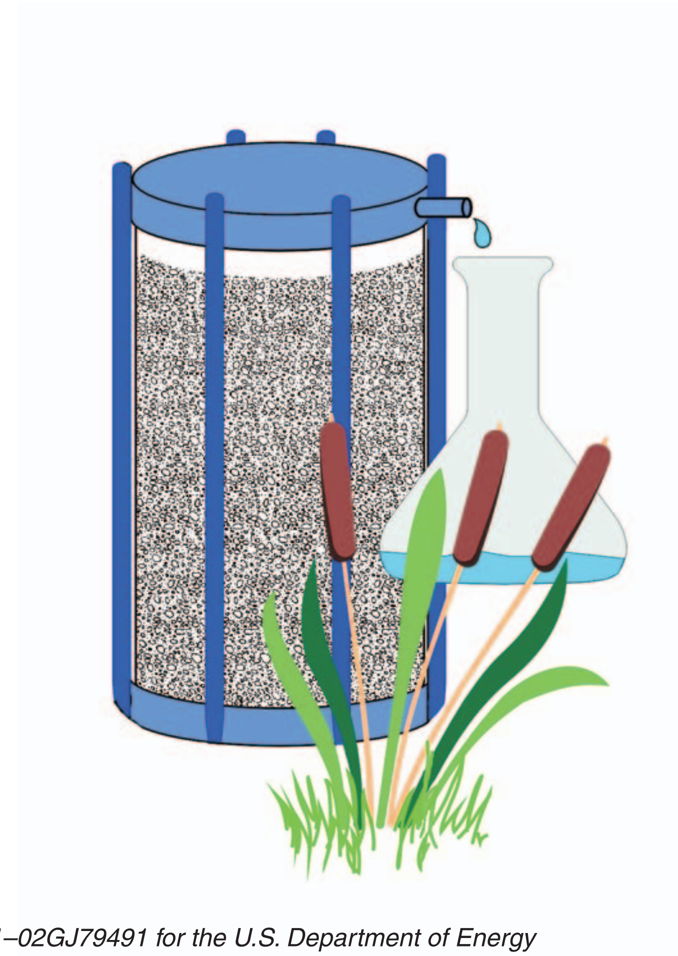
DOE–LM/GJ1086–2006
ESL–RPT–2006–01

Environmental Sciences Laboratory

Hydraulic Conductivity of the Monticello Permeable Reactive Barrier November 2005 Update

January 2006



Prepared for
U.S. Department of Energy
Grand Junction, Colorado

Work Performed Under DOE Contract No. DE–AC01–02GJ79491 for the U.S. Department of Energy
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January 2006

Work Performed by S.M. Stoller Corporation under DOE Contract No. DE–AC01–02GJ79491
for the U.S. Department of Energy Office of Legacy Management, Grand Junction, Colorado

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1.0 Introduction

This report presents the results of hydraulic testing conducted at an iron-based permeable reactive barrier (PRB) in November 2005 and compares the results to similarly obtained measurements from three previous occasions (June 2000, August 2003, and November 2004). Detail not included in this report regarding the previous tests is reported in “Variation in Hydraulic Conductivity Over Time at the Monticello Permeable Reactive Barrier”, February 2005 (DOE 2005a). Serial testing was conducted to determine if PRB longevity could be limited by the loss of hydraulic conductivity as the system ages.

Long-term surveillance and maintenance of the Monticello site is being conducted by the U.S. Department of Energy Office of Legacy Management (LM). Funding and technical assistance for the project were provided by the U.S. Environmental Protection Agency (EPA)

1.1 History of the Monticello PRB

The Monticello Mill Tailings Site (MMTS), Monticello, Utah, (Figure 1) is being remediated by the U. S. Department of Energy (DOE) in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Operable Unit (OU) III of MMTS comprises contaminated surface water and groundwater associated with past uranium and vanadium ore milling at the site. Groundwater contamination is limited to a shallow alluvial aquifer within the narrow valley of a perennial stream.

In June 1999, a permeable reactive barrier was installed about 750 feet (ft) east of the former millsite (see Figure 2) as a full-scale treatability study under an interim remedial action for OU III. The PRB is constructed of two separate zones containing a reactive medium (zero valent iron [ZVI]) that immobilizes the primary site contaminants including arsenic, molybdenum, nitrate, selenium, uranium, and vanadium. The PRB measures 103 ft in length perpendicular to groundwater flow, 11 to 13 ft deep, and 8 ft wide (parallel to flow). The first reactive zone, or pretreatment zone, is 2 ft wide consisting of 3/8-inch crushed and washed gravel with 13 percent by volume of ZVI. The second zone, 4 ft wide, consists entirely of cast iron cuttings obtained as a by-product of automobile manufacture in Detroit, MI. The elongate cuttings were purchased pre-sorted through #8 and #20 U.S. Standard sieves (2.36 millimeter [mm] and 0.83 mm openings, respectively). Placement of this particular form of ZVI resulted in a loose density of 115 pounds per cubic foot and 60 percent porosity. Falling head permeameter tests conducted in the laboratory before construction of the PRB indicated a saturated hydraulic conductivity of 3.6E-02 cm/sec. A third zone, 2 ft wide, is constructed entirely of the crushed gravel to evenly distribute treated water to the aquifer along the effluent interface of the PRB.

These zones and the associated network of groundwater monitoring wells are shown in Figure 3. The corrugated outline shown in the figure is the trace of the sheet pilings used in constructing the PRB. The pilings were driven with a 127-ton crane and 140-ton hydraulic vibratory hammer until refusal in bedrock, forming a rectangular steel box. The alluvial materials in the sheet-pile box were excavated and replaced with PRB media. The top of the PRB is 3 ft below ground surface; its base is keyed 1 to 2 ft into low-permeability claystone at about 12 to 14 ft below ground surface. Impermeable slurry walls constructed of bentonite-amended soil extend 97 ft north and 240 ft south to funnel groundwater to the reactive zone. The slurry walls are keyed at depth into competent bedrock.

Numerous field and laboratory studies (e.g., DOE 2004a, 2004b, 2002, Morrison 2003) have evaluated the chemical and hydraulic performance of the Monticello PRB. Early in its operation, groundwater flow through the PRB was variously estimated at about 5 to 10 gallons per minute (DOE 2004a, 2002), and contaminant removal was extremely effective. However, the ongoing study identified that progressive loss of hydraulic conductivity in the PRB has reduced its treatment capacity while creating excessive groundwater mounding (DOE 2005a). In response, LM constructed an auxiliary system consisting of an extraction well, serviceable ZVI/gravel treatment cell and discharge gallery, and telemetric monitoring. Since its installation in June 2005 (DOE 2005b), the auxiliary system continues to provide effective treatment at a rate of 5 gpm while alleviating the groundwater mound. The most recent set of hydraulic tests (November 2005), with assistance from EPA, Region VIII, is complementary to a final geochemical inventory of the PRB to be completed in Spring 2006.

2.0 Hydraulic Testing Program

Slug testing of the Monticello PRB began in June 2000 at 8 wells completed in native alluvium upgradient of the PRB and 3 ZVI wells. In August 2003, slug tests were conducted at 3 of the 8 alluvial wells originally tested and 42 PRB wells, including each of those tested previously. November 2004 slug testing included the same 42 PRB wells in addition to nine alluvial wells, including each tested previously. Most recently (November 2005), slug tests were completed at 39 of the previously tested PRB wells, 9 alluvial wells previously tested, and 3 additional alluvial wells. Identical equipment and procedures were employed in the conduct and analysis of each test.

Each individual slug test was typically performed in triplicate or duplicate to ensure proper equipment operation and method reproducibility in the field. The alluvial wells that were tested comprise a control group of constant hydraulic conductivity used to distinguish temporal variation among the PRB wells from possible systematic measurement bias.

2.1 Test Apparatus

Rising head slug tests were performed using compressed nitrogen to displace the initial static water column in a given monitor well. A brief period of water level stability was then followed by the instantaneous release of the nitrogen pressure to allow an unhindered phase of water level recovery. In most tests, 2 to 3 pounds per square inch (psi) of inlet pressure obtained an initial displacement of about 5 ft, which corresponds to the top of the well screen where the gas was vented. At some locations, greater displacement occurred, apparently because the lower hydraulic conductivity at these locations restricted the gas venting. Little to no displacement resulted at pressures approaching 20 psi at other locations where the conductivity was apparently lower yet.

A coupled down-hole pressure transducer (20 psi upper limit) and logging system (DaqBook, OMEGA Technology Company) facilitated high-speed, automated data collection. Real-time viewing of test progress and file management employed an in-house, Windows-based interface developed by Oak Ridge National Laboratory, Grand Junction, Colorado. Figures 4 and 5 show the well-head apparatus and control center, respectively, in use at the Monticello PRB in November 2004. Copies of field notes recorded during the November 2005 tests are provided in Appendix A.

3.0 Data Analysis

Provisional estimates of hydraulic conductivity that were determined for the previous test events and documented in DOE 2002, Kayenta 2003, and Kayenta 2004, were later revised using more appropriate values of test geometry, as reported in DOE 2005a. Results of the November 2005 tests are therefore compared to those presented in DOE 2005a.

All estimates of hydraulic conductivity presented in this report are based on the method of Bouwer & Rice (1976) as coded within AquiferWin32, version 2.40 (Environmental Simulations, Inc.). Site-specific analytical inputs to the Bouwer & Rice solution, graphical output from AquiferWin32, and initial static water levels for the November 2005 tests are provided in Appendix A. Analogous information for the previous test events is included in DOE 2005a.

4.0 Results and Discussion

Table 1 lists the estimated hydraulic conductivity for each well on the respective test date at the Monticello PRB. For the locations where more than one test was conducted on the given date, the arithmetic average is listed. Individual test results are included in Appendix A. Several wells that previously had been successfully tested produced no drawdown when attempted in November 2005, implying a lower hydraulic conductivity than before. Values listed for those wells (R2-M10, R4-M5, and T5-D) in Table 1 and subsequent figures conservatively assume a 15 to 20 percent reduction in conductivity since November 2004.

4.1 Hydraulic Conductivity Trends at the Monticello PRB

Figure 6 graphically depicts each result listed in Table 1 by date and individual well grouped according to media type (alluvium, gravel/ZVI zone [rows 2 and 3], and ZVI zone [rows 4 and 5]). Spatial and temporal variation in hydraulic conductivity are discernable upon close review of this figure, but trends are easier to see in Figure 7 as the geometric mean of hydraulic conductivity by test date and well group. Figure 8 is similar to Figure 7 but employs a time axis to reveal the rate of conductivity loss of the various PRB zones as compared to the relatively invariant alluvium.

Owing to the constancy for a given control well over time, it follows that a measurable loss of hydraulic conductivity within the PRB has progressed throughout the period of observation. The greatest effect is evident in the ZVI zone, accounting for an overall reduction of nearly three orders of magnitude in its upgradient region (Row 4), and nearly two orders of magnitude farther into the PRB (Row 5). The rate of loss appears to have increased after about August 2003, at which time the bulk conductivity of the PRB had decreased to equal that of the upgradient alluvium (Figure 8).

In contrast to the ZVI zone, such a strong trend of decreasing hydraulic conductivity is not apparent for the pre-treatment zone (Rows 2 and 3, Figure 7); however, because the gravel/ZVI mix likely was initially as conductive as the bulk ZVI (2E−02 cm/sec, Figure 7), the lower values characterizing the gravel/ZVI zone as of August 2003 probably signify loss of conductivity in that zone since the PRB was first installed.

From core sample analysis in February 2002 and August 2003, whereas the pre-treatment zone was host to the vast bulk of sequestered contaminant mass, the ZVI was comparatively barren except for abundant carbonate cements Morrison (2003). Loss of conductivity within the ZVI is attributed to pore occlusion by these secondary precipitates. The observed mineralogical segregation may reflect the more rapid reaction kinetics of contaminant sequestration, occurring primarily in the pretreatment zone, compared to carbonate-mineral precipitation further along the flowpaths.

4.2 Groundwater Flow at the Monticello PRB

Figure 9 illustrates in map view the hydraulic conductivity values estimated from the November 2005 slug tests. Figure 10 depicts the contoured logarithm of those results as a color-flood map in which light to dark shading is toward decreasing conductivity. It is evident in these figures and consistent with the previous discussion, that 1) the PRB is less conductive than the influent alluvium by at least an order of magnitude, 2) the upgradient portion of the ZVI zone is the least conductive region of the PRB, and 3) current groundwater flow through that zone may channel through a more conductive window in the north half of the ZVI zone.

Figures 11 and 12, respectively, depict groundwater elevations measured in PRB monitoring wells in November 2005 and a corresponding contour map of the water table. At this gross scale of observation, the implied direction of groundwater flow through the PRB is normal to its length. The steep hydraulic gradient evident in Figure 12 across the upstream portion of ZVI has developed over time from an essentially flat water table (see Figure 13), in response to progressive conductivity loss in that zone. Figure 13 also shows that the steep effluent gradient of November 2005 is not a new feature. This gradient and its former upgradient counterpart (Figure 13) may indicate a possible entry and exit interface of disturbed, low-permeability alluvium related to the installation procedure. A pumping test conducted in December 2001 identified boundary effects consistent with low-permeability interfaces at both edges of the PRB (DOE 2002). Rising water levels in the PRB (Figure 13), associated with loss of hydraulic conductivity of the ZVI, have progressively masked the formerly steep entrance gradient

5.0 Summary and Conclusions

- Results of slug tests described in this report were highly reproducible among the group of control wells tested on multiple occasions over a five-year period. The high level of reproducibility allowed temporal trends in hydraulic conductivity within separate zones of the Monticello PRB to be easily recognized.
- Hydraulic conductivity of the ZVI zone of the Monticello PRB decreased from 2×10^{-2} cm/sec to about 4×10^{-3} cm/sec, equal to that of surrounding native alluvium, within the first 4 years of operation. The rate of conductivity loss was greater in the period that

followed, resulting in an additional decrease of about 2 orders of magnitude by November 2005.

- The ZVI zone is most significantly affected by conductivity loss, probably due to pore occlusion by carbonate cements. The pre-treatment zone is the main repository of sequestered contaminant mass but is much less affected by conductivity loss/secondary mineral precipitation.
- Based on the current example, initiating a corrective action is appropriate at which time hydraulic conductivity of a PRB has decreased to that of the surrounding aquifer.

6.0 References

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Table 1. Hydraulic Conductivity (cm/sec) Estimated from Slug Tests, Monticello PRB

Well ID	Jun-00	Aug-03	Nov-04	Nov-05
Alluvium				
R1-M2	1.4E-03	2.3E-03	4.8E-03	2.8E-03
R1-M3	6.5E-03	6.2E-03	2.2E-03	3.0E-03
R1-M4				4.2E-03
R1-M5				4.3E-03
T1-D	6.6E-03		4.7E-03	6.0E-03
T1-S				1.3E-02
TW-01	1.2E-02		8.0E-03	1.1E-02
TW-02	8.0E-03		7.7E-03	9.5E-03
TW-03	1.3E-02		6.3E-03	9.0E-03
TW-04	1.0E-02		1.7E-02	1.9E-02
TW-05	2.1E-03		2.8E-03	4.7E-03
TW-06	3.2E-03		3.5E-03	4.7E-03
Gravel/ZVI				
R2-M1		6.9E-03	2.8E-03	5.0E-04
R2-M2		3.9E-03	3.4E-03	2.7E-03
R2-M3		3.6E-03	2.9E-03	3.0E-03
R2-M4		6.6E-03	1.0E-03	1.0E-03
R2-M5		8.0E-03	2.0E-03	3.1E-03
R2-M6		1.1E-02	6.0E-03	5.6E-03
R2-M7		3.7E-03	1.0E-03	1.0E-03
R2-M8		9.5E-04	6.5E-04	6.9E-04
R2-M9		1.3E-02	9.7E-03	1.9E-03
R2-M10		1.7E-03	2.5E-05	2.0E-05[a]
T2-D		5.6E-03	5.4E-03	8.6E-03
T2-S		8.0E-03	3.5E-03	3.8E-03
R3-M1		1.6E-03	1.4E-03	1.3E-03
R3-M2		2.3E-03	2.7E-03	3.6E-03
R3-M3		2.9E-03	2.8E-03	3.5E-03
R3-M4		9.0E-03	6.6E-03	8.7E-03
T3-D		1.1E-02	1.3E-03	1.7E-03
T3-S		3.0E-03	1.6E-03	2.0E-03
ZVI				
R4-M1		1.1E-03	1.4E-04	3.3E-05
R4-M2	2.0E-02	4.3E-03	6.5E-04	1.9E-05
R4-M3		5.1E-04	3.2E-05	3.4E-05
R4-M4		5.0E-04	3.1E-05	1.3E-05
R4-M5		3.5E-03	2.9E-04	2.5E-04[a]
R4-M6		1.8E-03	3.0E-04	2.5E-04
R4-M7		3.0E-03	4.7E-04	9.6E-05
R4-M8	1.8E-02	9.6E-04	1.1E-04	5.2E-05
T4-D	2.2E-02	2.0E-03	1.8E-04	3.0E-05
T4-S		1.8E-02	8.6E-03	1.6E-04
TW-12		5.4E-02	5.7E-03	
TW-13		5.2E-02	7.2E-03	
R5-M1		6.6E-03	1.0E-03	4.7E-04
R5-M2		2.0E-03	5.9E-04	1.3E-04
R5-M3		4.3E-03	4.9E-04	2.9E-04
R5-M4		1.1E-02	1.6E-03	1.6E-04
R5-M5		6.4E-03	4.2E-03	3.1E-03
R5-M6		2.8E-02	9.3E-03	6.0E-03
R5-M7		2.1E-02	9.2E-03	2.2E-03
R5-M8		1.0E-02	3.3E-03	1.7E-03
R5-M9		9.9E-04	1.9E-04	4.2E-05
R5-M10		2.0E-03	5.0E-04	2.6E-05
T5-D		1.4E-03	1.2E-05	1.0E-05[a]
T5-S		2.7E-03	5.0E-04	4.0E-04

[a]Assumed maximum value; no drawdown produced during Nov-05 test

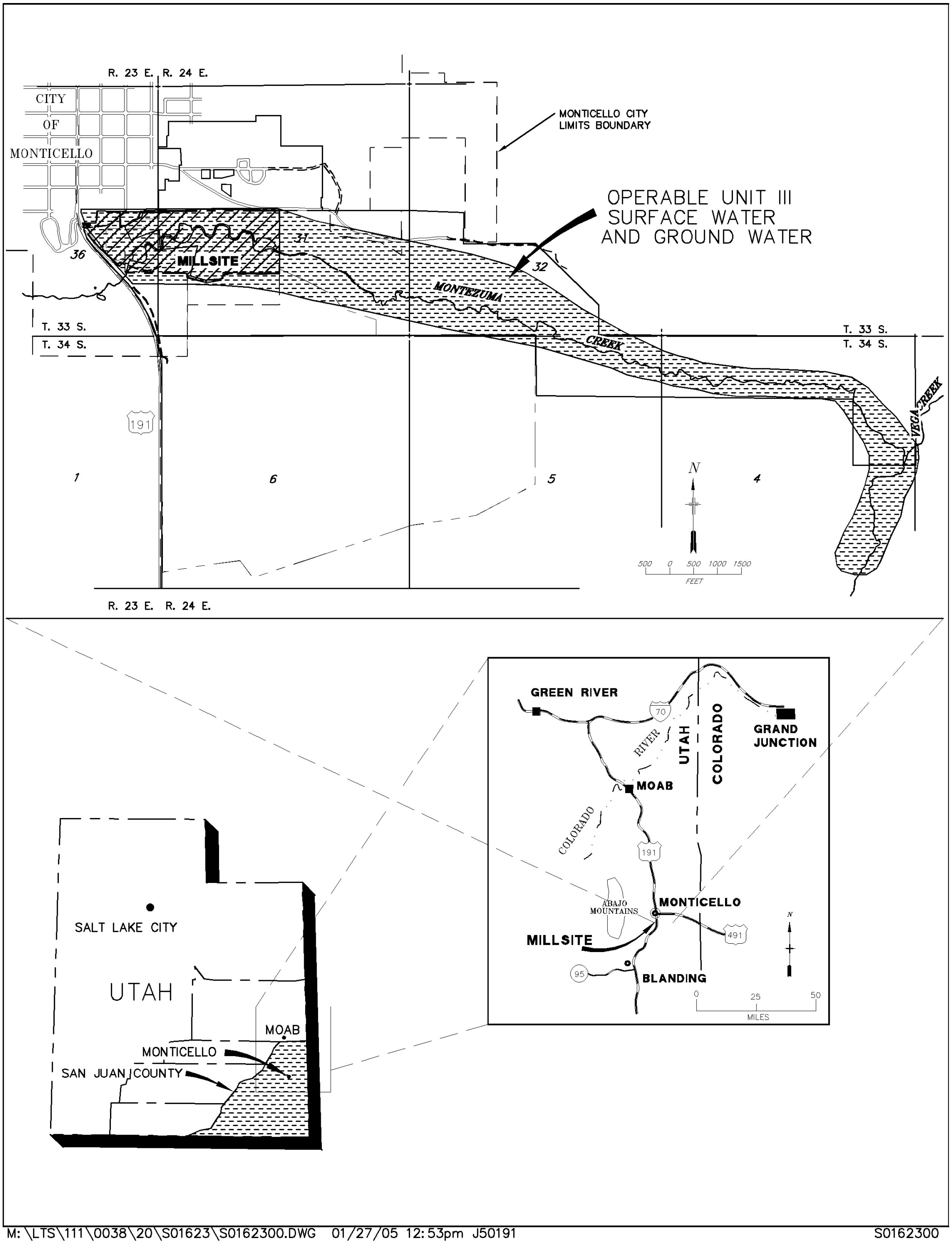


Figure 1. Site Location Map

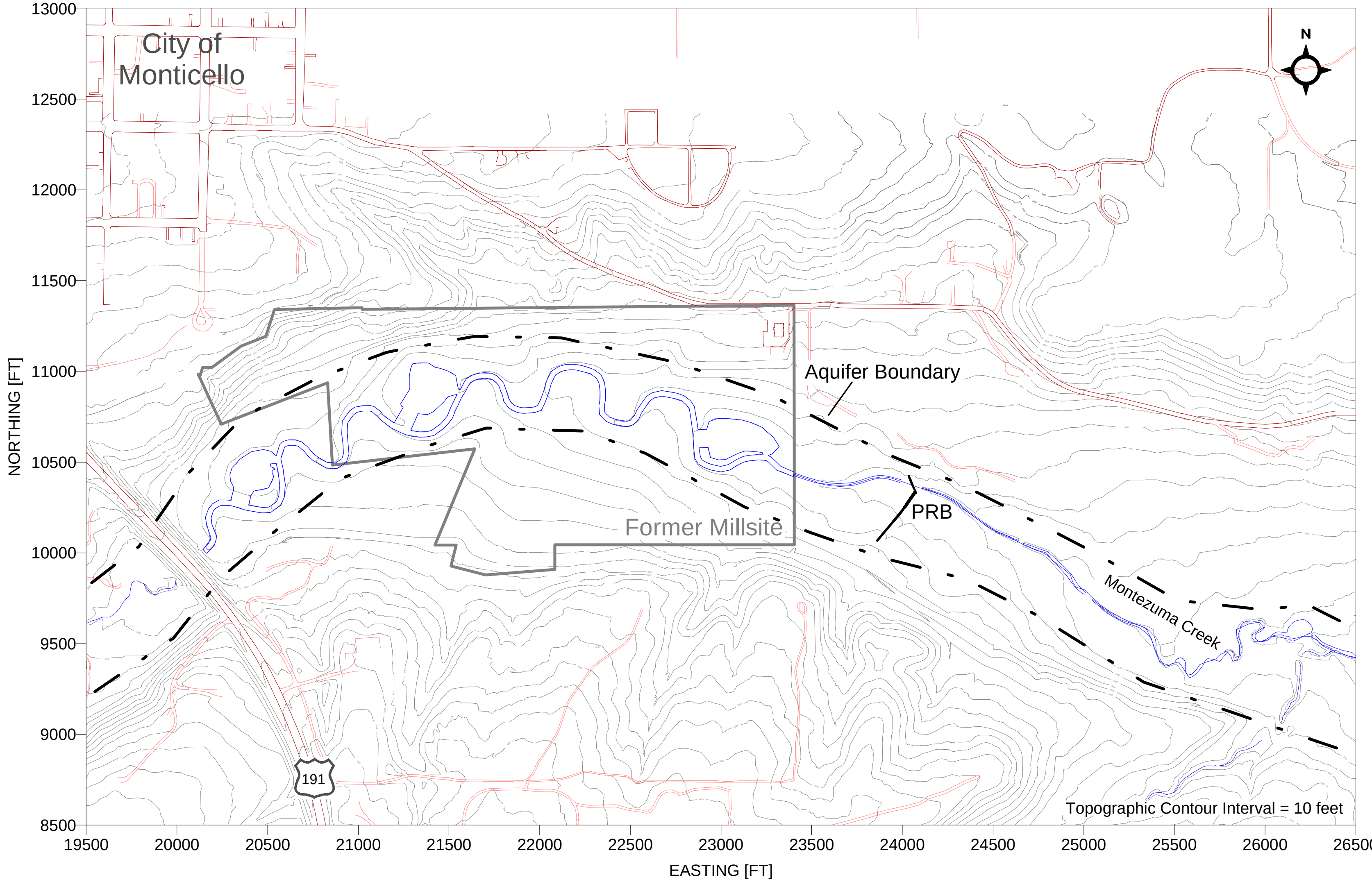


Figure 2. Site Features Map

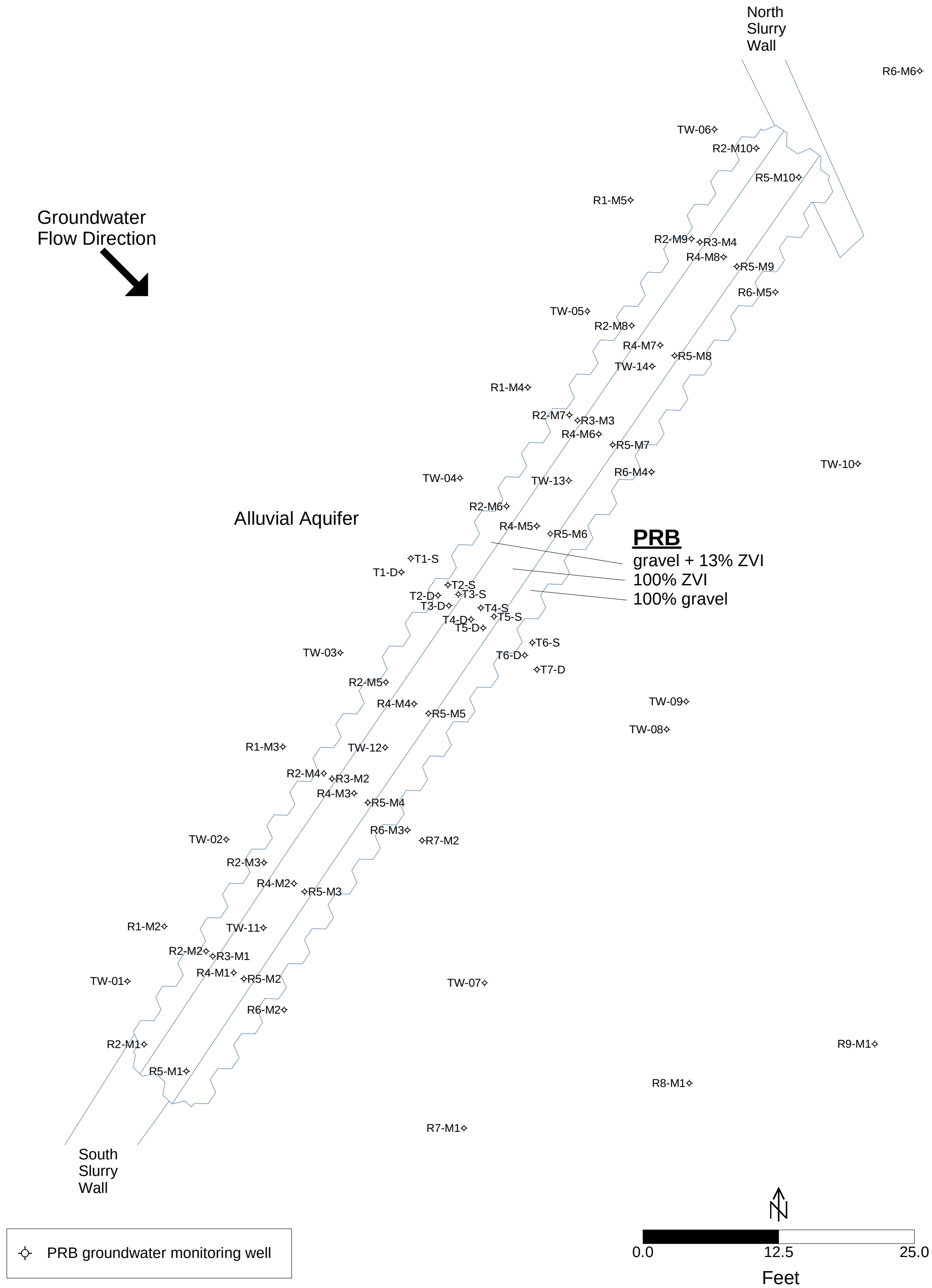


Figure 3. Features of the Monticello Permeable Reactive Barrier

Figure 4. Pneumatic Slug Test Well-head Apparatus

Figure 5. Pneumatic Slug Test Control Center

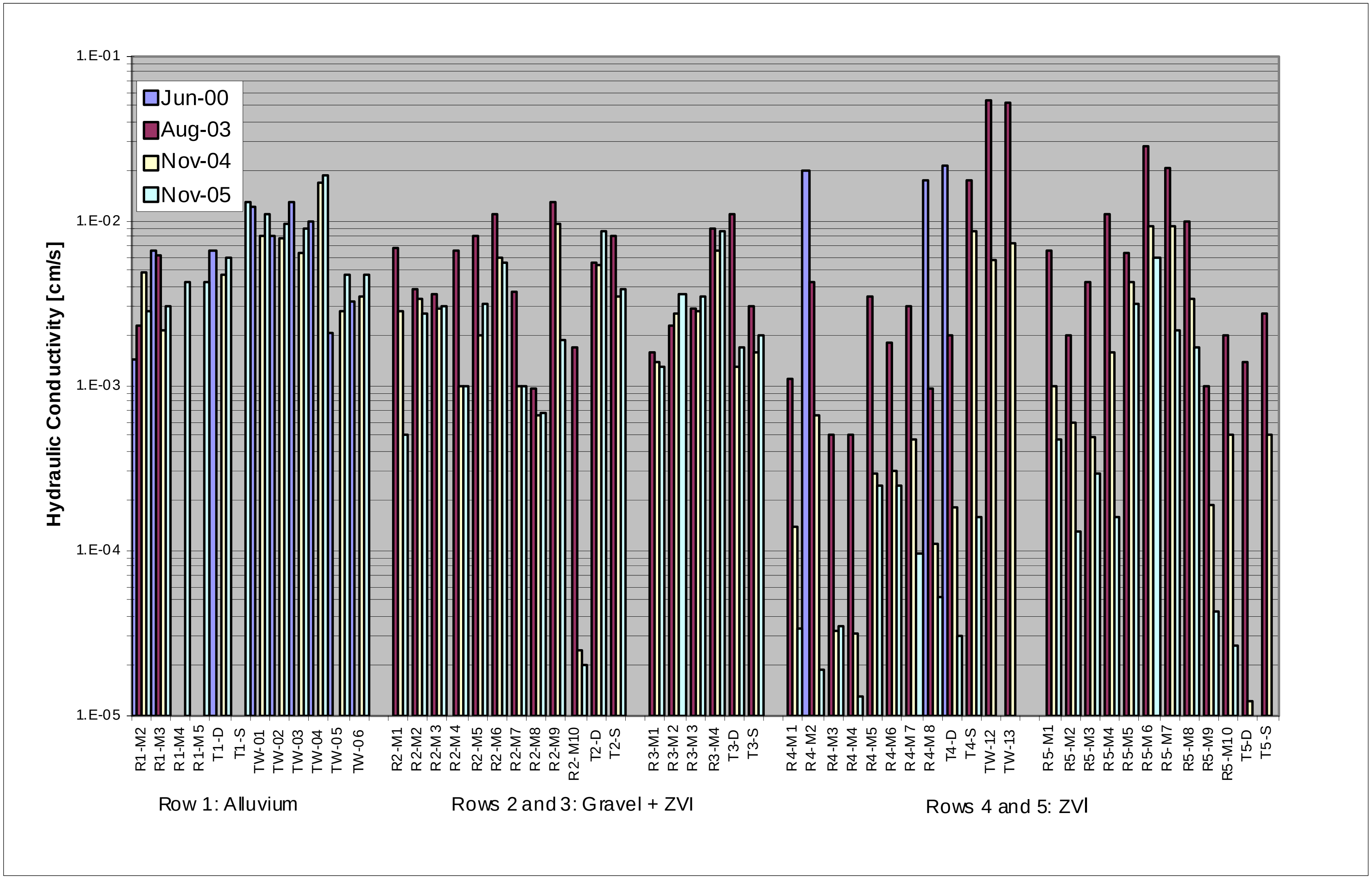


Figure 6. Hydraulic Conductivities by Zone and Date Estimated from Slug Test Results

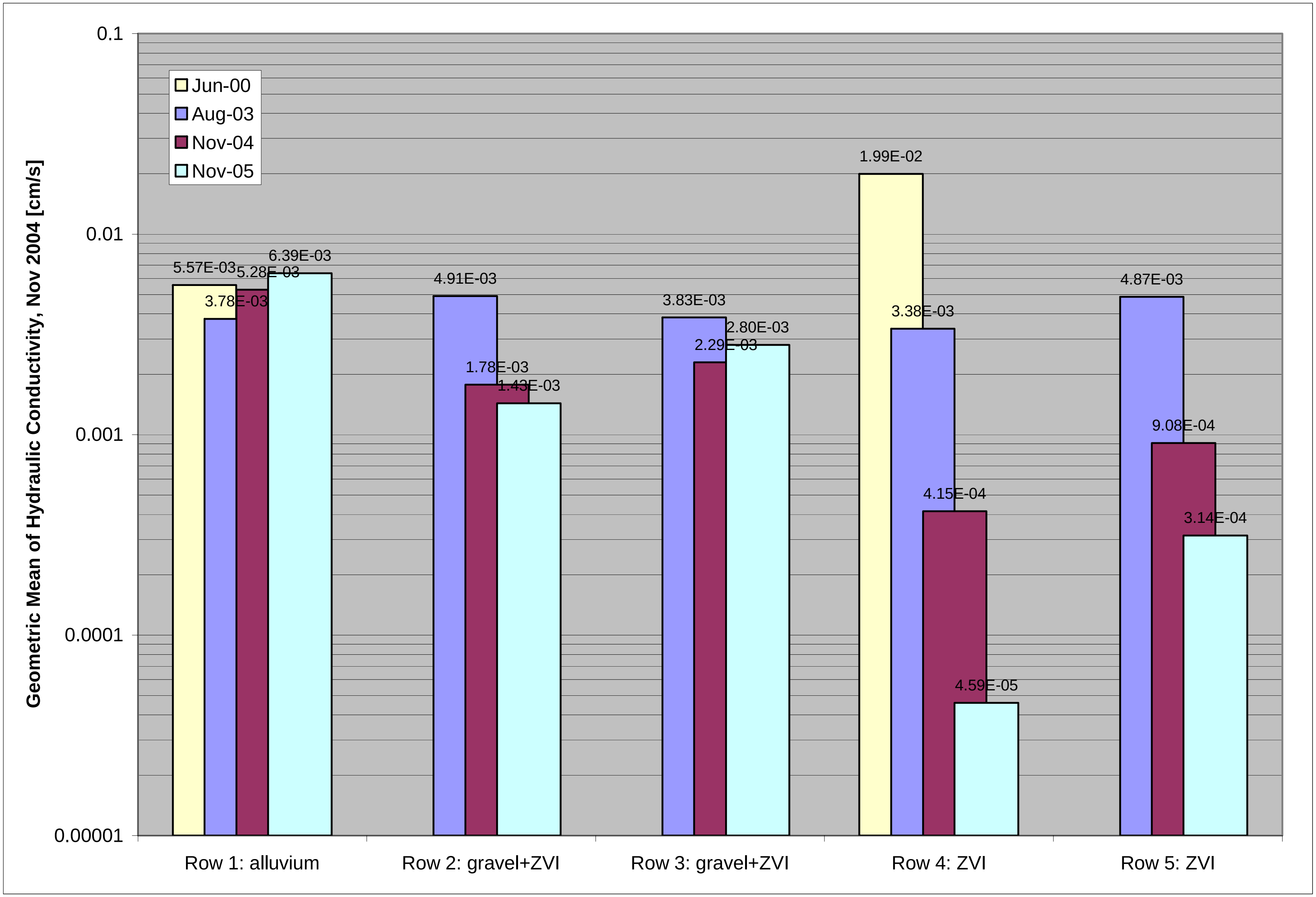


Figure 7. Bar Graph of Hydraulic Conductivity by Zone and Date

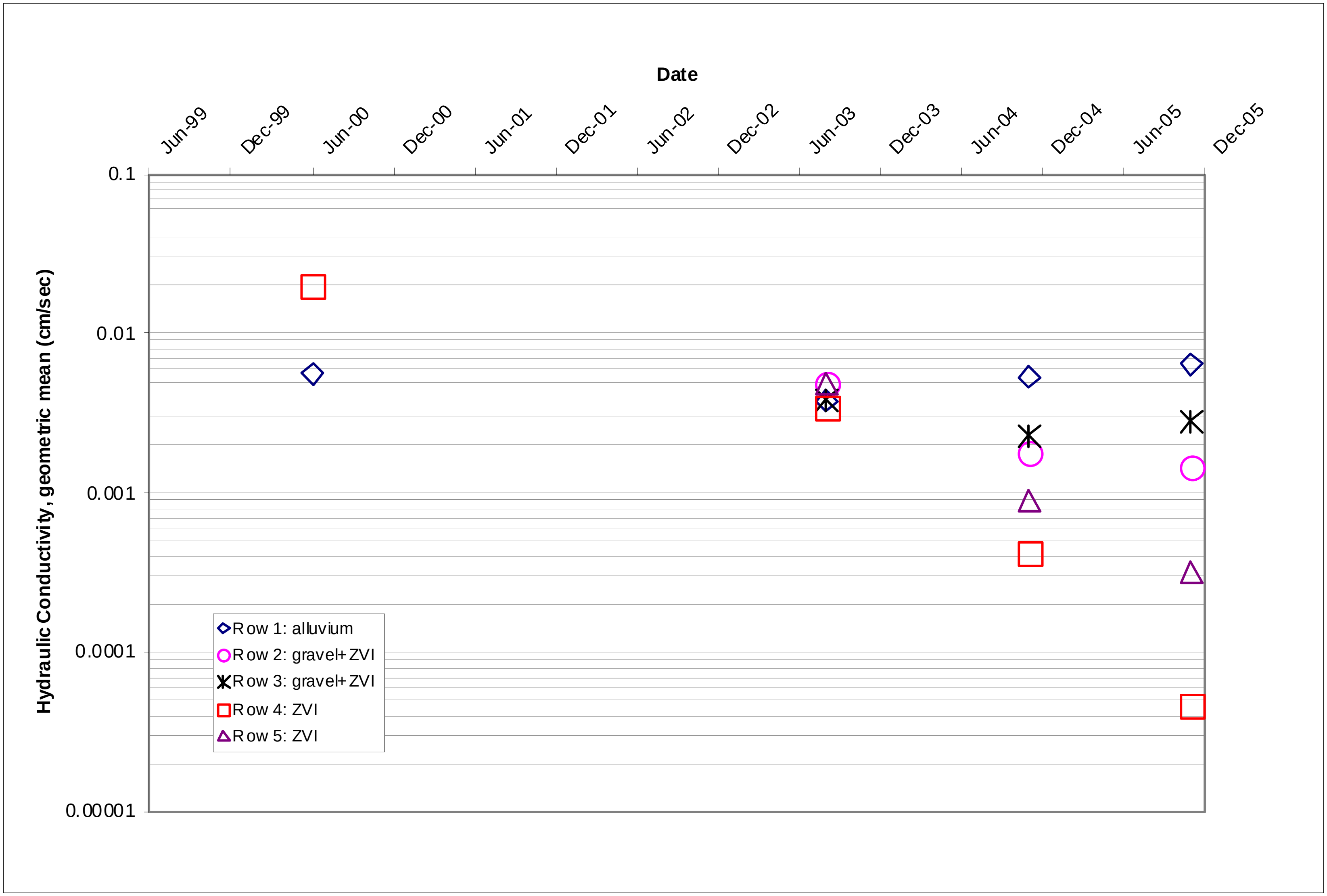


Figure 8. Time Variation Graph of Hydraulic Conductivity by Zone

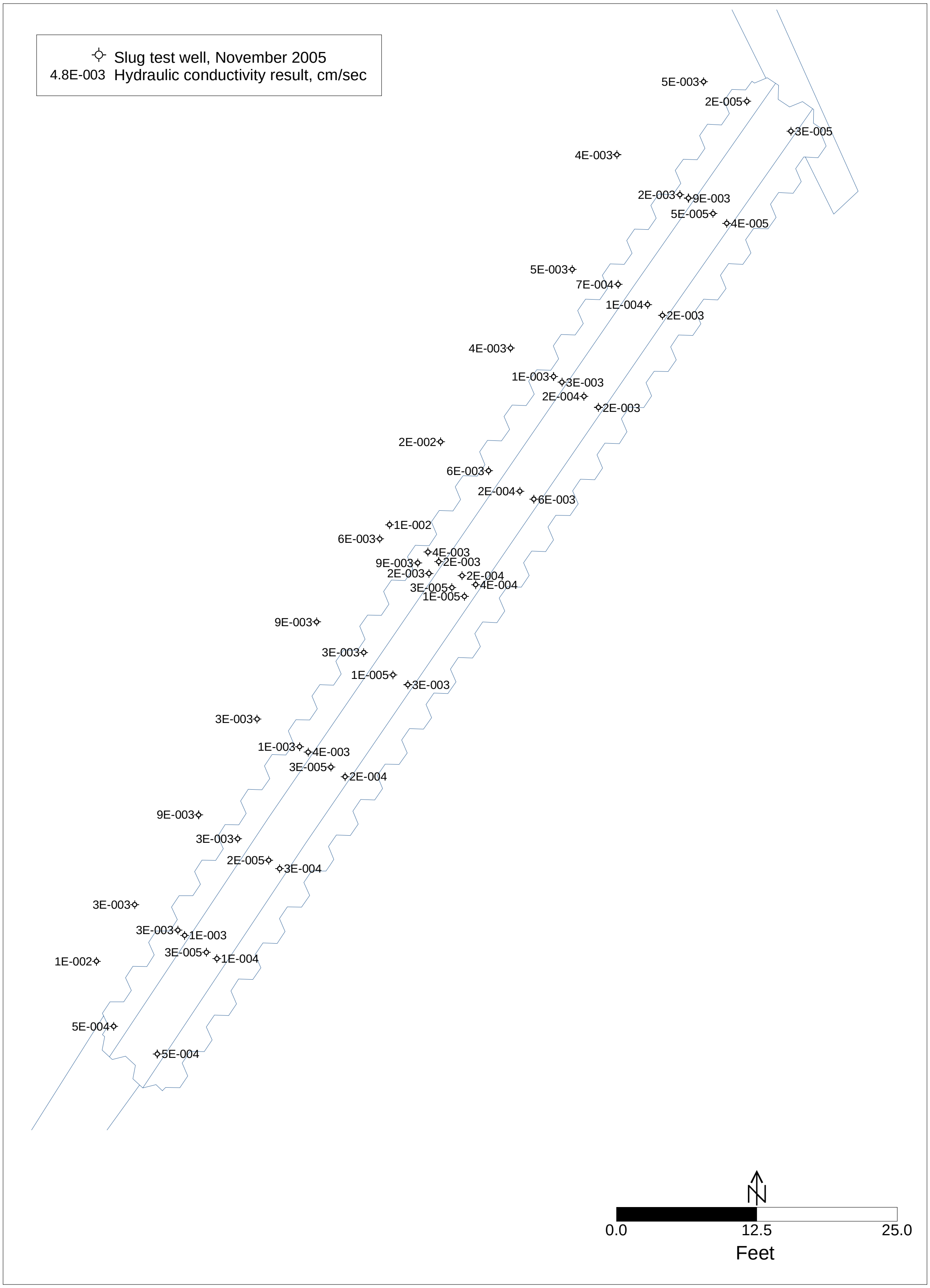


Figure 9. Hydraulic Conductivity–November 2005 Point Measurements

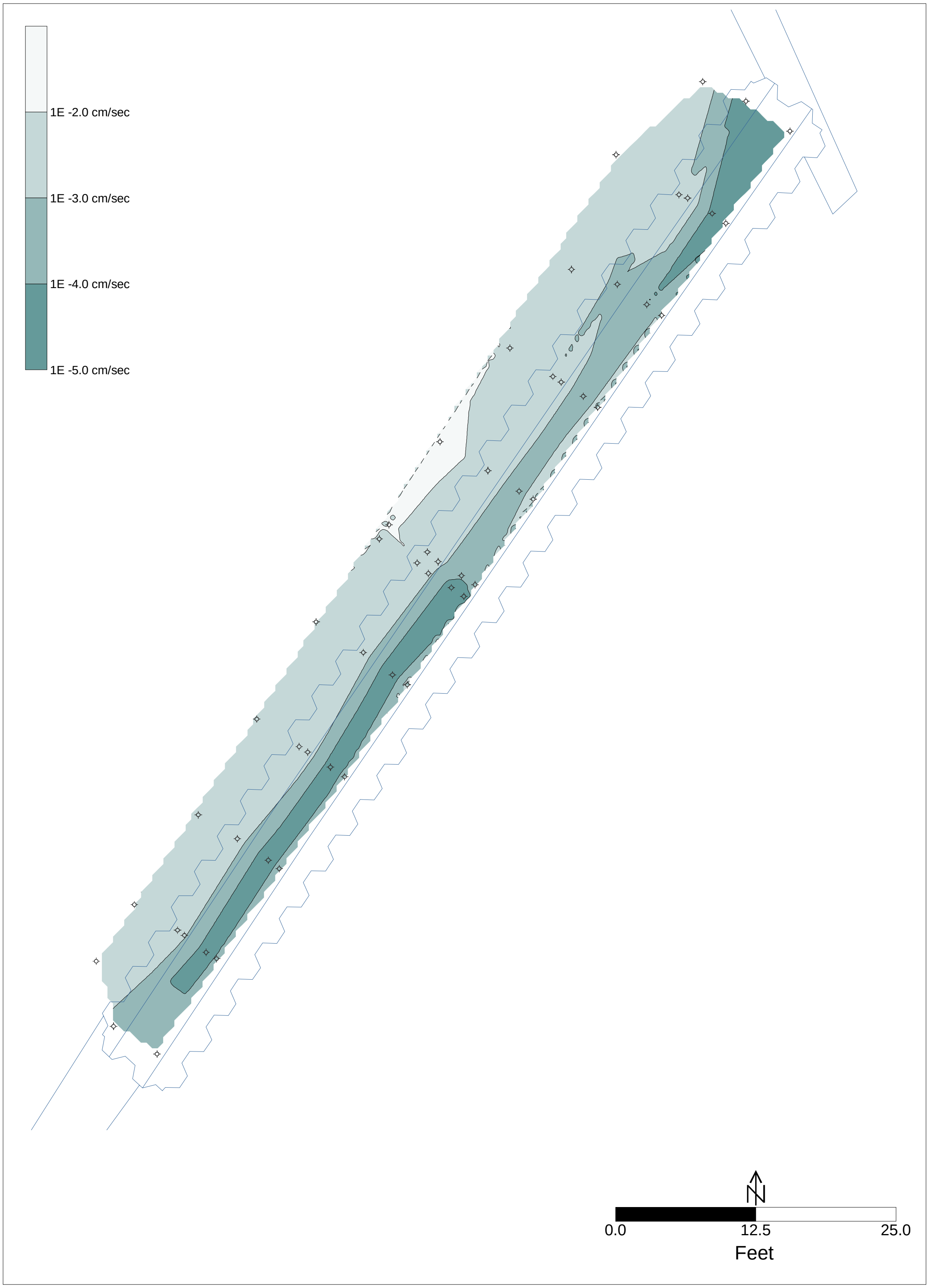


Figure 10. Hydraulic Conductivity–November 2005 Contoured Results

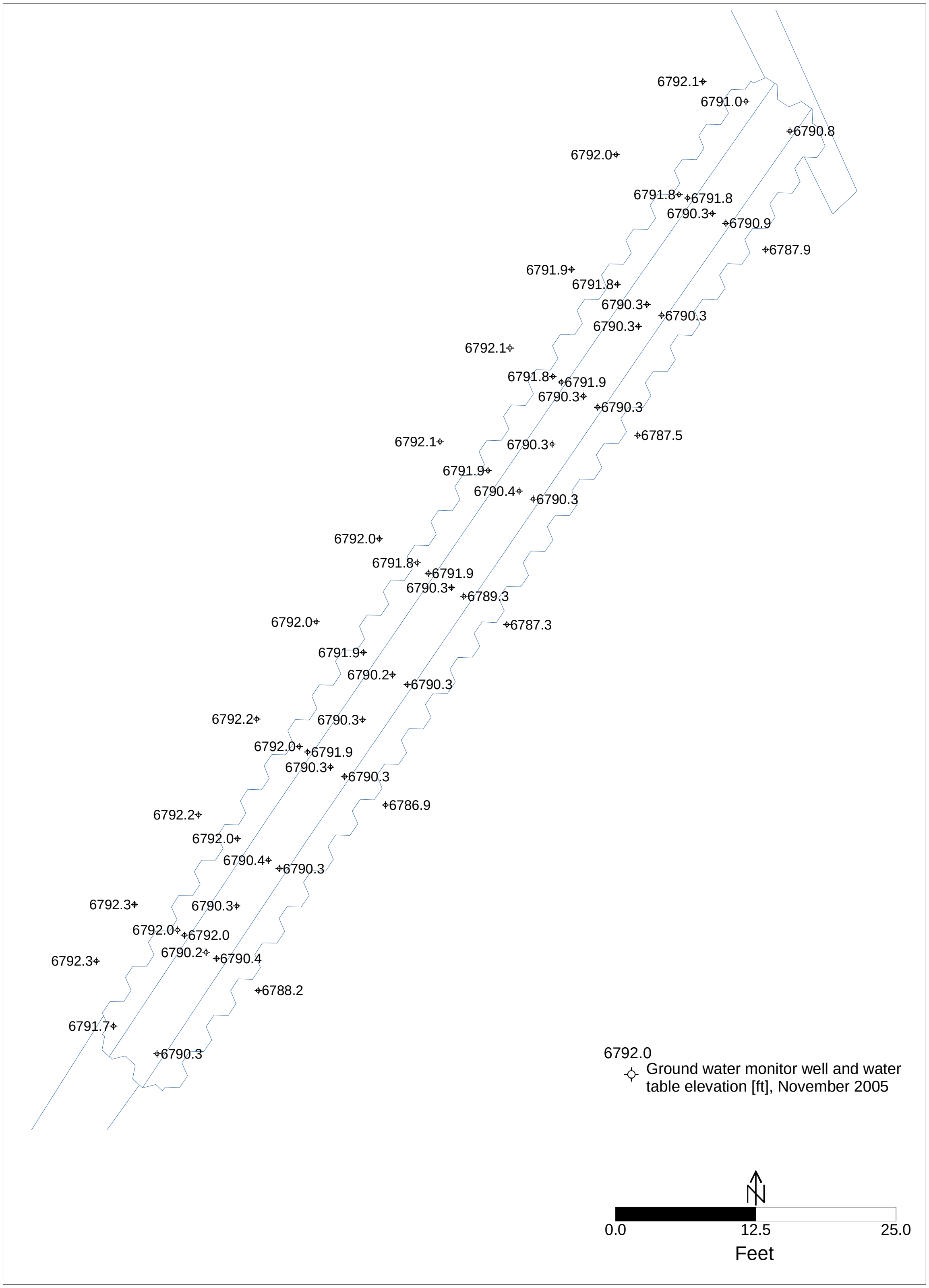


Figure 11. PRB Groundwater Elevations–November 2005 Point Measurements

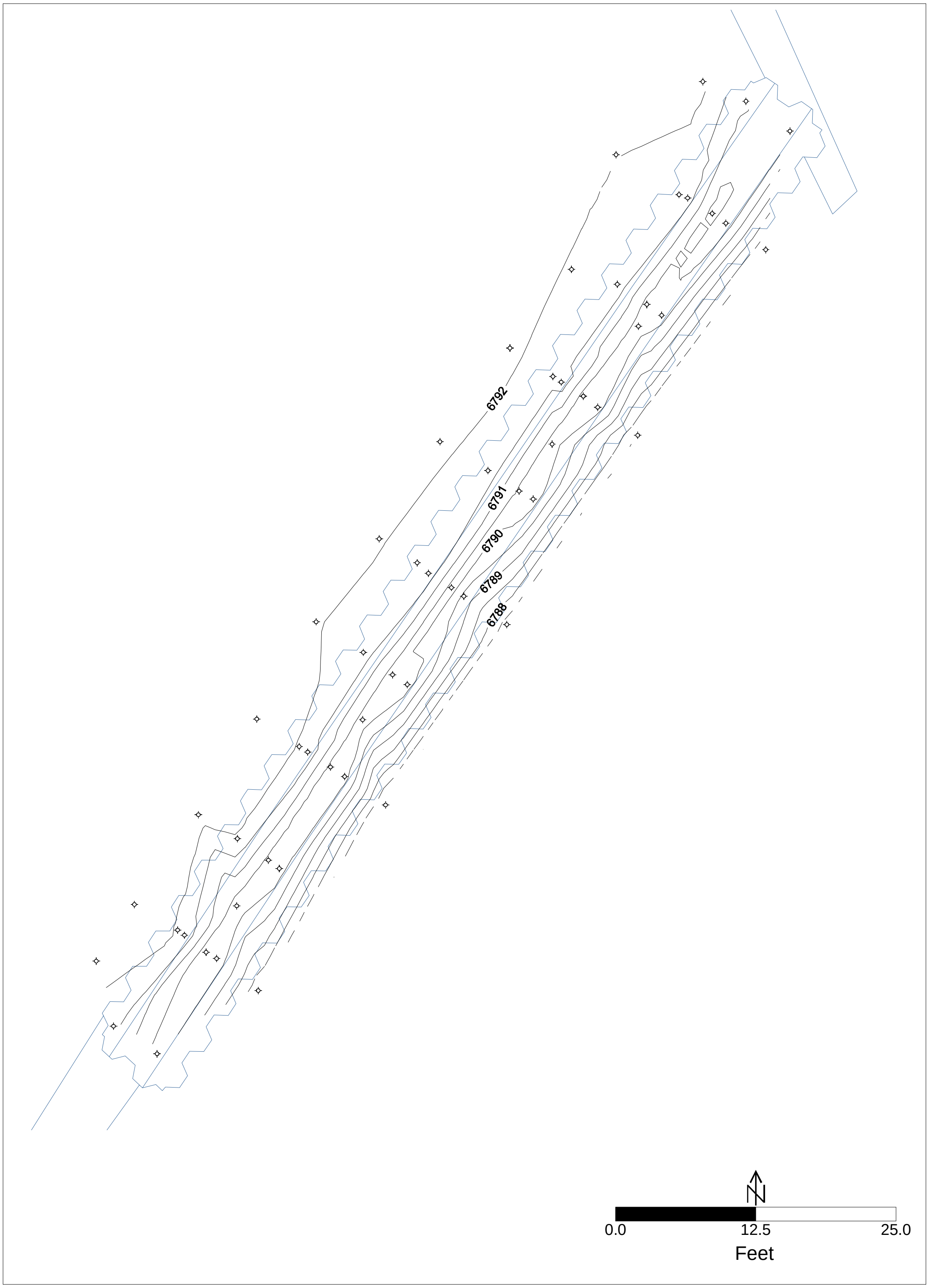


Figure 12. PRB Groundwater Elevations–November 2005 Contoured Results

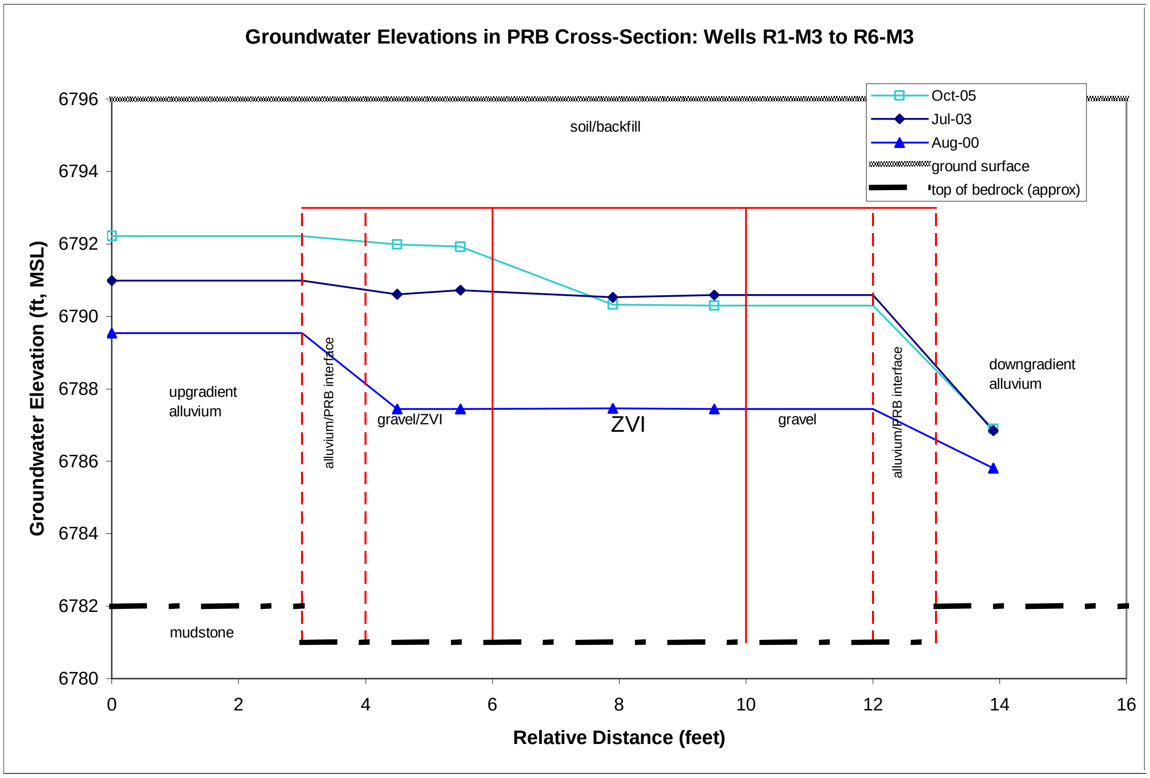


Figure 13. Time-Series Groundwater Elevations in PRB Cross-Section: Wells R1-M3 to R6-M3

Appendix A

Field and Analytical Documentation, November 2005 Slug Tests, Monticello PRB

22-210

Gas Displacement Slug Test

10/26/05

Test Start Up Sequence

Logging System

Surge protection on/reset
Computer boot up
DAQ box on (switch to #1)
Interface box on (button in)
DAQ view open/minimize
Transducer program open
#1 = dtw + xducer out of water
#2 = TD. w/ xducer @ TD
- calibrate
- new file = Well id

Pressure System

connect regulator
air line to control box inlet
air line to from control box outlet to well head inlet
electrical connection from box to well head solenoid
control box to power source
open regulator
turn main control box switch on
Well pressure switch OFF

Begin logging
Attain stable line @ cal #1 depth
pressure switch to Pressurize well
Attain stable line @ cal #1 depth (will inc. initially)
Pressure switch to Pressure release
- Water level recovery stage - line drops to cal #2 level then rises to cal #1
Attain stable line @ cal #1 — Pressure switch to OFF

Import txt file into EXCEL - convert time units to seconds

Import txt file into AqWin2 w/ import wizard
Date = col 1 Drawdown = col 3
Time = col 5 tab delimited

Monticell PRB Gas Displacement Slug Tests Nov 2005

11/1/05 Tuesday

R2M1 T1 high P @ well head >, 6 psi - off scale (abv. Ø) on graph view

R2M1 T2 reduce P to well peaks @ 4 psi drops to 3 psi after several mins

R2M1 T3 Same conditions as T2 flat lines @ 3 psi in several mins.

R5M1 T4 allow to pressure longer than T1 - T3

R1M2 T1 v. little response when pressurized => rel. high K Pmax ~ 2.5

T2 inc. P slightly max P ~ 2.5 psi @ well gage

T3 " " " " "

R2M2 T1 Pmax ~ 3 psi

R3M1 ideal curves

* R4M1 Pressures up to ~ 7 psi

V. slow recovery (>20 min partial recovery only)

- attempted to change logging interval in same file after ~ 10 mins - Stopped logging + changed interval then resumed logging - Unknown if previous data is overwritten. Pull off + start different well

Does not overwrite - leaves a data gap

Too slow to resume R4M1 until full recovery.

R2M3

R4M2 T1 Cut test short : pressures up v. slow, No drawdown

vv slow recovery - partial test

pull off + return to R4M1 - fully recovered now - taped DTW = SWL

R4M1 T2 good test - slow dd + rec.

End test w/ partial recovery

R1M3 T1-T3 good tests

End 1730

Monticello PRB Slug Tests November 2005

11/2/05	R4M2 T2	slow dd + rec.	7:30 am
	R5M2 T1	one test only	
	R5M3 T1	one test only	
	TW01 T1-3		
	TW02 "	2 tests	
	R2M4 T1	2 tests	
	R3M2	3 tests	
	R4M3	1 test	11 am
	R5M4	1 test	leaky fitting fixed after 2 faulty tests on same data file. No drawdown on first 2 tests. Last test good data.

Move setup to location w/ back of truck @ well R1M4

Noon R5M10 T1 first attempt: no dd - leaking pulled XD + applied teflon paste to top seal + ~~repeat on same file~~. Correction: small dd produced (~2 ft) - V. slow recovery. resume w/ recovery phase logging on same file

Pull XD + measure DTW =
Logger reading dtw = ~6.4'
Static WL = 4.82'
Logger reading is steady flat line, indicates full recovery

DTW = 7.25

Replace XD to same depth Logger reads 6.4'.
Water level recovery is v.v. slow or static condition has been achieved + orig. DTW is suspect

11/2/05 1250 abort R5M10 DTW = 5.75' @ 1320
= 5.33 @ 1530
R2M10 4.56 = DTW V.V. slow / minimal dd?
DTW = 4.60' @ 1532
TW06 T1-3 good tests
R1M5 3 tests
R2M9 ideal curves 3 tests
R3M4
R4M8 1 test - slow
R5M9 1 test slow
R2M8 ideal curves 2 tests
1600 R4M7 5.28 12.75
R5M8 3 tests
TW05 3.35 12.00 Top fitting is leaky - several minutes attempting to seal. Good test after 5-8 min.
Cleaned diaphragm assembly of solenoid valve
1825 End for day
11/3/05 R1M4 ~0730 3.76 13.50 3 good tests. Solenoid valve apparently has good seal now.
R2M7 3 v g tests 4.02 13.4
R3M3 3.91 13.4 2 tests
R4M6 5.42 13.4 3 tests
R5M7 5.38 13.0 3 tests odd injection curves
~0900 TW04 3.46 13.0 T1 : 1st two injections are no good - increased tank outlet press + did 3rd inj - better dd.
T2 : solenoid valve leaking - no dd
Cleaned diaphragm assembly - grit + water
Resume logging T2 - Better test.
T3: Good result
T4: Good test

Monticello PRB slug tests Nov. 2005

11/3/05

R2M6 3.86 14.? 3 good fast tests DTW = 4.00
R4M5 5.34 14.1 T1 v. little dd. v. slow - quit T1
Pull XD + measure DTW = 5.92'
Abort R4M5

R4M5		
DTW	5.81 @	11:07
	5.75	11:46
	5.73	12:00
	5.69	12:33
	5.67	12:52
	5.67	13:15

R5M6 DTW = 5.50' Was 5.40 on 11/1/05
T1 ideal curve fast recovery
T2 No well pressure
T3 No Well pressure
Joe Slade brings manual ball valve - remove solenoid valve
Delete T2 + T3 + redo

T3+T2 Good test / fast recovery

T1D	3.79	13.1	3 tests	
T2D	3.91	14.3	2 tests	fast
T3D	3.87	14.1	3 tests	
T4D	5.42	14.6	1 test	v. slow
T5D	6.38	14.8	T1 ~ 0.3' dd	v slow or static - abort.
T5S	5.4	11.3	3 tests	SWL below top of screen?
T4S	5.28	11.0	2 tests	SWL below top of screen?
T3S	3.88	10.0	3 tests	
T2S	3.83	7.9	3 tests	
T1S	4.80	8.3	3 v Fast test	lots of noise
TW03	3.57	12.7	✓	3
R2M5	3.86	14.5	✓	3
R4M4	5.42	14.3		1 test slow
R5M5	5.32	14.3	3 tests	

5.65

Monticello PRB Slug Tests November 2005

11/3/05 TS-D 1500 DTW = 5.65' DTW from 11/1/05 (6.38') is suspect

1525 T2 DTW_i = 5.54'

~1.5' dd produced – slow test

DTW = 4.63' @ R2M10 @ 1540

5.67 R4M5 1540

R4M5-2 v. slow

R2M10-2 Ø drawdown produced – v. strong sulfur odor

1630 Conclude slug testing

Time Date	Well ID	DTW	TD	Comments
10/31/05	88-85	4.43	11.90	3/8 Tubing + Data logger in the well
1430	R1-M1	5.40	13.55	
	R6-M1	13.03	15.10	
	PW-16	12.18	14.90	~~DTW~~ DTW TD.
	R2-M1	~~12.18~~	~~15.14.90~~	~~5.28~~ 5.28 15.30
	R5-M1	6.56	15.82	1432 time
1436	R1-M2	4.33	14.80	soft on bottom
	R2-M2	4.46	16.45	
1440	R3-M1	4.45	16.20	
	R4-M1	6.25	16.60	
	R5-M2	6.00	16.25	
	R6-M2	8.00	14.50	
	R2-M3	4.04	14.85	
	R4-M2	5.62	14.85	
	R5-M3	5.66	14.65	
1448	R1-M3	3.69	13.78	
	R2-M4	3.85	14.30	
	R3-M2	3.88	14.38	
	R4-M3	5.44	14.24	
	R5-M4	5.46	14.20	
	R6-M3	8.81	13.15	
	R7-M2	8.85	13.10	
1456	R2-M5	3.86	14.70	
	R4-M4	5.42	14.55	
	R5-M5	5.32	14.55	
	T1-D	3.79	13.30	
	T1-S	4.80	10.00	
	T2-D	3.91	14.50	
	T2-S	3.83	9.60	
	T3-D	3.87	14.30	
	T3-S	3.89	10.20	
	T4-D	5.42	14.82	clean vault
	T4-S	5.28	10.20	
	T5-D	6.38	15.05	Clean vault
	T5-S	5.40	10.40	
	T6-D	8.35	13.40	
	T6-S	6.55	10.50	Clean vault
	T7-D	8.36	13.75	clean vault sticking on side for TD
	R2-M6	3.86	14.45	
1512	R4-M5	5.34	14.30	
	R5-M6	5.40	14.30	
	R1-M4	3.76	13.70	
	R2-M7	4.02	13.60	
	R3-M3	3.91	13.65	
	R4-M6	5.42	13.66	
	R5-M7	5.38	13.40	
	R6-M4	8.07	13.15	

Monticello PRB Study
Rn222 samples and Slug Test

Date	Well ID	DTW	TD	Comments
✓	R2-M8	3.93	12.80	
✓	R4-M7	5.28	12.95	
✓	R5-M8	5.22	12.95	
✓	R1-M5	3.60	11.65	
1525 ✓	R2-M9	3.81	14.85	
✓	R3-M4	3.76	14.65	
✓	R4-M8	5.37	14.55	
✓	R5-M9	4.79	14.70	
—	R6-M5	7.59	12.25	
✓	R2-M10	4.52	15.45	
✓	R5-M10	4.82	16.65	
—	R1-M6	6.04	15.65	~~3/8 tubing in well~~
—	R6-M6	11.49	12.55	
—	R7-M1	10.98	13.65	
—	R8-M1	11.46	13.35	
—	R9-M1	11.90	14.40	
—	R10-M1	12.86	15.20	
—	R11-M1	12.87	14.40	
✓	TW-01	4.28	13.30	
✓	TW-02	3.61	12.30	
✓	TW-03	3.59	12.90	
✓	TW-04	3.46	13.20	
✓	TW-05	3.35	12.25	
✓	TW-06	3.32	12.30	3/8" tubing in place
—	TW-07	10.22	12.40	
—	TW-08	9.36	13.05	
—	TW-09	6.20	19.15	
—	TW-10	8.95	12.20	
—	TW-11	5.92	14.65	
—	TW-12	5.40	13.90	
—	TW-13	5.33	13.50	
—	TW-14	5.21	12.40	

Field Notes: Creek piezometers - no surface flow
short (E) 4.70 TD 1.45 DTW stick up 1ft
tall (W) 4.80 TD ~~2.85~~ DTW stick up 3.8 ft DTW repeat 3.42

11/1 R1-M3 sample grey turbid fine sands 4 CPM 10 ft
R5-M2 - grey flecks 5
R6-M3 - muddy
R1-M4 grey turbid like R1-M3
R6-M4 murky

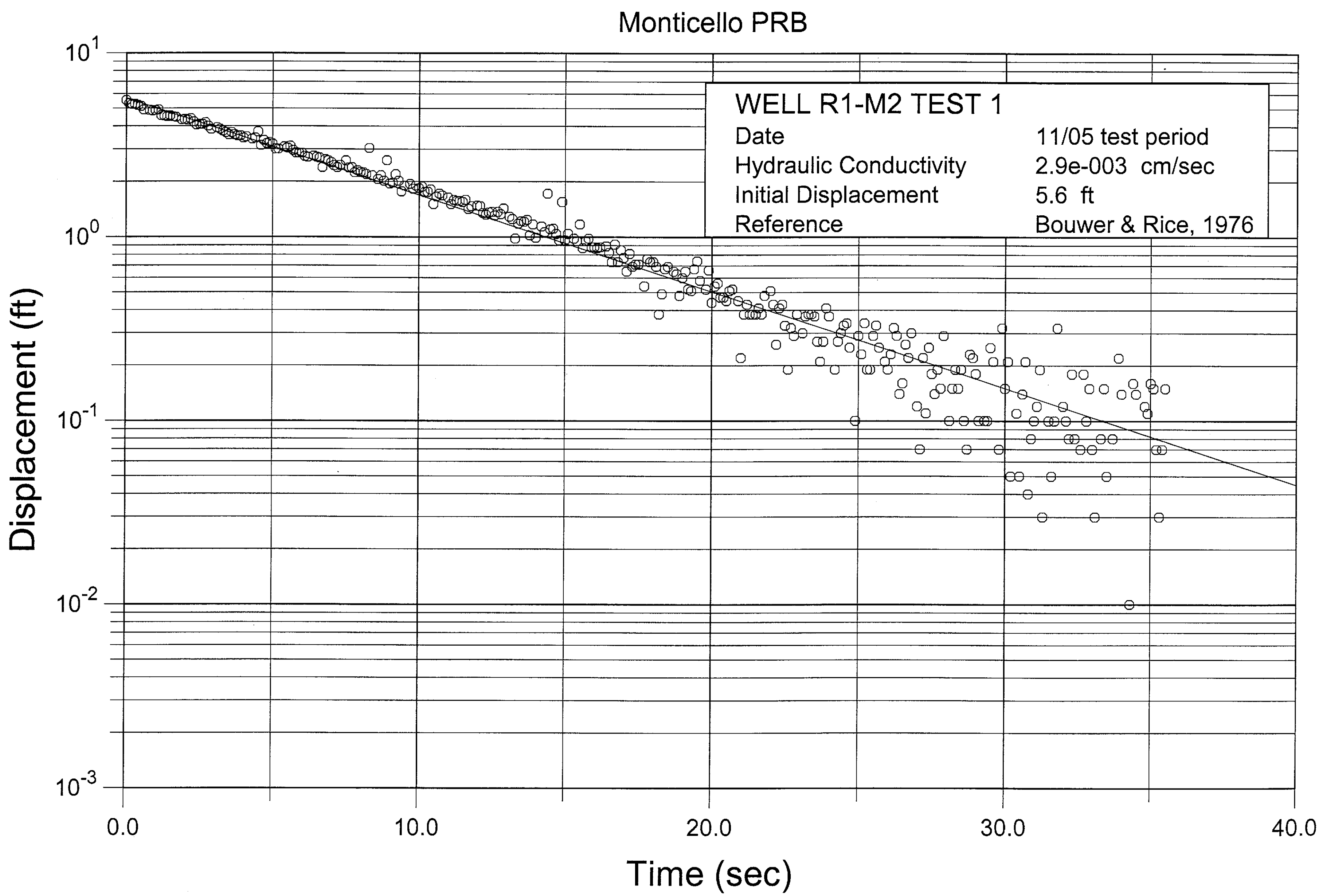
R5 series ** R4 series * priority R5's then R4s then rest

Monticello PRB: 11_05 Slug Test Parameters

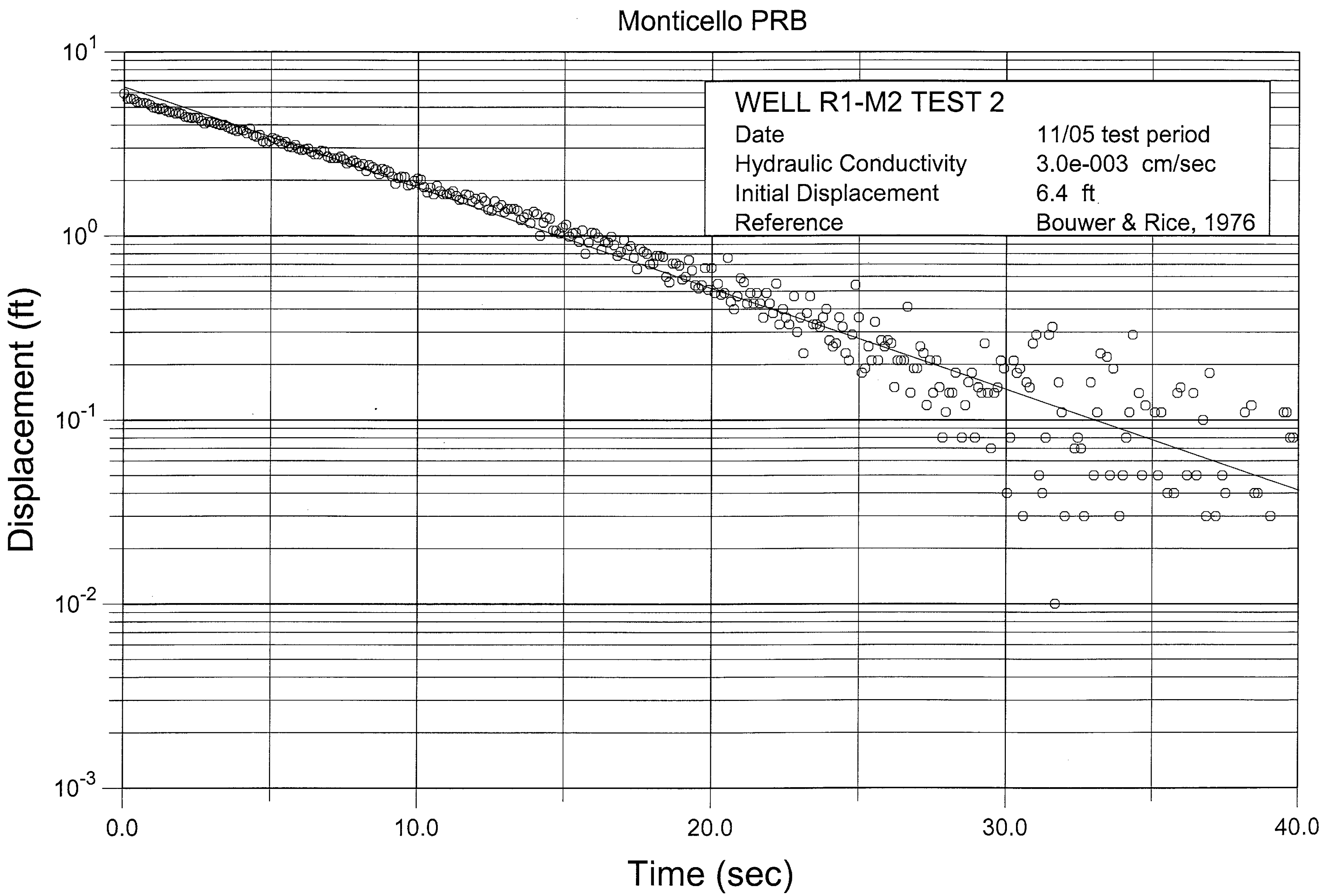
Well	Depth to Bedrock [ft, btoc]	Stickup [ft, ags]	Well Depth (w/sump) [ft, btoc]	Bottom of Screen Slot [ft, bgs]	Bottom of Screen Slot [ft, btoc]	Top of Screen Slot [ft, bgs]	Top of Screen Slot [ft, btoc]	11_05 DTW [ft, btoc]	Saturated Thickness, D [ft]	Intake Length, L [ft]	Water Table to Bottom of Intake, H [ft]	Screen Top Depth [ft]	rc ft	rw ft	Casing Diameter [ft]	Screen plus Pack Diameter [ft]	11_04 gw el ft
R1-M2	13.8	0.00	15.49	15.09	15.09	10.09	10.09	4.33	9.47	3.71	9.47	5.76	0.04167	0.09200	0.083	0.184	6792.39
R1-M3	13.51	0.01	13.91	13.5	13.51	8.50	8.51	3.69	9.82	5	9.82	4.82	0.04167	0.09200	0.083	0.184	6792.33
R1-M4	13.6	-0.05	13.8	13.5	13.45	8.50	8.45	3.76	9.84	5	9.69	4.69	0.04167	0.09200	0.083	0.184	-
R1-M5	12	-0.19	11.8	11.6	11.41	6.60	6.41	3.60	8.40	5	7.81	2.81	0.04167	0.09200	0.083	0.184	
R2-M1	15.04	0.04	15.42	14.98	15.02	9.98	10.02	5.28	9.76	5	9.74	4.74	0.04167	0.04167	0.083	0.083	6791.41
R2-M10	15.51	-0.09	15.75	15.44	15.35	10.44	10.35	4.52	10.99	5	10.83	5.83	0.04167	0.04167	0.083	0.083	6790.70
R2-M2	16.33	0.03	16.55	16.12	16.15	11.12	11.15	4.46	11.87	5	11.69	6.69	0.04167	0.04167	0.083	0.083	6791.85
R2-M3	14.53	-0.07	14.95	14.62	14.55	9.62	9.55	4.04	10.49	4.98	10.49	5.51	0.04167	0.04167	0.083	0.083	6791.92
R2-M4	14.24	0.04	14.43	13.99	14.03	8.99	9.03	3.85	10.39	5	10.18	5.18	0.04167	0.04167	0.083	0.083	6791.75
R2-M5	14.51	-0.09	14.83	14.52	14.43	9.52	9.43	3.86	10.65	5	10.57	5.57	0.04167	0.04167	0.083	0.083	6791.70
R2-M6	14.41	-0.09	14.6	14.29	14.2	9.29	9.20	3.86	10.55	5	10.34	5.34	0.04167	0.04167	0.083	0.083	6791.60
R2-M7	13.8	0.00	13.74	13.34	13.34	8.34	8.34	4.02	9.78	5	9.32	4.32	0.04167	0.04167	0.083	0.083	6791.53
R2-M8	12.96	-0.04	12.99	12.63	12.59	7.63	7.59	3.93	9.03	5	8.66	3.66	0.04167	0.04167	0.083	0.083	6791.57
R2-M9	14.88	-0.12	14.94	14.66	14.54	9.66	9.54	3.81	11.07	5	10.73	5.73	0.04167	0.04167	0.083	0.083	6791.41
R3-M1	16.32	0.02	16.3	15.88	15.9	10.88	10.90	4.45	11.87	5	11.45	6.45	0.04167	0.04167	0.083	0.083	6791.90
R3-M2	14.1	-0.10	14.46	14.16	14.06	9.16	9.06	3.88	10.22	5	10.18	5.18	0.04167	0.04167	0.083	0.083	6791.74
R3-M3	13.76	-0.04	13.79	13.43	13.39	8.43	8.39	3.91	9.85	5	9.48	4.48	0.04167	0.04167	0.083	0.083	6791.58
R3-M4	14.65	-0.15	14.77	14.52	14.37	9.52	9.37	3.76	10.89	5	10.61	5.61	0.04167	0.04167	0.083	0.083	6791.51
R4-M1	16.31	0.01	16.71	16.3	16.31	11.30	11.31	6.25	10.06	5	10.06	5.06	0.04167	0.04167	0.083	0.083	6790.18
R4-M2	14.77	-0.03	14.83	14.46	14.43	9.46	9.43	5.62	9.15	5	8.81	3.81	0.04167	0.04167	0.083	0.083	6790.51
R4-M3	14.06	-0.04	14.4	14.04	14	9.04	9.00	5.44	8.62	5	8.56	3.56	0.04167	0.04167	0.083	0.083	6790.43
R4-M4	14.36	-0.04	14.66	14.3	14.26	9.30	9.26	5.42	8.94	5	8.84	3.84	0.04167	0.04167	0.083	0.083	6790.47
R4-M5	14.12	-0.08	14.45	14.13	14.05	9.13	9.05	5.34	8.78	5	8.71	3.71	0.04167	0.04167	0.083	0.083	6790.29
R4-M6	13.61	-0.09	13.78	13.47	13.38	8.47	8.38	5.42	8.19	5	7.96	2.96	0.04167	0.04167	0.083	0.083	6790.49
R4-M7	13.08	-0.12	13.11	12.83	12.71	7.83	7.71	5.28	7.80	5	7.43	2.43	0.04167	0.04167	0.083	0.083	6790.39
R4-M8	14.67	-0.03	14.7	14.33	14.3	9.33	9.30	5.37	9.30	5	8.93	3.93	0.04167	0.04167	0.083	0.083	6790.58
R5-M1	15.44	-0.06	15.78	15.44	15.38	10.44	10.38	6.56	8.88	5	8.82	3.82	0.04167	0.04167	0.083	0.083	6790.47
R5-M10	15.63	0.03	16.82	16.39	16.42	11.39	11.42	4.82	10.81	4.21	10.81	6.60	0.04167	0.04167	0.083	0.083	6790.53
R5-M2	16.29	-0.01	16.42	16.03	16.02	11.03	11.02	6.00	10.29	5	10.02	5.02	0.04167	0.04167	0.083	0.083	6790.46
R5-M3	14.88	0.08	14.8	14.32	14.4	9.32	9.40	5.66	9.22	5	8.74	3.74	0.04167	0.04167	0.083	0.083	6790.39
R5-M4	13.96	-0.04	14.35	13.99	13.95	8.99	8.95	5.46	8.50	5	8.49	3.49	0.04167	0.04167	0.083	0.083	6790.50
R5-M5	14.33	-0.07	14.5	14.17	14.1	9.17	9.10	5.32	9.01	5	8.78	3.78	0.04167	0.04167	0.083	0.083	6790.51
R5-M6	14.1	-0.10	14.49	14.19	14.09	9.19	9.09	5.40	8.70	5	8.69	3.69	0.04167	0.04167	0.083	0.083	6790.50
R5-M7	13.8	0.00	13.51	13.11	13.11	8.11	8.11	5.38	8.42	5	7.73	2.73	0.04167	0.04167	0.083	0.083	6790.53
R5-M8	12.92	-0.18	13.09	12.87	12.69	7.87	7.69	5.22	7.70	5	7.47	2.47	0.04167	0.04167	0.083	0.083	6790.53
R5-M9	14.96	-0.04	14.99	14.63	14.59	9.63	9.59	4.79	10.17	5	9.80	4.80	0.04167	0.04167	0.083	0.083	6790.58
T1-D	13.6	-0.08	13.49	13.17	13.09	8.17	8.09	3.79	9.81	5	9.30	4.30	0.04167	0.09200	0.083	0.184	6792.03
T1-S	13.6	0.04	10.1	10.1	10.13	4.7	4.69	3.80	9.80	5	6.33	0.89	0.04167	0.09200	0.083	0.184	
T2-D	14.25	-0.05	14.66	14.31	14.26	9.31	9.26	3.91	10.34	4.99	10.34	5.35	0.04167	0.04167	0.083	0.083	6791.66
T2-S	14.21	-0.09	9.73	9.42	9.33	4.42	4.33	3.83	10.38	5	5.50	0.50	0.04167	0.04167	0.083	0.083	6791.69
T3-D	14.93	-0.07	14.45	14.12	14.05	9.12	9.05	3.87	11.06	5	10.18	5.18	0.04167	0.04167	0.083	0.083	6791.55
T3-S	15.07	0.07	10.31	9.84	9.91	4.84	4.91	3.89	11.18	5	6.02	1.02	0.04167	0.04167	0.083	0.083	6791.68
T4-D	15.03	0.03	14.97	14.54	14.57	9.54	9.57	5.42	9.61	5	9.15	4.15	0.04167	0.04167	0.083	0.083	6790.53
T4-S	14.77	-0.23	10.32	10.15	9.92	5.15	4.92	5.28	9.49	5	4.64	-0.36	0.04167	0.04167	0.083	0.083	6790.52
T5-D	15.01	0.01	15.18	14.77	14.78	9.77	9.78		15.01	5	14.78	9.78	0.04167	0.04167	0.083	0.083	6790.04
T5-S	15	0.00	10.54	10.14	10.14	5.14	5.14	5.40	9.60	5	4.74	-0.26	0.04167	0.04167	0.083	0.083	6790.51
TW-01	12.64	-0.36	13.34	13.35	12.99	8.35	7.99	4.28	8.36	4.65	8.36	3.71	0.08333	0.24000	0.167	0.480	6792.43
TW-02	12.12	-0.38	12.42	12.45	12.07	7.45	7.07	3.61	8.51	5	8.46	3.46	0.08333	0.24000	0.167	0.480	6792.32
TW-03	11.71	-0.29	13.04	12.98	12.69	7.98	7.69	3.59	8.12	4.02	8.12	4.10	0.08333	0.24000	0.167	0.480	6792.04
TW-04	13.23	-0.27	13.34	13.26	12.99	8.26	7.99	3.46	9.77	5	9.53	4.53	0.08333	0.24000	0.167	0.480	6792.20
TW-05	13.09	-0.41	12.47	12.53	12.12	7.53	7.12	3.35	9.74	5	8.77	3.77	0.08333	0.24000	0.167	0.480	6791.70
TW-06	12.65	-0.35	12.74	12.74	12.39	7.74	7.39	3.32	9.33	5	9.07	4.07	0.08333	0.24000	0.167	0.480	6791.98
TW-11	15	-0.10	15	14.75	14.65	7.25	7.15		15.00	5	14.65	7.15	0.08333	0.09200	0.167	0.184	6790.45
TW-12	14.18	-0.12	14.18	13.95	13.83	6.45	6.33		14.18	5	13.83	6.33	0.08333	0.09200	0.167	0.184	6790.49
TW-13	13.81	-0.19	13.81	13.65	13.46	6.15	5.96		13.81	5	13.46	5.96	0.08333	0.09200	0.167	0.184	6790.51
TW-14	12.6	-0.20	12.6	12.45	12.25	4.95	4.75		12.60	5	12.25	4.75	0.08333	0.09200	0.167	0.184	6790.47

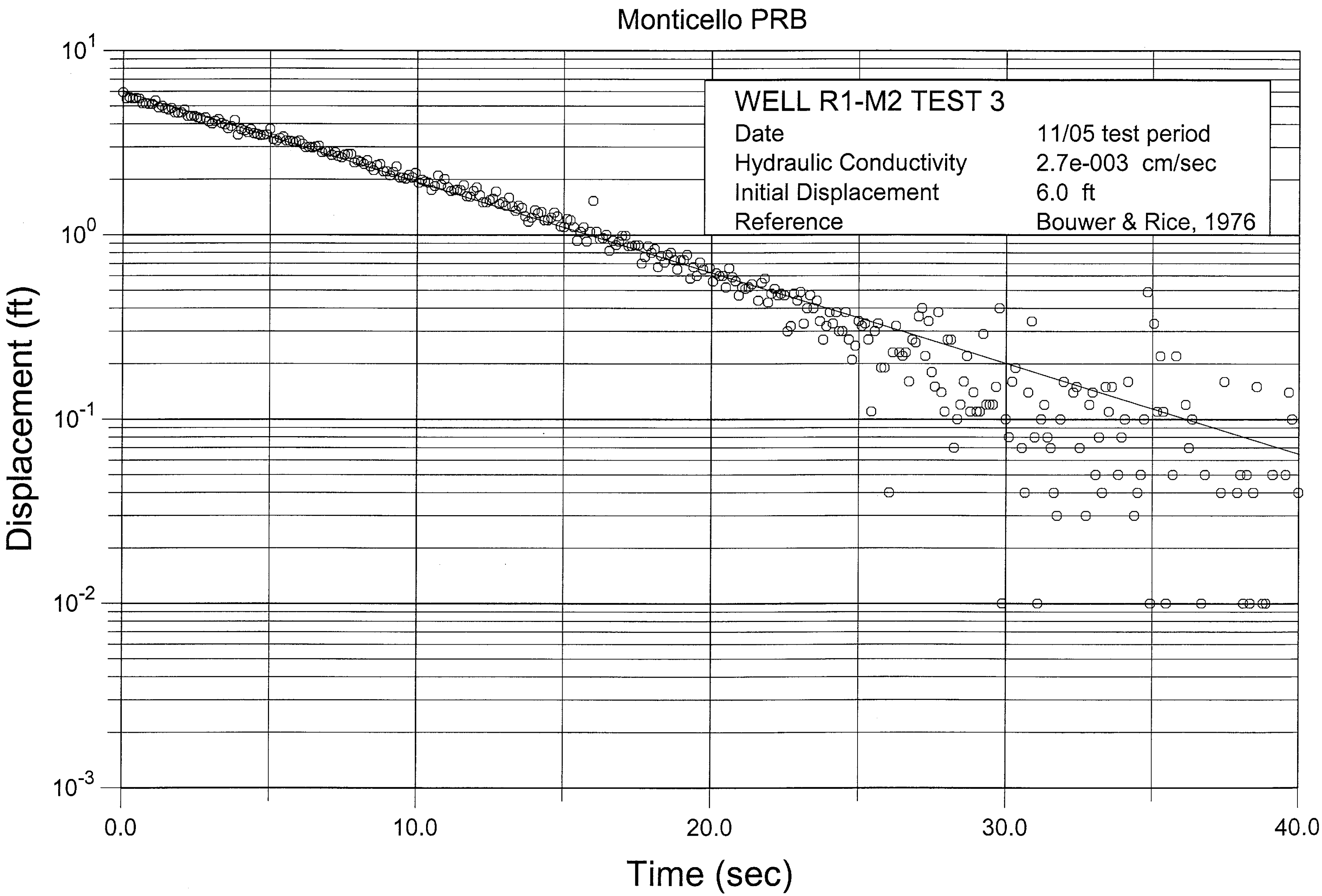
creek elev at west end of culvert at PRB approx 6792 ft

End of current text

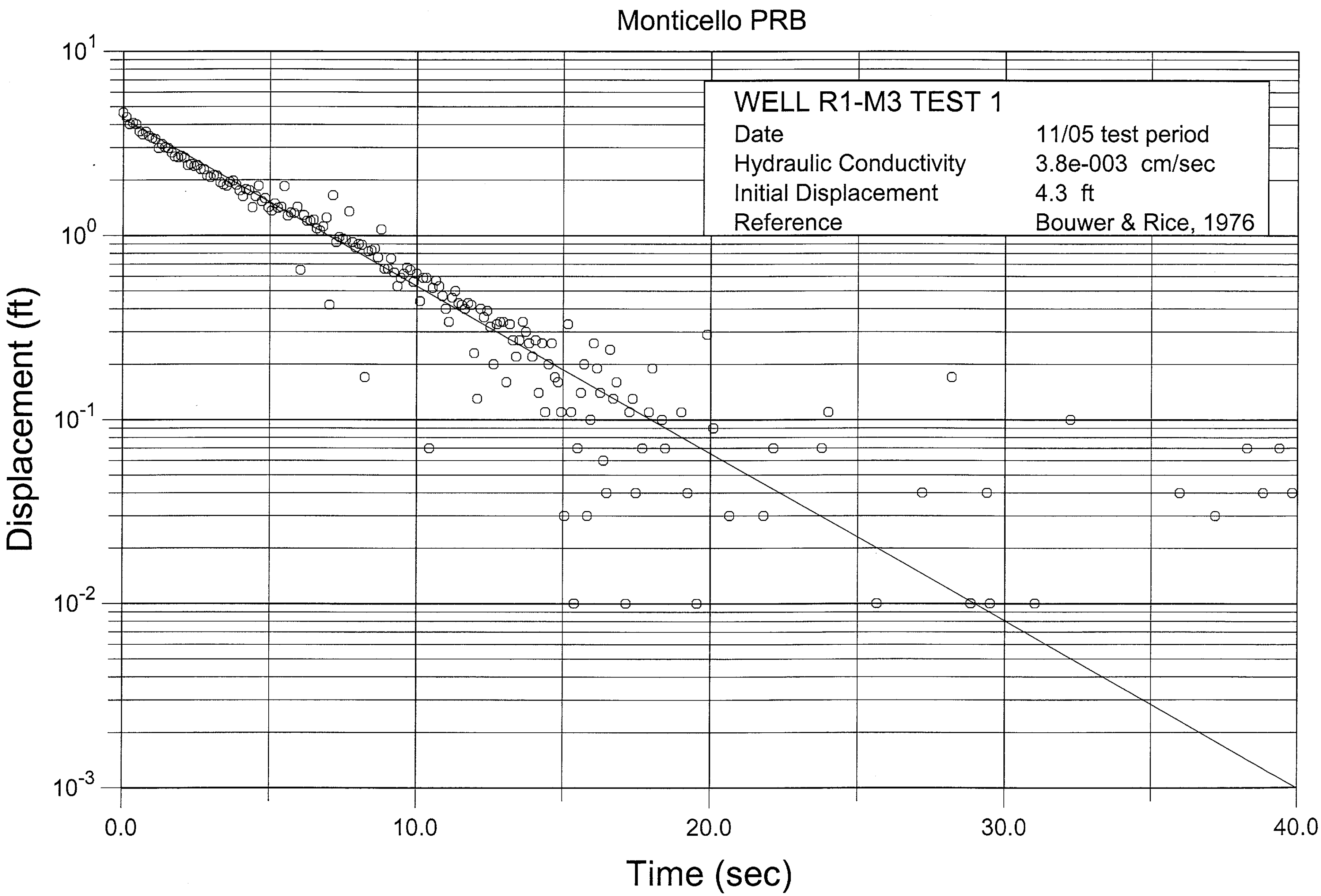


Monticello PRB
WELL R1-M2 TEST 1
Date
11/05 test period
Hydraulic Conductivity
2.9e-003 cm/sec
Initial Displacement
5.6 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
10^-3
Time (sec)
0.0
10.0
20.0
30.0
40.0

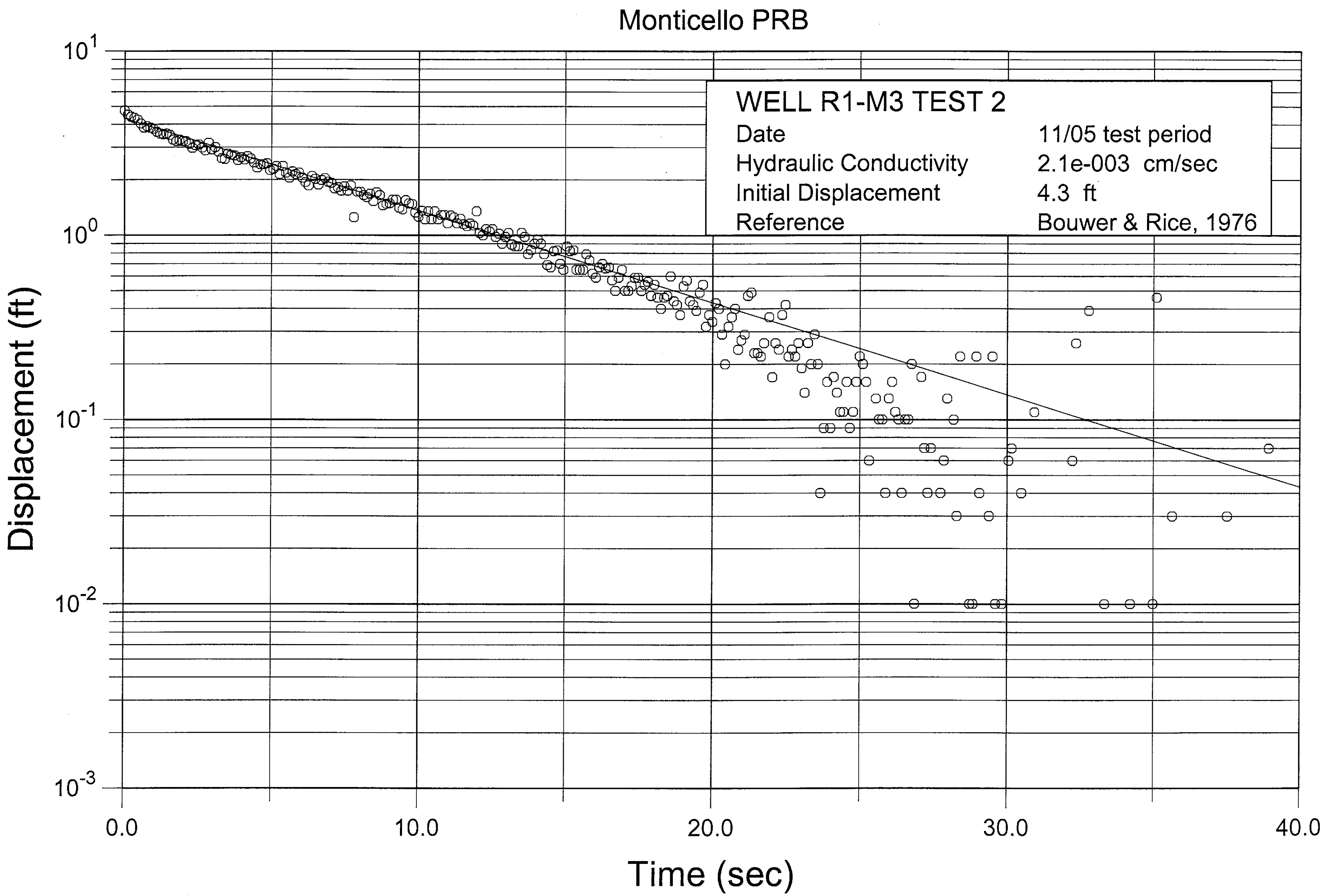

Monticello PRB
WELL R1-M2 TEST 2
Date
11/05 test period
Hydraulic Conductivity
3.0e-003 cm/sec
Initial Displacement
6.4 ft
Reference
Bouwer & Rice, 1976
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
Displacement (ft)
0.0
10.0
20.0
30.0
40.0
Time (sec)



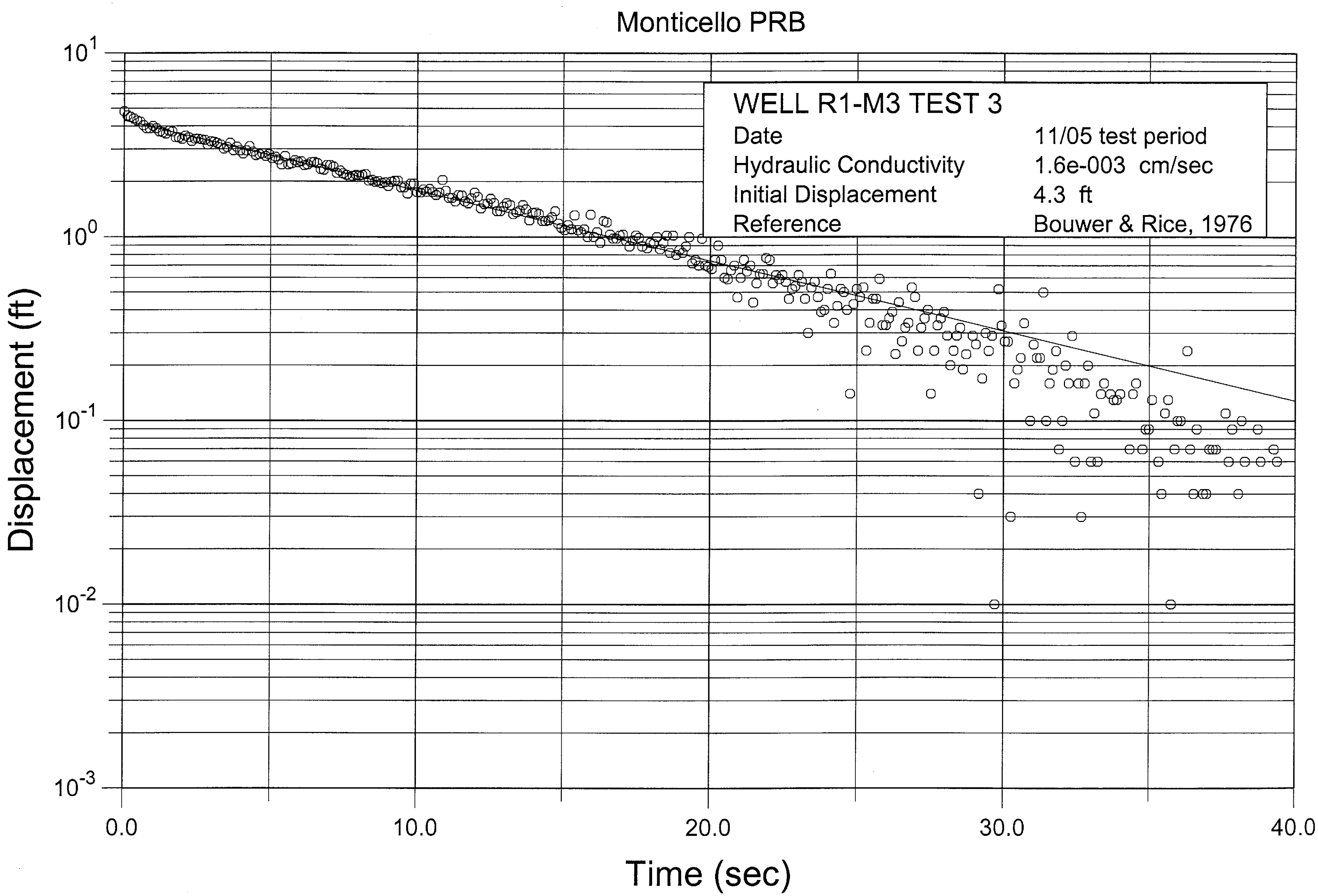
Monticello PRB
WELL R1-M2 TEST 3
Date 11/05 test period
Hydraulic Conductivity 2.7e-003 cm/sec
Initial Displacement 6.0 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
0.0
10.0
20.0
30.0
40.0
Time (sec)

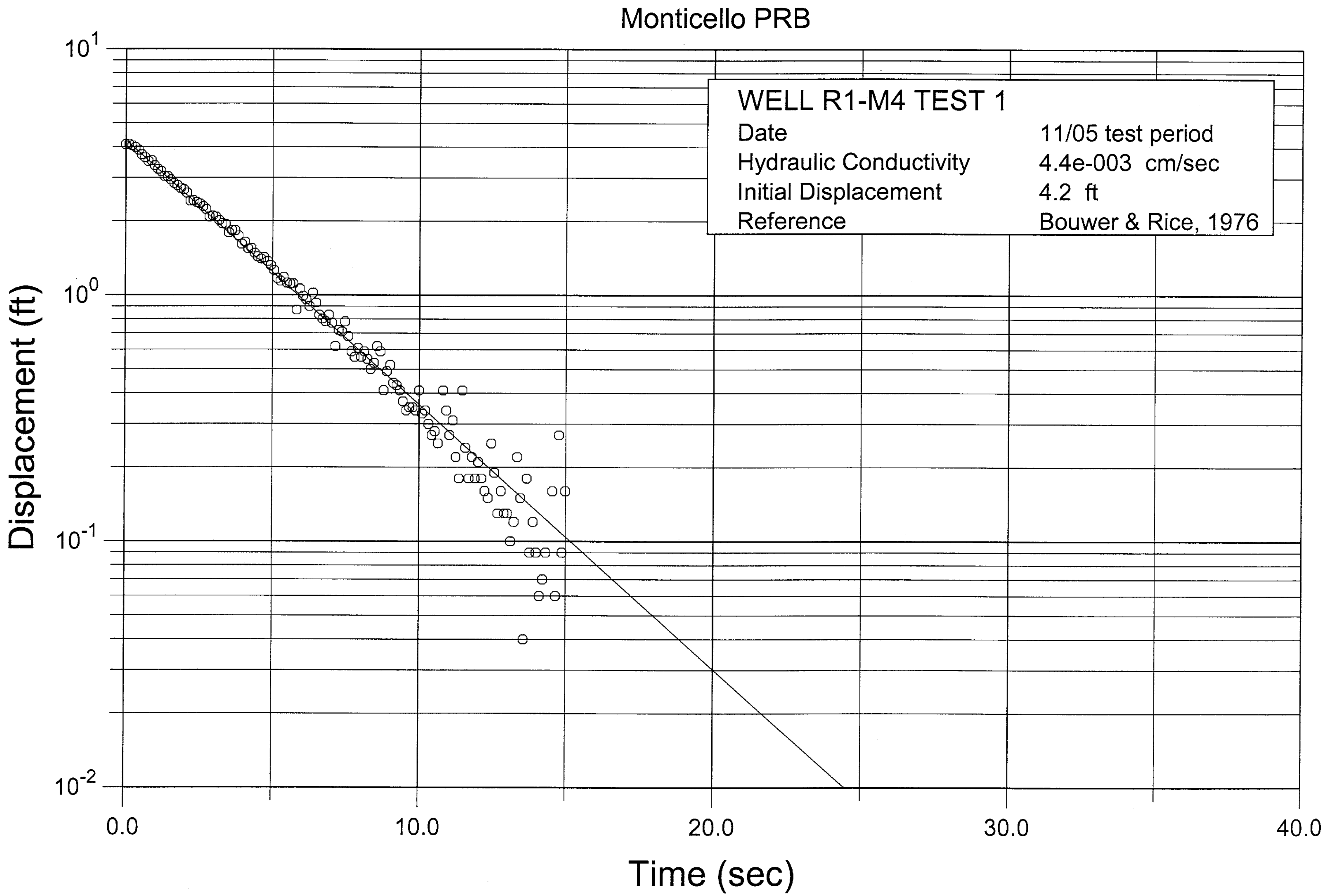


Monticello PRB
WELL R1-M3 TEST 1
Date
11/05 test period
Hydraulic Conductivity
3.8e-003 cm/sec
Initial Displacement
4.3 ft
Reference
Bouwer & Rice, 1976
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
Displacement (ft)
0.0
10.0
20.0
30.0
40.0
Time (sec)

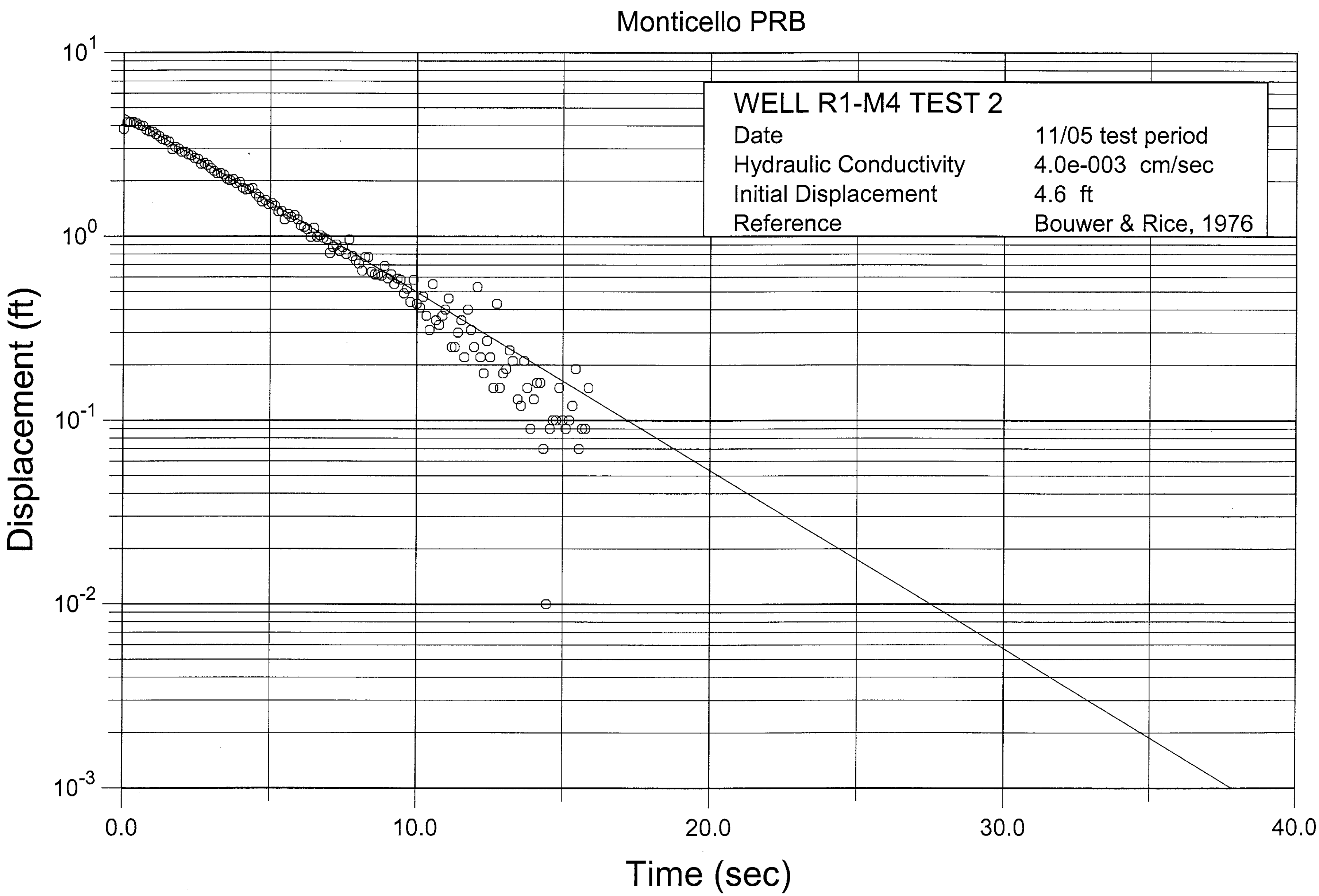


Monticello PRB
WELL R1-M3 TEST 2
Date
11/05 test period
Hydraulic Conductivity
2.1e-003 cm/sec
Initial Displacement
4.3 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
0.0
10.0
20.0
30.0
40.0
Time (sec)

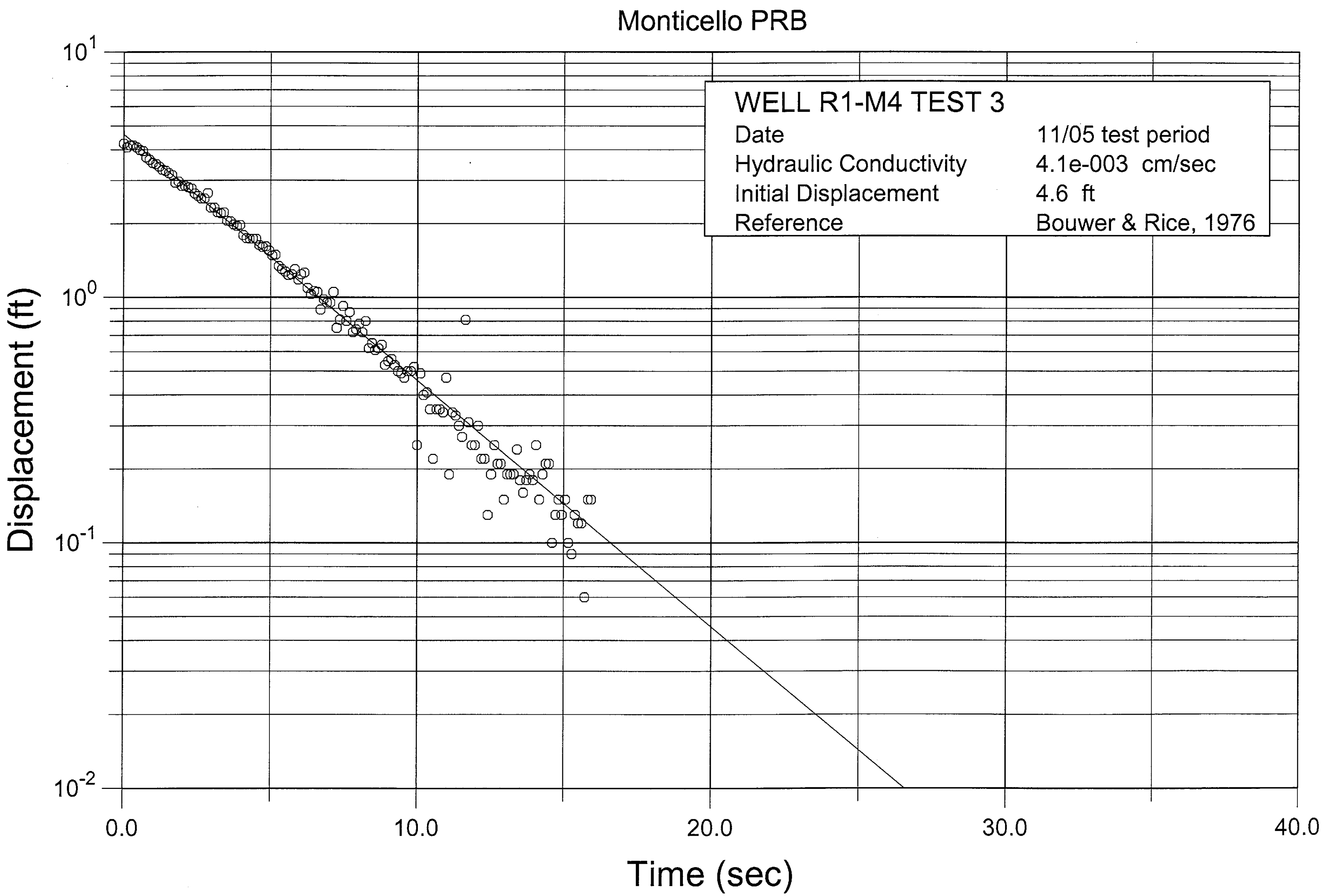

Monticello PRB
WELL R1-M3 TEST 3
Date 11/05 test period
Hydraulic Conductivity 1.6e-003 cm/sec
Initial Displacement 4.3 ft
Reference Bouwer & Rice, 1976
10^1
10^0
10^{-1}
10^{-2}
10^{-3}
Displacement (ft)
0.0
10.0
20.0
30.0
40.0
Time (sec)

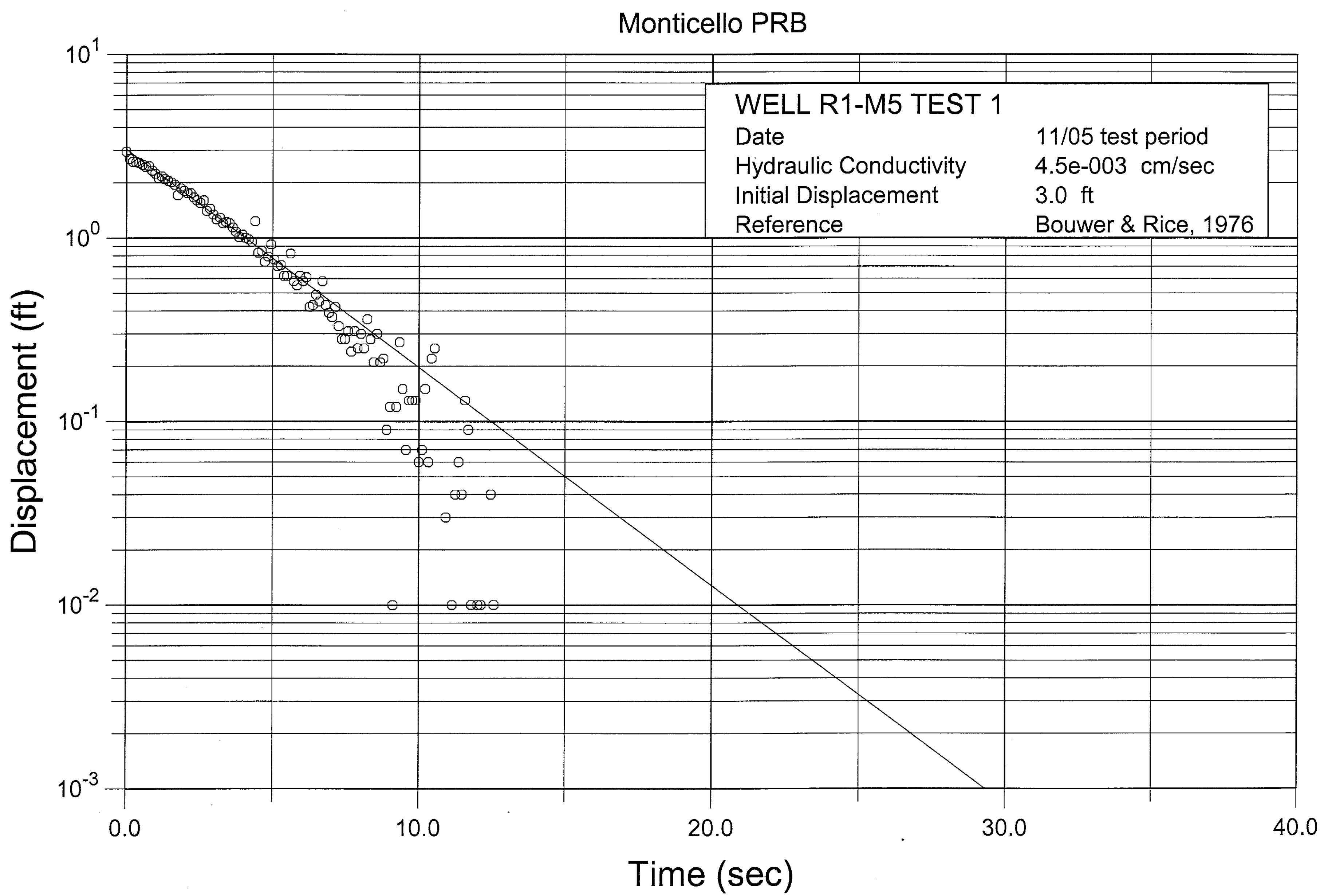


Monticello PRB
WELL R1-M4 TEST 1
Date
11/05 test period
Hydraulic Conductivity
4.4e-003 cm/sec
Initial Displacement
4.2 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^{1}
10^{0}
10^{-1}
10^{-2}
0.0
10.0
20.0
30.0
40.0
Time (sec)

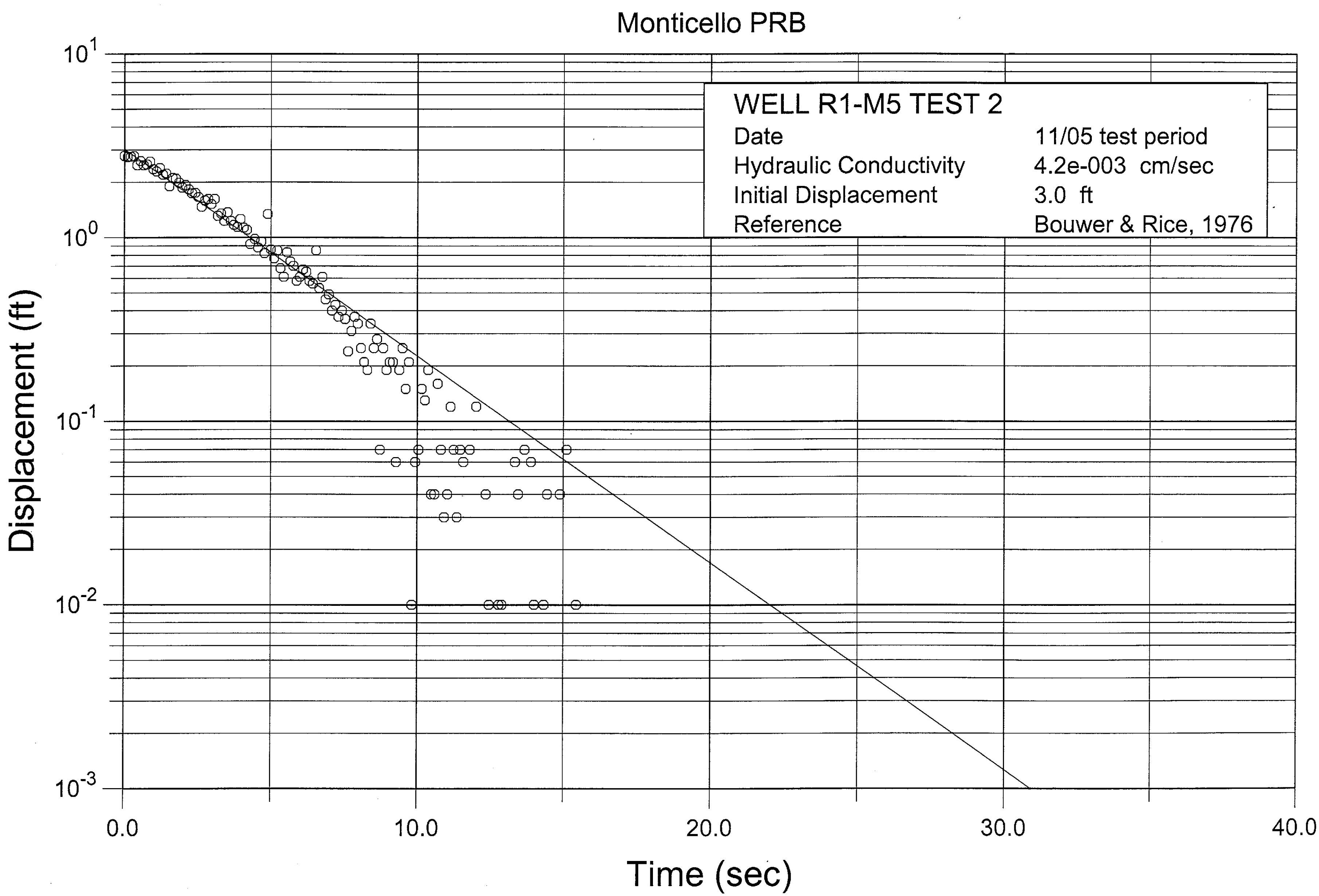


Monticello PRB
WELL R1-M4 TEST 2
Date
11/05 test period
Hydraulic Conductivity
4.0e-003 cm/sec
Initial Displacement
4.6 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
10^-3
0.0
10.0
20.0
30.0
40.0
Time (sec)

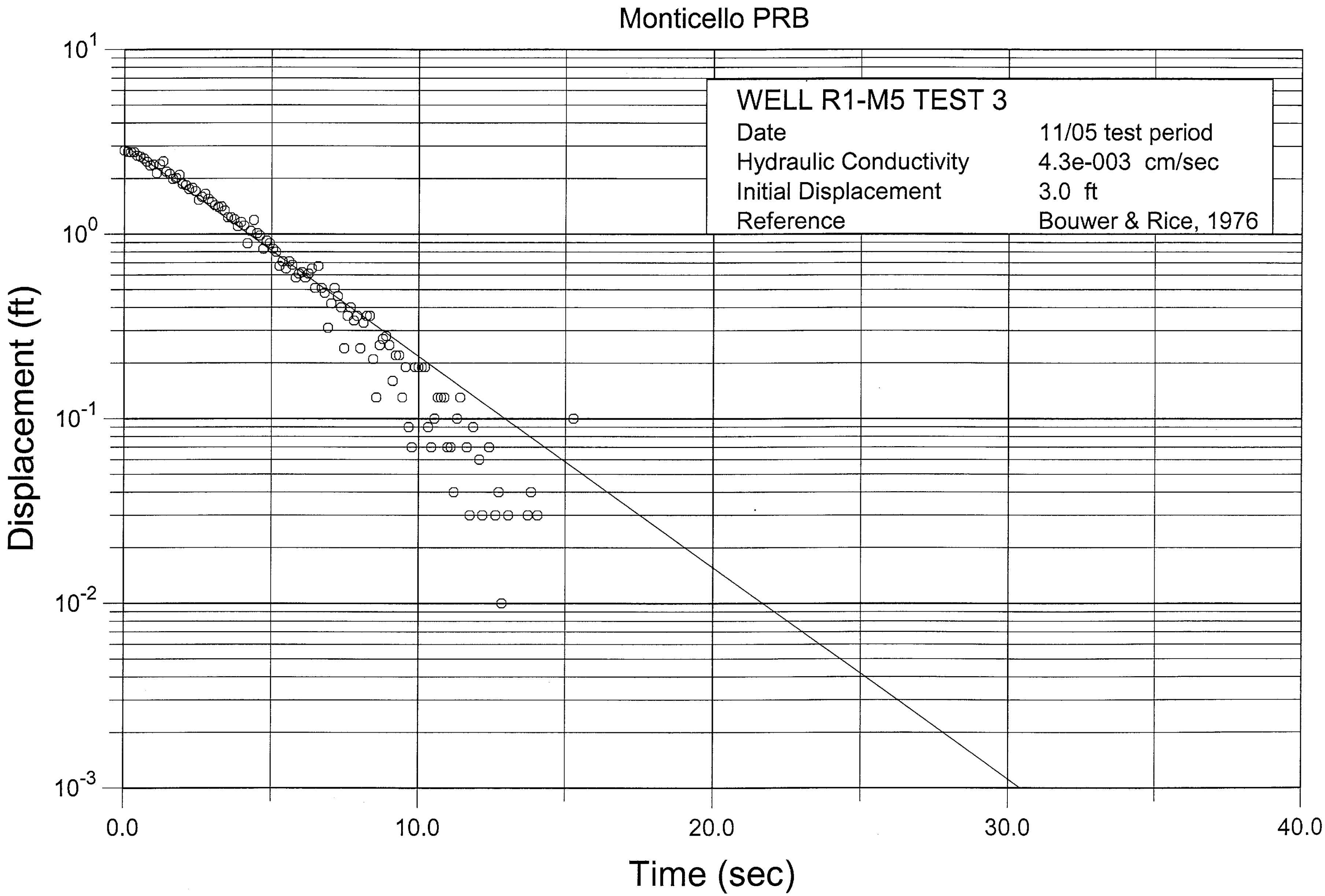

Monticello PRB
WELL R1-M4 TEST 3
Date
11/05 test period
Hydraulic Conductivity
4.1e-003 cm/sec
Initial Displacement
4.6 ft
Reference
Bouwer & Rice, 1976
10^1
10^0
10^{-1}
10^{-2}
Displacement (ft)
0.0
10.0
20.0
30.0
40.0
Time (sec)



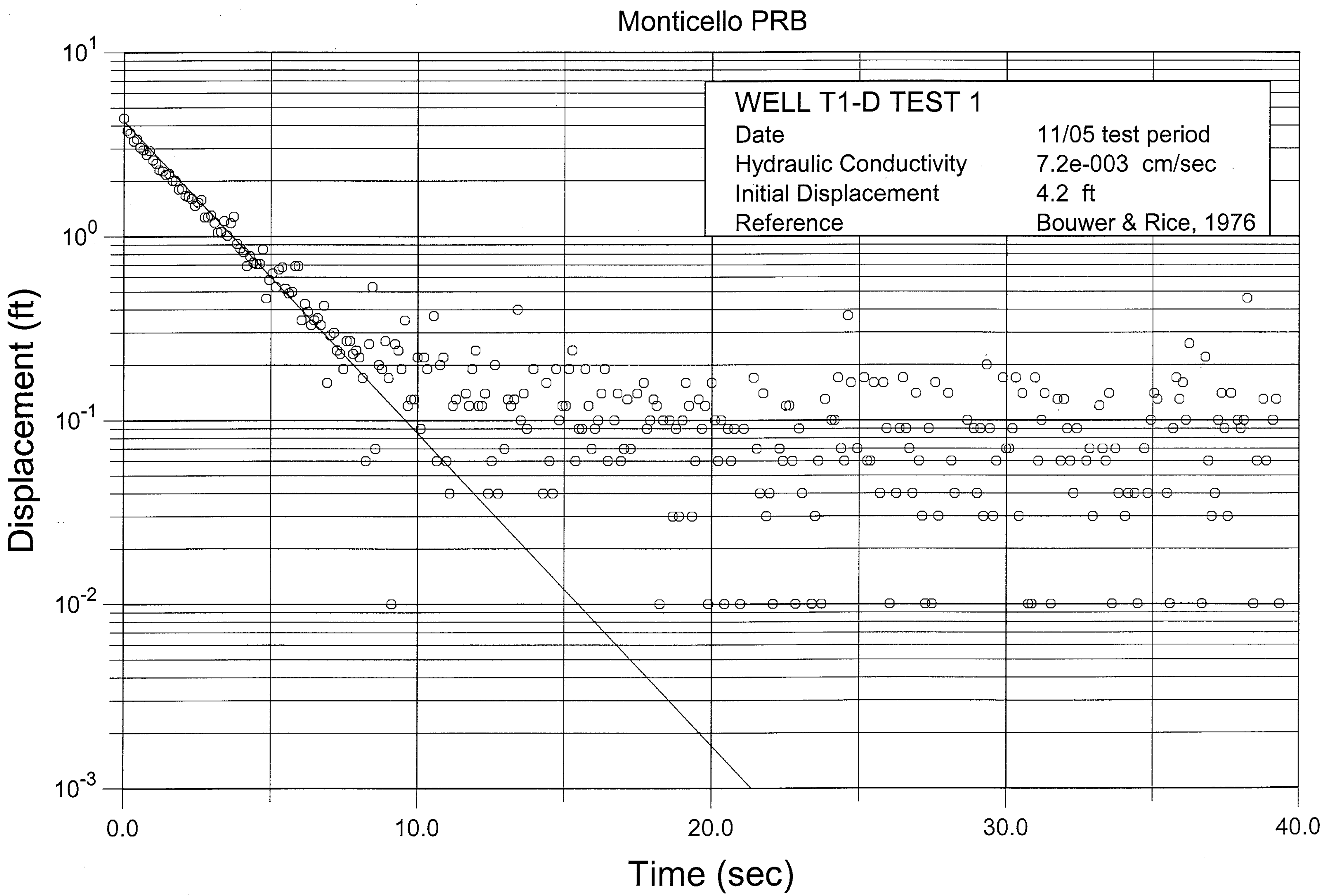
Monticello PRB
WELL R1-M5 TEST 1
Date 11/05 test period
Hydraulic Conductivity 4.5e-003 cm/sec
Initial Displacement 3.0 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
10^-3
0.0
10.0
20.0
30.0
40.0
Time (sec)



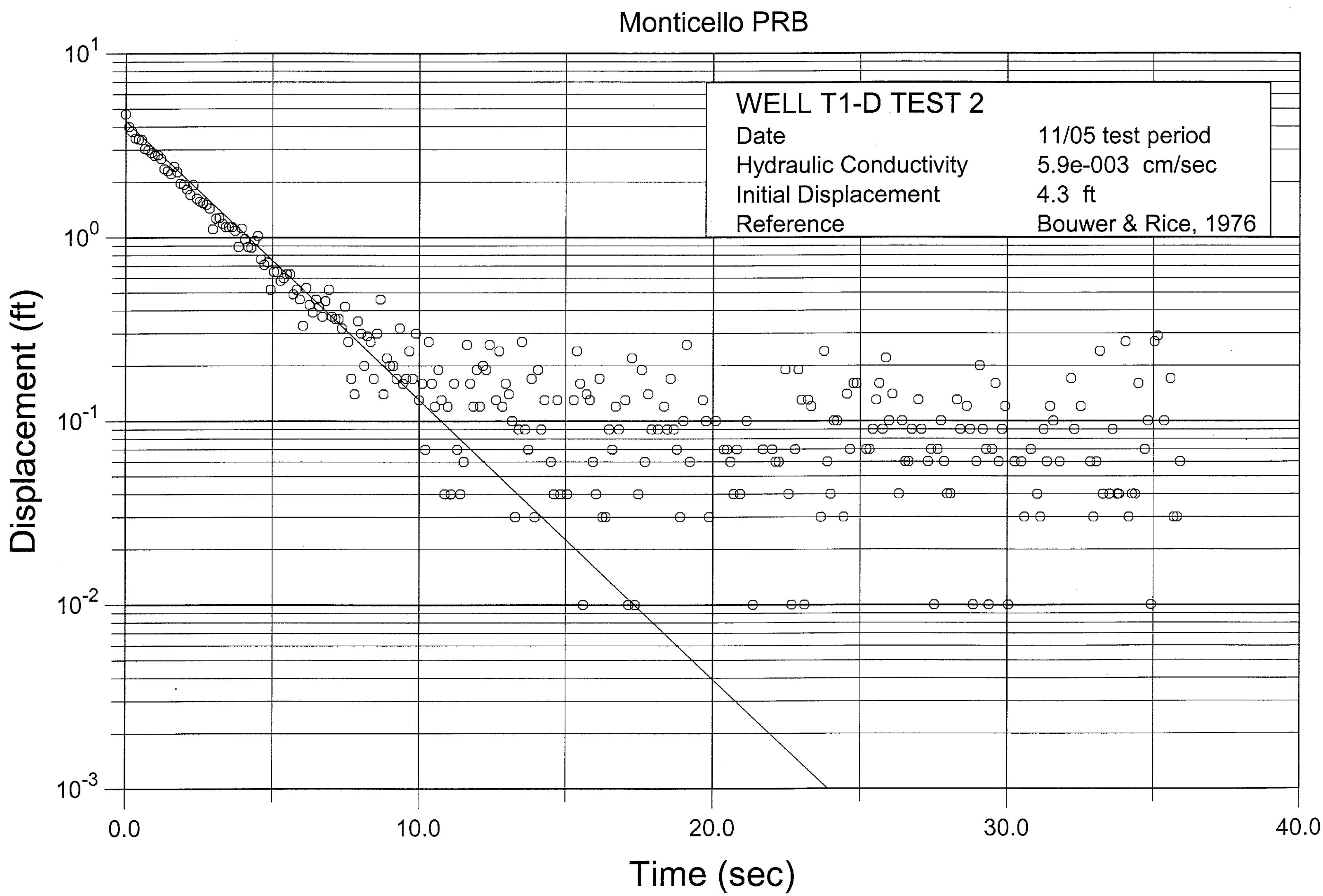
Monticello PRB
WELL R1-M5 TEST 2
Date 11/05 test period
Hydraulic Conductivity 4.2e-003 cm/sec
Initial Displacement 3.0 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
10^-3
0.0
10.0
20.0
30.0
40.0
Time (sec)

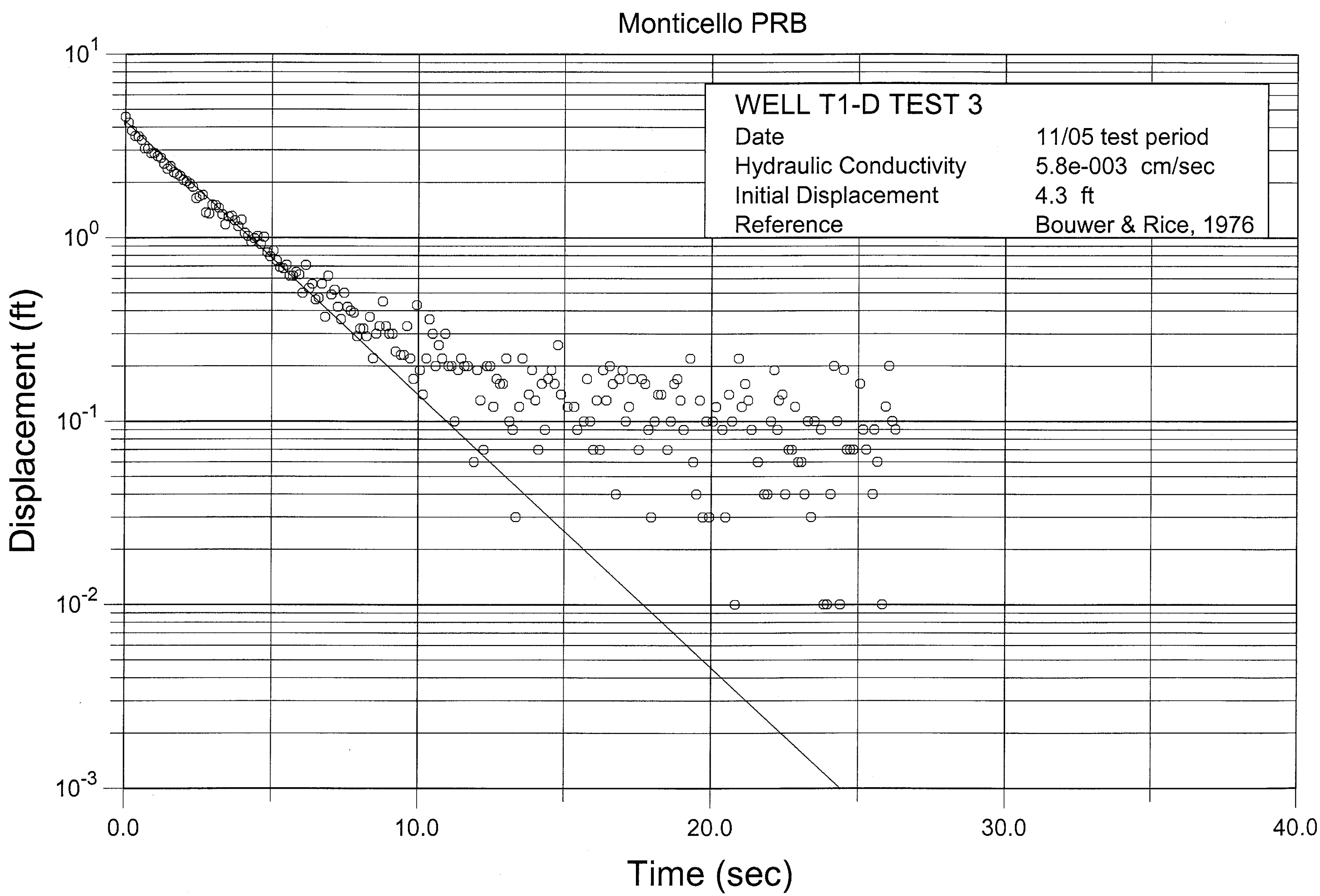


Monticello PRB
WELL R1-M5 TEST 3
Date
11/05 test period
Hydraulic Conductivity
4.3e-003 cm/sec
Initial Displacement
3.0 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^{-1}
10^{-2}
10^{-3}
0.0
10.0
20.0
30.0
40.0
Time (sec)

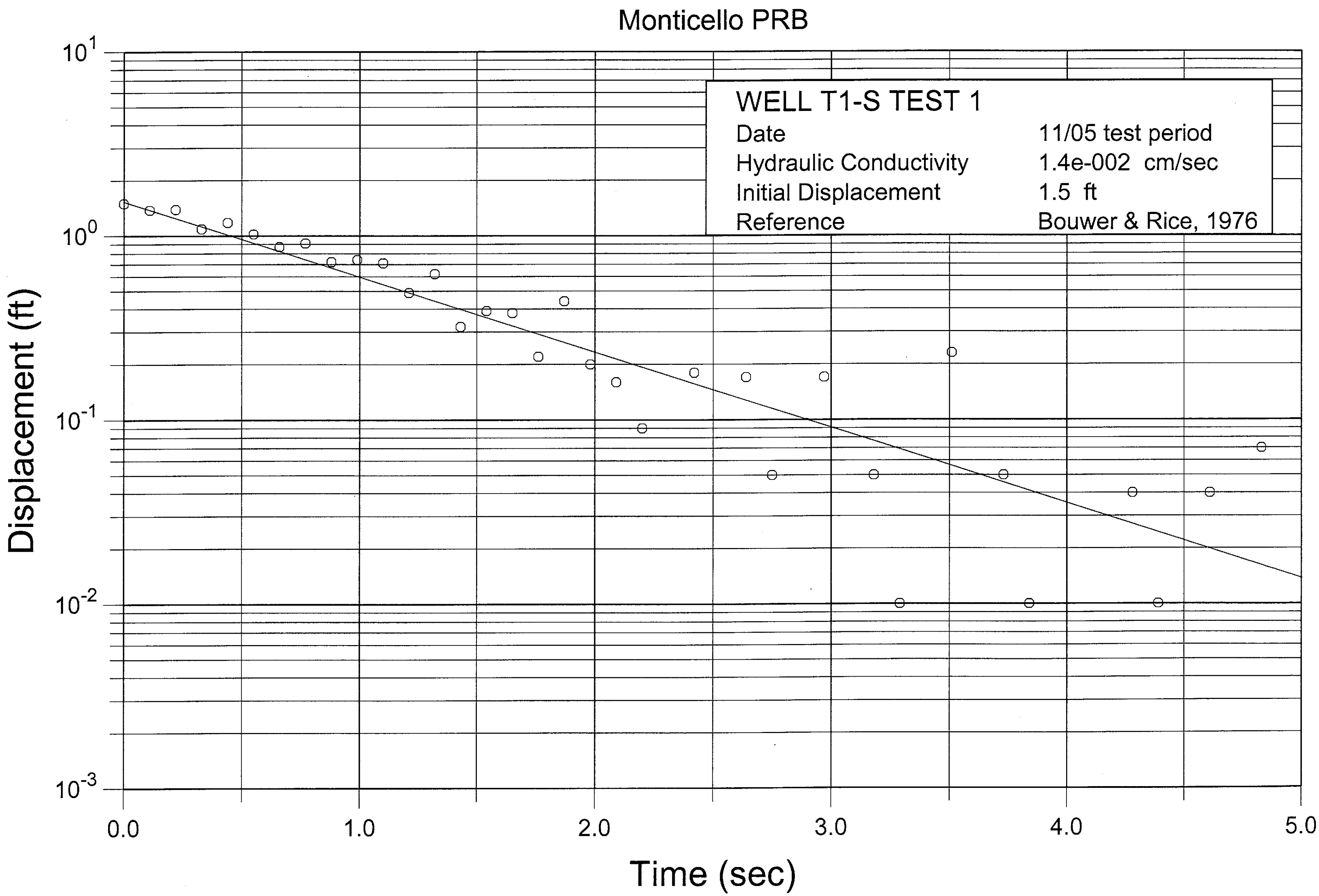


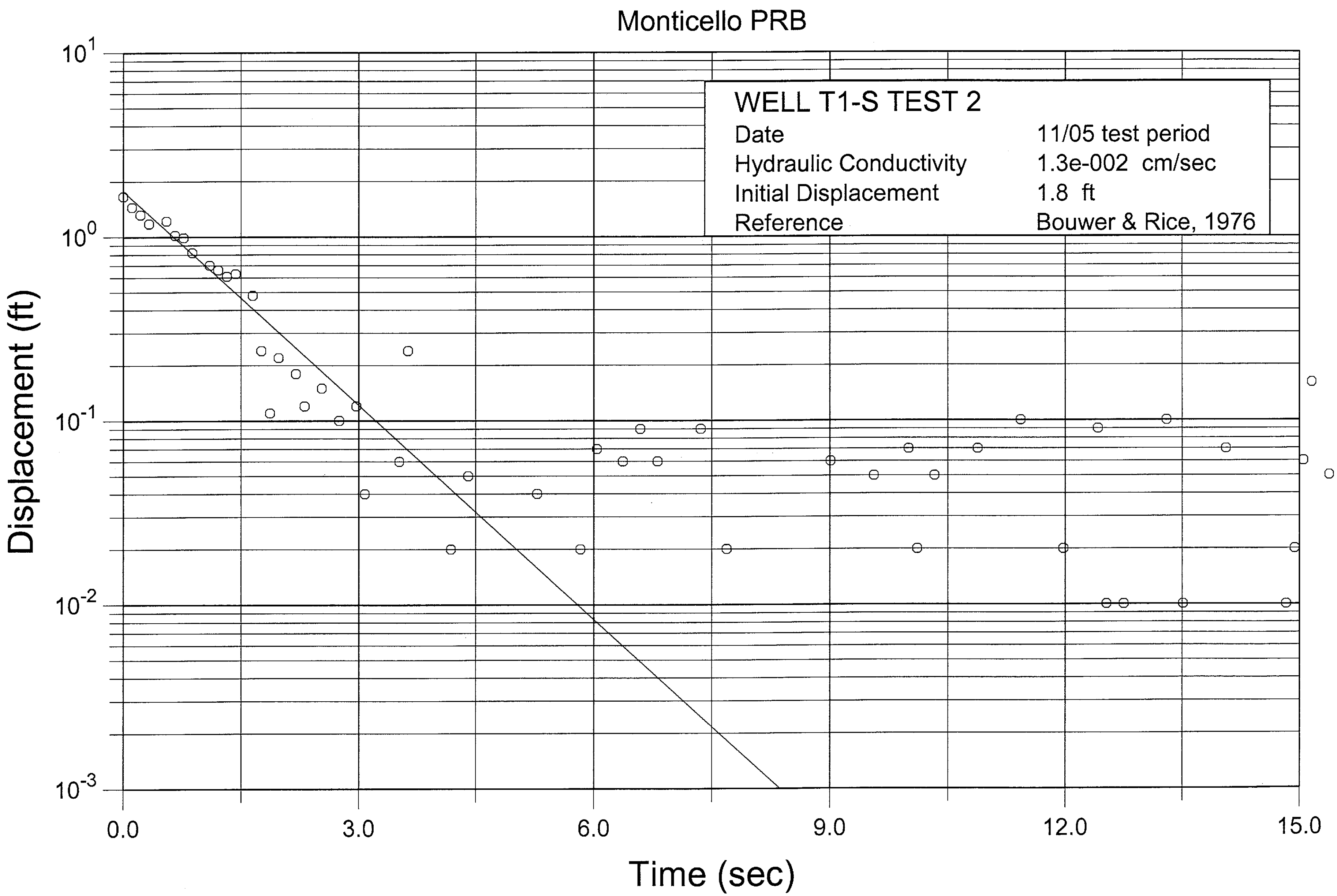
Monticello PRB
WELL T1-D TEST 1
Date
11/05 test period
Hydraulic Conductivity
7.2e-003 cm/sec
Initial Displacement
4.2 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
0.0
10.0
20.0
30.0
40.0
Time (sec)

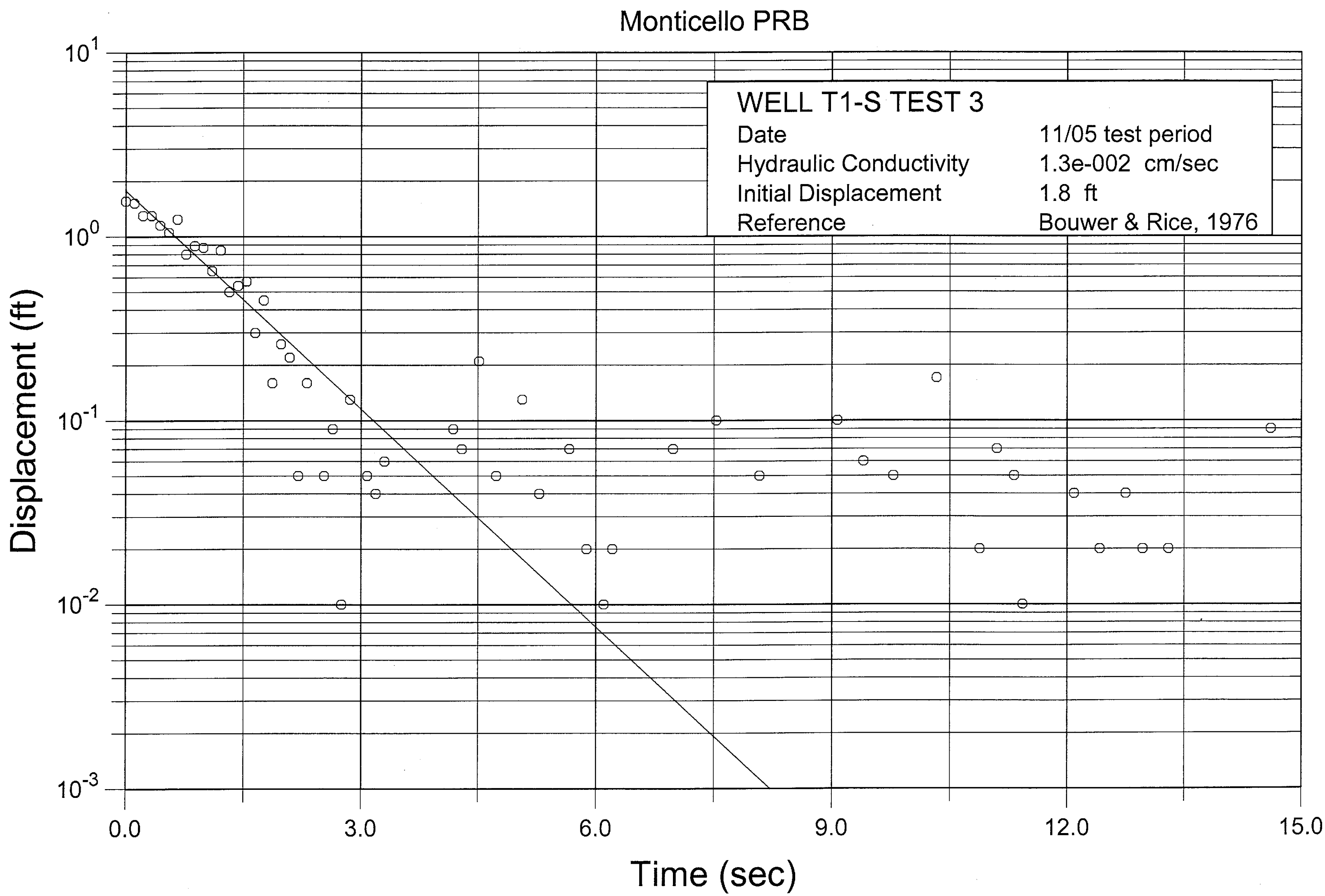

Monticello PRB
WELL T1-D TEST 2
Date 11/05 test period
Hydraulic Conductivity 5.9e-003 cm/sec
Initial Displacement 4.3 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^{-1}
10^{-2}
10^{-3}
0.0
10.0
20.0
30.0
40.0
Time (sec)



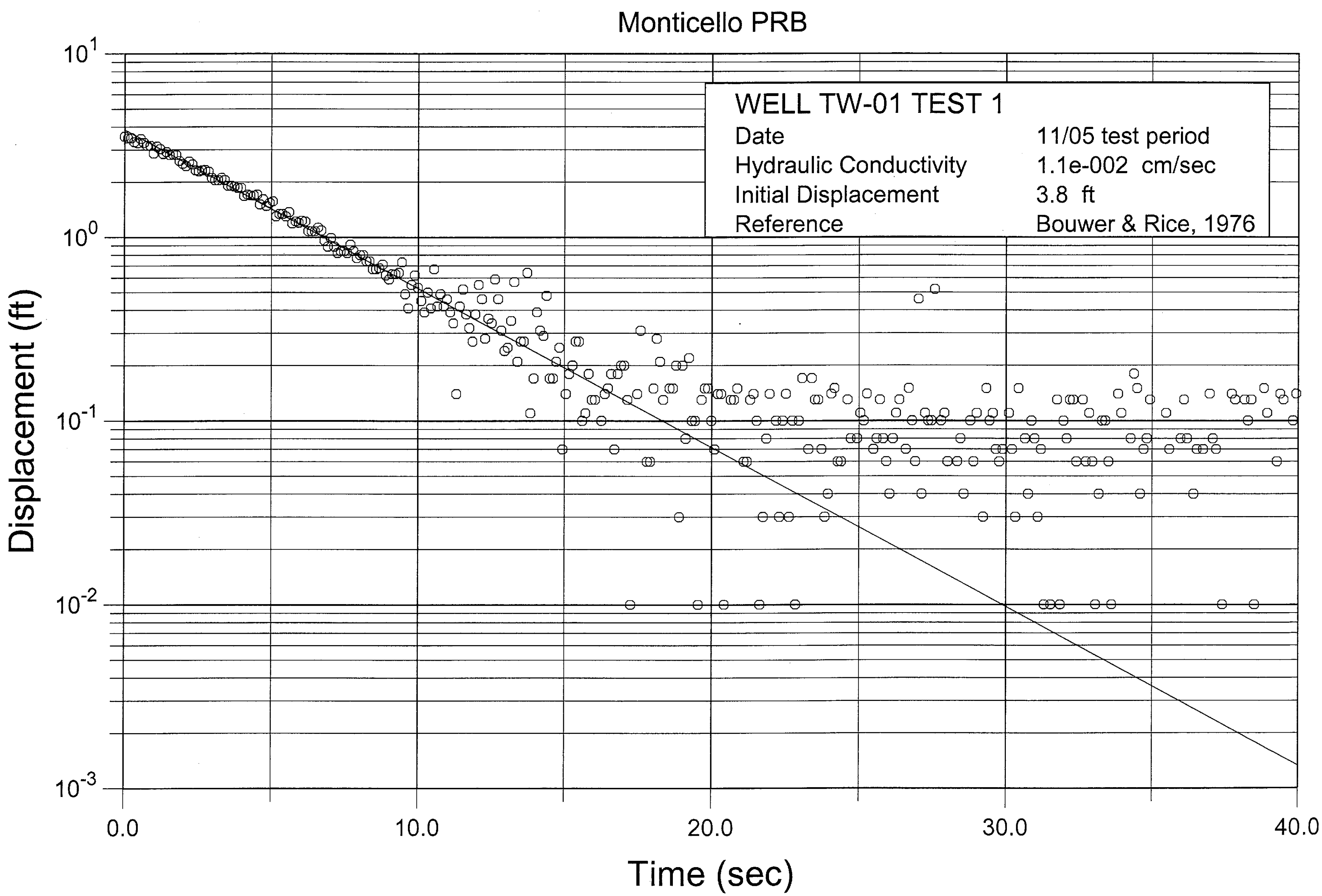
Monticello PRB
WELL T1-D TEST 3
Date
11/05 test period
Hydraulic Conductivity
5.8e-003 cm/sec
Initial Displacement
4.3 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
0.0
10.0
20.0
30.0
40.0
Time (sec)

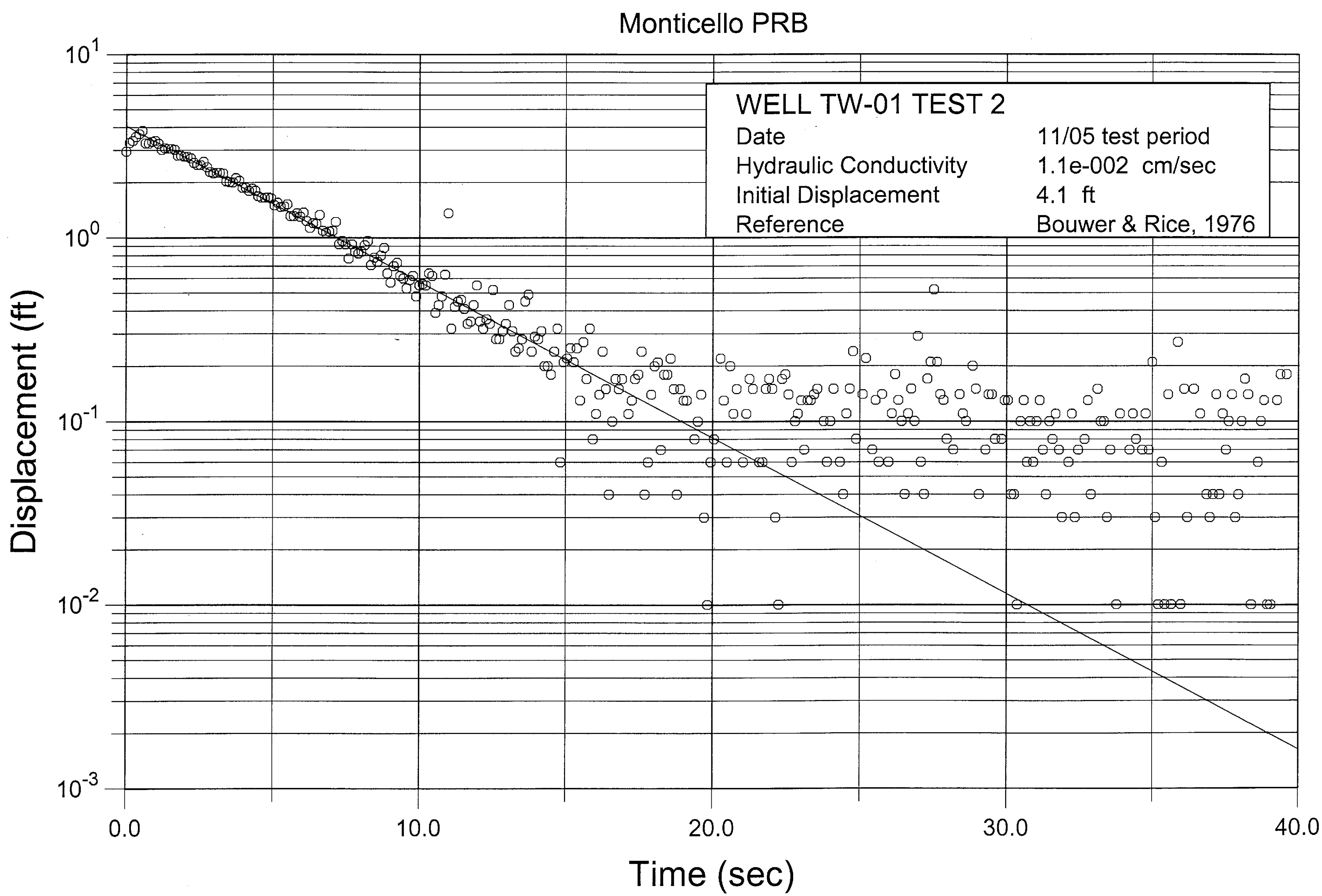

Monticello PRB
WELL T1-S TEST 1
Date 11/05 test period
Hydraulic Conductivity 1.4e-002 cm/sec
Initial Displacement 1.5 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^1
10^0
10^-1
10^-2
10^-3
0.0
1.0
2.0
3.0
4.0
5.0


Monticello PRB
WELL T1-S TEST 2
Date 11/05 test period
Hydraulic Conductivity 1.3e-002 cm/sec
Initial Displacement 1.8 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
0.0
3.0
6.0
9.0
12.0
15.0
Time (sec)

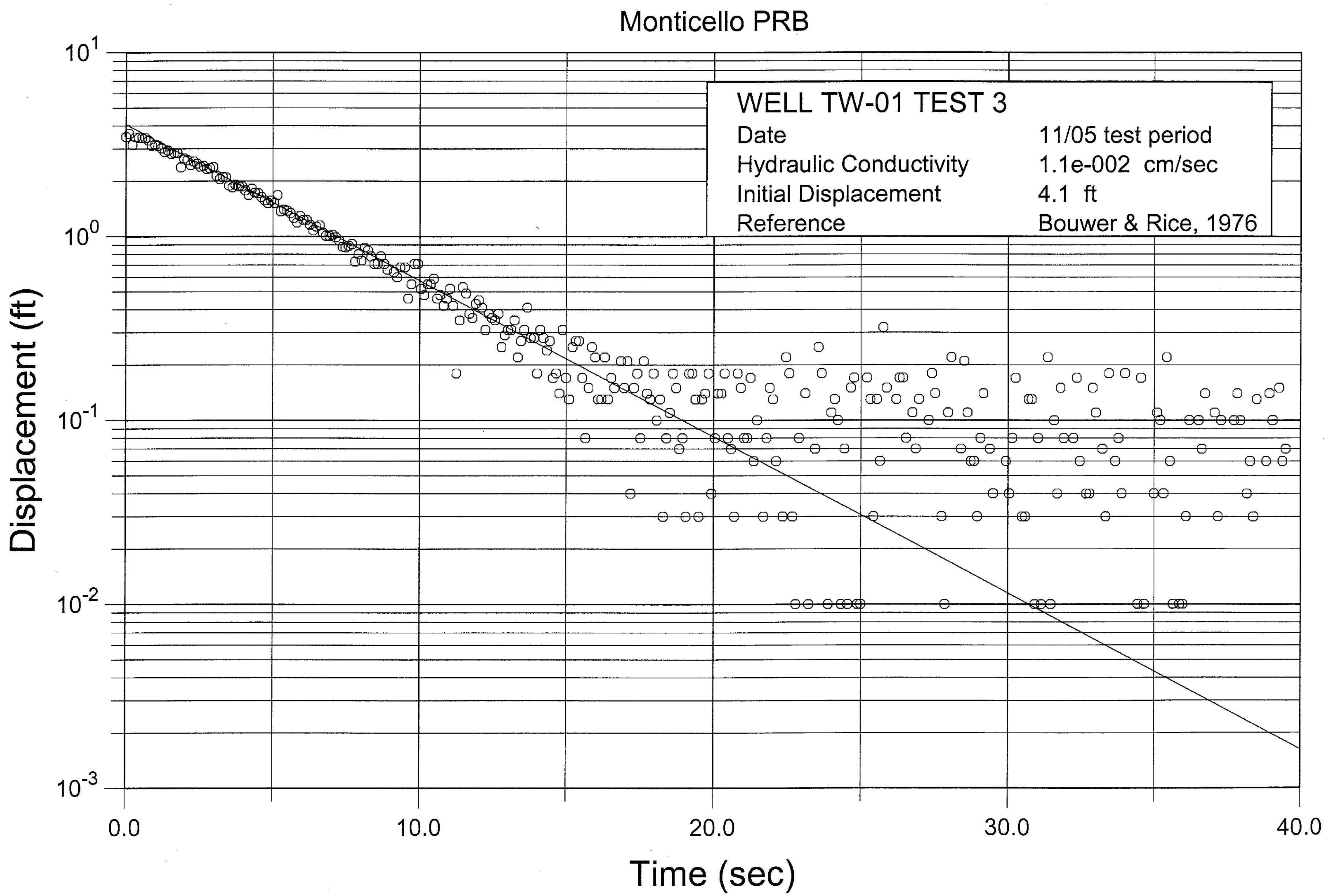


Monticello PRB
WELL T1-S TEST 3
Date 11/05 test period
Hydraulic Conductivity 1.3e-002 cm/sec
Initial Displacement 1.8 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
10^-3
0.0
3.0
6.0
9.0
12.0
15.0
Time (sec)

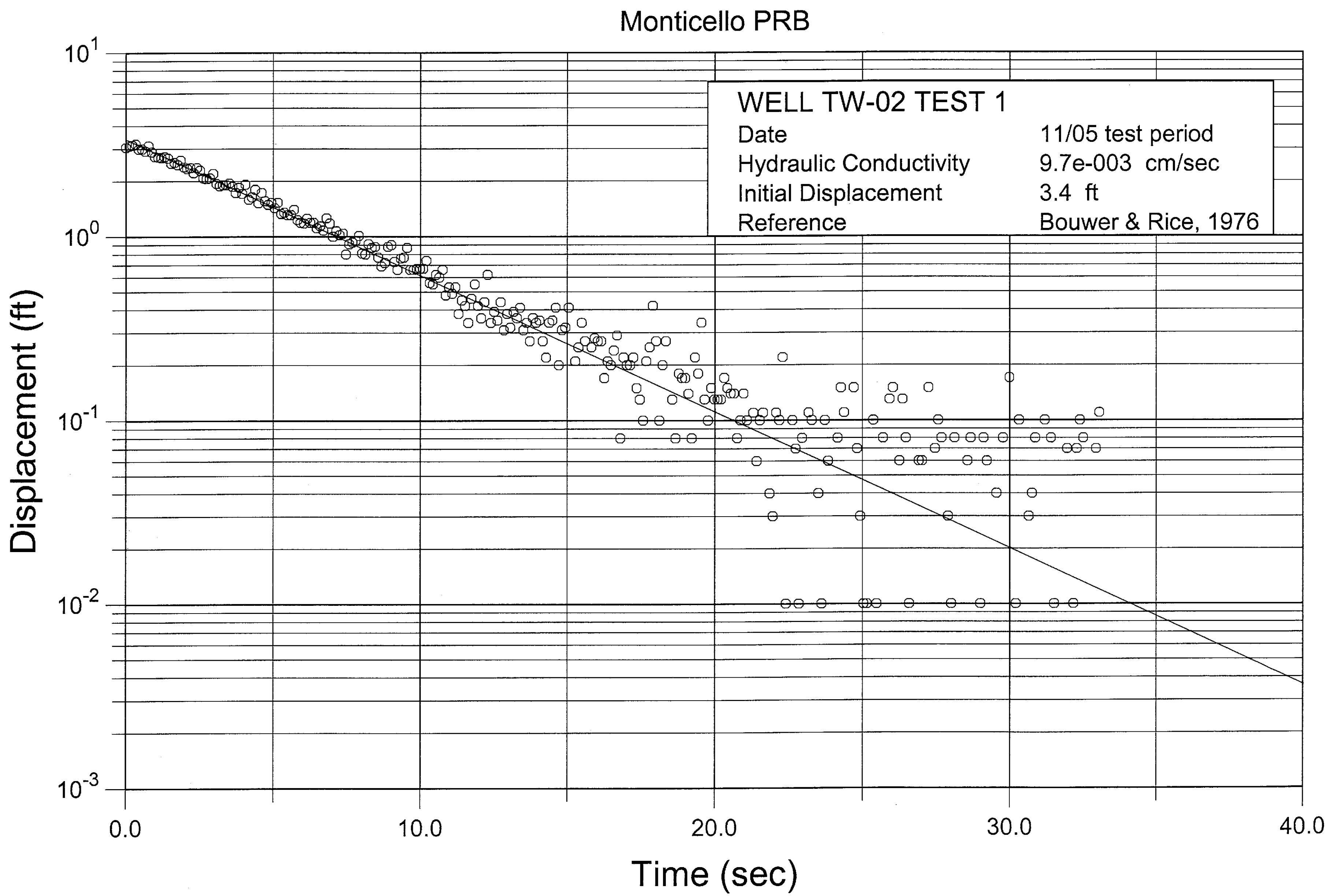

Monticello PRB
WELL TW-01 TEST 1
Date
11/05 test period
Hydraulic Conductivity
1.1e-002 cm/sec
Initial Displacement
3.8 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^1
10^0
10^-1
10^-2
10^-3
0.0
10.0
20.0
30.0
40.0



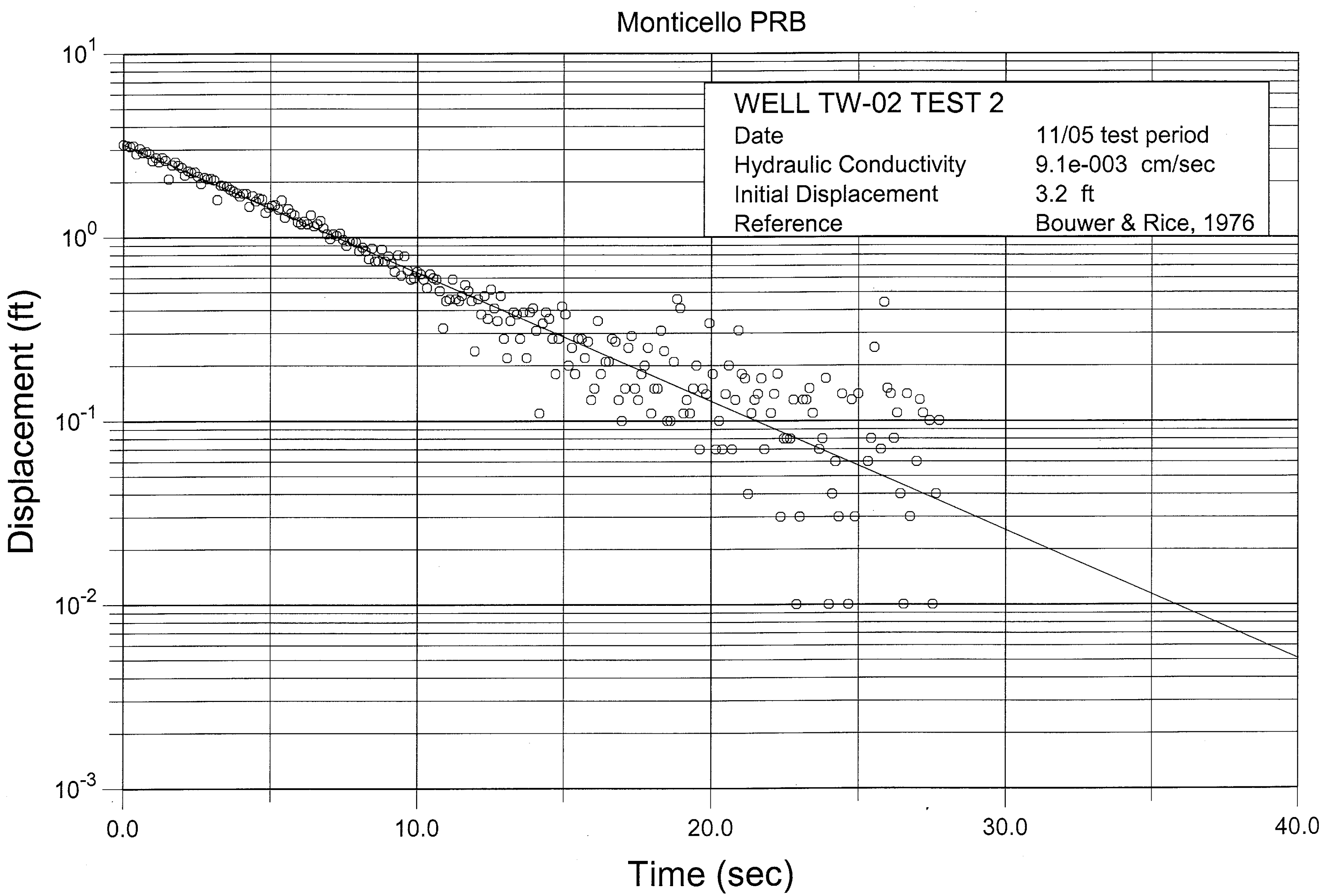
Monticello PRB
WELL TW-01 TEST 2
Date 11/05 test period
Hydraulic Conductivity 1.1e-002 cm/sec
Initial Displacement 4.1 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^1
10^0
10^-1
10^-2
10^-3
0.0
10.0
20.0
30.0
40.0

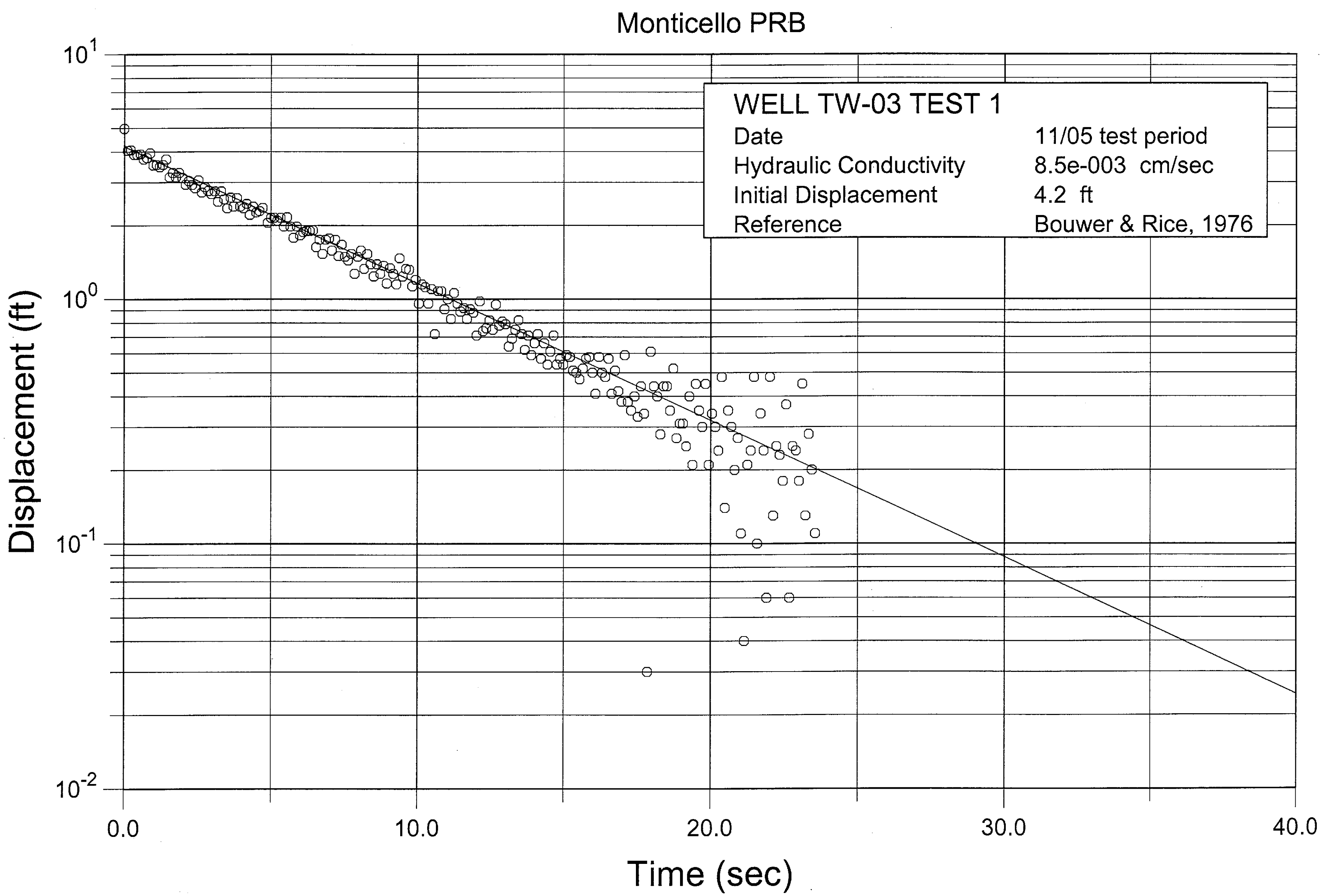


Monticello PRB
WELL TW-01 TEST 3
Date 11/05 test period
Hydraulic Conductivity 1.1e-002 cm/sec
Initial Displacement 4.1 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
0.0
10.0
20.0
30.0
40.0
Time (sec)

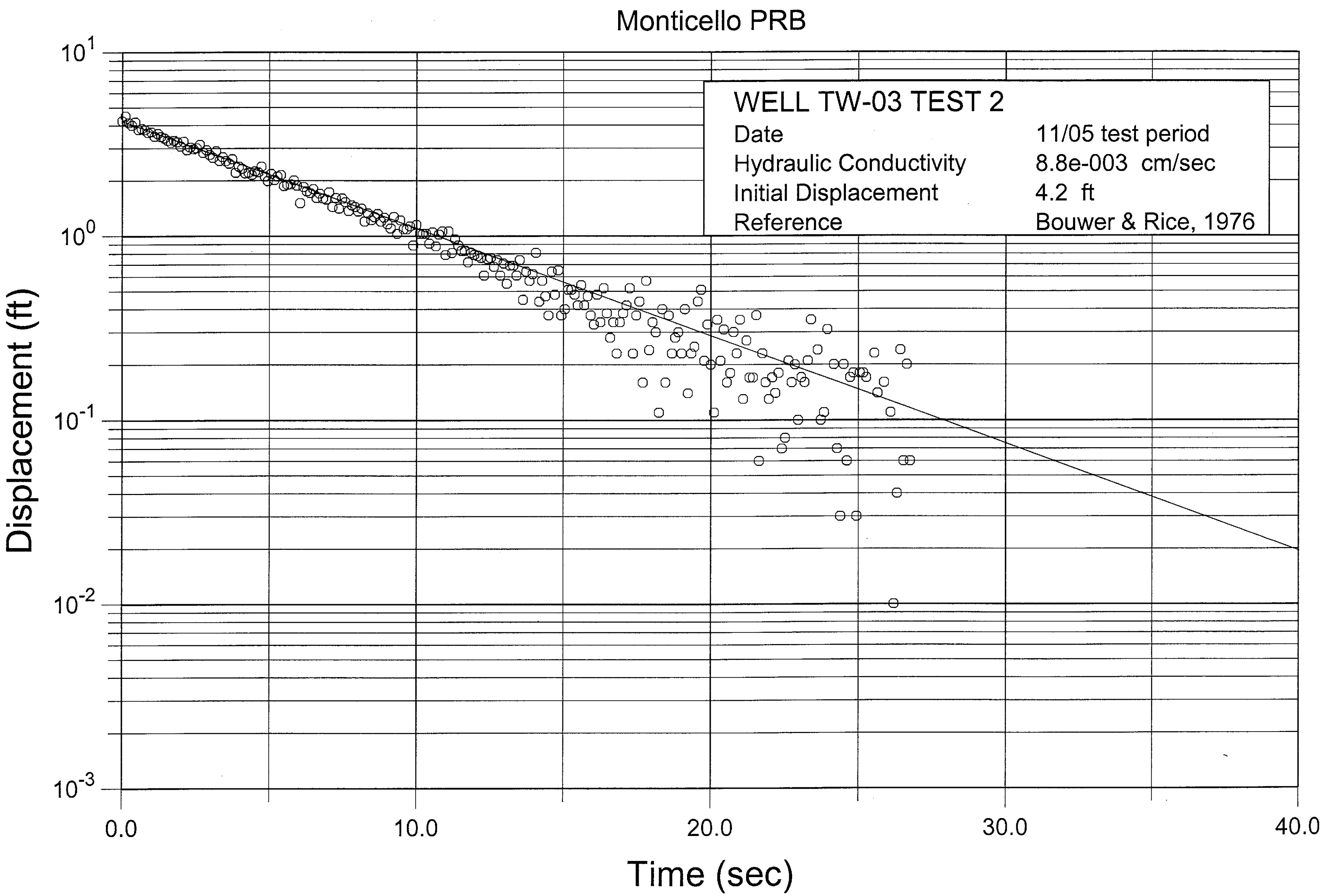


Monticello PRB
WELL TW-02 TEST 1
Date
11/05 test period
Hydraulic Conductivity
9.7e-003 cm/sec
Initial Displacement
3.4 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^1
10^0
10^-1
10^-2
10^-3
0.0
10.0
20.0
30.0
40.0

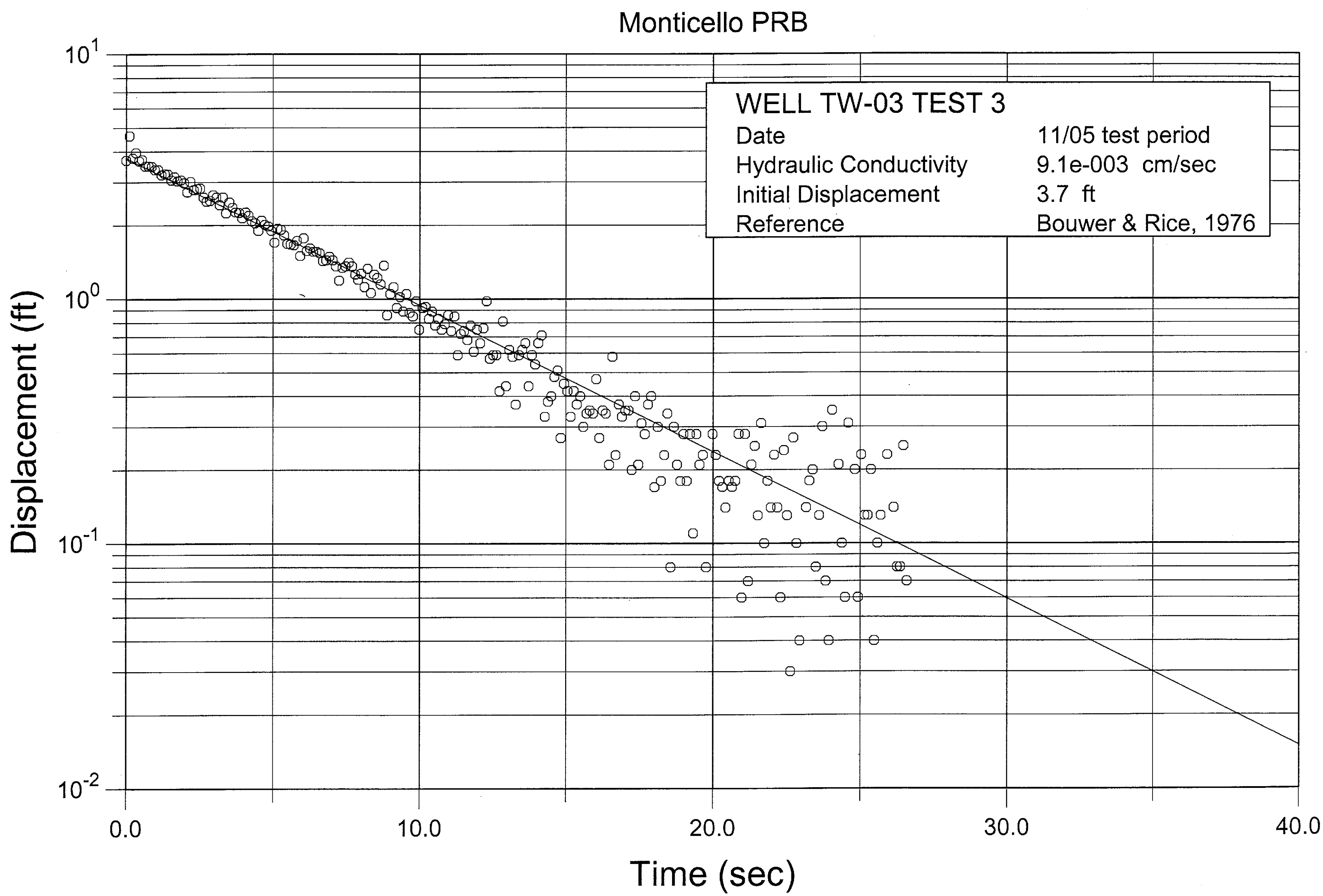

Monticello PRB
WELL TW-02 TEST 2
Date
11/05 test period
Hydraulic Conductivity
9.1e-003 cm/sec
Initial Displacement
3.2 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
Time (sec)
0.0
10.0
20.0
30.0
40.0



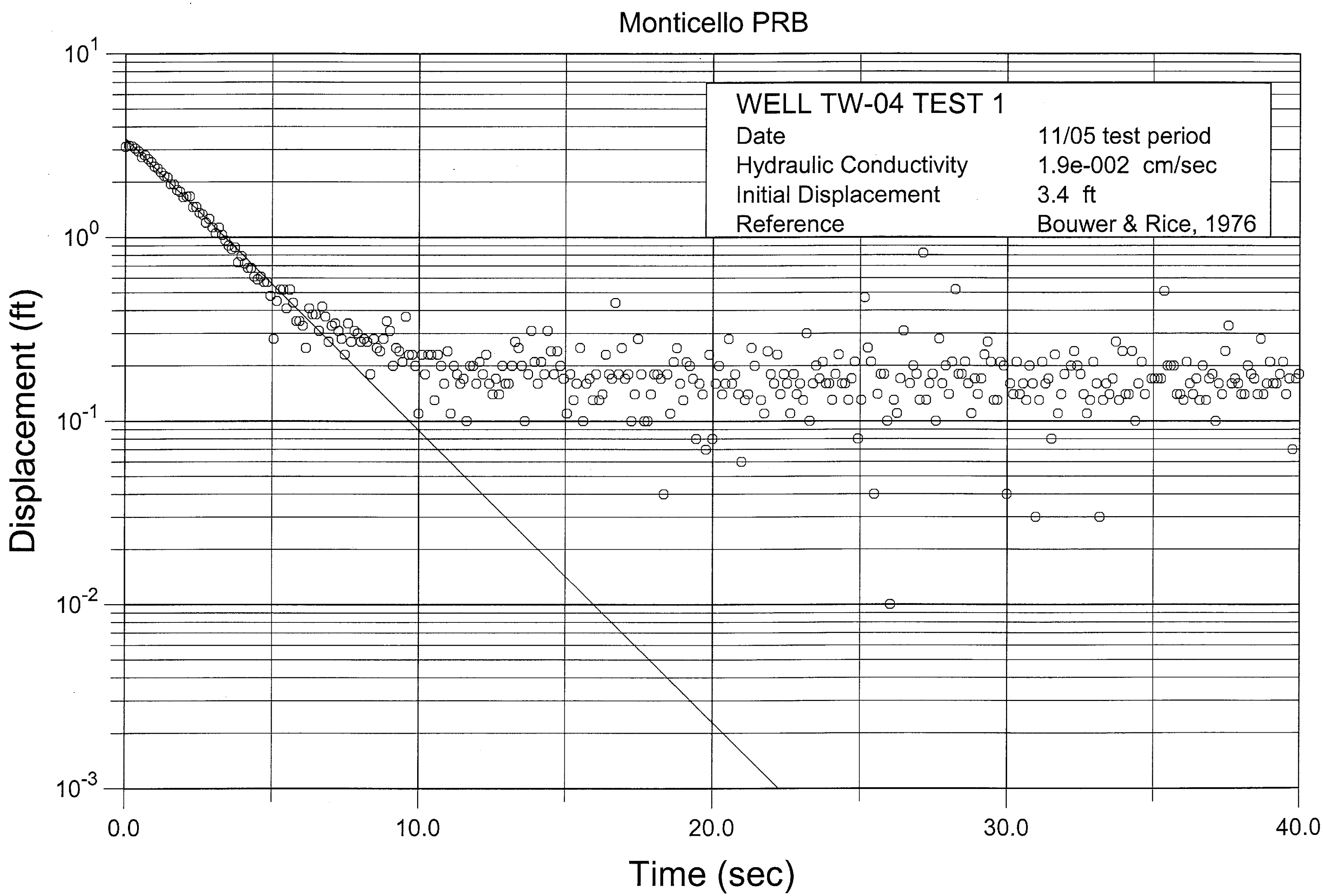
Monticello PRB
WELL TW-03 TEST 1
Date
11/05 test period
Hydraulic Conductivity
8.5e-003 cm/sec
Initial Displacement
4.2 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^{-1}
10^{-2}
0.0
10.0
20.0
30.0
40.0
Time (sec)



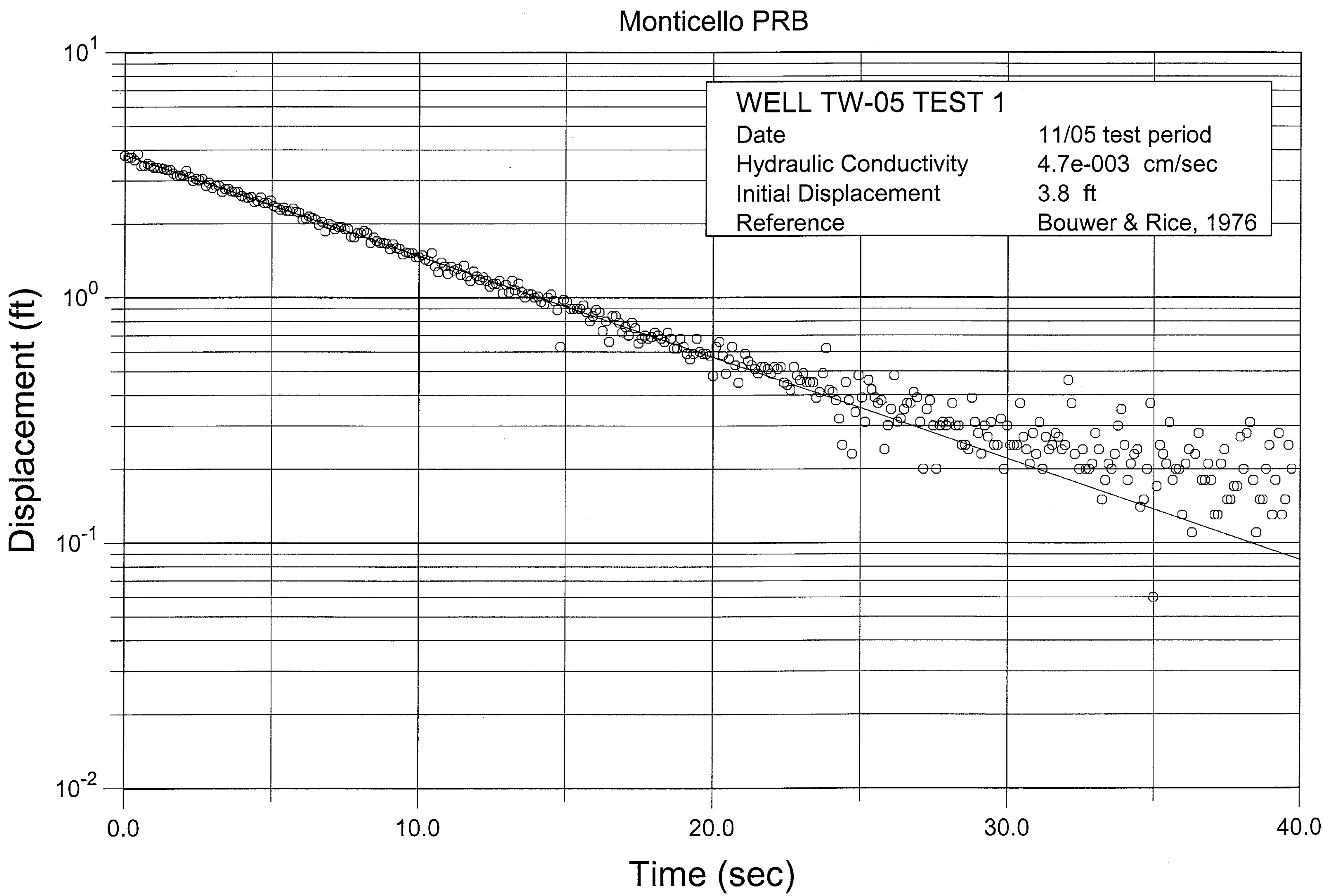
Monticello PRB
WELL TW-03 TEST 2
Date
11/05 test period
Hydraulic Conductivity
8.8e-003 cm/sec
Initial Displacement
4.2 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
0.0
10.0
20.0
30.0
40.0



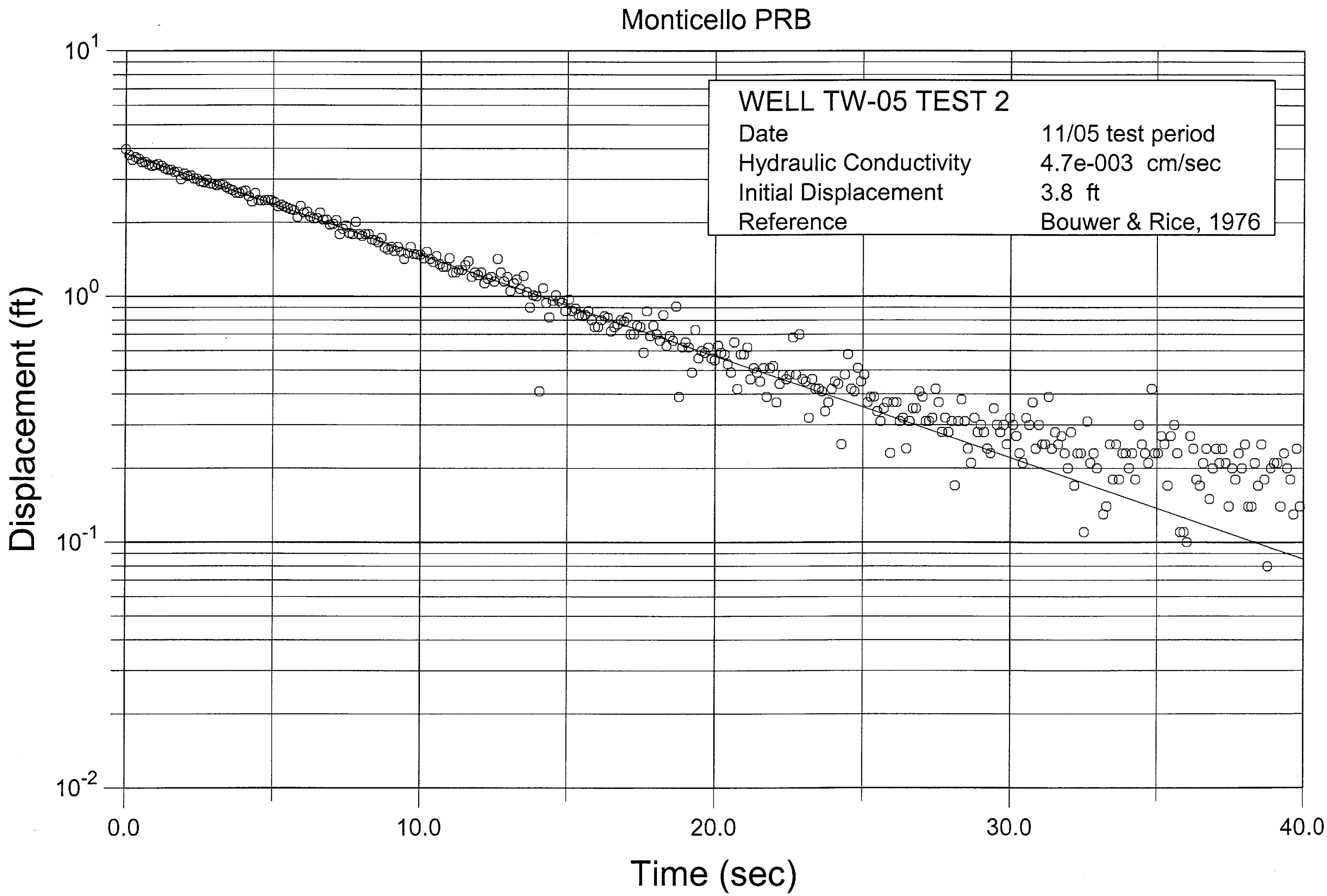
Monticello PRB
WELL TW-03 TEST 3
Date 11/05 test period
Hydraulic Conductivity 9.1e-003 cm/sec
Initial Displacement 3.7 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
0.0
10.0
20.0
30.0
40.0
Time (sec)

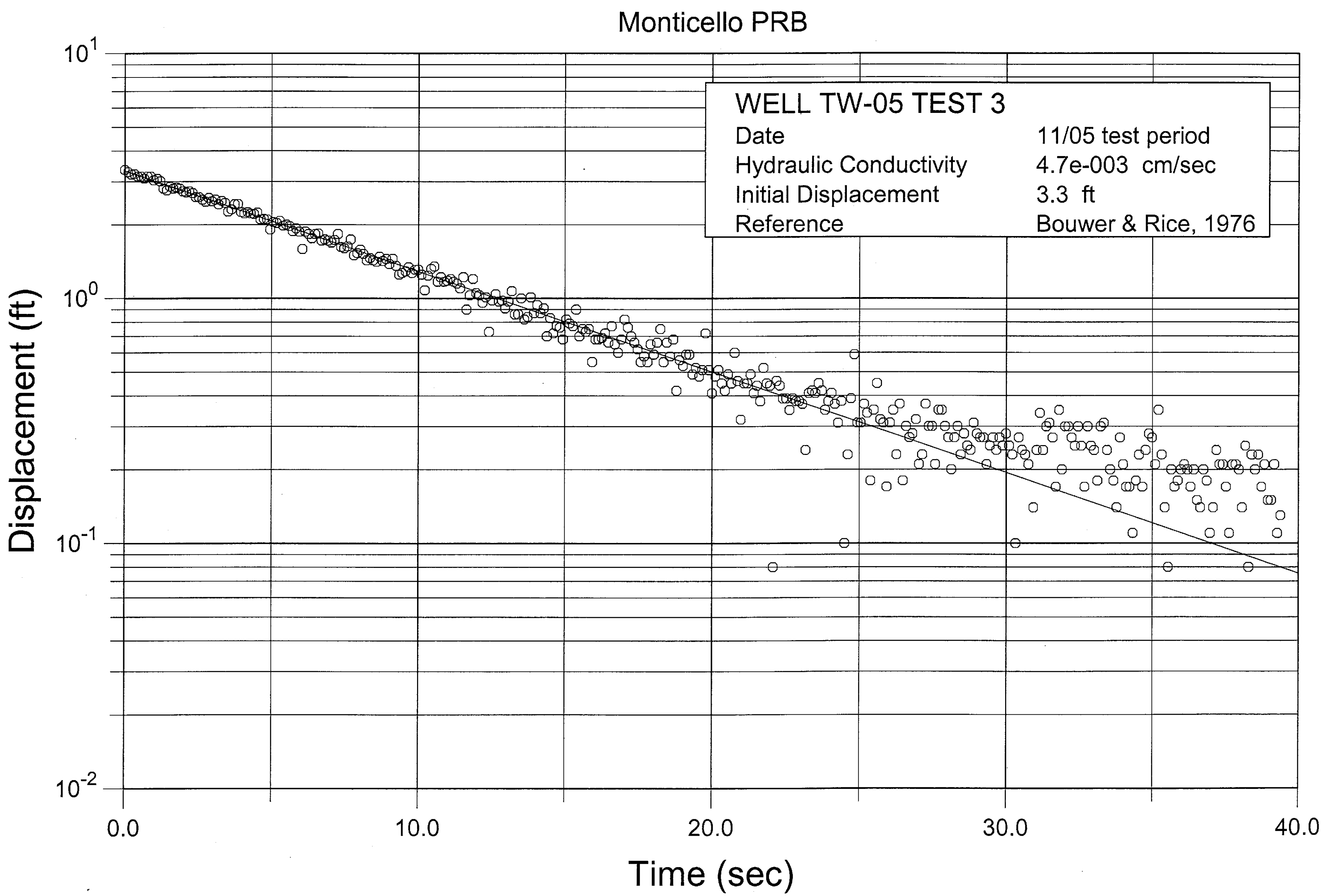


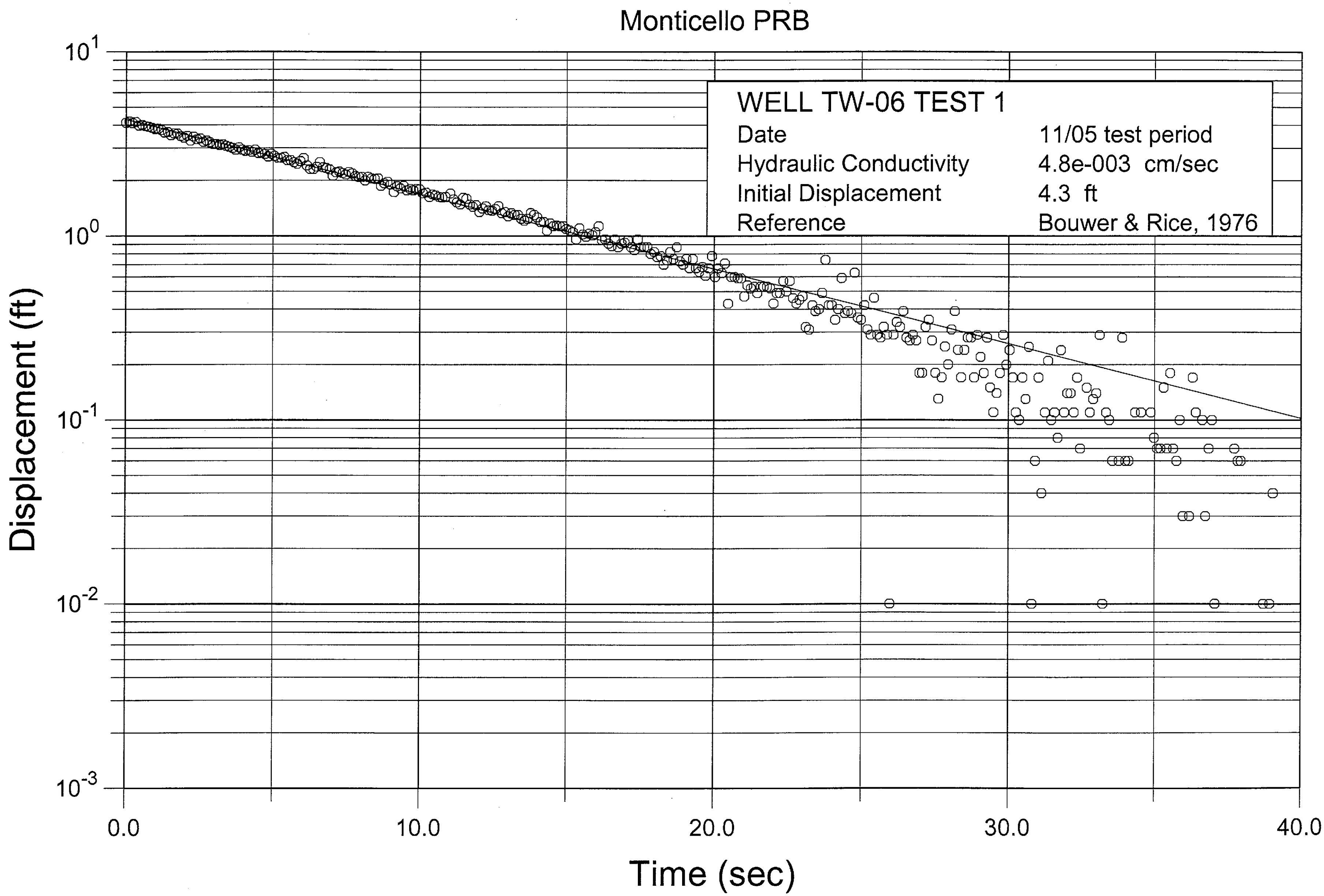
Monticello PRB
WELL TW-04 TEST 1
Date 11/05 test period
Hydraulic Conductivity 1.9e-002 cm/sec
Initial Displacement 3.4 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
10^-3
0.0
10.0
20.0
30.0
40.0
Time (sec)



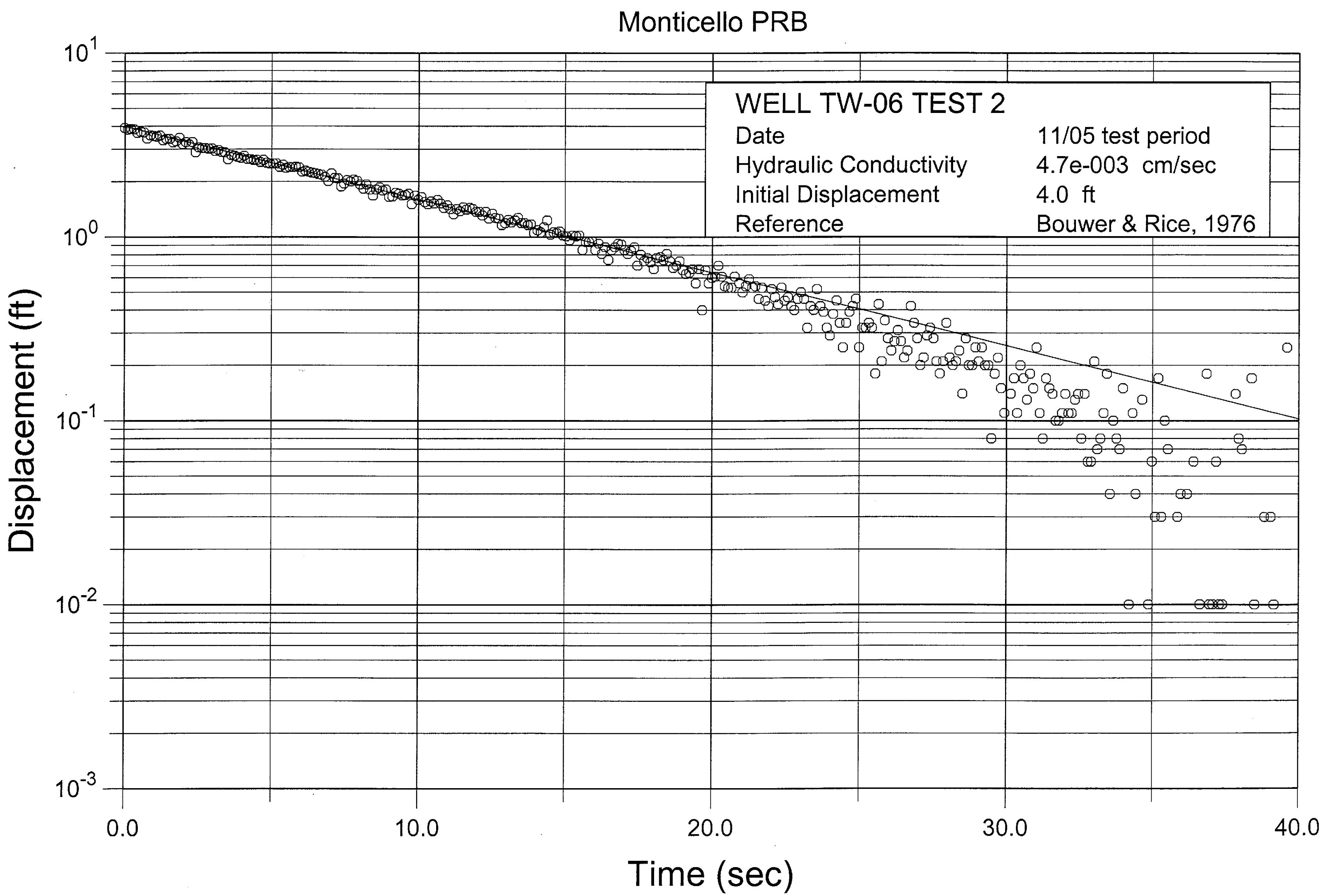
Monticello PRB
WELL TW-05 TEST 1
Date
11/05 test period
Hydraulic Conductivity
4.7e-003 cm/sec
Initial Displacement
3.8 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
Time (sec)


Monticello PRB
WELL TW-05 TEST 2
Date
11/05 test period
Hydraulic Conductivity
4.7e-003 cm/sec
Initial Displacement
3.8 ft
Reference
Bouwer & Rice, 1976
10^1
10^0
10^-1
10^-2
Displacement (ft)
0.0
10.0
20.0
30.0
40.0
Time (sec)

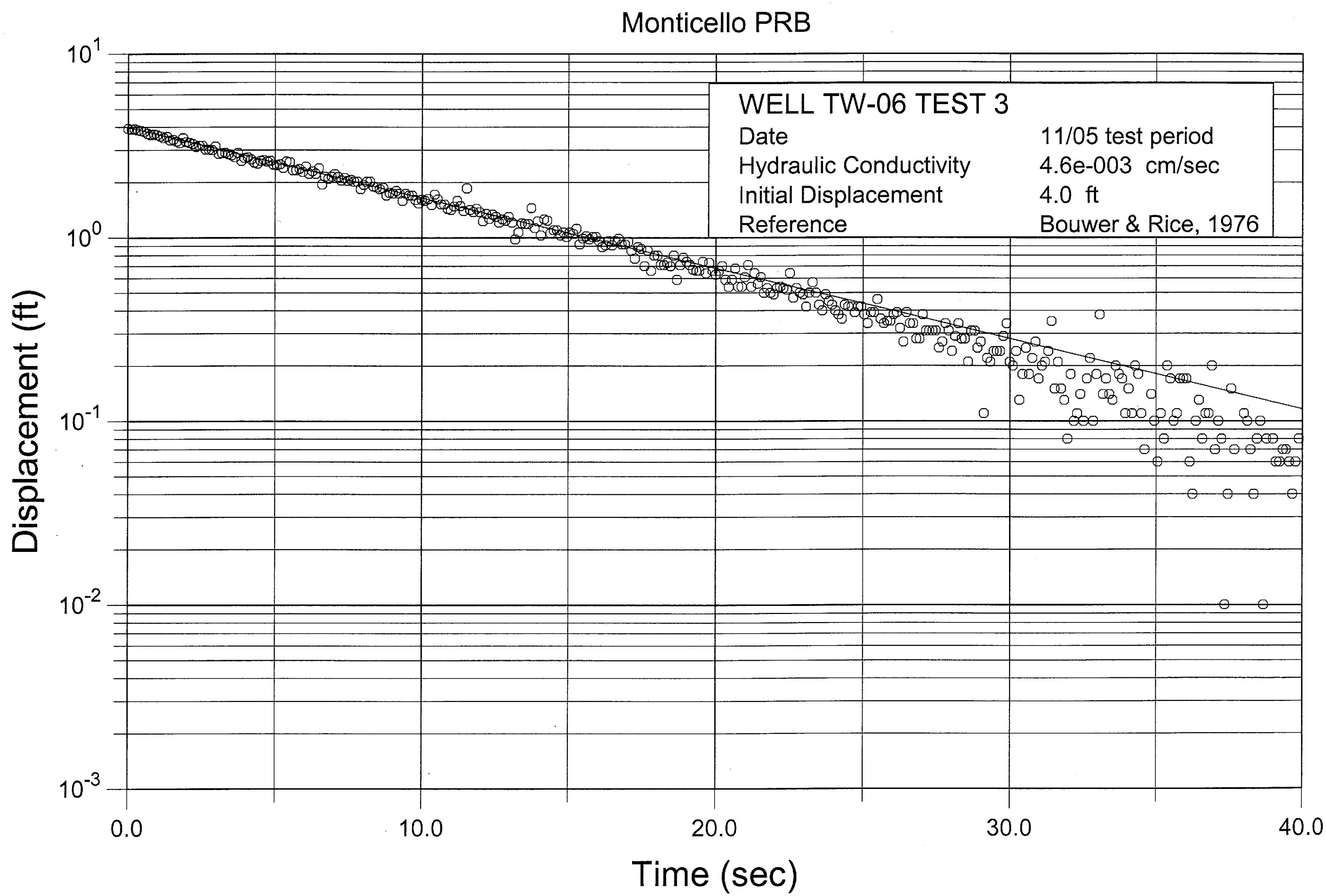

Monticello PRB
WELL TW-05 TEST 3
Date
11/05 test period
Hydraulic Conductivity
4.7e-003 cm/sec
Initial Displacement
3.3 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^1
10^0
10^{-1}
10^{-2}
0.0
10.0
20.0
30.0
40.0



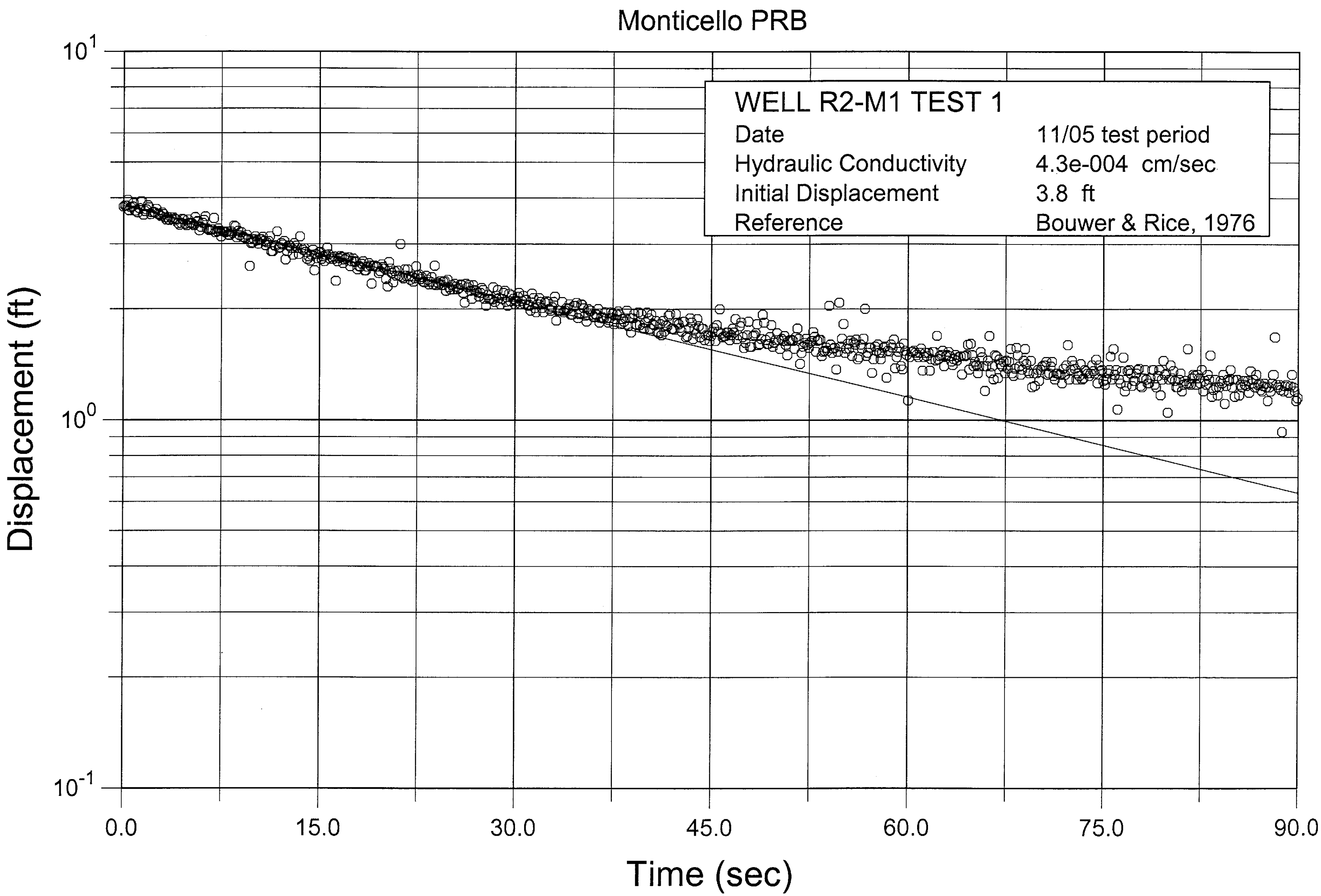
Monticello PRB
WELL TW-06 TEST 1
Date 11/05 test period
Hydraulic Conductivity 4.8e-003 cm/sec
Initial Displacement 4.3 ft
Reference Bouwer & Rice, 1976
10^1
10^0
10^{-1}
10^{-2}
10^{-3}
Displacement (ft)
0.0
10.0
20.0
30.0
40.0
Time (sec)



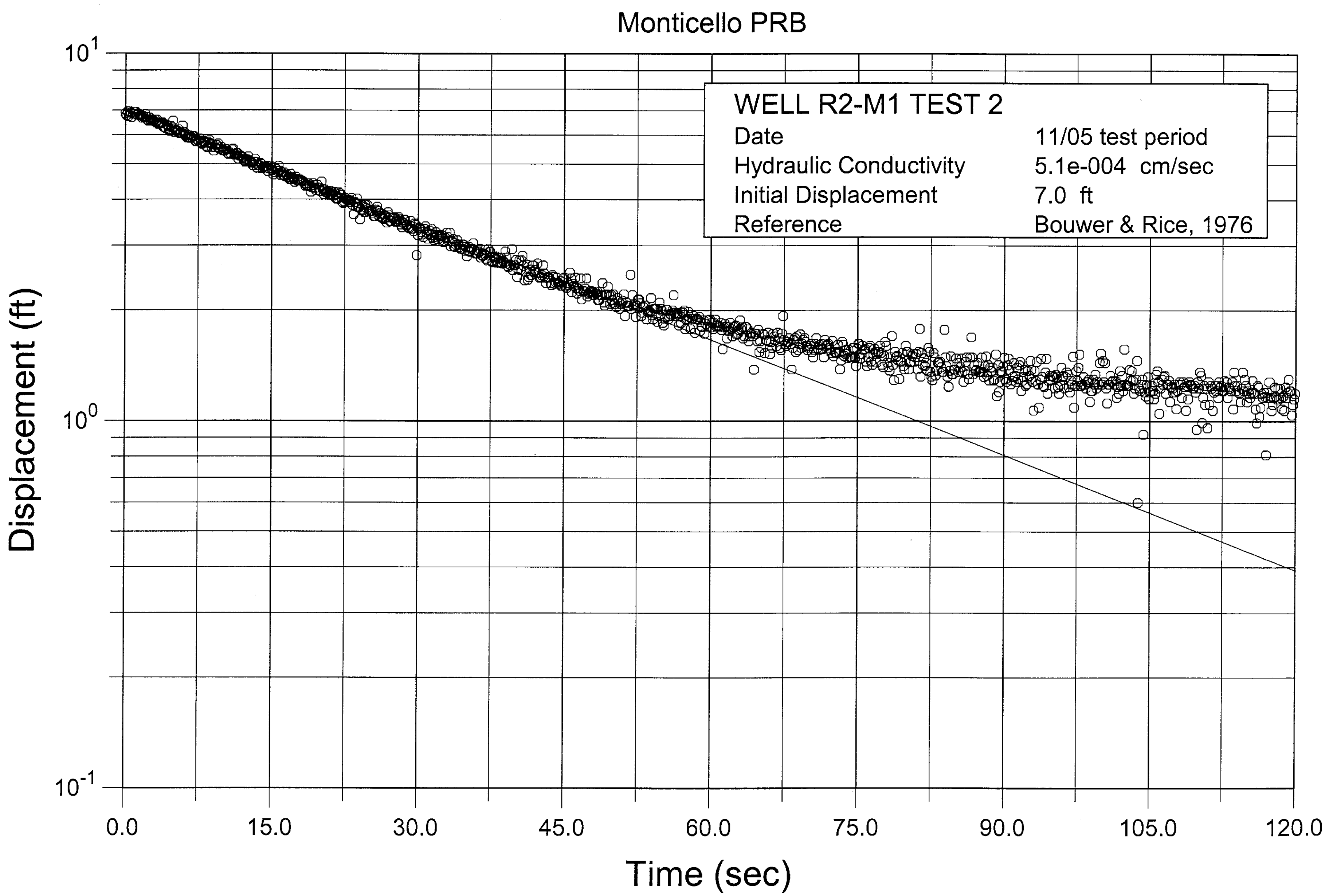
Monticello PRB
WELL TW-06 TEST 2
Date
11/05 test period
Hydraulic Conductivity
4.7e-003 cm/sec
Initial Displacement
4.0 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
10^-3
Time (sec)
0.0
10.0
20.0
30.0
40.0

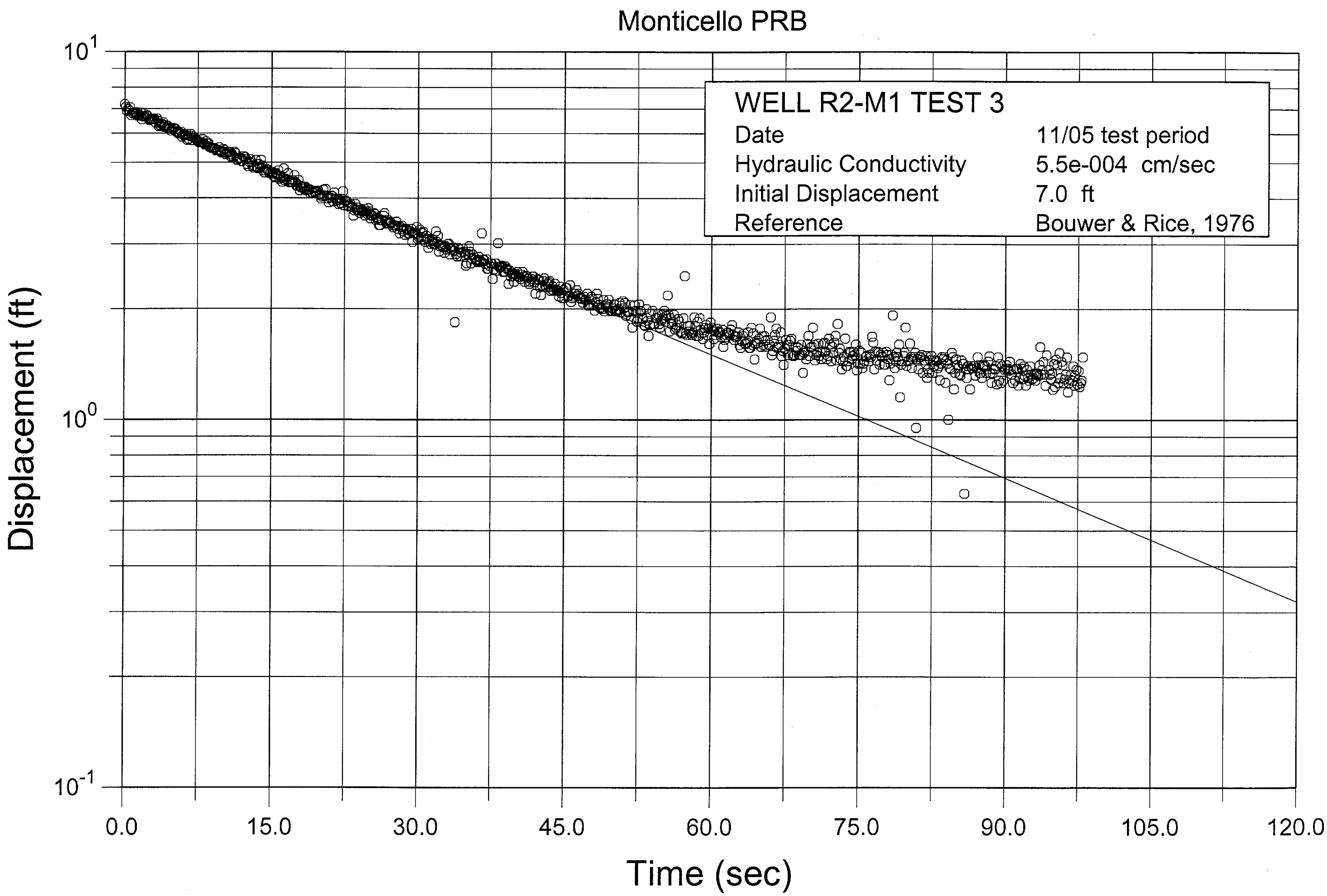


Monticello PRB
WELL TW-06 TEST 3
Date
11/05 test period
Hydraulic Conductivity
4.6e-003 cm/sec
Initial Displacement
4.0 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^1
10^0
10^-1
10^-2
10^-3
0.0
10.0
20.0
30.0
40.0

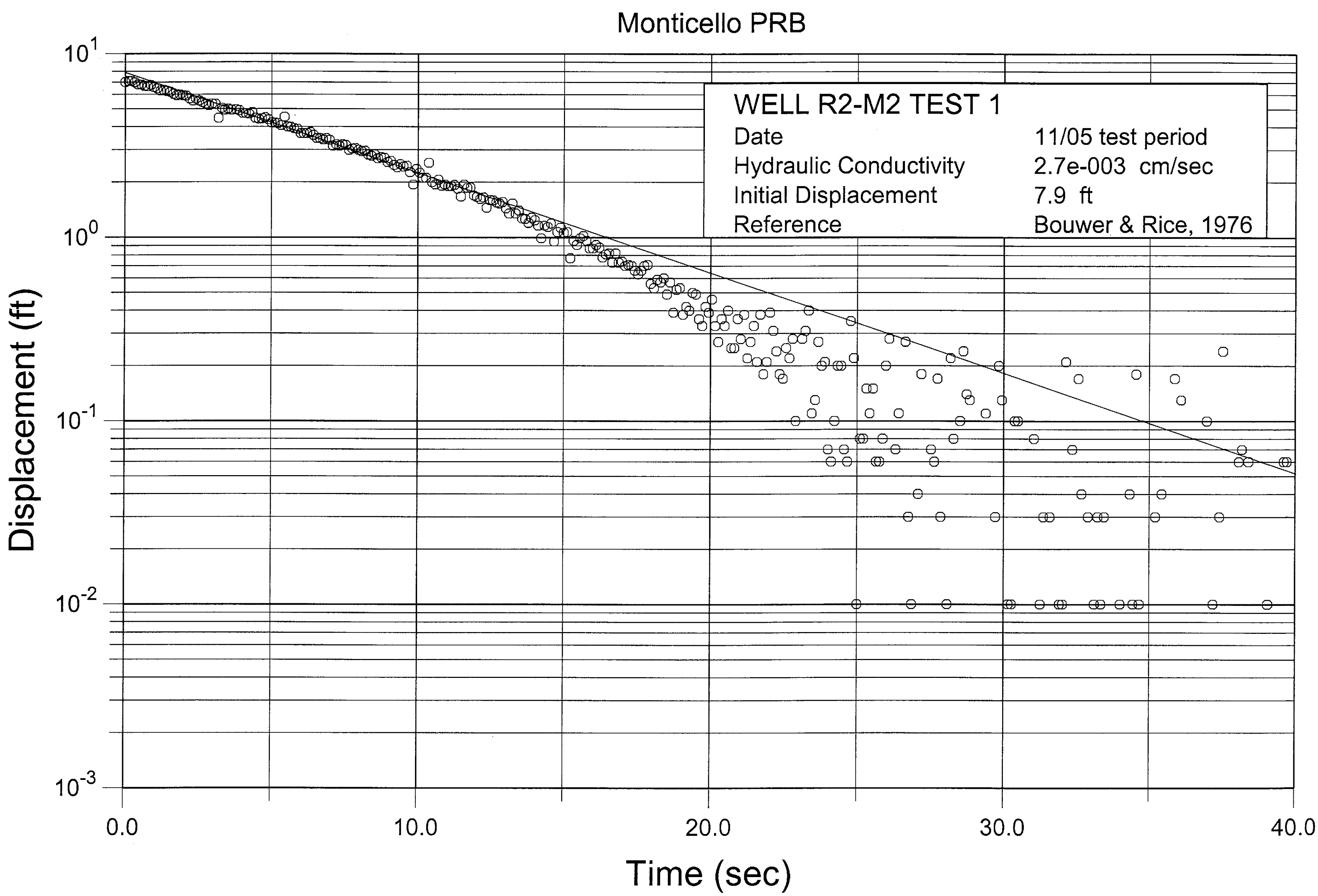


Monticello PRB
WELL R2-M1 TEST 1
Date
11/05 test period
Hydraulic Conductivity
4.3e-004 cm/sec
Initial Displacement
3.8 ft
Reference
Bouwer & Rice, 1976
10^1
10^0
10^{-1}
Displacement (ft)
0.0
15.0
30.0
45.0
60.0
75.0
90.0
Time (sec)

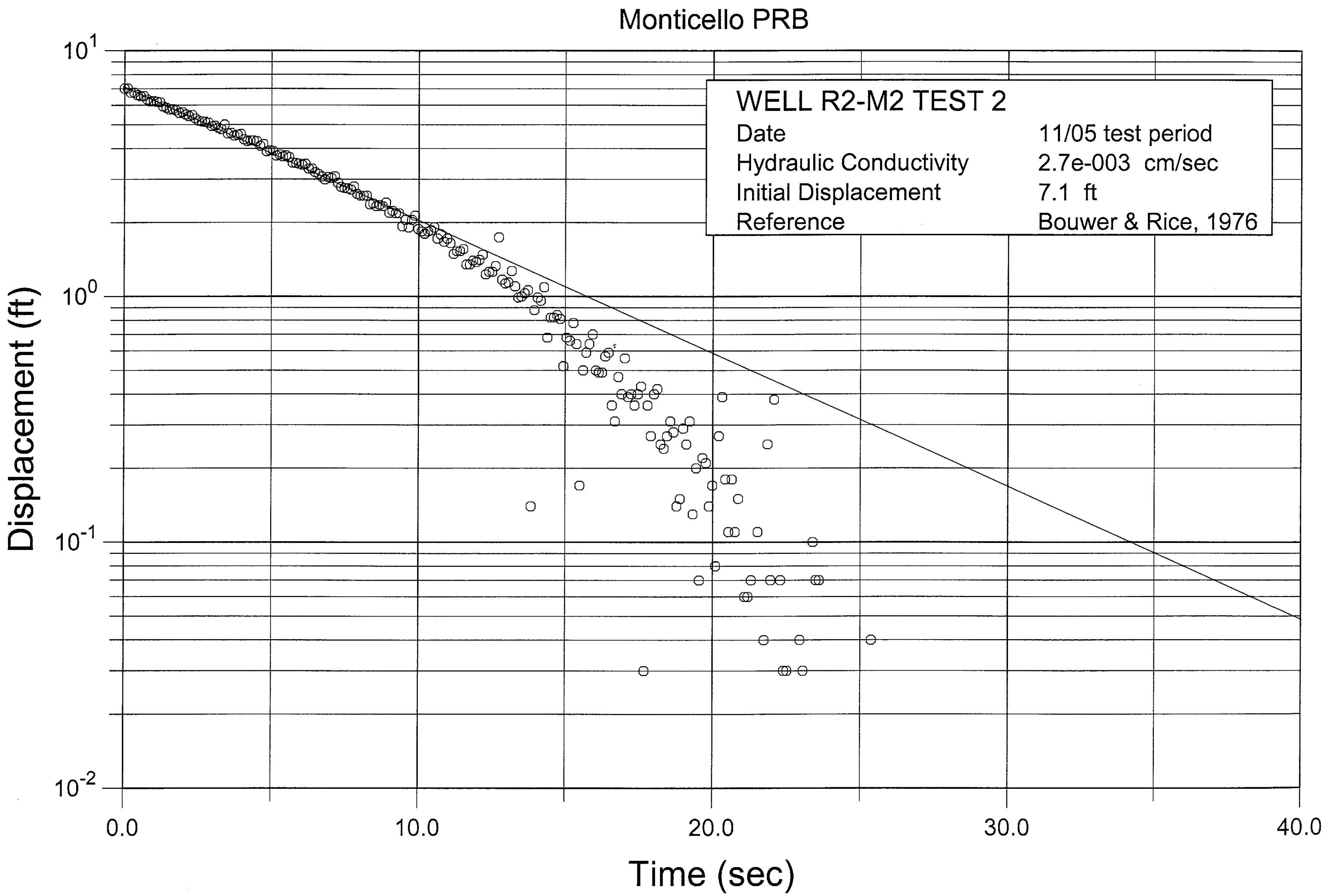

Monticello PRB
WELL R2-M1 TEST 2
Date
11/05 test period
Hydraulic Conductivity
5.1e-004 cm/sec
Initial Displacement
7.0 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
0.0
15.0
30.0
45.0
60.0
75.0
90.0
105.0
120.0
Time (sec)



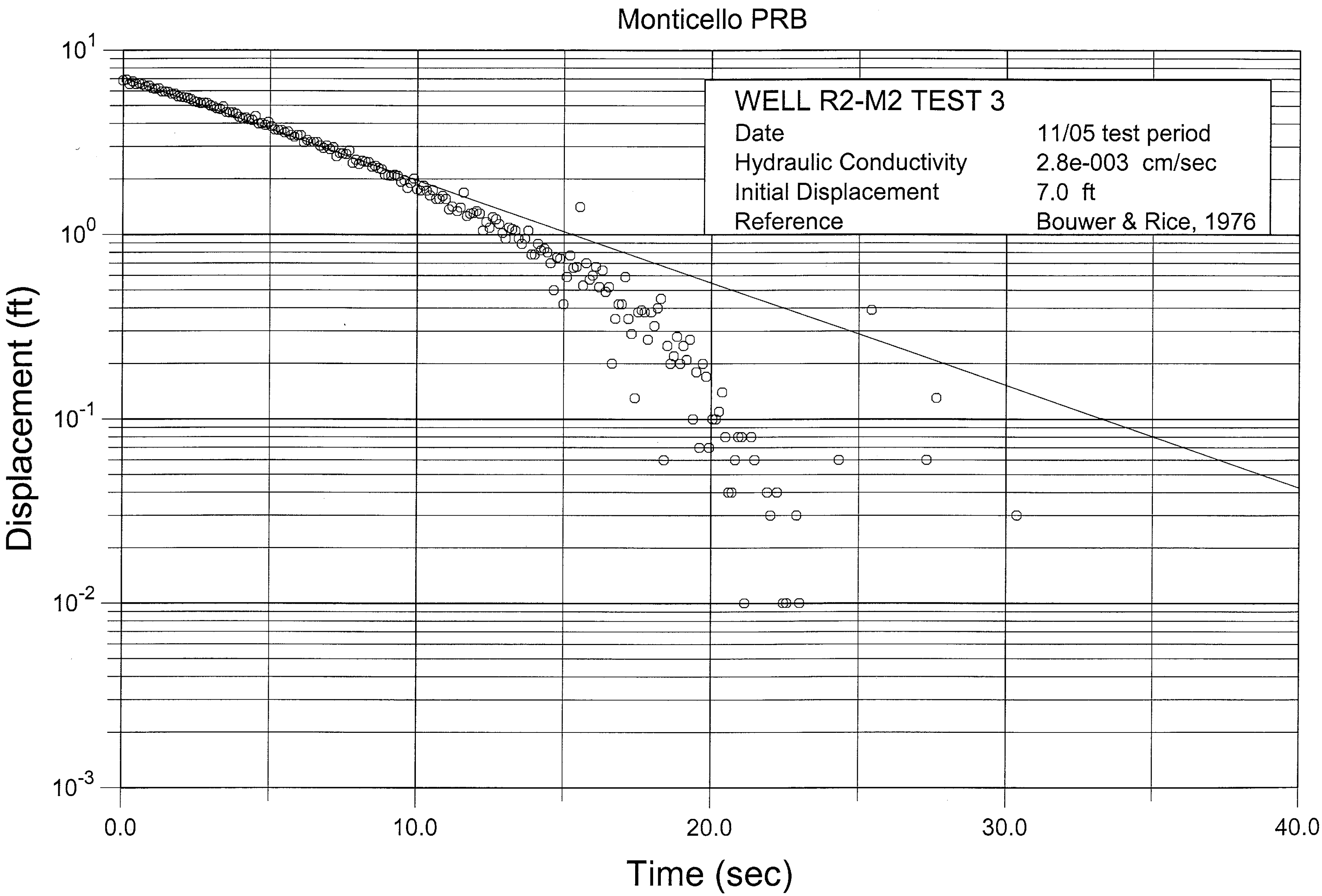
Monticello PRB
WELL R2-M1 TEST 3
Date 11/05 test period
Hydraulic Conductivity 5.5e-004 cm/sec
Initial Displacement 7.0 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^{-1}
0.0
15.0
30.0
45.0
60.0
75.0
90.0
105.0
120.0
Time (sec)



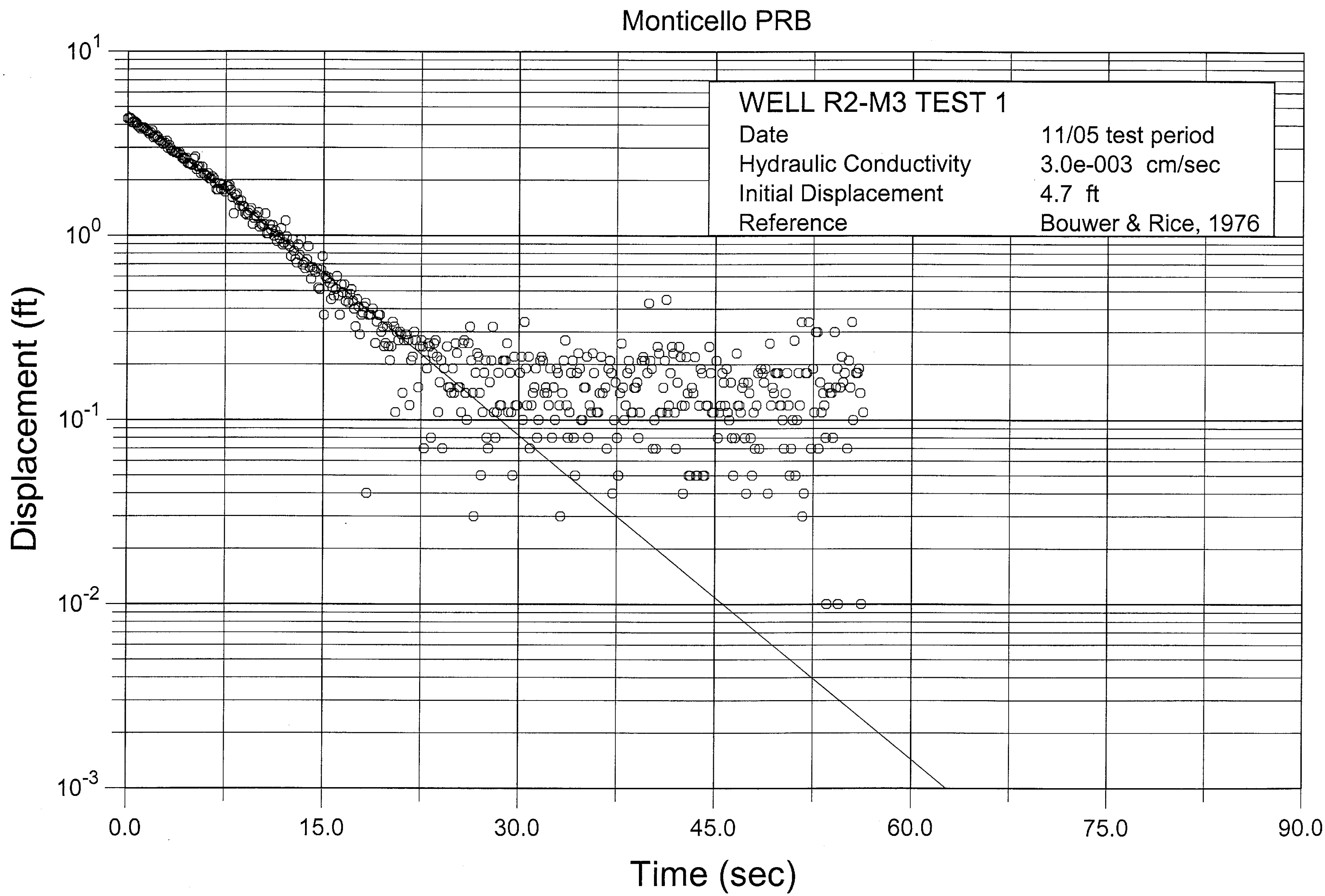
Monticello PRB
WELL R2-M2 TEST 1
Date
11/05 test period
Hydraulic Conductivity
2.7e-003 cm/sec
Initial Displacement
7.9 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
0.0
10.0
20.0
30.0
40.0

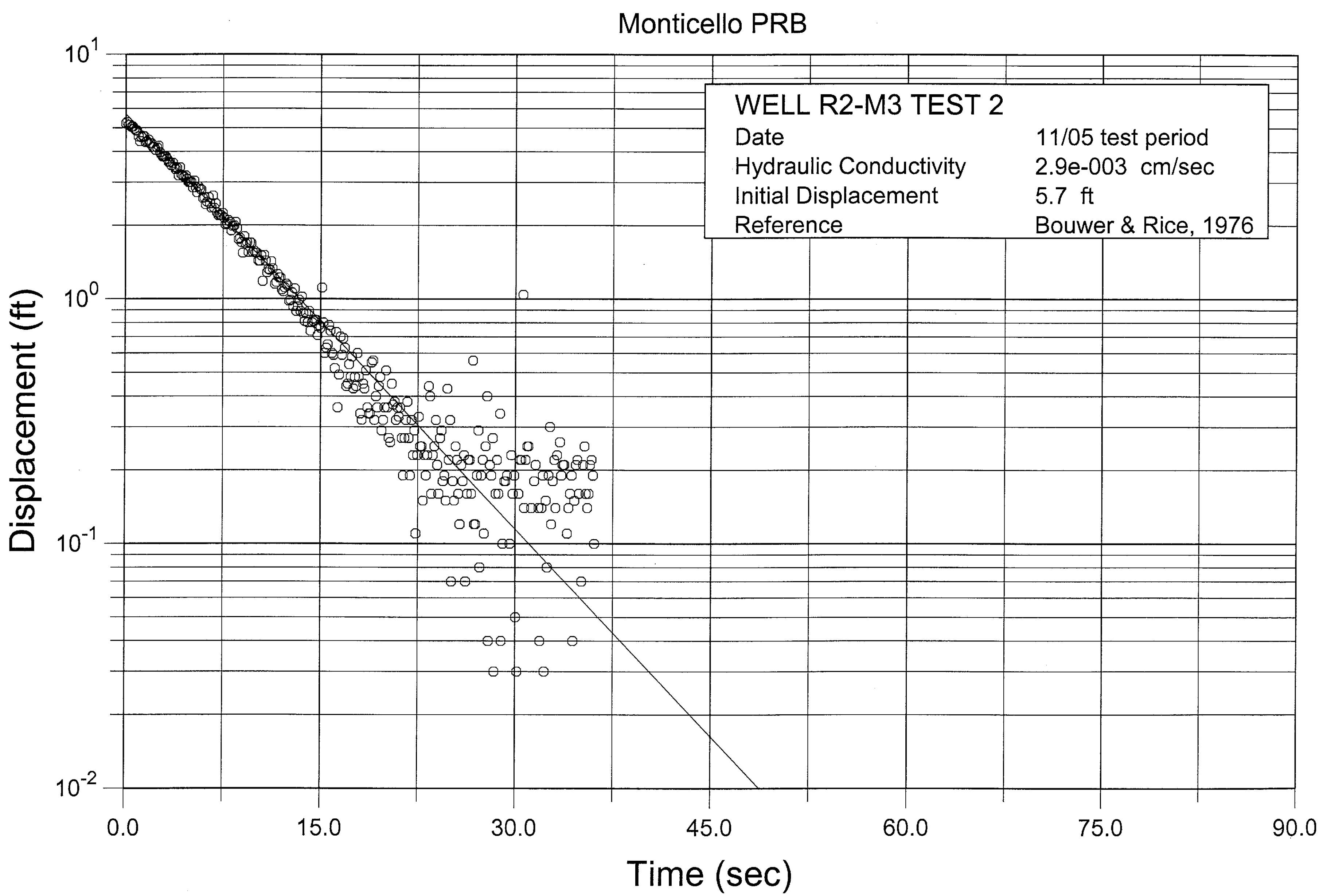


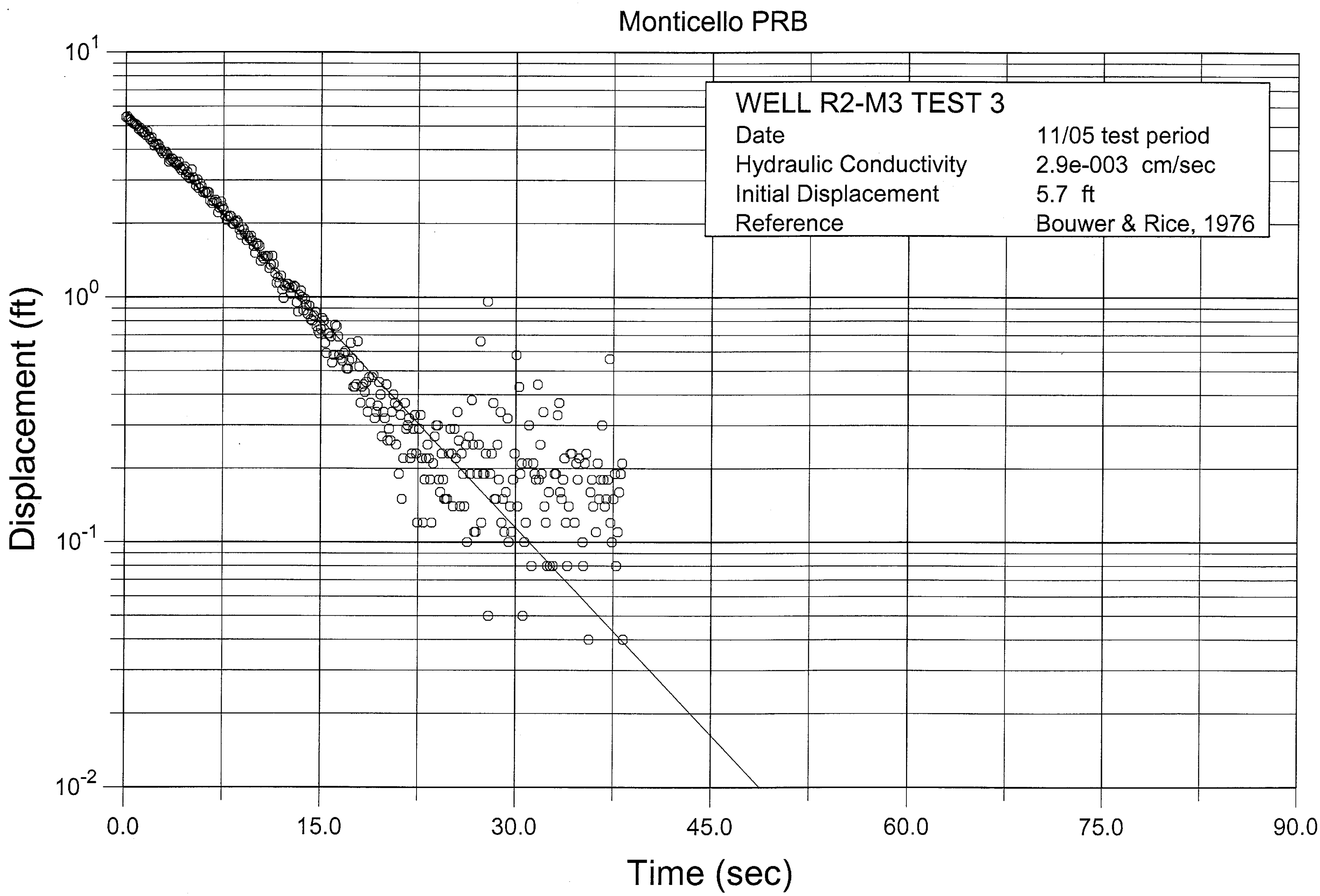
Monticello PRB
WELL R2-M2 TEST 2
Date
11/05 test period
Hydraulic Conductivity
2.7e-003 cm/sec
Initial Displacement
7.1 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
0.0
10.0
20.0
30.0
40.0
Time (sec)

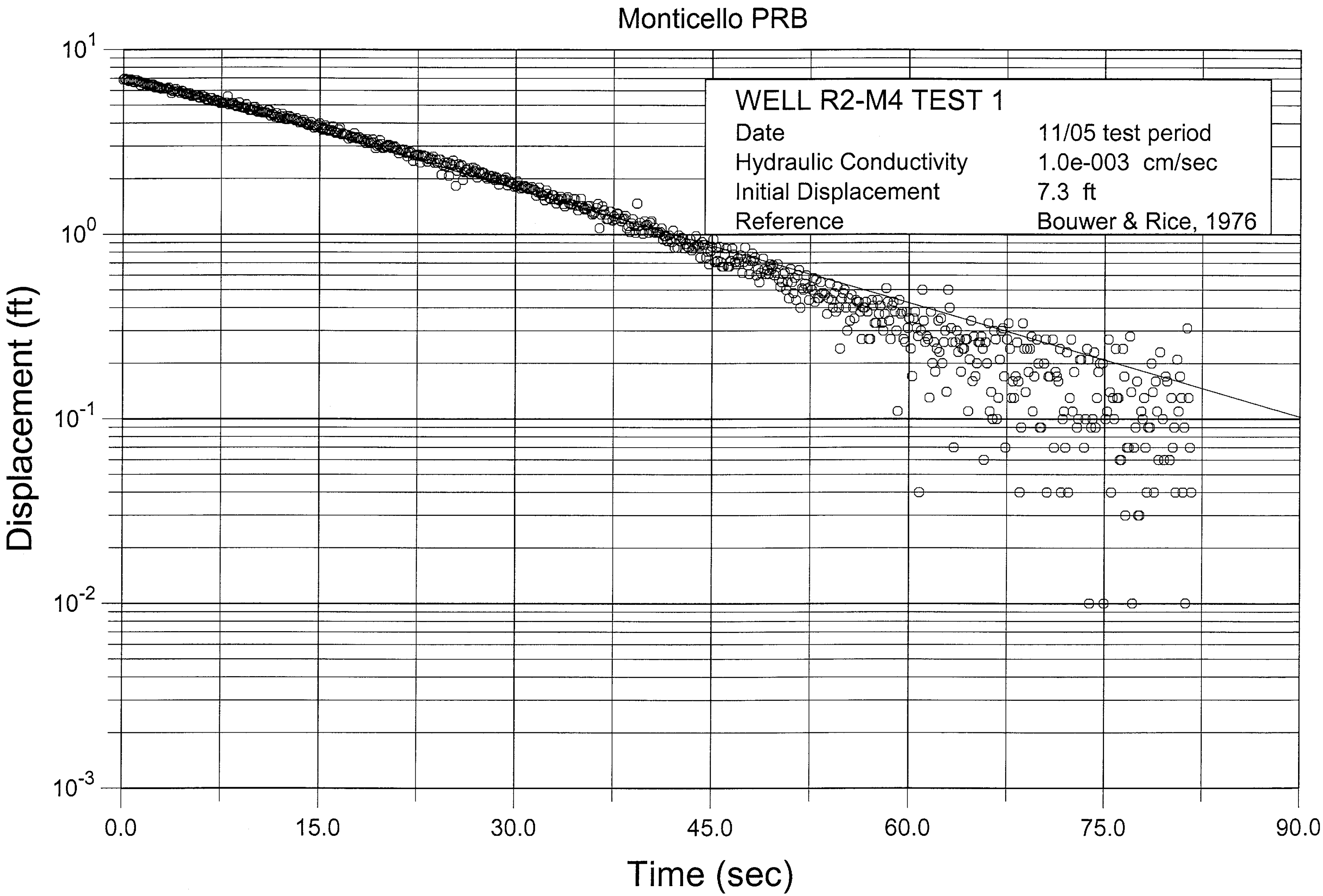


Monticello PRB
WELL R2-M2 TEST 3
Date
11/05 test period
Hydraulic Conductivity
2.8e-003 cm/sec
Initial Displacement
7.0 ft
Reference
Bouwer & Rice, 1976
10^1
10^0
10^{-1}
10^{-2}
10^{-3}
Displacement (ft)
0.0
10.0
20.0
30.0
40.0
Time (sec)

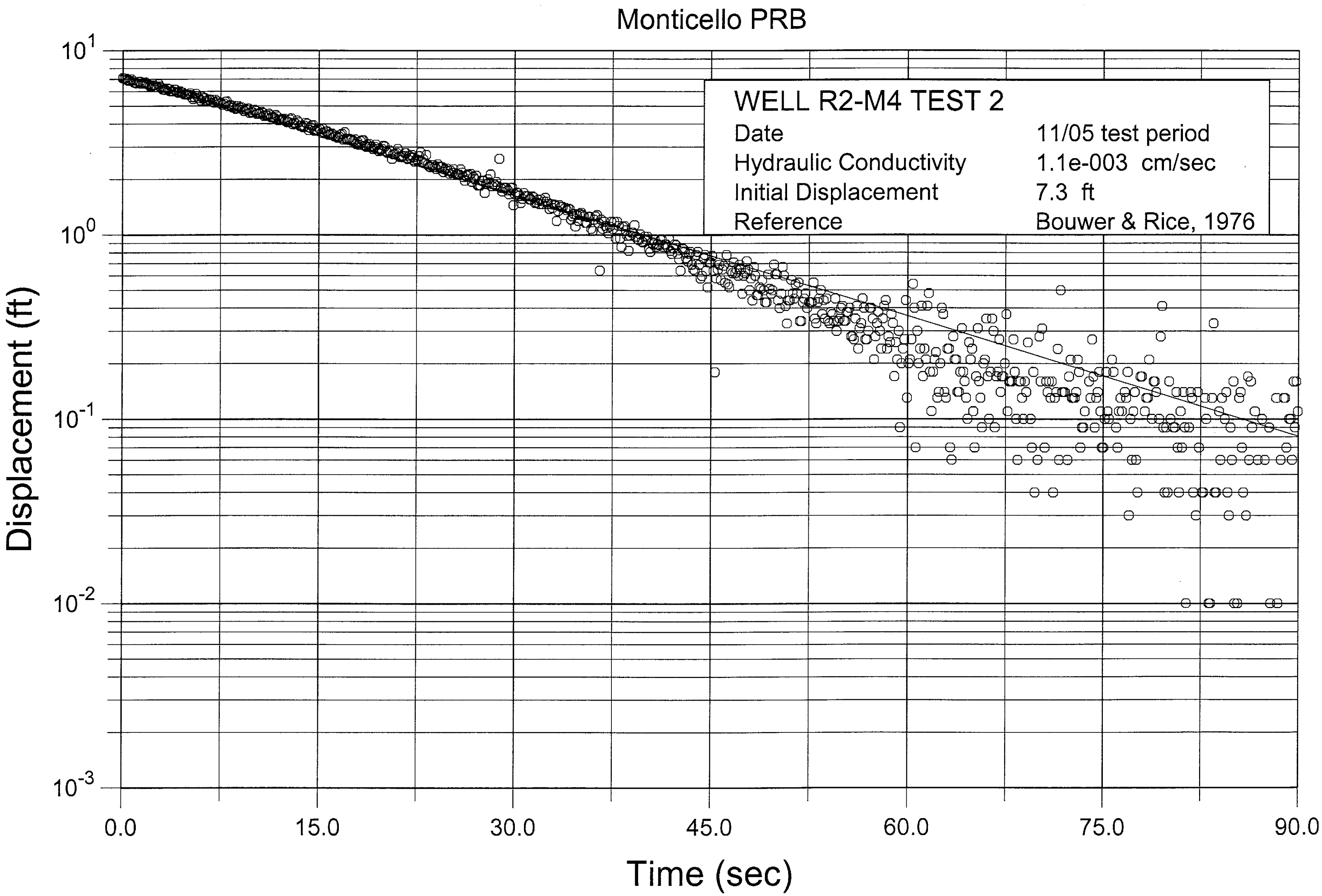

Monticello PRB
WELL R2-M3 TEST 1
Date
11/05 test period
Hydraulic Conductivity
3.0e-003 cm/sec
Initial Displacement
4.7 ft
Reference
Bouwer & Rice, 1976
10^1
10^0
10^-1
10^-2
10^-3
Displacement (ft)
0.0
15.0
30.0
45.0
60.0
75.0
90.0
Time (sec)

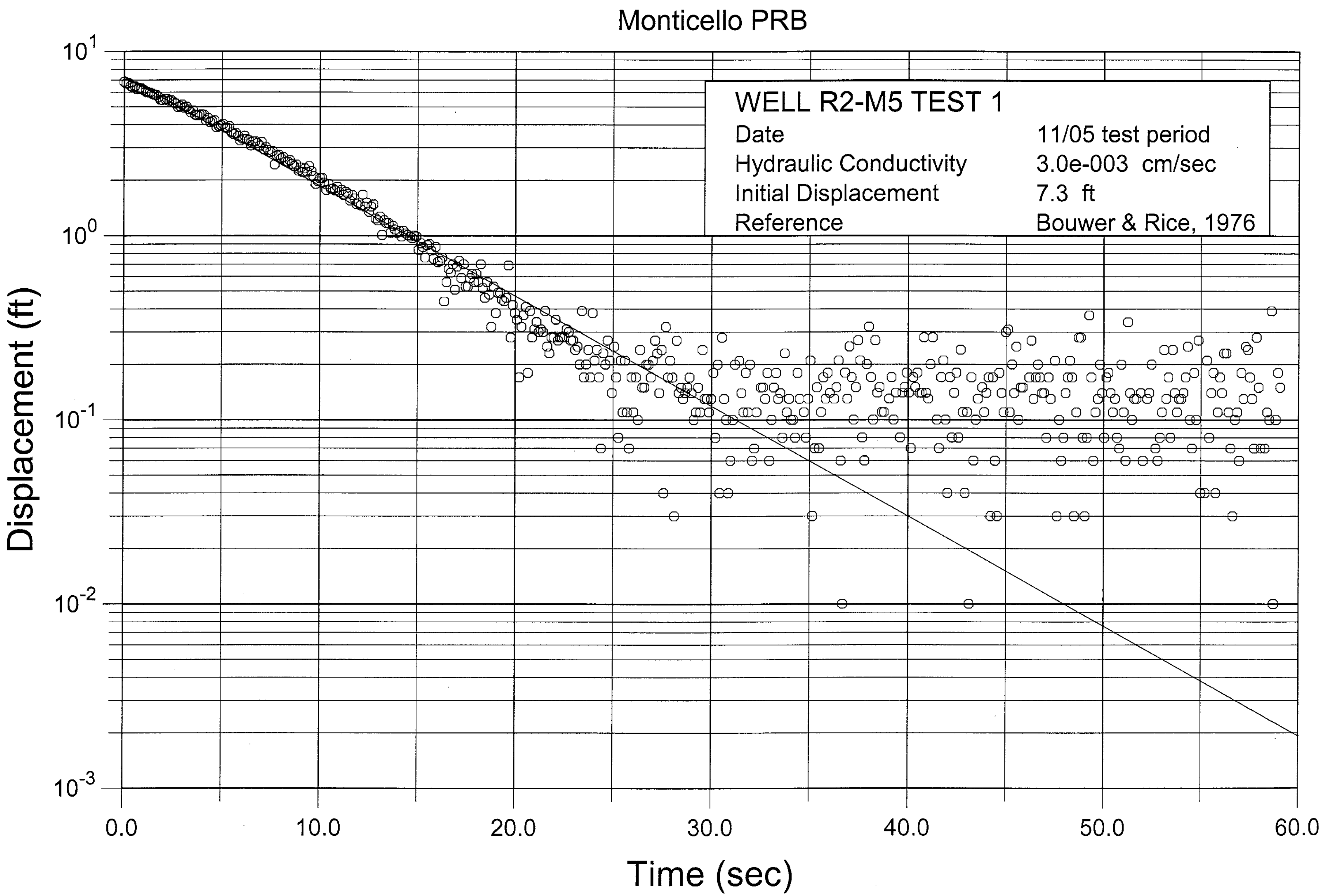

Monticello PRB
WELL R2-M3 TEST 2
Date
11/05 test period
Hydraulic Conductivity
2.9e-003 cm/sec
Initial Displacement
5.7 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^{-1}
10^{-2}
0.0
15.0
30.0
45.0
60.0
75.0
90.0
Time (sec)


Monticello PRB
WELL R2-M3 TEST 3
Date 11/05 test period
Hydraulic Conductivity 2.9e-003 cm/sec
Initial Displacement 5.7 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
0.0
15.0
30.0
45.0
60.0
75.0
90.0
Time (sec)

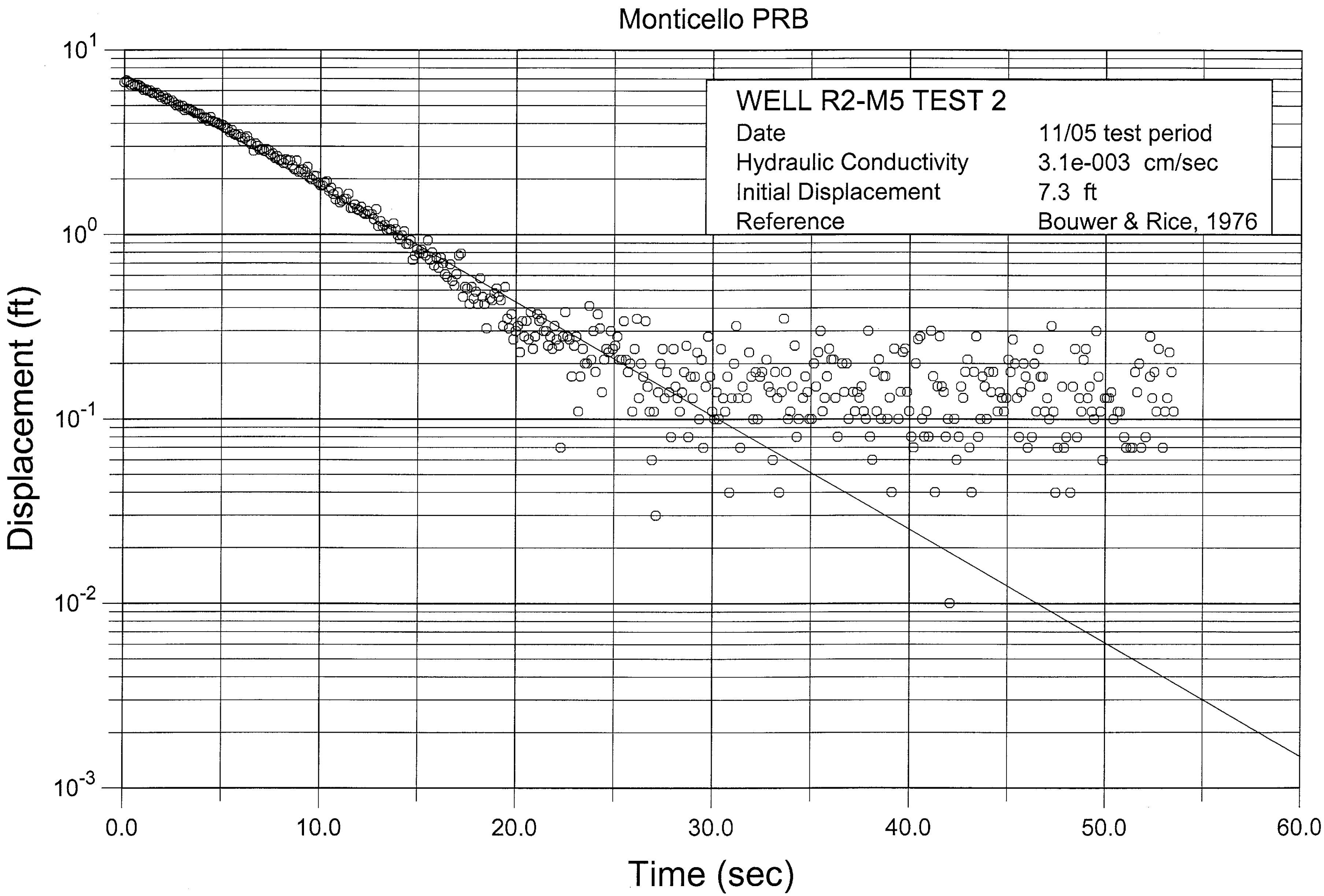


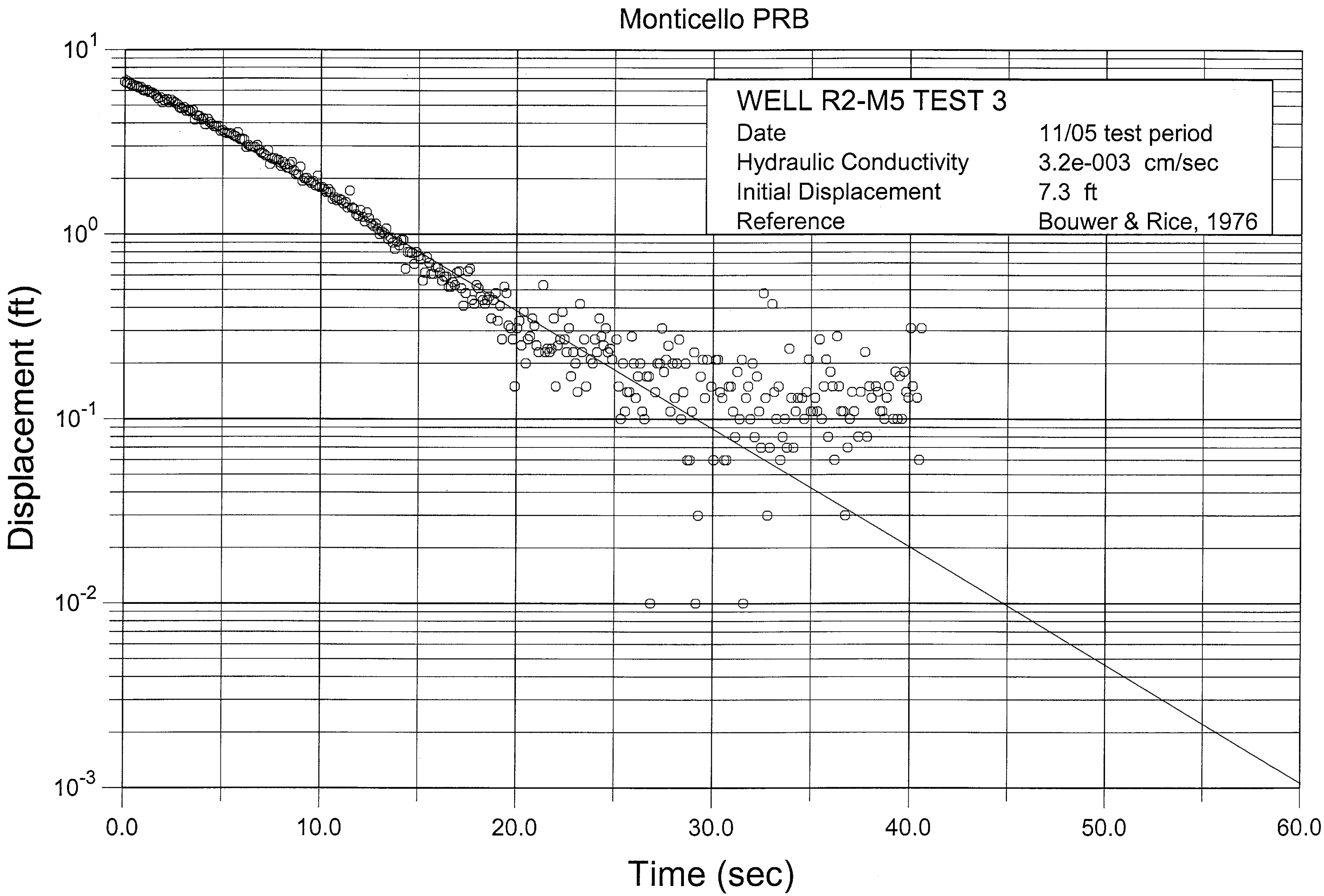
Monticello PRB
WELL R2-M4 TEST 1
Date
11/05 test period
Hydraulic Conductivity
1.0e-003 cm/sec
Initial Displacement
7.3 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
0.0
15.0
30.0
45.0
60.0
75.0
90.0

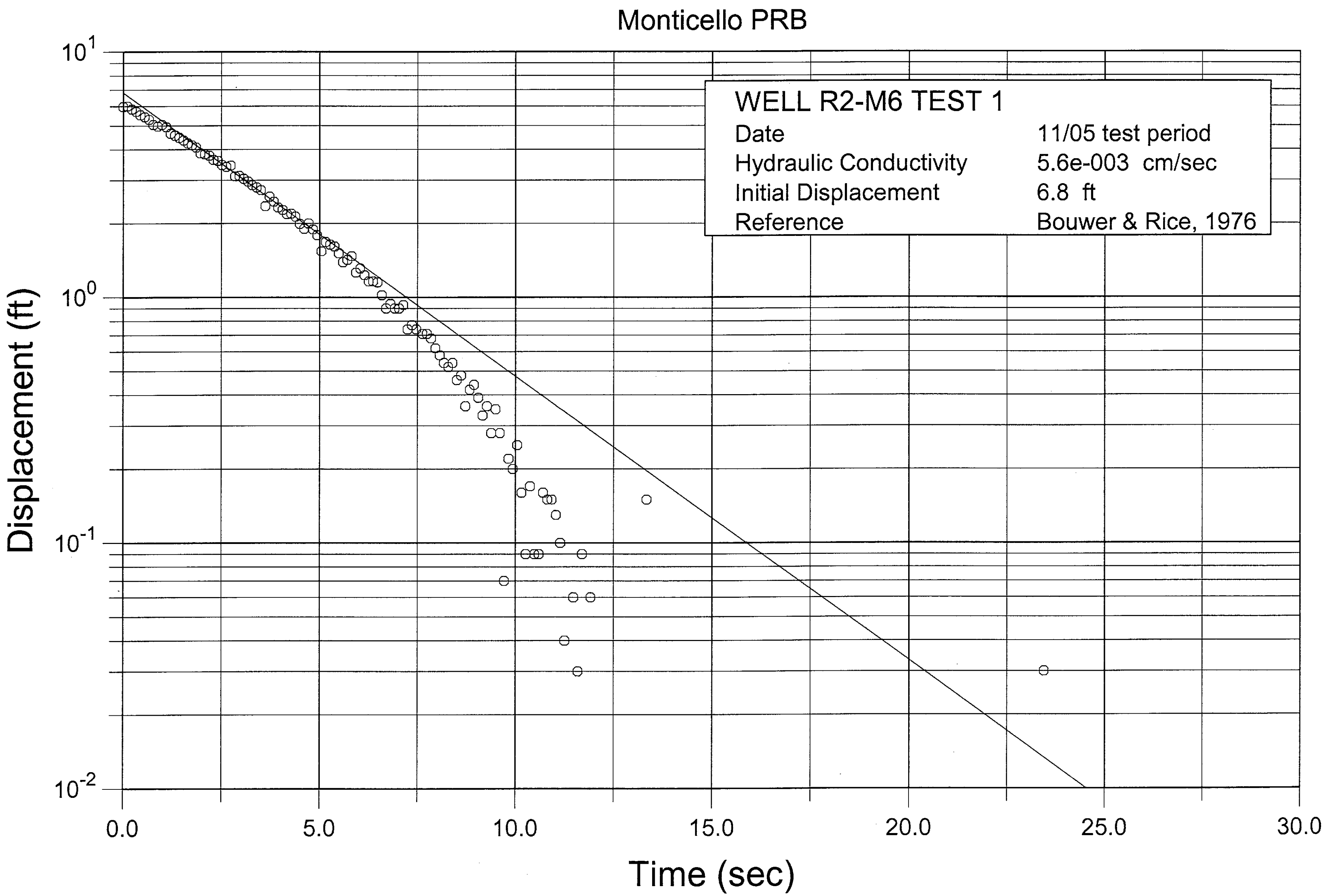

Monticello PRB
WELL R2-M4 TEST 2
Date
11/05 test period
Hydraulic Conductivity
1.1e-003 cm/sec
Initial Displacement
7.3 ft
Reference
Bouwer & Rice, 1976
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
Displacement (ft)
0.0
15.0
30.0
45.0
60.0
75.0
90.0
Time (sec)



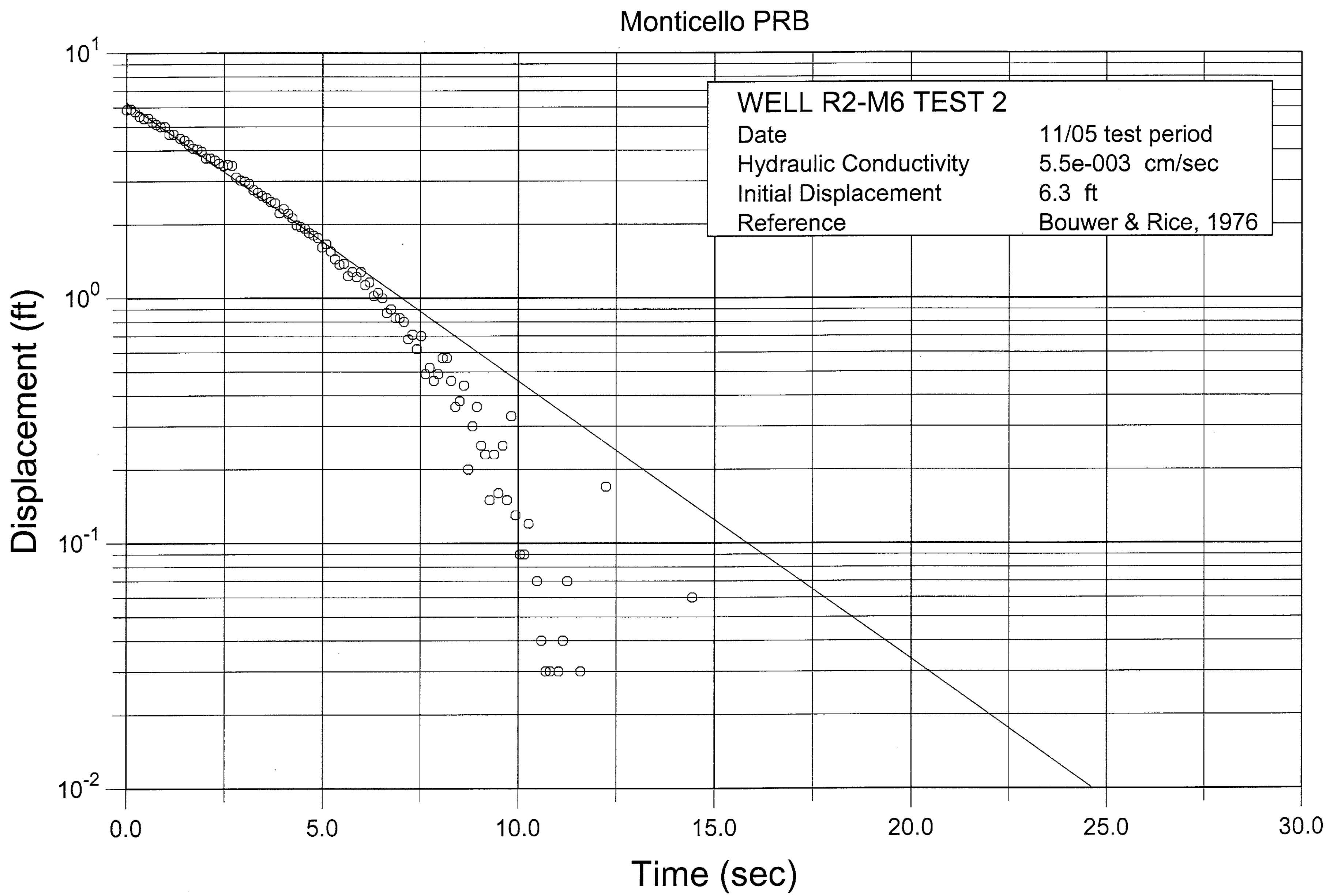
Monticello PRB
WELL R2-M5 TEST 1
Date
11/05 test period
Hydraulic Conductivity
3.0e-003 cm/sec
Initial Displacement
7.3 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
0.0
10.0
20.0
30.0
40.0
50.0
60.0


Monticello PRB
WELL R2-M5 TEST 2
Date 11/05 test period
Hydraulic Conductivity 3.1e-003 cm/sec
Initial Displacement 7.3 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
Time (sec)
0.0
10.0
20.0
30.0
40.0
50.0
60.0

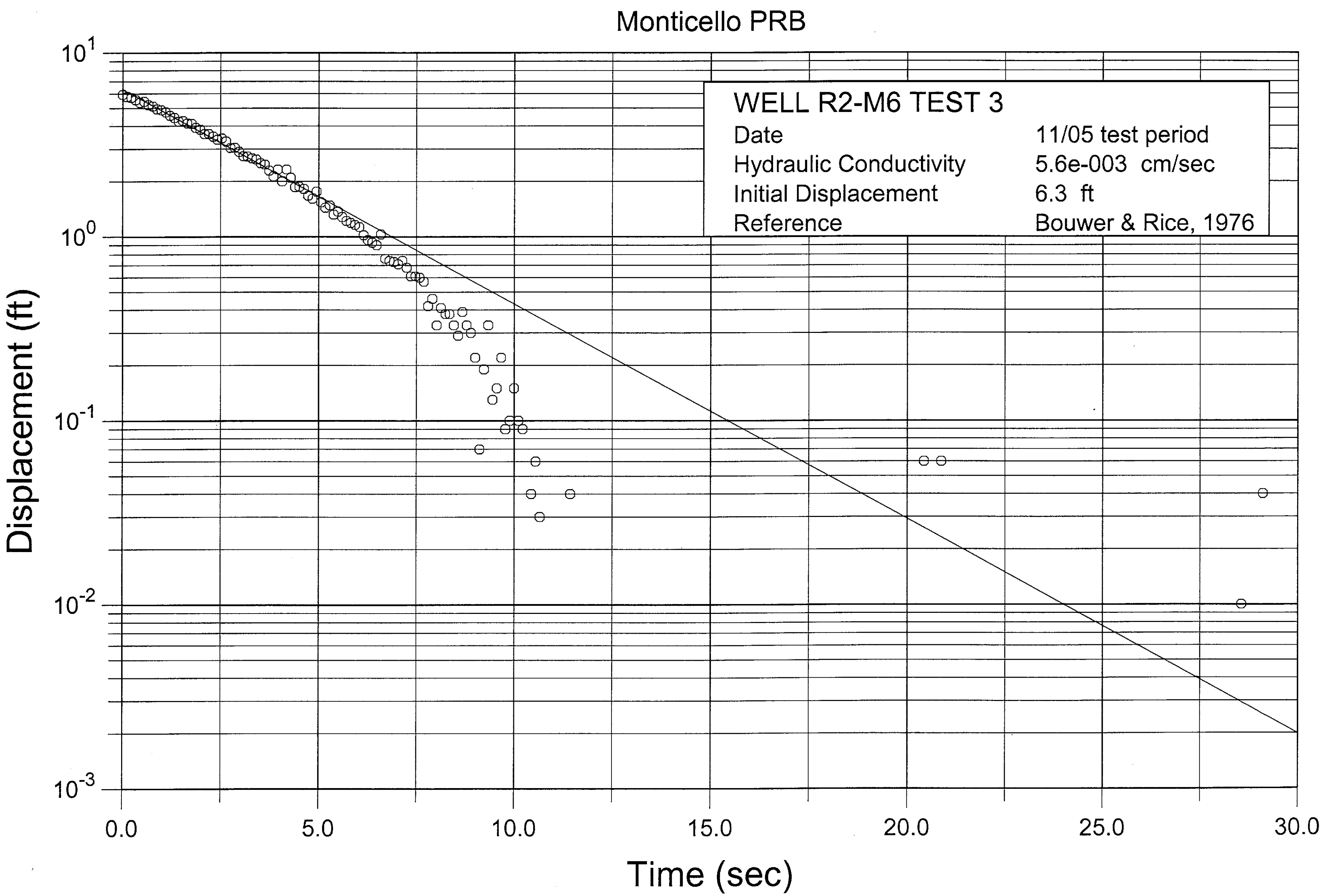

Monticello PRB
WELL R2-M5 TEST 3
Date
11/05 test period
Hydraulic Conductivity
3.2e-003 cm/sec
Initial Displacement
7.3 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^1
10^0
10^-1
10^-2
10^-3
0.0
10.0
20.0
30.0
40.0
50.0
60.0



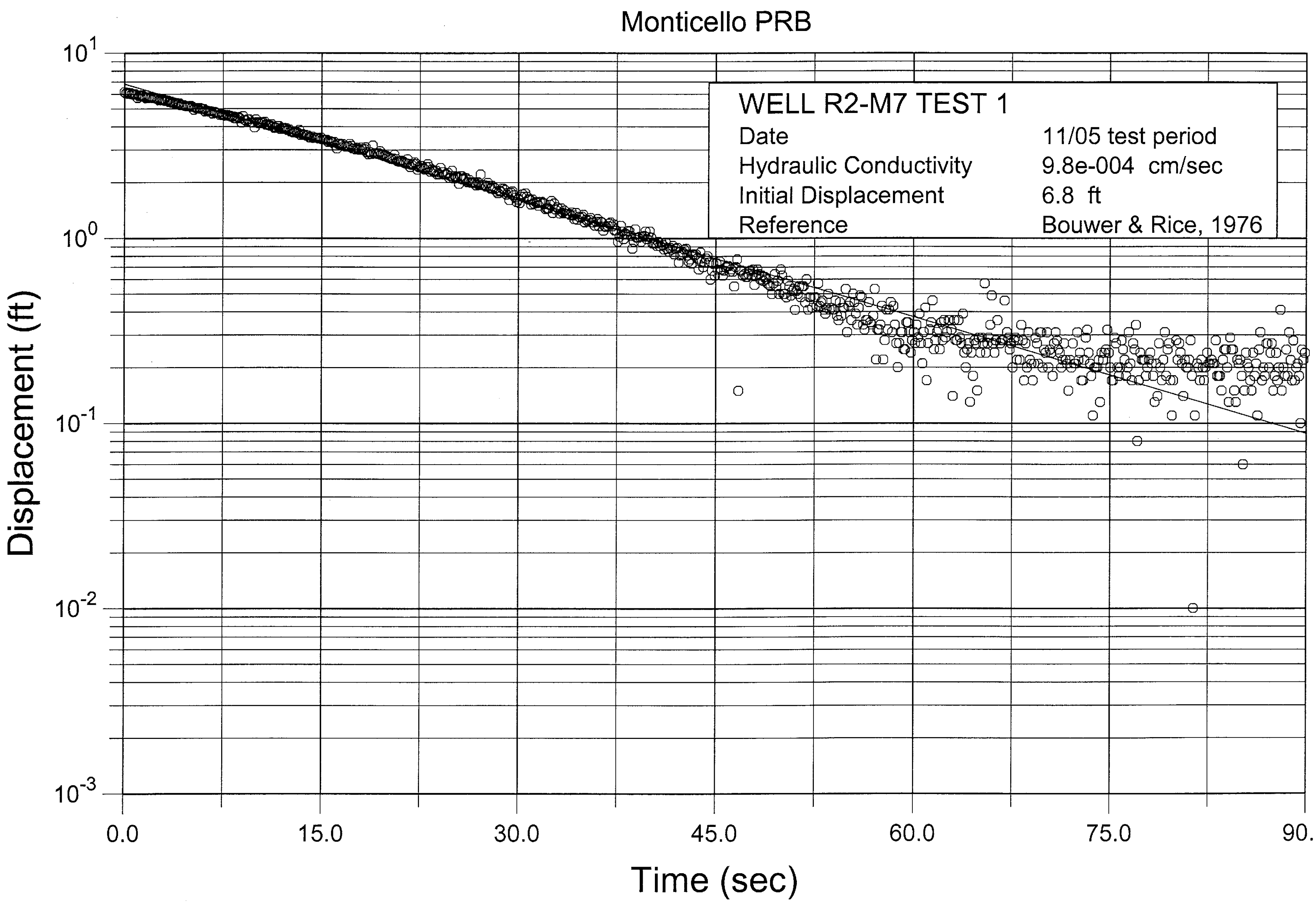
Monticello PRB
WELL R2-M6 TEST 1
Date
11/05 test period
Hydraulic Conductivity
5.6e-003 cm/sec
Initial Displacement
6.8 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
0.0
5.0
10.0
15.0
20.0
25.0
30.0
Time (sec)



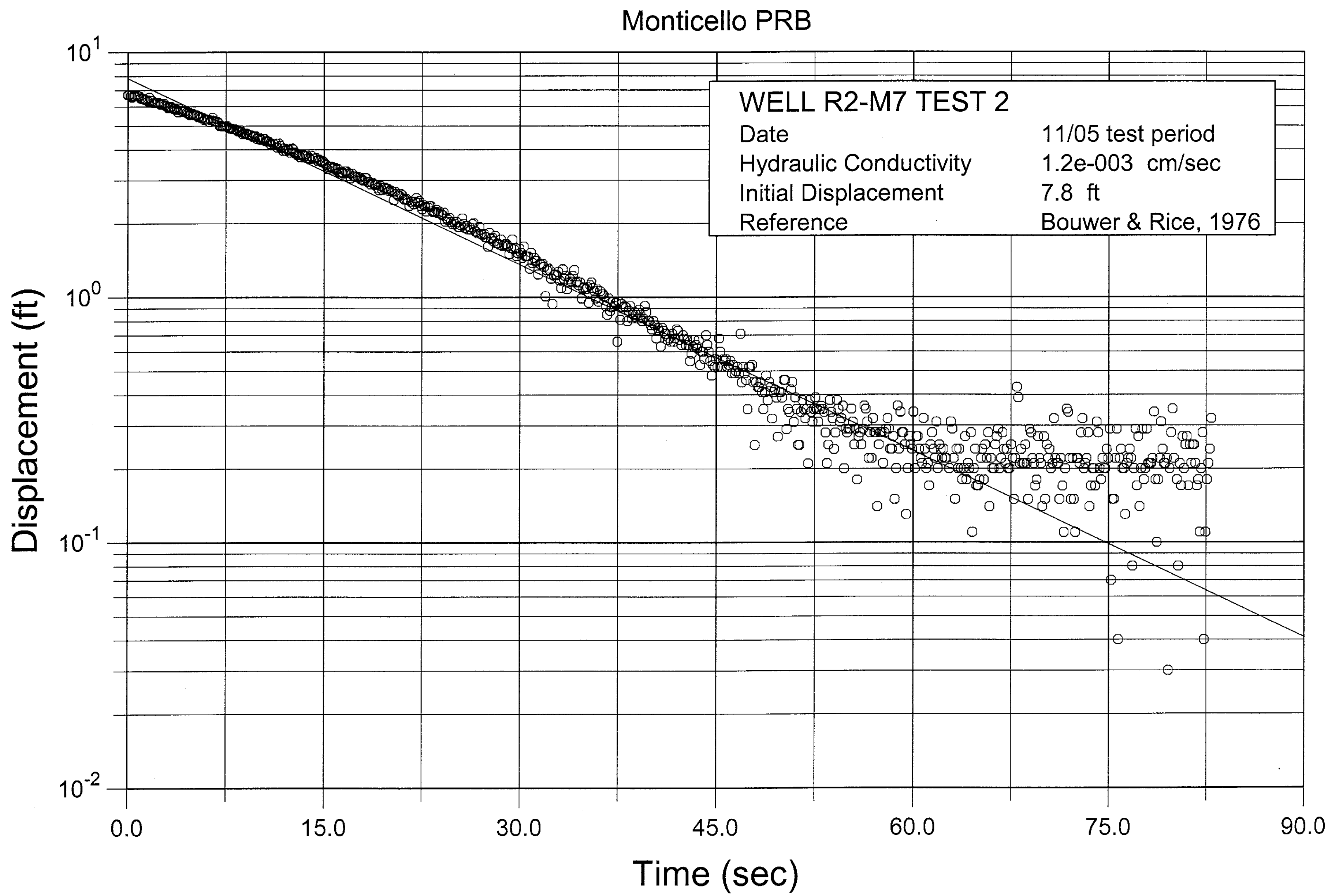
Monticello PRB
WELL R2-M6 TEST 2
Date
11/05 test period
Hydraulic Conductivity
5.5e-003 cm/sec
Initial Displacement
6.3 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^{-1}
10^{-2}
0.0
5.0
10.0
15.0
20.0
25.0
30.0
Time (sec)



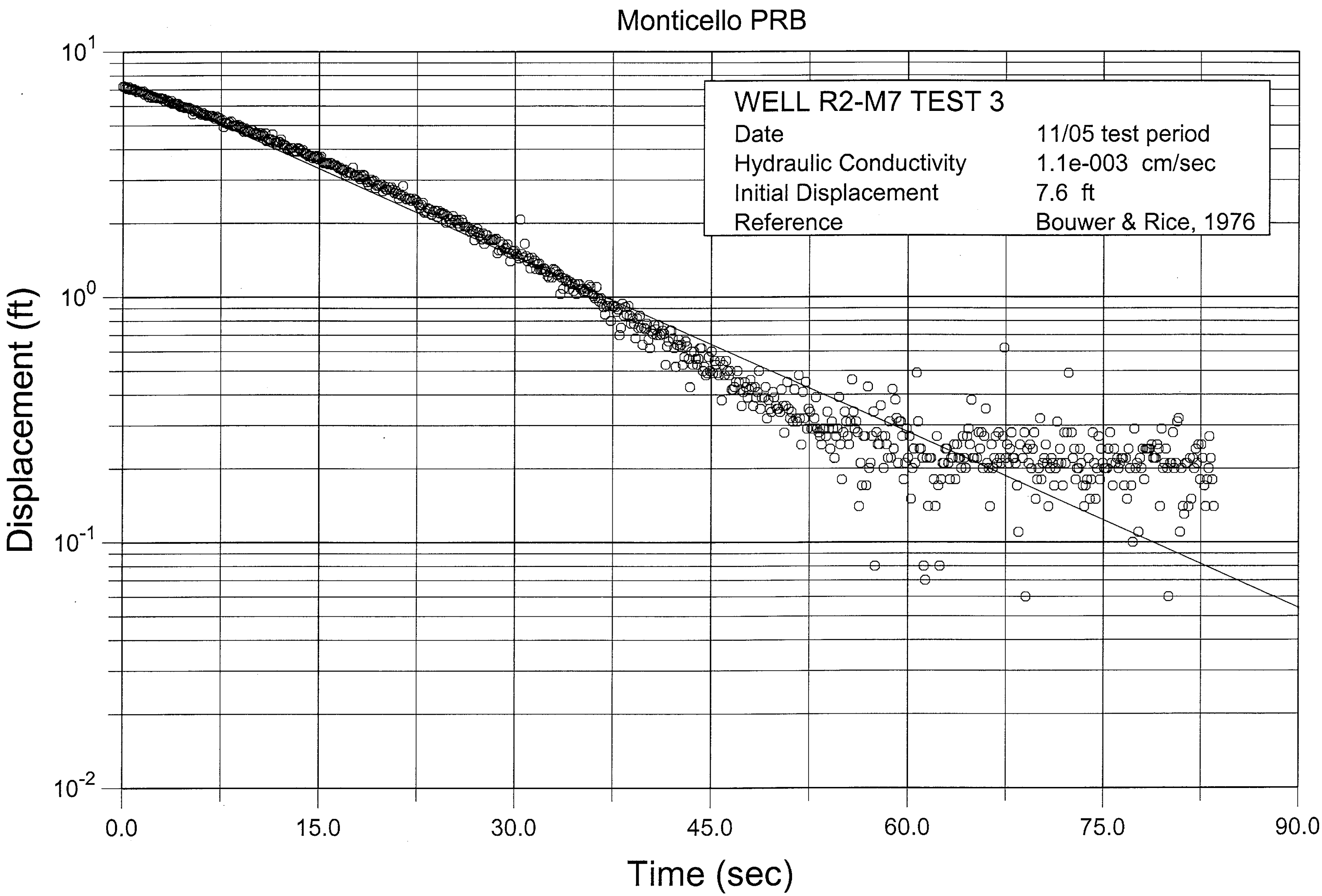
Monticello PRB
WELL R2-M6 TEST 3
Date 11/05 test period
Hydraulic Conductivity 5.6e-003 cm/sec
Initial Displacement 6.3 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^1
10^0
10^{-1}
10^{-2}
10^{-3}
0.0
5.0
10.0
15.0
20.0
25.0
30.0



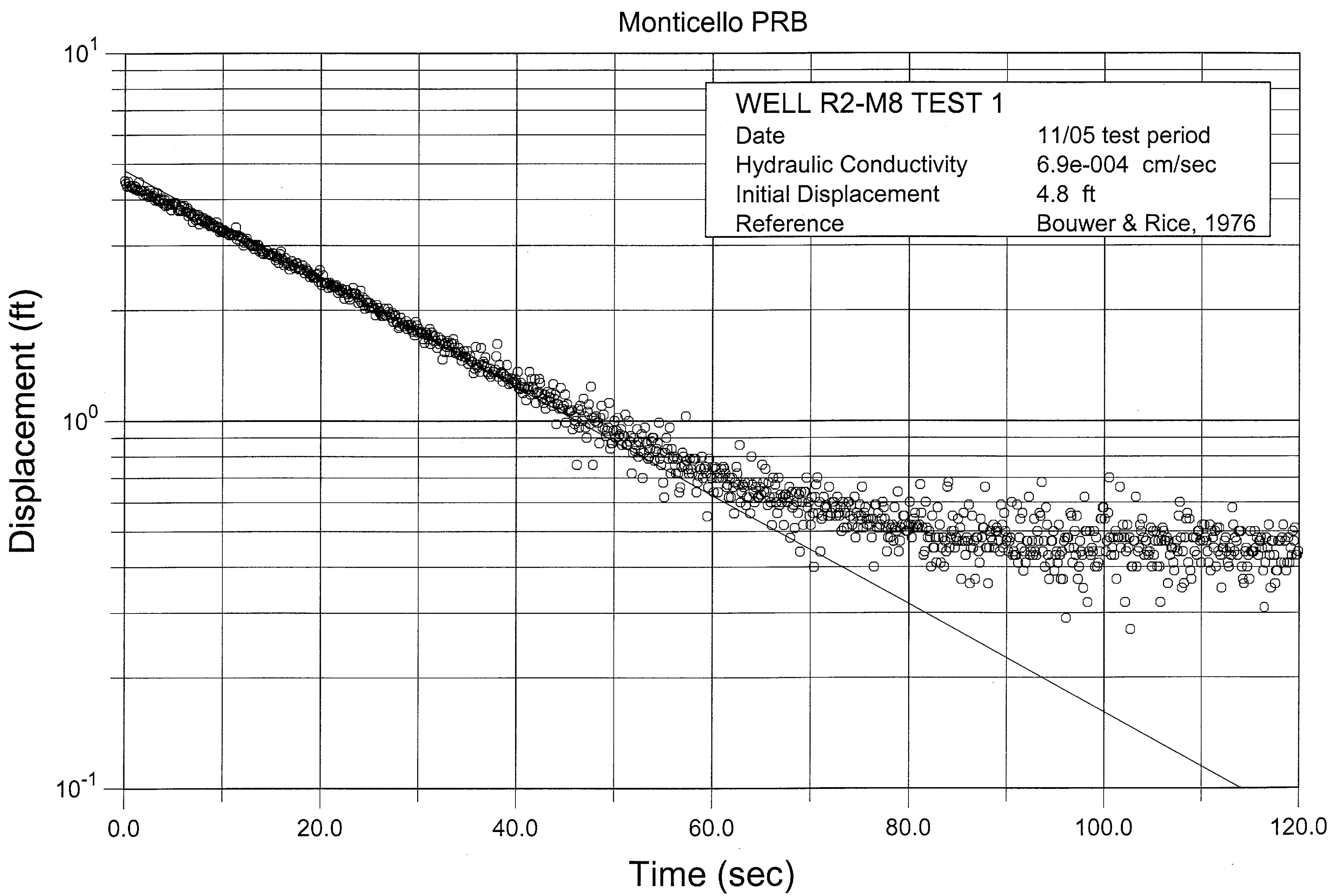
Monticello PRB
WELL R2-M7 TEST 1
Date 11/05 test period
Hydraulic Conductivity 9.8e-004 cm/sec
Initial Displacement 6.8 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
0.0
15.0
30.0
45.0
60.0
75.0
90.0
Time (sec)



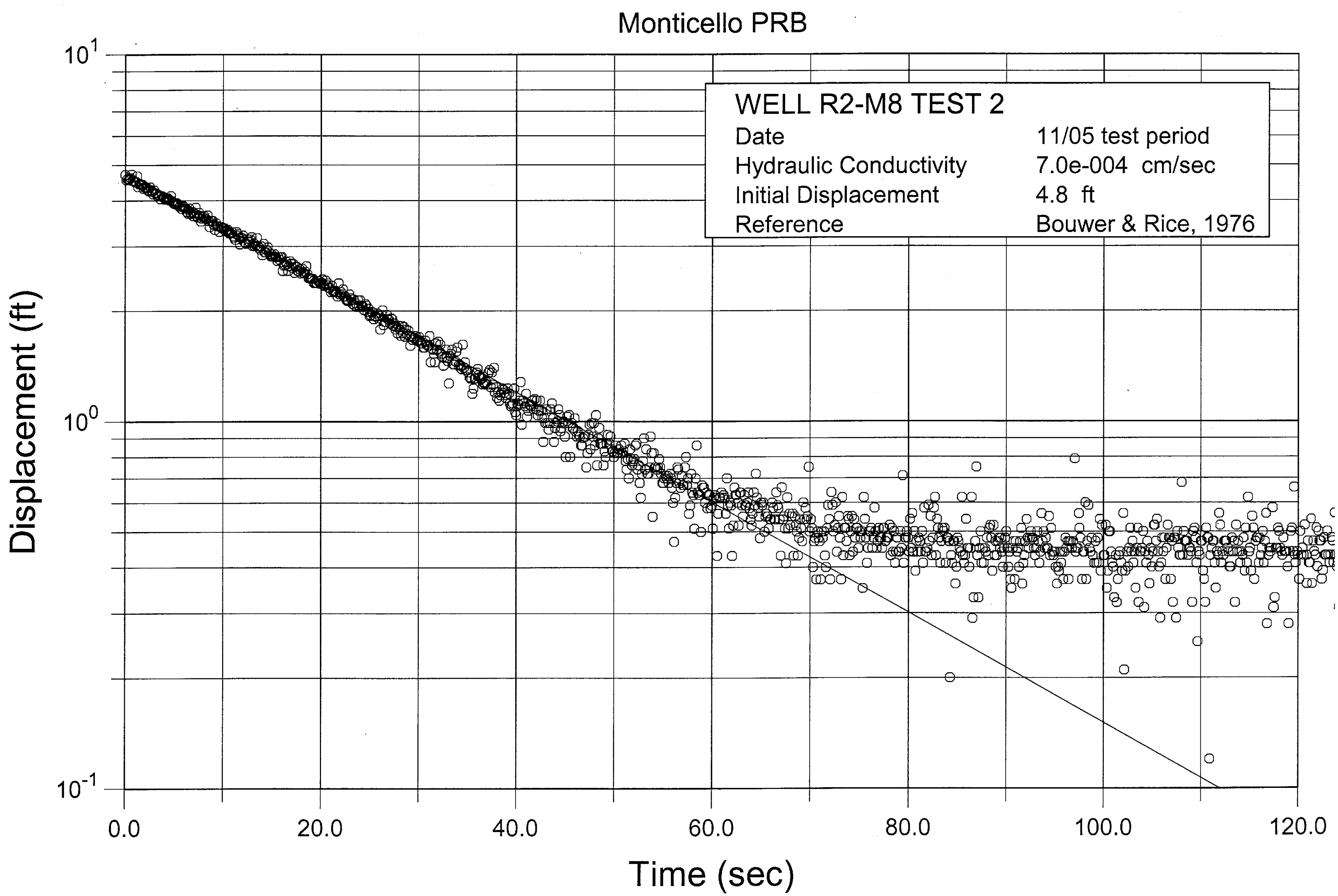
Monticello PRB
WELL R2-M7 TEST 2
Date 11/05 test period
Hydraulic Conductivity 1.2e-003 cm/sec
Initial Displacement 7.8 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^{1}
10^{0}
10^{-1}
10^{-2}
0.0
15.0
30.0
45.0
60.0
75.0
90.0
Time (sec)



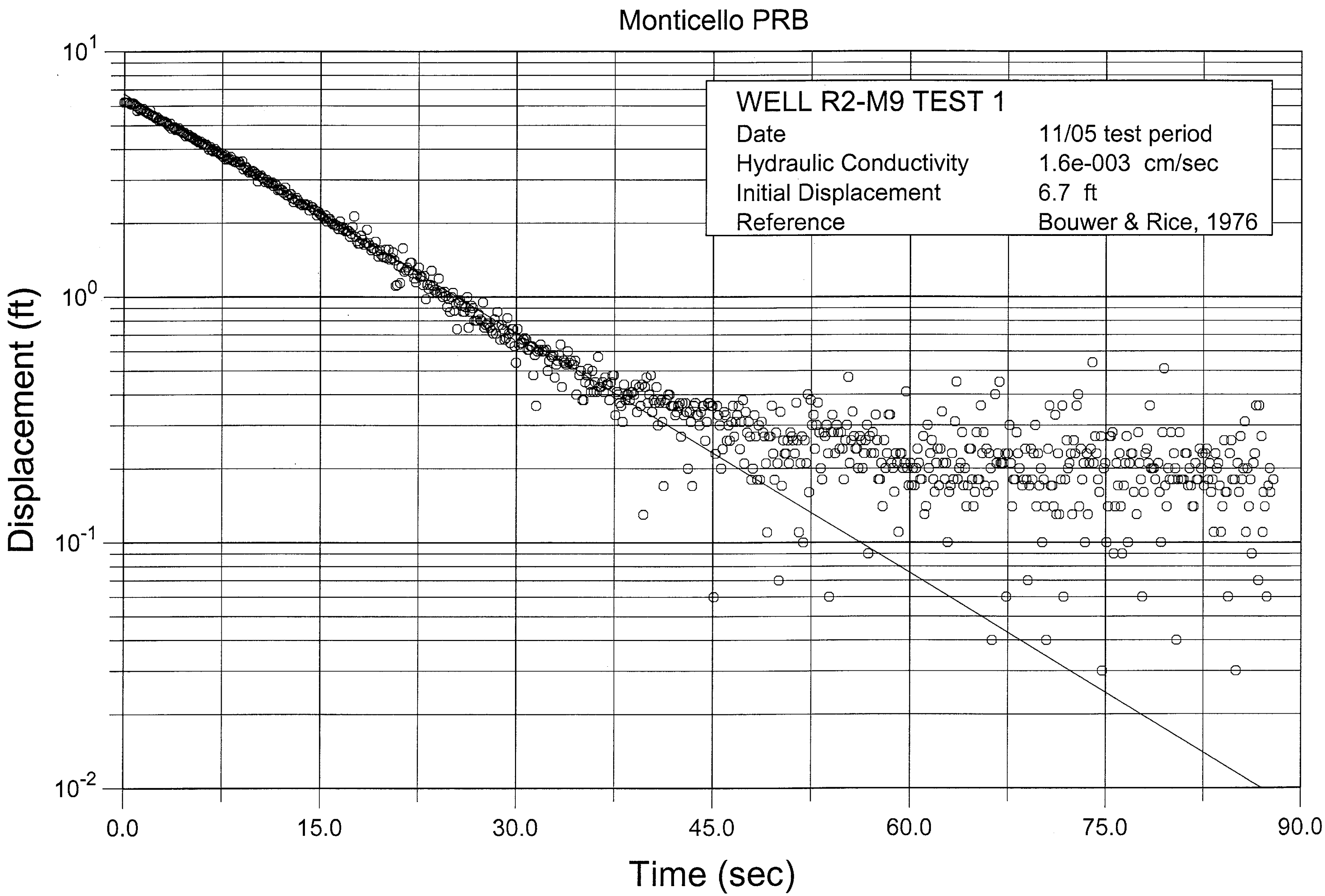
Monticello PRB
WELL R2-M7 TEST 3
Date 11/05 test period
Hydraulic Conductivity 1.1e-003 cm/sec
Initial Displacement 7.6 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^{-1}
10^{-2}
0.0
15.0
30.0
45.0
60.0
75.0
90.0
Time (sec)



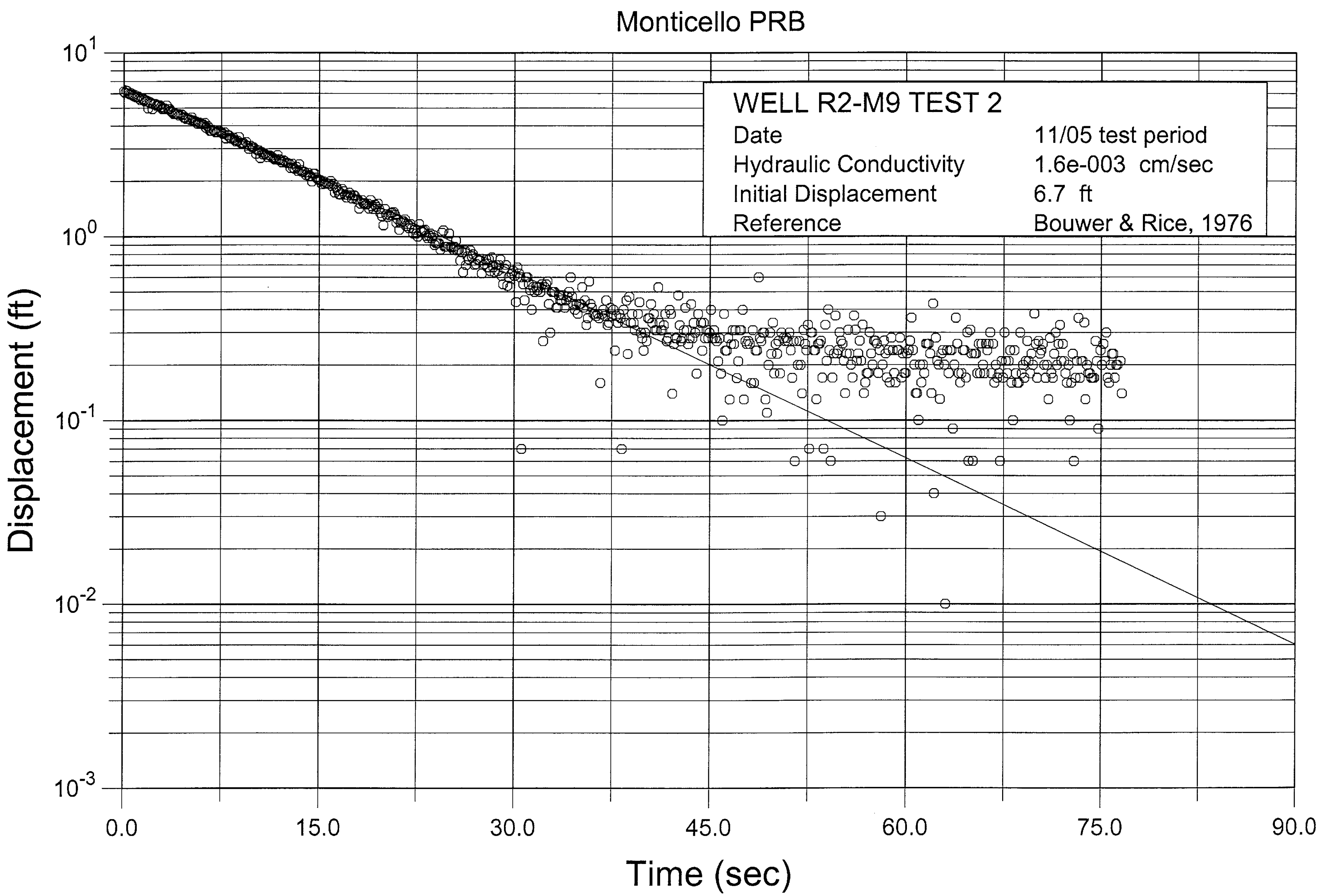
Monticello PRB
WELL R2-M8 TEST 1
Date 11/05 test period
Hydraulic Conductivity 6.9e-004 cm/sec
Initial Displacement 4.8 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^{-1}
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Time (sec)

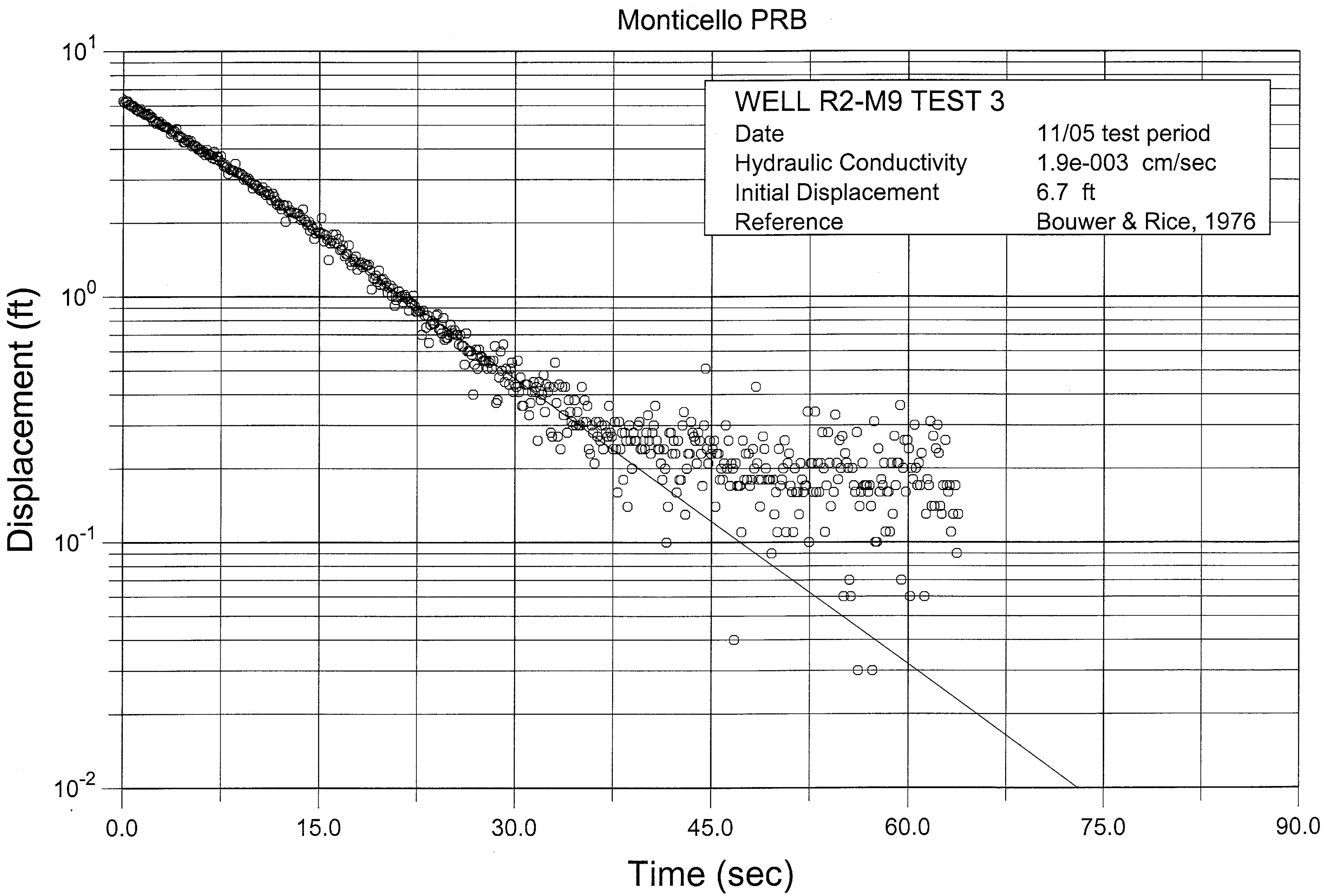


Monticello PRB
WELL R2-M8 TEST 2
Date 11/05 test period
Hydraulic Conductivity 7.0e-004 cm/sec
Initial Displacement 4.8 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^{-1}
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Time (sec)

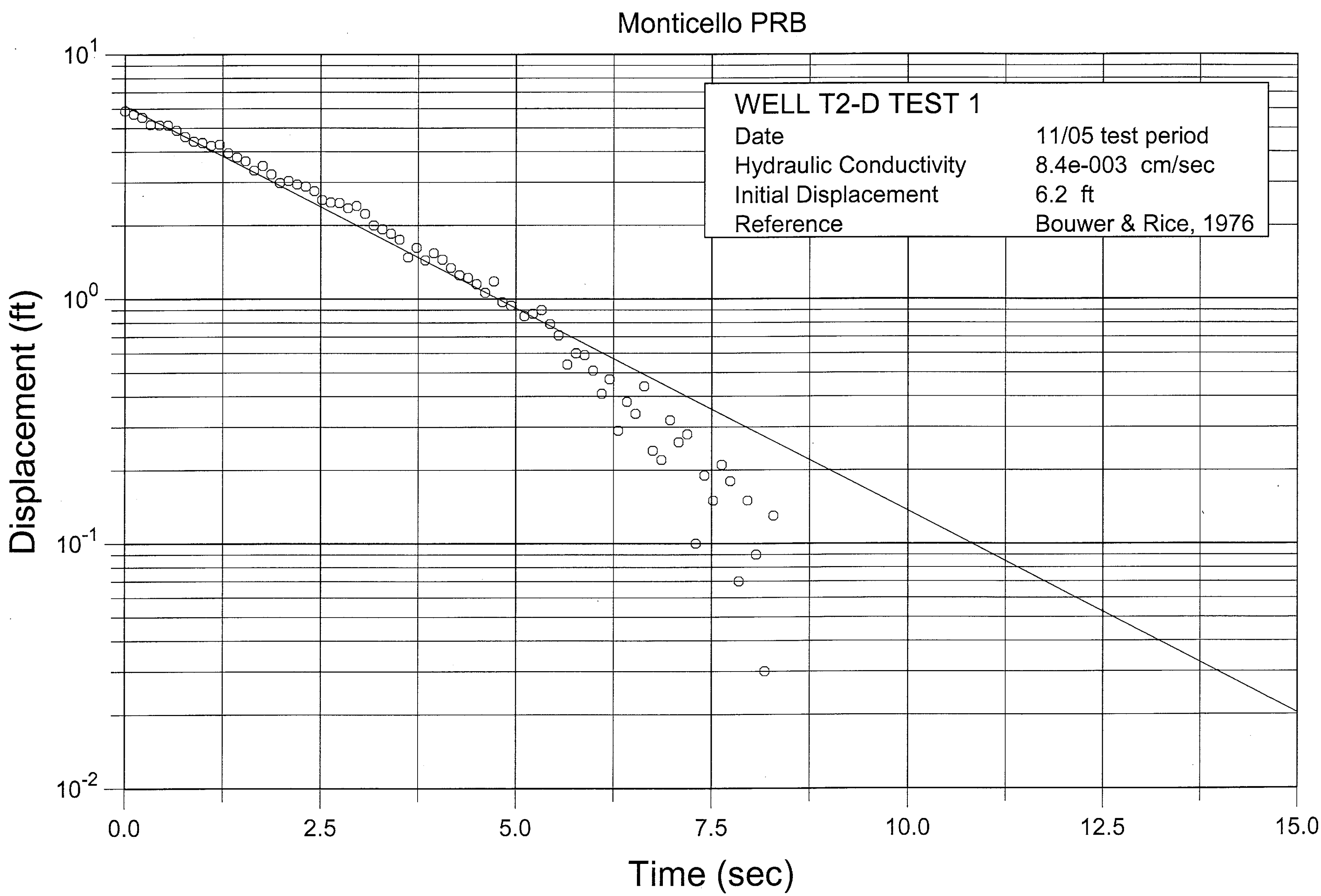


Monticello PRB
WELL R2-M9 TEST 1
Date 11/05 test period
Hydraulic Conductivity 1.6e-003 cm/sec
Initial Displacement 6.7 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
0.0
15.0
30.0
45.0
60.0
75.0
90.0
Time (sec)

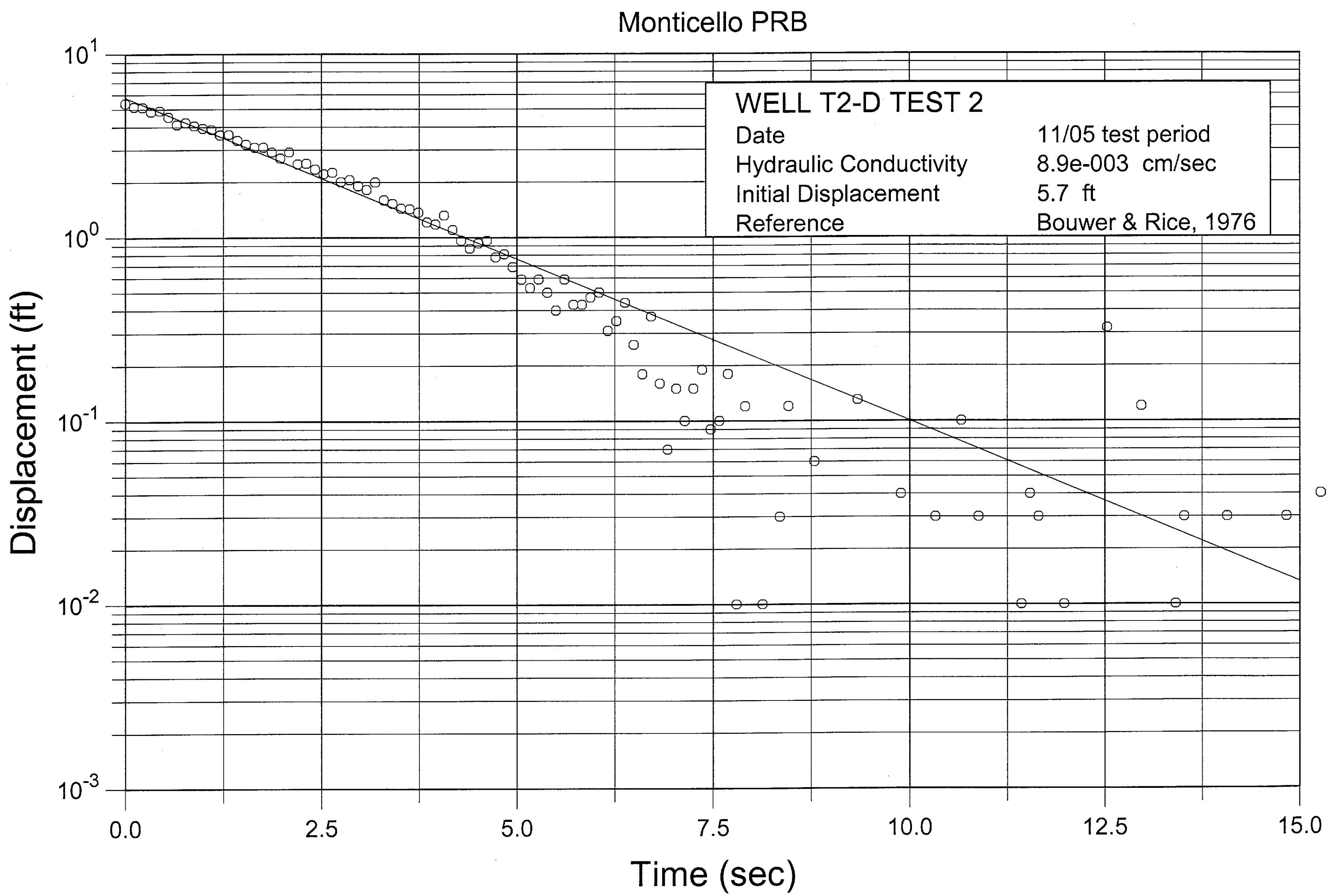

Monticello PRB
WELL R2-M9 TEST 2
Date
11/05 test period
Hydraulic Conductivity
1.6e-003 cm/sec
Initial Displacement
6.7 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
0.0
15.0
30.0
45.0
60.0
75.0
90.0

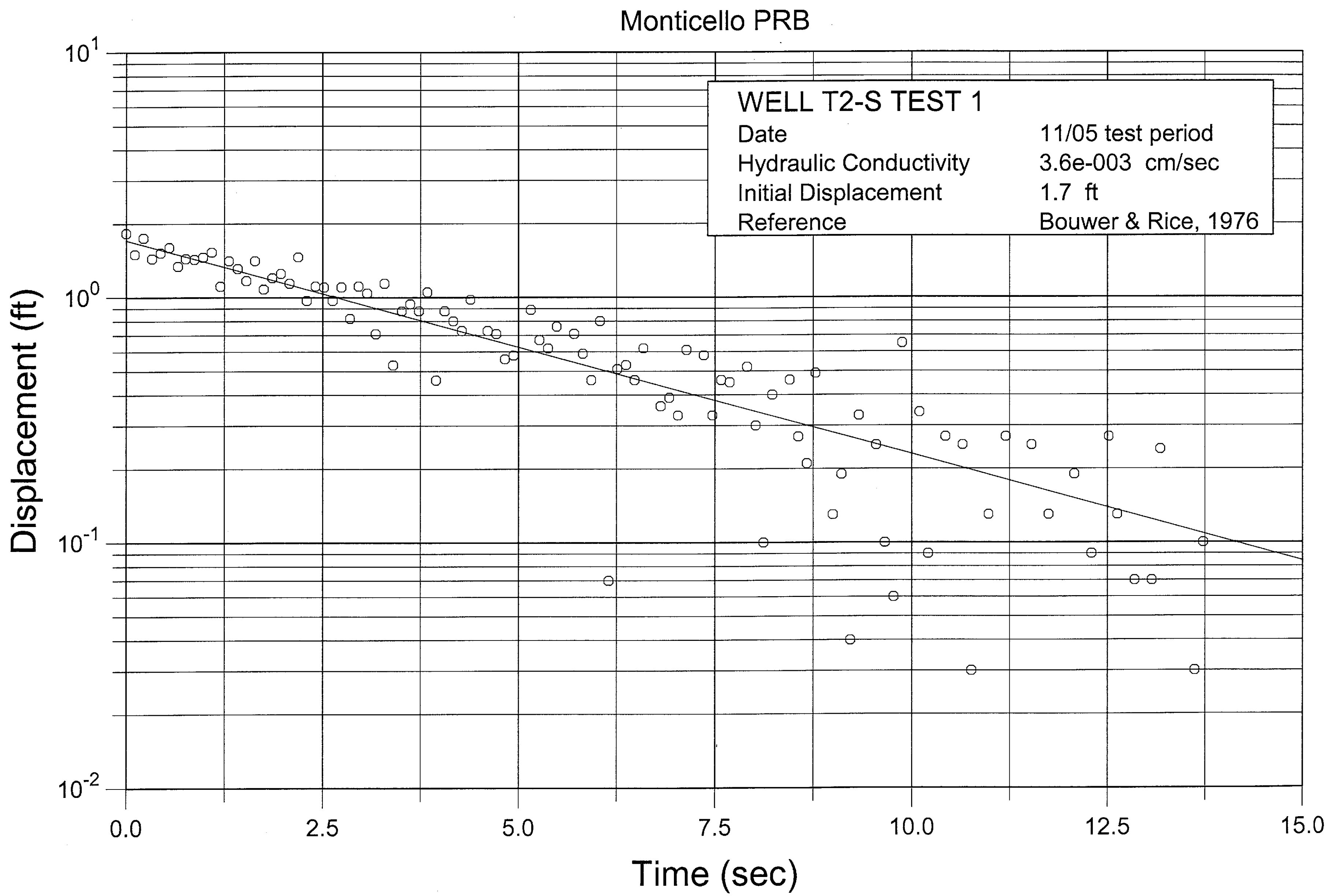


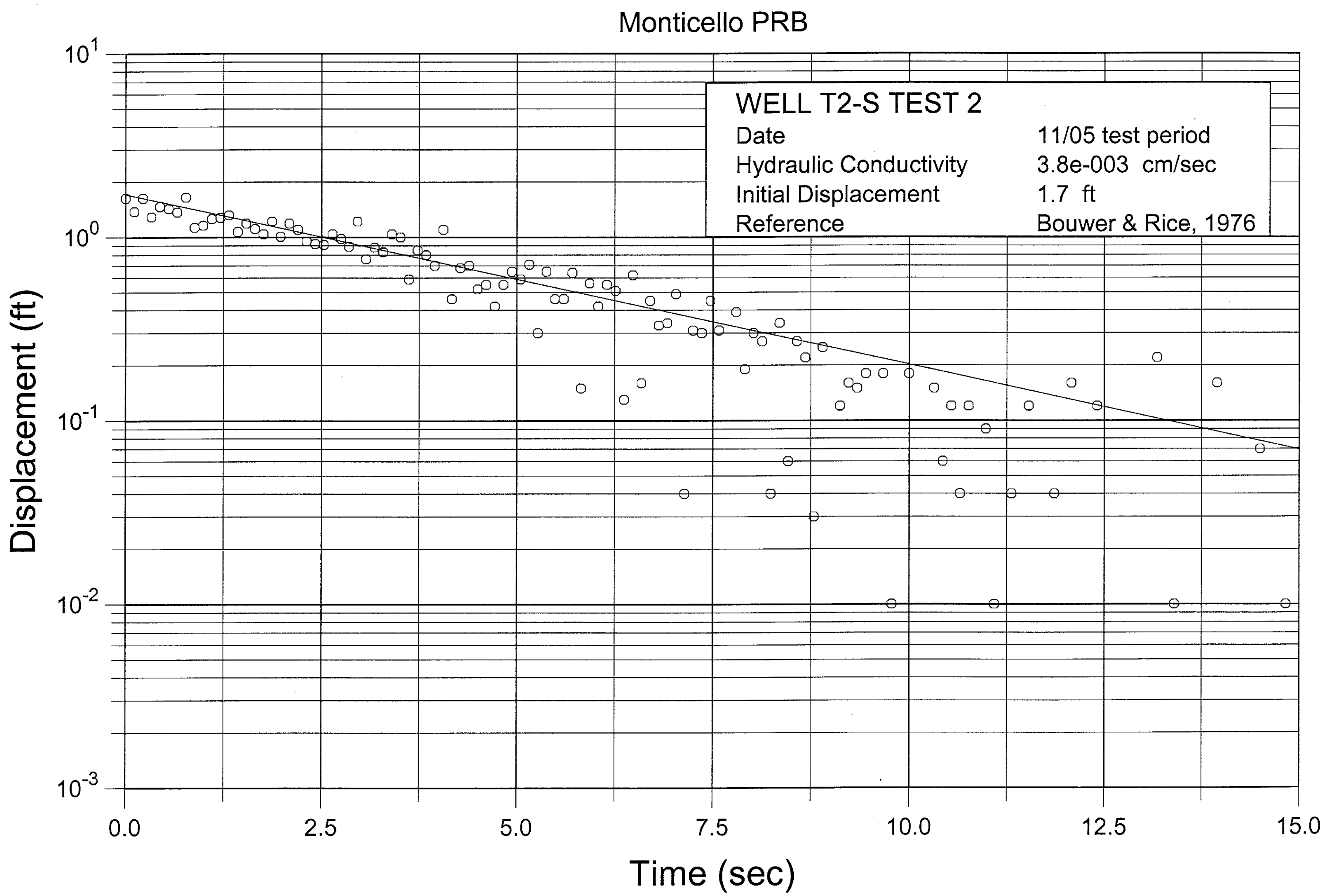
Monticello PRB
WELL R2-M9 TEST 3
Date
11/05 test period
Hydraulic Conductivity
1.9e-003 cm/sec
Initial Displacement
6.7 ft
Reference
Bouwer & Rice, 1976
10^{1}
10^{0}
10^{-1}
10^{-2}
Displacement (ft)
0.0
15.0
30.0
45.0
60.0
75.0
90.0
Time (sec)



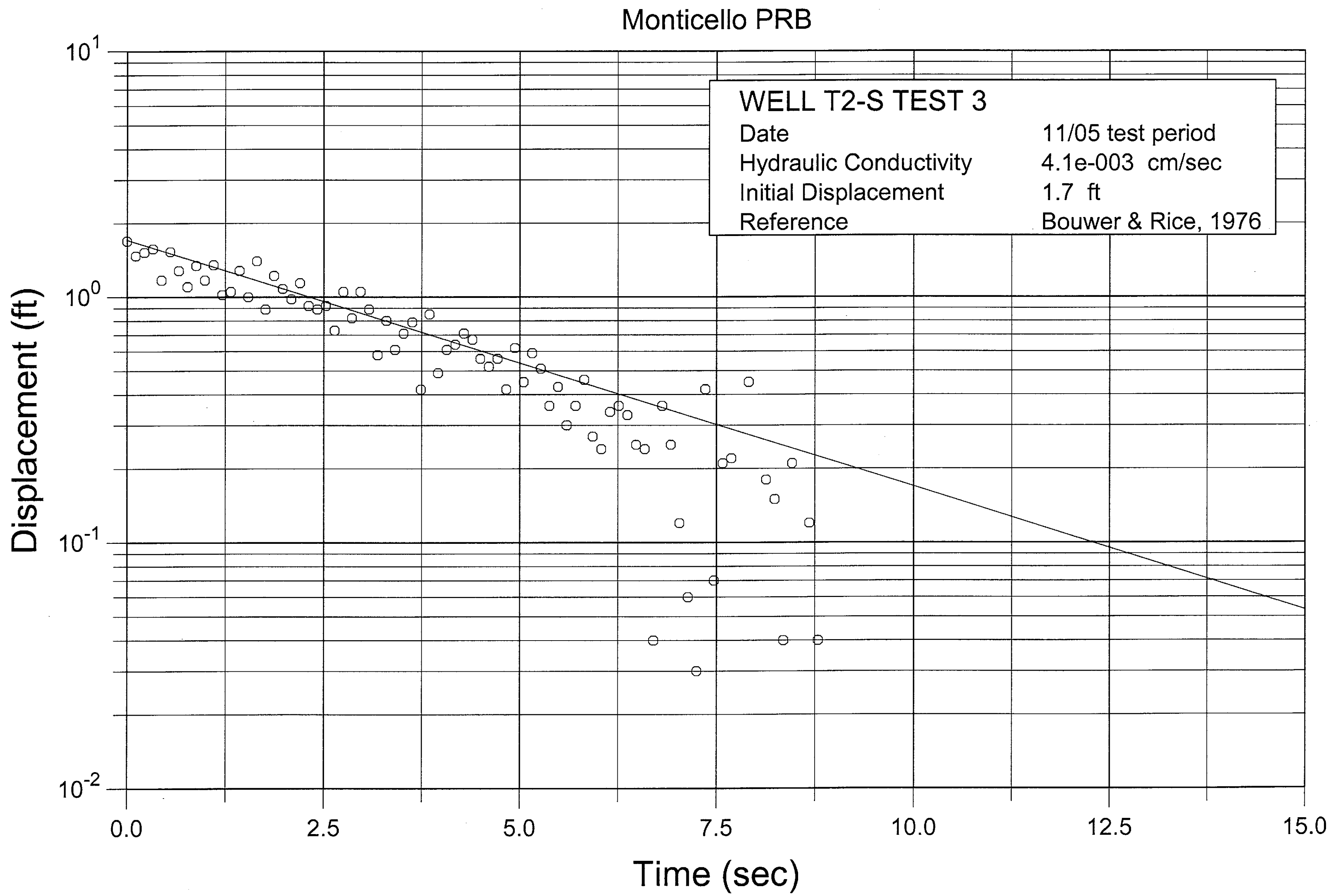
Monticello PRB
WELL T2-D TEST 1
Date
11/05 test period
Hydraulic Conductivity
8.4e-003 cm/sec
Initial Displacement
6.2 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
0.0
2.5
5.0
7.5
10.0
12.5
15.0
Time (sec)


Monticello PRB
WELL T2-D TEST 2
Date
11/05 test period
Hydraulic Conductivity
8.9e-003 cm/sec
Initial Displacement
5.7 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^1
10^0
10^-1
10^-2
10^-3
0.0
2.5
5.0
7.5
10.0
12.5
15.0

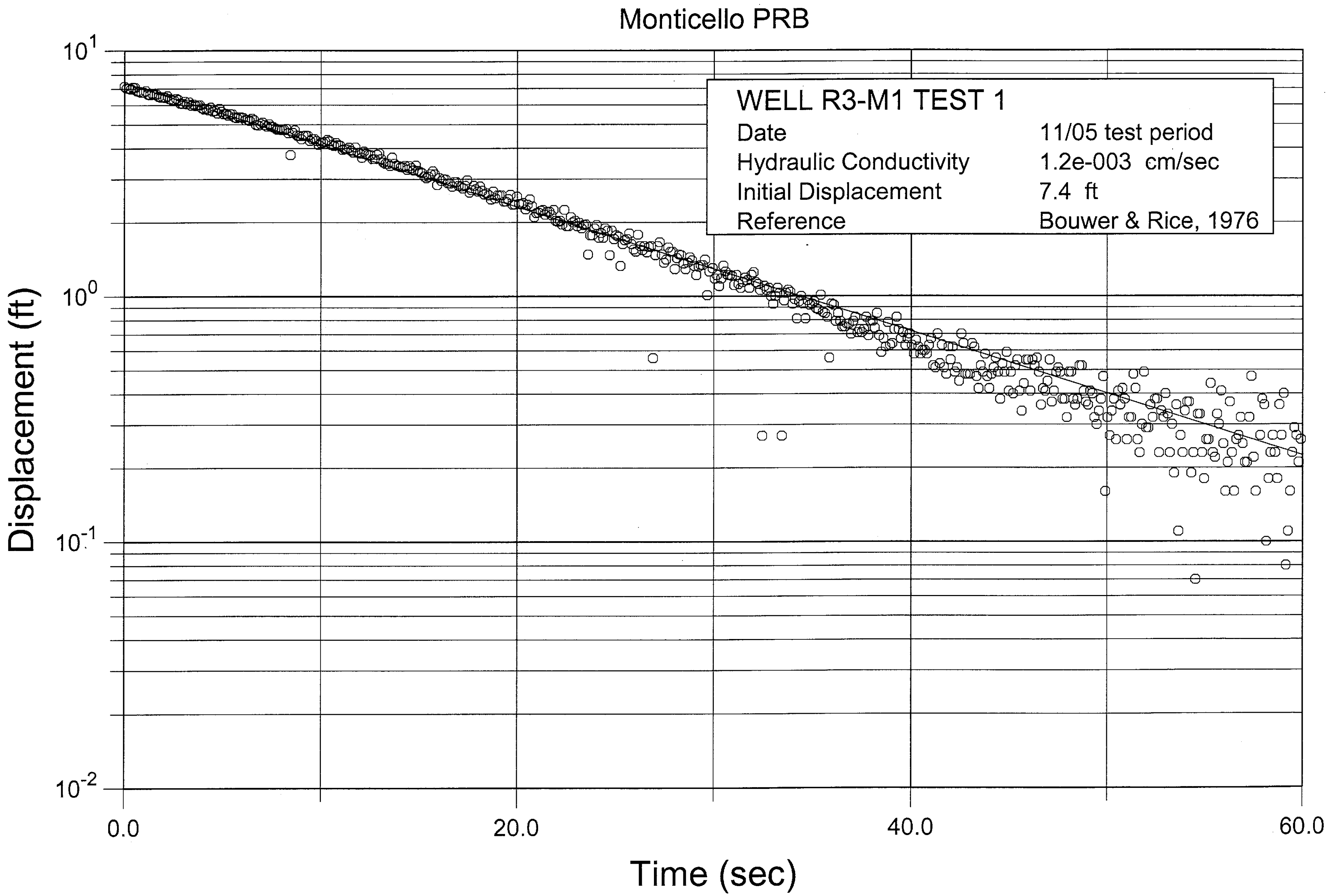

Monticello PRB
WELL T2-S TEST 1
Date 11/05 test period
Hydraulic Conductivity 3.6e-003 cm/sec
Initial Displacement 1.7 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^1
10^0
10^-1
10^-2
0.0
2.5
5.0
7.5
10.0
12.5
15.0



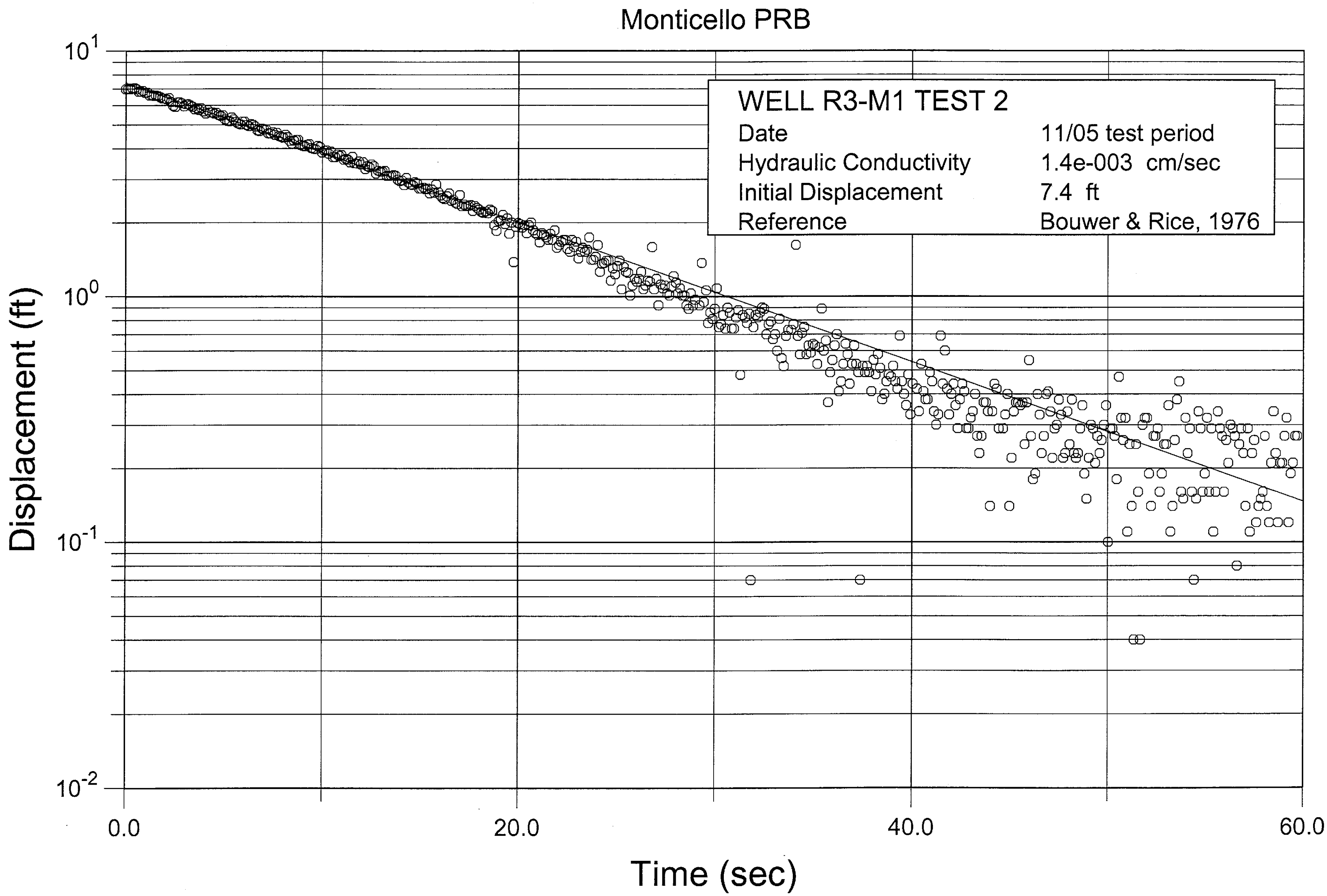
Monticello PRB
WELL T2-S TEST 2
Date 11/05 test period
Hydraulic Conductivity 3.8e-003 cm/sec
Initial Displacement 1.7 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^1
10^0
10^-1
10^-2
10^-3
0.0
2.5
5.0
7.5
10.0
12.5
15.0

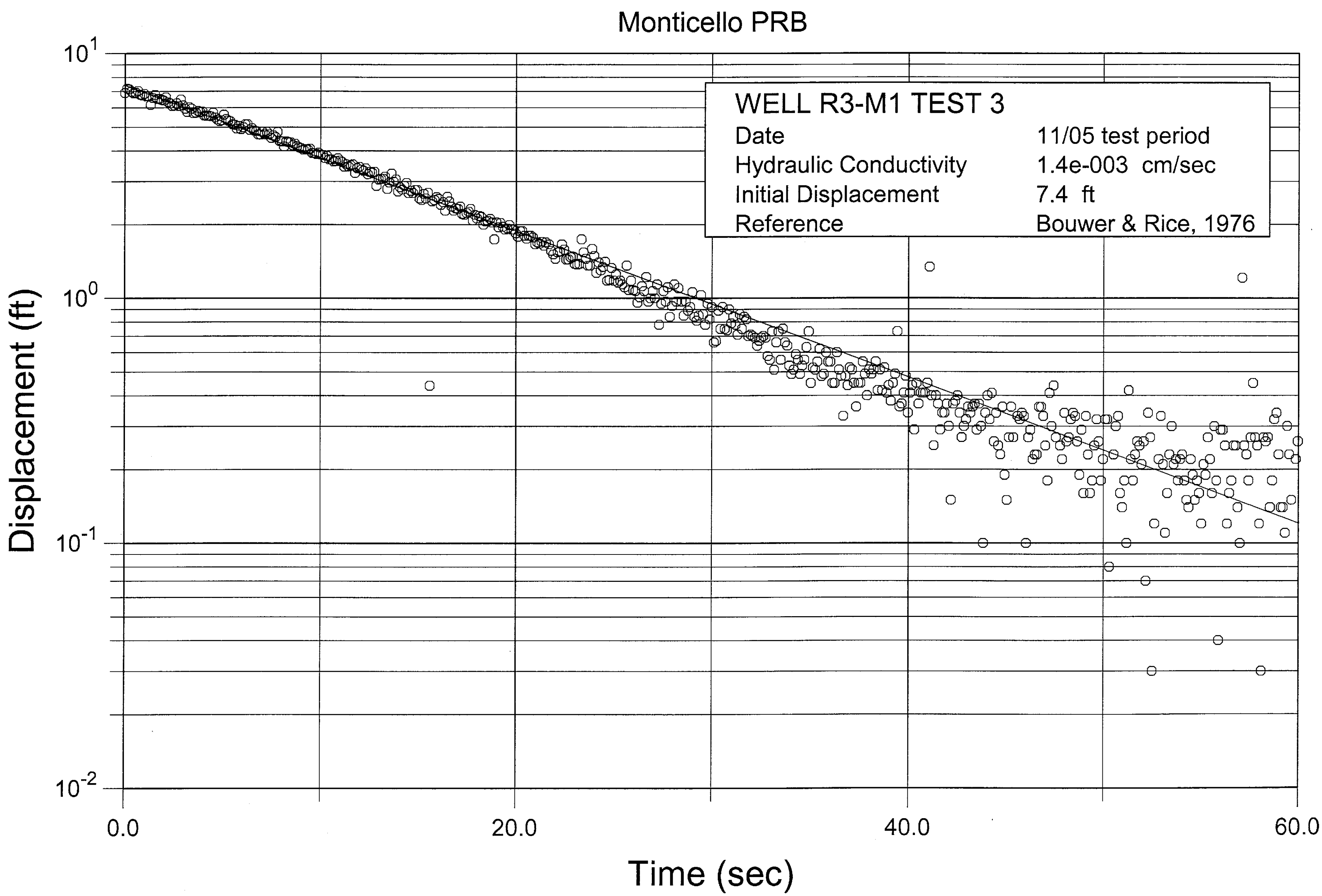


Monticello PRB
WELL T2-S TEST 3
Date 11/05 test period
Hydraulic Conductivity 4.1e-003 cm/sec
Initial Displacement 1.7 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
0.0
2.5
5.0
7.5
10.0
12.5
15.0
Time (sec)

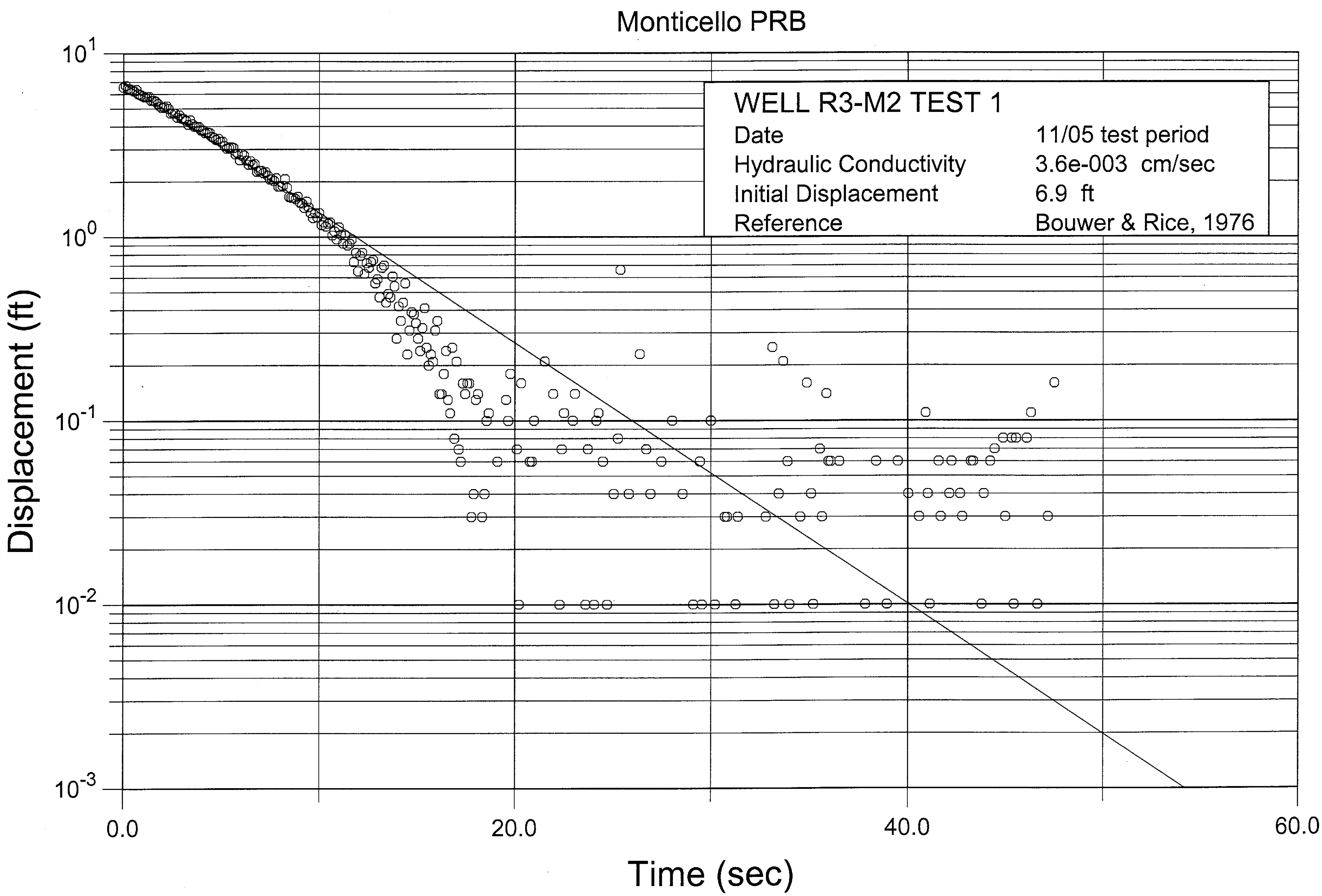


Monticello PRB
WELL R3-M1 TEST 1
Date 11/05 test period
Hydraulic Conductivity 1.2e-003 cm/sec
Initial Displacement 7.4 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^{-1}
10^{-2}
0.0
20.0
40.0
60.0
Time (sec)

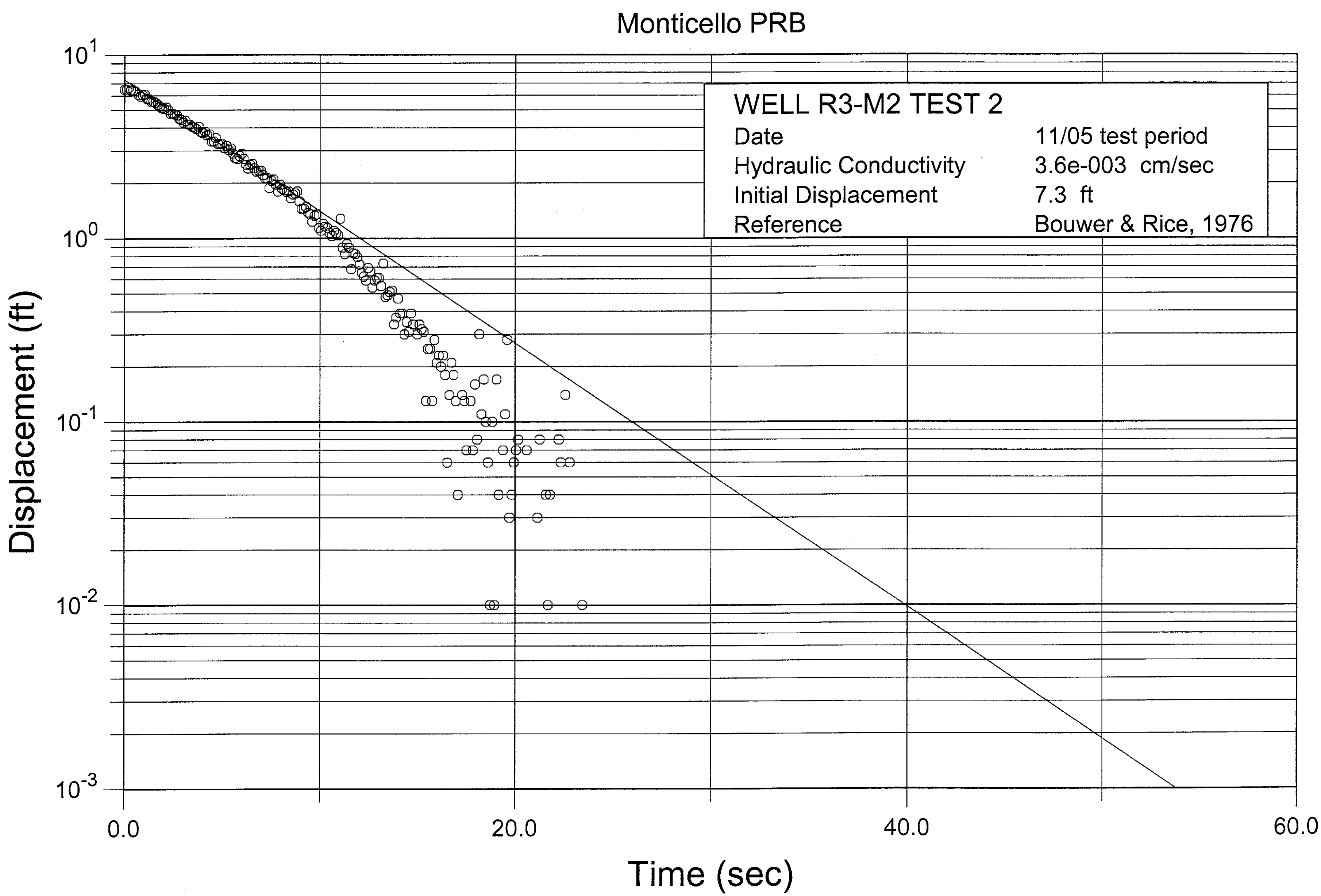

Monticello PRB
WELL R3-M1 TEST 2
Date
11/05 test period
Hydraulic Conductivity
1.4e-003 cm/sec
Initial Displacement
7.4 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
0.0
20.0
40.0
60.0
Time (sec)

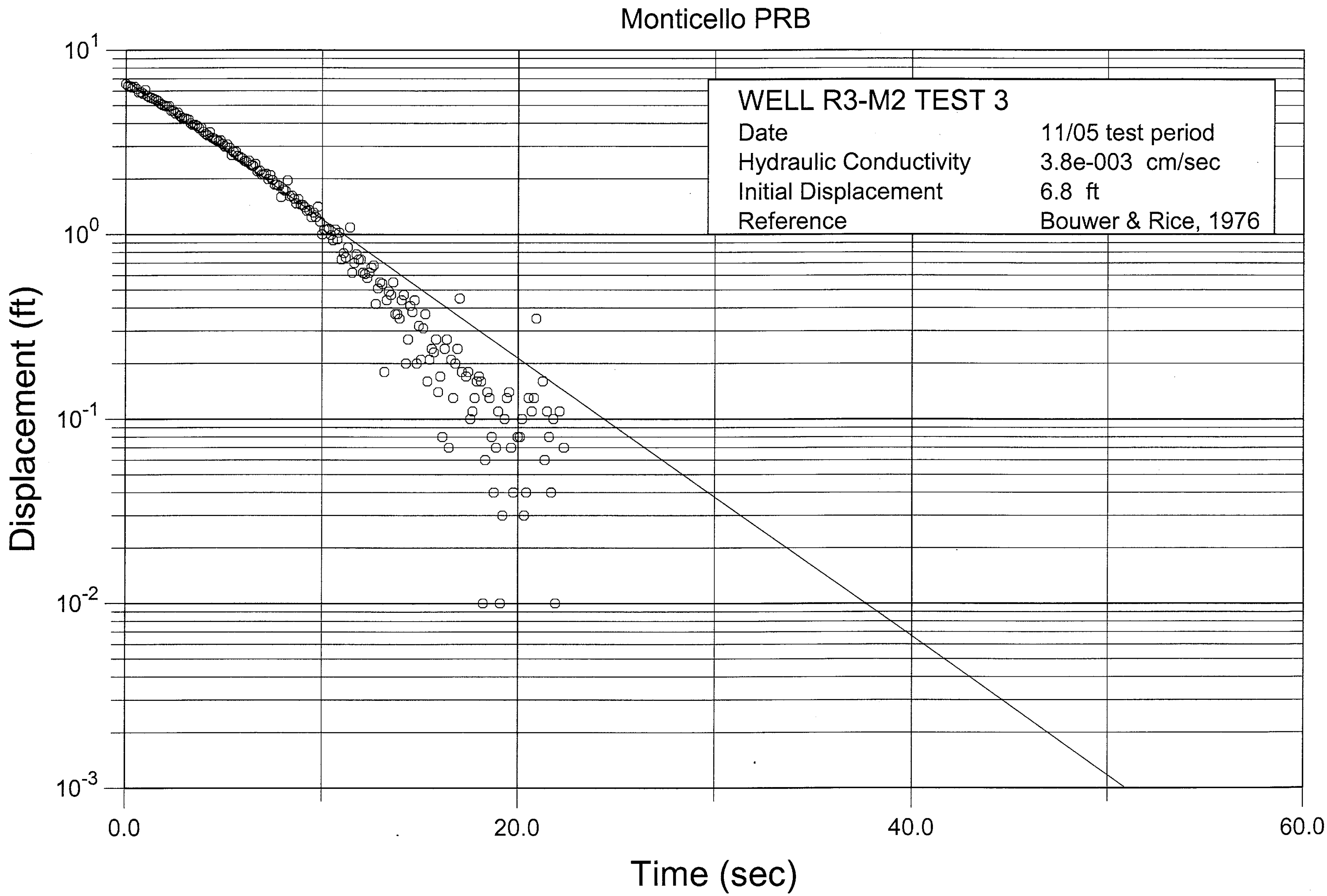


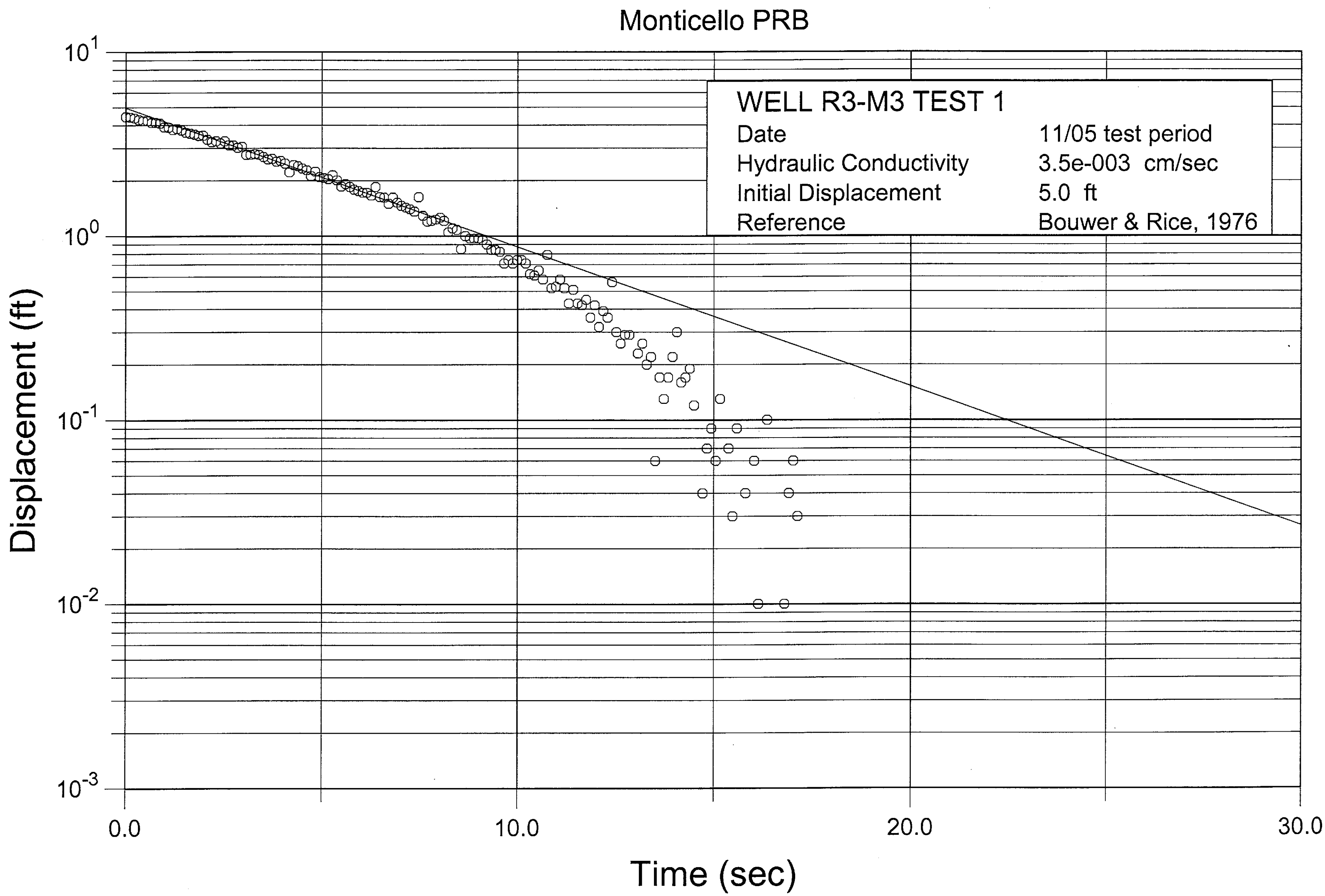
Monticello PRB
WELL R3-M1 TEST 3
Date
11/05 test period
Hydraulic Conductivity
1.4e-003 cm/sec
Initial Displacement
7.4 ft
Reference
Bouwer & Rice, 1976
10^{1}
10^{0}
10^{-1}
10^{-2}
Displacement (ft)
0.0
20.0
40.0
60.0
Time (sec)

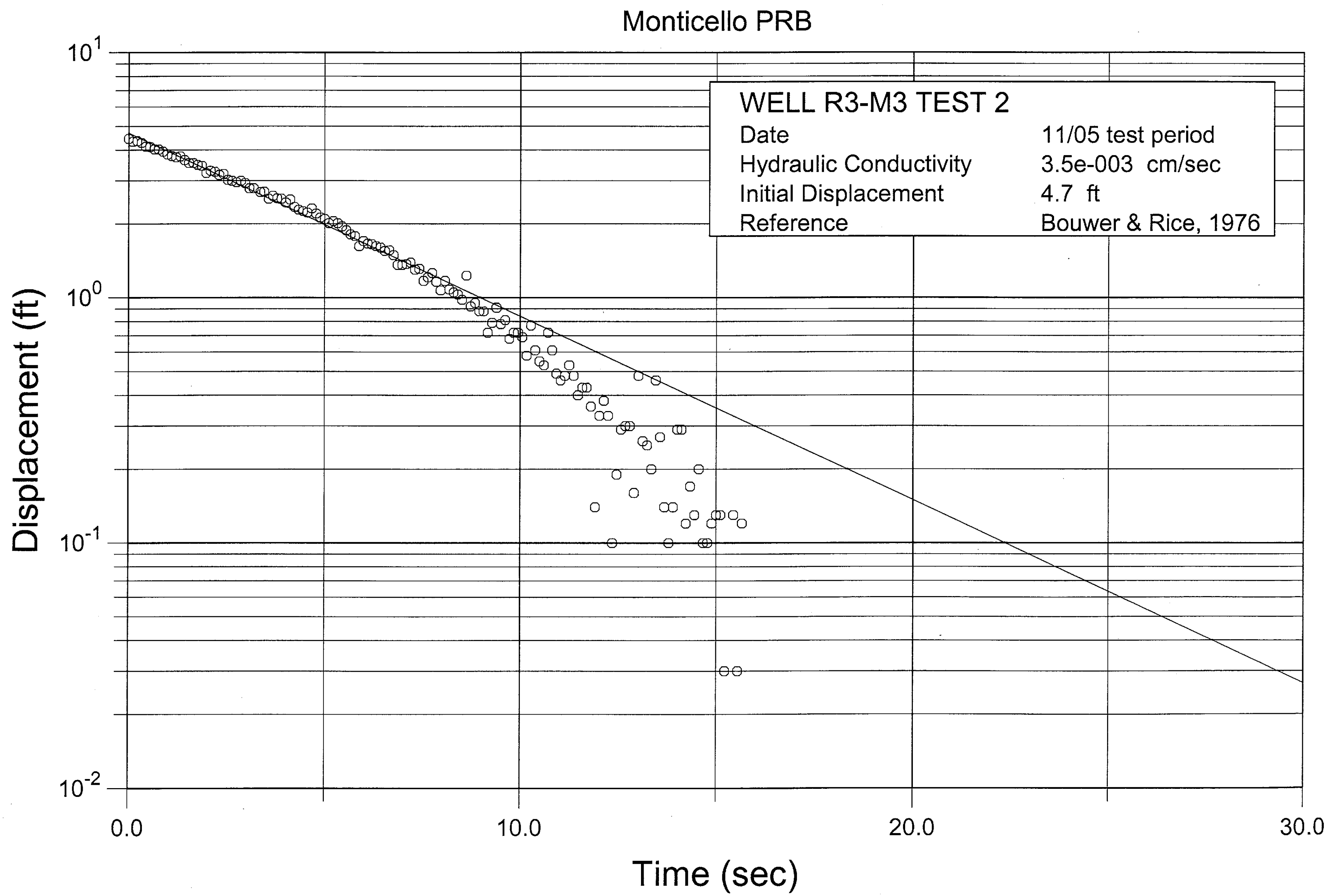


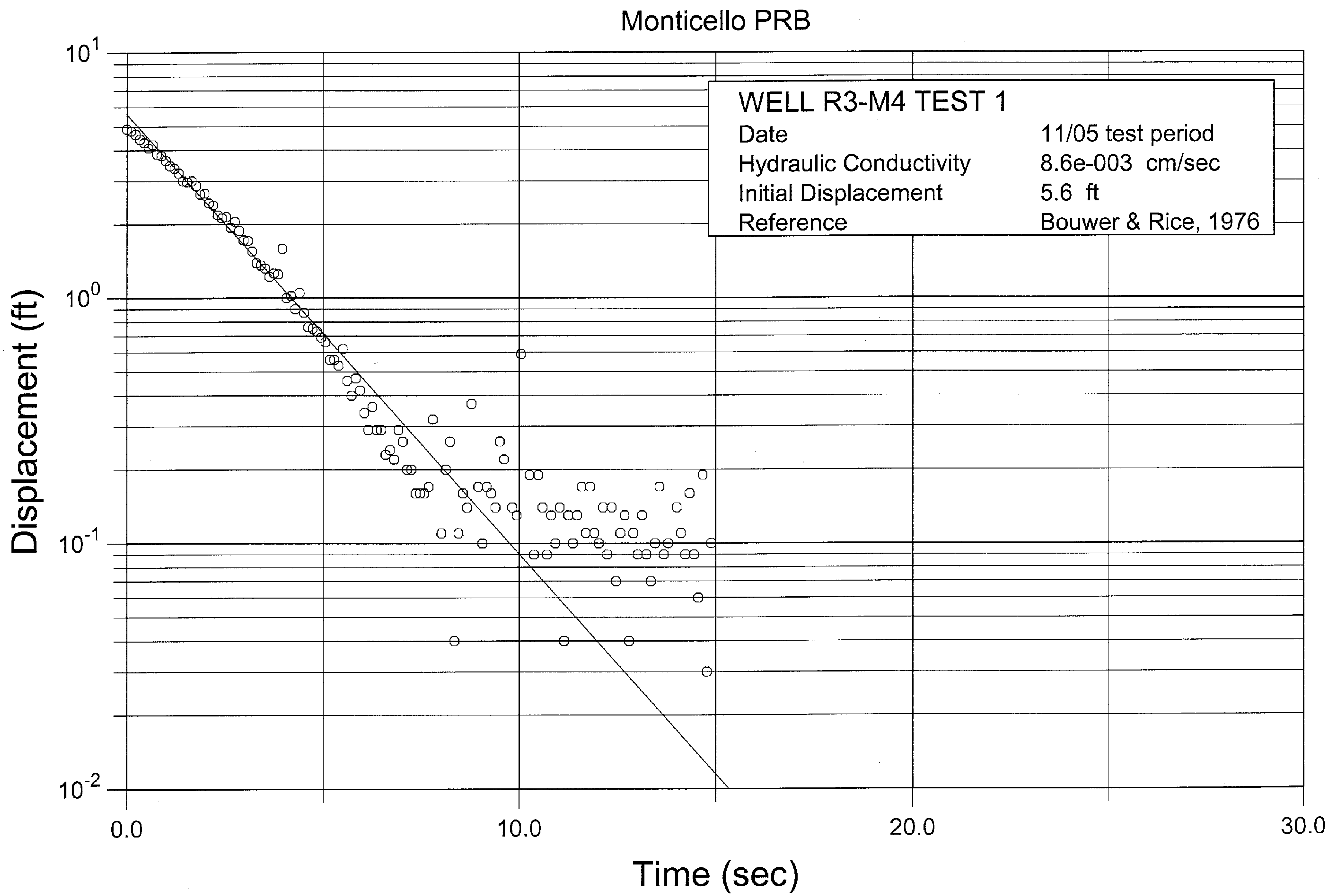
Monticello PRB
WELL R3-M2 TEST 1
Date
11/05 test period
Hydraulic Conductivity
3.6e-003 cm/sec
Initial Displacement
6.9 ft
Reference
Bouwer & Rice, 1976
10^1
10^0
10^-1
10^-2
10^-3
Displacement (ft)
0.0
20.0
40.0
60.0
Time (sec)


Monticello PRB
WELL R3-M2 TEST 2
Date
11/05 test period
Hydraulic Conductivity
3.6e-003 cm/sec
Initial Displacement
7.3 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^{-1}
10^{-2}
10^{-3}
0.0
20.0
40.0
60.0
Time (sec)

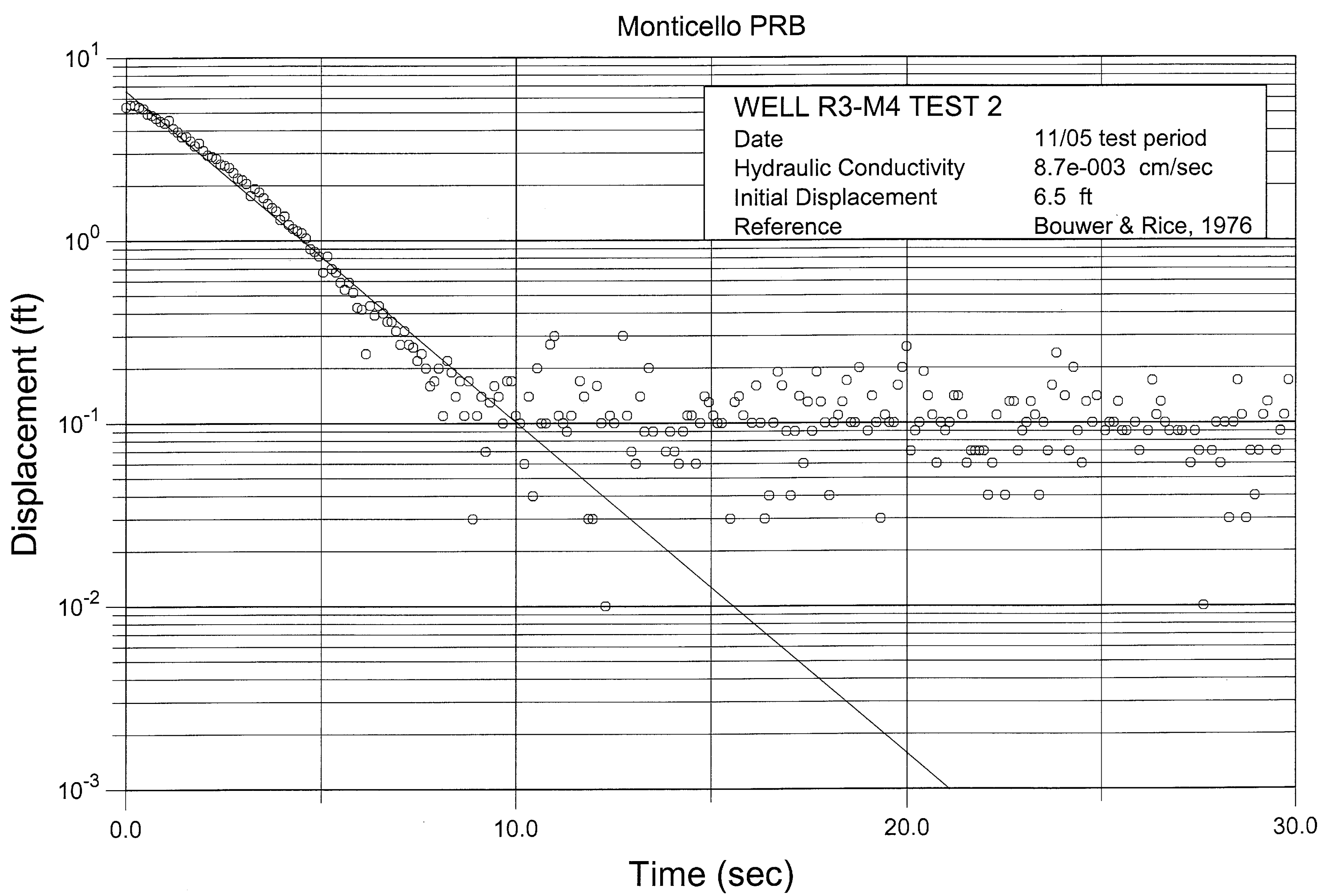

Monticello PRB
WELL R3-M2 TEST 3
Date
11/05 test period
Hydraulic Conductivity
3.8e-003 cm/sec
Initial Displacement
6.8 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^1
10^0
10^-1
10^-2
10^-3
0.0
20.0
40.0
60.0

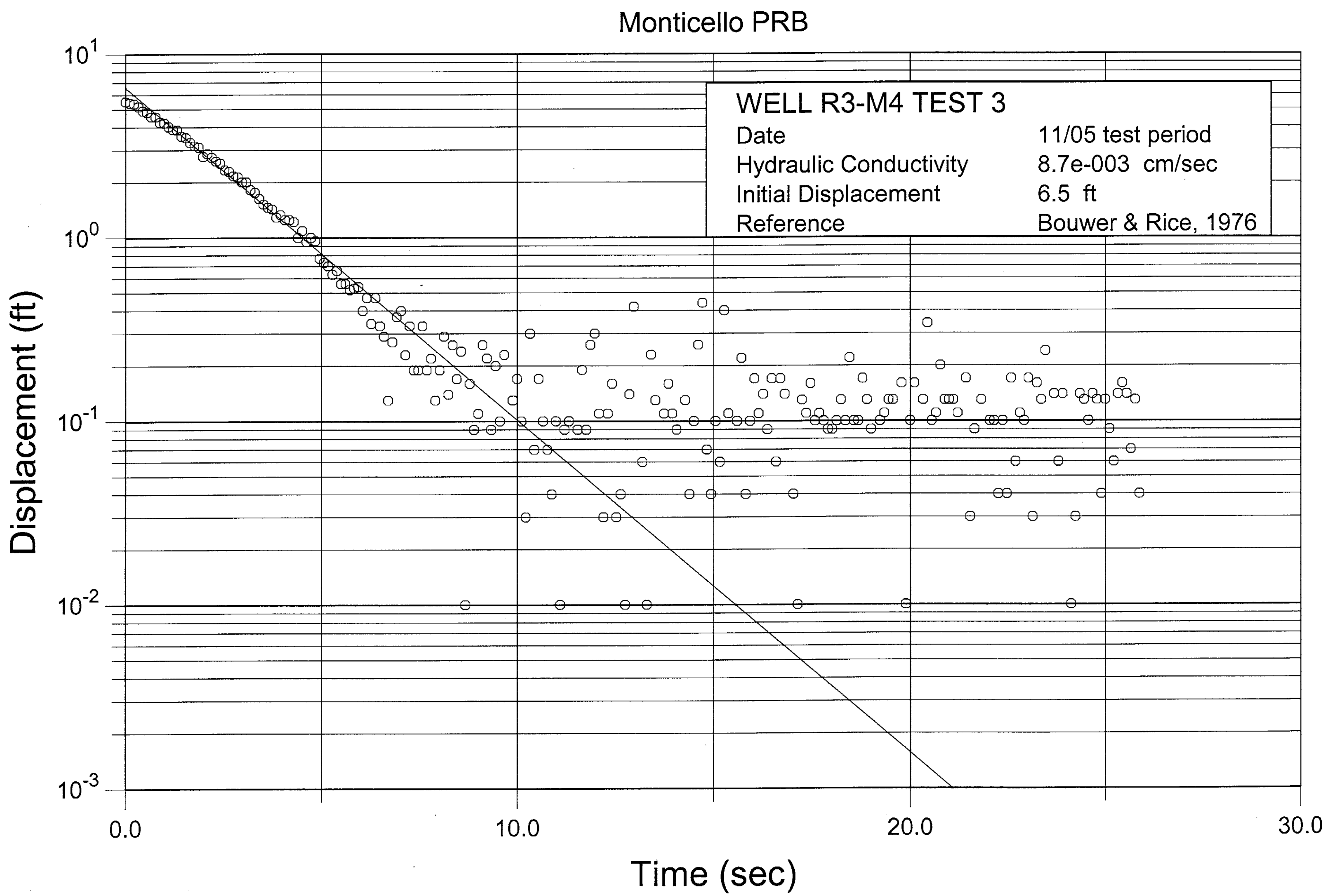

Monticello PRB
WELL R3-M3 TEST 1
Date
11/05 test period
Hydraulic Conductivity
3.5e-003 cm/sec
Initial Displacement
5.0 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^{-1}
10^{-2}
10^{-3}
0.0
10.0
20.0
30.0
Time (sec)


Monticello PRB
WELL R3-M3 TEST 2
Date
11/05 test period
Hydraulic Conductivity
3.5e-003 cm/sec
Initial Displacement
4.7 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
Time (sec)
0.0
10.0
20.0
30.0

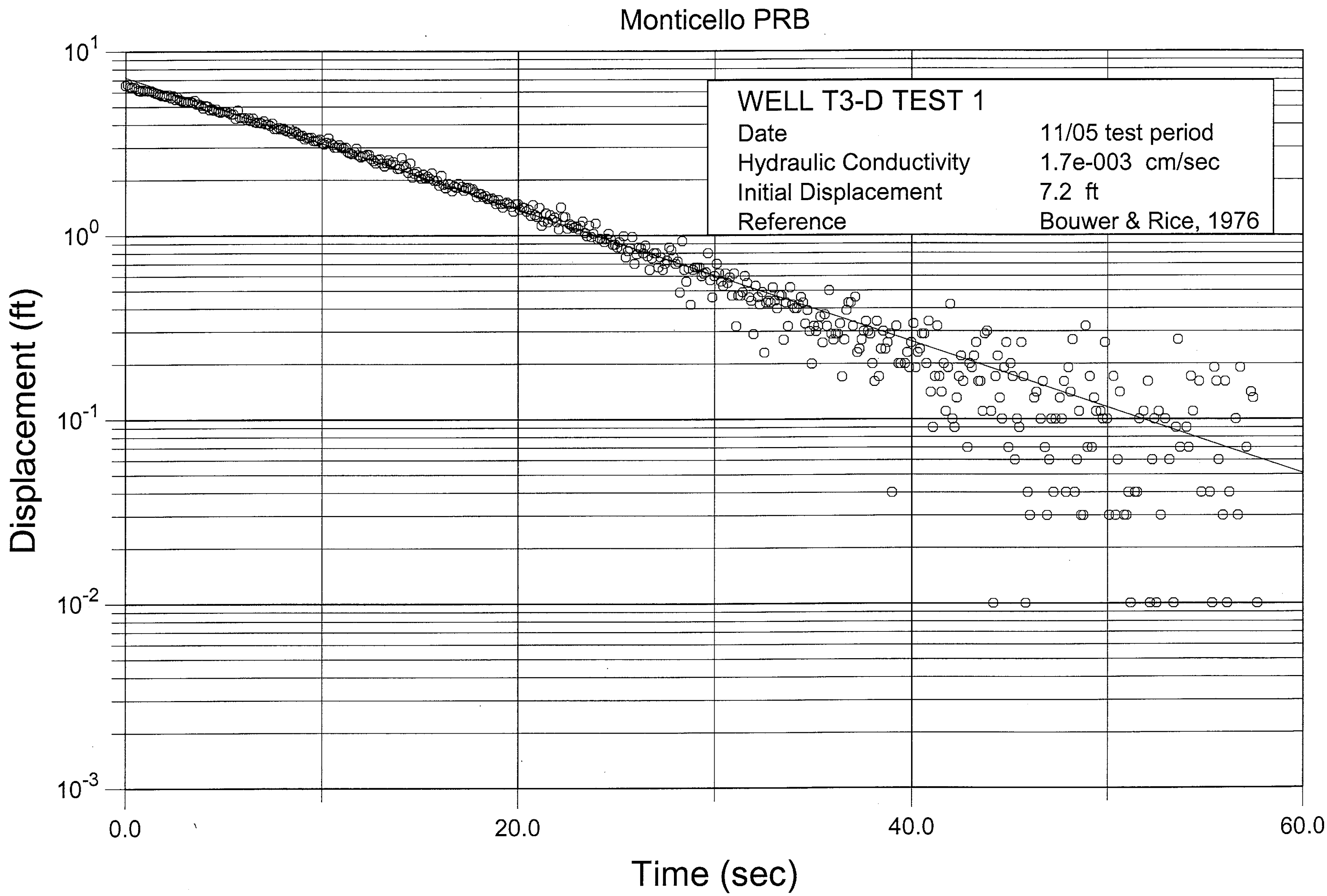


Monticello PRB
WELL R3-M4 TEST 1
Date 11/05 test period
Hydraulic Conductivity 8.6e-003 cm/sec
Initial Displacement 5.6 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^{1}
10^{0}
10^{-1}
10^{-2}
0.0
10.0
20.0
30.0

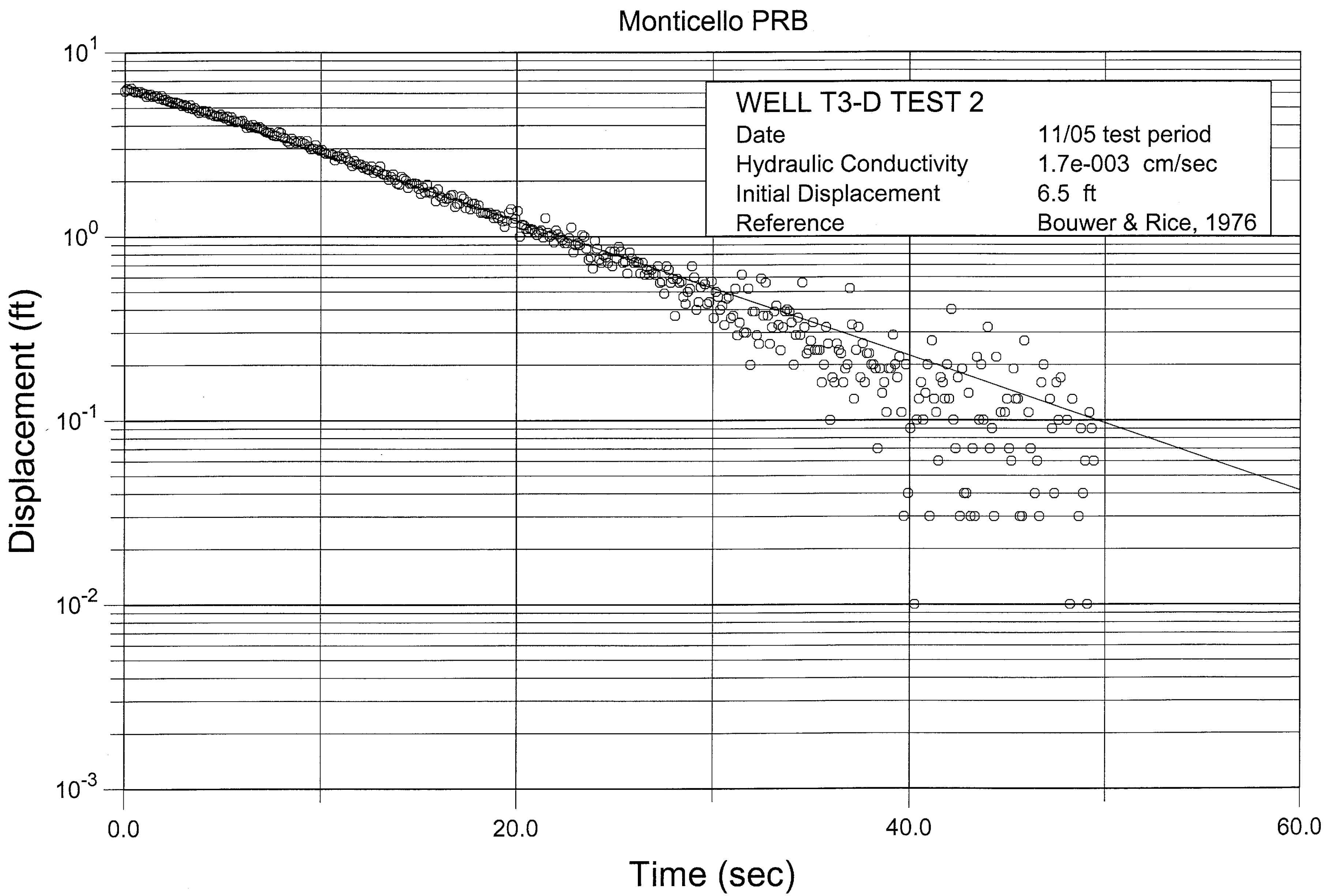

Monticello PRB
WELL R3-M4 TEST 2
Date
11/05 test period
Hydraulic Conductivity
8.7e-003 cm/sec
Initial Displacement
6.5 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
0.0
10.0
20.0
30.0
Time (sec)

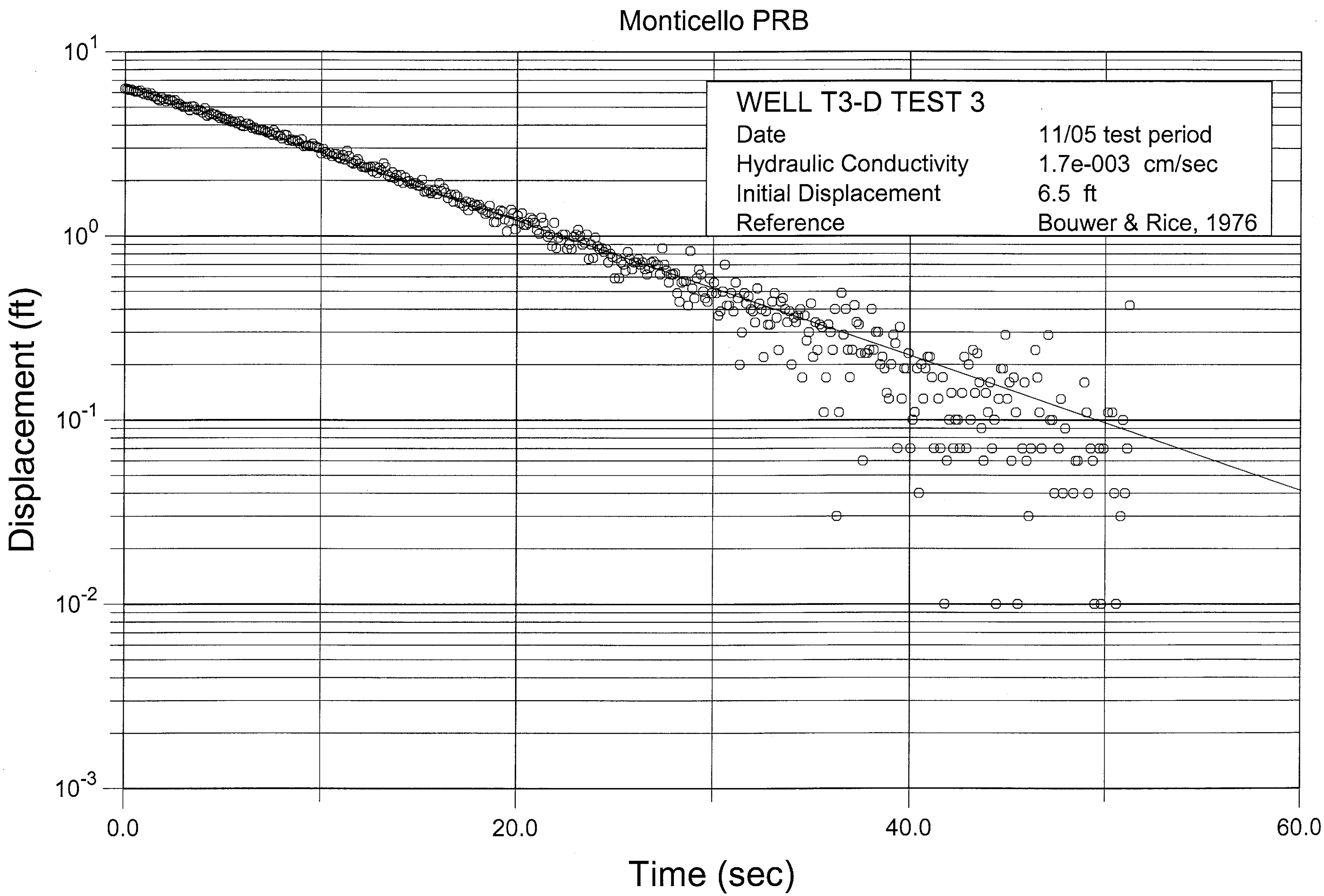


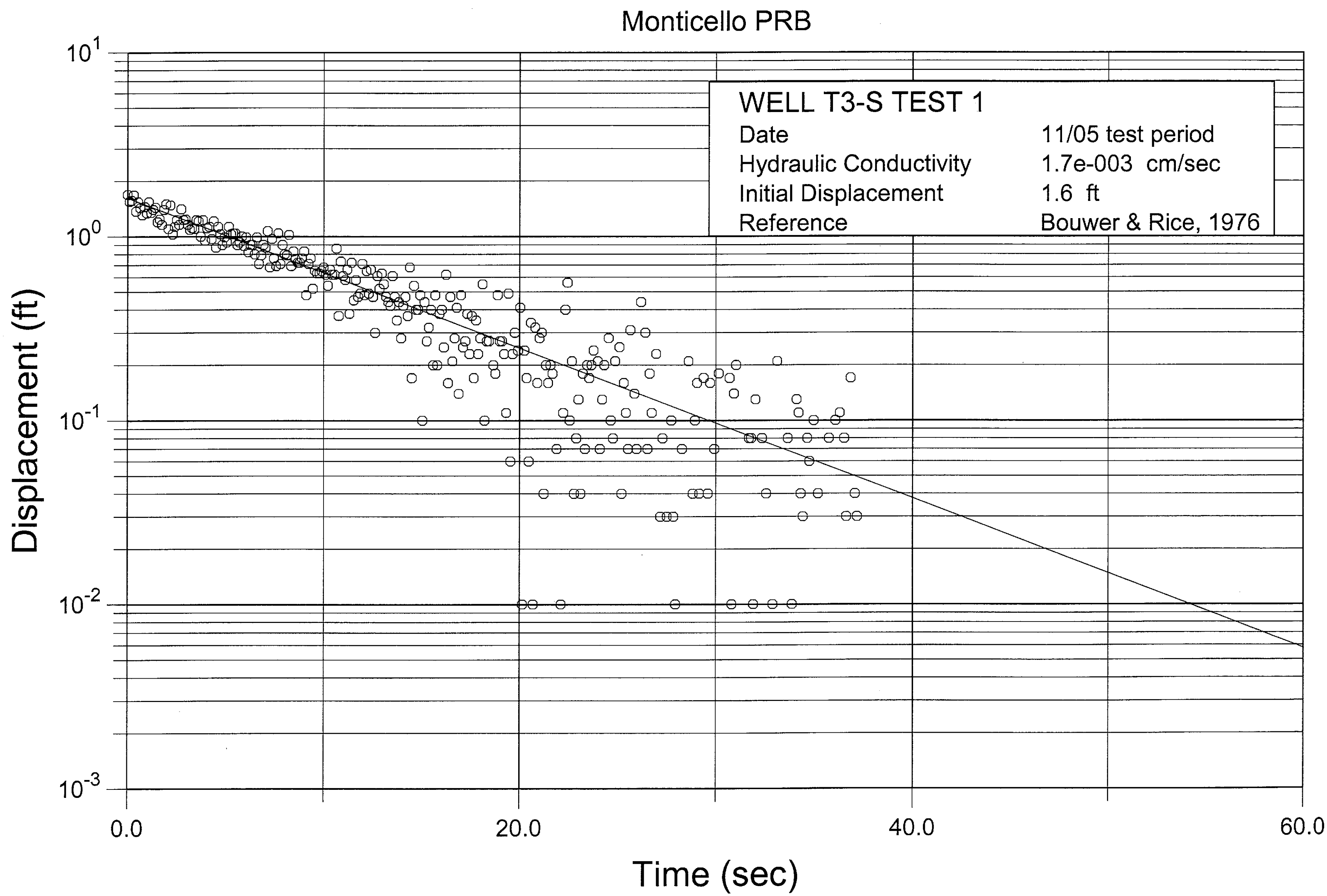
Monticello PRB
WELL R3-M4 TEST 3
Date 11/05 test period
Hydraulic Conductivity 8.7e-003 cm/sec
Initial Displacement 6.5 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^1
10^0
10^-1
10^-2
10^-3
0.0
10.0
20.0
30.0



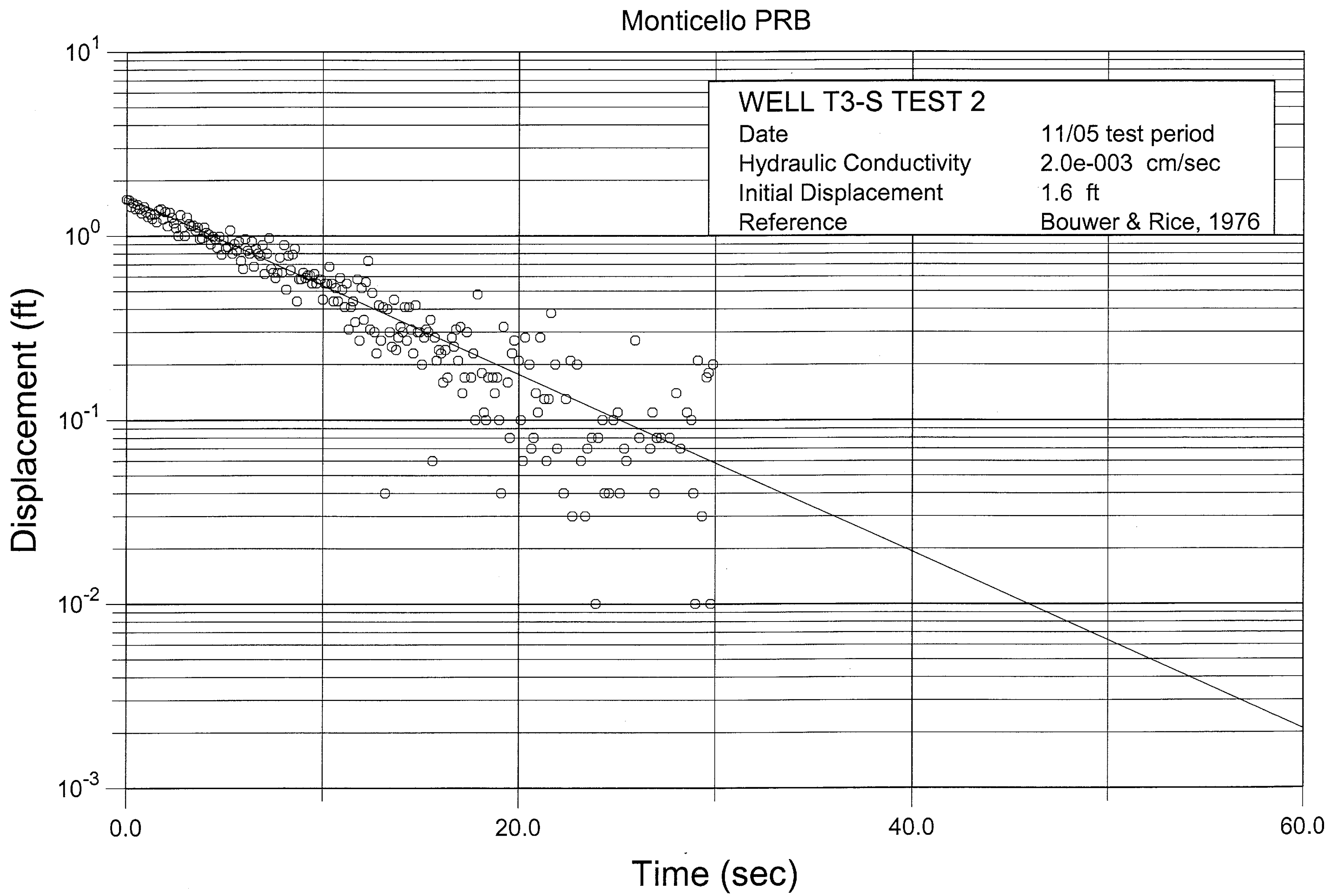
Monticello PRB
WELL T3-D TEST 1
Date
11/05 test period
Hydraulic Conductivity
1.7e-003 cm/sec
Initial Displacement
7.2 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^1
10^0
10^-1
10^-2
10^-3
0.0
20.0
40.0
60.0

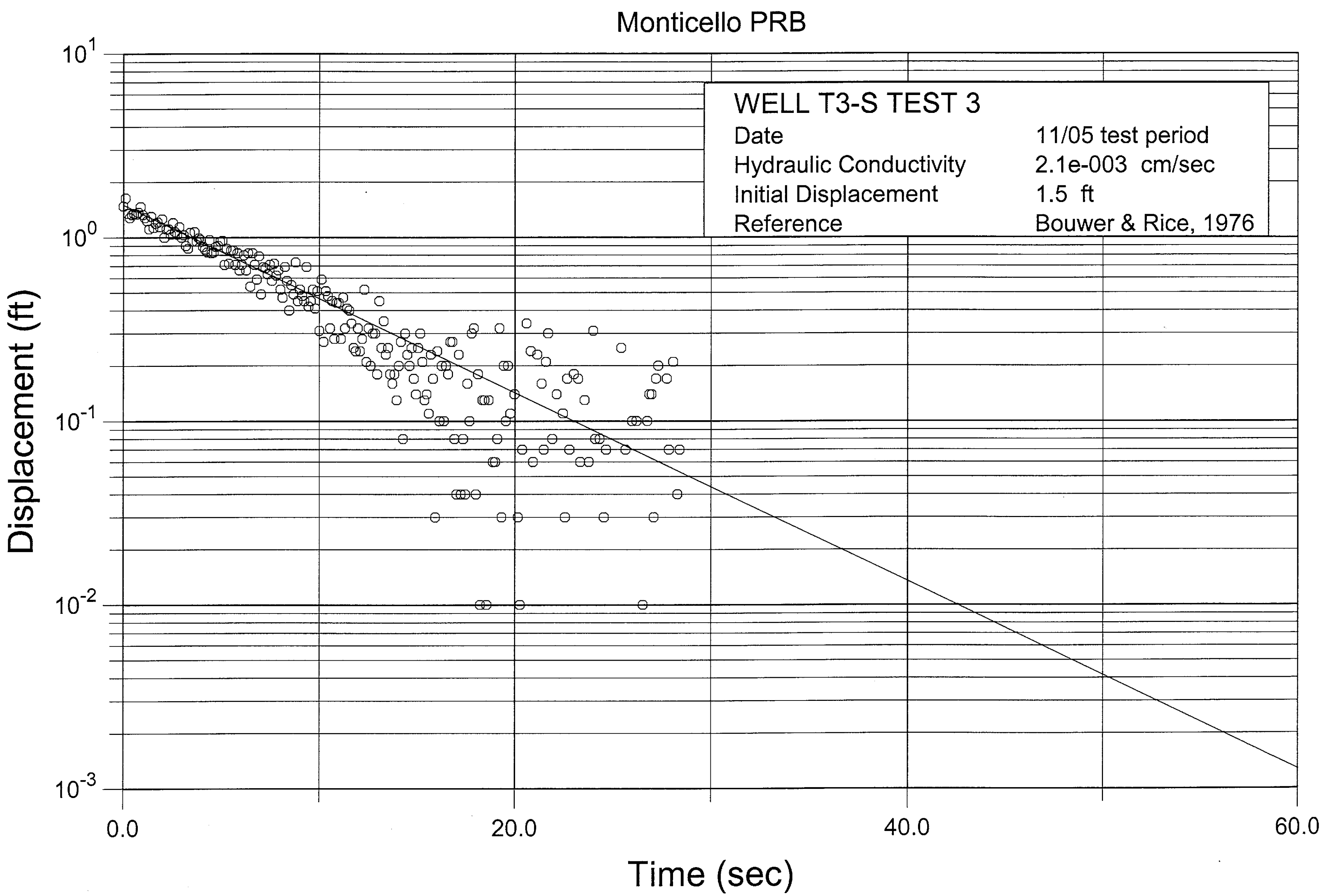

Monticello PRB
WELL T3-D TEST 2
Date
11/05 test period
Hydraulic Conductivity
1.7e-003 cm/sec
Initial Displacement
6.5 ft
Reference
Bouwer & Rice, 1976
10^1
10^0
10^-1
10^-2
10^-3
Displacement (ft)
0.0
20.0
40.0
60.0
Time (sec)


Monticello PRB
WELL T3-D TEST 3
Date
11/05 test period
Hydraulic Conductivity
1.7e-003 cm/sec
Initial Displacement
6.5 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
0.0
20.0
40.0
60.0

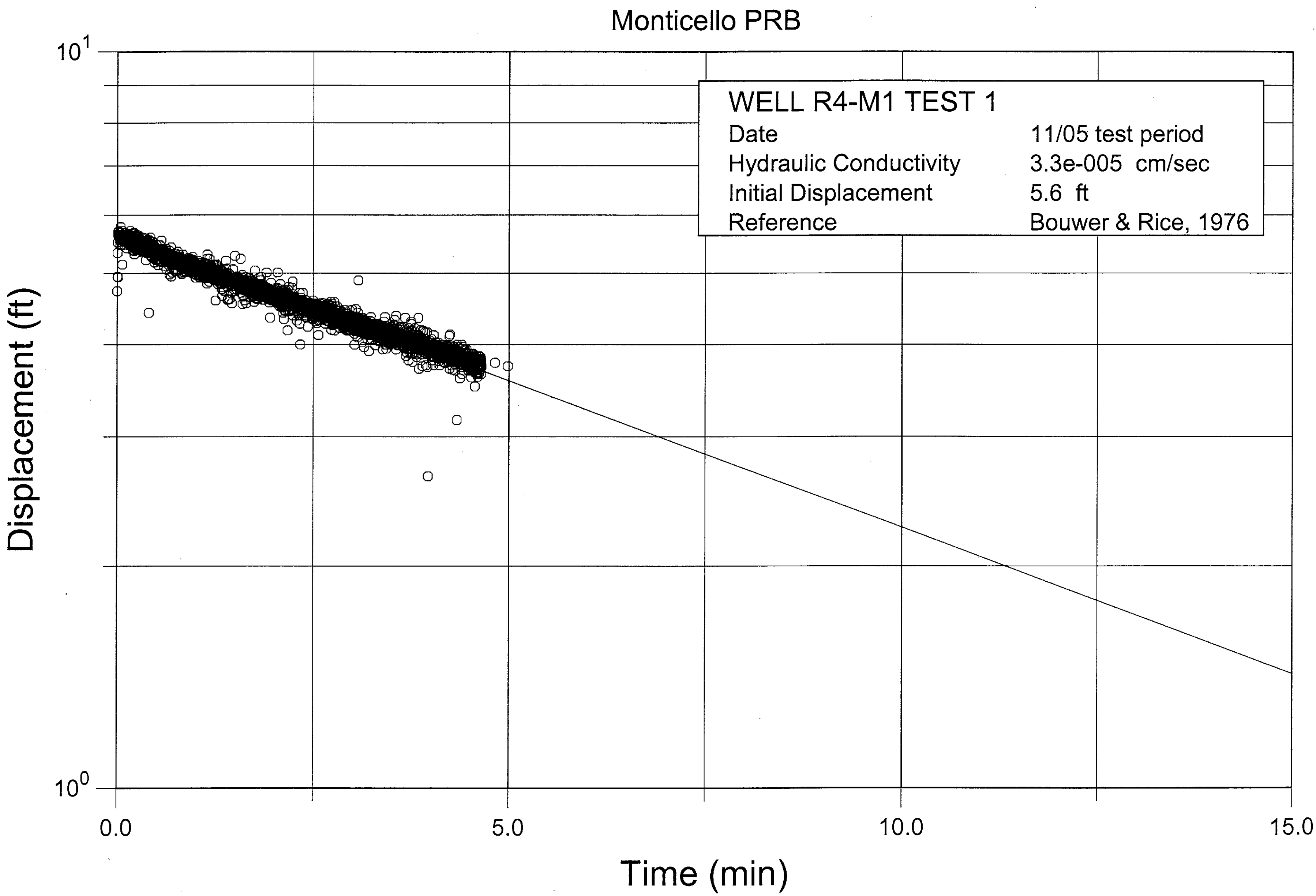


Monticello PRB
WELL T3-S TEST 1
Date 11/05 test period
Hydraulic Conductivity 1.7e-003 cm/sec
Initial Displacement 1.6 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
0.0
20.0
40.0
60.0

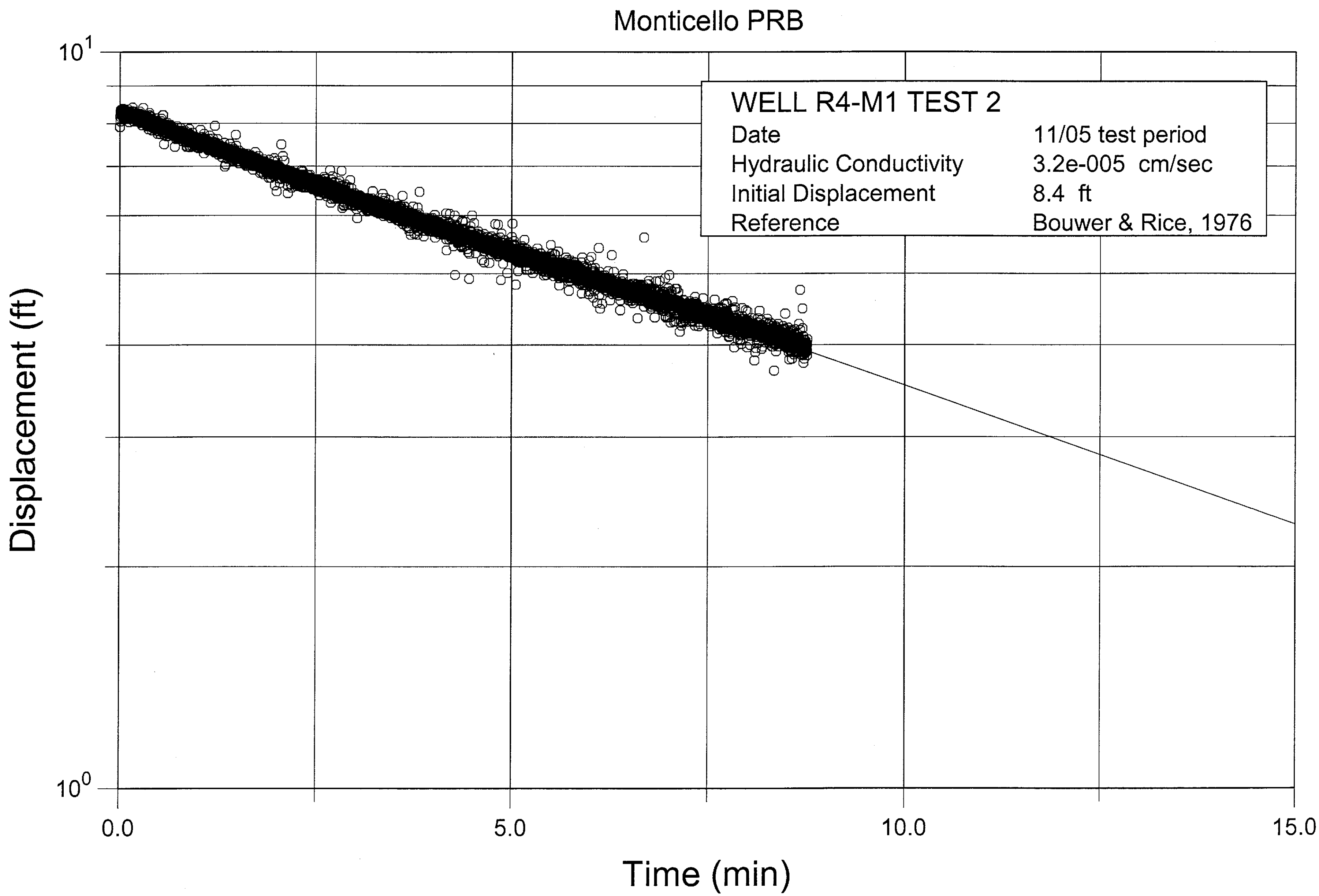

Monticello PRB
WELL T3-S TEST 2
Date 11/05 test period
Hydraulic Conductivity 2.0e-003 cm/sec
Initial Displacement 1.6 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^1
10^0
10^{-1}
10^{-2}
10^{-3}
0.0
20.0
40.0
60.0



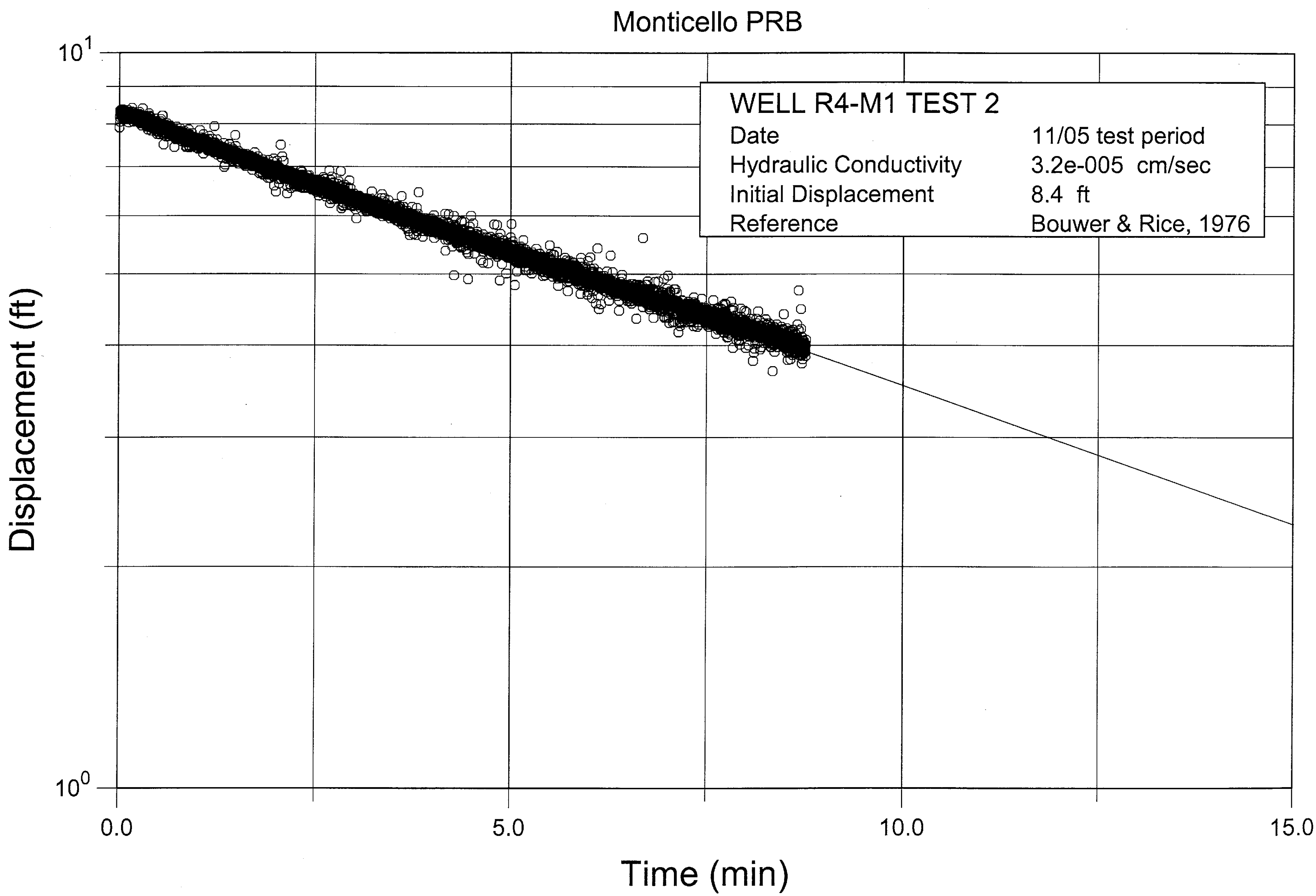
Monticello PRB
WELL T3-S TEST 3
Date 11/05 test period
Hydraulic Conductivity 2.1e-003 cm/sec
Initial Displacement 1.5 ft
Reference Bouwer & Rice, 1976
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
Displacement (ft)
0.0
20.0
40.0
60.0
Time (sec)



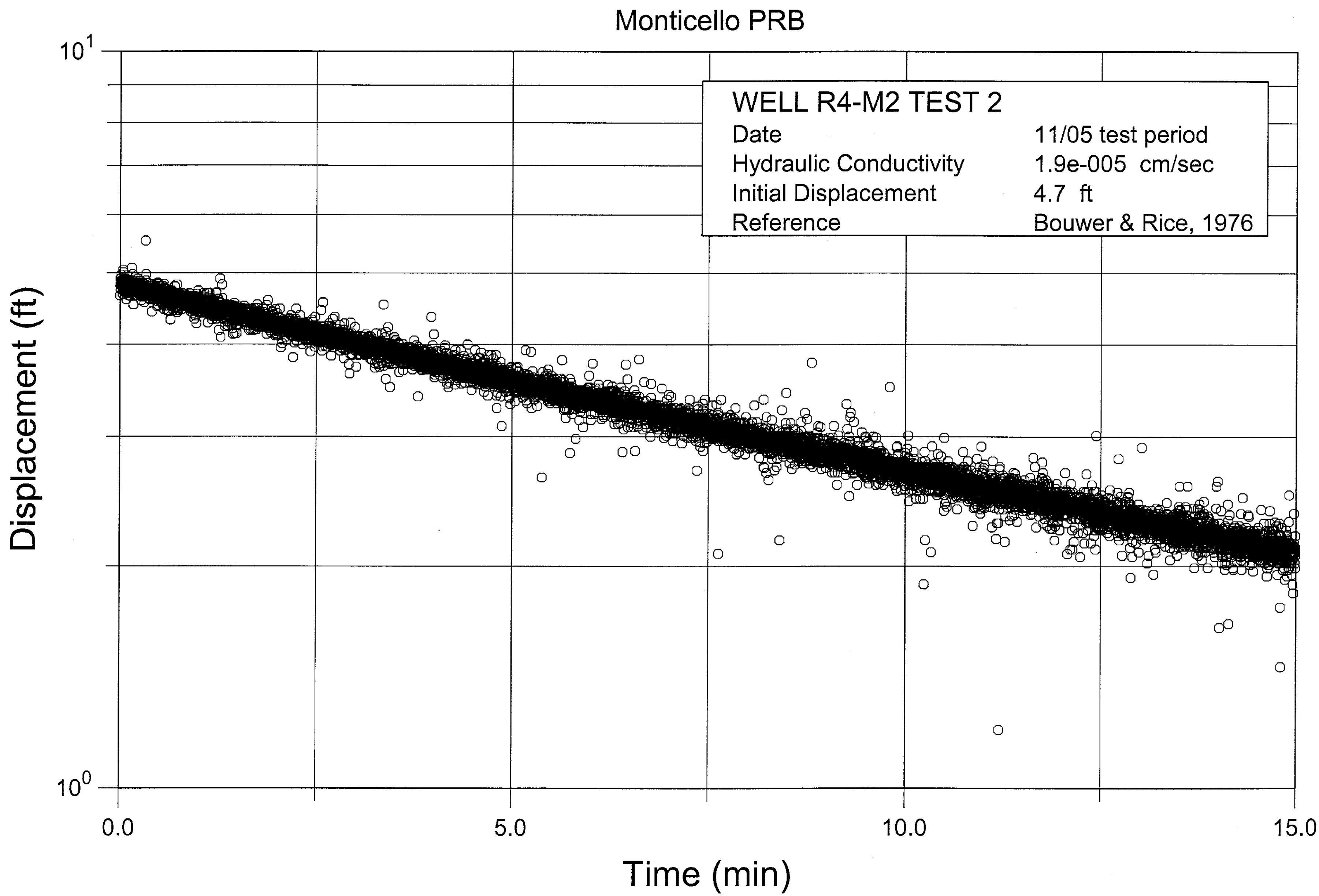
Monticello PRB
WELL R4-M1 TEST 1
Date 11/05 test period
Hydraulic Conductivity 3.3e-005 cm/sec
Initial Displacement 5.6 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
0.0
5.0
10.0
15.0
Time (min)



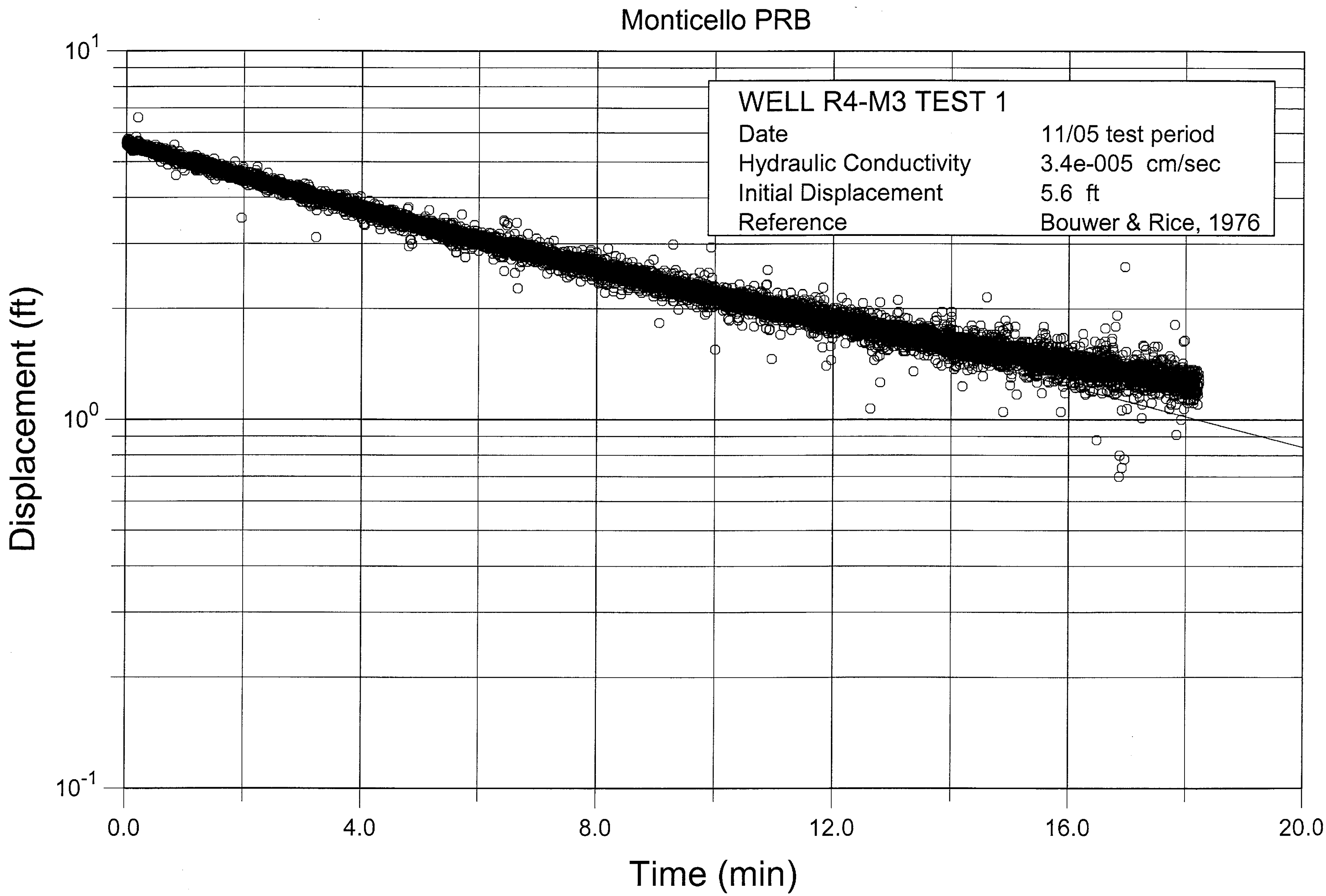
Monticello PRB
WELL R4-M1 TEST 2
Date
11/05 test period
Hydraulic Conductivity
3.2e-005 cm/sec
Initial Displacement
8.4 ft
Reference
Bouwer & Rice, 1976
10^1
10^0
Displacement (ft)
0.0
5.0
10.0
15.0
Time (min)



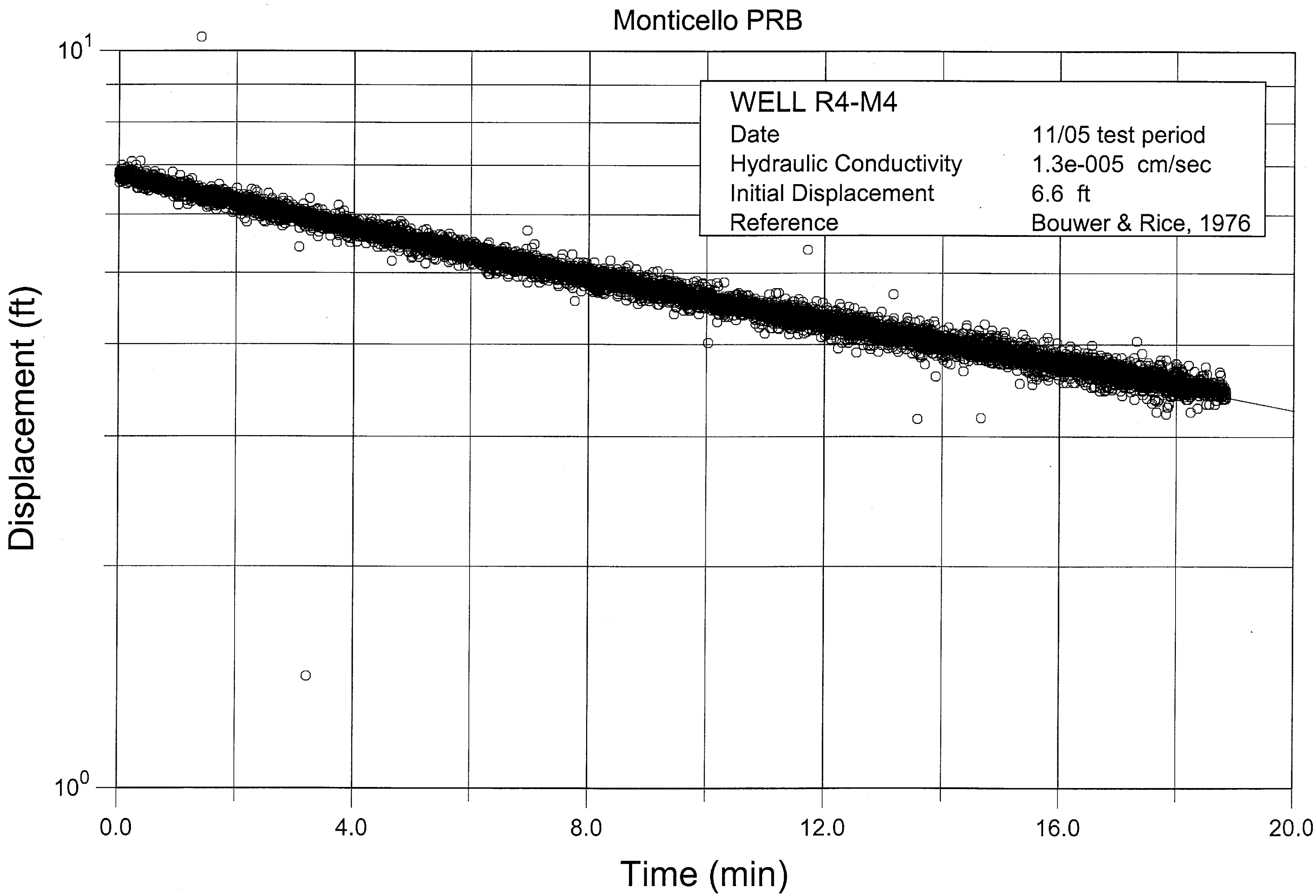
Monticello PRB
WELL R4-M1 TEST 2
Date 11/05 test period
Hydraulic Conductivity 3.2e-005 cm/sec
Initial Displacement 8.4 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (min)
10^1
10^0
0.0
5.0
10.0
15.0



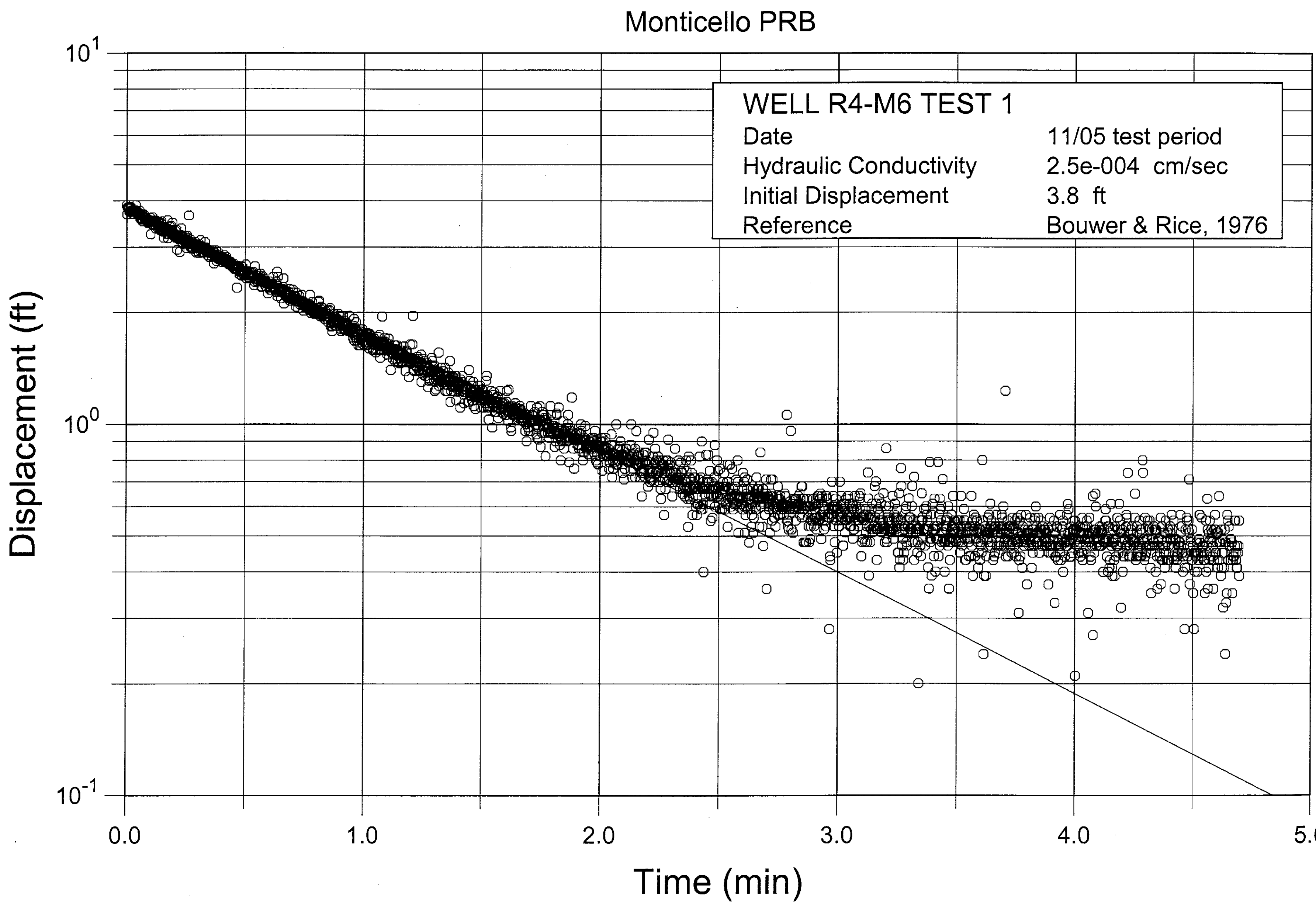
Monticello PRB
WELL R4-M2 TEST 2
Date 11/05 test period
Hydraulic Conductivity 1.9e-005 cm/sec
Initial Displacement 4.7 ft
Reference Bouwer & Rice, 1976
10^1
10^0
Displacement (ft)
0.0
5.0
10.0
15.0
Time (min)



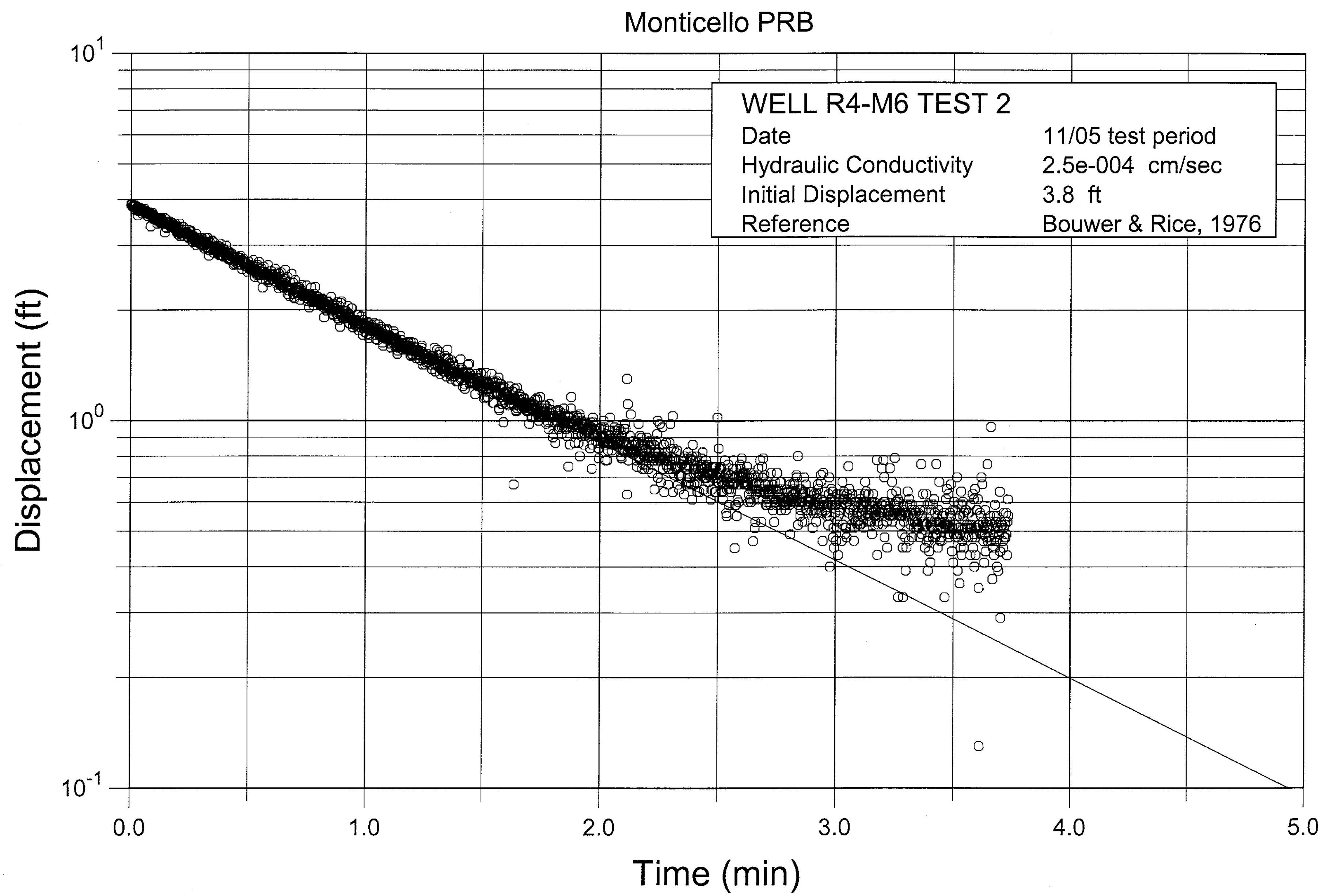
Monticello PRB
WELL R4-M3 TEST 1
Date 11/05 test period
Hydraulic Conductivity 3.4e-005 cm/sec
Initial Displacement 5.6 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (min)
10^1
10^0
10^-1
0.0
4.0
8.0
12.0
16.0
20.0

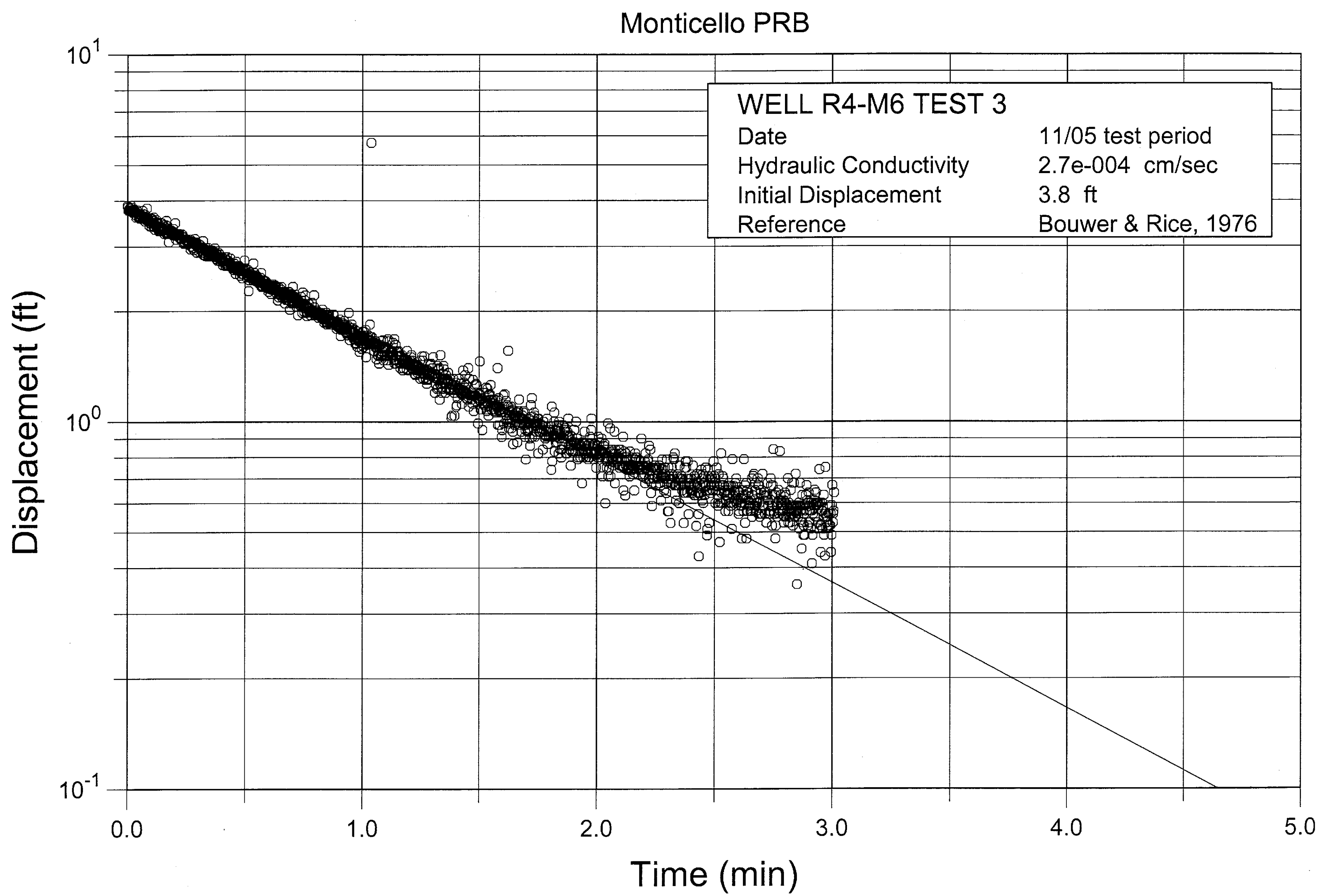


Monticello PRB
WELL R4-M4
Date
11/05 test period
Hydraulic Conductivity
1.3e-005 cm/sec
Initial Displacement
6.6 ft
Reference
Bouwer & Rice, 1976
10^1
10^0
Displacement (ft)
0.0
4.0
8.0
12.0
16.0
20.0
Time (min)

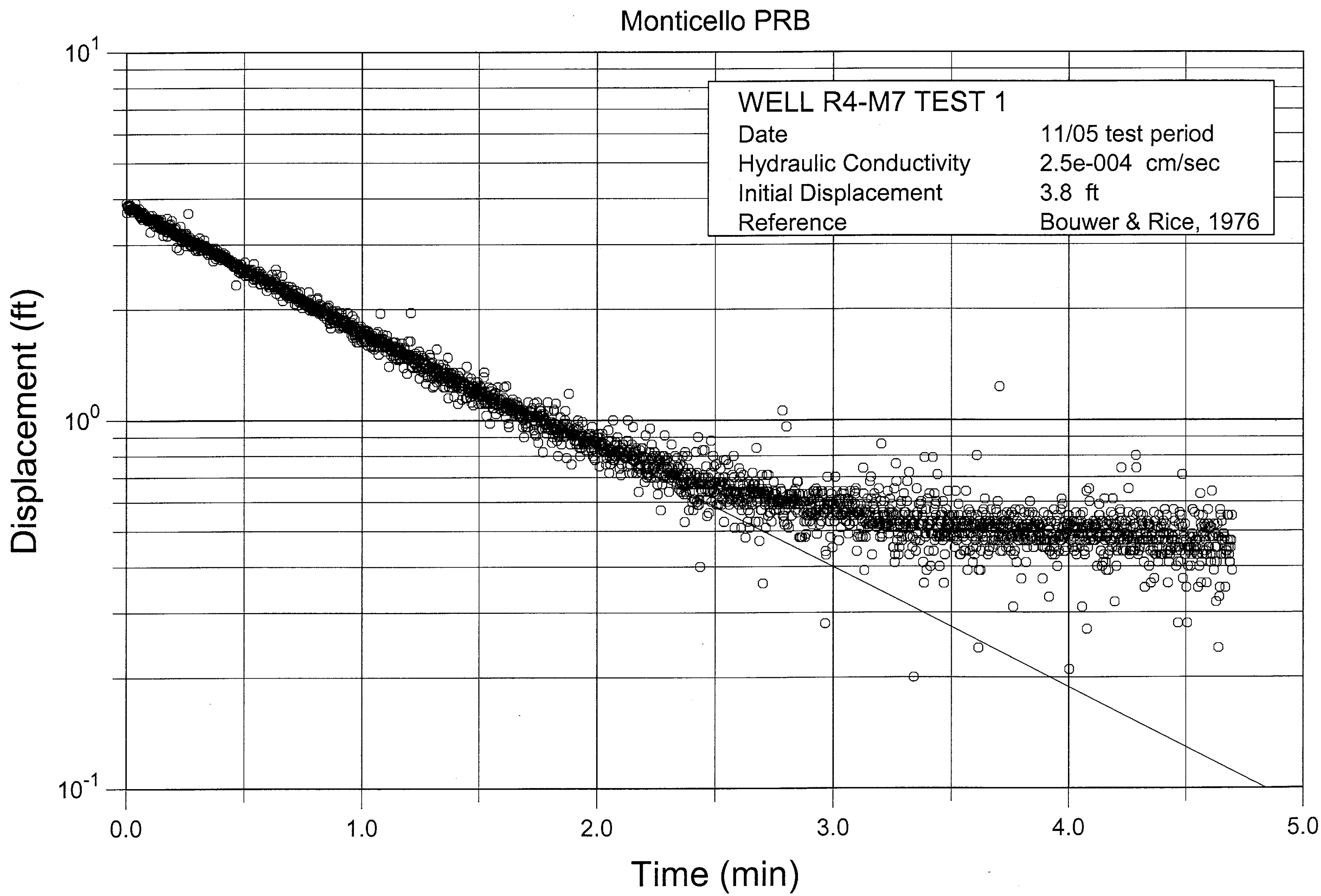


Monticello PRB
WELL R4-M6 TEST 1
Date 11/05 test period
Hydraulic Conductivity 2.5e-004 cm/sec
Initial Displacement 3.8 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (min)
10^1
10^0
10^-1
0.0
1.0
2.0
3.0
4.0
5.0

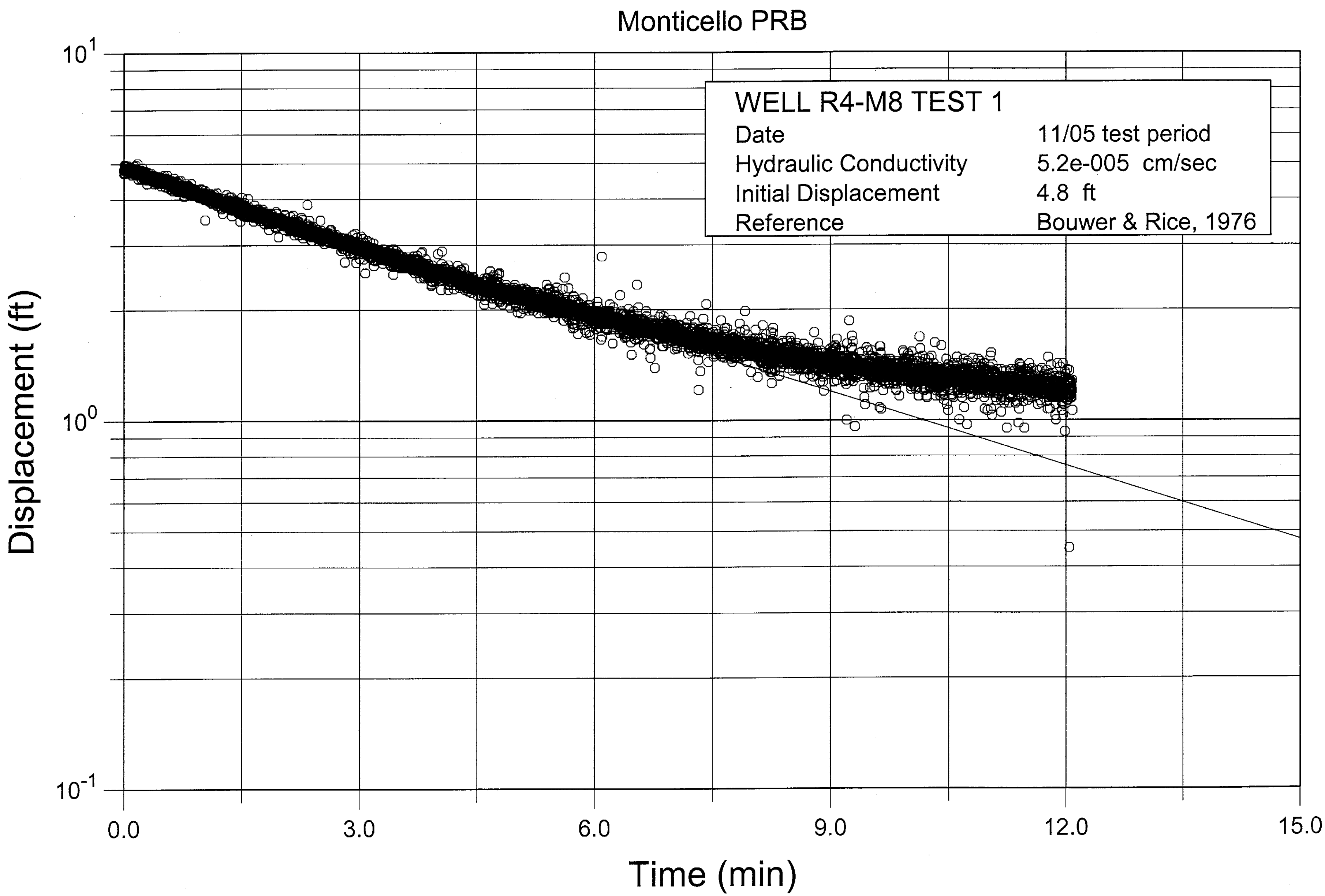

Monticello PRB
WELL R4-M6 TEST 2
Date 11/05 test period
Hydraulic Conductivity 2.5e-004 cm/sec
Initial Displacement 3.8 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (min)
10^1
10^0
10^{-1}
0.0
1.0
2.0
3.0
4.0
5.0



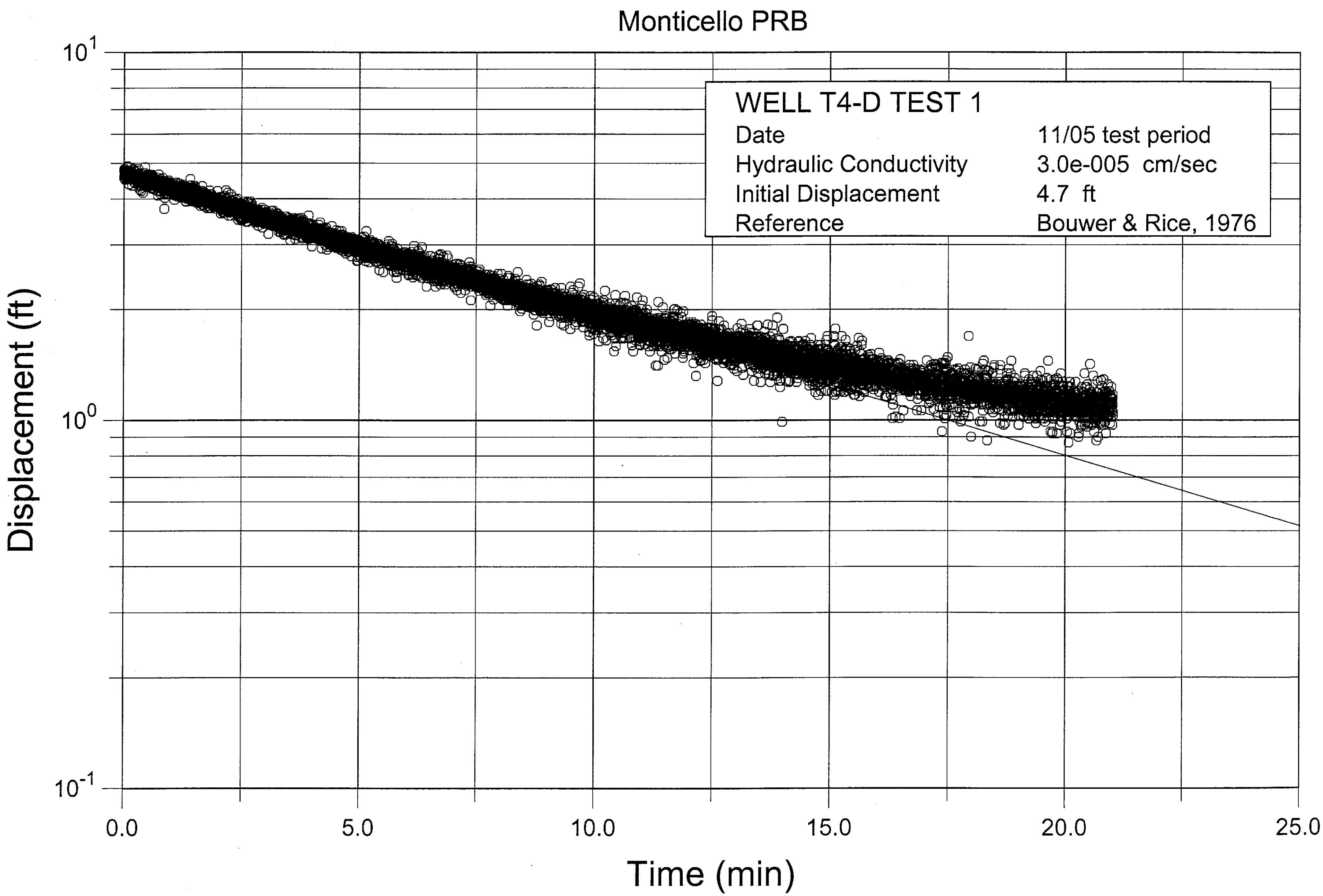
Monticello PRB
WELL R4-M6 TEST 3
Date 11/05 test period
Hydraulic Conductivity 2.7e-004 cm/sec
Initial Displacement 3.8 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (min)
10^1
10^0
10^-1
0.0
1.0
2.0
3.0
4.0
5.0



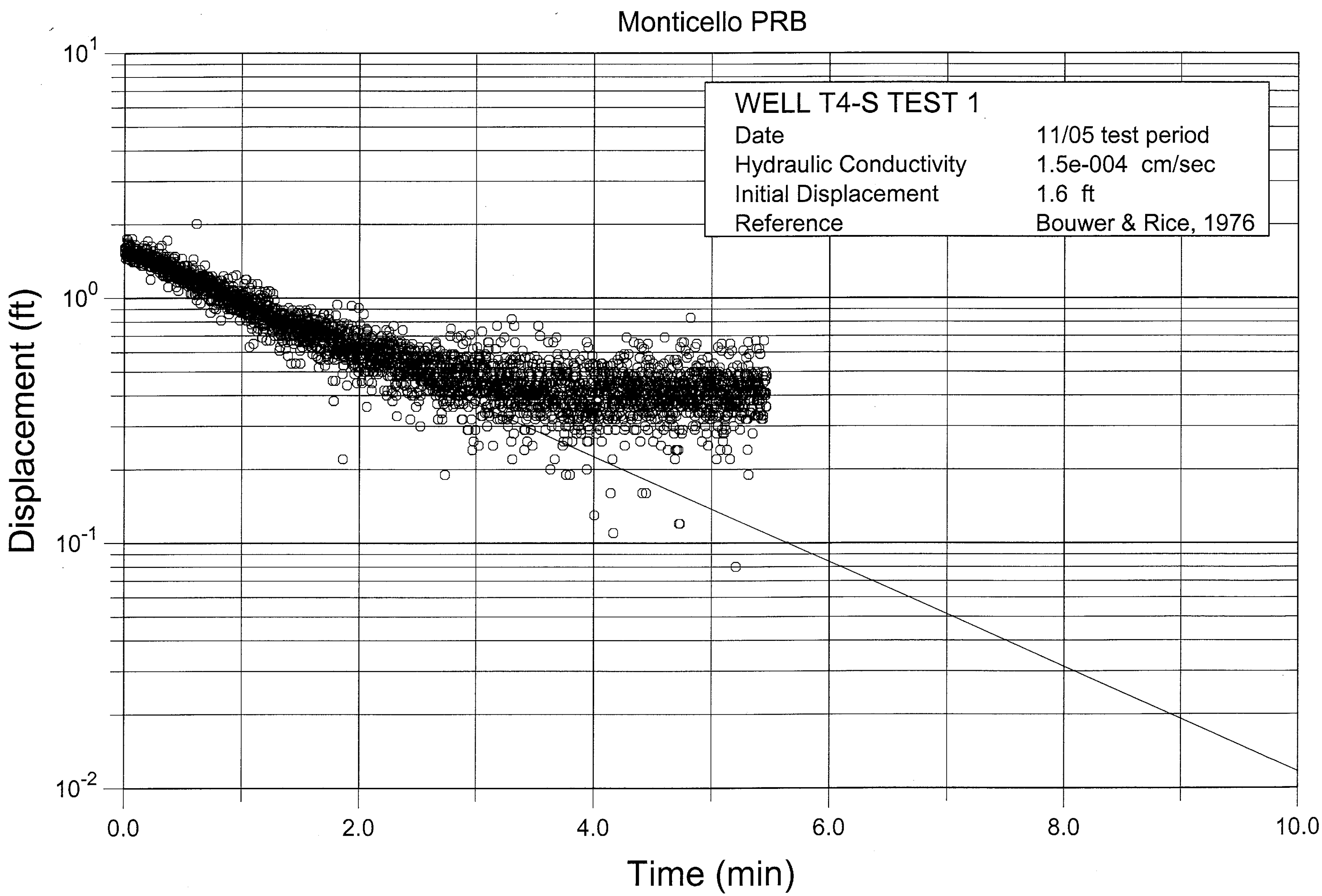
Monticello PRB
WELL R4-M7 TEST 1
Date 11/05 test period
Hydraulic Conductivity 2.5e-004 cm/sec
Initial Displacement 3.8 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (min)
10^1
10^0
10^-1
0.0
1.0
2.0
3.0
4.0
5.0

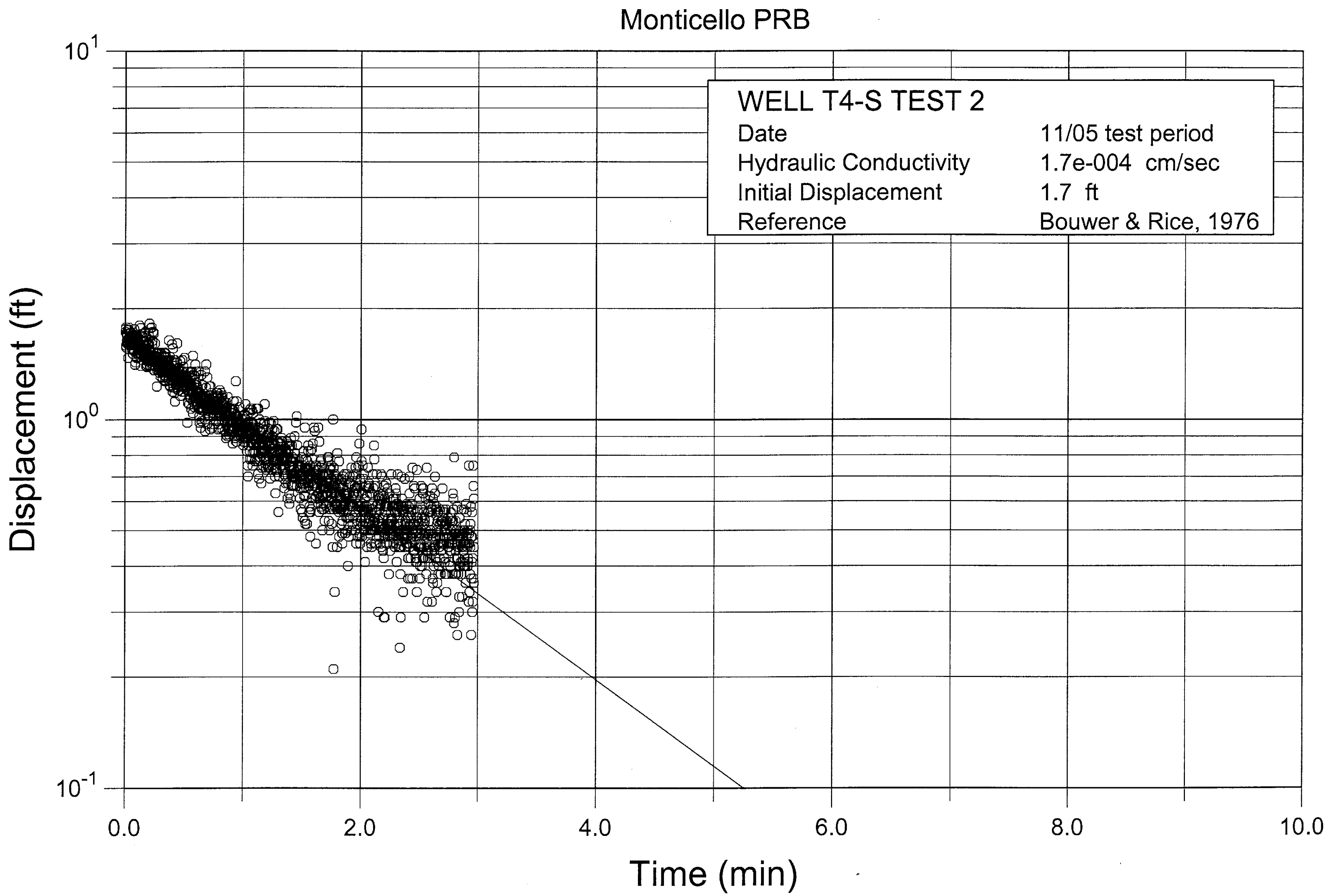


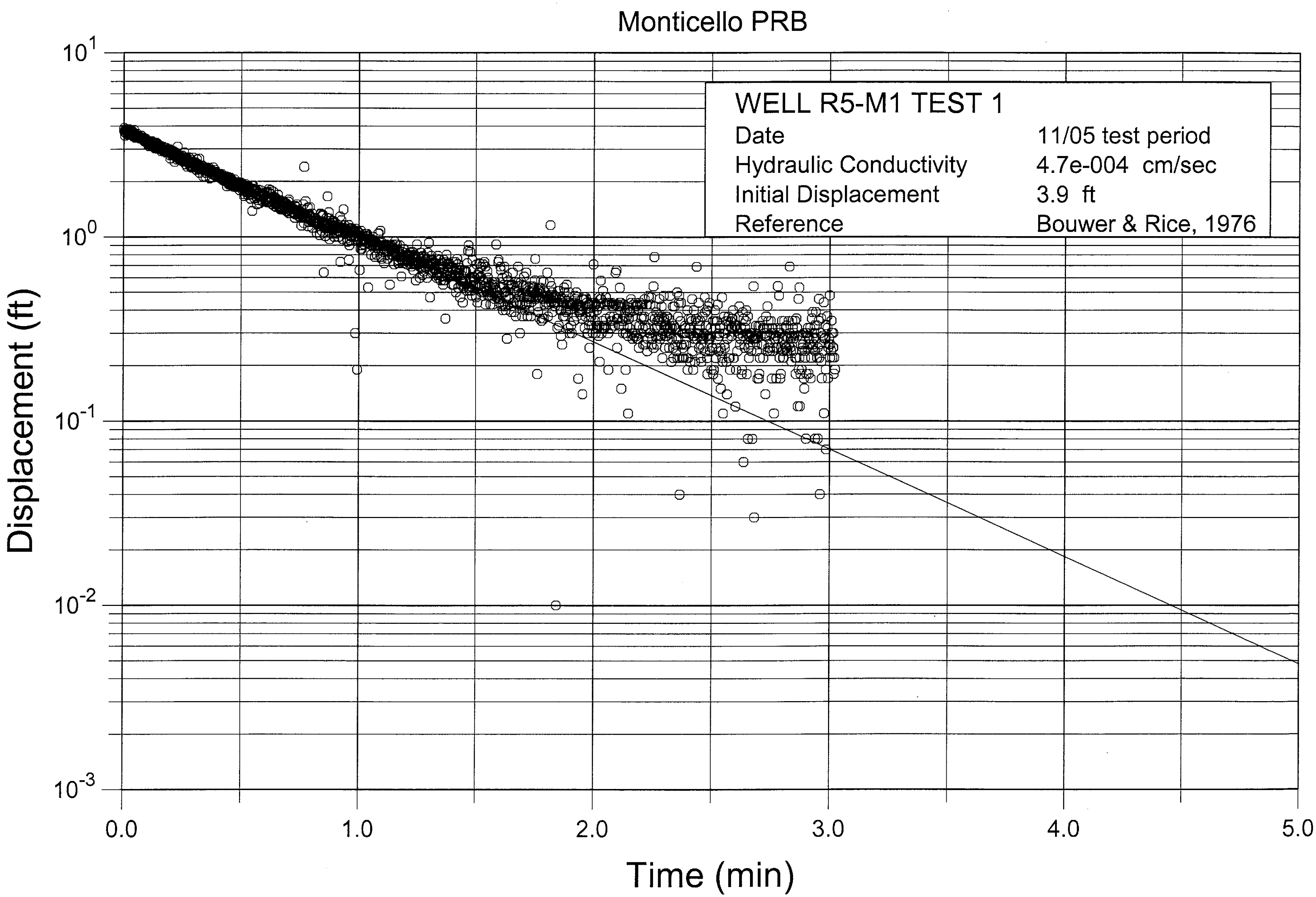
Monticello PRB
WELL R4-M8 TEST 1
Date
11/05 test period
Hydraulic Conductivity
5.2e-005 cm/sec
Initial Displacement
4.8 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^{-1}
0.0
3.0
6.0
9.0
12.0
15.0
Time (min)



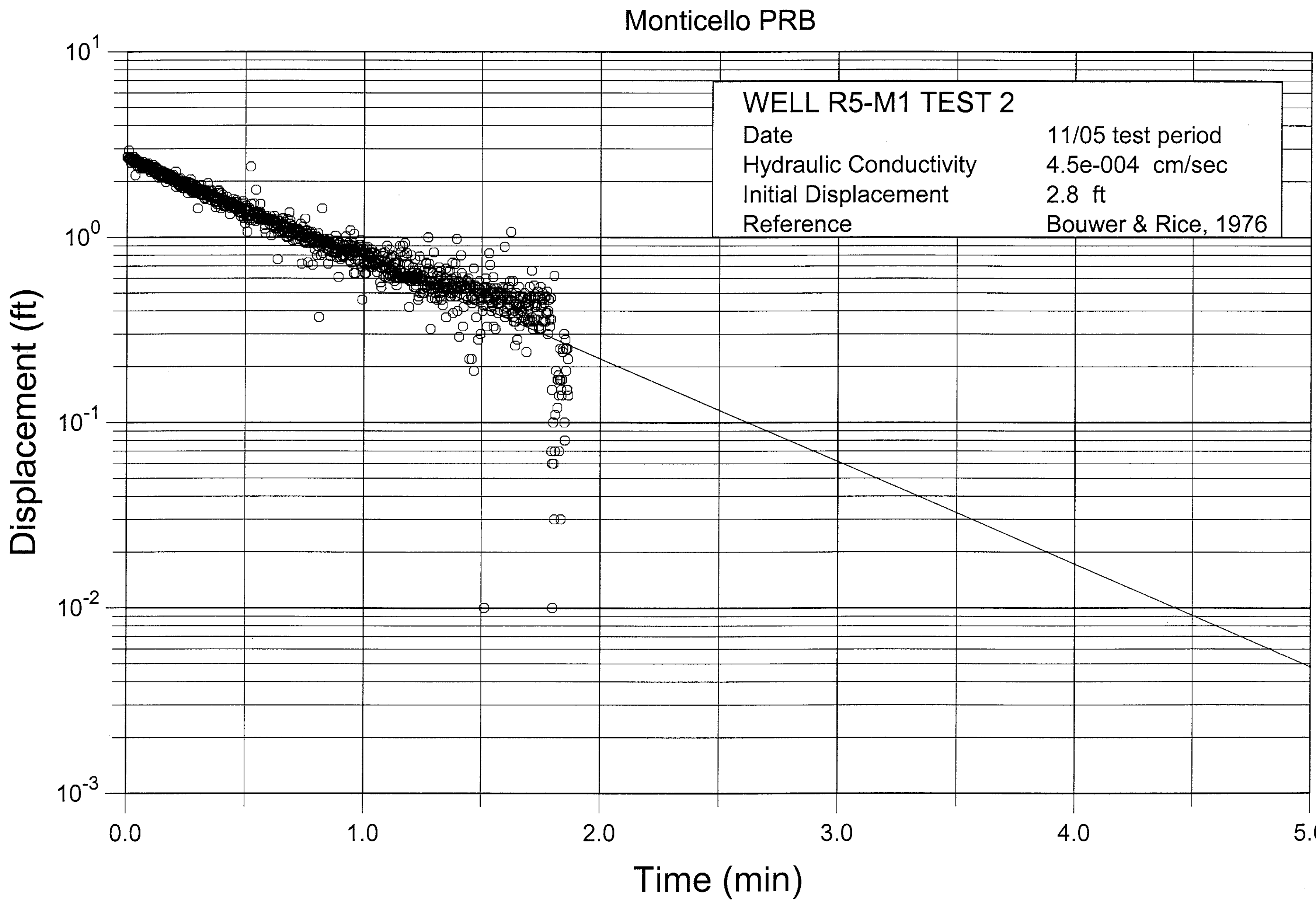
Monticello PRB
WELL T4-D TEST 1
Date
11/05 test period
Hydraulic Conductivity
3.0e-005 cm/sec
Initial Displacement
4.7 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
0.0
5.0
10.0
15.0
20.0
25.0
Time (min)

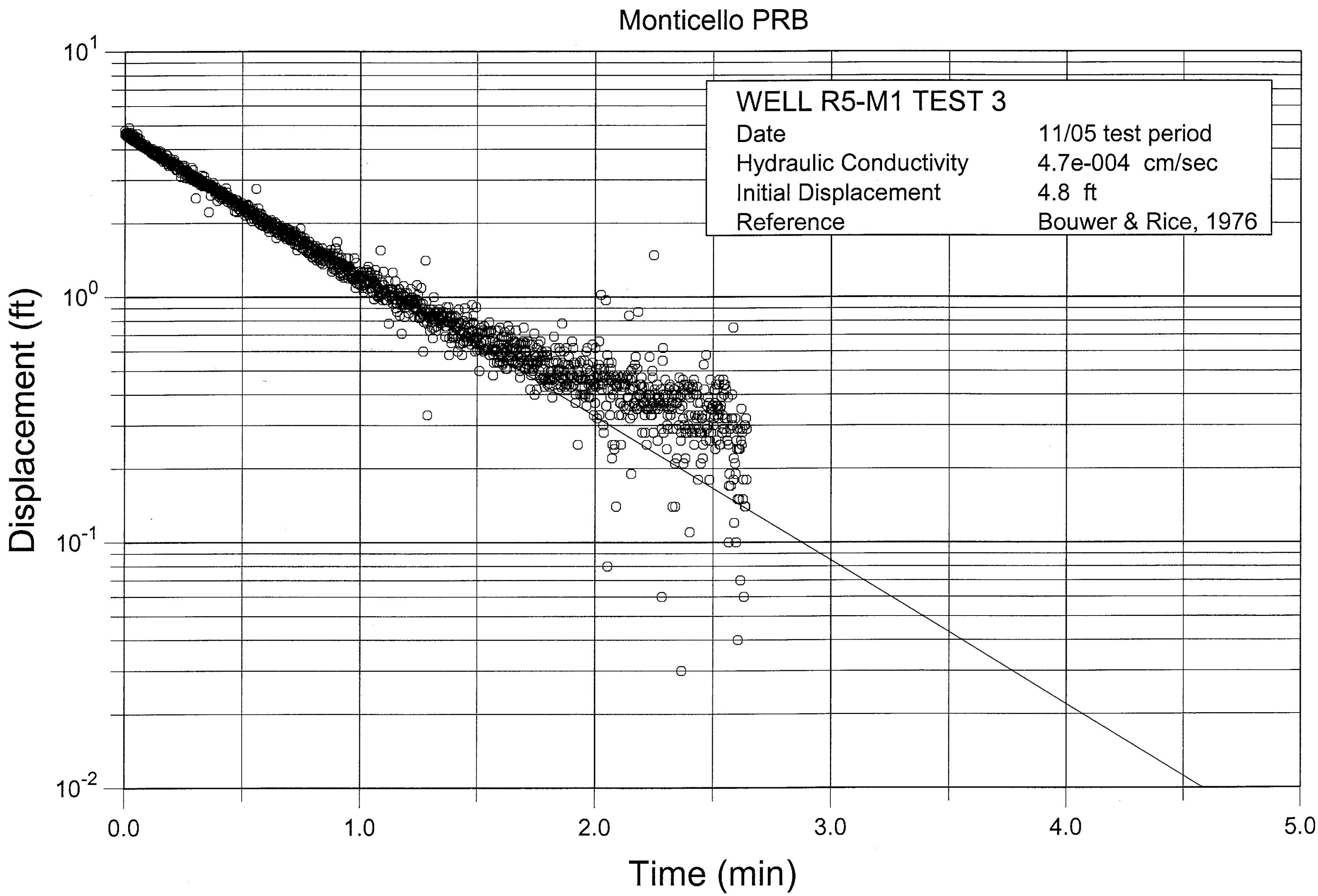

Monticello PRB
WELL T4-S TEST 1
Date 11/05 test period
Hydraulic Conductivity 1.5e-004 cm/sec
Initial Displacement 1.6 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (min)
10^1
10^0
10^{-1}
10^{-2}
0.0
2.0
4.0
6.0
8.0
10.0


Monticello PRB
WELL T4-S TEST 2
Date
11/05 test period
Hydraulic Conductivity
1.7e-004 cm/sec
Initial Displacement
1.7 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
Time (min)
10^1
10^0
10^-1
0.0
2.0
4.0
6.0
8.0
10.0

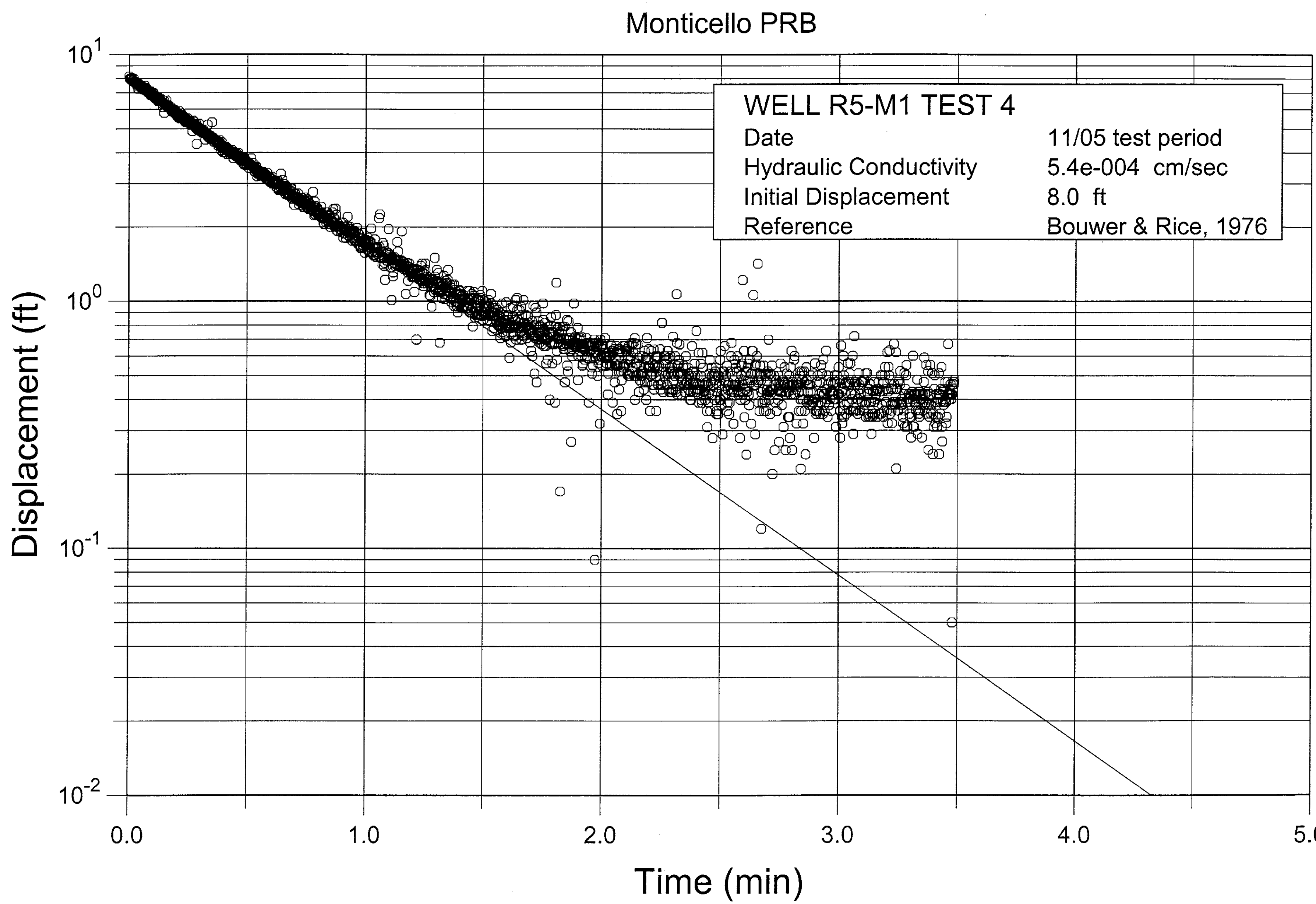


Monticello PRB
WELL R5-M1 TEST 1
Date 11/05 test period
Hydraulic Conductivity 4.7e-004 cm/sec
Initial Displacement 3.9 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (min)

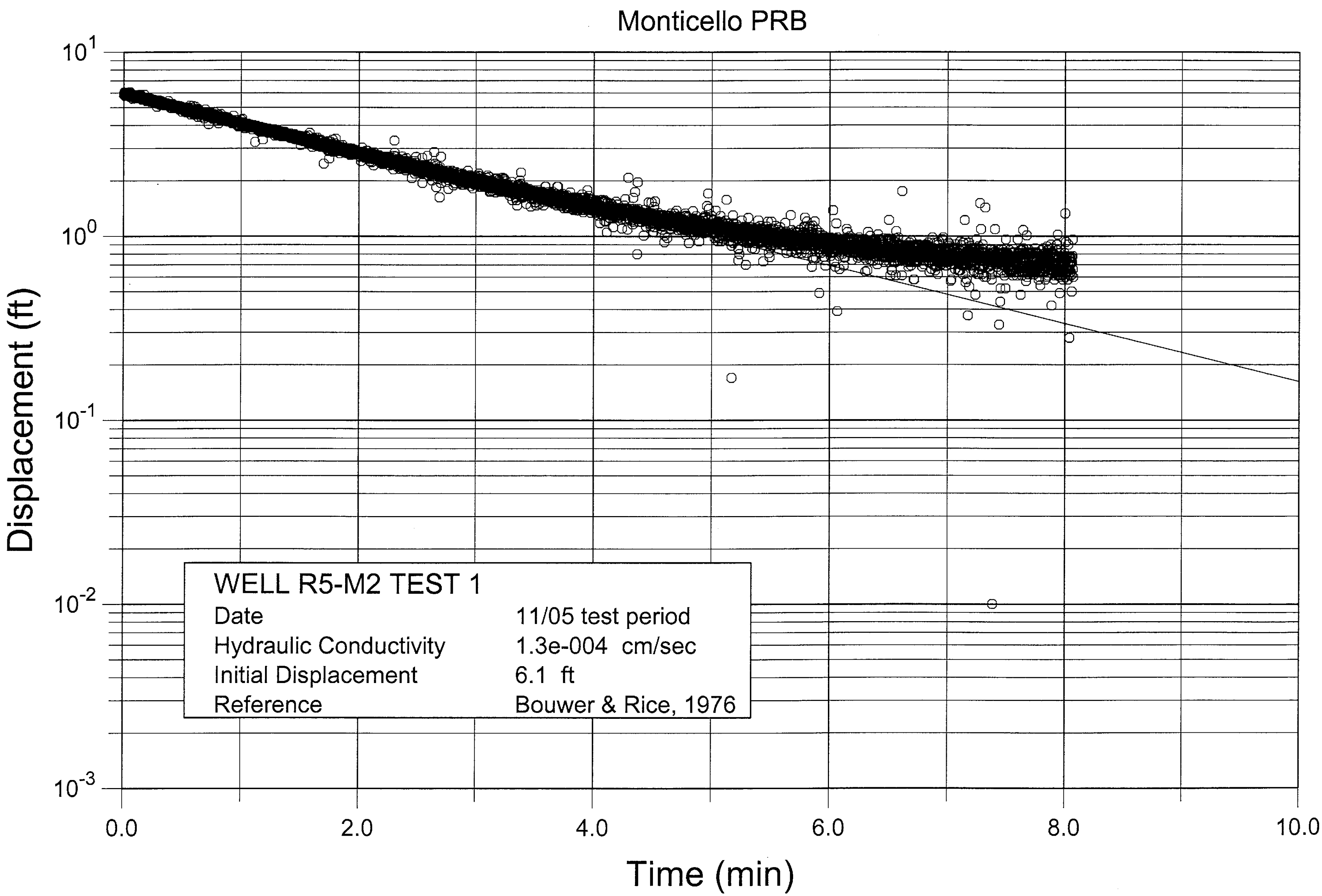

Monticello PRB
WELL R5-M1 TEST 2
Date
11/05 test period
Hydraulic Conductivity
4.5e-004 cm/sec
Initial Displacement
2.8 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
Time (min)
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
0.0
1.0
2.0
3.0
4.0
5.0



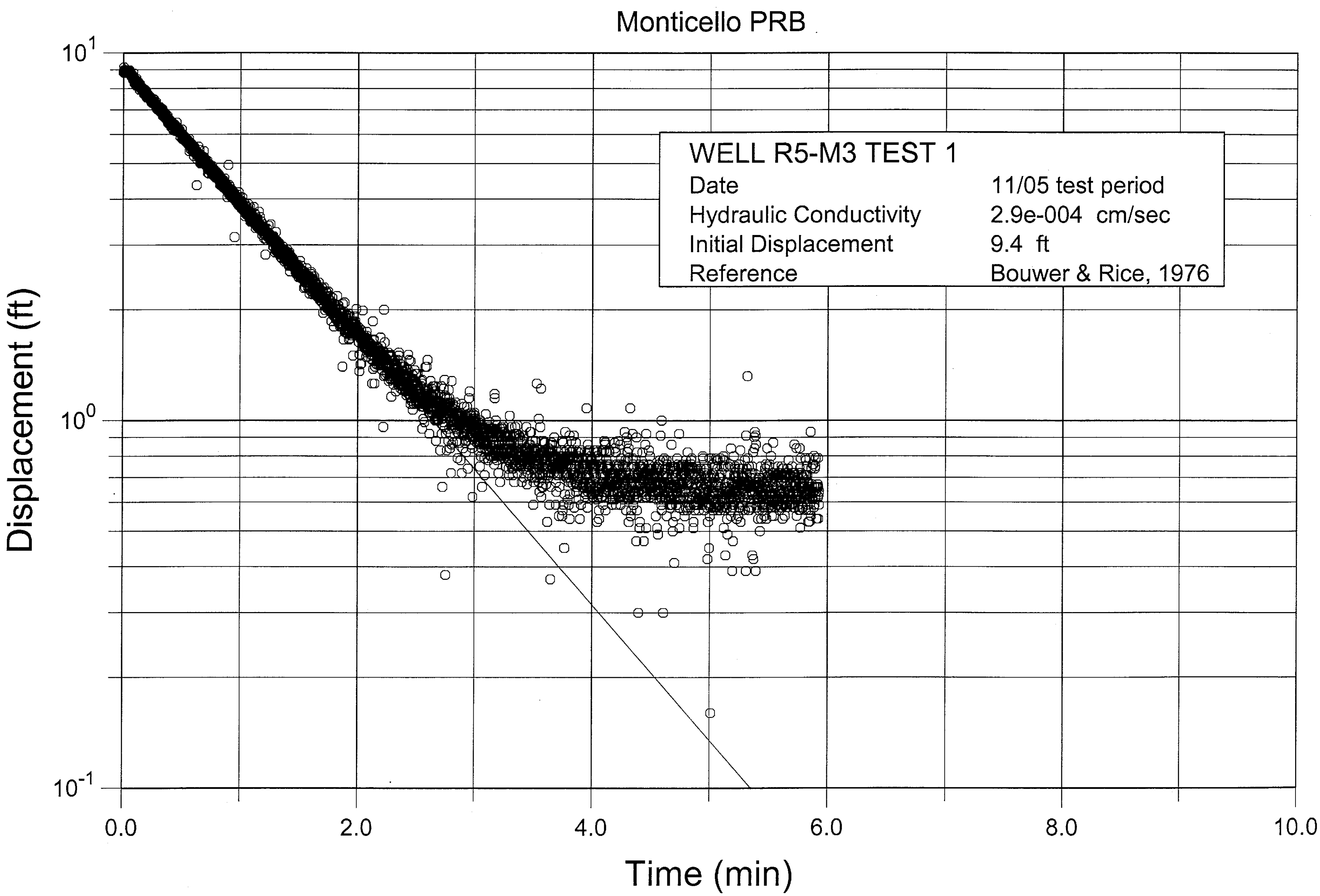
Monticello PRB
WELL R5-M1 TEST 3
Date 11/05 test period
Hydraulic Conductivity 4.7e-004 cm/sec
Initial Displacement 4.8 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (min)
10^1
10^0
10^{-1}
10^{-2}
0.0
1.0
2.0
3.0
4.0
5.0



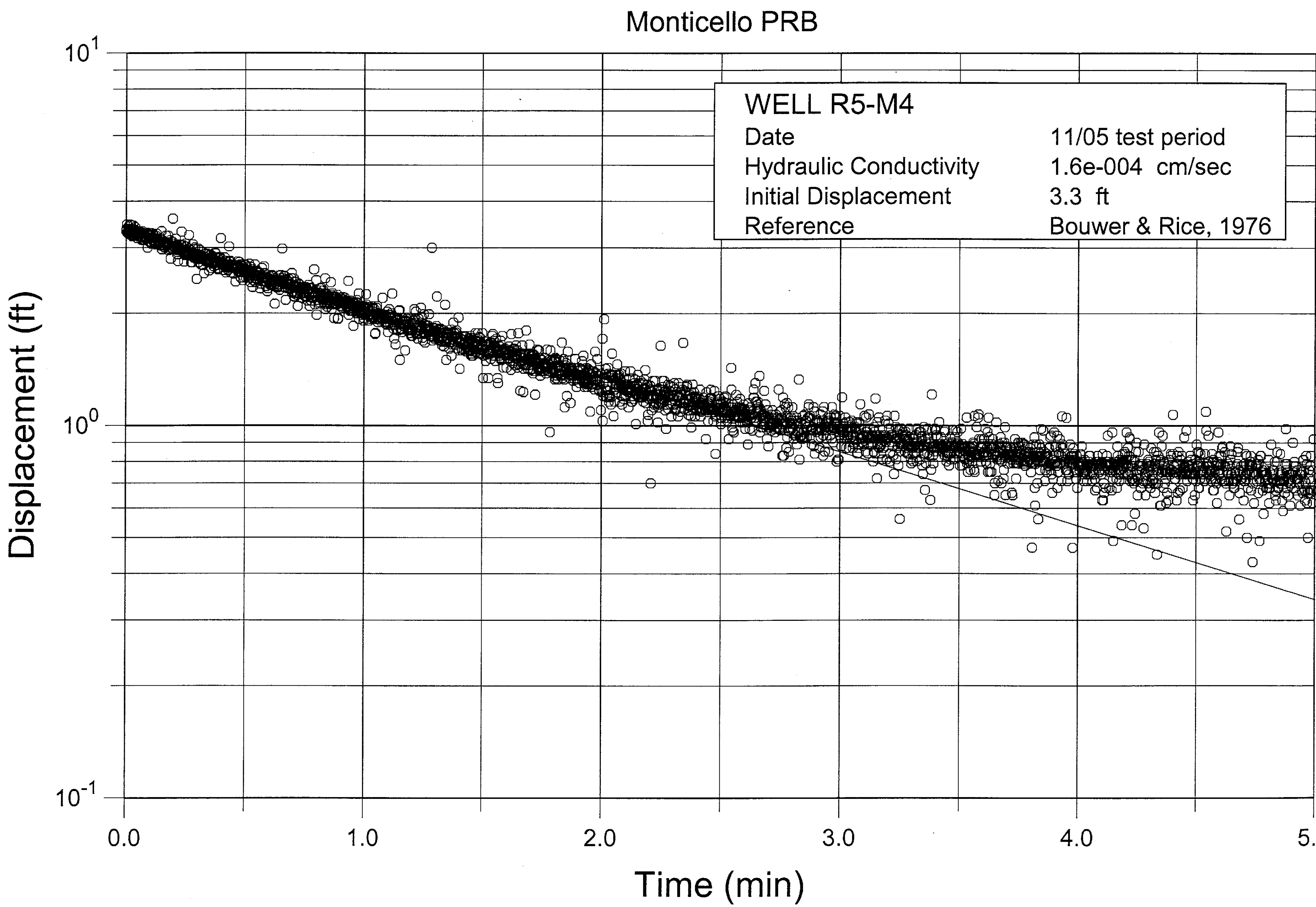
Monticello PRB
WELL R5-M1 TEST 4
Date
11/05 test period
Hydraulic Conductivity
5.4e-004 cm/sec
Initial Displacement
8.0 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^{-1}
10^{-2}
0.0
1.0
2.0
3.0
4.0
5.0
Time (min)



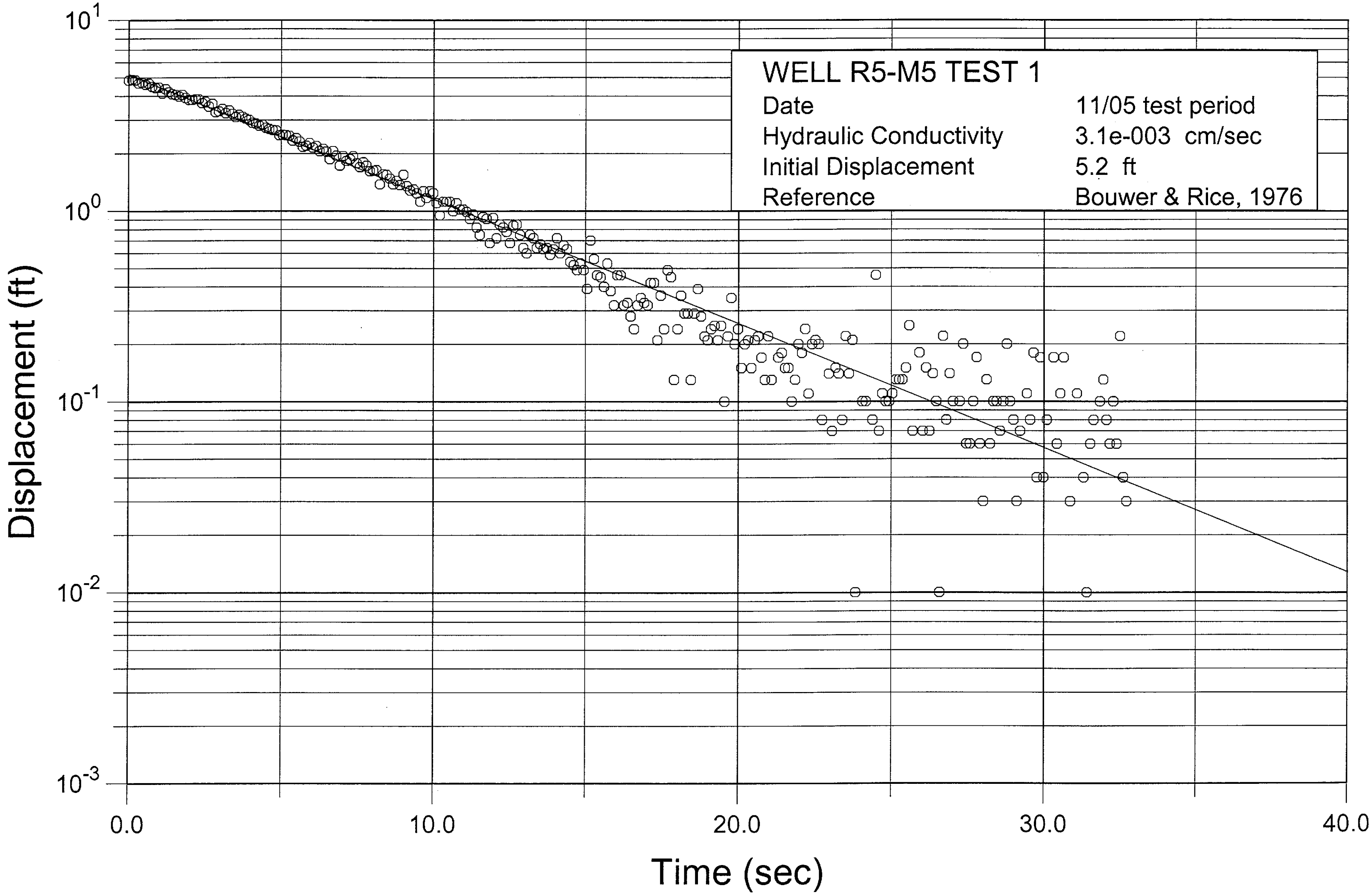
Monticello PRB
Displacement (ft)
Time (min)
10^1
10^0
10^-1
10^-2
10^-3
0.0
2.0
4.0
6.0
8.0
10.0
WELL R5-M2 TEST 1
Date
11/05 test period
Hydraulic Conductivity
1.3e-004 cm/sec
Initial Displacement
6.1 ft
Reference
Bouwer & Rice, 1976

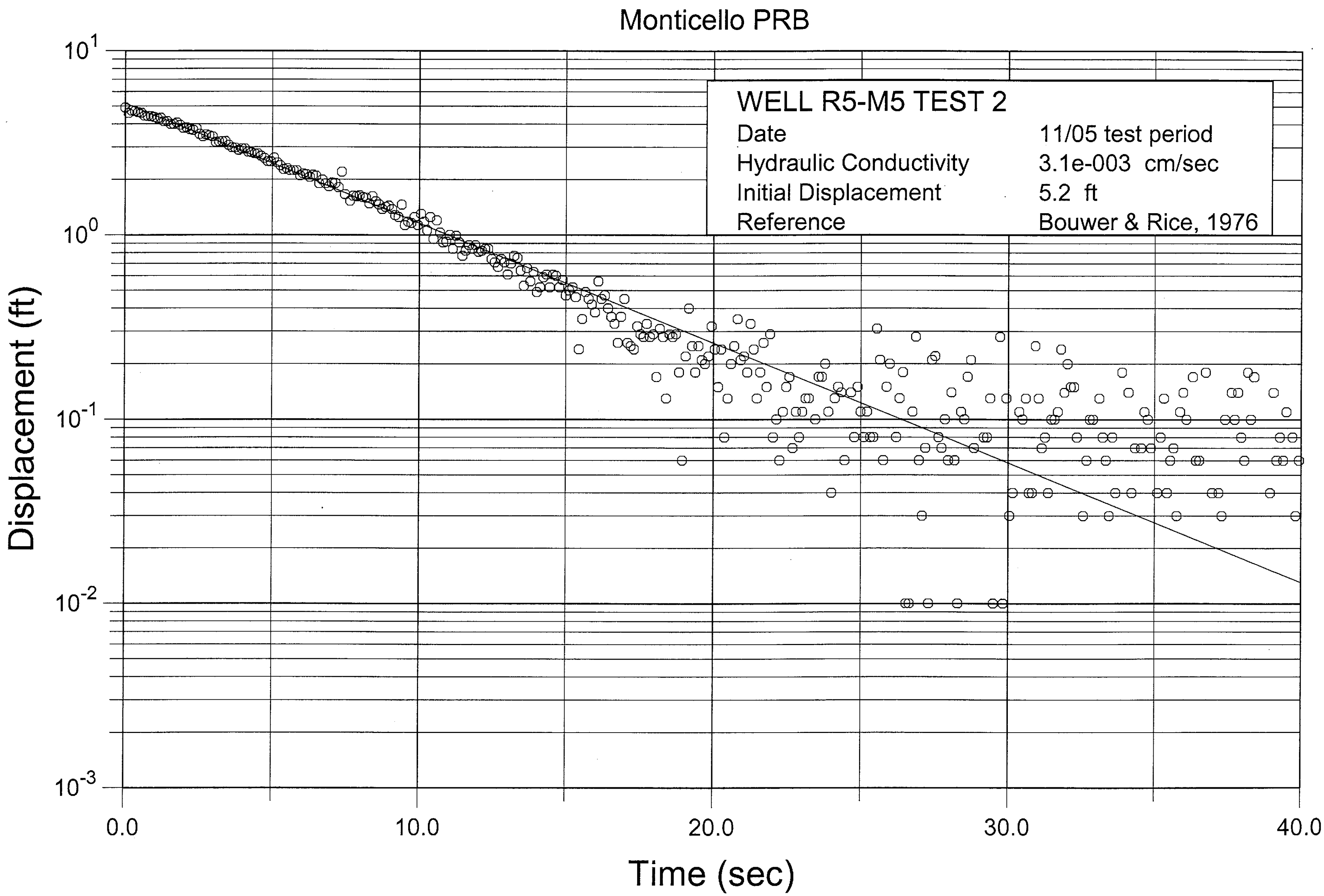


Monticello PRB
WELL R5-M3 TEST 1
Date 11/05 test period
Hydraulic Conductivity 2.9e-004 cm/sec
Initial Displacement 9.4 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (min)
10^{1}
10^{0}
10^{-1}
0.0
2.0
4.0
6.0
8.0
10.0

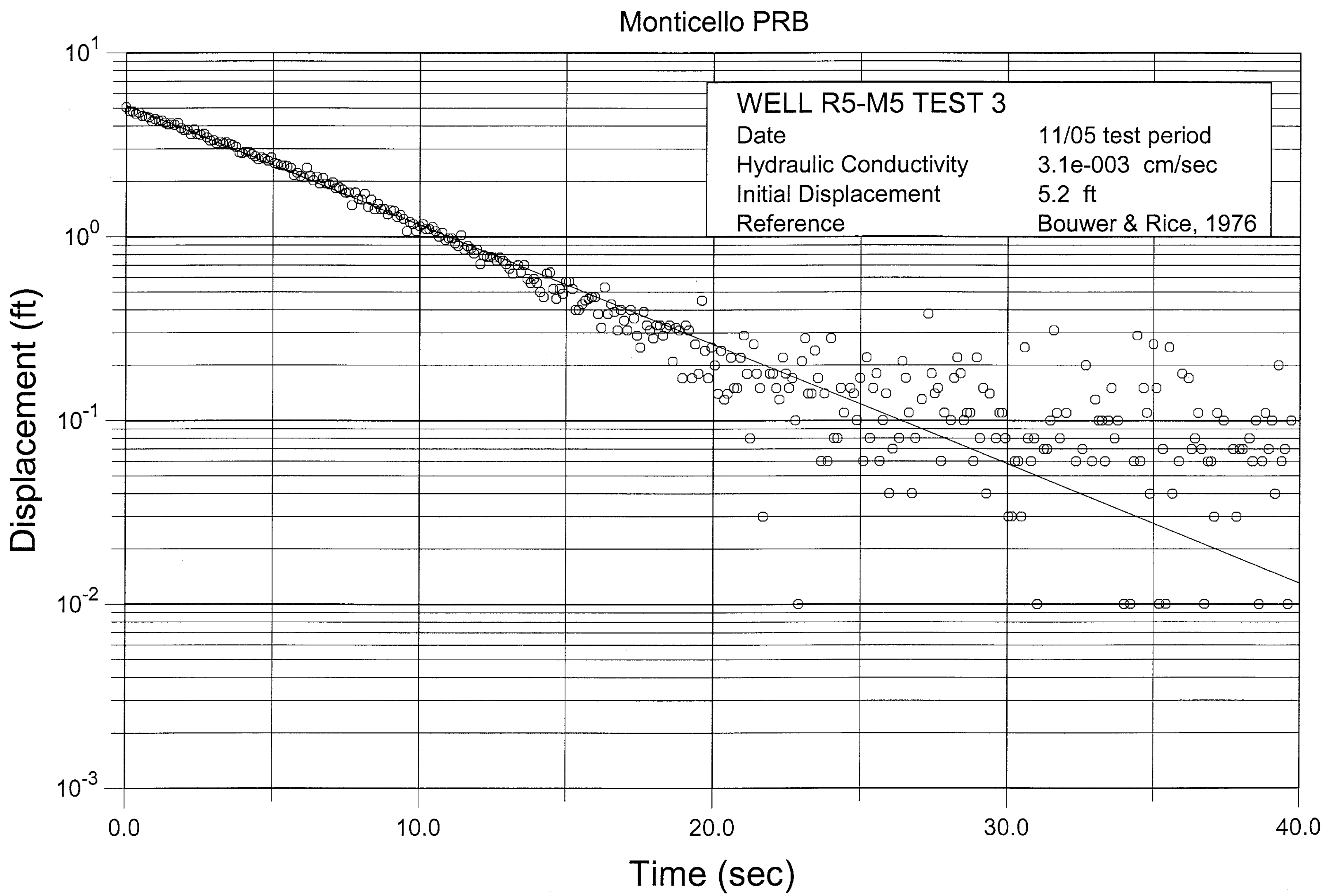

Monticello PRB
WELL R5-M4
Date 11/05 test period
Hydraulic Conductivity 1.6e-004 cm/sec
Initial Displacement 3.3 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (min)
10^1
10^0
10^-1
0.0
1.0
2.0
3.0
4.0
5.0

Monticello PRB

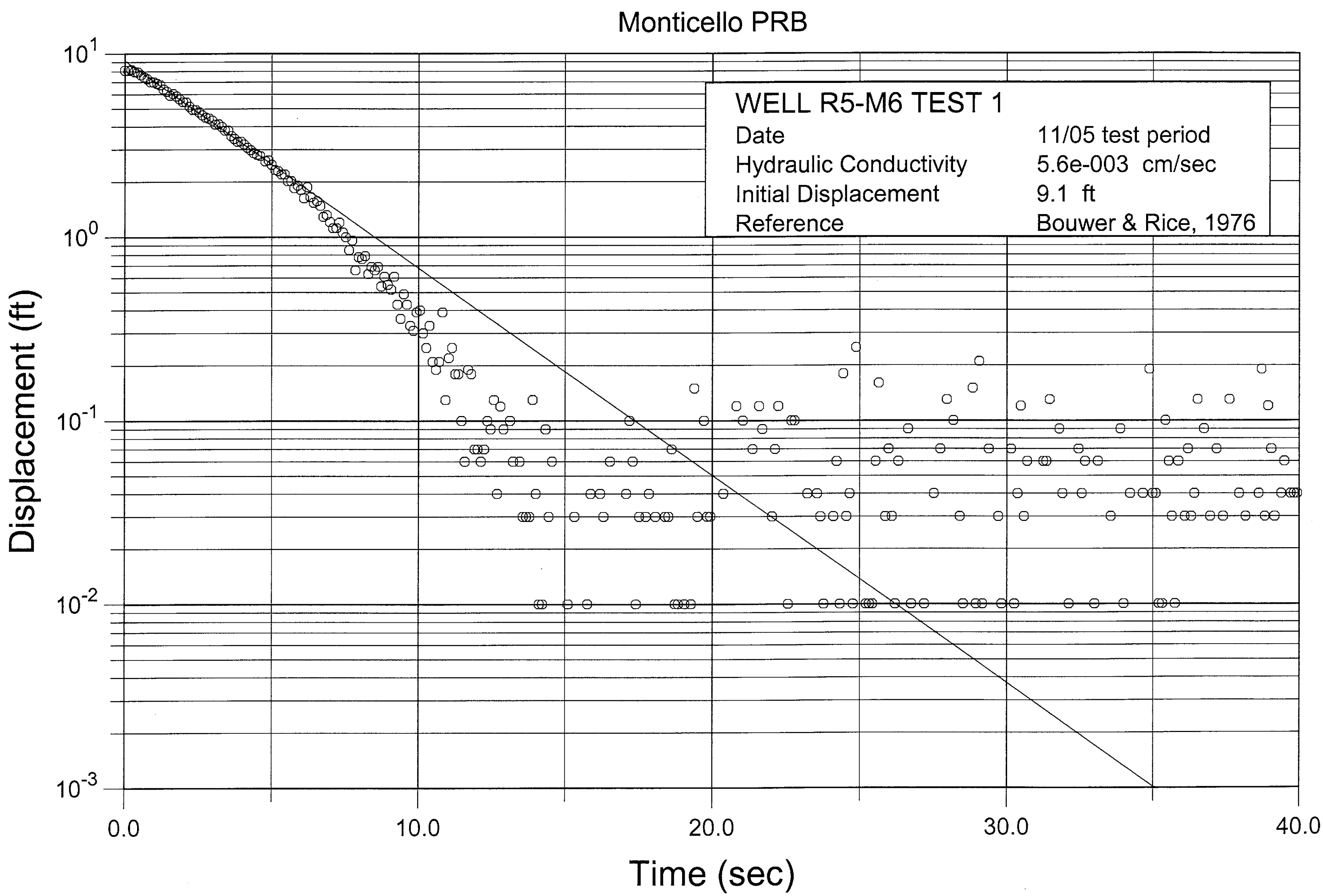




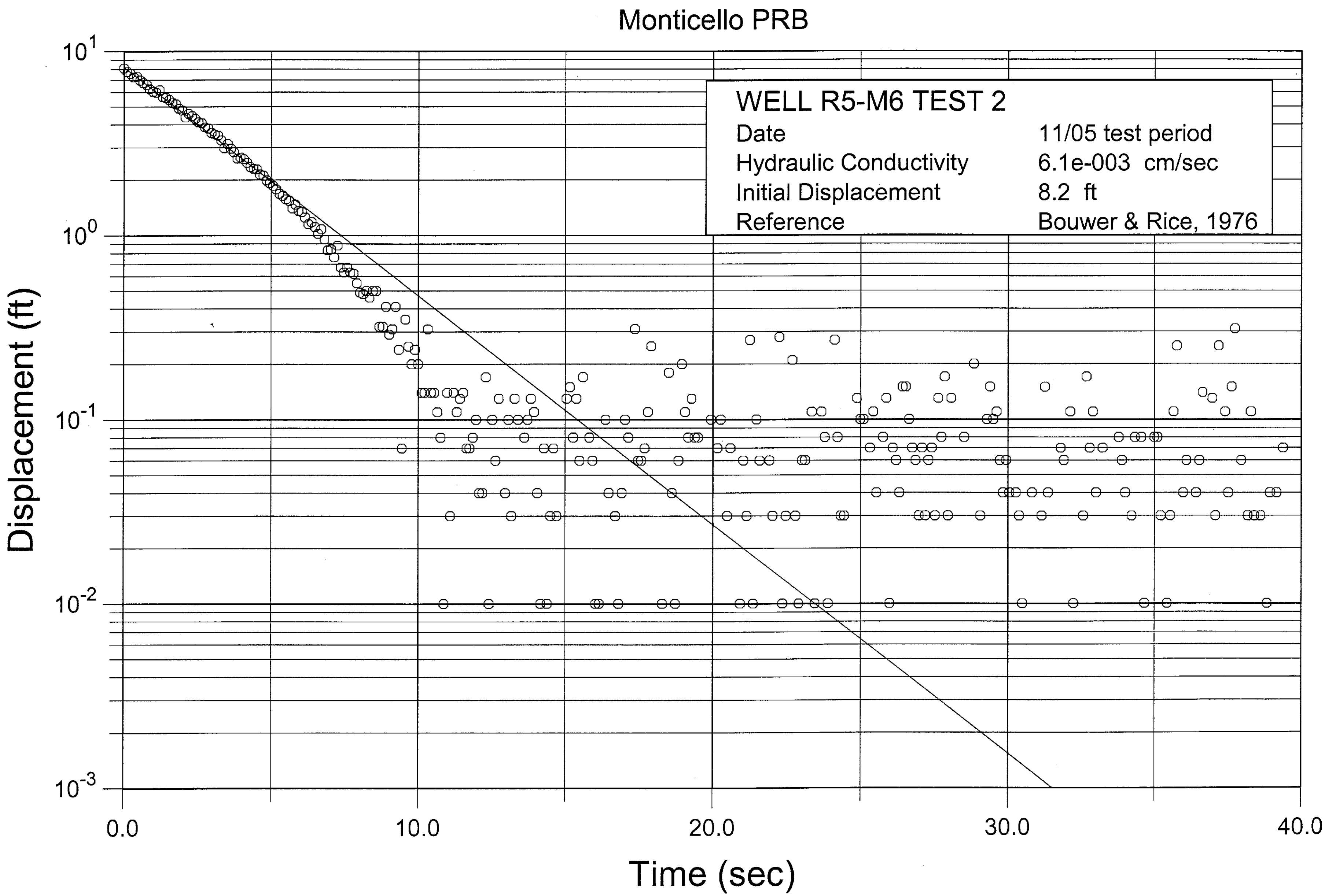
Monticello PRB
WELL R5-M5 TEST 2
Date
11/05 test period
Hydraulic Conductivity
3.1e-003 cm/sec
Initial Displacement
5.2 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
10^-3
0.0
10.0
20.0
30.0
40.0
Time (sec)



Monticello PRB
WELL R5-M5 TEST 3
Date
11/05 test period
Hydraulic Conductivity
3.1e-003 cm/sec
Initial Displacement
5.2 ft
Reference
Bouwer & Rice, 1976
10^1
10^0
10^{-1}
10^{-2}
10^{-3}
Displacement (ft)
0.0
10.0
20.0
30.0
40.0
Time (sec)

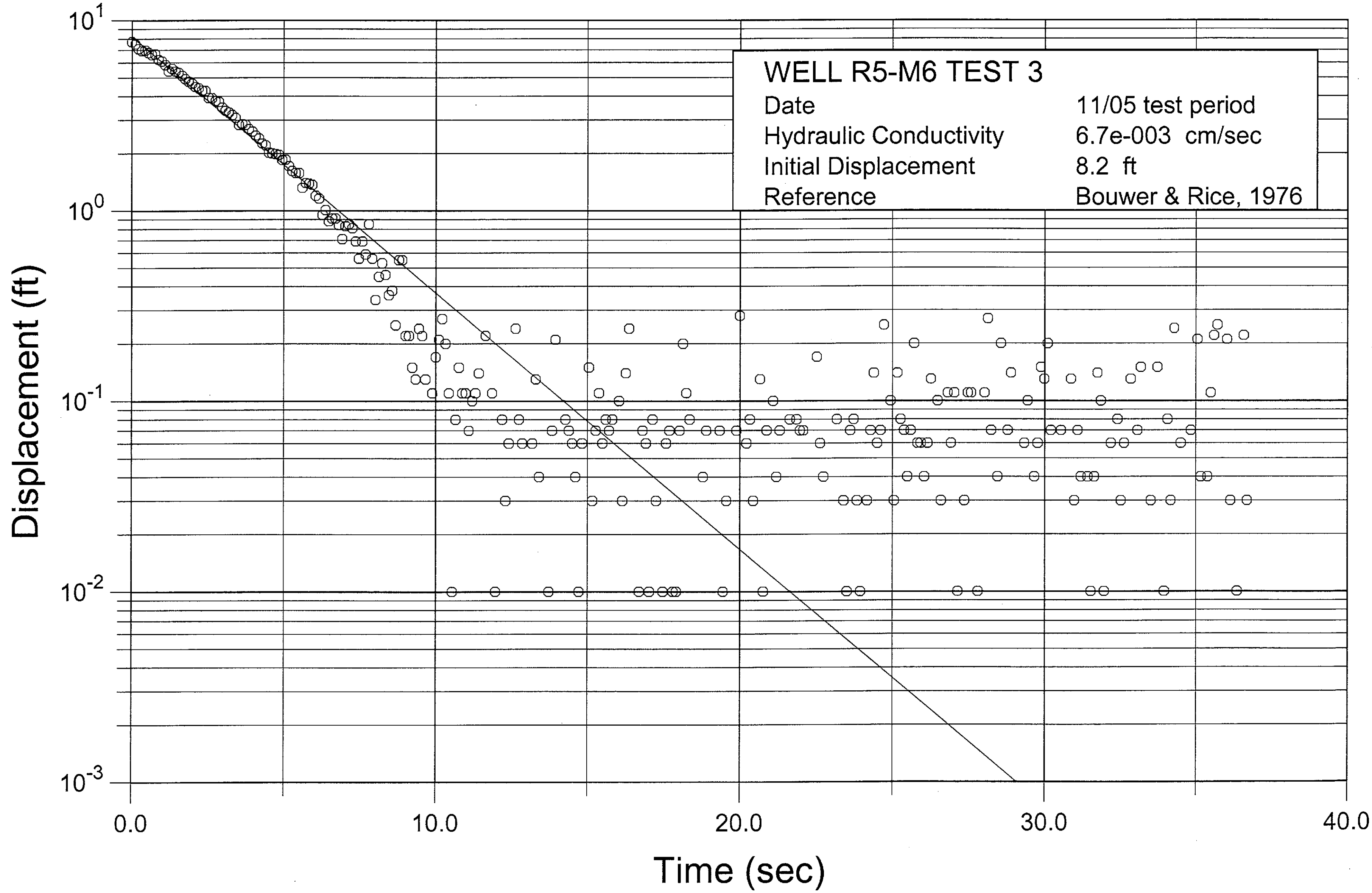


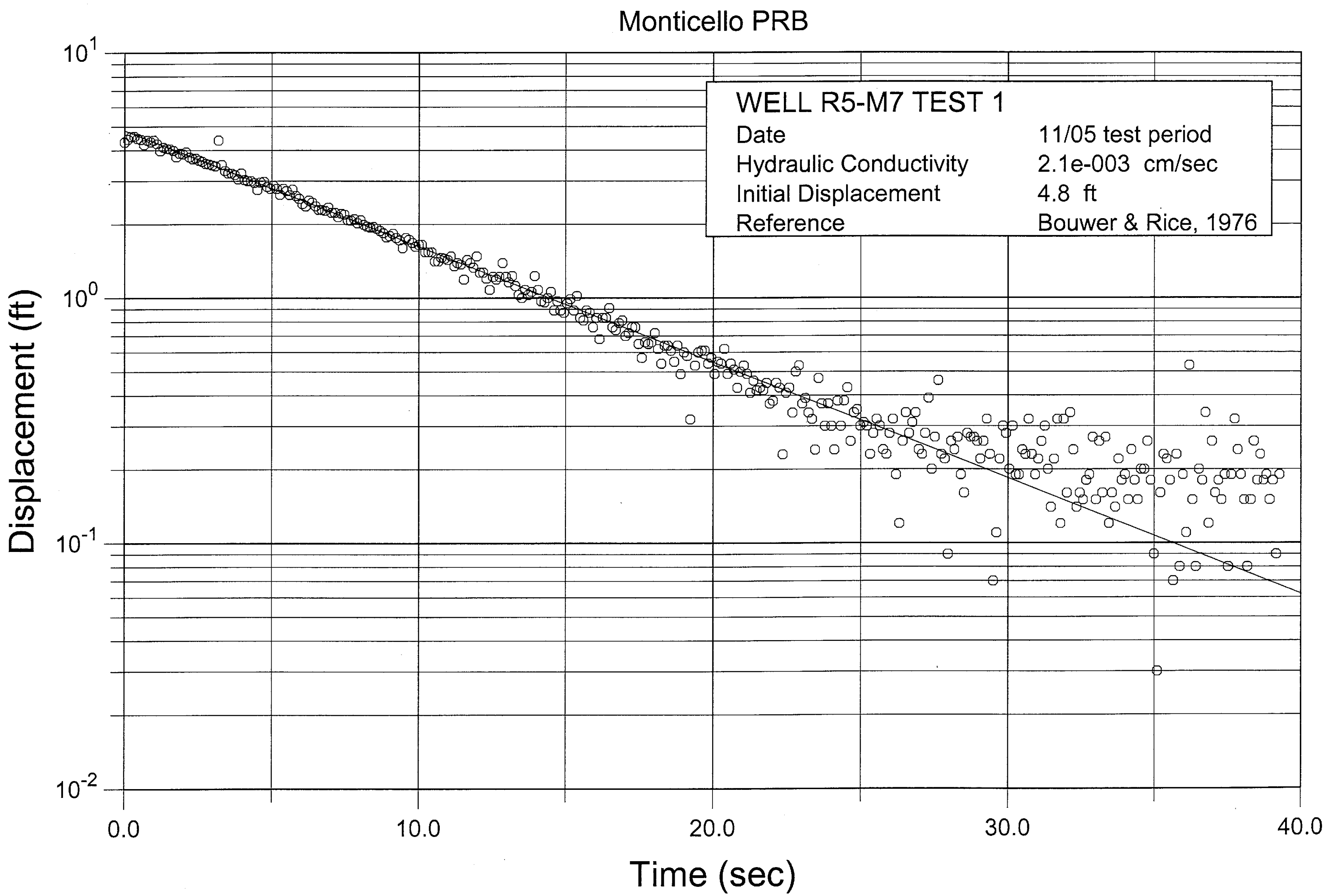
Monticello PRB
WELL R5-M6 TEST 1
Date
11/05 test period
Hydraulic Conductivity
5.6e-003 cm/sec
Initial Displacement
9.1 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
10^-3
0.0
10.0
20.0
30.0
40.0
Time (sec)

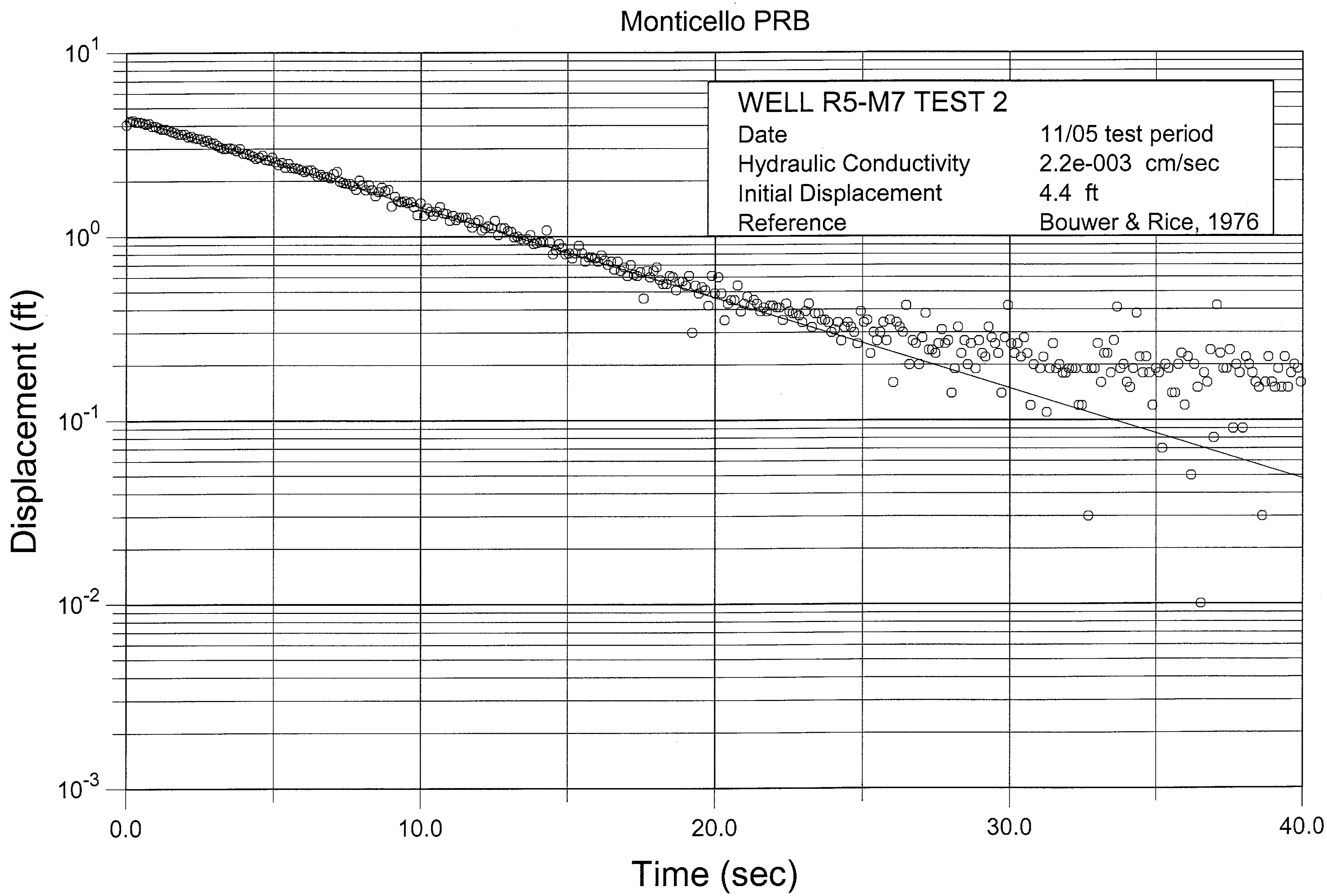


Monticello PRB
WELL R5-M6 TEST 2
Date
11/05 test period
Hydraulic Conductivity
6.1e-003 cm/sec
Initial Displacement
8.2 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
10^-3
0.0
10.0
20.0
30.0
40.0
Time (sec)

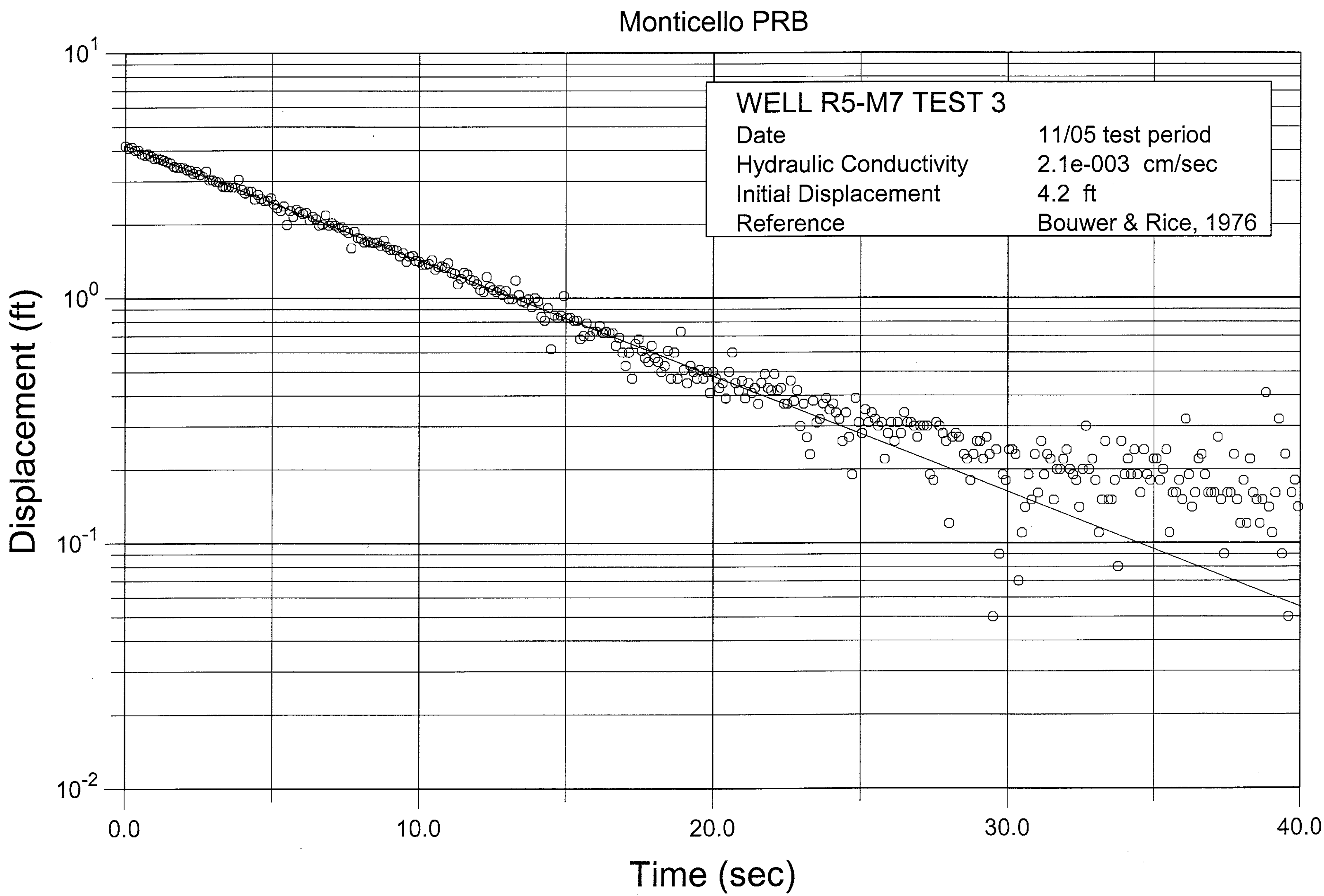
Monticello PRB

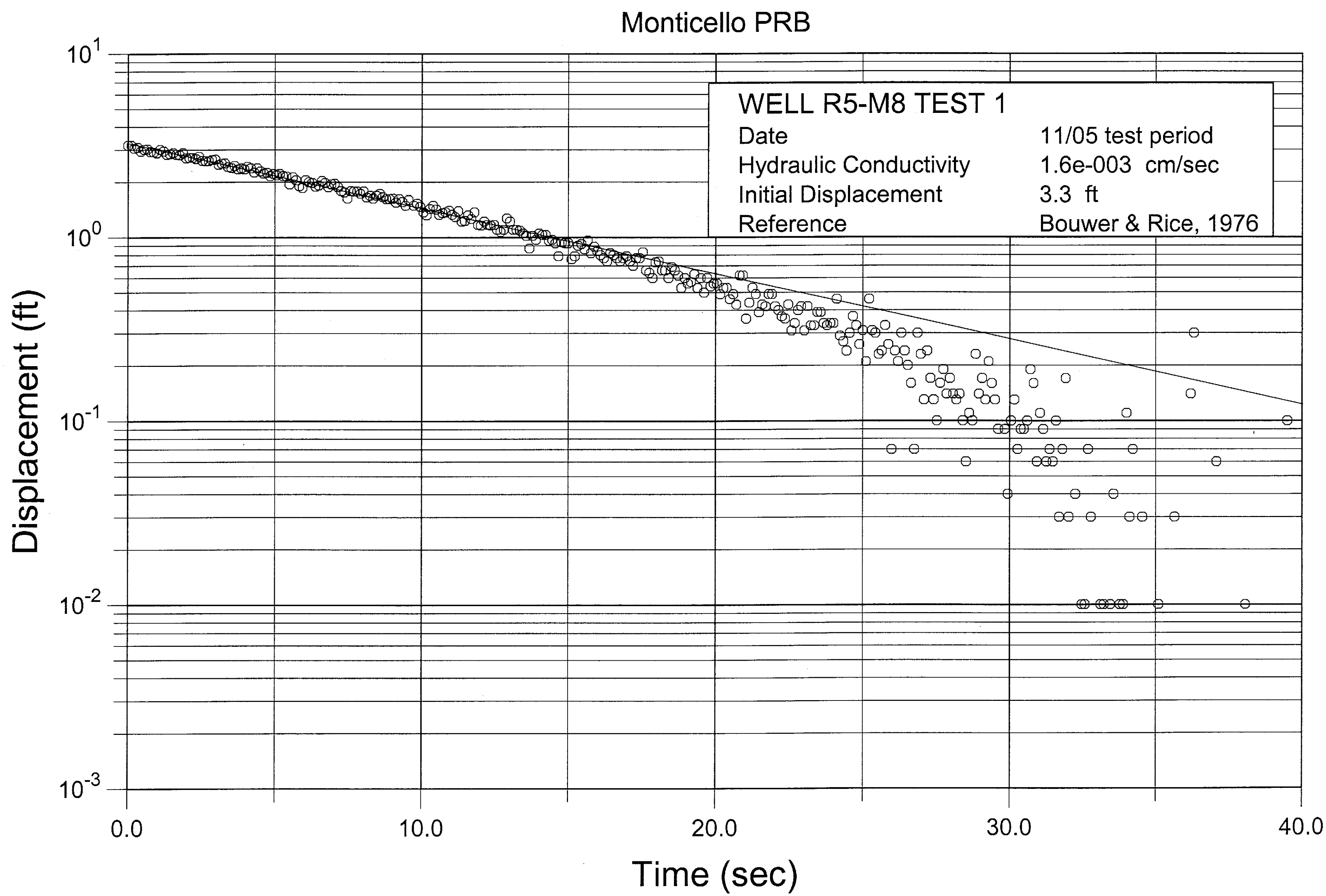


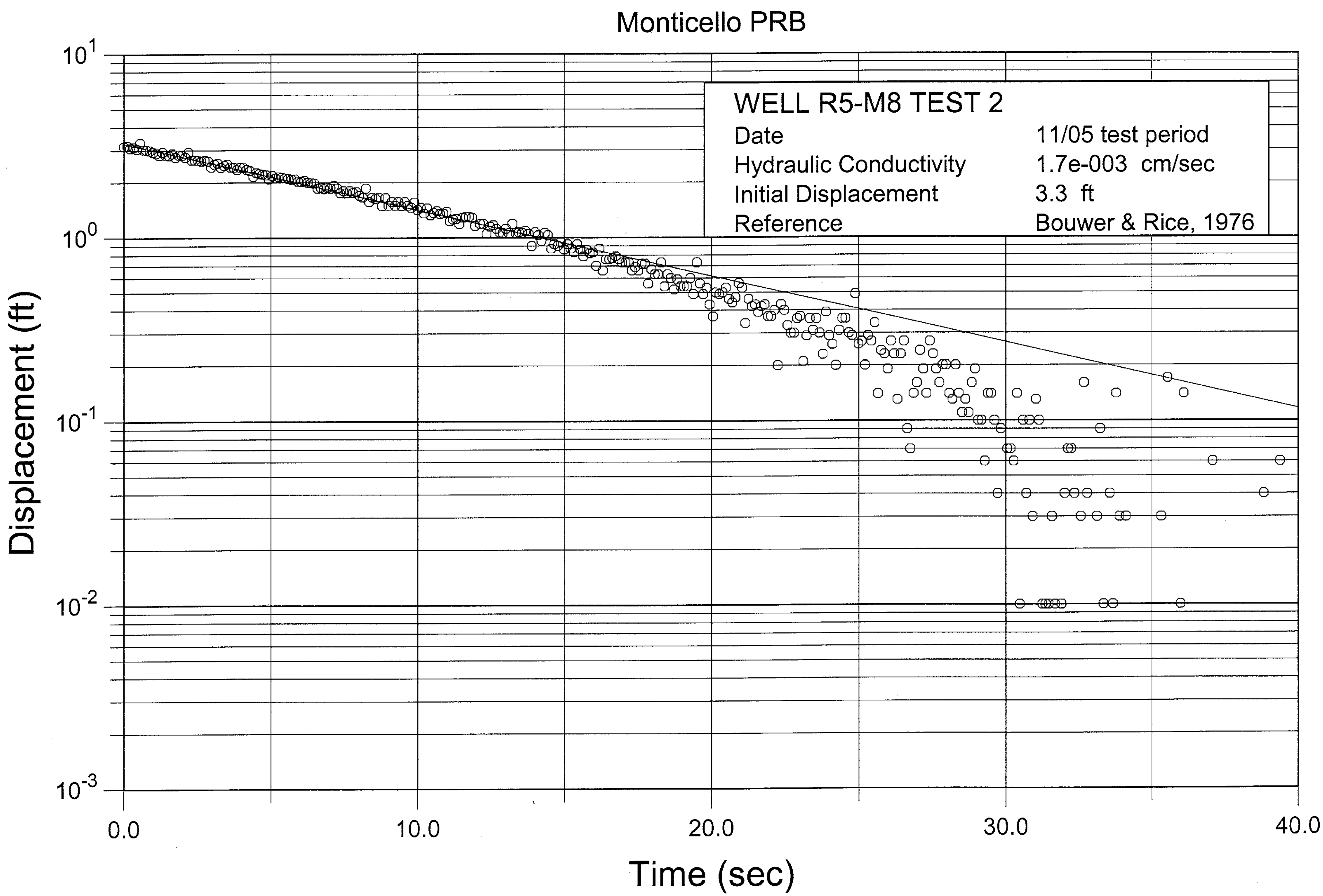

Monticello PRB
WELL R5-M7 TEST 1
Date 11/05 test period
Hydraulic Conductivity 2.1e-003 cm/sec
Initial Displacement 4.8 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^{-1}
10^{-2}
0.0
10.0
20.0
30.0
40.0
Time (sec)



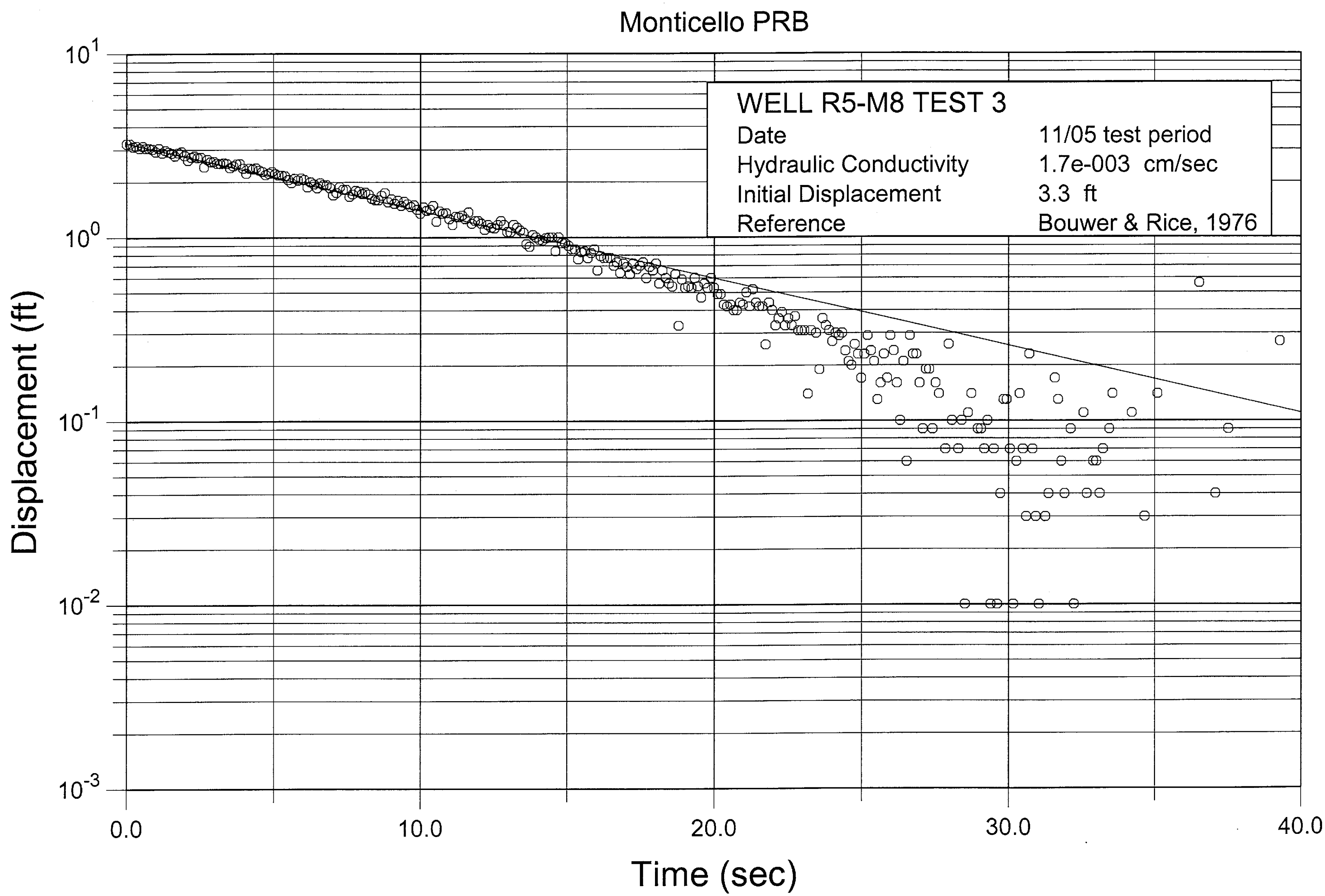
Monticello PRB
WELL R5-M7 TEST 2
Date
11/05 test period
Hydraulic Conductivity
2.2e-003 cm/sec
Initial Displacement
4.4 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
10^-3
0.0
10.0
20.0
30.0
40.0
Time (sec)


Monticello PRB
WELL R5-M7 TEST 3
Date 11/05 test period
Hydraulic Conductivity 2.1e-003 cm/sec
Initial Displacement 4.2 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
0.0
10.0
20.0
30.0
40.0
Time (sec)

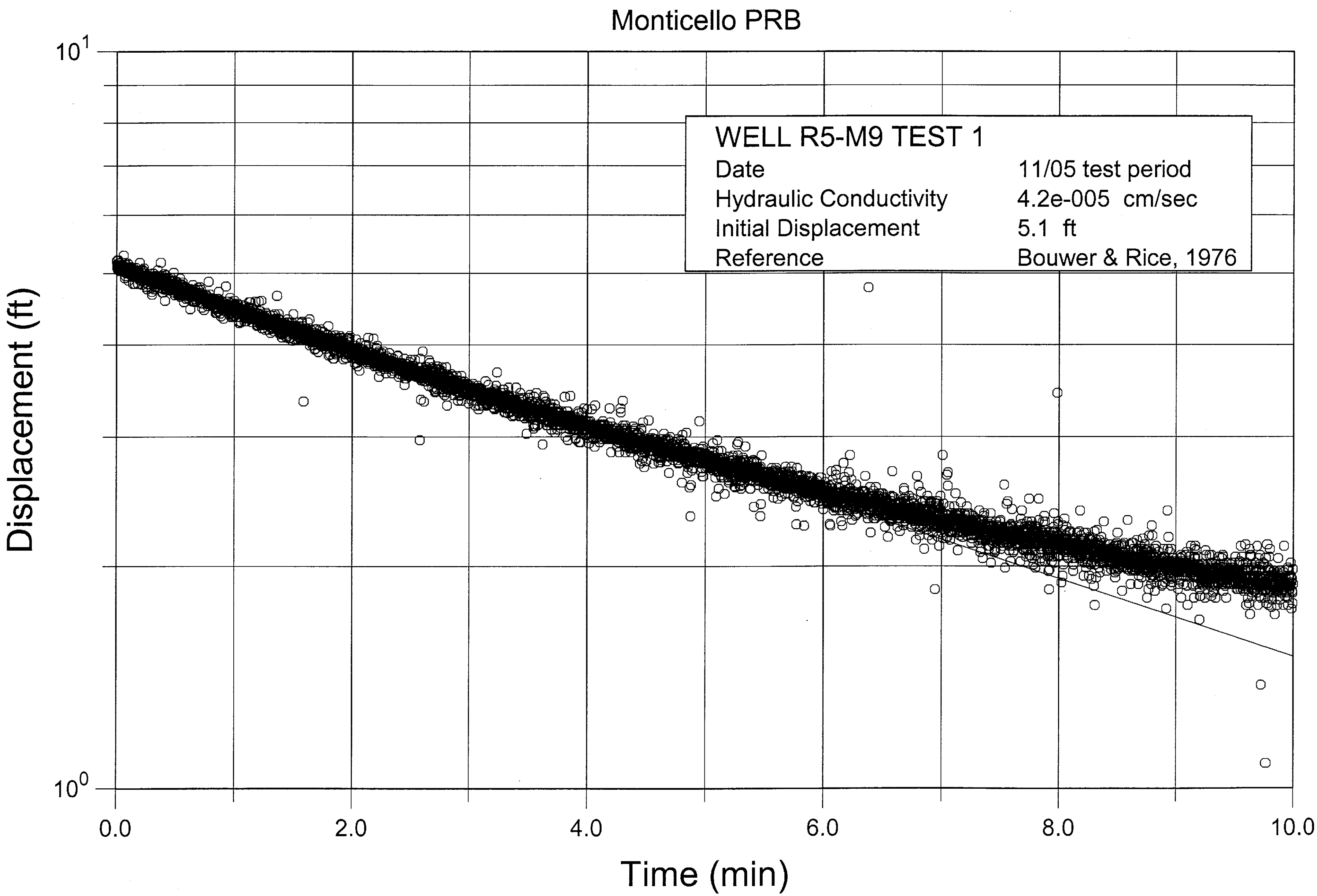

Monticello PRB
WELL R5-M8 TEST 1
Date
11/05 test period
Hydraulic Conductivity
1.6e-003 cm/sec
Initial Displacement
3.3 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
10^-1
10^-2
10^-3
0.0
10.0
20.0
30.0
40.0
Time (sec)

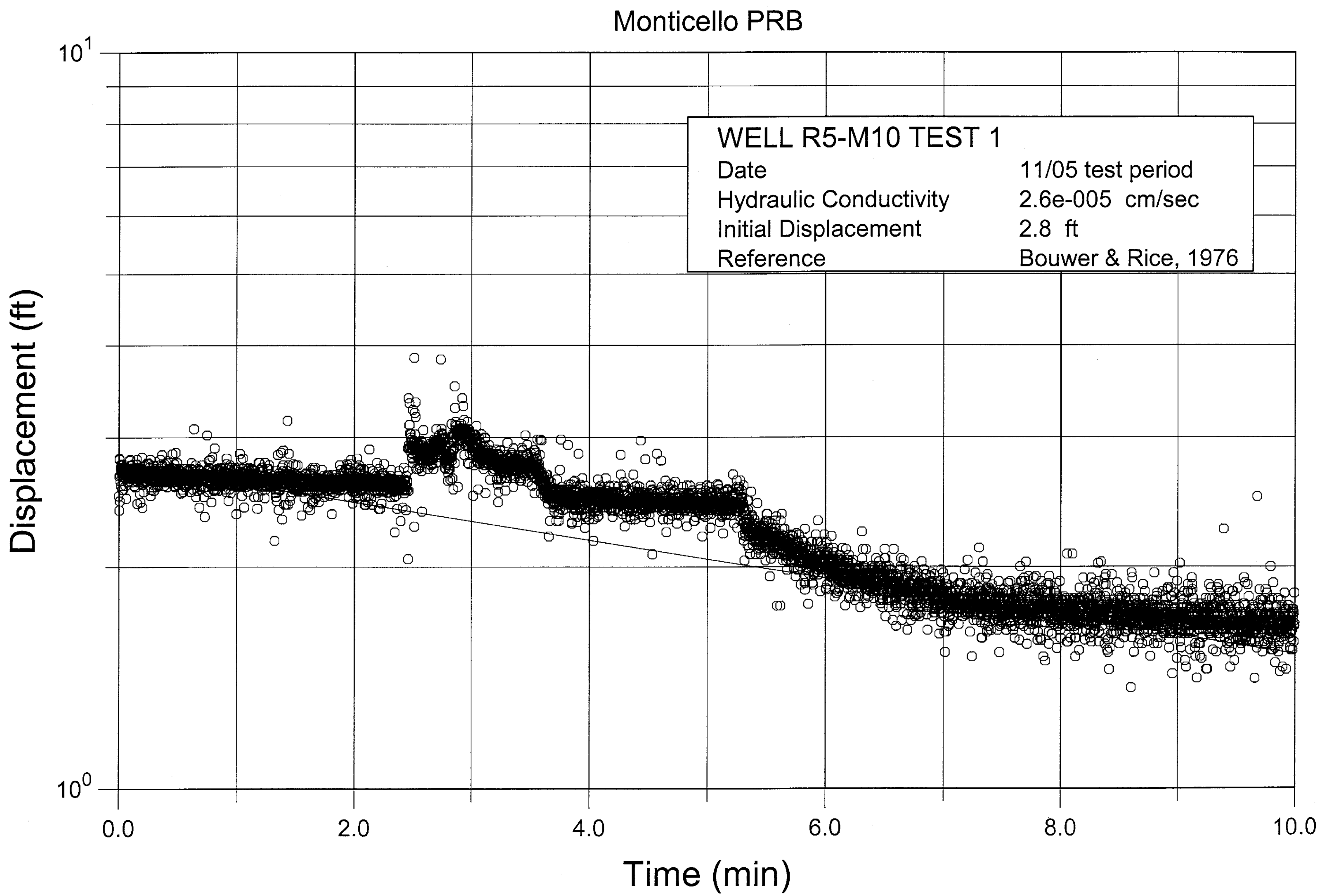


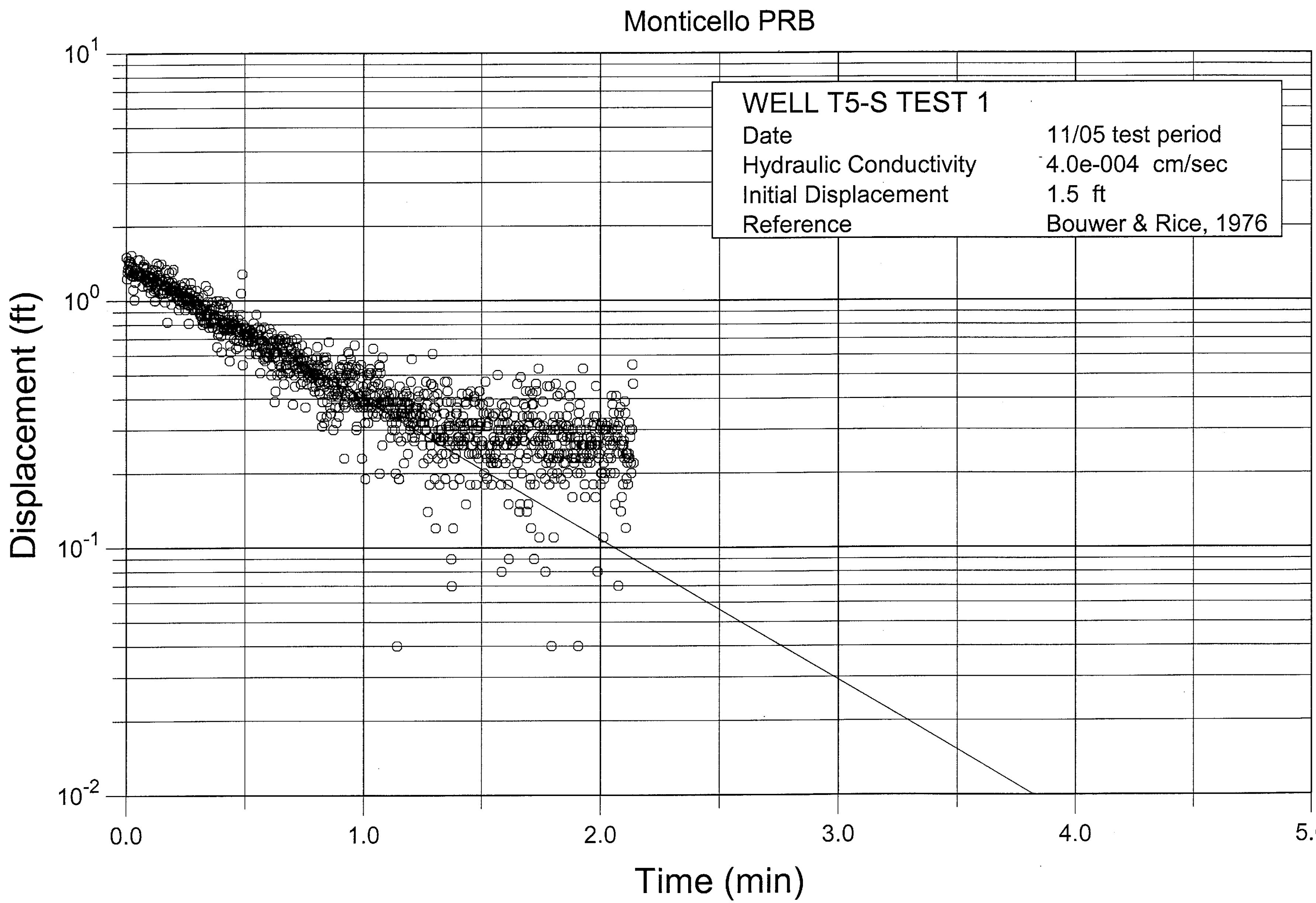
Monticello PRB
WELL R5-M8 TEST 2
Date
11/05 test period
Hydraulic Conductivity
1.7e-003 cm/sec
Initial Displacement
3.3 ft
Reference
Bouwer & Rice, 1976
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
Displacement (ft)
0.0
10.0
20.0
30.0
40.0
Time (sec)

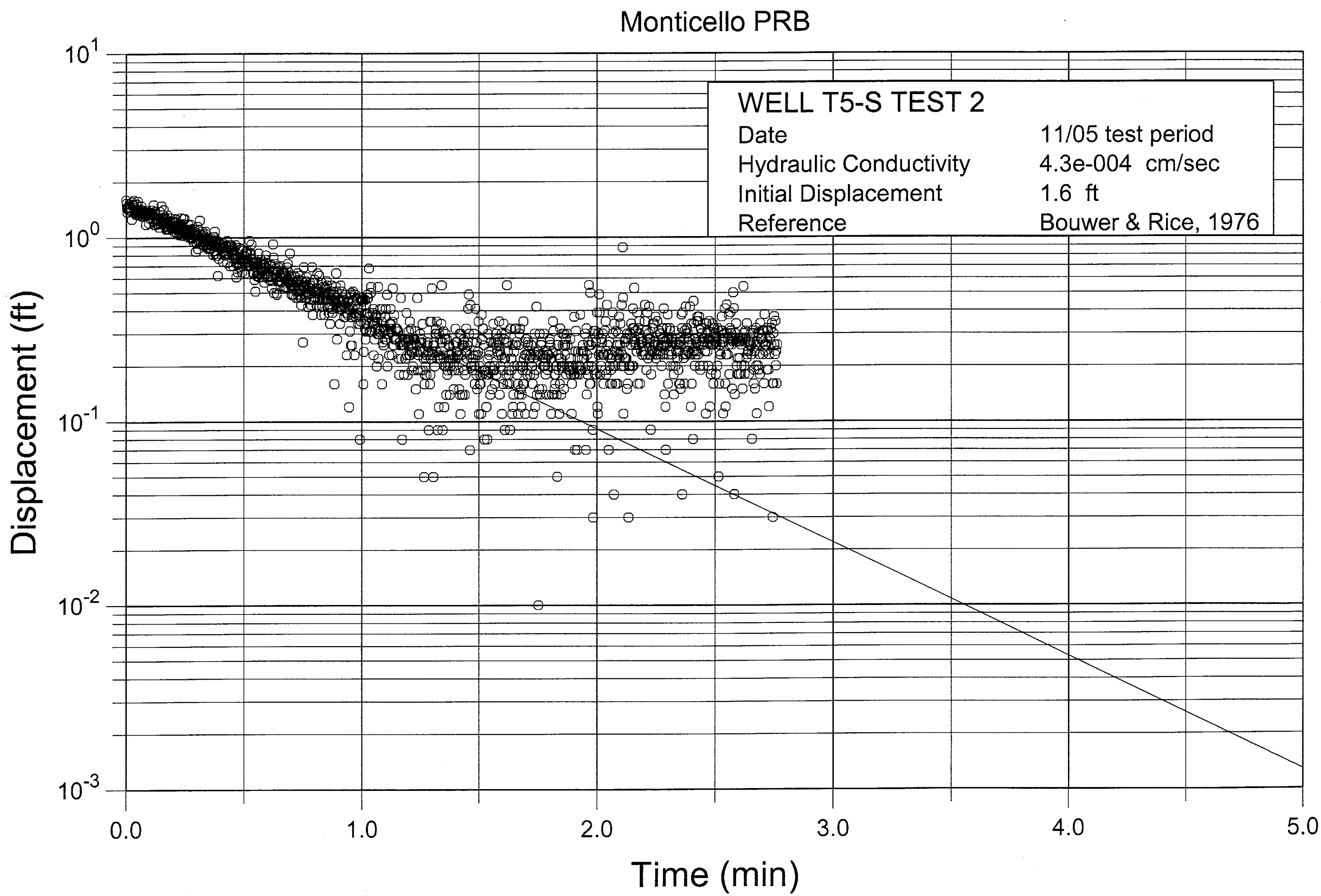


Monticello PRB
WELL R5-M8 TEST 3
Date 11/05 test period
Hydraulic Conductivity 1.7e-003 cm/sec
Initial Displacement 3.3 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (sec)
10^1
10^0
10^-1
10^-2
10^-3
0.0
10.0
20.0
30.0
40.0

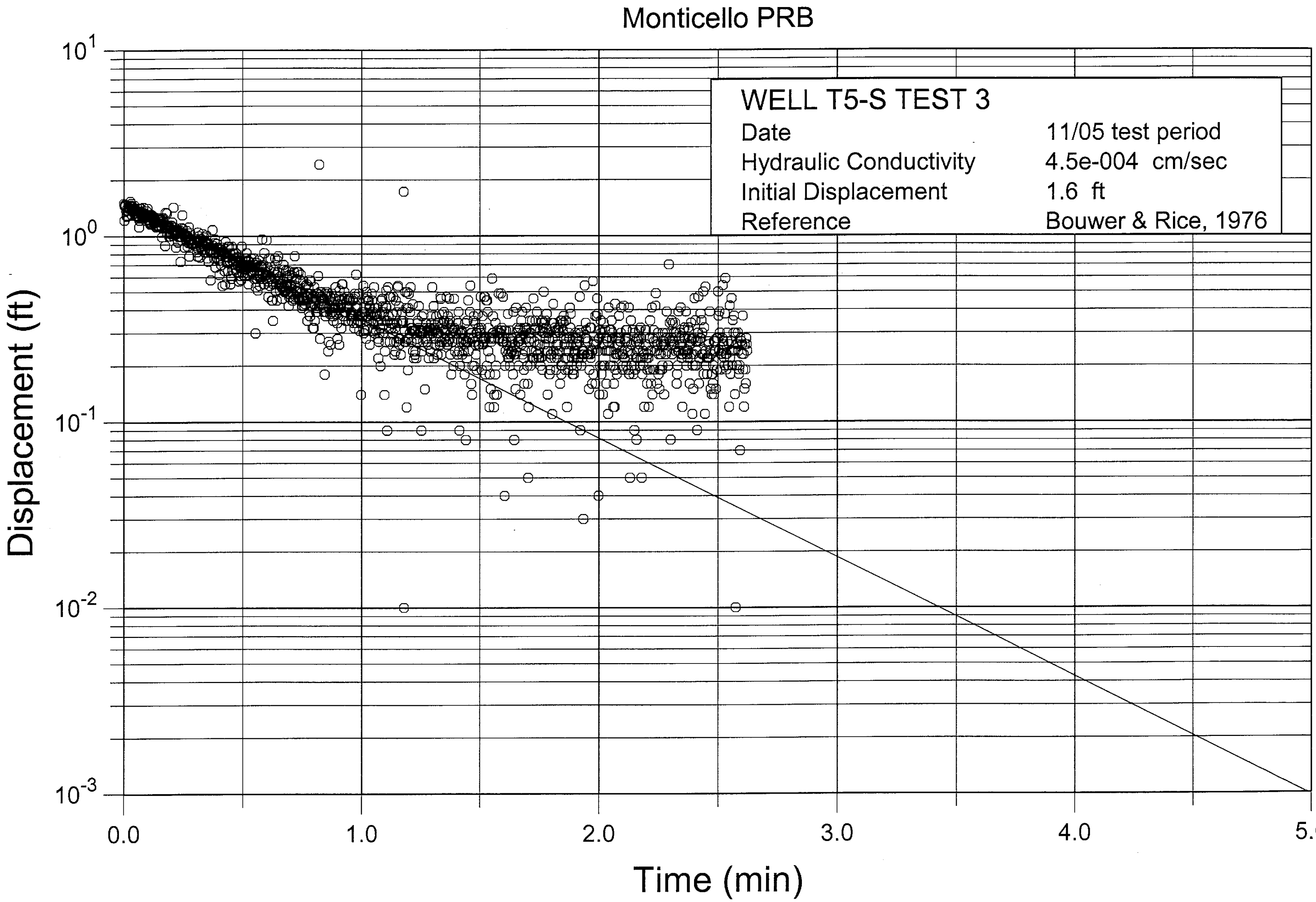

Monticello PRB
WELL R5-M9 TEST 1
Date 11/05 test period
Hydraulic Conductivity 4.2e-005 cm/sec
Initial Displacement 5.1 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
0.0
2.0
4.0
6.0
8.0
10.0
Time (min)


Monticello PRB
WELL R5-M10 TEST 1
Date
11/05 test period
Hydraulic Conductivity
2.6e-005 cm/sec
Initial Displacement
2.8 ft
Reference
Bouwer & Rice, 1976
Displacement (ft)
10^1
10^0
0.0
2.0
4.0
6.0
8.0
10.0
Time (min)


Monticello PRB
WELL T5-S TEST 1
Date 11/05 test period
Hydraulic Conductivity 4.0e-004 cm/sec
Initial Displacement 1.5 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (min)
10^1
10^0
10^-1
10^-2
0.0
1.0
2.0
3.0
4.0
5.0



Monticello PRB
WELL T5-S TEST 2
Date 11/05 test period
Hydraulic Conductivity 4.3e-004 cm/sec
Initial Displacement 1.6 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (min)
10^1
10^0
10^{-1}
10^{-2}
10^{-3}
0.0
1.0
2.0
3.0
4.0
5.0


Monticello PRB
WELL T5-S TEST 3
Date 11/05 test period
Hydraulic Conductivity 4.5e-004 cm/sec
Initial Displacement 1.6 ft
Reference Bouwer & Rice, 1976
Displacement (ft)
Time (min)
10^1
10^0
10^{-1}
10^{-2}
10^{-3}
0.0
1.0
2.0
3.0
4.0
5.0