

Digital X-ray Conversion Qualification Questions

GENERAL ACCOUNT AND APPLICATION QUESTIONS:

1. What type of parts do you produce?
2. What is the final use of the parts you produce?
3. Are you currently performing any NDT inspections on these parts?
4. Is this testing performed in-house, or via an outside testing company?
5. Are you currently using radiography to inspect these parts?
6. Analog film radiography, real-time radioscopy or digital X-ray (CR/DR, etc)?
7. Have you ever used or seen digital X-ray previously?
8. If so, when/where did you see the digital equipment and who demonstrated it to you?
9. Do you have any sister facilities or market competitors already implementing a digital X-ray program? If so, get all the details.
10. What type of defects or information are you trying to obtain with industrial radiography?
11. If using X-ray, what is the kV energy range?
12. If using a gamma source, what isotope(s) are currently being used?
13. What is the typical high-end and low-end Curie strength of your sources?
14. How many X-ray cabinets or vaults do you currently operate?
15. What is the approximate size of each exposure cabinet/vault and what brand/kV X-ray unit is included in each exposure cabinet/vault?
16. How many different types of samples are being inspected on a regular basis?
17. What is the min/max length, the min/max width and min/max depth? (minimum-to-maximum volumetric part envelope)
18. What material is the test sample?
19. What is the minimum and maximum cross-sectional thickness of the test samples (amount of solid material to be penetrated by the radiation source)?
20. What type [brand(s)/speed(s)] of radiographic film are you currently using?
21. Are you performing any double or triple film loads?
22. If so, what percentage of exposures are multiple film loads?
23. What sizes of radiographic film are you using?
24. Is one film size most commonly used?
25. How much money are you spending on film per month (or year)?
26. Are you inspecting 100% of the sample, or are their Regions-of-Interest (ROIs) that are the focus?
27. If you are only inspecting ROIs, how many ROIs per test samples (on average)?
28. How many exposures are required for each test sample?
29. What is the average exposure time?
30. What is the average or most common, Film-Focal Distance (FFD)?
31. What is the required image quality? 2-1T? 2-2T? Etc.
32. Do you work to a particular inspection standard? ASME? ASTM? Industry prime approval?
33. If shooting pipe welds, are 0/90° or 0/60/120° exposures required?

34. Is the part shot in contact with the film?
35. Is the film curved, or does it remain flat?
36. Are Pb intensifying screens currently used?
37. If so, in both front and back?
38. What is the thickness of each Pb intensifying screen?
39. Is any X-ray exit port filtration used?
40. If so, what is the material and thickness of this filter?
41. How many days per week do you perform inspections?
42. How many shifts per day?
43. How many working hours per shift?
44. Are multiple parts imaged on a single piece of film? If so, how many on average?
45. How many parts can be inspected, analyzed and dispositioned in an average hour?
46. How long does it currently take to determine the disposition of a part?
(NOTE: This should include part/film loading, X-ray exposure, part/film unloading, film processing time and reading time.)
47. What is your estimated timeline on the implementation of digital X-ray?
48. Have company funds been allocated for a digital X-ray procurement, or is a budgetary proposal required at this time?

Qualification Customer Questions – General Scope

General Account Knowledge:

- What type of parts are produced and what is the final use of these parts?
- Are you currently performing NDT inspections on these parts

Film & Techniques:

- Approximately how much film do you use a month / year?
- What type of film (manufacturer and film types)?
- What sizes of film do you use?
- Do you ever have to cut your film (unique sizes)?
- What are your typical exposure times?
- What percentage of your shots are flat vs. the need to bend the film?
- If there are shots that require bending the film, could those shots be converted to flat shots (with a change in the technique)?
- What percentage of your film is used for In-process (information only) vs. Final?
- Do you have any shots that are double or triple loaded?

Energy & X-ray Cabinets/Cells:

- How many different x-ray cabinets do you utilize?
- If more than one, why?
 - Do you use certain cabinets for just In-process and the other(s) for Final?
 - If your throughput could increase dramatically, could you consolidate two or more of the cabinets into one inspection line?
- What energy range do you expose your parts? What is the highest kV used per cell?
- How many shifts do you perform radiography?

Archiving & Data Management:

- Do you have to archive any of your film?
- How much / what percentage of the total amount of film is archived?
- How long do you have to keep it (archived)?
- How often do you need to access the archived images?
- Do your customers ever have the need to review any of the archived information?
- How many different customers require you to archive their film?
- Who all typically looks at the film (does engineering, etc. ever need to access it)?
- What type of information (paperwork) do you archive with the film?
- Where do you store your film?
- How do you dispose of film that is past the required archived date?

The Prospect's Customers:

- How many different customers require you to x-ray their parts?
- Who are some of your major customers? Image quality requirements?
- If you decided to switch from film to digital, do you think that your customers would approve digital? Why or why not?

Other:

- Has your company looked at any other digital equipment?
 - If so, what did you like and/or dislike about it?

- Does your company typically purchase capital equipment or do they ever lease?
- Other than yourself, who else would you see getting involved with this type of purchase (Quality Control Manager, President, Area Manager, etc.)?
- How's your business look this year (decreasing, increasing, any new projects, etc.)?

