5	52.67	-5.125
02/03/05	16:13:16	1419.0	52.65	-5.124
02/03/05	16:14:40	1503.3	52.63	-5.124
02/03/05	16:16:10	1592.6	52.63	-5.124
02/03/05	16:17:44	1687.1	52.63	-5.122

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: L10mw-001	Date Started: 01/26/05	Date Completed: 01/26/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	4886	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 1132.77	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 6.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	29.53		TOP OF FILTER PACK	15' BGS	
DEPTH TO WATER	20.87		TOP OF SCREEN	17' BGS	
HEIGHT OF WATER COLUMN	8.66		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~21'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY)		TIME (HH:MM:SS)		DEPTH TO TRANSDUCER	DEPTH TO WATER (FT)		HEIGHT OF WATER COLUMN (FT)	
		BEGIN	END	BEGIN	END		BEGIN	END	BEGIN	END
1	L10mw-001-IN	01/26/05	01/26/05	903	928	~28'				
2	L10mw-001-OUT	01/26/05	01/26/05	928	945	~28'				

STORAGE LOCATION OF DATA: 1) PROJECTS-CONTRACTS\RVAAP\RI14 CHARACTERIZATION\SLUGTEST DATA\MINITROLL DATA 2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL		COMMENTS
				LOG SCALE	ARITH. SCALE	
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SRS

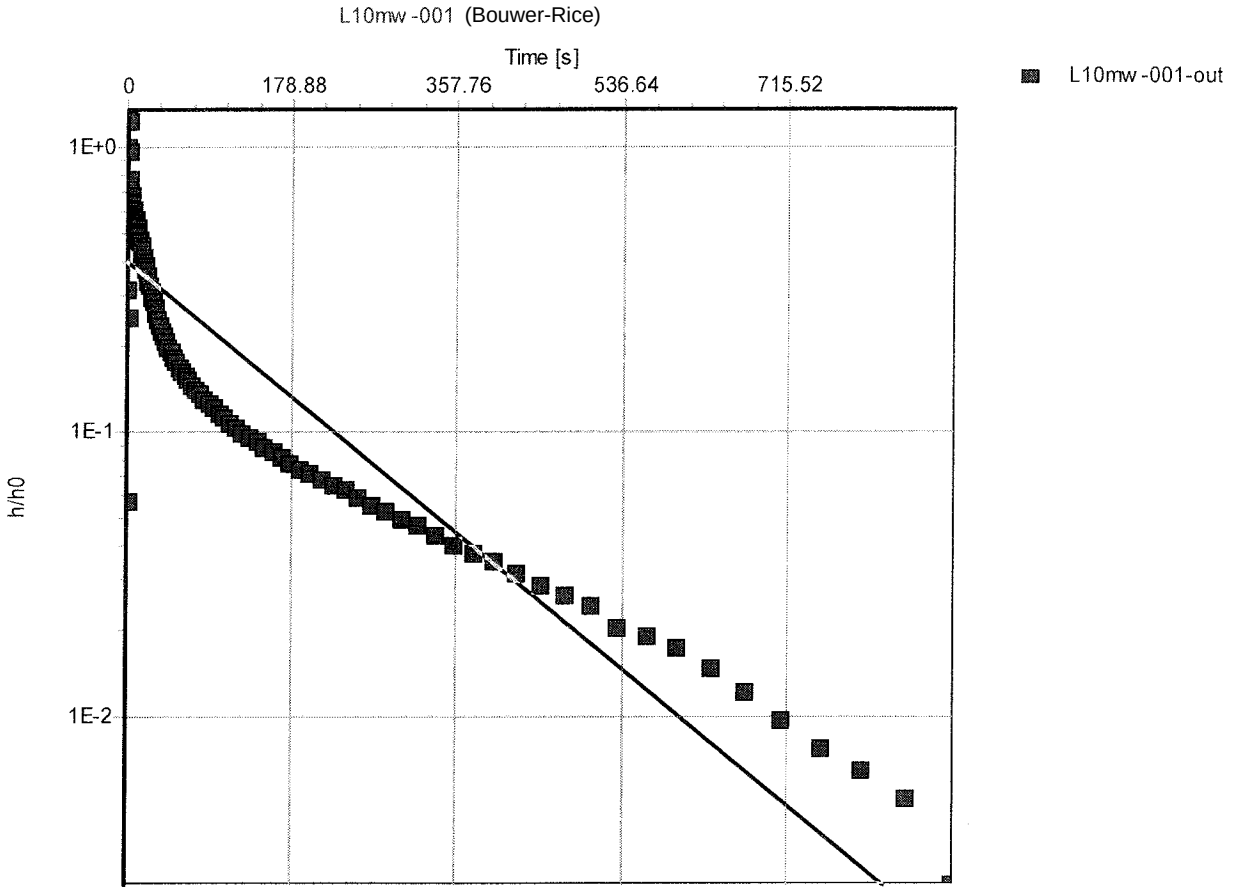
Signature: David K Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **L10mw-001**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 1.76E-4 [cm/s]

Test parameters:				
	Test Well:	L10mw-001-out	Aquifer thickness:	8.66 [ft]
	Screen radius:	0.26042 [ft]	Gravel Pack Porosity (%)	25
	Screen length:	10 [ft]		
	Casing radius:	0.08333 [ft]		
	r(eff):	0.149 [ft]		

Comments:

Evaluated by:

Date: 2/25/2005

In-Situ Inc. MiniTroll Pro

Report generated: 01/28/05 07:47:31
Report from file: ...\SN04886 2005-01-26 092852 L10mw-001-out.bin
Win-Situ Version 4.50

Serial number: 00004886
Firmware Version 3.09
Unit name: MKM 55

Test name: L10mw-001-out

Test defined on: 01/25/05 07:35:12
Test started on: 01/26/05 09:28:52
Test stopped on: 01/26/05 09:45:34
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
Maximum time between data points: 600.0 Seconds.
Number of data samples: 109

TOTAL DATA SAMPLES 109

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 30 PSIG.
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Feet H2O
Referenced on: test start
Pressure head at reference: 3.220 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
01/26/05	09:28:52		0.0	53.22	0.000
01/26/05	09:28:52		0.3	53.25	-1.419
01/26/05	09:28:52		0.6	53.27	-2.488
01/26/05	09:28:53		0.9	53.27	-0.858
01/26/05	09:28:53		1.2	53.27	-2.890
01/26/05	09:28:53		1.5	53.29	-1.062
01/26/05	09:28:54		1.8	53.29	-2.586
01/26/05	09:28:54		2.1	53.29	-1.470
01/26/05	09:28:54		2.4	53.29	-2.245
01/26/05	09:28:55		2.7	53.29	-1.782
01/26/05	09:28:55		3.0	53.29	-2.047
01/26/05	09:28:55		3.3	53.31	-1.927
01/26/05	09:28:55		3.6	53.29	-1.979
01/26/05	09:28:56		3.9	53.31	-1.999
01/26/05	09:28:56		4.2	53.31	-1.966
01/26/05	09:28:56		4.5	53.31	-2.036
01/26/05	09:28:57		4.8	53.31	-1.990
01/26/05	09:28:57		5.1	53.31	-2.045
01/26/05	09:28:57		5.4	53.31	-2.019
01/26/05	09:28:58		5.7	53.31	-2.051

01/26/05	09:28:58	6.0	53.31	-2.043
01/26/05	09:28:58	6.4	53.31	-2.064
01/26/05	09:28:59	6.7	53.31	-2.067
01/26/05	09:28:59	7.1	53.31	-2.086
01/26/05	09:28:59	7.5	53.31	-2.095
01/26/05	09:29:00	8.0	53.31	-2.108
01/26/05	09:29:00	8.4	53.31	-2.124
01/26/05	09:29:01	8.9	53.31	-2.141
01/26/05	09:29:01	9.5	53.34	-2.154
01/26/05	09:29:02	10.0	53.31	-2.169
01/26/05	09:29:02	10.6	53.31	-2.185
01/26/05	09:29:03	11.3	53.31	-2.204
01/26/05	09:29:04	11.9	53.31	-2.220
01/26/05	09:29:04	12.6	53.31	-2.237
01/26/05	09:29:05	13.4	53.31	-2.255
01/26/05	09:29:06	14.2	53.31	-2.276
01/26/05	09:29:07	15.0	53.31	-2.296
01/26/05	09:29:08	15.9	53.31	-2.318
01/26/05	09:29:09	16.8	53.31	-2.338
01/26/05	09:29:10	17.8	53.31	-2.359
01/26/05	09:29:11	18.9	53.29	-2.383
01/26/05	09:29:12	20.0	53.31	-2.403
01/26/05	09:29:13	21.2	53.31	-2.427
01/26/05	09:29:14	22.4	53.31	-2.449
01/26/05	09:29:16	23.8	53.31	-2.473
01/26/05	09:29:17	25.2	53.31	-2.491
01/26/05	09:29:19	26.7	53.31	-2.514
01/26/05	09:29:20	28.2	53.31	-2.534
01/26/05	09:29:22	29.8	53.31	-2.554
01/26/05	09:29:23	31.5	53.31	-2.573
01/26/05	09:29:25	33.3	53.31	-2.591
01/26/05	09:29:27	35.2	53.31	-2.608
01/26/05	09:29:29	37.3	53.31	-2.626
01/26/05	09:29:31	39.5	53.31	-2.641
01/26/05	09:29:34	41.8	53.31	-2.656
01/26/05	09:29:36	44.3	53.31	-2.670
01/26/05	09:29:39	46.9	53.31	-2.683
01/26/05	09:29:42	49.7	53.31	-2.693
01/26/05	09:29:44	52.6	53.31	-2.704
01/26/05	09:29:48	55.7	53.31	-2.715
01/26/05	09:29:51	59.0	53.31	-2.724
01/26/05	09:29:54	62.5	53.31	-2.733
01/26/05	09:29:58	66.2	53.31	-2.742
01/26/05	09:30:02	70.1	53.31	-2.752
01/26/05	09:30:06	74.3	53.31	-2.761
01/26/05	09:30:11	78.7	53.31	-2.768
01/26/05	09:30:15	83.4	53.31	-2.776
01/26/05	09:30:20	88.4	53.31	-2.783
01/26/05	09:30:26	93.7	53.31	-2.790
01/26/05	09:30:31	99.3	53.31	-2.798
01/26/05	09:30:37	105.2	53.31	-2.805
01/26/05	09:30:43	111.5	53.31	-2.812
01/26/05	09:30:50	118.1	53.34	-2.818
01/26/05	09:30:57	125.1	53.34	-2.825
01/26/05	09:31:04	132.6	53.34	-2.831
01/26/05	09:31:12	140.5	53.34	-2.836
01/26/05	09:31:21	148.9	53.34	-2.842
01/26/05	09:31:30	157.8	53.34	-2.847
01/26/05	09:31:39	167.2	53.34	-2.853
01/26/05	09:31:49	177.2	53.34	-2.858
01/26/05	09:32:00	187.8	53.34	-2.864
01/26/05	09:32:11	199.0	53.34	-2.868
01/26/05	09:32:23	210.9	53.34	-2.873

01/26/05	09:32:35	223.5	53.34	-2.879
01/26/05	09:32:49	236.8	53.34	-2.882
01/26/05	09:33:03	250.9	53.34	-2.888
01/26/05	09:33:18	265.8	53.34	-2.893
01/26/05	09:33:33	281.6	53.34	-2.897
01/26/05	09:33:50	298.4	53.34	-2.903
01/26/05	09:34:08	316.2	53.31	-2.906
01/26/05	09:34:27	335.0	53.34	-2.912
01/26/05	09:34:47	354.9	53.34	-2.917
01/26/05	09:35:08	376.0	53.31	-2.921
01/26/05	09:35:30	398.4	53.34	-2.925
01/26/05	09:35:54	422.1	53.34	-2.930
01/26/05	09:36:19	447.2	53.34	-2.934
01/26/05	09:36:46	473.8	53.34	-2.938
01/26/05	09:37:14	502.0	53.34	-2.941
01/26/05	09:37:44	531.9	53.34	-2.947
01/26/05	09:38:15	563.5	53.34	-2.949
01/26/05	09:38:49	597.0	53.34	-2.952
01/26/05	09:39:24	632.5	53.34	-2.956
01/26/05	09:40:02	670.1	53.31	-2.960
01/26/05	09:40:42	709.9	53.31	-2.964
01/26/05	09:41:24	752.1	53.31	-2.967
01/26/05	09:42:09	796.8	53.31	-2.969
01/26/05	09:42:56	844.2	53.31	-2.971
01/26/05	09:43:46	894.4	53.29	-2.975
01/26/05	09:44:39	947.5	53.29	-2.979

Slug Test Record

Project Name: RVAAP-RI 14

MKM

Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: L10 mw-002	Date Started: 01/26/05	Date Completed: 01/26/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	5444	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 1127.13	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 6.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	29.74		TOP OF FILTER PACK	15' BGS	
DEPTH TO WATER	13.54		TOP OF SCREEN	17' BGS	
HEIGHT OF WATER COLUMN	16.20		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~14'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY)		TIME (HH:MM:SS)		DEPTH TO TRANSDUCER	DEPTH TO WATER (FT)		HEIGHT OF WATER COLUMN (FT)	
		BEGIN	END	BEGIN	END		BEGIN	END	BEGIN	END
1	L10mw-002-IN	01/26/05	01/26/05	913	934	~28'				
2	L10mw-002-OUT	01/26/05	01/26/05	935	951	~28'				

STORAGE LOCATION OF DATA: 1) PROJECTS\CONTRACTS\RVAAP\RI14 CHARACTERIZATION\SLUG TEST DATA\MINITROLL DATA 2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL		COMMENTS
				LOG SCALE	ARITH. SCALE	
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SRS

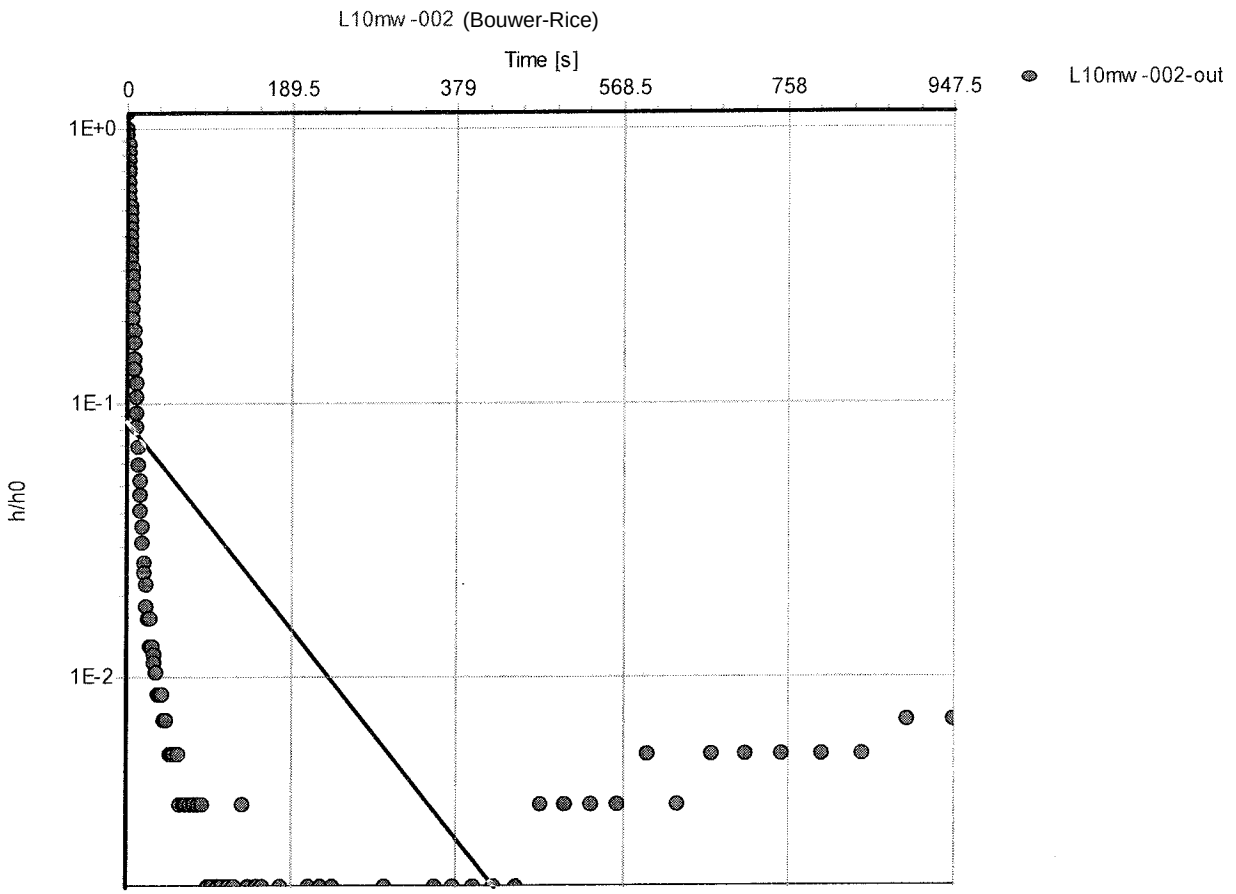
Signature: David K. Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **L10mw-002**

Analysis Method: **Bouwer & Rice**

Analysis results:

			Conductivity:	3.04E-4 [cm/s]

Test parameters:

	Test Well:	L10mw-002-out	Aquifer thickness:	16.2 [ft]
	Screen radius:	0.26042 [ft]	Gravel Pack Porosity (%)	25
	Screen length:	10 [ft]		
	Casing radius:	0.08333 [ft]		
	r(eff):	0.149 [ft]		

Comments:

Evaluated by:

Date: 2/25/2005

In-Situ Inc. MiniTroll Pro

Report generated: 01/28/05 07:39:09
Report from file: ...\SN05444 2005-01-26 093508 CBLmw-002-out.bin
Win-Situ Version 4.50

Serial number: 00005444
Firmware Version 3.09
Unit name: MKM 45

Test name: L10mw-002-out

Test defined on: 01/25/05 15:44:59
Test started on: 01/26/05 09:35:08
Test stopped on: 01/26/05 09:51:49
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
Maximum time between data points: 600.0 Seconds.
Number of data samples: 109

TOTAL DATA SAMPLES 109

Channel number [1]
Measurement type: Temperature
Channel name: H2O Temp.

Channel number [2]
Measurement type: Pressure
Channel name: H2O Level
Sensor Range: 30 PSIG.
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Feet H2O
Referenced on: test start
Pressure head at reference: 11.774 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
01/26/05	09:35:08		0.0	51.56	0.000
01/26/05	09:35:08		0.3	51.58	-0.353
01/26/05	09:35:08		0.6	51.58	-0.509
01/26/05	09:35:09		0.9	51.61	-0.581
01/26/05	09:35:09		1.2	51.61	-0.659
01/26/05	09:35:09		1.5	51.61	-0.724
01/26/05	09:35:09		1.8	51.63	-0.789
01/26/05	09:35:10		2.1	51.63	-0.843
01/26/05	09:35:10		2.4	51.63	-0.878
01/26/05	09:35:10		2.7	51.63	-0.938
01/26/05	09:35:11		3.0	51.63	-0.983
01/26/05	09:35:11		3.3	51.63	-1.027
01/26/05	09:35:11		3.6	51.63	-1.064
01/26/05	09:35:12		3.9	51.63	-1.100
01/26/05	09:35:12		4.2	51.63	-1.135
01/26/05	09:35:12		4.5	51.65	-1.168
01/26/05	09:35:12		4.8	51.65	-1.200
01/26/05	09:35:13		5.1	51.65	-1.230
01/26/05	09:35:13		5.4	51.65	-1.256
01/26/05	09:35:13		5.7	51.65	-1.282

01/26/05	09:35:14	6.0	51.65	-1.308
01/26/05	09:35:14	6.4	51.65	-1.334
01/26/05	09:35:14	6.7	51.65	-1.360
01/26/05	09:35:15	7.1	51.65	-1.384
01/26/05	09:35:15	7.5	51.65	-1.410
01/26/05	09:35:16	8.0	51.65	-1.432
01/26/05	09:35:16	8.4	51.65	-1.454
01/26/05	09:35:17	8.9	51.65	-1.475
01/26/05	09:35:17	9.5	51.65	-1.497
01/26/05	09:35:18	10.0	51.65	-1.512
01/26/05	09:35:18	10.6	51.63	-1.529
01/26/05	09:35:19	11.3	51.63	-1.544
01/26/05	09:35:20	11.9	51.63	-1.559
01/26/05	09:35:20	12.6	51.63	-1.570
01/26/05	09:35:21	13.4	51.63	-1.585
01/26/05	09:35:22	14.2	51.63	-1.596
01/26/05	09:35:23	15.0	51.63	-1.605
01/26/05	09:35:23	15.9	51.63	-1.612
01/26/05	09:35:24	16.8	51.63	-1.618
01/26/05	09:35:25	17.8	51.63	-1.624
01/26/05	09:35:26	18.9	51.63	-1.629
01/26/05	09:35:28	20.0	51.63	-1.635
01/26/05	09:35:29	21.2	51.63	-1.637
01/26/05	09:35:30	22.4	51.63	-1.640
01/26/05	09:35:31	23.8	51.61	-1.644
01/26/05	09:35:33	25.2	51.61	-1.646
01/26/05	09:35:34	26.7	51.61	-1.646
01/26/05	09:35:36	28.2	51.63	-1.650
01/26/05	09:35:37	29.8	51.61	-1.650
01/26/05	09:35:39	31.5	51.63	-1.651
01/26/05	09:35:41	33.3	51.61	-1.652
01/26/05	09:35:43	35.2	51.61	-1.653
01/26/05	09:35:45	37.3	51.61	-1.655
01/26/05	09:35:47	39.5	51.61	-1.655
01/26/05	09:35:49	41.8	51.61	-1.655
01/26/05	09:35:52	44.3	51.61	-1.657
01/26/05	09:35:54	46.9	51.61	-1.657
01/26/05	09:35:57	49.7	51.61	-1.659
01/26/05	09:36:00	52.6	51.61	-1.659
01/26/05	09:36:03	55.7	51.61	-1.659
01/26/05	09:36:07	59.0	51.61	-1.659
01/26/05	09:36:10	62.5	51.61	-1.661
01/26/05	09:36:14	66.2	51.61	-1.661
01/26/05	09:36:18	70.1	51.61	-1.661
01/26/05	09:36:22	74.3	51.61	-1.661
01/26/05	09:36:26	78.7	51.61	-1.661
01/26/05	09:36:31	83.4	51.61	-1.661
01/26/05	09:36:36	88.4	51.61	-1.661
01/26/05	09:36:41	93.7	51.61	-1.663
01/26/05	09:36:47	99.3	51.61	-1.663
01/26/05	09:36:53	105.2	51.61	-1.663
01/26/05	09:36:59	111.5	51.61	-1.663
01/26/05	09:37:06	118.1	51.61	-1.663
01/26/05	09:37:13	125.1	51.58	-1.663
01/26/05	09:37:20	132.6	51.61	-1.661
01/26/05	09:37:28	140.5	51.61	-1.663
01/26/05	09:37:36	148.9	51.58	-1.663
01/26/05	09:37:45	157.8	51.58	-1.663
01/26/05	09:37:55	167.2	51.58	-1.665
01/26/05	09:38:05	177.2	51.58	-1.663
01/26/05	09:38:15	187.8	51.58	-1.665
01/26/05	09:38:27	199.0	51.58	-1.665
01/26/05	09:38:38	210.9	51.58	-1.663

01/26/05	09:38:51	223.5	51.58	-1.663
01/26/05	09:39:04	236.8	51.58	-1.663
01/26/05	09:39:18	250.9	51.58	-1.665
01/26/05	09:39:33	265.8	51.58	-1.665
01/26/05	09:39:49	281.6	51.56	-1.665
01/26/05	09:40:06	298.4	51.56	-1.663
01/26/05	09:40:24	316.2	51.58	-1.665
01/26/05	09:40:43	335.0	51.58	-1.665
01/26/05	09:41:02	354.9	51.58	-1.663
01/26/05	09:41:24	376.0	51.58	-1.663
01/26/05	09:41:46	398.4	51.58	-1.663
01/26/05	09:42:10	422.1	51.58	-1.663
01/26/05	09:42:35	447.2	51.58	-1.663
01/26/05	09:43:01	473.8	51.58	-1.661
01/26/05	09:43:30	502.0	51.58	-1.661
01/26/05	09:43:59	531.9	51.58	-1.661
01/26/05	09:44:31	563.5	51.58	-1.661
01/26/05	09:45:05	597.0	51.58	-1.659
01/26/05	09:45:40	632.5	51.58	-1.661
01/26/05	09:46:18	670.1	51.58	-1.659
01/26/05	09:46:57	709.9	51.58	-1.659
01/26/05	09:47:40	752.1	51.58	-1.659
01/26/05	09:48:24	796.8	51.58	-1.659
01/26/05	09:49:12	844.2	51.58	-1.659
01/26/05	09:50:02	894.4	51.58	-1.657
01/26/05	09:50:55	947.5	51.58	-1.657

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.:	L10mw-003	Date Started:	01/26/05	Date Completed:	01/26/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	4886	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC

REFERENCE POINT ELEVATION: 1130.28

RISER CASING I.D. (in.): 2 in

SCREEN OR OPEN HOLE I.D. (in): 2 in

DIAMETER OF BOREHOLE (IF SCREENED): 6.25"

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	28.48		TOP OF FILTER PACK	13' BGS	
DEPTH TO WATER	16.89		TOP OF SCREEN	16' BGS	
HEIGHT OF WATER COLUMN	11.59		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD

SLUG IN: Test #1

SLUG OUT: Test #2

SLUG DIMENSIONS: 24 x 1.6" OD

SLUG VOL (GAL)

SLUG DEPTH (FT) ~17'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY) BEGIN	DATE (MM/DD/YY) END	TIME (HH:MM:SS) BEGIN	TIME (HH:MM:SS) END	DEPTH TO TRANSDUCER	DEPTH TO WATER (FT) BEGIN	DEPTH TO WATER (FT) END	HEIGHT OF WATER COLUMN (FT) BEGIN	HEIGHT OF WATER COLUMN (FT) END
1	L10mw-003-IN	01/26/05	01/26/05	1034	1049	~27'				
2	L10mw-003-OUT	01/26/05	01/26/05	1049	1110	~27'				

STORAGE LOCATION OF DATA: 1) PROJECTS-CONTRACTS\RVAAP\RI14 CHAR\AQUIFER CHARACTERIZATION\SLUG TEST DATA\MINITROLL DATA

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL LOG SCALE	TEST TIME INTERVAL ARITH. SCALE	COMMENTS
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA CHECK OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SRS

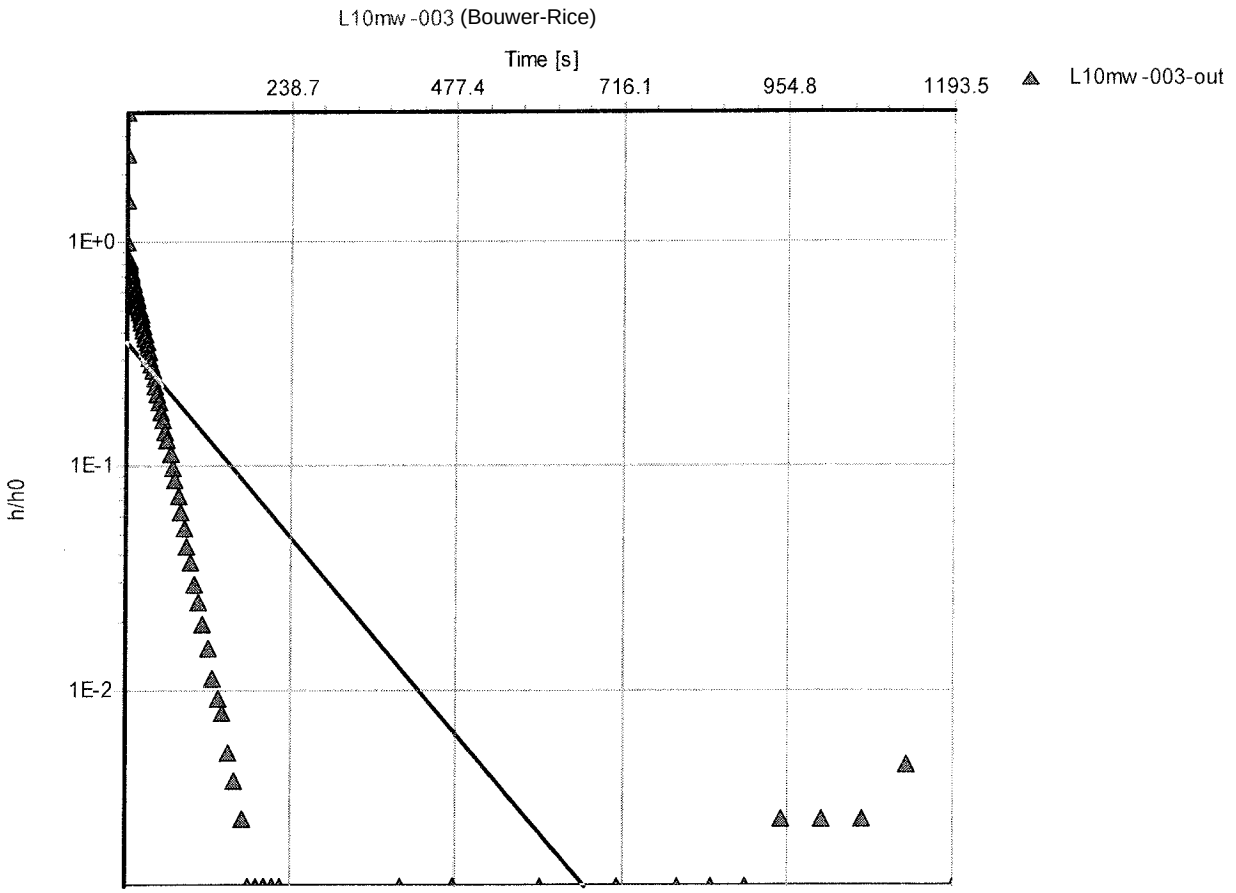
Signature: [signature] Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **L10mw-003**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 2.60E-4 [cm/s]

Test parameters:

Test Well:	L10mw-003-out	Aquifer thickness:	11.59 [ft]
Screen radius:	0.26042 [ft]	Gravel Pack Porosity (%)	25
Screen length:	10 [ft]		
Casing radius:	0.08333 [ft]		
r(eff):	0.149 [ft]		

Comments:

Evaluated by:

Date: 2/25/2005

In-Situ Inc. MiniTroll Pro

Report generated: 01/28/05 07:48:10
Report from file: ...\SN04886 2005-01-26 104930 L10mw-003-out.bin
Win-Situ Version 4.50

Serial number: 00004886
Firmware Version 3.09
Unit name: MKM 55

Test name: L10mw-003-out

Test defined on: 01/25/05 07:35:34
Test started on: 01/26/05 10:49:30
Test stopped on: 01/26/05 11:10:00
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
Maximum time between data points: 600.0 Seconds.
Number of data samples: 113

TOTAL DATA SAMPLES 113

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 30 PSIG.
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Feet H2O
Referenced on: test start
Pressure head at reference: -1.563 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
01/26/05	10:49:30		0.0	52.86	0.000
01/26/05	10:49:31		0.3	52.86	-4.216
01/26/05	10:49:31		0.6	52.88	-6.271
01/26/05	10:49:31		0.9	52.88	-7.691
01/26/05	10:49:32		1.2	52.91	-8.503
01/26/05	10:49:32		1.5	52.91	-8.936
01/26/05	10:49:32		1.8	52.91	-9.006
01/26/05	10:49:33		2.1	52.93	-8.947
01/26/05	10:49:33		2.4	52.93	-8.856
01/26/05	10:49:33		2.7	52.93	-8.803
01/26/05	10:49:33		3.0	52.93	-8.757
01/26/05	10:49:34		3.3	52.93	-8.792
01/26/05	10:49:34		3.6	52.93	-8.827
01/26/05	10:49:34		3.9	52.93	-8.858
01/26/05	10:49:35		4.2	52.93	-8.884
01/26/05	10:49:35		4.5	52.93	-8.901
01/26/05	10:49:35		4.8	52.93	-8.914
01/26/05	10:49:36		5.1	52.93	-8.923
01/26/05	10:49:36		5.4	52.93	-8.932
01/26/05	10:49:36		5.7	52.93	-8.943

01/26/05	10:49:36	6.0	52.93	-8.954
01/26/05	10:49:37	6.4	52.95	-8.967
01/26/05	10:49:37	6.7	52.95	-8.980
01/26/05	10:49:38	7.1	52.95	-8.995
01/26/05	10:49:38	7.5	52.95	-9.007
01/26/05	10:49:38	8.0	52.95	-9.022
01/26/05	10:49:39	8.4	52.95	-9.037
01/26/05	10:49:39	8.9	52.95	-9.052
01/26/05	10:49:40	9.5	52.95	-9.068
01/26/05	10:49:41	10.0	52.93	-9.083
01/26/05	10:49:41	10.6	52.93	-9.100
01/26/05	10:49:42	11.3	52.93	-9.115
01/26/05	10:49:42	11.9	52.93	-9.133
01/26/05	10:49:43	12.6	52.93	-9.152
01/26/05	10:49:44	13.4	52.93	-9.172
01/26/05	10:49:45	14.2	52.93	-9.192
01/26/05	10:49:45	15.0	52.93	-9.214
01/26/05	10:49:46	15.9	52.93	-9.235
01/26/05	10:49:47	16.8	52.93	-9.255
01/26/05	10:49:48	17.8	52.93	-9.279
01/26/05	10:49:49	18.9	52.91	-9.301
01/26/05	10:49:50	20.0	52.91	-9.325
01/26/05	10:49:52	21.2	52.93	-9.351
01/26/05	10:49:53	22.4	52.93	-9.375
01/26/05	10:49:54	23.8	52.91	-9.403
01/26/05	10:49:56	25.2	52.91	-9.430
01/26/05	10:49:57	26.7	52.91	-9.456
01/26/05	10:49:59	28.2	52.91	-9.482
01/26/05	10:50:00	29.8	52.91	-9.508
01/26/05	10:50:02	31.5	52.91	-9.535
01/26/05	10:50:04	33.3	52.91	-9.561
01/26/05	10:50:06	35.2	52.91	-9.589
01/26/05	10:50:08	37.3	52.91	-9.618
01/26/05	10:50:10	39.5	52.91	-9.646
01/26/05	10:50:12	41.8	52.91	-9.674
01/26/05	10:50:15	44.3	52.91	-9.701
01/26/05	10:50:17	46.9	52.91	-9.727
01/26/05	10:50:20	49.7	52.91	-9.757
01/26/05	10:50:23	52.6	52.91	-9.779
01/26/05	10:50:26	55.7	52.91	-9.804
01/26/05	10:50:29	59.0	52.91	-9.825
01/26/05	10:50:33	62.5	52.91	-9.851
01/26/05	10:50:37	66.2	52.91	-9.873
01/26/05	10:50:41	70.1	52.91	-9.891
01/26/05	10:50:45	74.3	52.91	-9.910
01/26/05	10:50:49	78.7	52.88	-9.926
01/26/05	10:50:54	83.4	52.91	-9.941
01/26/05	10:50:59	88.4	52.88	-9.954
01/26/05	10:51:04	93.7	52.88	-9.965
01/26/05	10:51:10	99.3	52.88	-9.976
01/26/05	10:51:16	105.2	52.88	-9.984
01/26/05	10:51:22	111.5	52.88	-9.991
01/26/05	10:51:29	118.1	52.88	-9.998
01/26/05	10:51:36	125.1	52.88	-10.004
01/26/05	10:51:43	132.6	52.88	-10.007
01/26/05	10:51:51	140.5	52.88	-10.009
01/26/05	10:51:59	148.9	52.86	-10.013
01/26/05	10:52:08	157.8	52.86	-10.015
01/26/05	10:52:18	167.2	52.86	-10.017
01/26/05	10:52:28	177.2	52.86	-10.019
01/26/05	10:52:38	187.8	52.84	-10.019
01/26/05	10:52:49	199.0	52.84	-10.019
01/26/05	10:53:01	210.9	52.84	-10.019

01/26/05	10:53:14	223.5	52.84	-10.019
01/26/05	10:53:27	236.8	52.82	-10.021
01/26/05	10:53:41	250.9	52.82	-10.021
01/26/05	10:53:56	265.8	52.82	-10.021
01/26/05	10:54:12	281.6	52.82	-10.021
01/26/05	10:54:29	298.4	52.82	-10.021
01/26/05	10:54:47	316.2	52.82	-10.021
01/26/05	10:55:05	335.0	52.82	-10.021
01/26/05	10:55:25	354.9	52.82	-10.021
01/26/05	10:55:46	376.0	52.84	-10.021
01/26/05	10:56:09	398.4	52.84	-10.019
01/26/05	10:56:33	422.1	52.86	-10.021
01/26/05	10:56:58	447.2	52.86	-10.021
01/26/05	10:57:24	473.8	52.86	-10.019
01/26/05	10:57:52	502.0	52.86	-10.021
01/26/05	10:58:22	531.9	52.86	-10.021
01/26/05	10:58:54	563.5	52.84	-10.021
01/26/05	10:59:27	597.0	52.84	-10.019
01/26/05	11:00:03	632.5	52.84	-10.021
01/26/05	11:00:41	670.1	52.84	-10.021
01/26/05	11:01:20	709.9	52.84	-10.019
01/26/05	11:02:03	752.1	52.84	-10.021
01/26/05	11:02:47	796.8	52.84	-10.019
01/26/05	11:03:35	844.2	52.84	-10.019
01/26/05	11:04:25	894.4	52.84	-10.019
01/26/05	11:05:18	947.5	52.84	-10.017
01/26/05	11:06:14	1003.8	52.84	-10.017
01/26/05	11:07:14	1063.4	52.82	-10.017
01/26/05	11:08:17	1126.6	52.82	-10.014
01/26/05	11:09:24	1193.5	52.82	-10.019

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.:	L10 mw-004	Date Started:	01/26/05	Date Completed:	01/26/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	5444	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 1122.39	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 6.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	33.47		TOP OF FILTER PACK	19' BGS	
DEPTH TO WATER	16.71		TOP OF SCREEN	21' BGS	
HEIGHT OF WATER COLUMN	16.76		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~17'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY) BEGIN	DATE (MM/DD/YY) END	TIME (HH:MM:SS) BEGIN	TIME (HH:MM:SS) END	DEPTH TO TRANSDUCER	DEPTH TO WATER (FT) BEGIN	DEPTH TO WATER (FT) END	HEIGHT OF WATER COLUMN (FT) BEGIN	HEIGHT OF WATER COLUMN (FT) END
1	L10mw-004-IN	01/26/05	01/26/05	1025	1045	~32				
2	L10mw-004-OUT	01/26/05	01/26/05	1045	1103	~32				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL LOG SCALE	TEST TIME INTERVAL ARITH. SCALE	COMMENTS
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: ERS

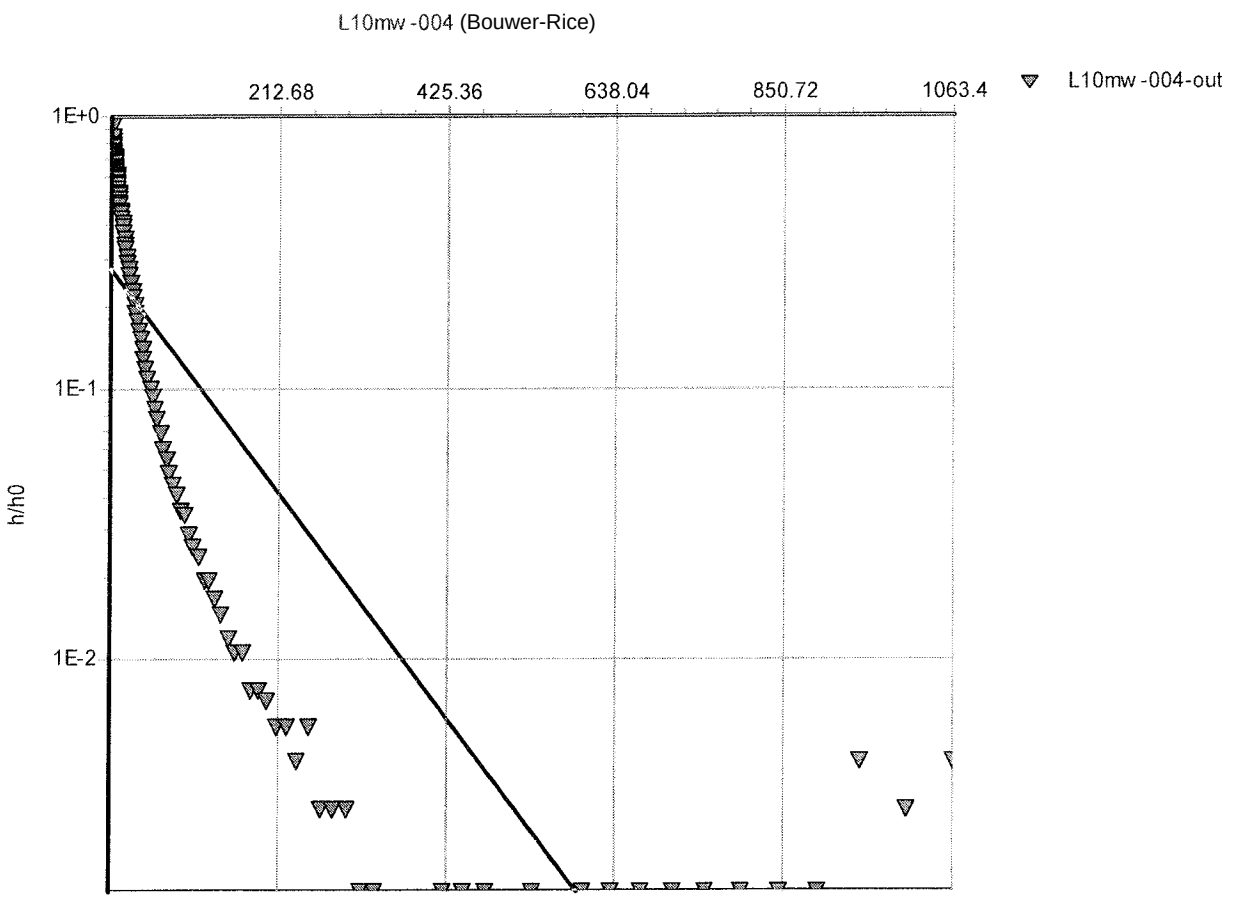
Signature: David K Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **L10mw-004**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 3.17E-4 [cm/s]

Test parameters:

Test Well:	L10mw-004-out	Aquifer thickness:	23.94 [ft]
Screen radius:	0.26042 [ft]	Gravel Pack Porosity (%)	25
Screen length:	10 [ft]		
Casing radius:	0.08333 [ft]		
r(eff):	0.149 [ft]		

Comments:

Evaluated by:

Date: 2/25/2005

In-Situ Inc. MiniTroll Pro

Report generated: 01/28/05 07:41:11
Report from file: ...\SN05444 2005-01-26 104523 L10mw-004-out.bin
Win-Situ Version 4.50

Serial number: 00005444
Firmware Version 3.09
Unit name: MKM 45

Test name: L10mw-004-out

Test defined on: 01/25/05 07:42:47
Test started on: 01/26/05 10:45:23
Test stopped on: 01/26/05 11:03:08
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
Maximum time between data points: 600.0 Seconds.
Number of data samples: 111

TOTAL DATA SAMPLES 111

Channel number [1]
Measurement type: Temperature
Channel name: H2O Temp.

Channel number [2]
Measurement type: Pressure
Channel name: H2O Level
Sensor Range: 30 PSIG.
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Feet H2O
Referenced on: test start
Pressure head at reference: 14.350 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
01/26/05	10:45:23		0.0	52.19	0.000
01/26/05	10:45:24		0.3	52.22	-5.617
01/26/05	10:45:24		0.6	52.24	-4.923
01/26/05	10:45:24		0.9	52.26	-5.062
01/26/05	10:45:25		1.2	52.26	-5.012
01/26/05	10:45:25		1.5	52.26	-5.019
01/26/05	10:45:25		1.8	52.26	-5.186
01/26/05	10:45:26		2.1	52.26	-5.155
01/26/05	10:45:26		2.4	52.28	-5.231
01/26/05	10:45:26		2.7	52.28	-5.247
01/26/05	10:45:26		3.0	52.28	-5.273
01/26/05	10:45:27		3.3	52.28	-5.294
01/26/05	10:45:27		3.6	52.28	-5.316
01/26/05	10:45:27		3.9	52.28	-5.336
01/26/05	10:45:28		4.2	52.28	-5.355
01/26/05	10:45:28		4.5	52.28	-5.374
01/26/05	10:45:28		4.8	52.28	-5.392
01/26/05	10:45:29		5.1	52.28	-5.411
01/26/05	10:45:29		5.4	52.28	-5.427
01/26/05	10:45:29		5.7	52.31	-5.444

01/26/05	10:45:29	6.0	52.31	-5.461
01/26/05	10:45:30	6.4	52.31	-5.479
01/26/05	10:45:30	6.7	52.31	-5.498
01/26/05	10:45:31	7.1	52.31	-5.515
01/26/05	10:45:31	7.5	52.31	-5.537
01/26/05	10:45:31	8.0	52.31	-5.557
01/26/05	10:45:32	8.4	52.31	-5.578
01/26/05	10:45:32	8.9	52.31	-5.598
01/26/05	10:45:33	9.5	52.31	-5.621
01/26/05	10:45:34	10.0	52.28	-5.637
01/26/05	10:45:34	10.6	52.28	-5.660
01/26/05	10:45:35	11.3	52.28	-5.680
01/26/05	10:45:35	11.9	52.26	-5.704
01/26/05	10:45:36	12.6	52.26	-5.725
01/26/05	10:45:37	13.4	52.26	-5.749
01/26/05	10:45:38	14.2	52.26	-5.773
01/26/05	10:45:38	15.0	52.26	-5.795
01/26/05	10:45:39	15.9	52.26	-5.820
01/26/05	10:45:40	16.8	52.26	-5.842
01/26/05	10:45:41	17.8	52.26	-5.868
01/26/05	10:45:42	18.9	52.26	-5.890
01/26/05	10:45:43	20.0	52.26	-5.914
01/26/05	10:45:45	21.2	52.26	-5.937
01/26/05	10:45:46	22.4	52.26	-5.959
01/26/05	10:45:47	23.8	52.26	-5.981
01/26/05	10:45:49	25.2	52.26	-6.003
01/26/05	10:45:50	26.7	52.26	-6.024
01/26/05	10:45:52	28.2	52.26	-6.044
01/26/05	10:45:53	29.8	52.26	-6.063
01/26/05	10:45:55	31.5	52.26	-6.081
01/26/05	10:45:57	33.3	52.26	-6.102
01/26/05	10:45:59	35.2	52.26	-6.119
01/26/05	10:46:01	37.3	52.26	-6.135
01/26/05	10:46:03	39.5	52.26	-6.152
01/26/05	10:46:05	41.8	52.26	-6.169
01/26/05	10:46:08	44.3	52.26	-6.184
01/26/05	10:46:10	46.9	52.26	-6.198
01/26/05	10:46:13	49.7	52.24	-6.212
01/26/05	10:46:16	52.6	52.26	-6.221
01/26/05	10:46:19	55.7	52.26	-6.234
01/26/05	10:46:22	59.0	52.24	-6.243
01/26/05	10:46:26	62.5	52.24	-6.256
01/26/05	10:46:30	66.2	52.24	-6.267
01/26/05	10:46:34	70.1	52.24	-6.275
01/26/05	10:46:38	74.3	52.24	-6.284
01/26/05	10:46:42	78.7	52.24	-6.290
01/26/05	10:46:47	83.4	52.24	-6.295
01/26/05	10:46:52	88.4	52.24	-6.303
01/26/05	10:46:57	93.7	52.24	-6.304
01/26/05	10:47:03	99.3	52.24	-6.312
01/26/05	10:47:09	105.2	52.24	-6.316
01/26/05	10:47:15	111.5	52.24	-6.319
01/26/05	10:47:22	118.1	52.24	-6.325
01/26/05	10:47:29	125.1	52.24	-6.325
01/26/05	10:47:36	132.6	52.24	-6.329
01/26/05	10:47:44	140.5	52.24	-6.332
01/26/05	10:47:52	148.9	52.24	-6.336
01/26/05	10:48:01	157.8	52.24	-6.338
01/26/05	10:48:11	167.2	52.24	-6.338
01/26/05	10:48:21	177.2	52.24	-6.342
01/26/05	10:48:31	187.8	52.24	-6.342
01/26/05	10:48:42	199.0	52.24	-6.343
01/26/05	10:48:54	210.9	52.24	-6.345

01/26/05	10:49:07	223.5	52.24	-6.345
01/26/05	10:49:20	236.8	52.24	-6.347
01/26/05	10:49:34	250.9	52.24	-6.345
01/26/05	10:49:49	265.8	52.24	-6.349
01/26/05	10:50:05	281.6	52.24	-6.349
01/26/05	10:50:22	298.4	52.24	-6.349
01/26/05	10:50:40	316.2	52.24	-6.351
01/26/05	10:50:58	335.0	52.24	-6.351
01/26/05	10:51:18	354.9	52.24	-6.353
01/26/05	10:51:39	376.0	52.24	-6.353
01/26/05	10:52:02	398.4	52.24	-6.353
01/26/05	10:52:26	422.1	52.24	-6.351
01/26/05	10:52:51	447.2	52.24	-6.351
01/26/05	10:53:17	473.8	52.24	-6.351
01/26/05	10:53:45	502.0	52.24	-6.353
01/26/05	10:54:15	531.9	52.24	-6.355
01/26/05	10:54:47	563.5	52.24	-6.353
01/26/05	10:55:20	597.0	52.24	-6.351
01/26/05	10:55:56	632.5	52.24	-6.351
01/26/05	10:56:34	670.1	52.24	-6.351
01/26/05	10:57:13	709.9	52.24	-6.351
01/26/05	10:57:56	752.1	52.24	-6.351
01/26/05	10:58:40	796.8	52.24	-6.351
01/26/05	10:59:28	844.2	52.24	-6.351
01/26/05	11:00:18	894.4	52.26	-6.351
01/26/05	11:01:11	947.5	52.26	-6.347
01/26/05	11:02:07	1003.8	52.26	-6.349
01/26/05	11:03:07	1063.4	52.26	-6.347

Slug Test Record

Project Name: RVAAP-RI 14

MKM

Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.:	LIO MW-005	Date Started:	01/26/05	Date Completed:	01/26/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	4926	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 1125,67	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 6.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	29.18		TOP OF FILTER PACK	13' BGS	
DEPTH TO WATER	11.86		TOP OF SCREEN	16.5' BGS	
HEIGHT OF WATER COLUMN	17.32		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~12'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY) BEGIN	DATE (MM/DD/YY) END	TIME (HH:MM:SS) BEGIN	TIME (HH:MM:SS) END	DEPTH TO TRANSDUCER	DEPTH TO WATER (FT) BEGIN	DEPTH TO WATER (FT) END	HEIGHT OF WATER COLUMN (FT) BEGIN	HEIGHT OF WATER COLUMN (FT) END
1	LIOmw-005-IN	01/26/05	01/26/05	9:21	9:38	~28'	—			
2	LIOmw-005-OUT	01/26/05	01/26/05	939	957	~28'	—			

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL LOG SCALE	TEST TIME INTERVAL ARITH. SCALE	COMMENTS
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SRS

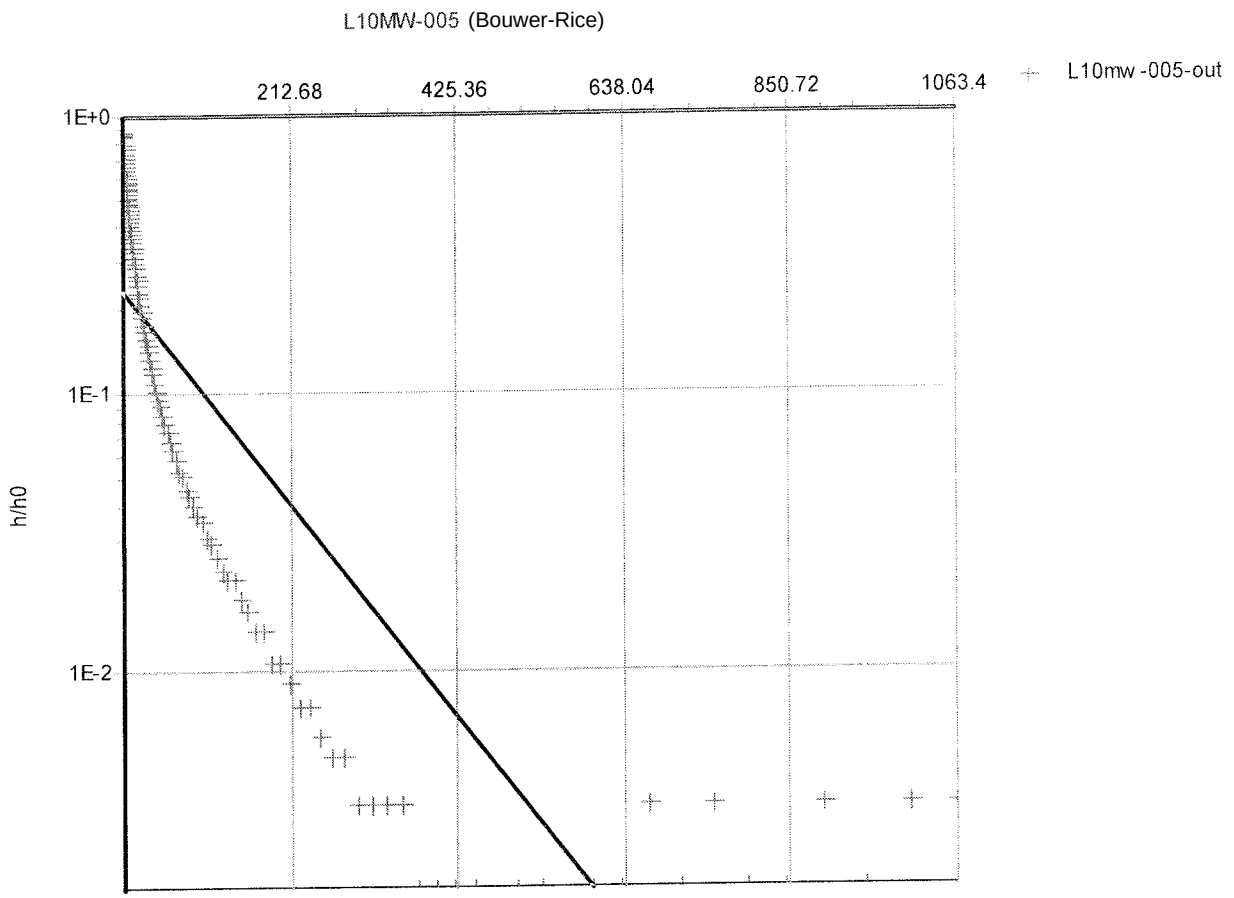
Signature: David K Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **L10mw-005**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 2.76E-4 [cm/s]

Test parameters:				
	Test Well:	L10mw-005-out	Aquifer thickness:	17.32 [ft]
	Screen radius:	0.26042 [ft]	Gravel Pack Porosity (%)	25
	Screen length:	10 [ft]		
	Casing radius:	0.08333 [ft]		
	r(eff):	0.149 [ft]		

Comments:

Evaluated by:

Date: 2/9/2005

In-Situ Inc. MiniTroll Pro

Report generated: 01/28/05 07:34:15
Report from file: ...\SN04926 2005-01-26 093913 L10mw-005-out.bin
Win-Situ Version 4.50

Serial number: 00004926
Firmware Version 3.09
Unit name: miniTROLL

Test name: L10mw-005-out

Test defined on: 01/25/05 07:48:36
Test started on: 01/26/05 09:39:13
Test stopped on: 01/26/05 09:57:20
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
  Maximum time between data points: 600.0 Seconds.
  Number of data samples: 111

TOTAL DATA SAMPLES 111

Channel number [1]
  Measurement type: Temperature
  Channel name: OnBoard Temp

Channel number [2]
  Measurement type: Pressure
  Channel name: OnBoard Pressure
  Sensor Range: 30 PSIG.
  Specific gravity: 1.000
  Mode: TOC
  User-defined reference: 0.000 Feet H2O
  Referenced on: test start
  Pressure head at reference: 11.228 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
01/26/05	09:39:13		0.0	52.45	0.000
01/26/05	09:39:14		0.3	52.47	-1.909
01/26/05	09:39:14		0.6	52.49	-2.061
01/26/05	09:39:14		0.9	52.49	-2.069
01/26/05	09:39:15		1.2	52.51	-2.100
01/26/05	09:39:15		1.5	52.51	-2.153
01/26/05	09:39:15		1.8	52.51	-2.188
01/26/05	09:39:16		2.1	52.51	-2.238
01/26/05	09:39:16		2.4	52.51	-2.263
01/26/05	09:39:16		2.7	52.51	-2.293
01/26/05	09:39:16		3.0	52.54	-2.320
01/26/05	09:39:17		3.3	52.54	-2.346
01/26/05	09:39:17		3.6	52.54	-2.368
01/26/05	09:39:17		3.9	52.54	-2.392
01/26/05	09:39:18		4.2	52.54	-2.412
01/26/05	09:39:18		4.5	52.54	-2.432
01/26/05	09:39:18		4.8	52.54	-2.451
01/26/05	09:39:19		5.1	52.54	-2.467
01/26/05	09:39:19		5.4	52.54	-2.484
01/26/05	09:39:19		5.7	52.54	-2.500

01/26/05	09:39:19	6.0	52.54	-2.515
01/26/05	09:39:20	6.4	52.54	-2.532
01/26/05	09:39:20	6.7	52.54	-2.548
01/26/05	09:39:21	7.1	52.54	-2.566
01/26/05	09:39:21	7.5	52.54	-2.581
01/26/05	09:39:21	8.0	52.54	-2.598
01/26/05	09:39:22	8.4	52.54	-2.616
01/26/05	09:39:22	8.9	52.56	-2.632
01/26/05	09:39:23	9.5	52.54	-2.649
01/26/05	09:39:23	10.0	52.54	-2.662
01/26/05	09:39:24	10.6	52.51	-2.679
01/26/05	09:39:25	11.3	52.51	-2.695
01/26/05	09:39:25	11.9	52.51	-2.712
01/26/05	09:39:26	12.6	52.51	-2.726
01/26/05	09:39:27	13.4	52.51	-2.743
01/26/05	09:39:28	14.2	52.51	-2.760
01/26/05	09:39:28	15.0	52.51	-2.776
01/26/05	09:39:29	15.9	52.51	-2.794
01/26/05	09:39:30	16.8	52.51	-2.809
01/26/05	09:39:31	17.8	52.51	-2.824
01/26/05	09:39:32	18.9	52.51	-2.839
01/26/05	09:39:33	20.0	52.51	-2.851
01/26/05	09:39:35	21.2	52.51	-2.866
01/26/05	09:39:36	22.4	52.51	-2.879
01/26/05	09:39:37	23.8	52.51	-2.892
01/26/05	09:39:39	25.2	52.51	-2.905
01/26/05	09:39:40	26.7	52.51	-2.916
01/26/05	09:39:42	28.2	52.51	-2.929
01/26/05	09:39:43	29.8	52.51	-2.938
01/26/05	09:39:45	31.5	52.51	-2.947
01/26/05	09:39:47	33.3	52.51	-2.958
01/26/05	09:39:49	35.2	52.51	-2.967
01/26/05	09:39:51	37.3	52.51	-2.976
01/26/05	09:39:53	39.5	52.51	-2.986
01/26/05	09:39:55	41.8	52.51	-2.995
01/26/05	09:39:58	44.3	52.51	-3.002
01/26/05	09:40:00	46.9	52.51	-3.009
01/26/05	09:40:03	49.7	52.51	-3.017
01/26/05	09:40:06	52.6	52.51	-3.024
01/26/05	09:40:09	55.7	52.51	-3.030
01/26/05	09:40:12	59.0	52.51	-3.037
01/26/05	09:40:16	62.5	52.51	-3.042
01/26/05	09:40:20	66.2	52.51	-3.048
01/26/05	09:40:24	70.1	52.51	-3.054
01/26/05	09:40:28	74.3	52.51	-3.057
01/26/05	09:40:32	78.7	52.51	-3.063
01/26/05	09:40:37	83.4	52.51	-3.066
01/26/05	09:40:42	88.4	52.51	-3.070
01/26/05	09:40:47	93.7	52.51	-3.074
01/26/05	09:40:53	99.3	52.49	-3.076
01/26/05	09:40:59	105.2	52.49	-3.081
01/26/05	09:41:05	111.5	52.49	-3.083
01/26/05	09:41:12	118.1	52.49	-3.087
01/26/05	09:41:19	125.1	52.49	-3.090
01/26/05	09:41:26	132.6	52.49	-3.092
01/26/05	09:41:34	140.5	52.49	-3.092
01/26/05	09:41:42	148.9	52.49	-3.096
01/26/05	09:41:51	157.8	52.49	-3.098
01/26/05	09:42:01	167.2	52.49	-3.101
01/26/05	09:42:11	177.2	52.49	-3.101
01/26/05	09:42:21	187.8	52.49	-3.105
01/26/05	09:42:32	199.0	52.49	-3.105
01/26/05	09:42:44	210.9	52.49	-3.107

01/26/05	09:42:57	223.5	52.49	-3.109
01/26/05	09:43:10	236.8	52.49	-3.109
01/26/05	09:43:24	250.9	52.49	-3.111
01/26/05	09:43:39	265.8	52.49	-3.112
01/26/05	09:43:55	281.6	52.49	-3.112
01/26/05	09:44:12	298.4	52.49	-3.114
01/26/05	09:44:30	316.2	52.49	-3.114
01/26/05	09:44:48	335.0	52.49	-3.114
01/26/05	09:45:08	354.9	52.49	-3.114
01/26/05	09:45:29	376.0	52.49	-3.116
01/26/05	09:45:52	398.4	52.49	-3.116
01/26/05	09:46:16	422.1	52.49	-3.116
01/26/05	09:46:41	447.2	52.49	-3.116
01/26/05	09:47:07	473.8	52.49	-3.118
01/26/05	09:47:35	502.0	52.49	-3.116
01/26/05	09:48:05	531.9	52.49	-3.116
01/26/05	09:48:37	563.5	52.49	-3.118
01/26/05	09:49:10	597.0	52.49	-3.116
01/26/05	09:49:46	632.5	52.49	-3.116
01/26/05	09:50:24	670.1	52.49	-3.114
01/26/05	09:51:03	709.9	52.49	-3.116
01/26/05	09:51:46	752.1	52.49	-3.114
01/26/05	09:52:30	796.8	52.49	-3.116
01/26/05	09:53:18	844.2	52.49	-3.116
01/26/05	09:54:08	894.4	52.49	-3.114
01/26/05	09:55:01	947.5	52.49	-3.116
01/26/05	09:55:57	1003.8	52.49	-3.114
01/26/05	09:56:57	1063.4	52.49	-3.114

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.:	Date Started:	Date Completed:
LIOmw-006	01/26/05	01/26/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	4926	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC

REFERENCE POINT ELEVATION: 1123.83

RISER CASING I.D. (in.): 2 in

SCREEN OR OPEN HOLE I.D. (in): 2 in

DIAMETER OF BOREHOLE (IF SCREENED): 6.25"

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	26.45		TOP OF FILTER PACK	11' BGS	
DEPTH TO WATER	9.48		TOP OF SCREEN	13.5' BGS	
HEIGHT OF WATER COLUMN	16.97		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD

SLUG IN: Test #1

SLUG OUT: Test #2

SLUG DIMENSIONS: 24 x 1.6" OD

SLUG VOL (GAL)

SLUG DEPTH (FT) ~10'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY) BEGIN	DATE (MM/DD/YY) END	TIME (HH:MM:SS) BEGIN	TIME (HH:MM:SS) END	DEPTH TO TRANSDUCER	DEPTH TO WATER (FT) BEGIN	DEPTH TO WATER (FT) END	HEIGHT OF WATER COLUMN (FT) BEGIN	HEIGHT OF WATER COLUMN (FT) END
1	LIO mw-006-IN	01/26/05	01/26/05	1015	1039	~25				
2	LIO mw-006-OUT	01/26/05	01/26/05	1039	1057	~25				

STORAGE LOCATION OF DATA: 1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data 2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL LOG SCALE	TEST TIME INTERVAL ARITH. SCALE	COMMENTS
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by:

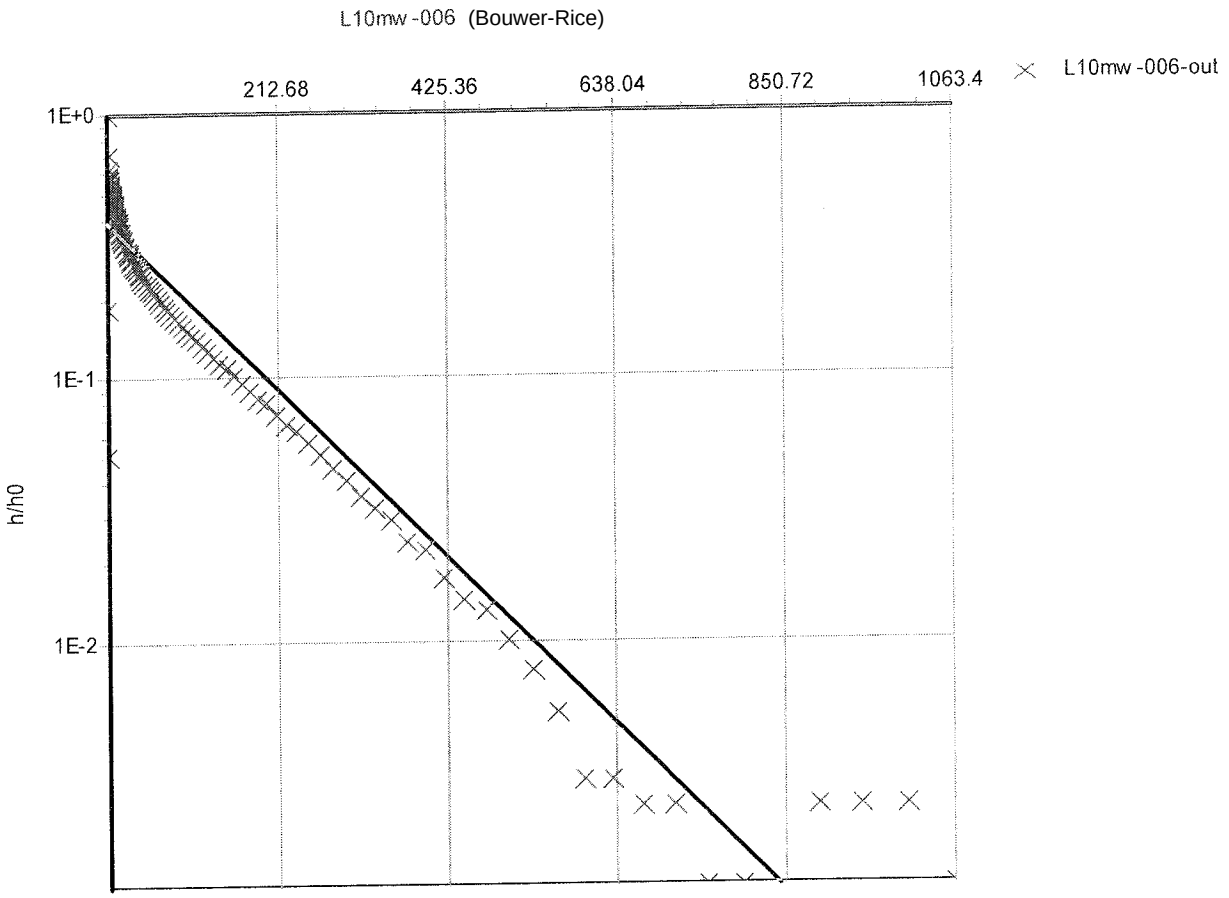
Signature: David K. Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **L10mw-006**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 1.97E-4 [cm/s]

Test parameters:

Test Well:	L10mw-006-out	Aquifer thickness:	16.97 [ft]
Screen radius:	0.4271 [ft]	Gravel Pack Porosity (%)	25
Screen length:	10 [ft]		
Casing radius:	0.0833 [ft]		
r(eff):	0.225 [ft]		

Comments:

Evaluated by:

Date: 2/9/2005

In-Situ Inc. MiniTroll Pro

Report generated: 01/28/05 07:34:54
Report from file: ...\SN04926 2005-01-26 103948 L10mw-006-out.bin
Win-Situ Version 4.50

Serial number: 00004926
Firmware Version 3.09
Unit name: miniTROLL

Test name: L10mw-006-out

Test defined on: 01/25/05 07:48:52
Test started on: 01/26/05 10:39:48
Test stopped on: 01/26/05 10:57:44
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
  Maximum time between data points: 600.0 Seconds.
  Number of data samples: 111

TOTAL DATA SAMPLES 111

Channel number [1]
  Measurement type: Temperature
  Channel name: OnBoard Temp

Channel number [2]
  Measurement type: Pressure
  Channel name: OnBoard Pressure
  Sensor Range: 30 PSIG.
  Specific gravity: 1.000
  Mode: TOC
  User-defined reference: 0.000 Feet H2O
  Referenced on: test start
  Pressure head at reference: 4.994 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
01/26/05	10:39:48		0.0	53.21	0.000
01/26/05	10:39:49		0.3	53.23	-8.516
01/26/05	10:39:49		0.6	53.26	-8.290
01/26/05	10:39:49		0.9	53.26	-6.934
01/26/05	10:39:49		1.2	53.26	-7.807
01/26/05	10:39:50		1.5	53.28	-7.419
01/26/05	10:39:50		1.8	53.28	-7.557
01/26/05	10:39:50		2.1	53.28	-7.558
01/26/05	10:39:51		2.4	53.28	-7.564
01/26/05	10:39:51		2.7	53.30	-7.608
01/26/05	10:39:51		3.0	53.30	-7.617
01/26/05	10:39:52		3.3	53.30	-7.635
01/26/05	10:39:52		3.6	53.30	-7.637
01/26/05	10:39:52		3.9	53.30	-7.652
01/26/05	10:39:52		4.2	53.30	-7.672
01/26/05	10:39:53		4.5	53.30	-7.681
01/26/05	10:39:53		4.8	53.30	-7.694
01/26/05	10:39:53		5.1	53.30	-7.705
01/26/05	10:39:54		5.4	53.30	-7.718
01/26/05	10:39:54		5.7	53.30	-7.729

01/26/05	10:39:54	6.0	53.30	-7.740
01/26/05	10:39:55	6.4	53.30	-7.751
01/26/05	10:39:55	6.7	53.30	-7.762
01/26/05	10:39:55	7.1	53.30	-7.777
01/26/05	10:39:56	7.5	53.30	-7.788
01/26/05	10:39:56	8.0	53.30	-7.803
01/26/05	10:39:57	8.4	53.32	-7.815
01/26/05	10:39:57	8.9	53.30	-7.828
01/26/05	10:39:58	9.5	53.32	-7.843
01/26/05	10:39:58	10.0	53.30	-7.856
01/26/05	10:39:59	10.6	53.30	-7.871
01/26/05	10:40:00	11.3	53.30	-7.882
01/26/05	10:40:00	11.9	53.28	-7.898
01/26/05	10:40:01	12.6	53.28	-7.911
01/26/05	10:40:02	13.4	53.28	-7.926
01/26/05	10:40:02	14.2	53.28	-7.941
01/26/05	10:40:03	15.0	53.28	-7.961
01/26/05	10:40:04	15.9	53.28	-7.976
01/26/05	10:40:05	16.8	53.28	-7.990
01/26/05	10:40:06	17.8	53.28	-8.005
01/26/05	10:40:07	18.9	53.28	-8.020
01/26/05	10:40:08	20.0	53.28	-8.032
01/26/05	10:40:09	21.2	53.28	-8.045
01/26/05	10:40:11	22.4	53.28	-8.060
01/26/05	10:40:12	23.8	53.28	-8.075
01/26/05	10:40:13	25.2	53.28	-8.088
01/26/05	10:40:15	26.7	53.28	-8.099
01/26/05	10:40:16	28.2	53.28	-8.110
01/26/05	10:40:18	29.8	53.28	-8.123
01/26/05	10:40:20	31.5	53.28	-8.134
01/26/05	10:40:22	33.3	53.26	-8.145
01/26/05	10:40:23	35.2	53.26	-8.156
01/26/05	10:40:26	37.3	53.26	-8.167
01/26/05	10:40:28	39.5	53.26	-8.178
01/26/05	10:40:30	41.8	53.26	-8.187
01/26/05	10:40:33	44.3	53.26	-8.200
01/26/05	10:40:35	46.9	53.26	-8.211
01/26/05	10:40:38	49.7	53.26	-8.220
01/26/05	10:40:41	52.6	53.26	-8.231
01/26/05	10:40:44	55.7	53.26	-8.242
01/26/05	10:40:47	59.0	53.26	-8.253
01/26/05	10:40:51	62.5	53.26	-8.264
01/26/05	10:40:54	66.2	53.26	-8.273
01/26/05	10:40:58	70.1	53.26	-8.284
01/26/05	10:41:03	74.3	53.26	-8.295
01/26/05	10:41:07	78.7	53.23	-8.307
01/26/05	10:41:12	83.4	53.26	-8.317
01/26/05	10:41:17	88.4	53.23	-8.327
01/26/05	10:41:22	93.7	53.23	-8.338
01/26/05	10:41:28	99.3	53.23	-8.349
01/26/05	10:41:33	105.2	53.23	-8.358
01/26/05	10:41:40	111.5	53.23	-8.369
01/26/05	10:41:46	118.1	53.23	-8.380
01/26/05	10:41:53	125.1	53.21	-8.389
01/26/05	10:42:01	132.6	53.21	-8.400
01/26/05	10:42:09	140.5	53.21	-8.410
01/26/05	10:42:17	148.9	53.21	-8.419
01/26/05	10:42:26	157.8	53.21	-8.430
01/26/05	10:42:35	167.2	53.21	-8.441
01/26/05	10:42:45	177.2	53.19	-8.452
01/26/05	10:42:56	187.8	53.19	-8.461
01/26/05	10:43:07	199.0	53.19	-8.467
01/26/05	10:43:19	210.9	53.19	-8.480

01/26/05	10:43:32	223.5	53.19	-8.491
01/26/05	10:43:45	236.8	53.19	-8.496
01/26/05	10:43:59	250.9	53.19	-8.507
01/26/05	10:44:14	265.8	53.19	-8.516
01/26/05	10:44:30	281.6	53.17	-8.526
01/26/05	10:44:47	298.4	53.17	-8.533
01/26/05	10:45:04	316.2	53.17	-8.542
01/26/05	10:45:23	335.0	53.17	-8.548
01/26/05	10:45:43	354.9	53.17	-8.553
01/26/05	10:46:04	376.0	53.17	-8.561
01/26/05	10:46:27	398.4	53.17	-8.564
01/26/05	10:46:50	422.1	53.17	-8.572
01/26/05	10:47:15	447.2	53.17	-8.577
01/26/05	10:47:42	473.8	53.17	-8.579
01/26/05	10:48:10	502.0	53.19	-8.584
01/26/05	10:48:40	531.9	53.19	-8.588
01/26/05	10:49:12	563.5	53.17	-8.592
01/26/05	10:49:45	597.0	53.17	-8.596
01/26/05	10:50:21	632.5	53.17	-8.596
01/26/05	10:50:58	670.1	53.19	-8.597
01/26/05	10:51:38	709.9	53.19	-8.597
01/26/05	10:52:20	752.1	53.17	-8.599
01/26/05	10:53:05	796.8	53.17	-8.599
01/26/05	10:53:52	844.2	53.17	-8.601
01/26/05	10:54:43	894.4	53.17	-8.597
01/26/05	10:55:36	947.5	53.19	-8.597
01/26/05	10:56:32	1003.8	53.19	-8.597
01/26/05	10:57:32	1063.4	53.19	-8.599

Slug Test Record

Project Name: RVAAP-RI 14

MKM

Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: ASY MW-001	Date Started: 01/21/05	Date Completed: 01/21/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	4886	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 981.13	RISER CASING I.D. (in.): 2 in

SCREEN OR OPEN HOLE I.D. (in): 2 in

DIAMETER OF BOREHOLE (IF SCREENED): 8.25"

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	23.10		TOP OF FILTER PACK	9' BGS	
DEPTH TO WATER	9.14		TOP OF SCREEN	11' BGS	
HEIGHT OF WATER COLUMN	13.96		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2

SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~10'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY)		TIME (HH:MM:SS)		DEPTH TO TRANSDUCER	DEPTH TO WATER (FT)		HEIGHT OF WATER COLUMN (FT)	
		BEGIN	END	BEGIN	END		BEGIN	END	BEGIN	END
1	ASY MW-001-IN	01/21/05	01/21/05	833	904	~22'				
2	ASY MW-001-OUT	01/21/05	01/21/05	905	1045	~22'				

STORAGE LOCATION OF DATA: 1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data 2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL		COMMENTS
				LOG SCALE	ARITH. SCALE	
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SRSth

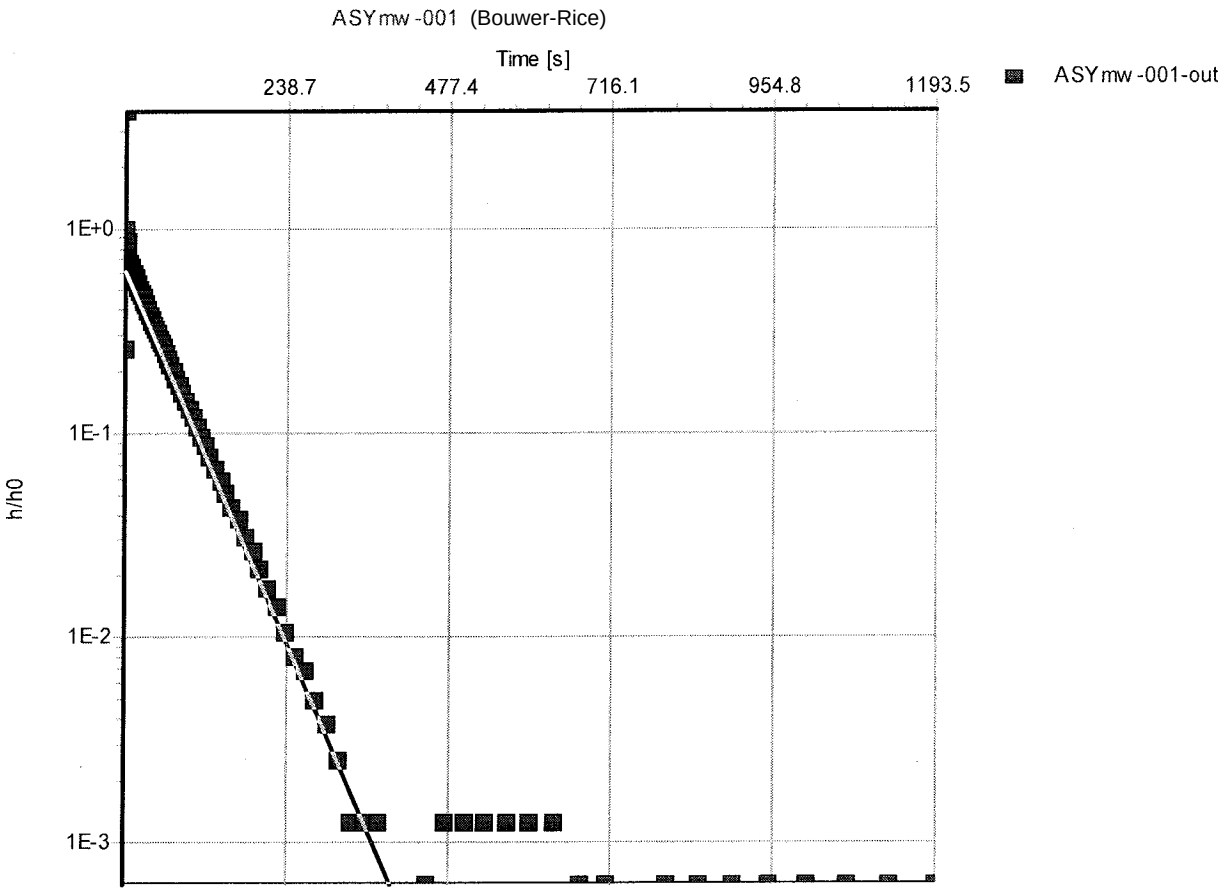
Signature: David K. Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **ASYmw-001**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 5.18E-4 [cm/s]

Test parameters:

Test Well:	ASYmw-001-out	Aquifer thickness:	13.96 [ft]
Screen radius:	0.34375 [ft]	Gravel Pack Porosity (%)	25
Screen length:	10 [ft]		
Casing radius:	0.08333 [ft]		
r(eff):	0.186 [ft]		

Comments:

Evaluated by:

Date: 2/10/2005

In-Situ Inc. MiniTroll Pro

Report generated: 01/21/05 16:35:24
Report from file: ...\SN04886 2005-01-21 090542 ASYmw-001-out.bin
Win-Situ Version 4.50

Serial number: 00004886
Firmware Version 3.09
Unit name: MKM 55

Test name: ASYmw-001-out

Test defined on: 01/20/05 16:13:30
Test started on: 01/21/05 09:05:42
Test stopped on: 01/21/05 10:45:17
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
  Maximum time between data points: 600.0 Seconds.
  Number of data samples: 140

TOTAL DATA SAMPLES 140

Channel number [1]
  Measurement type: Temperature
  Channel name: OnBoard Temp

Channel number [2]
  Measurement type: Pressure
  Channel name: OnBoard Pressure
  Sensor Range: 30 PSIG.
  Specific gravity: 1.000
  Mode: TOC
  User-defined reference: 0.000 Feet H2O
  Referenced on: test start
  Pressure head at reference: 6.603 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
01/21/05	09:05:42		0.0	52.64	0.000
01/21/05	09:05:42		0.3	52.66	2.025
01/21/05	09:05:42		0.6	52.66	-4.450
01/21/05	09:05:43		0.9	52.68	-2.752
01/21/05	09:05:43		1.2	52.68	-2.415
01/21/05	09:05:43		1.5	52.68	-3.106
01/21/05	09:05:44		1.8	52.70	-2.638
01/21/05	09:05:44		2.1	52.70	-2.983
01/21/05	09:05:44		2.4	52.70	-2.791
01/21/05	09:05:44		2.7	52.70	-2.914
01/21/05	09:05:45		3.0	52.70	-2.863
01/21/05	09:05:45		3.3	52.70	-2.905
01/21/05	09:05:45		3.6	52.70	-2.883
01/21/05	09:05:46		3.9	52.73	-2.922
01/21/05	09:05:46		4.2	52.70	-2.918
01/21/05	09:05:46		4.5	52.73	-2.931
01/21/05	09:05:47		4.8	52.73	-2.931
01/21/05	09:05:47		5.1	52.73	-2.942
01/21/05	09:05:47		5.4	52.73	-2.947
01/21/05	09:05:47		5.7	52.73	-2.955

01/21/05	09:05:48	6.0	52.73	-2.960
01/21/05	09:05:48	6.4	52.73	-2.968
01/21/05	09:05:48	6.7	52.73	-2.975
01/21/05	09:05:49	7.1	52.73	-2.984
01/21/05	09:05:49	7.5	52.73	-2.994
01/21/05	09:05:50	8.0	52.73	-3.003
01/21/05	09:05:50	8.4	52.73	-3.012
01/21/05	09:05:51	8.9	52.73	-3.023
01/21/05	09:05:51	9.5	52.73	-3.032
01/21/05	09:05:52	10.0	52.73	-3.041
01/21/05	09:05:52	10.6	52.70	-3.053
01/21/05	09:05:53	11.3	52.70	-3.066
01/21/05	09:05:54	11.9	52.70	-3.079
01/21/05	09:05:54	12.6	52.70	-3.090
01/21/05	09:05:55	13.4	52.70	-3.104
01/21/05	09:05:56	14.2	52.70	-3.119
01/21/05	09:05:57	15.0	52.70	-3.134
01/21/05	09:05:58	15.9	52.68	-3.149
01/21/05	09:05:59	16.8	52.68	-3.164
01/21/05	09:06:00	17.8	52.68	-3.180
01/21/05	09:06:01	18.9	52.68	-3.199
01/21/05	09:06:02	20.0	52.68	-3.215
01/21/05	09:06:03	21.2	52.68	-3.234
01/21/05	09:06:04	22.4	52.68	-3.254
01/21/05	09:06:06	23.8	52.68	-3.274
01/21/05	09:06:07	25.2	52.68	-3.294
01/21/05	09:06:08	26.7	52.68	-3.315
01/21/05	09:06:10	28.2	52.68	-3.335
01/21/05	09:06:12	29.8	52.68	-3.357
01/21/05	09:06:13	31.5	52.68	-3.379
01/21/05	09:06:15	33.3	52.68	-3.401
01/21/05	09:06:17	35.2	52.68	-3.423
01/21/05	09:06:19	37.3	52.68	-3.446
01/21/05	09:06:21	39.5	52.68	-3.468
01/21/05	09:06:24	41.8	52.68	-3.492
01/21/05	09:06:26	44.3	52.68	-3.516
01/21/05	09:06:29	46.9	52.68	-3.540
01/21/05	09:06:31	49.7	52.68	-3.565
01/21/05	09:06:34	52.6	52.68	-3.589
01/21/05	09:06:37	55.7	52.70	-3.613
01/21/05	09:06:41	59.0	52.70	-3.639
01/21/05	09:06:44	62.5	52.70	-3.663
01/21/05	09:06:48	66.2	52.73	-3.687
01/21/05	09:06:52	70.1	52.73	-3.711
01/21/05	09:06:56	74.3	52.73	-3.735
01/21/05	09:07:00	78.7	52.75	-3.756
01/21/05	09:07:05	83.4	52.75	-3.779
01/21/05	09:07:10	88.4	52.75	-3.801
01/21/05	09:07:15	93.7	52.77	-3.821
01/21/05	09:07:21	99.3	52.77	-3.841
01/21/05	09:07:27	105.2	52.79	-3.859
01/21/05	09:07:33	111.5	52.79	-3.878
01/21/05	09:07:40	118.1	52.82	-3.894
01/21/05	09:07:47	125.1	52.82	-3.911
01/21/05	09:07:54	132.6	52.84	-3.925
01/21/05	09:08:02	140.5	52.84	-3.940
01/21/05	09:08:11	148.9	52.84	-3.951
01/21/05	09:08:20	157.8	52.84	-3.964
01/21/05	09:08:29	167.2	52.86	-3.973
01/21/05	09:08:39	177.2	52.86	-3.984
01/21/05	09:08:50	187.8	52.86	-3.991
01/21/05	09:09:01	199.0	52.88	-3.999
01/21/05	09:09:13	210.9	52.88	-4.006

01/21/05	09:09:25	223.5	52.88	-4.011
01/21/05	09:09:39	236.8	52.88	-4.017
01/21/05	09:09:53	250.9	52.88	-4.021
01/21/05	09:10:08	265.8	52.88	-4.023
01/21/05	09:10:23	281.6	52.88	-4.026
01/21/05	09:10:40	298.4	52.88	-4.028
01/21/05	09:10:58	316.2	52.91	-4.030
01/21/05	09:11:17	335.0	52.91	-4.032
01/21/05	09:11:37	354.9	52.91	-4.032
01/21/05	09:11:58	376.0	52.88	-4.032
01/21/05	09:12:20	398.4	52.88	-4.034
01/21/05	09:12:44	422.1	52.88	-4.034
01/21/05	09:13:09	447.2	52.88	-4.035
01/21/05	09:13:36	473.8	52.86	-4.036
01/21/05	09:14:04	502.0	52.86	-4.036
01/21/05	09:14:34	531.9	52.86	-4.036
01/21/05	09:15:05	563.5	52.84	-4.036
01/21/05	09:15:39	597.0	52.84	-4.036
01/21/05	09:16:14	632.5	52.86	-4.036
01/21/05	09:16:52	670.1	52.88	-4.035
01/21/05	09:17:32	709.9	52.88	-4.035
01/21/05	09:18:14	752.1	52.88	-4.034
01/21/05	09:18:59	796.8	52.91	-4.035
01/21/05	09:19:46	844.2	52.91	-4.035
01/21/05	09:20:36	894.4	52.91	-4.035
01/21/05	09:21:29	947.5	52.91	-4.035
01/21/05	09:22:26	1003.8	52.93	-4.033
01/21/05	09:23:25	1063.4	52.93	-4.033
01/21/05	09:24:28	1126.6	52.95	-4.033
01/21/05	09:25:35	1193.5	52.95	-4.033
01/21/05	09:26:46	1264.4	52.97	-4.033
01/21/05	09:28:01	1339.5	52.97	-4.033
01/21/05	09:29:21	1419.0	53.00	-4.033
01/21/05	09:30:45	1503.3	53.00	-4.034
01/21/05	09:32:14	1592.6	53.02	-4.032
01/21/05	09:33:49	1687.1	53.04	-4.030
01/21/05	09:35:29	1787.2	53.04	-4.032
01/21/05	09:37:15	1893.3	53.06	-4.032
01/21/05	09:39:07	2005.7	53.06	-4.032
01/21/05	09:41:06	2124.7	53.09	-4.034
01/21/05	09:43:13	2250.8	53.09	-4.034
01/21/05	09:45:26	2384.4	53.11	-4.032
01/21/05	09:47:48	2525.9	53.13	-4.033
01/21/05	09:50:18	2675.8	53.16	-4.033
01/21/05	09:52:56	2834.6	53.18	-4.033
01/21/05	09:55:45	3002.8	53.18	-4.033
01/21/05	09:58:43	3180.9	53.20	-4.033
01/21/05	10:01:51	3369.6	53.22	-4.031
01/21/05	10:05:11	3569.5	53.25	-4.030
01/21/05	10:08:43	3781.2	53.25	-4.028
01/21/05	10:12:27	4005.5	53.27	-4.028
01/21/05	10:16:25	4243.1	53.27	-4.028
01/21/05	10:20:36	4494.7	53.29	-4.026
01/21/05	10:25:03	4761.3	53.31	-4.026
01/21/05	10:29:45	5043.7	53.31	-4.020
01/21/05	10:34:45	5342.8	53.31	-4.024
01/21/05	10:40:01	5659.6	53.34	-4.022

Slug Test Record

Project Name: RVAAP-RI 14

MKM

Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: ASYmw-002	Date Started: 01/21/05	Date Completed: 01/21/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	4926	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 985.24	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 8.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	22.90		TOP OF FILTER PACK	8' BGS	
DEPTH TO WATER	12.15		TOP OF SCREEN	9' BGS	
HEIGHT OF WATER COLUMN	10.75		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~13'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY)		TIME (HH:MM:SS)		DEPTH TO TRANSDUCER	DEPTH TO WATER (FT)		HEIGHT OF WATER COLUMN (FT)	
		BEGIN	END	BEGIN	END		BEGIN	END	BEGIN	END
1	ASYmw-002-IN	01/21/05	01/21/05	848	909	~21'				
2	ASYmw-002-OUT	01/21/05	01/21/05	910	1049	~21'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL		COMMENTS
				LOG SCALE	ARITH. SCALE	
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SRSh

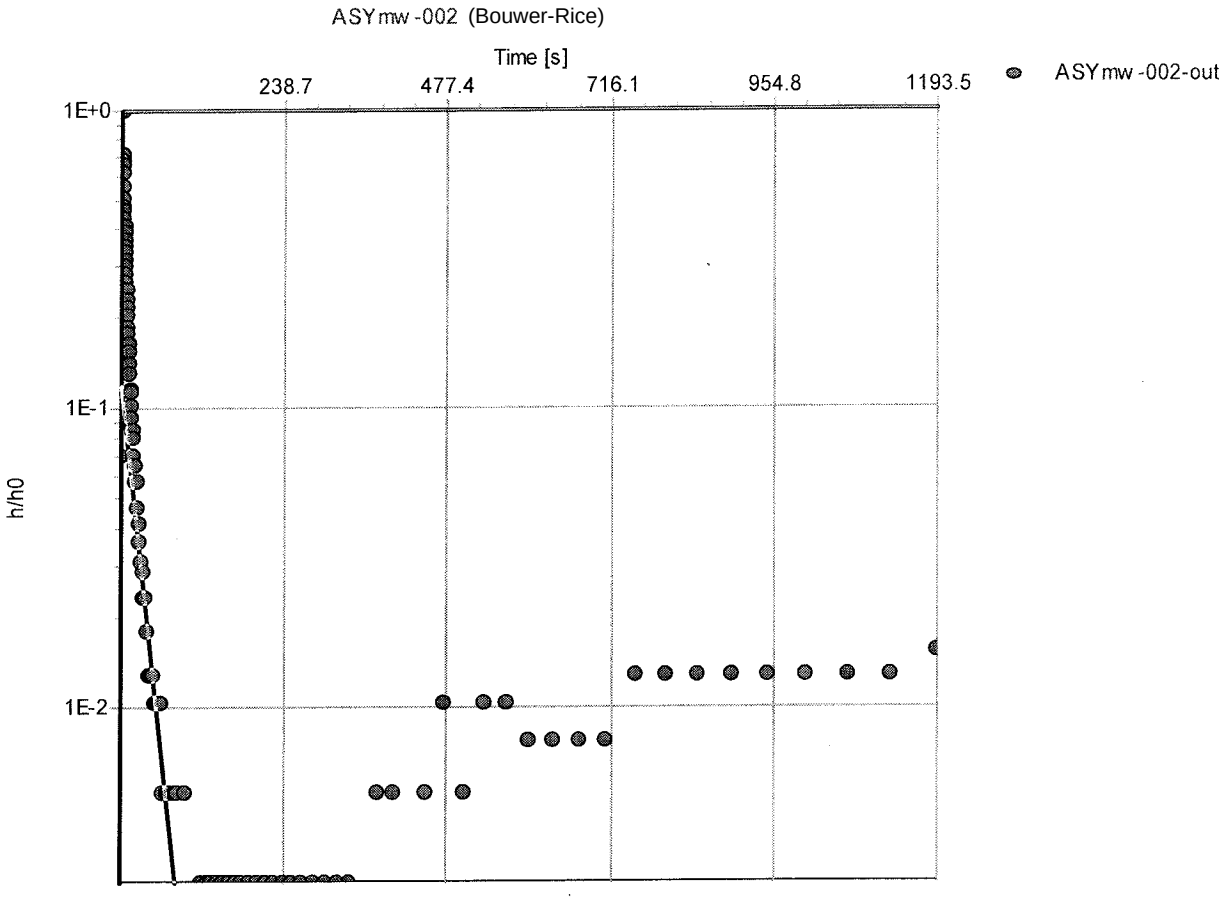
Signature: David K. Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **ASYmw-002**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 1.35E-3 [cm/s]

Test parameters:

Test Well:	ASYmw-002-out	Aquifer thickness:	10.75 [ft]
Screen radius:	0.34375 [ft]	Gravel Pack Porosity (%)	25
Screen length:	10 [ft]		
Casing radius:	0.08333 [ft]		
r(eff):	0.186 [ft]		

Comments:

Evaluated by:

Date: 2/10/2005

In-Situ Inc. MiniTroll Pro

Report generated: 01/21/05 16:50:01
Report from file: ...\SN04926 2005-01-21 091010 ASYmw-002-out.bin
Win-Situ Version 4.50

Serial number: 00004926
Firmware Version 3.09
Unit name: miniTROLL

Test name: ASYmw-002-out

Test defined on: 01/20/05 16:29:14
Test started on: 01/21/05 09:10:10
Test stopped on: 01/21/05 10:49:33
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
  Maximum time between data points: 600.0 Seconds.
  Number of data samples: 140

TOTAL DATA SAMPLES 140

Channel number [1]
  Measurement type: Temperature
  Channel name: OnBoard Temp

Channel number [2]
  Measurement type: Pressure
  Channel name: OnBoard Pressure
  Sensor Range: 30 PSIG.
  Specific gravity: 1.000
  Mode: TOC
  User-defined reference: 0.000 Feet H2O
  Referenced on: test start
  Pressure head at reference: 4.352 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
01/21/05	09:10:10	0.0	50.83	0.000	
01/21/05	09:10:10	0.3	50.85	-0.048	
01/21/05	09:10:11	0.6	50.87	-4.381	
01/21/05	09:10:11	0.9	50.87	-2.587	
01/21/05	09:10:11	1.2	50.87	-3.603	
01/21/05	09:10:12	1.5	50.90	-3.241	
01/21/05	09:10:12	1.8	50.90	-3.351	
01/21/05	09:10:12	2.1	50.90	-3.366	
01/21/05	09:10:12	2.4	50.90	-3.375	
01/21/05	09:10:13	2.7	50.90	-3.390	
01/21/05	09:10:13	3.0	50.90	-3.414	
01/21/05	09:10:13	3.3	50.90	-3.432	
01/21/05	09:10:14	3.6	50.92	-3.445	
01/21/05	09:10:14	3.9	50.90	-3.451	
01/21/05	09:10:14	4.2	50.92	-3.461	
01/21/05	09:10:15	4.5	50.92	-3.471	
01/21/05	09:10:15	4.8	50.92	-3.478	
01/21/05	09:10:15	5.1	50.92	-3.487	
01/21/05	09:10:15	5.4	50.92	-3.493	
01/21/05	09:10:16	5.7	50.92	-3.500	

01/21/05	09:10:16	6.0	50.92	-3.507
01/21/05	09:10:16	6.4	50.92	-3.513
01/21/05	09:10:17	6.7	50.92	-3.520
01/21/05	09:10:17	7.1	50.92	-3.526
01/21/05	09:10:18	7.5	50.92	-3.533
01/21/05	09:10:18	8.0	50.92	-3.540
01/21/05	09:10:19	8.4	50.94	-3.546
01/21/05	09:10:19	8.9	50.94	-3.551
01/21/05	09:10:20	9.5	50.94	-3.557
01/21/05	09:10:20	10.0	50.92	-3.561
01/21/05	09:10:21	10.6	50.92	-3.566
01/21/05	09:10:21	11.3	50.92	-3.570
01/21/05	09:10:22	11.9	50.92	-3.575
01/21/05	09:10:23	12.6	50.92	-3.579
01/21/05	09:10:23	13.4	50.92	-3.585
01/21/05	09:10:24	14.2	50.92	-3.586
01/21/05	09:10:25	15.0	50.92	-3.590
01/21/05	09:10:26	15.9	50.92	-3.594
01/21/05	09:10:27	16.8	50.92	-3.597
01/21/05	09:10:28	17.8	50.92	-3.599
01/21/05	09:10:29	18.9	50.92	-3.603
01/21/05	09:10:30	20.0	50.92	-3.605
01/21/05	09:10:31	21.2	50.92	-3.608
01/21/05	09:10:33	22.4	50.92	-3.608
01/21/05	09:10:34	23.8	50.94	-3.612
01/21/05	09:10:35	25.2	50.94	-3.614
01/21/05	09:10:37	26.7	50.94	-3.616
01/21/05	09:10:38	28.2	50.94	-3.618
01/21/05	09:10:40	29.8	50.94	-3.618
01/21/05	09:10:42	31.5	50.94	-3.619
01/21/05	09:10:43	33.3	50.96	-3.621
01/21/05	09:10:45	35.2	50.96	-3.621
01/21/05	09:10:47	37.3	50.96	-3.623
01/21/05	09:10:50	39.5	50.96	-3.623
01/21/05	09:10:52	41.8	50.96	-3.625
01/21/05	09:10:54	44.3	50.99	-3.625
01/21/05	09:10:57	46.9	50.99	-3.625
01/21/05	09:11:00	49.7	50.99	-3.626
01/21/05	09:11:03	52.6	50.99	-3.626
01/21/05	09:11:06	55.7	50.99	-3.626
01/21/05	09:11:09	59.0	51.01	-3.626
01/21/05	09:11:13	62.5	51.01	-3.628
01/21/05	09:11:16	66.2	51.01	-3.628
01/21/05	09:11:20	70.1	51.01	-3.628
01/21/05	09:11:24	74.3	51.03	-3.630
01/21/05	09:11:29	78.7	51.03	-3.628
01/21/05	09:11:33	83.4	51.03	-3.628
01/21/05	09:11:38	88.4	51.05	-3.630
01/21/05	09:11:44	93.7	51.05	-3.628
01/21/05	09:11:49	99.3	51.05	-3.630
01/21/05	09:11:55	105.2	51.05	-3.630
01/21/05	09:12:02	111.5	51.05	-3.630
01/21/05	09:12:08	118.1	51.08	-3.629
01/21/05	09:12:15	125.1	51.08	-3.629
01/21/05	09:12:23	132.6	51.08	-3.629
01/21/05	09:12:31	140.5	51.08	-3.629
01/21/05	09:12:39	148.9	51.08	-3.629
01/21/05	09:12:48	157.8	51.10	-3.629
01/21/05	09:12:57	167.2	51.10	-3.629
01/21/05	09:13:07	177.2	51.10	-3.629
01/21/05	09:13:18	187.8	51.10	-3.629
01/21/05	09:13:29	199.0	51.08	-3.629
01/21/05	09:13:41	210.9	51.08	-3.629

01/21/05	09:13:54	223.5	51.08	-3.629
01/21/05	09:14:07	236.8	51.08	-3.629
01/21/05	09:14:21	250.9	51.08	-3.629
01/21/05	09:14:36	265.8	51.08	-3.629
01/21/05	09:14:52	281.6	51.08	-3.629
01/21/05	09:15:08	298.4	51.08	-3.629
01/21/05	09:15:26	316.2	51.08	-3.629
01/21/05	09:15:45	335.0	51.08	-3.629
01/21/05	09:16:05	354.9	51.05	-3.630
01/21/05	09:16:26	376.0	51.03	-3.628
01/21/05	09:16:48	398.4	51.03	-3.628
01/21/05	09:17:12	422.1	51.03	-3.630
01/21/05	09:17:37	447.2	51.01	-3.628
01/21/05	09:18:04	473.8	51.01	-3.626
01/21/05	09:18:32	502.0	50.99	-3.628
01/21/05	09:19:02	531.9	50.99	-3.626
01/21/05	09:19:34	563.5	50.99	-3.626
01/21/05	09:20:07	597.0	50.96	-3.627
01/21/05	09:20:43	632.5	50.96	-3.627
01/21/05	09:21:20	670.1	50.96	-3.627
01/21/05	09:22:00	709.9	50.96	-3.627
01/21/05	09:22:42	752.1	50.96	-3.625
01/21/05	09:23:27	796.8	50.94	-3.625
01/21/05	09:24:14	844.2	50.90	-3.625
01/21/05	09:25:04	894.4	50.90	-3.625
01/21/05	09:25:58	947.5	50.90	-3.625
01/21/05	09:26:54	1003.8	50.90	-3.625
01/21/05	09:27:53	1063.4	50.92	-3.625
01/21/05	09:28:57	1126.6	50.96	-3.625
01/21/05	09:30:04	1193.5	51.01	-3.624
01/21/05	09:31:14	1264.4	51.05	-3.624
01/21/05	09:32:30	1339.5	51.08	-3.624
01/21/05	09:33:49	1419.0	51.12	-3.624
01/21/05	09:35:13	1503.3	51.14	-3.623
01/21/05	09:36:43	1592.6	51.17	-3.623
01/21/05	09:38:17	1687.1	51.21	-3.625
01/21/05	09:39:57	1787.2	51.23	-3.626
01/21/05	09:41:43	1893.3	51.26	-3.626
01/21/05	09:43:36	2005.7	51.30	-3.626
01/21/05	09:45:35	2124.7	51.35	-3.627
01/21/05	09:47:41	2250.8	51.37	-3.629
01/21/05	09:49:54	2384.4	51.39	-3.629
01/21/05	09:52:16	2525.9	51.41	-3.631
01/21/05	09:54:46	2675.8	51.44	-3.629
01/21/05	09:57:25	2834.6	51.48	-3.628
01/21/05	10:00:13	3002.8	51.50	-3.628
01/21/05	10:03:11	3180.9	51.53	-3.628
01/21/05	10:06:20	3369.6	51.59	-3.627
01/21/05	10:09:40	3569.5	51.57	-3.626
01/21/05	10:13:11	3781.2	51.59	-3.626
01/21/05	10:16:56	4005.5	51.62	-3.623
01/21/05	10:20:53	4243.1	51.62	-3.622
01/21/05	10:25:05	4494.7	51.62	-3.623
01/21/05	10:29:31	4761.3	51.64	-3.621
01/21/05	10:34:14	5043.7	51.64	-3.621
01/21/05	10:39:13	5342.8	51.66	-3.621
01/21/05	10:44:30	5659.6	51.68	-3.617

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.:	ASPmw-003	Date Started:	01/21/05	Date Completed:	01/21/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	5444	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 982.21	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 8.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	23.45		TOP OF FILTER PACK	9' BGS	
DEPTH TO WATER	10.24		TOP OF SCREEN	11' BGS	
HEIGHT OF WATER COLUMN	13.21		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~11'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY)		TIME (HH:MM:SS)		DEPTH TO TRANSDUCER	DEPTH TO WATER (FT)		HEIGHT OF WATER COLUMN (FT)	
		BEGIN	END	BEGIN	END		BEGIN	END	BEGIN	END
1	ASPmw-003-IN	01/21/05	01/21/05	858	919	~22'				
2	ASPmw-003-Out	01/21/05	01/21/05	920	1055	~22'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL		COMMENTS
				LOG SCALE	ARITH. SCALE	
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SRS

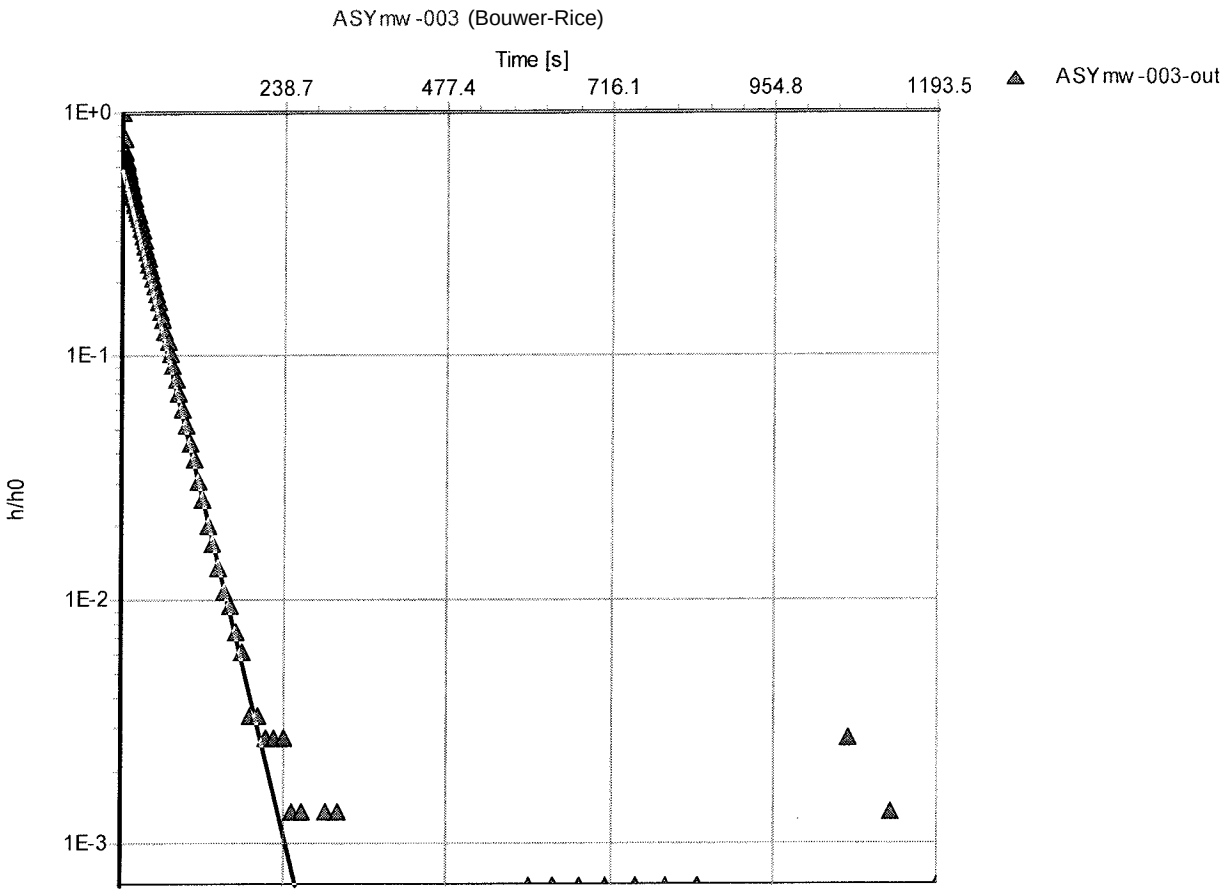
Signature: David K. Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **ASYmw-003**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 7.71E-4 [cm/s]

Test parameters:

Test Well:	ASYmw-003-out	Aquifer thickness:	13.21 [ft]
Screen radius:	0.34375 [ft]	Gravel Pack Porosity (%)	25
Screen length:	10 [ft]		
Casing radius:	0.08333 [ft]		
r(eff):	0.186 [ft]		

Comments:

Evaluated by:

Date: 2/10/2005

In-Situ Inc. MiniTroll Pro

Report generated: 01/21/05 16:26:44
Report from file: ...\SN05444 2005-01-21 092053 ASYmw-003-out.bin
Win-Situ Version 4.50

Serial number: 00005444
Firmware Version 3.09
Unit name: MKM 45

Test name: ASYmw-003-out

Test defined on: 01/20/05 16:38:31
Test started on: 01/21/05 09:20:53
Test stopped on: 01/21/05 10:55:10
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
  Maximum time between data points: 600.0 Seconds.
  Number of data samples: 139

TOTAL DATA SAMPLES 139

Channel number [1]
  Measurement type: Temperature
  Channel name: H2O Temp.

Channel number [2]
  Measurement type: Pressure
  Channel name: H2O Level
  Sensor Range: 30 PSIG.
  Specific gravity: 1.000
  Mode: TOC
  User-defined reference: 0.000 Feet H2O
  Referenced on: test start
  Pressure head at reference: 7.366 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
01/21/05	09:20:53		0.0	53.21	0.000
01/21/05	09:20:53		0.3	53.23	-0.143
01/21/05	09:20:53		0.6	53.23	-0.370
01/21/05	09:20:54		0.9	53.25	-0.658
01/21/05	09:20:54		1.2	53.25	-1.723
01/21/05	09:20:54		1.5	53.25	-2.037
01/21/05	09:20:54		1.8	53.28	-2.243
01/21/05	09:20:55		2.1	53.28	-2.193
01/21/05	09:20:55		2.4	53.28	-2.171
01/21/05	09:20:55		2.7	53.28	-2.254
01/21/05	09:20:56		3.0	53.28	-2.195
01/21/05	09:20:56		3.3	53.28	-2.249
01/21/05	09:20:56		3.6	53.28	-2.241
01/21/05	09:20:57		3.9	53.28	-2.249
01/21/05	09:20:57		4.2	53.28	-2.267
01/21/05	09:20:57		4.5	53.28	-2.267
01/21/05	09:20:57		4.8	53.28	-2.282
01/21/05	09:20:58		5.1	53.28	-2.288
01/21/05	09:20:58		5.4	53.28	-2.297
01/21/05	09:20:58		5.7	53.28	-2.306

01/21/05	09:20:59	6.0	53.28	-2.314
01/21/05	09:20:59	6.4	53.28	-2.323
01/21/05	09:20:59	6.7	53.28	-2.332
01/21/05	09:21:00	7.1	53.28	-2.342
01/21/05	09:21:00	7.5	53.28	-2.353
01/21/05	09:21:01	8.0	53.28	-2.366
01/21/05	09:21:01	8.4	53.28	-2.375
01/21/05	09:21:02	8.9	53.28	-2.386
01/21/05	09:21:02	9.5	53.28	-2.399
01/21/05	09:21:03	10.0	53.28	-2.410
01/21/05	09:21:03	10.6	53.25	-2.424
01/21/05	09:21:04	11.3	53.25	-2.437
01/21/05	09:21:05	11.9	53.25	-2.451
01/21/05	09:21:05	12.6	53.25	-2.464
01/21/05	09:21:06	13.4	53.23	-2.481
01/21/05	09:21:07	14.2	53.23	-2.496
01/21/05	09:21:08	15.0	53.23	-2.513
01/21/05	09:21:08	15.9	53.23	-2.530
01/21/05	09:21:09	16.8	53.23	-2.546
01/21/05	09:21:10	17.8	53.23	-2.563
01/21/05	09:21:11	18.9	53.23	-2.582
01/21/05	09:21:13	20.0	53.23	-2.600
01/21/05	09:21:14	21.2	53.21	-2.621
01/21/05	09:21:15	22.4	53.21	-2.639
01/21/05	09:21:16	23.8	53.23	-2.658
01/21/05	09:21:18	25.2	53.21	-2.680
01/21/05	09:21:19	26.7	53.21	-2.701
01/21/05	09:21:21	28.2	53.21	-2.719
01/21/05	09:21:22	29.8	53.21	-2.740
01/21/05	09:21:24	31.5	53.21	-2.760
01/21/05	09:21:26	33.3	53.21	-2.782
01/21/05	09:21:28	35.2	53.23	-2.803
01/21/05	09:21:30	37.3	53.23	-2.825
01/21/05	09:21:32	39.5	53.23	-2.847
01/21/05	09:21:34	41.8	53.23	-2.868
01/21/05	09:21:37	44.3	53.23	-2.890
01/21/05	09:21:39	46.9	53.23	-2.911
01/21/05	09:21:42	49.7	53.23	-2.933
01/21/05	09:21:45	52.6	53.23	-2.953
01/21/05	09:21:48	55.7	53.25	-2.974
01/21/05	09:21:52	59.0	53.25	-2.994
01/21/05	09:21:55	62.5	53.25	-3.013
01/21/05	09:21:59	66.2	53.28	-3.031
01/21/05	09:22:03	70.1	53.28	-3.050
01/21/05	09:22:07	74.3	53.30	-3.066
01/21/05	09:22:11	78.7	53.32	-3.081
01/21/05	09:22:16	83.4	53.32	-3.096
01/21/05	09:22:21	88.4	53.34	-3.111
01/21/05	09:22:26	93.7	53.37	-3.123
01/21/05	09:22:32	99.3	53.37	-3.136
01/21/05	09:22:38	105.2	53.39	-3.144
01/21/05	09:22:44	111.5	53.41	-3.155
01/21/05	09:22:51	118.1	53.43	-3.162
01/21/05	09:22:58	125.1	53.43	-3.170
01/21/05	09:23:05	132.6	53.46	-3.175
01/21/05	09:23:13	140.5	53.48	-3.180
01/21/05	09:23:21	148.9	53.50	-3.184
01/21/05	09:23:30	157.8	53.50	-3.186
01/21/05	09:23:40	167.2	53.52	-3.189
01/21/05	09:23:50	177.2	53.55	-3.191
01/21/05	09:24:00	187.8	53.55	-3.195
01/21/05	09:24:12	199.0	53.57	-3.195
01/21/05	09:24:23	210.9	53.59	-3.196

01/21/05	09:24:36	223.5	53.59	-3.196
01/21/05	09:24:49	236.8	53.61	-3.196
01/21/05	09:25:03	250.9	53.61	-3.198
01/21/05	09:25:18	265.8	53.64	-3.198
01/21/05	09:25:34	281.6	53.64	-3.200
01/21/05	09:25:51	298.4	53.64	-3.198
01/21/05	09:26:09	316.2	53.66	-3.198
01/21/05	09:26:28	335.0	53.66	-3.200
01/21/05	09:26:47	354.9	53.66	-3.200
01/21/05	09:27:09	376.0	53.66	-3.200
01/21/05	09:27:31	398.4	53.66	-3.200
01/21/05	09:27:55	422.1	53.64	-3.200
01/21/05	09:28:20	447.2	53.64	-3.200
01/21/05	09:28:46	473.8	53.61	-3.200
01/21/05	09:29:15	502.0	53.59	-3.200
01/21/05	09:29:44	531.9	53.59	-3.200
01/21/05	09:30:16	563.5	53.57	-3.200
01/21/05	09:30:50	597.0	53.55	-3.199
01/21/05	09:31:25	632.5	53.55	-3.199
01/21/05	09:32:03	670.1	53.52	-3.201
01/21/05	09:32:42	709.9	53.50	-3.199
01/21/05	09:33:25	752.1	53.48	-3.199
01/21/05	09:34:09	796.8	53.46	-3.199
01/21/05	09:34:57	844.2	53.43	-3.199
01/21/05	09:35:47	894.4	53.39	-3.200
01/21/05	09:36:40	947.5	53.37	-3.200
01/21/05	09:37:36	1003.8	53.32	-3.200
01/21/05	09:38:36	1063.4	53.30	-3.196
01/21/05	09:39:39	1126.6	53.25	-3.198
01/21/05	09:40:46	1193.5	53.23	-3.199
01/21/05	09:41:57	1264.4	53.21	-3.199
01/21/05	09:43:12	1339.5	53.23	-3.197
01/21/05	09:44:32	1419.0	53.21	-3.197
01/21/05	09:45:56	1503.3	53.19	-3.199
01/21/05	09:47:25	1592.6	53.21	-3.199
01/21/05	09:49:00	1687.1	53.23	-3.200
01/21/05	09:50:40	1787.2	53.21	-3.201
01/21/05	09:52:26	1893.3	53.21	-3.201
01/21/05	09:54:18	2005.7	53.23	-3.199
01/21/05	09:56:17	2124.7	53.25	-3.198
01/21/05	09:58:23	2250.8	53.28	-3.197
01/21/05	10:00:37	2384.4	53.30	-3.198
01/21/05	10:02:58	2525.9	53.30	-3.196
01/21/05	10:05:28	2675.8	53.30	-3.198
01/21/05	10:08:07	2834.6	53.32	-3.196
01/21/05	10:10:55	3002.8	53.32	-3.196
01/21/05	10:13:53	3180.9	53.34	-3.194
01/21/05	10:17:02	3369.6	53.34	-3.194
01/21/05	10:20:22	3569.5	53.37	-3.194
01/21/05	10:23:54	3781.2	53.39	-3.192
01/21/05	10:27:38	4005.5	53.39	-3.192
01/21/05	10:31:36	4243.1	53.41	-3.190
01/21/05	10:35:47	4494.7	53.43	-3.190
01/21/05	10:40:14	4761.3	53.46	-3.188
01/21/05	10:44:56	5043.7	53.48	-3.186
01/21/05	10:49:55	5342.8	53.46	-3.186

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: ASY/MW-004	Date Started: 01/21/05	Date Completed: 01/21/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	4926	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 979.66	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 8.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	27.15		TOP OF FILTER PACK	14' BGS	
DEPTH TO WATER	7.59		TOP OF SCREEN	17' BGS	
HEIGHT OF WATER COLUMN	22.16		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~8'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY)		TIME (HH:MM:SS)		DEPTH TO TRANSDUCER	DEPTH TO WATER (FT)		HEIGHT OF WATER COLUMN (FT)	
		BEGIN	END	BEGIN	END		BEGIN	END	BEGIN	END
1	ASY/MW-004-IN	01/21/05	01/21/05	1115	1137	~26'				
2	ASY/MW-004-OUT	01/21/05	01/21/05	1138	1158	~26'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL		COMMENTS
				LOG SCALE	ARITH. SCALE	
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SRSH

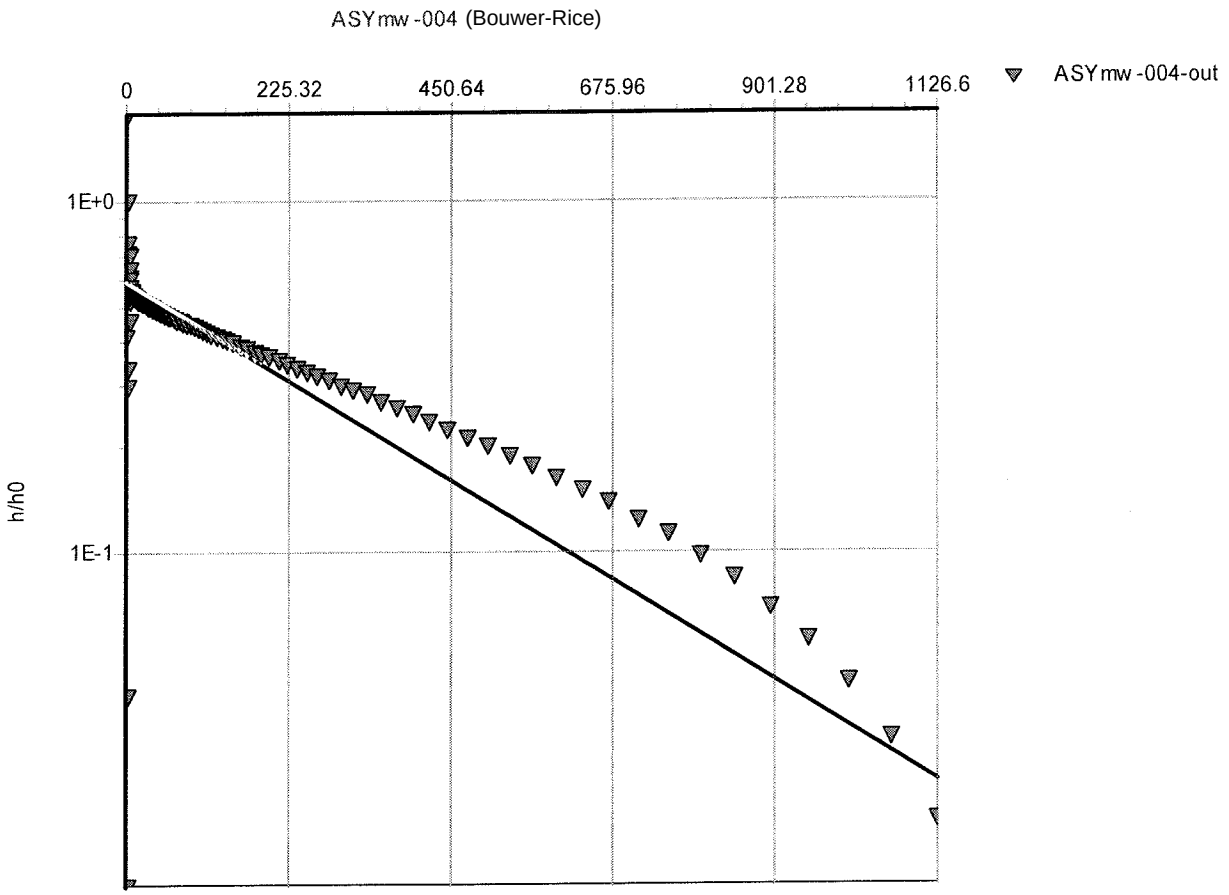
Signature: David K. Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **ASYmw-004**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 9.41E-5 [cm/s]

Test parameters:				
	Test Well:	ASYmw-004-out	Aquifer thickness:	22.16 [ft]
	Screen radius:	0.34375 [ft]	Gravel Pack Porosity (%)	25
	Screen length:	10 [ft]		
	Casing radius:	0.08333 [ft]		
	r(eff):	0.186 [ft]		

Comments:

Evaluated by:

Date: 2/10/2005

In-Situ Inc. MiniTroll Pro

Report generated: 01/21/05 16:50:23
Report from file: ...\SN04926 2005-01-21 113802 ASYmw-004-out.bin
Win-Situ Version 4.50

Serial number: 00004926
Firmware Version 3.09
Unit name: miniTROLL

Test name: ASYmw-004-out

Test defined on: 01/20/05 16:29:32
Test started on: 01/21/05 11:38:02
Test stopped on: 01/21/05 11:58:17
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
  Maximum time between data points: 600.0 Seconds.
  Number of data samples: 113

TOTAL DATA SAMPLES 113

Channel number [1]
  Measurement type: Temperature
  Channel name: OnBoard Temp

Channel number [2]
  Measurement type: Pressure
  Channel name: OnBoard Pressure
  Sensor Range: 30 PSIG.
  Specific gravity: 1.000
  Mode: TOC
  User-defined reference: 0.000 Feet H2O
  Referenced on: test start
  Pressure head at reference: 14.450 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
01/21/05	11:38:02		0.0	53.48	0.000
01/21/05	11:38:02		0.3	53.53	1.509
01/21/05	11:38:02		0.6	53.55	-7.694
01/21/05	11:38:03		0.9	53.55	-4.954
01/21/05	11:38:03		1.2	53.57	-1.054
01/21/05	11:38:03		1.5	53.57	-4.539
01/21/05	11:38:03		1.8	53.57	-4.875
01/21/05	11:38:04		2.1	53.57	-2.805
01/21/05	11:38:04		2.4	53.57	-3.855
01/21/05	11:38:04		2.7	53.57	-4.588
01/21/05	11:38:05		3.0	53.57	-3.569
01/21/05	11:38:05		3.3	53.57	-3.804
01/21/05	11:38:05		3.6	53.59	-4.261
01/21/05	11:38:06		3.9	53.59	-3.857
01/21/05	11:38:06		4.2	53.59	-3.863
01/21/05	11:38:06		4.5	53.59	-4.103
01/21/05	11:38:06		4.8	53.59	-3.951
01/21/05	11:38:07		5.1	53.59	-3.923
01/21/05	11:38:07		5.4	53.59	-4.039
01/21/05	11:38:07		5.7	53.59	-3.988

01/21/05	11:38:08	6.0	53.59	-3.965
01/21/05	11:38:08	6.4	53.59	-4.021
01/21/05	11:38:08	6.7	53.59	-3.989
01/21/05	11:38:09	7.1	53.59	-4.006
01/21/05	11:38:09	7.5	53.59	-4.008
01/21/05	11:38:10	8.0	53.59	-4.010
01/21/05	11:38:10	8.4	53.59	-4.015
01/21/05	11:38:11	8.9	53.62	-4.015
01/21/05	11:38:11	9.5	53.62	-4.020
01/21/05	11:38:12	10.0	53.57	-4.019
01/21/05	11:38:12	10.6	53.57	-4.019
01/21/05	11:38:13	11.3	53.57	-4.021
01/21/05	11:38:14	11.9	53.57	-4.024
01/21/05	11:38:14	12.6	53.57	-4.026
01/21/05	11:38:15	13.4	53.57	-4.028
01/21/05	11:38:16	14.2	53.55	-4.030
01/21/05	11:38:17	15.0	53.55	-4.032
01/21/05	11:38:17	15.9	53.55	-4.034
01/21/05	11:38:18	16.8	53.55	-4.036
01/21/05	11:38:19	17.8	53.55	-4.039
01/21/05	11:38:20	18.9	53.55	-4.041
01/21/05	11:38:22	20.0	53.55	-4.043
01/21/05	11:38:23	21.2	53.55	-4.045
01/21/05	11:38:24	22.4	53.55	-4.047
01/21/05	11:38:25	23.8	53.55	-4.050
01/21/05	11:38:27	25.2	53.55	-4.050
01/21/05	11:38:28	26.7	53.55	-4.052
01/21/05	11:38:30	28.2	53.55	-4.056
01/21/05	11:38:31	29.8	53.55	-4.056
01/21/05	11:38:33	31.5	53.55	-4.059
01/21/05	11:38:35	33.3	53.55	-4.061
01/21/05	11:38:37	35.2	53.55	-4.063
01/21/05	11:38:39	37.3	53.55	-4.067
01/21/05	11:38:41	39.5	53.55	-4.069
01/21/05	11:38:43	41.8	53.55	-4.072
01/21/05	11:38:46	44.3	53.55	-4.074
01/21/05	11:38:48	46.9	53.55	-4.078
01/21/05	11:38:51	49.7	53.55	-4.080
01/21/05	11:38:54	52.6	53.55	-4.082
01/21/05	11:38:57	55.7	53.55	-4.085
01/21/05	11:39:01	59.0	53.55	-4.089
01/21/05	11:39:04	62.5	53.55	-4.093
01/21/05	11:39:08	66.2	53.55	-4.096
01/21/05	11:39:12	70.1	53.55	-4.100
01/21/05	11:39:16	74.3	53.55	-4.104
01/21/05	11:39:20	78.7	53.55	-4.109
01/21/05	11:39:25	83.4	53.53	-4.113
01/21/05	11:39:30	88.4	53.55	-4.116
01/21/05	11:39:35	93.7	53.55	-4.122
01/21/05	11:39:41	99.3	53.55	-4.126
01/21/05	11:39:47	105.2	53.53	-4.131
01/21/05	11:39:53	111.5	53.55	-4.137
01/21/05	11:40:00	118.1	53.53	-4.140
01/21/05	11:40:07	125.1	53.53	-4.146
01/21/05	11:40:14	132.6	53.53	-4.153
01/21/05	11:40:22	140.5	53.53	-4.159
01/21/05	11:40:30	148.9	53.53	-4.164
01/21/05	11:40:39	157.8	53.53	-4.172
01/21/05	11:40:49	167.2	53.53	-4.177
01/21/05	11:40:59	177.2	53.53	-4.185
01/21/05	11:41:09	187.8	53.53	-4.192
01/21/05	11:41:21	199.0	53.53	-4.199
01/21/05	11:41:32	210.9	53.53	-4.208

01/21/05	11:41:45	223.5	53.53	-4.216
01/21/05	11:41:58	236.8	53.53	-4.223
01/21/05	11:42:12	250.9	53.53	-4.232
01/21/05	11:42:27	265.8	53.53	-4.241
01/21/05	11:42:43	281.6	53.53	-4.249
01/21/05	11:43:00	298.4	53.53	-4.258
01/21/05	11:43:18	316.2	53.53	-4.267
01/21/05	11:43:37	335.0	53.53	-4.276
01/21/05	11:43:56	354.9	53.53	-4.287
01/21/05	11:44:18	376.0	53.53	-4.298
01/21/05	11:44:40	398.4	53.53	-4.309
01/21/05	11:45:04	422.1	53.53	-4.320
01/21/05	11:45:29	447.2	53.53	-4.332
01/21/05	11:45:55	473.8	53.53	-4.343
01/21/05	11:46:24	502.0	53.53	-4.355
01/21/05	11:46:53	531.9	53.53	-4.366
01/21/05	11:47:25	563.5	53.53	-4.377
01/21/05	11:47:59	597.0	53.53	-4.390
01/21/05	11:48:34	632.5	53.53	-4.403
01/21/05	11:49:12	670.1	53.53	-4.414
01/21/05	11:49:51	709.9	53.53	-4.429
01/21/05	11:50:34	752.1	53.53	-4.440
01/21/05	11:51:18	796.8	53.53	-4.455
01/21/05	11:52:06	844.2	53.53	-4.467
01/21/05	11:52:56	894.4	53.53	-4.482
01/21/05	11:53:49	947.5	53.55	-4.495
01/21/05	11:54:45	1003.8	53.53	-4.508
01/21/05	11:55:45	1063.4	53.53	-4.521
01/21/05	11:56:48	1126.6	53.55	-4.533
01/21/05	11:57:55	1193.5	53.55	-4.550

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: ASYmw-005	Date Started: 01/21/05	Date Completed: 01/21/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	5444	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 979.80	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 8.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	27.15		TOP OF FILTER PACK	11' BGS	
DEPTH TO WATER	6.42		TOP OF SCREEN	14' BGS	
HEIGHT OF WATER COLUMN	20.73		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~7'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY) BEGIN	DATE (MM/DD/YY) END	TIME (HH:MM:SS) BEGIN	TIME (HH:MM:SS) END	DEPTH TO TRANSDUCER	DEPTH TO WATER (FT) BEGIN	DEPTH TO WATER (FT) END	HEIGHT OF WATER COLUMN (FT) BEGIN	HEIGHT OF WATER COLUMN (FT) END
1	ASYmw-005-1N	01/21/05	01/21/05	1107	1133	~26'				
2	ASYmw-005-1OT	01/21/05	01/21/05	1134	1154	~26'				

STORAGE LOCATION OF DATA: 1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data 2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL LOG SCALE	TEST TIME INTERVAL ARITH. SCALE	COMMENTS
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SRSmith

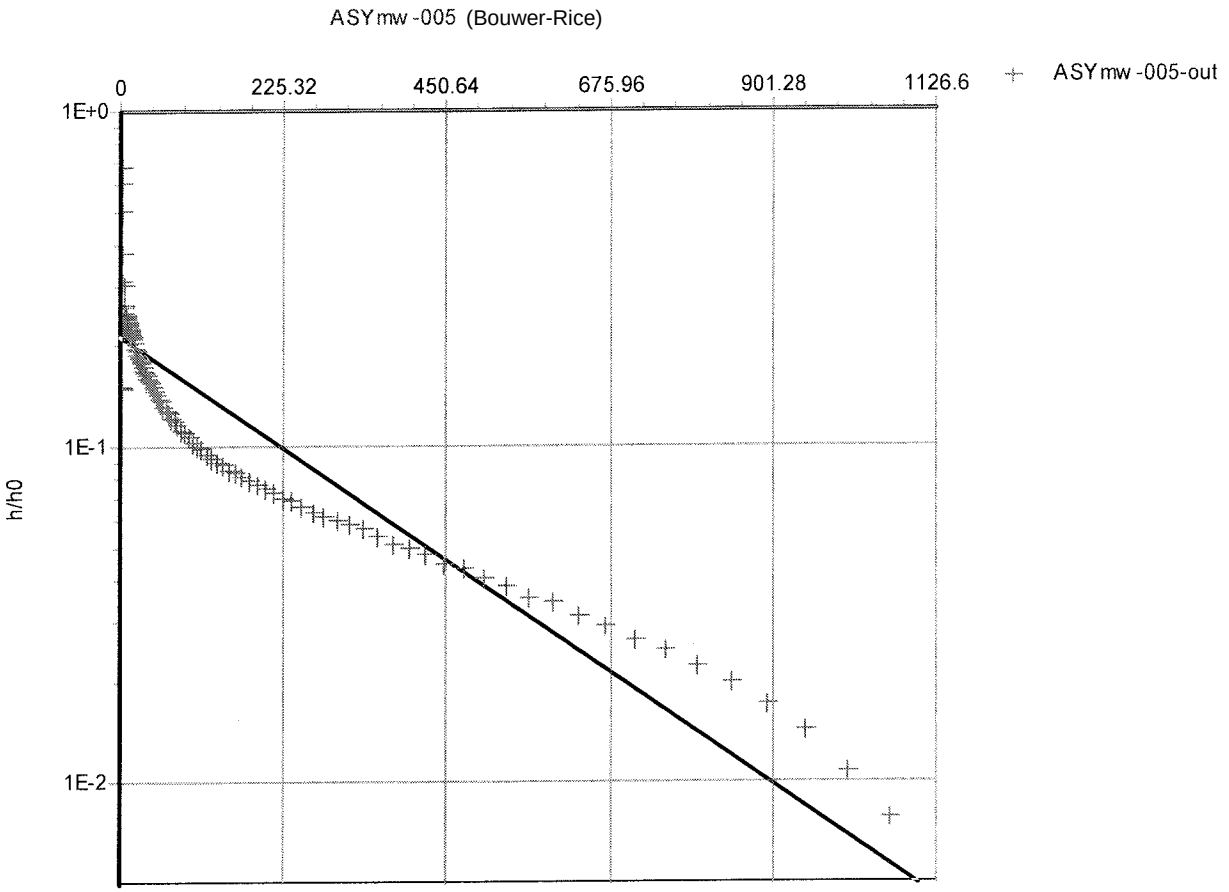
Signature: David K. Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **ASYmw-005**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 1.09E-4 [cm/s]

Test parameters:

Test Well:	ASYmw-005-out	Aquifer thickness:	20.73 [ft]
Screen radius:	0.34375 [ft]	Gravel Pack Porosity (%)	25
Screen length:	10 [ft]		
Casing radius:	0.08333 [ft]		
r(eff):	0.186 [ft]		

Comments:

Evaluated by:

Date: 2/10/2005

In-Situ Inc. MiniTroll Pro

Report generated: 01/21/05 16:27:44
Report from file: ...\SN05444 2005-01-21 113405 ASYmw-005-out.bin
Win-Situ Version 4.50

Serial number: 00005444
Firmware Version 3.09
Unit name: MKM 45

Test name: ASYmw-005-out

Test defined on: 01/20/05 16:39:12
Test started on: 01/21/05 11:34:05
Test stopped on: 01/21/05 11:54:05
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
  Maximum time between data points: 600.0 Seconds.
  Number of data samples: 113

TOTAL DATA SAMPLES 113

Channel number [1]
  Measurement type: Temperature
  Channel name: H2O Temp.

Channel number [2]
  Measurement type: Pressure
  Channel name: H2O Level
  Sensor Range: 30 PSIG.
  Specific gravity: 1.000
  Mode: TOC
  User-defined reference: 0.000 Feet H2O
  Referenced on: test start
  Pressure head at reference: 12.431 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
01/21/05	11:34:05		0.0	52.67	0.000
01/21/05	11:34:05		0.3	52.69	-1.005
01/21/05	11:34:05		0.6	52.71	-9.303
01/21/05	11:34:05		0.9	52.71	-4.305
01/21/05	11:34:06		1.2	52.73	-3.676
01/21/05	11:34:06		1.5	52.73	-6.909
01/21/05	11:34:06		1.8	52.73	-4.747
01/21/05	11:34:07		2.1	52.73	-4.856
01/21/05	11:34:07		2.4	52.73	-5.919
01/21/05	11:34:07		2.7	52.73	-5.003
01/21/05	11:34:08		3.0	52.73	-5.274
01/21/05	11:34:08		3.3	52.76	-5.499
01/21/05	11:34:08		3.6	52.76	-5.177
01/21/05	11:34:08		3.9	52.76	-5.378
01/21/05	11:34:09		4.2	52.76	-5.361
01/21/05	11:34:09		4.5	52.76	-5.287
01/21/05	11:34:09		4.8	52.76	-5.372
01/21/05	11:34:10		5.1	52.76	-5.337
01/21/05	11:34:10		5.4	52.76	-5.339
01/21/05	11:34:10		5.7	52.76	-5.361

01/21/05	11:34:11	6.0	52.76	-5.346
01/21/05	11:34:11	6.4	52.76	-5.359
01/21/05	11:34:11	6.7	52.76	-5.359
01/21/05	11:34:12	7.1	52.76	-5.365
01/21/05	11:34:12	7.5	52.76	-5.367
01/21/05	11:34:13	8.0	52.76	-5.372
01/21/05	11:34:13	8.4	52.76	-5.372
01/21/05	11:34:14	8.9	52.76	-5.378
01/21/05	11:34:14	9.5	52.78	-5.382
01/21/05	11:34:15	10.0	52.76	-5.382
01/21/05	11:34:15	10.6	52.73	-5.384
01/21/05	11:34:16	11.3	52.73	-5.387
01/21/05	11:34:16	11.9	52.73	-5.391
01/21/05	11:34:17	12.6	52.73	-5.395
01/21/05	11:34:18	13.4	52.73	-5.399
01/21/05	11:34:19	14.2	52.73	-5.402
01/21/05	11:34:20	15.0	52.73	-5.406
01/21/05	11:34:20	15.9	52.73	-5.412
01/21/05	11:34:21	16.8	52.71	-5.415
01/21/05	11:34:22	17.8	52.73	-5.417
01/21/05	11:34:23	18.9	52.71	-5.423
01/21/05	11:34:25	20.0	52.71	-5.434
01/21/05	11:34:26	21.2	52.71	-5.440
01/21/05	11:34:27	22.4	52.71	-5.445
01/21/05	11:34:28	23.8	52.71	-5.451
01/21/05	11:34:30	25.2	52.71	-5.454
01/21/05	11:34:31	26.7	52.71	-5.458
01/21/05	11:34:33	28.2	52.71	-5.462
01/21/05	11:34:34	29.8	52.71	-5.467
01/21/05	11:34:36	31.5	52.71	-5.473
01/21/05	11:34:38	33.3	52.71	-5.477
01/21/05	11:34:40	35.2	52.71	-5.482
01/21/05	11:34:42	37.3	52.71	-5.486
01/21/05	11:34:44	39.5	52.71	-5.490
01/21/05	11:34:46	41.8	52.71	-5.493
01/21/05	11:34:49	44.3	52.71	-5.499
01/21/05	11:34:51	46.9	52.71	-5.505
01/21/05	11:34:54	49.7	52.71	-5.510
01/21/05	11:34:57	52.6	52.71	-5.516
01/21/05	11:35:00	55.7	52.71	-5.519
01/21/05	11:35:04	59.0	52.69	-5.525
01/21/05	11:35:07	62.5	52.69	-5.531
01/21/05	11:35:11	66.2	52.69	-5.534
01/21/05	11:35:15	70.1	52.69	-5.540
01/21/05	11:35:19	74.3	52.69	-5.544
01/21/05	11:35:23	78.7	52.69	-5.547
01/21/05	11:35:28	83.4	52.69	-5.553
01/21/05	11:35:33	88.4	52.69	-5.557
01/21/05	11:35:38	93.7	52.69	-5.560
01/21/05	11:35:44	99.3	52.69	-5.566
01/21/05	11:35:50	105.2	52.69	-5.570
01/21/05	11:35:56	111.5	52.69	-5.573
01/21/05	11:36:03	118.1	52.67	-5.577
01/21/05	11:36:10	125.1	52.69	-5.581
01/21/05	11:36:17	132.6	52.67	-5.585
01/21/05	11:36:25	140.5	52.67	-5.587
01/21/05	11:36:33	148.9	52.67	-5.592
01/21/05	11:36:42	157.8	52.67	-5.594
01/21/05	11:36:52	167.2	52.67	-5.596
01/21/05	11:37:02	177.2	52.67	-5.600
01/21/05	11:37:12	187.8	52.67	-5.603
01/21/05	11:37:24	199.0	52.67	-5.605
01/21/05	11:37:35	210.9	52.67	-5.609

01/21/05	11:37:48	223.5	52.67	-5.613
01/21/05	11:38:01	236.8	52.67	-5.614
01/21/05	11:38:15	250.9	52.64	-5.618
01/21/05	11:38:30	265.8	52.64	-5.622
01/21/05	11:38:46	281.6	52.64	-5.624
01/21/05	11:39:03	298.4	52.67	-5.626
01/21/05	11:39:21	316.2	52.64	-5.629
01/21/05	11:39:40	335.0	52.67	-5.631
01/21/05	11:39:59	354.9	52.64	-5.635
01/21/05	11:40:21	376.0	52.64	-5.639
01/21/05	11:40:43	398.4	52.64	-5.641
01/21/05	11:41:07	422.1	52.64	-5.644
01/21/05	11:41:32	447.2	52.64	-5.648
01/21/05	11:41:58	473.8	52.64	-5.650
01/21/05	11:42:27	502.0	52.64	-5.654
01/21/05	11:42:56	531.9	52.67	-5.657
01/21/05	11:43:28	563.5	52.67	-5.661
01/21/05	11:44:02	597.0	52.67	-5.663
01/21/05	11:44:37	632.5	52.64	-5.667
01/21/05	11:45:15	670.1	52.64	-5.670
01/21/05	11:45:54	709.9	52.64	-5.674
01/21/05	11:46:37	752.1	52.64	-5.676
01/21/05	11:47:21	796.8	52.64	-5.680
01/21/05	11:48:09	844.2	52.64	-5.683
01/21/05	11:48:59	894.4	52.64	-5.687
01/21/05	11:49:52	947.5	52.64	-5.691
01/21/05	11:50:48	1003.8	52.62	-5.696
01/21/05	11:51:48	1063.4	52.62	-5.700
01/21/05	11:52:51	1126.6	52.62	-5.704
01/21/05	11:53:58	1193.5	52.62	-5.711

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: ASYmw-006	Date Started:	Date Completed:

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	4886	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 983.01	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 8.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	28.85		TOP OF FILTER PACK	13' BGS	
DEPTH TO WATER	11.86		TOP OF SCREEN	16' BGS	
HEIGHT OF WATER COLUMN	16.99		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~12'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY)		TIME (HH:MM:SS)		DEPTH TO TRANSDUCER	DEPTH TO WATER (FT)		HEIGHT OF WATER COLUMN (FT)	
		BEGIN	END	BEGIN	END		BEGIN	END	BEGIN	END
1	ASYmw-006-IN	01/21/05	01/21/05	1354	1421	~27'				
2	ASYmw-006-OUT	01/21/05	01/21/05	1422	1443	~27'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL		COMMENTS
				LOG SCALE	ARITH. SCALE	
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SRS

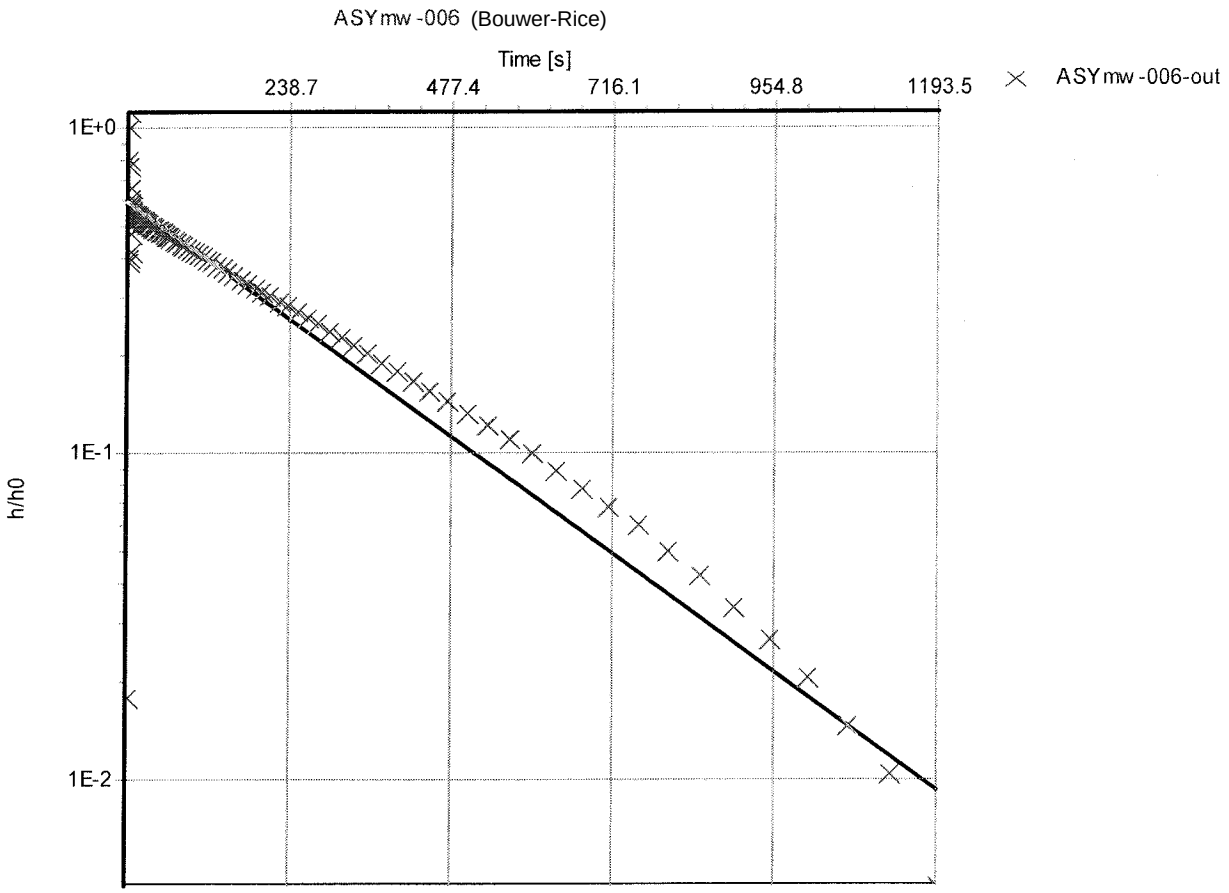
Signature: David K. Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **ASYmw-006**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 1.07E-4 [cm/s]

Test parameters:				
	Test Well:	ASYmw-006-out	Aquifer thickness:	16.99 [ft]
	Screen radius:	0.34375 [ft]	Gravel Pack Porosity (%)	25
	Screen length:	10 [ft]		
	Casing radius:	0.08333 [ft]		
	r(eff):	0.186 [ft]		

Comments:

Evaluated by:

Date: 2/10/2005

In-Situ Inc. MiniTroll Pro

Report generated: 01/21/05 16:38:16
Report from file: ...\SN04886 2005-01-21 142216 ASYmw-006-out.bin
Win-Situ Version 4.50

Serial number: 00004886
Firmware Version 3.09
Unit name: MKM 55

Test name: ASYmw-006-out

Test defined on: 01/20/05 16:15:02
Test started on: 01/21/05 14:22:16
Test stopped on: 01/21/05 14:43:28
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
  Maximum time between data points: 600.0 Seconds.
  Number of data samples: 114

TOTAL DATA SAMPLES 114

Channel number [1]
  Measurement type: Temperature
  Channel name: OnBoard Temp

Channel number [2]
  Measurement type: Pressure
  Channel name: OnBoard Pressure
  Sensor Range: 30 PSIG.
  Specific gravity: 1.000
  Mode: TOC
  User-defined reference: 0.000 Feet H2O
  Referenced on: test start
  Pressure head at reference: 10.396 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
01/21/05	14:22:16		0.0	52.82	0.000
01/21/05	14:22:16		0.3	52.86	3.396
01/21/05	14:22:17		0.6	52.86	-5.999
01/21/05	14:22:17		0.9	52.88	-5.279
01/21/05	14:22:17		1.2	52.88	0.229
01/21/05	14:22:18		1.5	52.88	-2.668
01/21/05	14:22:18		1.8	52.88	-5.216
01/21/05	14:22:18		2.1	52.91	-1.990
01/21/05	14:22:18		2.4	52.91	-1.787
01/21/05	14:22:19		2.7	52.91	-4.100
01/21/05	14:22:19		3.0	52.91	-3.149
01/21/05	14:22:19		3.3	52.91	-2.229
01/21/05	14:22:20		3.6	52.91	-3.372
01/21/05	14:22:20		3.9	52.91	-3.394
01/21/05	14:22:20		4.2	52.91	-2.616
01/21/05	14:22:21		4.5	52.91	-3.047
01/21/05	14:22:21		4.8	52.91	-3.342
01/21/05	14:22:21		5.1	52.91	-2.885
01/21/05	14:22:21		5.4	52.91	-2.959
01/21/05	14:22:22		5.7	52.91	-3.234

01/21/05	14:22:22	6.0	52.91	-3.025
01/21/05	14:22:22	6.4	52.91	-3.001
01/21/05	14:22:23	6.7	52.91	-3.160
01/21/05	14:22:23	7.1	52.91	-3.005
01/21/05	14:22:24	7.5	52.93	-3.114
01/21/05	14:22:24	8.0	52.93	-3.058
01/21/05	14:22:25	8.4	52.93	-3.093
01/21/05	14:22:25	8.9	52.93	-3.071
01/21/05	14:22:26	9.5	52.93	-3.099
01/21/05	14:22:26	10.0	52.91	-3.073
01/21/05	14:22:27	10.6	52.91	-3.094
01/21/05	14:22:27	11.3	52.88	-3.090
01/21/05	14:22:28	11.9	52.88	-3.088
01/21/05	14:22:29	12.6	52.88	-3.096
01/21/05	14:22:29	13.4	52.88	-3.099
01/21/05	14:22:30	14.2	52.88	-3.101
01/21/05	14:22:31	15.0	52.88	-3.103
01/21/05	14:22:32	15.9	52.88	-3.107
01/21/05	14:22:33	16.8	52.88	-3.110
01/21/05	14:22:34	17.8	52.88	-3.114
01/21/05	14:22:35	18.9	52.88	-3.118
01/21/05	14:22:36	20.0	52.88	-3.121
01/21/05	14:22:37	21.2	52.88	-3.127
01/21/05	14:22:39	22.4	52.88	-3.132
01/21/05	14:22:40	23.8	52.88	-3.136
01/21/05	14:22:41	25.2	52.86	-3.140
01/21/05	14:22:43	26.7	52.88	-3.145
01/21/05	14:22:44	28.2	52.88	-3.149
01/21/05	14:22:46	29.8	52.88	-3.156
01/21/05	14:22:48	31.5	52.88	-3.160
01/21/05	14:22:49	33.3	52.86	-3.166
01/21/05	14:22:51	35.2	52.86	-3.171
01/21/05	14:22:53	37.3	52.86	-3.177
01/21/05	14:22:56	39.5	52.86	-3.184
01/21/05	14:22:58	41.8	52.86	-3.190
01/21/05	14:23:00	44.3	52.86	-3.197
01/21/05	14:23:03	46.9	52.86	-3.204
01/21/05	14:23:06	49.7	52.86	-3.212
01/21/05	14:23:09	52.6	52.86	-3.221
01/21/05	14:23:12	55.7	52.86	-3.228
01/21/05	14:23:15	59.0	52.86	-3.238
01/21/05	14:23:19	62.5	52.86	-3.247
01/21/05	14:23:22	66.2	52.86	-3.256
01/21/05	14:23:26	70.1	52.86	-3.267
01/21/05	14:23:30	74.3	52.86	-3.276
01/21/05	14:23:35	78.7	52.84	-3.288
01/21/05	14:23:39	83.4	52.84	-3.300
01/21/05	14:23:44	88.4	52.84	-3.312
01/21/05	14:23:50	93.7	52.84	-3.324
01/21/05	14:23:55	99.3	52.84	-3.335
01/21/05	14:24:01	105.2	52.84	-3.350
01/21/05	14:24:08	111.5	52.84	-3.365
01/21/05	14:24:14	118.1	52.82	-3.378
01/21/05	14:24:21	125.1	52.84	-3.393
01/21/05	14:24:29	132.6	52.82	-3.409
01/21/05	14:24:37	140.5	52.82	-3.424
01/21/05	14:24:45	148.9	52.82	-3.443
01/21/05	14:24:54	157.8	52.82	-3.459
01/21/05	14:25:03	167.2	52.82	-3.478
01/21/05	14:25:13	177.2	52.82	-3.496
01/21/05	14:25:24	187.8	52.82	-3.514
01/21/05	14:25:35	199.0	52.82	-3.535
01/21/05	14:25:47	210.9	52.82	-3.553

01/21/05	14:26:00	223.5	52.79	-3.574
01/21/05	14:26:13	236.8	52.79	-3.594
01/21/05	14:26:27	250.9	52.79	-3.616
01/21/05	14:26:42	265.8	52.79	-3.636
01/21/05	14:26:58	281.6	52.79	-3.658
01/21/05	14:27:14	298.4	52.79	-3.680
01/21/05	14:27:32	316.2	52.79	-3.703
01/21/05	14:27:51	335.0	52.79	-3.725
01/21/05	14:28:11	354.9	52.77	-3.747
01/21/05	14:28:32	376.0	52.77	-3.771
01/21/05	14:28:54	398.4	52.77	-3.793
01/21/05	14:29:18	422.1	52.77	-3.817
01/21/05	14:29:43	447.2	52.77	-3.837
01/21/05	14:30:10	473.8	52.77	-3.859
01/21/05	14:30:38	502.0	52.75	-3.882
01/21/05	14:31:08	531.9	52.75	-3.902
01/21/05	14:31:40	563.5	52.75	-3.924
01/21/05	14:32:13	597.0	52.75	-3.944
01/21/05	14:32:49	632.5	52.75	-3.965
01/21/05	14:33:26	670.1	52.75	-3.985
01/21/05	14:34:06	709.9	52.75	-4.003
01/21/05	14:34:48	752.1	52.75	-4.020
01/21/05	14:35:33	796.8	52.75	-4.038
01/21/05	14:36:20	844.2	52.75	-4.053
01/21/05	14:37:10	894.4	52.75	-4.070
01/21/05	14:38:04	947.5	52.75	-4.083
01/21/05	14:39:00	1003.8	52.77	-4.095
01/21/05	14:39:59	1063.4	52.75	-4.106
01/21/05	14:41:03	1126.6	52.77	-4.114
01/21/05	14:42:10	1193.5	52.77	-4.125
01/21/05	14:43:20	1264.4	52.77	-4.134

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: ASYmw-007	Date Started: 01/21/05	Date Completed: 01/21/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	4886	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 984.16	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 8.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	28.86		TOP OF FILTER PACK	13' BGS	
DEPTH TO WATER	13.19		TOP OF SCREEN	16' BGS	
HEIGHT OF WATER COLUMN	15.67		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~14'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY) BEGIN	DATE (MM/DD/YY) END	TIME (HH:MM:SS) BEGIN	TIME (HH:MM:SS) END	DEPTH TO TRANSDUCER	DEPTH TO WATER (FT) BEGIN	DEPTH TO WATER (FT) END	HEIGHT OF WATER COLUMN (FT) BEGIN	HEIGHT OF WATER COLUMN (FT) END
1	ASYmw-007-IN	01/21/05	01/21/05	1459	1521	~27'				
2	ASYmw-007-OUT	01/21/05	01/21/05	1521	1540	~27'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL LOG SCALE	TEST TIME INTERVAL ARITH. SCALE	COMMENTS
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SLSL

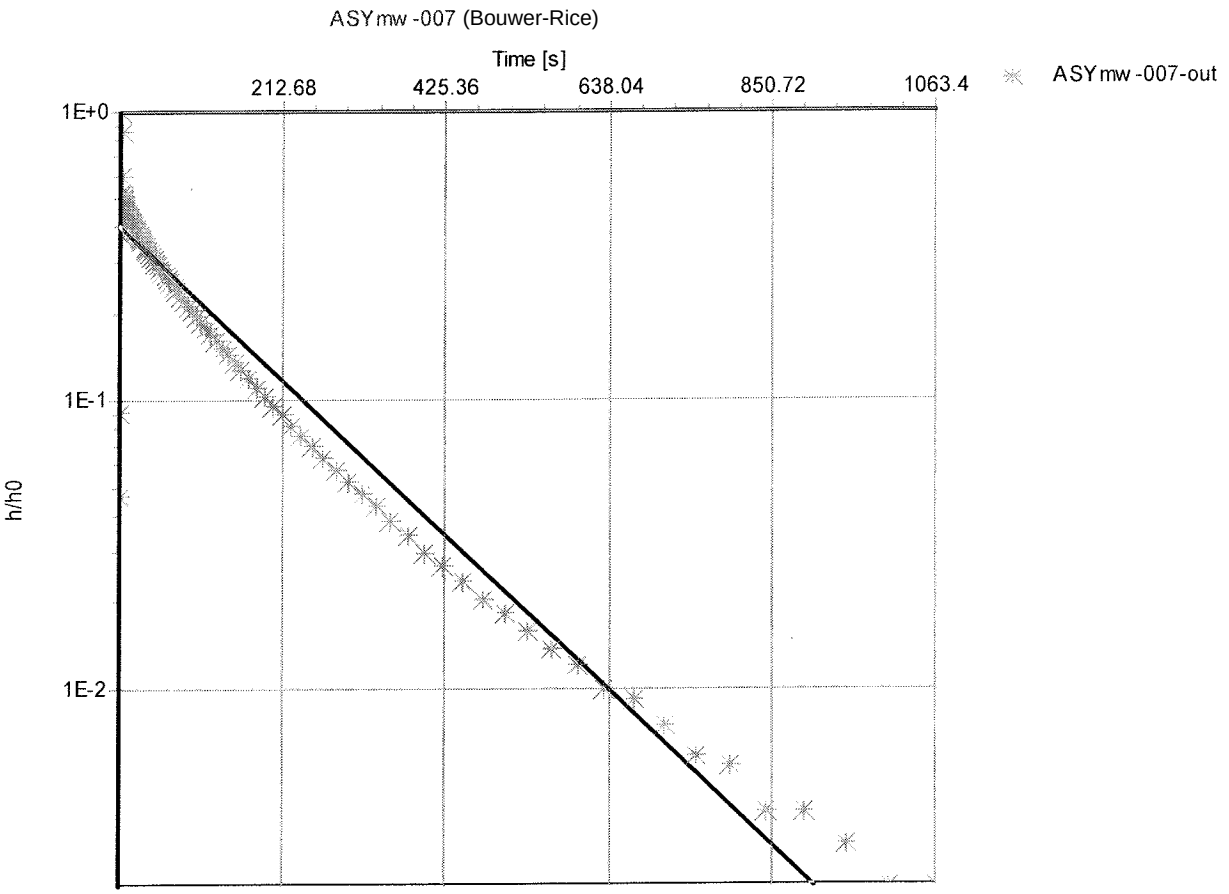
Signature: David K Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **ASYmw-007**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 1.75E-4 [cm/s]

Test parameters:

Test Well:	ASYmw-007-out	Aquifer thickness:	15.67 [ft]
Screen radius:	0.34375 [ft]	Gravel Pack Porosity (%)	25
Screen length:	10 [ft]		
Casing radius:	0.08333 [ft]		
r(eff):	0.186 [ft]		

Comments:

Evaluated by:

Date: 2/10/2005

In-Situ Inc. MiniTroll Pro

Report generated: 01/21/05 16:39:08
Report from file: ...\SN04886 2005-01-21 152130 ASYmw-007-out.bin
Win-Situ Version 4.50

Serial number: 00004886
Firmware Version 3.09
Unit name: MKM 55

Test name: ASYmw-007-out

Test defined on: 01/20/05 16:15:30
Test started on: 01/21/05 15:21:30
Test stopped on: 01/21/05 15:40:54
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
Maximum time between data points: 600.0 Seconds.
Number of data samples: 112

TOTAL DATA SAMPLES 112

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 30 PSIG.
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Feet H2O
Referenced on: test start
Pressure head at reference: 6.987 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
01/21/05	15:21:30	0.0	53.22	0.000	
01/21/05	15:21:30	0.3	53.25	-4.786	
01/21/05	15:21:30	0.6	53.27	-3.866	
01/21/05	15:21:31	0.9	53.27	-2.491	
01/21/05	15:21:31	1.2	53.27	-4.679	
01/21/05	15:21:31	1.5	53.29	-2.841	
01/21/05	15:21:32	1.8	53.29	-4.000	
01/21/05	15:21:32	2.1	53.29	-3.652	
01/21/05	15:21:32	2.4	53.29	-3.449	
01/21/05	15:21:33	2.7	53.29	-3.925	
01/21/05	15:21:33	3.0	53.29	-3.447	
01/21/05	15:21:33	3.3	53.31	-3.849	
01/21/05	15:21:33	3.6	53.31	-3.618	
01/21/05	15:21:34	3.9	53.31	-3.710	
01/21/05	15:21:34	4.2	53.31	-3.746	
01/21/05	15:21:34	4.5	53.31	-3.664	
01/21/05	15:21:35	4.8	53.31	-3.777	
01/21/05	15:21:35	5.1	53.31	-3.692	
01/21/05	15:21:35	5.4	53.31	-3.762	
01/21/05	15:21:36	5.7	53.31	-3.736	

01/21/05	15:21:36	6.0	53.31	-3.749
01/21/05	15:21:36	6.4	53.31	-3.760
01/21/05	15:21:37	6.7	53.31	-3.766
01/21/05	15:21:37	7.1	53.31	-3.769
01/21/05	15:21:37	7.5	53.31	-3.786
01/21/05	15:21:38	8.0	53.31	-3.784
01/21/05	15:21:38	8.4	53.34	-3.797
01/21/05	15:21:39	8.9	53.34	-3.804
01/21/05	15:21:39	9.5	53.34	-3.812
01/21/05	15:21:40	10.0	53.31	-3.816
01/21/05	15:21:40	10.6	53.31	-3.825
01/21/05	15:21:41	11.3	53.29	-3.834
01/21/05	15:21:42	11.9	53.29	-3.845
01/21/05	15:21:42	12.6	53.29	-3.853
01/21/05	15:21:43	13.4	53.29	-3.864
01/21/05	15:21:44	14.2	53.29	-3.873
01/21/05	15:21:45	15.0	53.29	-3.884
01/21/05	15:21:46	15.9	53.29	-3.893
01/21/05	15:21:47	16.8	53.29	-3.906
01/21/05	15:21:48	17.8	53.29	-3.919
01/21/05	15:21:49	18.9	53.29	-3.930
01/21/05	15:21:50	20.0	53.29	-3.943
01/21/05	15:21:51	21.2	53.29	-3.954
01/21/05	15:21:52	22.4	53.29	-3.969
01/21/05	15:21:54	23.8	53.29	-3.982
01/21/05	15:21:55	25.2	53.29	-3.996
01/21/05	15:21:57	26.7	53.29	-4.011
01/21/05	15:21:58	28.2	53.29	-4.024
01/21/05	15:22:00	29.8	53.29	-4.037
01/21/05	15:22:01	31.5	53.29	-4.052
01/21/05	15:22:03	33.3	53.29	-4.068
01/21/05	15:22:05	35.2	53.29	-4.083
01/21/05	15:22:07	37.3	53.27	-4.100
01/21/05	15:22:09	39.5	53.29	-4.116
01/21/05	15:22:12	41.8	53.29	-4.133
01/21/05	15:22:14	44.3	53.29	-4.153
01/21/05	15:22:17	46.9	53.29	-4.170
01/21/05	15:22:20	49.7	53.27	-4.188
01/21/05	15:22:22	52.6	53.27	-4.207
01/21/05	15:22:26	55.7	53.27	-4.225
01/21/05	15:22:29	59.0	53.27	-4.242
01/21/05	15:22:32	62.5	53.27	-4.262
01/21/05	15:22:36	66.2	53.27	-4.280
01/21/05	15:22:40	70.1	53.27	-4.301
01/21/05	15:22:44	74.3	53.27	-4.321
01/21/05	15:22:49	78.7	53.27	-4.343
01/21/05	15:22:53	83.4	53.27	-4.365
01/21/05	15:22:58	88.4	53.27	-4.386
01/21/05	15:23:04	93.7	53.27	-4.406
01/21/05	15:23:09	99.3	53.27	-4.428
01/21/05	15:23:15	105.2	53.27	-4.448
01/21/05	15:23:21	111.5	53.27	-4.470
01/21/05	15:23:28	118.1	53.27	-4.491
01/21/05	15:23:35	125.1	53.27	-4.511
01/21/05	15:23:42	132.6	53.27	-4.533
01/21/05	15:23:50	140.5	53.27	-4.551
01/21/05	15:23:59	148.9	53.27	-4.574
01/21/05	15:24:08	157.8	53.27	-4.592
01/21/05	15:24:17	167.2	53.27	-4.612
01/21/05	15:24:27	177.2	53.27	-4.631
01/21/05	15:24:38	187.8	53.27	-4.649
01/21/05	15:24:49	199.0	53.27	-4.667
01/21/05	15:25:01	210.9	53.27	-4.684

01/21/05	15:25:13	223.5	53.27	-4.701
01/21/05	15:25:27	236.8	53.27	-4.717
01/21/05	15:25:41	250.9	53.27	-4.732
01/21/05	15:25:56	265.8	53.27	-4.747
01/21/05	15:26:11	281.6	53.27	-4.760
01/21/05	15:26:28	298.4	53.29	-4.774
01/21/05	15:26:46	316.2	53.27	-4.785
01/21/05	15:27:05	335.0	53.29	-4.796
01/21/05	15:27:25	354.9	53.29	-4.807
01/21/05	15:27:46	376.0	53.29	-4.817
01/21/05	15:28:08	398.4	53.29	-4.828
01/21/05	15:28:32	422.1	53.29	-4.835
01/21/05	15:28:57	447.2	53.29	-4.842
01/21/05	15:29:24	473.8	53.29	-4.850
01/21/05	15:29:52	502.0	53.29	-4.855
01/21/05	15:30:22	531.9	53.29	-4.861
01/21/05	15:30:53	563.5	53.29	-4.866
01/21/05	15:31:27	597.0	53.29	-4.870
01/21/05	15:32:02	632.5	53.31	-4.875
01/21/05	15:32:40	670.1	53.31	-4.877
01/21/05	15:33:20	709.9	53.31	-4.881
01/21/05	15:34:02	752.1	53.31	-4.885
01/21/05	15:34:47	796.8	53.31	-4.886
01/21/05	15:35:34	844.2	53.31	-4.890
01/21/05	15:36:24	894.4	53.31	-4.890
01/21/05	15:37:17	947.5	53.31	-4.892
01/21/05	15:38:14	1003.8	53.31	-4.894
01/21/05	15:39:13	1063.4	53.31	-4.894
01/21/05	15:40:16	1126.6	53.31	-4.899

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: ASYmw-008	Date Started: 01/21/05	Date Completed: 01/21/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	4926	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 978.85	RISER CASING I.D. (in.): 2 in
SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 8.25"	

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	27.75		TOP OF FILTER PACK	12' BGS	
DEPTH TO WATER	4.35		TOP OF SCREEN	15' BGS	
HEIGHT OF WATER COLUMN	23.40		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2
SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~5'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY) BEGIN	DATE (MM/DD/YY) END	TIME (HH:MM:SS) BEGIN	TIME (HH:MM:SS) END	DEPTH TO TRANSDUCER	DEPTH TO WATER (FT) BEGIN	DEPTH TO WATER (FT) END	HEIGHT OF WATER COLUMN (FT) BEGIN	HEIGHT OF WATER COLUMN (FT) END
1	ASYmw-008-IN	01/21/05	01/21/05	1509	1526	~26'				
2	ASYmw-008-OUT	01/21/05	01/21/05	1526	1546	~26'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL LOG SCALE	TEST TIME INTERVAL ARITH. SCALE	COMMENTS
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: [signature]

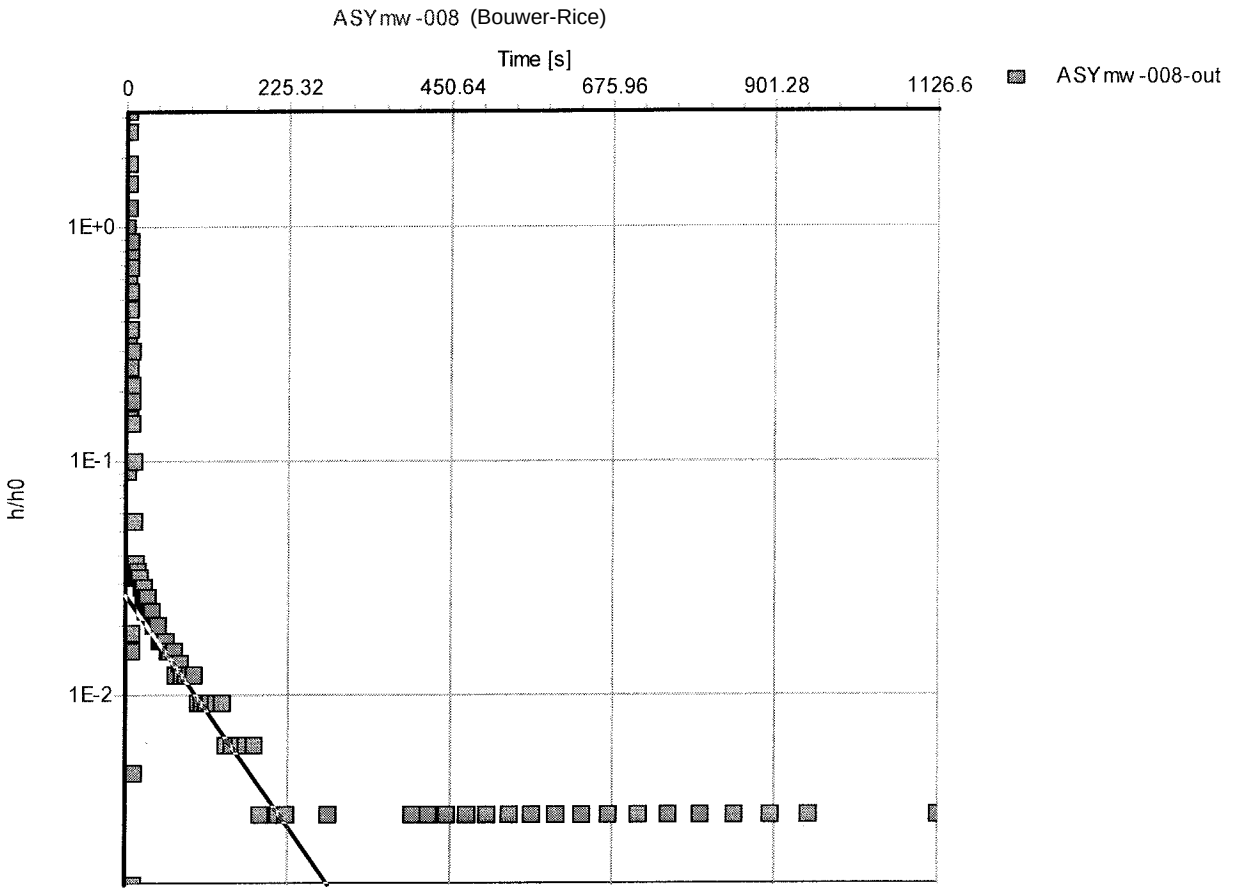
Signature: [signature] Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **ASYmw-008**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 3.33E-4 [cm/s]

Test parameters:				
	Test Well:	ASYmw-008-out	Aquifer thickness:	23.4 [ft]
	Screen radius:	0.34375 [ft]	Gravel Pack Porosity (%)	25
	Screen length:	10 [ft]		
	Casing radius:	0.08333 [ft]		
	r(eff):	0.186 [ft]		

Comments:

Evaluated by:

Date: 2/10/2005

In-Situ Inc. MiniTroll Pro

Report generated: 01/21/05 16:51:19
Report from file: ...\SN04926 2005-01-21 152630 ASYmw-008-out.bin
Win-Situ Version 4.50

Serial number: 00004926
Firmware Version 3.09
Unit name: miniTROLL

Test name: ASYmw-008-out

Test defined on: 01/20/05 16:30:59
Test started on: 01/21/05 15:26:30
Test stopped on: 01/21/05 15:46:23
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
  Maximum time between data points: 600.0 Seconds.
  Number of data samples: 112

TOTAL DATA SAMPLES 112

Channel number [1]
  Measurement type: Temperature
  Channel name: OnBoard Temp

Channel number [2]
  Measurement type: Pressure
  Channel name: OnBoard Pressure
  Sensor Range: 30 PSIG.
  Specific gravity: 1.000
  Mode: TOC
  User-defined reference: 0.000 Feet H2O
  Referenced on: test start
  Pressure head at reference: 21.006 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
01/21/05	15:26:30		0.0	53.75	0.000
01/21/05	15:26:30		0.3	53.79	4.174
01/21/05	15:26:31		0.6	53.82	4.853
01/21/05	15:26:31		0.9	53.82	1.000
01/21/05	15:26:31		1.2	53.84	-1.981
01/21/05	15:26:32		1.5	53.84	-2.029
01/21/05	15:26:32		1.8	53.84	0.408
01/21/05	15:26:32		2.1	53.84	2.410
01/21/05	15:26:33		2.4	53.84	2.045
01/21/05	15:26:33		2.7	53.84	0.137
01/21/05	15:26:33		3.0	53.86	-0.879
01/21/05	15:26:33		3.3	53.86	-0.453
01/21/05	15:26:34		3.6	53.86	0.737
01/21/05	15:26:34		3.9	53.86	1.365
01/21/05	15:26:34		4.2	53.86	0.871
01/21/05	15:26:35		4.5	53.86	0.054
01/21/05	15:26:35		4.8	53.86	-0.220
01/21/05	15:26:35		5.1	53.86	0.183
01/21/05	15:26:36		5.4	53.86	0.701
01/21/05	15:26:36		5.7	53.86	0.792

01/21/05	15:26:36	6.0	53.86	0.449
01/21/05	15:26:37	6.4	53.86	0.107
01/21/05	15:26:37	6.7	53.86	0.234
01/21/05	15:26:37	7.1	53.86	0.544
01/21/05	15:26:38	7.5	53.86	0.488
01/21/05	15:26:38	8.0	53.88	0.254
01/21/05	15:26:39	8.4	53.88	0.339
01/21/05	15:26:39	8.9	53.88	0.466
01/21/05	15:26:40	9.5	53.88	0.337
01/21/05	15:26:40	10.0	53.84	0.350
01/21/05	15:26:41	10.6	53.84	0.414
01/21/05	15:26:41	11.3	53.84	0.346
01/21/05	15:26:42	11.9	53.84	0.385
01/21/05	15:26:43	12.6	53.84	0.370
01/21/05	15:26:44	13.4	53.84	0.372
01/21/05	15:26:44	14.2	53.84	0.373
01/21/05	15:26:45	15.0	53.84	0.373
01/21/05	15:26:46	15.9	53.84	0.370
01/21/05	15:26:47	16.8	53.82	0.371
01/21/05	15:26:48	17.8	53.82	0.370
01/21/05	15:26:49	18.9	53.84	0.370
01/21/05	15:26:50	20.0	53.82	0.370
01/21/05	15:26:51	21.2	53.82	0.368
01/21/05	15:26:53	22.4	53.82	0.368
01/21/05	15:26:54	23.8	53.82	0.368
01/21/05	15:26:55	25.2	53.82	0.366
01/21/05	15:26:57	26.7	53.82	0.366
01/21/05	15:26:58	28.2	53.82	0.364
01/21/05	15:27:00	29.8	53.82	0.366
01/21/05	15:27:02	31.5	53.82	0.364
01/21/05	15:27:03	33.3	53.82	0.364
01/21/05	15:27:05	35.2	53.82	0.364
01/21/05	15:27:07	37.3	53.82	0.364
01/21/05	15:27:10	39.5	53.82	0.362
01/21/05	15:27:12	41.8	53.82	0.362
01/21/05	15:27:14	44.3	53.82	0.362
01/21/05	15:27:17	46.9	53.82	0.360
01/21/05	15:27:20	49.7	53.82	0.360
01/21/05	15:27:23	52.6	53.82	0.360
01/21/05	15:27:26	55.7	53.79	0.360
01/21/05	15:27:29	59.0	53.82	0.359
01/21/05	15:27:33	62.5	53.82	0.359
01/21/05	15:27:36	66.2	53.82	0.359
01/21/05	15:27:40	70.1	53.79	0.357
01/21/05	15:27:44	74.3	53.79	0.358
01/21/05	15:27:49	78.7	53.79	0.357
01/21/05	15:27:54	83.4	53.79	0.357
01/21/05	15:27:59	88.4	53.79	0.357
01/21/05	15:28:04	93.7	53.79	0.357
01/21/05	15:28:09	99.3	53.79	0.355
01/21/05	15:28:15	105.2	53.79	0.355
01/21/05	15:28:22	111.5	53.79	0.355
01/21/05	15:28:28	118.1	53.79	0.355
01/21/05	15:28:35	125.1	53.79	0.355
01/21/05	15:28:43	132.6	53.79	0.355
01/21/05	15:28:51	140.5	53.79	0.353
01/21/05	15:28:59	148.9	53.79	0.353
01/21/05	15:29:08	157.8	53.79	0.353
01/21/05	15:29:17	167.2	53.79	0.353
01/21/05	15:29:27	177.2	53.79	0.353
01/21/05	15:29:38	187.8	53.79	0.351
01/21/05	15:29:49	199.0	53.79	0.349
01/21/05	15:30:01	210.9	53.79	0.351

01/21/05	15:30:14	223.5	53.79	0.351
01/21/05	15:30:27	236.8	53.79	0.349
01/21/05	15:30:41	250.9	53.77	0.349
01/21/05	15:30:56	265.8	53.77	0.349
01/21/05	15:31:12	281.6	53.79	0.351
01/21/05	15:31:29	298.4	53.77	0.349
01/21/05	15:31:46	316.2	53.79	0.349
01/21/05	15:32:05	335.0	53.77	0.349
01/21/05	15:32:25	354.9	53.77	0.349
01/21/05	15:32:46	376.0	53.77	0.349
01/21/05	15:33:09	398.4	53.77	0.347
01/21/05	15:33:32	422.1	53.77	0.347
01/21/05	15:33:57	447.2	53.77	0.347
01/21/05	15:34:24	473.8	53.77	0.347
01/21/05	15:34:52	502.0	53.77	0.347
01/21/05	15:35:22	531.9	53.77	0.347
01/21/05	15:35:54	563.5	53.77	0.347
01/21/05	15:36:27	597.0	53.77	0.347
01/21/05	15:37:03	632.5	53.77	0.347
01/21/05	15:37:40	670.1	53.77	0.347
01/21/05	15:38:20	709.9	53.77	0.347
01/21/05	15:39:02	752.1	53.77	0.347
01/21/05	15:39:47	796.8	53.77	0.347
01/21/05	15:40:34	844.2	53.77	0.347
01/21/05	15:41:25	894.4	53.77	0.347
01/21/05	15:42:18	947.5	53.77	0.347
01/21/05	15:43:14	1003.8	53.77	0.349
01/21/05	15:44:14	1063.4	53.77	0.349
01/21/05	15:45:17	1126.6	53.77	0.347

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.: ASY MW -009	Date Started: 01/21/05	Date Completed: 01/21/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll	4986	30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT: TIC	REFERENCE POINT ELEVATION: 982.70	RISER CASING I.D. (in.): 2 in

SCREEN OR OPEN HOLE I.D. (in): 2 in	DIAMETER OF BOREHOLE (IF SCREENED): 8.25"

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	24.53		TOP OF FILTER PACK	9.5' BGS	
DEPTH TO WATER	10.46		TOP OF SCREEN	11.5' BGS	
HEIGHT OF WATER COLUMN	14.07		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN: Test #1	SLUG OUT: Test #2

SLUG DIMENSIONS: 24 x 1.6" OD	SLUG VOL (GAL)	SLUG DEPTH (FT) ~11'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY)		TIME (HH:MM:SS)		DEPTH TO TRANSDUCER	DEPTH TO WATER (FT)		HEIGHT OF WATER COLUMN (FT)	
		BEGIN	END	BEGIN	END		BEGIN	END	BEGIN	END
1	ASYMW-009-IN	01/21/05	01/21/05	1124	1141	~23'				
2	ASYMW 009-OUT	01/21/05	01/21/05	1141	1202	~23'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL		COMMENTS
				LOG SCALE	ARITH. SCALE	
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: SRS

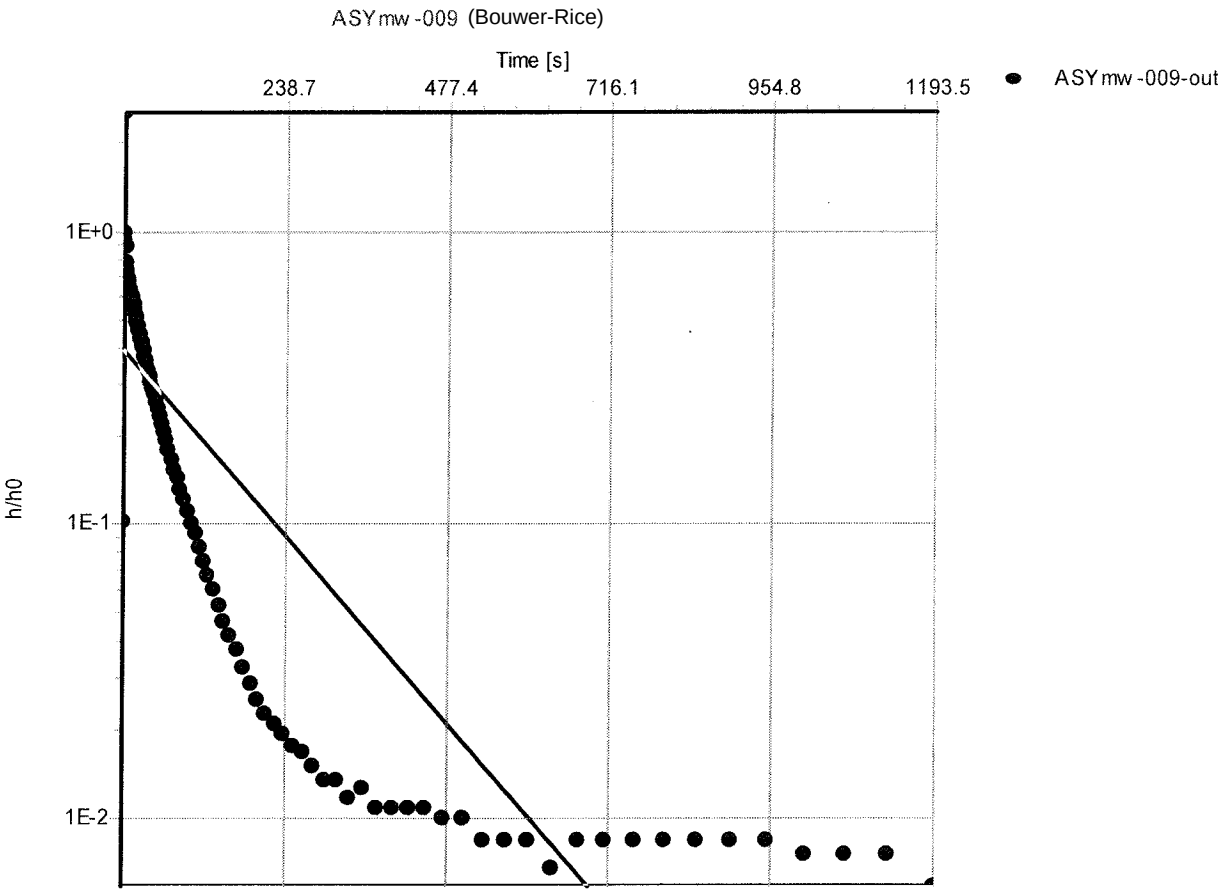
Signature: David K Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **ASYmw-009**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 1.81E-4 [cm/s]

Test parameters:				
	Test Well:	ASYmw-009-out	Aquifer thickness:	14.07 [ft]
	Screen radius:	0.34375 [ft]	Gravel Pack Porosity (%)	25
	Screen length:	10 [ft]		
	Casing radius:	0.08333 [ft]		
	r(eff):	0.186 [ft]		

Comments:

Evaluated by:

Date: 2/10/2005

In-Situ Inc. MiniTroll Pro

Report generated: 01/21/05 16:37:00
Report from file: ...\SN04886 2005-01-21 114120 ASYmw-009-out.bin
Win-Situ Version 4.50

Serial number: 00004886
Firmware Version 3.09
Unit name: MKM 55

Test name: ASYmw-009-out

Test defined on: 01/20/05 16:14:35
Test started on: 01/21/05 11:41:20
Test stopped on: 01/21/05 12:02:57
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
  Maximum time between data points: 600.0 Seconds.
  Number of data samples: 114

TOTAL DATA SAMPLES 114

Channel number [1]
  Measurement type: Temperature
  Channel name: OnBoard Temp

Channel number [2]
  Measurement type: Pressure
  Channel name: OnBoard Pressure
  Sensor Range: 30 PSIG.
  Specific gravity: 1.000
  Mode: TOC
  User-defined reference: 0.000 Feet H2O
  Referenced on: test start
  Pressure head at reference: 5.551 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
01/21/05	11:41:20		0.0	52.95	0.000
01/21/05	11:41:21		0.3	52.95	-2.082
01/21/05	11:41:21		0.6	52.97	-5.257
01/21/05	11:41:21		0.9	53.00	-4.019
01/21/05	11:41:21		1.2	53.00	-3.938
01/21/05	11:41:22		1.5	53.00	-4.386
01/21/05	11:41:22		1.8	53.00	-4.075
01/21/05	11:41:22		2.1	53.02	-4.272
01/21/05	11:41:23		2.4	53.02	-4.196
01/21/05	11:41:23		2.7	53.02	-4.283
01/21/05	11:41:23		3.0	53.02	-4.248
01/21/05	11:41:24		3.3	53.02	-4.240
01/21/05	11:41:24		3.6	53.02	-4.275
01/21/05	11:41:24		3.9	53.02	-4.309
01/21/05	11:41:24		4.2	53.02	-4.283
01/21/05	11:41:25		4.5	53.02	-4.307
01/21/05	11:41:25		4.8	53.02	-4.309
01/21/05	11:41:25		5.1	53.04	-4.320
01/21/05	11:41:26		5.4	53.04	-4.329
01/21/05	11:41:26		5.7	53.04	-4.334

01/21/05	11:41:26	6.0	53.04	-4.343
01/21/05	11:41:27	6.4	53.04	-4.351
01/21/05	11:41:27	6.7	53.04	-4.360
01/21/05	11:41:27	7.1	53.04	-4.367
01/21/05	11:41:28	7.5	53.04	-4.375
01/21/05	11:41:28	8.0	53.04	-4.382
01/21/05	11:41:29	8.4	53.04	-4.390
01/21/05	11:41:29	8.9	53.04	-4.395
01/21/05	11:41:30	9.5	53.04	-4.404
01/21/05	11:41:30	10.0	53.02	-4.410
01/21/05	11:41:31	10.6	53.02	-4.417
01/21/05	11:41:31	11.3	53.02	-4.427
01/21/05	11:41:32	11.9	53.02	-4.436
01/21/05	11:41:33	12.6	53.02	-4.447
01/21/05	11:41:34	13.4	53.02	-4.460
01/21/05	11:41:34	14.2	53.02	-4.475
01/21/05	11:41:35	15.0	53.02	-4.487
01/21/05	11:41:36	15.9	53.02	-4.504
01/21/05	11:41:37	16.8	53.02	-4.519
01/21/05	11:41:38	17.8	53.02	-4.534
01/21/05	11:41:39	18.9	53.02	-4.548
01/21/05	11:41:40	20.0	53.02	-4.565
01/21/05	11:41:41	21.2	53.02	-4.581
01/21/05	11:41:43	22.4	53.02	-4.598
01/21/05	11:41:44	23.8	53.02	-4.615
01/21/05	11:41:45	25.2	53.02	-4.631
01/21/05	11:41:47	26.7	53.02	-4.650
01/21/05	11:41:48	28.2	53.02	-4.666
01/21/05	11:41:50	29.8	53.02	-4.683
01/21/05	11:41:52	31.5	53.02	-4.698
01/21/05	11:41:54	33.3	53.02	-4.716
01/21/05	11:41:55	35.2	53.02	-4.733
01/21/05	11:41:58	37.3	53.02	-4.749
01/21/05	11:42:00	39.5	53.02	-4.768
01/21/05	11:42:02	41.8	53.02	-4.784
01/21/05	11:42:05	44.3	53.02	-4.803
01/21/05	11:42:07	46.9	53.02	-4.821
01/21/05	11:42:10	49.7	53.02	-4.838
01/21/05	11:42:13	52.6	53.02	-4.854
01/21/05	11:42:16	55.7	53.02	-4.871
01/21/05	11:42:19	59.0	53.02	-4.887
01/21/05	11:42:23	62.5	53.02	-4.902
01/21/05	11:42:26	66.2	53.02	-4.919
01/21/05	11:42:30	70.1	53.02	-4.935
01/21/05	11:42:35	74.3	53.02	-4.950
01/21/05	11:42:39	78.7	53.02	-4.963
01/21/05	11:42:44	83.4	53.02	-4.978
01/21/05	11:42:49	88.4	53.02	-4.991
01/21/05	11:42:54	93.7	53.02	-5.002
01/21/05	11:43:00	99.3	53.02	-5.015
01/21/05	11:43:05	105.2	53.02	-5.024
01/21/05	11:43:12	111.5	53.02	-5.035
01/21/05	11:43:18	118.1	53.02	-5.046
01/21/05	11:43:25	125.1	53.02	-5.055
01/21/05	11:43:33	132.6	53.02	-5.063
01/21/05	11:43:41	140.5	53.02	-5.072
01/21/05	11:43:49	148.9	53.02	-5.079
01/21/05	11:43:58	157.8	53.02	-5.085
01/21/05	11:44:07	167.2	53.04	-5.090
01/21/05	11:44:17	177.2	53.04	-5.096
01/21/05	11:44:28	187.8	53.04	-5.101
01/21/05	11:44:39	199.0	53.04	-5.105
01/21/05	11:44:51	210.9	53.06	-5.108

01/21/05	11:45:04	223.5	53.06	-5.110
01/21/05	11:45:17	236.8	53.09	-5.112
01/21/05	11:45:31	250.9	53.09	-5.114
01/21/05	11:45:46	265.8	53.09	-5.115
01/21/05	11:46:02	281.6	53.11	-5.117
01/21/05	11:46:19	298.4	53.11	-5.119
01/21/05	11:46:36	316.2	53.13	-5.119
01/21/05	11:46:55	335.0	53.13	-5.121
01/21/05	11:47:15	354.9	53.16	-5.120
01/21/05	11:47:36	376.0	53.16	-5.122
01/21/05	11:47:59	398.4	53.16	-5.122
01/21/05	11:48:22	422.1	53.16	-5.122
01/21/05	11:48:47	447.2	53.13	-5.122
01/21/05	11:49:14	473.8	53.11	-5.123
01/21/05	11:49:42	502.0	53.11	-5.123
01/21/05	11:50:12	531.9	53.09	-5.125
01/21/05	11:50:44	563.5	53.09	-5.125
01/21/05	11:51:17	597.0	53.06	-5.125
01/21/05	11:51:53	632.5	53.06	-5.127
01/21/05	11:52:30	670.1	53.04	-5.125
01/21/05	11:53:10	709.9	53.04	-5.125
01/21/05	11:53:52	752.1	53.04	-5.125
01/21/05	11:54:37	796.8	53.04	-5.125
01/21/05	11:55:24	844.2	53.02	-5.125
01/21/05	11:56:15	894.4	53.02	-5.125
01/21/05	11:57:08	947.5	53.00	-5.125
01/21/05	11:58:04	1003.8	52.97	-5.126
01/21/05	11:59:04	1063.4	52.97	-5.126
01/21/05	12:00:07	1126.6	52.95	-5.126
01/21/05	12:01:14	1193.5	52.95	-5.128
01/21/05	12:02:25	1264.4	52.95	-5.135

Slug Test Record

Project Name: RVAAP-RI 14

MKM
Ravenna Army Ammunition Plant
Ravenna, Ohio

Well No.:	Date Started:	Date Completed:
ASY mw-010	01/21/05	01/21/05

EQUIPMENT INFORMATION SUMMARY

EQUIMENT TYPE	MANUFACTURER	MODEL	SERIAL NO.	RANGE (PSI)	LAST CALIBRATION
DATA LOGGER	In-Situ	Mini-Troll		30 psi	N/A
TRANSDUCER					
WATER LEVEL IND.					

PRETEST DATA

REFERENCE POINT:	REFERENCE POINT ELEVATION:	RISER CASING I.D. (in.):
TIC	981.05	2 in

SCREEN OR OPEN HOLE I.D. (in): 2 in

DIAMETER OF BOREHOLE (IF SCREENED): 8.25"

	FEET	METERS		FEET	METERS
TOTAL WELL DEPTH	31.10		TOP OF FILTER PACK	14' BGS	
DEPTH TO WATER	10.12		TOP OF SCREEN	17' BGS	
HEIGHT OF WATER COLUMN	20.98		SCREEN LENGTH	10 ft	

TEST METHODS SUMMARY

TEST METHOD	SLUG IN:	SLUG OUT:
	Test #1	Test #2

SLUG DIMENSIONS:	SLUG VOL (GAL)	SLUG DEPTH (FT)
24 x 1.6" OD		~11'

DATA LOGGER RECORDS

DATA LOGGER TEST NO.	FILE NAME	DATE (MM/DD/YY)		TIME (HH:MM:SS)		DEPTH TO TRANSDUCER	DEPTH TO WATER (FT)		HEIGHT OF WATER COLUMN (FT)	
		BEGIN	END	BEGIN	END		BEGIN	END	BEGIN	END
1	ASY mw-010-IN	01/21/05	01/21/05	1405	1425	~30'				
2	ASY mw-010-OUT	01/21/05	01/21/05	1426	1447	~30'				

STORAGE LOCATION OF DATA:	1) I:\Projects-Contracts\RVAAP\RI 14 Characterization\Slug Test data\Mini Troll Data	2)

FILE STRUCTURES	DATA TYPE	FORMAT (1)	UNITS	TEST TIME INTERVAL		COMMENTS
				LOG SCALE	ARITH. SCALE	
COLUMN A	Date	bin	--	√		
COLUMN B	Time	bin	sec	√		
COLUMN C	Ft H_2O	bin	Ft	√		

(1) CK – 24 HR CLOCK TIME H – HEIGHT OF WATER ABOVE TRANSDUCER E - WATER LEVEL ELVATION O – OTHER
ET – ELAPSED TIME FT BRP – DEPTH TO WATER P – PRESSURE (EXPLAIN IN REMARKS)

DATA CHECK RESULTS: DATA ✓ OK

REMARKS:

Logged by: David K. Earnest (Please Print) Reviewed by: [illegible]

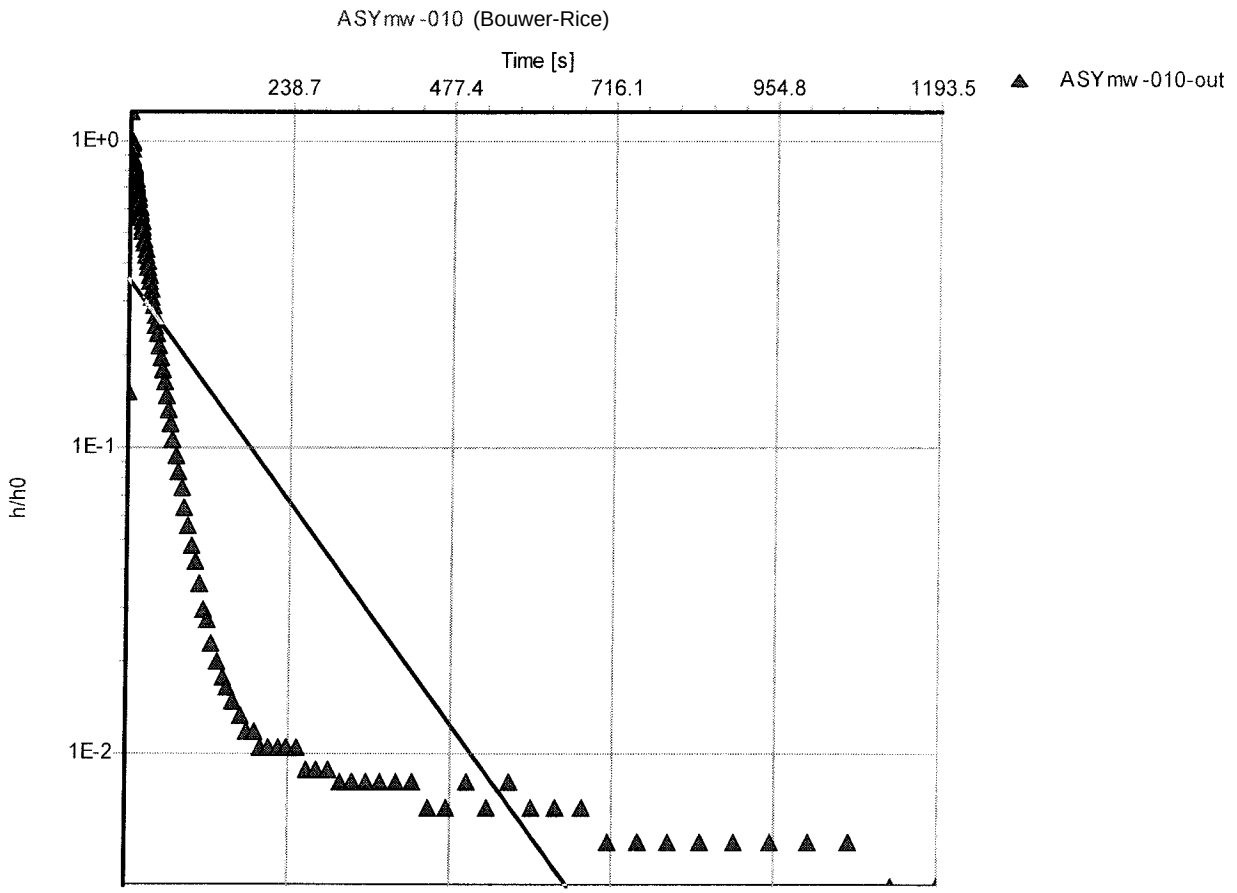
Signature: David K. Earnest Date: 5/6/05

MKM Engineers, Inc.
8451 St Rt 5, Bldg 1038
Ravenna, Ohio 44266
(330) 358-2920

SlugTest Analysis Report

Project: RVAAP-14 CHARACTERIZATION

Client: USACE



Test name: **ASYmw-010**

Analysis Method: **Bouwer & Rice**

Analysis results:

Conductivity: 2.25E-4 [cm/s]

Test parameters:

Test Well:	ASYmw-010-out	Aquifer thickness:	20.98 [ft]
Screen radius:	0.34375 [ft]	Gravel Pack Porosity (%)	25
Screen length:	10 [ft]		
Casing radius:	0.08333 [ft]		
r(eff):	0.186 [ft]		

Comments:

Evaluated by:

Date: 2/10/2005

In-Situ Inc. MiniTroll Pro

Report generated: 01/21/05 16:50:44
Report from file: ...\SN04926 2005-01-21 142622 ASYmw-010-out.bin
Win-Situ Version 4.50

Serial number: 00004926
Firmware Version 3.09
Unit name: miniTROLL

Test name: ASYmw-010-out

Test defined on: 01/20/05 16:30:02
Test started on: 01/21/05 14:26:22
Test stopped on: 01/21/05 14:47:33
Test extracted on: N/A N/A

Data gathered using Logarithmic testing
  Maximum time between data points: 600.0 Seconds.
  Number of data samples: 114

TOTAL DATA SAMPLES 114

Channel number [1]
  Measurement type: Temperature
  Channel name: OnBoard Temp

Channel number [2]
  Measurement type: Pressure
  Channel name: OnBoard Pressure
  Sensor Range: 30 PSIG.
  Specific gravity: 1.000
  Mode: TOC
  User-defined reference: 0.000 Feet H2O
  Referenced on: test start
  Pressure head at reference: 11.881 Feet H2O

Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	
01/21/05	14:26:22	0.0	53.26	0.000	
01/21/05	14:26:22	0.3	53.28	-1.218	
01/21/05	14:26:22	0.6	53.28	-6.081	
01/21/05	14:26:22	0.9	53.30	-4.610	
01/21/05	14:26:23	1.2	53.30	-5.117	
01/21/05	14:26:23	1.5	53.32	-4.942	
01/21/05	14:26:23	1.8	53.32	-5.034	
01/21/05	14:26:24	2.1	53.32	-5.023	
01/21/05	14:26:24	2.4	53.32	-4.973	
01/21/05	14:26:24	2.7	53.32	-5.023	
01/21/05	14:26:25	3.0	53.32	-5.111	
01/21/05	14:26:25	3.3	53.32	-5.100	
01/21/05	14:26:25	3.6	53.32	-5.124	
01/21/05	14:26:25	3.9	53.35	-5.146	
01/21/05	14:26:26	4.2	53.35	-5.153	
01/21/05	14:26:26	4.5	53.35	-5.166	
01/21/05	14:26:26	4.8	53.35	-5.181	
01/21/05	14:26:27	5.1	53.35	-5.192	
01/21/05	14:26:27	5.4	53.35	-5.205	
01/21/05	14:26:27	5.7	53.35	-5.217	

01/21/05	14:26:28	6.0	53.35	-5.230
01/21/05	14:26:28	6.4	53.35	-5.243
01/21/05	14:26:28	6.7	53.35	-5.258
01/21/05	14:26:29	7.1	53.35	-5.273
01/21/05	14:26:29	7.5	53.35	-5.287
01/21/05	14:26:29	8.0	53.35	-5.304
01/21/05	14:26:30	8.4	53.35	-5.320
01/21/05	14:26:30	8.9	53.35	-5.339
01/21/05	14:26:31	9.5	53.35	-5.355
01/21/05	14:26:32	10.0	53.32	-5.370
01/21/05	14:26:32	10.6	53.32	-5.388
01/21/05	14:26:33	11.3	53.32	-5.405
01/21/05	14:26:33	11.9	53.32	-5.427
01/21/05	14:26:34	12.6	53.30	-5.446
01/21/05	14:26:35	13.4	53.32	-5.466
01/21/05	14:26:36	14.2	53.30	-5.490
01/21/05	14:26:37	15.0	53.30	-5.512
01/21/05	14:26:37	15.9	53.30	-5.534
01/21/05	14:26:38	16.8	53.30	-5.556
01/21/05	14:26:39	17.8	53.30	-5.581
01/21/05	14:26:40	18.9	53.30	-5.609
01/21/05	14:26:42	20.0	53.30	-5.642
01/21/05	14:26:43	21.2	53.30	-5.666
01/21/05	14:26:44	22.4	53.30	-5.694
01/21/05	14:26:45	23.8	53.30	-5.719
01/21/05	14:26:47	25.2	53.30	-5.745
01/21/05	14:26:48	26.7	53.30	-5.771
01/21/05	14:26:50	28.2	53.30	-5.796
01/21/05	14:26:51	29.8	53.30	-5.822
01/21/05	14:26:53	31.5	53.30	-5.848
01/21/05	14:26:55	33.3	53.30	-5.874
01/21/05	14:26:57	35.2	53.30	-5.897
01/21/05	14:26:59	37.3	53.30	-5.923
01/21/05	14:27:01	39.5	53.28	-5.949
01/21/05	14:27:03	41.8	53.30	-5.973
01/21/05	14:27:06	44.3	53.28	-5.999
01/21/05	14:27:08	46.9	53.28	-6.022
01/21/05	14:27:11	49.7	53.28	-6.045
01/21/05	14:27:14	52.6	53.28	-6.067
01/21/05	14:27:17	55.7	53.28	-6.087
01/21/05	14:27:20	59.0	53.28	-6.109
01/21/05	14:27:24	62.5	53.28	-6.125
01/21/05	14:27:28	66.2	53.28	-6.144
01/21/05	14:27:32	70.1	53.26	-6.160
01/21/05	14:27:36	74.3	53.26	-6.175
01/21/05	14:27:40	78.7	53.26	-6.188
01/21/05	14:27:45	83.4	53.26	-6.201
01/21/05	14:27:50	88.4	53.26	-6.212
01/21/05	14:27:55	93.7	53.26	-6.223
01/21/05	14:28:01	99.3	53.26	-6.230
01/21/05	14:28:07	105.2	53.26	-6.239
01/21/05	14:28:13	111.5	53.26	-6.247
01/21/05	14:28:20	118.1	53.26	-6.250
01/21/05	14:28:27	125.1	53.23	-6.256
01/21/05	14:28:34	132.6	53.23	-6.260
01/21/05	14:28:42	140.5	53.23	-6.263
01/21/05	14:28:50	148.9	53.23	-6.265
01/21/05	14:28:59	157.8	53.23	-6.267
01/21/05	14:29:09	167.2	53.23	-6.269
01/21/05	14:29:19	177.2	53.23	-6.271
01/21/05	14:29:29	187.8	53.23	-6.271
01/21/05	14:29:40	199.0	53.23	-6.273
01/21/05	14:29:52	210.9	53.21	-6.273

01/21/05	14:30:05	223.5	53.23	-6.273
01/21/05	14:30:18	236.8	53.21	-6.273
01/21/05	14:30:32	250.9	53.21	-6.273
01/21/05	14:30:47	265.8	53.21	-6.275
01/21/05	14:31:03	281.6	53.21	-6.275
01/21/05	14:31:20	298.4	53.21	-6.275
01/21/05	14:31:38	316.2	53.21	-6.276
01/21/05	14:31:56	335.0	53.21	-6.276
01/21/05	14:32:16	354.9	53.21	-6.276
01/21/05	14:32:37	376.0	53.21	-6.276
01/21/05	14:33:00	398.4	53.21	-6.276
01/21/05	14:33:24	422.1	53.21	-6.276
01/21/05	14:33:49	447.2	53.21	-6.278
01/21/05	14:34:15	473.8	53.21	-6.278
01/21/05	14:34:43	502.0	53.21	-6.276
01/21/05	14:35:13	531.9	53.21	-6.278
01/21/05	14:35:45	563.5	53.21	-6.276
01/21/05	14:36:18	597.0	53.21	-6.278
01/21/05	14:36:54	632.5	53.21	-6.278
01/21/05	14:37:32	670.1	53.21	-6.278
01/21/05	14:38:11	709.9	53.21	-6.280
01/21/05	14:38:54	752.1	53.21	-6.280
01/21/05	14:39:38	796.8	53.21	-6.280
01/21/05	14:40:26	844.2	53.21	-6.280
01/21/05	14:41:16	894.4	53.21	-6.280
01/21/05	14:42:09	947.5	53.21	-6.280
01/21/05	14:43:05	1003.8	53.21	-6.280
01/21/05	14:44:05	1063.4	53.21	-6.280
01/21/05	14:45:08	1126.6	53.21	-6.282
01/21/05	14:46:15	1193.5	53.21	-6.282
01/21/05	14:47:26	1264.4	53.21	-6.287