COMPLETION REPORT

NASA WHITE SANDS TEST FACILITY
LAS CRUCES, NM

MP SYSTEM MONITORING WELL
600-D

Prepared for

Allied Signal Technical Services Corporation
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Prepared by

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December 19, 1996
WB648

Westbay

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1. INTRODUCTION

This report documents the technical services provided by Westbay Instruments to assist in the removal and reinstallation of monitoring well 600-D. Borehole 600-D was previously installed in June, 1995 by Allied Signal Technical Services Corporation.

The status of the well was discussed by Westbay and ATSC personel on October 10 and 11, 1996. The status of the well and a proposed remediation program were outlined in Westbay's letter to Mr. Geoff Giles dated October 17, 1996.

2. 600-D CASING RETRIEVAL

The MP System casing was retrieved from borehole 600-D between December 2 and 4, 1996 using a workover rig provided by ATSC. During the retrieval process, care was taken to keep tensile loads on the casing within the 400 pound tensile working limit.

The retrieved casing was laid out near the wellhead. All of the casing components were steam cleaned. The components were visually inspected and any components that did not pass were replaced with a new item. All of the o-rings in the couplings were replaced. All of the packers were replaced with the MP System Model 0239F05 stiffened packer.

3. INSTALLATION

The MP System monitoring well 600-D was reinstalled on December 5, 1996. The well was sounded to a depth of 862.5 ft and the MP well design was modified from 875 ft to 860 ft to accommodate the shorter borehole length. The well incorporated five additional packers in the well to give better vertical pressure definition and reduce the high downward pressure differentials across the packers. Geoff Giles of ATSC chose the locations of the additional packers based on the geological and geophysical information available and approved the final well design.

3.1 Layout of MP System Casing Components

The MP components were arranged in the order in which they were to be lowered according to the approved well design. The appropriate MP coupling was attached to the top of each casing section. The magnetic location collars were located on the MP casing in each sampling zone 0.5 ft above the measurement ports.

3.2 Lowering of MP System Components

As each component was removed from the layout rack, the casing and coupling type was checked against the MP Casing Log. The component was then attached to the casing string being lowered into the drillhole.

Each joint was hydraulically tested by applying a nominal internal pressure of 150 psi for approximately one minute and and then the joint was examined for evidence of leakage. Test results are recorded on the MP Casing Log. This procedure continued until all MP System components had been placed in the drillhole. If the casing string became buoyant, water provided by ATSC was added to the string.

The MP casing string was positioned in the well as indicated on the Summary Casing Log. All depths on the installation logs are in feet below ground surface which was taken to be the top of the cement pad. Copies of the MP Casing Log and the Summary Casing Log are included in the Appendix.

3.3 Inflation of MP System Casing Packers

The MP System packers were inflated with water provided by ATSC. The line pressure and volume of water pumped were recorded at intervals and plotted for each packer. MP Packer Inflation Records for each of the packers installed are provided in the Appendix. All of the packers inflated normally.

3.4 Fluid Pressure Readings

Fluid pressures were measured at each measurement port following installation to confirm the proper operation of the measurement ports. The data indicates that each measurement port in the monitoring well operated normally. A plot of the Piezometric Profile and the MOSDAX Data Sheets are attached in the Appendix.

Appendix

Summary Casing Log	(4 pages)
MOSDAX Data Report, December 7/96	(1 page)
Piezometric Profile, December 7/96	(1 page)
MP Casing Log (field copy)	(9 pages)
Packer Inflation Records	(16 pages)

Westbay

Summary Casing Log

Date: Wed Dec 18 17:57:08 1996

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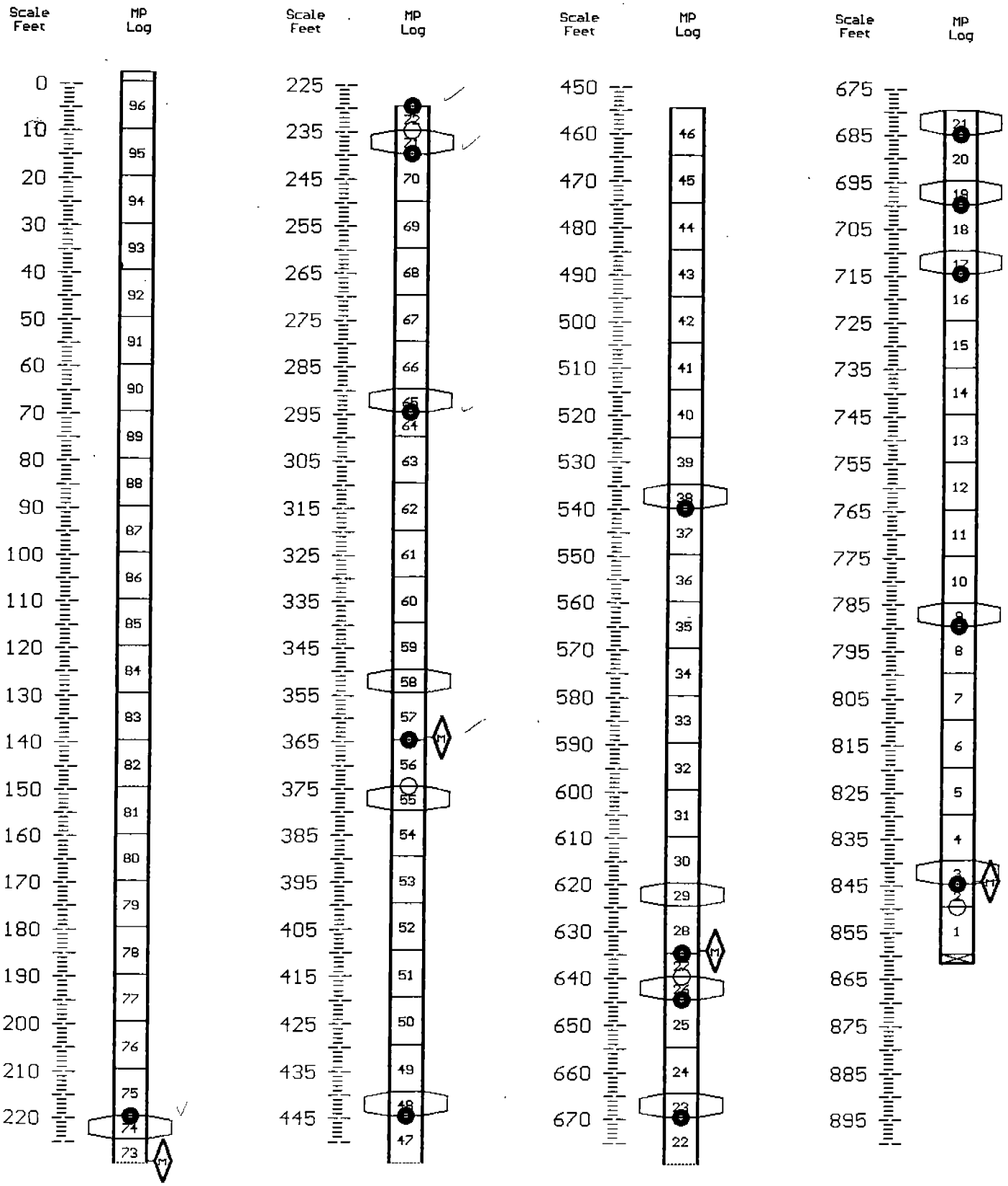
Job No. 648

Allied Signal

Well No. 600-D



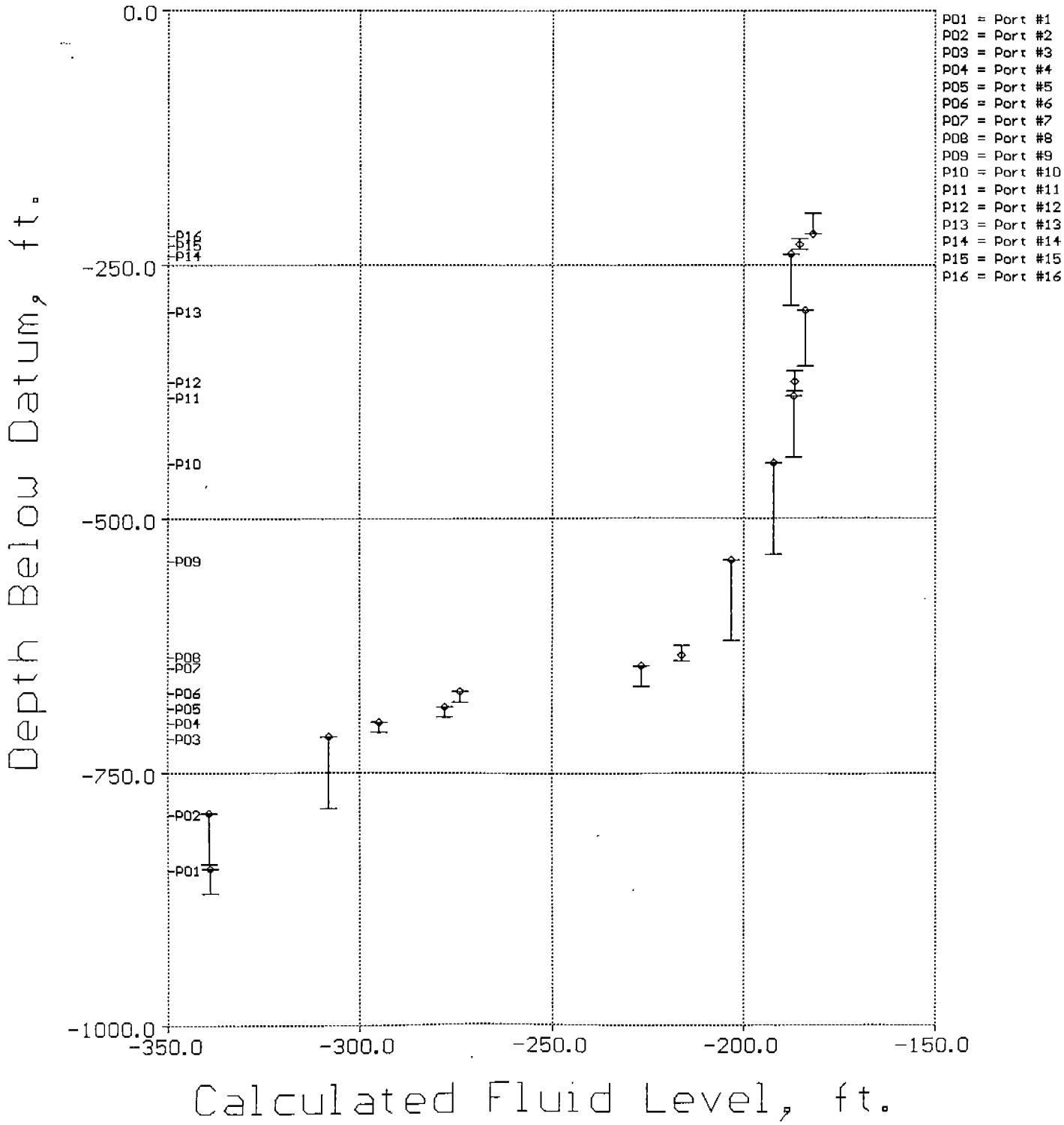
MOSDAX Data Report
(c) WESTBAY INSTRUMENTS 1990-1993
Date Of Report: Thu Dec 12 18:01:02 1996
Company Name: NASA ATSC
Project Name: WSTF
Well ID: 600-D
Well Description:
Well Elevation: 0.00 (ft.)

TIME DATE	PORT DESCRIPTION	PRES (psi)	PIEZ DP (ft.)	DEPTH (ft.)	MOTOR POSITION
Sat Dec 07 08:17:51 1996	Port #1	231.73	-339.1	845	SHOE ACTIVATED
Sat Dec 07 08:18:25 1996	Port #1	296.61	-189.4	845	ARM RELEASED
Sat Dec 07 08:30:12 1996	Port #2	207.83	-339.2	790	SHOE ACTIVATED
Sat Dec 07 08:31:16 1996	Port #2	272.89	-189.1	790	ARM RELEASED
Sat Dec 07 08:34:37 1996	Port #3	188.78	-308.2	715	SHOE ACTIVATED
Sat Dec 07 08:34:53 1996	Port #3	240.44	-189.0	715	ARM RELEASED
Sat Dec 07 08:37:26 1996	Port #4	187.90	-295.2	700	SHOE ACTIVATED
Sat Dec 07 08:37:44 1996	Port #4	233.94	-189.0	700	ARM RELEASED
Sat Dec 07 08:40:19 1996	Port #5	188.77	-278.2	685	SHOE ACTIVATED
Sat Dec 07 08:40:49 1996	Port #5	227.43	-189.0	685	ARM RELEASED
Sat Dec 07 08:44:12 1996	Port #6	184.09	-274.0	670	SHOE ACTIVATED
Sat Dec 07 08:44:31 1996	Port #6	220.94	-189.0	670	ARM RELEASED
Sat Dec 07 08:45:59 1996	Port #7	193.72	-226.8	645	SHOE ACTIVATED
Sat Dec 07 08:46:14 1996	Port #7	210.10	-189.0	645	ARM RELEASED
Sat Dec 07 08:47:41 1996	Port #8	193.98	-216.2	635	SHOE ACTIVATED
Sat Dec 07 08:48:11 1996	Port #8	205.79	-188.9	635	ARM RELEASED
Sat Dec 07 08:50:37 1996	Port #9	158.41	-203.2	540	SHOE ACTIVATED
Sat Dec 07 08:51:07 1996	Port #9	164.61	-188.9	540	ARM RELEASED
Sat Dec 07 08:53:33 1996	Port #10	122.03	-192.2	445	SHOE ACTIVATED
Sat Dec 07 08:53:48 1996	Port #10	123.40	-189.0	445	ARM RELEASED
Sat Dec 07 08:55:50 1996	Port #11	96.20	-186.8	380	SHOE ACTIVATED
Sat Dec 07 08:56:08 1996	Port #11	95.19	-189.1	380	ARM RELEASED
Sat Dec 07 08:57:40 1996	Port #12	89.76	-186.6	365	SHOE ACTIVATED
Sat Dec 07 08:58:54 1996	Port #12	88.69	-189.1	365	ARM RELEASED
Sat Dec 07 09:00:56 1996	Port #13	60.62	-183.8	295	SHOE ACTIVATED
Sat Dec 07 09:01:36 1996	Port #13	58.24	-189.3	295	ARM RELEASED
Sat Dec 07 09:04:27 1996	Port #14	35.16	-187.6	240	SHOE ACTIVATED
Sat Dec 07 09:04:59 1996	Port #14	34.30	-189.6	240	ARM RELEASED
Sat Dec 07 09:06:32 1996	Port #15	31.74	-185.4	230	SHOE ACTIVATED
Sat Dec 07 09:06:59 1996	Port #15	30.03	-189.4	230	ARM RELEASED
Sat Dec 07 09:08:53 1996	Port #16	29.00	-181.8	220	SHOE ACTIVATED
Sat Dec 07 09:09:18 1996	Port #16	25.61	-189.6	220	ARM RELEASED
Sat Dec 07 09:12:56 1996	ATMOSPHERIC	12.43	0.0	ATMOS	ARM RELEASED

PIEZOMETRIC PROFILE WELL: 600-D

Client: NASA ATSC
Profile Date: Sat Dec 07 08:17:51 1996
Comment:

Site: WSTF
Description:
Datum: Top of MP Casing



FILE: 96DEC7
Plot By: JMc
Checked By: _____
Project: 648

DIRECT-P
Date: Dec 17/96
Date: _____
FIGURE:

MP Casing Log
Job No. 648

Allied Signal

Date: Thu Dec 05 09:24:32 1996

Well No. 600-D

Scale Feet	Well Casing	MP Log	Tested Ok/Tested	Serial No.	Part Description	Comments
0			☑ ☐ not tested			
		96	☑		MP38 CASING 10 FT.	
10			☑ ☑			
		95	☑		MP38 CASING 10 FT.	
20			☑ ☑			
		94	☑		MP38 CASING 10 FT.	
30			☑ ☑			
		93	☑		MP38 CASING 10 FT.	
40			☑ ☑			
		92	☑		MP38 CASING 10 FT.	
50			☑ ☑			
		91	☑		MP38 CASING 10 FT.	
60			☑ ☑			
		90	☑		MP38 CASING 10 FT.	
70			☑ ☑			
		89	☑		MP38 CASING 10 FT.	
80			☑ ☑			
		88	☑		MP38 CASING 10 FT.	
90			☑ ☑			
		87	☑		MP38 CASING 10 FT.	
100			☑ ☑			
		86	☑		MP38 CASING 10 FT.	

MP Casing Log
Job No. 648

Allied Signal

Date: Thu Dec 05 09:24:32 1996

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Well No. 600-D

Scale Feet	Well Casing	MP Log	Tested Ok/Tested	Serial No.	Part Description	Comments
100						
110						
		85			MP38 CASING 10 FT.	
120						
		84			MP38 CASING 10 FT.	
130						
		83			MP38 CASING 10 FT.	
140						
		82			MP38 CASING 10 FT.	
150						
		81			MP38 CASING 10 FT.	
160						
		80			MP38 CASING 10 FT.	
170						
		79			MP38 CASING 10 FT.	
180						
		78			MP38 CASING 10 FT.	
190						
		77			MP38 CASING 10 FT.	
200						
		76			MP38 CASING 10 FT.	

MP Casing Log
Job No. 648

Allied Signal

Date: Thu Dec 05 09:24:32 1996

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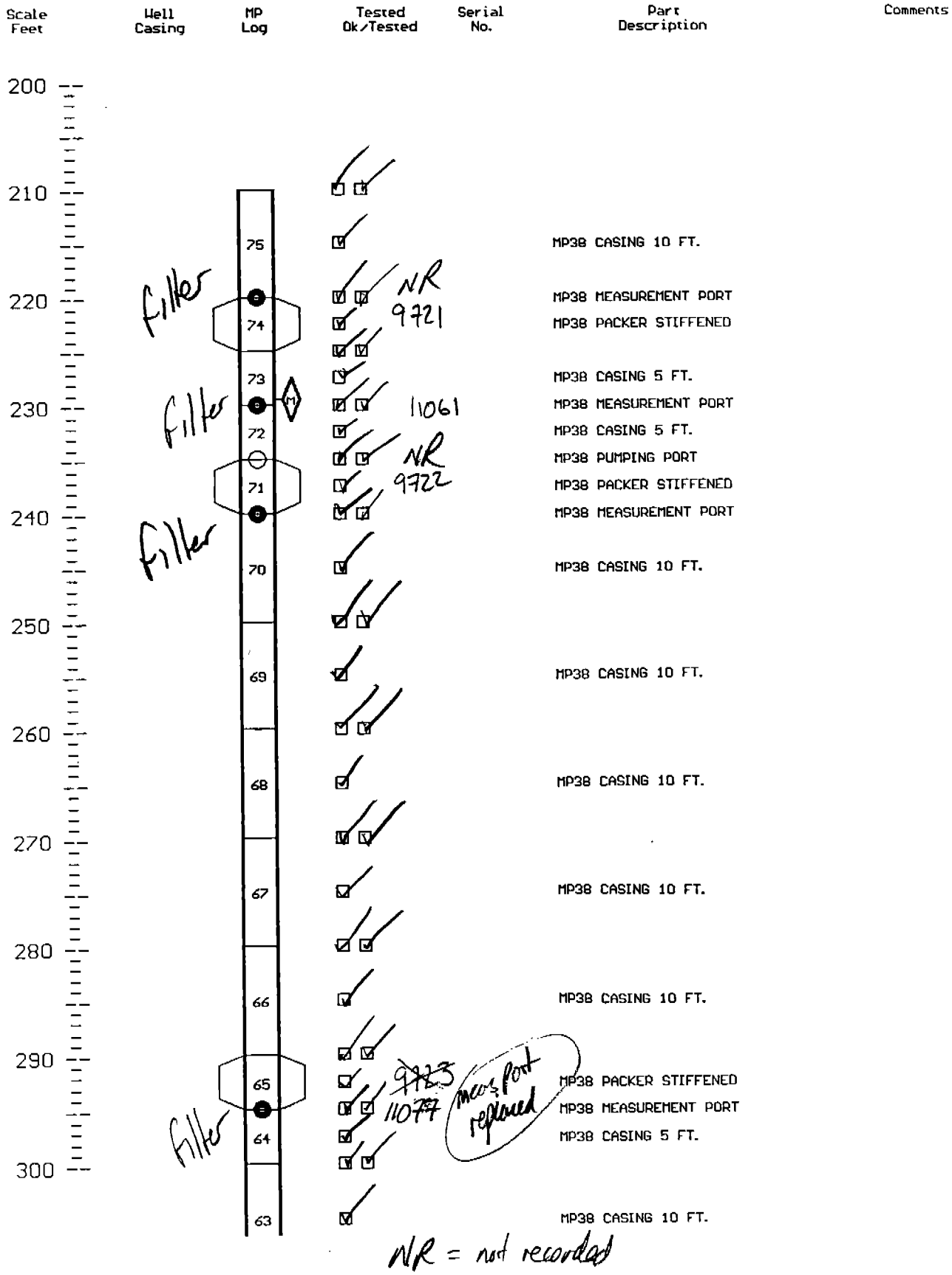
Well No. 600-D



NR = not recorded

MP Casing Log
Job No. 648

Allied Signal

Date: Thu Dec 05 09:24:32 1996

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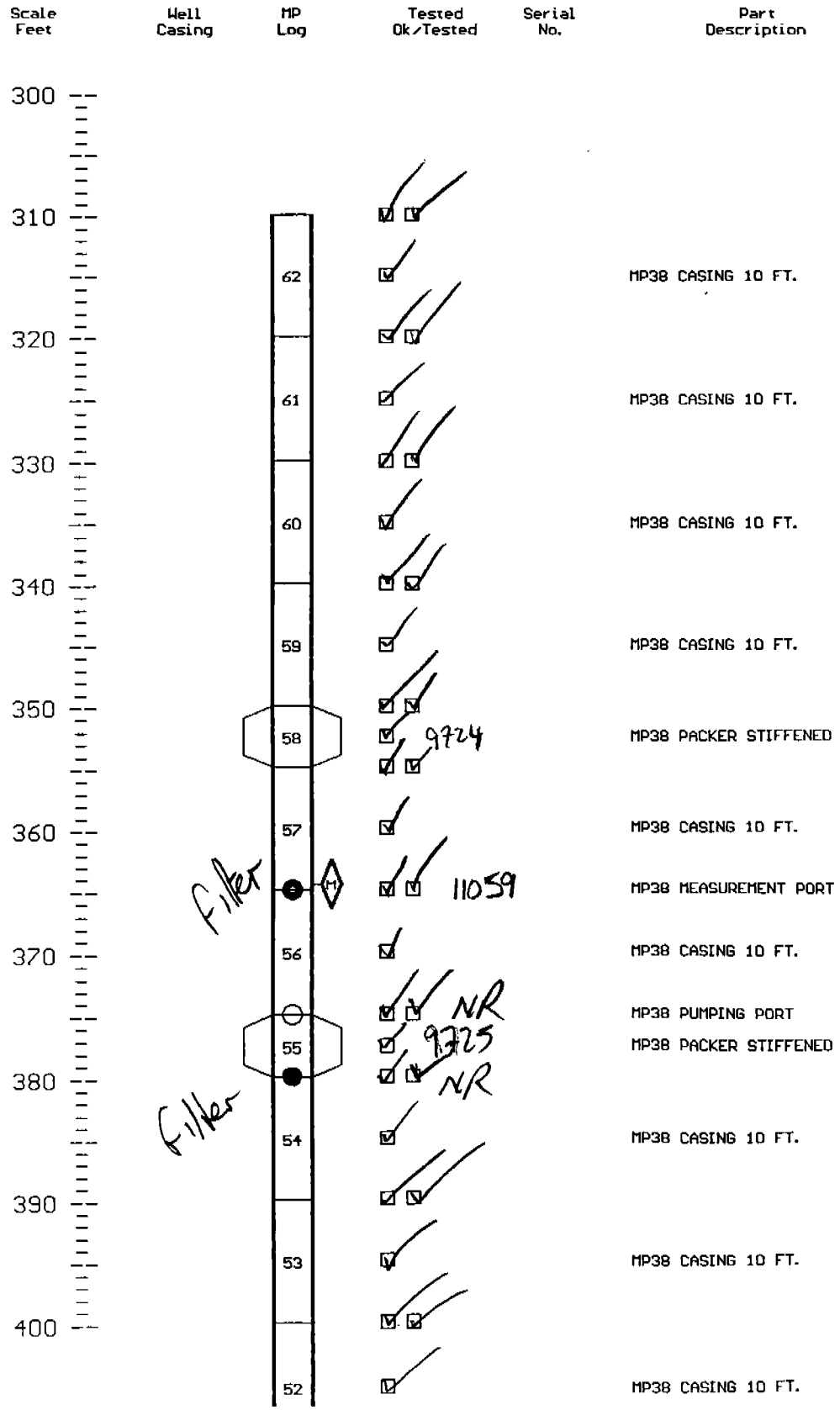
Well No. 600-D



NR = not recorded

MP Casing Log
Job No. 648

Allied Signal

Date: Thu Dec 05 09:24:32 1996

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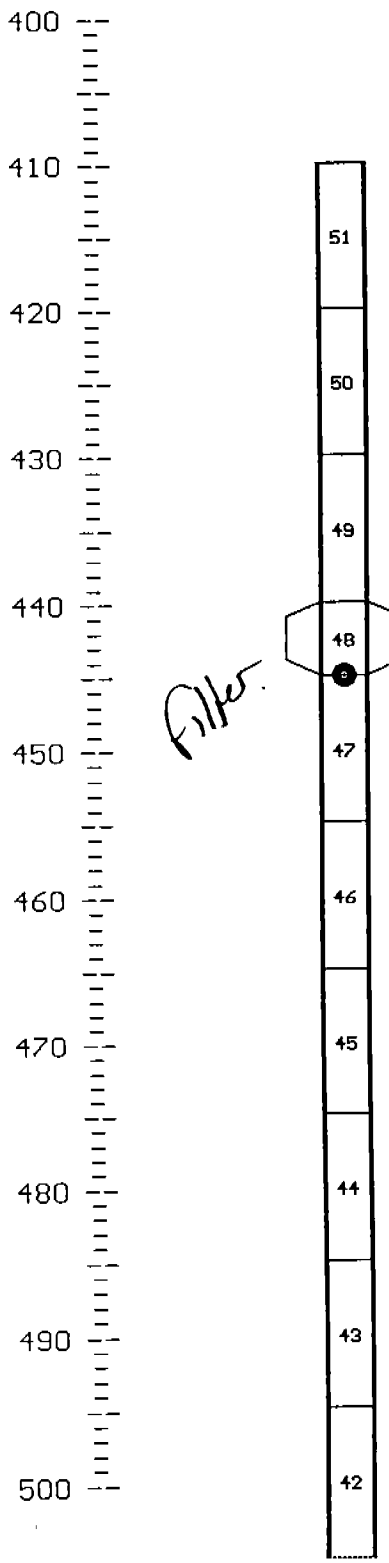
Well No. 600-D



Tested Ok/Tested	Serial No.	Part Description	Comments
☑ ☑			
☑		MP38 CASING 10 FT.	
☑ ☑			
☑		MP38 CASING 10 FT.	
☑ ☑			
☑		MP38 CASING 10 FT.	
☑ ☑			
☑	9726	MP38 PACKER STIFFENED	
☑ ☑	11084	MP38 MEASUREMENT PORT	
☑		MP38 CASING 10 FT.	
☑ ☑			
☑		MP38 CASING 10 FT.	
☑ ☑			
☑		MP38 CASING 10 FT.	
☑ ☑			
☑		MP38 CASING 10 FT.	
☑ ☑			
☑		MP38 CASING 10 FT.	
☑ ☑		coupling replaced	
☑		MP38 CASING 10 FT.	

MP Casing Log
Job No. 648

Allied Signal

Date: Thu Dec 05 09:24:32 1996

Well No. 600-D

Scale Feet	Well Casing	MP Log	Tested Ok/Tested	Serial No.	Part Description	Comments
500						
510		41			MP38 CASING 10 FT.	
520		40			MP38 CASING 10 FT.	
530		39			MP38 CASING 10 FT.	
		38		9728	MP38 PACKER STIFFENED	
540	filter			NR	MP38 MEASUREMENT PORT	
		37			MP38 CASING 10 FT.	
550						
		36			MP38 CASING 10 FT.	
560						
		35			MP38 CASING 10 FT.	
570						
		34			MP38 CASING 10 FT.	
580						
		33			MP38 CASING 10 FT.	
590			replaced			
		32			MP38 CASING 10 FT.	
600						
		31			MP38 CASING 10 FT.	

NR = not recorded

MP Casing Log
Job No. 648

Allied Signal

Date: Thu Dec 05 09:24:32 1996

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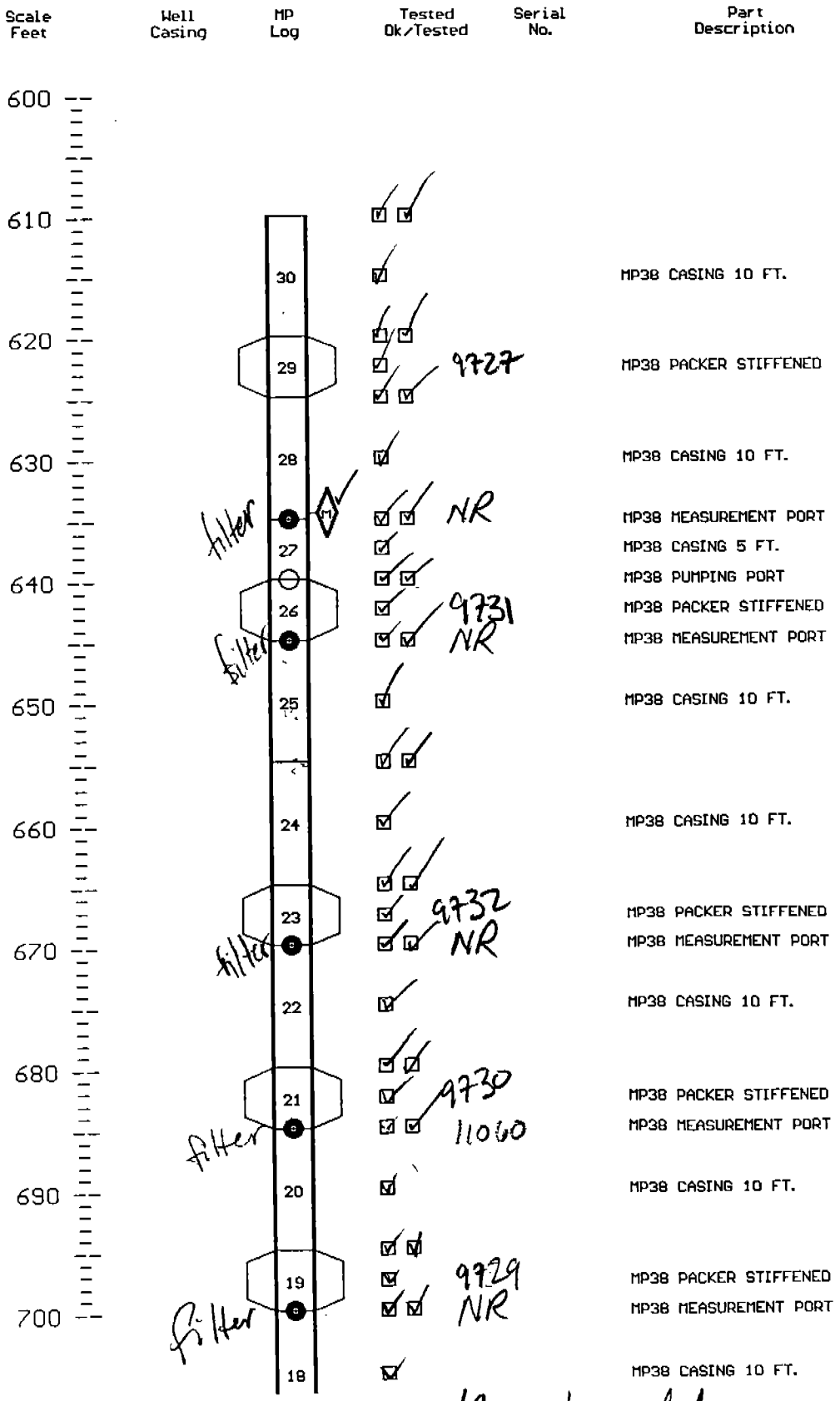
Well No. 600-D



NR = not recorded

MP Casing Log
Job No. 648

Allied Signal

Date: Thu Dec 05 09:24:32 1996

Well No. 600-D

Scale Feet	Well Casing	MP Log	Tested Ok/Tested	Serial No.	Part Description	Comments
700						
710						
	Filter	17		9733 NR	MP38 PACKER STIFFENED	
					MP38 MEASUREMENT PORT	
720		16			MP38 CASING 10 FT.	
730		15			MP38 CASING 10 FT.	
740		14			MP38 CASING 10 FT.	
750		13			MP38 CASING 10 FT.	
760		12			MP38 CASING 10 FT.	
770		11			MP38 CASING 10 FT.	
780		10			MP38 CASING 10 FT.	
		9		9735 NR	MP38 PACKER STIFFENED	
790	Filter Replaced MP				MP38 MEASUREMENT PORT	
		8			MP38 CASING 10 FT.	
800		7			MP38 CASING 10 FT.	

NR = not recorded

) Casing Log
b No. 648 Allied Signal Well No. 600-D

Scale Feet	Well Casing	MP Log	Tested Ok/Tested	Serial No.	Part Description	Comments
800						
810						
		6			MP38 CASING 10 FT.	
820						
		5			MP38 CASING 10 FT.	
830						
		4			MP38 CASING 10 FT.	
840						
		3		9734	MP38 PACKER STIFFENED	
	Filter			NR	MP38 MEASUREMENT PORT	
		2			MP38 CASING 5 FT.	
850				NR	MP38 PUMPING PORT	
		1			MP38 CASING 10 FT.	
860					MP38 END CAP	Last Part in Well
870						
880						
890						
900						

coupling replaced

NR = Not Recorded

Injection Value 180
Test ed 150
330