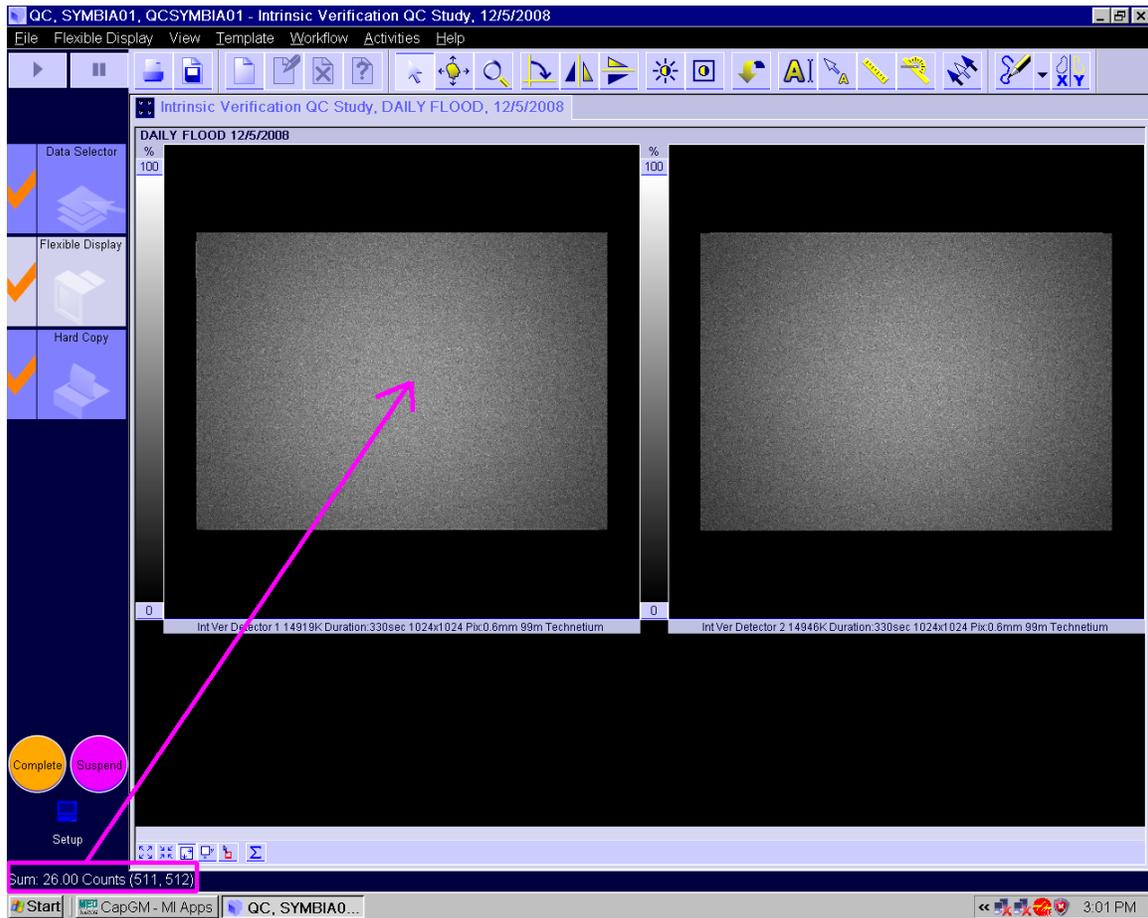


SCENARIO: Sometimes images retrieved from PACS are displayed completely in white.

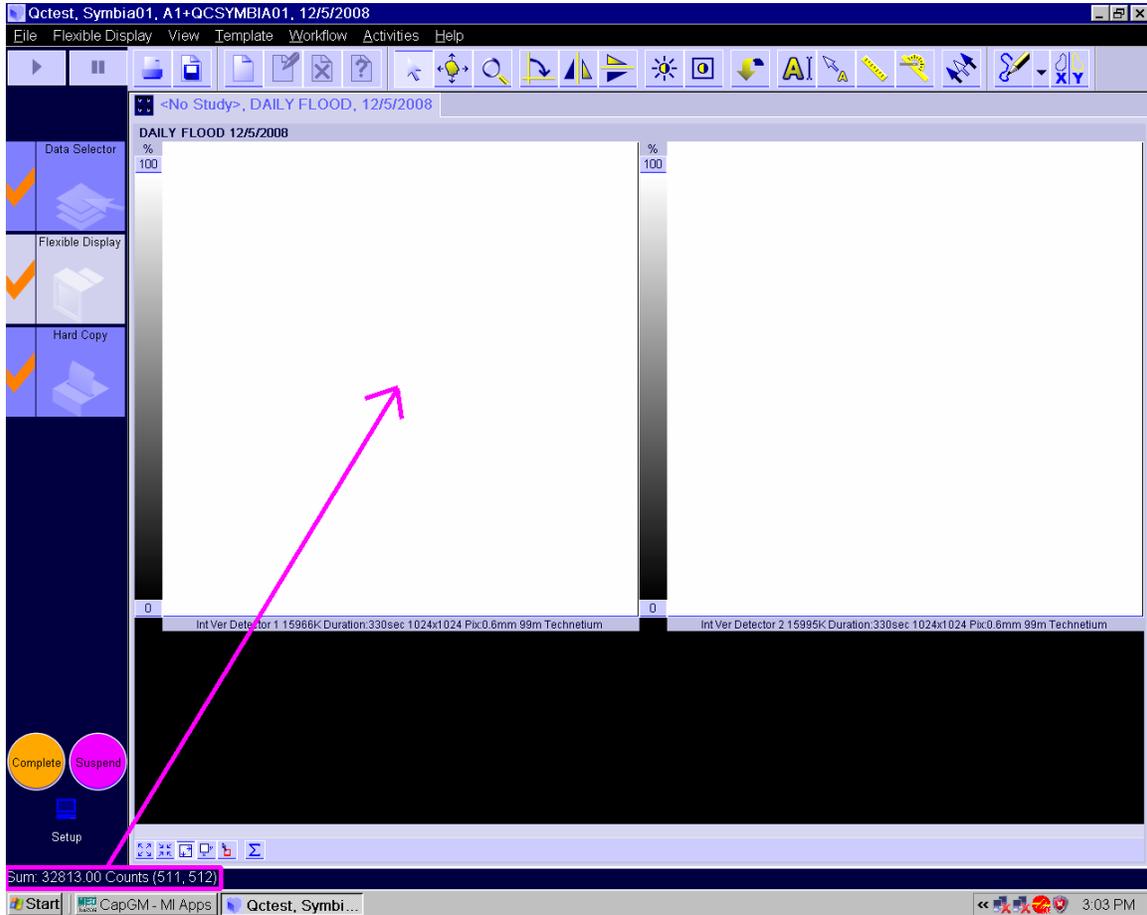
EXPLANATION: Be advised that scenario can happen with any viewing station and any PACS.

To explain, I will use the sample Nuclear Medicine QC image shown below. When this image is displayed on any viewing station, each pixel in the image has between 0 and 62 counts. For example, the pixel at location 511, 512 has 26 counts (see below). The maximum count for any pixel in a Nuclear Medicine image is stored in DICOM tag [0028,0107]. For the below image, that DICOM tag contains a value of 62.



After the above image was transferred to PACS and then retrieved, each pixel shows between 32769 and 32851 counts, even though the aforementioned DICOM tag is unchanged. In other words, even though DICOM tag [0028,0107] contains a value of 62 for the retrieved image, the images are displayed as though all the pixels have greater than 32,769 counts.

For example, in the retrieved image, the pixel at location 511, 512 has 32,813 counts (see below) compared to only 26 counts in the image sent to PACS. Somehow an approximate +32k offset has occurred on each pixel in the image retrieved from PACS. That answers why the image displays completely in white, but does not explain why this occurred.



A side by side comparison of the DICOM tags (using DICOM Dumper) for each image is shown below. The image sent to PACS is shown on the left, while the image retrieved from PACS is displayed on the right. You'll notice the image sent to PACS was not compressed; there is no DICOM tag [0028, 2110] in that file. Conversely, the image retrieved from PACS underwent Lossy Image Compression.

By viewing the DICOM tags, it is clear that the PACS is not returning the identical image it was sent; instead, it is returning a compressed version of the original image. And in this case, the viewing workstation does not support that compression. To resolve this issue, the PACS must decompress the image prior to sending it.

