The Unspoken Consequences of NDT

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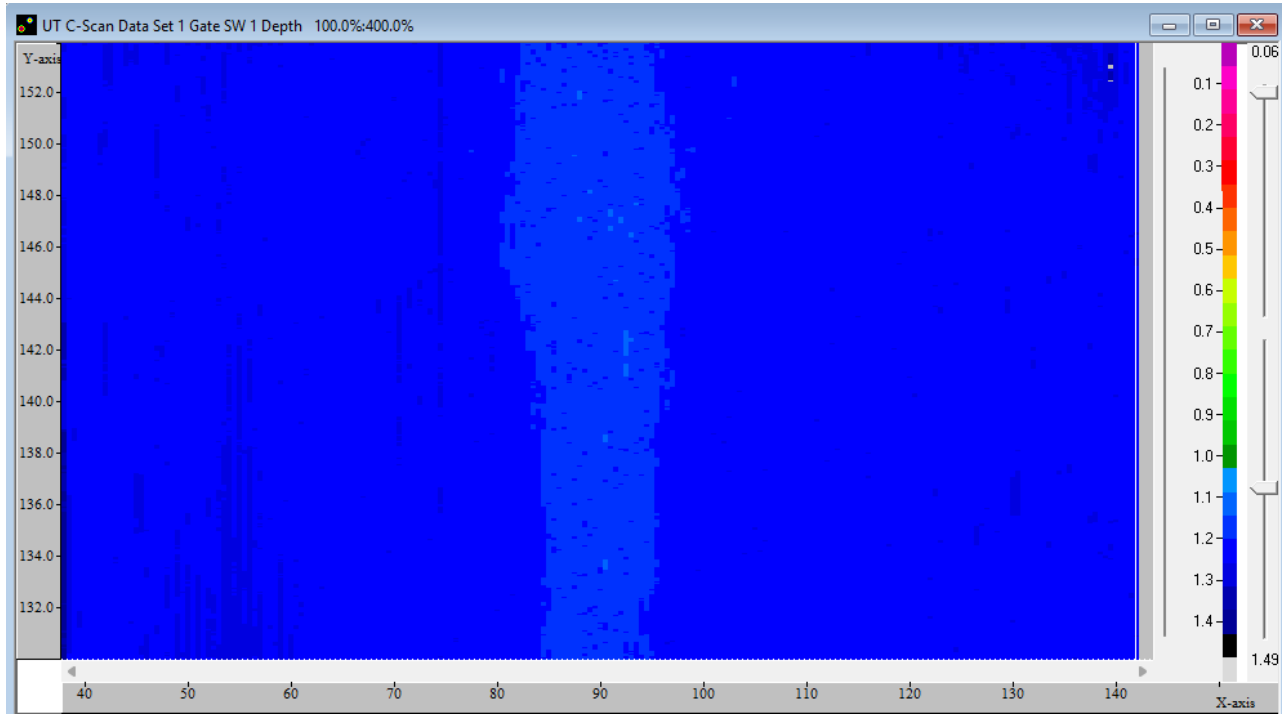
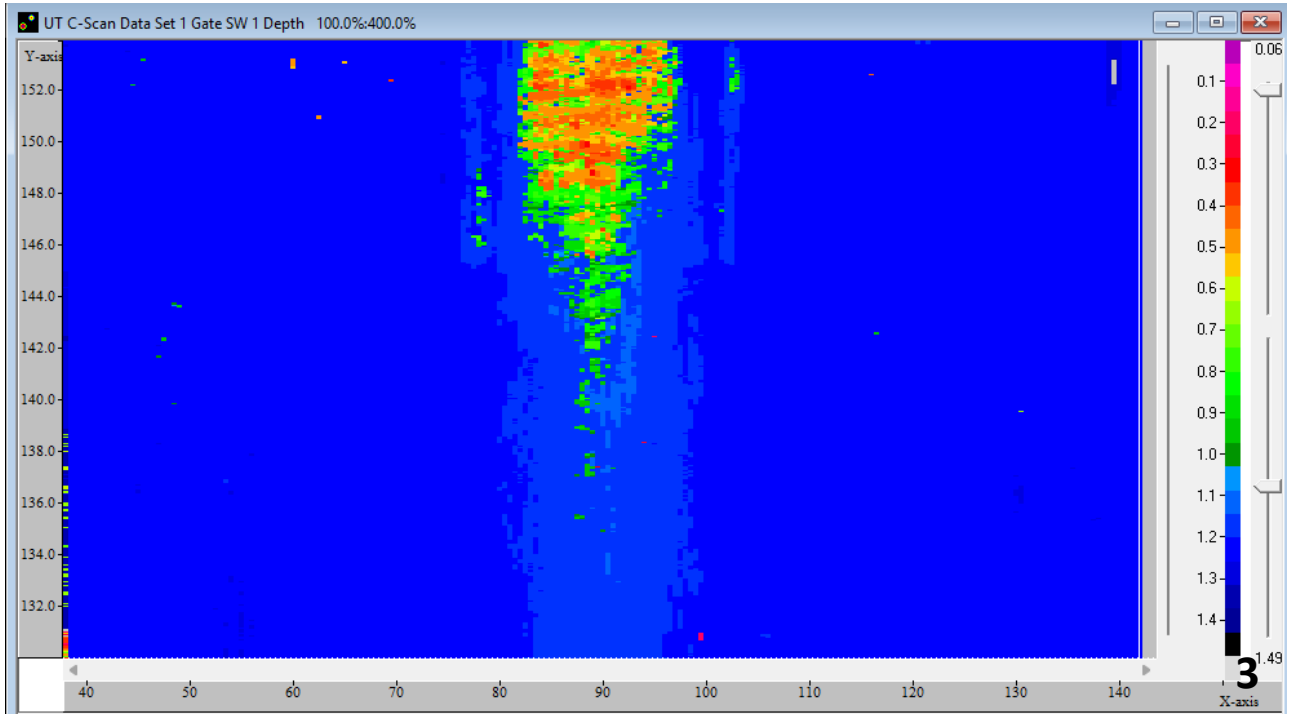
Things to think about….?

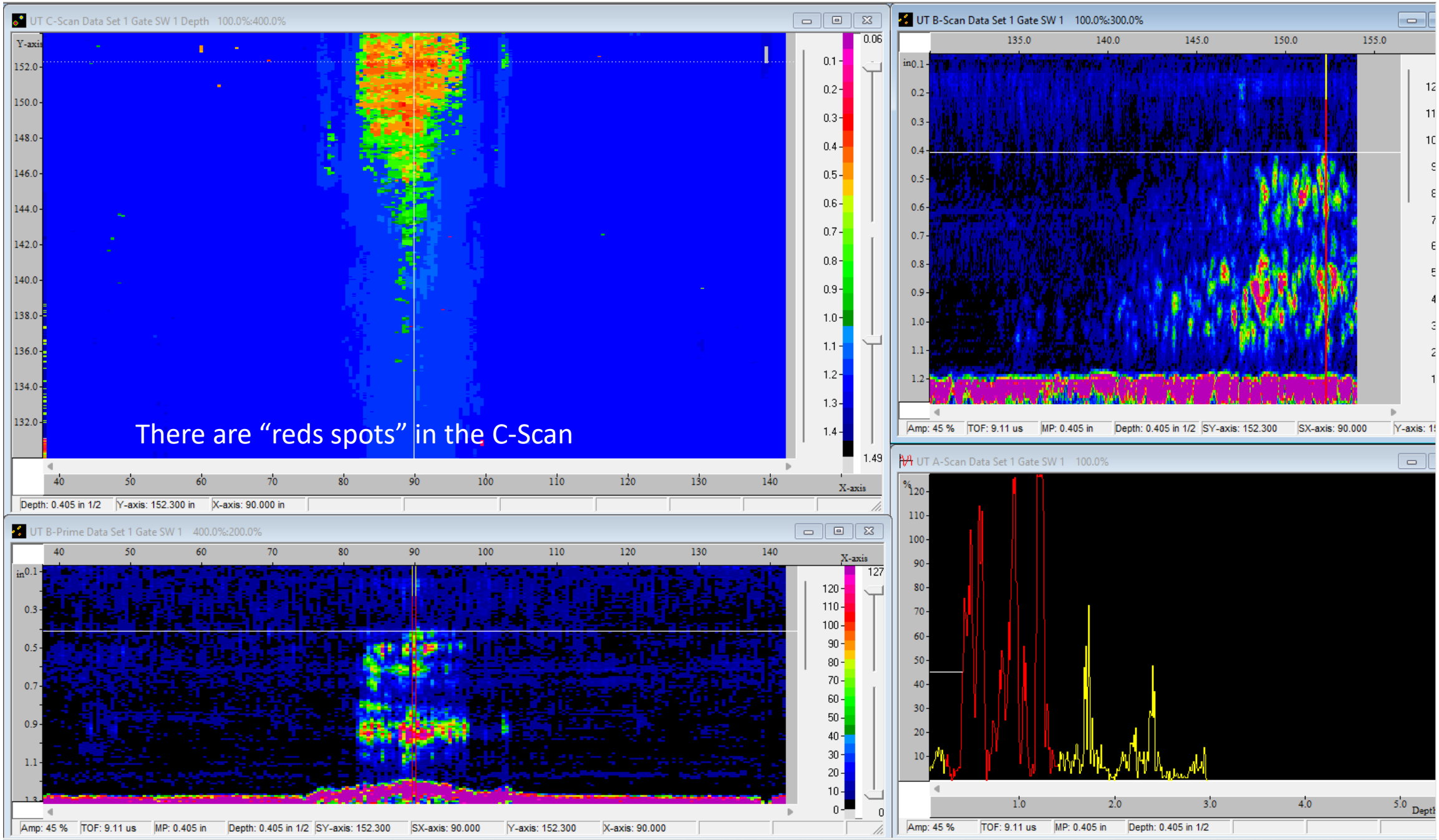
- NDT and NDT performance have a direct impact to SAFETY…
  - Ethics – or lack there of!
  - Learnings from lawsuits
  - Certification vs Competency

Quality Moment - The horrors of NDT

[How not to do nondestructive testing - a cautionary tale]






UT C-Scan Data Set 1 Gate SW 1 Depth 100.0%:400.0%
There are “reds spots” in the C-Scan
UT B-Scan Data Set 1 Gate SW 1 100.0%:300.0%
UT B-Prime Data Set 1 Gate SW 1 400.0%:200.0%
UT A-Scan Data Set 1 Gate SW 1 100.0%

[Marcus Oil and Chemical Tank Explosion | CSB](#) Start at 1:56

Failure due to improper or ineffective NDT isn't an option

5

First – a Real Safety Moment

Failure due to improper or ineffective NDT is unacceptable

March 23, 2005, the BP Refinery in Texas City, Texas.

Humber Refinery - UK
April - 2001

refinery accident ever investigated by the CSB.

[Updated BP Texas City Animation on the 15th Anniversary of the Explosion] Start at 8:30

The ~~hard~~ Heart Reality

We are all responsible for Quality & Excellence in NDT

- We MUST prioritize (teaching the why) and enforce ETHICS!
- We need to expand on "***skill-based performance***" and performance-based examinations.

Horrors of not getting it Right!

Feds: Violations at Xcel nuke plant

Contractors in Monticello, the report says, didn't follow testing protocol on casks holding nuclear waste.

By DAVID SHAFFER
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Federal investigators have accused two former contract employees for Xcel Energy Inc. of willfully violating procedures and falsifying reports about safety-related tests of casks filled with high-level nuclear waste stored at the Monticello, Minn., nuclear power plant.

The findings released Monday by investigators for the U.S. Nuclear Regulatory Commission (NRC) also allege that Xcel officials did not monitor the work of the contract employees as they placed dye on welds to look for cracks in late 2013. The improper testing was discovered by an NRC inspector who checked videos of the work.

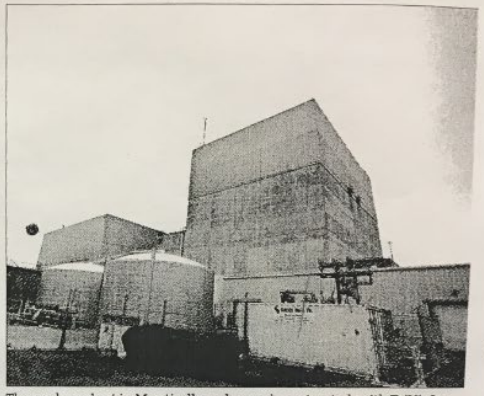
After the problem was discovered, Xcel said, the casks were rechecked before most of them were placed in a concrete bunker outside the reactor building. They could remain on the site for years because no permanent national storage site has been built for such waste.

"We are confident the storage canisters are safe and secure, and the welds are good," Laura McCarten, regional vice president for Minneapolis-based Xcel Energy, said in an interview.

McCarten said the company responsible for the improper testing, TriVis Inc., of Birmingham, Ala., is no longer a contractor for the company, and Xcel has taken steps to ensure that the problem doesn't happen again. TriVis could not be reached because its phone number is no longer in service.

David Lochbaum, who directs

See XCEL on D2 ▸



The nuclear plant in Monticello no longer is contracted with TriVis Inc., the company whose employees reportedly didn't properly test casks.

◂ XCEL from D1

the nuclear safety project for the Union of Concerned Scientists, said oversight of outside contractors "is a continuing problem in the nuclear industry." He agreed with Xcel that the Monticello casks appear to be safe.

"The people living around the plant and the workers are not risking death because of the problem," Lochbaum said.

Even so, the lapse could have significant consequences for Xcel. As the operator of the reactor, Xcel bears responsibility for overseeing outside companies. Scott Northard, vice president of Xcel nuclear fleet operations, said in the future such tests will be monitored in person by Xcel employees to confirm they are done properly.

The NRC's Office of Investigations, which investigated the Monticello incident, sometimes brings criminal cases with the U.S. Justice Department. The findings released Monday are not criminal charges, but they put Xcel on notice that the NRC is considering "escalated enforcement action." Xcel has the right to respond in writing, at a meeting with the NRC or via arbitration.

Northard said NRC officials told the company that Xcel is not accused of willful violations. He said Xcel does not expect to face criminal action. He said NRC officials would not reveal what enforcement action is being considered against TriVis employees.

Both of the unnamed technicians were testing for cracks on welds sealing the lids on six casks that had been filled with highly radioactive spent nuclear fuel rods. Test procedures called for placing dye on the welds for 10 to 15 minutes and then looking for cracks.

But the resident NRC inspector, and later other investigators, discovered from videos that the workers waited for far less time, as little as 23 seconds. Yet both workers falsified forms, reporting they waited 10 minutes, the investigative findings said.

The technicians said they hadn't read the rules or gotten bad information from a supervisor. One worker told investigators that "he was rushing himself because he had heard contractor management complain about employees working too slowly." The NRC said the technicians' supervisor "apparently was not routinely on site and did not review the videotapes."

Xcel's operation of the Monticello plant has been under scrutiny from regulators. In 2014, an NRC official said Xcel needed to improve after inspectors found lapses in the reactor's flood-response plan. Four months ago, the NRC reported a security-related violation at the plant. Northard said Xcel has correct those issues and passed reinspections by the NRC.

Separately, the Minnesota Public Utilities Commission this year largely blamed Xcel's "imprudent management" for cost overruns that drove up the price of a five-year Monticello upgrade from $320 million to $748 million. Xcel has defended the upgrade, saying the 1970s-era reactor was largely rebuilt, extending its life and boosting its output.

John LaForge, director of NukeWatch, a Wisconsin-based group that advocates phasing out nuclear power, said the faulty weld testing should never have happened at a large company like Xcel.

"It is an example of cutting corners," he said. "It is a serious violation of the public trust."

NRC policies say the federal agency "cannot tolerate willful violations" because its regulatory program relies on people "acting with integrity and communicating with candor." In a 2013 investigation, a manager at a New York nuclear power plant was arrested by NRC and Justice Department investigators and later pleaded guilty to deliberate misconduct for falsifying test results of diesel fuel needed for backup generators. The worker got 18 months of probation.

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The Scheme to Defraud

3. Between at least in or about 2020 and in or about 2023, [redacted] TREIBERT a [redacted] VASCONCELLOS, the defendants, were certified by Inspection Company-1 Level II Radiographers, and purported to perform radiographic inspections of many hundreds welds for Utility-1 across at least six pipeline projects throughout New York City and Westches County. After a weld was purportedly radiographed and reviewed by TREIBERT a VASCONCELLOS, an employee of Inspection Company-1 typically emailed the comple radiographic inspection report to Utility-1. In addition, an employee of Inspection Compan would deliver the original radiograph films to Utility-1.

4. During that period, [redacted] TREIBERT and [redacted] VASCONCELLOS, defendants, intentionally created numerous fraudulent radiographic inspection reports a radiograph films, which they caused to be submitted to Utility-1. Specifically, TREIBERT a VASCONCELLOS repeatedly engaged in film duplication, a practice referred to in the n destructive testing industry as "radaring." Radaring involved radiographing the same weld tw and then passing off one copy of films as having come from a second weld, or, alternativ radiographing the same portion of a weld twice and then passing off one copy of films as hav come from another portion of that same weld. For instance, a Level II Radiographer mi radiograph Weld A twice, and then claim that the second set of films are of Weld B, even thou the Level II Radiographer never inspected Weld B.

Radaring Film is a systemic industry problem "Shooting Ringers"

Link to case

dl

Radaring Film – Type 1 (changing Identification)

Comments: View: 9 18

Comparative markers shown (duplicate confirmed)

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

UNITED STATES OF AMERICA

[redacted] INDICTMENT

25 Cr. 383

OUNT ONE
Vire Fraud)

The Grand Jury charges:

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Comments: View: 9 18

Comparative markers shown (duplicate confirmed)

Radaring Film – Type 2 (reversing station markers)

Comments: View: 0 13
Comparative markers shown (duplicate confirmed)

Comments: View: 0 26
Comparative markers shown (duplicate confirmed)

Comments: View: 13 26
Comparative markers shown (duplicate confirmed); markers also included the "weld spatter" or metallic debris observed!

Comments: View: 26 13
Comparative markers shown (duplicate confirmed); markers also included the "weld spatter" observed!

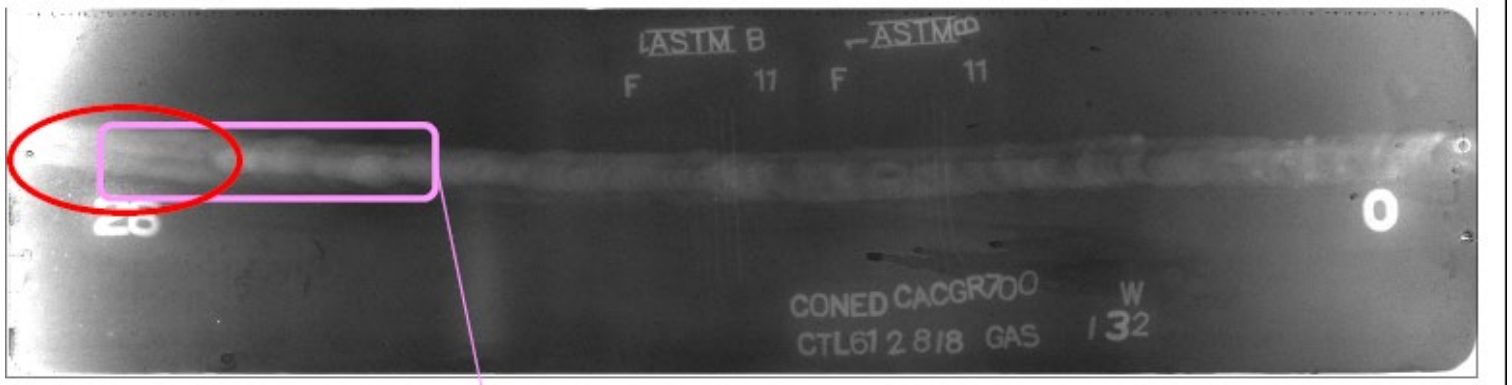
Comments: View: 26 0
Comparative markers shown (duplicate confirmed)

Comments: View: 13 0
Comparative markers shown (duplicate confirmed)

Radaring Film
Type 3

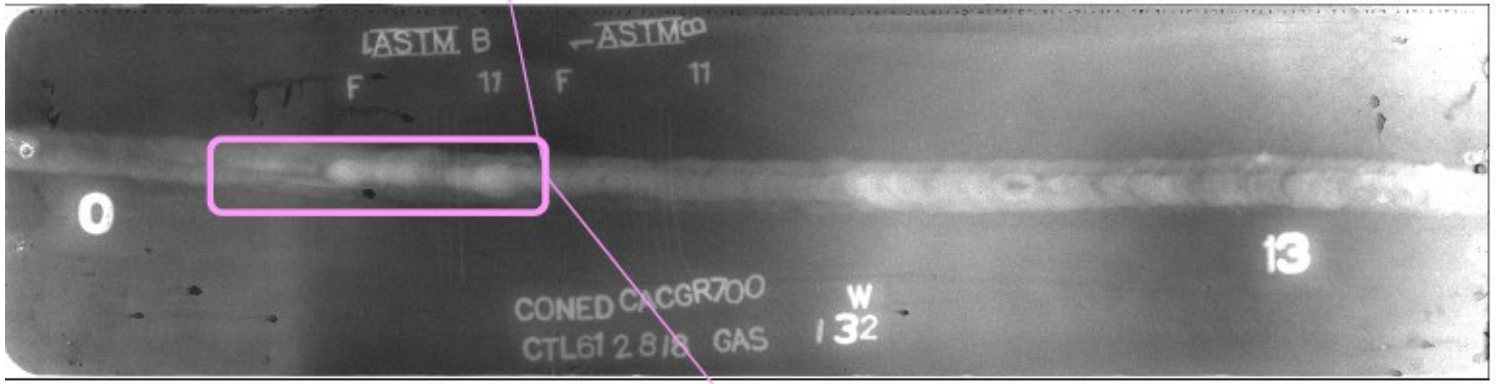
Here an example of shooting the same weld location 3 different times to represent 360° of the weld.

Moving the number belt but not the IQI or ID which they probably taped to the film.



Comments:
Comparative markers shown (duplicate confirmed)

View: 26 | 0



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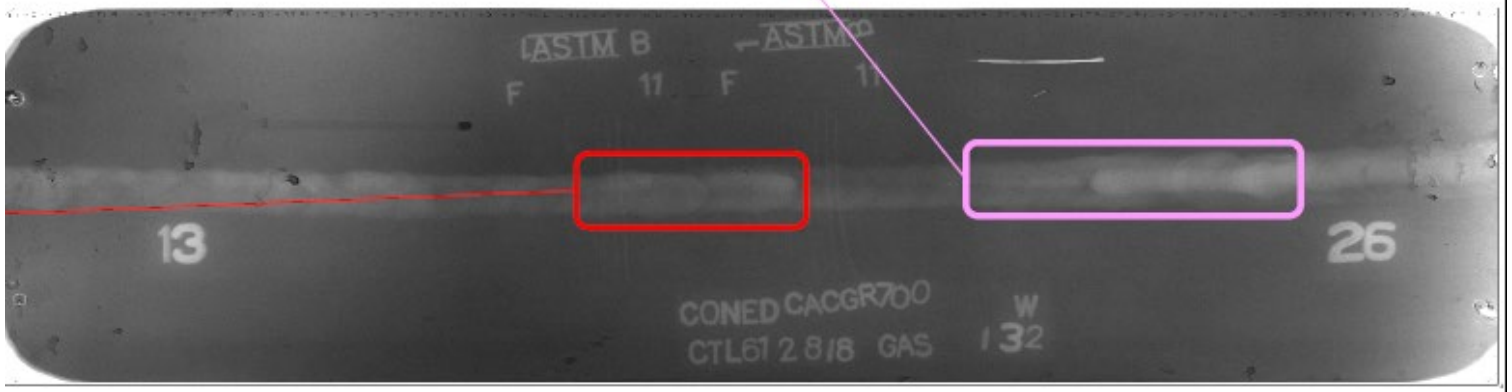
View: 0 | 13



Southern District of New York | Safety Inspectors Charged With Fabricating Hundreds Of Gas Pipeline Test Results Throughout New York City And Westchester | United States Department of Justice

Duplication Confirmed – Software Program

Similarity Results

Test 59-85 - 2026.0072

Result 1/1

Match level
Relevant

Approve

Reject

Notes/Analysis

Confirm images (welds) are duplicates.

Edit

1 FW59_1.tif

2 FW85_1.tif

Duplication Confirmed – Software Program

Learnings from Lawsuits

- Many times, industry never learns of “poor performance”
  - Why?
- Who is culpable; the company who hires or employee
  - OSHA 29CFR 1910; plant manager, ops director, etc.
- I pretty much guarantee a win in lawsuits….why?
  - Paradigm of our flawed certification system
  - Ethos, Pathos and Logos (persuasion) - Nietzsche
- Level III’s trump PhD’s and any/all non-certified, non-credentialed SME’s.
  - Level III’s that have taken “practical exams”
- It’s only going to get worse! Doom & Gloom in eminent

Certification vs. Competency

Certified ≠ Competent — the distinction is critical.

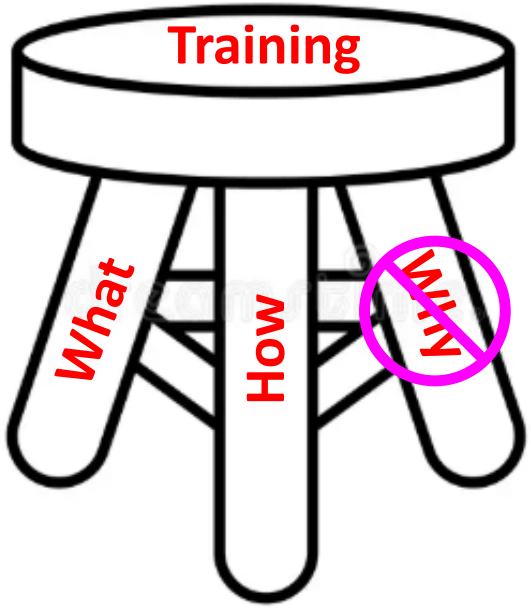
- NDT certifications expire every 3–5 years and demand recertification — unlike industries that allow indefinite renewal.
- Renewal ≠ Recertification
  - Renewal: continuous practice + CEUs to stay current
  - Recertification: should require re-examination

- Competency is deeper than credentials — the ability to perform a specific task effectively.
- True competency requires **K**nowledge, **S**kills, **A**bilities for TASKS; **B**ehaviors, and **A**ttitudes.
- **How do we improve TASK based competency!**

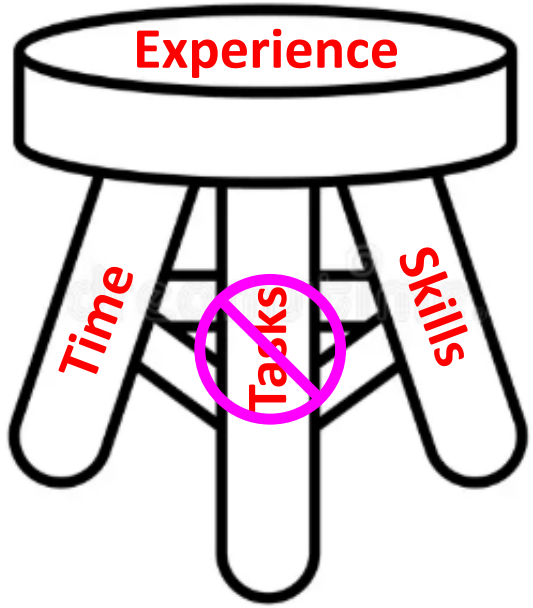
SNT-TC-1a has provision for TPE. "Periodically, as defined in written practice, NDT Level I & II should be reevaluated by the NDT III administering the practical examination"

What are we doing for Digital Modalities???

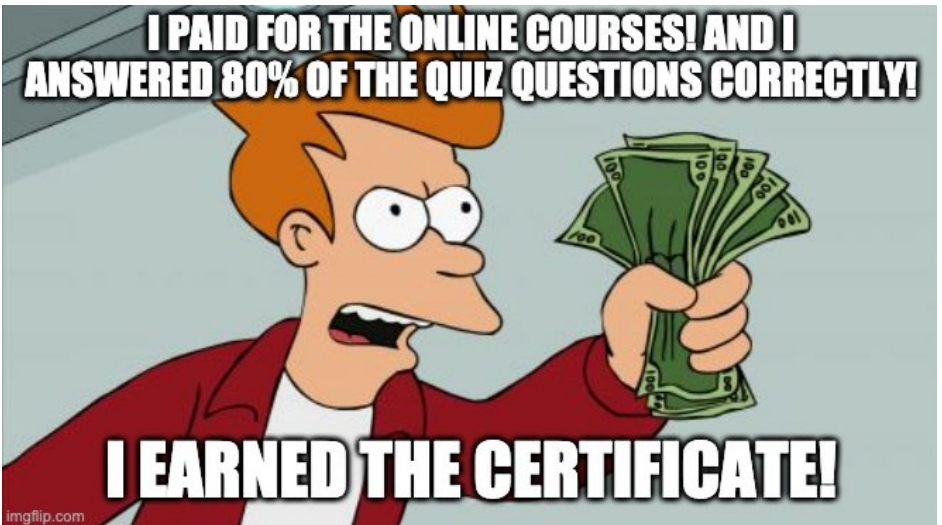
- No spots on the C-Scan!!! Digital data has the highest probability for fraud!
- 2.1 2.2 2.3……..3.1, 3.2, 3.3
  - .1 (data takers only) .2 (data analyst only) .3 (data collection & analyst – unlimited)



The "WHY" and the "TASKS" are becoming the MOST important!



What – Method Theory, Physics, etc.
How – Lab work, application, limitations, etc.
Why – Safety critical, Analysis/Accuracy, Tolerances, etc.



Time – Hours, Days, Months, Years?
Tasks – Broad, limited, focused, specialized?
Skills – Applying, Analysis, Accuracy, Results

The ~~hard~~ Heart Reality

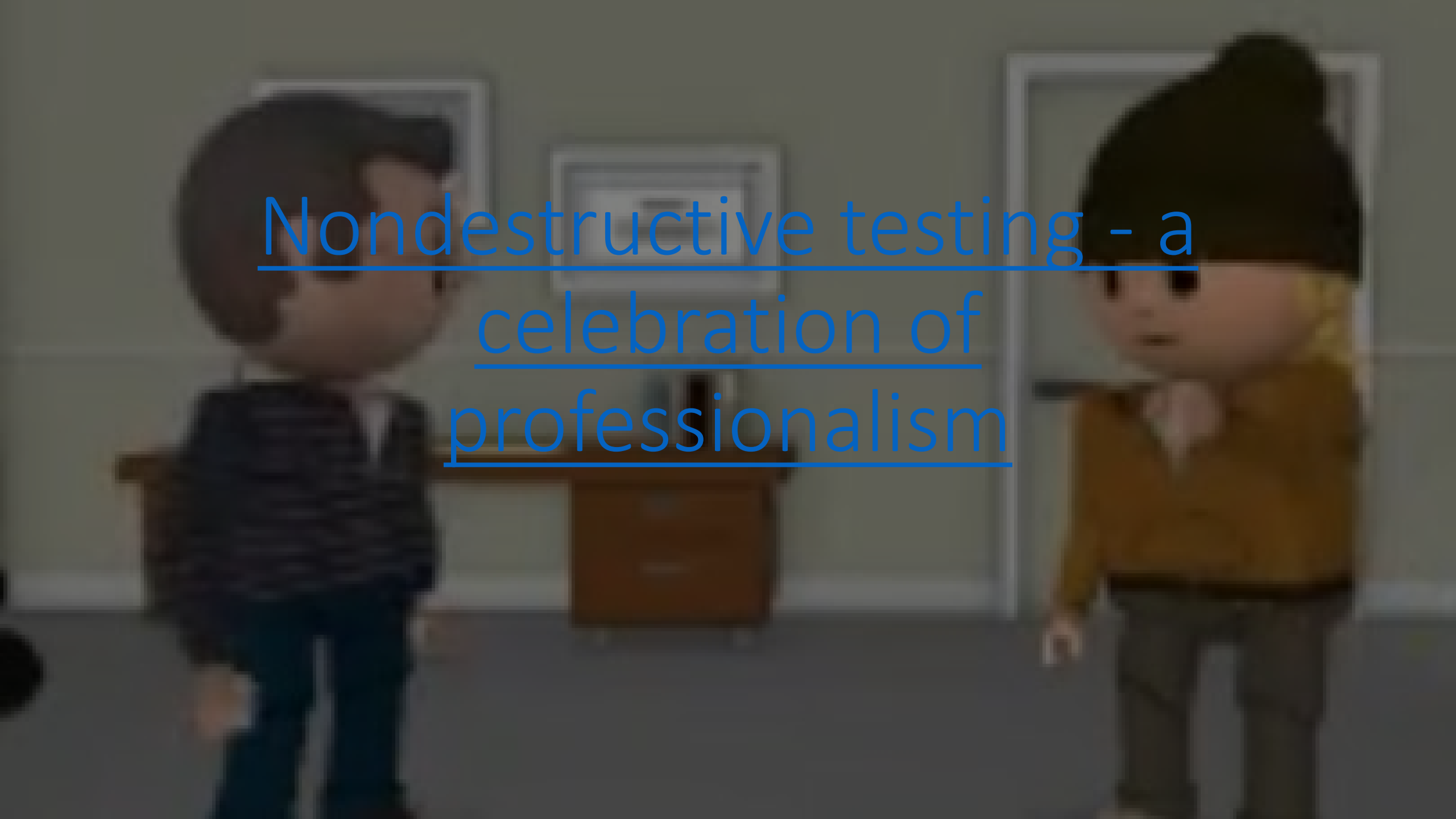
In general, the technicians are set up to fail

- No accountability for code of ethics, enforcement issues?
- Tested only to 70% or 80% however must be 100% in the field
- Often tested to a general procedure – NOT task based or specific!
- We need to migrate towards "task based credentialling"
- Tested under the best conditions but work under lessor conditions.

In general, 50% of Level III's are inept

- Often "Administrative Type" certified; i.e. practical exam frequency?
- Not proficient enough on tools – Level III's need recertification by practical exam!!
- Level III's over-riding Level II's or final authority on results?
- Tested only to 70% (or 80%) however must be 100% in practice.

Blessed are those who act justly, who always do what is right.
PSALM 106:3



Nondestructive testing - a celebration of professionalism