U.S. Department
of Transportation
Federal Highway
Administration

LTPP Seasonal Monitoring Program

Site Monitoring Suspension
Status Report
Section 501002
New Haven, Vermont

Report No. FHWA-TS-98-50-01

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SEASONAL MONITORING PROGRAM SUSPENSION STATUS REPORT
VERMONT SECTION 501002

I. INTRODUCTION

Seasonal monitoring equipment was initially installed at site 501002 on Route 7 in New Haven, Vermont in October 1993 and was used to collect data continuously from November 8, 1993 to June 28, 1995 (Round 1) and from October 17, 1996 to October 23, 1997 (Round 2). On October 23, 1997, Round 2 site suspension activities were completed according to LTPP Directive SM-8 "Suspension of SMP Site Monitoring Activities". See Table 1 for a summary of the Round 2 seasonal data collected. The site will remain out of operation until a decision relative to further testing is reached.

This report entitled "SMP Site Monitoring Suspension Status Report" details the suspension preparation activities, site specific conditions, and provides information pertinent to seasonal site 501002.

II. SUSPENSION PREPARATION ACTIVITIES

The suspension preparation activities at site 501002 were conducted during the final site visit of Round 2 on October 23, 1997. The PK nails were reconfirmed and replaced as necessary. The site markings were in good condition and did not need to be refreshed. Two sets of FWD tests were completed. A Manual Distress survey and Transverse Dipstick surveys were completed. One set of elevations and a distress survey of the instrumentation area were obtained. The trench to the instrument hole/instrument hole area is considered to be in good condition. The trench to the instrument hole was patched with asphalt concrete cold mix and cracks in the vicinity of the trench and instrument hole were cleaned and sealed as necessary. Water table measurements and manual resistivity measurements (2 and 4 point) were performed in the morning and afternoon. The onsite datalogger was downloaded before being dismantled. Two sets of TDR traces and resistance voltages were extracted by the mobile datalogger.

The air temperature probe, tipping bucket, and the upper part of the support pole were dismantled. The lead wires from the air temperature probe and tipping bucket were removed from the cabinet and sprayed with an anti-corrosive compound. The above ground conduit from the pole to the equipment cabinet was removed and the resulting hole in the back of the cabinet sealed. The bottom portion of the support pole was cleaned and lubricated prior to installing the end cap.

The solar panel was disconnected. After all wires to the control panel were disconnected, the panel was detached from the equipment cabinet along with the CR10 datalogger, terminal strip and battery pack. The TDR cables, resistivity cable and MRC lead wires were sprayed with an anti-corrosive compound and sealed with desiccant packs in air tight bags. All cables/wires were hung up high inside the equipment cabinet. After the last piezometer reading was recorded, the pipe was cleaned and sealed with grease. The access cover and seat were cleaned and lubricated before being covered and brought up to grade with native soil.

The Profilometer survey corresponding to the close out was conducted on October 23 1997.

All the necessary suspension activities were completed on October 23, 1997. The dismantled equipment was removed from the site. The suspended site contains all the underground instrumentation and equipment and an equipment cabinet with all the cables in it. The equipment cabinet was locked before leaving the site. The site was cleaned and left in a condition such that the instrumentation could be easily accessed when the need arises.

III. SPECIAL SITE CONDITIONS

The installation of site 501002 generally followed the "LTPP Seasonal Monitoring Program Installation and Data Collection Guidelines". The two instances where the guide was not followed was one: in the placement of the equipment cabinet and two: in the placement of the air temperature probe/rain gauge pole. The equipment cabinet was placed on the inside ledge of the ditch and the weather pole was placed to a depth of 0.66m in the granular base for the cabinet. The State of Vermont has seasonal monitoring instrumentation installed at the 5+00 end of the site. Vermont DOT monitored their instrumentation continuously (between our Rounds 1 and 2). The data will be made available to the LTPP Program.

IV. SUPPLEMENTAL INFORMATION

Figure 1 shows the locations of the installed instrumentation at the site. The instrumentation hole is at Station 0-15 and the piezometer is at Station 1+00. Table 2 gives the elevations of the portion of test section 501002 that was used for elevation measurements. All offsets are from the PK nails found at the outside pavement edge.

At the time of suspension, MRC #1 sensor was not functioning. This sensor was not functioning at the time Round 2 data collection activities began in October 1996. Figure 2 shows the trend of the faulty MRC #1 sensor. Also, TDR sensors #5 and #6 were not functioning. These sensors were not producing readable traces at the time Round 2 data collection began. Figure 3 shows the last set of mobile data collected before the site was suspended. Other than the above, there were no unresolved problems with any of the sensors at the time of site suspension activities. The plots from ONSFIELD, MOBFIELD and SMPCHECK follow expected trends and produce expected values.

TABLE 1:
SUMMARY OF ROUND TWO NORTHERN LOOP SMP DATA COLLECTION TO DATE

Agency Code [5 0]
LTPP Section I.D. [1 0 0 2]
Location New Haven, Vermont

Test Date dd/mmm/yy	Visit Ident./ Code	ONSITE Data			MOBILE Data		Manual Data								FWD Data				Distress Data		Profile Data		Comments
		Pav Temp.	Ambient Temp.	Rainfall	Moisture (TDR)	Frost Depth (Resist.)	Backup Pav. Temp.	Backup Moisture (TDR)	Frost Depth 2 - point	Frost Depth 4 - point	Water Table	Surface Elev.	Joint Open.	Joint Fault.	Surface Layer Temp.	No. of Cycles/Visit OWP	ML	PE	Manual	PASCO	Profiler	Dipstick	
17-Oct-96	A	X	X	X	X	X			X	X	X	X			X	1	1		X			X	Re-commission
14-Nov-96	B	X	X	X	X	X					X										07-Nov-96		no FWD Data due to snow and Solar Panel installed
12-Dec-96	C	X	X	X	X	X			X	X	X	X			X	1	2						
23-Jan-97	A	X	X	X	X	X															15-Jan-97		no FWD Data due to weather
13-Feb-97	B	X	X	X	X	X															18-Feb-97		no FWD Data due to traffic control
13-Mar-97	C								X	X	X				X	3	2						no ONS/MOB data due to dual FWD mobilization
27-Mar-97	D	X	X	X	X	X					X				X	1	1				07-Apr-97		
10-Apr-97	E	X	X	X	X	X					X				X	2	2						
24-Apr-97	F	X	X	X	X	X			X	X	X	X			X	2	2						
15-May-97	G	X	X	X	X	X			X	X	X				X	1	1		X			X	
12-Jun-97	H	X	X	X	X	X					X				X	2	2				10-Jul-97		
17-Jul-97	I	X	X	X	X	X			X	X	X	X			X	2	2						
14-Aug-97	J	X	X	X	X	X					X				X	3	3						
18-Sep-97	K	X	X	X	X	X					X				X	3	3						
23-Oct-97	L	X	X	X	X	X			X	X	X	X			X	2	2		X		23-Oct-97	X	De-commission

Table 2. Surface Elevation Measurements

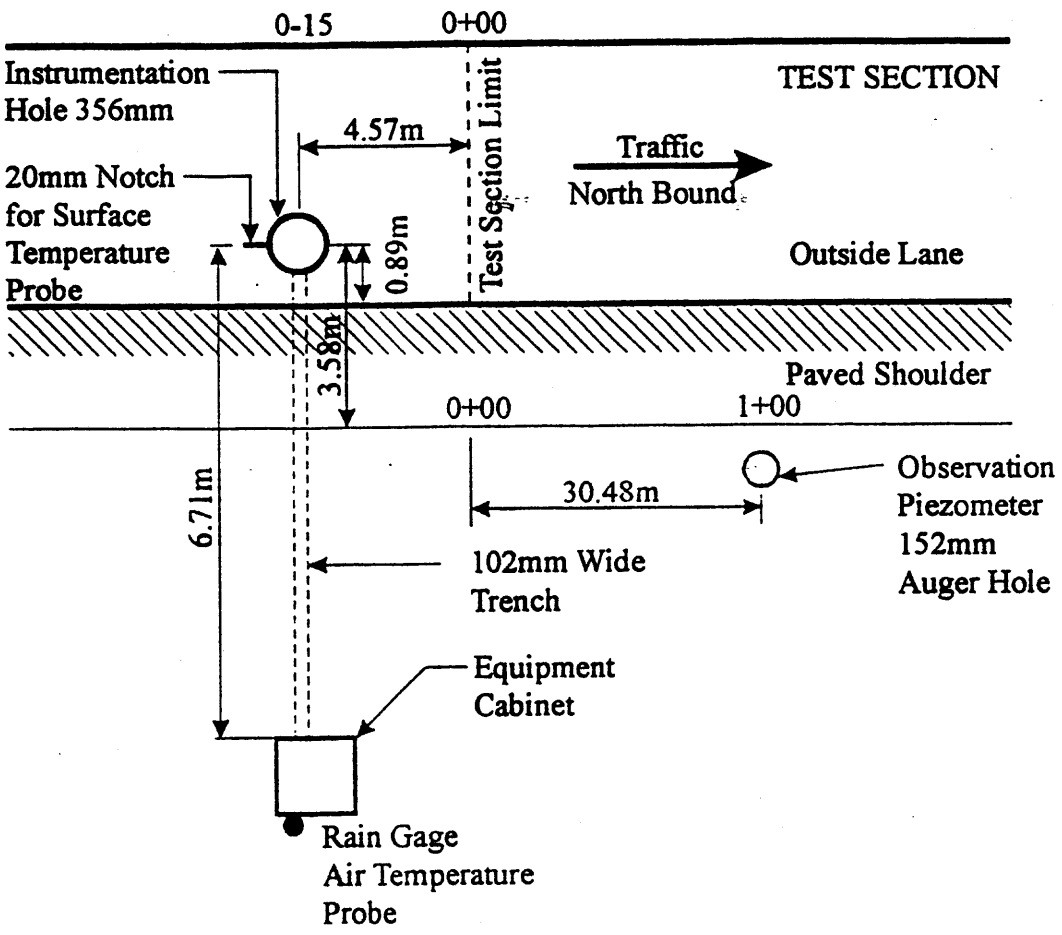
LTPP Seasonal Monitoring Study	State Code	[50]
Surface Elevation Measurements	Test Section Number	[1002]

Survey Date	October 23, 1997
Surveyed By	AL/DS
Surface Type	AC
Benchmark	Observation Piezometer - 1.000 meters - assumed

STATION	PE m offset 0.30m	OWP m offset 0.91m	ML m offset 1.83m	IWP m offset 2.74m	ILE m offset 3.35m
0-25	1.4750	1.4825	1.5100	1.5100	1.5275
0-20	1.4750	1.4800	1.5100	1.5100	1.5250
0-15	1.4725	1.4700 [IH]	1.5100	1.5125	1.5275
0-10	1.4750	1.4775	1.5125	1.5100	1.5275
0+00	1.4725	1.4775	1.5050	1.5075	1.5250
0+25	1.4600	1.4650	1.4950	1.4925	1.5125
0+50	1.4375	1.4475	1.4800	1.4800	1.5000
0+75	1.4175	1.4200	1.4550	1.4550	1.4750
1+00	1.4050	1.4050	1.4375	1.4425	1.4575
1+25	1.3775	1.3775	1.4100	1.4175	1.4325
1+50	1.3525	1.3550	1.3900	1.3925	1.4100
1+75	1.3300	1.3375	1.3725	1.3750	1.3950
2+00	1.3050	1.3100	1.3425	1.3450	1.3625

PE	Pavement Edge
OWP	Outer Wheel Path
ML	Mid Lane
IWP	Inner Wheel Path
ILE	Inner Lane Edge

Note: Offsets are measured from the PK nails at the outside of the pavement stripe at the pavement edge.
[IH] Instrument Hole location.



- Height of Air Temperature Probe (center): 2.77m
- Height of Tipping Bucket Rain Gage (center): 2.67m
- Total Depth of Piezometer: 4.88m
- Distance of Piezometer Below Ground Level: 102mm

Figure 1. Location for Seasonal Monitoring Instrumentation Installed at GPS 501002

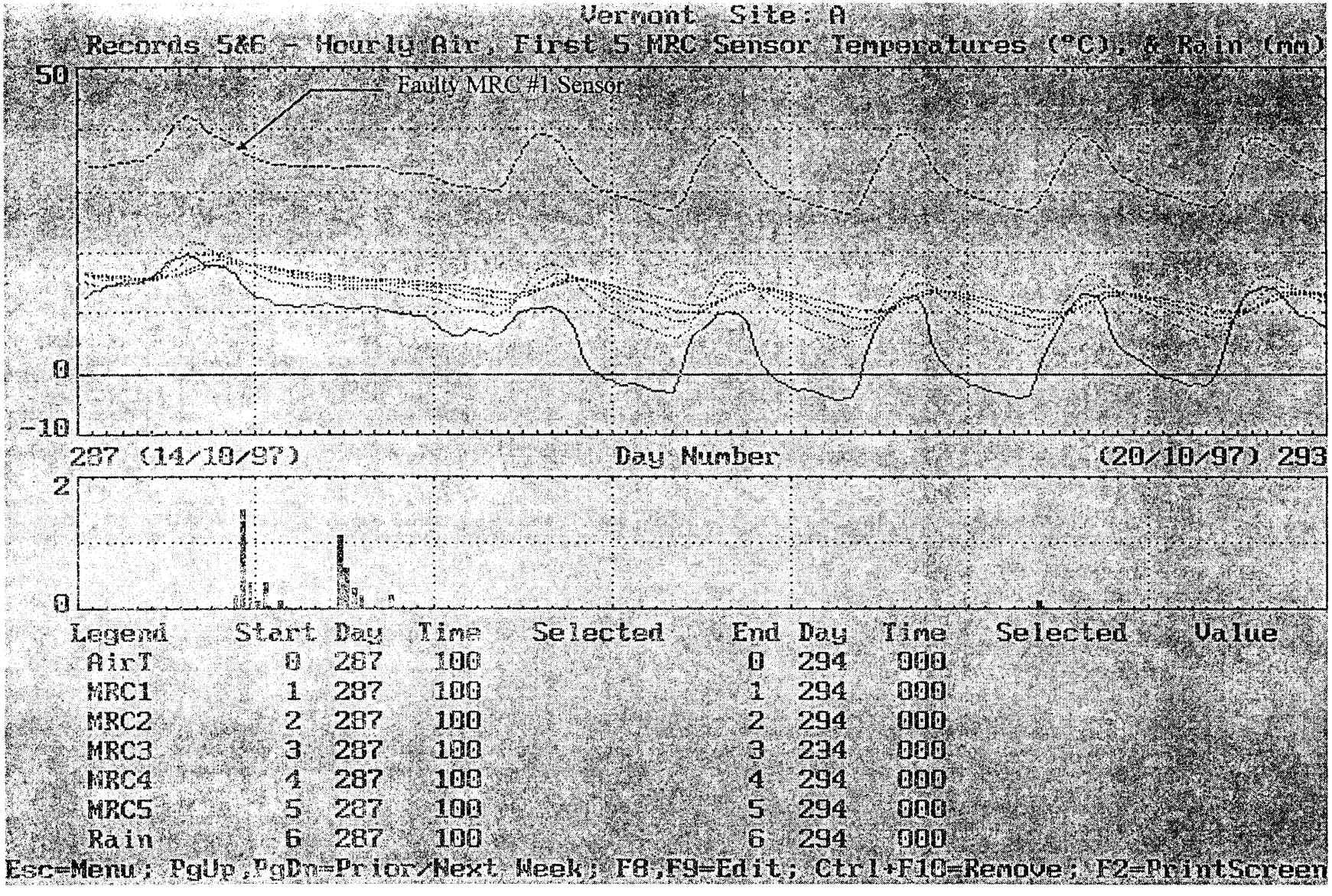


Figure 2: Sample of Erroneous Readings from MRC Sensor #1

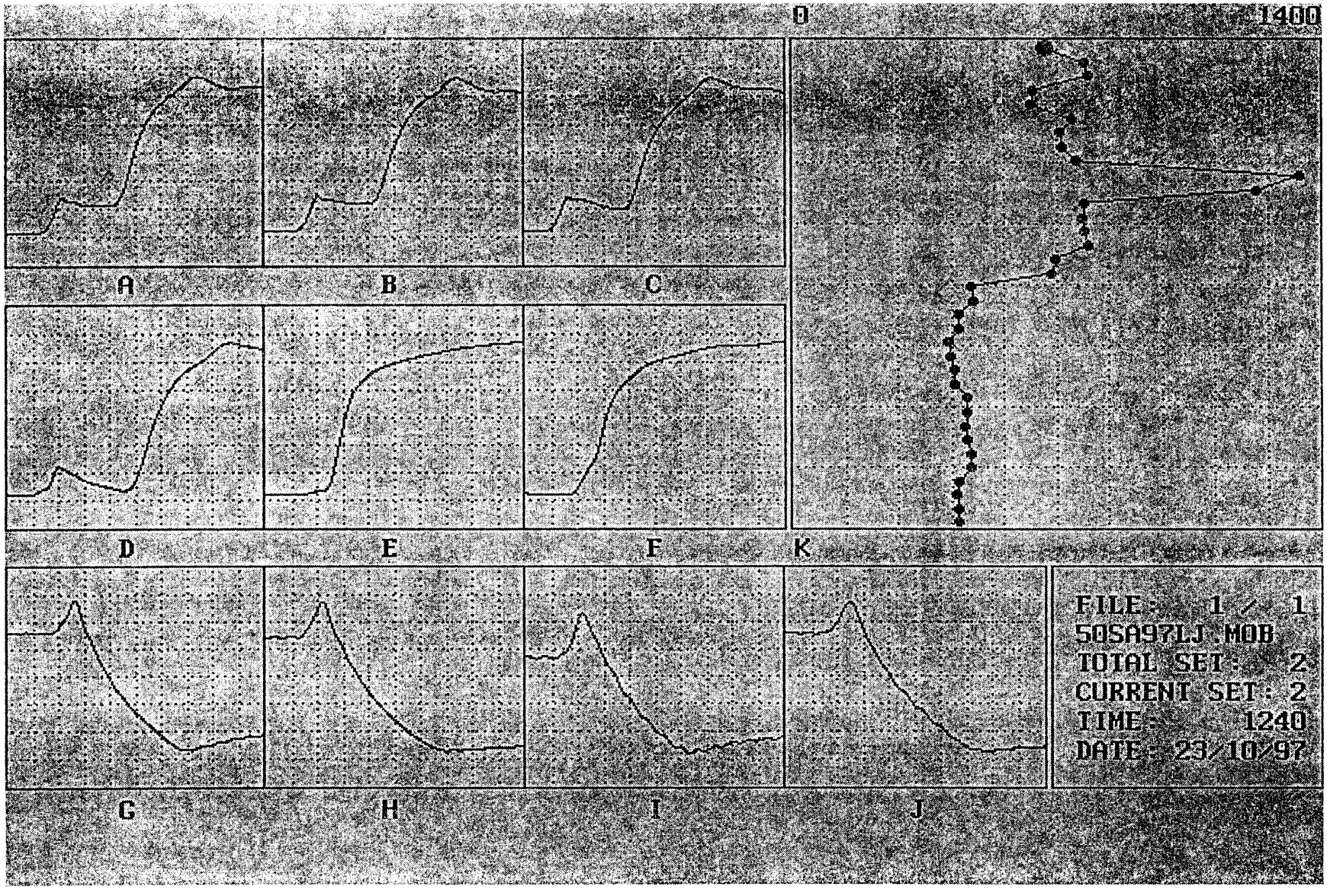


Figure 3: Second Set of Mobile Data Collected on October 23, 1997

Inside Equipment Cabinet, Seasonal Site 501002 - Oct. 1997, after Suspension Activities

Equipment Cabinet, Lower portion of inst. pole, Seasonal Site 501002 - Oct. 1997, after Suspension Activities