

Photographic Quality Control Testing Using the VARANIDEX Step Wedge

(Based on the method of Dr. George Stirling)



The HARP Act states that daily checks of the photographic quality of film processing are required. Part of this can easily be accomplished using the Varanidex Step Wedge, and following these simple instructions.

First make a Control film at a time when the processor is operating correctly with fresh, stirred chemicals. Then compare this control to test films collected from the same x-ray machine at a regular basis - either each working day, twice weekly or weekly depending on the throughput of your film processor. Record in your Photo QC log book.

- 1) Ensure that the X-ray machine is operating correctly, and that all meters (such as kVp. and mA.) are registering their expected values
- 2) Place a bitewing film on a flat surface. Center the picture on the right side of the **step wedge** card over the film. Bring the x-ray cone down so that it is in contact with, and perpendicular to the step wedge, and centred over it. Expose at a normal posterior bitewing setting.
- 3) Make sure that fresh, well stirred chemicals are in use at the correct temperature and time, then process the bitewing film. The developed film should look something like the picture at the top of this page, showing several levels of gray. Some experimentation may be necessary before growing comfortable with the positioning of the film under the step wedge. **Keep this film as a control to compare with other films collected later using this technique.**
- 4) On a regular basis, depending on the throughput of your film processor, repeat the first two steps **using the same machine**. Compare by eye the density of the film with that of the initial control film. If a change in the density can be detected it is probably due to a change in processing conditions: either exhaustion of processing chemicals, incorrect time or temperature, or a lack of stirring (if these can be ruled out, and if exposure technique and film type remain constant, it would be advisable to seek professional help to determine the cause of the density change).

To satisfy the conditions of the HARP Act regarding photographic Q.C. we recommend that the following be recorded in a photographic QC log:

1. the technique used in step 2 for normal posterior bitewing measurements (i.e.: kVp, mA, exposure time and x-ray machine used), and the date that new control films and regular step wedge testing are done.
2. the date that new processing chemicals are used and any service done to processor.
3. the date of any tests which showed unsatisfactory results, and what action was taken.
4. the daily temperature of your developer chemicals using a **manual thermometer** (specified by the Ministry)

An annual page size calendar can be used as a convenient photo QC log book.