**How does Digital Radiography differ from Film Radiography in NDT use?**

**Introduction: Pacific NDT** is a leading provider of innovative **digital radiography (DR) solutions** designed for **Non-Destructive Testing (NDT)** and **security applications**. Founded in 2016 and headquartered in Seattle, Washington, the company specializes in cutting-edge, portable X-ray systems that deliver high-resolution imaging with minimal radiation exposure. Serving customers in over 24 countries, Pacific NDT focuses on enhancing efficiency, safety, and precision in industries like **oil & gas, aerospace, power generation, and infrastructure**. With a strong commitment to innovation and customer satisfaction, Pacific NDT continues to redefine industry standards with its advanced technologies and rugged designs tailored for challenging environments.
Website: www.pacificndt.com

**What is Digital Radiography?**

**Digital Radiography (DR)** is a cutting-edge imaging technology used in **Non-Destructive Testing (NDT)** to inspect materials, components, and structures without causing damage. It works by using X-rays or gamma rays to penetrate an object, with the radiation passing through captured by a digital detector. The detector

converts the transmitted radiation into high-resolution digital images, which can be analyzed instantly for defects like cracks, corrosion, or voids. Unlike traditional film radiography, DR offers faster image acquisition, enhanced contrast sensitivity, and advanced tools for real-time analysis, making it an efficient and eco-friendly solution for industries like **oil & gas, aerospace, and manufacturing**.

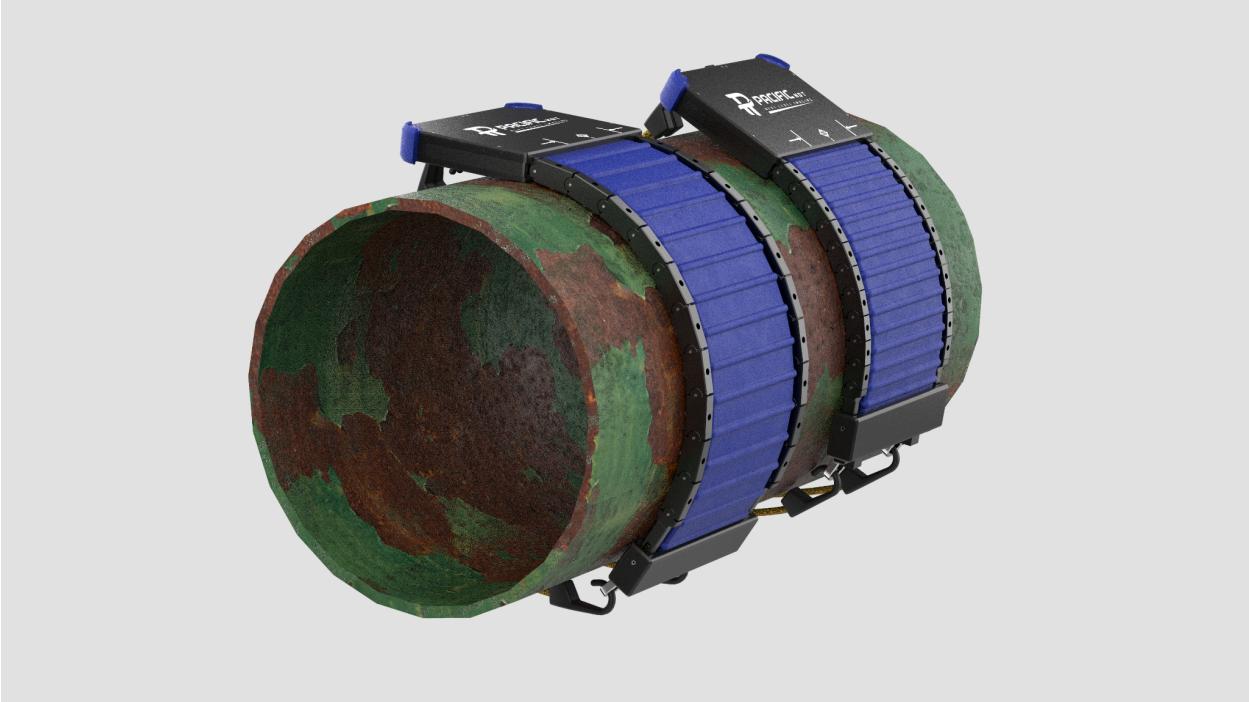
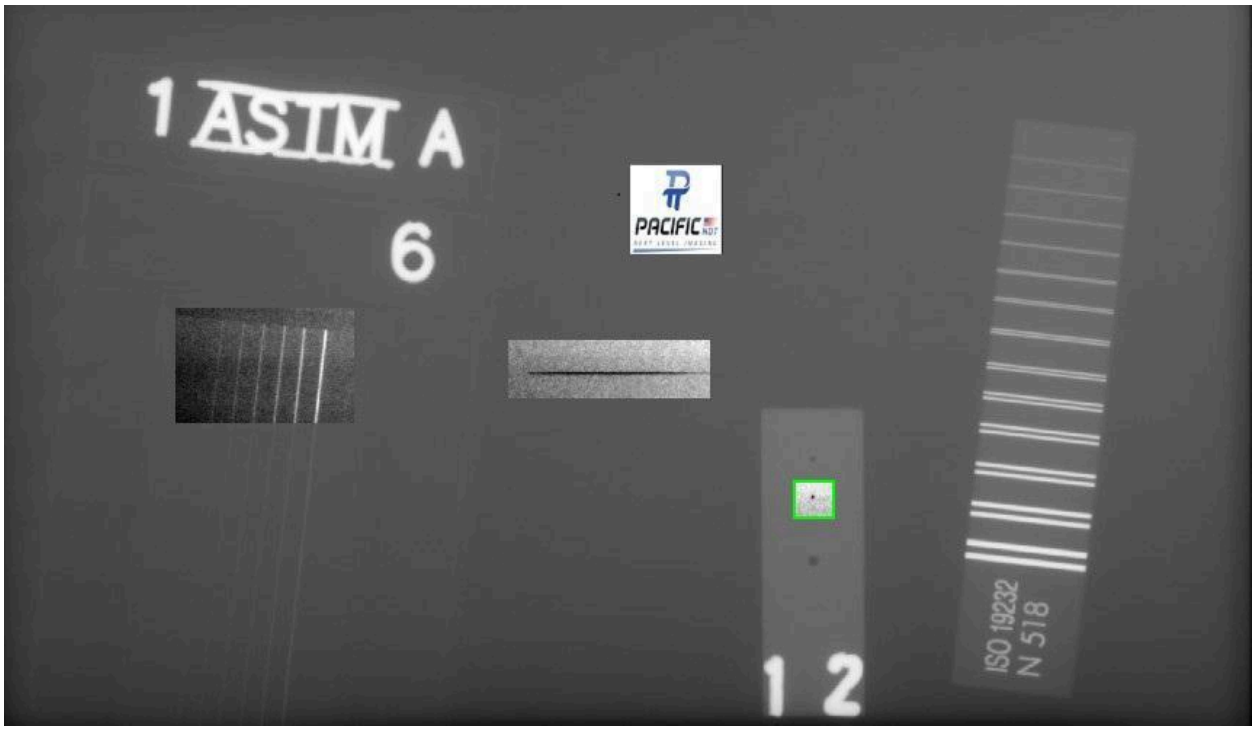


**Figure 1:** Image shows Pacific NDT's bendable/Flexible Digital Radiography Solutions mounted on a curved pipe. Product Link: https://pacificndt.com/solutions/pix-410c/

**How does film radiography differ from digital radiography in NDT?**

Film radiography uses physical film to capture and display images, requiring chemical processing and longer development times, whereas digital radiography utilizes digital detectors to produce instant, high-resolution images that can be analyzed, stored, and shared electronically, making it faster, more efficient, and environmentally friendly.

Here is a quote from one of our customers that switched from Film to Digital Radiography: “ we reduced our exposure time from 6 minutes down to 36 seconds by switching to DR for a 0.96” nominal double wall thickness & exceeded the hole type designation and wire type essential wire per Table T-276 according to ASME BPVC DDA mage quality requirements. “




**Benefits of Digital Radiography (DR) vs. Film Radiography for NDT Use**

| Feature | Digital Radiography (DR) | Film Radiography |
|---|---|---|
| **Image Quality** | High resolution with adjustable contrast and dynamic range. | Fixed resolution; contrast is dependent on film type. |
| **Speed** | Instant image acquisition and review. | Time-consuming film development process. |

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| **Environmental Impact** | Eco-friendly; no chemical waste generated. | Requires chemical processing, generating hazardous waste. |
| **Cost Efficiency** | Lower long-term costs (no consumables like film or chemicals). | Higher ongoing costs for film, chemicals, and storage. |
| **Workflow Efficiency** | Digital storage and quick sharing via cloud or network. | Manual handling and physical storage required. |
| **Defect Analysis** | Advanced tools like Assisted Defect Recognition (ADR) and SNR analysis. | Requires manual defect interpretation; less precise. |
| **Dynamic Range** | Wide dynamic range; can capture multiple thicknesses in one shot. | Limited dynamic range; often requires multiple exposures. |
| **Real-Time Feedback** | Immediate results for on-site decision-making. | Requires off-site film development and review. |
| **Portability** | Lightweight, portable systems for field use. | Bulky equipment; additional storage needed for film. |
| **Data Management** | Digital archiving with metadata and search functionality. | Manual storage prone to damage and misplacement. |
| **Radiation Dose** | Lower dose required due to high detector sensitivity. | Higher radiation dose needed to expose film properly. |
| **Regulatory Compliance** | Meets modern standards like ASME BPVC Section V and ISO 17636-2. | Requires frequent recalibration and compliance checks. |
| **Maintenance** | Minimal maintenance required for digital systems. | Ongoing maintenance for film processing equipment. |
| **Reusability** | Images can be enhanced or reprocessed digitally. | Film cannot be reused or enhanced once developed. |
| **Training Requirements** | Intuitive software reduces the learning curve for operators. | Requires extensive training for film handling and interpretation. |

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| **Global Accessibility** | Enables instant sharing of images with global teams. | Physical transport of film is time-consuming. |

**Figure 2:** Image shows Pacific NDT's Flat Panel Digital Radiography Solution mounted on a curved pipe. Product Link: https://pacificndt.com/solutions/ndt-x-ray-machine-pix-pikena/


**Figure 3:** Image shows Pacific NDT's bendable/Flexible Digital Radiography Solution mounted on a curved pipe. Product Link: https://pacificndt.com/solutions/pix-417c/

## Key Takeaways

- **Pacific NDT's Digital Radiography (DR) Solutions**: Offers faster, more efficient workflows, eco-friendliness, and advanced image analysis tools, making it ideal for modern NDT applications.
- **Film Radiography**: Reliable but outdated, with slower processes and higher costs due to consumables and environmental impact.

The transition from **film to digital radiography** enhances inspection efficiency, reduces environmental impact, and aligns with contemporary NDT standards.