**Laboratory Experiment #13-B**

**PART B: GEOMETRICAL INTEGRITY**

**Procedure:**

Place a small dry bone, such as a phalanx, a coin, and a resolution test template on a 5-inch or 6-inch sponge with one-half of a 10 x 12-inch 400-speed cassette centered under the sponge. Use the technique and distances listed below. Label your exposures with lead markers.

Fixed = 46 kVp

Exposure #1: 40” SID, 2 mAs

Exposure #2: 20” SID, 0.6 mAs

Alternate Techniques

Fixed kVp: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Exposure #1 at 40” SID = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Exposure #2 at 20” SID = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Analysis:**

1. Observe the radiographic images of the bone. Can you visually see which image demonstrates the better sharpness of detail? If so, which?

2. List the greatest number of LP/mm that you can see clearly defined in each resolution template image. Which SID produced the sharpest image?

3. What rue can you make for SID to produce images with maximum geometric sharpness?

4. Accurately measure the coin’s width in mm. Measure the width of each of the recorded coin images. Record these measurements.

5. Calculate the magnification for Films A and B y dividing the real coin width into each image width and record below. Convert these numbers into percentages of magnification by dividing the whole number into the change (numbers after the decimal) and multiplying by 100:

Film A magnification = \_\_\_\_\_\_\_\_\_ x or \_\_\_\_\_\_\_\_\_\_ percent

Film B magnification = \_\_\_\_\_\_\_\_\_ x or \_\_\_\_\_\_\_\_\_\_ percent

6. Compare the magnification factors in #5. As the source-image distance is increased, what happens to the recorded size of the image (increase, decrease, or no effect)?

7. Considering the results of this experiment, what rule can you make for SID in reducing magnification?

8. Compare the shape of the coin images on your films and the real coin shape. Do changes in SID affect shape distortion?