

XRF Operating Instructions
Version 1.4
2/16/11

No one under the age of 18 is permitted to operate the XRF.

In case of emergency, push the large red button on the front of the instrument. This will immediately turn the instrument off.

- 1) Verify that the sample cup is in position 1B4. If not, open *S4 tools* by clicking on the gray instrument icon. Click “Online Status”. Click the computer icon (*Online On/Off*). Click on *Sample Handler* to go to the sample handler screen. Select *Utilities* → *Sample Handler Utilities* → *Unload Sample Cup* to remove the sample cup from the sample chamber. Close *S4 tools* when finished.
- 2) Double-click the *Spectra Plus Launcher* icon if the *Launcher* is not already open.
- 3) Verify the mask size installed in the XRF. Most analyses are done with the 28 mm mask, but a 34 mm mask can also be used. If necessary, install the proper mask by clicking on the *Measurement* button in the *Launcher*. The *Loader* window will open. Select the *Mask* icon from the upper toolbar. Select the new mask size on the computer pop-up window. The sample chamber will open, allowing for manual changing of the mask by the operator. Pull out the current mask and install the new one, making sure it is seated properly in the alignment pegs. Click *OK* on the computer pop-up window and the sample chamber will close.
- 4) The *Loader* program is used to enter samples for analysis. Make sure the desired sample definition is loaded. If the wrong sample definition is loaded, right-click on it and select *Remove SampleDef*“(sample definition)”. Then select *Samples*→*Definition File*→(sample definition) from the drop-down menu at the top of the screen. To enter samples in the virtual display, right-click on the desired sample location and select *Edit Sample*. Fill out the requested information in the sample editor table at the top of the window. Note that when a sample is displayed in the sample editor table, an empty line with the same sample position is displayed beneath it. If another run for the same sample is desired, enter sample information into this second line, and repeat as desired for additional runs. The most common methods are as follows (these require the *_Routine-Vac* sample definition): “Soils” for trace elements in soil and rock samples (commonly powder sample preps), “Li borate mix soils” for major elements in soils (commonly glass fusion sample preps), and “Li borate mix” for major elements in rocks (commonly glass fusion sample preps).
- 5) Click the *Send All Samples* icon at the top of the screen to send all of the samples for analysis. If only one sample is to be sent for analysis, highlight it in the sample table and click *Send Sample*. If multiple, but not all, of the samples are to be sent for analysis, hold the CTRL key and highlight the desired samples, then click *Send Selected Samples*. If any samples have a higher priority than others,

- the priority setting can be modified to give them precedence over less important samples. Select the highest priority samples (hold the CTRL key and highlight the desired samples), set the priority to “High”, and click *Send Selected Samples*. Do the same with “Medium” and “Low” priority samples until all of the samples have been sent. The samples to be analyzed will be listed in the bottom of the *Loader* window, along with estimated analysis times.
- 6) When the analyses have been completed, select *Samples*→*Clear All Samples Done* from the drop-down menu at the top of the *Loader* window.
 - 7) Results can be viewed any time after the analyses are complete by clicking the *Results* button from the *Launcher*. The *Results Monitor* window opens and a query can be performed to locate the desired sample information. Select the *New Query* icon (the third icon from the left), enter the desired date and time range and the measuring method, and click *Search*. The “Soils” and “Li borate mix soils” methods give the results as elemental values, whereas the “Li borate mix” method gives the results as oxide values.
 - 8) The data from *Results Monitor* can be copied and pasted into Excel if desired.