Liquid Scintillation Counter - Applications Note

Loading a Quench Correction Curve on to DOS Operating System

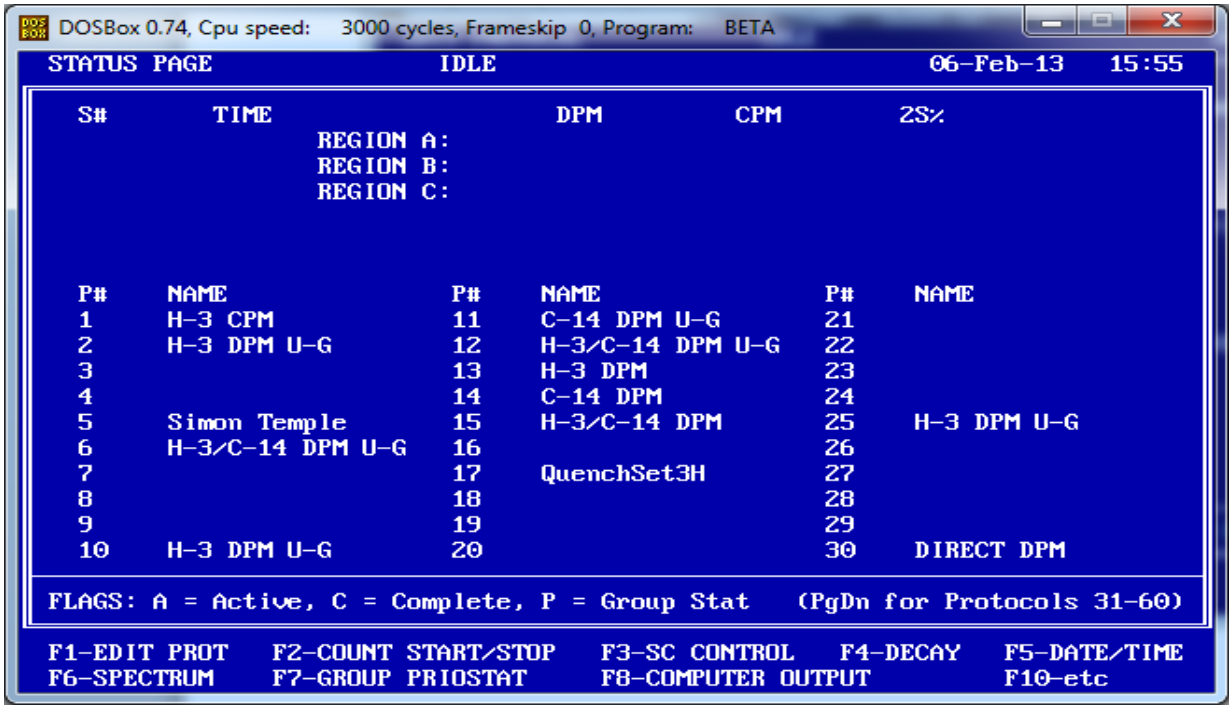
This Applications paper describes how to install quench correction curves on TriCarb liquid scintillation counters in the model number range 1600-2300TR.

Notes

- The quench correction curve is installed on the protocol on which sample analysis is completed
- Generally the Enter key is used to proceed in the software
- The arrow keys will not enter a new value and the previous value is retained even if you have typed in a new value
- On any page there are instructions for what you may enter in the line directly above the function keys

When creating a protocol a series of screens are completed in order to complete. The following describes how each page should be edited and its laid out as each page at a time.

Page 1: Status page (home page)



From the status page, press the F1 key to go to the Edit Protocol page

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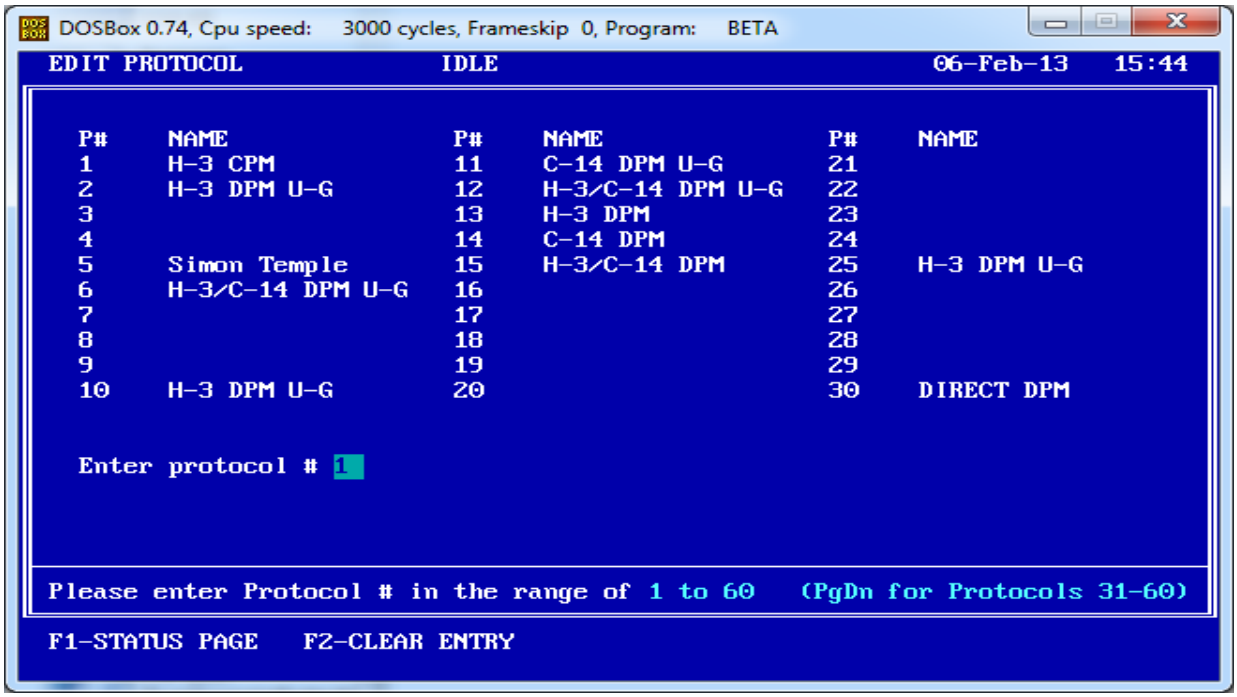
Page 2: Edit Protocol Page



On the Edit Protocol page, enter the number of the protocol you wish to install the quench correction curve on (select number and press Enter key)

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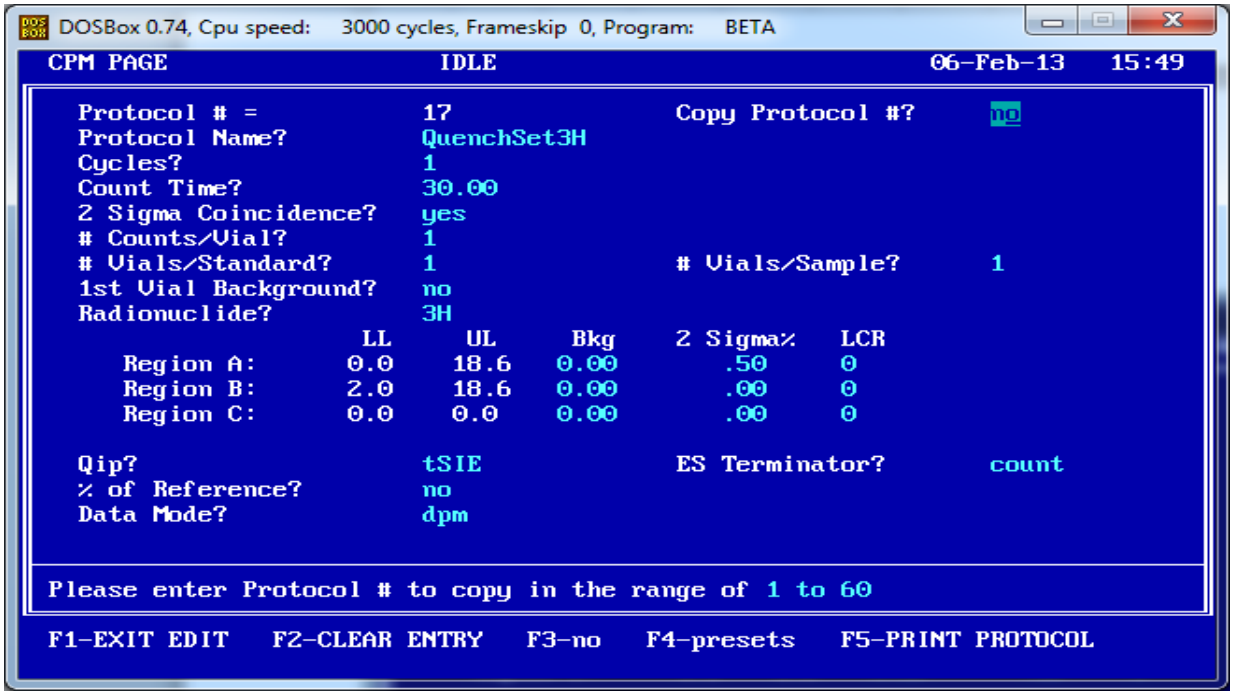
Page 3 – CPM page

The following picture demonstrates how the page would look like for a tritium quench correction curve installation (notes are shown below).



On the CPM page, enter the following information:

- Enter the name of the quench set in Protocol name box, for example for tritium, enter “QuenchSet3H”
- Enter 1 for Cycles
- Enable 2 Sigma Coincidence to Yes by selecting the box and pressing F3
- Set 1st Vial Background is set to No by selecting the box and pressing F2
- Set the Count Time to 30 minutes
- Set the Radionuclide to the isotope you are using by selecting the box and using the appropriate F-key (F2 for 3H / F3 for 14C)
- Set tSIE as the QIP (quench indicating parameter) by selecting the box and pressing F3
- Set the ES terminator to Count by selecting the box and pressing F2
- Set the data mode to dpm by selecting the box and pressing F3

Use Page Down to go to the next page

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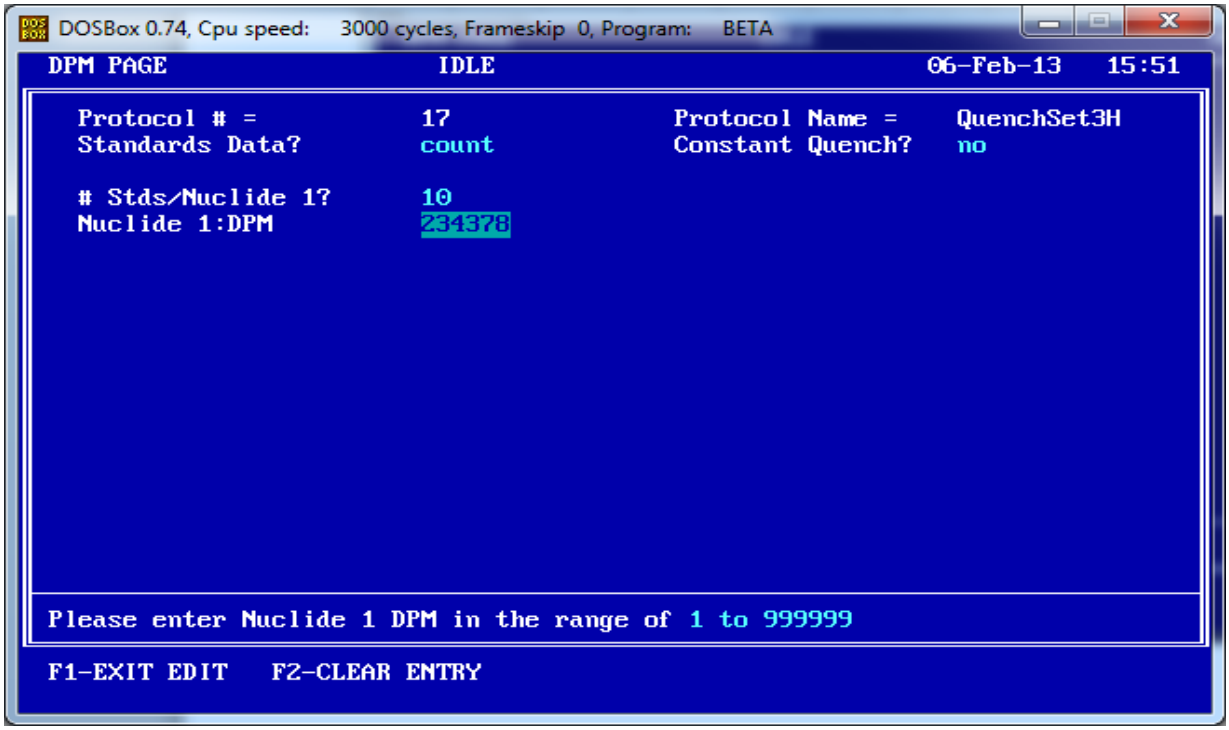
Page 4 - DPM Page

The following picture demonstrates how the page would look like for quench correction curve installation (notes are shown below).



On the DPM page, enter the following information:

- Set the Standards Data to count, by selecting the box and pressing F2
- Leave Constant quench as No
- Enter the #Stds/Nuclide 1 enter the value 10 (or the number of standards being used)
- Enter the DPM of the standard in the Nuclide 1: DPM. Half-life correct for short half-life isotopes such as tritium

Press Page Down to get to the next screen

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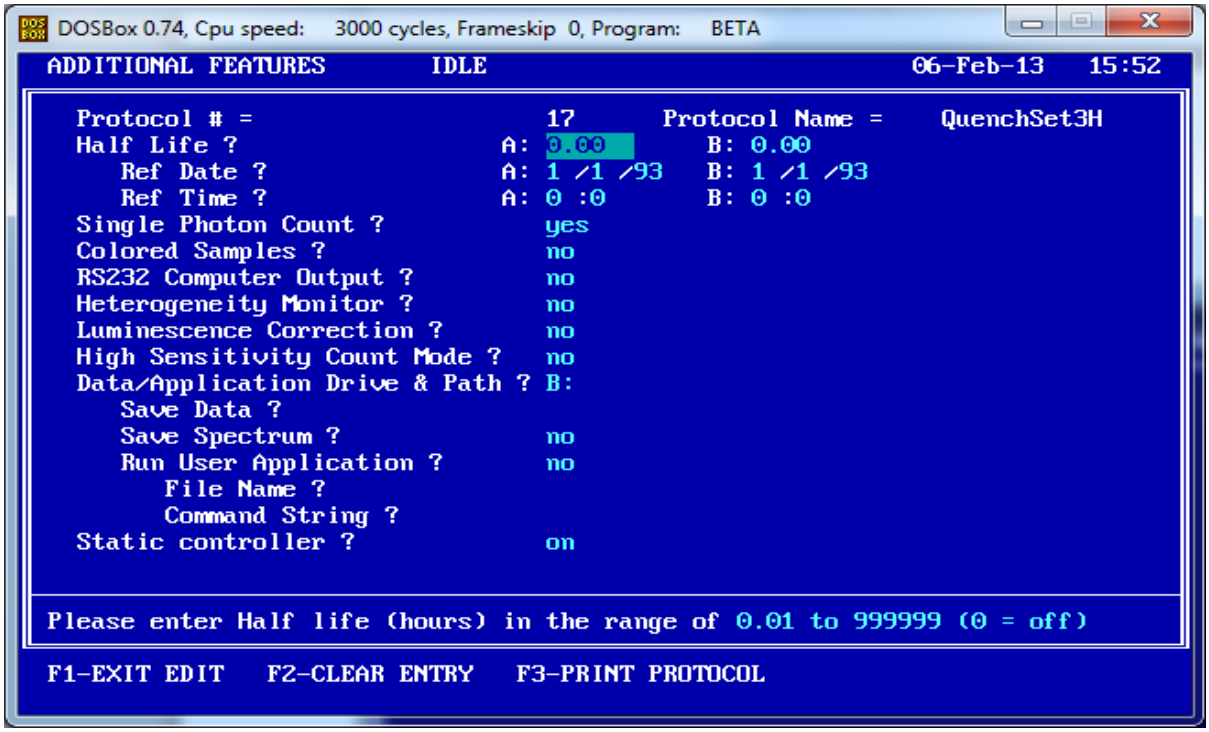
Page 5 – Additional Features Page

The following picture demonstrates how the page would look like for quench correction curve installation (notes are shown below).



There is no need to change anything on the Additional Features page

Press Page Down to get to the next screen

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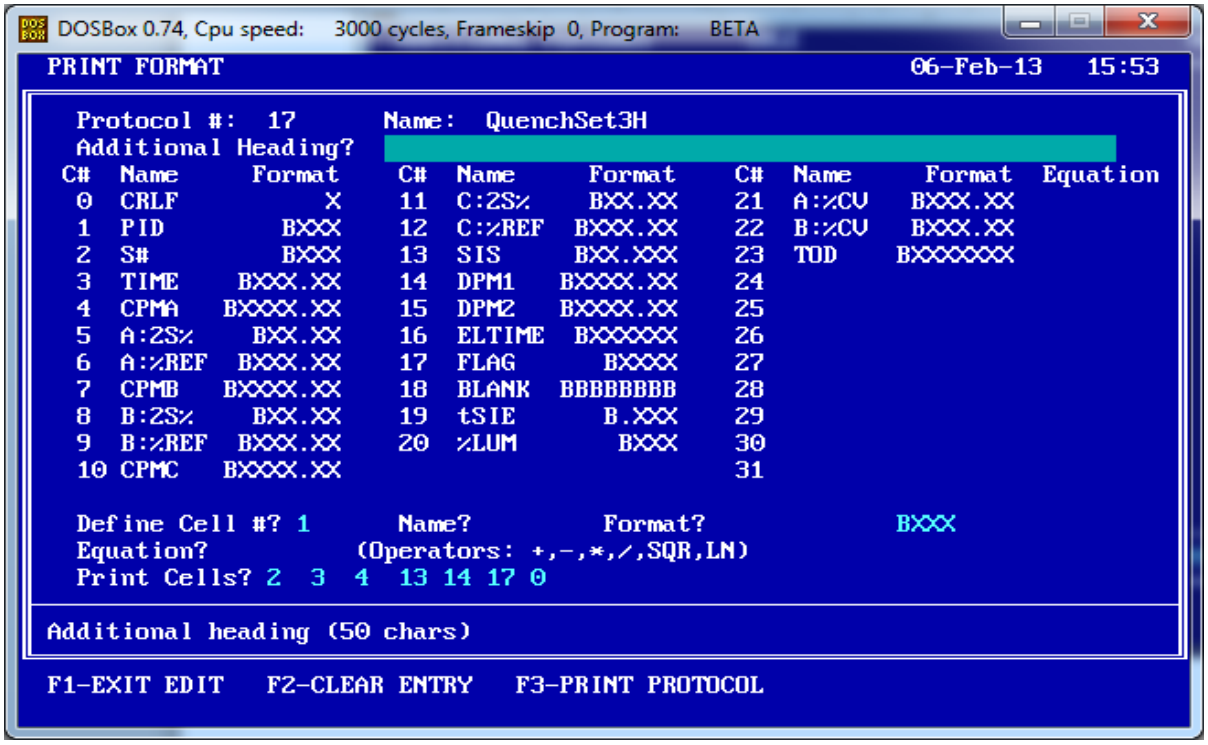
Page 6 - Printer Format Page

The following picture demonstrates how the page would look like for quench correction curve installation (notes are shown below).

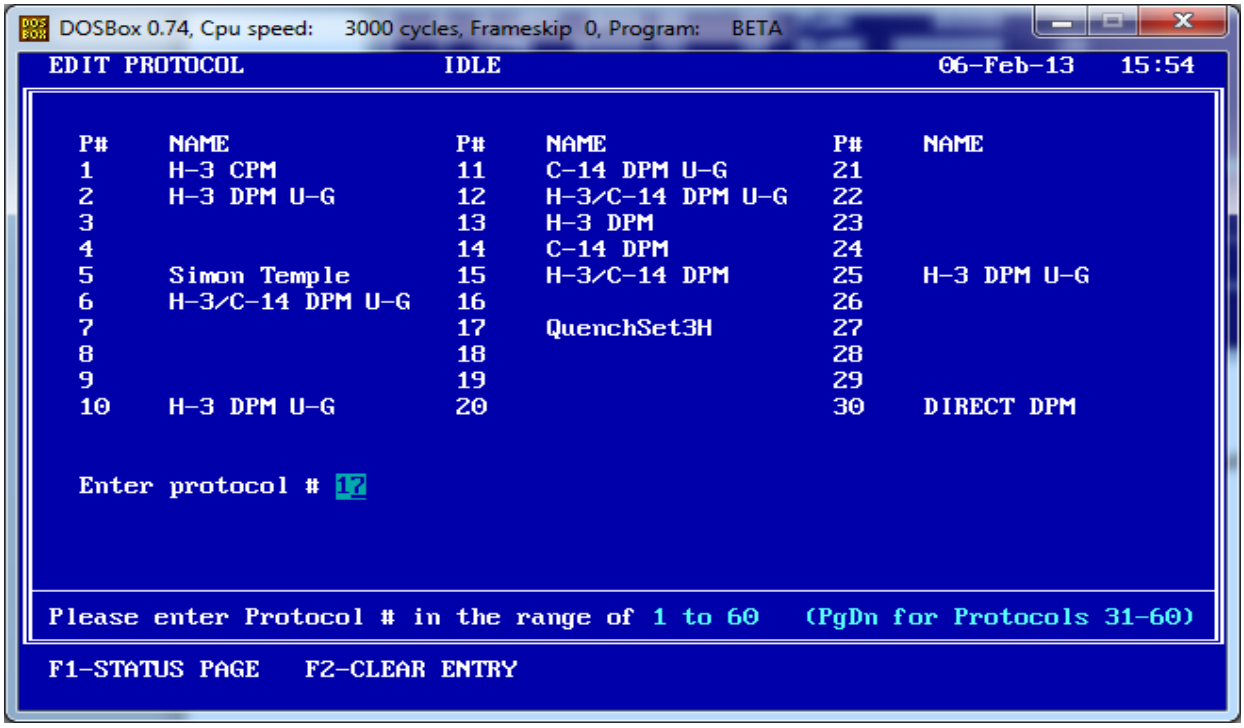


There is no need to change anything on the Print Format page

Press Page Down to get to the next screen

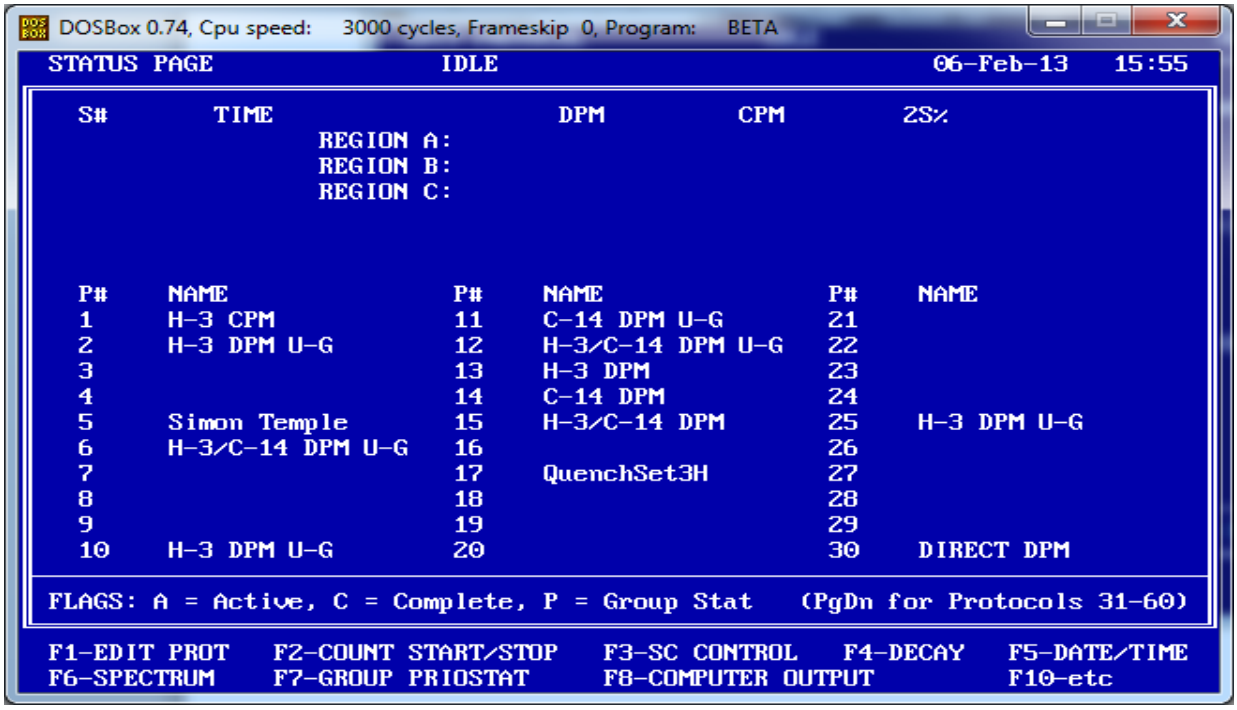
Page 7 – Return to the Edit Protocol Page

Press F1 to exit the protocol and return to the Edit Protocol page



Page 8 – Return to the Status Page

Press F1 to exit the protocol and return to the Status page



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Loading the standards

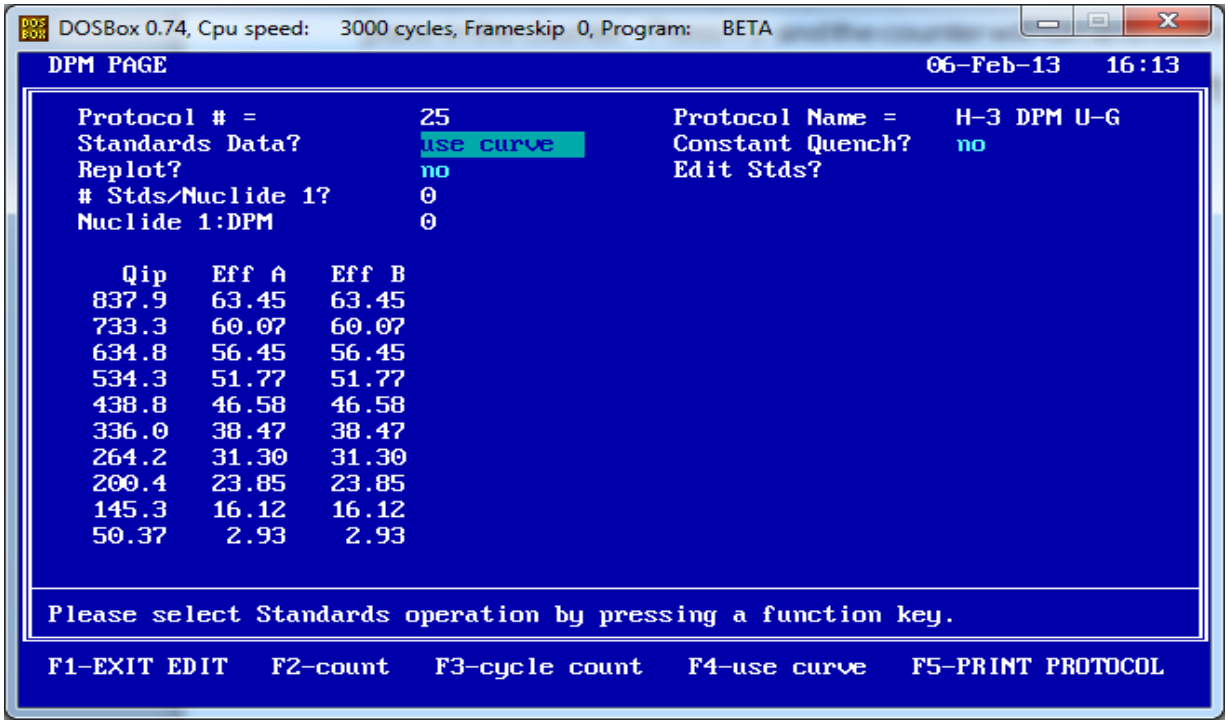
In order to count the standards, complete the following:

- Load the standards in the cassette (rack)
- Put the appropriate protocol flag in the cassette
- Place on the right hand side of the counter table
- Press F2 to start the analysis

Once the standards are analysed the protocol will end and the results and quench correction curve will be printed out.

Quench Curve Data

The quench correction curve data is now located on the DPM Page after completion of the protocol. The following picture demonstrates what it will look like:



The Standards Data box has automatically been updated to state “use curve”, which is the correct setting for DPM sample analysis and this protocol is now ready to use.

It can be copied onto another protocol flag number using the Copy Protocol option on the CPM page. This will create a complete copy of the protocol, including the quench correction curves, on the new protocol.

This protocol now has a quench curve and may be used or copied to other protocols for use in acquiring DPM from your samples