PETROSYNC
Synchronize Your Skill and Knowledge

PetroSync Global Pte Ltd | PetroSync | PetroSync

Carbon Capture and Storage (CCS) Well Design and Operations

Improve the Knowledge & Skill of CCS Well Design and Operations by Learning Practical Things from the Expert!

Course Level : Basic - Intermediate

28th - 30th October 2024 at Bandung, Indonesia

A lot of Practical Things, Case Studies and Exercises !

Petrosync Distinguished Instructor
Steve Nas

Well Engineering Consultant and Instructor

- Well examiner in the Netherlands for CCS storage wells
- Technical advisor for MPD-HPHT Hazop and DWOP for drilling operations & deepwater wells
- Technical advisor and subject matter expert for aerated geothermal drilling operations
- Independent reviewer of well abandonment campaigns and programs in various countries around the world

Who Should Attend?

This course is intended for the disciplines listed below, as well as anyone with a specific interest in the topic:

- Engineers and geoscientists involved in CCS projects
- Wellbore integrity specialists
- Project managers
- Regulators

PROGRAM SCHEDULE

08:00	Registration (Day1)
08:10 – 10:00	Session I
10:00 – 10:15	1st Tea Break
10:15 – 12:30	Session II
12:30 – 13:30	Lunch Break
13:30 – 15:00	Session III
15:00 – 15:15	2nd Tea Break
15:15 – 16:00	Session IV
16:00	End of Day

*Schedule may vary for each training

Supported by

Carbon Capture and Storage (CCS) Well Design and Operations

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Course Overview

In this 3-days course equips participants with the knowledge and skills for designing, operating, and managing wells used in underground storage of carbon dioxide (CO2). By the end of this course, participants will be able to apply their knowledge to design, operate, and manage wells for CO2 storage projects, evaluate the feasibility of CO2 storage sites, identify and mitigate risks associated with CCS operation and communicate effectively about CCS technology.

Course Objectives

Gaining knowledge and understanding of the following topics:

- Fundamentals of CCS technology and its role in climate change.
- CO2 properties and its behavior in wells and in geological formations.
- Geological storage options for CO2.
- Best well design and construction practices for CO2 injection.
- Well integrity considerations for CO2 storage.
- Assessing and re-use of legacy wells.
- Well monitoring techniques and requirements for CO2 storage projects.
- Risk assessments associated with CCS operations and mitigation strategies.
- Regulations and standards governing CO2 storage.

WHY YOU SHOULD ATTEND PETROSYNC'S EVENTS

- To ensure that all objectives of the course matches yours, all PetroSync programs are developed after intensive and extensive research within the industry
- PetroSync programs focus on your immediate working issues to ensure that you are able to apply and deliver immediate results in real work situations
- Application and implementation of industry knowledge and experience are the drivers for our course design, not theoretical academic lectures
- PetroSync training focuses on practical interactive learning tools and techniques including case studies, group discussions, scenarios, simulations, practical exercises and knowledge assessments during the course. Invest a small amount of your time to prepare before attending the course to ensure maximum learning
- PetroSync follows a rigorous selection process to ensure that all expert trainers have first-hand, up-to-date and practical knowledge and are leaders of their respective industrial discipline

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Course Agenda

Day 1

Introduction to CCS and CO2 Storage

- Setting the scene CCS technology overview and the role of CCS
  - Worldwide experience from EOR, pilot and commercial projects
  - CCS market challenges
  - Current operational projects
  - Planned Project
- Geological storage options for CO2
  - Depleted O&G fields
  - Deep saline formations
  - Enhanced oil recovery
  - Coal seam storage
- Regulatory and environmental considerations for CCS projects
  - Standards
  - Compliance
- CO2 properties and behavior
  - Phase diagram
  - Behavior in wells and in geological formation
- Storage site selection and requirements
  - Storage site selection criteria.
  - Storage performance factors: capacity, injectivity, and containment
  - Risk assessment storage sites
- Well Objectives for CO2 storage
  - Safety and Environmental protection
  - Integrity and reliability
  - Injection and monitoring
  - Material selection
  - Contingency planning

Case Studies:

Acorn CCS site selection

Gorgon CCS challenges

In Salah CCS injection operations

Day 2

Well Design and Construction for CO2 Storage

- Well types and well design
  - Legacy wells
  - New injection wells
  - Re-using legacy wells
  - Monitoring wells
- Well design process
  - Well design process
  - Objectives
  - Site selection criteria
  - Well performance requirements
  - Completion design
  - Basis of well design
  - Detailed well design
  - Material selection
  - Stress analysis
  - Well integrity considerations
  - Risk assessments
  - Well construction
    - Objectives
    - Challenges
    - Cementing practices
    - Wellbore integrity management
    - Well control
    - Drilling challenges
    - Risk assessments

Case Studies:

Goldeneye Well functional specifications

Goldeneye Well design

Goldeneye Well integrity assessment

Day 3

Well Operations and Monitoring for CCS

- Injection operations and optimization.
- Monitoring requirements and techniques.
  - Storage site monitoring
  - Reservoir monitoring
  - Well monitoring
- Well suspension
- Well Abandonment and site closure
- Risk assessments
- Case studies of CCS projects worldwide
- CCS challenges
- The future of CCS technology

Case Studies:

Goldeneye monitoring

Porthos CO2 injection and monitoring

Porthos abandonment planning

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Instructor Profile

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- Technical advisor and subject matter expert for aerated geothermal drilling operations
  Independent reviewer of well abandonment campaigns and programs in various countries around the world

Experienced well engineer and well engineering instructor with an MSc in Drilling Engineering and over 40 years of drilling and well engineering experience. Skilled in many facets of advanced well engineering such as Deepwater Managed Pressure Drilling, High Pressure – High Temperature, Geothermal, Well Integrity, Well Control and Well Abandonment operations. Experience working for operators, drilling contractors and service providers delivering a wide range of engineering solutions for complex wells.

Developed and presented numerous training courses related to well design, managed pressure drilling, high pressure high temperature operations, casing design, advanced well control, well control emergency response planning and well abandonment.

Skilled in thermal and multiphase hydraulic modelling for geothermal and underbalanced drilling and blowout kill calculations. Experienced in engineering solutions for well abandonment, relief well planning and coiled tubing drilling. Coauthored several SPE books and numerous SPE papers and Member of SPE, ICOTA, IADC, IWCF, Energy Institute.

Instructor Experience

- Designed and drilled storage wells for Hatfield moors storage field in the UK
- Review of 120 legacy wells for CCS integrity in the Dutch North sea area for EBN (Dutch Government Energy office)
- Well engineer for compressed air storage design in salt caverns Corre Energy
- Well examination for Aramis storage in the Netherlands for Total NL
- Reviewed well integrity for CCS storage in block L10 for Total
- Site selection and well design study review for the Lang Lebah Field in Malaysia for DNV
- Compiled CCS monitoring guidelines for Dutch Government together with DNV
- Attended and presented at SPE CCUS Symposium 2022 and 2023
- Attended SPE CCUS conference 2023 Virtual

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Instructor Profile - Continue

Partial Client List

- Petronas
- Pertamina
- Petrofac
- CNOOC
- Saudi Aramco
- Neptune Energy
- Santos
- Medco Energy
- Woodside
- Woodside
- Petrovietnam
- Kepco
- ENI
- Total Indonesia
- Hess Malaysia
- DTEK
- COS
- Many more.

Publications

- 2013, Joy Oyovwevotu, SPE, Senergy Ltd; Eric Low, SPE, Bowleven; Steve Nas, SPE, Schlumberger, "Improving Drilling Operations Efficiency on an Ultra-Narrow Margin HPHT MPD Well with use of a Mud Cap." SPE paper 167985 prepared for presentation at the 2014 IADC/SPE Drilling conference in Fort Worth, Texas.
- 2012, Noor Azree B Nordin, Lawrence Umar, Intan Azian Bt A Aziz, Petronas Carigali, Steve Nas, Wing Keat Woo, SPT Group, "Dynamic Modeling of Wellbore Pressures Allows Successful Drilling of a Narrow Margin HPHT Exploration Well in Malaysia.", SPE paper 155580, presented at the 2012 IADC/SPE DrillingTechnology Conference and Exhibition in Tianjin, China.
- 2011, Ardia Karnugroho, Steve Nas, Julmar Shaun S. Toralde / Weatherford, Tutuko Prajogo Ph. D. /Swiss German University, "Mechatronics Technology in Drilling Operations Used to Enhance Safety", SPE paper 143838 presented at the SPE Digital Energy Conference and Exhibition, 19-21 April 2011, The Woodlands, Texas, USA.
- 2011, Steve Nas., "Kick Detection and Well Control in a Closed Wellbore". SPE paper 143099, presented at the 2011 Managed Pressure Drilling and Underbalanced Operations Conference and Exhibition in Denver Colorado.

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INVESTMENT PACKAGES

Please checklist the package that you are attending!

	Carbon Capture and Storage (CCS) Well Design and Operations SCHEDULE	LOCATION	PRICE
☐	28th - 30th October 2024	Bandung, Indonesia	USD 2,995

** All prices are subject to change without notice and are not guaranteed, except that prices for an order that have been accepted by PetroSync is not subject to change after acceptance*

** Price is nett excluding Withholding Tax if any and will be quoted separately. Please send us the withholding tax payment receipt.*

DELEGATE DETAILS

1st Delegate Name _____ Mr ☐ Mrs ☐ Ms ☐ Dr ☐ Others ☐

Direct Line Number: _____ Email: _____

Mobile Number: _____ Job Title: _____

Department: _____ Head of Department: _____

2nd Delegate Name _____ Mr ☐ Mrs ☐ Ms ☐ Dr ☐ Others ☐

Direct Line Number: _____ Email: _____

Mobile Number: _____ Job Title: _____

Department: _____ Head of Department: _____

3rd Delegate Name _____ Mr ☐ Mrs ☐ Ms ☐ Dr ☐ Others ☐

Direct Line Number: _____ Email: _____

Mobile Number: _____ Job Title: _____

Department: _____ Head of Department: _____

4th Delegate Name _____ Mr ☐ Mrs ☐ Ms ☐ Dr ☐ Others ☐

Direct Line Number: _____ Email: _____

Mobile Number: _____ Job Title: _____

Department: _____ Head of Department: _____

**Please fill all the details including mobile number. This help us to contact participant if they are late in class or if there is any urgent update (through whatsapp/call)*

INVOICE DETAILS

Attention Invoice to: _____

Direct Line Number: _____ Fax: _____

Company: _____ Industry : _____

Address: _____ Postcode: _____

Country: _____ Email: _____

Please note:
- Indicate if you have already registered by Phone ☐ Fax ☐ Email ☐ Web ☐
- If you have not received an acknowledgement before the training, please call us to confirm your booking.

PAYMENT METHODS

☐ **By Credit Card**

☐ **By Direct Transfer : Please quote invoice number(s) on remittance advice**

PetroSync Global Pte Ltd Bank details:
Account Name : PetroSync Global Pte Ltd
Bank Name : DBS Bank Ltd
Bank Code : 7171 • Bank Swift Code : DBSSSGSGXXX • Branch code : 288
Account No : 0288-002682-01-6-022 (USD)
Bank Address : 12 Marina Boulevard, Level 3. Marina Bay Financial Centre Tower 3. Singapore 018982

All bank charges to be borne by payer. Please ensure that PetroSync Global Pte Ltd receives the full invoiced amount.

COURSE CONFIRMATION

I agree to PetroSync's payment terms and cancellation policy.

Signature : _____

Date : _____

PAYMENT TERMS : Payment is due in full at the time of registration. Full payment is mandatory for event attendance.

PROGRAMME CONSULTANT

Name : Cay Aagen
Email : registration@petrosync.com
Phone : +65 3159 0800

TERMS AND CONDITIONS

DISCLAIMER

Please note that trainers and topics were confirmed at the time of publishing; however, PetroSync may necessitate substitutions, alterations or cancellations of the trainers or topics or location (classroom / Virtual). As such, PetroSync reserves the right to change or cancel any part of its published programme due to unforeseen circumstances. Any substitutions or alterations will be updated on our web page as soon as possible

DATA PROTECTION

The information you provide will be safeguarded by PetroSync that may be used to keep you informed of relevant products and services. As an international group we may transfer your data on a global basis for the purpose indicated above. If you do not want us to share your information with other reputable companies, please tick this box ☐

CANCELLATION POLICY

Delegates who cancel after the training is officially confirmed run by email, are liable to pay the full course fee and no refunds will be granted. You may substitute delegates at any time as long as reasonable advance notice is given to Petrosync.

In the event that PetroSync cancels or postpones or change the trainer or change the training location (classroom / virtual) of an event for any reason and that the delegate is unable or unwilling to attend in on the rescheduled date, you will receive a credit voucher for 100% of the contract fee paid. You may use this credit voucher for another PetroSync to be mutually agreed with PetroSync, which must occur within a year from the date of postponement.

PetroSync is not responsible for any loss or damage as a result of the cancellation policy. PetroSync will assume no liability whatsoever in the event this event is cancelled, rescheduled or postponed due to any Act of God, fire, act of government or state, war, civil commotion, insurrection, embargo, industrial action, or any other reason beyond management control.

CERTIFICATE OF ATTENDANCE

80% attendance is required for PetroSync's Certificate of Attendance.

DETAILS

Please accept our apologies for mail or email that is incorrectly addressed.
Please email us at registration@petrosync.com and inform us of any incorrect details. We will amend them accordingly.

Find us on Social Media:

PetroSync Global Pte Ltd
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CHARGES & FEE(s)

- For Payment by Direct TelegraphicTransfer, client has to bear both local and oversea bank charges.

- For credit card payment, there is additional 4% credit card processsing fee.