Developing and Administering NDT Practical Level II Examinations

by Rusty G. Waldrop

The nondestructive testing (NDT) industry has a historical reputation for being a standardized technological trade. In the global industrial profession, NDT is performed under regulations that demand integrity and quality. The NDT industrial spectrum ranges from pipelines and railroad to shipbuilding, aviation and countless others. Each industry has its own specifically designed procedures to focus on its specific needs. There are documents that guide the inspection industry in general, which are regulated by standardizing requirements. In the aviation industry there is: ASNT Recommended Practice No. SNT-TC-1A, Air Transport Association ATA-105 and National Aerospace Standard NAS-410 (ASNT, 2011; ATA, 2011; NAS, 2008). This article is concerned with administering a practical examination under the guidelines of NAS-410, which will also meet the requirements of SNT-TC-1A.

When developing a Level II practical examination it is important to understand the proficiency requirements of the certification standard. In the United States Coast Guard (USCG) aviation NDT arena, the certification examination standard is based on NAS-410. NAS-410 states the following for a Level II:

“The candidate shall demonstrate proficiency by inspecting at least two test samples of differing configurations for each method, with at least one test sample for each technique for which certification is sought.”

To understand NAS-410 requirements it is prudent that the administrator have a complete understanding of the method and which techniques within that method are being utilized. Most likely the administrator understands the organization he/she works for and knows the processes that apply. If the administrator is consulting an outside firm to administer an examination, there is some research to accomplish. The exam administrator must become familiar with the common NDT processes of the firm. For example, using an ultrasonic testing (UT) thickness gage to administer a UT thickness measurement technique may not be adequate if the process requires a UT flaw detector with digital measurement capabilities. The exam administrator needs
to be familiar with the inspection requirements and the instrument the firm uses and become proficient in the use of the equipment prior to providing an examination. Theories behind the methods are the same, but the equipment and its functionalities are different from instrument to instrument.

In Coast Guard aviation, inspectors are certified in eddy current testing and use a variety of eddy current techniques. Coast Guard personnel perform a surface eddy current with a frequency range from 200 KHz to 1 MHz using absolute wound coils. The inspectors examine around countersunk fasteners or raised head button fasteners in fuselage skins, evaluating for fatigue cracking. Inspections may be along edges of cast or machined fittings. Coast Guard inspectors are also required to note corrosion for further evaluation by engineering. Other techniques include a fastener hole inspection utilizing a high-speed rotating scanner, conductivity measurements for changes in a material’s temper and even a low frequency eddy current evaluation on multilayer aluminum skins for loss of material (that is, corrosion). This scenario demands four components with known conditions for a proper practical exam.

With each inspection technique there needs to be a directive for the candidate. Not only is the candidate graded for finding the discontinuity or condition but also is tested on the ability to comprehend and communicate these findings in an organized manner. With current technology, reports may be digital so the candidate must be competent at creating electronic reports as well as proper storage and retrieval of reports. These tasks should be a part of the practical examination.

The Level III administrator must maintain a variety of test samples. The Coast Guard has over 100 components that can be used for more than six methods of NDT. This collection was obtained over a 12-year period of diligent communication with aircraft engineering platforms for components. Actual fatigued cracked parts are not easily accessed but with some persistence and negotiations they can be obtained. It may be necessary to purchase or create manufactured discontinuities in test samples. The discontinuities incorporated need to be characterized. This allows the administrator to quickly, efficiently and consistently grade the examination. Building a crack library on aircraft is not easy, for the Level III has to make sure to keep adding discontinuities so when the inspectors return they have a different set of inspections. It is extremely important to have these conditions kept as secured to scrutiny as possible. Parts can also be obtained from the private market with conditions incorporated.

Coast Guard aviation does not just inspect aircraft; it is also required to inspect the ground support equipment (GSE) systems that are used to tow aircraft and lift heavy aircraft engines (see Figure 1). These GSE systems have welded areas that are considered dynamic points with a high probability of cracking. The parts acquired come with printed separate serial numbers and a recommendation of the technique most likely to detect the condition (see Figure 2).

The USCG aviation NDT program has access to aircraft with known discontinuities that have been characterized and recorded and are in an in-service condition for evaluation. This complies with NAS-410 requirements under the adequate training facilities and practical examination requirements paragraphs, which state:

“The practical examination shall consist of a demonstration of proficiency in performing tasks that are typical of those to be accomplished in the performance of the candidate’s duties.”

Notches and other similar conditions have been incorporated or manufactured into a variety of aged static aircraft and aircraft subassemblies. The Coast Guard feels it is important to put the inspector onto an aircraft and in the individual’s normal working conditions to perform a practical examination. If the individual is required to wear safety glasses in the normal hangar routine, then the individual must wear safety glasses when performing the practical examination.
NAS-410 requires a training facility that has a conducive learning environment and is sufficiently equipped. The training facility must have natural and/or artificial anomalies available for the methods of inspection to be conducted. Any items or components that are used in training cannot be used for testing. The aviation NDT business using aging aircraft with multiple natural and artificial conditions is a priceless asset to the Coast Guard community that demands a high level of proficiency and reliability with timely inspections.

As per NAS-410: “The location and severity of flaws in the test sample shall not be apparent to the candidate.”

A known condition must not be noticeable to the naked eye, nor shall the component exhibit indications the part has been modified. Component deception is a parameter used in an attempt to mask an area or component that has been modified. One technique is to ensure the inspection area is large enough so the irregular condition is among a mass of geometrical part distracters. A notch in a fastener hole for UT to detect should be among several fastener holes with the fasteners installed. If the bore is on a structure such as an aircraft wing attachment fitting, the inspector candidate should inspect both sides of the aircraft (see Figure 3). When incorporating such conditions, it is critical the notch does not extend outside the head of the fastener. NDT inspectors are trained to visually look at areas for indicators of a condition prior to the inspection. Recently, a bonded material tester (BMT) inspection process was added to Coast Guard aviation inspectors. To meet this demand, parts must be acquired with incorporated discontinuities. Figure 4 shows a rotorcraft main rotor blade cross-section. Using the BMT instrument with a pitch-catch transducer, the inspectors need to detect skin-to-core separation. Figure 5 shows the same blade before skin-to-core separation was incorporated and after the separation was developed.
This unbonded condition was created using a heat lamp that reached 93 °C (200 °F) on the blade for approximately 30 min. This blade section can be used for BMT inspection or flash thermography infrared training and examination. The examination includes mapping the area of the condition and taking any required measurements.

A main rotor blade can cost tens of thousands of dollars, so obtaining these samples and other aircraft components can be problematic. When the parts are acquired care of the samples is imperative. The repeatability of testing inspections on parts can eventually render a component unusable. To prevent damage or prolong the blade’s life one can cover the surface with clear plastic adhesive matting (see Figure 6). One example of a difficult part sample to maintain is the one used in a fluorescent penetrant examination. These indications are difficult because the entrapped penetrant in the cavity is almost impossible to clean out 100%. The administrator needs to prevent the candidate from applying the ultraviolet lamp to the part prior to penetrant application (see Figure 7). The NDT
program has access to large commercial maintenance training aircraft, with known characterized discontinuities. A jet aircraft that has extensive heat damage for conductivity mapping and assessment is shown in Figure 8. These maintenance training aircraft add a realistic approach to an NDT practical examination.

“The test sample shall be representative of the products to be encountered by the candidate in the performance of his/her duties with the employer.”

To ensure compliance, the Coast Guard has added specific inspections with Coast Guard parts to the practical inspection process (see Figure 9). A practical examination provides a means to ensure proficiency in a standardized format but it also provides a means of ensuring that human developed shortcuts are identified. Maintaining the integrity of industry documents SNT-TC-IA and NAS-410 is crucial to the longevity of the documents. The integrity of the documents ensures a prospective employer that the candidate meets the demands of the industry. To have a certified inspector who is proficient and has integrity, the certification program must also have integrity.

A reliable inspection process demands standardized equipment from training to inspections. The Coast Guard fleet utilizes the same manufactured instrumentation from training, certification practical examinations to fleet inspection and depot level inspections. The instruments and equipment used in the practical examination needs to be updated and maintained properly. When administering the practical examination, the equipment plays a key element in the process. NAS-410 requires a checklist to be used with observations and results noted. Part of the checklist must include the knowledge of the use and care of the equipment and instrumentation.

NAS-410 states: “The checklist shall include proficiency in the use of standardization of equipment and materials.”

To adequately ensure reliability and to build confidence in the inspection program it is prudent to have the candidate for certification choose and assemble the inspection equipment as the individual would at a work site. Probes, transducers and cables should be selected by the candidate, along with the proper standards and any other needed equipment and/or material. Bad probes and cables should be in the mix to determine if the individual can troubleshoot issues on the job site. If the task requires an aluminum alloyed standard the administrator can add into the mix a steel alloyed standard and even titanium material standards. Probes and transducers should have a selection of frequency ranges. Candidates for certification should have it in the routine to use the directive to determine the proper equipment.

NDT practical examinations produce more than just a passing grade. Practical examinations produce an opportunity to identify shortcuts. They produce confidence in the candidate’s abilities to work independently and validate the individual’s NDT thought process. Practical examinations build confidence in the responsible Level III’s ability to develop directives designed around an independent Level II inspector.

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REFERENCES
The CAP system stands for clarity, accuracy and punctuality. These are the three fundamentals in producing a quality nondestructive testing (NDT) report for the customer. It has to be clear so that even those who are unfamiliar with NDT can comprehend its intent. The results must be accurate and leave the reader without doubt that all procedures and instructions were followed in a proper manner. The report needs to be punctual; the results must reach the end user in a timely manner so decisions can be made.

When used together each one of these fundamental principles will make for an effective report. As a professional, your signature at the bottom of the report will reflect your commitment to producing quality workmanship. The report is your canvas. Sign it proudly.

As business consultant John C. Maxwell observed, “You will never change your life until you change something you do daily. The secret of your success is found in your daily routine” (Maxwell, 2012).

Clarity
Your writing is a reflection of your thinking. Clear writing will make you a valuable asset to any team.

One of the best ways to improve your writing skill is to read aloud for 10 minutes a day from writers who write clearly and distinctly. Do not focus on content as much as style. Listen for the drastic contrast between the vague and careless styles often used in daily conversations and the carefully crafted words of great writers.

Always use courteous, dignified and appropriate language without being stuffy. Use specific words and avoid clichés like “all set” or “operationally ready.” Avoid redundant phrases like “assembled together,” “final completion” or “total number.” Some words can actually insult the reader. Cut out the gibberish. Avoid words that appear to say something but do not. These are words that require neither effort nor thought.

Journalists are taught not to “bury the lead.” They put the headline first and do not hide it in the story. The same is true for the reports NDT professionals write. Let the customer know the results in the first few sentences. Let the details of the inspection do the talking. If the report delivers results the customer does not want to hear, wording should be calm and clear. Always remember that the reader cannot read your mind; what is obvious to you may require an explanation to the engineer. Always use a logical and detailed approach when developing content. Once the reader becomes confused or misunderstands the information, the reader can become distracted. A clear and concise report prevents that (Roy, 2013).

Present important information using short words and sentences. The report will be clear and memorable. The series of events taking place during the inspection should be in the proper order. This allows the reader’s mind to easily follow the sequence. Use an active voice where the subject does the action. Keep sentences orderly with subject, verb and then object. For example, write “The weld was cracked” instead of “There was a crack in the weld.” Keep the rule consistent within the report.

The report must also reflect the terminology that the customer uses at his or her facility. A tank at plant A might be called simply the spray dry absorber (or SDA) while at plant B it is the sulphur dioxide atomizer. Avoid using acronyms or slang terms for the parts that are being inspected. Identifying the equipment with the proper nomenclature reinforces your commitment to quality reporting. It also enhances your understanding of the process.

Make reports flow smoothly and thoroughly review them when completed. Try running the report through readability statistics like the Flesch Reading Ease test (Flesch, 1948). A readability score between 60 and 80 allows the reader to stay engaged with the topic (Figure 1).

One important question to ask when reviewing the report is what information does the reader want from the report?
Certainly the reader wants the results of the test, but be aware of the reader. The format may be dictated by the audience and its specific expertise in the parts that were inspected. A design engineer may want more photos and drawings than text. A maintenance manager may derive better information from a graph, while someone in operations may prefer a statistical forecast.

**Accuracy**

A report can only be as good as the work that is being presented. Any discontinuities in the design or in the execution of the inspection that are detailed in the report cannot be corrected or disguised.

Avoid the cumulative effect of errors. The more errors there are in the report the worse it will look and sound to the reader. Each individual error, in your opinion, may not reduce the accuracy by very much. However, these errors may be very evident to the reader. A report peppered with mistakes can cause the reader to stop reading, and he or she may never again read anything with your name or your company's name on it. Poor grammar and sloppy writing contribute to lowering the report's credibility. Conclusions and results will be viewed as weak and inept.

While conducting the inspection, use a reliable system for keeping track of items to include in the report and make reliable and readable notes that help ensure accuracy of the report. Many codes and procedures include checklists, but often the best lists are blended using experience and a consensus from other inspectors.

Part of being accurate is being honest. Avoid using code words or statements such as “It is clear that additional inspections will be required before a complete understanding of this phenomenon occurs.” Tell the customer you do not understand. Instead of saying “Typical results from this inspection and the analysis of the effects show,” rather than commenting on results, it may be productive to present the reader with a colorful graph or images of the condition.

Avoid using subjective adjectives and stick with highly specific words and phrases. Remember that statements of fact will command the customer's attention.

One problem all writers encounter is the reliance on the computer's spellcheck tool. Is it a fillet weld or a filet weld? Both words are acceptable to your laptop. Is that weld 12 inches or pinches? Try to get a second reader to review the text. A good hint is to start at the end and read backwards. This technique makes any small errors scream for repair. To improve accuracy, revisit the report after a time away from it.
When required, be sure to reference the most current procedures and codes that were used in developing the inspection and the report. If the included checklist is from the fourth edition but the fifth edition was published six months ago, your reader may question its accuracy. Besides reviewing current procedures, read old reports. The old report may reinforce the finding of your inspection. But it can also contradict the results. If this occurs, a detailed explanation should be included to defend your analysis and your accuracy.

To improve future reports follow up with the customer to see how effective it was in achieving the objectives and adjust future reports for that company accordingly.

Punctuality
Punctuality simply measures how well you are able to manage your time. If your time is not valuable to you then other people’s time will also not be valuable to you. Late reports disturb the experience of other people and put a strain on your relationship with a customer. It can hurt your career and add more stress to your life. It is usually caused by misperceiving the passage of time or underestimating how long a project will take.

The first step in having on time reports is to begin planning your time. Start at the end and work backwards. If you have three days to complete a written report make your timeline with specific goals that need to be achieved daily. The main focus to on time reports is to work on your own powers of concentration.

Be proactive and manage your time to fulfill your promise to deliver an outstanding report. Give your work the highest priority and learn to say no to other projects, explaining that your report is critical and constrained by a deadline. An honest discussion with your manager or the customer reinforces your professionalism and commitment to the task.

There are a number of ways to improve your time management. First, see what time of day works best for you. Then, schedule as large a block of time as necessary to complete the detailed task. Keep a picture of the project at hand and develop the report around that. Try to finish the report before you start to edit it. Take breaks and quit when you get tired. But quit in the middle of a sentence so that by the next day you can get started without hesitation. Write on a sticky note that you will be completed by a given time and then post that note conspicuously where you and everyone else can see it.

One effective technique for organizing a report is called mind mapping (Figure 2). This is simply a group of words with circles drawn around them. Lines connect groups to one another. Write the main point of the report in the middle of the page and then let the ideas for building the document grow from there. You can use pictures, symbols, words, color and images to take a list of monotonous information and make it into an organized and memorable report. Strive to make the report flow with the brain’s natural way of processing information (Buzan, 1996).

Have a fresh document preformatted with the font, margins, spacing, footers and headers necessary. Develop a typical report layout that can add or delete sections depending on how comprehensive a report is required. The laptop and tablet are great tools for creating faster reports. This technology allows for rapid information transfers and online results.

Ten Simple Rules to Create Great Reports
1. Keep the report short while including all essential information.
2. Remember to value your reader's time.
3. Keep it organized for the convenience of the reader.
4. Avoid clichés, jargon and redundant phrases.
5. Use a great summary that gives a picture in miniature.
6. Check and check again for spelling, grammar, layout and accuracy.
7. Write to improve the reader’s understanding of the content.
8. Keep all references current.
9. Provide results that can stimulate action.
10. Improve your reports with customer feedback.

Why would anyone want to improve his or her report writing skills? Because your managers and customers will recognize that you possess strong analytical skills. It shows a passion for your work, how you present facts, and the results you produce. This skill is what employers are looking for in their company.

Ask yourself what types of inspections and what types of equipment will you be inspecting in the next 20 or 30 years? One can only guess what will be cutting edge and what will be obsolete. The only thing that is certain is that results will need to be presented in a clear, accurate and punctual report.

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Info for Figure 1a was provided by Wikispaces Classrooms; info for Figure 1b was provided by Microsoft Office 2010; and Figure 2 was provided by Shutterstock.com.

REFERENCES


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I have 16 years’ experience working in NDT. How do I upgrade in NDT per ASNT requirements?

To be eligible to sit for the ASNT NDT Level III examinations you must meet one of the following three sets of requirements:

a) Have graduated from a minimum four-year college or university curriculum with a degree in engineering or science, plus one additional year of experience beyond the NDT Level II requirements in NDT in an assignment at least comparable to that of an NDT Level II in the applicable NDT method(s), or:

b) Have completed with passing grades at least two years of engineering or science study at a university, college, or technical school, plus two additional years of experience beyond the NDT Level II requirements in NDT in an assignment at least comparable to that of NDT Level II in the applicable NDT method(s), or:

c) Have four years of experience beyond the NDT Level II requirements in NDT in an assignment at least comparable to that of an NDT Level II in the applicable NDT method(s).

I have highlighted “at least comparable to that of an NDT Level II” because occasionally we get applicants that have been doing NDT for a long time but their company did not require them to be certified though they were performing inspection equivalent to those performed by a Level II. (For example, a company may do in-house testing to satisfy themselves that their product was good even though no customer required it.) If you cannot document that you have performed UT tasks in an assignment at least comparable to that of an NDT Level II, you would not be eligible to sit for the Level III UT exam.

You would also need to document your formal education and the required amount of experience in each test method for whichever of the above you are claiming.

If you do meet the eligibility requirements, you can download the ASNT NDT Level III application online at www.asnt.org/~media/files/certification/ndt-iii/app-liii-2f.ashx. The examination fees are shown on page 2. If your test results will be sent to an address outside of the U.S., then the $40.00 international mailing surcharge (see page 1) will also apply. If you are not an ASNT member, you will need to select the non-member fees on page 2, or you can fill out the ASNT membership application on the last two pages of the exam application, pay the $75.00 initial membership fee and then you can use the member pricing. (The non-member pricing is $75.00 more per examination, so becoming a member will save you $75.00 if you just take the Basic and one Method exam, and you will save an additional $75.00 per exam if you take additional exams.)

ASNT gives examinations both domestically (in the U.S.) and internationally, and the list of scheduled examination locations is online at www.asnt.org/majorsiteSections/certification/exam-schedules. If you are planning to examine at one of the international sites you should contact the sponsoring organization (their links are below the city and state). We also have Authorized Examination Centers (AECs) where you can take your exams at other than regularly scheduled times. The list of AECs is online at www.asnt.org/majorsiteSections/certification/exam%20partners.aspx, and you will want to contact them as they have additional administrative fees above and beyond the ASNT examination fees.

Respectfully,
James W. Houf,
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Darrell Harris has earned all five ACCP Professional Level IIIs (MT, PT, RT, UT and VT), has eight ASNT NDT Level IIIs (MT, PT, RT, UT, VT, LT, ET and MFL), is an AWS Senior CWI, a NACE Coating Level III and holds several API certifications. He was also the first ACCP certificate holder to get PED approval from RW/TÜV (now TÜV Nord) as a Level III in MT, PT, RT and UT. He is an ASNT Fellow, Mentoring Award winner and Lifetime Member. Harris was the Certification Management Council (CMC) chair and CMC director from 2011–2012, until taking a job in Moscow performing oversight on the inspection activities during the construction of an oil pipeline in Russia. Prior to that he worked in Alaska for several inspection groups and is now working with an oil company on the North Slope. He was also on the ASNT Standards Development Committee and several T&E Council committees, and is still active on the SNT-TC-1A Committee.

Q: How did you become involved with NDT?
A: In 1984 I went to school to be a commercial diver. While I was there I took both the commercial diving course and underwater NDT training course. After I got out I worked as a diver for awhile for a couple of different companies and the work was kind of slow. I was told I could make a living without being in the water doing NDT, and I’d never even considered it. I lived in Houston, where there are more inspection companies than probably anyplace in the world. I got a hold of the Yellow Pages and went to work immediately.

Q: What kind of work do you do?
A: I’ve worked up in Alaska for a long time, including positions as an inspection services manager for a pipeline operator, quality manager for a construction company and a manager for an NDT provider. The North Slope is my present work location with a producing company building a facility. I do assessments and reviews of different service contractors, which include inspection or NDT companies. My prior employer in Russia had me manage long lead items for a construction project. For example, the purchasing of a pump unit might include the pouring of a pump casing in Korea, then the pump receives final machining and mounting on a skid with a turbine in Europe, and then the pump may be installed in Russia or Kazakhstan. This process might start six months to a year before the item is needed on the construction site. This responsibility includes oversight of the Korean inspectors doing, say, radiography and ultrasonics of the rough casting – Korea follows more of the SNT-TC-1A curriculum, so it’s very similar to what I’m used to. And this casting gets shipped to someplace in Europe where somebody does machining and additional inspections, mag particle, liquid penetrant, maybe even X-ray or ultrasonics at additional locations. And then it’s shipped from the manufacturer who puts that item together and goes to the site. Once it’s onsite you may have the main contractor that’s running the site – they have NDT and inspection personnel that perform certain inspections – and then you might have a contractor like a typical inspection company we see in the States, doing NDT, so I would potentially be involved in that also.

Q: Describe your working environment.
A: Right now I’m an advisor and I support the project team. I work with people from the different contractors and may also be involved with people who are doing work off site, because their product will eventually be on our site. I do assessments and support best practices.
Q: Do you mainly do oil and pipeline work?
A: Right now, yeah. I started in the oil industry. I worked new construction for refineries, cross-country pipelines and offshore platforms. Then I went and worked for a number of companies that did power plants, including nuclear power plants. I’ve been to about a dozen nuclear power plants around the country. I left Texas and went to the East Coast for a while. After a few years I started an inspection company with another guy for about five years. We did just about everything: bridges, turbine parts, pipelines and power plants – did some work in nuclear power plants. During that time I got into mechanical integrity and there was a big push for it in the oil and chemical industry in ’95, which pushed me back into the chemical and oil industry.

Q: What are some of the main differences you’ve seen doing international oversight?
A: One of the interesting things with international work is the cultural differences, but then there are also different certification schemes. For example, in Russia there were some organizations that were following SNT-TC-1A. They were also starting to move over to ISO 9712, which is a program that hasn’t been widely adopted. The reason I think Russia was going in that direction was to align themselves with EN 473, which is the European standard. They really weren’t considered part of Europe but many European countries are major trading partners.

Q: Does Russia have any internationally recognized certifying bodies?
A: They’ve got a certification body, but it’s very complicated because there are a number of companies that can certify technicians and there’s a wide difference with how some of them operate.

Q: How does that compare to the States?
A: ASNT has a pretty strict program. I think it’s comparable to EN 473: sort of like ASNT NDT Level IIIIs, and now we have a Level II program, and we also have ACCP. Those are comparable, except they use a government agency and ours is a volunteer organization. It’s a little bit different.

Q: Why is it beneficial to certify in so many methods?
A: Over the last few years I’ve been in either a managerial position or the Level III for an organization including responsibilities for auditing or performing assessments of individuals or companies performing work. In Alaska you run into a lot more people that multi-certify because you’re in a remote location and it is expected for many positions. Lots of times you’re asked to do more than you typically would in the lower 48 states. If you’re in other parts of the U.S., there are companies that specialize in certain types of inspections. On the North Slope they have people that are broader based or trained and certified to perform more tasks when they arrive on site.
A: I see that technology is advancing at a very quick pace and I wonder how people in the inspection and NDT industry adapt to these changes. What other challenges have you noticed?

A: I don’t have a degree but it can be very helpful. There are different paths. I don’t know that one’s better than the others but you get back what you put into it. Experience performing the inspections and studying the technology including the newest techniques can take you to challenges or opportunities that may seem impossible to achieve. Many people that have a degree may not consider the kind of work I’ve done over the past years. The travel has been extreme; the hours, especially years ago, were definitely more challenging but that has given me the experiences I use today. Now I’m in a position in my life where I have more say in the way I’m going to work and live.

Q: What is your elevator pitch for somebody considering NDT?

A: There are a lot of great schools in the country and I think you are disadvantaged if you go to the right school. A two-year program is wonderful. I see a lot of people that come through those programs that advance quickly up through the ranks. As a technician you oftentimes have to continue to study, and have a thirst for knowledge. You have to want to learn and continue to learn, because otherwise the industry can kind of pass you by. It’s also a never-ending career, which is kind of cool because I’ve found you can change directions many times throughout your career. There are so many different things you can do.

Q: Have you taken on a mentorship role in your work?

A: Oh yes, definitely. Just today I was working with NDT people and coating people. I’ve got a number of certifications with NACE, which does coating certification and corrosion protection. We’re not doing corrosion assessments on this project because this is a new construction project but we do consider corrosion effects on the items and systems being installed. Russia was the same way with multi-certifications from different organizations. That was of value over there also, to be able to do the inspection of, say, a long lead item like a valve, fitting or pipe and doing NDT and coating or welding of the item.

Q: What can ASNT do more of to assist NDT technicians?

A: When I got involved in ASNT I just wanted to give something back to my industry. I feel like I’ve gotten far more out of it than I’ve ever put into it, because of the knowledge that I gained being involved. The people that I’ve worked with in those committees were always very supportive and helpful, and my relationships with people all over the U.S. and overseas. It’s been a huge advantage for me because if I run into something that I’ve not seen before I know somebody that has.

Q: What challenges have you noticed?

A: I see that technology is advancing at a very quick pace and technicians really need to stay up on top of what they’re doing. The equipment when I first started were knobs and now they’re keypads and you’ve got to know the functions of those keypads, whereas they used to be fairly easy to operate. Now, we’re doing phased array and TOFD and every instrument can be set up differently, just like the difference between a program with your computer: some people use Windows and some people use Apple computers. They can be slightly different and you don’t know where the commands are the way you are used to.

Q: Help to be certified across different organizations?

A: Oh yes, definitely. Just today I was working with NDT people and coating people. I’ve got a number of certifications with NACE, which does coating certification and corrosion protection. We’re not doing corrosion assessments on this project because this is a new construction project but we do consider corrosion effects on the items and systems being installed. Russia was the same way with multi-certifications from different organizations. That was of value over there also, to be able to do the inspection of, say, a long lead item like a valve, fitting or pipe and doing NDT and coating or welding of the item.

Q: What can ASNT do more of to assist NDT technicians?

A: There are a lot of positive things ASNT is doing: trying to elevate the industry to more of a profession and creating the mentor program. Some of the training materials I’ve seen recently are good and I think continuing to help evolve that is a great idea. And then the ASNT Central Certification Program, to where people are considered more of a professional in that they carry the certs with them, I think that’s a positive thing. What can they do more? There are always different areas that we can focus on. Most people still don’t know what NDT is. At ASNT we’ve always tried so hard to communicate it, but even at this point my family doesn’t understand exactly what I do. I think ASNT needs to continue to educate those outside our industry. I think that ASNT is recognized as one of the leaders in the world of NDT and is well respected and the biggest strength is the volunteers that make it unique.

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Word Search Challenge | NDT Overview
Content adapted from the Nondestructive Testing Handbook, third edition

Word List:

ACUITY
ALGORITHM
BORESCOPE
CALIBRATION
COIL
CORROSION
DECIBEL
EMISSIVITY
FERRITE
FLUX
GAUSS

HERTZ
IMPEDEANCE
JOINT
LASER
LUMEN
MAGNETIZATION
NONDESTRUCTIVE
OHM
PERMEABILITY
PIPE
QUALITY
RADIMETRY
RESONANCE
SCAN
SEAM
SPALLING
TRANSUDER
ULTRASONIC
VOLT
WAVE
YOKE

Word Search Solution

Q W P Y S S U A G Z X J D F Y U N L I Z
R E C U D S N A R T L W F T L O F K L L
F E C N A D E P M I T D I R I U E R R U
E M I S S I V I T Y Y U M T E V X G L M
C T N I O J P N E D C H A N I S W M R E
S B O Q N R N I H A T Z M T U I A T R N
N O H E L C M A T I I F C R L W W L X T
O I W P X O Z Y R T H U P E T S A K Y E
I I Q O M I K O E R C C S R B V T T T
T C U C M L G N P T I N F U A G E A I I
A U A S N L G I S L A M Y Z S A A C L R
R T L E A A P E Q N S Y S A O T M H I R
B R I R M R D Z O Y G E S E N L W E B E
I R T O H N L S V L I S A H I O U R A F
L Y Y B O Z E B G D G H A M C V F T E D
A M H N U R O O S P A L L I N G W Z M L
C E G U W Y Y T M N R A D I O M E T R Y
X K N O I S O R R O C G W H E K R Z E Q
R U J T R I U K U A H H S P K J Z N P Y
E W P S C A N U E C L E B I C E D W D S