CONSTANT RATE PUMPING TEST REPORT

Leica Inc.
Cheektowaga, New York
Site Code 915156

PRINTED ON

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CRA

CONESTOGA-ROVERS & ASSOCIATES
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April 29, 1997

Reference No. 3967

Mr. Gregory Sutton, P.E.
NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION
270 Michigan Avenue
Buffalo, New York 14203-2999

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Dear Mr. Sutton:

Re: Constant Rate Pumping Test Report
Leica Site, Cheektowaga, New York
Site Code 915156

Please find enclosed four (4) copies of the Constant Rate Pumping Test Report for the Leica Site, Cheektowaga, New York.

Should you have any questions regarding this information, please do not hesitate to contact us.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

Kevin P. Lynch/js

Kevin P. Lynch

KPL/js/
Encl.

c.c. Director, Bureau of Environmental Exposure Investigation, NYSDOH-Albany (1)
Division of Hazardous Waste Remediation, NYSDEC-Albany (1)
Division of Environmental Enforcement, NYSDEC-Buffalo (1)
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APRIL 1997
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TABLE OF CONTENTS

LIST OF FIGURES
(Following Report)

LIST OF FIGURES
(Following Report)

LIST OF TABLES
(Following Report)

LIST OF APPENDICES

1.0 INTRODUCTION

This report presents the results of the Bedrock Aquifer Pumping Study conducted as part of the pre-design activities for the former Leica Inc. Site (Site) located at Eggert and Sugar Roads in Cheektowaga, New York. Other pre-design data collection activities, including the Soil Treatability Study, Non-Aqueous Phase Liquid (NAPL) Investigation, and the Deep Bedrock Groundwater Investigation were previously reported in the Remedial Pre-Design Activities Report dated April 30, 1996.

The preferred remedial alternative for the Site is identified in the Feasibility Study (FS) Report dated March 5, 1996 as Alternative 4, which includes the following components:

i) soil source removal with on-Site mechanical volatilization, soil vapor extraction (SVE), and biological treatment;

ii) bedrock groundwater containment/source removal with on-Site treatment;

iii) institutional controls; and

iv) groundwater monitoring.

The pumping tests were conducted to provide data to support the detailed design requirements for Alternative 4. The objectives of the constant rate pumping tests were:

i) to obtain data regarding the hydraulic response to pumping from the two wells, one within each area of contaminated bedrock groundwater at the Site;

ii) to obtain additional groundwater quality data over time within each contaminated area;

iii) to determine proper extraction well spacing, yield, and location at the Site; and

iv) to determine steady-state zones of capture.

The constant rate pumping test activities were conducted in accordance with the procedures outlined in the Remedial Pre-Design Work Plan (Work Plan) dated August 18, 1995; the Responses to the August 30, 1995 New York State Department of Environmental Conservation (NYSDEC) Comments on the Work Plan dated September 26, 1995; the Buffalo Sewer Authority Temporary Sewer Discharge Permit No. 96-07-TP034 issued September 18, 1996; and the Health and Safety Plan (HASP), Quality Assurance Project Plan (QAPP), and the Field Sampling Plan (FSP) presented in the Approved Remedial Investigation/Feasibility Study Work Plan.

The results of these pumping tests and the other pre-design activities reported in the Remedial Pre-Design Activities Report will be incorporated into the final remedial design for the Site.

2.0 STEP DRAWDOWN TESTS

In February 1996, step drawdown testing was conducted at the MW-6A and MW-16A bedrock groundwater monitoring wells at the Site to determine the rate at which the wells can be pumped and to quantify pre- and post-treatment groundwater chemistry in order to determine the pretreatment requirements for discharge of the groundwater to the sanitary sewer system. Details of these tests are reported in the Remedial Pre-Design Report and are summarized in this section.

The step drawdown tests were conducted using a Grundfos Redi-Flow 2 pump to pump the groundwater into a Shallow Tray Model 1341 4 Stage Air Stripper. The treated water was pumped to a wastewater storage tanker. The air exhaust from the air stripper was vented through a 175 pound vapor phase carbon drum prior to release to the atmosphere.

Groundwater samples of the influent to the air stripper and discharge from the air stripper were collected at the beginning and end of the test for analysis of volatile organic compounds (VOCs).

2.1 MW-6A

Well MW-6A was pumped on February 13, 1996 at flow rates of 1 gallon per minute (GPM), 2 GPM, and 4 GPM for one hour intervals and 6.5 GPM for about 20 minutes. Water levels in the pumping well (MW-6A) and the adjacent overburden well (MW-6) were monitored using a Telog pressure transducer. Manual water levels were also measured in overburden wells MW-5, MW-7, MW-12, MW-15, and MW-20 and bedrock wells MW-5A, MW-9B, MW-15A, and MW-15B prior to the start of the test and at two hours into the test. The four hour water levels were not measured due to the unexpected pump failure shortly into the 6.5 GPM step of the test.

The water level of the pumping well dropped about two feet during the 1 GPM step and an additional two feet during the 2 GPM step. The 4 GPM step produced an additional 2.5 foot drop. Water levels stabilized fairly

rapidly during each step. The pumping well hydrograph showed an initial rapid drop of the water level at the beginning of the fourth step (6.5 GPM), then a series of fluctuations in response to the pump cutting off and being restarted.

The MW-6A step test showed a local response of 1.9 feet in the MW-6 well (30 feet north) and a drop of 0.2 feet in the MW-12 well (115 feet southeast) after two hours of pumping. Water levels in the other wells showed no change or a slight increase during the step test. A summary of the water levels measured during the MW-6A step test is presented in Table 2.1. Hydrographs showing the water table response in wells MW-6A and MW-6 are presented on Figures 2.1 and 2.2, respectively. Based on this step test it was estimated the well could sustain a yield of 7.0 GPM.

2.2 MW-16A

The step test at well MW-16A commenced on February 14, 1996 with the 1 GPM step. After 45 minutes the pump failed and the test was stopped. The test was resumed on February 15, 1996 using a Grundfos Redi Flow 2 Pump at pumping rates of 3, 5, and 6.5 GPM for one hour intervals. Water levels were recorded in the pumping well (MW-16A) and the adjacent overburden well (MW-16) using Telog Pressure Transducers, and were monitored manually in wells MW-16A and MW-16, overburden wells MW-1, MW-15, MW-18, and bedrock wells MW-1A, MW-15A, MW-15B, and MW-17A.

Each of the three steps on February 15 caused an initial rapid drop in the potentiometric surface with subsequent stabilization. The drop during the 3 GPM step was about 4.0 feet; during the 5 GPM step an additional 3-foot drop was observed; and during the 6.5 GPM step the drop was another 2.0 feet.

A slight drop in the water level was observed in both the bedrock and overburden wells monitored during this test. It is not known if the drop observed was the result of the test or was due to atmospheric conditions.

Analysis of samples collected during both step tests showed that air stripping was effective in the removal of the VOCs from the groundwater., as presented in the Remedial Pre-Design Report.

Figure 2.3 shows the hydrograph of the water table response in the pumping well for the MW-16A test for the 3, 5, and 6.5 GPM steps. Table 2.2 shows the water levels measured in the on-Site wells during this test.

Based on this step test, it was estimated that MW-16A could sustain a pumping rate of about 7.0 GPM.

3.0 CONSTANT RATE PUMPING TESTS

Two constant rate pumping tests were conducted at bedrock wells MW-6A and MW-16A at the Site in October 1996, after receipt of a Temporary Discharge Permit from the Buffalo Sewer Authority to allow the discharge of pre-treated water from these tests to the sanitary sewer system.

A Grundfos Redi-Flow 2 variable speed submersible centrifugal pump with a 3/4-inch diameter discharge hose for water withdrawal was used for both constant rate tests. Discharge flow rates were adjusted using an in-line flow control valve or by varying the electrical output from the control box for the pump. Pumping rates were determined using an in-line rotameter and by manual measurements using volume/time measurements at the inlet to the air stripper.

Pre-treatment of the pumped groundwater consisted of air stripping of the volatile organics using a Shallow Tray Model 2341 four tray air stripper. The effluent from the air stripper was pumped through a 175 pound canister of granular activated carbon (GAC) prior to being discharged to a nearby sanitary sewer manhole. The air exhaust from the air stripper was vented through two parallel trains of two 175 pound canisters of GAC installed in series. A schematic of the groundwater treatment system used for the constant rate pumping test is presented on Figure 3.1.

An initial attempt to start up the MW-16A test on October 14, 1996 was aborted after about two hours due to excessive silting in the pumping well, which plugged up the pump. About 1.6 feet of sediments were drawn into the well over the two hour period.

On October 15, 1996, the MW-16A well was redeveloped to remove the silt and clean out the rock fractures. The sediment in the well was flushed out by running potable water directly into the well while simultaneously pumping the well from the bottom of the open borehole into a settling tub. The water which was removed was held to allow the sediments to settle out. The water was then pumped through the air stripper prior to being discharged to the sanitary sewer. About 900 gallons of water was removed from the well and

about 3.5 feet of sediment was removed from the bottom of the well, leaving a total depth of 34.5 feet. Approximately 5.5 feet of sediment remained in the well following development.

Upon return of the water level in the pumping well to a static level, the pumping test at MW-16A was resumed.

3.1 MW-16A CONSTANT RATE TEST

The MW-16A constant rate pumping test (MW-16A test) was conducted as follows:

Test Dates:	October 15 to October 17, 1996
Pre-Test Monitoring Period:	30 hours prior to test (wells with transducers)
Test Well:	MW-16A
Observation Wells:	Overburden: MW-1, MW-15, MW-16, MW-18, MW-19, MW-7, MW-6 Bedrock: MW-1A, MW-17A, MW-15A, MW-6A, MW-15B
Test Duration:	48 hours
Pumping Rate:	0 to 24 hours - 6.5 GPM average 24 to 48 hours - 6.3 GPM average Overall - 6.4 GPM average
Post-Test Monitoring:	18 hours after test

Telog pressure transducers and data recorders were used to continuously monitor the water levels in MW-15, MW-15A, MW-16A, and MW-18 wells. Manual water levels were also measured in these wells and in the other observation wells listed above on a frequent basis (every 15 minutes for the first two hours; every hour for the next six hours, and every four hours until the end of the test). Site-wide water levels were measured at least once each day. Water levels were collected using an electronic water level indicator and a weighted steel plopper (in the contaminated wells). Post-test water levels were measured at 15 minutes, 30 minutes, and 60 minutes after shutdown of pumping at well MW-16A. A full round of water levels at the Site was measured 16 hours

after the test ended. Groundwater recovery in the MW-16A well was monitored after the test, with recovery to 80 percent of static water level occurring about eight minutes after pumping stopped. Recovery to 90 percent of static was reached after 12 minutes. In accordance with the Work Plan, the pumping well recovery was monitored for 60 minutes after the test, at which time the recovery had reached 93 percent of the pre-pumping static water level. The water levels measured during the MW-16A test are presented in Table 3.1.

During the MW-16A constant rate test, groundwater samples were collected for chemical analysis at startup (0 hours), at 24 hours into the test, and at 48 hours into the test for the compounds listed in Table 3.2. The treated effluent discharged to the sewer was sampled at the 48-hour mark of the test to verify that pre-treatment of the groundwater was effective. The 48-hour effluent sample was analyzed for TCL VOCs only. Table 3.3 lists the detected compounds from the 0, 24, and 48 hour samples collected during the MW-16A test and provides the Buffalo Sewer Authority (BSA) discharge limits for these compounds and the results of the effluent sample collected during this test. The analytical results are discussed in Section 3.1.2.

3.1.1 Hydraulic Results - MW-16A Test

The MW-16A test was started at a pumping rate of about 6.0 GPM. This rate was gradually increased to 7.1 GPM. As the water level in the well dropped, the pumping rate decreased to about 6.3 GPM. At the 24-hour mark of the test, the pumping rate was increased to ±6.7 GPM. This increased rate resulted in an initial sharp drop in the water level in the well and difficulty in maintaining a stable water level throughout the 24 to 48-hour period despite frequent adjustments to the flow rate. Flows over the 24 to 48-hour period of the MW-16A test ranged from 5.8 GPM to 6.7 GPM, with an average of 6.3 GPM for this well.

The water level in the pumping well initially dropped quite rapidly by approximately 8 feet, reaching a stable level at about 22 feet below top of casing (BTOC). After trying to increase the pumping rate at the 24-hour mark, the water level dropped about four feet more before starting to fluctuate. The

pumping rate was periodically adjusted in an attempt to maintain a stable water level, without success. The water table in the MW-16A well was about two to three feet lower over the 24 to 48-hour period than during the 0 to 24-hour period.

Hydrographs for each monitoring well at the Site are included in Appendix A. The hydraulic response in each monitoring well and the response observed in the pumping well are compared in these hydrographs.

Review of the hydrographs for the overburden monitoring wells during the MW-16A test show that response in the overburden was observed along the east side of the Main Building in wells MW-16, MW-18, MW-19, MW-7, and MW-6. Drawdown was also very pronounced in the overburden wells within the fill zone in the southeast part of the Site (MW-4, MW-8, MW-9, MW-10, MW-11, and MW-12), and at MW-3 and MW-5 along the south fenceline of the Site.

The bedrock well hydrographs show that some response was observed at every bedrock well at the Site during pumping of the MW-16A well. This influence was more pronounced toward the end of the 48-hour pumping period and is attributable to the test rather than atmospheric conditions as evidenced by post-test recovery observed in many of the bedrock wells. Drawdown ranged from a low of 0.30 feet at MW-17A to a high of 0.96 feet at both MW-1A and MW-6A. There appears to be a north-south trend to the influence created by pumping the MW-16A well with a limited response in an eastward direction. The static and final water levels measured in the monitoring wells and the total observed drawdown after 47 hours for each well is presented in Table 3.4. The measured drawdown in the overburden and the bedrock in response to the MW-16A test is presented on Figures 3.2 and 3.3.

Groundwater elevation contours for the overburden and bedrock groundwater regimes at the Site during static conditions and after 47 hours of pumping at well MW-16A are shown on Figures 3.4 through 3.7. Review of the static condition overburden groundwater contours (Figure 3.4) indicates a hydraulic gradient of approximately 7.5 feet in a north to south direction, with a high point at well MW-1 and a low area at well MW-11. After

pumping well MW-16A for 47 hours, the same north-south gradient is evident in the overburden (Figure 3.5), however, the low area near well MW-11 is expanded somewhat northward and westward beneath the fill area in the southeast part of the Site, indicating some dewatering of this fill area has occurred as a result of pumping at the MW-16A well.

Comparison of the bedrock water levels for static conditions prior to pumping well MW-16A (Figure 3.6) and after pumping well MW-16A at about 6.0 GPM over a 47-hour period (Figure 3.7) indicates a distinct gradient change in the north, west, and south directions with an expanded capture zone extending toward wells MW-1A, MW-2A, and MW-6A. A steep bedrock groundwater hydraulic gradient (±8.5 feet) already exists at the Site in an east to west direction (from MW-17A to MW-16A) during static conditions. No change in this gradient was observed as a result of pumping at the MW-16A well.

The rapid drawdown observed in the bedrock monitoring wells at the Site in response to the MW-16A test indicates that the bedrock groundwater responds as a confined unit with head loss transmitted as a pressure wave without dewatering of the pore spaces in the rock. This is further supported by bedrock water level measurements which were often close to or above adjacent overburden water levels, indicating that a pressurized bedrock potentiometric surface exists.

Based on the results of the constant rate test at MW-16A, transmissivity was estimated using solution methods for confined or leaky aquifers. AQTESOLV, a software package for aquifer test design and analysis developed by Geraghty & Miller, Inc. was used to estimate the transmissivity of the bedrock. The Cooper and Jacob Method (1946) was used to estimate transmissivity based on recovery of groundwater in nearby monitoring wells which showed good response.

Transmissivity estimates ranged from 0.149 to 0.398 ft^2/minute (215 to 573 $ft.^2$/day). The graphs from which these estimates are derived are contained in Appendix B. A summary of the hydraulic properties of the bedrock are presented in Table 3.5.

The distance drawdown graph on Figure 3.8, which shows the response observed at all bedrock wells on-Site to the MW-16A test shows a theoretical cone of influence extending about 2,200 feet from the pumping well based on where the trend line crosses the 0 drawdown axis. The observed zone of capture for the Site in response to this test appears to be areally extensive, with some drawdown observed in all bedrock wells monitored during the test.

3.1.2 Analytical Results for Well MW-16A

Groundwater samples were collected from well MW-16A at 0, 24, and 48 hours into the constant rate pumping test for this well. Samples were analyzed for TCL VOCs and SVOCs, and TAL metals. The 48 hour sample was also analyzed for TCL pesticides and PCBs and additional parameters required for treatment system design purposes and/or compliance with BSA discharge limits. The analytical parameters tested are listed in Table 3.2.

Analytical results for detected parameters from well MW-16A are summarized in Table 3.3. Complete analytical results are presented in Table 1 of the Analytical Data Validation Report provided in Appendix C.

The analytical results for the groundwater samples from well MW-16A collected at 0, 24, and 48 hours into the MW-16A constant rate test show that the total concentration of detected VOCs declined by about 63 percent over the 48-hour test period from 238,524 micrograms per liter (µg/L) at 0 hours to 111,169 µg/L at 24 hours, and 87,820 µg/L at 48 hours. The majority of the VOCs detected are chlorinated ethanes and chlorinated ethenes, comprising 87 percent of the total detected VOC concentration (207,616 µg/L) in the 0-hour sample, 93 percent of total detected VOC concentration (103,529 µg/L) in the 24-hour sample, and 93 percent of total detected VOC concentration (82,029 µg/L) in the 48-hour sample. Other VOCs detected at higher concentrations (<1000 µg/L) include acetone, toluene, and total xylenes.

Only low levels (1J to 72 µg/L) of SVOCs (phenolic compounds, naphthalene, 2-methylnaphthalene, and butylbenzene phthalates) were detected in groundwater samples collected at 0, 24, and 48 hours.

The compounds exceeding BSA limits detected in the extracted groundwater prior to treatment included vinyl chloride, 1,2-dichloroethene (total), 1,1-dichloroethane, 1,1,1-trichloroethane, trichloroethene, toluene, ethylbenzene, and xylenes. These exceedances are consistent with the exceedances noted for the step drawdown test analytical results for well MW-16A conducted in February 1996 with the exception of ethylbenzene. Ethylbenzenes, reported at a concentration of 2,200J µg/L for the sample collected at 0 hours for the constant rate test exceeded the BSA limit of 1,584 µg/L. However, the concentration of ethylbenzene for the 24-hour and 48-hour samples and the step drawdown test samples were below the BSA limit.

Following treatment of the pumped groundwater with air stripping and granular activated carbon (GAC), the concentrations of all VOCs were reported to be below BSA limits based on the results of the treated groundwater sample collected at 48 hours.

The analytical results for the general chemistry parameters will be used for the final design of the groundwater treatment system.

The decline in MW-16A groundwater chemistry is likely due to the location of the pumping well immediately adjacent to the source area of the bedrock chemistry in this part of the Site. The more highly contaminated water would be extracted early in the pumping test and would be replaced by lower concentration groundwater from nearby areas of the Site. The rapid drop in the potentiometric surface in the vicinity of the pumping well indicates that brief intervals of intermittent pumping may benefit remediation of the residual contamination in the bedrock by allowing groundwater recovery adjacent to the extraction well, with a subsequent flushing effect when the pumps are restarted and the potentiometric surface again drops.

3.2 MW-6A CONSTANT RATE PUMPING TEST

The MW-6A constant rate pumping test (MW-6A test) was conducted as follows:

Test Dates:	October 21 to October 23, 1996
Pre-Test Monitoring Period:	72 Hours prior to test (wells with transducers) 5 hours prior to test, manually measured
Test Well:	MW-6A
Observation Wells:	Overburden - MW-6, MW-20, MW-21, MW-5, MW-12, MW-4, MW-10, MW-9, MW-7, MW-19 Bedrock - MW-5A, MW-9B, MW-13A, MW-15A
Test Duration:	48 hours
Pumping Rate:	0 to 24 hours - 5.74 GPM average 24 to 48 hours - 6.05 GPM average Overall 5.9 GPM average
Post-Test Monitoring:	16 hours post-test (transducers) 1.25 hours post-test (manual)

Telog pressure transducers and data recorders were used to continuously monitor the water levels in the MW-6A, MW-15A, MW-20, MW-5A, and MW-13A wells. Manual water level measurements were also made in these wells and in the other observation wells listed above, on a frequent basis (every 15 minutes for the first two hours; every hour for the next six hours; and every four hours for the next 40 hours. A Site-wide round of water levels were measured at least once each day. Water levels in most wells were collected using an electronic water level indicator. A weighted steel plopper was used for water level measurements in the more contaminated wells. Post-test water levels were measured in the observation wells at 15 minutes, 30 minutes, 45 minutes, and 75 minutes after pumping stopped at well MW-6A. The water level measurements for the MW-6A test are summarized in Table 3.6.

Groundwater recovery in well MW-6A was monitored after the test, with recovery to 80 percent of the static water level occurring about two minutes after pumping stopped. Recovery to 90 percent of static was reached after eight minutes. Pumping well recovery was monitored for 75 minutes after the end of the test, at which time the water level in well MW-6A had recovered to 94 percent of static conditions.

During the MW-6A constant rate test, groundwater samples were collected at startup (0 hours), at 24 hours into the test, and at 48 hours into the test for the compounds listed in Table 3.2. The treated effluent discharged to the sewer was sampled at the 48-hour mark of the test to verify that pre-treatment of the groundwater was effective. The 48-hour effluent sample was analyzed for TCL VOCs only. Table 3.7 lists the detected compounds from the 0, 24, and 48 hour samples collected during the MW-6A test and provides the BSA discharge limits for these compounds and the results of the effluent sample collected during this test. The analytical results are discussed in Section 3.2.2.

3.2.1 Hydraulic Results- MW-6A Test

The MW-6A test was started at a pumping rate of 6.5 GPM. This rate gradually declined to as low as 5.4 GPM in the first 24 hours of the test. The pumping rate was gradually increased from 5.4 to about 6.0 GPM during the second 24 hours of the test. Periodic flow rate adjustments were necessary to attempt to maintain a stable water level in the pumping well. Flows over the 0 to 24-hour period ranged from 5.4 to 6.5 GPM with an overall average pumping rate of 5.7 GPM. During the 24 to 48-hour period, flows ranged from 5.9 to 6.1 GPM with an average pumping rate of 6.0 GPM. An overall average pumping rate for the test was 5.9 GPM.

The water level of the pumping well while pumping at 5.4 to 6.5 GPM initially dropped rapidly from approximately 10.5 feet (static) to 25 feet BTOC, but then began to fluctuate between about 19.5 to 24.5 feet BTOC until approximately 18 hours into the test, when a fairly stable water level at about 25 feet BTOC was reached for 11 hours while pumping at 6.0 GPM. This level climbed sharply to about 19 feet BTOC at a pumping rate of 6.1 GPM. At about 36 hours into the test, the water level again fell from 19 feet BTOC to about 27 feet BTOC, apparently with no corresponding pumping rate change. The pumping rate remained fairly consistent over the last 24 hours of the test, (between 5.9 and 6.1 GPM) even through water level fluctuations were evident in the pumping well.

Hydrographs for each monitoring well at the Site are included in Appendix A. These hydrographs compare the hydraulic response in the monitoring well to the response in the pumping well for this test. Measurements of water levels on October 21, 1996, prior to the MW-6A test, show the water table at the Site to be 0.44 to 5.65 feet higher than measurements taken on October 18, 1996. This rise is likely due to more than 1.4 inches of rain that fell between October 18 and October 21, 1996, indicating that recharge of both the overburden and bedrock aquifers occurs as a result of rainfall.

The hydrographs for overburden wells monitored during the MW-6A test show good response fairly quickly in the wells in the filled area east and southeast of the pumping well (MW-4, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, and MW-21). These overburden wells exhibited a 'classic' response to pumping with an initial drawdown followed by a stable or slightly decreasing water level, and a detectable recovery following the end of pumping. The change in water level in these wells ranged from 0.54 feet at MW-21 to 2.18 feet at MW-11.

Several other overburden wells at the Site showed a stable or slight increase in water level over the pumping test interval, including MW-1, MW-13, MW-14, MW-15, MW-16, MW-17, MW-19, MW-20, MW-22, and MW-23. The stable or increasing water levels indicate that the natural trend would have been steady or slightly increasing water levels Site-wide except where influenced by the pumping test.

The hydrographs for the bedrock wells monitored during the MW-6A test show what appears to be a slight hydraulic response late in the test at MW-1A, MW-16A, MW-2A, and MW-14A. Well MW-5A exhibited a more classic response with a drawdown of about 0.4 feet occurring in the first 12 hours of the test, which then remained stable for the remainder of the test, with recovery following pump shutoff. Well MW-15A exhibited a mixed response during the test. Prior to pumping MW-6A, the water level at MW-15A steadily increased by about 1 foot. Shortly after pumping started at MW-6A, the water level began a slight but steady drop in well MW-15A, which continued throughout the test, however, the drop in the water level continued following the end of pumping. If the MW-15A water level response is a result of the pumping

at MW-6A, then a slight but detectable north-south influence resulted from pumping the shallow bedrock at MW-6A despite recent heavy rain and saturated overburden and bedrock conditions at the Site. This north-south influence correlates well to the observed influence of the MW-16A pumping test, with limited influence in an eastward direction, good north-south influence beneath the more contaminated areas, and a probable influence in the MW-2A well on the west side of the Site. Observed drawdowns in the Site overburden and bedrock resulting from the MW-6A test are shown on Figures 3.9 and 3.10.

Groundwater elevation contours of the overburden and bedrock groundwater regimes at the Site during static conditions and after about 47 hours of pumping at MW-6A, are shown on Figure 3.11 through 3.14. Review of the overburden groundwater contours (Figures 3.11 and 3.12) show a general north to south gradient of approximately 8.4 feet during static conditions with a high point at MW-1 and a second high point at well MW-20 well. A low area exists in the southeastern part of the Site south of the fill area. After pumping MW-6A over 47 hours, a low point developed within the fill area in the southeast part of the Site, with a good inward radial pattern forming toward this low point.

The bedrock water level for static conditions and after pumping at MW-6A for 47 hours are shown on Figures 3.13 and 3.14, respectively. The static contours show a general northeast to southwest gradient of approximately 7.9 feet with a high point at the MW-17A well and a low point being a trough running from MW-6A to MW-14A in the southeast part of the Site. After pumping MW-6A for 47 hours at an overall average pumping rate of 5.9 GPM, a strong radial pattern was evident as shown on Figure 3.14, with an inward gradient toward the pumping well.

The distance drawdown graph plotted for the bedrock wells at the Site during the MW-6A test (Figure 3.15), shows a theoretical cone of influence extending about 130 feet from the pumping well (based on where the trend line crosses the 0 drawdown axis). In reality, the area affected by the pumping well extends several times this distance in a north, south, and westward direction. The effect of pumping in an eastward direction in the bedrock appears limited as the water level in MW-13A increased by 0.3 feet over the duration of the MW-6A test, possibly due to recharge of the bedrock

underlying the wet off-Site parcel following the rain which fell prior to and during the test.

Calculations of transmissivity derived from groundwater recovery, measured at two bedrock monitoring wells during the MW-6A test using Cooper and Jacobs Method for confined conditions provides estimates of transmissivity of 0.155 to 0.362 ft^2/minute (222.7 to 521.6 ft^2/day), which are comparable to the transmissivity estimates resulting from the MW-16A test. A summary of the hydraulic properties derived from the MW-6A test are presented in Table 3.5.

3.2.2 Analytical Results for Well MW-6A

Groundwater samples were collected from well OW-6A at 0, 24, and 48 hours into the constant rate pumping test for this well. Samples were analyzed for TCL VOCs and SVOCs, and TAL metals. The 48 hour sample was also analyzed for TCL pesticides and PCBs, and additional parameters required for the final treatment system design and/or compliance with BSA discharge limits. The additional parameters are listed in Table 3.2.

Analytical results for detected parameters are summarized in Table 3.7. Complete analytical results are presented in Table 1 of the Analytical Data Validation Report provided in Appendix C.

The analytical results for groundwater samples collected from well MW-6A at 0, 24, and 48 hours into the MW-6A constant rate test show that the total concentration of detected VOCs declined by about 40 percent over the 48-hour test from 190,417 µg/L at 0 hours to 114,594 µg/L at 48 hours. The majority of the detected VOCs are chlorinated ethanes or ethenes (190,192 µg/L or 99.9 percent at 0 hours and 114,120 µg/L or 99.6 percent at 48 hours), with the remainder being low levels (2J to 380J µg/L) of toluene, carbon disulfide, acetone, 2-butanone, benzene, 4-methyl-1,2-pentanone, 2-hexanone, chlorobenzene, and xylenes.

SVOCs detected include phenolic compounds, 1,2-dichlorobenzene, di-n-butylphthalate, and napthalene at low concentrations ranging from 1J to 49 µg/L.

The compounds exceeding BSA limits detected in the extracted groundwater prior to treatment include vinyl chloride, 1,1-dichloroethene, and 1,2-dichloroethene (total). These results are consistent with the step drawdown test analytical results for well MW-6A conducted in February 1996 with the possible exception of 1,1-dichloroethene. The detection limit for 1,1-dichloroethene for the step drawdown test was 500 µg/L, which is above the BSA limit of 3 µg/L and the concentration of 140 to 150 µg/L reported for the constant rate test. 1,1-Dichloroethene may, therefore, have been present at concentrations exceeding the BSA limit during the step drawdown test.

Following treatment of the pumped groundwater with air stripping and GAC, the concentrations of all VOCs were reported to be below BSA limits based on the results of the treated groundwater sample collected at 48 hours. The analytical results for the general chemistry parameters will be used for the final design of the groundwater treatment system.

Consistent with the MW-16A constant rate test analytical results, the drop in groundwater chemistry is likely due to the location of the pumping well near the source area of the bedrock groundwater contamination and the movement of groundwater from outside the contaminated areas to the pumping well, thereby having a dilution effect.

The quick drop in water level and the rapid recovery of the water table following pumping indicate that brief intervals of intermittent pumping would have a flushing effect on the residual contamination in the dewatered bedrock zone which may enhance contaminant removal in the bedrock.

3.3 ESTIMATE OF STEADY-STATE ZONES OF CAPTURE

In order to estimate the steady-state zones of capture for each extraction well, the Todd (1980) equation was employed as follows:

$$r_c = \frac{Q}{2\pi Ti}$$

πr_c = width of capture zone (ft) perpendicular to the direction of groundwater flow.

Where:

r_c = distance to downgradient stagnation point well pumping (ft)
Q = pumping rate (ft^3/day)
T = transmissivity (ft^2/day)
i = horizontal hydraulic gradient (ft/ft)

Using a pumping rate of 1,251 ft^3/day (6.5 GPM), a transmissivity value of 219 ft^2/day (average of lower transmissivity values obtained from analysis of the data for MW-16A and MW-6A) and an average hydraulic gradient of 0.005 ft/ft results in a calculated downgradient stagnation point distance (r_c) of 182 feet and a capture width (πr_c) of 571 feet perpendicular to the direction of groundwater flow.

The above-noted estimates are consistent with the results of the pumping tests conducted for wells MW-6A and MW-16A.

4.0 GROUNDWATER EXTRACTION SYSTEM DESIGN CONSIDERATIONS

The primary objective of a bedrock groundwater extraction and treatment system at the Site is to contain groundwater with chemical concentrations exceeding New York State Class GA Groundwater criteria on-Site and to limit off-Site groundwater flow to the maximum extent practicable. The bedrock groundwater extraction system would also achieve removal of chemicals within the source areas.

The objective of the constant rate pumping tests at wells MW-6A and MW-16A was to provide data for the assessment of extraction well design, spacing, and pumping rates, and to examine bedrock groundwater chemistry changes over time. Based upon the results of the constant rate pumping tests and earlier hydraulic testing at the Site, the following conclusions are reached.

4.1 OVERBURDEN AND BEDROCK HYDRAULIC CONNECTION

Based on the results of the pumping studies conducted at wells MW-16A and MW-6A, there is a good hydraulic connection between the overburden and shallow bedrock. Groundwater drawdown in the overburden was measured to be up to 0.82 feet in the northeastern and southeastern areas of the Site after 47 hours of pumping at well MW-16A. Similarly, after 47 hours of pumping at well MW-6A, the drawdown was observed to be up to 2.18 feet, primarily in the southeastern area of the Site.

The hydraulic connection between the shallow and deep bedrock was investigated and drawdown was observed at recently installed deep bedrock wells MW-9B and MW-15B during pumping at shallow bedrock wells MW-16A and MW-6A. Wells MW-9B and MW-15B are each installed to a depth of 56.1 feet BGS.

The drawdown at well MW-15B was 0.73 feet and 0.23 feet following 47 hours of pumping wells MW-16A and MW-6A, respectively. Well MW-15B is approximately 150 feet from well MW-16A and 420 feet from well

MW-6A. A relatively good connection exists between the shallow and deep bedrock at well MW-15B which is further supported by the analytical results for the groundwater sample collected from MW-15B in January 1996. The compounds detected and sample concentrations are similar to those reported for groundwater samples collected in 1994 from the shallow bedrock well MW-15A.

The drawdown at well MW-9B was 0.42 feet after 47 hours of pumping at well MW-16A. The water level in well MW-9B increased by 0.69 feet during the pumping test for well MW-6A. The increase in the water level at well MW-9B may be attributable to the recharge of the bedrock as the result of precipitation prior to and during the MW-6A test. Well MW-9B is approximately 705 feet from well MW-16A and 220 feet from well MW-6A. However, the drawdown at shallow bedrock wells in close proximity to well MW-9B ranged from -0.30 to 0.36 feet during the MW-6A test indicating a relatively poor connection between the shallow and deep bedrock in the vicinity of MW-9B. This is further supported by the analytical results for the groundwater samples collected from well MW-9B in January 1996 which indicate that the deeper bedrock groundwater at well MW-9B has not been impacted by the chemistry present in the shallow bedrock groundwater in the southeast area of the Site.

4.2 BEDROCK AQUIFER CHARACTERISTICS

The parameters calculated from the bedrock aquifer based on the constant rate tests include hydraulic conductivity, storativity, and transmissivity.

The hydraulic conductivity was estimated to range from 2.86×10^{-3} to 9.67×10^{-3} cm/sec which is within the range of 9.3×10^{-5} to 1.8×10^{-2} cm/sec estimated for the bedrock aquifer during the RI.

Transmissivity estimates range from 0.149 ft^2/minute (215 ft^2/day) to 0.398 ft^2/min (573 ft^2/day).

Storativity estimates range from 3.1×10^{-4} to 1.03×10^{-3}.

Transmissivity and storativity will be used in the final design of the groundwater extraction system to determine the design, placement, efficiency, and interaction of the extraction wells.

4.3 ZONE OF CAPTURE

The results of the pumping tests indicate an extensive area of influence for each of the test wells. An inward gradient developed as a result of pumping at the MW-6A and MW-16A wells, including the areas of primary groundwater contamination in the northeast and southeast areas of the Site.

The results of the drawdown curve for well MW-16A which indicates a theoretical cone of influence of about 1,200 feet correlates well with the observed zone of capture for the Site, with drawdown observed in all bedrock wells monitored during the test.

The distance-drawdown curve for the MW-6A test indicates a theoretical cone of influence extending 130 feet from the well. The observed area of influence actually extended several times this distance in a north, south, and west direction.

For comparative purposes, the downgradient stagnation point was calculated to be 182 feet with a capture width of 571 feet perpendicular to the direction of groundwater flow.

Based upon these data, well MW-16A is considered to be properly located to achieve containment and removal of contaminated groundwater in the northeast area of the Site.

Although well MW-6A may achieve the desired result in the southeast area of the Site, a new, larger diameter extraction well installed south and east of well MW-6A, closer to the southern boundary of the southeastern fill area (Area C) should be considered. The 3-inch diameter of well MW-6A limits pump selection and use of downhole instrumentation during pumping and

placement of the extraction well closer to the downgradient side of Area C will prevent the off-Site migration of bedrock groundwater with concentrations of chemicals exceeding the applicable New York State Class GA groundwater criteria to the maximum extent practicable.

4.4 PUMPING RATES AND PUMP OPERATION

Well MW-16A was pumped at an average rate of 6.3 GPM which created a drawdown of 11.0 feet in the pumping well. It is expected that the pumping rate would decrease as the potentiometric surface drops in the vicinity of the well. MW-6A was pumped at an average rate of 5.9 GPM, which created a drawdown of 14.0 feet at MW-6A. Additionally, water levels in the pumping wells fluctuated widely during pumping, indicating higher pumping rates may not be possible without over-pumping the well. Also, as pumping continued, the potentiometric surface and the pumping rate would decrease slightly. It is expected that the pumping rates for each well should fall within the range from 4.5 to 6.5 GPM, or 9 to 13 GPM total, with a best estimate of 11 GPM. Well MW-16A may have a higher groundwater pumping rate if the 5.5 feet of settled material is removed from this well.

Because of the rapid dewatering of the bedrock in the vicinity of the pumping well, residual contamination remaining in the dewatered part of the bedrock may still exist. To remove this residual contamination, periodic planned shutdowns of the pumping wells would result in recovery of the water table in the vicinity of the pumping well. Upon restarting the pumping wells, the water draining out of the bedrock would assist with flushing the residual contamination from the previously dewatered bedrock. Details of the extraction system operation will be presented in the final design for the Site remedy.

4.5 EXTRACTED GROUNDWATER CHEMISTRY

Based on the results of the pumping studies for wells MW-6A and MW-16A, the extracted groundwater quality would prohibit direct

discharge to the sewer. Analytical results of the untreated groundwater indicated concentrations of several VOCs at levels significantly above BSA limits. Although the concentrations of these compounds decreased with time, it is expected that they will remain above BSA limits during full-scale implementation of the groundwater extraction system for a considerable period of time.

Samples of the effluent following treatment with air stripping and GAC indicate that the constituents present in the extracted bedrock groundwater can be effectively treated to levels that would allow the treated groundwater to be discharged to the sewer. The additional general chemistry parameters that were analyzed for the 48-hour samples will be used for the design of the treatment system.

REFERENCES

1. Cooper, H.H., Jr. and Jacob, C.E. "A Generalized Graphical Method for Evaluating Formation Constants and Summarizing Wet-Field History", Transactions of the American Geophysical Union, Vol. 27, No. IV, pp. 526-534, August 1946.

2. Todd, D.K., "Well in a Uniform Flow", Groundwater Hydrology, Second Edition, John Wiley and Sons, pp. 121-123, 1980.

3. AQTESOLV, Aquifer Test Design and Analysis Computer Software, Geraghty and Miller Inc. Version 1.0, 1989.

FIGURES

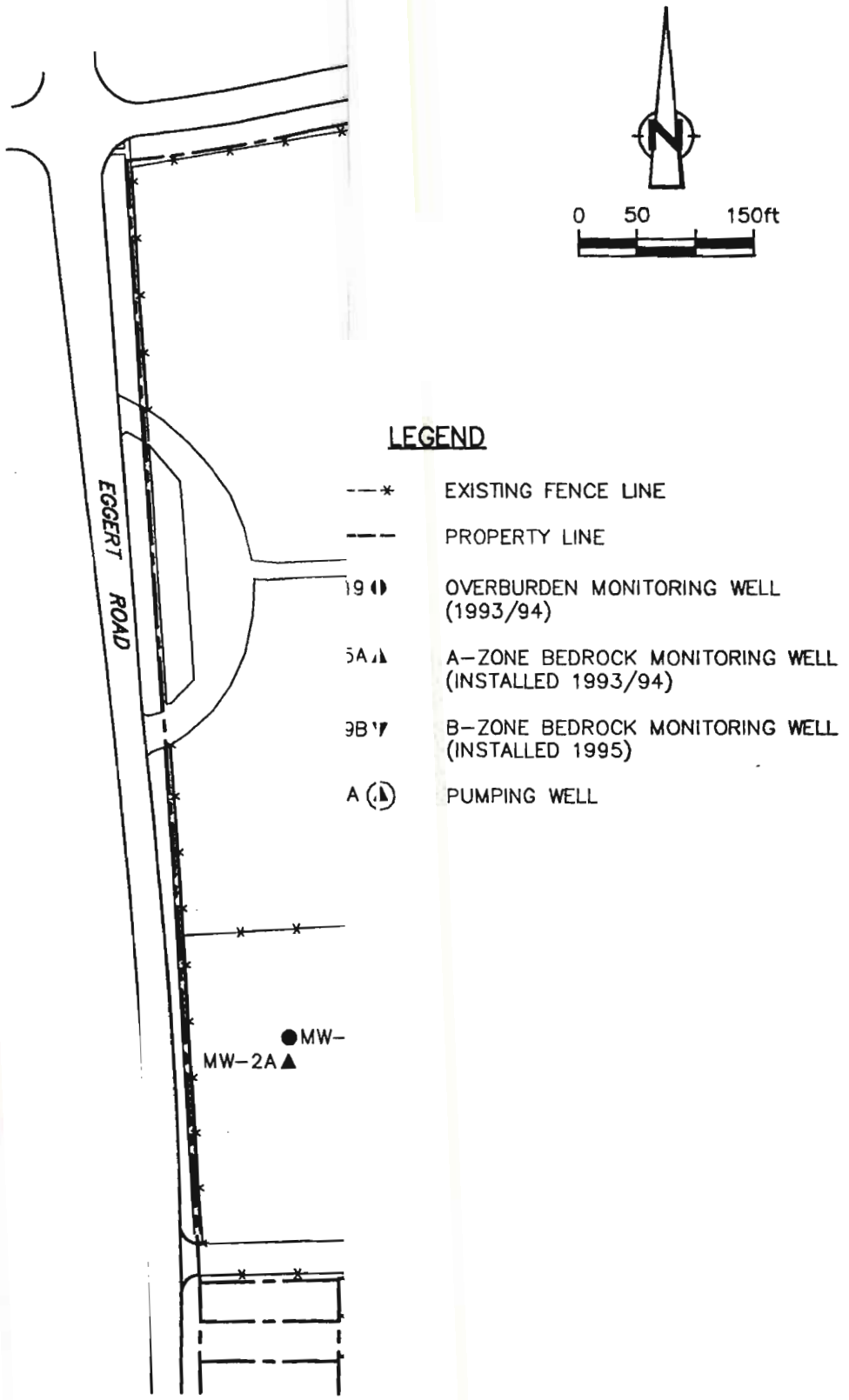

figure 1.1

MONITORING WELL LOCATIONS
LEICA INC.
Cheektowaga, New York

CRA

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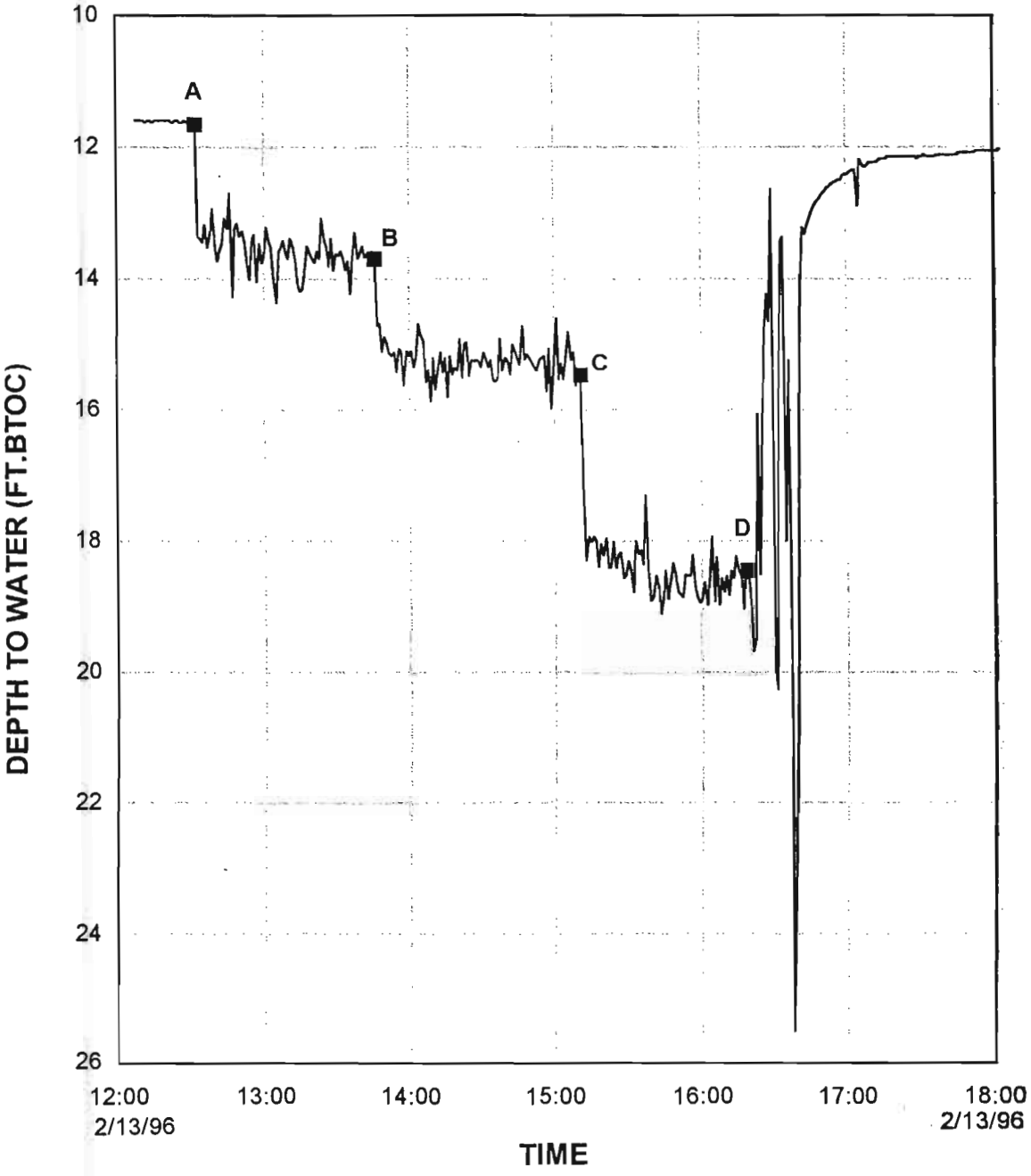


NOTES:

A - 1.0 GPM

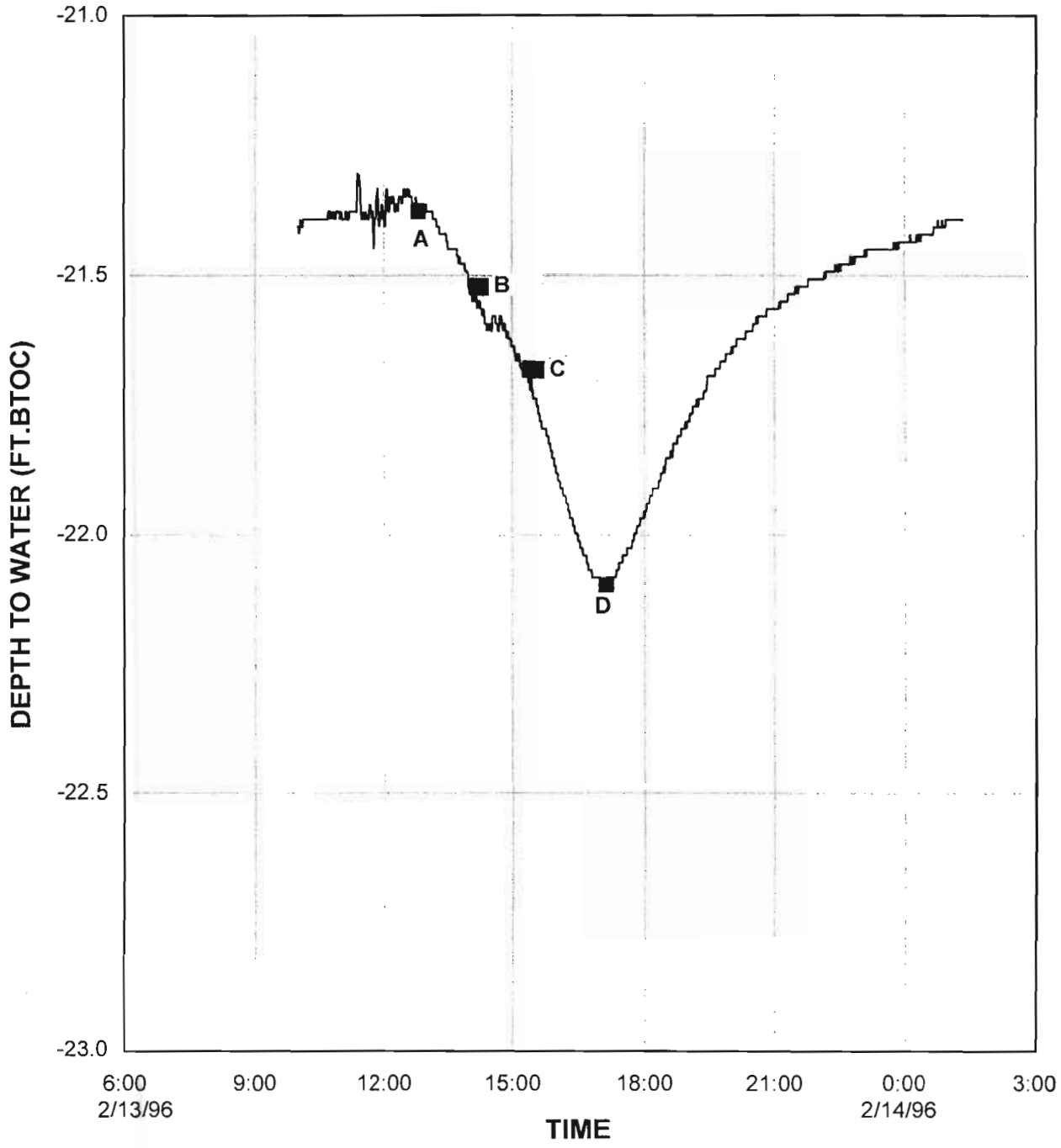
B - 2.0 GPM

C - 4.0 GPM

D - ATTEMPTED 6.5 GPM (PUMP FAILURE).

CRA

figure 2.1
WELL MW-6A STEP TEST
LEICA INC.
Cheektowaga, New York



NOTES:

A 1.0 GPM

B 2.0 GPM

C 4.0 GPM

D ATTEMPTED 6:56 PM - TEST STOP

figure 2.2
RESPONSE AT WELL MW-6 TO WELL MW-6A STEP TEST.
LEICA INC.
Cheektowaga, New York

CRA

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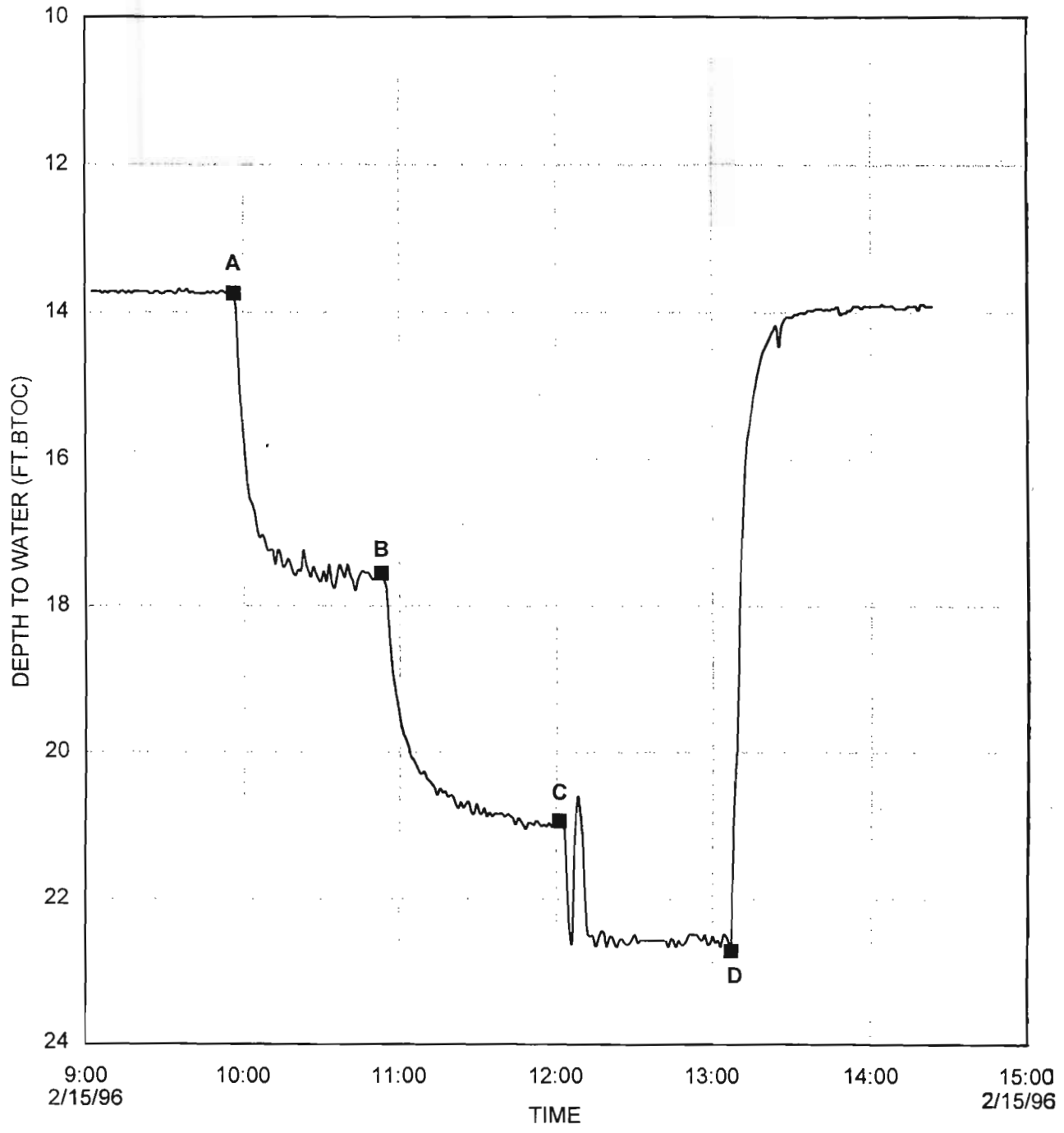


NOTES:

A - START TEST - 3 GPM

B - 5 GPM

C - 6.5 GPM

D - STOP TEST

CRA

figure 2.3
WELL MW-16A HYDROGRAPH RESPONSE DURING STEP TEST
LEICA INC.
Cheektowaga, New York

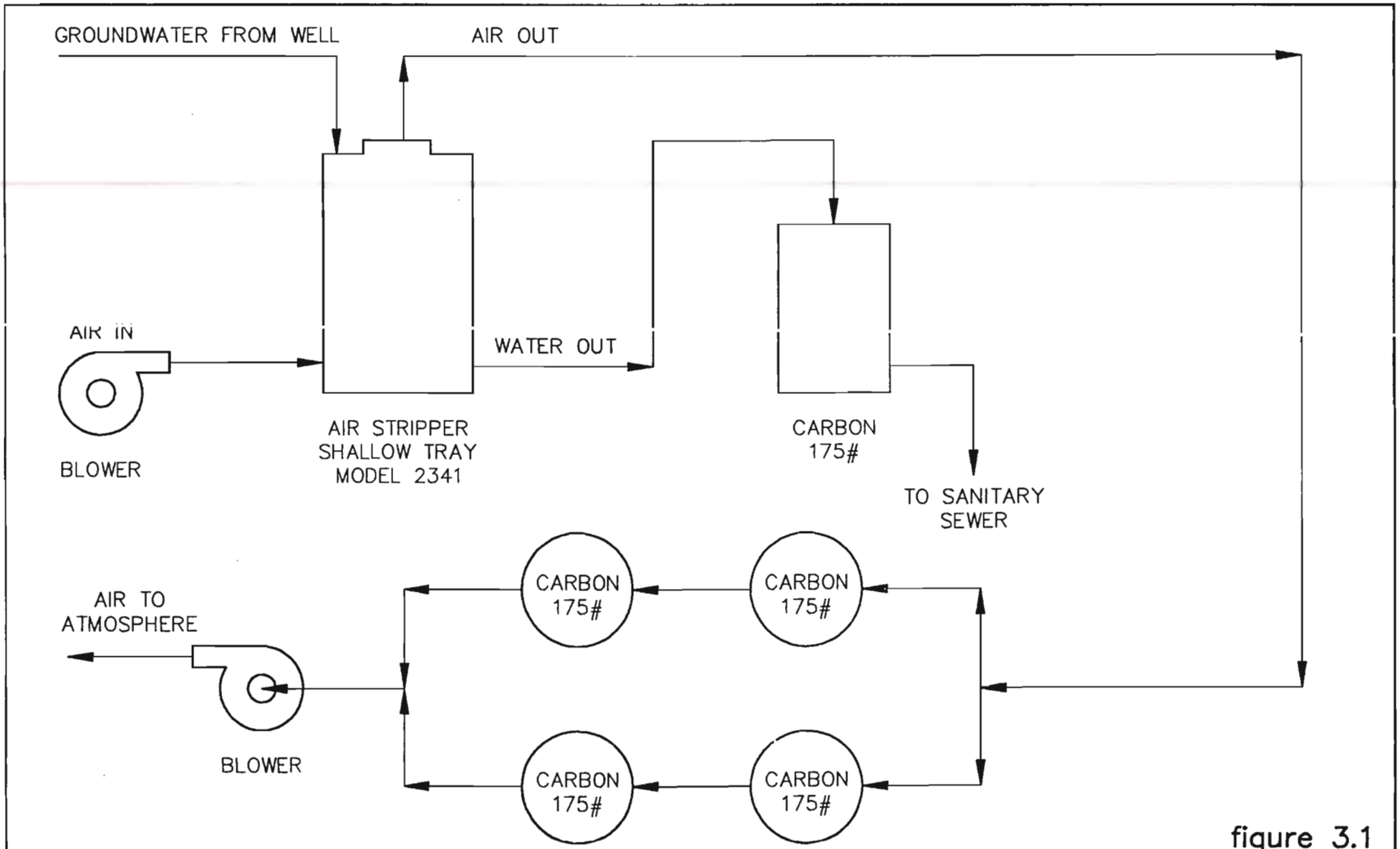
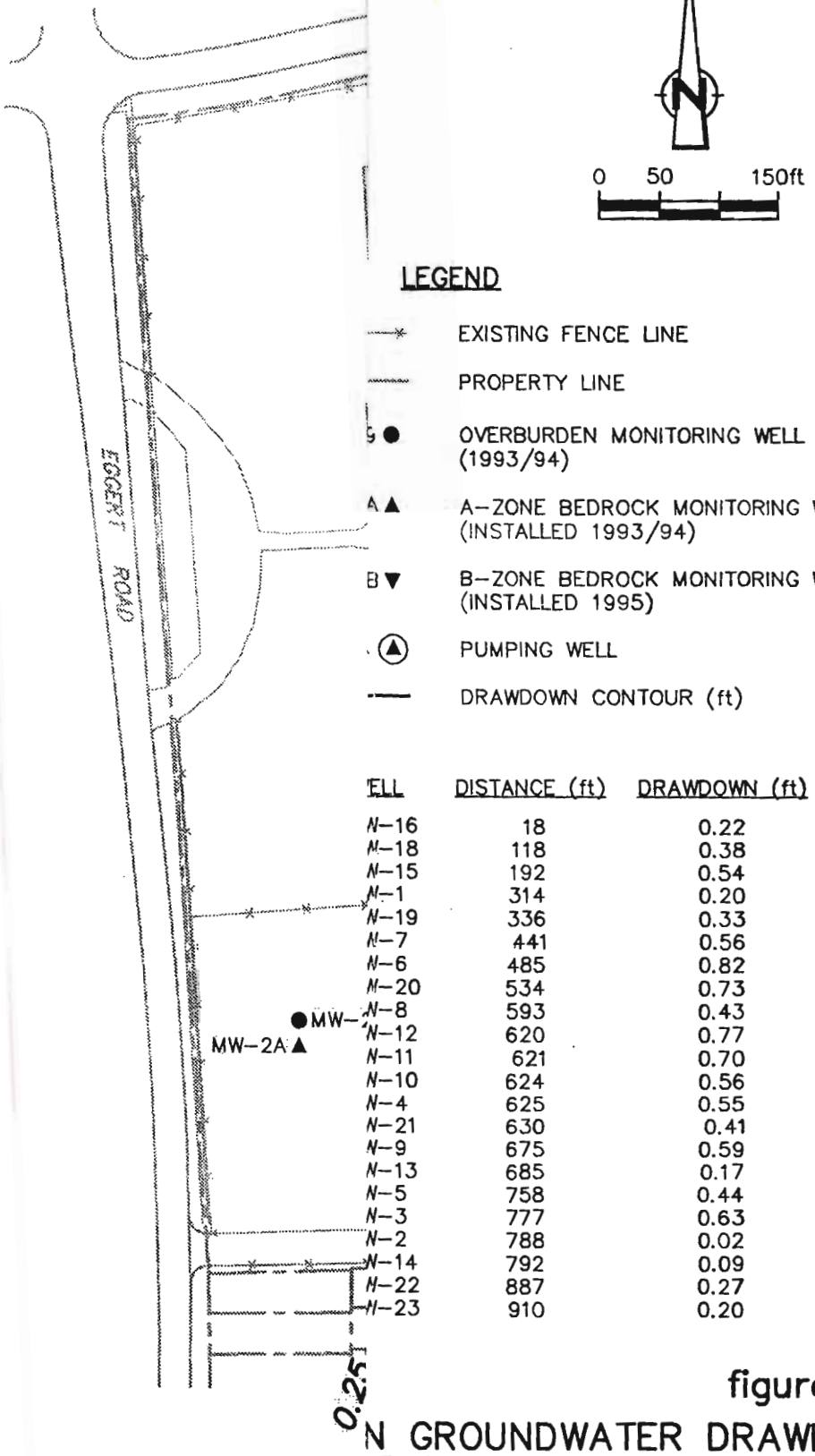


figure 3.1

GROUNDWATER TREATMENT SYSTEM SCHEMATIC
CONSTANT RATE PUMPING TEST
LEICA INC.
Cheektowaga, New York

CRA

3967 (11) FEB 27/97(NF) REV.0 (PS02)

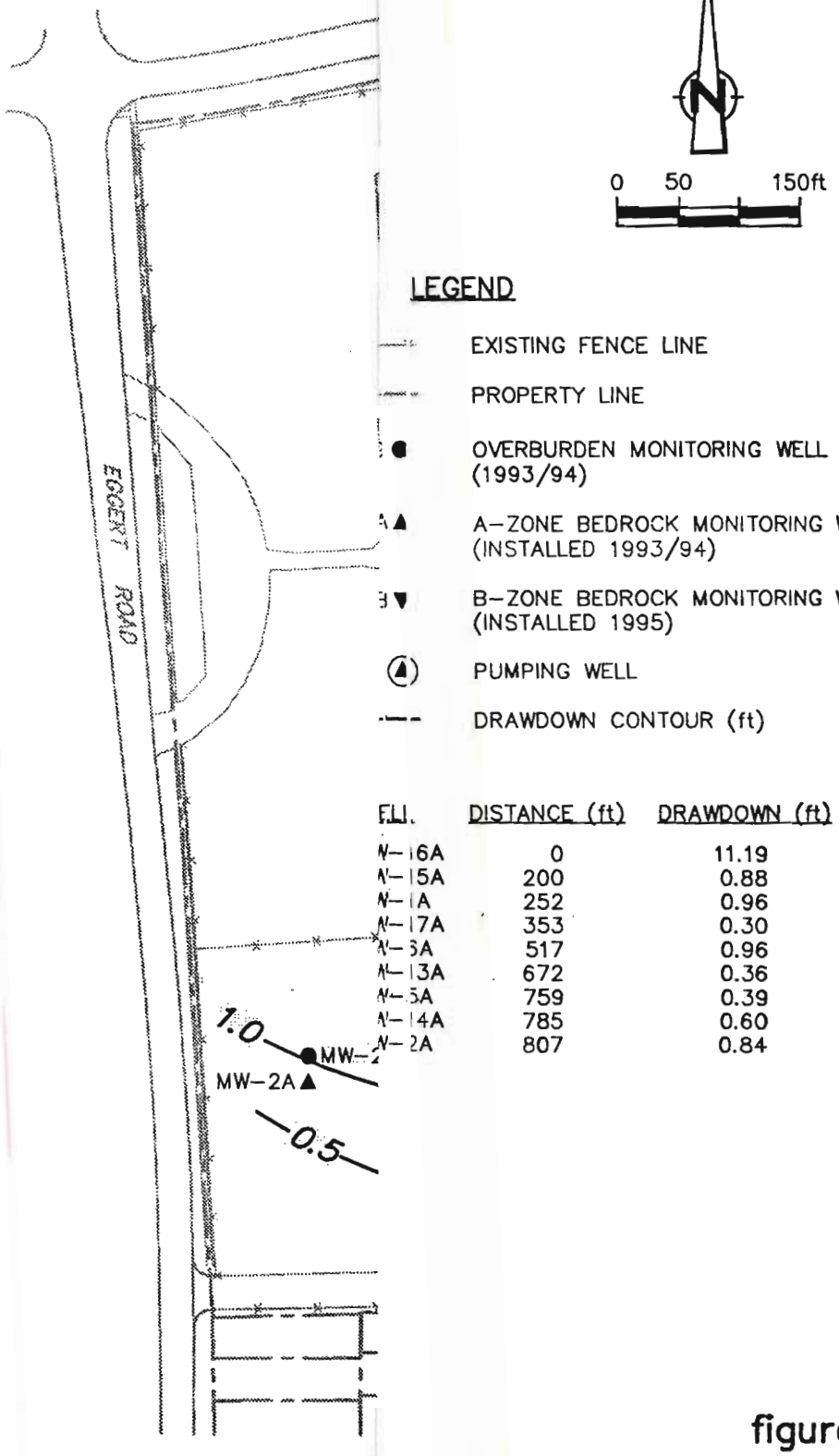


ELL	DISTANCE (ft)	DRAWDOWN (ft)
N-16	18	0.22
N-18	118	0.38
N-15	192	0.54
N-1	314	0.20
N-19	336	0.33
N-7	441	0.56
N-6	485	0.82
N-20	534	0.73
N-8	593	0.43
N-12	620	0.77
N-11	621	0.70
N-10	624	0.56
N-4	625	0.55
N-21	630	0.41
N-9	675	0.59
N-13	685	0.17
N-5	758	0.44
N-3	777	0.63
N-2	788	0.02
N-14	792	0.09
N-22	887	0.27
N-23	910	0.20

figure 3.2

N GROUNDWATER DRAWDOWN
TER 47 HOURS OF PUMPING
MW-16A TEST
LEICA INC.
Cheektowaga, New York

CRA



LEGEND

- EXISTING FENCE LINE
- PROPERTY LINE
- OVERBURDEN MONITORING WELL (1993/94)
- A-ZONE BEDROCK MONITORING WELL (INSTALLED 1993/94)
- B-ZONE BEDROCK MONITORING WELL (INSTALLED 1995)
- PUMPING WELL
- DRAWDOWN CONTOUR (ft)

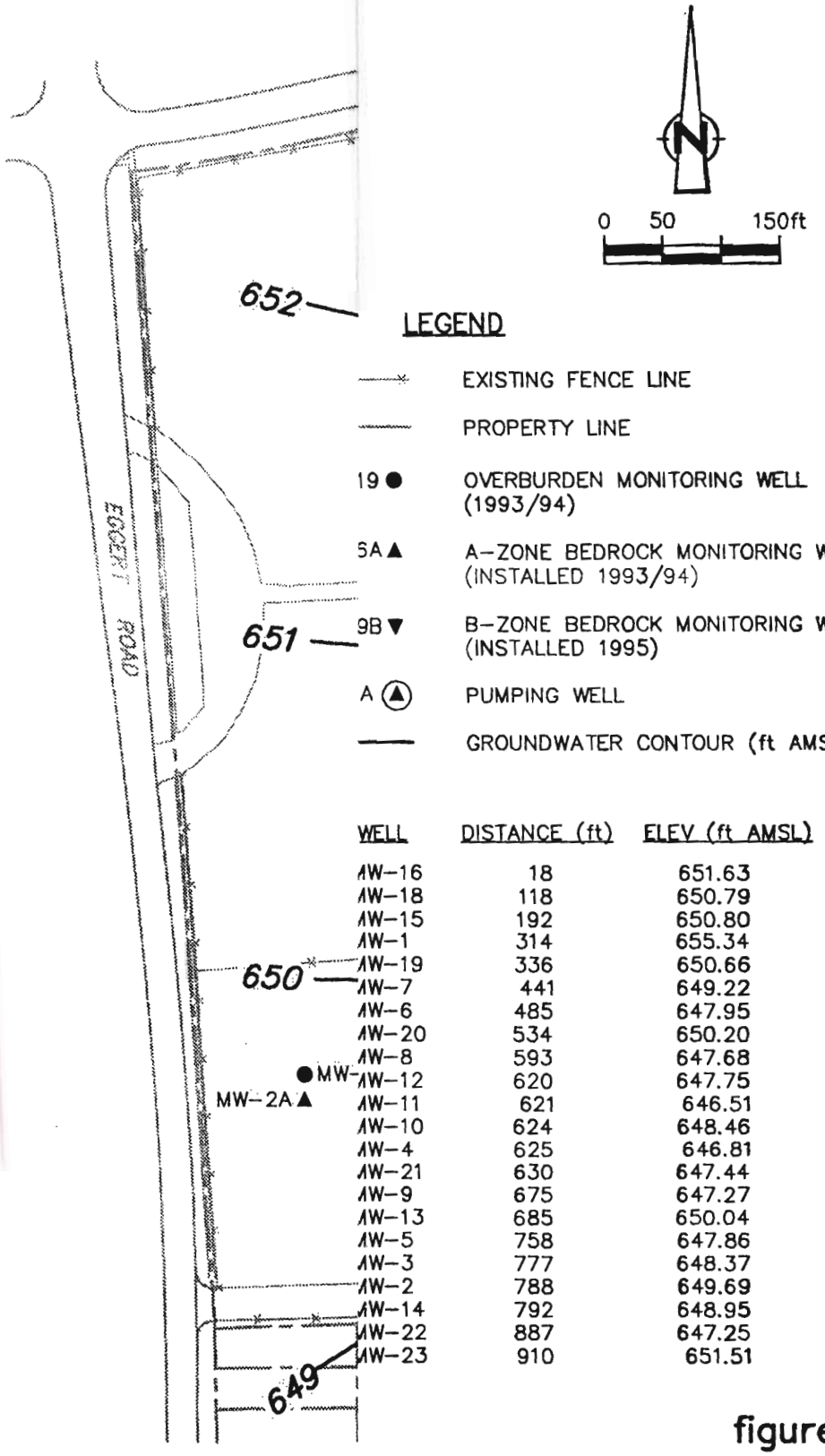
WELL	DISTANCE (ft)	DRAWDOWN (ft)
MW-16A	0	11.19
MW-15A	200	0.88
MW-1A	252	0.96
MW-17A	353	0.30
MW-3A	517	0.96
MW-13A	672	0.36
MW-5A	759	0.39
MW-14A	785	0.60
MW-2A	807	0.84

figure 3.3

K GROUNDWATER DRAWDOWN
TER 47 HOURS OF PUMPING
MW-16A TEST
LEICA INC.
Cheektowaga, New York

CRA

3967 (11) APR 16/97(NF) REV.0 (P-73)



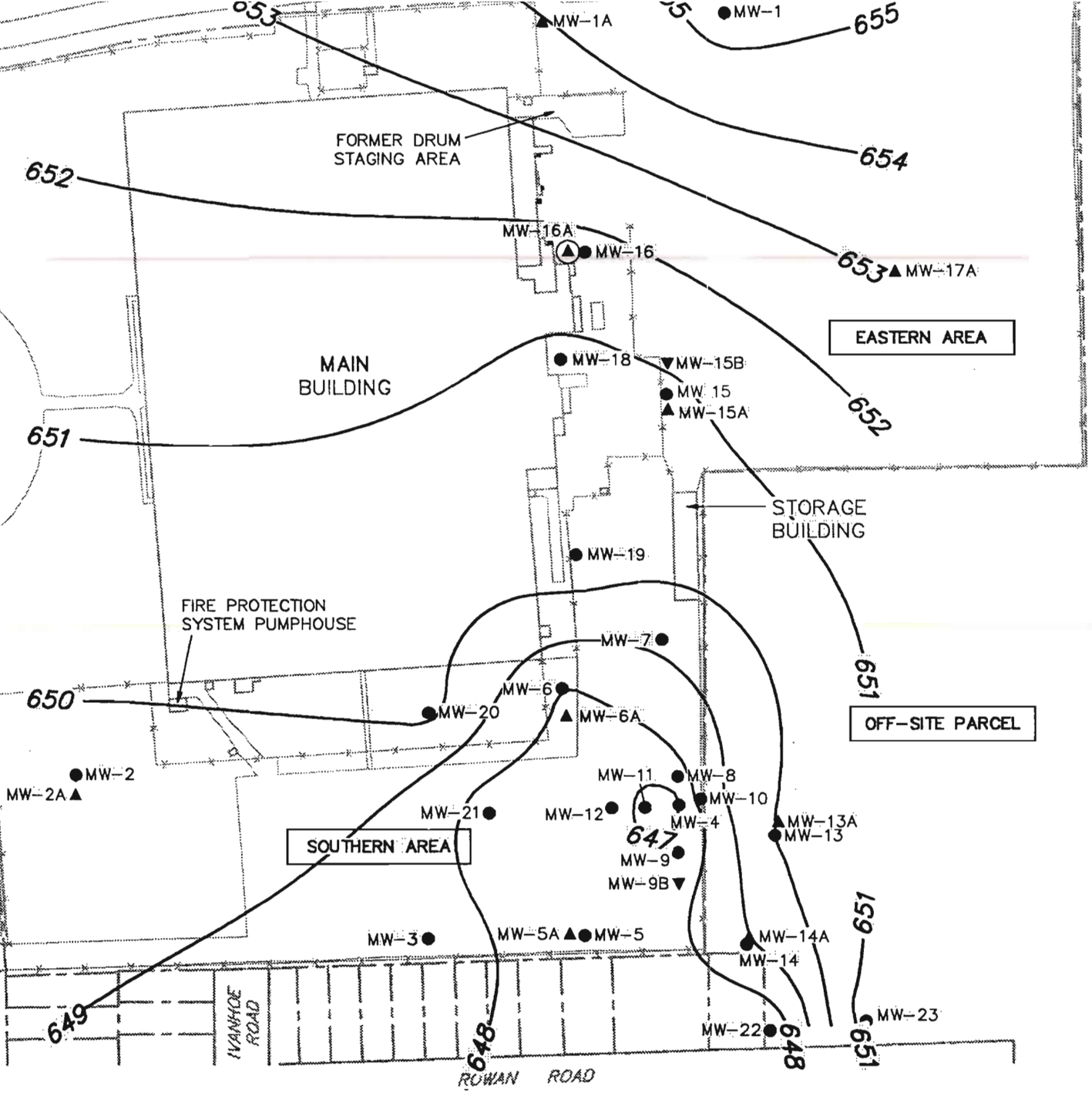
WELL	DISTANCE (ft)	ELEV (ft AMSL)
MW-16	18	651.63
MW-18	118	650.79
MW-15	192	650.80
MW-1	314	655.34
MW-19	336	650.66
MW-7	441	649.22
MW-6	485	647.95
MW-20	534	650.20
MW-8	593	647.68
MW-12	620	647.75
MW-11	621	646.51
MW-10	624	648.46
MW-4	625	646.81
MW-21	630	647.44
MW-9	675	647.27
MW-13	685	650.04
MW-5	758	647.86
MW-3	777	648.37
MW-2	788	649.69
MW-14	792	648.95
MW-22	887	647.25
MW-23	910	651.51

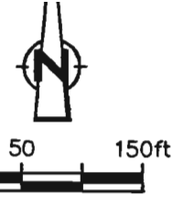
figure 3.4

JRDEN GROUNDWATER LEVELS
STATIC CONDITIONS
MW-16A TEST
LEICA INC.
Cheektowaga, New York

CRA

3967 (11) APR 16/97(NF) REV.0 (P-74)





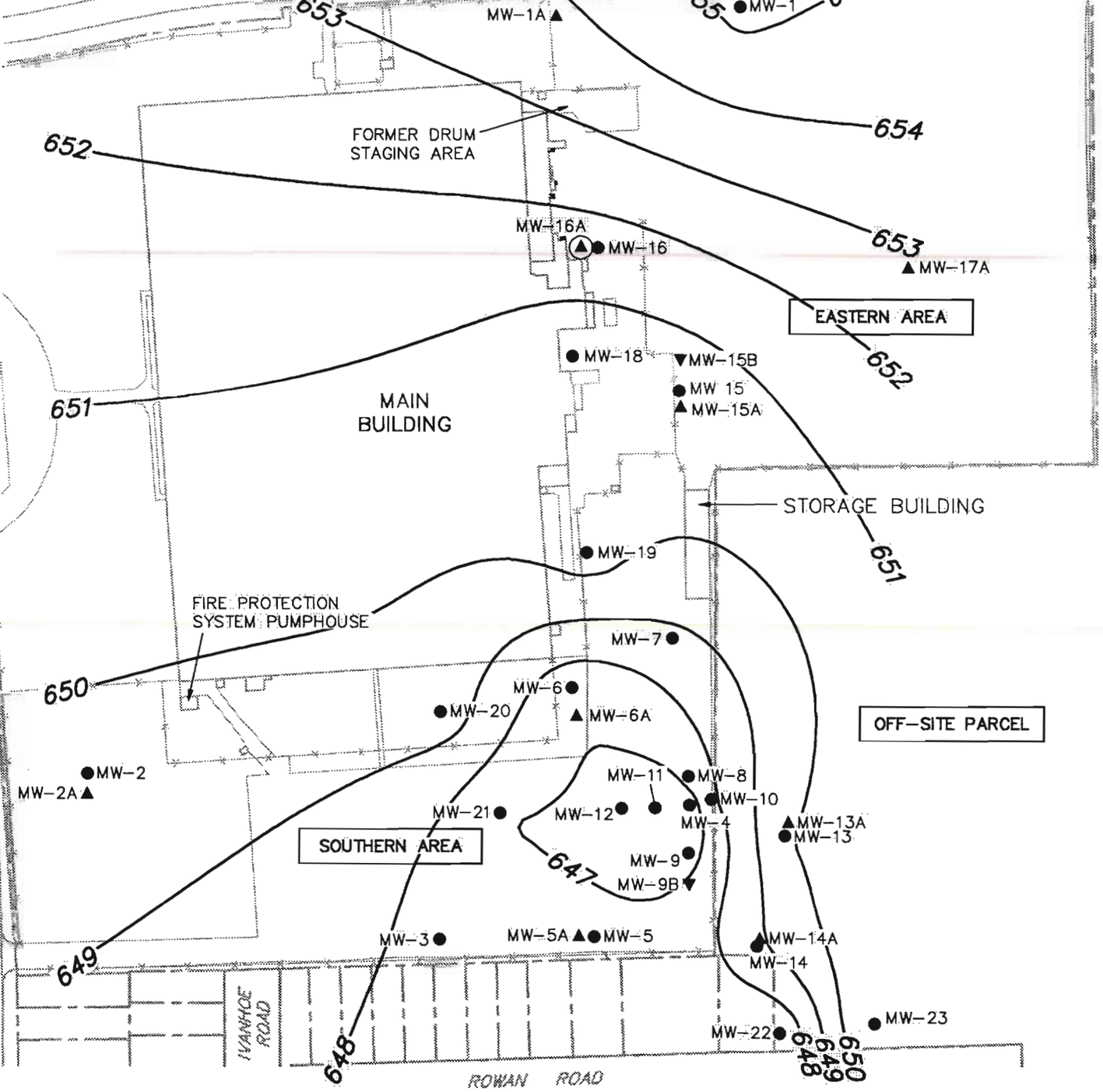
LEGEND

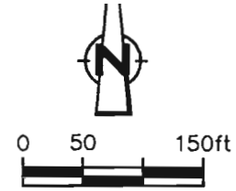
	EXISTING FENCE LINE
	PROPERTY LINE
MW-19 ●	OVERBURDEN MONITORING WELL (1993/94)
MW-6A ▲	A-ZONE BEDROCK MONITORING WELL (INSTALLED 1993/94)
MW-9B ▼	B-ZONE BEDROCK MONITORING WELL (INSTALLED 1995)
MW-16A Ⓐ	PUMPING WELL
	GROUNDWATER CONTOUR (ft AMSL)

WELL	DISTANCE (ft)	ELEV (ft AMSL)
MW-16	18	651.63
MW-18	118	650.79
MW-15	192	650.80
MW-1	314	655.34
MW-19	336	650.66
MW-7	441	649.22
MW-6	485	647.95
MW-20	534	650.20
MW-8	593	647.68
MW-12	620	647.75
MW-11	621	646.51
MW-10	624	648.46
MW-4	625	646.81
MW-21	630	647.44
MW-9	675	647.27
MW-13	685	650.04
MW-5	758	647.86
MW-3	777	648.37
MW-2	788	649.69
MW-14	792	648.95
MW-22	887	647.25
MW-23	910	651.51

figure 3.4

OVERBURDEN GROUNDWATER LEVELS
STATIC CONDITIONS
MW-16A TEST





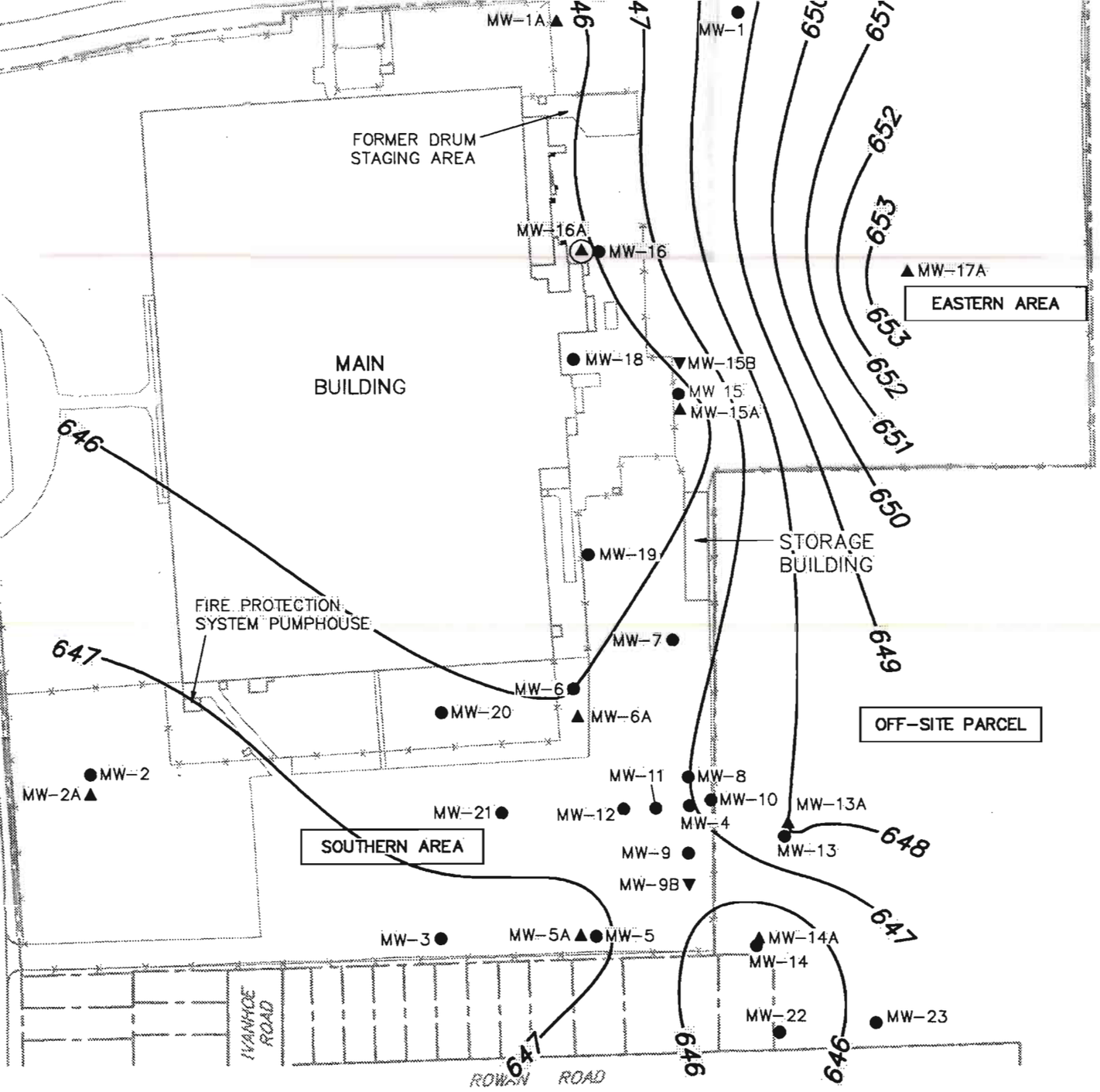
LEGEND

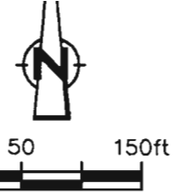
- EXISTING FENCE LINE
- PROPERTY LINE
- MW–19 ● OVERBURDEN MONITORING WELL (1993/94)
- MW–6A ▲ A–ZONE BEDROCK MONITORING WELL (INSTALLED 1993/94)
- MW–9B ▼ B–ZONE BEDROCK MONITORING WELL (INSTALLED 1995)
- MW–16A (▲) PUMPING WELL
- GROUNDWATER CONTOUR (ft AMSL)

WELL	DISTANCE (ft)	ELEV (ft AMSL)
MW–16	18	651.41
MW–18	118	650.41
MW–15	192	650.26
MW–1	314	655.14
MW–19	336	650.33
MW–7	441	648.66
MW–6	485	647.13
MW–20	534	649.47
MW–8	593	647.25
MW–12	620	646.98
MW–11	621	645.81
MW–10	624	647.90
MW–4	625	646.26
MW–21	630	647.03
MW–9	675	646.68
MW–13	685	649.87
MW–5	758	647.42
MW–3	777	647.74
MW–2	788	649.67
MW–14	792	648.86
MW–22	887	646.98
MW–23	910	651.31

figure 3.5

OVERBURDEN GROUNDWATER LEVELS
AFTER 47 HOURS OF PUMPING
MW–16A TEST





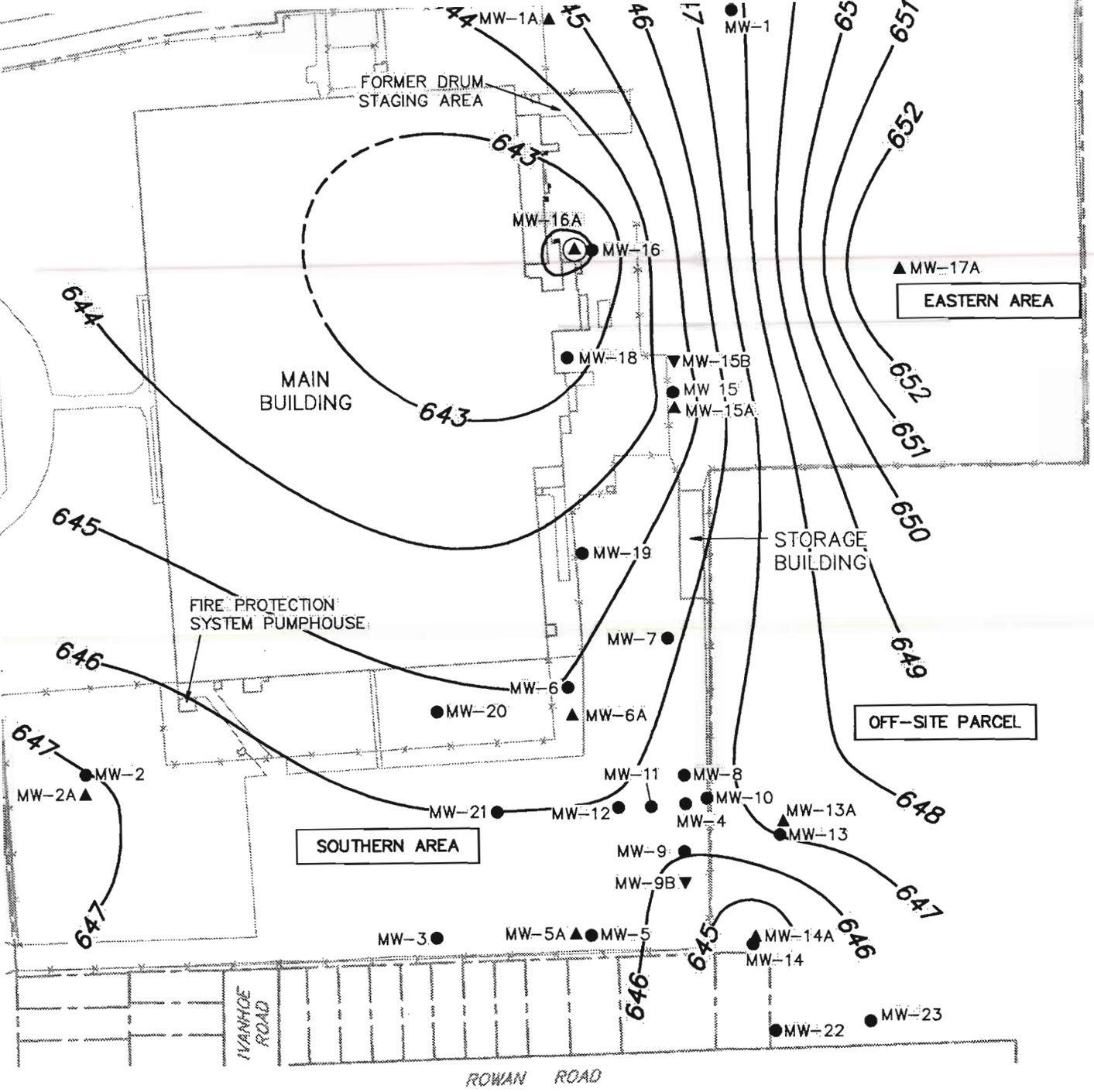
LEGEND

- EXISTING FENCE LINE
- PROPERTY LINE
- MW-19 — OVERBURDEN MONITORING WELL (1993/94)
- MW-6A — A-ZONE BEDROCK MONITORING WELL (INSTALLED 1993/94)
- MW-9B — B-ZONE BEDROCK MONITORING WELL (INSTALLED 1995)
- MW-16A — PUMPING WELL
- GROUNDWATER CONTOUR (ft AMSL)

WELL	DISTANCE (ft)	ELEV (ft AMSL)
MW-16A	0	645.83
MW-15A	200	645.18
MW-1A	252	645.56
MW-17A	353	654.53
MW-3A	517	646.09
MW-13A	672	648.02
MW-5A	759	647.34
MW-14A	785	644.82
MW-2A	807	647.90

figure 3.6

BEDROCK GROUNDWATER LEVELS
STATIC CONDITIONS
MW-16A TEST



LEGEND

- EXISTING FENCE LINE
- PROPERTY LINE
- MW-19 ● OVERBURDEN MONITORING WELL (1993/94)
- MW-6A ▲ A-ZONE BEDROCK MONITORING WELL (INSTALLED 1993/94)
- MW-9B ▼ B-ZONE BEDROCK MONITORING WELL (INSTALLED 1995)
- MW-16A (▲) PUMPING WELL
- GROUNDWATER CONTOUR (ft AMSL)

WELL	DISTANCE (ft)	ELEV (ft AMSL)
MW-16A	0	634.64
MW-15B	157	644.08
MW-15A	200	644.30
MW-1A	252	644.60
MW-17A	353	654.23
MW-6A	517	645.13
MW-13A	672	647.66
MW-9B	713	645.58
MW-5A	759	646.95
MW-14A	785	644.22
MW-2A	807	647.06

figure 3.7

BEDROCK GROUNDWATER LEVELS AFTER 47 HOURS OF PUMPING

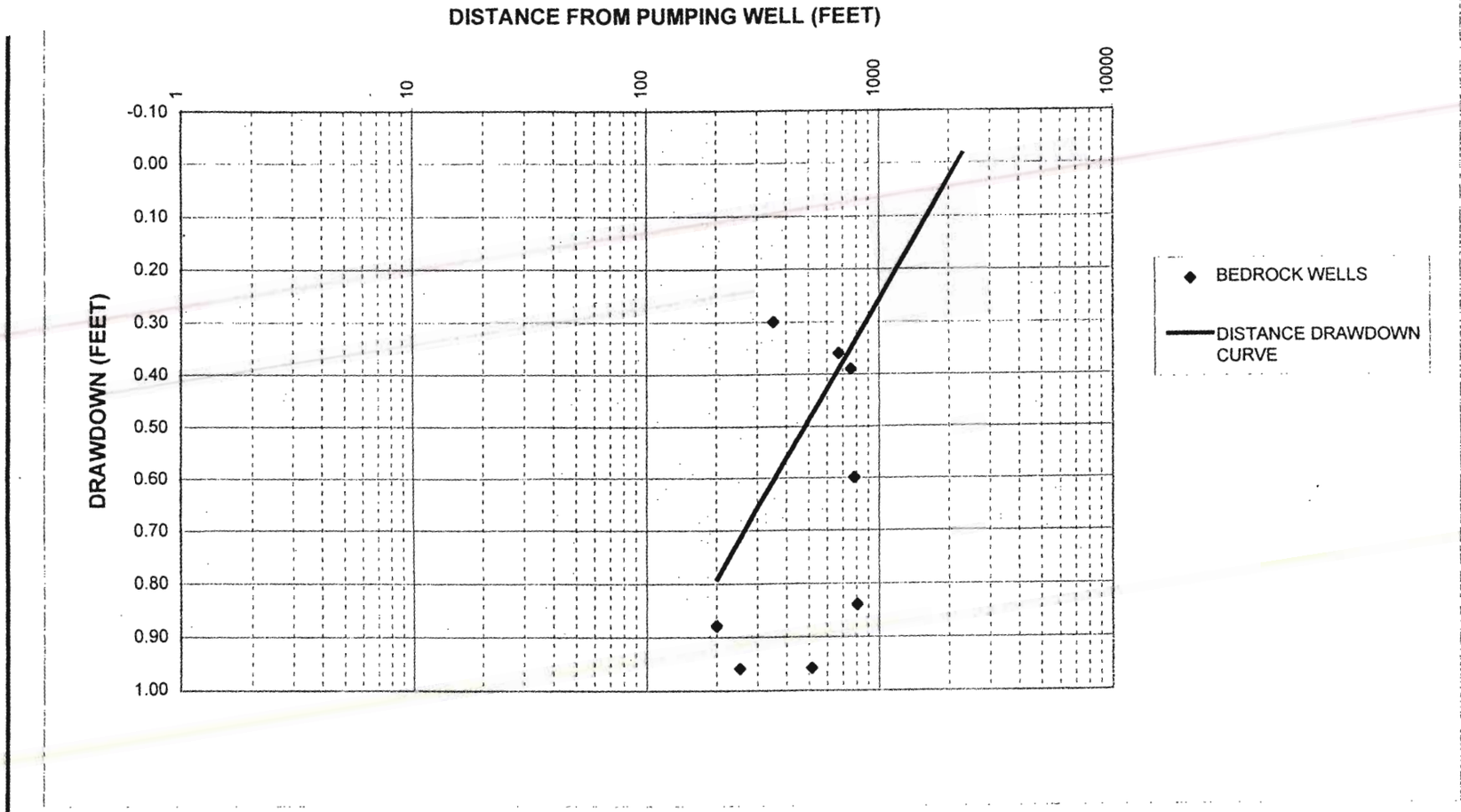


figure 3.8
DISTANCE-DRAWDOWN GRAPH
BEDROCK WELLS - MW-16A TEST
LEICA INC.
Cheektowaga, New York

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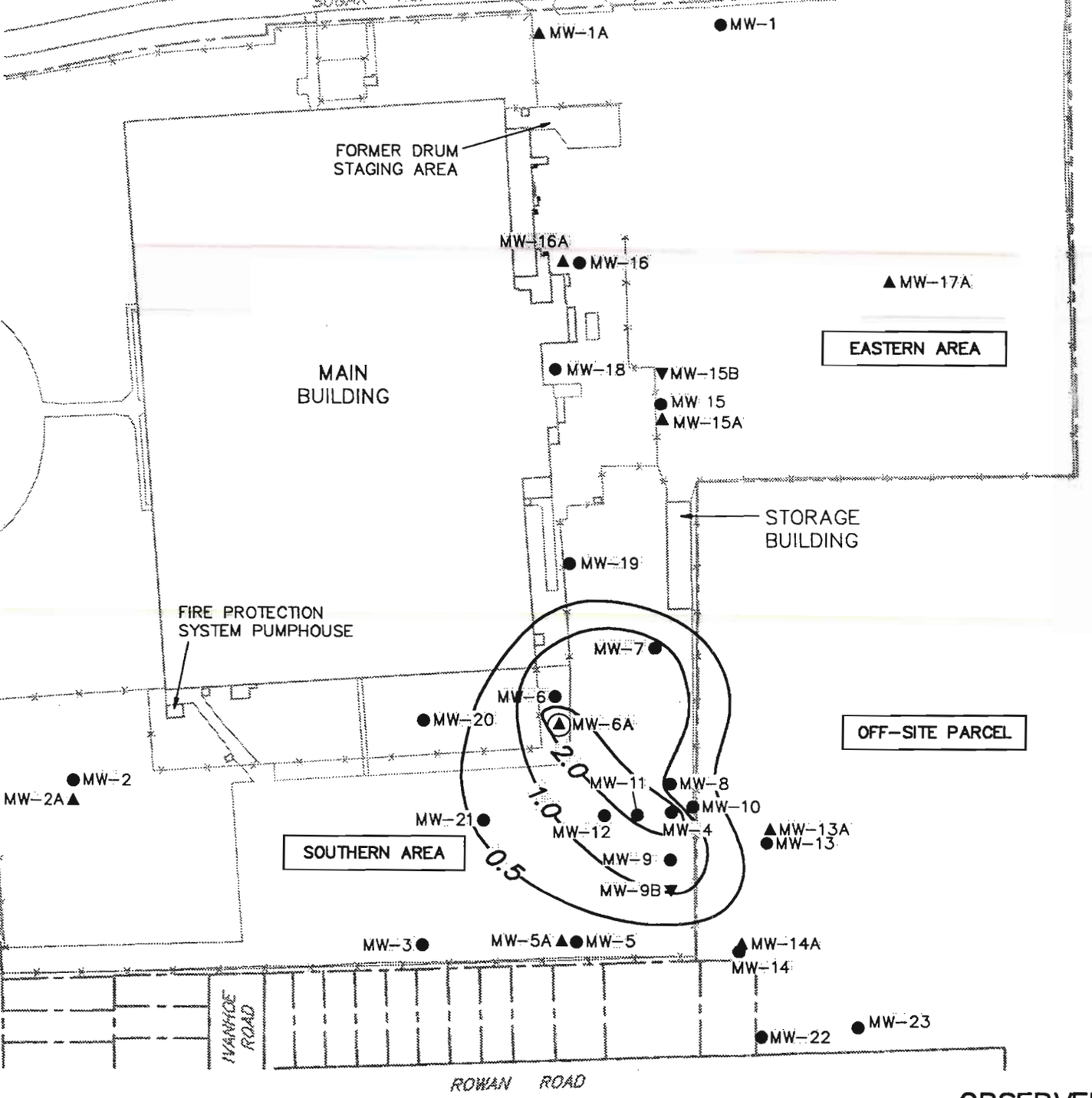


0 50 150ft

LEGEND

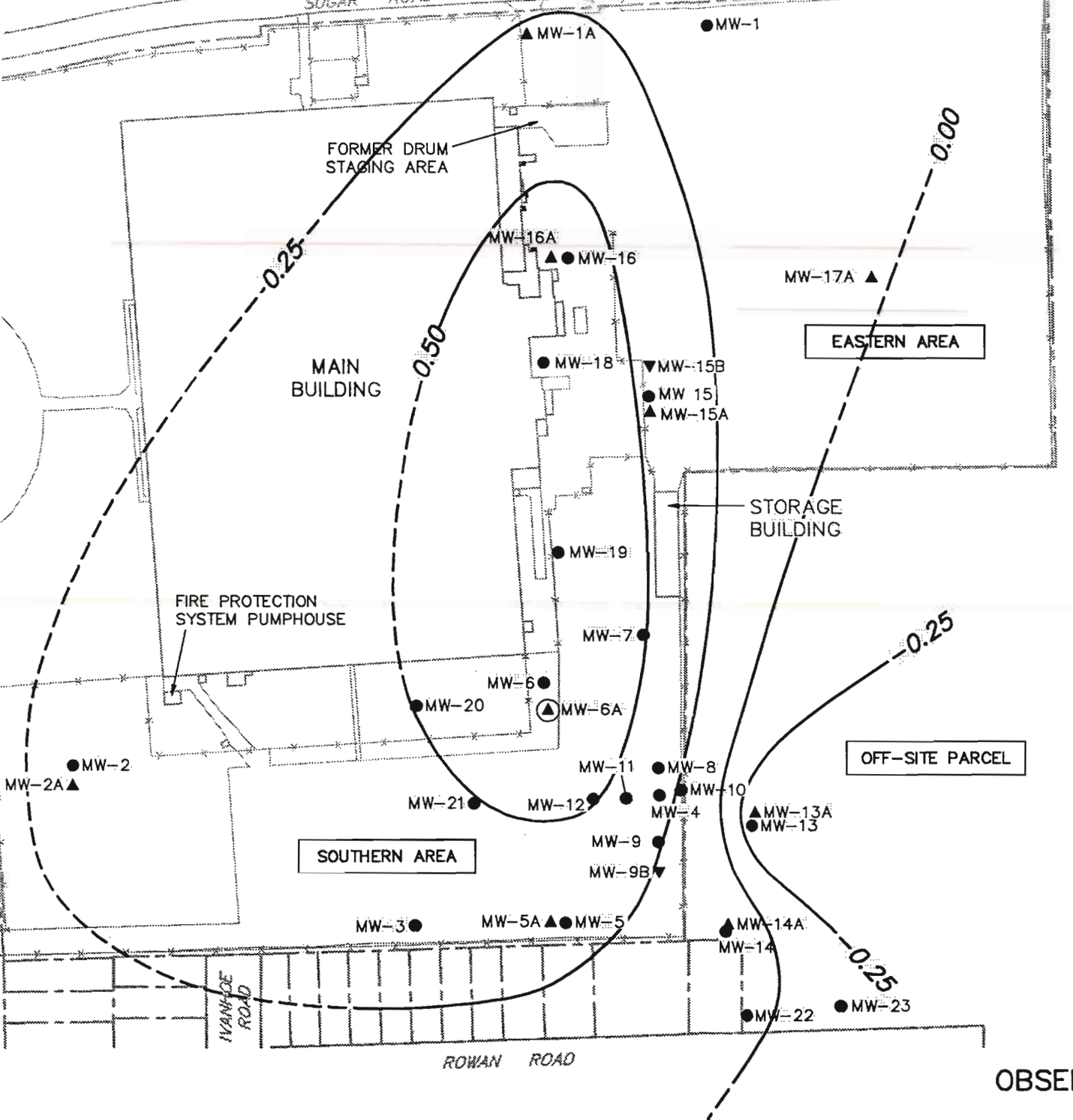
- EXISTING FENCE LINE
- PROPERTY LINE
- MW-19 ● OVERBURDEN MONITORING WELL (1993/94)
- MW-16A ▲ A-ZONE BEDROCK MONITORING WELL (INSTALLED 1993/94)
- MW-9B ▼ B-ZONE BEDROCK MONITORING WELL (INSTALLED 1995)
- MW-16A (▲) PUMPING WELL
- DRAWDOWN CONTOUR (ft)

WELL	DISTANCE (ft)	DRAWDOWN (ft)
MW-6	32	2.07
MW-12	113	1.31
MW-11	131	2.18
MW-21	133	0.54
MW-7	135	1.07
MW-8	137	0.92
MW-20	147	0.10
MW-4	156	2.10
MW-10	172	0.87
MW-19	181	0.24
MW-9	192	1.21
MW-5	242	0.25
MW-13	255	−0.13
MW-3	285	−0.15
MW-14	315	−0.90
MW-15	375	−0.39
MW-18	394	−0.14
MW-22	409	−0.55
MW-23	465	−0.12
MW-16	518	−0.11
MW-2	532	−0.30
MW-1	802	0.04

NOTE:
NEGATIVE DRAWDOWN INDICATES A RISE IN WATER LEVEL ELEVATION.

figure 3.9

OBSERVED OVERBURDEN GROUNDWATER DRAWDOWN AFTER 47 HOURS OF PUMPING



LEGEND

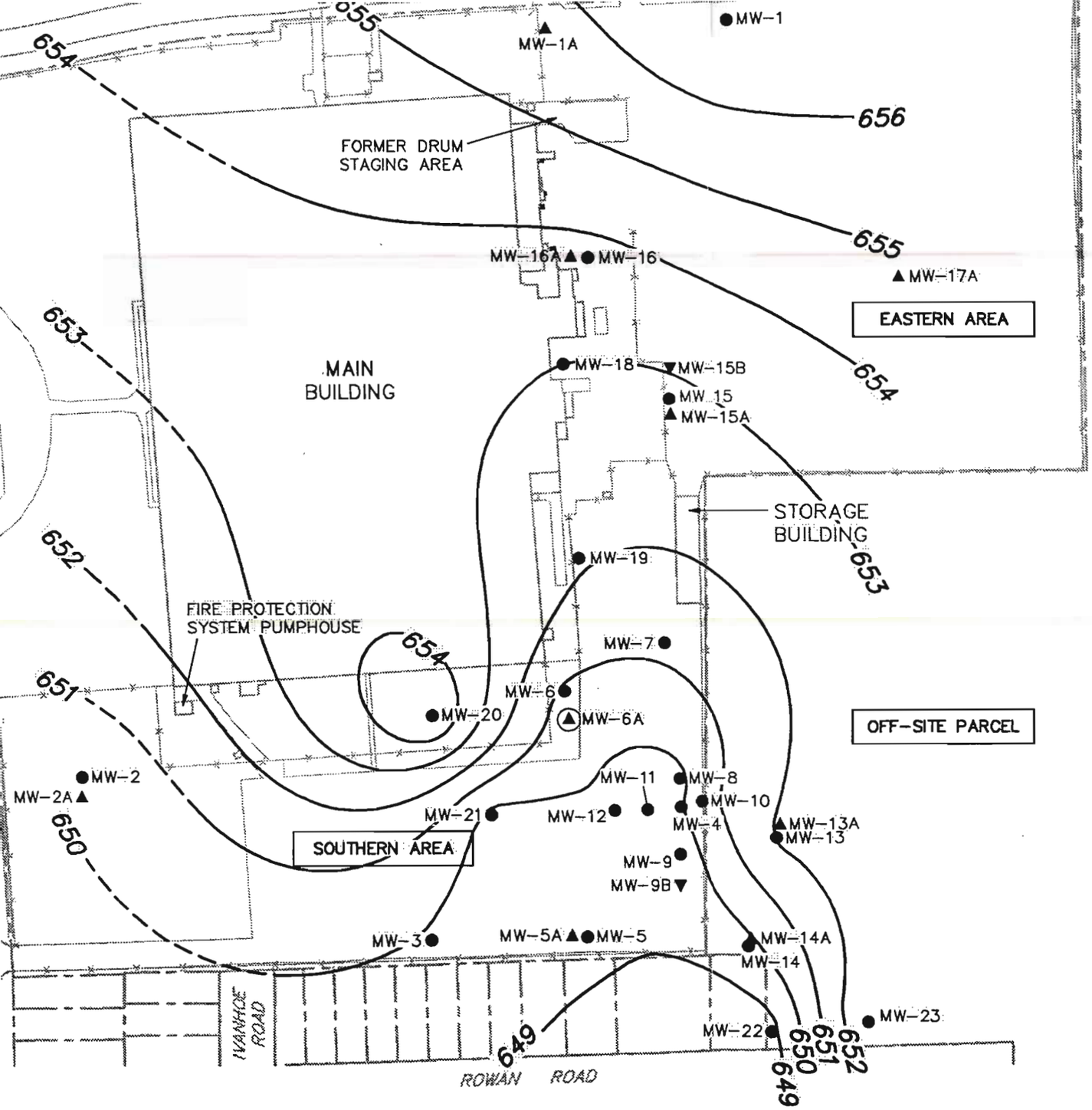
- EXISTING FENCE LINE
- PROPERTY LINE
- MW-19 — OVERBURDEN MONITORING WELL (1993/94)
- MW-16A — A-ZONE BEDROCK MONITORING WELL (INSTALLED 1993/94)
- MW-9B — B-ZONE BEDROCK MONITORING WELL (INSTALLED 1995)
- MW-6A — PUMPING WELL
- DRAWDOWN CONTOUR (ft)

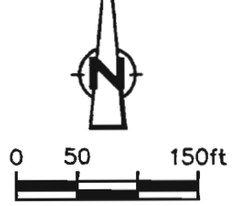
WELL	DISTANCE (ft)	DRAWDOWN (ft)
MW-6A	0	14.02
MW-9B	218	-0.69
MW-5A	241	0.36
MW-13A	256	-0.30
MW-14A	313	0.18
MW-15A	364	0.43
MW-15B	413	0.23
MW-16A	518	0.61
MW-2A	536	0.28
MW-17A	615	0.01
MW-1A	770	0.31

NOTE:
NEGATIVE DRAWDOWN INDICATES A RISE IN WATER LEVEL ELEVATION.

figure 3.10

OBSERVED BEDROCK GROUNDWATER DRAWDOWN AFTER 47 HOURS OF PUMPING





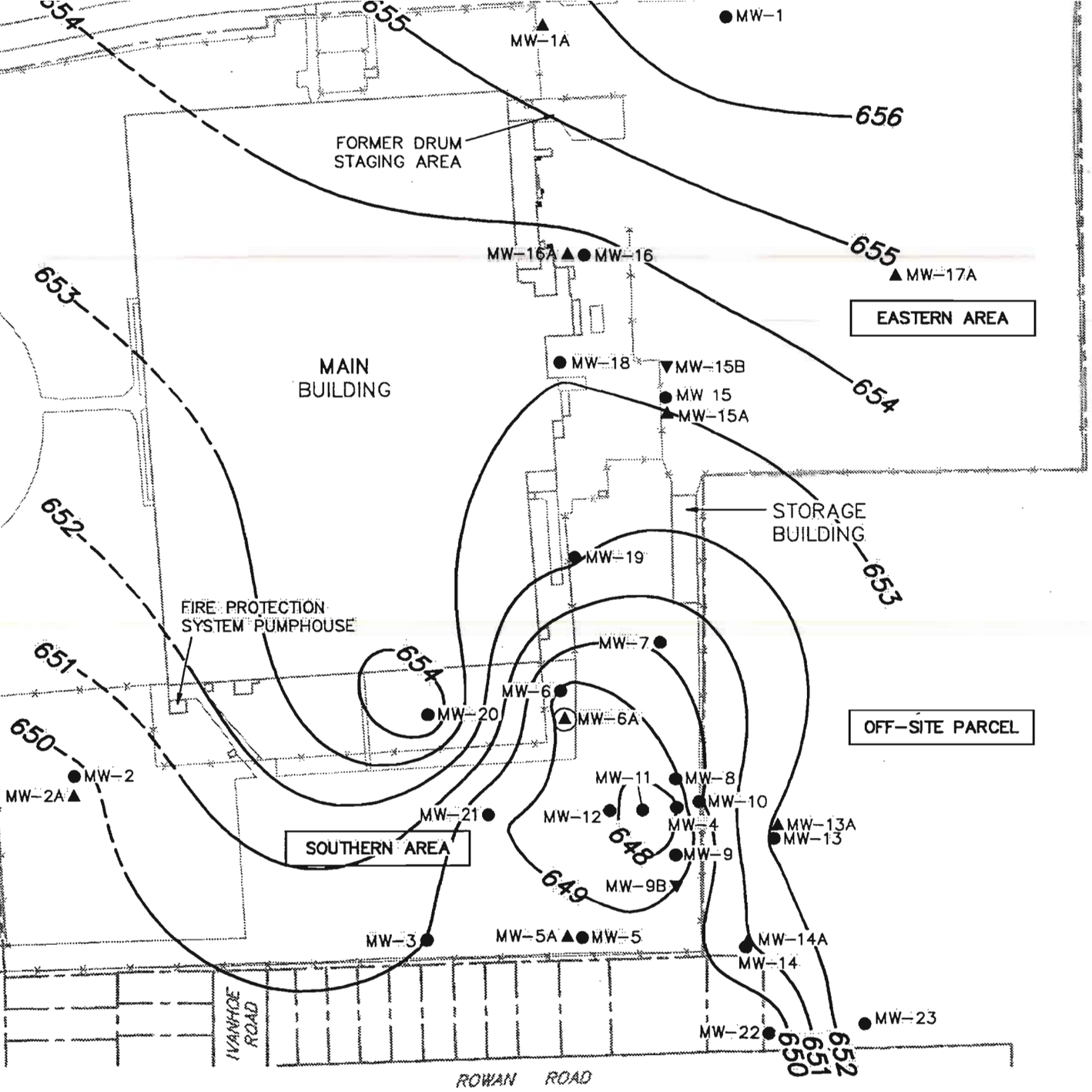
LEGEND

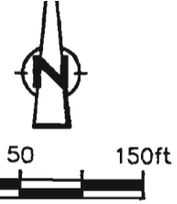
	EXISTING FENCE LINE
	PROPERTY LINE
MW-19 ●	OVERBURDEN MONITORING WELL (1993/94)
MW-16A ▲	A-ZONE BEDROCK MONITORING WELL (INSTALLED 1993/94)
MW-9B ▼	B-ZONE BEDROCK MONITORING WELL (INSTALLED 1995)
MW-6A (▲)	PUMPING WELL
	GROUNDWATER CONTOUR (ft AMSL)

WELL	DISTANCE (ft)	ELEV (ft AMSL)
MW-6	32	650.80
MW-12	113	649.93
MW-11	131	649.19
MW-21	133	649.68
MW-7	135	651.16
MW-8	137	649.63
MW-20	147	655.02
MW-4	156	649.70
MW-10	172	650.63
MW-19	181	652.09
MW-9	192	649.38
MW-5	242	649.32
MW-13	255	652.03
MW-3	285	649.92
MW-14	315	649.68
MW-15	375	652.71
MW-18	394	652.96
MW-22	409	648.43
MW-23	465	652.84
MW-16	518	653.61
MW-2	532	650.13
MW-1	802	656.88

figure 3.11

OVERBURDEN GROUNDWATER LEVELS STATIC CONDITIONS





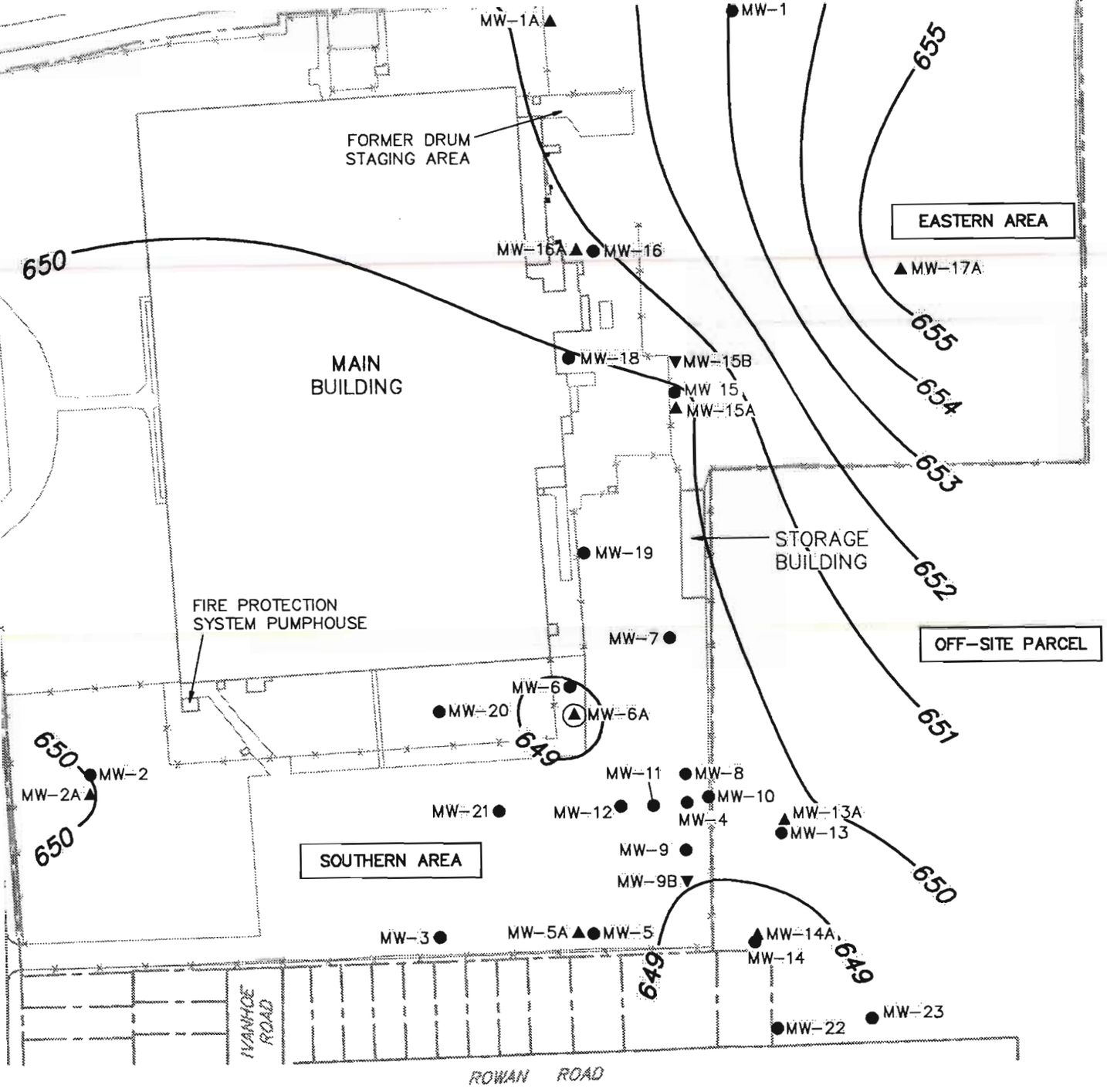
LEGEND

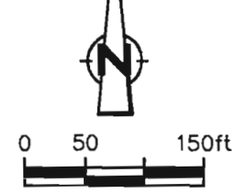
	EXISTING FENCE LINE
	PROPERTY LINE
MW-19 ●	OVERBURDEN MONITORING WELL (1993/94)
MW-16A ▲	A-ZONE BEDROCK MONITORING WELL (INSTALLED 1993/94)
MW-9B ▼	B-ZONE BEDROCK MONITORING WELL (INSTALLED 1995)
MW-6A Ⓐ	PUMPING WELL
	GROUNDWATER CONTOUR (ft AMSL)

WELL	DISTANCE (ft)	ELEV (ft AMSL)
MW-6	32	648.73
MW-12	113	648.62
MW-11	131	647.01
MW-21	133	649.14
MW-7	135	650.09
MW-8	137	648.71
MW-20	147	654.92
MW-4	156	647.60
MW-10	172	649.76
MW-19	181	652.09
MW-9	192	648.17
MW-5	242	649.54
MW-13	255	652.11
MW-3	285	650.01
MW-14	315	650.87
MW-15	375	653.04
MW-18	394	653.04
MW-22	409	648.97
MW-23	465	652.94
MW-16	518	653.66
MW-2	532	649.82
MW-1	802	656.79

figure 3.12

OVERBURDEN GROUNDWATER LEVELS AFTER 47 HOURS OF PUMPING





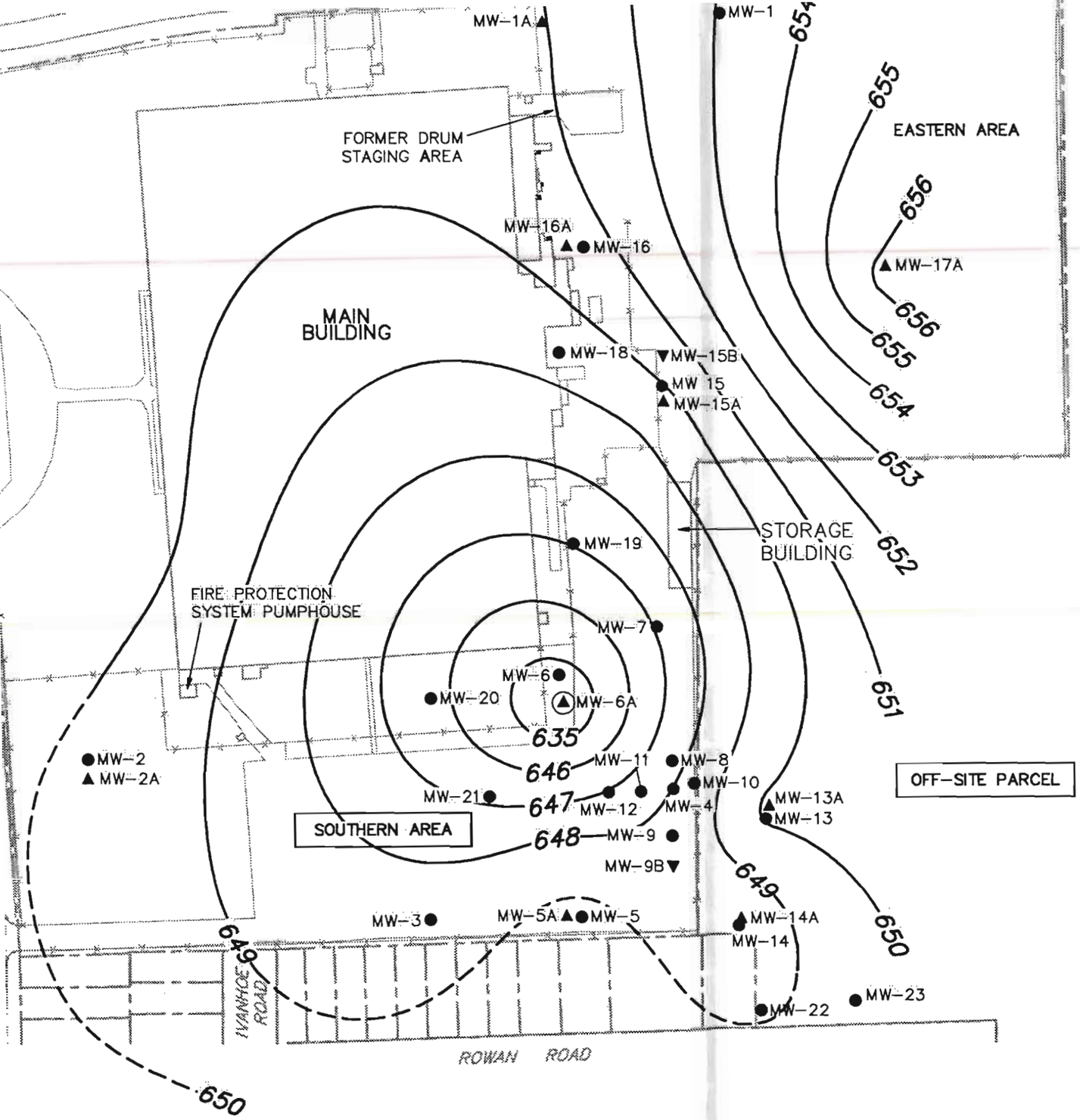
LEGEND

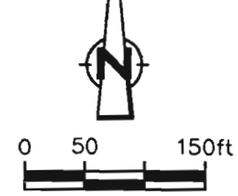
- EXISTING FENCE LINE
- PROPERTY LINE
- MW-19 ● OVERBURDEN MONITORING WELL (1993/94)
- MW-16A ▲ A-ZONE BEDROCK MONITORING WELL (INSTALLED 1993/94)
- MW-9B ▼ B-ZONE BEDROCK MONITORING WELL (INSTALLED 1995)
- MW-6A (▲) PUMPING WELL
- GROUNDWATER CONTOUR (ft AMSL)

WELL	DISTANCE (ft)	ELEV (ft AMSL)
MW-6A	0	648.90
MW-9B	218	648.03
MW-5A	241	649.44
MW-13A	256	649.86
MW-14A	313	648.32
MW-15A	364	649.88
MW-15B	413	648.87
MW-16A	518	650.95
MW-2A	536	650.05
MW-17A	615	656.20
MW-1A	770	651.21

figure 3.13

BEDROCK GROUNDWATER LEVELS
STATIC CONDITIONS
MW-6A TEST





LEGEND

	EXISTING FENCE LINE
	PROPERTY LINE
MW-19 ●	OVERBURDEN MONITORING WELL (1993/94)
MW-16A ▲	A-ZONE BEDROCK MONITORING WELL (INSTALLED 1993/94)
MW-9B ▼	B-ZONE BEDROCK MONITORING WELL (INSTALLED 1995)
MW-6A (▲)	PUMPING WELL
	GROUNDWATER CONTOUR (ft AMSL)

WELL	DISTANCE (ft)	ELEV (ft AMSL)
MW-6A	0	634.88
MW-9B	218	648.72
MW-5A	241	649.08
MW-13A	256	650.16
MW-14A	313	648.14
MW-15A	364	649.45
MW-15B	413	648.64
MW-16A	518	650.34
MW-2A	536	649.77
MW-17A	615	656.19
MW-1A	770	650.90

figure 3.14

BEDROCK GROUNDWATER LEVELS
AFTER 47 HOURS OF PUMPING

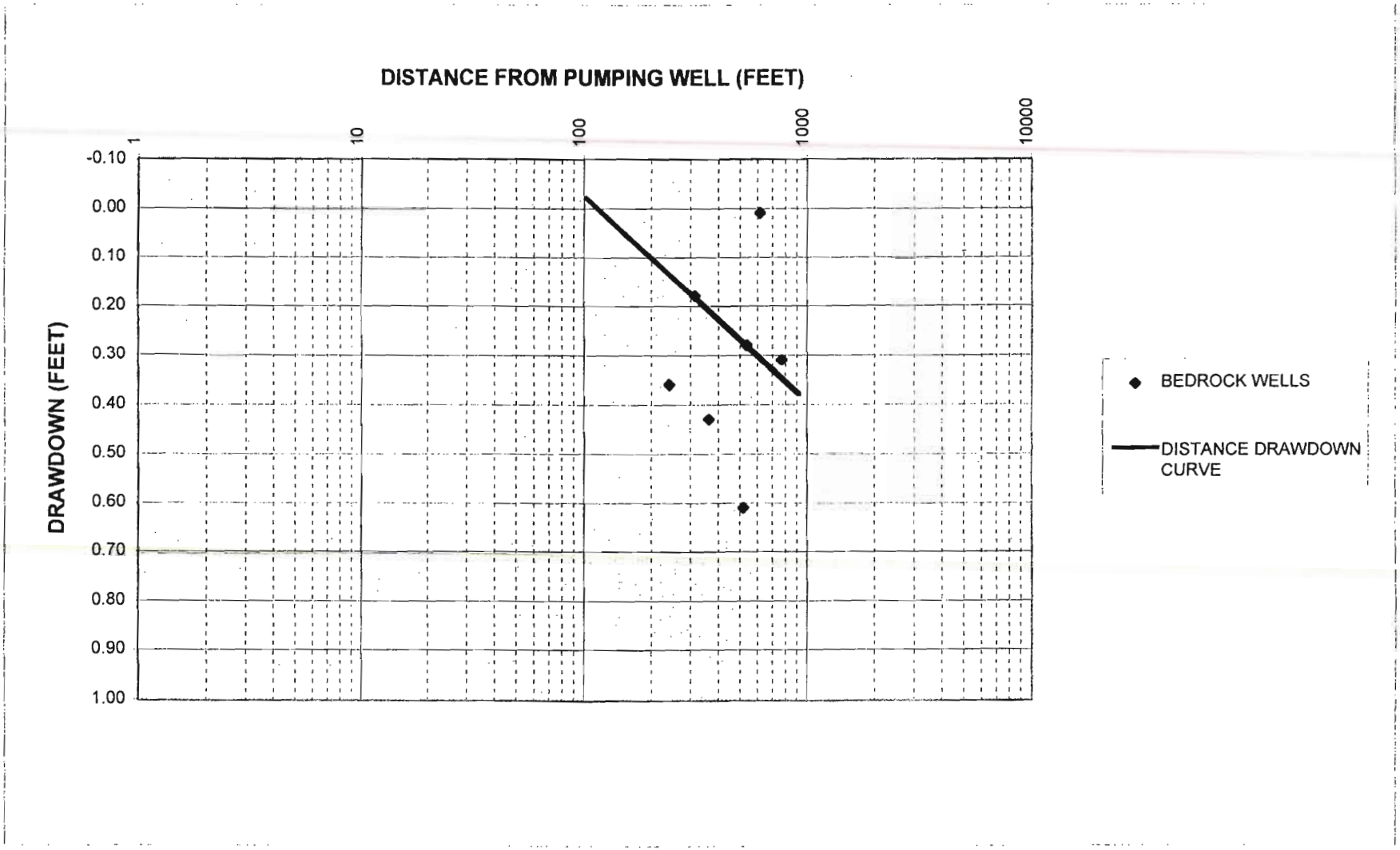


figure 3.15
DISTANCE-DRAWDOWN GRAPH
BEDROCK WELLS - MW-6A TEST
LEICA INC.
Cheektowaga, New York

CRA

TABLES

TABLE 2.1

WATER LEVEL RESPONSE IN NEARBY WELLS
MW-6A STEP DRAWDOWN TESTS
LEICA INC.
CHEEKTOWAGA, NEW YORK

Well Location	*Water Level (Ft. BTOC)*				*Water Level Change** (Ft.)*
	Start	*1 Hour*	*2 Hours*	*3 Hours*	
Pumping Well					
MW-6A	11.60	13.81*	15.9	18.5*	6.90
Overburden Wells					
MW-5	6.36		6.20		+0.16
MW-6	9.84		11.75		-1.91
MW-7	7.64		7.64		0
MW-12	8.52		8.73		-0.21
MW-15	7.48		6.84		+0.64
MW-20	7.02		6.92		+0.10
Bedrock Wells					
MW-5A	8.72		8.70		+0.02
MW-15A	11.88		11.92		-0.04
MW-9B	8.08		7.92		+0.16
MW-15B	12.76		12.75		+0.01

Notes:

No four hour (final) water levels were taken due to unexpected pump failure early in the fourth step.

* Water level from Telog transducer data.

** Change is over 3-hour period for MW-6A; 2 hours for all other wells.

BTOC Below Top of Casing.

TABLE 2.2

WATER LEVEL RESPONSE IN NEARBY WELLS
MW-16A STEP DRAWDOWN TESTS - FEBRUARY 15, 1997
LEICA INC.
CHEEKTOWAGA, NEW YORK

Well Location	*Water level (Ft. BTOC)*				*Water Level Change (Ft.)*
	Start	*1 Hour (3.0 GPM)*	*2 Hours (5.0 GPM)*	*3 Hours (6.5 GPM)*	
Pumping Well					
MW-16A	13.74	17.50	21.10	22.76	-9.02
Overburden Wells					
MW-1	6.85	6.86		6.88	-0.03
MW-15	7.21	7.24		7.26	-0.05
MW-16	8.10	8.11		8.18	-0.08
MW-18	11.45	11.46		11.48	-0.03
Bedrock Wells					
MW-1A	17.21	17.40		17.46	-0.26
MW-15A	12.61	12.80		12.85	-0.24
MW-17A	3.78	3.78		3.78	0
MW-15B	12.75	12.88		12.94	-0.19

Notes:
BTOC Below Top of Casing.

TABLE 3.1

WATER LEVEL MEASUREMENTS - MW-16A TEST
LEICA INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

All Measurements are Feet Below Top of Casing

Date/Time	*MW-16A*	*MW-16*	*MW-1A*	*MW-1*	*MW-17A*	*MW-18*	*MW-15*	*MW-15A*	*MW-15B*
10/11/96 12:00	13.97	7.56	6.48	17.28	4.26	11.50	6.97	11.78	12.98
10/14/96 10:00	14.60	8.14	17.71	6.98	4.57	11.57	7.42	13.12	13.30
10/14/96 13:13	21.48	7.91	17.80	6.99	4.62		7.43	13.23	13.37
10/14/96 17:00	-	7.95	17.86	7.02	4.64	11.62	7.45	13.30	13.41
10/14/96 17:20	23.22	7.94	17.91	7.02	4.63	11.62	7.47	13.34	13.42
10/14/96 17:35	27.69	7.94	17.92	7.02	4.64	11.62	7.47	13.35	13.44
10/14/96 17:50	27.00	7.97	17.95	7.02	4.64	11.64	7.47	13.37	13.46
10/14/96 18:05	30.67	7.97	17.97	7.02	4.65	11.63	7.48	13.37	13.47
10/14/96 18:20	27.40	7.97	17.98	7.03	4.66	11.63	7.48	13.39	13.48
10/14/96 18:35	-	8.01	18.02	7.03	4.68	11.64	7.48	13.39	13.50
10/15/96 15:43	17.87	8.26	17.92	7.04	4.65	11.72	7.55	13.33	13.46
10/15/96 15:58	17.87	8.01	17.92	7.04	4.65	11.72	7.55	13.38	13.46
10/15/96 16:55 Start Test									
10/15/96 17:12	20.28	8.02	18.00	7.03	4.66	11.72	7.55	13.43	13.49
10/15/96 17:25	20.52	8.01	18.03	7.04	4.65	11.71	7.55	13.45	13.50
10/15/96 17:40	21.39	8.03	18.05	7.03	4.65	11.71	7.55	13.47	13.51
10/15/96 17:55	21.89	8.06	18.07	7.03	4.65	11.71	7.56	13.49	13.52
10/15/96 18:10	22.24	8.06	18.11	7.05	4.66	11.72	7.57	13.51	13.55
10/15/96 18:25	22.48	8.06	18.11	7.04	4.66	11.72	7.57	13.51	13.55
10/15/96 18:44	22.22	8.06	18.13	7.05	4.67	11.73	7.57	13.53	13.55
10/15/96 18:58	22.32	8.06	18.13	7.04	4.67	11.74	7.57	13.53	13.58
10/15/96 20:00	22.43	8.08	18.20	7.04	4.66	11.73	7.61	13.54	13.61
10/15/96 21:00	22.46	8.09	18.23	7.07	4.69	11.77	7.61	13.59	13.64
10/15/96 22:00	21.56	8.11	18.26	7.07	4.71	11.77	7.63	13.63	13.67
10/15/96 23:00	21.48	8.11	18.28	7.07	4.70	11.78	7.68	13.66	13.68
10/16/96 0:01	21.51	8.11	18.30	7.07	4.69	11.77	7.65	13.67	13.70
10/16/96 1:00	21.44	8.11	18.32	7.08	4.69	11.77	7.65	13.69	13.71
10/16/96 2:00	21.87								
10/16/96 5:00	22.32	8.17	18.42	7.12	4.73	11.81	7.71	13.78	13.79
10/16/96 9:00	22.20	8.21	18.48	7.12	4.76	11.85	7.75	13.85	13.85
10/16/96 13:00	22.41	8.28	18.55	7.15	4.78	11.88	7.81	13.91	13.91
10/16/96 17:00	22.77	8.31	18.61	7.17	4.81	11.91	7.86	13.97	13.96
10/16/96 21:00	23.67	8.39	18.68	7.19	4.86	11.95	7.91	14.02	14.02
10/17/96 1:00	24.89	8.39	18.73	7.21	4.86	12.00	7.96	14.08	14.06
10/17/96 5:00	26.50	8.44	18.79	7.23	4.91	12.05	8.01	14.14	14.13
10/17/96 9:00	26.88	8.45	18.81	7.24	4.93	12.07	8.07	14.17	14.14
10/17/96 13:00	-	8.48	18.84	7.25	4.94	12.08	8.08	14.20	14.17
10/17/96 16:15	24.71	8.48	18.88	7.24	4.95	12.10	8.09	14.21	14.19
10/17/96 16:52 End Test									
10/17/96 17:12	-	8.49	18.80	7.25	4.94	12.10	8.10	14.13	14.15
10/17/96 17:35	14.79	8.48	18.74	7.25	4.94	12.14	8.11	14.11	14.11
10/17/96 17:55	14.89	8.48	18.73	7.25	4.94	12.14	8.11	14.10	14.11
10/18/96 8:00	16.84	8.49	18.50	7.25	4.93	12.12	8.11	13.92	13.94

TABLE 3.1

WATER LEVEL MEASUREMENTS - MW-16A TEST
LEICA INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

All Measurements are Feet Below Top of Casing

Date/Time	*MW-19*	*MW-2*	*MW-2A*	*MW-3*	*MW-4*	*MW-5*	*MW-5A*	*MW-6*	*MW-6A*
10/11/96 12:00	10.61	7.32	7.90	6.93	8.34	6.68	5.70	12.40	12.75
10/14/96 10:00	10.21	7.30	8.61	7.38	8.42	6.81	7.10	12.68	12.89
10/14/96 13:13									
10/14/96 17:00									
10/14/96 17:20									
10/14/96 17:35									
10/14/96 17:50	10.17								
10/14/96 18:05	10.17								
10/14/96 18:20	10.18								
10/14/96 18:35	10.19								
10/15/96 15:43	10.18	7.32	9.12	7.57	8.51	6.94		12.89	13.29
10/15/96 15:58									
10/15/96 16:55 Start Test									
10/15/96 17:12									
10/15/96 17:25	10.16								
10/15/96 17:40	10.16								
10/15/96 17:55	10.17								
10/15/96 18:10	10.17								
10/15/96 18:25	10.17								
10/15/96 18:44	10.17								
10/15/96 18:58	10.17								
10/15/96 20:00	10.17								
10/15/96 21:00	10.17								
10/15/96 22:00	10.17								
10/15/96 23:00	10.18								
10/16/96 0:01	10.19								
10/16/96 1:00	10.20								
10/16/96 2:00									
10/16/96 5:00	10.22								
10/16/96 9:00	10.27	7.32	9.17	7.64	8.75	7.04	7.56	13.01	13.61
10/16/96 13:00	10.31							13.36	13.93
10/16/96 17:00	10.33							13.41	13.99
10/16/96 21:00	10.39							13.50	14.09
10/17/96 1:00	10.41							13.51	14.12
10/17/96 5:00	10.47							13.59	14.19
10/17/96 9:00	10.50	7.34	9.80	7.86	9.12	7.35	7.87	13.65	14.22
10/17/96 13:00	10.51		9.89	7.91	9.16	7.40	7.90	13.69	14.25
10/17/96 16:15	10.51		9.96	8.20	9.31	7.38	7.89	13.71	14.25
10/17/96 16:52 End Test									
10/17/96 17:12	10.51								14.27
10/17/96 17:35	10.54							13.73	14.30
10/17/96 17:55	10.53							13.73	14.29
10/18/96 8:00	10.57	7.34	9.95	8.32	9.10	7.44	7.90	13.46	13.90

TABLE 3.1

WATER LEVEL MEASUREMENTS - MW-16A TEST
LEICA INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

All Measurements are Feet Below Top of Casing

Date/Time	*MW-7*	*MW-8*	*MW-9*	*MW-9B*	*MW-10*	*MW-11*	*MW-12*	*MW-13*	*MW-13A*
10/11/96 12:00	8.81	10.71	8.12	8.38	7.80	10.20	7.98	4.69	6.90
10/14/96 10:00	8.95	7.92	7.79	8.67	6.80	9.23	8.81	4.73	7.04
10/14/96 13:13									
10/14/96 17:00									
10/14/96 17:20									
10/14/96 17:35									
10/14/96 17:50									
10/14/96 18:05									
10/14/96 18:20									
10/14/96 18:35									
10/15/96 15:43	8.99	8.18	7.72	8.75	6.77	9.32	8.93	4.62	7.11
10/15/96 15:58									
10/15/96 16:55 Start Test									
10/15/96 17:12									
10/15/96 17:25									
10/15/96 17:40									
10/15/96 17:55									
10/15/96 18:10									
10/15/96 18:25									
10/15/96 18:44									
10/15/96 18:58									
10/15/96 20:00									
10/15/96 21:00									
10/15/96 22:00									
10/15/96 23:00									
10/16/96 0:01									
10/16/96 1:00									
10/16/96 2:00									
10/16/96 5:00									
10/16/96 9:00	9.17	8.57	7.92	8.84	6.95	9.61	9.02	4.61	7.17
10/16/96 13:00	9.21								
10/16/96 17:00	9.27								
10/16/96 21:00	9.37								
10/17/96 1:00	9.43								
10/17/96 5:00	9.49								
10/17/96 9:00	9.52	8.53	8.28	9.15	7.33	9.97	9.54	4.79	7.47
10/17/96 13:00	9.54	8.57	8.31	9.17	7.34	10.01	9.61		
10/17/96 16:15	9.55	8.86	8.31	9.17		10.27	9.95		
10/17/96 16:52 End Test									
10/17/96 17:12	9.56								
10/17/96 17:35	9.58								
10/17/96 17:55	9.58								
10/18/96 8:00	9.57	8.58	8.32	9.06	7.30	9.91	9.77	4.69	7.38

TABLE 3.1

WATER LEVEL MEASUREMENTS - MW-16A TEST
LEICA INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

All Measurements are Feet Below Top of Casing

Date/Time	*MW-14*	*MW-14A*	*MW-20*	*MW-21*	*MW-22*	*MW-23*
10/11/96 12:00	5.29	8.46	6.28	9.88	5.62	4.66
10/14/96 10:00	4.45	8.77	7.27	9.96	5.35	4.66
10/14/96 13:13						
10/14/96 17:00						
10/14/96 17:20						
10/14/96 17:35						
10/14/96 17:50						
10/14/96 18:05						
10/14/96 18:20						
10/14/96 18:35						
10/15/96 15:43	4.43	8.88	10.28	8.92	5.26	4.67
10/15/96 15:58						
10/15/96 16:55 Start Test						
10/15/96 17:12						
10/15/96 17:25						
10/15/96 17:40						
10/15/96 17:55						
10/15/96 18:10						
10/15/96 18:25						
10/15/96 18:44						
10/15/96 18:58						
10/15/96 20:00						
10/15/96 21:00						
10/15/96 22:00						
10/15/96 23:00						
10/16/96 0:01						
10/16/96 1:00						
10/16/96 2:00						
10/16/96 5:00						
10/16/96 9:00	4.46	9.21	9.11	10.38	5.30	4.71
10/16/96 13:00						
10/16/96 17:00						
10/16/96 21:00						
10/17/96 1:00						
10/17/96 5:00						
10/17/96 9:00	4.52	9.48	9.56	10.63	5.53	4.87
10/17/96 13:00			9.59	10.67		
10/17/96 16:15			9.65	10.69		
10/17/96 16:52 End Test						
10/17/96 17:12						
10/17/96 17:35						
10/17/96 17:55						
10/18/96 8:00	4.57	9.31	9.67	10.78	5.42	4.82

TABLE 3.2

EXTRACTED GROUNDWATER SAMPLING ANALYTICAL PARAMETERS

LEICA INC.

CHEEKTOWAGA, NEW YORK

OCTOBER 1996

All Samples: (Time 0 hr., 24 hr., 48 hrs.)	Target Compound List (TCL)	- Volatiles - Semi-Volatiles
	Target Analyte List (TAL)	- Metals

48 Hour Sample Only:

- Polychlorinated Biphenyls (PCBs)
- Total Organic Carbon (TOC)
- Biological Oxygen Demand (BOD)
- Chemical Oxygen Demand (COD)
- Iron (total and soluble)
- Manganese (total and soluble)
- Total Suspended Solids (TSS)
- Total Dissolved Solids (TDS)
- pH
- Alkalinity
- Hardness
- Turbidity
- Calcium
- Sulphate (SO_4^{-2})
- Pesticides
- Total Phenols
- Trichlorofluoromethane
- Benzidene
- 1,2-Diphenyl-hydrazine
- Acrolein
- Acrylonitrile
- bis(Chloromethyl)ether
- 2-Chloroethylvinylether
- Dichlorodifluoromethane
- Ammonia (as N)
- Bromide
- Fluoride
- Nitrate (as N)
- Nitrite (as N)
- Total Kjeldahl Nitrogen
- Total Organic Nitrogen (as N)
- Oil and Grease
- Total Phosphorus (as P)
- Sulfide (as S)
- Sulfite (as SO_3)
- Total Boron
- Total Tin
- Total Titanium
- Total Molybdenum
- Total Cyanide

TABLE 3.3

SUMMARY OF DETECTED COMPOUNDS - MW-16A TEST
LEICA INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

	BSA Discharge Limits [1]	*Groundwater*			
		0 Hours	*24 Hours*	*48 Hours*	*Effluent*
VOCs (ug/L)					
Chloromethane	*	3J	2J	2J	ND10
Vinyl chloride	3	8,500J	8,400	5,400	ND10
Chloroethane	420	83	9J	8J	ND10
Carbon disulfide	*	7J	3J	2J	ND10
Acetone	*	12,000	ND 5,000	ND 5,000	150
Methylene chloride	2,062	33	11J	7J	ND10
1,2-Dichloroethene (total)	285	53,000	38,000	35,000	ND10
1,1-Dichloroethane	500	11,000	4,100J	2,800J	ND10
2-Butanone	*	ND 10,000	85J	130J	6J
1,1,1-Trichloroethane	1,550	69,000	13,000	9,800	ND10
Trichloroethene	712	66,000	40,000	29,000	ND10
Benzene	142	18	18J	15J	ND10
1,1,2-Trichloroethane	*	12	9J	11J	ND10
4-Methyl-2-pentanone	*	46	20J	15J	ND10
Toluene	680	2,600J	1,100J	770J	ND10
Tetrachloroethene	267	21	11J	10J	ND10
Chlorobenzene	310	1J	1J	ND 10	ND10
Ethylbenzene	1,584	2,200J	1,000J	760J	ND10
Xylene (total)	2,080	14,000	5,400	4,100J	ND10
SVOCs (ug/L)					
4-Methylphenol	20,000	14	4J	3J	-
2,4-Dimethylphenol	20,000	6J	2J	2J	-
Naphthalene	*	72	38	36	-
4-Chloro-3-methylphenol	20,000	11	4J	3J	-
2-Methylnaphthalene	*	8J	5J	4J	-
Butylbenzylphthalate	*	ND 10	1J	ND 10	-
Inorganics (ug/L)					
Aluminum	*	17,600	147	512	-
Arsenic	1,800	19.5	4.5	5.2	-
Barium	100,000	407	301	299	-
Beryllium	*	0.93	ND 0.2	0.70	-
Cadmium	1,000	ND 0.2	ND 0.2	0.53	-
Calcium	*	161,000	122,000	118,000	-
Chromium	5,000	39.2	ND 0.60	0.67	-
Cobalt	*	11.1	ND 1.4	ND 1.4	-
Copper	16,000	38.6	7.5	5.3	-
Iron	*	44,300	670	916	-
Lead	5,000	17.1	ND 0.90	ND 0.90	-
Magnesium	*	46,500	44,300	43,700	-
Manganese	*	933	169	165	-
Nickel	14,000	32.1	ND 2.1	ND2.1	-
Potassium	*	11,000J	6,550J	6,360J	-
Sodium	*	191,000	182,000	176,000	-

TABLE 3.3

SUMMARY OF DETECTED COMPOUNDS - MW-16A TEST
LEICA INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

	BSA Discharge Limits [1]	*Groundwater*			
		0 Hours	*24 Hours*	*48 Hours*	*Effluent*
Inorganics (ug/L) (Cont'd.)					
Thallium	*	2.4	ND 1.9	3.7	-
Vanadium	25,000	30.4	ND 1.6	ND 1.6	-
Zinc	*	148	ND 15.8	ND 17	-
Dissolved iron	*	-	-	200J	-
Dissolved manganese	*	-	-	158J	-
Boron	*	-	-	186J	-
Molybdenum	*	-	-	2.9	-
Titanium	*	-	-	3.1	-
General Chemistry (mg/L)					
BOD 5				5	-
COD				63	-
Fluoride				0.66	-
Total hardness				444	-
Ammonia (as N)				0.26	-
Nitrate (as N)				0.1	-
Organic nitrogen				0.1	-
Total phenols				0.0044	-
Sulfide				1.5	-
Sulfate				104	-
Total Suspended Solids				29	-
Total alkalinity				345	-
Total dissolved solids				1,050	-
Total kjeldahl nitrogen				0.4	-
Total organic carbon				30.4	-
Total nitrogen				0.5	-
Total phosphorus (as P)				0.06	-
pH (S.U.)				7.0	-
Turbidity (NTU)				5.3	-

Notes:

- Not applicable.
- * No Discharge Limit has been established for this parameter.
- (1) Buffalo Sewer Authority Discharge Limits per Jim Kruszka, March 11, 1997.
- BOD Biochemical Oxygen Demand.
- BSA Buffalo Sewer Authority
- COD Chemical Oxygen Demand.
- J Associated value is estimated.
- ND Not detected at associated value.
- S.U. Standard Units.
- SVOCs Semi-Volatile Organic Compounds.
- VOC Volatile Organic Compound.
- [ ] Parameter exceeds BSA Discharge Limit.

TABLE 3.4

STATIC AND 47-HOUR WATER LEVELS AND DRAWDOWN - MW-16A TEST

LEICA INC.

CHEEKTOWAGA, NEW YORK

OCTOBER 1996

Well No.	*TOC Elevation (Ft. AMSL)*	*Water Level Static (Ft. BTOC)*	*Elevation Static (Ft. AMSL)*	*Water Level 47-Hour (Ft. BTOC)*	*Elevation 47-Hour (Ft. AMSL*	*Drawdown (Ft.)*
Overburden Wells						
MW-1	662.38	7.04	655.34	7.24	655.14	0.20
MW-2	657.01	7.32	649.69	7.34	649.67	0.02
MW-3	655.94	7.57	648.37	8.20	647.74	0.63
MW-4	655.57	8.76	646.81	9.31	646.26	0.55
MW-5	654.80	6.94	647.86	7.38	647.42	0.44
MW-6	660.84	12.89	647.95	13.71	647.13	0.82
MW-7	658.21	8.99	649.22	9.55	648.66	0.56
MW-8	656.11	8.43	647.68	8.86	647.25	0.43
MW-9	654.99	7.72	647.27	8.31	646.68	0.59
MW-10	655.48	7.02	648.46	7.58	647.90	0.56
MW-11	656.08	9.57	646.51	10.27	645.81	0.70
MW-12	656.93	9.18	647.75	9.95	646.98	0.77
MW-13	654.66	4.62	650.04	4.79	649.87	0.17
MW-14	653.38	4.43	648.95	4.52	648.86	0.09
MW-15	658.35	7.55	650.80	8.09	650.26	0.54
MW-16	659.89	8.26	651.63	8.48	651.41	0.22
MW-18	662.51	11.72	650.79	12.10	650.41	0.38
MW-19	660.84	10.18	650.66	10.51	650.33	0.33
MW-20	659.12	8.92	650.20	9.65	649.47	0.73
MW-21	657.72	10.28	647.44	10.69	647.03	0.41
MW-22	652.51	5.26	647.25	5.53	646.98	0.27
MW-23	656.18	4.67	651.51	4.87	651.31	0.20
Bedrock Wells						
MW-1A	663.48	17.92	645.56	18.88	644.60	0.96
MW-2A	657.02	9.12	647.90	9.96	647.06	0.84
MW-5A	654.84	7.50	647.34	7.89	646.95	0.39
MW-6A	659.38	13.29	646.09	14.25	645.13	0.96
MW-13A	655.13	7.11	648.02	7.47	647.66	0.36
MW-14A	653.70	8.88	644.82	9.48	644.22	0.60
MW-15A	658.51	13.33	645.18	14.21	644.30	0.88
MW-16A	659.95	14.12	645.83	25.31	634.64	11.19
MW-17A	659.18	4.65	654.53	4.95	654.23	0.30
MW-9B	654.75	8.75	646.00	9.17	645.58	0.42
MW-15B	658.28	13.46	644.82	14.19	644.09	0.73

Notes:

AMSL Above Mean Sea Level.

BTOC Below Top of Casing.

TOC Top of Casing.

TABLE 3.5

SUMMARY OF HYDRAULIC PROPERTIES - MW-6A AND MW-16A PUMPING TESTS

LEICA INC.

CHEEKTOWAGA, NEW YORK

OCTOBER 1996

Interpreted Data	*Transmissivity (T)* *(Ft.^{2}/Min.)*	*Saturated Thickness (b)* *(Ft.)*	*Hydraulic Conductivity (K)* *(cm/sec)*	*(Ft./Day)*	*Storage Coefficient (S)* *(Ft./Ft.)*	*Specific Storage Coefficient (SS)* *(1/Ft.)*
MW-6A Test						
MW-5A Drawdown	0.362	29.4	6.25×10^{-3}	17.72	0.00094	3.20×10^{-5}
MW-16A Drawdown	0.155	27.5	2.86×10^{-3}	8.11	0.00103	3.75×10^{-5}
		Geometric Mean:	4.23×10^{-3}	11.99	0.000984	3.46×10^{-5}
MW-16A Test						
MW-6A Drawdown	0.149	21.1	3.59×10^{-3}	10.18	0.00035	1.66×10^{-5}
MW-1A Drawdown	0.398	20.9	9.67×10^{-3}	27.41	0.00031	1.48×10^{-5}
		Geometric Mean:	5.89×10^{-3}	16.70	0.00033	1.57×10^{-5}

Notes:

K = T/b

Ss = S/b

TABLE 3.6

WATER LEVEL MEASUREMENTS - MW-6A TEST
LEICA INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

Water Levels Measured in Feet Below Top of Casing

Date/Time	*MW-6A*	*MW-6*	*MW-20*	*MW-21*	*MW-2A*	*MW-2*	*MW-3*	*MW-5*	*MW-5A*
10/21/96 12:25	10.48	10.04	4.10	8.04	6.97	6.88	6.02	5.18	5.40
10/21/96 14:00 Start Test									
10/21/96 14:55	24.48	9.99	4.02	7.99				5.12	5.36
10/21/96 15:17	20.21	10.10	4.02	7.99				5.13	5.37
10/21/96 15:32	23.74	10.25	4.02	8.01				5.13	5.38
10/21/96 15:47	24.69	10.40	4.02	8.02				5.12	5.41
10/21/96 16:03	24.51	10.55	4.02	8.04				5.12	5.45
10/21/96 16:20	22.86	10.67	4.02	8.05				5.12	5.48
10/21/96 16:35	19.95	10.81	4.02	8.09				5.12	5.50
10/21/96 16:50	19.24	10.88	4.03	8.11				5.13	5.52
10/21/96 18:20	19.21	11.55	4.07	8.28				5.16	5.61
10/21/96 19:00	19.42	11.66	4.11	8.31				5.21	5.70
10/21/96 20:00	19.47	11.79	4.12	8.44				5.22	5.69
10/21/96 21:00	28.59	11.89	4.14	8.50				5.26	5.75
10/21/96 22:00	22.74	12.10	4.13	8.52				5.29	5.72
10/21/96 23:00	22.83	12.10	4.15	8.60				5.30	5.72
10/22/96 0:01	23.44	12.10	4.15	8.65			6.02	5.31	5.76
10/22/96 4:00	21.42	12.20	4.15	8.64			6.02	5.37	5.80
10/22/96 8:00	24.37	12.05	4.15	8.72			6.01	5.37	5.80
10/22/96 12:00	25.48	12.05	4.11	8.70			5.97	5.36	5.80
10/22/96 8:00	24.37	12.05	4.15	8.72	7.11	7.03	6.01	5.37	5.80
10/22/96 16:00	25.74	12.06	4.10	8.68	7.15	7.09	5.96	5.35	5.70
10/22/96 20:00	19.45	12.13	4.15	8.70			5.99	5.37	5.81
10/23/96 0:01	19.33	12.11	4.15	8.67			5.99	5.32	5.80
10/23/96 4:00	19.67	12.09	4.12	8.63			5.91	5.30	5.75
10/23/96 12:00	28.62	12.04	4.15	8.55			5.89	5.26	5.72
10/23/96 8:00	18.90	12.08	4.13	8.57	7.27	7.18	5.87	5.24	5.80
10/23/96 15:08	24.50	12.11	4.20	8.58	7.25	7.19	5.93	5.26	5.76
10/23/96 16:09 End Test									

TABLE 3.6

WATER LEVEL MEASUREMENTS - MW-6A TEST
LEICA INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

Water Levels Measured in Feet Below Top of Casing

Date/Time	*MW-9*	*MW-9B*	*MW-13*	*MW-13A*	*MW-14*	*MW-14A*	*MW-22*	*MW-23*	*MW-10*
10/21/96 12:25	5.61	6.72	2.63	5.27	3.70	5.38	4.08	3.34	4.60
10/21/96 14:00 Start Test									
10/21/96 14:55									
10/21/96 15:17									
10/21/96 15:32	5.52	6.66							4.59
10/21/96 15:47	5.62	6.66							4.65
10/21/96 16:03	5.73	6.66							4.71
10/21/96 16:20	5.82	6.65							4.75
10/21/96 16:35	5.90	6.65							4.81
10/21/96 16:50	5.98	6.65							4.86
10/21/96 18:20	6.30	6.65							5.24
10/21/96 19:00	6.42	6.65							5.32
10/21/96 20:00	6.51	6.63							5.41
10/21/96 21:00	6.59	6.61	2.62	5.23					5.55
10/21/96 22:00	6.60	6.61							5.55
10/21/96 23:00	6.67	6.61							5.55
10/22/96 0:01	6.71	6.56	2.57	5.24					5.60
10/22/96 4:00	6.82	6.53	2.56	5.20					5.60
10/22/96 8:00	6.87	6.49	2.57	5.18					5.58
10/22/96 12:00	6.86	6.41	2.51	5.15					5.55
10/22/96 8:00	6.87	6.49	2.57	5.18	2.85	5.47	3.87	3.35	5.58
10/22/96 16:00	6.86	6.35	2.50	5.11	2.80	5.45	3.75	3.30	5.57
10/22/96 20:00	6.87	6.35	2.58	5.08					5.68
10/23/96 0:01	6.84	6.28	2.58	5.09					5.70
10/23/96 4:00	6.81	6.16	2.50	5.04					5.65
10/23/96 12:00	6.77	6.03	2.50	5.05					5.75
10/23/96 8:00	6.77	6.11	2.51	4.98	2.56	5.43	3.53	3.22	5.65
10/23/96 15:08	6.82	6.03	2.55	4.97	2.51	5.56	3.54	3.24	5.72
10/23/96 16:09 End Test									

TABLE 3.6

WATER LEVEL MEASUREMENTS - MW-6A TEST
LEICA INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

Water Levels Measured in Feet Below Top of Casing

Date/Time	*MW-12*	*MW-4*	*MW-11*	*MW-8*	*MW-7*	*MW-19*	*MW-18*	*MW-16A*	*MW-16*
10/21/96 12:25	6.75	5.87	6.64	6.23	7.05	8.75	9.55	9.00	6.28
10/21/96 14:00 Start Test									
10/21/96 14:55	6.75	6.18			7.05	8.68			
10/21/96 15:17	6.80	6.35			7.10	8.67			
10/21/96 15:32	6.87	6.60			7.20	8.67			
10/21/96 15:47	6.96	6.80			7.28	8.67			
10/21/96 16:03	7.05	6.95			7.35	8.67			
10/21/96 16:20	7.20	7.00			7.41	8.68			
10/21/96 16:35	7.25	7.10			7.48	8.68			
10/21/96 16:50	7.29	7.18			7.51	8.69			
10/21/96 18:20	7.90	7.59			7.72	8.73			
10/21/96 19:00	8.00	7.65			7.80	8.76			
10/21/96 20:00	8.10	7.90			7.88	8.82			
10/21/96 21:00	8.35	7.85			7.97	8.82			
10/21/96 22:00	8.30	7.91			7.96	8.84			
10/21/96 23:00	8.30	7.95			8.02	8.87			
10/22/96 0:01	8.35	7.95			8.03	8.86	9.48		
10/22/96 4:00	8.39	7.90			8.13	8.88	9.46		
10/22/96 8:00	8.35	7.87			8.19	8.91	9.45		
10/22/96 12:00	8.33	7.85			8.18	8.88	9.42		
10/22/96 8:00	8.35	7.87	9.03	7.31	8.19	8.91	9.45	9.18	6.25
10/22/96 16:00	8.31	7.87	9.00	7.30	8.17	8.84	9.43	9.21	6.17
10/22/96 20:00	8.41	7.92			8.19	8.85	9.45		
10/23/96 0:01	8.37	7.90			8.15	8.82	9.46		
10/23/96 4:00	8.32	7.90			8.10	8.79	9.41		
10/23/96 12:00	8.27	7.95			8.07	8.73	9.43		
10/23/96 8:00	8.28	7.84	9.05	7.34	8.07	8.74	9.41	9.41	6.17
10/23/96 15:08	8.31	7.97	9.07	7.40	8.12	8.75	9.47	9.61	6.23
10/23/96 16:09 End Test									

TABLE 3.6

WATER LEVEL MEASUREMENTS - MW-6A TEST
LEICA INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

Water Levels Measured in Feet Below Top of Casing

Date/Time	*MW-1A*	*MW-1*	*MW-17A*	*MW-15A*	*MW-15*	*MW-15B*
10/21/96 12:25	12.27	5.50	2.98	8.63	5.64	9.41
10/21/96 14:00 Start Test						
10/21/96 14:55						
10/21/96 15:17						
10/21/96 15:32						
10/21/96 15:47						
10/21/96 16:03						
10/21/96 16:20						
10/21/96 16:35						
10/21/96 16:50						
10/21/96 18:20						
10/21/96 19:00						
10/21/96 20:00						
10/21/96 21:00						
10/21/96 22:00						
10/21/96 23:00						
10/22/96 0:01				8.75	5.30	
10/22/96 4:00				8.79	5.34	
10/22/96 8:00				8.77	5.36	
10/22/96 12:00				8.75	5.31	
10/22/96 8:00	12.22	5.44	2.98	8.77	5.36	9.47
10/22/96 16:00	12.23	5.47	2.98	8.77	5.30	9.46
10/22/96 20:00				8.91	5.31	
10/23/96 0:01				8.84	5.31	
10/23/96 4:00				8.82	5.24	
10/23/96 12:00				8.94	5.25	
10/23/96 8:00	12.34	5.54	2.99	8.89	5.25	9.48
10/23/96 15:08	12.58	5.59	2.99	9.06	5.31	9.64
10/23/96 16:09 End Test						

TABLE 3.7

SUMMARY OF DETECTED COMPOUNDS - MW-6A TEST
LEICA INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

	BSA Discharge Limits [1]	*0 Hours*	*24 Hours*	*48 Hours*	*Treated Effluent*
VOCs (ug/L)					
Vinyl chloride	3	50,000	31,000	33,000	2J
1,1-Dichloroethene	3	140	150	ND 500	ND10
Carbon disulfide	*	13	11	ND 500	ND10
Acetone	*	120	110	ND 500	58
1,2-Dichloroethene (tot	285	140,000	86,000	81,000	ND10
2-Butanone	*	4J	19	ND 500	9J
Trichloroethene	712	52	150	120J	ND10
Benzene	142	62	43	ND 500	ND10
4-Methyl-2-pentanone	*	18	11	ND 500	ND10
Toluene	680	ND 10,000	150	94J	ND10
2-Hexanone	*	6J	3J	ND 500	ND10
Chlorobenzene	310	2J	1J	ND 500	ND10
Ethylbenzene	1,584	ND 10,000	140	ND 500	ND10
Xylene (total)	2,080	ND 10,000	ND 5,000	380J	ND10
SVOCs (ug/L)					
Phenol	20,000	10J	8J	6J	-
1,2-Dichlorobenzene	*	3J	3J	2J	-
2-Methylphenol	20,000	20	15	11	-
4-Methylphenol	20,000	49	34	27	-
Naphthalene	*	2J	2J	1J	-
di-n-butylphthalate	*	2J	1J	ND 10	-
Inorganics (ug/L)					
Aluminum	*	359	139	369	-
Arsenic	1,800	4.2	3.4	3.7	-
Barium	100,000	444	408	360	-
Beryllium	*	0.77	ND 0.2	ND 0.2	-
Calcium	*	147,000	133,000	130,000	-
Chromium	5,000	3.7	0.73	1.1	-
Cobalt	*	1.9	1.4	1.7	-
Copper	16,000	16.7	2.7	9.0	-
Iron	*	1,630J	775J	1600J	-
Lead	5,000	4.7	ND 0.9	ND 0.9	-
Magnesium	*	92,100	92,900	87,000	-
Manganese	*	86.2	79.7	99.4	-
Nickel	14,000	122	2.9	ND 2.1	-
Potassium	*	8,620J	7,510J	6,680J	-

TABLE 3.7

SUMMARY OF DETECTED COMPOUNDS - MW-6A TEST
LEICA INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

	BSA Discharge Limits [1]	*0 Hours*	*24 Hours*	*48 Hours*	*Treated Effluent*
Inorganics (ug/L) (Cont'd.)					
Selenium	1,000	2.5J	ND 1.4J	1.6J	-
Sodium	*	119,000	110,000	102,000	-
Thallium	*	2.6	ND 1.9	ND 1.9	-
Zinc	25,000	96.4	ND 11.3	ND 29.5	-
Dissolved iron	*	-	-	92.0J	-
Dissolved manganese	*	-	-	66.2J	-
Boron	*	-	-	7,920J	-
Molybdenum	*	-	-	5.4	-
Titanium	*	-	-	8.6	-
General Chemistry (mg/L)					
BOD5		-	-	10	-
COD		-	-	83	-
Fluoride		-	-	0.72	-
Total hardness		-	-	692	-
Ammonia (as N)		-	-	0.23	-
Organic nitrogen		-	-	0.5	-
Total phenols		-	-	0.0444	-
Sulfide		-	-	3.2	-
Sulfate		-	-	97.0	-
Total suspended solids		-	-	13.3	-
Total alkalinity		-	-	564	-
Total dissolved solids		-	-	1,060	-
Tota kjeldahl nitrogen		-	-	0.7	-
Total organic carbon		-	-	76.4	-
Total nitrogen		-	-	0.7	-
Total phosphorus (as P)		-	-	0.11	-
pH (S.U.)		-	-	6.9	-
Turbidity (NTU)		-	-	15.0	-

Notes:

- Not applicable.
* No Discharge Limit has been established for this parameter.
(1) Buffalo Sewer Authority Discharge Limits per Jim Kruszka March 11, 1997.
BOD Biochemical Oxygen Demand.
BSA Buffalo Sewer Authority
COD Chemical Oxygen Demand.
S.U. Standard Unit.
SVOC Semi-Volatile Organic Compound.
VOC Volatile Organic Compound.
[ ] Parameter exceeds BSA Discharge Limit.

TABLE 3.8

STATIC AND 47-HOUR WATER LEVELS AND DRAWDOWN - MW-6A TEST

LEICA INC.

CHEEKTOWAGA, NEW YORK

OCTOBER 1996

Well No.	Top of Casing Elevation	Water Level Static (Ft. BTOC)	Elevation Static (Ft. AMSL)	Water Level 47-Hour (Ft. BTOC)	Elevation 47-Hour (Ft.)	Drawdown
Overburden Wells						
MW-1	662.38	5.50	656.88	5.59	656.79	0.09
MW-2	657.01	6.88	650.13	7.19	649.82	0.31
MW-3	655.94	6.02	649.92	5.93	650.01	-0.09
MW-4	655.57	5.87	649.70	7.97	647.60	2.10
MW-5	654.80	5.48	649.32	5.26	649.54	-0.22
MW-6	660.84	10.04	650.80	12.11	648.73	2.07
MW-7	658.21	7.05	651.16	8.12	650.09	1.07
MW-8	656.11	6.48	649.63	7.40	648.71	0.92
MW-9	654.99	5.61	649.38	6.82	648.17	1.21
MW-10	655.48	4.85	650.63	5.72	649.76	0.87
MW-11	656.08	6.89	649.19	9.07	647.01	2.18
MW-12	656.93	7.00	649.93	8.31	648.62	1.31
MW-13	654.66	2.63	652.03	2.55	652.11	-0.08
MW-14	653.38	3.70	649.68	2.51	650.87	-1.19
MW-15	658.35	5.64	652.71	5.31	653.04	-0.33
MW-16	659.89	6.28	653.61	6.23	653.66	-0.05
MW-18	662.51	9.55	652.96	9.47	653.04	-0.08
MW-19	660.84	8.75	652.09	8.75	652.09	0.00
MW-20	659.12	4.10	655.02	4.20	654.92	0.10
MW-21	657.72	8.04	649.68	8.58	649.14	0.54
MW-22	652.51	4.08	648.43	3.54	648.97	-0.54
MW-23	656.18	3.34	652.84	3.24	652.94	-0.10
Bedrock Wells						
MW-1A	663.48	12.27	651.21	12.58	650.90	0.31
MW-2A	657.02	6.97	650.05	7.25	649.77	0.28
MW-5A	654.84	5.40	649.44	5.76	649.08	0.36
MW-6A	659.38	10.48	648.90	24.5	634.88	14.02
MW-13A	655.13	5.27	649.86	4.97	650.16	-0.30
MW-14A	653.70	5.38	648.32	5.56	648.14	0.18
MW-15A	658.51	8.63	649.88	9.06	649.45	0.43
MW-16A	659.95	9.00	650.95	9.61	650.34	0.61
MW-17A	659.18	2.98	656.20	2.99	656.19	0.01
MW-9B	654.75	6.72	648.03	6.03	648.72	-0.69
MW-15B	658.28	9.41	648.87	9.64	648.64	0.23

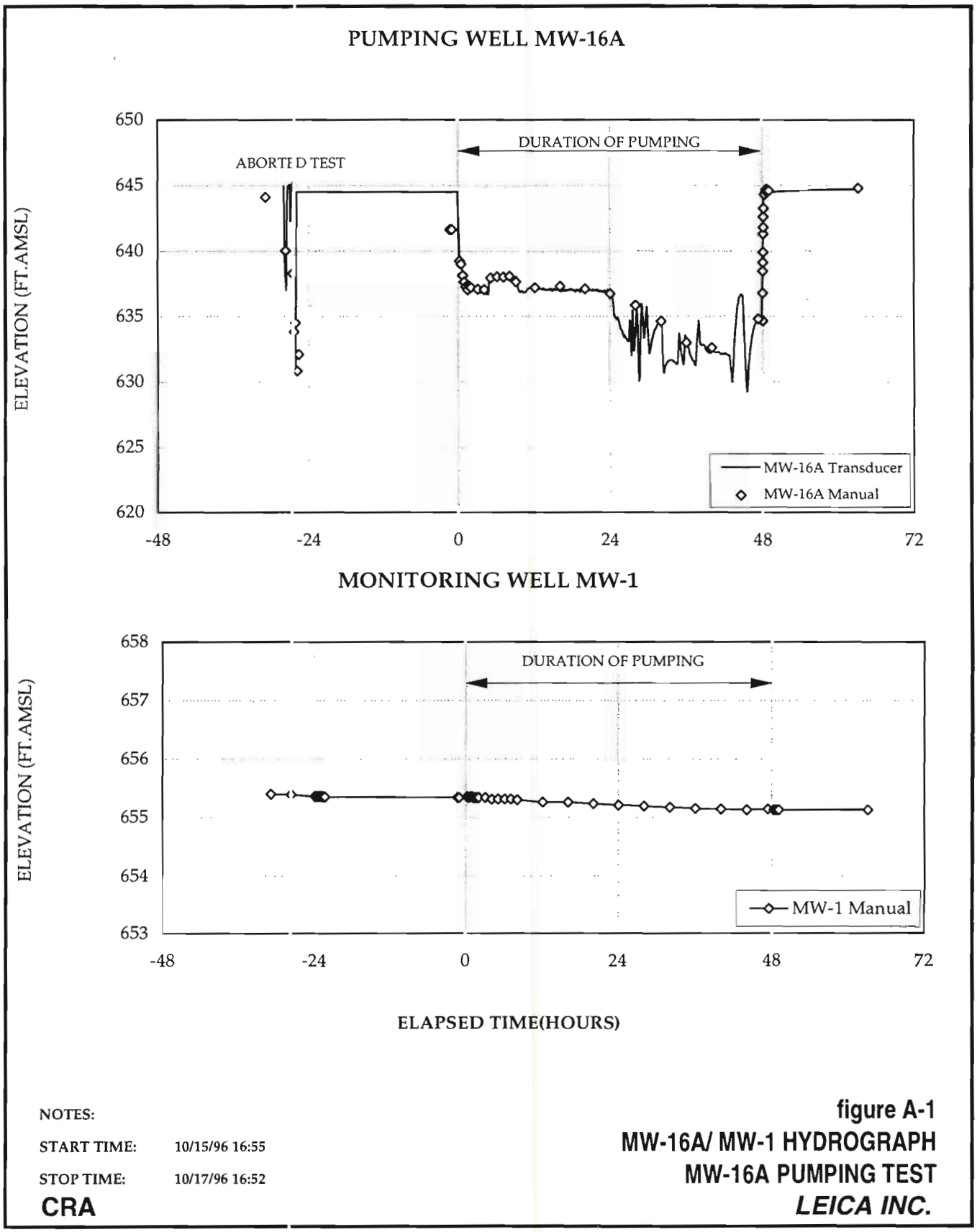
Notes:

AMSL Above Mean Sea Level.

BTOC Below Top of Casing.

APPENDIX A

MONITORING WELL HYROGRAPHS
MW-6A AND MW-16A TESTS



NOTES:

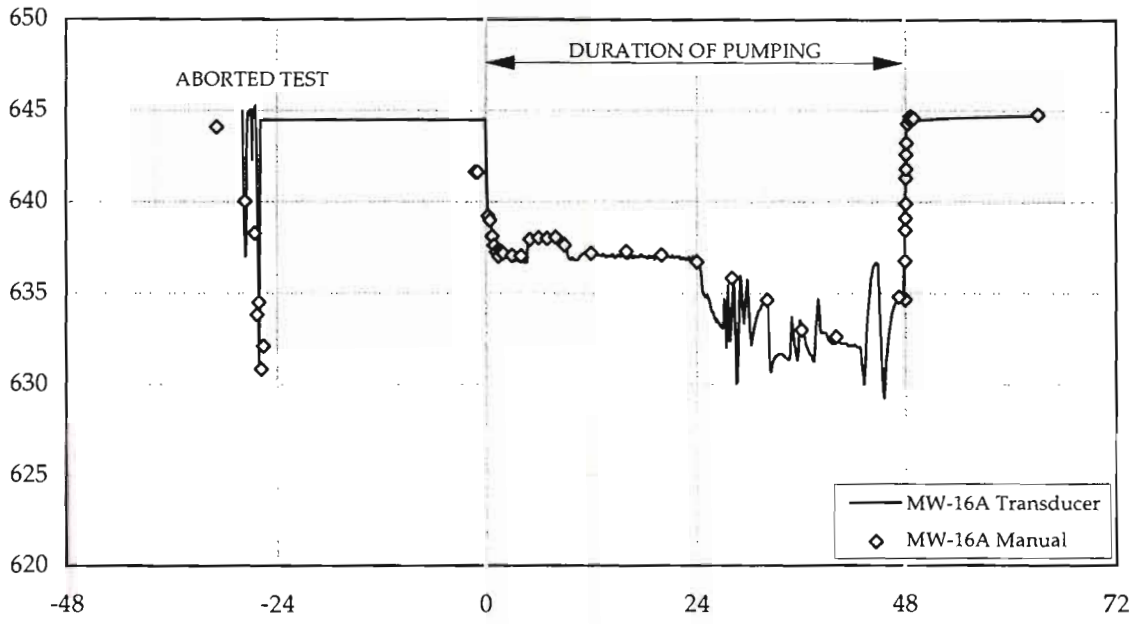
START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

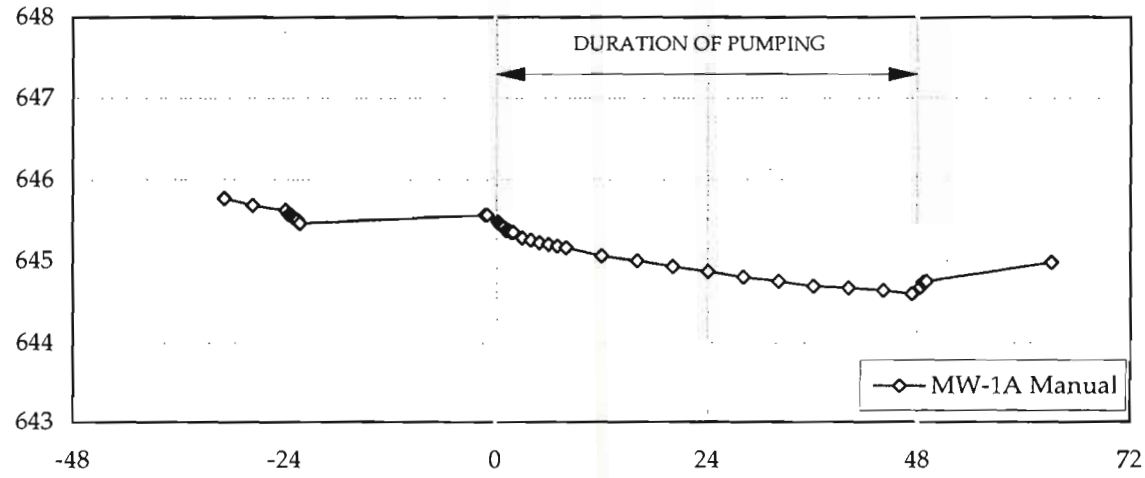
CRA

figure A-1
MW-16A/ MW-1 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.

PUMPING WELL MW-16A



MONITORING WELL MW-1A



ELAPSED TIME(HOURS)

NOTES:

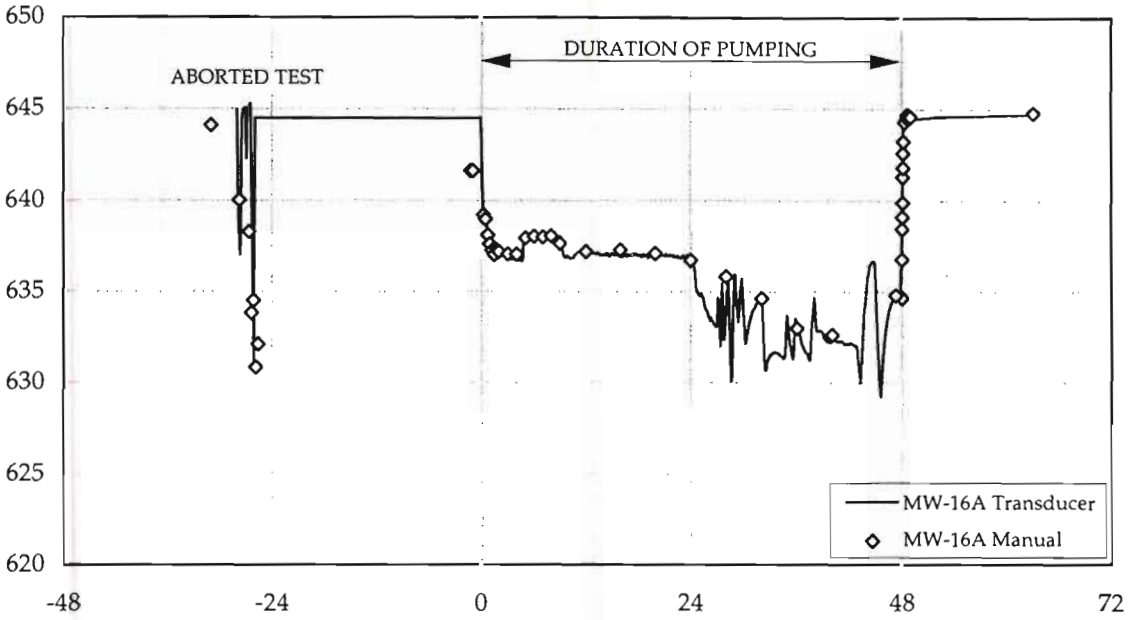
START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

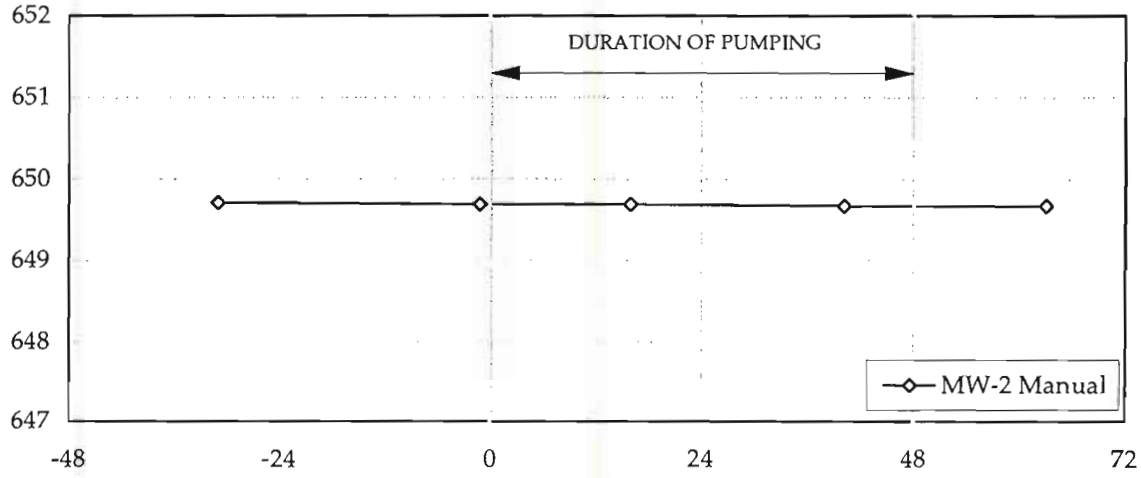
CRA

figure A-2
MW-16A/ MW-1A HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.

PUMPING WELL MW-16A



MONITORING WELL MW-2



ELAPSED TIME(HOURS)

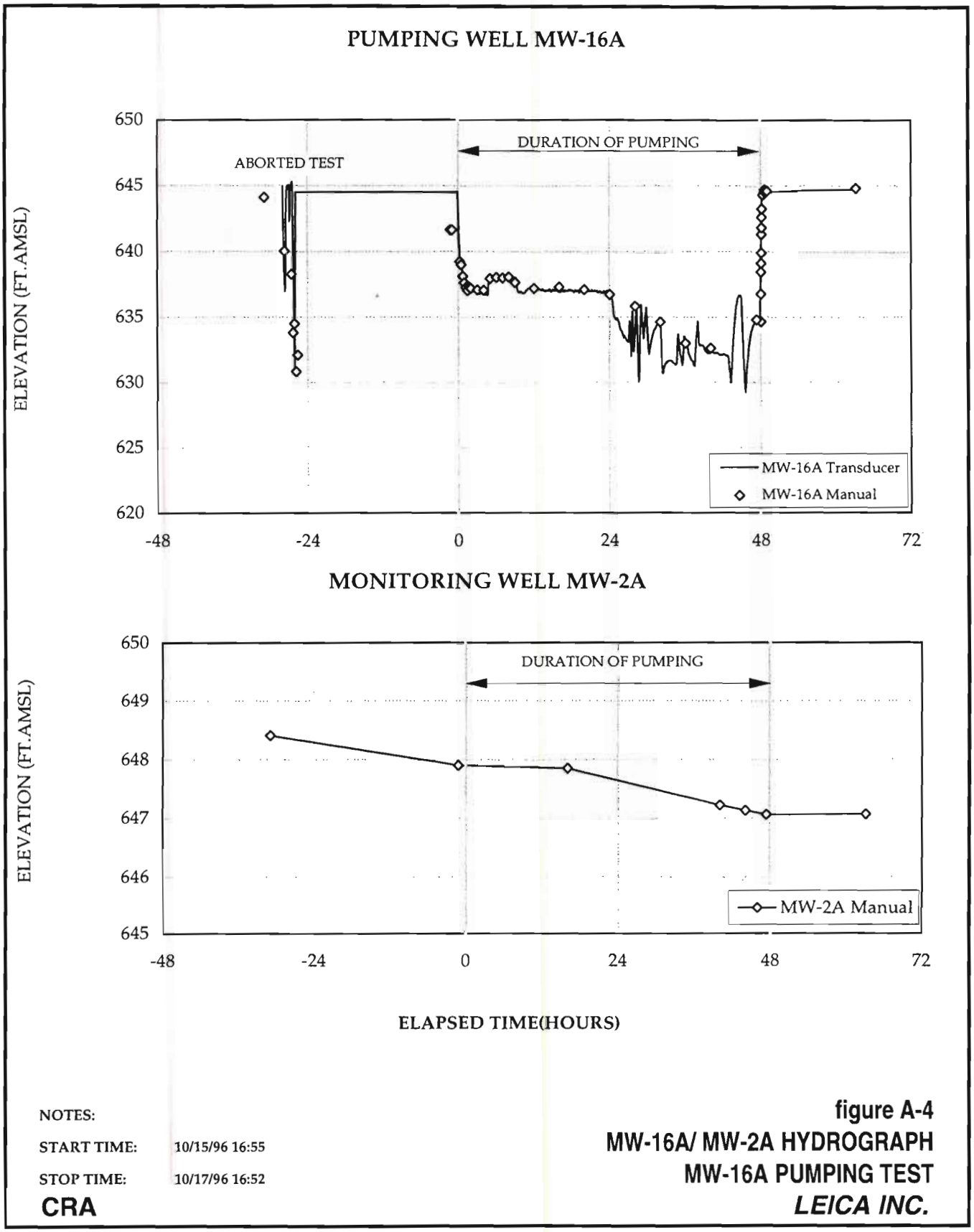
NOTES:

START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

CRA

figure A-3
MW-16A/ MW-2 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.



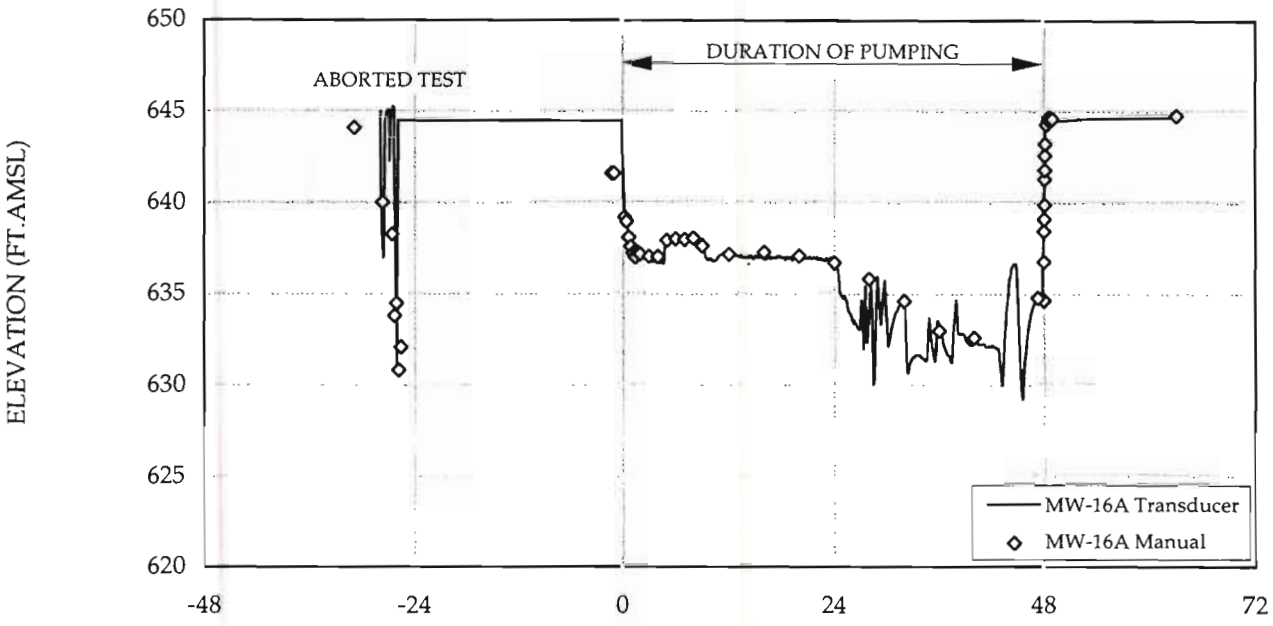
NOTES:

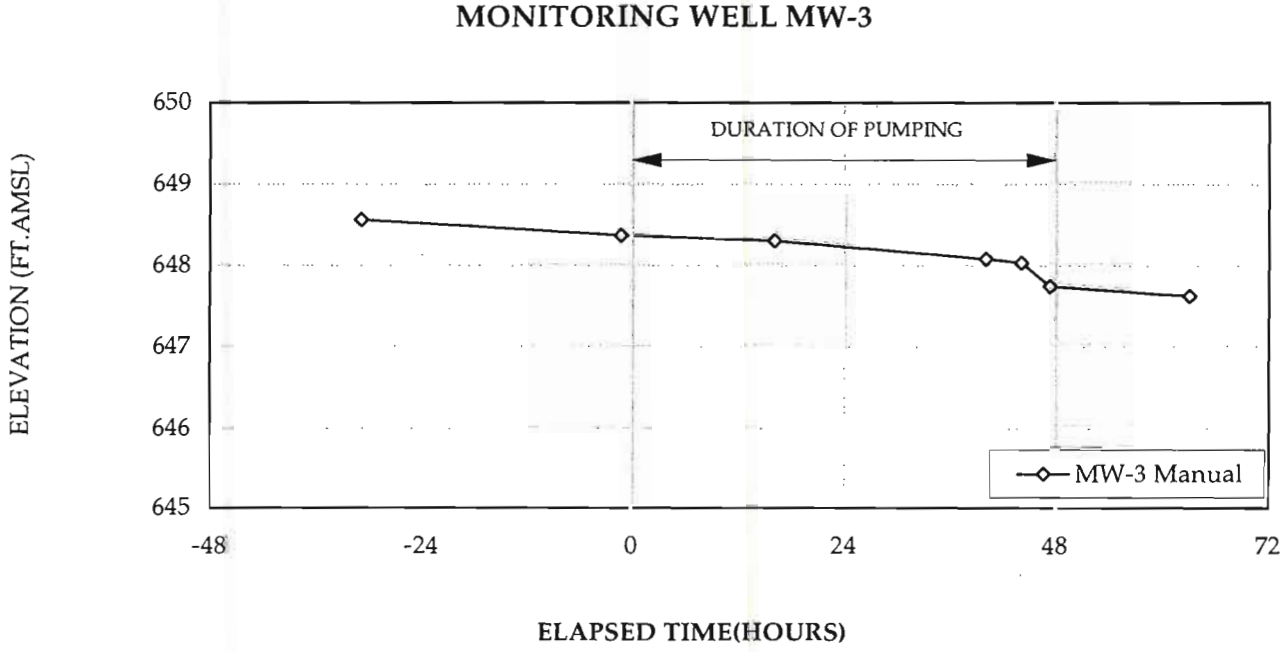
START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

CRA

figure A-4
MW-16A/ MW-2A HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.





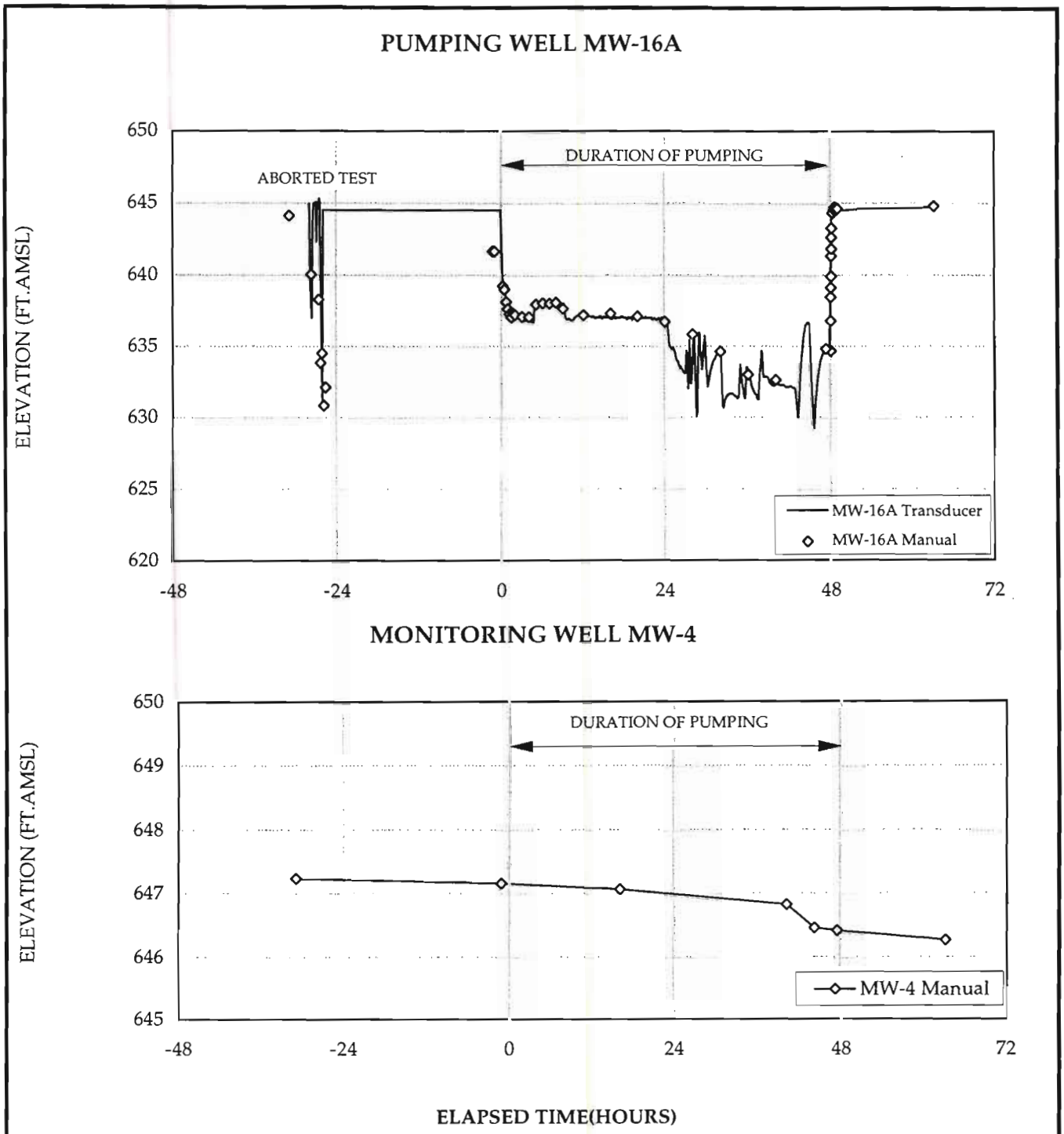
NOTES:

START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

CRA

figure A-5
MW-16A/ MW-3 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.



NOTES:

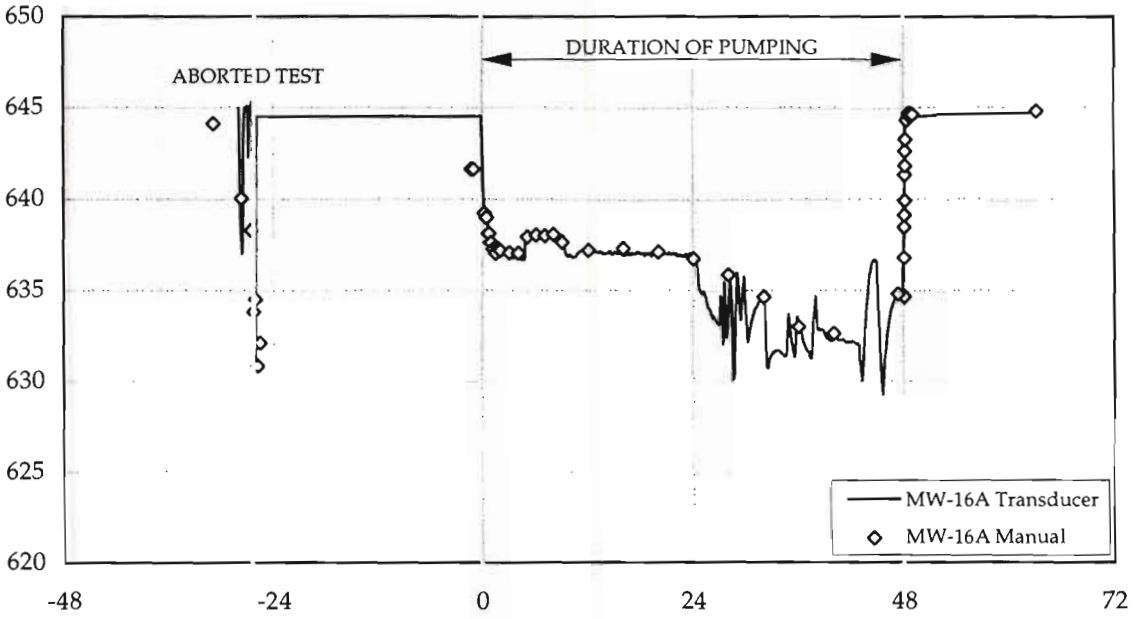
START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

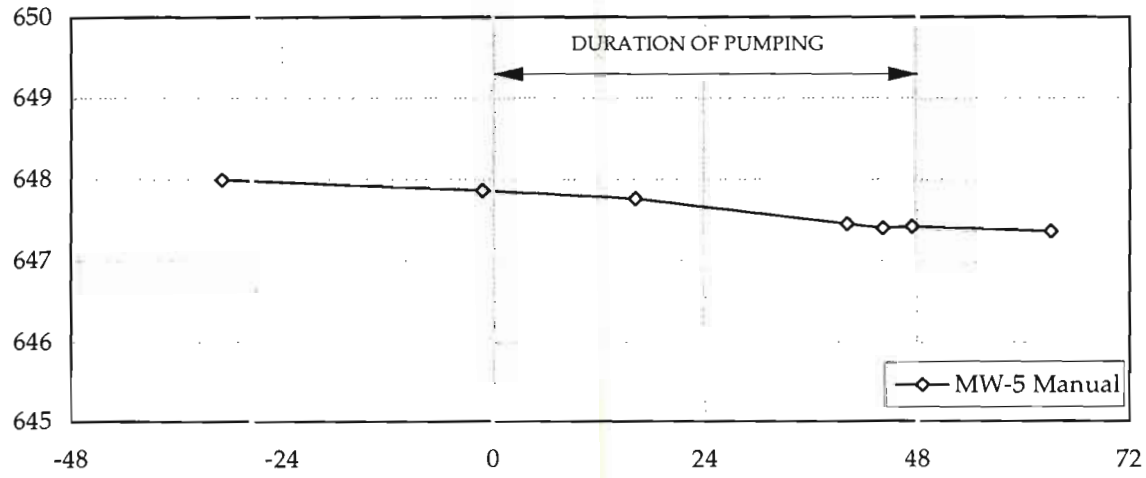
CRA

figure A-6
MW-16A/ MW-4 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.

PUMPING WELL MW-16A



MONITORING WELL MW-5



ELAPSED TIME(HOURS)

NOTES:

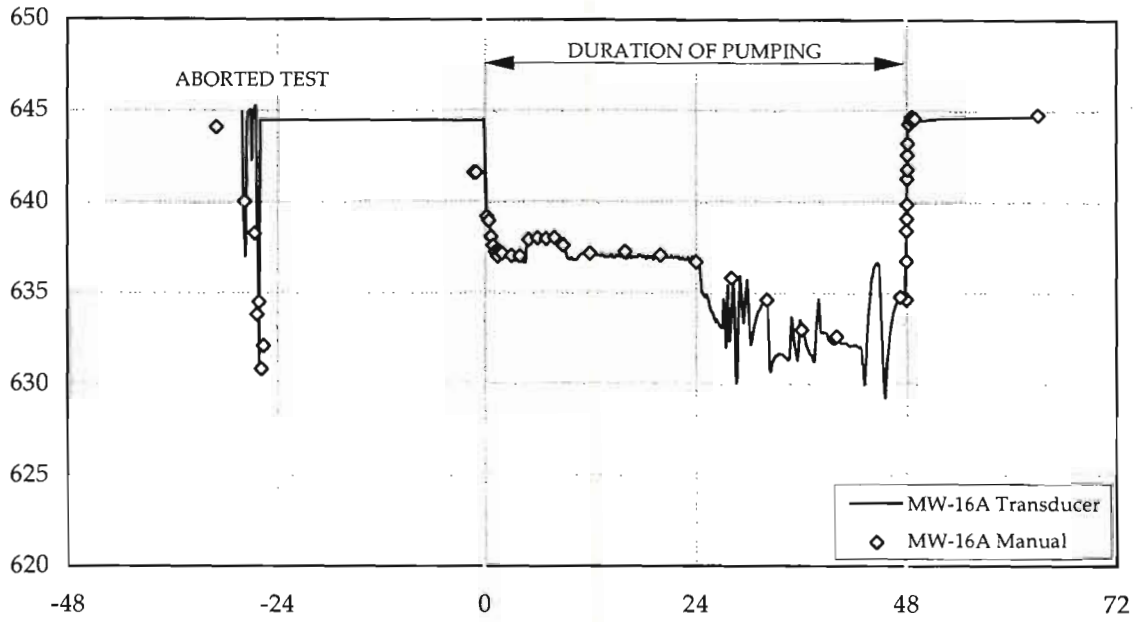
START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

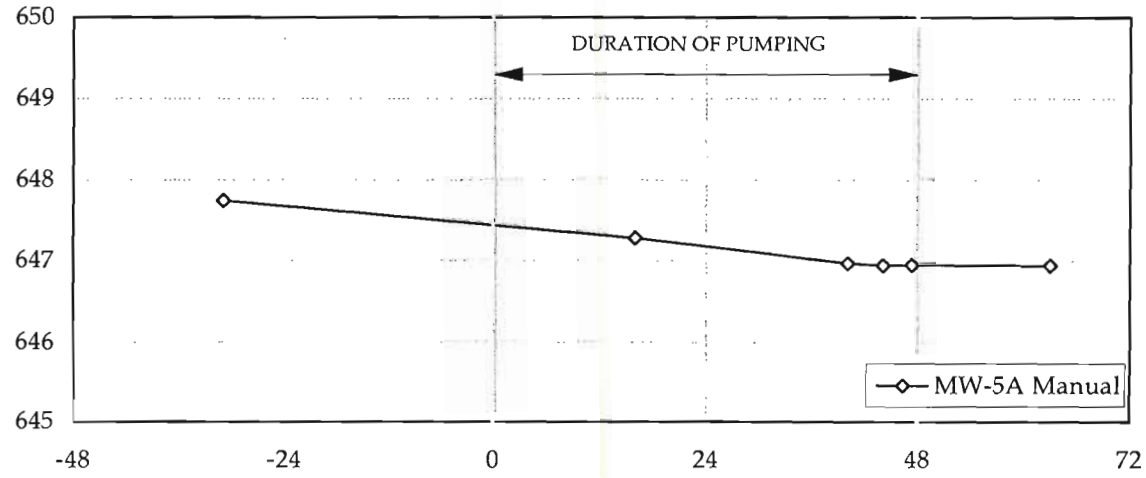
CRA

figure A-7
MW-16A/ MW-5 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.

PUMPING WELL MW-16A



MONITORING WELL MW-5A



ELAPSED TIME(HOURS)

NOTES:

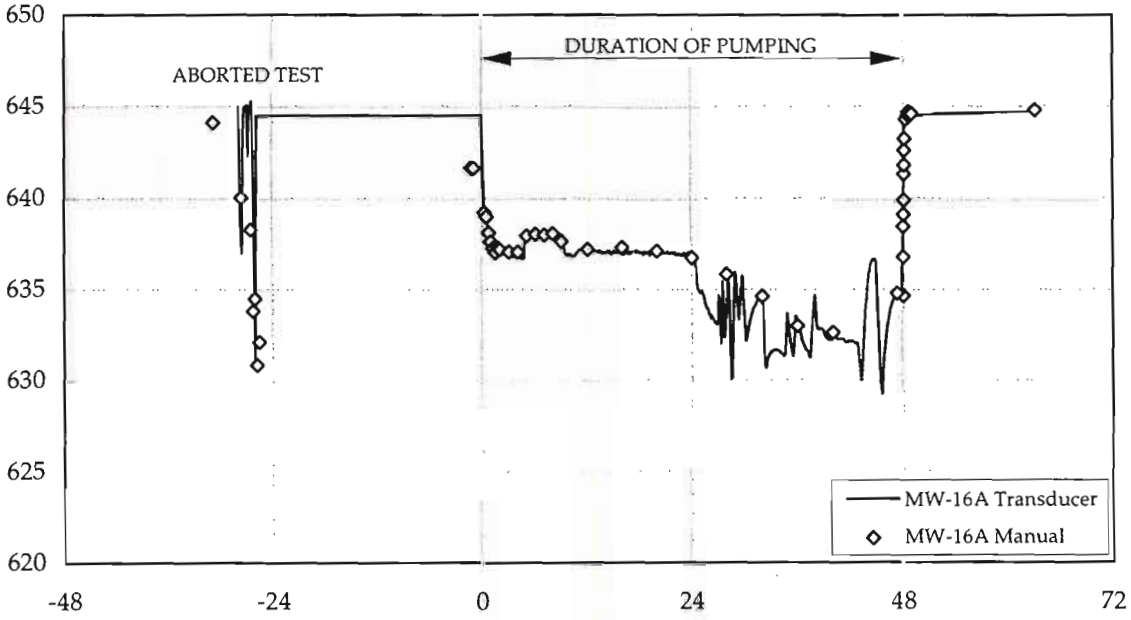
START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

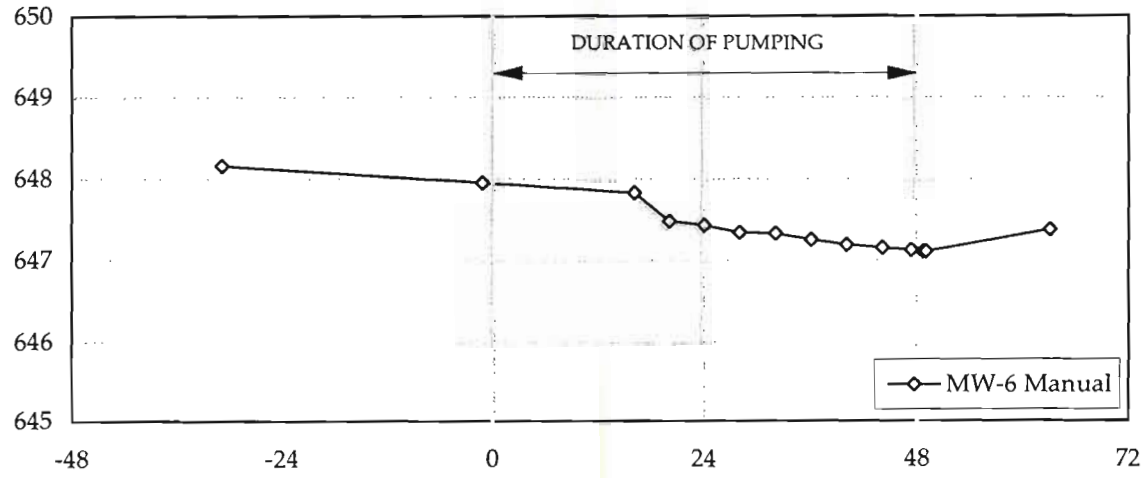
CRA

figure A-8
MW-16A/ MW-5A HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.

PUMPING WELL MW-16A



MONITORING WELL MW-6



ELAPSED TIME(HOURS)

NOTES:

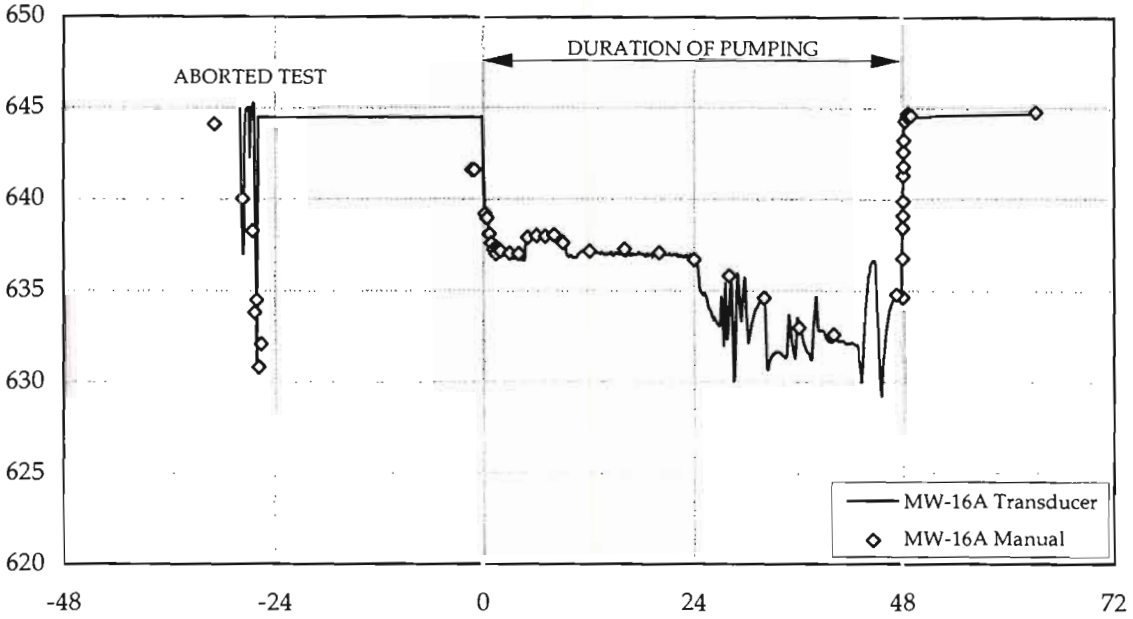
START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

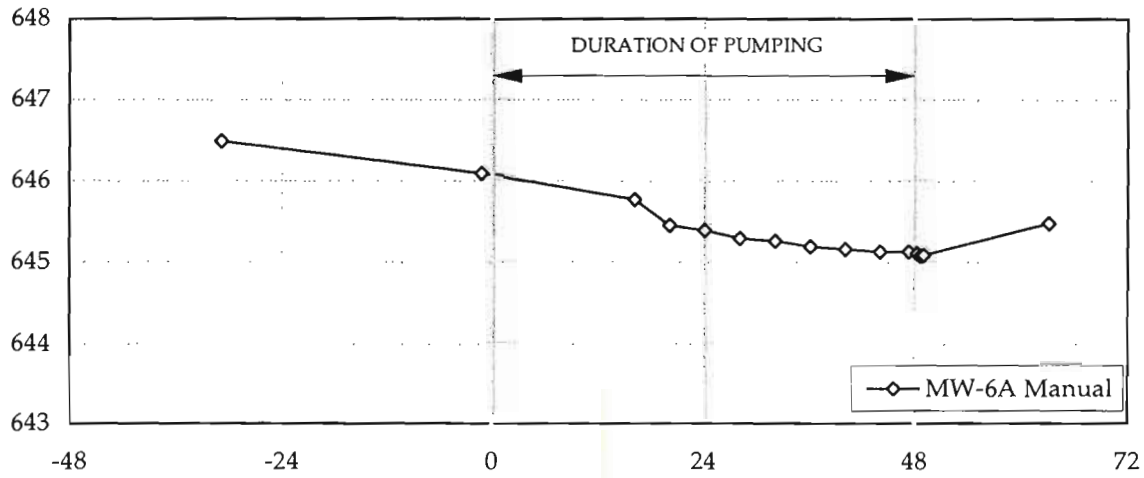
CRA

figure A-9
MW-16A/ MW-6 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.

PUMPING WELL MW-16A



MONITORING WELL MW-6A



ELAPSED TIME(HOURS)

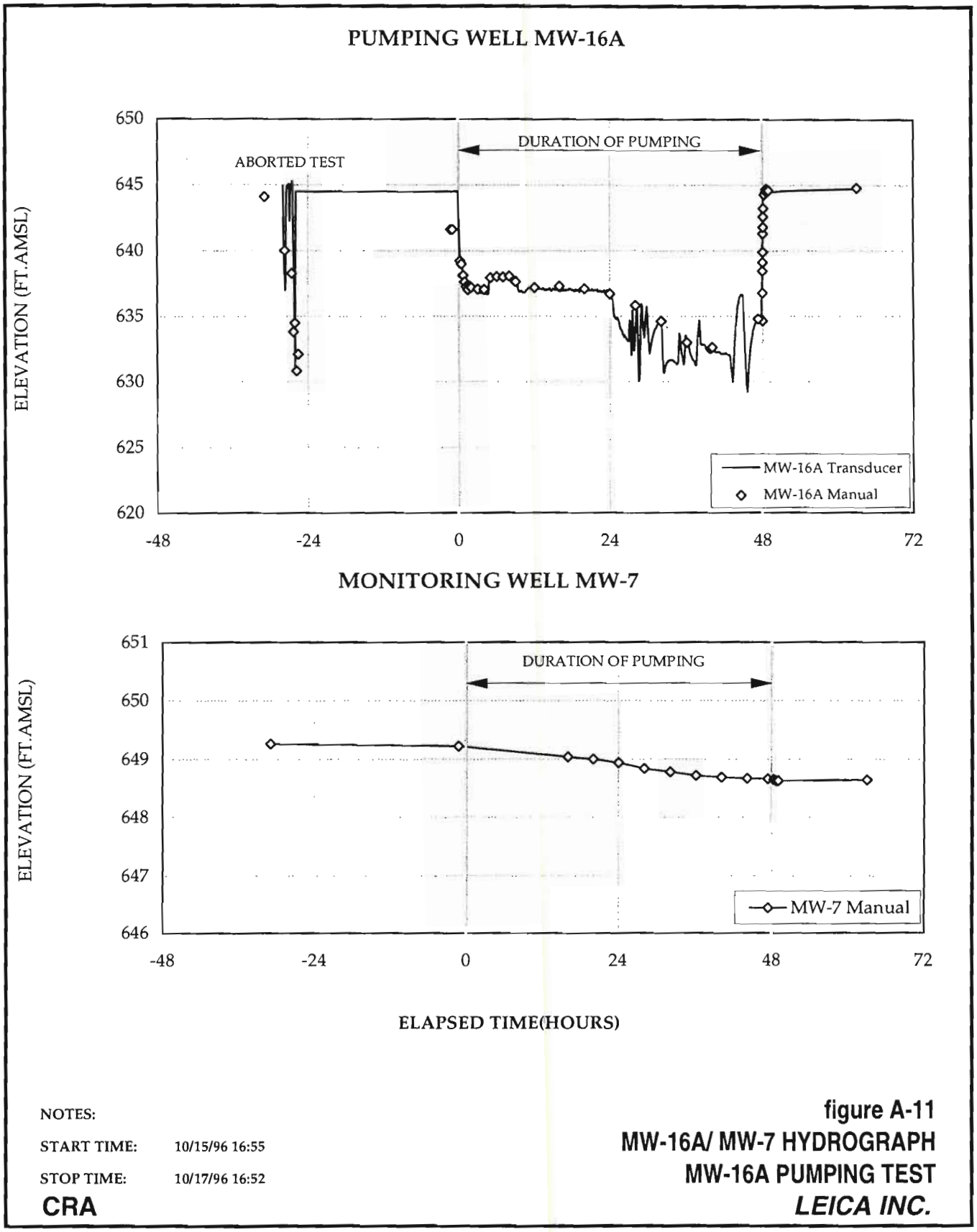
NOTES:

START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

CRA

figure A-10
MW-16A/ MW-6A HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.



NOTES:

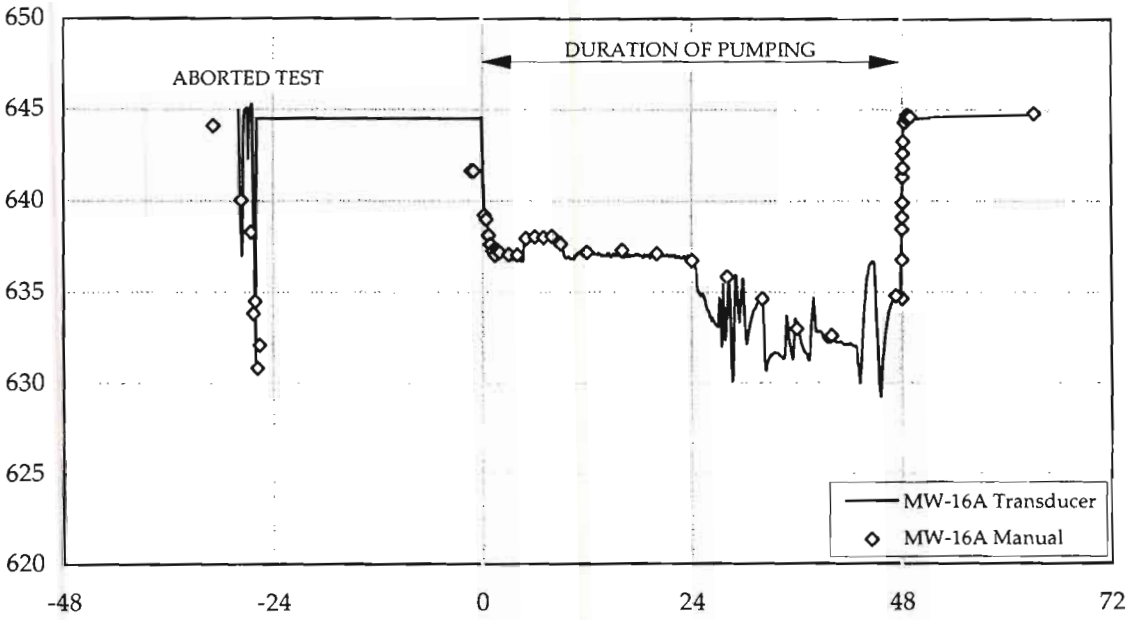
START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

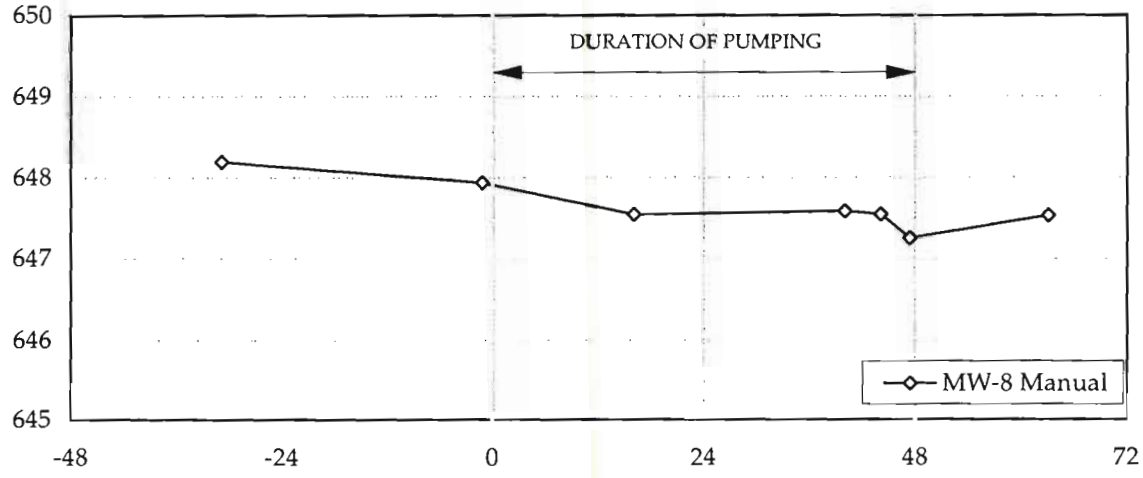
CRA

figure A-11
MW-16A/ MW-7 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.

PUMPING WELL MW-16A



MONITORING WELL MW-8



ELAPSED TIME(HOURS)

NOTES:

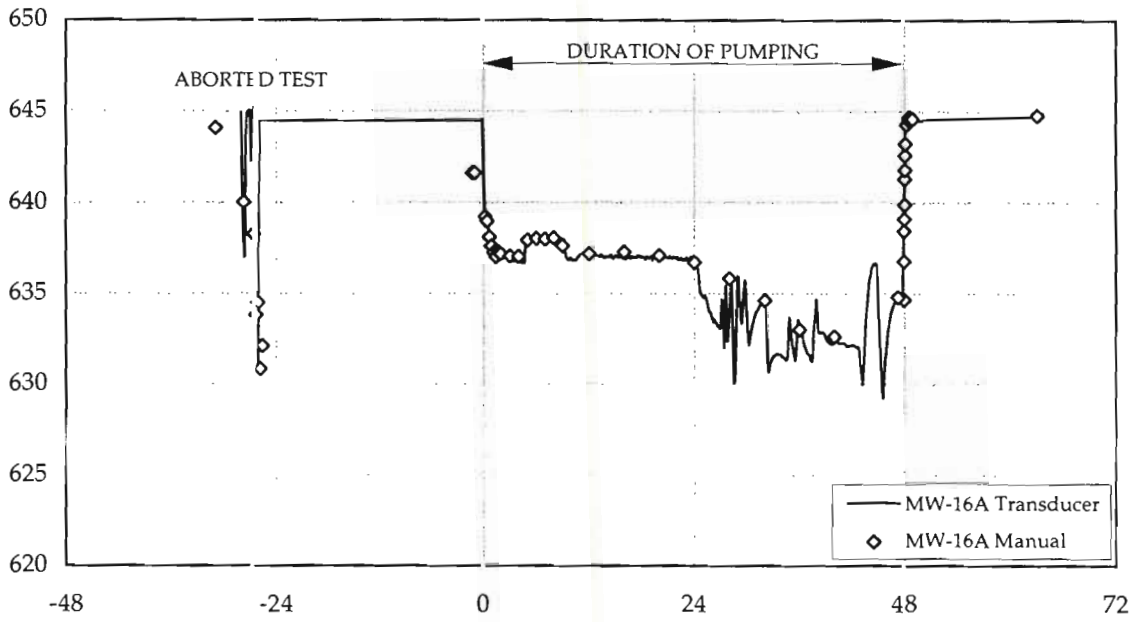
START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

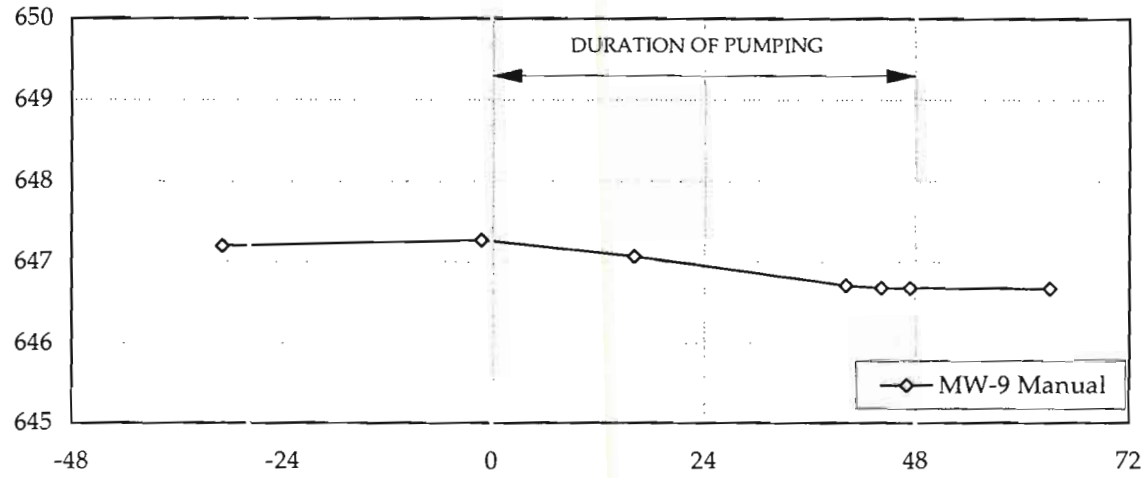
CRA

figure A-12
MW-16A/ MW-8 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.

PUMPING WELL MW-16A



MONITORING WELL MW-9



ELAPSED TIME(HOURS)

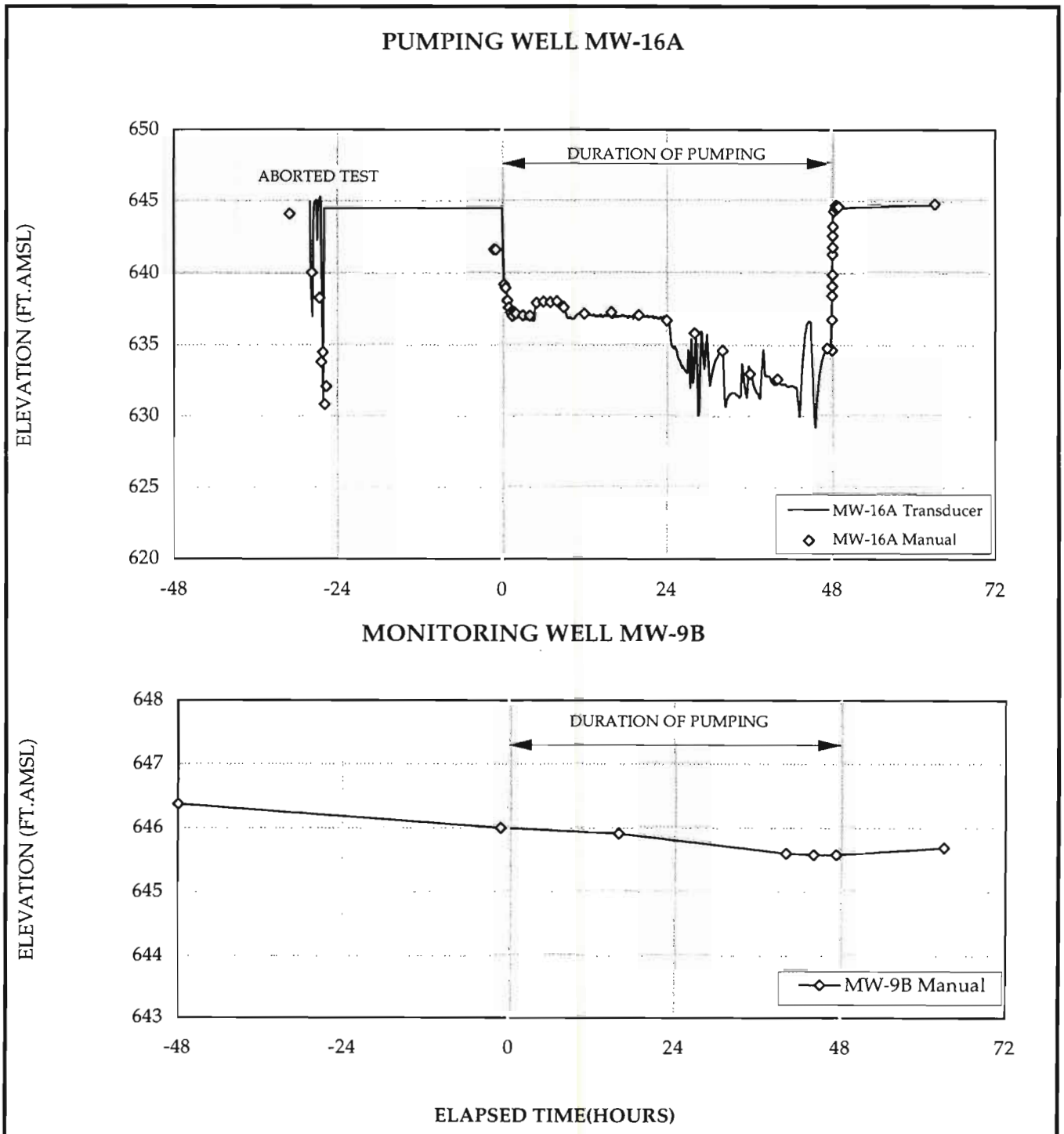
NOTES:

START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

CRA

figure A-13
MW-16A/ MW-9 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.



NOTES:

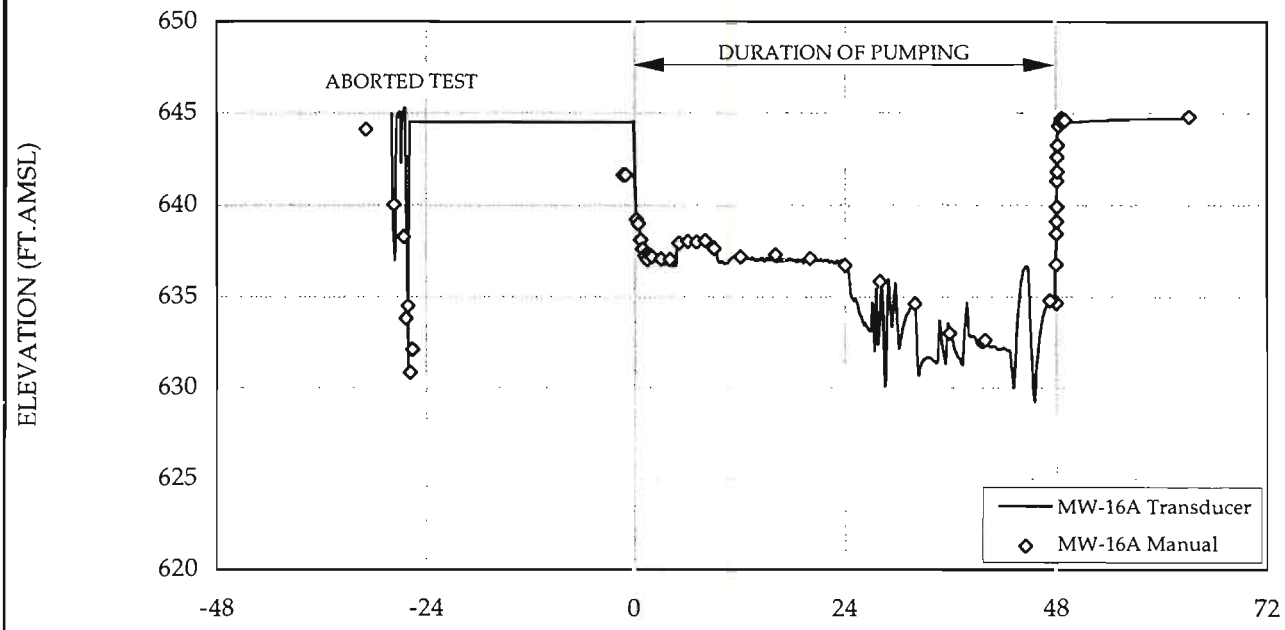
START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

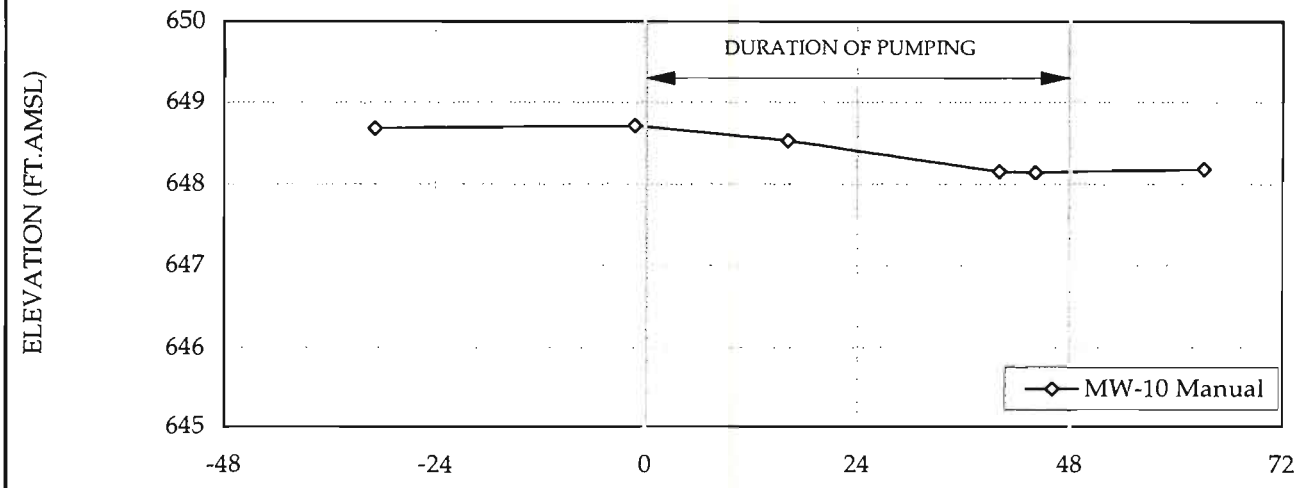
CRA

figure A-14
MW-16A/ MW-9B HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.

PUMPING WELL MW-16A



MONITORING WELL MW-10



ELAPSED TIME(HOURS)

NOTES:

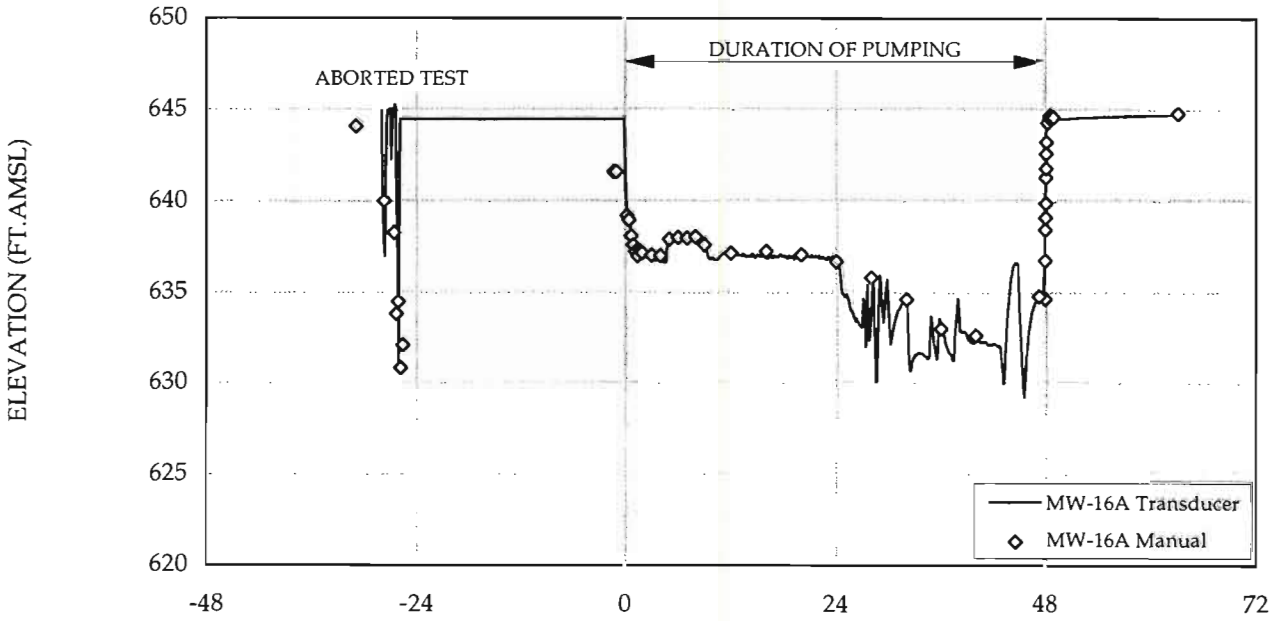
START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

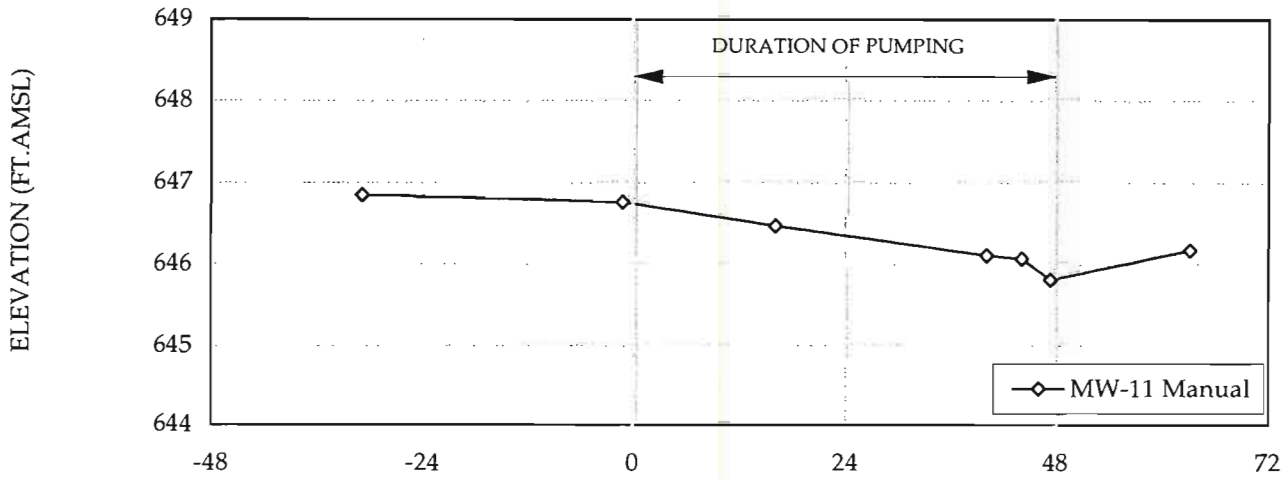
CRA

figure A-15
MW-16A/ MW-10 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.

PUMPING WELL MW-16A



MONITORING WELL MW-11



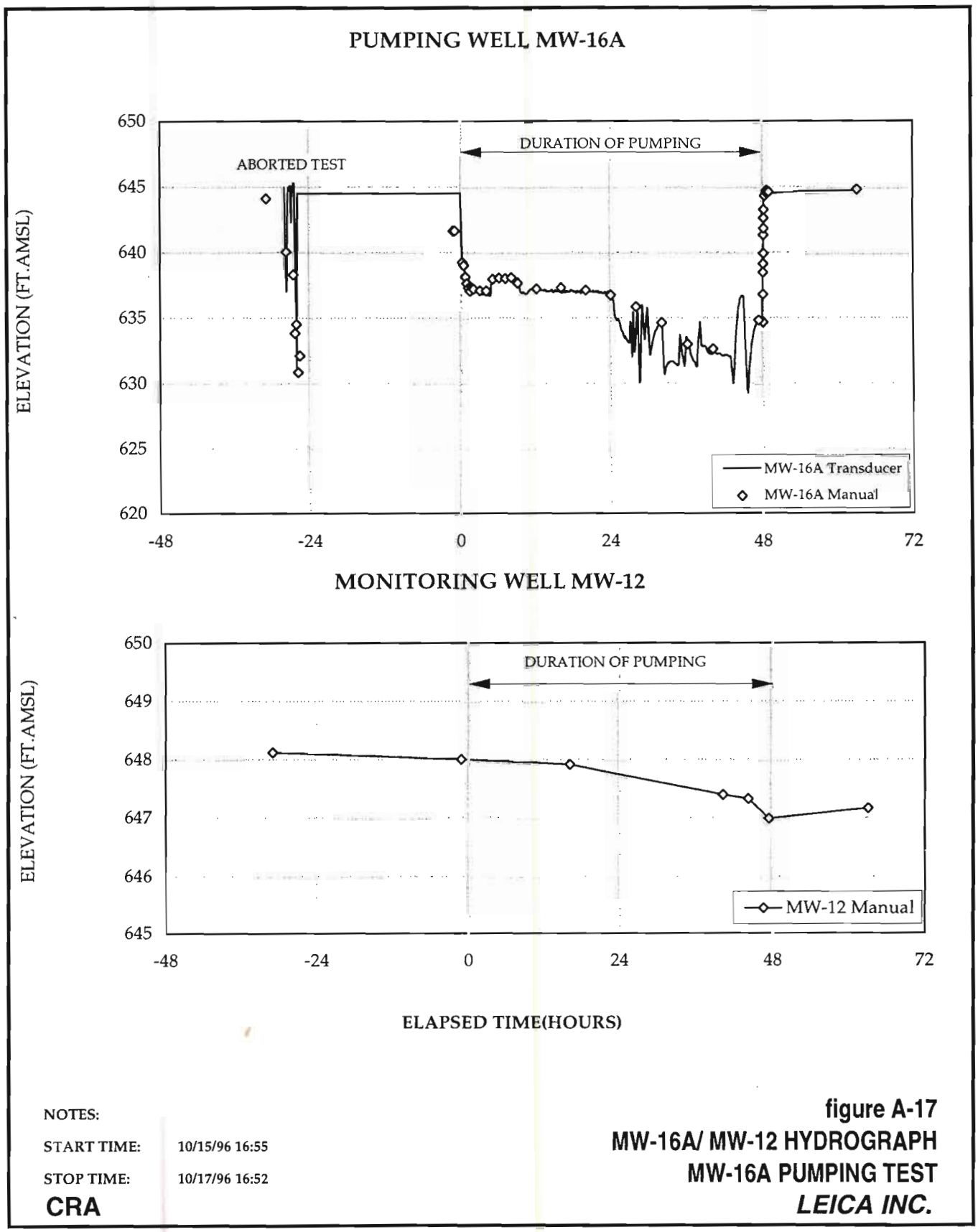
NOTES:

START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

CRA

figure A-16
MW-16A/ MW-11 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.



NOTES:

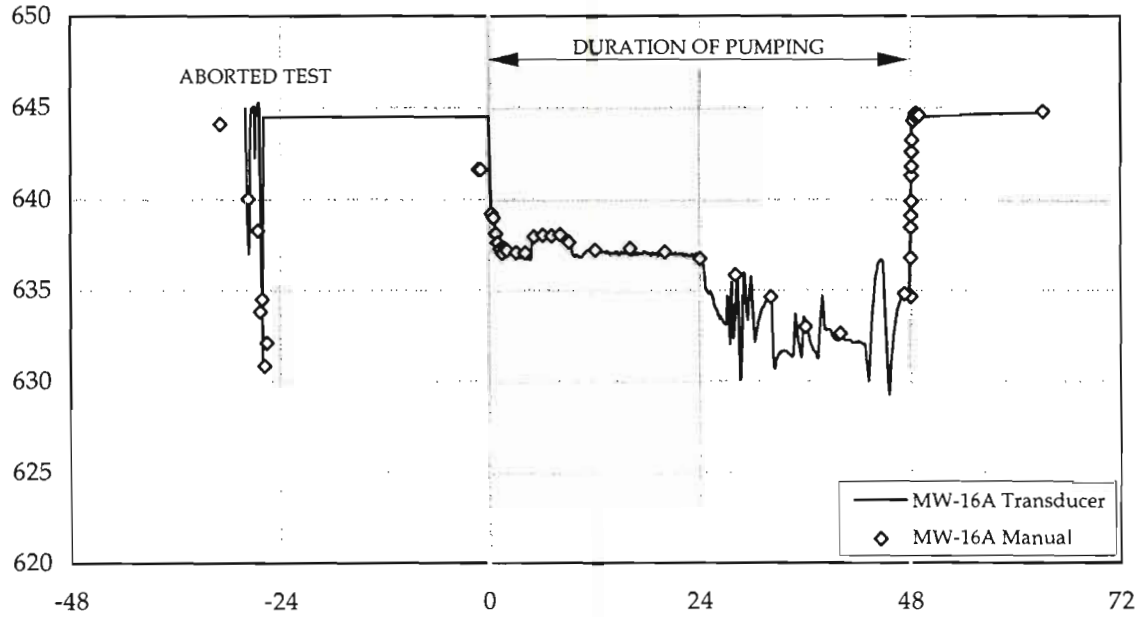
START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

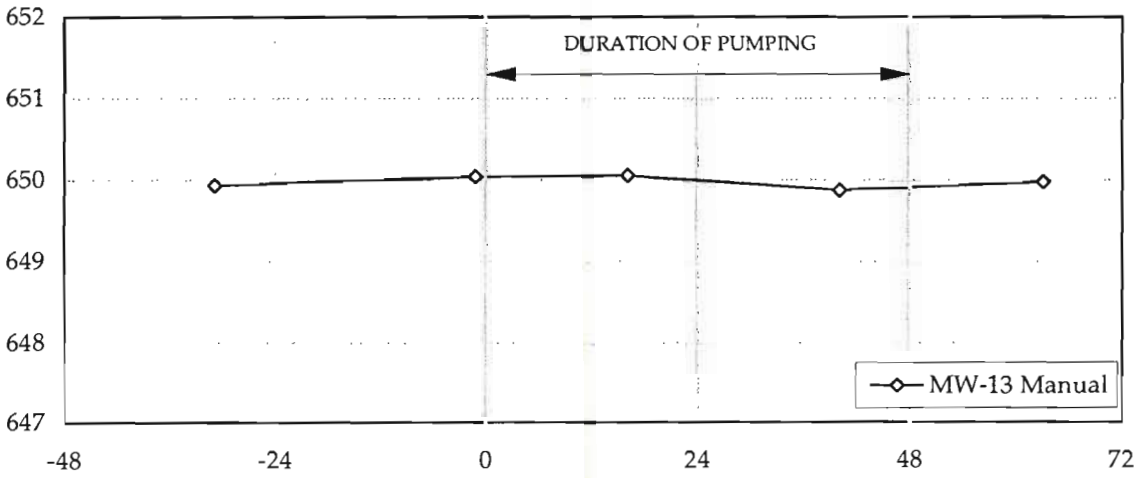
CRA

figure A-17
MW-16A/ MW-12 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.

PUMPING WELL MW-16A



MONITORING WELL MW-13



NOTES:

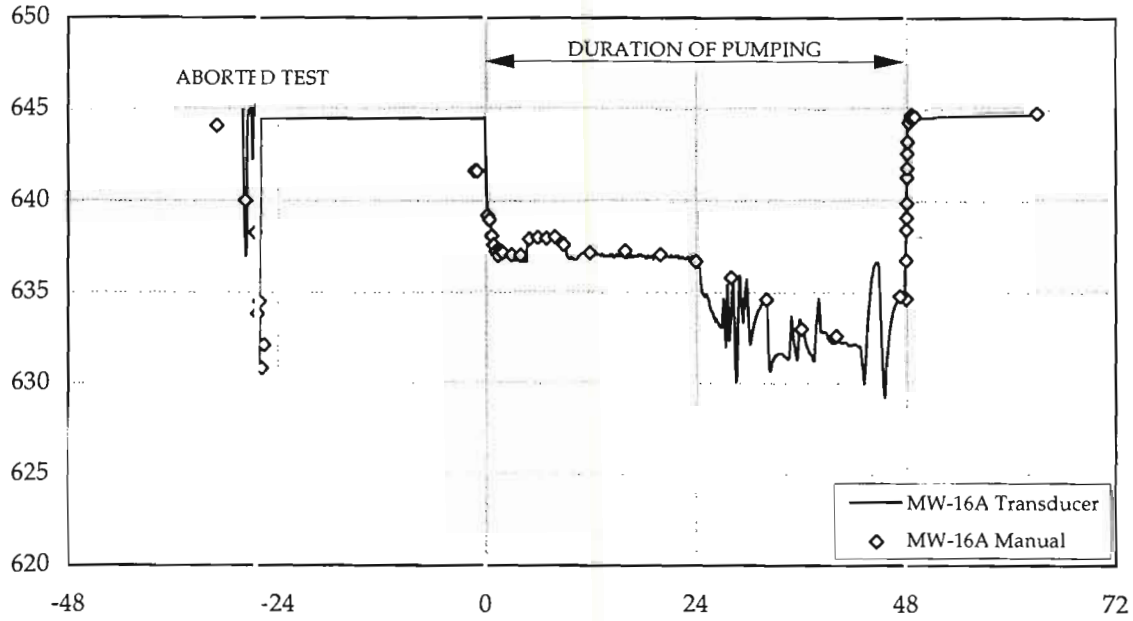
START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

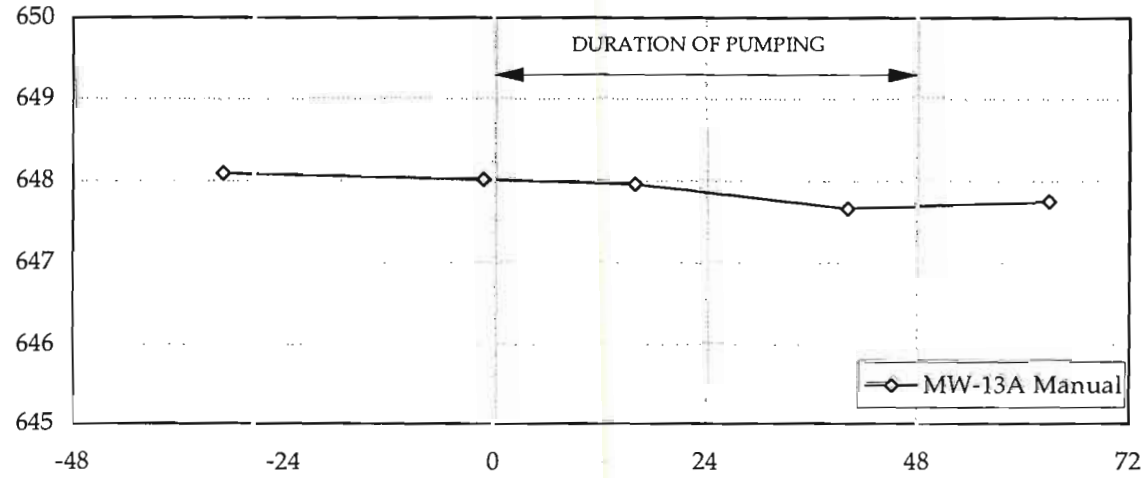
CRA

figure A-18
MW-16A/ MW-13 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.

PUMPING WELL MW-16A



MONITORING WELL MW-13A



ELAPSED TIME(HOURS)

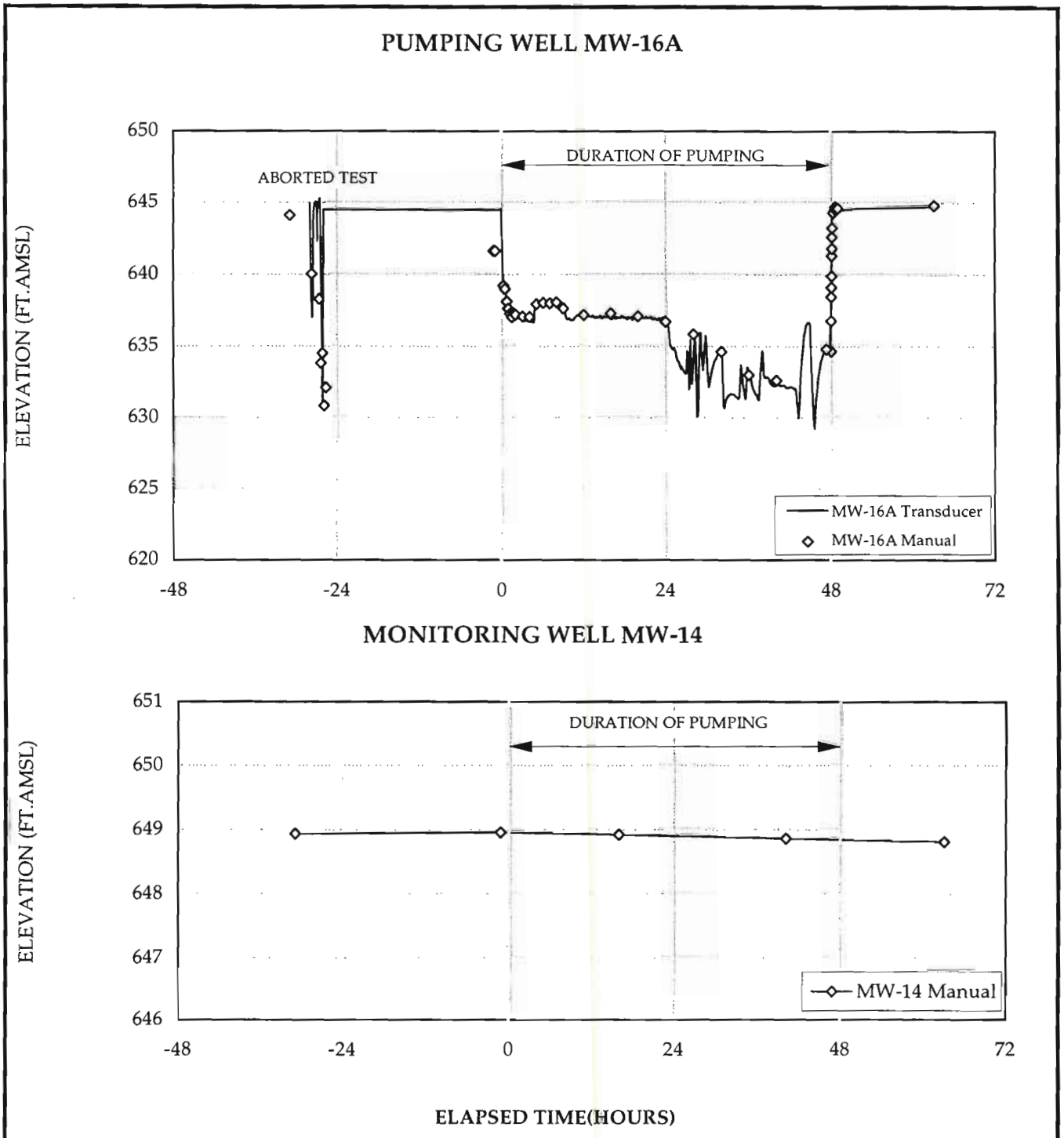
NOTES:

START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

CRA

figure A-19
MW-16A/ MW-13A HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.



NOTES:

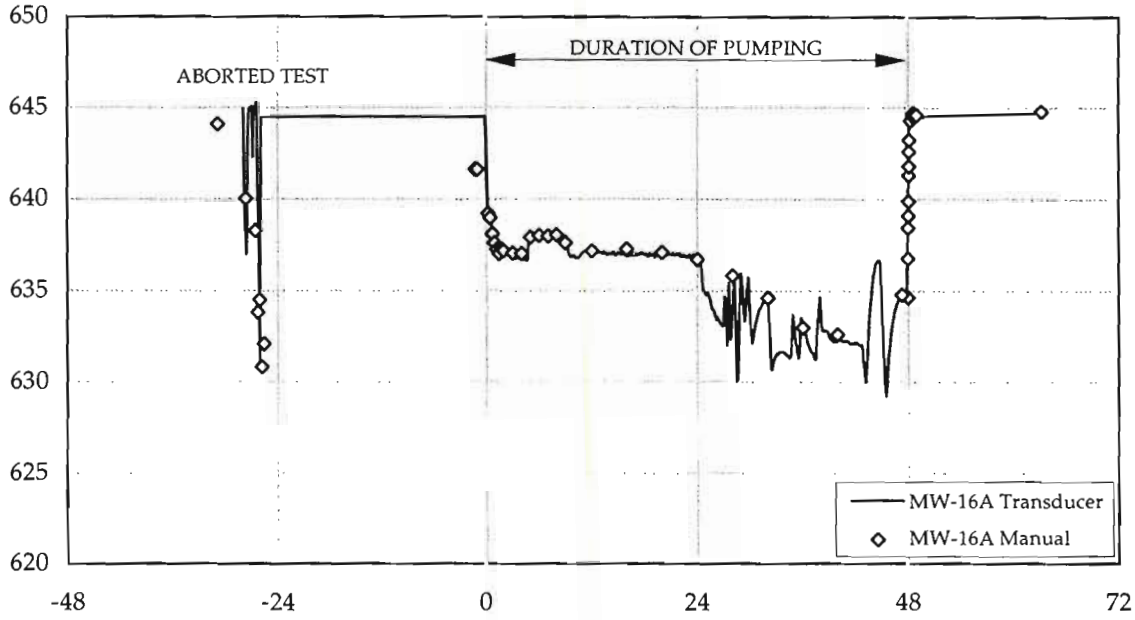
START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

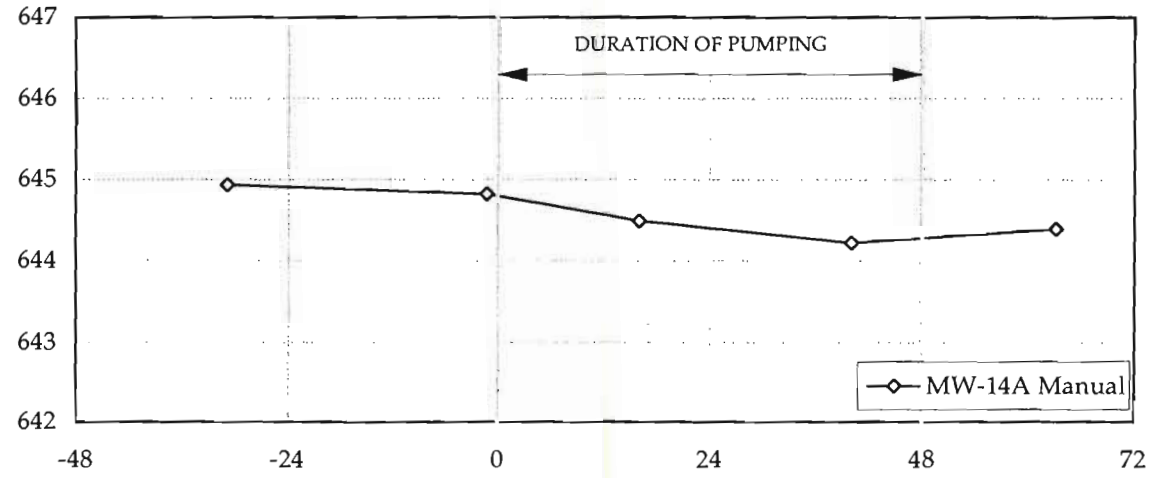
CRA

figure A-20
MW-16A/ MW-14 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.

PUMPING WELL MW-16A



MONITORING WELL MW-14A



ELAPSED TIME(HOURS)

NOTES:

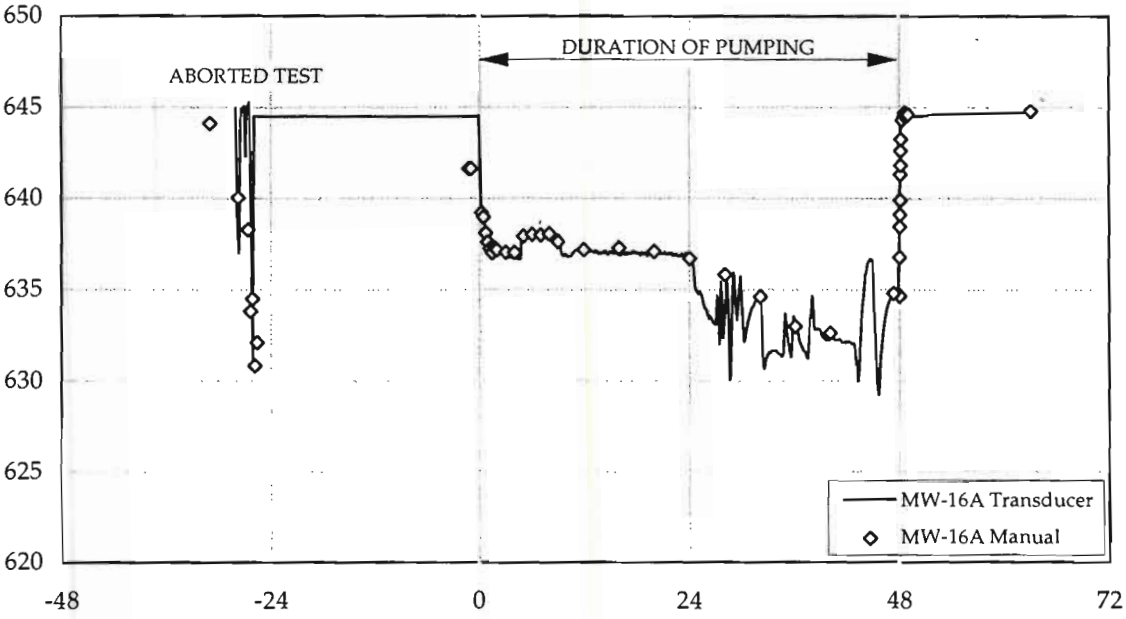
START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

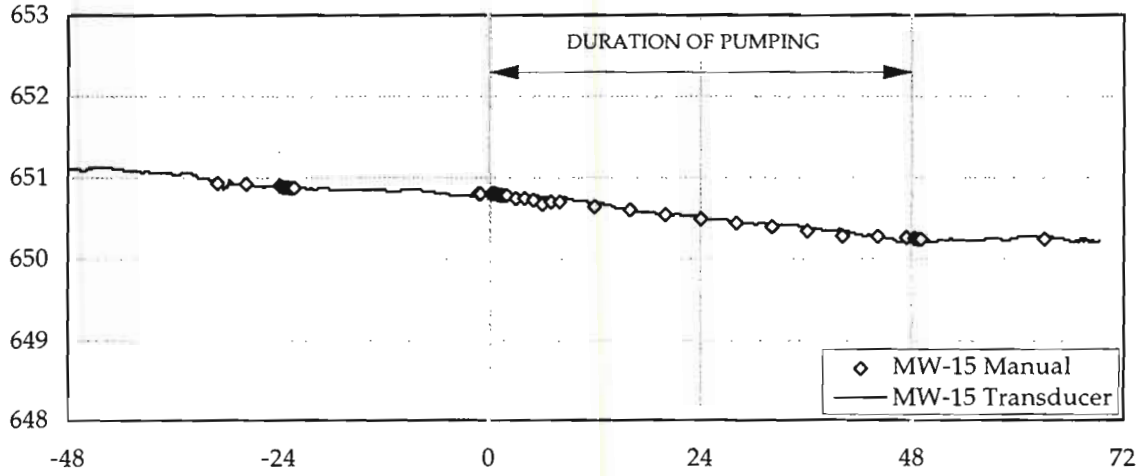
CRA

figure A-21
MW-16A/ MW-14A HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.

PUMPING WELL MW-16A



MONITORING WELL MW-15



ELAPSED TIME(HOURS)

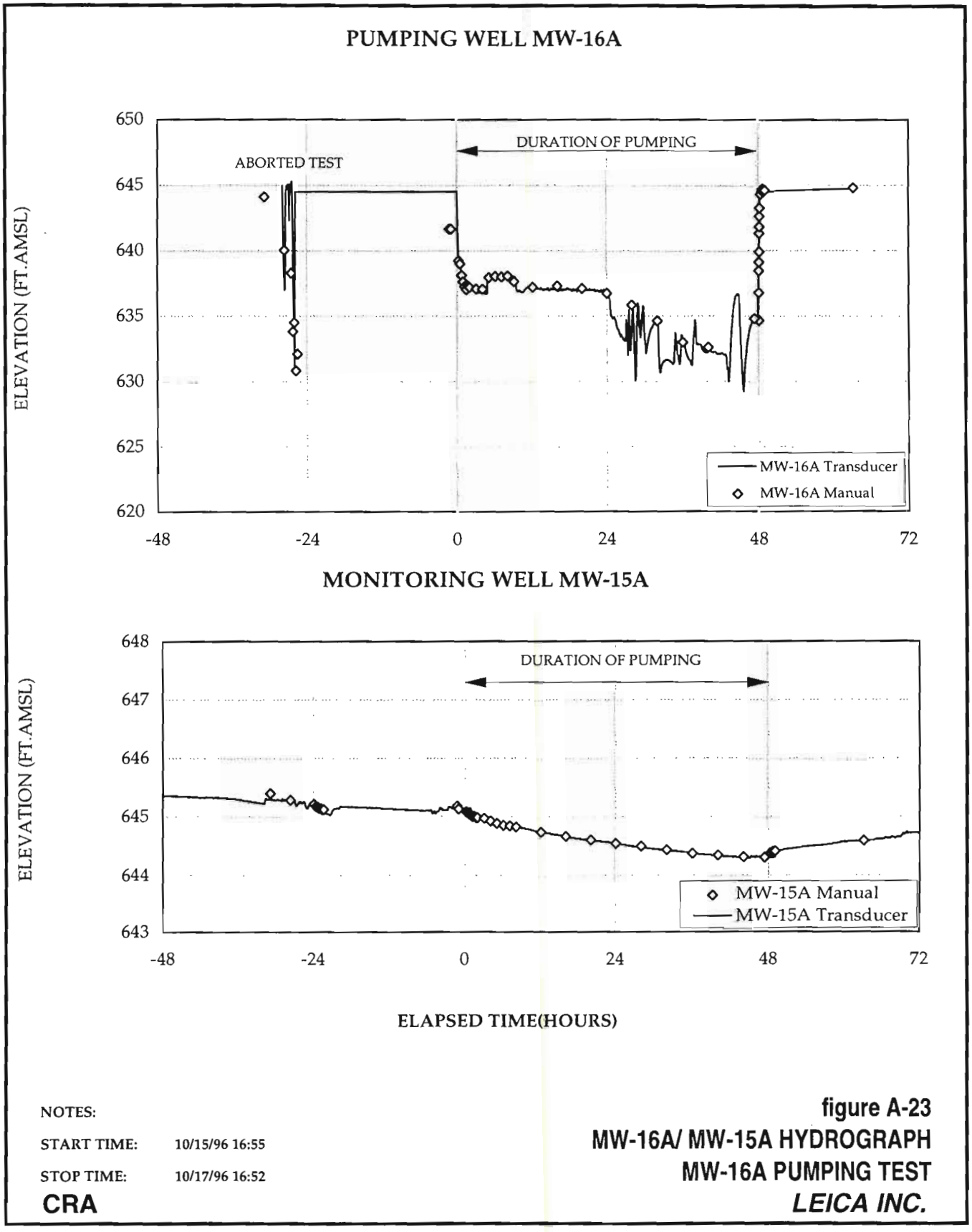
NOTES:

START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

CRA

figure A-22
MW-16A/ MW-15 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.



NOTES:

START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

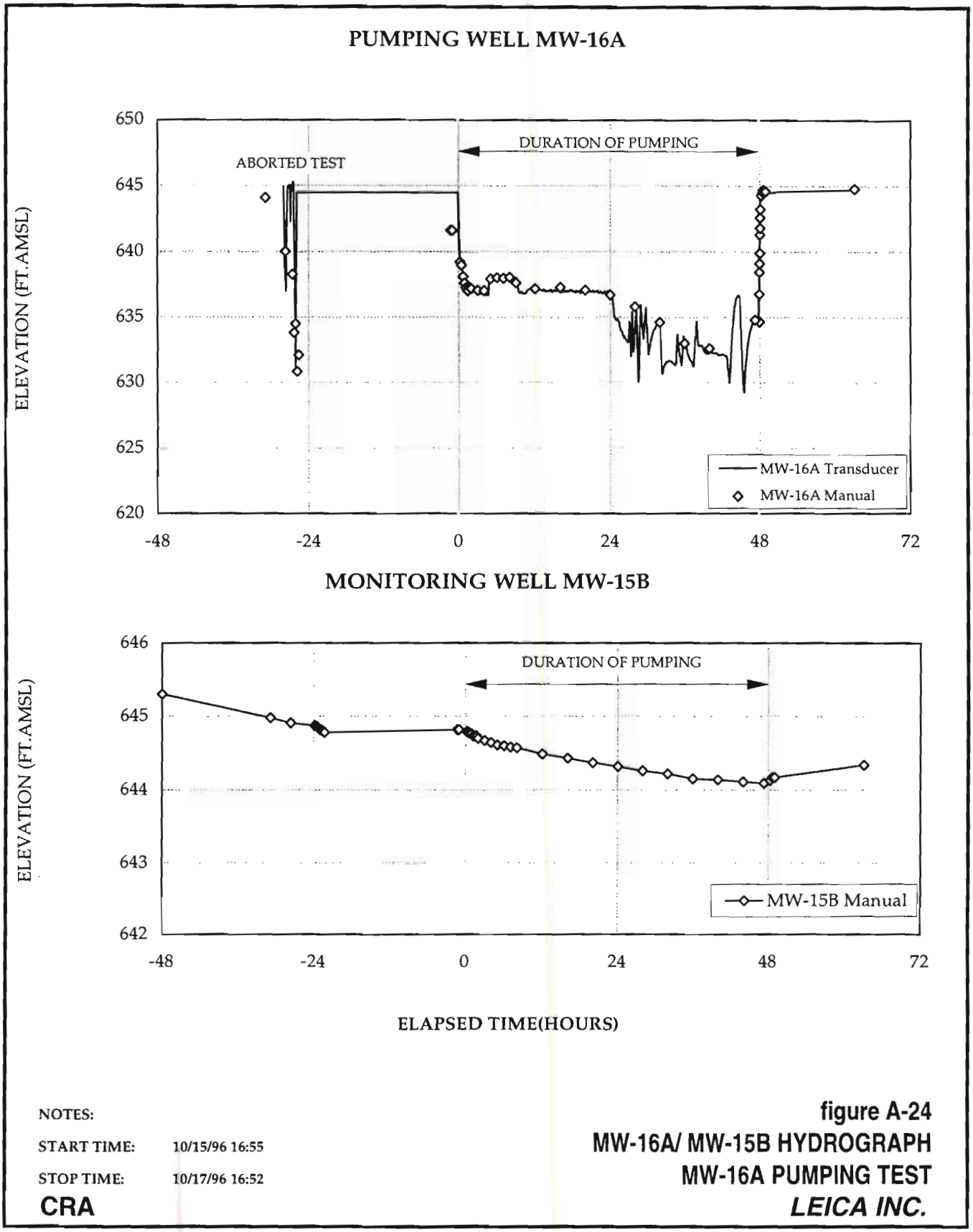
CRA

figure A-23

MW-16A/ MW-15A HYDROGRAPH

MW-16A PUMPING TEST

LEICA INC.



NOTES:

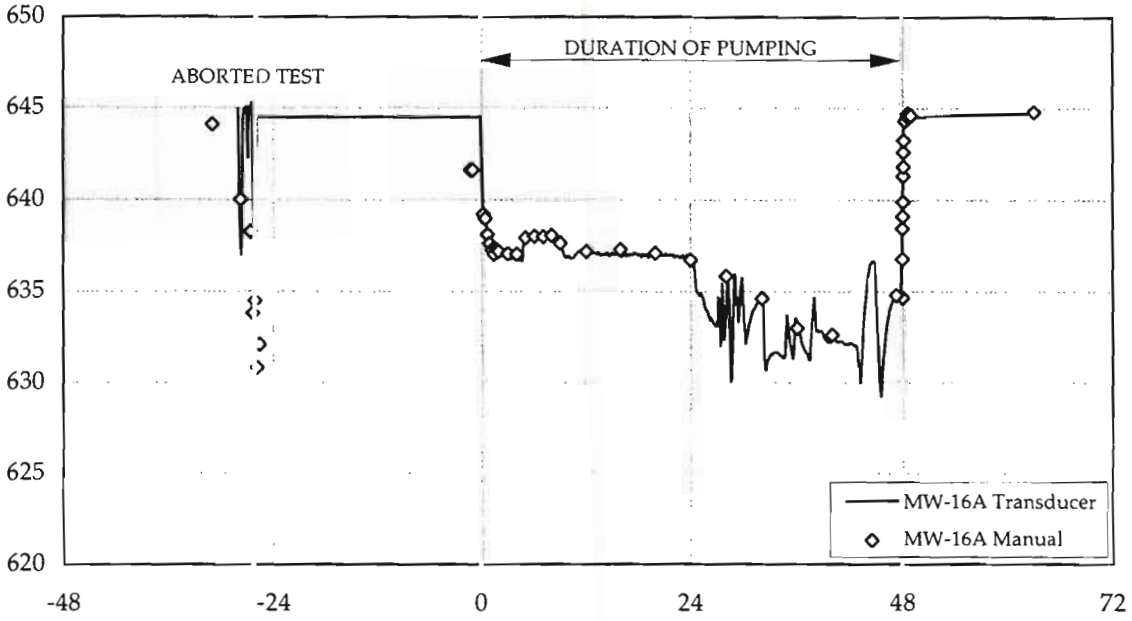
START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

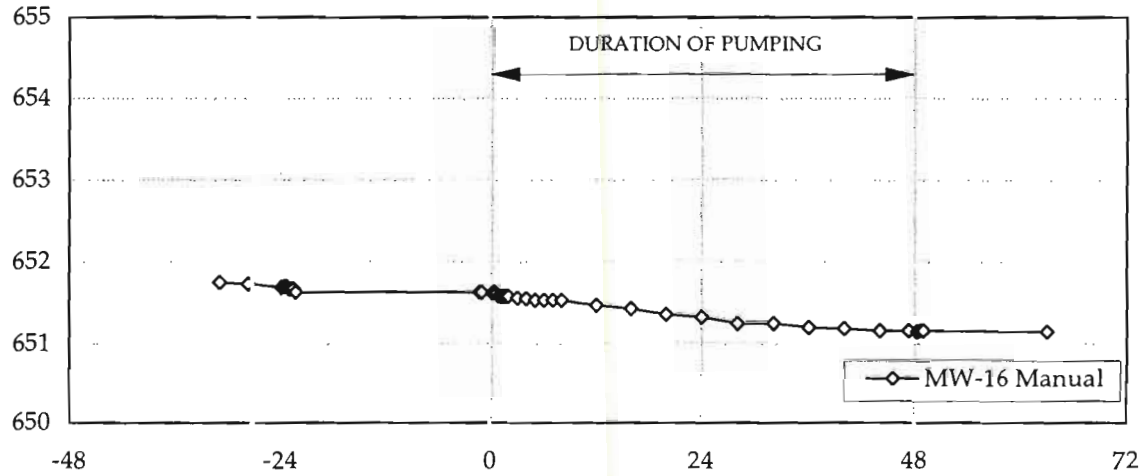
CRA

figure A-24
MW-16A/ MW-15B HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.

PUMPING WELL MW-16A



MONITORING WELL MW-16



ELAPSED TIME(HOURS)

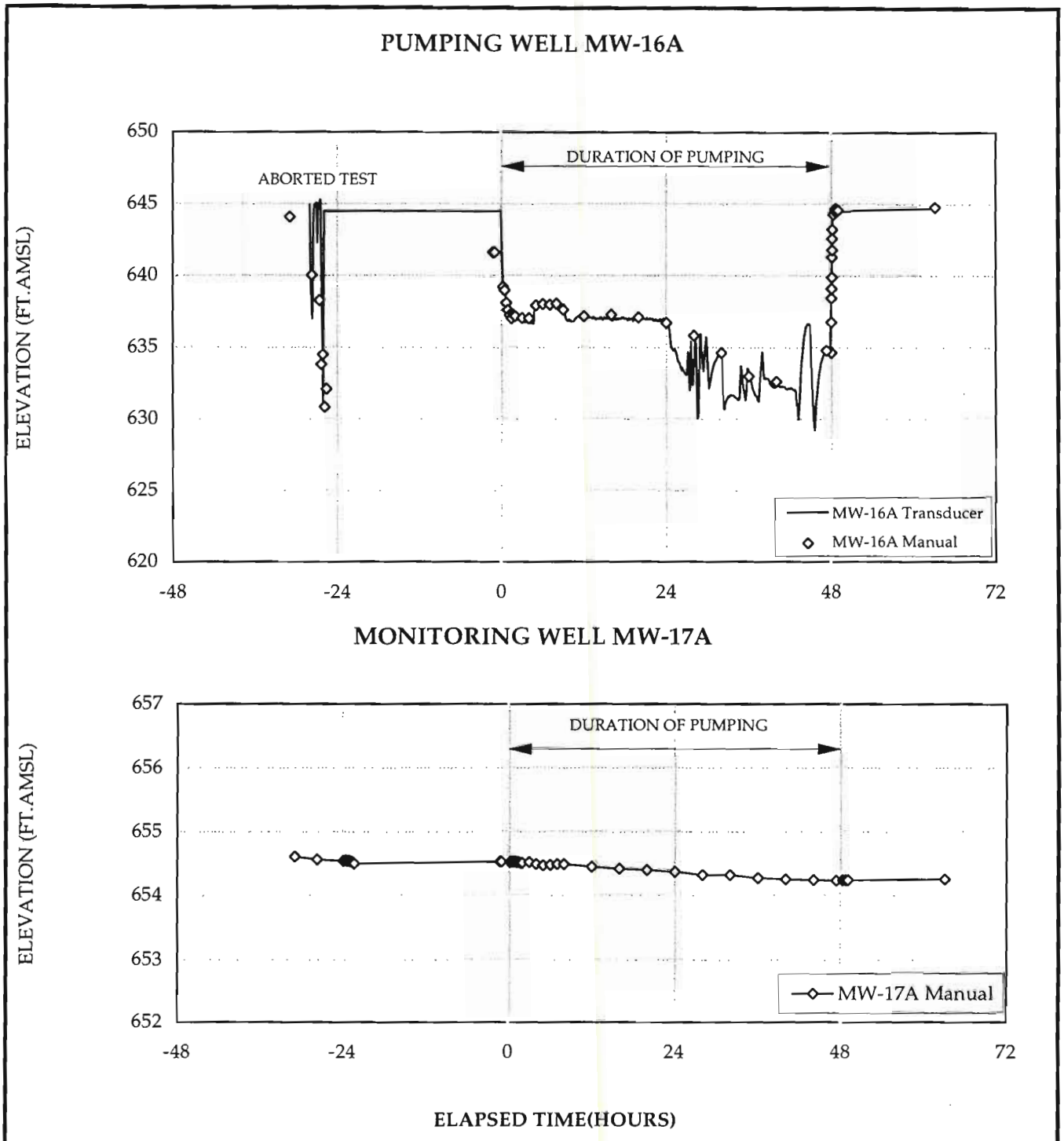
NOTES:

START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

CRA

figure A-25
MW-16A/ MW-16 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.



NOTES:

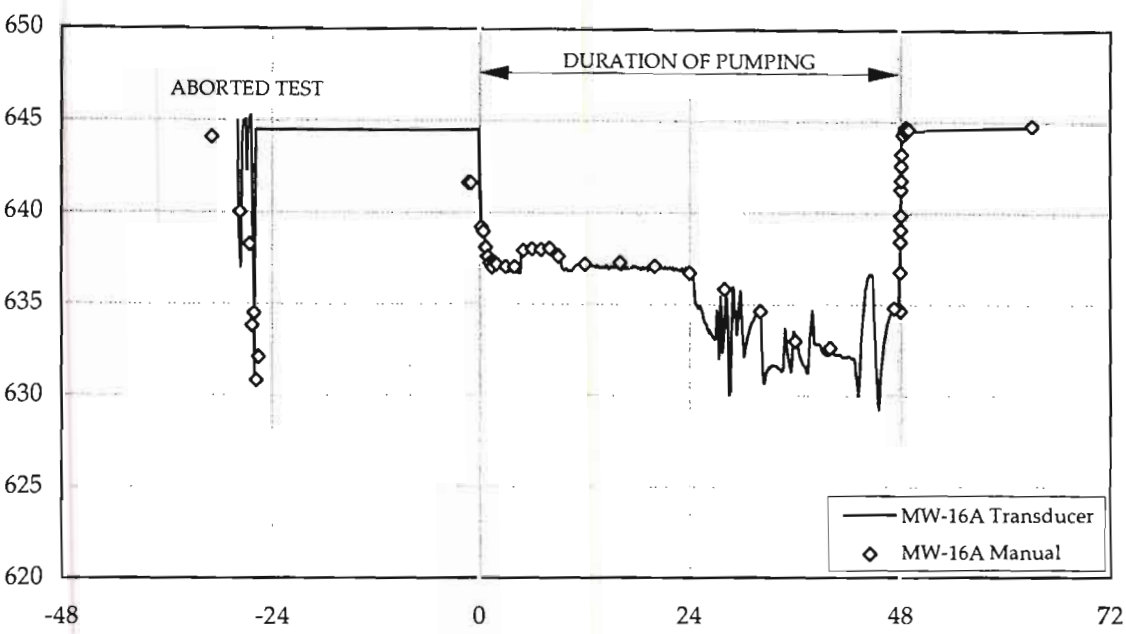
START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

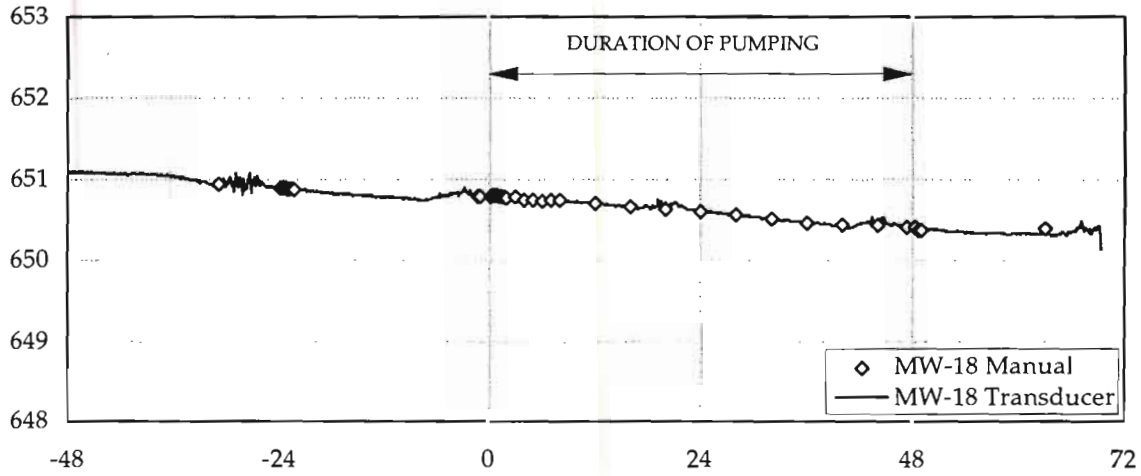
CRA

figure A-26
MW-16A/ MW-17A HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.

PUMPING WELL MW-16A



MONITORING WELL MW-18



ELAPSED TIME(HOURS)

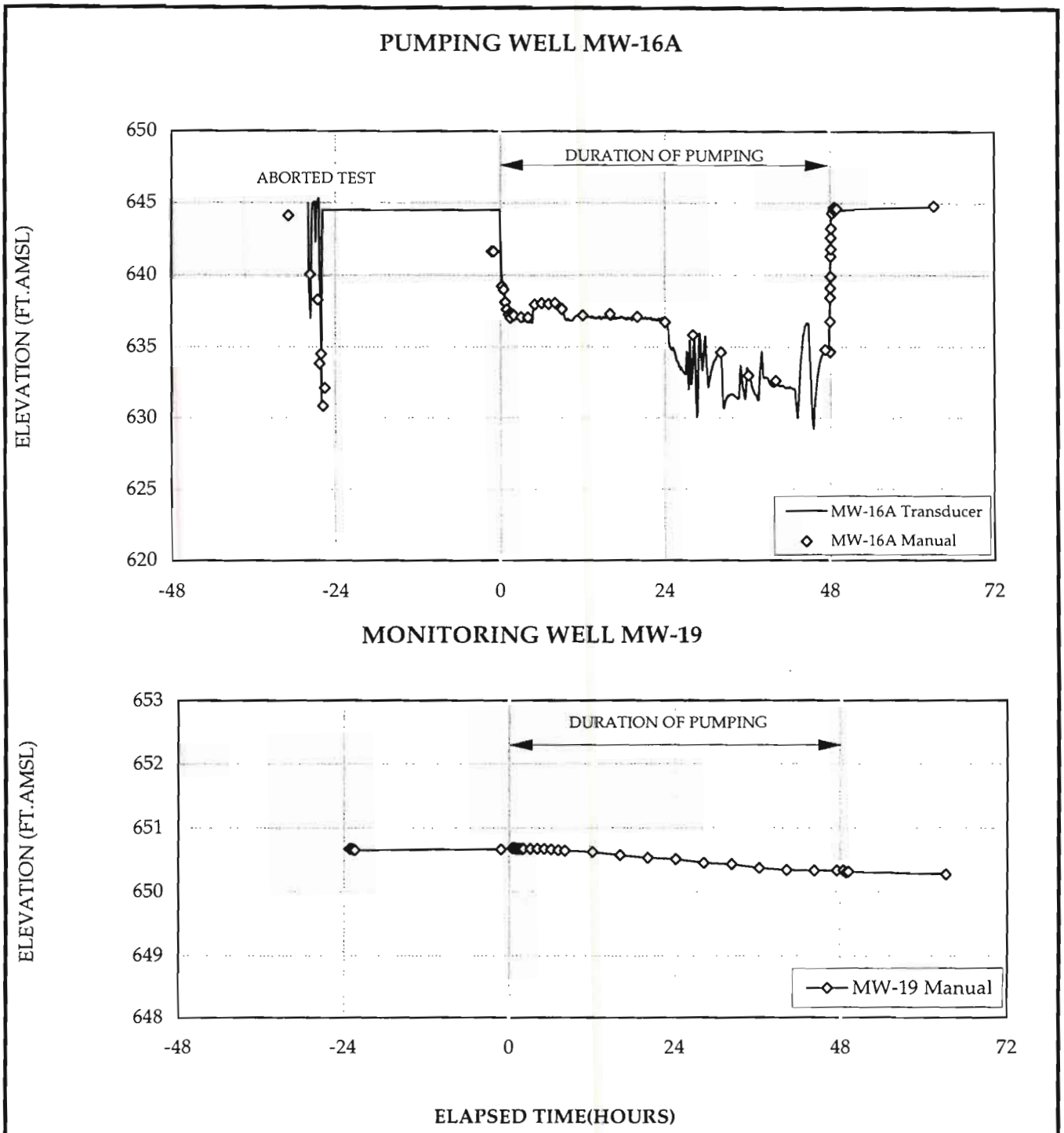
NOTES:

START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

CRA

figure A-27
MW-16A/ MW-18 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.



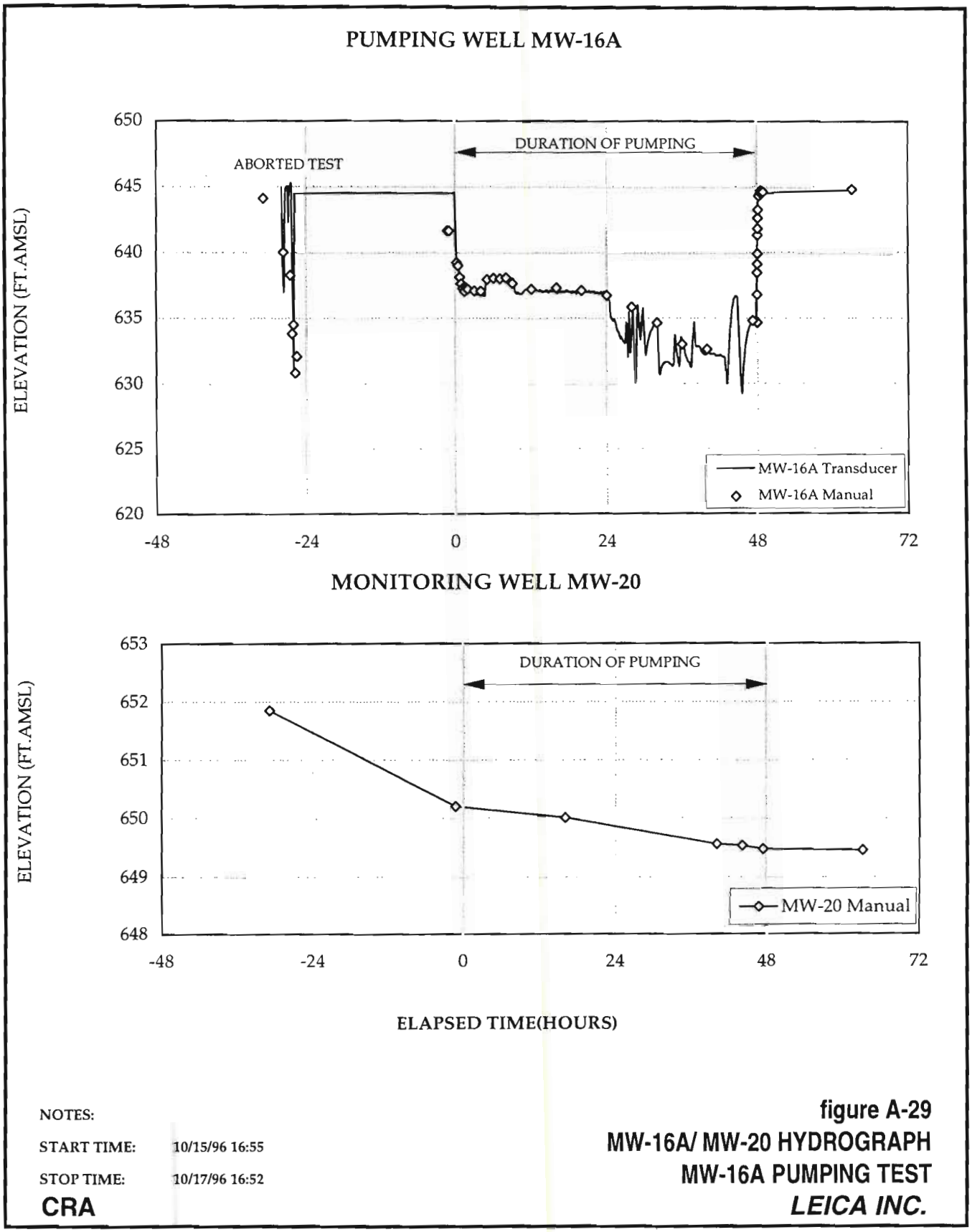
NOTES:

START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

CRA

figure A-28
MW-16A/ MW-19 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.



NOTES:

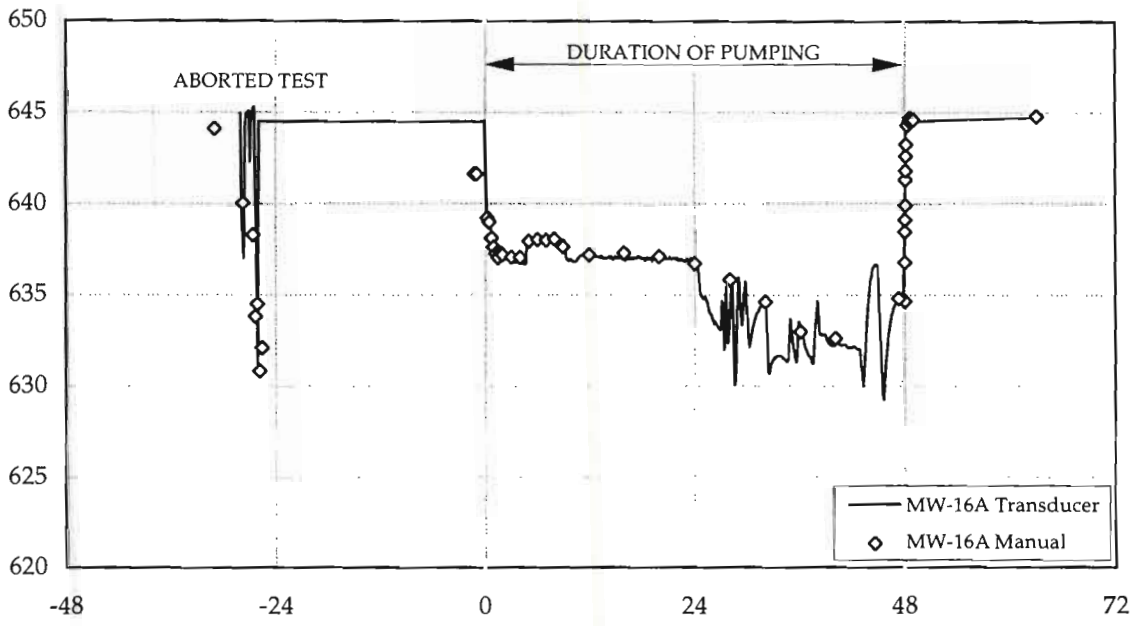
START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

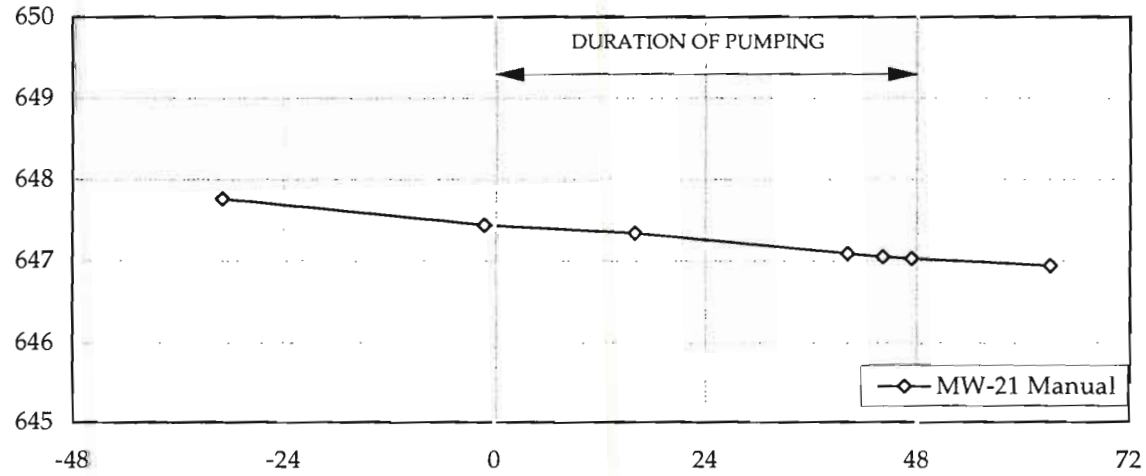
CRA

figure A-29
MW-16A/ MW-20 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.

PUMPING WELL MW-16A



MONITORING WELL MW-21



ELAPSED TIME(HOURS)

NOTES:

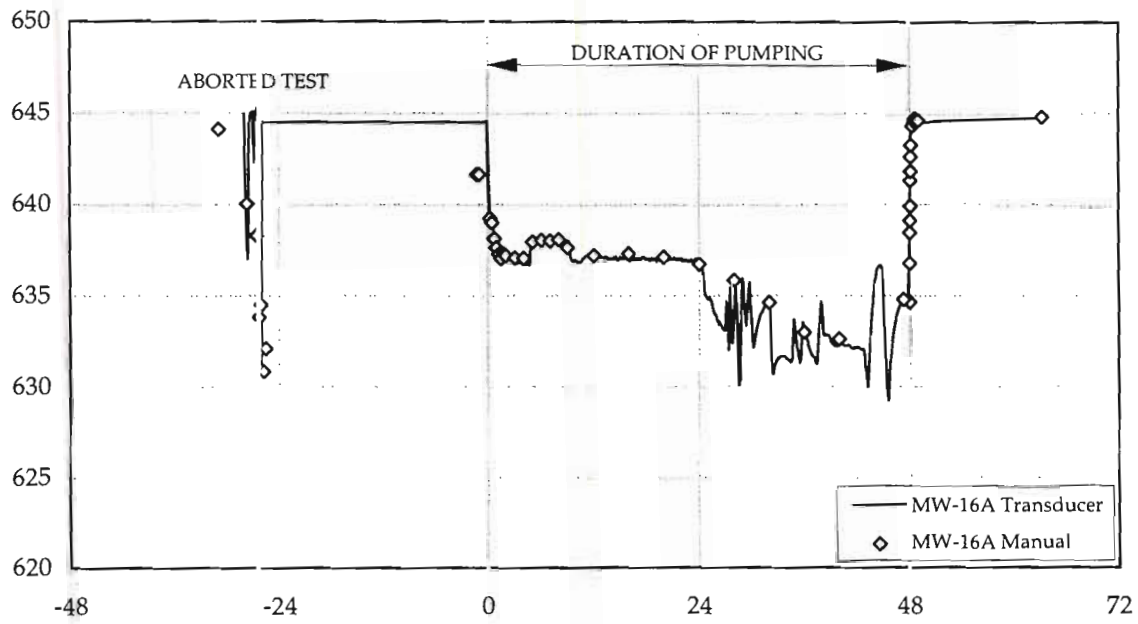
START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

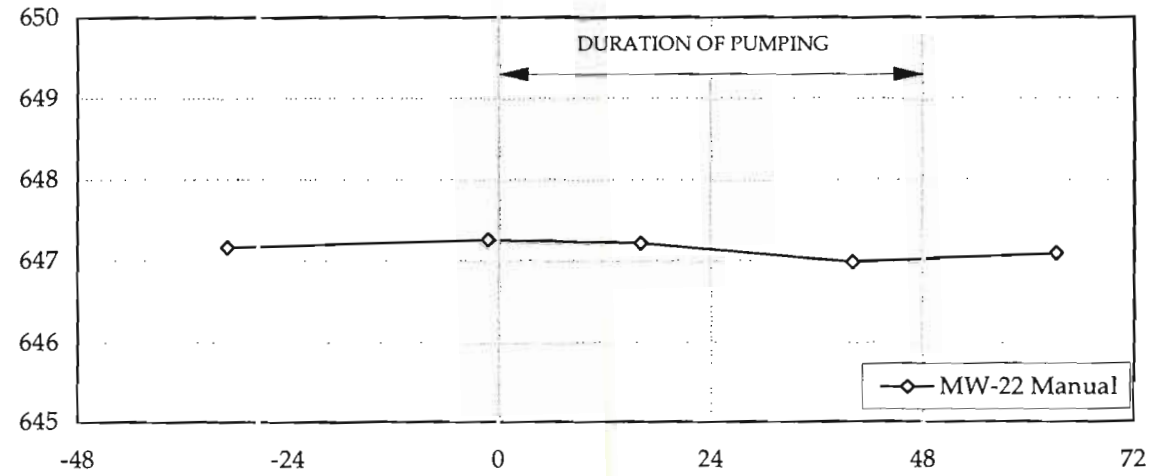
CRA

figure A-30
MW-16A/ MW-21 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.

PUMPING WELL MW-16A



MONITORING WELL MW-22



ELAPSED TIME(HOURS)

NOTES:

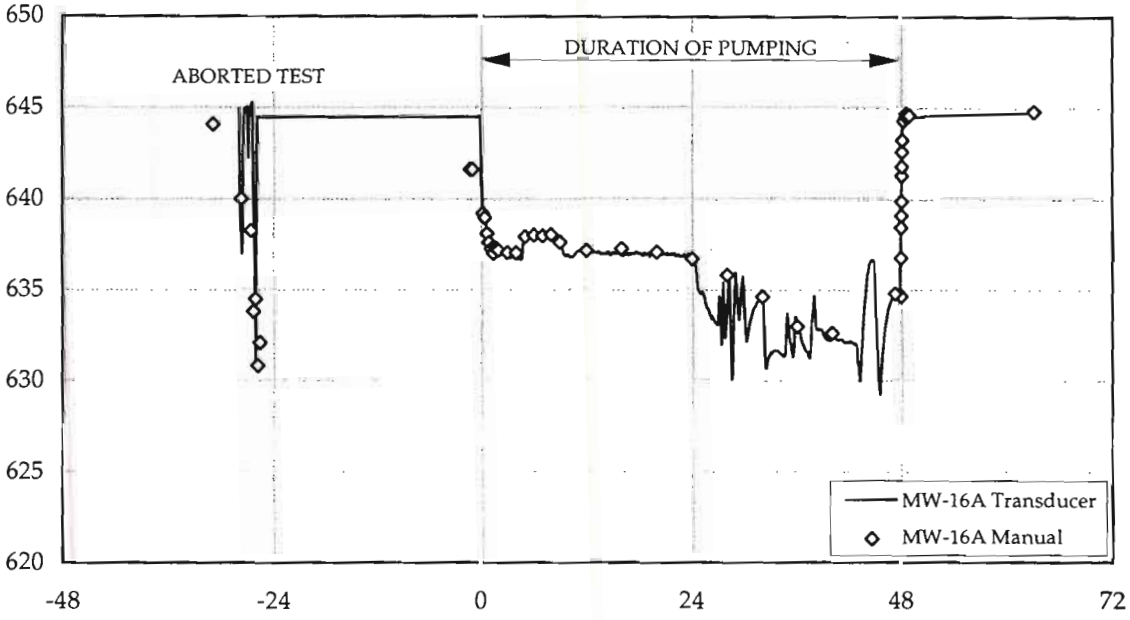
START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

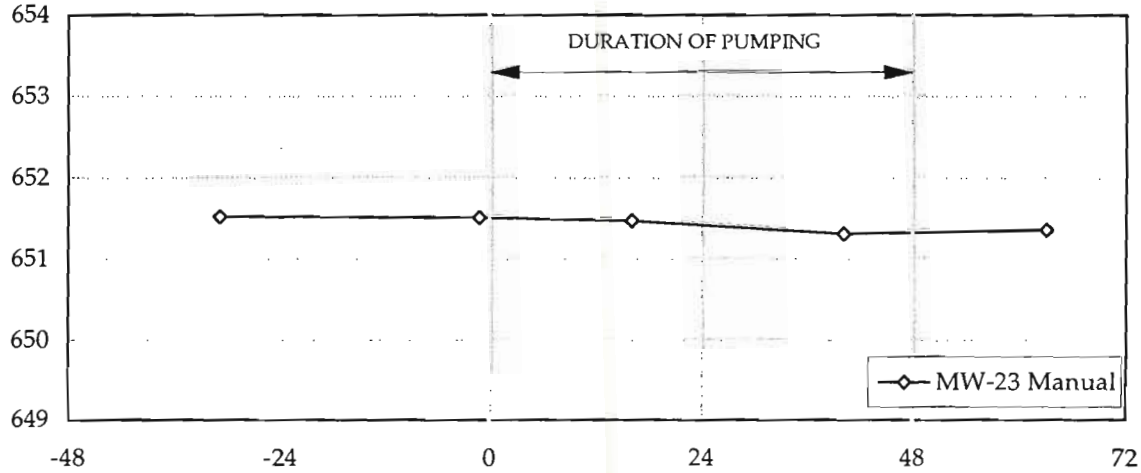
CRA

figure A-31
MW-16A/ MW-22 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.

PUMPING WELL MW-16A



MONITORING WELL MW-23



ELAPSED TIME(HOURS)

NOTES:

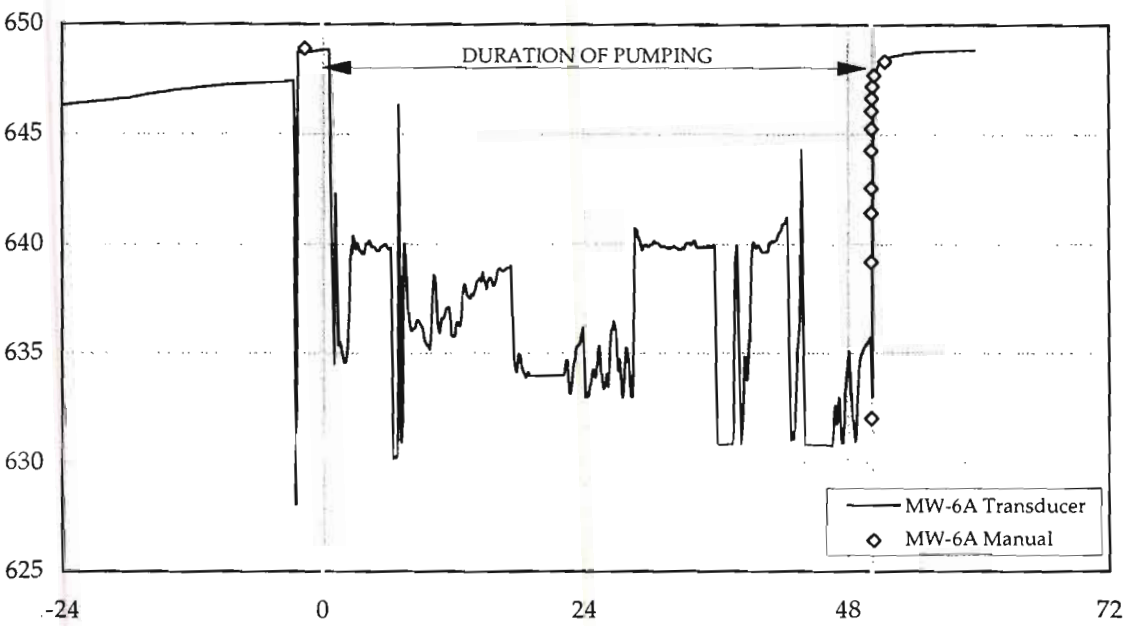
START TIME: 10/15/96 16:55

STOP TIME: 10/17/96 16:52

CRA

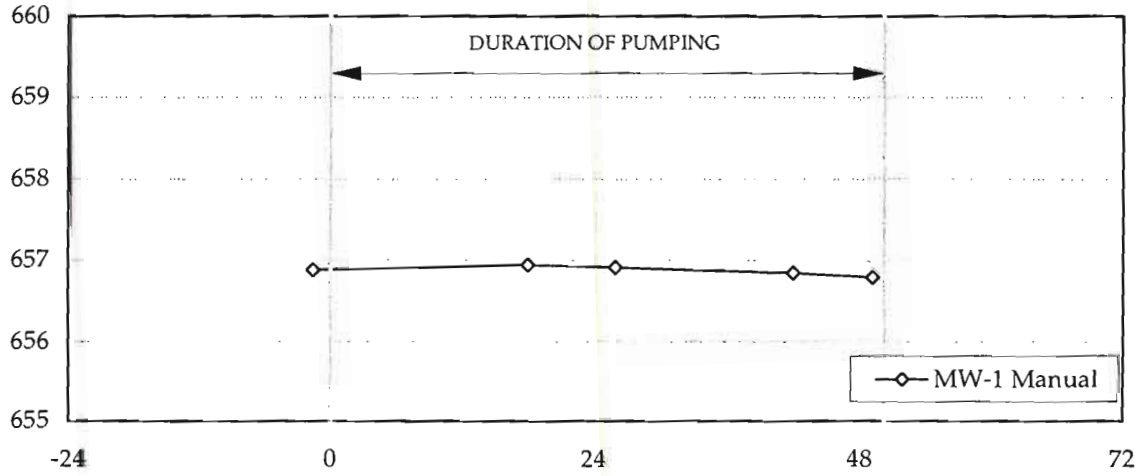
figure A-32
MW-16A/ MW-23 HYDROGRAPH
MW-16A PUMPING TEST
LEICA INC.

PUMPING WELL MW-6A



ELEVATION (FT.AMSL)

MONITORING WELL MW-1



ELEVATION (FT.AMSL)

ELAPSED TIME(HOURS)

NOTES:

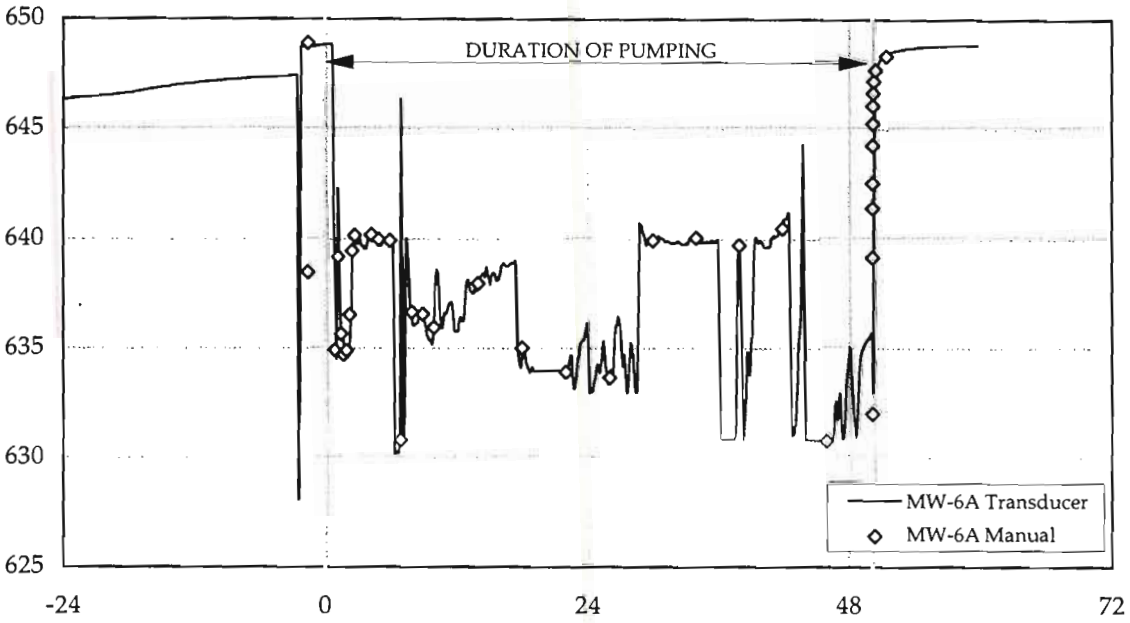
START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

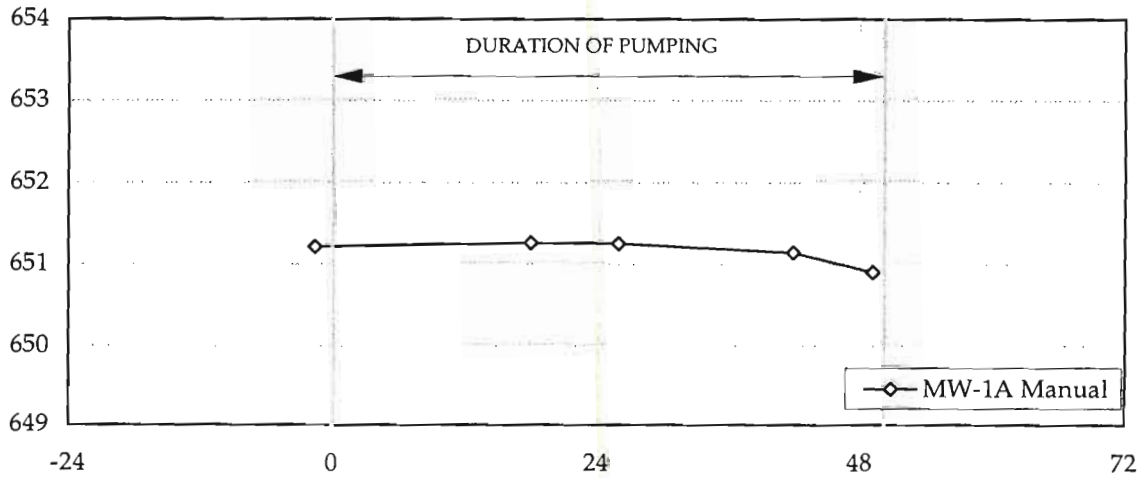
CRA

figure A-33
MW-6A/ MW-1 HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.

PUMPING WELL MW-6A



MONITORING WELL MW-1A



ELAPSED TIME(HOURS)

NOTES:

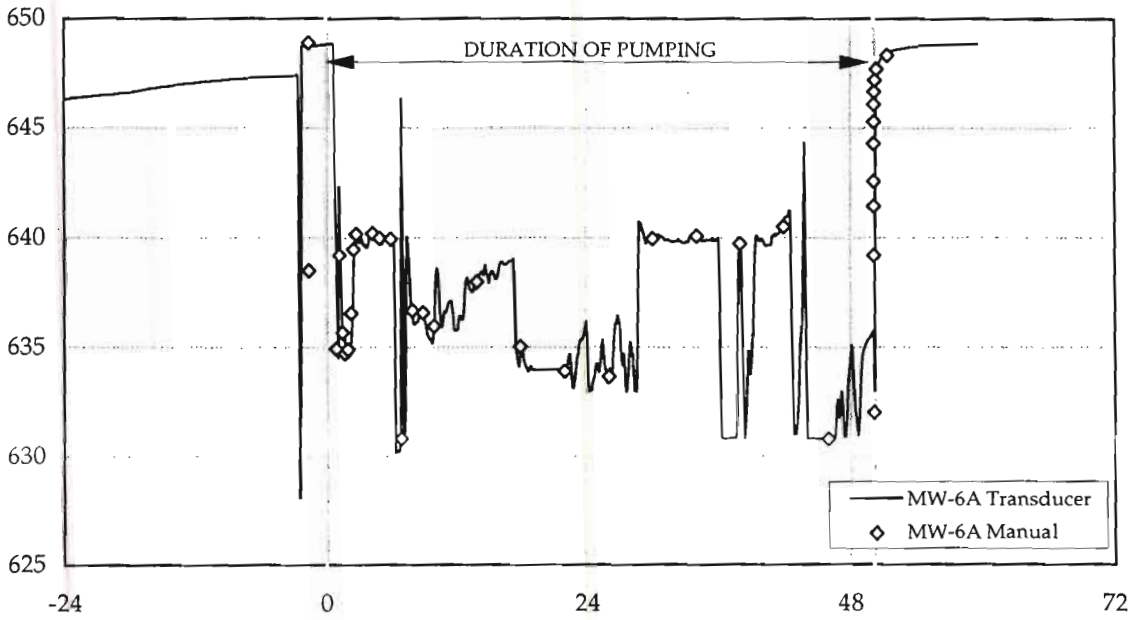
START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

CRA

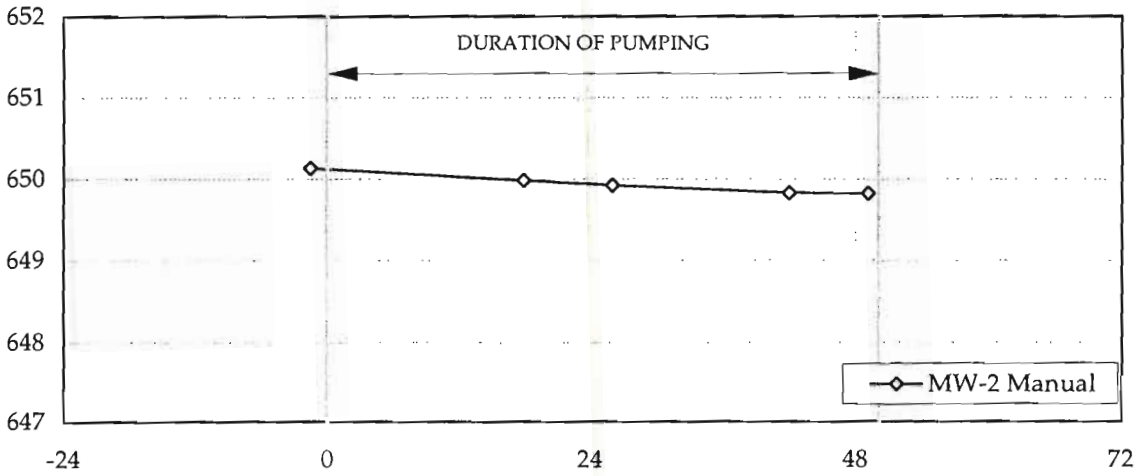
figure A-34
MW-6A/ MW-1A HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.

PUMPING WELL MW-6A



ELEVATION (FT.AMSL)

MONITORING WELL MW-2



ELEVATION (FT.AMSL)

ELAPSED TIME(HOURS)

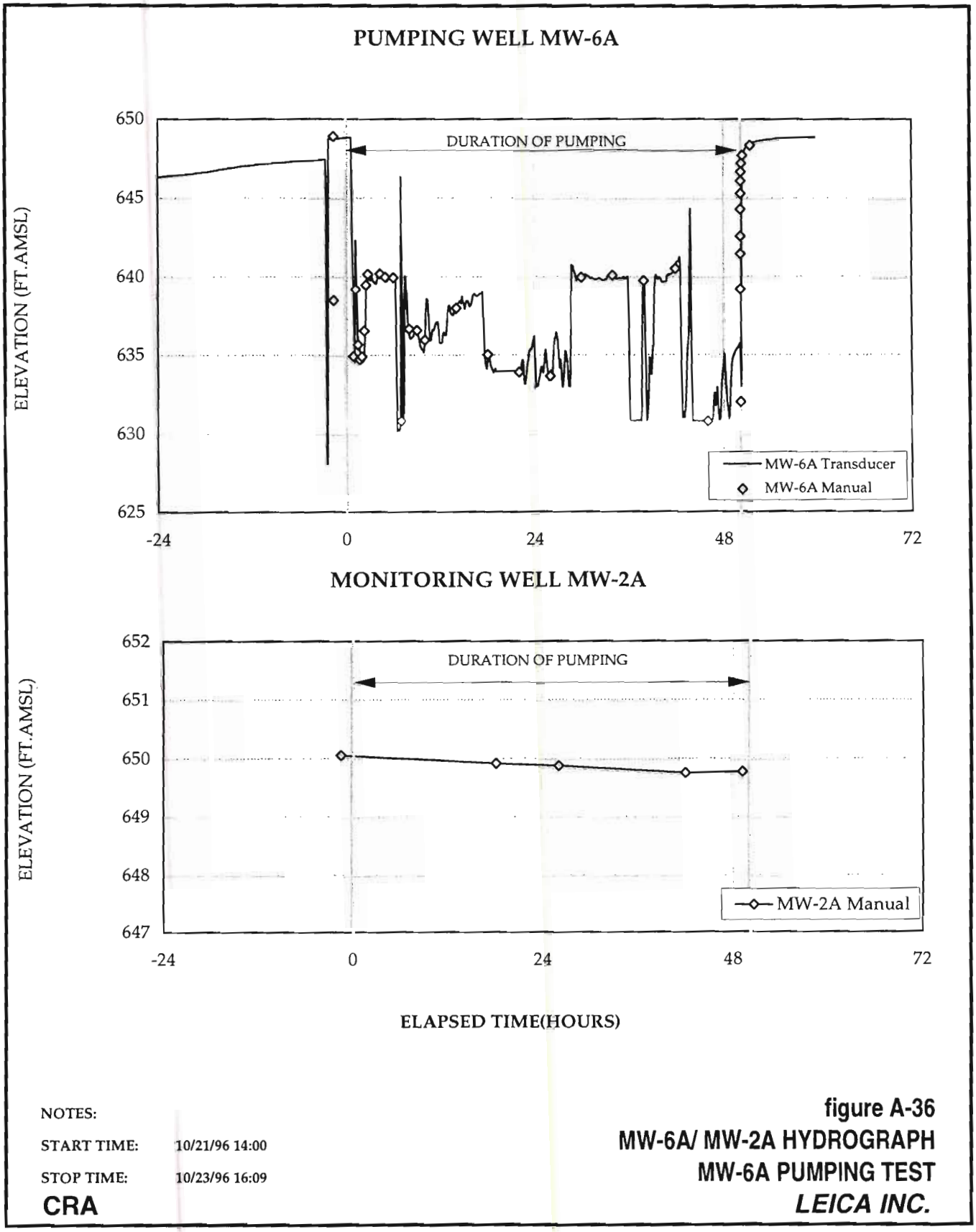
NOTES:

START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

CRA

figure A-35
MW-6A/ MW-2 HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.



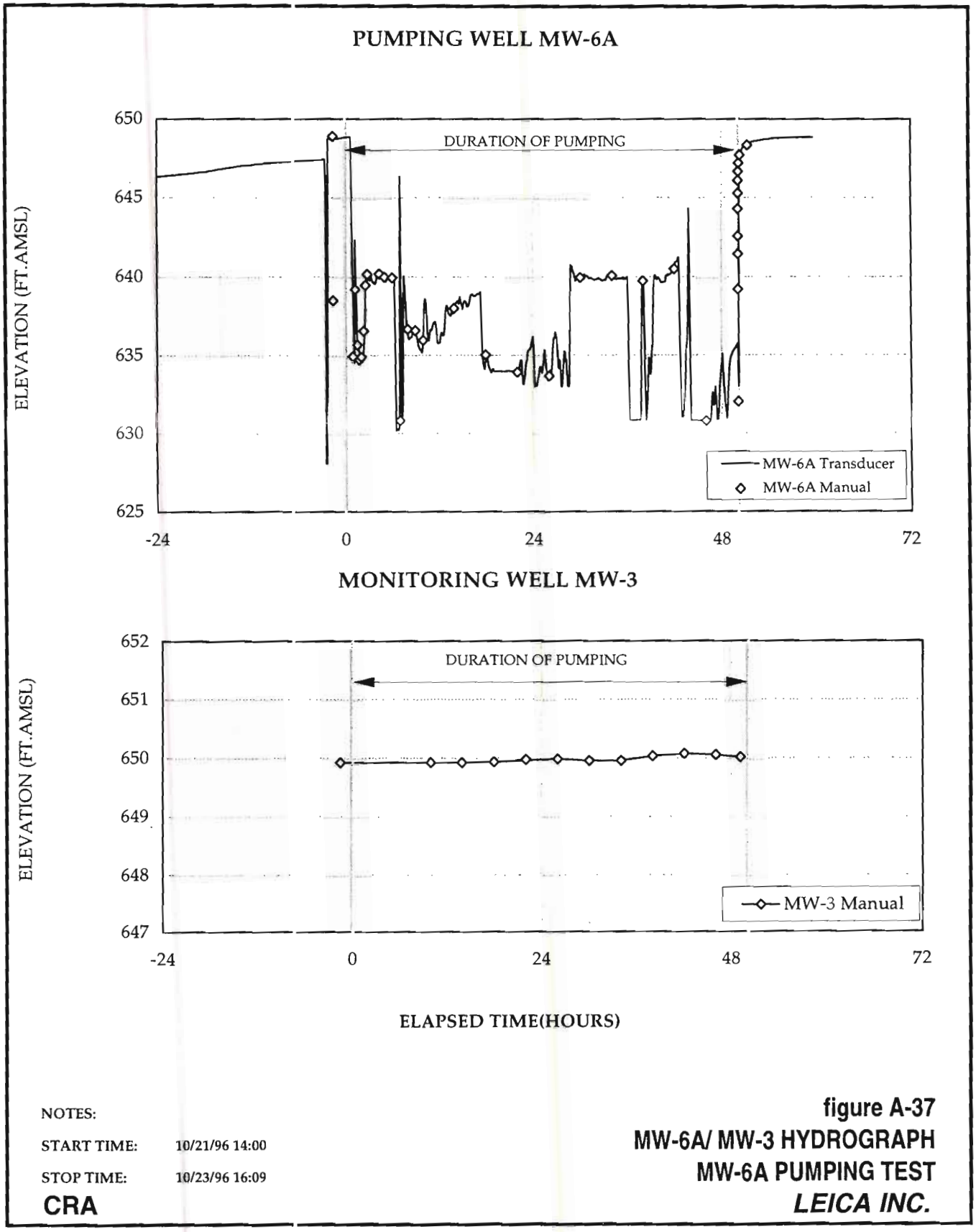
NOTES:

START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

CRA

figure A-36
MW-6A/ MW-2A HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.



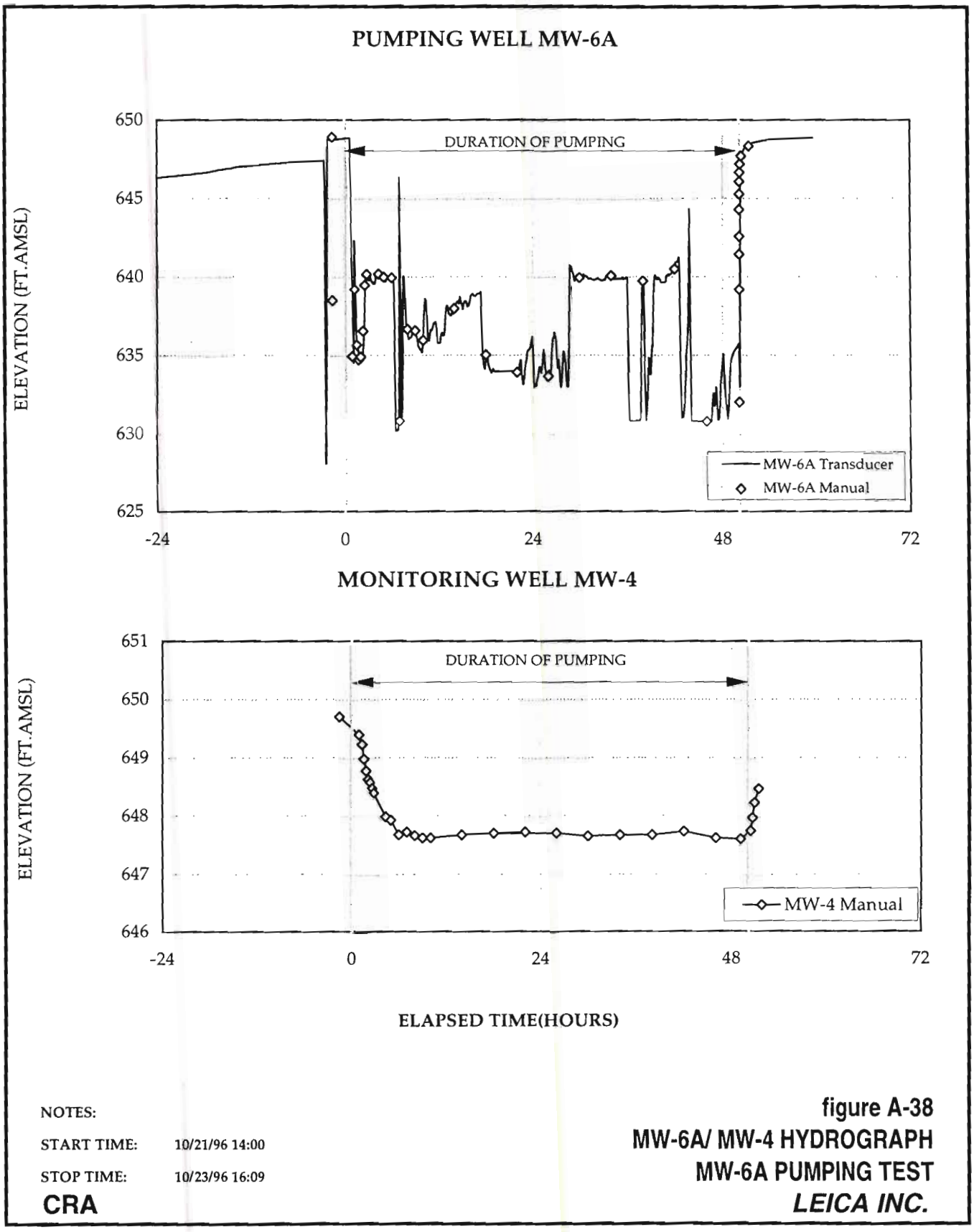
NOTES:

START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

CRA

figure A-37
MW-6A/ MW-3 HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.



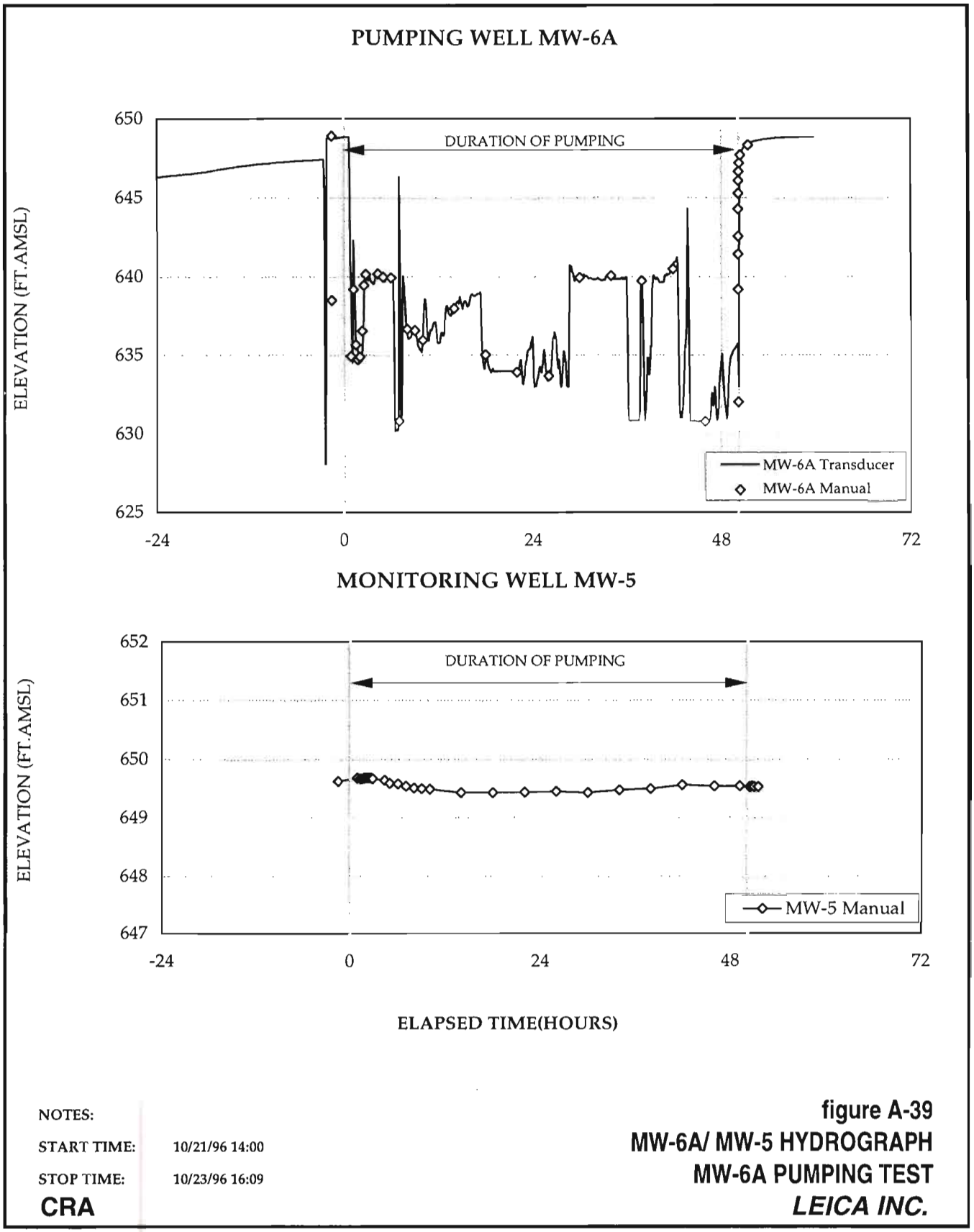
NOTES:

START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

CRA

figure A-38
MW-6A/ MW-4 HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.



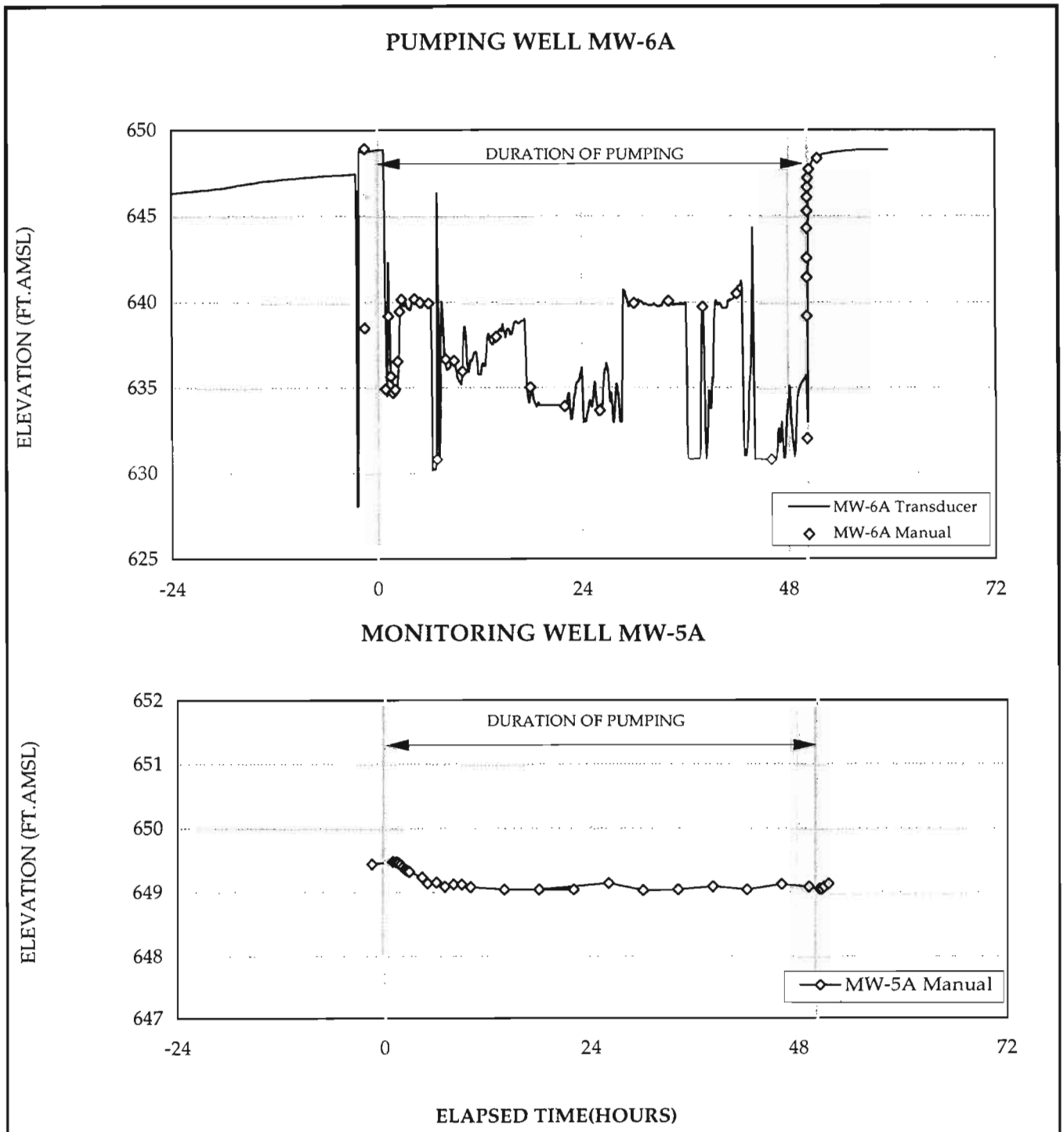
NOTES:

START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

CRA

figure A-39
MW-6A/ MW-5 HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.



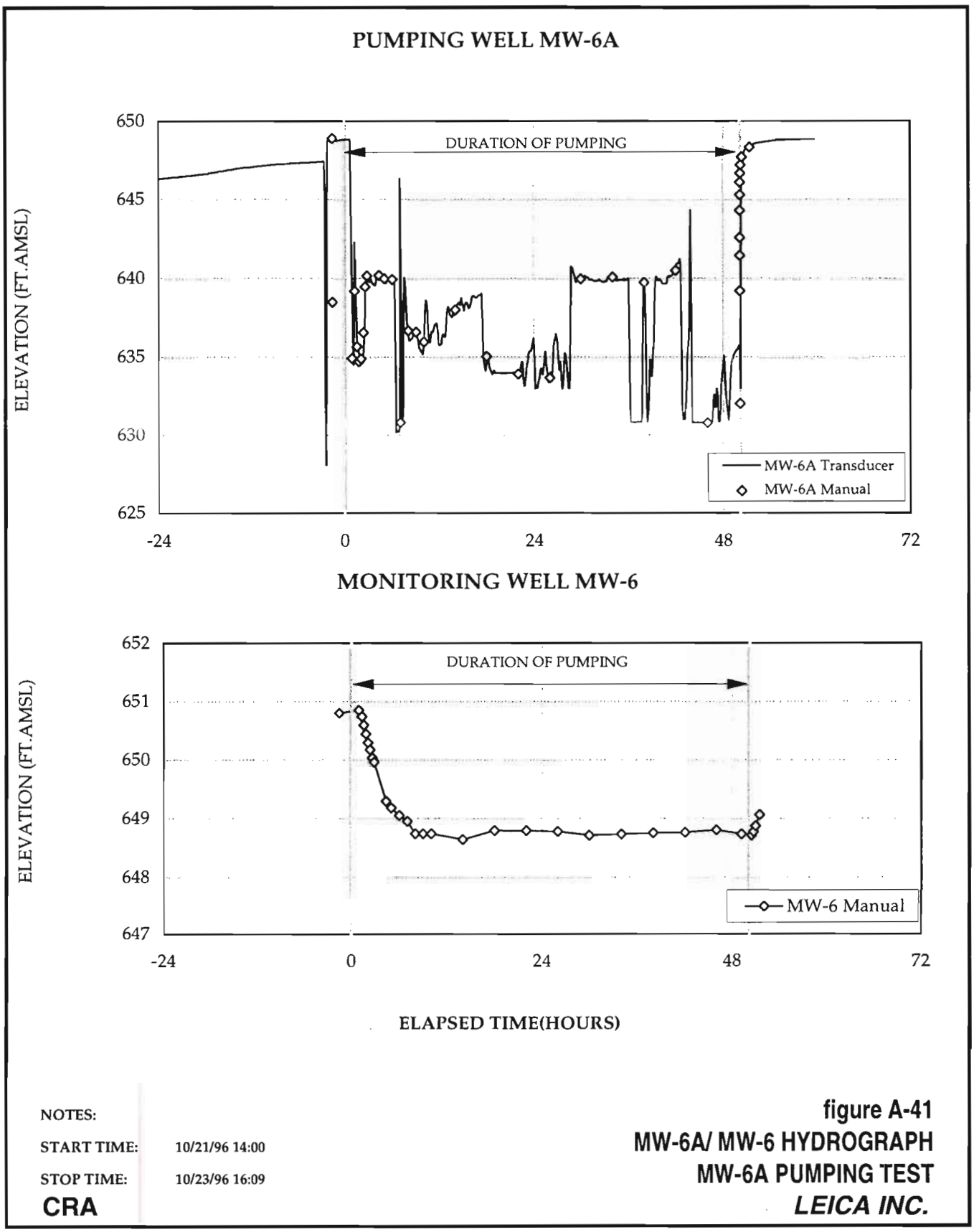
NOTES:

START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

CRA

figure A-40
MW-6A/ MW-5A HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.



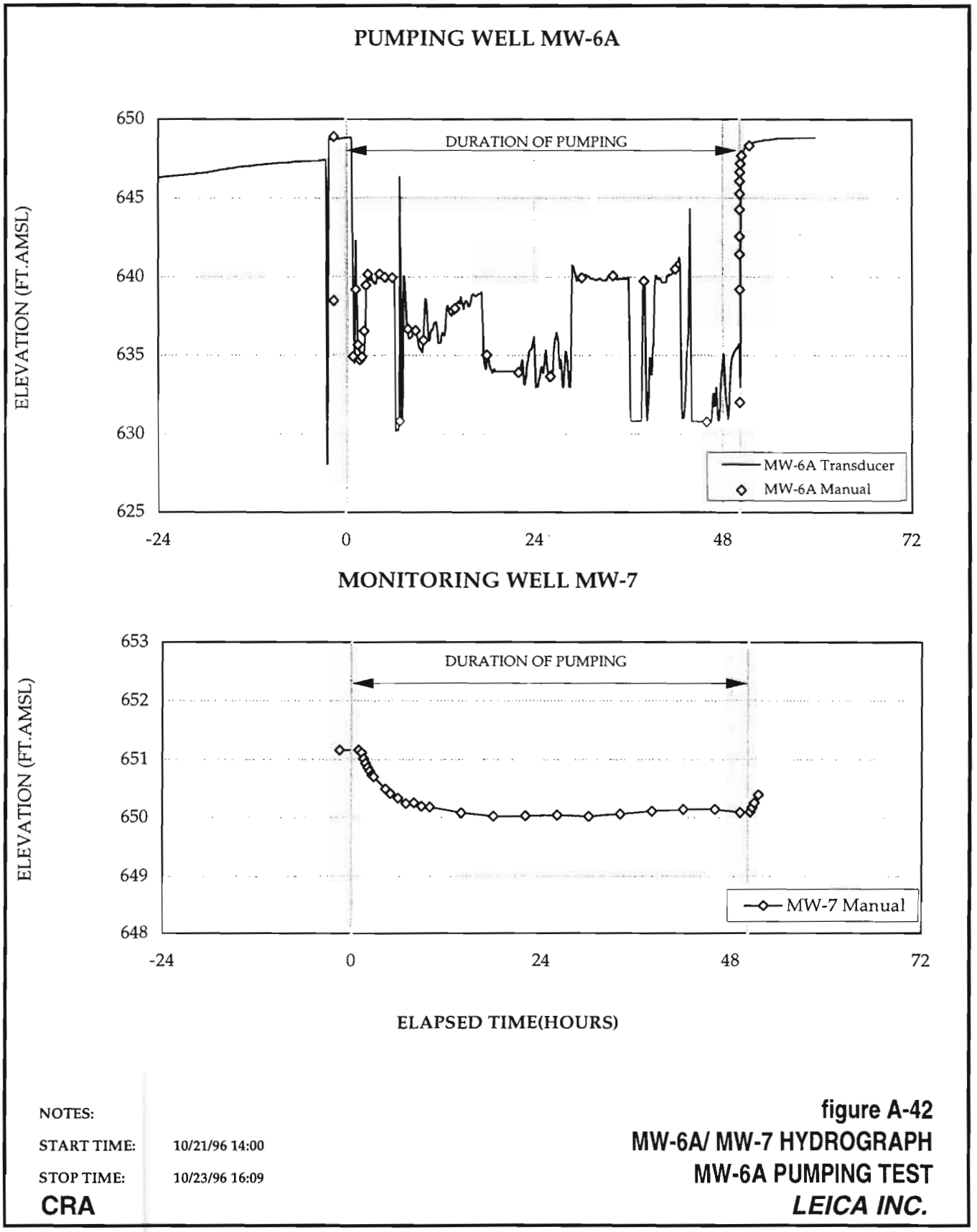
NOTES:

START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

CRA

figure A-41
MW-6A/ MW-6 HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.



NOTES:

START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

CRA

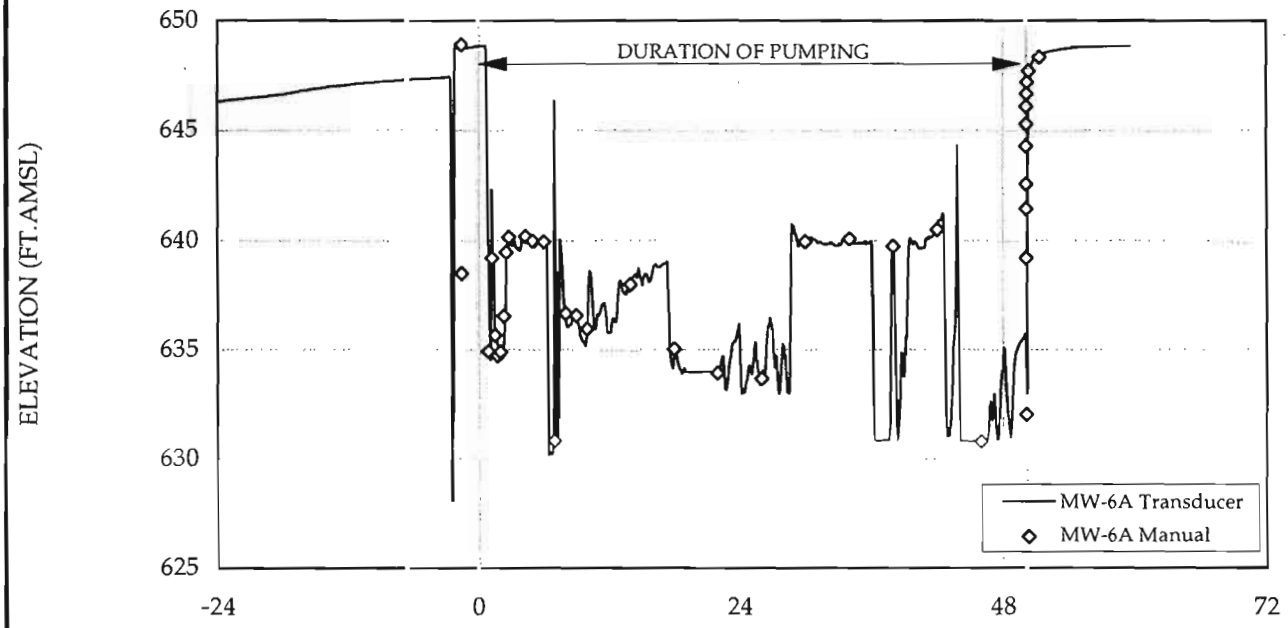
figure A-42

MW-6A/ MW-7 HYDROGRAPH

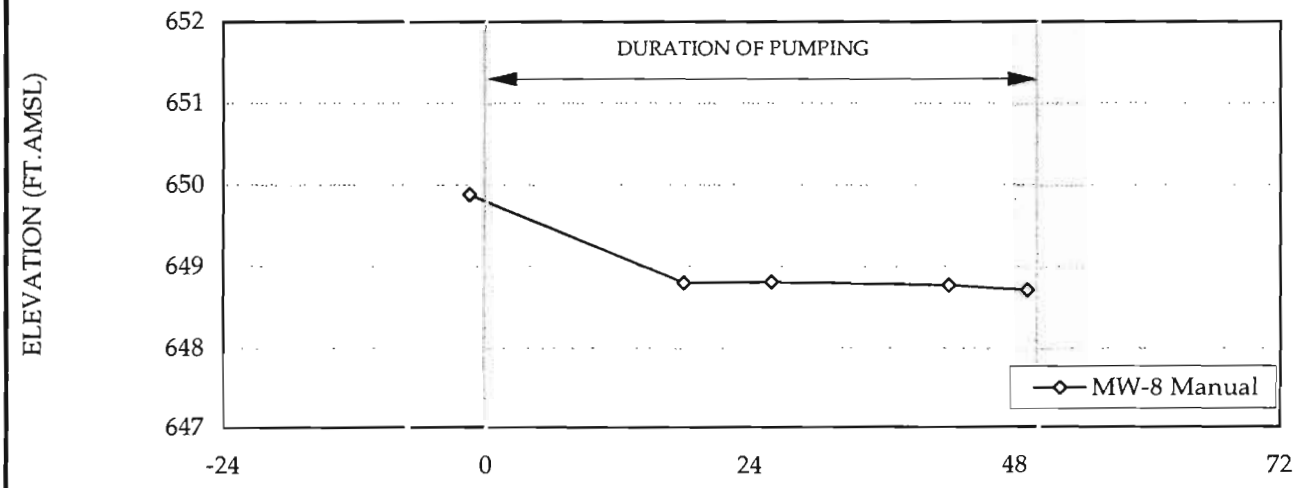
MW-6A PUMPING TEST

LEICA INC.

PUMPING WELL MW-6A



MONITORING WELL MW-8



ELAPSED TIME(HOURS)

NOTES:

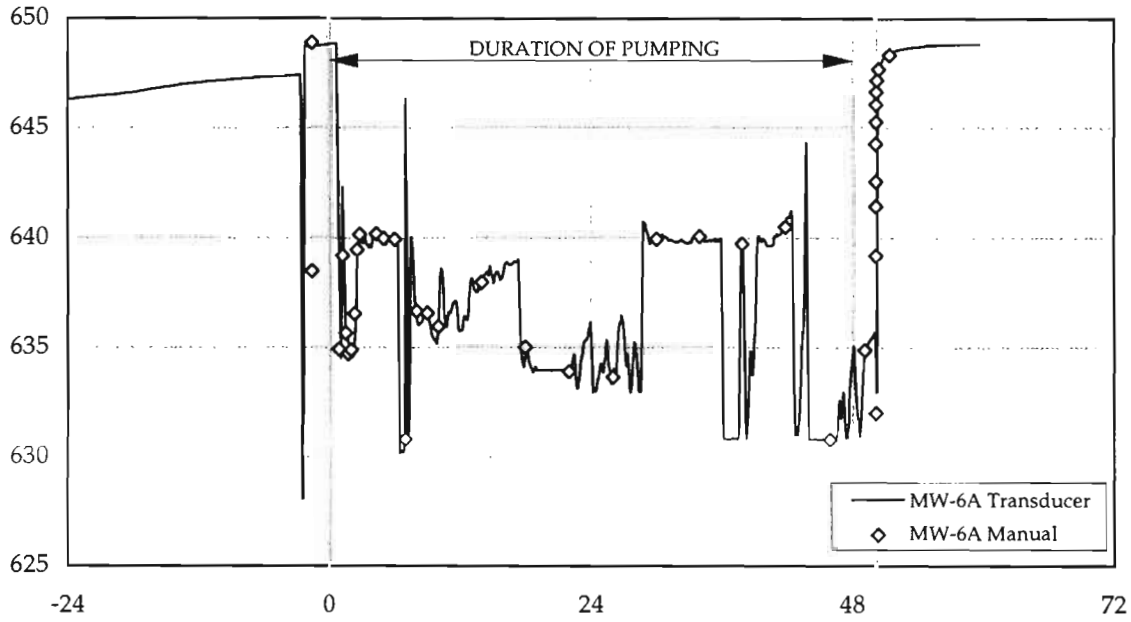
START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

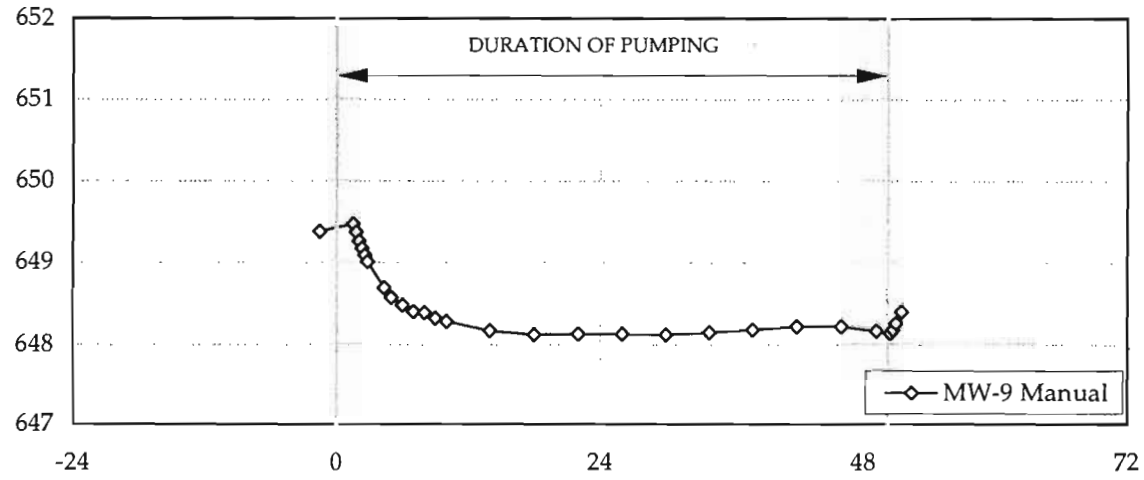
CRA

figure A-43
MW-6A/ MW-8 HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.

PUMPING WELL MW-6A



MONITORING WELL MW-9



ELAPSED TIME(HOURS)

NOTES:

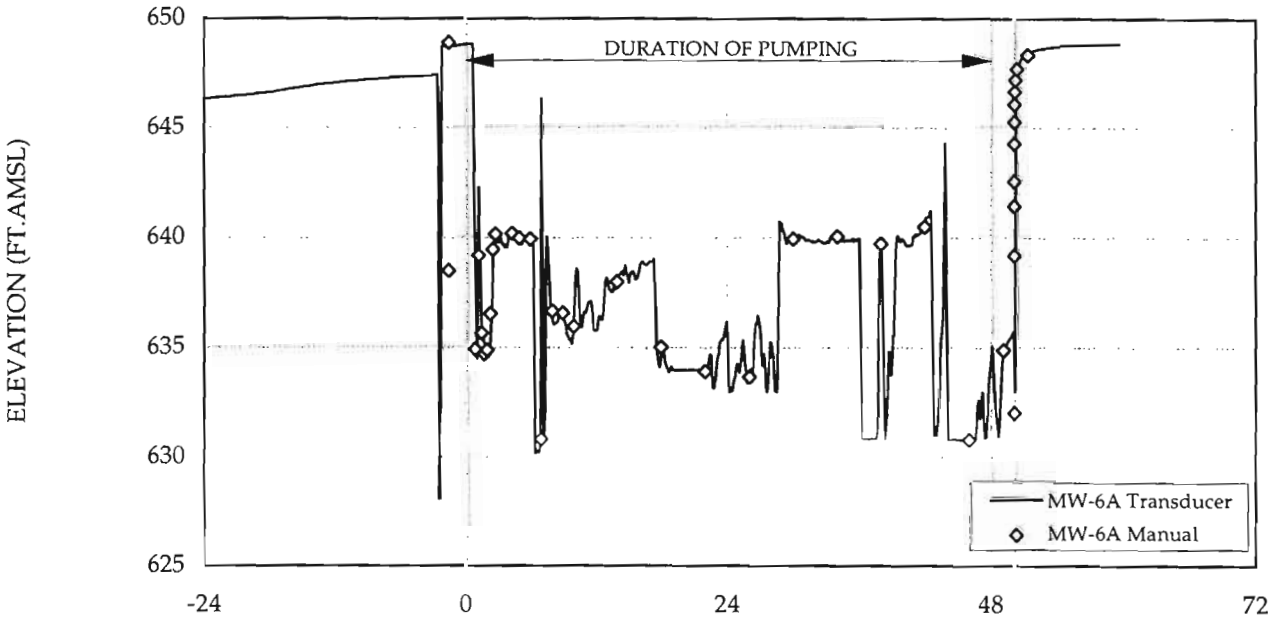
START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

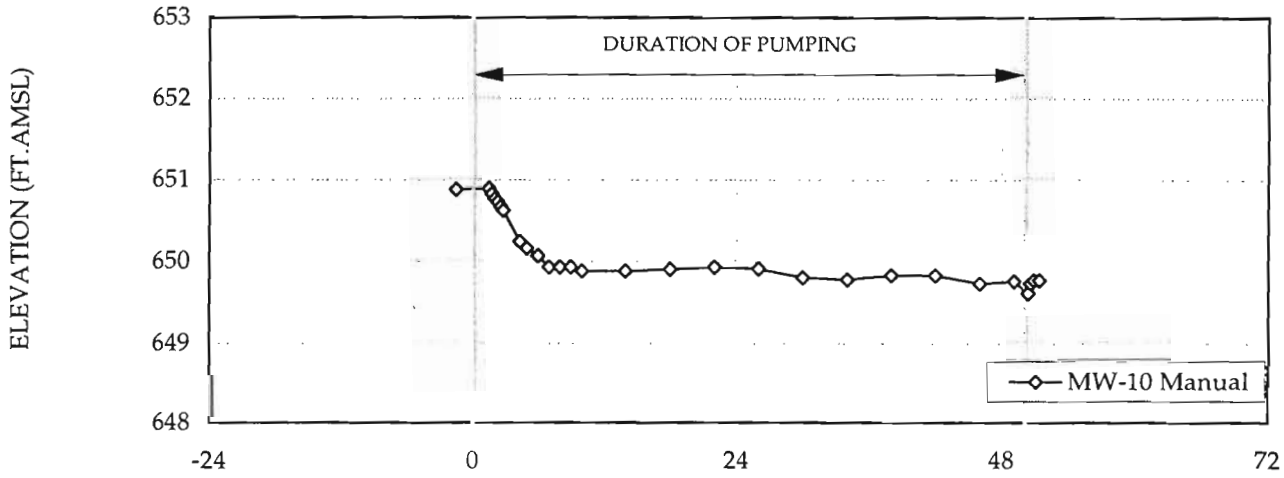
CRA

figure A-44
MW-6A/ MW-9 HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.

PUMPING WELL MW-6A



MONITORING WELL MW-10



ELAPSED TIME(HOURS)

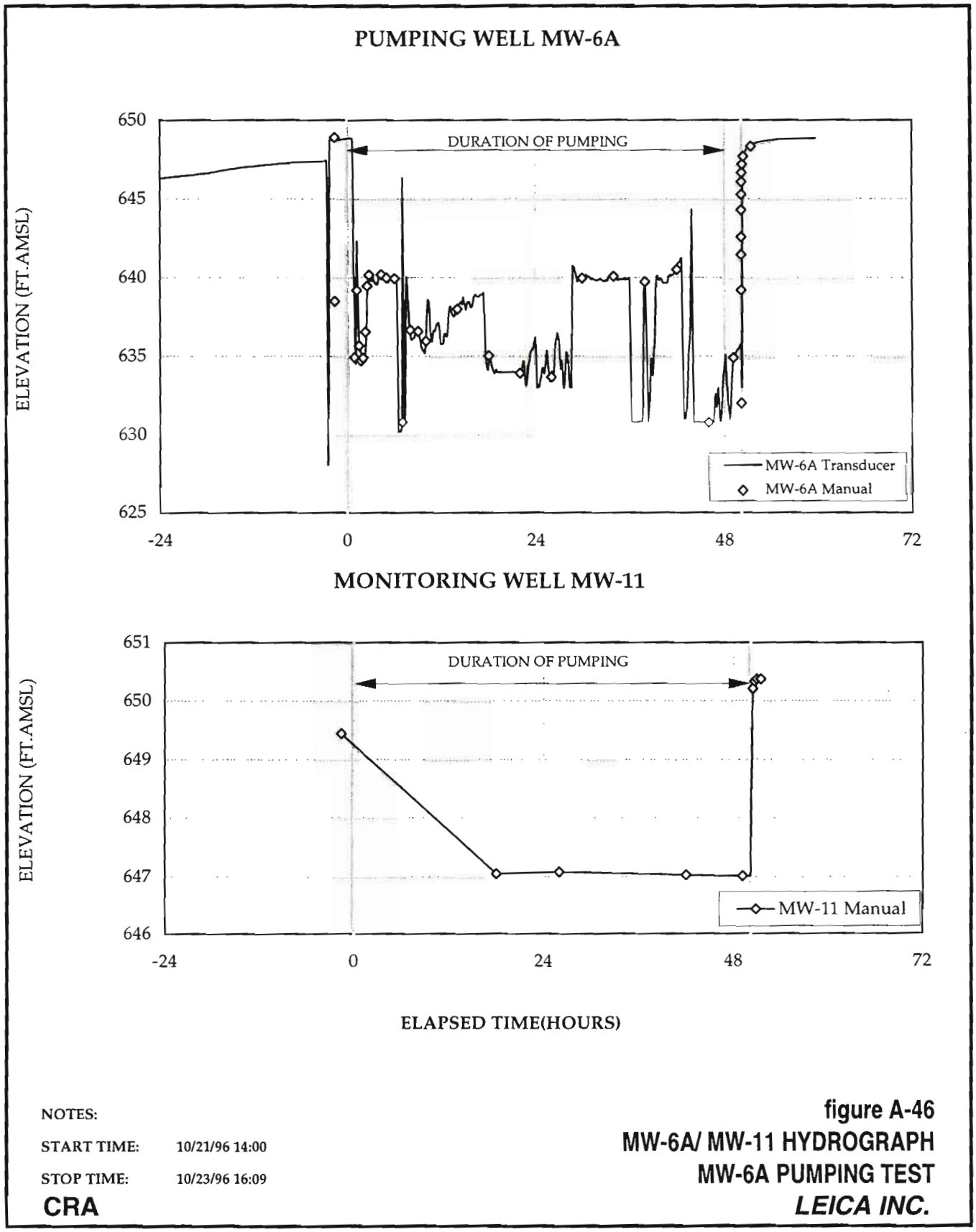
NOTES:

START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

CRA

figure A-45
MW-6A/ MW-10 HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.



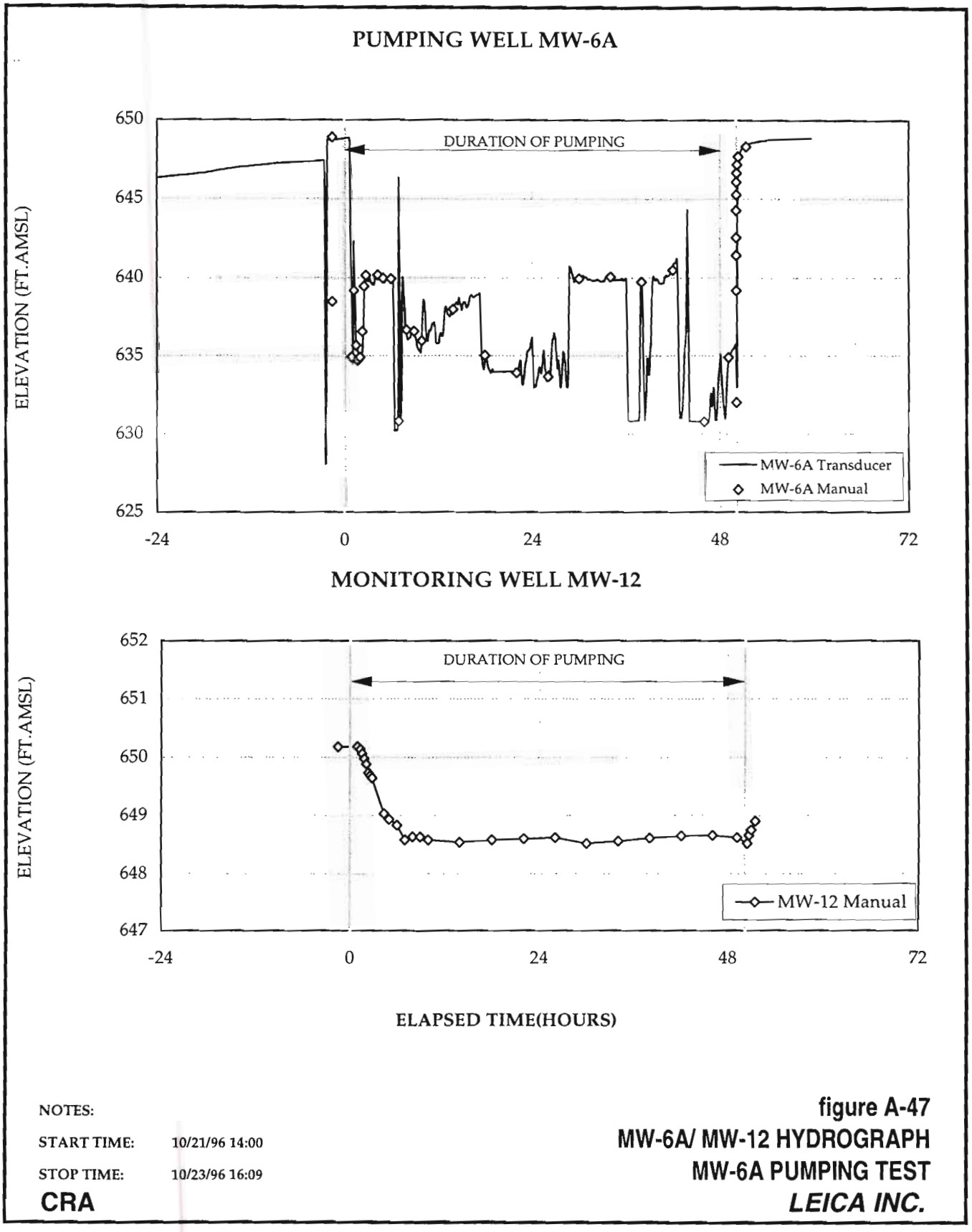
NOTES:

START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

CRA

figure A-46
MW-6A/ MW-11 HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.



NOTES:

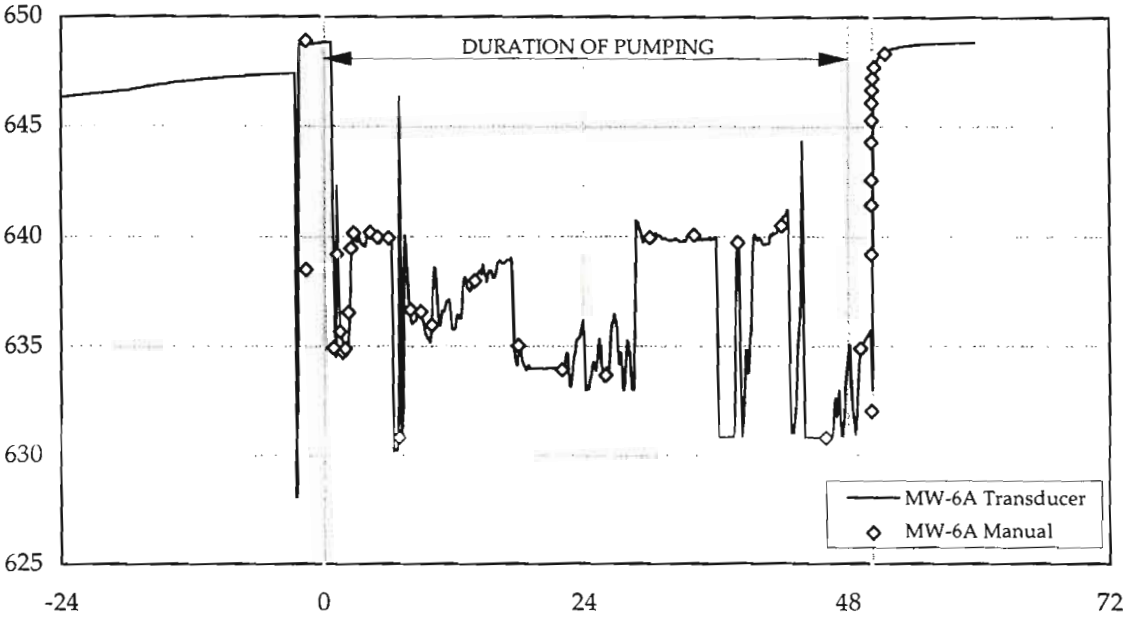
START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

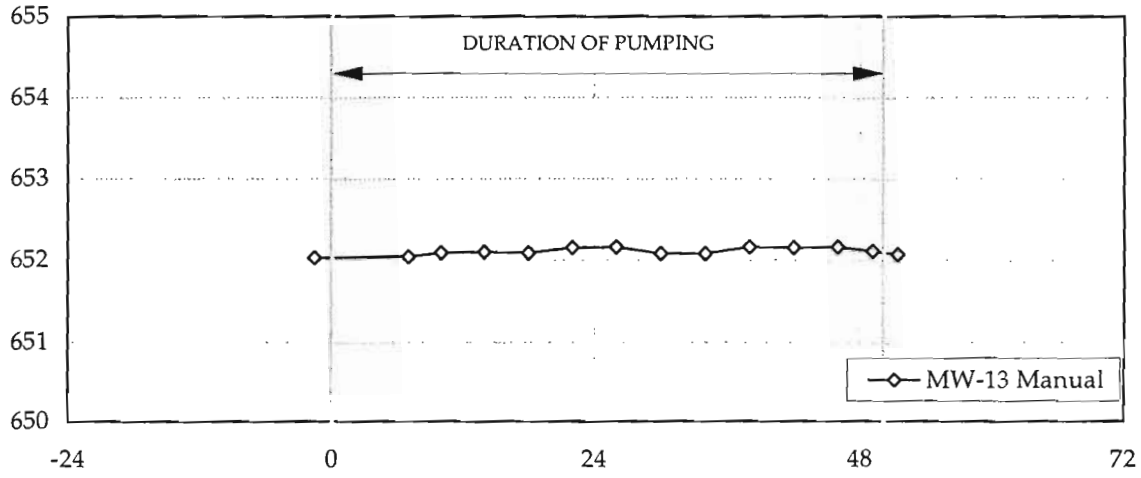
CRA

figure A-47
MW-6A/ MW-12 HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.

PUMPING WELL MW-6A



MONITORING WELL MW-13



ELAPSED TIME(HOURS)

NOTES:

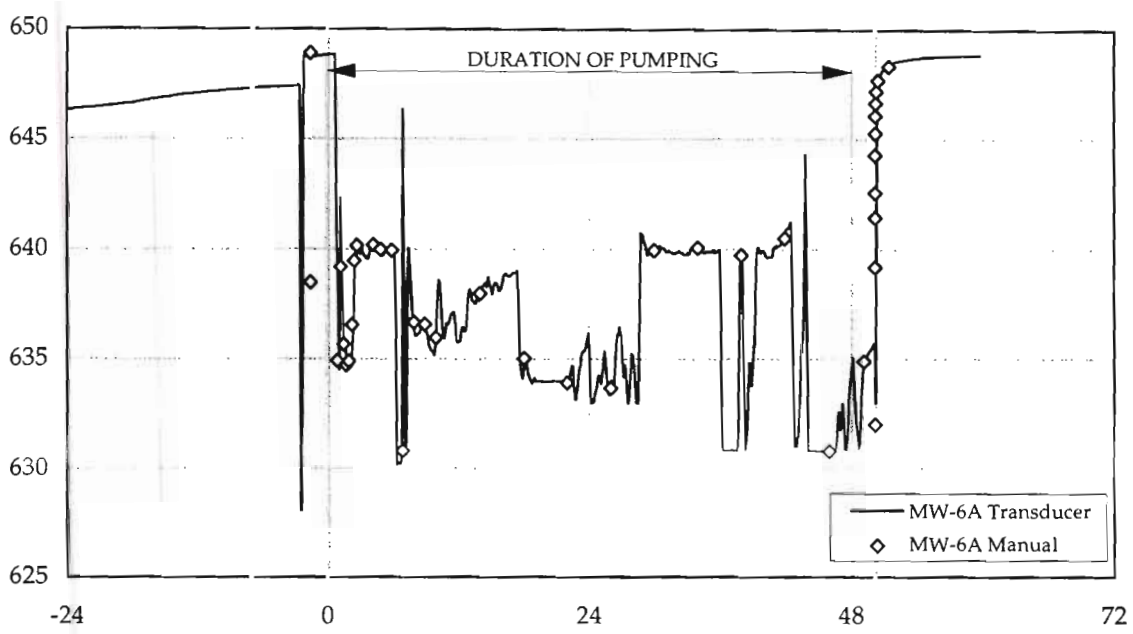
START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

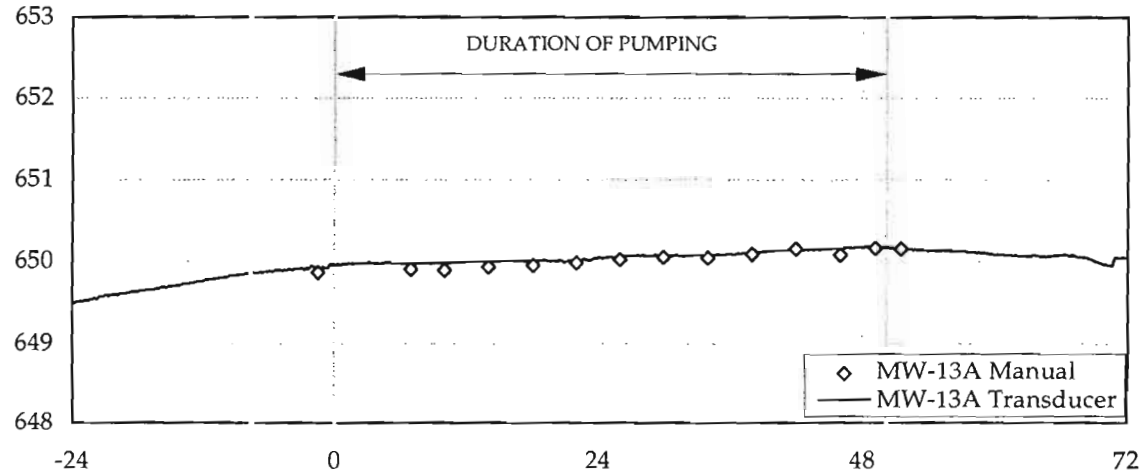
CRA

figure A-48
MW-6A/ MW-13 HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.

PUMPING WELL MW-6A



MONITORING WELL MW-13A



ELAPSED TIME(HOURS)

NOTES:

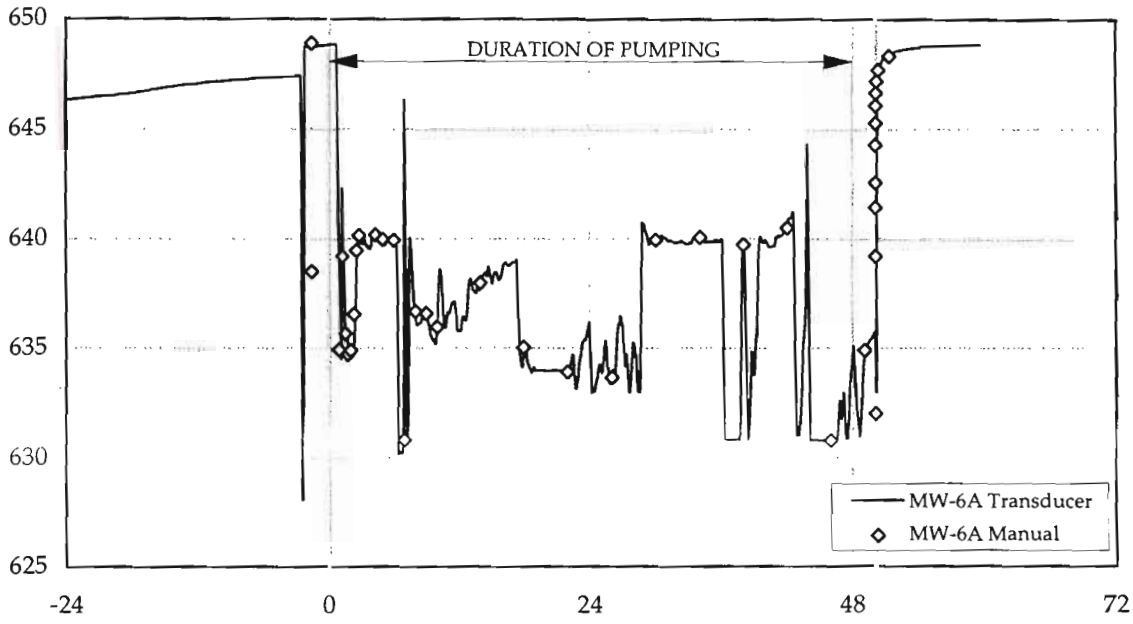
START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

CRA

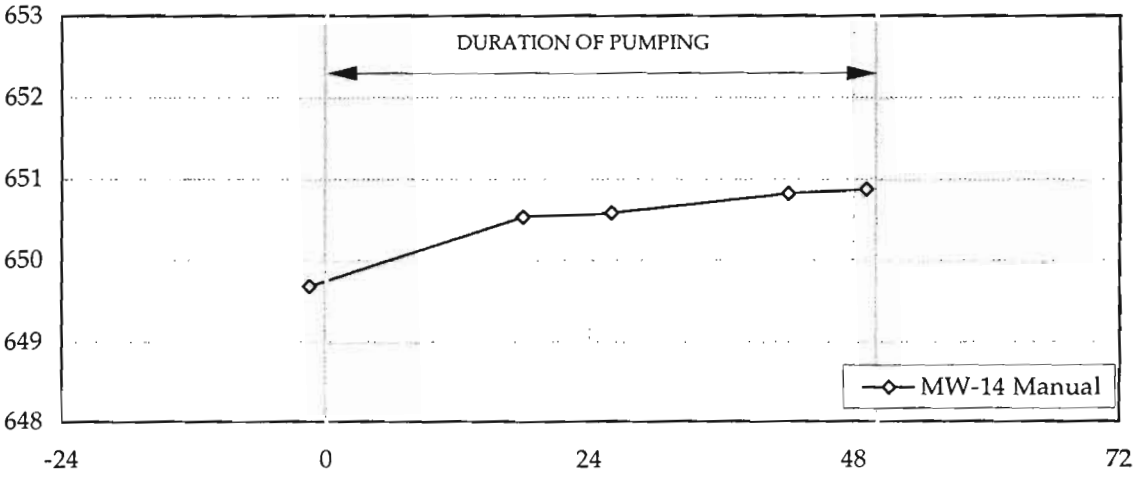
figure A-49
MW-6A/ MW-13A HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.

PUMPING WELL MW-6A



ELEVATION (FT.AMSL)

MONITORING WELL MW-14



ELEVATION (FT.AMSL)

ELAPSED TIME(HOURS)

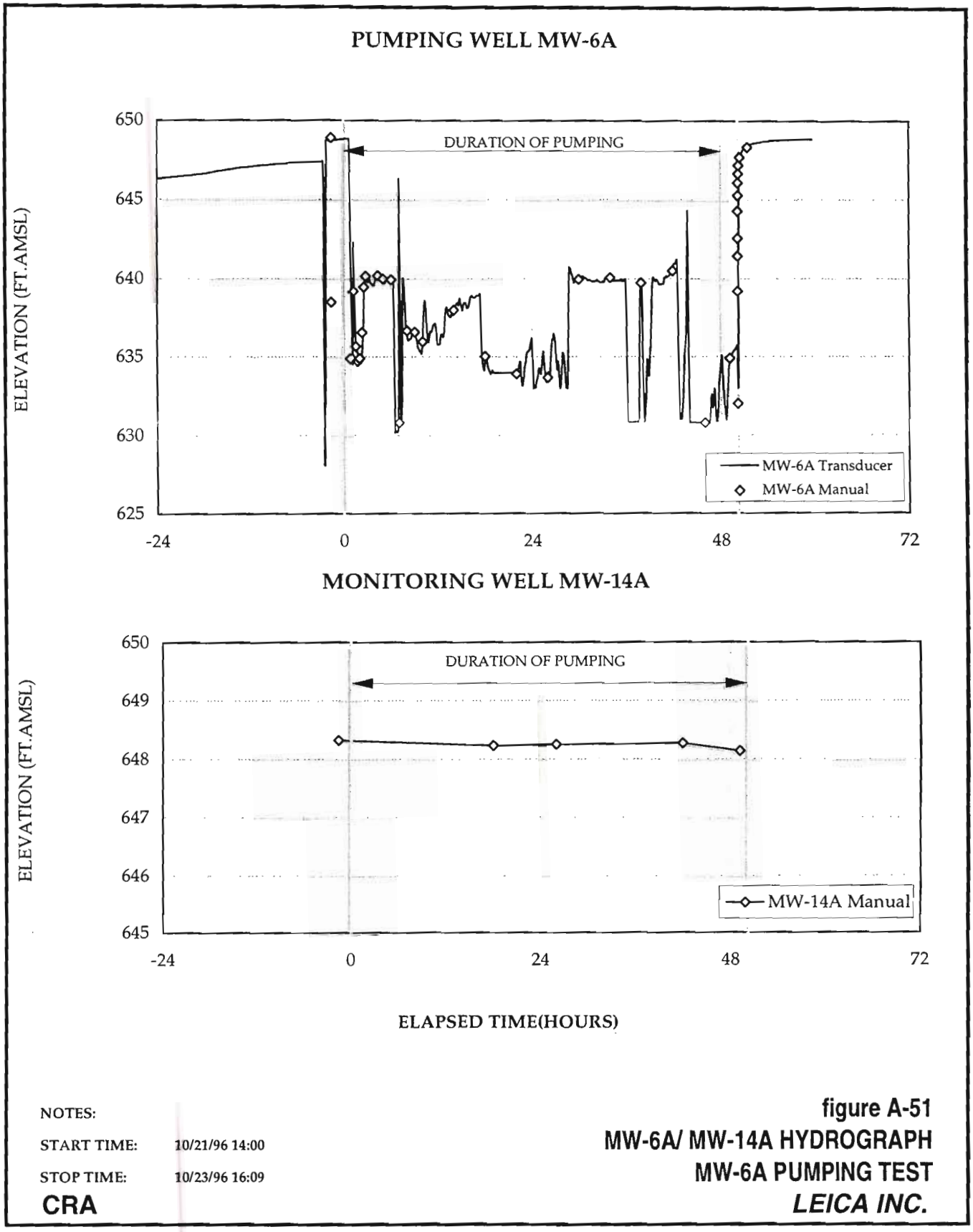
NOTES:

START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

CRA

figure A-50
MW-6A/ MW-14 HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.



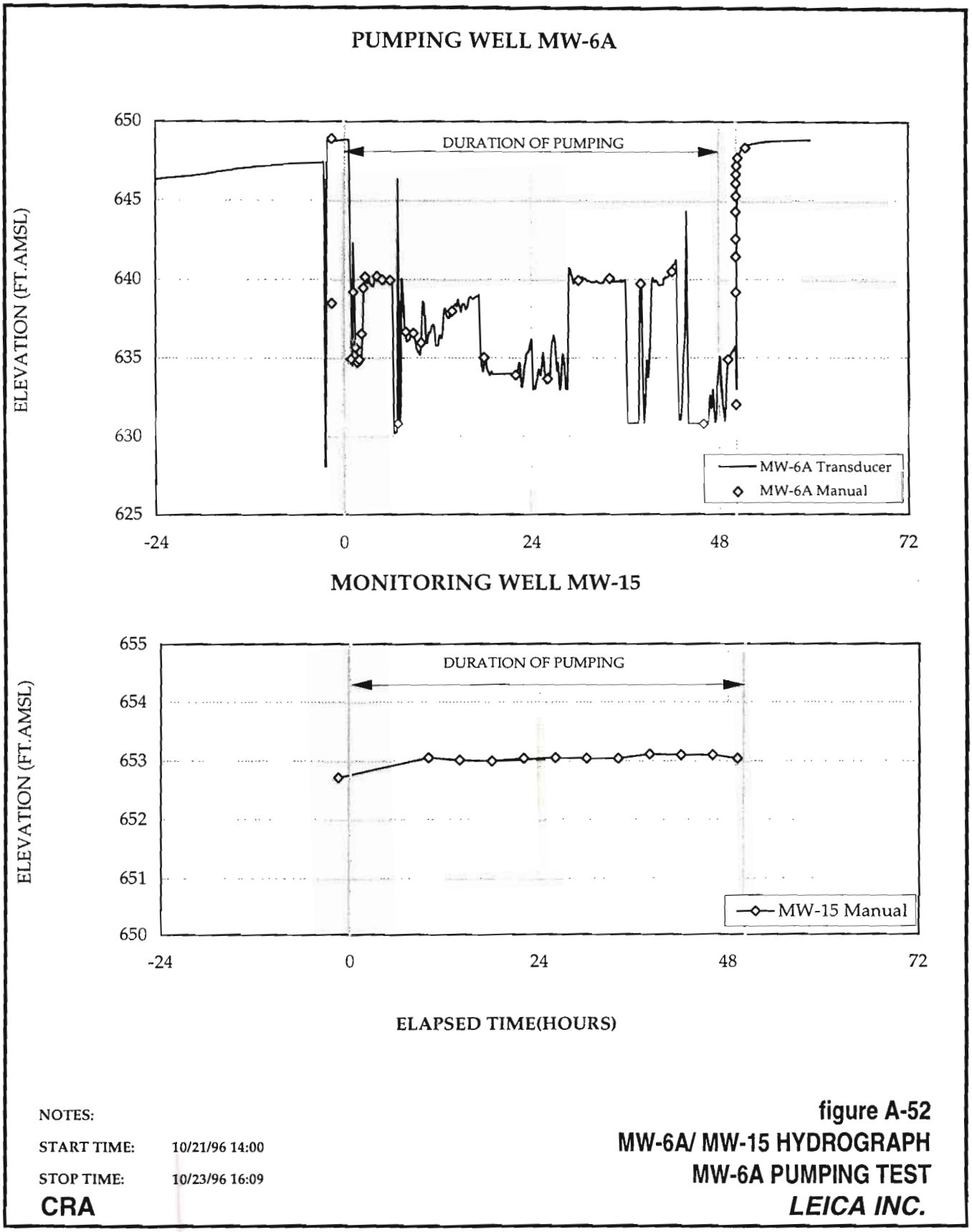
NOTES:

START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

CRA

figure A-51
MW-6A/ MW-14A HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.



NOTES:

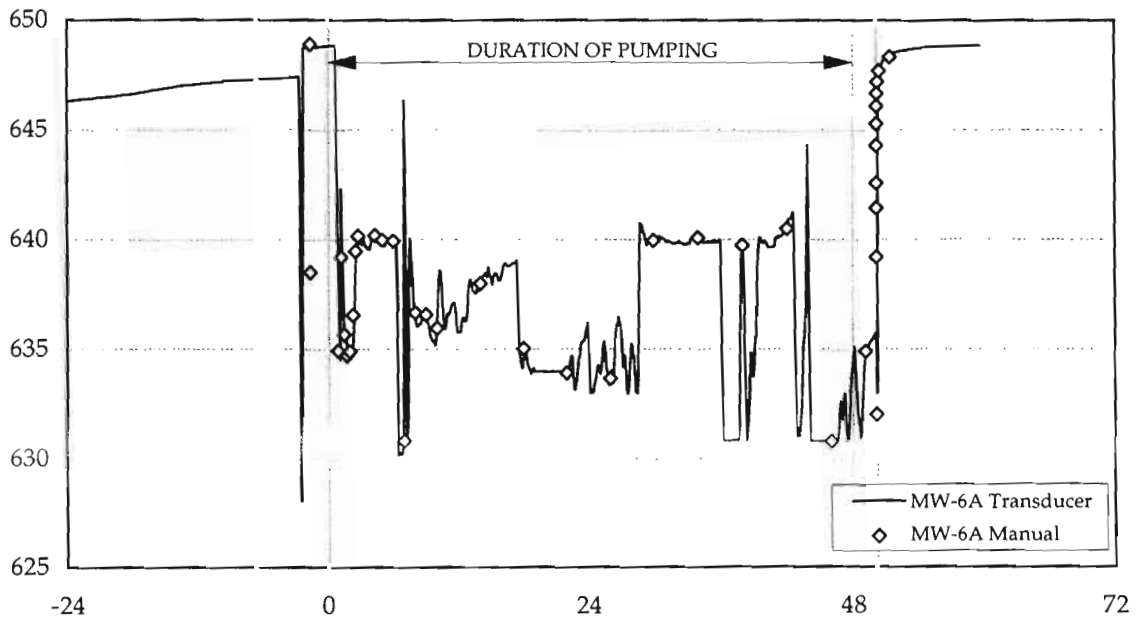
START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

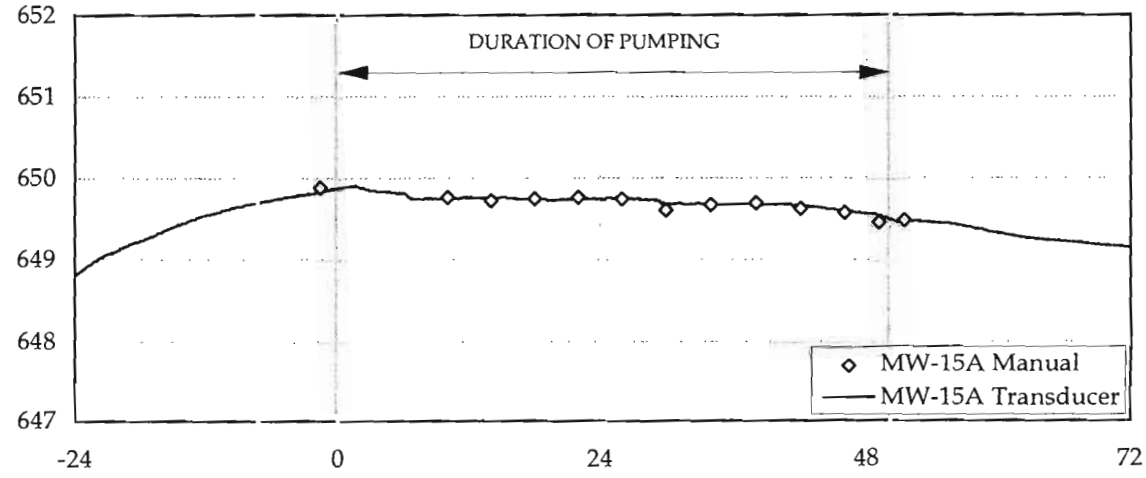
CRA

figure A-52
MW-6A/ MW-15 HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.

PUMPING WELL MW-6A



MONITORING WELL MW-15A



ELAPSED TIME(HOURS)

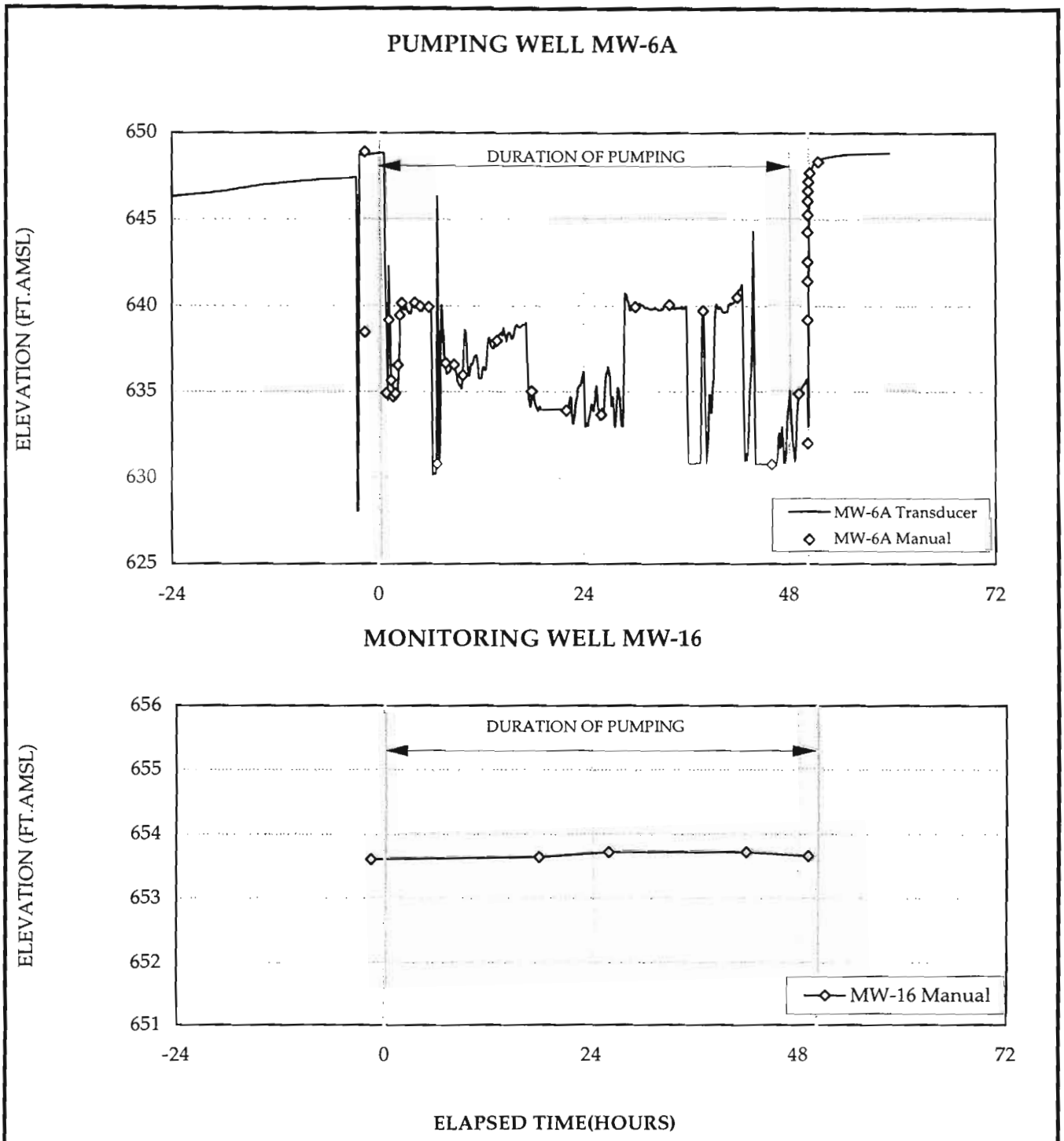
NOTES:

START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

CRA

figure A-53
MW-6A/ MW-15A HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.



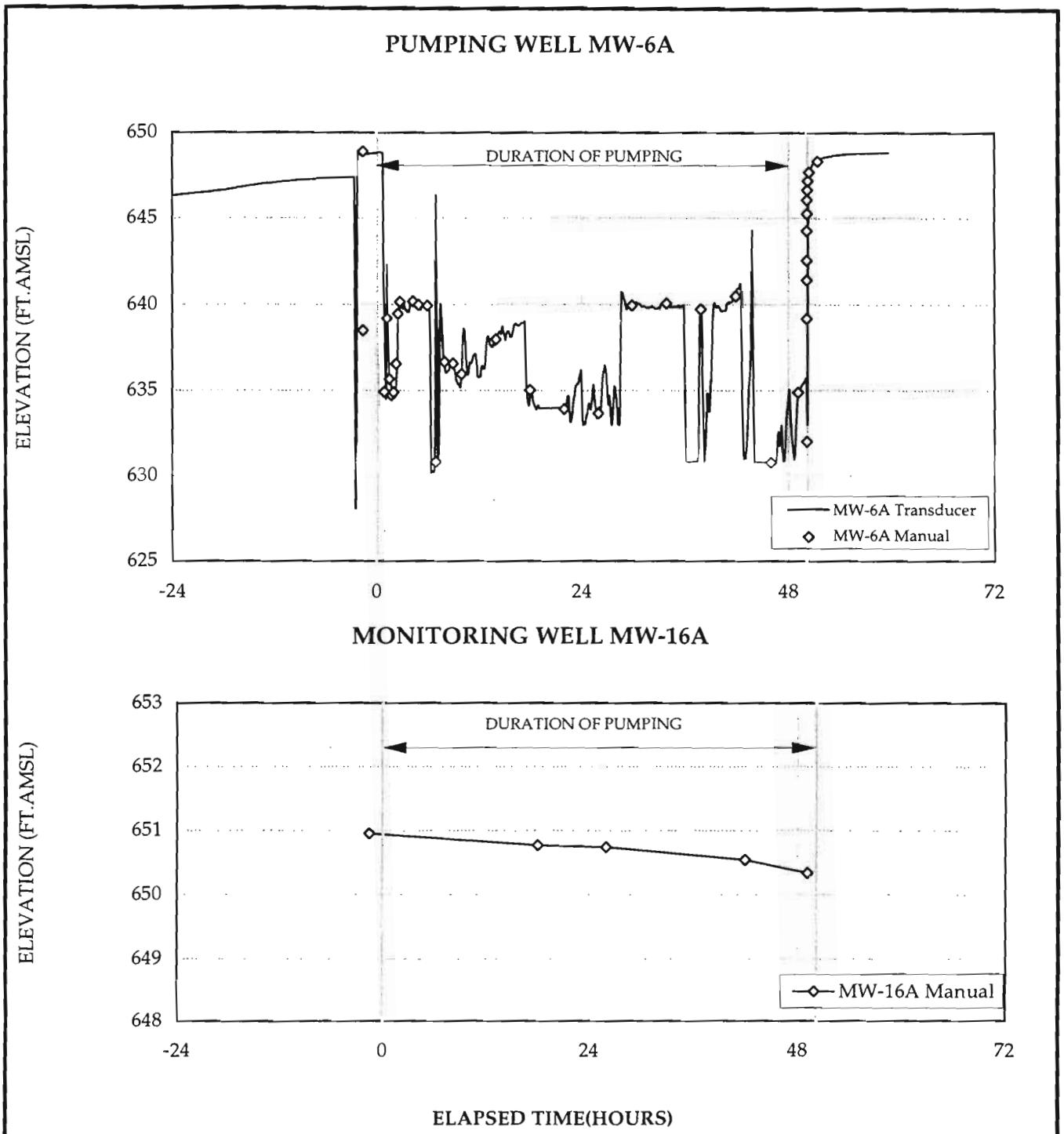
NOTES:

START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

CRA

figure A-54
MW-6A/ MW-16 HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.



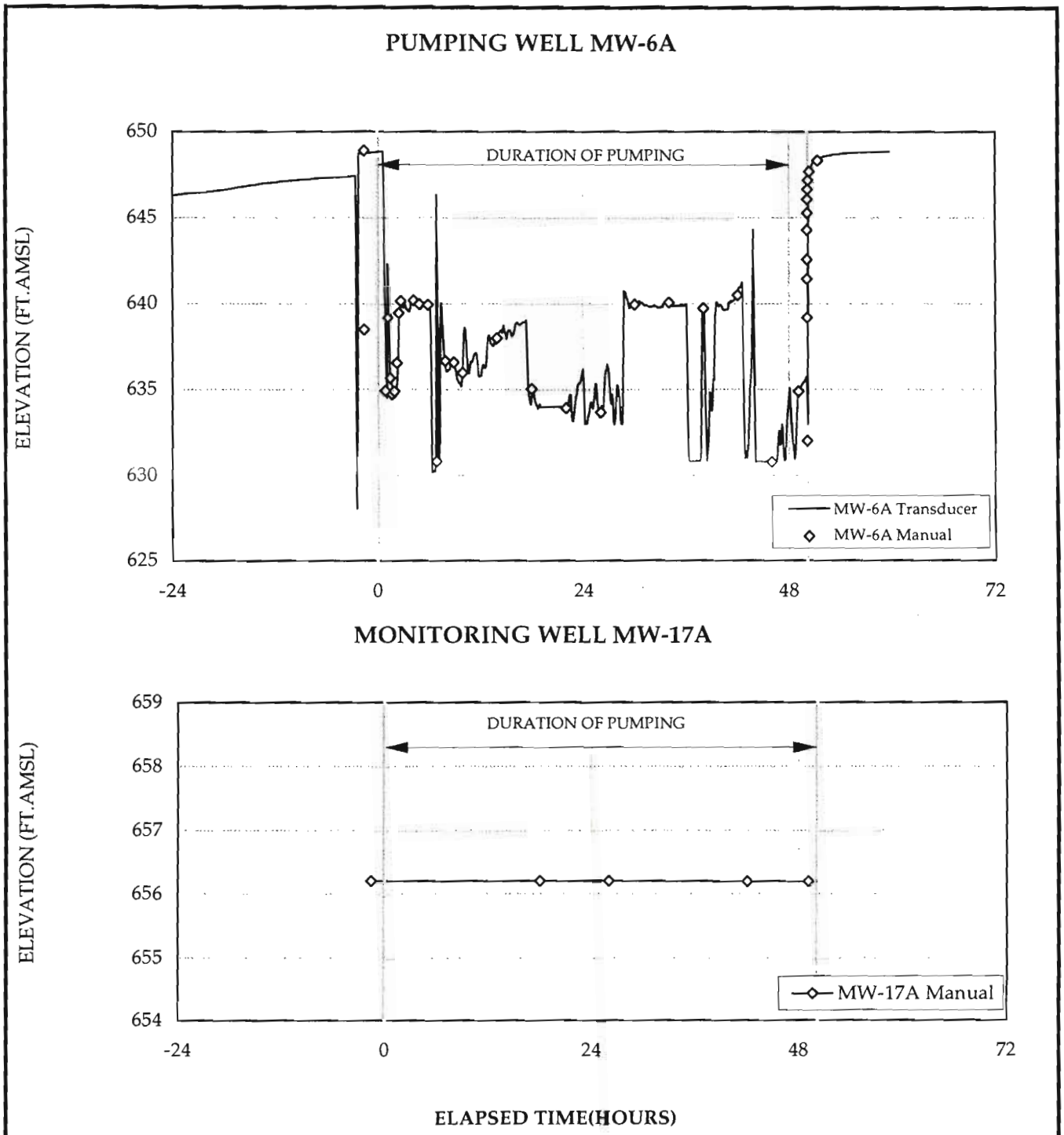
NOTES:

START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

CRA

figure A-55
MW-6A/ MW-16A HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.



NOTES:

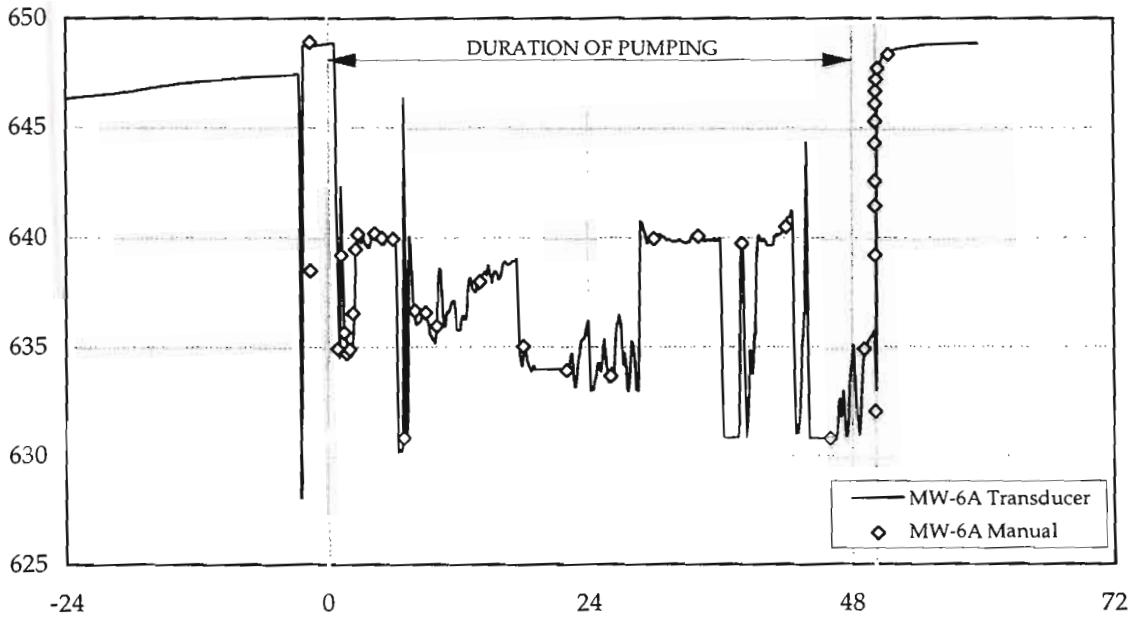
START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

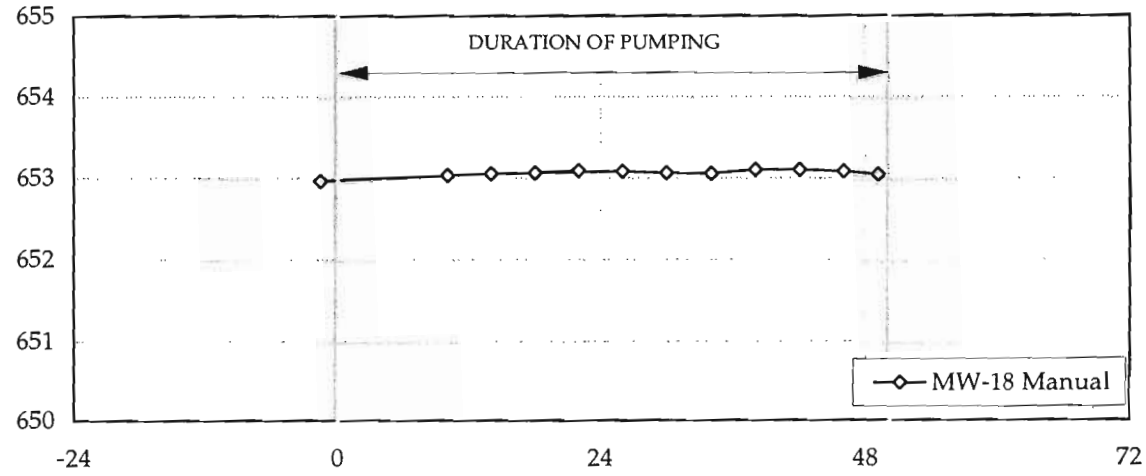
CRA

figure A-56
MW-6A/ MW-17A HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.

PUMPING WELL MW-6A



MONITORING WELL MW-18



ELAPSED TIME(HOURS)

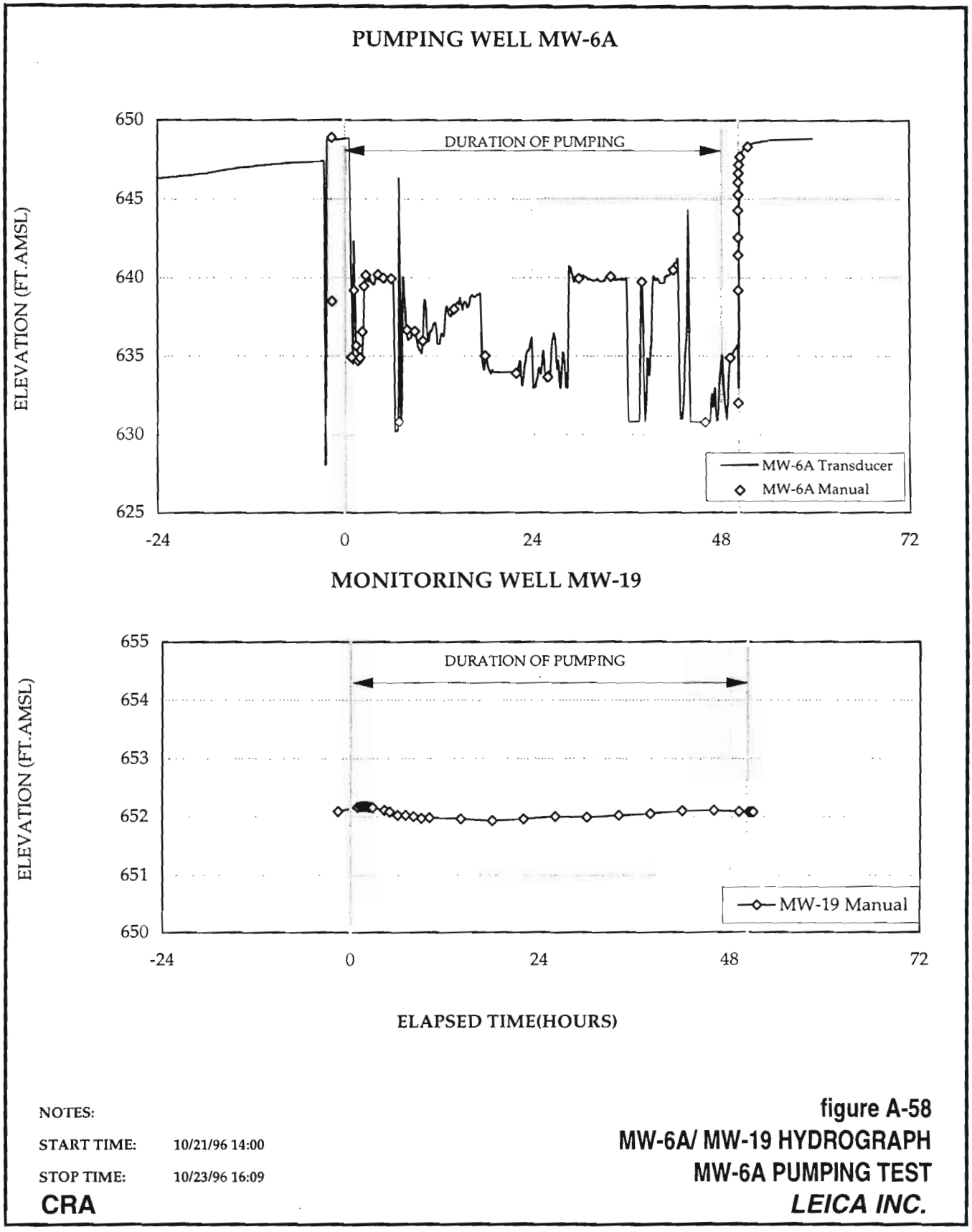
NOTES:

START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

CRA

figure A-57
MW-6A/ MW-18 HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.



NOTES:

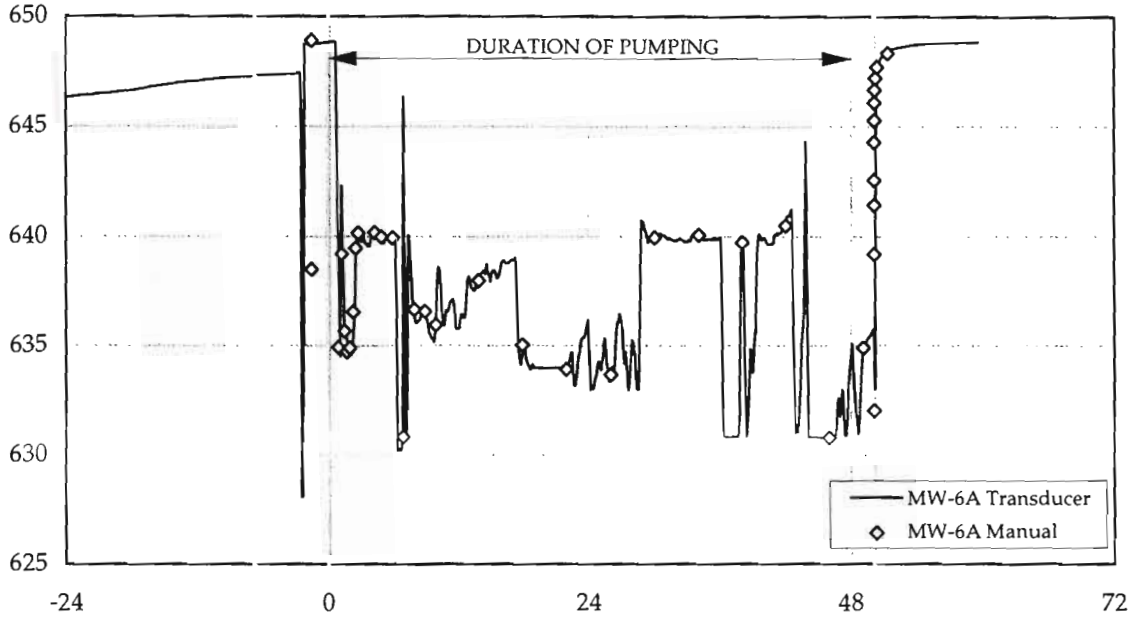
START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

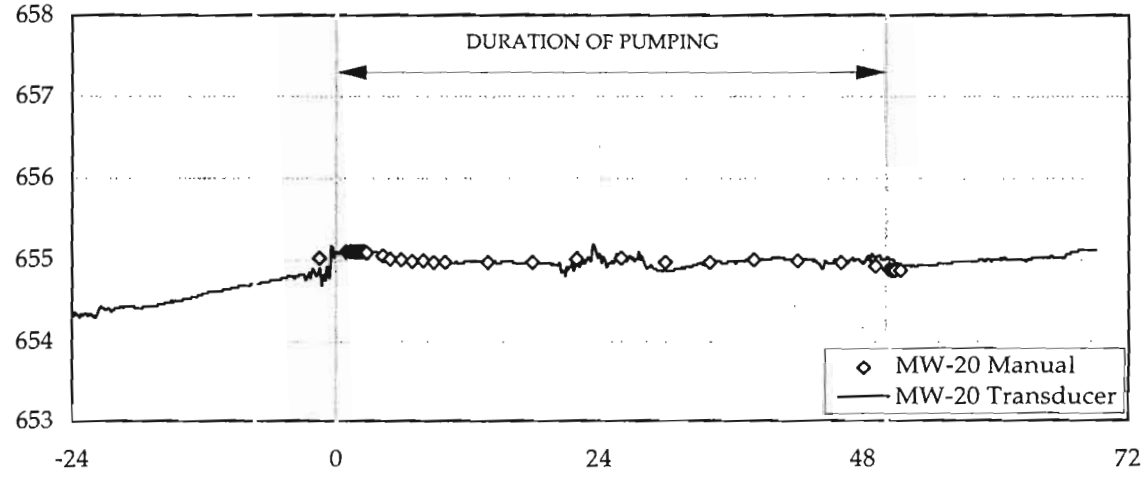
CRA

figure A-58
MW-6A/ MW-19 HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.

PUMPING WELL MW-6A



MONITORING WELL MW-20



ELAPSED TIME(HOURS)

NOTES:

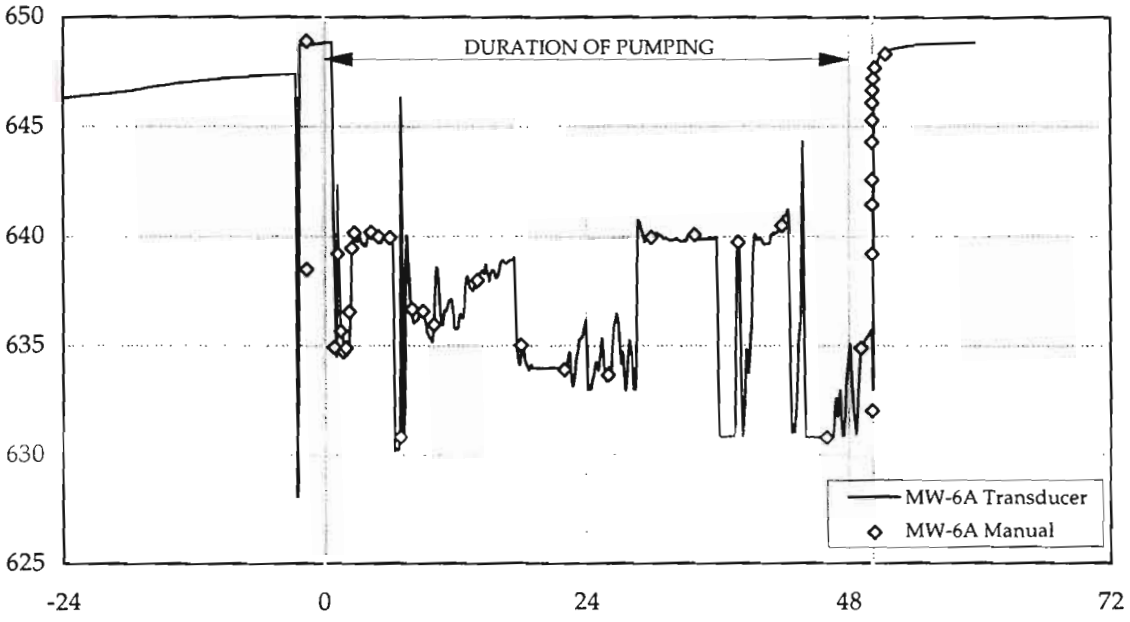
START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

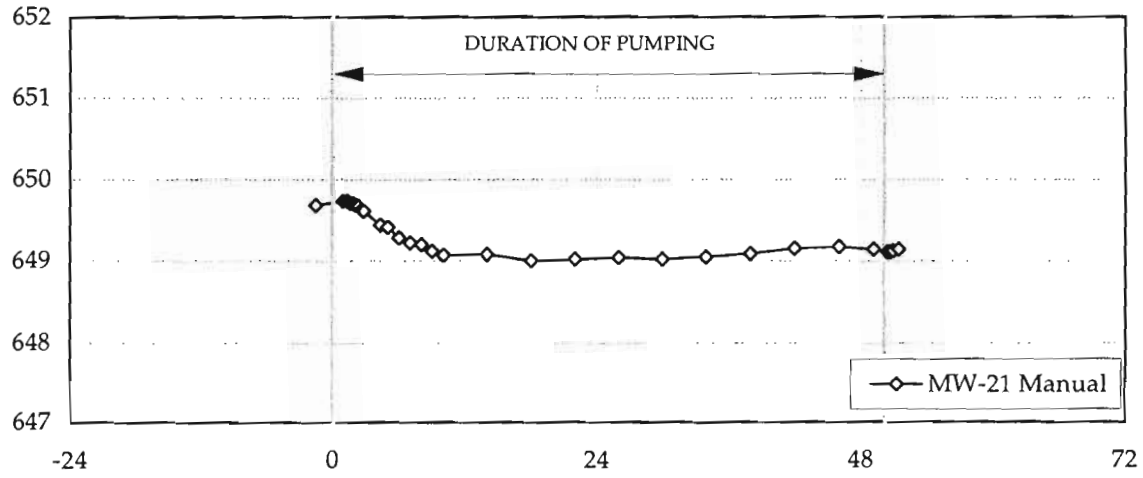
CRA

figure A-59
MW-6A/ MW-20 HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.

PUMPING WELL MW-6A



MONITORING WELL MW-21



ELAPSED TIME(HOURS)

NOTES:

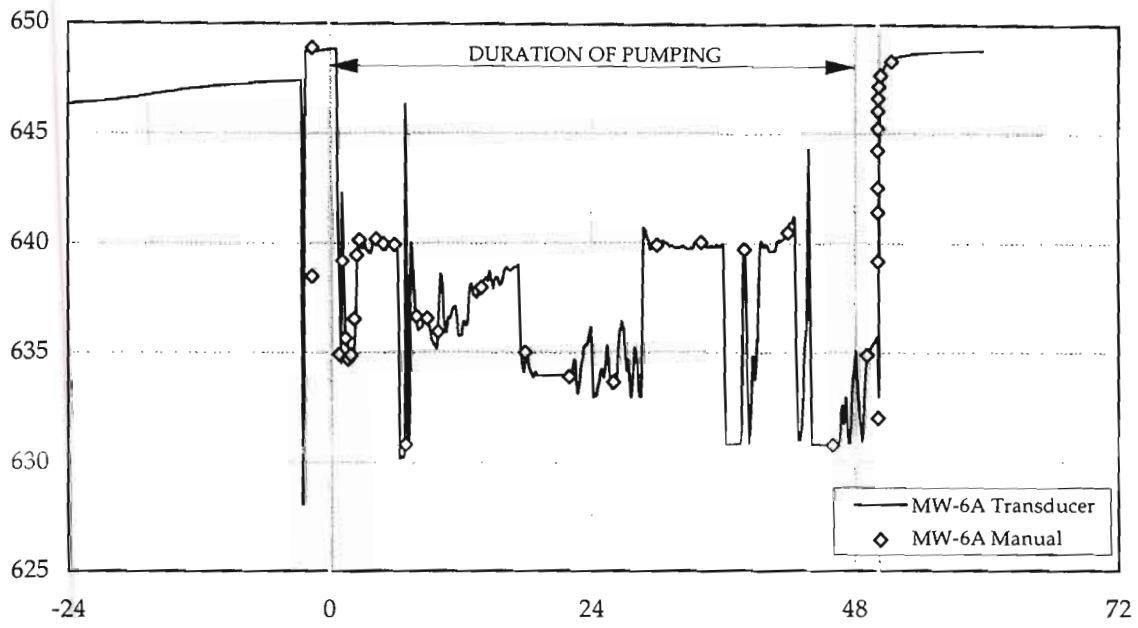
START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

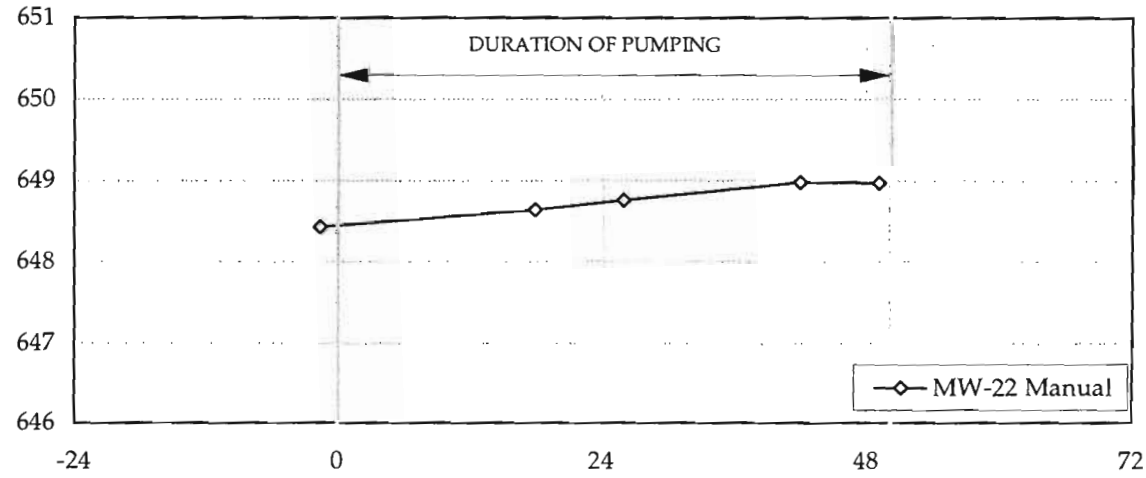
CRA

figure A-60
MW-6A/ MW-21 HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.

PUMPING WELL MW-6A



MONITORING WELL MW-22



ELAPSED TIME(HOURS)

NOTES:

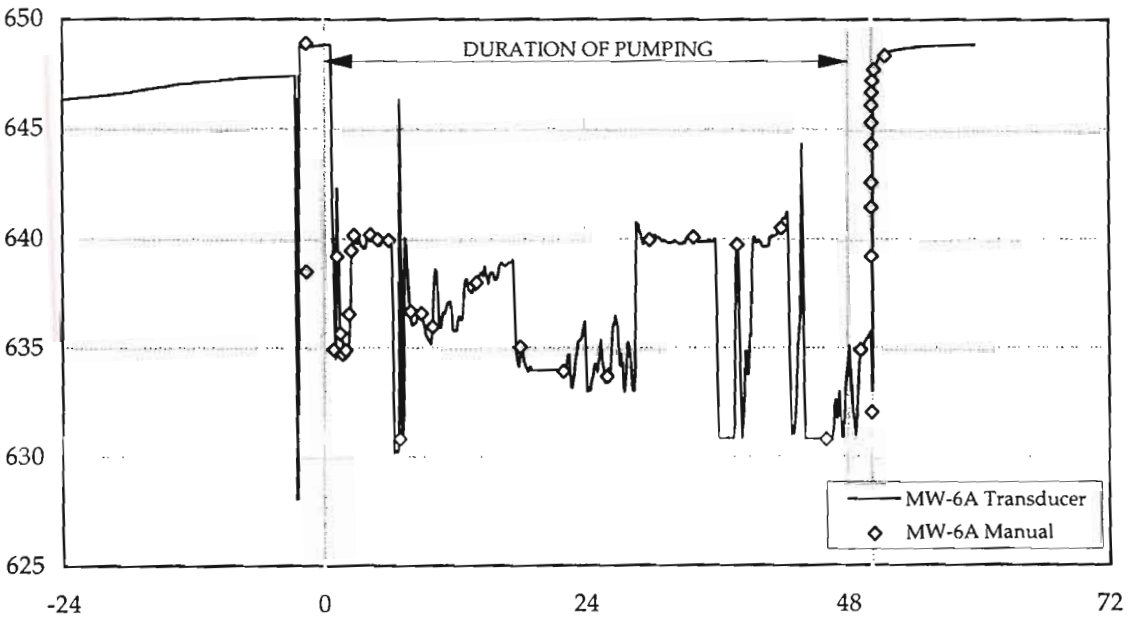
START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

CRA

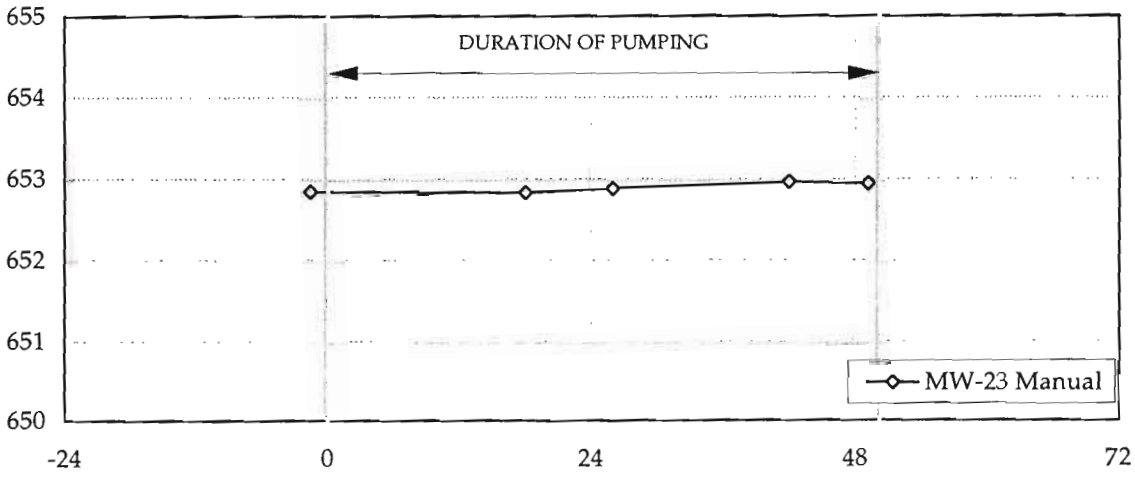
figure A-61
MW-6A/ MW-22 HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.

PUMPING WELL MW-6A



ELEVATION (FT.AMSL)

MONITORING WELL MW-23



ELEVATION (FT.AMSL)

ELAPSED TIME(HOURS)

NOTES:

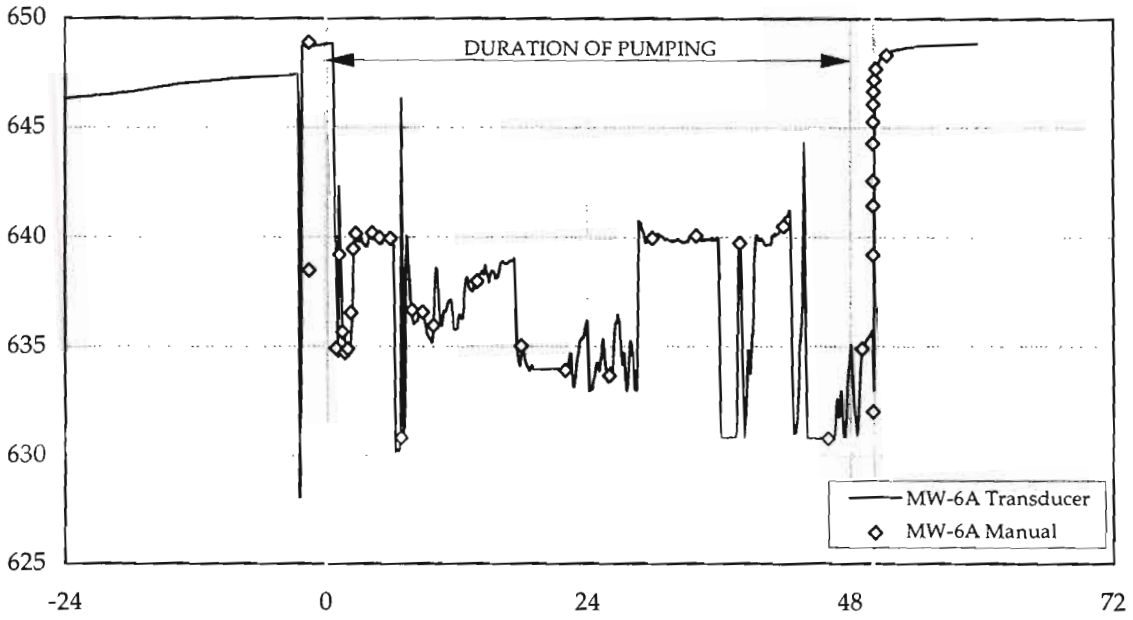
START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

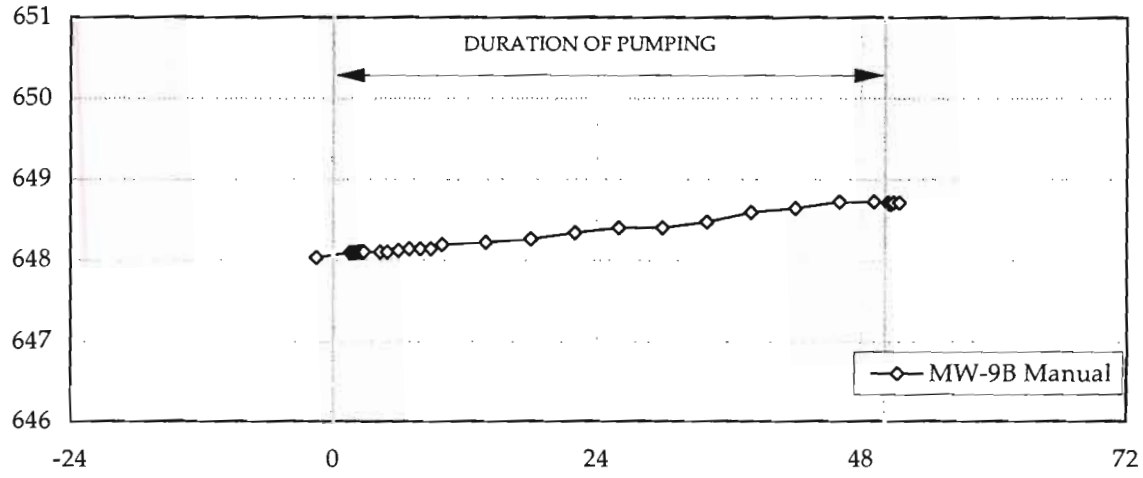
CRA

figure A-62
MW-6A/ MW-23 HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.

PUMPING WELL MW-6A



MONITORING WELL MW-9B



ELAPSED TIME(HOURS)

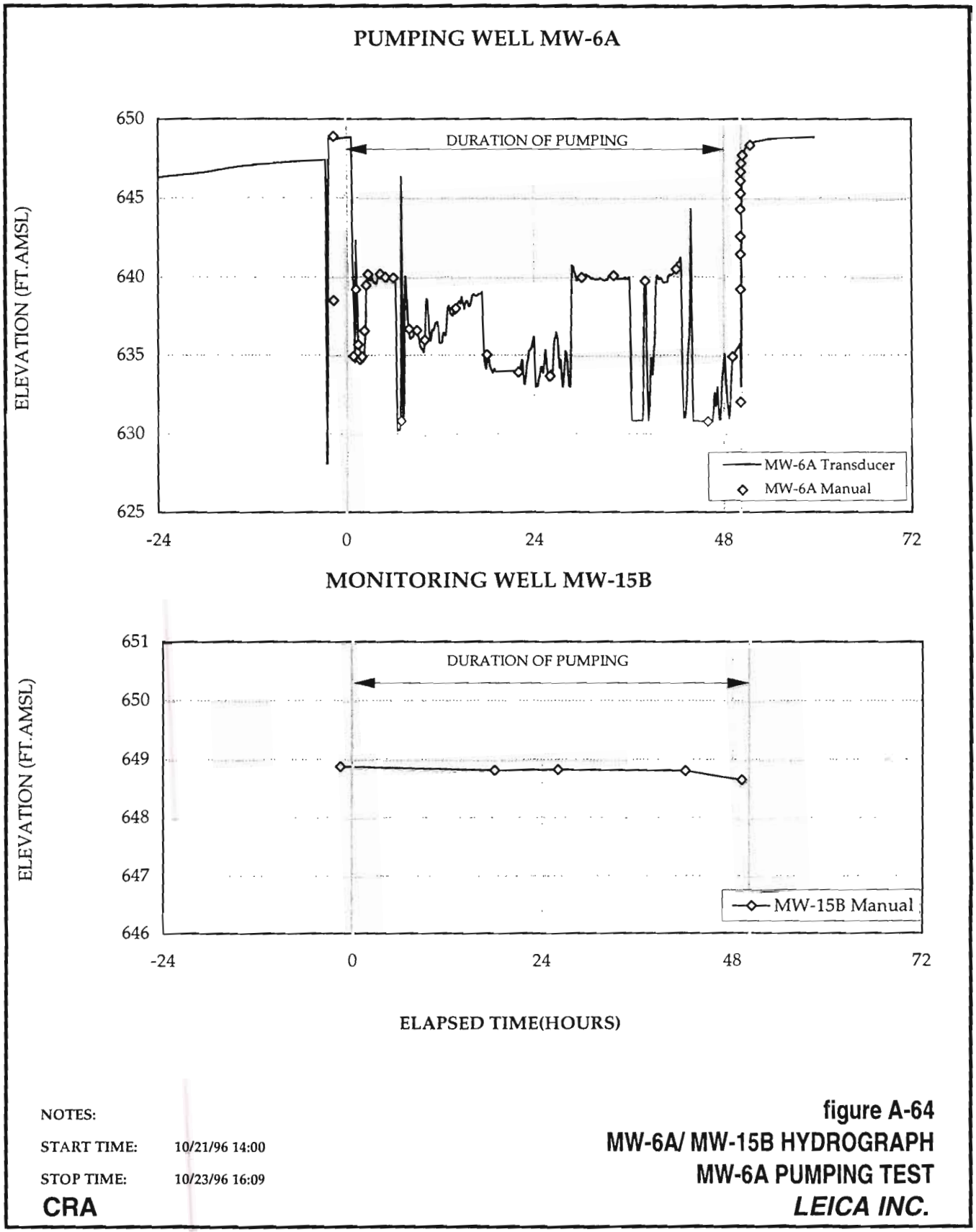
NOTES:

START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

CRA

Figure A-63
MW-6A/ MW-9B HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.



NOTES:

START TIME: 10/21/96 14:00

STOP TIME: 10/23/96 16:09

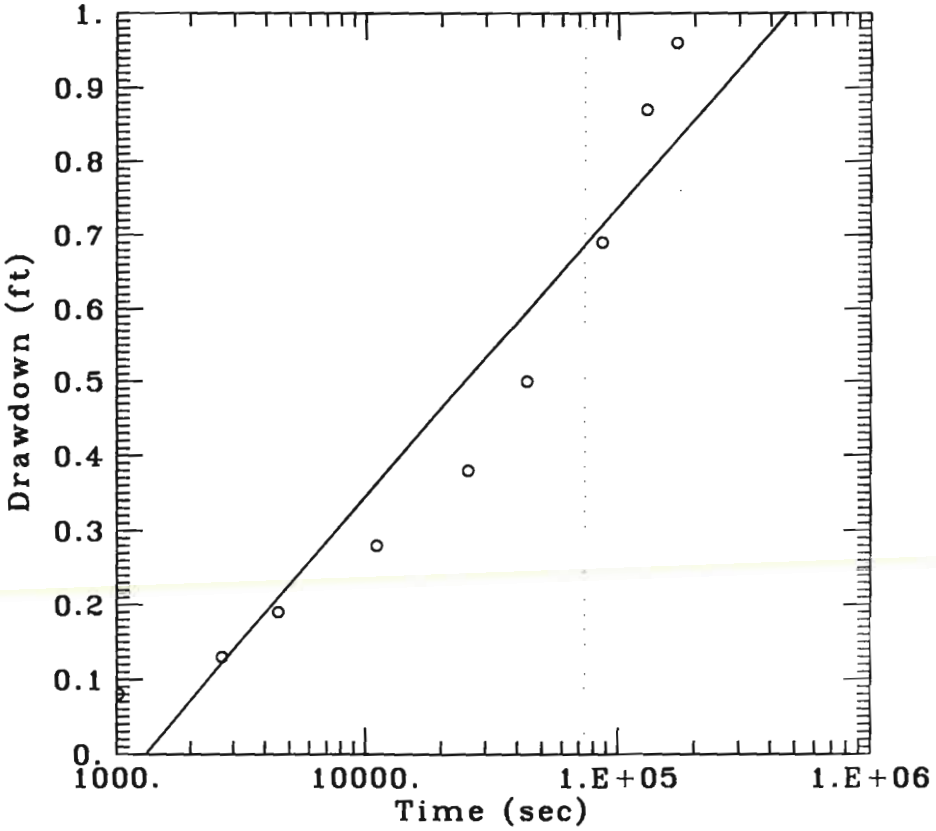
CRA

figure A-64
MW-6A/ MW-15B HYDROGRAPH
MW-6A PUMPING TEST
LEICA INC.

APPENDIX B

TIME-DRAWDOWN GRAPHS
MW-6A AND MW-16A TESTS

MW16A (FROM MW-1A)



DATA SET:
mw16axx.dat
02/20/97

AQUIFER TYPE:
Confined
SOLUTION METHOD:
Cooper-Jacob

ESTIMATED PARAMETERS:
T = 0.006632 ft^2/sec
S = 0.0003084

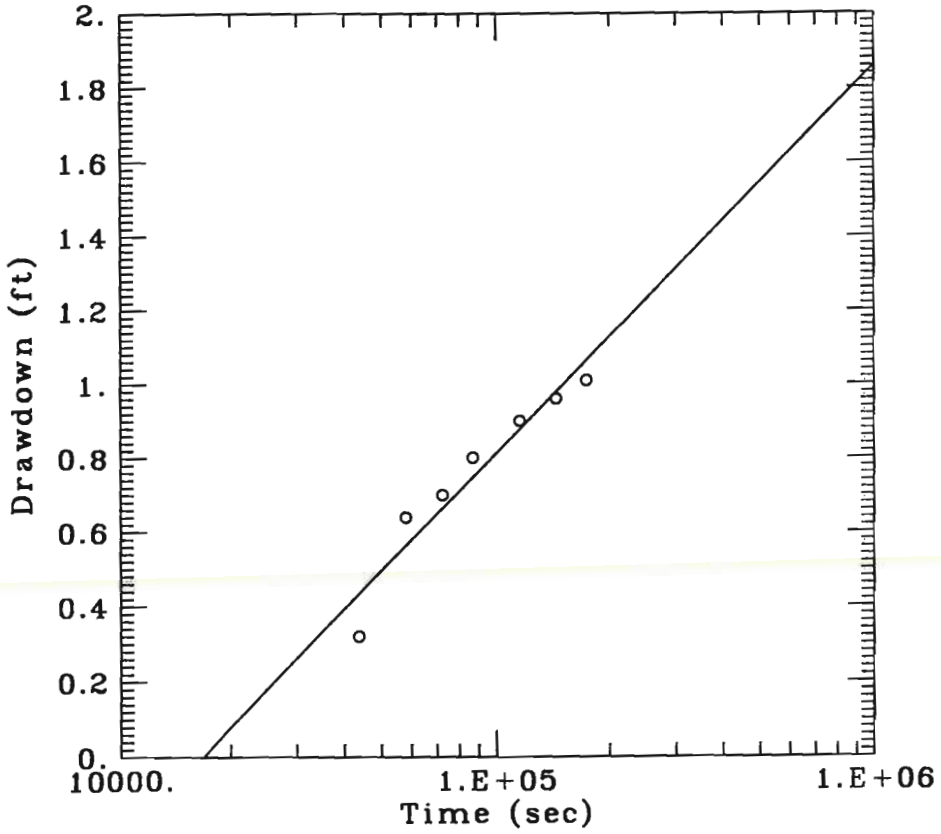
TEST DATA:
Q = 0.0142 ft^3/sec
r = 252. ft
rc = 0.125 ft
rw = 0.125 ft

DRAWDOWN VERSUS TIME
MW-16A MEASURED FROM MW-1A
LEICA INC.
Cheektowaga, New York

CRA

3967 (11) FEB 27/97(NF) REV.0 (G-04)

MW-16A (FROM MW6A)



DATA SET:
mw16a3.dat
02/20/97

AQUIFER TYPE:
Confined
SOLUTION METHOD:
Cooper-Jacob

ESTIMATED PARAMETERS:
T = 0.002483 ft^2/sec
S = 0.0003502

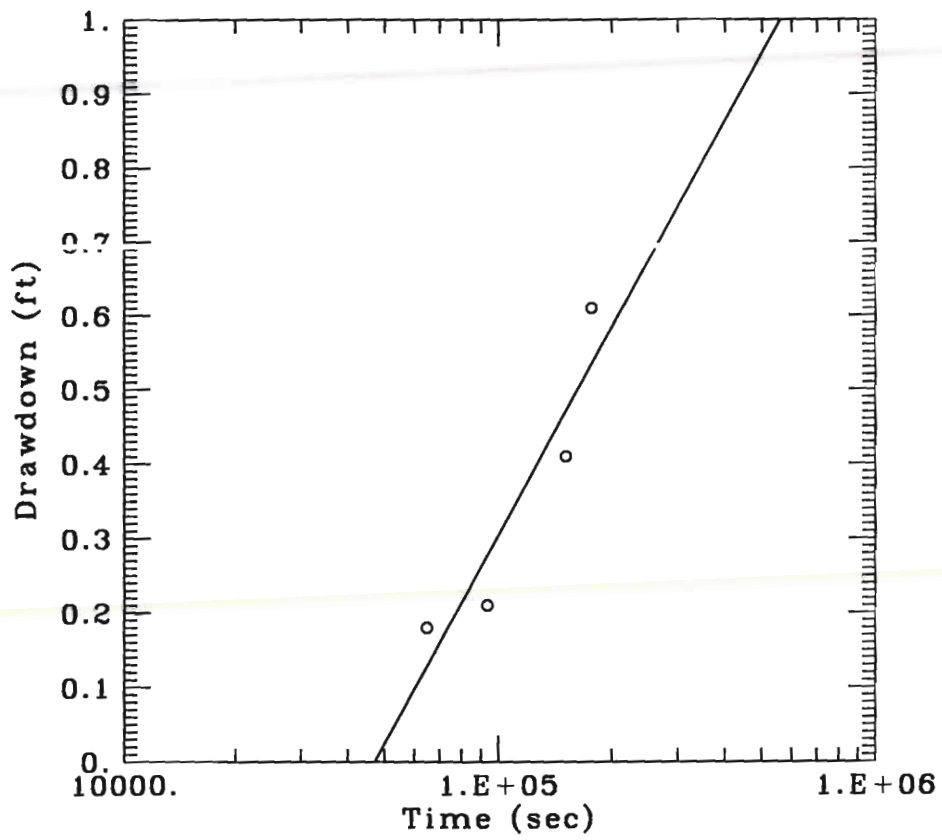
TEST DATA:
Q = 0.0142 ft^3/sec
r = 517. ft
rc = 0.125 ft
rw = 0.125 ft

DRAWDOWN VERSUS TIME
MW-16A MEASURED FROM MW-6A
LEICA INC.
Cheektowaga, New York

CRA

3967 (11) FEB 27/97(NF) REV.0 (G-03)

MW-6A (FROM MW16A)



DATA SET:
mw6a2.dat
02/20/97

AQUIFER TYPE:
Confined
SOLUTION METHOD:
Cooper-Jacob

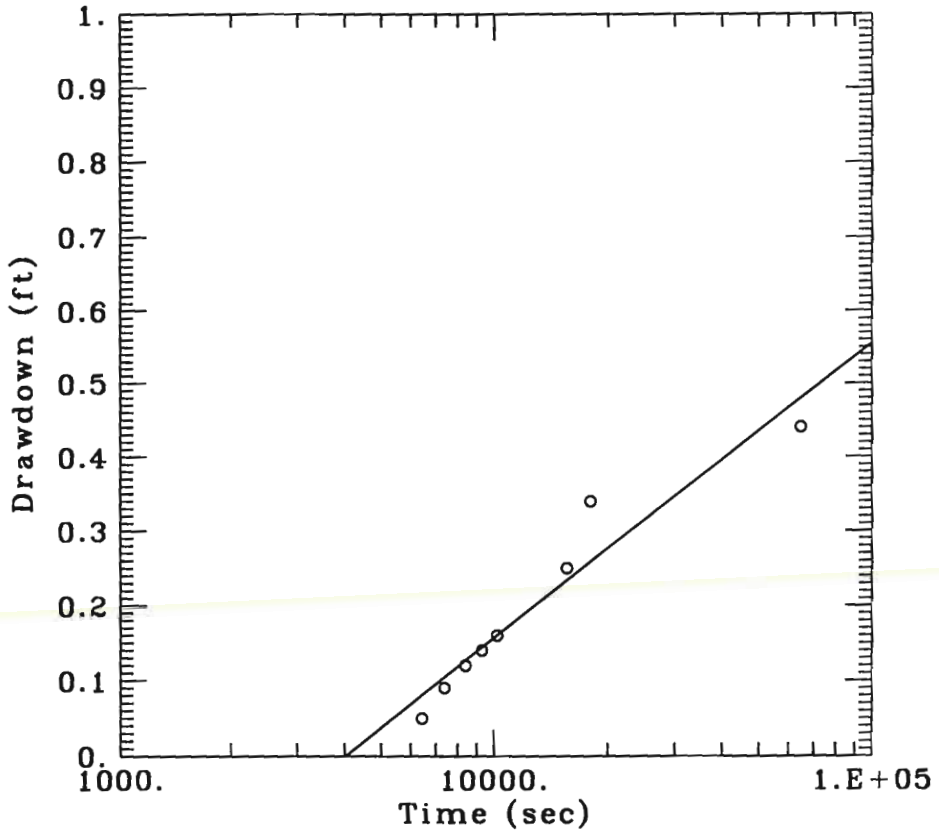
ESTIMATED PARAMETERS:
T = 0.002578 ft^2/sec
S = 0.001027

TEST DATA:
Q = 0.0131 ft^3/sec
r = 516. ft
rc = 0.125 ft
rw = 0.125 ft

DRAWDOWN VERSUS TIME
MW-6A MEASURED FROM MW-16A
LEICA INC.
Cheektowaga, New York

CRA

MW-6A (FROM MW-5A)



DATA SET:
mw6a.dat
02/20/97

AQUIFER TYPE:
Confined
SOLUTION METHOD:
Cooper-Jacob

ESTIMATED PARAMETERS:
T = 0.006037 ft^2/sec
S = 0.0009397

TEST DATA:
Q = 0.0131 ft^3/sec
r = 241. ft
rc = 0.125 ft
rw = 0.125 ft

DRAWDOWN VERSUS TIME
MW-6A MEASURED FROM MW-5A
LEICA INC.
Cheektowaga, New York

CRA

3967 (11) FEB 27/97(NF) REV.0 (G-01)

APPENDIX C

ANALYTICAL DATA VALIDATION

CRA
2055 Niagara Falls Boulevard
Suite Three
Niagara Falls, New York 14304
(716) 297-6150
(716) 297-2265 Telecopier

MEMO

TO: Kevin Lynch

REFERENCE NO.: 3967

FROM: Susan Scrocchi/ms/1

DATE: December 12, 1996

RE: Analytical Results
Leica, Inc. Site
Cheektowaga, New York

INTRODUCTION

Constant rate pumping test samples were collected from October 14 through October 23, 1996 at the Leica, Inc. Site in Cheektowaga, New York, in support of the Remedial Predesign Program. The samples were analyzed for various organic and inorganic parameters using methods referenced from "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods", SW-846, Third Edition, 1986 (with revisions) and "Code of Federal Regulations", 40 CFR Part 136, 1988 (with revisions). A summary of the analytical results is presented in Table 1. The analytical results and associated quality control data were reviewed, and the results are summarized in the following section.

QA/QC REVIEW

Based on information obtained from chain of custody forms and analytical reports, all samples were extracted and/or analyzed within the required holding times with the exception of the dissolved iron and dissolved manganese analyses. Sample filtration should be performed at the time of collection, but samples MW-16A 48 HR and MH-6A 48 HR were filtered upon receipt at the laboratory. Due to the delay in filtering, results for these samples were qualified as estimated (see Table 1).

Surrogate compounds were added to the samples analyzed for organic parameters. Surrogate recoveries were acceptable with the exception of some outlying volatile and pesticide surrogate recoveries which may indicate a bias in the sample results for these parameters. The outlying volatile surrogates were high and the non-detect volatile results would not have been affected by the implied bias; positive results were qualified as estimated (see Table 2). Pesticide surrogate recoveries were low, all results were qualified as estimated based on the potential low bias (see Table 2). No samples were qualified for semi-volatile surrogate outliers due to method acceptance of one outlier per fraction.

One matrix spike/matrix spike duplicate (MS/MSD) sample was analyzed for volatile organics. The spike recoveries showed acceptable overall analytical accuracy and precision. Accuracy for semi-volatile and pesticide/PCB analyses were assessed based on blank spike recoveries; precision could not be assessed for these parameters.

Matrix spike and duplicate analyses were performed for all inorganic parameters except: bromide, sulfide, sulfite, suspended solids and dissolved solids; due to limited sample volume. All recoveries showed acceptable analytical accuracy and precision with exception of some low metal recoveries associated with sample MW-6A 0 HR MS, indicating a potential low bias in the data. All associated sample results were qualified as estimated (see Table 3). Accuracy for bromide, sulfide, sulfate, suspended solids and dissolved solids were assessed based on laboratory control sample results.

Blank spike (BS) or laboratory control samples (LCS) were analyzed for each parameter. All results were acceptable with the exception of low recoveries of hexachlorocyclopentadiene. All associated results were non-detect and were rejected due to the poor recovery for this compound (see Table 4).

Blanks were analyzed for each parameter and the results were non-detect with the exception of some low level metal concentrations. All associated positive sample results up to five times the concentrations detected in the blanks were qualified non-detect (see Table 5).

Trip blanks were transported and analyzed with the volatiles samples; all results were non-detect for these trip blanks.

Serial dilutions were performed on sample MW-16A 48 HR and MW-6A 0 HR. The results were acceptable with the exception of the potassium and boron data, which showed some variability between the original and diluted results. Associated sample results for these metals were qualified as estimated (see Table 6).

CONCLUSION

The data provided were acceptable for use with the qualifications and exceptions noted.

TABLE 1
ANALYTICAL RESULTS SUMMARY
EXTRACTED GROUNDWATER SAMPLING
LEICA, INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

Sample ID:	*MW-16A O HR*	*MW-16A 24 HR*	*MW-16A 48 HR*	*MW-16A EFFLUENT*	*MW-6A O HR*	*MW-6A 24 HR*	*MW-6A 48 HR*	*MW-6A EFFLUENT*
Collection Date:	*10/14/96*	*10/16/96*	*10/17/96*	*10/17/96*	*10/21/96*	*10/22/96*	*10/23/96*	*10/23/96*
Volatiles (µg/L)								
Chloromethane	3J	2J	2J	ND 10	ND 10	ND 10	ND 500	ND 10
Vinyl chloride	8500J	8400	5400	ND 10	50000	31000	33000	2J
Bromomethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 500	ND 10
Chloroethane	83	9J	8J	ND 10	ND 10	ND 10	ND 500	ND 10
1,1-Dichloroethene	ND 10000	ND 5000	ND 5000	ND 10	140	150	ND 500	ND 10
Carbon disulfide	7J	3J	2J	ND 10	13	11	ND 500	ND 10
Acetone	12000	ND 5000	ND 5000	150	120	110	ND 500	58
Methylene chloride	33	11J	7J	ND 10	ND 10	ND 10	ND 500	ND 10
1,2-Dichloroethene (Total)	53000	38000	35000	ND 10	140000	86000	81000	ND 10
1,1-Dichloroethane	11000	4100J	2800J	ND 10	ND 10	ND 10	ND 500	ND 10
Chloroform	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 500	ND 10
1,2-Dichloroethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 500	ND 10
2-Butanone	ND 10000	85J	130J	6J	4J	19	ND 500	9J
1,1,1-Trichloroethane	69000	13000	9800	ND 10	ND 10	ND 10	ND 500	ND 10
Carbon tetrachloride	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 500	ND 10
Trichloroethene	66000	40000	29000	ND 10	52	150	120J	ND 10
Benzene	18	18J	15J	ND 10	62	43	ND 500	ND 10
1,2-Dichloropropane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 500	ND 10
Bromodichloromethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 500	ND 10
cis-1,3-Dichloropropene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 500	ND 10
trans-1,3-Dichloropropene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 500	ND 10
1,1,2-Trichloroethane	12	9J	11J	ND 10	ND 10	ND 10	ND 500	ND 10
Dibromochloromethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 500	ND 10
Bromoform	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 500	ND 10
4-Methyl-2-pentanone	46	20J	15J	ND 10	18	11	ND 500	ND 10
Toluene	2600J	1100J	770J	ND 10	ND 10000	150	94J	ND 10
Tetrachloroethene	21	11J	10J	ND 10	ND 10	ND 10	ND 500	ND 10
2-Hexanone	ND 10	ND 10	ND 10	ND 10	6J	3J	ND 500	ND 10
Chlorobenzene	1J	1J	ND 10	ND 10	2J	1J	ND 500	ND 10
Ethylbenzene	2200J	1000J	760J	ND 10	ND 10000	140	ND 500	ND 10
Xylene (Total)	14000	5400	4100J	ND 10	ND 10000	ND 5000	380J	ND 10
Styrene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 500	ND 10
1,1,2,2-Tetrachloroethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 500	ND 10
Acrolein	-	-	ND 30	-	-	-	ND 1500	-
Acrylonitrile	-	-	ND 30	-	-	-	ND 1500	-
Dichlorodifluoromethane	-	-	ND 10	-	-	-	ND 500	-
Trichlorofluoromethane	-	-	ND 10	-	-	-	ND 500	-
bis(Chloromethyl)ether	-	-	ND 100	-	-	-	ND 500	-
2-Chloroethylvinylether	-	-	ND 10	-	-	-	ND 500	-

TABLE 1
ANALYTICAL RESULTS SUMMARY
EXTRACTED GROUNDWATER SAMPLING
LEICA, INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

Sample ID:	*MW-16A O HR*	*MW-16A 24 HR*	*MW-16A 48 HR*	*MW-16A EFFLUENT*	*MW-6A O HR*	*MW-6A 24 HR*	*MW-6A 48 HR*	*MW-6A EFFLUENT*
Collection Date:	*10/14/96*	*10/16/96*	*10/17/96*	*10/17/96*	*10/21/96*	*10/22/96*	*10/23/96*	*10/23/96*
Semi-Volatiles (µg/L)								
Phenol	ND 10	ND 10	ND 10	-	10J	8J	6J	-
bis(2-Chloroethyl)ether	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
2-Chlorophenol	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
1,3-Dichlorobenzene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
1,4-Dichlorobenzene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
1,2-Dichlorobenzene	ND 10	ND 10	ND 10	-	3J	3J	2J	-
2-Methylphenol	ND 10	ND 10	ND 10	-	20	15	11	-
2,2'-oxybis(1-Chloropropane)	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
4-Methylphenol	14	4J	3J	-	49	34	27	-
n-Nitroso-di-n-propylamine	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Hexachloroethane	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Nitrobenzene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Isophorone	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
2-Nitrophenol	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
2,4-Dimethylphenol	6J	2J	2J	-	13	9J	8J	-
bis(2-Chloroethoxy)methane	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
2,4-Dichlorophenol	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
1,2,4-Trichlorobenzene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Naphthalene	72	38	36	-	2J	2J	1J	-
4-Chloroaniline	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Hexachlorobutadiene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
4-Chloro-3-methylphenol	11	4J	3J	-	ND 10	ND 10	ND 10	-
2-Methylnaphthalene	8J	5J	4J	-	ND 10	ND 10	ND 10	-
Hexachlorocyclopentadiene	ND 10	ND 10	ND 10	-	R	R	R	-
2,4,6-Trichlorophenol	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
2,4,5-Trichlorophenol	ND 25	ND 25	ND 25	-	ND 25	ND 25	ND 25	-
2-Chloronaphthalene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
2-Nitroaniline	ND 25	ND 25	ND 25	-	ND 25	ND 25	ND 25	-
Dimethylphthalate	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Acenaphthylene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
2,6-Dinitrotoluene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
3-Nitroaniline	ND 25	ND 25	ND 25	-	ND 25	ND 25	ND 25	-
Acenaphthene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
2,4-Dinitrophenol	ND 25	ND 25	ND 25	-	ND 25	ND 25	ND 25	-
4-Nitrophenol	ND 25	ND 25	ND 25	-	ND 25	ND 25	ND 25	-
Dibenzofuran	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
2,4-Dinitrotoluene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Diethylphthalate	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Fluorene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
4-Chlorophenyl-phenylether	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
4-Nitroaniline	ND 25	ND 25	ND 25	-	ND 25	ND 25	ND 25	-
4,6-Dinitro-2-methylphenol	ND 25	ND 25	ND 25	-	ND 25	ND 25	ND 25	-

TABLE 1
ANALYTICAL RESULTS SUMMARY
EXTRACTED GROUNDWATER SAMPLING
LEICA, INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

Sample ID:	*MW-16A O HR*	*MW-16A 24 HR*	*MW-16A 48 HR*	*MW-16A EFFLUENT*	*MW-6A O HR*	*MW-6A 24 HR*	*MW-6A 48 HR*	*MW-6A EFFLUENT*
Collection Date:	*10/14/96*	*10/16/96*	*10/17/96*	*10/17/96*	*10/21/96*	*10/22/96*	*10/23/96*	*10/23/96*
Semi-Volatiles (µg/L) (cont.)								
n-Nitrosodiphenylamine	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
4-Bromophenyl-phenylether	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Hexachlorobenzene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Pentachlorophenol	ND 25	ND 25	ND 25	-	ND 25	ND 25	ND 25	-
Phenanthrene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Anthracene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Carbazole	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
di-n-Butylphthalate	ND 10	ND 10	ND 10	-	2J	1J	ND 10	-
Fluoranthene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Pyrene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Butylbenzylphthalate	ND 10	1J	ND 10	-	ND 10	ND 10	ND 10	-
Benzo(a)anthracene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
3,3'-Dichlorobenzidine	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Chrysene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
bis(2-Ethylhexyl)phthalate	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
di-n-Octylphthalate	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Benzo(b)fluoranthene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Benzo(k)fluoranthene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Benzo(a)pyrene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Indeno(1,2,3-cd)pyrene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Dibenz(a,h)anthracene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Benzo(g,h,i)perylene	ND 10	ND 10	ND 10	-	ND 10	ND 10	ND 10	-
Benzidine	-	-	ND 80	-	-	-	ND 80	-
1,2-Diphenylhydrazine	-	-	ND 10	-	-	-	ND 10	-
Pesticides/PCBs (µg/L)								
alpha-BHC	-	-	ND 0.050J	-	-	-	ND 0.050	-
beta-BHC	-	-	ND 0.050J	-	-	-	ND 0.050	-
delta-BHC	-	-	ND 0.050J	-	-	-	ND 0.050	-
gamma-BHC(Lindane)	-	-	ND 0.050J	-	-	-	ND 0.050	-
Heptachlor	-	-	ND 0.050J	-	-	-	ND 0.050	-
Aldrin	-	-	ND 0.050J	-	-	-	ND 0.050	-
Heptachlor epoxide	-	-	ND 0.050J	-	-	-	ND 0.050	-
Endosulfan I	-	-	ND 0.050J	-	-	-	ND 0.050	-
Dieldrin	-	-	ND 0.10J	-	-	-	ND 0.10	-
4,4'-DDE	-	-	ND 0.10J	-	-	-	ND 0.10	-
Endrin	-	-	ND 0.10J	-	-	-	ND 0.10	-
Endosulfan II	-	-	ND 0.10J	-	-	-	ND 0.10	-
4,4'-DDD	-	-	ND 0.10J	-	-	-	ND 0.10	-
Endosulfan sulfate	-	-	ND 0.10J	-	-	-	ND 0.10	-
4,4'-DDT	-	-	ND 0.10J	-	-	-	ND 0.10	-
Methoxychlor	-	-	ND 0.50J	-	-	-	ND 0.50	-

TABLE 1
ANALYTICAL RESULTS SUMMARY
EXTRACTED GROUNDWATER SAMPLING
LEICA, INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

Sample ID:	*MW-16A O HR*	*MW-16A 24 HR*	*MW-16A 48 HR*	*MW-16A EFFLUENT*	*MW-6A O HR*	*MW-6A 24 HR*	*MW-6A 48 HR*	*MW-6A EFFLUENT*
Collection Date:	*10/14/96*	*10/16/96*	*10/17/96*	*10/17/96*	*10/21/96*	*10/22/96*	*10/23/96*	*10/23/96*
Pesticides/PCBs (µg/L) (Cont'd.)								
Endrin ketone	-	-	ND 0.10J	-	-	-	ND 0.10	-
Endrin aldehyde	-	-	ND 0.10J	-	-	-	ND 0.10	-
alpha-Chlordane	-	-	ND 0.050J	-	-	-	ND 0.050	-
gamma-Chlordane	-	-	ND 0.050J	-	-	-	ND 0.050	-
Toxaphene	-	-	ND 5.0J	-	-	-	ND 5.0	-
Aroclor-1016	-	-	ND 1.0J	-	-	-	ND 1.0	-
Aroclor-1221	-	-	ND 2.0J	-	-	-	ND 2.0	-
Aroclor-1232	-	-	ND 1.0J	-	-	-	ND 1.0	-
Aroclor-1242	-	-	ND 1.0J	-	-	-	ND 1.0	-
Aroclor-1248	-	-	ND 1.0J	-	-	-	ND 1.0	-
Aroclor-1254	-	-	ND 1.0J	-	-	-	ND 1.0	-
Aroclor-1260	-	-	ND 1.0J	-	-	-	ND 1.0	-
Inorganics (µg/L)								
Aluminum	17600	147	512	-	359	139	369	-
Antimony	ND 2.7	ND 2.7	ND 2.7	-	ND 2.7	ND 2.7	ND 2.7	-
Arsenic	19.5	4.5	5.2	-	4.2	3.4	3.7	-
Barium	407	301	299	-	444	408	360	-
Beryllium	0.93	ND 0.20	0.70	-	0.77	ND 0.20	ND 0.20	-
Cadmium	ND 0.20	ND 0.20	0.53	-	ND 0.63	ND 0.20	ND 0.20	-
Calcium	161000	122000	118000	-	147000	133000	130000	-
Chromium	39.2	ND 0.60	0.67	-	3.7	0.73	1.1	-
Cobalt	11.1	ND 1.4	ND 1.4	-	1.9	1.4	1.7	-
Copper	38.6	7.5	5.3	-	16.7	2.7	9.0	-
Iron	44300	670	916	-	1630J	775J	1600J	-
Lead	17.1	ND 0.90	ND 0.90	-	4.7	ND 0.90	ND 0.90	-
Magnesium	46500	44300	43700	-	92100	92900	87000	-
Manganese	933	169	165	-	86.2	79.7	99.4	-
Mercury	ND 0.10	ND 0.10	ND 0.10	-	ND 0.10	ND 0.10	ND 0.10	-
Nickel	32.1	ND 2.1	ND 2.1	-	122	2.9	ND 2.1	-
Potassium	11000J	6550J	6360J	-	8620J	7510J	6680J	-
Selenium	ND 3.0	ND 1.4	ND 2.7	-	2.5J	ND 1.4J	1.6J	-
Silver	ND 0.40	ND 0.40	ND 0.40	-	ND 0.40J	ND 0.40J	ND 0.40J	-
Sodium	191000	182000	176000	-	119000	110000	102000	-
Thallium	2.4	ND 1.9	3.7	-	2.6	ND 1.9	ND 1.9	-
Vanadium	30.4	ND 1.6	ND 1.6	-	ND 1.6	ND 1.6	ND 1.6	-
Zinc	148	ND 15.8	ND 17.0	-	96.4	ND 11.3	ND 29.5	-
Cyanide	-	-	ND 10.0	-	-	-	ND 10.0	-

TABLE 1
ANALYTICAL RESULTS SUMMARY
EXTRACTED GROUNDWATER SAMPLING
LEICA, INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

Sample ID:	MW-16A O HR	MW-16A 24 HR	MW-16A 48 HR	MW-16A EFFLUENT	MW-6A O HR	MW-6A 24 HR	MW-6A 48 HR	MW-6A EFFLUENT
Collection Date:	10/14/96	10/16/96	10/17/96	10/17/96	10/21/96	10/22/96	10/23/96	10/23/96
Inorganics (µg/L) (Cont'd.)								
Dissolved Iron	-	-	200J	-	-	-	92.0J	-
Dissolved Manganese	-	-	158J	-	-	-	66.2J	-
Boron	-	-	186J	-	-	-	7920J	-
Molybdenum	-	-	2.9	-	-	-	5.4	-
Tin	-	-	ND 3.1	-	-	-	ND 3.1	-
Titanium	-	-	3.1	-	-	-	8.6	-
General Chemistry (mg/L)								
BOD5	-	-	5	-	-	-	10	-
Bromide	-	-	ND 0.5	-	-	-	ND 0.5	-
COD	-	-	63	-	-	-	83	-
Fluoride	-	-	0.66	-	-	-	0.72	-
total Hardness	-	-	444	-	-	-	692	-
Ammonia (as N)	-	-	0.26	-	-	-	0.23	-
Nitrite (as N)	-	-	ND 0.1	-	-	-	ND 0.1	-
Nitrate (as N)	-	-	0.1	-	-	-	ND 0.1	-
Oil and Grease	-	-	ND 5.1	-	-	-	ND 5.3	-
Organic nitrogen	-	-	0.1	-	-	-	0.5	-
Total Phenols	-	-	0.0044	-	-	-	0.0444	-
Sulfide	-	-	1.5	-	-	-	3.2	-
Sulfite	-	-	ND 2.0	-	-	-	ND 2.0	-
Sulfate	-	-	104	-	-	-	97.0	-
Suspended Solids	-	-	29	-	-	-	133	-
Total Alkalinity	-	-	345	-	-	-	564	-
Total Dissolved Solids	-	-	1050	-	-	-	1060	-
Total Kjeldahl Nitrogen	-	-	0.4	-	-	-	0.7	-
Total Organic Carbon (TOC)	-	-	30.4	-	-	-	76.4	-
Total Nitrogen	-	-	0.5	-	-	-	0.7	-
Total Phosphorus (as P)	-	-	0.06	-	-	-	0.11	-
pH (S.U.)	-	-	7.0	-	-	-	6.9	-
Turbidity (S.U.)	-	-	5.3	-	-	-	15.0	-

Notes:

-	Not applicable.
BOD	Biochemical Oxygen Demand.
COD	Chemical Oxygen Demand.
J	Associated value is estimated.
ND	Non-detect at associated value.
PCBs	Polychlorinated biphenyls.
S.U.	Standard Units

TABLE 2

QUALIFIED SAMPLE DATA DUE TO OUTLYING SURROGATE RECOVERIES
EXTRACTED GROUNDWATER SAMPLING
LEICA, INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

Parameter	*Surrogate*	*Surrogate Recovery (percent)*	*Control Limits (percent)*	*Sample ID*	*Analytes*	*Sample Results*	*Units*	*Qualifier*
VOC	1,2-Dichloroethane-d4	134	76-114	MW-16A 24H	Chloromethane	2J	µg/L	*
					Chloroethane	9J	µg/L	*
					Carbon disulfide	3J	µg/L	*
					Methylene chloride	11	µg/L	J
					2-Butanone	85	µg/L	J
					Benzene	18	µg/L	J
					1,1,2-Trichloroethane	9J	µg/L	*
					4-Methyl-2-Pentanone	20	µg/L	J
					Tetrachloroethene	11	µg/L	J
					Chlorobenzene	1J	µg/L	*
	1,2-Dichloroethane-d4	125	76-114	MW-16A48H	Chloromethane	2J	µg/L	*
					Chloroethane	8J	µg/L	*
					Carbon disulfide	2J	µg/L	*
					Methylene chloride	7J	µg/L	*
					2-Butanone	130	µg/L	J
					Benzene	15	µg/L	J
					1,1,2-Trichloroethane	11	µg/L	J
					4-Methyl-2-Pentanone	15	µg/L	J
					Tetrachloroethene	10J	µg/L	*

TABLE 2

QUALIFIED SAMPLE DATA DUE TO OUTLYING SURROGATE RECOVERIES
EXTRACTED GROUNDWATER SAMPLING
LEICA, INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

Parameter	*Surrogate*	*Surrogate Recovery (percent)*	*Control Limits (percent)*	*Sample ID*	*Analytes*	*Sample Results*	*Units*	*Qualifier*
Pesticides/PCB	TCX	59	60-150	W16A-48HR	alpha-BHC	ND 0.050	µg/L	J
	DCB	28	60-150		beta-BHC	ND 0.050	µg/L	J
					delta-BHC	ND 0.050	µg/L	J
					gamma-BHC	ND 0.050	µg/L	J
					Heptachlor	ND 0.050	µg/L	J
					Aldrin	ND 0.050	µg/L	J
					Heptachlor Epoxide	ND 0.050	µg/L	J
					Endosulfan I	ND 0.050	µg/L	J
					Dieldrin	ND 0.10	µg/L	J
					4,4'-DDE	ND 0.10	µg/L	J
					Endrin	ND 0.10	µg/L	J
					Endosulfan II	ND 0.10	µg/L	J
					4,4'-DDD	ND 0.10	µg/L	J
					Endosulfan sulfate	ND 0.10	µg/L	J
					4,4'-DDT	ND 0.10	µg/L	J
					Methoxychlor	ND 0.50	µg/L	J
					Endrin ketone	ND 0.10	µg/L	J
					Endrin aldehyde	ND 0.10	µg/L	J
					alpha-Chlordane	ND 0.050	µg/L	J
					gamma-Chlordane	ND 0.050	µg/L	J
					Toxaphene	ND 5.0	µg/L	J
					Aroclor 1016	ND 1.0	µg/L	J
					Aroclor 1221	ND 2.0	µg/L	J
					Aroclor 1232	ND 1.0	µg/L	J
					Aroclor 1242	ND 1.0	µg/L	J
					Aroclor 1248	ND 1.0	µg/L	J
					Aroclor 1254	ND 1.0	µg/L	J
					Aroclor 1260	ND 1.0	µg/L	J

Notes:

Value previously qualified as estimated.
DCB Decachlorobiphenyl.
Associated value is estimated.
TCX Tetrachloro-m-xylene.
VOC Volatile Organic Compound.

TABLE 3

QUALIFIED SAMPLE DATA DUE TO OUTLYING SPIKE RECOVERIES
EXTRACTED GROUNDWATER SAMPLING
LEICA, INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

Analyte	*Spike Sample ID*	*Spike Recovery (percent)*	*Control Limits (percent)*	*Associated Samples*	*Sample Results*	*Qualifier*	*Units*
Iron	MW6A-0HR	32	75-125	MW6A-0HR	1630	J	mg/L
				MW6A-24HR	775	J	mg/L
				MW6A-48HR	1600	J	mg/L
Selenium	MW6A-0HR	62	75-125	MW6A-0HR	2.5	J	mg/L
				MW6A-24HR	ND 1.4	J	mg/L
				MW6A-48HR	1.6	J	mg/L
Silver	MW6A-0HR	54	75-125	MW6A-0HR	ND 0.4	J	mg/L
				MW6A-24HR	ND 0.4	J	mg/L
				MW6A-48HR	ND 0.4	J	mg/L

Notes:
J Associated value is estimated.
ND Non-detect at associated value.

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING BLANK SPIKE RESULTS
EXTRACTED GROUNDWATER SAMPLING
LEICA, INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

Parameter	*Compound*	*BS Date*	*Associated Sample ID*	*% Recovery*	*Sample Results*	*Units*	*Qualifier*
SVOC	Hexachlorocyclopentadiene	10/24/96	MW6A-0HR	6	ND 10	µg/L	R
			MW6A-24HR		ND 10	µg/L	R
	Hexachlorocyclopentadiene	10/28/96	MW6A-48HR	2	ND 10	µg/L	R

Notes:
BS Blank Spike.
ND Non-detect at associated value.
R Data Rejected.
SVOC Semi-Volatile Organic Compound

TABLE 5

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE METHOD BLANKS
EXTRACTED GROUNDWATER SAMPLING
LEICA, INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

Parameter	*Blank ID/ Date*	*Analyte*	*Blank Result*	*Sample ID*	*Sample Result*	*Qualified Sample Result*	*Units*
Metals	10/25/96	Selenium	1.96	MW16A-0HR	3.0	ND 3.0	µg/L
				MW16A-48HR	2.7	ND 2.7	µg/L
		Zinc	3.50	MW16A-24HR	15.8	ND 15.8	µg/L
				MW16A-48HR	17.0	ND 17.0	µg/L
	10/30/95	Zinc	7.03	MW6A-24HR	11.3	ND 11.3	µg/L
				MW6A-48HR	29.5	ND 29.5	µg/L
		Cadmium	0.2	MW6A-0HR	0.63	ND 0.63	µg/L

Notes:
ND Non-detect at associated value.

TABLE 6

QUALIFIED SAMPLE DATA DUE TO VARIABILITY IN SERIAL DILUTION RESULTS
EXTRACTED GROUNDWATER SAMPLING
LEICA, INC.
CHEEKTOWAGA, NEW YORK
OCTOBER 1996

Analyte	*Sample ID*	*Original Result*	*Diluted Result*	*%D*	*Control Limit (percent)*	*Associated Sample IDs*	*Qualifier*	*Units*
Potassium	MW16A-48HR	6355	4810	24	10	MW16A-48HR	J	µg/L
						MW16A-24HR	J	µg/L
						MW16A-0HR	J	µg/L
Boron	MW16A-48HR	186	124	33	10	MW16A-48HR	J	µg/L
						MW6A-48HR	J	µg/L
Potassium	MW6A-0HR	8618	6423	25	10	MW6A-0HR	J	µg/L
						MW6A-24HR	J	µg/L
						MW6A-48HR	J	µg/L

Notes:
%D Percent Difference.
J Associated value is estimated.