

TCR Technology Newsletter

**2nd Quarter
 2022**

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EVOLVE

A world class training facility with experienced faculty to improve skillset

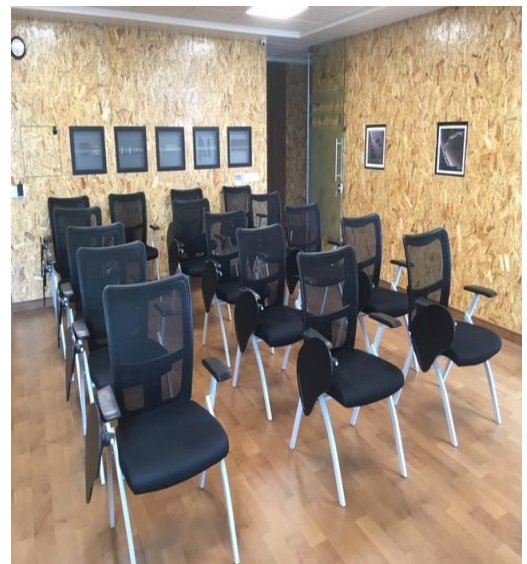
Introduction

□ Evolve by TCR Advanced is a training institute located in Vadodara that primarily focuses on industrial training needs & offering wide range of trainings like Non-Destructive Testing, Damage Mechanisms, Basics of Metallurgy and Corrosion aspects, Fitness for Service, Remaining Life Assessment & many more.

□ Evolve aims to bridge the gap between the industry needs & the skillset of the person by providing the state-of-art training.

□ We believe in quality education and thus have experts with over 30 years of experience to conduct in-depth technical trainings in various industries like chemical, petrochemicals, refineries, fertilizers, power plant, pharmaceutical, general fabrication & engineering industries.

□ Evolve has trained more than 1000+ engineers from various industries and the faculty continue to go on..





TCR Arabia Company Limited

Inspection, Testing & Advisory Redefining Reliability

Topic of the Quarter: Trainings

Mission

- ❑ To impart in-depth knowledge on **Industry Needs** to multitudinous individuals from diverse industries and bring failure count to NIL

Vision

- ❑ Evolve by TCR aims to become global training center for Asset Integrity Management, Corrosion Control and Inspection to eliminate failure incidents in equipment by conducting training on preventive techniques

Aim:

- ❑ Evolve works to bridge the gap between candidates' theoretical knowledge and industry requirement by providing industry-oriented technical education with current technology in use along with real life case studies & practical demonstration.
- ❑ Evolve is dedicated to the creation and dissemination of knowledge and the education of leaders with wisdom to illuminate the past and shape and serve the future

Infrastructure

- ❑ Training institute itself is located in the heart of the city and provides an atmosphere to motivate its candidates. The institute is well equipped with all necessary facilities required by its candidates to meet the latest technological trends.
- ❑ Failed samples are kept as display for students in-order to gain the practical knowledge and understand the nature of various failures.
- ❑ The classrooms provide the most conducive atmosphere for dynamic and focused discussions. They have been designed to bring together analysis with action and are augmented by well equipped facilities.
- ❑ The seating arrangement in the classrooms creates the right atmosphere for long hours of learning. They are equipped with multimedia and audio-visual equipment to facilitate effective learning. They are designed to promote maximum interaction between the faculty and the candidates.

Faculty Expertise

- ❑ Evolve faculty are experts in their respective fields, who share their expert in depth subject knowledge & extend their support services as well.
- ❑ Most of the faculty have a blend of corporate as well as academic experience in order to provide the candidates with core practices in the corporate world.
- ❑ Our Faculties conduct training as an interactive session which helps the candidates to clarify their doubts and attain suitable solutions for their problems that in-turn help them in their work life.



TCR Arabia Company Limited

Inspection, Testing & Advisory
Redefining Reliability

Topic of the Quarter: Trainings

Panel of Expert Faculty

- Training programs at TCR Evolve are conducted by industry veterans and subject matter experts who employ the latest pedagogy for a seamless learning experience:
 - Metallurgist
 - Corrosion expert
 - Design expert
 - Process expert
 - Foundry/Manufacturing expert
 - Rotary expert
 - Boiler operations expert
 - FEA & modelling expert
 - Inspection & NDT expert

Flexibility of Choice

- ❑ A wide range of courses are available to the candidates as they can choose according to their bent of interest & ability.
- ❑ Evolve imparts advanced curriculum courses on Advanced Metallurgy, Non destructive testing, Corrosion damage evaluation, Various Damage Mechanisms, Metallurgy composition, Fatigue and fracture toughness as well as Plant operational trainings. Such courses are based on our 44 years of experience in serving the oil and gas sector.
- ❑ Along with professional training, we also have various learning and development programs for students from various fields which would help them make their initial step towards success.

Benefits of training:

- ❑ In a small to medium- sized industry, if one of the process equipment undergoes frequent outages leading to production losses, decisions for corrective action at the lowest to the highest management level would have a perspective on:
 - **Lowest management:** Temporary maintenance keeping the minimum down time
 - **Middle management:** Moderately effective corrective action based on past personal experience
 - **Top management:** Replacement strategy anticipating long-term operation
- ❑ At all levels, the effectiveness of the correction requires knowledge of why the equipment undergoes frequent outages based on metallurgical investigations that define actual root cause damage mechanism.



TCR Arabia Company Limited

Inspection, Testing & Advisory

Redefining Reliability

Topic of the Quarter: Trainings

Why Training?

- ❑ Increased profits in an organization remain the primary objective of management. Various school thought prevails in order to raise the turnover from aggressive marketing, alternative sources of production, research & development and business diversification.
- ❑ Given the employees' abilities, execution performance is heavily dependent upon their most up-to - date technical expertise and experience. From now on, the objective of the organization should be to earn and learn, which can be successfully achieved through accurate training for associates, including employees, suppliers and suppliers.
- ❑ Popular human resources training programmes, the most common of which include stress management, communication skills, presentation skills, time management, etc. Nevertheless, these programs are effective in cultivating employees' mindsets, in-depth professional training is required to make accurate and appropriate decisions in support of an organization with minimal cost implications.

We have our core competency programs with topics listed below:

- ✓ Basics of metallurgy for engineers
- ✓ Metallography for engineers
- ✓ Welding metallurgy for engineers
- ✓ Localised Corrosion in Stainless Steel
- ✓ Corrosion Control Management – Engineering Approach
- ✓ Intergranular corrosion of austenitic stainless steel
- ✓ Corrosion under Insulation
- ✓ WPS- Welding Procedure Specification/ PQR-Welding Procedure Qualification and WPQ-Welder Performance Qualification
- ✓ Reformer tube: damage mechanisms, failure investigation, inspection and Remaining life assessment
- ✓ Boiler tube failures interface between Operation & Maintenance
- ✓ Heat exchanger: inspection, condition assessment, fitness for service and failure investigation
- ✓ Damage mechanisms and life management of Gas Turbine components
- ✓ Damage mechanisms, inspection and RLA of steam turbine components
- ✓ REAC- Reactor Effluent Air Cooler: Damage mechanisms, corrosion, FFS & Inspection
- ✓ T-91/ P-91 High Pressure Welding Technology
- ✓ Low temperature service: Concepts on metal properties, manufacturing & testing
- ✓ Damage mechanisms for static equipment for refineries and process industries
- ✓ Eddy Current Testing Awareness
- ✓ Hydrogen damage for industries (Asset integrity and Damage mechanism)
- ✓ High-temperature degradation of the industrial component
- ✓ Defect analysis in engineering components by Scanning Electron Microscope (SEM) and Energy Dispersive Spectroscopy (EDS)
- ✓ Distillation operation, control & troubleshooting
- ✓ Selection of NDT for an effective end result
- ✓ Ultrasonic Testing Level –II
- ✓ Magnetic Particle Testing Level –II
- ✓ Dye Penetration Testing Level –II
- ✓ PAUT -Introduction, calibration & interpretation
- ✓ Pressure Vessel Mechanical Design as per ASME PV Codes
- ✓ Failure Prevention, Repairs and Life enhancement of piping, Vessels, and Tanks
- ✓ Risk-Based Inspection (RBI) in Process, Petrochemical, Oil and Gas Plants
- ✓ Storage Tank Design, In-Service Inspection, Maintenance and Repairs for Chemicals, Oil and Petroleum Terminals
- ✓ Piping Systems and Pipeline Integrity in the process industry
- ✓ Fitness for Service of Equipment and Piping per API 579 and ASME FFS1
- ✓ Physical & Chemical testing of metals
- ✓ Evolving approach to site operation and maintenance on substation equipment & advanced monitoring system



Certifications:

ISO 9001-2015 Certificate



This is to certify that the management system of:

TCR Arabia Company Ltd.

Main Site: King Abdul Aziz Seaport Facility, P.O. Box8143, Dammam 32211, Kingdom of Saudi Arabia

has been registered by Intertek as conforming to the requirements of:

ISO 9001:2015

The management system is applicable to:

Conventional Non-Destructive Testing Services (NDT), Advanced Non-Destructive Testing Services (ANDT), Metallurgical Services, Mechanical Laboratory Testing Services, Welding Inspection Service, Post Weld Heat Treatment (PWHT) and Microbiology Testing Services, Civil Laboratory Testing Services

Certificate Number:
21111010003

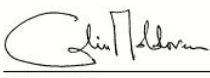
Initial Certification Date:
25 March 2014

Date of Certification Decision:
10 March 2020

Issuing Date:
10 March 2020

Valid Until:
24 March 2023





Calin Moldovean
President, Business Assurance

Intertek Certification Limited, 10A Victory Park, Victory Road, Derby DE24 8ZF, United Kingdom

Intertek Certification Limited is a UKAS accredited body under schedule of accreditation no. 014.



In the issuance of this certificate, Intertek assumes no liability to any party other than to the Client, and then only in accordance with the agreed upon Certification Agreement. This certificate's validity is subject to the organization maintaining their system in accordance with Intertek's requirements for systems certification. Validity may be confirmed via email at certificate.validation@intertek.com or by scanning the code to the right with a smartphone. The certificate remains the property of Intertek, to whom it must be returned upon request.



Certifications:

Mechanical Testing Lab of TCR Arabia is now ISO-17025 Accredited



CERTIFICATE OF ACCREDITATION

This is to attest that

TCR ARABIA COMPANY LTD
KING ABDUL AZIZ SEAPORT FACILITY
DAMMAM 32224, KINGDOM OF SAUDI ARABIA

Testing Laboratory TL-783

has met the requirements of AC89, IAS Accreditation Criteria for Testing Laboratories, and has demonstrated compliance with ISO/IEC Standard 17025:2017, General requirements for the competence of testing and calibration laboratories. This organization is accredited to provide the services specified in the scope of accreditation.

Effective Date May 11, 2020



Raj Nathan
President

Visit www.iasonline.org for current accreditation information.



Approvals:

TCR Arabia is now an approved contractor in SABIC for providing high-end inspection services like HTHA/FFS, Metallurgy Solutions and Root Cause Analysis.

Classification: Internal Use



Tuesday, August 20, 2019

Subject: APPROVED CONTRACTOR CONFIRMATION

Dear Mr. Darwin,

This is to confirm that "TCR Arabia Ltd. KSA" is an approved third party and part of "Approved Contractor List" (ACL) of SAUDI BASIC INDUSTRIES CORPORATION (SABIC) to conduct business as a third party inspection & testing contractor for onshore/ offshore services for SABIC site & Mega projects. The onshore/offshore services are:

- Conventional NDT techniques (RT,UT, PT, MPT, VT & PMI)
- Advanced NDT techniques (ToFD, PAUT, MFL & tube inspection).
- Material testing (destructive)
- Welder qualification
- HTHA/FFS services
- Metallurgy solutions
- Root Cause Analysis

However, this certificate has been issued upon the request of above named contractor for whatever purpose it may serve him without any liability on the part of SABIC.

Best Regards,

for 
Gehad Al-Otaibi
Senior Manager
Global Suppliers relationship Management



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Shared Services
Global Procurement Services
P.O. Box 11115
Jubail Industrial City 31961
Kingdom of Saudi Arabia
T: 066 13 310 6600
F: +966 13 350 6333
www.sabic.com

Saudi Basic Industries Corporation
Saudi Joint Stock Corporation
Authorized capital: SAR 30 billion
CR: 1010010813

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شركة مساهمة سعودية
رأس المال المصرح به 30 بليون ريال
رقم التسجيل 1010010813

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هاتف: 066 13 310 6600
فاكس: 013 350 6333
www.sabic.com

ARAMCO Appreciation Letters:



SINOPEC Appreciation Letters:



فرع شركة سينوبك انترناشيونال بترولايوم سيرفيس كورپوريشن Branch of Sinopec International Petroleum Service Corporation

s.No. A 25183

TCR Arabia Company Limited,
Dammam,
KSA

20th March, 2022

Letter of Appreciation

SINOPEC would like to appreciate the efforts of TCR Arabia in supporting our emergency welder qualifications requirement by meeting our stringent deadlines with utmost care and professional ability. We would like to express our appreciation to the strong technical team of TCR Arabia for the services rendered to SINOPEC.

We are delighted to find a technically sound, professionally able and a reliable partner to support in our inspection and testing needs.

Wishing TCR Arabia great success in the years ahead.

Best Wishes,



Zhao Gangchen

Project Director

Branch of SINOPEC International
Petroleum Services Corporation

* مسج جيوفيزيالي • حفر • انشاءات • تاجير معدات ثقيلة
* Geophysical Exploration • Drilling • Construction • Heavy Equipment Lease
س.ت: ٢٠٥١٠٢٩٨٩٢، رأس مال ١٠٢٠٠٠٠٠٠٠٠٠٠٠ ريال سعودي - ص.ب ٣٣١٥٩ الخبر ٣١٩٥٢ - المملكة العربية السعودية - تلفون: +٩٦٦ ١٣ ٨٥٧٥٨٠١ - فاكس: +٩٦٦ ١٣ ٨٥٧٥٨٠٢
C.R. 2051029892, Capital SR. 102,000,000 - P.O.Box 32159, Al-Khobar 31952, Kingdom of Saudi Arabia - Tel.: +966 13 8575801 - Fax: +966 13 8575803

CORROSION TESTING LABORATORY

SAUDI ARAMCO APPROVED

ISO 17025 Accredited



Approved by Saudi Aramco for:

- ✓ Mechanical Tests
(Tensile, Bending, Hardness, V-Charpy Impact)
- ✓ Macrographic and Metallographic
- ✓ Chemical Analysis (PMI and OES)
- ✓ Corrosion Tests (ASTM A923, A262, G28 and G48)
- ✓ Failure Analysis
- ✓ Replica

Services Portfolio



TESTING

Material Testing

Mechanical

Tensile, Impact, Hardness, Bend, Elongation, Yield

Corrosion

ASTM A923, A262, G28, G48

Welder Qualification

WPS, PQR, WQT, Welder Certification

Civil Laboratory

Construction Material Testing, Concrete, Soil, Aggregates & Field Tests

Metallurgy Testing

In-situ Metallography, Failure Investigation, Remaining Life Assessment, Fitness for Service



INSPECTION

Non-Destructive Testing (NDT)

Conventional NDT

RT, MT, PT, UT, UTT, FM, PMI, HT

Advanced NDT

ToFD, PAUT, Corrosion Mapping, Helium Leak, Thermography, MFL, ECT, RFT, IRIS, HTHA, High Temp UT

Robotic Inspection Services

Submersible Inspections, Inspection of buried & above ground assets

Non-Metallic Testing Lab.

FRP/GRP/Composite Lab Testing

Inspection Manpower

NDT Technicians, Plant Inspectors, Inspection Engineers, Corrosion Engineers



CONSULTING

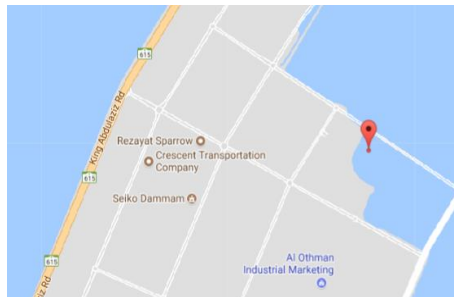
- Stress Analysis
- Risk Based Inspections (RBI)
- Damage Mechanism Study
- Third Party Inspection
- Coker Drum Inspection
- Trainings (NDT, Metallurgy, Welding)
- Plant Asset Integrity Management
- Corrosion Study

Location

TCR Arabia Head Office & Labs are located in Dammam
Branch Offices in Jubail & Yanbu



GPS Location: 26.450525, 50.193787



Events

Iftar 2022

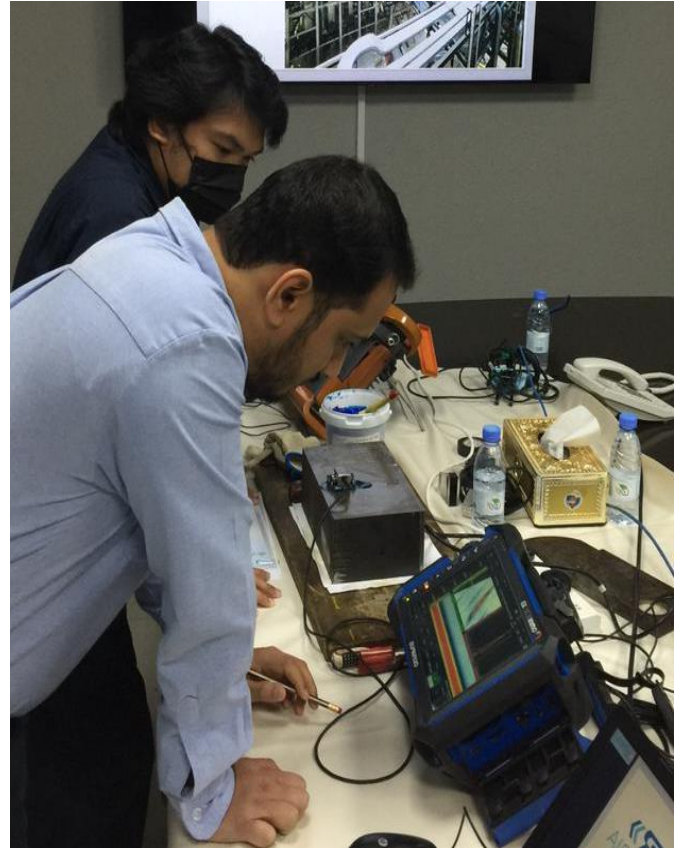


Events

Online Qualification (HTHA)

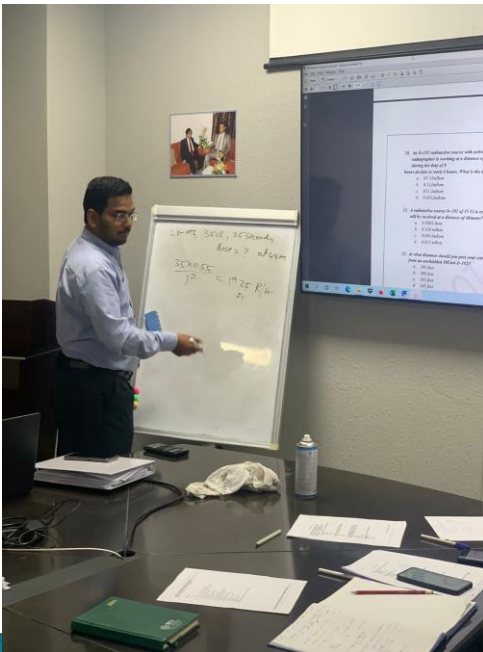
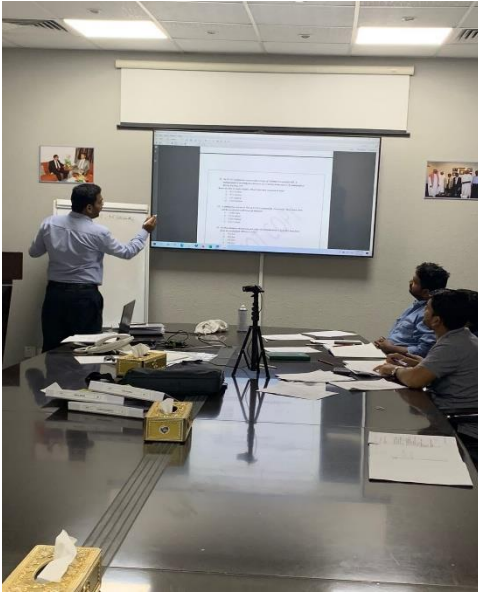


“TCR Arabia has successfully qualified for HTHA Services in SABIC”



Events

RT Trainings



Events

Digital RT Demonstration



Events

Client Visit



New Acquired Machine



Events

Fire Mock-up Drill



New Staff

TCR welcomes its new team members and wishes them great success ahead



Ali Al-Saleem
NDT Technician



Mahmoud Khalid Al-Jaber
NDT Technician



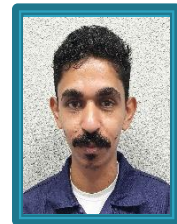
Mohammed Al-Fehid
NDT Technician



Abdullah Al-Yosif
Mech Lab. Asst. – Mechanical Lab.



Ahmed Ali Zabbani
Technician – Machine Shop



Habib Al-Atiyah
Technician
Metallurgy Department