



Figure 1. A schematic of development of the beam database and MU verification program

**Used factors**

| TMR           | Sc    | Sp      | SADP          | Sp_correction |
|---------------|-------|---------|---------------|---------------|
| 0.802         | 1.027 | 1.015   | 1.03          | 0.999         |
| ISRF(ext SSD) | WF    | WHF     | EDWF          | TF            |
| 1             | 0.764 | 1.012   | 1             | 0.979         |
| OAR           | W_OAR | EDW_OAR | Inhomogeneity | Double MU     |
| 1             | 1     | 1       | 1.047         | 153.481       |

Figure 2. MU calculator for TPS verification is coded with Excel Visual Basic Application that can utilize graphic user interface (GUI).

| 6MV X-Ray Percentage Depth Dose (PDD) |                       |       |       |       |              |            |       |       |
|---------------------------------------|-----------------------|-------|-------|-------|--------------|------------|-------|-------|
| # Machine                             | 21Ex 6MV              |       |       |       | # Setup      | SSD=100 cm |       |       |
| # Energy                              | 6                     |       |       |       | # Depth      | Various    |       |       |
| # Source                              | Measured data in SNUH |       |       |       | # Field Size | Various    |       |       |
| # Date                                | 2006-12-01            |       |       |       | # Accessory  | No Acc     |       |       |
| A/P                                   | 0.50                  | 0.75  | 1.00  | 1.625 | 1.50         | 1.75       | 2.00  | 2.25  |
| F.S(cm)                               | 2.0                   | 3.0   | 4.0   | 5.0   | 6.0          | 7.0        | 8.0   | 9.0   |
| Depth(cm)                             |                       |       |       |       |              |            |       |       |
| 0.5                                   | 72.3                  | 73.3  | 76.6  | 77.2  | 77.7         | 78.2       | 79.5  | 80.7  |
| 1.0                                   | 95.8                  | 96.1  | 96.8  | 97.0  | 97.1         | 97.1       | 97.4  | 97.6  |
| 1.5                                   | 100.0                 | 100.0 | 100.0 | 100.0 | 100.0        | 100.0      | 100.0 | 100.0 |
| 2.0                                   | 98.7                  | 99.0  | 99.1  | 99.0  | 99.0         | 98.9       | 98.9  | 98.8  |
| 2.5                                   | 95.7                  | 96.6  | 96.8  | 96.9  | 96.8         | 96.7       | 96.7  | 96.7  |
| 3.0                                   | 93.1                  | 94.1  | 94.2  | 94.4  | 94.6         | 94.7       | 94.7  | 94.7  |
| 3.5                                   | 90.4                  | 91.3  | 91.7  | 92.0  | 92.2         | 92.4       | 92.5  | 92.6  |
| 4.0                                   | 87.4                  | 88.6  | 89.3  | 89.7  | 90.0         | 90.3       | 90.4  | 90.6  |
| 4.5                                   | 84.9                  | 86.0  | 86.7  | 87.2  | 87.6         | 88.0       | 88.2  | 88.3  |
| 5.0                                   | 82.1                  | 83.4  | 84.0  | 84.8  | 85.2         | 85.6       | 85.8  | 86.1  |
| 5.5                                   | 79.3                  | 80.8  | 81.6  | 82.2  | 82.8         | 83.3       | 83.6  | 83.9  |
| 6.0                                   | 77.2                  | 78.5  | 79.3  | 79.9  | 80.5         | 81.1       | 81.4  | 81.8  |
| 6.5                                   | 74.4                  | 76.0  | 76.9  | 77.6  | 78.3         | 79.0       | 79.4  | 79.7  |
| 7.0                                   | 72.3                  | 73.7  | 74.7  | 75.6  | 76.3         | 77.0       | 77.4  | 77.7  |

Figure 3. The dosimetry book is formatted in a spread sheet. All cells in the spread sheet are automatically updated according to raw beam data uploaded.

Table 1. Comparison of the calculated WF with the measured WF by using the PDD correction.

|          | 10 cm measured | 1.5 cm calculated | 1.5 cm measured |
|----------|----------------|-------------------|-----------------|
| Wedge15° | 0.790          | 0.783             | 0.780           |
| Wedge30° | 0.645          | 0.635             | 0.630           |
| Wedge45° | 0.505          | 0.492             | 0.487           |
| Wedge60° | 0.427          | 0.413             | 0.410           |