



2019 Murchison Drilling Schools Class Schedule

Operational Drilling Technology

OBJECTIVE:

Our objective is to train drilling supervisors how to properly supervise a drilling operation. This ten-day course covers drilling practices and problems from spud to completion for all levels from assistant driller to drilling manager. The course is taught by hole-intervals starting with top-hole problems related to big-hole and normal pressure. After an appropriate casing string has been set, drilling continues into the abnormal pressure zone and heavy mud practices and problems are discussed. Well control is introduced as one of the drilling problems and taught by hole-interval, with training enhanced by hands-on simulator practice. Associated problems such as lost circulation and stuck pipe are discussed along with well control. IWCF Level 4 and IADC WellSharp Supervisor Well Control certifications are offered through this course. Students must select which certification they desire when enrolling in the course. Individual student evaluation reports are written at the end of the session and these, along with the extensive workshops and exercises required, enable the instructor to assess the student's operational or technical strengths or weaknesses.

TOPICS:

- Pre-Spud Meeting & Considerations
- Drill String Design
- Drillout Considerations
- Leak Off and Formation Capability Tests
- Limitations to Control Capability
- Salt Water Flows
- Kill Sheets
- Simulator Training
- Methods of Well Control (Driller's Method, Wait & Weight, Volumetric & Lubrication, Modified Wait & Weight)
- General Mud Topics
- Shallow Gas and Kicks
- Diverting
- Surface Casing
- Top Hole Cleaning and Trends
- Hydraulics
- Well Control Problem Diagnosis and Solutions
- Mud Solids
- Lost Circulation
- Deviation and Stuck Pipe
- Difficult Well Control Situations
- Tripping Practices and Considerations
- H₂S Safety
- Causes of Abnormal Pressure
- WC Red Flags & Transition Zone Indicators
- Managed Pressure Drilling
- Shale Problems
- Wellhead Installation
- Casing & Cementing
- Good Mud Practices
- Logging and Perforating
- BOP Equipment
- ECD Drilling
- UBO and Barite Plugs
- Overview of Optimization Procedures
- Bits
- Differential Sticking and Freeing Techniques
- Kick Off Plugs
- Drill Stem Test Considerations
- Gas Cap Drilling
- Liner Cementing
- Squeeze Cementing and Production Squeezing
- Completion Methods and Workover Fluids

METHODS:

Lecture, exercises, simulator sessions, workshops, tests, PowerPoint slides and discussion.

MDS 2019 Class Schedule

ALBUQUERQUE TRAINING CENTER:

February 11-22	June 3-14	October 14-25
April 1-12	August 5-16	December 2-13

HOUSTON TRAINING CENTER:

January 14-25	May 6-17	September 9-20
March 4-15	July 8-19	November 4-15

COURSE FEES:

- \$5,100.00 for IADC WellSharp – Supervisor certification
- \$5,500.00 for IWCF – Level 4 certification
- \$200.00 additional fee for IADC WellSharp Workover & Completion certification

DAILY SCHEDULE:

- Classes will begin at 7:00 A.M.
- Daily dismissal varies due to simulator schedules. Students are usually finished testing by noon on the final day.

IWCF CANDIDATE NOTES:

- Candidates for IWCF Level 4 must have been previously certified at Level 3 or Level 4 (by either IWCF or IADC).
- IWCF candidates must register for an account on FORUM. Once registered and approved by the IWCF, a candidate ID number will be issued. IWCF candidates will need their candidate ID before registering for a well control course. IWCF candidates can register on FORUM at www.IWCF.org.
- The IWCF requires IWCF testing centers to order the IWCF tests ten days prior to the exam date. Therefore, MDS requires all course participants to enroll at least one week prior to the first day of the class. Participants must indicate at the time of enrollment the following information: Type of Certification (Surface or Combined Surface/Subsea), Units of Measurement (API, Metric), and Language for written test.
- All candidates must bring their passport and present to assessor and invigilator before tests are administered. (U.S. citizens born in the U.S. who do not have a passport may present their driver's license.)

IADC CANDIDATE NOTES:

The IADC has an online WellSharp Practice Exam to help those trainees who have test anxiety and want to become more familiar with the process of taking an online WellSharp exam. Four exams are currently available: Driller-Surface Stack, Driller-Combination Stack, Supervisor-Surface Stack, and Supervisor-Combination Stack. For access to these exams, go to the website listed below.

<http://www.iadc.org/wellsharp/sample-wellsharp-exams/>

Practical Drilling Technology

OBJECTIVE:

The objective of this five-day drilling technology course is to equip drilling personnel with the technical tools needed to become effective supervisors. This is Part I of a two-course series in drilling technology. This course is suited for operator, contractor, and service company personnel who want more understanding about drilling operations.

TOPICS:

- Communication
- Hole Trends
- Problem Solving Model
- Bits
- Drill String Basics
- Tripping Practices
- Deviation & Stuck Pipe
- Circulation System
- Casing & Cementing
- Abnormal Pressure
- Mud & Mud Solids
- Drillout Considerations
- Leak-Off Tests
- Formation Integrity Tests
- Well Control Red Flags
- Shallow Gas Kicks
- Diverting
- BOP Equipment Considerations
- Salt Water Flows and Kick Identification
- Well Control (Driller's Method and Wait & Weight)
- Kill Sheets
- Lost Circulation in Vugular Formations
- H₂S Safety
- Workover and Completions

METHODS:

Lecture, exercises, workshops, tests, PowerPoint slides and discussion.

ALBUQUERQUE TRAINING CENTER:

January 21-25 May 6-10 September 9-13

HOUSTON TRAINING CENTER:

February 4-8 June 3-7 September 30 - October 4
April 1-5 August 5-9 December 2-6

COURSE FEES:

- \$2,800.00

DAILY SCHEDULE:

- Classes will begin at 7:00 A.M.
- Students will be dismissed by noon on the final day.

MDS 2019 Class Schedule

Advanced Drilling Technology

OBJECTIVE:

This five-day course is the sequel to the PDT. Participants are recommended to complete the PDT and a well control course prior to enrolling in the ADT. This is a supervisor level course that is suited for experienced operator, contractor, and service company personnel.

TOPICS:

- Pre-Spud Meeting
- Communication
- Hole Trends
- Problem Solving Model
- Drill String Design
- Casing & Cementing
- Drillout Considerations
- Leak-Off Tests & Formation Integrity Tests
- Tripping
- Limitations to Control Capability
- Salt Water Flows & Kick Identification
- Methods of Well Control (Driller's Method, Wait & Weight, Volumetric & Lubrication, Modified Wait & Weight)
- Underground Blowouts
- Lost Circulation From Propagation Losses
- Deviation and Stuck Pipe
- Freeing Techniques
- Kick-Off Plugs
- Advanced Mud
- Advanced Mud Solids
- Hydraulics
- Top Hole Cleaning
- Shallow Gas and Diverting
- Causes of Abnormal Pressure
- WC Red Flags and Transition Zone Indicators
- Logging and Perforating
- High Press/High Temp Considerations
- Shales
- BOP Equipment Considerations
- Subsea Equipment Considerations
- Gas Cap Drilling
- Squeezing for Holes in Shoes & Top of Liners
- Liner Cementing
- Production Squeezes

METHODS:

Lecture, exercises, workshops, tests, PowerPoint slides and discussion.

ALBUQUERQUE TRAINING CENTER:

March 11-15 July 8-12 November 11-15

HOUSTON TRAINING CENTER:

February 18-22 June 17-21 October 14-18
April 15-19 August 19-23

COURSE FEES:

- \$2,800.00

DAILY SCHEDULE:

- Classes will begin at 7:00 A.M.
- Students will be dismissed by noon on the final day.

Stuck Pipe and Fishing

OBJECTIVE:

The objectives of this three-day course are to present methods of preventing and freeing stuck pipe, and also to present the philosophy and methodology of fishing. A review of common fishing tools and their uses will also be presented. The course is designed for supervisors with knowledge of normal drilling operations.

METHODS:

Lecture, exercises, workshops, tests, PowerPoint slides and discussion.

HOUSTON TRAINING CENTER:

March 25-27, 2019

May 28-30, 2019

October 21-23, 2019

COURSE FEES:

- \$1,800.00

DAILY SCHEDULE:

- Classes will begin at 7:00 A.M.
- Students will be dismissed by noon on the final day.

Managed Pressure Drilling 101 (taught by Altus Well Experts)

OBJECTIVE:

This comprehensive course is a three-day, close-up study of managed pressure drilling including basic concepts of the pressure window in addition to more in-depth exposure to operational processes and equipment. This is an operational course that includes some in-class problem solving and hand calculations. This course is intended to be both an in-depth introduction for managers as well as a primer for those who will be directly involved in managed pressure drilling operations prior to rig-specific training, or for engineers who wish to become involved in planning and job design.

An optional fourth day is also available which focuses on MPD software.

HOUSTON TRAINING CENTER:

January 28-30, 2019

August 19-21

COURSE FEES:

- \$1,800.00
- Optional fourth day: \$600.00

DAILY SCHEDULE:

- Classes will begin at 8:00 A.M.

Advanced Casing Design (taught by Altus Well Experts)

OBJECTIVE:

This advanced Casing Design course is a three-day tubular fundamentals course including basic concepts of axial, burst, and collapse in addition to more advanced theory on biaxial, triaxial, and thermal loads including Annular Pressure Build-up (APB) and wellhead movement. This is a theory course and includes hand calculations and exercises. Participants are recommended to complete this course prior to taking a StressCheck or WELLCAT course. This course is ideal for drilling engineers and engineers requiring tubular theory fundamentals.

HOUSTON TRAINING CENTER:

February 25-27, 2019

October 14-16, 2019

COURSE FEES:

- \$1,800.00

DAILY SCHEDULE:

- Classes will begin at 8:00 A.M.

Well Control - Introductory, Level 2

OBJECTIVE:

The objective of this three-day course is to lay a solid foundation in well control. The U-Tube concept, gas laws, basic math skills, pressure basics, kick detection, kill sheet, drilling fluids, BOP equipment, shut-in procedures, and basic methods of well control are all covered.

Our currently scheduled Level 2 courses only offer WellSharp certification. If you are interested in IWCF certification, please contact us about scheduling a course: htcadmin@murchisondrillingschools.com, or call 281-494-0371.

TOPICS:

- | | | | |
|---------------------------|------------------------|---------------------------|----------------------------------|
| - Risk Management | - Kick Detection | - Limitations to Control | - Drill String Basics |
| - Drilling Overview | - Shut-In Methods | - Barriers & Tests | - Drilling Fluids |
| - Basic Pressure Concepts | - Well Control Methods | - Well Control Drills | - Intro to Workover & Completion |
| - Gas Behavior | - Circulating System | - Shallow Gas & Diverting | |
| - Formation Pressures | - Kill Sheets | - BOP Equipment | |
| | - Leak-Off Tests | | |

METHODS:

Lecture, exercises, workshops, tests, PowerPoint slides and discussion.

VERNON COLLEGE - WICHITA FALL, TEXAS:

February 26-28 June 25-27 October 1-3

COURSE FEES:

- \$1,200.00 for IADC WellSharp certification, Surface or Subsea
- \$1,500.00 for IWCF certification, Surface or Subsea

DAILY SCHEDULE:

- Classes will begin at 7:00 A.M.

IADC CANDIDATE NOTES:

The IADC has an online WellSharp Practice Exam to help those trainees who have test anxiety and want to become more familiar with the process of taking an online WellSharp exam. Four exams are currently available: Driller-Surface Stack, Driller-Combination Stack, Supervisor-Surface Stack, and Supervisor-Combination Stack. For access to these exams, go to the website below.

<http://www.iadc.org/wellsharp/sample-wellsharp-exams/>

Well Control - Driller, Level 3

OBJECTIVE:

The objective of this five-day course is to teach well control competency to drillers and others requiring a Level 3 Driller certification. A secondary objective is to prepare participants for the IWCF well control exams. Certification is given for Surface or Combined Surface and Subsea. BOP equipment, kick detection, shut-in procedures, kill sheets, and methods of well control are taught. The simulator work in the course focuses on detecting kicks, and closing in the well, and handling an assortment of simulated problems.

TOPICS:

- | | | | |
|----------------------------|-------------------------------------|-------------------------------------|--|
| - U-Tube | - Limitations to Control Capability | - Causes of Abnormal Pressure | - BOPE & Accumulator Considerations |
| - Shoe Pressure Case Study | - Salt Water Flows | - Transition Zone Indicators | - Subsea Well Control Considerations |
| - API Rules | - Mud Considerations | - Well Control Problems & Solutions | - Tripping Practices Related to Well Control |
| - Kill Sheets | - Well Control Drills | | |
| - Simulator Workshops | - Shallow Gas | | |
| - Well Control Principles | - Diverting | | |

METHODS:

Lecture, exercises, simulator sessions, workshops, tests, PowerPoint slides and discussion.

HOUSTON TRAINING CENTER:

If you are interested in taking a Level 3 well control course, please contact us at htcadmin@murchisondrillingschools.com or call us at 281-494-0371 for available dates.

COURSE FEES:

- 4-Day IADC WellSharp - Surface: \$1,350.00
- 5-Day IWCF Surface/Subsea: \$2,250.00

DAILY SCHEDULE:

- Classes will begin at 7:00 A.M.
- Daily dismissal varies due to simulator schedules. Students are usually finished testing by noon on the final day.

IWCF CANDIDATE NOTES:

- Candidates for IWCF Level 3 must have been previously certified at Level 2 or Level 3 (by either IWCF or IADC).
- IWCF candidates must register for an account on FORUM. Once registered and approved by the IWCF, a candidate ID number will be issued. IWCF candidates will need their candidate ID before registering for a well control course. IWCF candidates can register on FORUM at www.IWCF.org.
- The IWCF requires IWCF testing centers to order the IWCF tests ten days prior to the exam date. Therefore, MDS requires all course participants to enroll at least one week prior to the first day of the class. Participants must indicate at the time of enrollment the following information: Type of Certification (Surface or Combined Surface/Subsea), Units of Measurement (API, Metric), and Language for written test.
- All candidates must bring their passport and present to assessor and invigilator before tests are administered. (U.S. citizens born in the U.S. who do not have a passport may present their driver's license.)

MDS 2019 Class Schedule

Well Control - Supervisor, Level 4

OBJECTIVE:

The objective of this course is to teach well control competency to drilling personnel. A secondary objective is to prepare participants for either the IWCF or IADC WellSharp well control certification exams. Certification can be taken for Surface or Combined Surface and Subsea. BOP equipment, drilling fluids, barrier management, kick detection, shut-in procedures, kill sheets, various methods of well control, and organizing a well control operation are all taught in this course. A thorough understanding of how well control problems develop, how they should be solved, and how to prevent them are discussed. There is an extensive amount of simulator work in the course with an assortment of simulated problems.

TOPICS:

- | | | | |
|------------------------|----------------------|----------------------|----------------------|
| - U-Tube | - WC Principles | - Diverting | - BOPE & |
| - Barriers | - Limitations to | - Causes of Abnormal | Accumulator |
| - Shoe Pressure | Control Capability | Pressure | Considerations |
| - Bottom Hole Pressure | - Salt Water Flows | - Transition Zone | - Subsea WC |
| - API Rules | - Mud Considerations | Indicators | Considerations |
| - Kill Sheets | - WC Drills | - WC Problems & | - Tripping Practices |
| - Simulator Workshops | - Shallow Gas | Solutions | Related to WC |

METHODS:

Lecture, exercises, simulator sessions, workshops, tests, PowerPoint slides and discussion.

HOUSTON TRAINING CENTER:

<u>IADC WellSharp or IWCF or BOTH</u>			
January 7-11	April 1-5	July 8-12	October 7-11
January 14-18	April 15-19	July 15-19	October 14-18
January 21-25	April 22-26	July 22-26	October 21-25
January 28 - February 1	April 29 - May 3	July 29 - August 2	October 28 - November 1
February 4-8	May 6-10	August 5-9	November 4-8
February 11-15	May 13-17	August 12-16	November 11-15
February 18-22	May 20-24	August 19-23	November 18-22
February 25 - March 1	May 28-31*	August 26-30	December 2-6
March 4-8	June 3-7	September 3-6*	December 9-13
March 11-15	June 10-14	September 9-13	December 16-20
March 18-22	June 17-21	September 16-20	
March 25-29	June 24-28	September 23-27	

**Due to holiday, course begins on Tuesday, no Workover Completion supplement available.*

COLORADO/WYOMING/NORTH DAKOTA TRAINING CENTER:

<u>IADC WellSharp (Surface Only)</u>			
January 7-11	May 20-24	August 19-23	November 18-22
February 4-8	June 17-21	September 23-27	December 9-13
March 25-29	July 22-26	October 21-25	

MDS 2019 Class Schedule

PERMIAN TRAINING CENTER:

<u>IADC WellSharp (Surface Only)</u>			
January 7-10	March 18-21	June 17-20	October 14-17
January 14-17	March 25-28	July 29 - August 1	October 21-24
January 21-24	April 1-4	August 5-8	October 28-31
January 28-31	April 8-11	August 12-15	November 4-7
February 4-7	April 22-25	August 19-22	November 11-14
February 11-14	May 6-9	August 26-29	November 18-21
February 18-21	May 13-16	September 9-12	December 2-5
February 25-28	May 20-23	September 16-19	December 9-12
March 4-7	June 3-6	September 30 - October 3	December 16-19
March 11-14	June 10-13	October 7-10	

VERNON COLLEGE - WICHITA FALL, TEXAS:

<u>IADC WellSharp (Surface Only)</u>				
April 15-19	May 20-24	July 22-26	August 19-23	November 14-18

COURSE FEES:

- 4-Day IADC WellSharp - Surface: \$1,350.00
- 4-Day IADC WellSharp - Surface/Subsea: \$1,400.00
- Workover and Completion: \$300.00.
WOC will be taught after the completion of the well control course and adds a fifth day to the course.
- 5-Day IWCF Surface/Subsea: \$2,250.00
- Add IADC certification to 5-Day IWCF course: \$250.00

DAILY SCHEDULE:

- Classes will begin at 7:00 A.M.
- For the 4-day well control course, students are finished testing by 4:00 P.M.
- For the 5-day well control course, students are usually finished testing by noon.

IWCF CANDIDATE NOTES:

- Candidates for IWCF Level 4 must have been previously certified at Level 3 or Level 4 (by either IWCF or IADC).
- IWCF candidates must register for an account on FORUM. Once registered and approved by the IWCF, a candidate ID number will be issued. IWCF candidates will need their candidate ID before registering for a well control course. IWCF candidates can register on FORUM at www.IWCF.org.
- The IWCF requires IWCF testing centers to order the IWCF tests ten days prior to the exam date. Therefore, MDS requires all course participants to enroll at least one week prior to the first day of the class. Participants must indicate at the time of enrollment the following information: Type of Certification (Surface or Combined Surface/Subsea), Units of Measurement (API, Metric), and Language for written test.
- All candidates must bring their passport and present to assessor and invigilator before tests are administered. (U.S. citizens born in the U.S. who do not have a passport may present their driver's license.)

IADC CANDIDATE NOTES:

The IADC has an online WellSharp Practice Exam to help those trainees who have test anxiety and want to become more familiar with the process of taking an online WellSharp exam. Four exams are currently available: Driller-Surface Stack, Driller-Combination Stack, Supervisor-Surface Stack, and Supervisor-Combination Stack. For access to these exams, go to the website below.

<http://www.iadc.org/wellsharp/sample-wellsharp-exams/>

Oil and Gas Operator Representative Workover and Intervention Well Control

OBJECTIVE:

MDS is pleased to now offer this new IADC WellSharp well control course (IADC made this course available in 2018) that is designed for Operator Representatives supervising workovers and interventions. This 5-day course concludes with student candidates receiving an IADC WellSharp well control certificate for this type of operation. The course covers a wide variety of well control considerations for various intervention techniques/activities including coiled tubing, snubbing, and wireline operations. Well control equipment to conduct these types of operations is investigated as well as appropriate well control procedures. Satisfactory completion of the course requires passing the IADC WellSharp written test for this certification. No simulator test is required by IADC, however, students will have work sessions on the simulator performing well control operations using techniques such as bullheading, lubricate and bleed, reverse circulating, driller's method and volumetric well control. This course is designed for surface wellheads (not subsea wellheads).

TOPICS:

- Well Integrity
- Barriers and the Barrier Envelope
- Fundamentals of Pressure
- Balance, Overbalance, Underbalance
- MASP
- Friction Pressure
- ECD
- Well Configuration
- Forces on Tubing
- Coiled Tubing Pressure Control Equipment and Operations
- Wireline Pressure Control Equipment and Operations
- Snubbing Pressure Control Equipment and Operations
- Properties of Gas
- Properties of Brines
- BOP Stacks and Components
- BOP Closing System
- Tubing Plugs
- Packers
- Stripping Operations
- Risk Analysis
- Volumetric Control
- Lube and Bleed
- Driller's Method
- Reverse Circulation
- Trapped Pressure
- H₂S Considerations
- Testing Well Control Equipment
- Well Control Drills
- Mud-gas Separator

METHODS:

Lecture, exercises, simulator sessions, workshops, tests, PowerPoint slides and discussion.

HOUSTON TRAINING CENTER:

April 8-12 May 20-24

PERMIAN TRAINING CENTER:

April 15-19 June 17-21 September 23-27

COLORADO TRAINING CENTER:

June 3-7

COURSE FEES:

- \$1,500.00

DAILY SCHEDULE:

- Classes will begin at 7:00 A.M.

Enrollment/General Information for All Classes

Contact/Enrollment Information

Training Coordinators (for enrollments):

Veronica Allison and Claudia Lemons

Phone: (281) 494-0371

email: htcadmin@murchisondrillingschools.com

General Information Contact

email: info@murchisondrillingschools.com

In-House Contact Information

All in-house classes are coordinated through

Bill Murchison.

Office: (505) 293-6271

email: billjr@murchisondrillingschools.com

Website: www.murchisondrillingschools.com

CANCELLATIONS:

We request that all cancellations be received at least one week before the class start date. You may reschedule this class without any penalty. However, a \$250 fee will be charged for cancellations received less than one week before a class begins and for no-shows. Cancellation penalties and any fees incurred by Murchison Drilling Schools will be deducted from refunds.

TRANSPORTATION:

- Students will be responsible for their own transportation.
- The hotel does provide shuttle service to and from our training centers.

HOTEL ACCOMMODATIONS

- Hotel accommodations are provided for MDS students at a special rate at a preferred hotel nearby.
- Students are responsible for making hotel reservations.
- Companies wanting to set up direct billing with the preferred hotel will need to fill out a direct billing application.