



FE121: Hot Tapping and Plugging in Petroleum Industries

Training Description:

This intensive training course will highlight the added value that Hot Tapping and Plugging practices advised by API standards can offer to support engineers and technicians working in pipelines installation and maintenance. It will show how to safely use the equipment and apply the modern techniques in successful hot tapping and plugging a pipeline.

The course will emphasize the application of related recommended API practices for pipelines hot tapping and plugging, focus on proper equipment selection, retrieval and interpretation of data from equipment manuals, preparatory actions prior to process execution, and safely carry out the hot tapping and plugging process.

The course will highlight:

- Discussions on the benefits and applications of hot tapping and plugging process
- The importance of proper selection of hot tapping and plugging equipment and understanding the related API recommended practice
- The detailed procedure of pipelines hot tapping and plugging, and the specific safety precautions
- Focusing on in-service hot tapping emergency action plan

Training Objectives:

By the end of the training, participants will be able to:

- ✓ Understand the outline of the economic and environmental benefits of pipelines hot tapping and plugging
- ✓ Understand the retrieval and interpretation of data and procedure from hot tapping and plugging equipment manuals
- ✓ Properly select the hot tapping and plugging equipment for specific applications
- ✓ Describe the procedure of hot tapping and plugging
- ✓ Apply the safety precautions in conducting the hot tapping and plugging process
- ✓ Apply H&S instruction when conducting pipelines hot tapping and plugging process

Training Designed for:

This course is intended for Pipelines Project Managers, Mechanical Maintenance Engineers, Professionals in Pipelines Installations and Maintenance, Engineers who are planning for hot tapping and plugging process, Technicians involved in pipelines construction, maintenance and inspection, Welding and Pipeline Professionals, and Safety Engineers and Professionals.

Training Requirement:

“Hand’s on practical sessions, equipment and software will be applied during the course if required and as per the client’s request.”

Contents can be adapted to your specific wishes. It is therefore possible to focus on specific modules of the training course as per client’s learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

Training Program:

DAY ONE:

- ❖ **Oil and Gas Pipelines**
- ❖ **Competency Description:** A comprehensive introduction to the oil and gas pipelines construction process, pipelines components and relevant functions, and pipelines hot tapping and plugging terminology
- ❖ **Key Behaviours**
 - State the oil and gas pipelines types and name their basic components
 - List a set of glossary of hot tapping and plugging terms
 - Describe the site preparation phase in pipelines construction process
 - State the pipes safety transportation precautions
 - Describe how the pipeline are inspected and tested
 - Describe how the pipes are bent
 - Outline how pipes are welded and joint coated
- ❖ **Topics to Be Covered**
 - Introduction: Oil and gas pipelines types and standards
 - Layout of oil and gas pipelines: Components and relevant functions
 - Glossary of terms used in pipelines hot tapping and plugging operations
 - Pipelines construction: Site preparation – Pipes transportation – Ground trenching – Pipes laying and covering – Pipes bending – Pipes welding and joint coating – Pipes cleaning – Pipeline inspection and testing

DAY TWO:

- ❖ **Pipelines Hot Tapping and Plugging**
- ❖ **Competency Description:** The description and comprehensive understanding of the standards related to pipelines hot tapping and plugging process, the factors that affect the process, and the relevant data and information
- ❖ **Key Behaviours**
 - Outline the pipelines hot tapping and plugging process
 - List the situations and circumstances of using hot tapping and plugging process
 - Describe the content of pipelines hot tapping and plugging standards
 - Explain the impact of various factors affecting the hot tapping and plugging process
- ❖ **Topics to Be Covered**
 - The concept of hot tapping and plugging
 - Hot tapping and plugging applications: Branch connection attachment – Monitor installation – Redirect flow – Defects removal – Line stopping
 - Factors affecting the hot tapping and plugging process: Pipe size – Distance flanges – Distance to welded portions – Distance to valves
 - Hot tapping orientation: Standard and non-standard
 - Hot tapping and plugging standards: API and ASME related standards

DAY THREE:

- ❖ **Hot Tapping and Plugging Equipment**
- ❖ **Competency Description:** Participants will be expected to make a meaningful contribution to everything associated with pipelines hot tapping and plugging, and in this respect, they will need to take cognizance their principle of equipment operation, their design features and methods of functional testing
- ❖ **Key Behaviours**
 - Name the types of pipelines hot tapping and plugging equipment
 - Describe the design features of pipelines hot tapping and plugging equipment
 - Explain how to test the pipelines hot tapping and plugging equipment
- ❖ **Topics to Be Covered**
 - Types: Hand – Hydraulic – Electric – Pneumatic
 - Equipment basic data and considerations
 - Equipment design features and construction
 - Examples of hot tapping equipment: Description, specifications, features and fitting applications of the tapping machines – The sandwich valve
 - Branch connection fitting
 - Thread O-ring flanged fitting
 - Spherical three-way Tee
 - Composite warp
 - The plugging machine
 - The lock-up ring flanges & plugs
 - Wedge-lock pipe plug
 - Equipment test
 - Freeze plugging

DAY FOUR:

- ❖ **Hot Tapping and Plugging Procedure**
- ❖ **Competency Description:** Participants need to gain a sound understanding of the requirements of pipelines hot tapping and plugging, the proper equipment installation, with emphasis on operation management
- ❖ **Key Behaviours**
 - Outline the procedure of pipelines hot tapping and plugging
 - List the requirements for conducting hot tapping and plugging operations
 - Write a checklist for hot tapping and plugging
 - Explain how to manage the hot tapping and plugging process
- ❖ **Topics to Be Covered**
 - Cases where hot tapping is prohibited
 - Selection of hot tap location
 - Design considerations
 - Preparatory work to hot tapping
 - Hot tapping operation management
 - Technicians' qualifications and skills
 - Hot tapping of lines pipes

- Hot tapping basic requirements and operations
- Welding preparation, procedure, and inspection
- Hot tapping machine installation
- Hot tapping operations and work completion
- Hot tapping check lists
- Line stops: Types – Layout – Operation – Completion plug

DAY FIVE:

- ❖ **Hot Tapping and Plugging Hazards and Risk Reduction**
- ❖ **Competency Description:** A pipelines' hot tapping and plugging team leader needs to ensure that the process does not just perform correctly, but also optimally. In addition, he also has to plan for emergency situations so that the process is executed safely and in short time as possible
- ❖ **Key Behaviours**
 - Prepare plans for hot tapping and planning in emergency situations
 - Explain the hot tapping and plugging economy
 - List the hazards associated with hot tapping and plugging operations
 - Analyse a set of hot tapping and plugging case studies
- ❖ **Topics to Be Covered**
 - In-service hot tapping emergency action plan
 - Hot tapping features and relevant hazards
 - Various hazards: Physical – Thermal – Chronic – Toxic – Combustible
 - Hazards risk reduction
 - Case studies: Hot tapping economy – Hot tapping hazards
- ❖ **Course Conclusion**
- ❖ **POST-ASSESSMENT and EVALUATION**

Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:

- 30% Lectures, Concepts, Role Play
- 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Gamification, Software & General Discussions
- Pre and Post Test

Training Certificate(s):

CMCT Internationally recognized certificate(s) will be issued to each participant who completed the course.

Training Fees:

TBA as per the course location - This rate includes participant's manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01st of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.

Training Timings:

Daily Timings:

07:45 - 08:00	Morning Coffee / Tea
08:00 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:00	Recess (Prayer Break & Lunch)
13:00 - 14:00	Last Session

For training registrations or in-house enquiries, please contact:

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Training & Career Development Department