



Hot Tapping and Plugging in Petroleum Industries



Introduction:

This interactive, applications-driven 5-day 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 training 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.

This training course will feature:

- 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

Who Should Attend?

This training course is suitable for a wide range of professionals but will greatly benefit:

- 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
- Safety Engineers and Professionals

Course Objectives:

By the end of this course, delegates will be able to:

- Outline the economic and environmental benefits of pipelines hot tapping and plugging
- 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 Methods:

This training course will utilise a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. The daily course sections will be highly interactive and participative. It also involves detailed discussions accompanying the presentation of videos showing the equipment, the safety precautions, and the whole procedure of pipe lines` hot tapping and plugging. Delegates are strongly encouraged to bring and analyse data from their own work domain; this adds greater relevancy to the content.

Course Outline:

Day One: Oil and Gas Pipelines

- 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

- 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

- 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

- 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

- 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