SUPER QUALITY SERVICES

Since 1986

TECHNICAL CAPABILITIES

CORPORATE OFFICE

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An ISO 9001:2015 certified company

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“Safety First is Safety Always”

1. FOREWORD

We thank you for your interest for knowing about Super Quality Services. We have extreme pleasure to present our Technical Capabilities, which reflects our efforts and efficiency in the field of Non Destructive Testing, for your perusal.

We fully believe that you will get satisfaction and we assure you that we will be with you for the achievement of Organizational goals.

“Promote Safe and Healthy work Practices”

2. THE COMPANY

Super Quality Services is a leading NDT service provider in India with the presence in industry for over 30 years. We prove our uniqueness through our Equipment strength. Since the past decade, we are the pioneer in providing latest technology NDT service to the Mechanical Industry in India. We focus on Quality, Delivery, Cost and Customer Satisfaction as a regular practice. We are an ISO 9001:2015 certified company.

Super Quality Services, heir to a lofty tradition of NDT technology excellence and with a rich heritage of know how in NDT methods that needs vital importance to growing industrial resurgence.

Super Quality Services, besides having impressive track records also has the latest NDT facilities in Radio graphic Testing, Ultrasonic Testing, Magnetic Particle Testing, Liquid Penetrate Testing, Visual Testing and Heat Treatment services for comprehensive quality assurance.

Safety is everybody's job

3. BUSINESS ACTIVITIES:

3.1 In INDIA
TRICHY: UNIT 1 : MATHUR, UNIT 2 : SIDCO UNIT 3 : VIRALIMALAI UNIT 4 : Machining Division, Mathur UNIT 5 : Machining Division, Viralimalai
Coimbatore UNIT 6 : Coimbatore A UNIT 7 : Coimbatore B
Our NDT Labs at Customer Site: Site 1 : Madurai AAS Unit II Site 2 : Madurai AAS Unit III Site 3 : Coimbatore AVCL Unit VI

3.2 INTERNATIONAL BUSINESS ACTIVITIES:

Indonesia	: PT Super Quality Services
Kingdom of Saudi Arabia	: SQS – Manifa NDT Services

"As Always keep safe and Healthy work environments..!"

4.0 VISION AND MISSION

4.1 - VISION OF SQS

To sustain and provide maximum quality of service to customer and become the leading NDT company in international market thru adopting and updating to the developing trends by 2020.

4.2 - MISSION OF SQS

Never compromising in quality by ensuring the standards and customer requirements. Based on the technology development, upgrading our Men, updating Machine, Material and Process.

"Safety doesn't happens by accident"

5. OUR SERVICES

5.1 Conventional NDT

- **Radiography Testing (Upto 450mm)**
  - Linear Accelerator 9 MeV
  - Betatron 10 MeV
  - Betatron 7.5 MeV
  - Co-60 (upto 300 Ci)
  - Ir-192 (upto 120 Ci)

- **Ultrasonic Testing (Upto 12000mm)**
  - Ultrasonic Flaw Detection
  - Ultrasonic Thickness Measurement

- **Magnetic Particle Testing (Yoke and Prod)**
  - Dry MPI
  - Wet MPI
  - Florescent MPI

- **Penetrant Testing**
  - Solvent Removable Method (Visible and Florescent)

5.2 - Advanced NDT

- **Digital Radiography Testing**
  - Film less Radiography
- **Visual Testing (upto 6 meters)**
  - Video Borescope

- **Sherography**
  - Laser Sherography Equipment

- **Eddy Current Testing**
  - Eddy current

- **Pipeline Inspection:**
  - X-Ray Crawler

- **Phased Array Ultrasonic Testing**
  - PAUT Equipment

- **Long Range Ultrasonic Testing**
  - LRUT Equipment

5.3 - Advanced Services

- **Film Digitization**
  - Scanning and storing of exposed films in digital media

- **Positive Material Identification**
  - PMI Spectro i-sort

- **Hardness Testing**
  - Equo Tip Hardness Equipment

"Safety is more important than Convenience"

6.0 - SAFETY

Safety is most indispensable thing to us. We insist and involve safety in our every phase of our activities. Our employees are well equipped with appropriate PPEs.

High quality and sensitive warning systems in place to keep everyone well aware and be alert on our safety system. Safe Interlocking system installed in our enclosures are highly acknowledged and appreciated by BARC, Mumbai. We are committed and ensure Safety officers are available in our all sites. We are proud and pleased to have “accident free” environment in our premises last 32 years of our history.

Our technicians are well qualified and highly competent persons. Safety oriented training courses are conducted by BARC every year in India offices.

Our Safety Officers and Safety In-charges educate and train our employees on the safety aspect. During last business year, 10 technicians are qualified as Radiographers and 2 technicians are qualified as Site In-charge. Every new employees joining in our organization will have safety induction, safety awareness and to be taught things to DO/Don’ts inside the company premises/enclosures. We are keep ensuring that our company premises/enclosures are very safe environment for our employees who are working in it and around our premises.

“As Low As Reasonably Achievable (ALARA)”

7.0 TESTING SERVICE AND METHODS:

7.1 - Radiographic Testing:

- A most common method used in the industry to identify the flaws in materials. And this is the backbone for us.
- We provide most effective and efficient service with the help of Higher Technologies and High Quality materials.
- The choice of radiation sources and their strength depends on a variety of factors including size of the component and the material thickness.
- Within the broad group X-Ray and Gamma ray sources are a variety of camera choices with varying radiation strengths.
- Our equipment strength can penetrate from minimum of 1 mm (Steel, Aluminum, etc) upto 450mm of steel and can be done in a very less time.
- Radiation Accelerators available are various energies such as 7.5 MeV, 9 MeV and 10 MeV with very high range of penetration power.
- **Equipments**
  - **Linatron 9 MeV**
    - Penetration on Steel : Upto 450mm
    - Dose Rate : 3000 rad/min
    - Focal Spot : 2 mm (Max)
    - Operating Temperature : -10 C upto +40 C
  - **Betatron 10MeV**
    - Penetration on Steel : Upto 350mm
    - Dose Rate : 20 rad/min
    - Focal Spot : 3 mm
    - Operating Temperature : -10º C upto +40º C
  - **Betatron 7.5 MeV**
    - Penetration on Steel : Upto 300 mm
    - Dose Rate : 5 rad/min
    - Focal Spot : 3 mm
    - Operating Temperature : -20º C upto +40º C
  - **Co-60**

- Penetration on Steel : Upto 150 mm
- Dose Rate : 1.33 RHM per Curie
- Focal Spot : 4.2 mm
- Operating Temperature : -40ºC to 149ºC

◦ **Ir-192**

- Penetration on Steel : Upto 75mm
- Dose Rate : 0.48 RHM per Curie
- Focal Spot : 3.9 mm
- Operating Temperature : -40ºC to 149ºC

7.2 - Ultrasonic Testing

- High frequency Ultrasonic Sound waves detects the flaws in the materials.
- Ultrasonic Testing identifies the presence of discontinuities, material or coating thickness. The detection and location of discontinuities can be determined by the interpretation of ultrasonic wave reflections.
- Ultrasonic Testing method is also used for thickness measurement of materials.
- This is the most common method used in mechanical equipment of industrial installations for the characterization of erosion and deterioration is the thickness measurement.
- SQS offers high level thickness measurement services on pipes, pressure vessels, boilers, tanks, etc by our experienced and certified inspectors.
- Equipments
  - **Ultrasonic Flaw Detector**
    - Detection Range : Upto 12,000mm
    - Wave types : Longitudinal and Shear waves
    - Method : DAC , DGS, AWS
  - **Ultrasonic Thickness Measurement:**
    - Detection Range : Upto 200mm
    - Wave type : Longitudinal Wave

7. 3 - Magnetic Particle Testing

- An NDT method used for finding the defects or discontinuities on and near the surface in ferromagnetic material. It is a versatile inspection method used for filed and shop applications.

- Magnetic Particle testing works by magnetizing a ferromagnetic specimen using a magnet or special magnetizing equipment.
- If the specimen has discontinuity, the magnetic field flowing through the specimen is interrupted and leakage filed occurs.
- There are three types of MPI named as Dry, Wet and Florescent
- Equipments:
  - Magnetic Particle Yoke:
  - Magnetic Particle Prod

7.4 - Liquid Penetrant Testing

- The Penetrant testing works on the principle of capillary action, or the phenomenon of a liquid rising or climbing when confined to small opening due to the surface wetting properties of the liquid, penetrant testing is used for finding surface breaking discontinuities on relatively smooth, nonporous surfaces.
  - Solvent Removable Method (Both Visible and Florescent methods)

7.5 - Positive Material Identification

- An additional remarkable ability of SQS is to provide material traceability of components.
- This method is used for the purpose of analysis of chemical composition in the ferrous materials.

7.6 - Visual Testing (Borescope)

- Visual Testing is done with the help of advance technology Video Borescope equipment which provides the high quality image and videos.
- The inspection can be done up to 6 meters using the probe also the probe can be inserted in any machine, pipes, tubes, etc.
  - Xl Go+ Video Borescope equipment with 6 meter probe.
  - Olympus IPLEX-RX Videoscope Equipment with 5 meter probe

7.7 - Digital Radiography

- An advance method of Radiography Testing.
- This method involved Digital imaging plates in the place of Industrial Radiographic Films.
- The image plate can provide high quality image and the image can be stored in the digital

form (CD, Hard disk, Pendrive).

- And also interpretation and evaluation can be done in the system itself.

7.8 - Film Digitizer

- Film Digitization is a technique used to convert the films into digital medium.
- The films are scanned and stored in the system.
- It is very useful for easy storage and future reference.
- Most of the companies prefer to digitize and store their films.

7.9 - Laser Sherography

- Laser Shearography is an optical measurement technique for Non-Destructive Testing (NDT) and Quality Control applications, commonly used on composites and metallic materials. The method is used for defect detection in an expedited manner.
- This is mainly applied in aerospace industry, wind power, marine, fabrication, automotive and other composite related industries.

7.10 - Eddy Current Testing

- Eddy current uses the principle of electromagnetism as the basis for conducting inspections. When alternating current is applied to a conductor a magnetic field develops in and around the conductor. When a second conductor is introduced into the magnetic field and induced current flow is created.
- Eddy current is mainly used for
  - Crack Detection and
  - Conductivity measurements
- Olympus Multiscan MS5800 Multi scan with ECT, RFT, MFL, and UT channel.

7.11 - X-Ray Crawler

- X-Ray crawler is an equipment used in pipeline inspection services. The equipment will be inserted into the pipeline to cover a certain distance and inspect. This should be capable of withstand heat, pressure, oil, etc.
- This is mainly used in refining, cross-country pipelines, etc.

7.12 – Phased Array Ultrasonic Testing (PAUT)

- Phased Array Ultrasonic Testing (**PAUT**) Energy Workforce provides advanced ultrasonic

technique.

- Phased Array Ultrasonic Testing (**PAUT**) used for flaw detection, sizing, and imaging.
- **PAUT** technology is the ability to modify electronically the acoustic probe characteristics.
- Additional advantage of this method is to provide output in image format.

7.13 – Long Range UT

- Long Range Ultrasonic Testing is a rapid way of screening for corrosion in pipelines. Using this method 100 meter of pipeline can be screened in one test.

7.14 - Hardness Testing

Testing of various materials from stainless to copper-aluminum alloys (Bronze) using a range of different equipment : Equotip.

7.15 - Upgradation of Valve Bodies

- The term upgradation refers to the add some make some changes are corrections in the valve bodies.
- If any defect or discontinuities found in the materials, then the same shall be corrected.
- This process involves Gouging, Welding and grinding.
- After successful up-gradation, the material shall undergo stress relieving and after that NDT will be conducted to confirm weather the defect has been rectified.

7.16 - Heat Treatment:

- Heat Treatment is a process involved to alter the physical and sometimes chemical properties of a materials.
- This method involves the use of heating and chilling, normally to extreme temperatures, to achieve a desired result such as hardening or softening of a material.
- It is of 2 types
  - Pre-Heating
  - Post Weld Heat Treatment

"Safety is Cheap and effective insurance policy"

8.0 - Industries we serve:

8.1 Oil and Gas Industry

8.2 Cross-country Pipelines

8.3 Foundries

8.4 Aerospace (Bonding material)

8.5 Automobile Engineering

8.6 Boiler Components

8.7 Ship Yards

8.8 Defense

8.9 Power Plants

8.10 Sugar Factories

8.11 Cement factories

8.12 Navy

8.13 Infrastructure Development

8.14 Railways

8.15 Refining

8.16 Petrochemical

8.17 Construction and Fabrication

8.18 Transportation

8.19 Metal Working

8.20 Nuclear components

8.1 **Oil and Gas Industry**

- The Oil and Gas mainly involves Ultrasonic Testing, for Thickness Measurement

and Flaw Detection.

8.2 **Cross-country Pipelines**

- Cross-country Pipeline inspections done through X-Ray crawlers. Crawlers will be sent into the pipes to cover the area of some kilometers.

8.3 **Foundries**

- Castings used in various industries are inspected with NDT methods like RT, UT, MT,PT,VT, etc. These type of jobs are done in enclosures,in house and also site jobs

8.4 **Aerospace (Bonding material)**

Adhesive Bonding – The technique with applying an intermediate layer to connect substrates of different materials.

Eg: Silicon, Glass, metal and other semi conductor on the materials will be inspected.

It will be used in military, specialist aircraft, shipyard, convayer and Building constructions.

8.5 **Automobile Engineering**

- Most sensitive or critical parts of automobile (Steering, Gear wheel, brake,etc) shall be inspected using RT or other methods.

8.6 **Boiler Components**

- Boiler components or pressure vessels are examined mainly by RT and also some other methods will be used. High pressure applicable areas will be mainly concentrated.

8.7 **Ship Yards**

Non Destructive Testing plays a major role in ship building and shipyards. The following areas shall be inspected,

- Buildings,
- Containers (Scrap bins, gas cylinder etc.,),
- Hazardous materials storage tanks,

- Pressurized equipment,
- Powered equipment (engine, compressor,etc),
- Lifting components (Handles, eye-bolts, chains, ropes, etc.,)

8.8 **Defense**

- Ordnance factories and some other companies related to defense, requires inspection using High Energy X-Ray,

8.9 **Power Plants**

- Power plants such as Hydro power plant, Thermal Power plant, Nuclear power plant and Wind mills will require NDT using various methods like Radiography, Ultrasonic, Penetrant testing and Visual Testing

8.10 **Sugar Factories**

- All the sugar factories will be involving in NDT while erection and maintenance works. During regular maintenance and incase of any shutdown NDT will be done with most common methods like Ultrasonic, Liquid Penetrant or Mangetic Particle Testing.

8.11 **Cement factories**

- Similar to the Sugar Factories, cement factories also involved NDT while erection, maintenance and shutdowns with using UT, MT, RT, PT

8.12 **Navy**

- **Submarines,** Ship building, under water missiles, etc

8.13 **Infrastructure Development**

- Infrastructure development activities like constructions, rope car, etc

8.14 **Railways**

In Railways, it involves various NDT methods like RT, PT, UT, VT for the various areas of inspection.

- Tounge clipping inspection
- Head checking (Gauge corner cracking)
- Squats (Small surface breaking cracks)
- Parts of Inspection :
- Head, Foot, Switch blades, welds, bolt holes, engine

8.15 **Refining**

- Fire production equipment
- LPG Bottling (Cylinders, tanks, pipelines, spherical tanks and vessels)
- Loading and unloading areas (Pipes, Hooks, Chains, etc.,)
- Tanks and Pressure parts (Gas tanks, chemical tanks, storage tanks)

8.16 **Petrochemical**

- Chemical tankers
- Chemical Bunkers
- LNG (Liquefied Natural Gas) storage tanks, terminal storage, cargo inspection)
- Pipelines
- Crude oil tanks, Rail car inspection

8.17 **Construction and Fabrication**

- In construction industry, NDT shall be done for measuring the thickness of concrete and the metal beams used for construction. Also inspection will be done for welded joints, critical areas and pressure applicable zones.

8.18 **Transportation**

- Visual Testing and Penetrant Testing methods shall be used in the industry of transportation. These inspection are applicable for Engines, Axles and other critical parts.

8.19 **Metal Working**

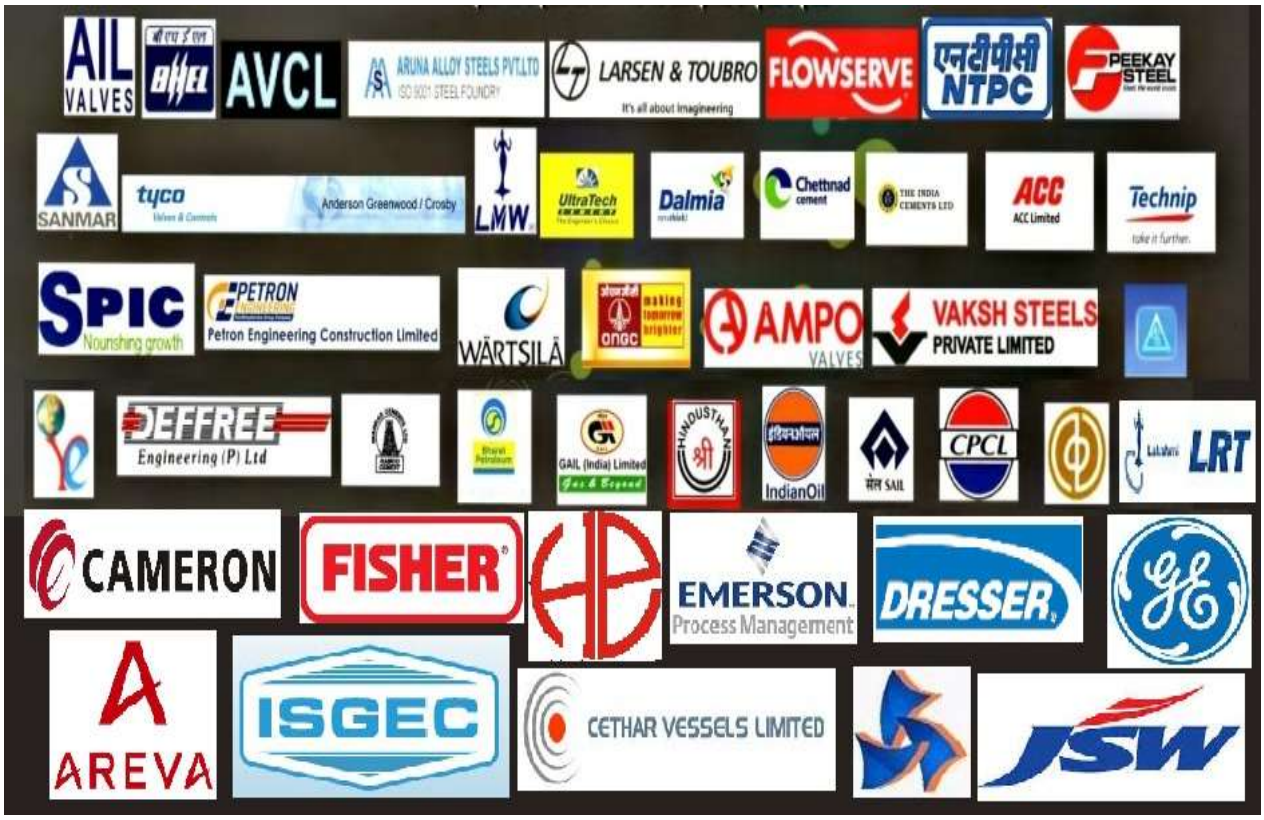
- Metal works includes the inspection in the Steel plants and in the erection sites.

8.20 **Nuclear Components**

- Processing of RT as per the requirements of ASME Sec III, for the materials used for Nuclear projects

"Follow and Comply international laws and Regulations"

9 - OUR VALUABLE CUSTOMERS



For Further Technical Details

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Thank
you