Radiography

Ultrasonics

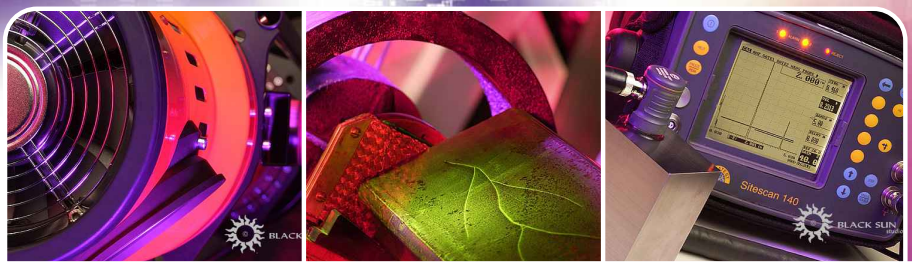
Acoustic Emission

Magnetic Particle

Liquid Penetrant

Visual Examination

Level III Services



NONDESTRUCTIVE TESTING SERVICES

Certified Technicians using the Best Available Technologies

KNDT
nondestructive testing services

RNDT is the ONLY commercial testing and research laboratory in Pennsylvania that has staff ASNT NDT Level III Examiners in UT RT AE MT PT & VT and EN-473 / ISO-9712 Level III Examiners in UT RT MT & PT.

These certifications satisfy global requirements for nondestructive testing personnel including the stringent requirements for the European Pressure Equipment Directive. We also employ ASNT ACCP Professional Level III Examiners in the testing methods of UT RT MT PT & VT, AWS-CWI, OSHA Crane Inspectors and API-510 credentials in addition to multiple NDT Level II certifications.

Common Codes and Standards

This is a partial list. Please call if there is a standard that you need that is not listed.

AAR
M-101, M-107, M-208

ANSI
B31.1, B31.3, B30.2, B30.11, B30.16

AMS
AMS-STD-1595

ASME
Section III, V, VIII, IX

ASTM
A275, A,388, A435, A456, A574, A574M, A577, A578, A745, B509, B510, B513, E114, E164, E165, E213, E446, E587, E588, E709, E797 E1030, E1032, E1208, E1209, E1210, E1219, E1220, E1417, E1418, E1444, F788, F788M, F812, F812M, F835, F835M F912, F912M

AWS
D1.1, D1.2, D1.3, 15.1

BSI
BS EN-1453, BS EN-571-1, BS EN-462.1 & 462-2

MILITARY
MIL-STD-271, T9074-AS-GIB-010/271, MIL-STD-453, MIL-STD-2132, MIL-STD-6866, MIL-STD-1949, NAVSEA-250-1500.1

ISO
ISO 17025, ISO-Z-540-1

OSHA
1910.179

SAE
J426, J122, J123, J420.

Biz Card

RADIOGRAPHY

Radiography involves the use of penetrating X- or gamma radiation to examine parts and products for flaws that could be detrimental to their intended use. An X-ray machine or radioactive isotope is used as a source of radiation. Radiation is directed through a part onto a film or an electronic device (plate). When the film or plate is processed, a negative-like picture is obtained that shows the internal soundness of a part. Possible imperfections show up as density changes in the film, in much the same way an x-ray can show broken bones.

RNDT provides radiographic services in both our laboratory and in the field at customer locations. Our custom built mobile darkroom is easily set up in less than 10 minutes. Our 12' X 12' solid concrete wall exposure room allows for very large parts to be examined. Also, we provide high volume processing of film with a state-of-the-art ecologically friendly automatic processor. Our Level II and Level III radiographers are experienced in many different specialty techniques involving geometrically challenged parts.

Applications

- Castings
- Forgings
- Extrusions
- Electronic components
- All types of welds
- Bridge structures
- Nuclear, fossil, and hydro power generation facilities
- Chemical, pharmaceutical, and petrochemical refineries,
- Oil tankers & tug boats
- Water and petrochemical above ground storage tanks
- Airplane wings and landing gear
- Radar antennae cooling systems
- Valve and pump bodies
- Munitions
- Plastics and Composites
- Machine gun barrels,
- Antiques including: guns, jewelry, and a variety of wood crafted pieces, and statues.

ULTRASONICS

Ultrasonic testing uses the transmission of high frequency sound waves into a material to detect imperfections within the material or changes in material properties. The most commonly used ultrasonic testing technique is pulse echo wherein sound is introduced into the test object and reflections (echos) are returned to a receiver from internal imperfections or from geometrical surfaces of the part.

Our Level II and Level III certified UT technicians work to many codes in many industries. From thickness readings on ASTs to performing full length ultrasonic examinations on 40' long seamless pressure vessels.

Applications

- Castings
- Forgings
- Rounds
- Rolled plate and bar
- Weldments
- Stuctureal steel weldments
- Plastics
- Glass
- Babitt and bronze bearings
- Aircraft wheels
- Erosion/corrosion detection on piping
- Ship and vessel deck plates
- High pressure steam lines
- Storage tanks
- Pressure vessels
- Locomotive wheels
- Railroad rails
- Pistons and crankshafts (few pounds to over one ton)
- Engine blocks up to 16 cylinders
- Amusement rides
- Steering and brake components for automobiles and trucks

Level III Services

RNDT Staff NDT Level III Technicians holding current certificates from the American Society for Nondestructive Testing and RWTUV in the NDT methods of Radiography, Ultrasonics, Acoustic Emission, Liquid Penetrant, Magnetic Particle, and Visual Testing assure that the job gets done right the first time.

Development and/or review of qualification examinations • test and inspection procedures • personnel certification programs and specialized NDT techniques • implementation of inspection programs • Level III representation • on-site and in-house training • contract review • equipment recommendations • auditing

LIQUID PENETRANT

RNDT's professional certified technicians and best available technologies are your complete resource for nondestructive testing.

LIQUID PENETRANT

Liquid Penetrant testing is probably the most widely used NDT method. The test object or material is first cleaned and then coated with a visible or fluorescent dye solution. After a pre-selected time interval (dwell time), the excess dye is removed from the surface, and then a developer is applied. The developer acts like a blotter and draws penetrant out of imperfections which are open to the surface. With visible dyes, the vivid color contrast between the penetrant and the developer makes the "bleedout" easy to see. With fluorescent dyes, an ultraviolet lamp is used to make the "bleedout" fluoresce brightly, thus allowing the imperfection to be seen readily.

With a wide variety of penetrant materials and a custom made fluorescent pentrant inspection system, we can provide both field and lab, high volume processing of many different parts with both fluorescent and visible penetrants.

Applications

- Castings
- Forgings
- Extrusions
- Aerospace components made of many different alloys
- Weldments
- Plastics
- Glass
- Machined parts
- Leak tests
- Paper mill suction pressure rolls
- Retaining bands on generator rotors
- Stellite overlay on steam turbine blades
- Pump and valve bodies and seats
- Non-magnetic impellers for ships and hydro-electric power plants
- Press fit connections

MAGNETIC PARTICLE

Magnetic particle testing is done by inducing a magnetic field in a ferro-magnetic material and dusting the surface with iron particles (either dry or suspended in a liquid). Surface imperfections will allow the magnetic field to leak out of the part, distort the magnetic field and concentrate the iron particles near imperfections, thus indicating their presence.

Magnetic Particle Testing or Magnaflux as it is sometimes called uses magnetic leakage fields to detect surface and subsurface cracks and discontinuities.

Our Magnaflux 6000 amp bench unit with 8' head stock, portable power packs, yokes, prods, black lights and all required accessories provide the foundation for RNDT, Inc. to provide quality MT visible and fluorescent and wet and dry examinations in both the lab and field.

Applications

- Castings, Forgings
- Rounds
- Rolled plate and bar material
- Extrusions
- Boiler de-aerator internal inspections
- Springs, gears, studs, bolts, nuts, and washers
- Weldments and structural steel assemblies
- Paper mill components such as roll gears and dryer roll heads and internal baffles
- Induction fan blade weldments at power plants
- Valve and pump bodies
- High pressure header stub welds
- Vessel domes
- Both seamless and welded pressure vessels
- Blades on high and low pressure steam turbines and diaphragms
- Valve stems
- Locomotive wheels

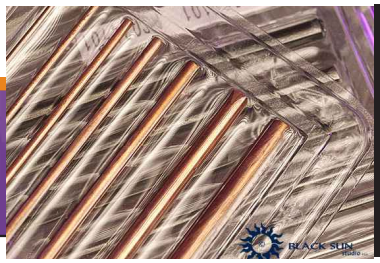
VISUAL

Probably the oldest and most common method of NDT is visual examination, which has numerous industrial and commercial applications. Examiners follow procedures ranging from simple to very complex, some of which involve comparison of workmanship samples with production parts. Visual techniques are used with all other NDT methods.

By use of many different gauges, micrometers, calipers, rulers, magnifying devices, remote video equipment, and surface conditioning equipment, we provide both lab and field visual inspection services.

Applications

- ASME Section III VT on numerous studs, fasteners, and bolts, Castings, forgings,
- Internal and external seamless and welded pressure vessel examinations
- Paper mill roll internals
- Pipelines and piping with remote video
- Jet engine internals



The Technical staff at RNDT, Inc. has been instrumental in bringing Modal AE and 4-way shear wave + thickness re-testing techniques to the compressed gas industry and wrote several federal regulation (49 CFR) exemption requests to the USDOT that have been approved and are currently in use.

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Rolled plate and bar material

Extrusions

Boiler de-aerator internal inspections

Springs, gears, studs, bolts, nuts, and washers

Weldments and structural steel assemblies

Paper mill components such as roll gears and dryer roll heads and internal baffles

Induction fan blade weldments at power plants

Valve and pump bodies

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Valve stems

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ACOUSTIC EMISSION

When a solid material is stressed, imperfections within the material may emit short bursts of energy called "emissions" or “events”. In much the same manner as ultrasonic testing, special receivers (sensors) can detect these acoustic emissions. The source of "emissions" can be evaluated through the study of their strength, frequency, dispersion, and location.

At RNDT, Inc., several conventional and modal AE systems, with the most advanced hardware and software available, provide our acoustic emission Level II and III technicians the tools to offer many production, in-service, and research related examinations. We can handle a variety of specialized AE examinations in both lab and field settings.

Applications

Seamless high pressure gas cylinders

Low pressure welded vessels

Fiberglass reinforced plastic tanks and vessels

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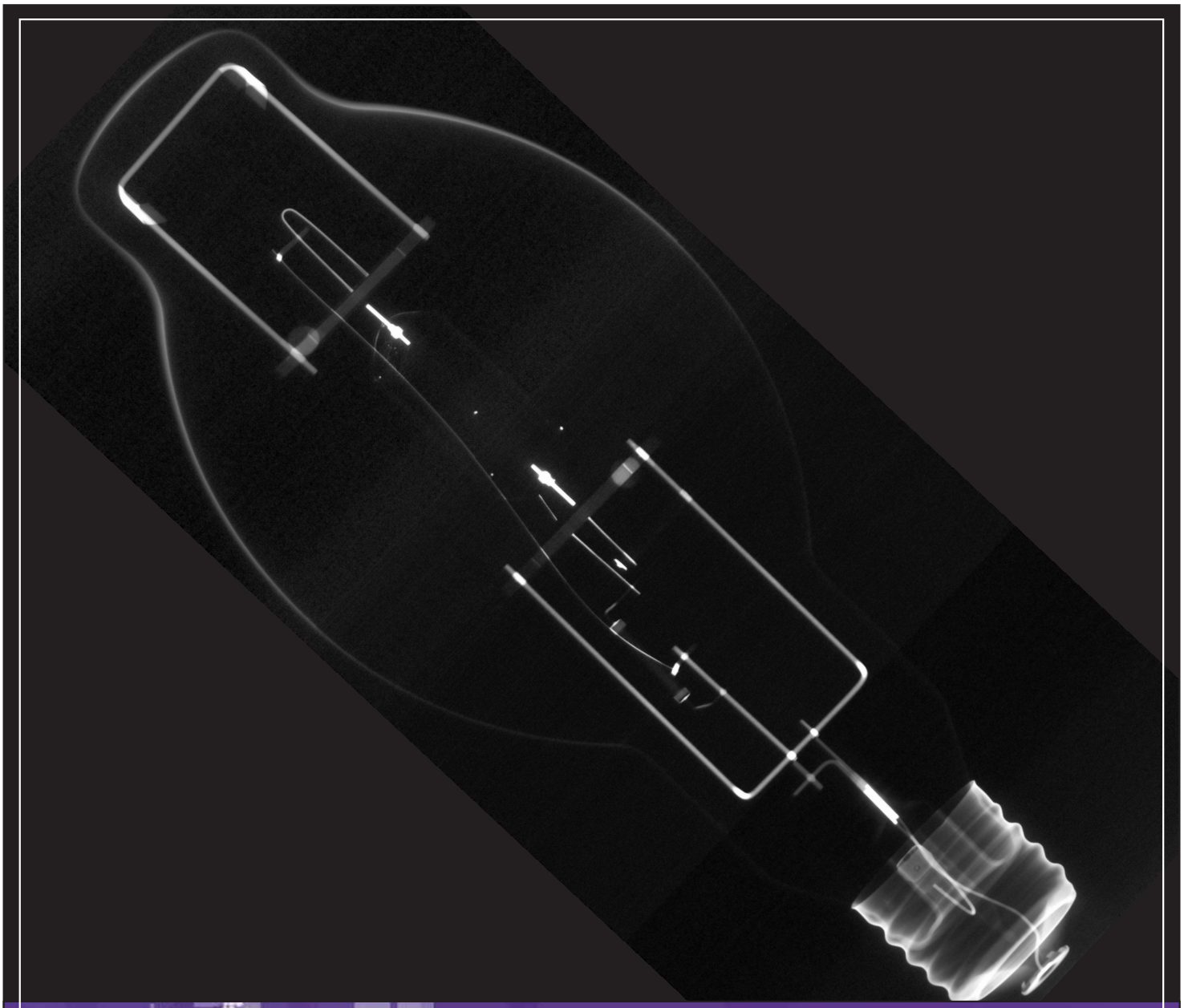
Special Services

RNDT also has several special services to offer such as:

- API 510 pressure vessel assessments
- Administrative and quality system reviews
- Quality assurance and vendor surveillance
- Welder qualifications
- Ultrasonic, welding, and MT equipment calibrations
- Weld procedure development and qualification
- OSHA compliant crane and hoist inspections.



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