

## Chapter 5

### **INTRODUCTION**

This section introduces the Lancier Device Data Form. This form is designed to help compile individual device data and to aid with the organization of data that is to be input into the PressureMAP database. The Lancier Device Data Form needs to be completed for each monitoring device within an office that utilizes a Lancier CPAMS. This data form is used for both the Lancier 101 and 1005 CPAMS.

When filling out the Device Data Forms, keep in mind that PressureMAP is designed like a pressurized cable system. It is based on air pipes rather than monitoring devices or cable routes. For this reason, the data entry forms should be organized by air pipe routes (rather than by specific cables or monitoring device types).

The Device Data Form simply consists of a series of data fields concerning an individual monitoring device. One set of data fields (or a single Device Data Form) will complete a single data record in the PressureMAP database. To complete the PressureMAP database, a data record will need to be filled out for every monitoring device in the pressurized cable system. A device data record is a detailed set of information describing a specific monitoring device.

When compiling device data, it is important to remember that each individual monitoring device is associated with either a single air pipe, remote dryer, or central office sector. It is very important to note that a single device cannot become associated with more than one air source, as this would misrepresent the pressurization system.

The minimum information that needs to be gathered for each monitoring device is:

- The Device Number
- The PressureMAP Device Type (from Table A1-1 in Appendix 1)
- The working range of the device (if the device monitors air flow)
- The total Sheath Kilometer (S-K) of the device (if it monitors air flow)
- The physical address of the device
- The PressureMAP Location Code of the device
- The Pipe or Sector of the device
- The sheath name (or number) that the device monitors (multiple sheath numbers might be needed for devices that monitor manifolds)
- The stickmap number on which the device appears
- The office name in the header (to match the name in the Lancier header).

All of the above information must be entered correctly into the PressureMAP Editor for each monitoring device in the pressurized cable system. These key elements of information are fundamental to the proper functioning of the PressureMAP program.

Although there are several additional fields on the data forms, it is not mandatory that they all be filled out. However, it is recommended that all data fields be completed if the information is

available. Completing as many fields as possible (and entering the data into the PressureMAP database) will allow PressureMAP to issue more complete reports, meaning that you will not need to look elsewhere when extra information is needed.

**Note:** To be able to obtain a “realtime” reading from the Lancier: 1) the monitor must be programmed to scan continuously, 2) a circuit (CIRC) number must be **programmed** for every device, and 3) each circuit number can only be **assigned** to up to 10 devices.

### ***Barometric Compensation***

Lancier pressure readings are absolute readings in millibar units. PressureMAP converts these readings to relative pressure values in one of two ways. If an office has a barometric device (AB device type), its reading is used to adjust the absolute pressure readings to relative pressure readings. If no barometric device is installed in the office (or transferred), standard sea level pressure (1013 millibars) is subtracted from the absolute reading to create a relative reading. This reading is then expressed in KPA units to be consistent with PressureMAP’s metric interface.

## ***THE LANCIER DEVICE DATA FORM***

Listed on the next several pages are descriptions of the data fields found on the Lancier Device Data Form (shown in FIGURE 5-1). The fields are presented in the order they appear on the data form, which is also the order that the data is entered into the PressureMAP Data Entry Editor.

### ***General Information***

At the top of each form, you will see the general fields for the Office, Pipe, Date, Engineer and Page number of the form that you are filling out. Before entering any data concerning the monitoring devices, be sure to fill out this header information located at the top of each data form.

Also located at the top of the Device Data Form are the three function boxes: Add, Delete, and Change. These boxes allow the data forms to be used for several different purposes. Be sure to check the appropriate function box before completing the data form. Also, when filling out the Device Data Forms, be sure to group all like data entry function together (for instance, place all "Change" data forms into one group). This will aid with the data entry process and minimize the chance for data entry errors.

### ***Lancier Device Data Fields***

Once the header information is complete, you may begin to record the actual monitoring device data. On the next few pages, definitions are given for each data field found on the Lancier Device Data Form. Each definition includes a description of the data field, the maximum length of each data field, the type of entry expected (numeric or alphanumeric), and any default values that PressureMAP may assign to the field.

Page ____ of ____	<b>Lancier Device Data Form</b>	Add <input type="checkbox"/>	Delete <input type="checkbox"/>	Change <input type="checkbox"/>
Office:	Pipe:	Engineer:	Date:	

<b>Primary Specific Device Information</b>				
<b>Device #:</b> (11, user defined)	<b>Access #:</b> (8 or 11)	<b>Type:</b> (2)	<b>Range:</b> (4) <b>KPA:</b> (4)	<b>S-K:/Loop:</b> (7) <b>SAU:/STD:</b> (4)
<b>Address:</b> (30)		<b>Loc:</b> (4)	<b>Pipe:</b> (4) <b>OAU:</b> (4)	<b>Norm:</b> (7) <b>Chng:</b> (4)
<b>Sheath(s):</b> (7-15 times)				
<b>Prim Cable:</b> (7)	<b>Prim Pair:</b> (7)	<b>Sec Pair:</b> (7)	<b>Sort Key:</b> (5)	
<b>Plat #:</b> (8)	<b>Stickmap:</b> (4)			
<b>Remarks:</b> (70)				

<b>Monitor Specific Device Data</b>		
<b>Latitude:</b> (10)	<b>Longitude:</b> (11)	
<b>Office 1 Loc:</b> (4)	<b>Distance 1 (kft):</b> (4)	<b>Field 1 Loc:</b> (4)
<b>Office 2 Loc:</b> (4)	<b>Distance 2 (kft):</b> (4)	<b>Field 2 Loc:</b> (4)
<b>TY-K:</b> (4)	<b>A:</b> (1)	<b>CIRC:</b> (4)
<b>Level 1:</b> (4)	<b>Level 2:</b> (4)	

Field names that are in **BOLD** face, if they apply to the device type, are necessary for PressureMAP to function properly.

The screens that complete the device data entry procedure are the Primary Specific Device Information Screen, the Monitor Specific Device Screen, the Device Comments Screen, and the Cable Readings Screen. These screens are accessed from the Primary Specific Device Information Screen, by using the **<PgUp>** and **<PgDn>** keys (if you are at the MAP Computer main console) or by entering the keystrokes **<Ctrl><F>**, (forward one screen), and **<Ctrl><R>**,

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**FIGURE 5-1: LANCIER DEVICE DATA FORM**

If a default value is listed for a data field, the value that is given is simply the value that PressureMAP will assign to the field if nothing else is input into the data field. If the value that you are going to enter into the field is the same as the PressureMAP default value, then all you will need to do is press <Return> for that field, and PressureMAP will insert its default value. The following fields will appear on the Primary Specific Device Information screen of the data entry editor.

#### **DEVICE #**

This data field records the number of the monitoring device. Locate the device number on the Lancier printout and check it against the Master Transducer Log. If the device is correctly listed on both data sources, then enter this number on the data form.

If a device is listed on the printout and not on the log, investigate why. Add the device to the Master Transducer Log if the situation warrants.

- Lancier 101 device numbers can be up to eight characters in length and use the format C+CH+UNI, where:
  - C = one of the following card types: Q, C, V, R, T, with Q as the default card type
  - CH = a two digit channel number of 01-32
  - UNI = unit number of 001-127 for addressable transducers, only on type Q cards.
  
- Lancier 1005 device numbers can be up to 11 characters in length, and use the format C+SL+CH+UNI, where:
  - C = one of the following card types: Q, C, V, R, T, with Q as the default card type
  - SL = slot number of 01-12
  - CH = a two digit channel number of 01-32
  - UNI = unit number of 001-127 for addressable transducers, only on type Q cards.

PRESSURE, FLOW & HUMIDITY SENSORS	CONTACTORS	VOLTAGE CONTACTORS	INSULATION & LOW RESISTANCE	20 & 40 STEP TRANSDUCERS
Q	C	V	R	T

**TABLE 5-1: LANCIER CARD TYPES**

#### *User Defined Device Numbers*

PressureMAP gives you the ability to create User Defined Device Numbers when entering your monitoring devices in the PressureMAP program. User Defined Device Numbers are created from any 11 keyboard characters, with the exception of the following:

( ) , / ^ ' .

If you wish to take advantage of User Defined Device Numbers, you must specifically turn this feature ON from within the Office Information Screen. For more information on this option, please refer to the description of "User Defined Device Numbers" under the Office Data Form segment in Section 2 of this manual.

**ACCESS #**

The **Access #** field will be displayed only if User Defined Device Numbers is turned ON. This field holds the actual access number as defined by the monitoring unit. (This is the number that would be placed in the **Device #** data field if User Defined Device Numbers were not turned on.)

**TYPE**

This field holds the PressureMAP two-letter Device Type. For more information on assigning PressureMAP Device Types, please refer to Appendix 1, PressureMAP Device and Transducer Types. PressureMAP uses a default Device Type of UP in this field, representing an underground pressure transducer.

**RANGE**

This field is filled in only if the device is a flow transducer, with metric entries of 270, 540, 1350, 2700, 13500, or 27000 LPH. Record flow ranges for the following device types: SF, DF, RF, MF, LF, CF and \$F. (Please refer to the Program Criteria section of the Preface if you need information on entering “kilo” and “mega” data values.)

**KPA**

This field needs to be filled in for all contactors (\*C PressureMAP device types) and source pressure transducers (SP PressureMAP device types).

Because PressureMAP uses the KPA reading of a pressure contactor when calculating a system quality index, all contactors must be given a KPA value so that PressureMAP may calculate an index value for the portion of the system that these devices monitor. For contactors, the value which must be placed in this field is the value at which the contactor goes into alarm. By default, PressureMAP places the underground pressure standard in this field. If the activation value for a specific contactor is different than the underground pressure standard, then enter this value in the **KPA** data field.

**S-K**

The Sheath Kilometer (S-K) field only needs to be completed for devices that monitor air flow. If the device in question is a flow monitoring device, then enter the calculated Sheath Kilometers into this field. If the records for the flow device only have an OAU value, then that number may be entered in the **OAU** data field, and PressureMAP will automatically calculate the corresponding S-K value.

The Sheath Kilometers for a Source FTD is equal to the sum of the manifold Sheath Kilometers. (This includes the distribution panel Sheath Kilometers if it is fed by the pipe panel.)

Although Sheath Kilometers for each flow device should be recorded on the respective stickmaps, this information is sometimes not present. Be sure to enter all calculated Sheath Kilometers on stickmaps which lack this information.

**OAU**

This field only needs to be completed for devices that monitor air flow. If the device in question is a flow monitoring device, and you have not entered the device's sheath kilometer value in the **S-K** data field, then enter the OAU value into this field.

The minimum OAU value that PressureMAP will accept is one tenth (or ".1"). As a result, the PressureMAP editor will accommodate only one space to the right of the decimal point. If you were to enter ".17" for an OAU value, PressureMAP would record this entry as "1.7" (PressureMAP automatically places the last numeric digit one space to the right of the decimal point).

The OAU value for a Source FTD is equal to the sum of the manifold OAUs. (This includes the distribution panel OAU if it is fed by the pipe panel.)

### ***SAU***

This field stands for the Standard Air Usage of high priority flow devices (\$F and \$V devices). The value placed in this field should be the normal, stable flow rate of the monitored air source. This air usage value should be obtained from researching past device history reports.

### ***STD***

This field will be displayed only for high priority pressure transducers (\$P devices). The STD value is the standard, normal KPA value of the transducer. The value that is placed in this field should be obtained from past history reports for the transducer.

### ***LOOP***

This field must be filled in for all contactors, to specify the loop resistance value for an alarm reading. The value entered into this field, which can be up to seven characters in length, is the total loop resistance in kilohms from the central office to the operated contactor (the contactor in an alarm state) and back to the office. Note that this field needs to be completed only for contactor devices (see PressureMAP Device Types table in Appendix 1).

### ***ADDRESS***

This field holds the device address location. Find the address on the Master Transducer Log and abbreviate it with 30 characters or less, as shown in the examples below:

- For pipe panels: (PIPE PANEL-A, NORTH)
- For distribution panels: (DIST. PANEL-C, SOUTH)
- For underground device locations: (MH-54, WILLIS & 5TH AVE.)

For all aerial and buried device locations, use the pole numbers and cross streets, terminal numbers, building names, or whatever else is necessary to thoroughly identify a device location.

### ***LOCATION***

Enter the device Location Code into this field. The Location Code is an alphanumeric abbreviation assigned to all devices stationed at one particular location. Each Location Code must be unique (not duplicated) within an office. Location Codes may consist of up to four alphanumeric characters. However, Location Codes are normally designated as numbers between 0 and 9,999.

**Note:** All devices in the central office (CO) must be given a Location Code of 0 unless the distribution panel is attached to the pipe (MF).

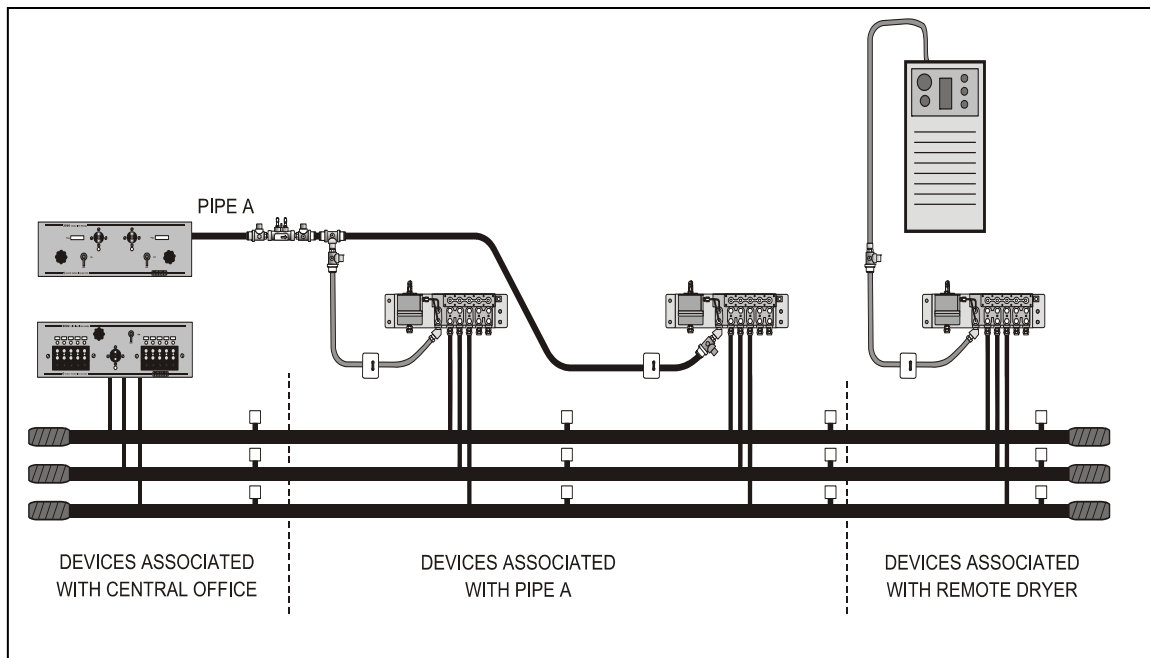
**PIPE**

This field contains the pipe designation with which the device is associated. Pipe names are arbitrary designations consisting of a maximum of four characters. Assigned or existing pipe names should be used in this field (refer to the stickmaps for this information).

Devices in the central office that are not associated directly with an air pipe are part of the central office sector. These devices are designated as: CO. (For additional information on the CO sector, refer to the System Studies document entitled, The Engineer's Review.)

Remote dryers and pole mounted compressors are separate air sources that require their own pipe designations. It is recommended that remote dryer pipe designations include the letter "R" (for remote) and a single or multiple numeric identification (for example: R1, R12, RD-1, etc.). When recording the pipe designations of devices associated with a remote dryer, include only those devices on the FIELD side of the dryer. For more information on field locations, please refer to the data field titled "Field 1" later in this segment.

Devices on the office side of a remote dryer are associated with the pipe originating in the central office (see FIGURE 5-2). An exception to this rule applies when the remote dryer is located at the end of the cable run. In this situation the first pressure transducer on the office side of the remote dryer is associated with the remote dryer and not the air pipe (see FIGURE 5-3). This exception makes it possible for a remote dryer to fulfill the minimum requirements for establishing a System Quality Index (SQI).



**FIGURE 5-2: DEVICES ON OFFICE SIDE OF A REMOTE DRYER**

Supplementary air pipes, such as maintenance pipes and splicer pipes are commonly designated as: SP, BP (Buffer Pipe), SP1, etc. Separate toll/trunk pipe panels often begin with: TP followed by a number or geographical designation relating to one of the points on a compass. Select the designation that works best in your system.

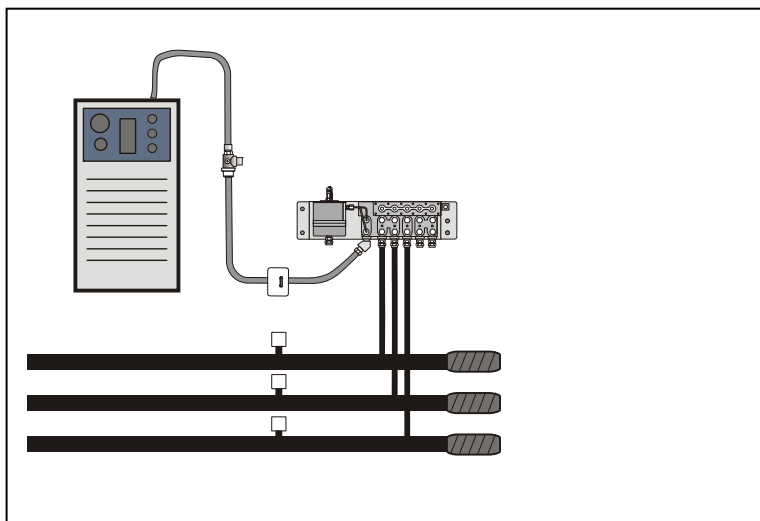


FIGURE 5-3: REMOTE DRYER AT THE END OF A CABLE RUN

### ***NORM***

This data field needs to be completed for all contactors and contact alarms. The input for this field can be up to seven characters in length and should reflect what the device reads in its normal, non-alarm state. For Lancier system contactors and contact alarms, this field is initialized to an **OK** value.

### ***CHNG***

This field is used in conjunction with the \$F, \$V, \$P devices as well as the SAU and STD fields described above. The **CHNG** field is the amount of change (either in pressure or flow, depending on the type of high priority device) that can be tolerated before the device goes into alarm. For pressure devices, the CHNG value is how many KPA can drop from the value indicated in the STD field before an alarm condition is acknowledged. For flow devices, the CHNG value indicates how many LPH the device increases before an alarm is given.

For a pressure monitoring device, this field will default to a value of 10.5 KPA, while a flow monitoring device will give a default value of 56.6 LPH (this value is dependent on range of device).

### ***CHG***

This field appears only for single feed pressure device types GP, HP, and JP, along with the THR field. The **CHG** field is the amount of change that can be tolerated before the device goes into alarm. The default value for this field is 1 PSI (6.9 KPA).

### ***THR***

This field appears only for single feed pressure device types GP, HP, and JP, along with the CHG field. If the pressure drops below the threshold value (THR) at any time, a four star dispatch alarm will be issued. The default value for this field is 1.5 PSI (10 KPA) for GP, and 4.4 PSI (30 KPA) for HP and JP.



**SHEATH(S)**

This field holds the sheath number or identification of the cable being monitored. It may also be used to identify the cables being fed by an air pipe manifold or distribution panel.

The sheath assignment for a device is listed on the Master Transducer Log and stickmap. Sheath entries are limited to seven alphanumeric characters in length. As many as 15 individual sheath entries may be input into this data field.

**CABLE**

This field holds the primary cable number. This will be the "read" cable that contains the transducer conductor pairs. Entries are limited to seven alphanumeric characters.

**PRIM PAIR**

This field contains the information concerning the designation of the primary conductor pair to which the device is connected. Primary pair entries are limited to seven characters.

**SEC PAIR**

Record the secondary pair number in this field. This number refers to the backup conductors to the primary pair, if they exist. Like the primary pair entries, the secondary pair entry is limited to seven alphanumeric characters.

**SORT KEY**

This field is for user defined device sorting. Sort Key designations may hold a maximum of five alphanumeric characters. Option 10 of the Device Histories Menu uses this field to generate reports for all devices with the same Sort Key designation.

**PLAT #**

Fill in underground, buried, or aerial record number in this data field. Plat numbers may be up to eight alphanumeric characters in length.

**STICKMAP**

This field contains the stickmap number, which is the sheet number of the office stickmap on which the device appears. Stickmap entries may consist of a maximum of four alphanumeric characters.

**REMARKS**

This data field allows for a 70-character remark to be entered concerning the device.

The following device information fields will appear on the *Monitor Specific Device Screen* of the data entry editor. This screen is accessed from the Primary Specific Device Information Screen by: 1) using the <PgUp> and <PgDn> keys (if you are at the MAP Computer main console), or 2) by entering the keystrokes <Ctrl><F> (forward one screen) and <Ctrl><R> (back a screen).

**LATITUDE**

Beginning with PressureMAP Version 28, the format used for latitude and longitude information is *decimal degrees*, although the legacy *degrees and decimal minutes* format can be entered, if desired, during data entry. Once latitude and longitude data in the legacy format have been entered and saved, PressureMAP will convert the coordinates to decimal degrees.

An example of the old format used and the corresponding decimal degrees format is shown below:

<u>Degrees and Decimal Minutes</u>	<u>Decimal Degrees</u>
N36+58.447	36.974117

This text field accepts either of these formats:

- Degrees and Decimal Minutes: lff+mm.mmm, with l designating which hemisphere the latitude applies to (one of the following single letters: N or S); ff is an integer between 00 and 90 that indicates the degrees of latitude; and mm.mmm is an integer between 0.0 and 59.999 that designates the minutes of latitude.
- Decimal Degrees: lff.mmmmm, with l being used only to designate a minus value ( - ) for a position south of the equator. (Note: latitude positions north of the equator do not require an l designation.) The letters mmmmm represent an integer between 000000 and 999999.

When adding new devices, the latitude field is carried over to the new device, so the default value for this field will be derived from the last device added.

### **LONGITUDE**

This text field accepts either of these formats:

- Degrees and Decimal Minutes: hfff+mm.mmm, with h designating which hemisphere the longitude applies to (one of the following single letters: E or W); fff is an integer between 000 and 180 that indicates the degrees of longitude; and mm.mmm is an integer between 0.0 and 59.999 that designates the minutes of longitude.
- Decimal Degrees: hfff.mmmmm, with h being used only to designate a minus value ( - ) for a position west of the Prime Meridian, which is the longitude that runs through Greenwich, England. (Note: longitude positions east of the Prime Meridian do not require an h designation.) The letters mmmmm represent an integer between 000000 and 999999.

When adding new devices, the longitude field is carried over to the new device, so the default value for this field will be derived from the last device added.

**Office and Field Locations do not necessarily apply to each device. If not, these fields should be left blank.** When a device's Office Location entry is blank, the corresponding Distance field is also left blank. A device in the central office is NEVER assigned an Office 1 or Office 2 location. Devices monitoring the air pipe (such as SF, SP, PP and EP) do not require Office and Field entries, as PressureMAP reviews the entire route when these device types come into alarm.

### **OFC 1 LOC**

This field holds the Office 1 Location Code. The Office 1 location is the code of the first device location toward the central office from the designated device location where the cable in question is either fed or monitored. This data field does not apply to devices in the central office itself or pressure devices on a pipe.

***DISTANCE 1 (km)***

This column is used to record the distance, in kilometers, from the specified device location to the OFC 1 location. A numeric entry must be made into this position. This data field does not apply to devices located in the central office or pipe pressure TDs.

***OFC 2 LOC***

This field holds the Office 2 Location Code. If two monitored sheaths on the office side of a device location converge into one sheath at the device location, office Location Codes are assigned to the closest device locations on each of the two sheaths. Either device location may be designated as "Office 1;" the remaining one is "Office 2." (Refer to Appendix 2 for examples of Office 2 and Field 2 assignments.) Reference the stickmap to determine if a sheath splits.

This data field does not apply to devices located in the central office or pipe pressure TDs.

***DISTANCE 2 (km)***

The distance from the specified device location to the Office 2 location. Enter the distance, in kilometers, to the Office 2 location. Entries must be numeric.

***FIELD 1 LOC***

This column designates the Field 1 Location Code. This column lists the Location Code of the first device location on the field side of the specified device where the cable is either fed or monitored.

Notice that a Distribution panel flow device with an assigned Location Code of "0" should have an entry in this field. Only the following types of devices are not assigned any Field Location codes: pipe pressure transducers, pipe panel flow transducers, and contact alarms.

***FIELD 2 LOC***

Enter the Field 2 Location Code into this field. If a sheath splits on the field side of the device location, the closest monitoring device on each of the two sheaths is assigned a field Location Code. Either device location may be designated as "Field 1"; the remaining one is "Field 2". (See Appendix 2 for a detailed look at Office and Field situations.)

***TY-K***

This four character field contains the Lancier sensor type and kind, separated by a dash. A typical entry for this field is P3-A.

***A***

The one-character Lancier assignment designation is entered into this field.

***CIRC***

The circuit (cable designation) identity of the device is entered into this field. Up to four characters may be entered, and 1 to 10 devices can use the same CIRC identity. This cable designation **MUST** be entered for each device in both the Lancier monitor and PressureMAP to enable PressureMAP to obtain "realtime" readings.

**LEVEL 1, LEVEL 2**

These two fields hold the alarm levels from the Lancier printout's LVL1 and LVL2 columns. For flow measuring devices, these values are the flow rate at which the device will go into alarm. For pressure measuring devices the level values represent the minimum pressure levels of the device. PressureMAP does not alarm on the input from these two fields; they are for record keeping purposes only.

**THINGS TO KEEP IN MIND**

Keep in mind the special nature of devices in the CO when filling in the Device Data Form. Important points to remember are:

- Devices in the CO differ from field devices in that they rarely have cable and pair assignments.
- Contactors in the CO do not have sheath numbers.
- A CO device always has "0" for its location code.
- Flow devices on Pipe Alarm Panels get no field locations.
- Do not assume that a pipe located in the CO Sector is a CO route.
- Multiple pipes can travel the same route.
- Pipe pressure TDs get no Office or Field Locations.

Also, keep in mind the special nature of remote compressors. The remote compressor is an air source, and the air flow must be monitored by a flow device. In order to produce a non-zero System Quality Index for a remote compressor, both a pressure monitoring device and a flow monitoring device must be associated with the air source.