Electrical Solutions Corporation
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Honeywell Corrosion Monitoring System

The corrosion monitoring system for the Amine Plant consists of 3 probes that are installed at the Contactor, Flash Tank, and the Reda Pumps. Each probe consists of 3 electrodes attached to one end of a rod and provisions for attaching an electrical cable to the opposite end. The electrode end of the probe is inserted into the process and the opposite end is connected to a 5-pin Amphenol connector, which in turn, is attached to the computer monitoring system.

The Corrosion Monitoring System actually measures the resistance of the process fluid between the electrodes. Based on this reading, the software calculates various types of corrosion values.

Starting the System

Starting the corrosion monitoring system is pretty easy and is illustrated on the next few pages.

Electrical Notes

Each probe should be tested prior to installation and any time the B-value (as seen in the HMI) is negative. There are 3 electrodes on one side of the probe, and a 5-pin connector on the other side. One of the pins is not used, and 2 of the pins are electrically connected together. So the electrician should be able to read continuity between each electrode and one of the pins at the connector. The continuity readings should vary between 0.2 ohms and 30 ohms. (One electrode should show continuity on (2) of the pins.) The electrician should also make sure that the electrodes are not shorted out to the probe body.

We are running FieldCET 2.16 software, on a WindowsXP, SP2 (Pentium III), machine. A serial cable connects a DB9 port on the PC to an RS232 to RS485 converter. The distance between PC and the converter is about 5'. From the converter, a 4-wire cable runs about 250' to a central location in the plant where it terminates at an interior power/communications unit. (2 of the wires are being used for communications --- (Data+ and Data-) --- and 2 of the wires are being used to supply 24VDC power the converter). The only thing currently in this j-box is an Omron 0.6A, 24 VDC power supply, a signal booster, and a terminal strip.

The power/communications unit is located at a central location in the plant, and provides a location where the RS485 network can be connected in a "Star" configuration.

From the power/communications unit, a separate cable is run to each SmartCET corrosion monitoring unit. The distance from the power/communications unit to the SmartCET units are:

1. Probe 1: 390'
2. Probe 2: 360'
3. Probe 3: 370'

Data Archiving Notes

Every month when the corrosion coupons are pulled, the corrosion data should be archived by creating a new file, into which the HMI will write the corrosion data. This procedure will currently be performed by the Safety Tester.

With the Corrosion Monitor System running (FieldCET):

1. Press the "Probe Settings" button.
2. Uncheck the "Auto Start on Reboot" check box.
3. Close and restart the application.
4. Press the Probe 1 "Settings" button.
5. Select a path where the new data will be stored.
    a. C:\FieldCET\Data*foldername**filename*
    b. The folder name should have the format yyyy_mm_month (for example, 2007_05_May or 2007_04_April). If the file is named in this way it makes it easier to sort files and find the right one.
    c. The filename should be in the format Probe#_yyyymmdd (for example Probe1_20070517 or Probe2_20070615. Use the date that the file is created.
    d. Accept the changes.
6. Select the path for the new Probe 2 files.
7. Select the path for the new Probe 3 files.
8. Re-check the "Auto Start on Reboot" check box.
9. Close and Restart the application.
10. Verify that the new files have been created by checking the paths created in steps 5-7.

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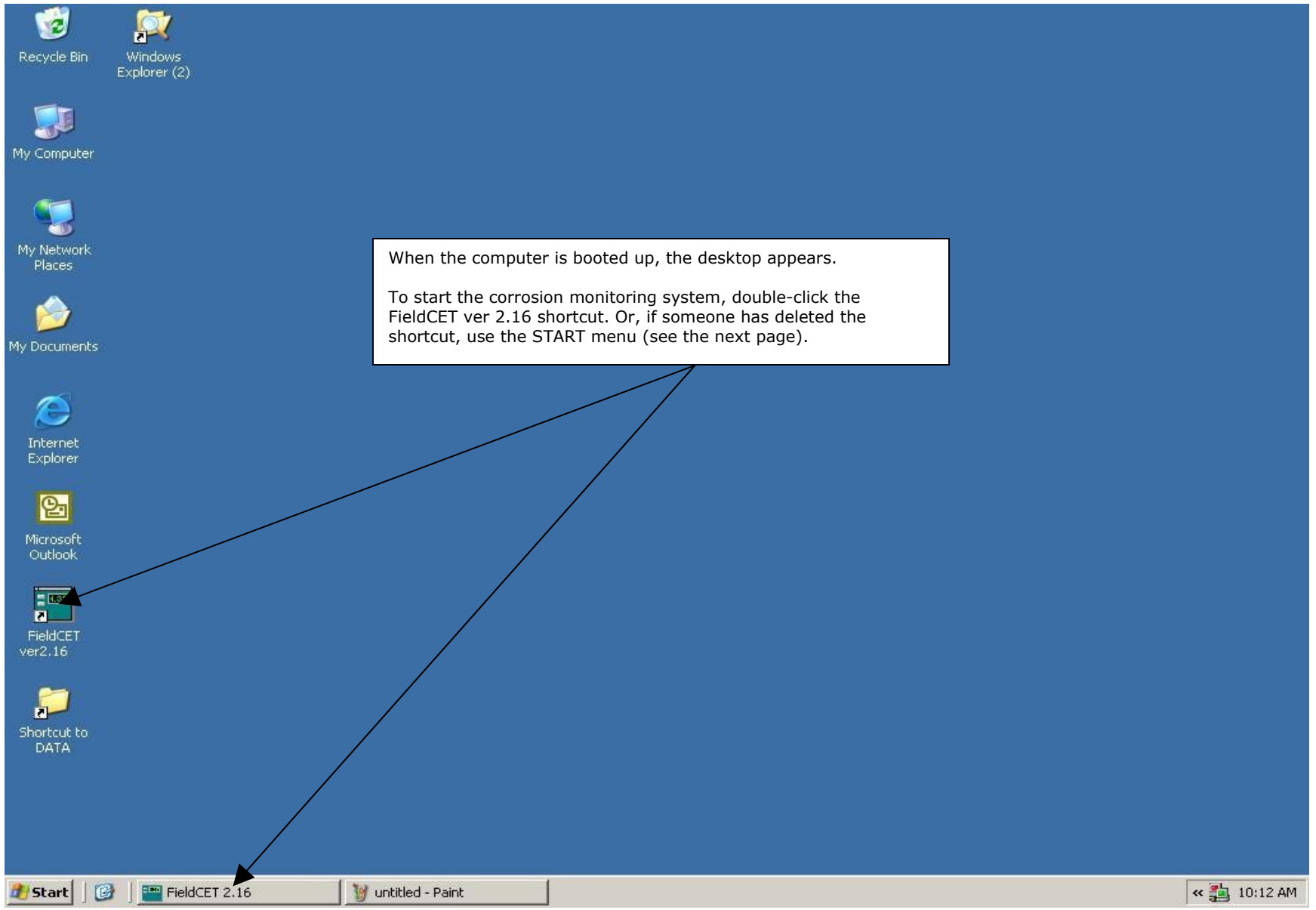

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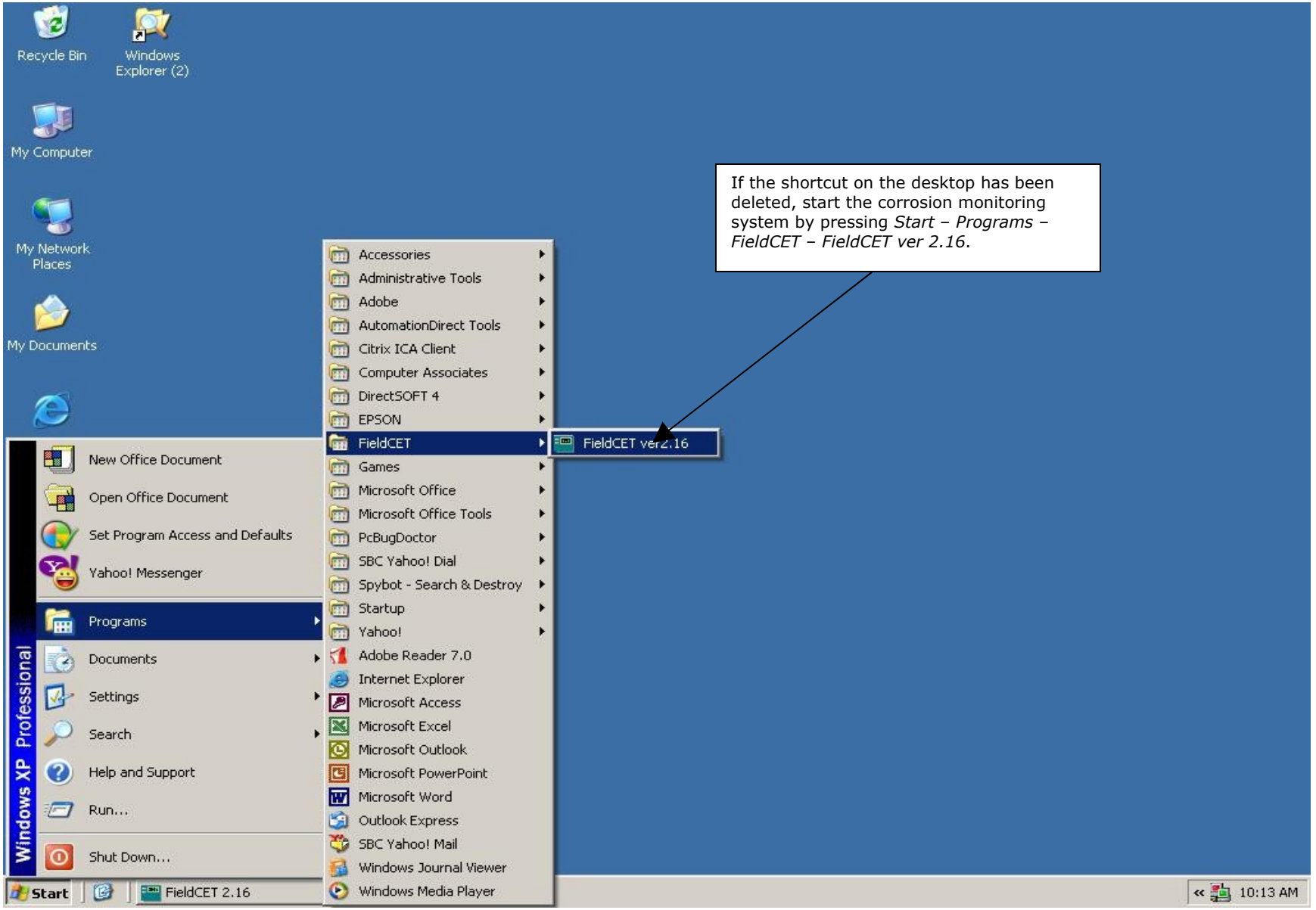

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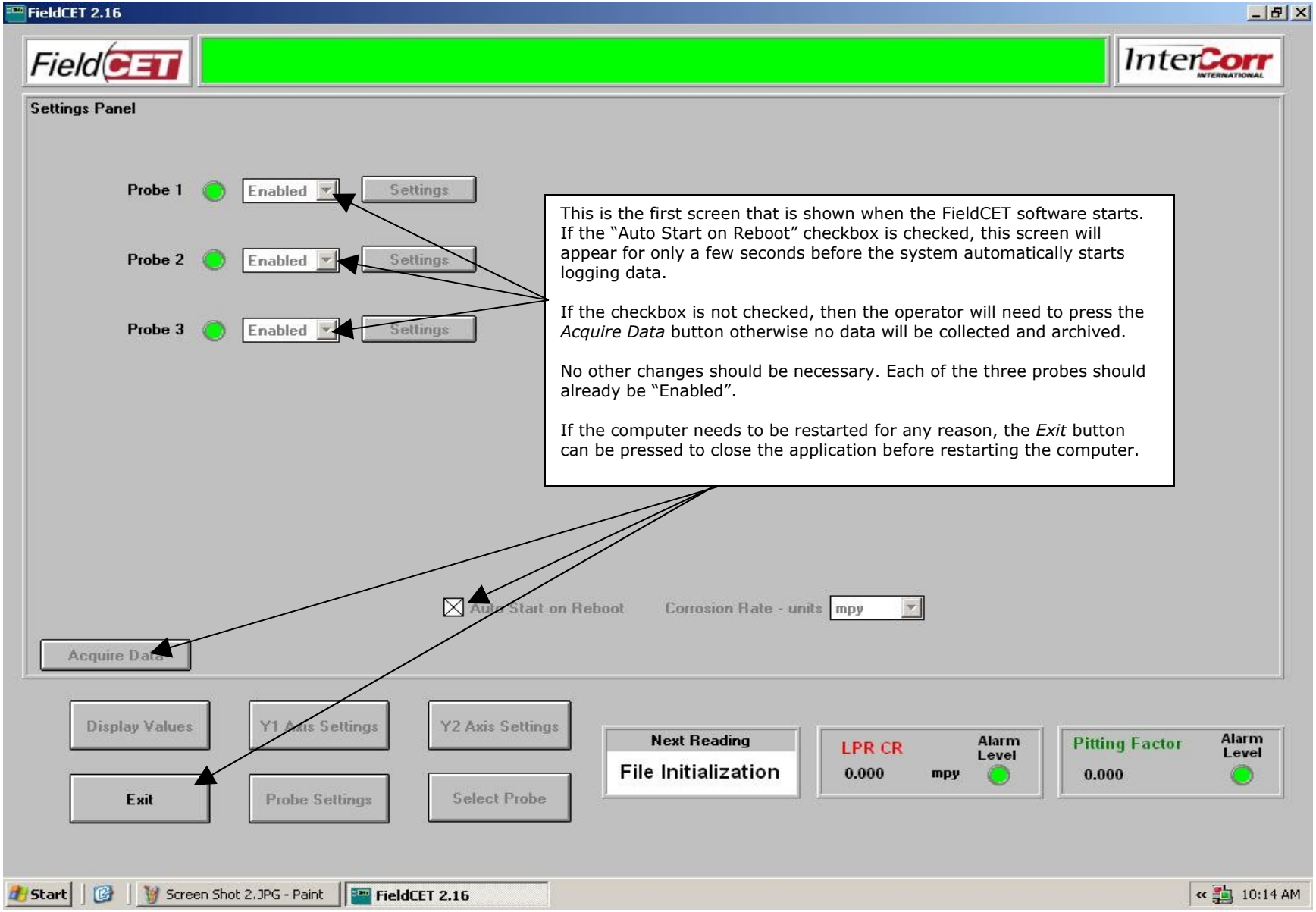

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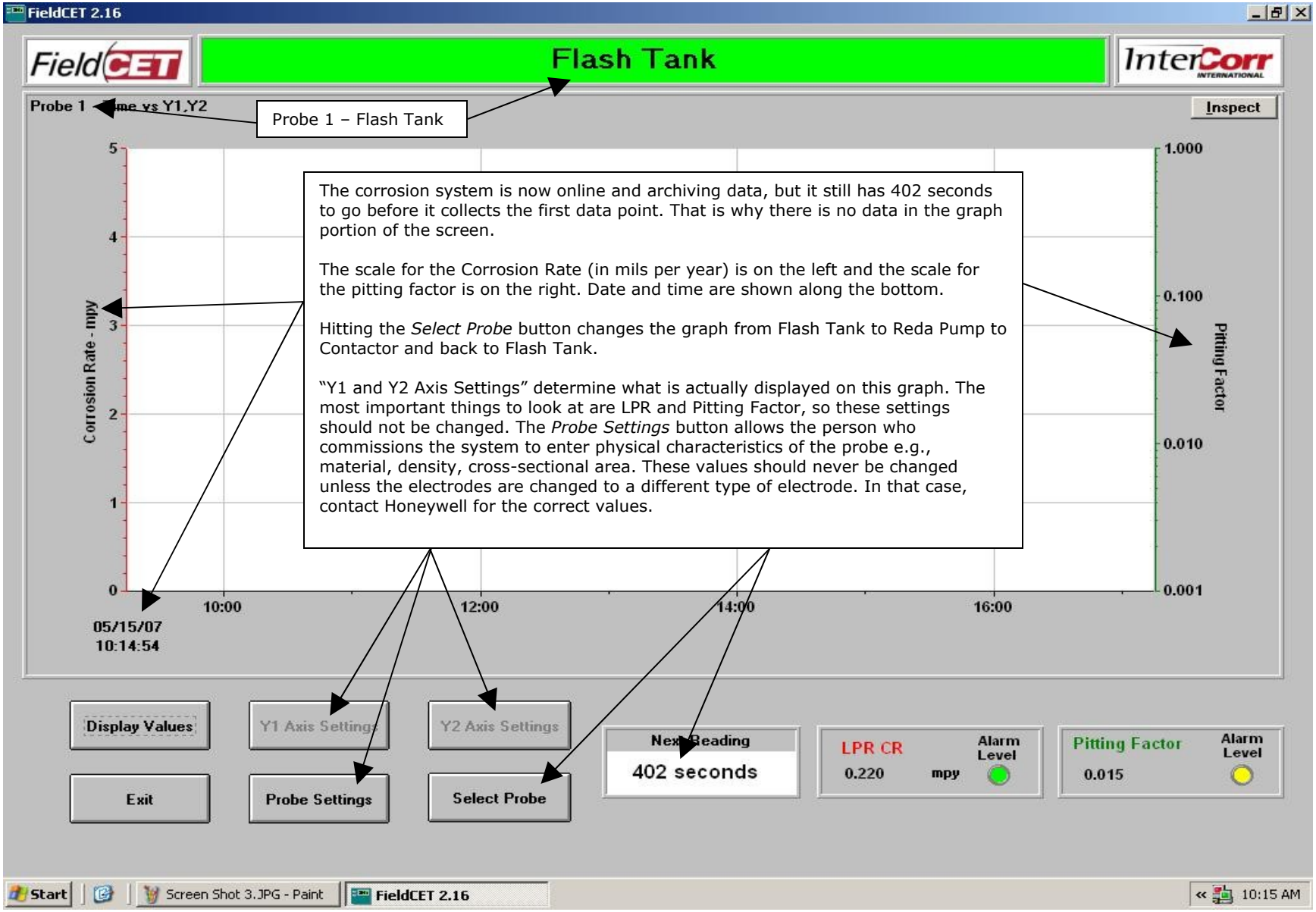

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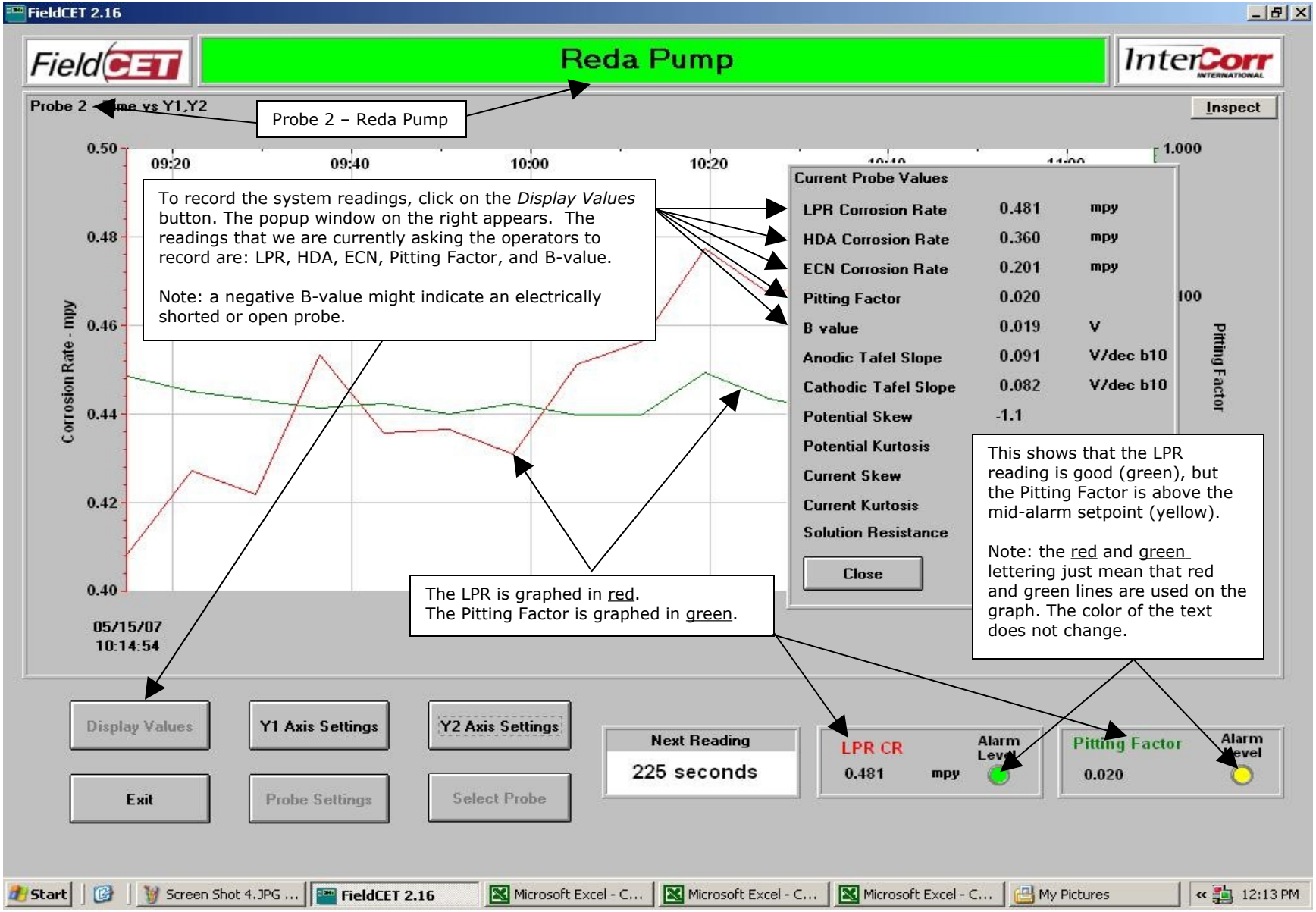

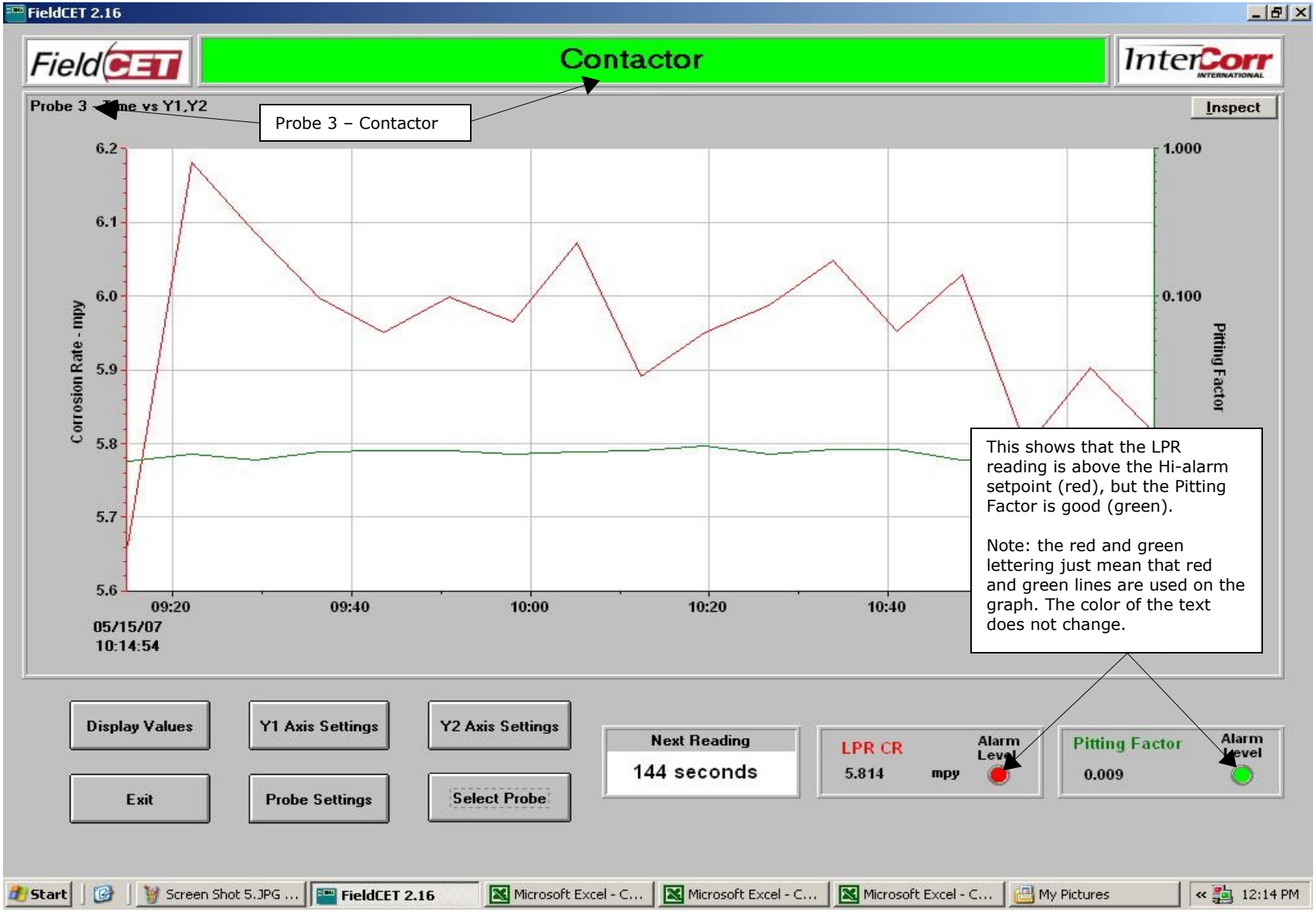
FieldCET 2.16
FieldCET
Contactor
InterCorr
Probe 3 – Time vs Y1,Y2
Probe 3 – Contactor
Inspect
6.2
6.1
6.0
5.9
5.8
5.7
5.6
Corrosion Rate - mpy
1.000
0.100
Pitting Factor
09:20
09:40
10:00
10:20
10:40
05/15/07
10:14:54
This shows that the LPR reading is above the Hi-alarm setpoint (red), but the Pitting Factor is good (green).
Note: the red and green lettering just mean that red and green lines are used on the graph. The color of the text does not change.
Display Values
Y1 Axis Settings
Y2 Axis Settings
Exit
Probe Settings
Select Probe
Next Reading
144 seconds
LPR CR
5.814
mpy
Alarm Level
Pitting Factor
0.009
Alarm Level
Start
Screen Shot 5.JPG ...
FieldCET 2.16
Microsoft Excel - C...
Microsoft Excel - C...
Microsoft Excel - C...
My Pictures
12:14 PM