

HRD 6352 Instructional Design Project Report

Client: Halliburton

Industry: Oil and Gas

HALLIBURTON

Group members

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Performance Problem Analysis

Business case:

- Drilling and Evaluation contributed to 35% of Halliburton revenue in 2017 (source: http://www.halliburton.com/public/news/pubsdata/press_release/2017/hal-2Q17-earnings-release.pdf)
- Surface Well Testing (SWT) is a sub product line of Drilling and Evaluation
- SWT assesses the flow rate of hydrocarbon through a well. It is one of the last tests which are done to assess the conditions of a reservoir (pressure, temperature, flow rate)
- The service operators are expected to work in variety of field condition in different international locations. Hence it is imperative that the rig crew is competent about understanding and operating different surface well test equipment, adhere to safety procedure, meet customer's objective and maintain Halliburton's competitive edge at the market.
- Currently the service operators for Surface Well Testing have difficulty in meeting expected performance standards. Underperformance has caused nonproductive time in the rig, safety and service quality incidents.

Client:

Halliburton

Stake holders:

Primary: Service Supervisor, Service Leader, Shop Foreman

Secondary: SWT operation manager

Tertiary: SWT Business Advisor

Actual Situation:

- Assembling equipment is taking is longer time
- Higher rate of equipment malfunction or wear and tear
- Service operators have not received proper technical and safety training.

Desired Situation:

- Service operators should be able to prepare and assemble SWT equipment as required for the job.
- Complete courses (job related technical & safety) for advancing to next level.
- Minimal NPT (Non Productive Time) related to personnel and equipment.
- Zero service quality (SQ) and health safety environment (HSE) incidents.
- Better service quality leading to continued business with clients.

Target Audience:

Surface Well Test Operator (Level I and Level II)

Causes:

- SWT operators are not following the HMS standards & procedures.
- There are gaps in the existing training programs.

Symptoms:

- Service quality incidents
- Safety incidents
- NPT (Non Productive Time)
- Undue wear and tear of equipment

Needs Assessment Report

<p>Research Questions</p> <p>Service operators are unable to meet performance standards</p>	<ul style="list-style-type: none"> • Why SWT operators are not able to meet the job specific objectives and are underperformed? Are there any shortcomings in the required knowledge, skills and behaviors for the job? • What is the specific performance standard of service operators? • What is the existing SWT training program? How this can be improved?
<p>Type of Need</p>	<p>Felt needs:</p> <p>The request to intervene came from the Training Department of Testing and Sub Sea, Halliburton. A Felt Need is a lack or shortage of skills felt subjectively by members of particular population. The Training Department considers there is gap between the desired performance vs the current performance of the SWT operators.</p>
<p>Target Audience</p>	<p>The target audience for this project would be the Service Operators (level I and level II) of Surface Well Testing, Halliburton</p>
<p>Data Collection</p>	<p>Data will be collected in the following way:</p> <ul style="list-style-type: none"> • Interviews: We will conduct telephone interviews with the SWT operators, supervisors, performance coordinator and business segment heads of Testing and Sub Sea, Halliburton to gain in-depth knowledge about the current situation. • Document review Existing training documents of Surface Well Testing from Halliburton
<p>Company Protocol</p>	<p>We have taken formal approval from the Training Manager, Testing and Subsea to reach out to their employees. The interviews will be scheduled according to their availability. It is also our responsibility to safeguard the proprietary information of Halliburton.</p>
<p>Process for Data Analysis</p>	<p>Primarily we will apply a qualitative method in this study.</p> <p>The interviews with SWT performance coordinator, Business head will help us to find out their perception/concern about the current performance gap of SWT operators. We also hope to gain an</p>

	<p>understanding about which need(s) are critical, can be addressed within our limits and the interventions will be prioritized accordingly.</p> <p>The interviews with SWT operators will help us to find about their perspective on gap. Additionally, since the SWT operators are our target audience they will also help us to gain an idea about learner characteristics.</p>
Data Reported to	The data will be reported to Ms. Maya Nair, Training Manager, Testing and Subsea
How will the data be used	The data will be used to do a root cause analysis of the performance gap. This will also help us to understand whether it is worth addressing the performance gap. Additionally we will also be able to understand what would be the most effective method to alleviate the gap with the available resources.
Results	<p>Question 1: Why SWT operators are not able to meet the job specific objectives and are underperformed? Are there any shortcomings in the required knowledge, skills and behaviors for the job?</p> <p>Interview results:</p> <ul style="list-style-type: none"> • New hires are not very skillful in operating and keeping maintenance of the equipment’s which leads to breakage. • Surface Well Testing operators don’t always follow HMS* (Halliburton Management System) guideline when they operate equipment. • One of the reasons that the operators don’t refer HMS principles is because of lack of knowledge. They don’t know how to locate the HMS documents online and they rely on senior personnel for guidance and instruction. This lack of knowledge leads to non-productive time. <p>*HMS is the integrated set of policies, business practices, and procedures that are used by Halliburton in defining, planning, and executing business activities.</p>

	<p>Question 2. What are the specific performance standard for service operators?</p> <p>Description from job responsibilities:</p> <p>Service Operators are assessed based on a competency assessment document by their supervisor. Following are the specific performance standards for service operators:</p> <ul style="list-style-type: none"> • Visually identify and describe various types (SWT) equipment and explain function of each • Works in the Testing & Subsea workshop, assisting in the repair and maintenance of (SWT) equipment. • Performs in the rigging up and rigging down on a location of (SWT) service line equipment and in the cleanup, repair, and preparation of equipment for the next job • Must follow all Health, Safety and Environment best practices, be able to complete Job Safety Analysis (JSA) on prescribed tasks and demonstrate Safety in lifting • Must be capable of understanding/navigating HMS, Learning Central and Competency sites on HALWORLD. • Must have successfully passed company tests or met task guideline requirements <p>Question 3. What is the existing SWT training program? How this can be improved?</p> <p>Interview results: Currently there is face to face (5 days) training class for Surface Well Testing. However, the instructional material needs to revamped for the following reasons:</p> <ul style="list-style-type: none"> • Instructional content was not updated for the last couple of years (SWT business had low operational activity when the O&G industry was going through downturn) • The current instructional content needs to emphasize more on the values of adhering to HMS and how to embed HMS on daily operational activities.
Recommendations	<ol style="list-style-type: none"> 1. Review the existing SWT training program. Discuss with SME and Business Segment Head to understand the current gap in the training program

	<ol style="list-style-type: none">2. Review what should be the pre-requisites for the training program3. Identify the technical contents which should be introduced in the training program (also identify content which is no longer valid and needs to be taken out)4. Review if the objectives of the training program matches with competency assessment (competency assessment is an internal program where employees are rated by their supervisor)5. Identify if the end of course assessment align with the objectives of the training and competency assessment program.
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Learner Analysis

Introduction

Halliburton's operation is spread across 70 different countries, with approximately 140 different nationalities working in different geographic locations. Surface Well Testing is a labor-intensive operation. During operations phase, the operators spend significant time working in harsh geographical conditions.

While conducting the interviews for need analysis, the current ISD team found that the learner group is very heterogeneous and hence it is sometimes too difficult to generalize. We are using the following learner's characteristics to describe our target audience:

1. Demographics
2. Educational background
3. Attitude towards content
4. Prior knowledge in topic area
5. Computer and English language skills

Demographics

Most of the learners are young, in between 20-30 years old. Ratio of male to female is 4:1

Educational Background

Different geographic locations have slightly different policies related to hiring (according to their country laws). As a result, the operators have diverse educational background. Depending on a location, in some cases Well Testing Operators have a high school degree (along with technical certification); whereas in some location's operators have an undergraduate degree in Petroleum Engineering or Chemical Engineering.

Attitude towards content

One of the primary reasons which separate Halliburton from rest of the competitors is the extensive formal learning they provide. Field personnel are extremely keen to attend training courses. The training classes help to instill a sense of pride in their attendance helps to boost their competencies in the equipment and operations and supports their ability to advance within the product line. The surveys and interviews we have conducted shows that the employees are optimistic and energetic towards learning.

Prior knowledge in topic area

The current practice in Halliburton emphasizes that upon hiring, an employee should have spent at least 6 months in the company before attending a formal classroom session. However, there could be exceptions due to operational requirements. From the initial interview results, we have concluded that at least 70% of the operators (Level 1 and 2) are proficient about the SWT equipment.

Computer skills and English language skills

- The young generation is receptive towards online instructional delivery system.
- However, in the maintenance yard there could be limited number of computers (like 8 computers for 30 people).
- Almost 90% of the operators are bilingual. For many locations, the learning material needs to be available in other language as well – Arabic, Portuguese, Spanish.

Contextual Analysis

Orienting Context

- Halliburton executes its business strategies through partnership with the Learning and Development department.
- The organization has extensive learning and development opportunities through formal and informal trainings.
- As a new employee gets on board to Halliburton, their supervisors assign trainings to them according to their job role and competencies required. A vast part of the training is offered through face to face classroom training and maintenance workshops. Halliburton has also online training, which is offered through an internal portal called Learning Central.
- Informally, learning take place in two ways. First, the supervisors provide guidance to their subordinate in completing a task. For example, if any field operator finding difficulty to monitor instrument or recording the test data on his own then the supervisors help them to complete those tasks and also offer feedback.
- Once the formal classroom trainings are completed, it gets updated in their LMS record which can help them in career progression.

Development Context

Resources available

- **Personnel**
 - Maya Nair, TSS Training Manager will be our focal point for overall operation of the Instructional Design process.
 - Mark McGouldrick (SWT Business Advisor), Mohammed Samir (SWT Business Advisor) and Steven Woolsey (SWT Technical Instructor) will serve as our main SME for SWT equipment and operation.
 - Steven Woolsey (SWT Technical Instructor) provided us with the existing learning materials for SWT to get deeper understanding of the learning gaps
 - Ben Ten Hoope (SWT Technology Advisor) will serve as our SME on HMS processes and procedures.

- **Technology**
 - Halliburton has licenses of Articulate Storyline 3, Camtasia. Halliburton's LMS is distributed by Learning Central.
 - Field locations (maintenance yards) have computers for personnel.
 - Face to face training classes primarily happens in the dedicated training rooms.
 - The hands-on classes are scheduled in maintenance yard. Currently there are 10 locations in the Western Hemisphere which can support hands-on classes for SWT. The maintenance yards are equipped with following equipment items: Surface Test Tree, Emergency Shutdown System, Surface Safety Valve (SSV), Choke Manifold, Well Stream Heater, Separator and Burner Systems.

- **Challenges**
 - Scheduling training for personnel during high operational activities
 - Scheduling time with SME to develop instructional material
 - Meeting turnover time to develop learning material as requested by Halliburton

Delivery/ Instructional context

- We have chosen the solution to be blended learning and the training which we are going to develop will consist of the following themes:
 1. Introduction to SWT equipment package (different components, what it does, how it is being used)
 2. How to follow the HMS processes and procedures related to safe operations of the SWT equipment
 3. Critical aspects of the equipment and operation – lifting, assembling, pressure test (where applicable), troubleshooting and maintenance.

Since item 1 and 2 are mostly related to getting familiarized with an equipment and following HMS processes, the above two will be delivered online. Learners will be able to access the online training material via internet from either home or at Halliburton locations. The e-learning content can be also accessed from their cell phones.

All the aspects of item 3 deal with the critical safety aspect of a job and hence it will be delivered in a face to face hands on session at designated Halliburton maintenance yards.

Transfer context

- **Training Design**

- Create a learning environment: The current ID team has decided to approach a blended design for the training. The simple procedural tasks will be addressed in e-learning (awareness level objectives); while the critical aspects (e.g.: safety, safe lifting, safe pressure testing) would be discussed in detail in a face to face class. These two learning opportunities, with a combination of theory and practice would help learner to acknowledge the entire spectrum of SWT operations.
 - Apply theory of transfer: The current ID team will apply adult learning theories on designing the trainings. For example, by incorporating connections between previous knowledge and skills to the new knowledge and activities to invoke critical thinking skills, learners will be able to transfer their knowledge from the training to perform safely in rigs and maintenance yards.
- **Work Environment**
- Climate for transfer: Halliburton's mandatory six-month policy for new hire to complete the pre-requisites and familiarize themselves with SWT equipment enables congenial climate for transfer of knowledge.
 - Extensive training culture as compared to Halliburton's competitors, with focus on employees' skill development and promotion within product line facilitate the transfer.
 - Management support: Every SWT supervisor needs to show evidence of how they have coached their juniors formally and informally. Supervisors are responsible to make necessary arrangement so that an employee can complete their training.
 - Opportunity to perform: An operator who has completed formal SWT training and has been formally evaluated by a Rater (an internal expert who assesses) is ready to work in field.
 - Technical support: Halliburton has well established maintenance yard equipped with computers and machineries, easily accessible to trainees for hands-on classes. In addition, dedicated training rooms for face-to-face training and LMS Learning Central for online classes are also available.

Task Analysis

Introduction

The new operators (Level 1 and 2) in Surface Well Testing are not up to the expected performance standard. A needs assessment was conducted to understand the underlying cause of the problem. The results from needs assessment revealed that the existing training program for SWT has not been updated/reviewed for the last couple of years.

In order to improve the performance of the SWT operators the ISD team has decided to improve their knowledge base on Surface Well Test operations through training (E-learning & classroom training). The ISD team reviewed the existing training material at Halliburton. Data was collected by conducting interviews with the Subject Matter Experts. Our task analysis will include a topic analysis.

Rationale

The topic analysis will ensure:

- The objectives of the course are aligned appropriately (as per the job description of Level 1 and Level 2 Service Operator and also according to the yearly competency assessment scoresheet)
- Instructional material is identified as per the objectives (this will also help us to identify gaps in the instructional material and identify the SME who will help us to secure the material)
- The content is taught in the right order (in our case we wanted the flow of the content to replicate the flow of Surface Well Testing process).
- The content of the E-learning as well as classroom training will be aligned to the recommendations mentioned in the need assessment report.

Methodology

Data Collection Methods:

- Telephonic interviews
- Face to face interviews
- Reviewed existing SWT training documents

Knowledge Sources:

We conducted interviews with:

Mr. Steven Woolsey (Technical Instructor)
Mr. Mark McGouldrick (SWT Global Advisor)

Process

- Information from the interviews were used to:
 - Determine what kind of knowledge and activities (classroom and -learning) which should be included in the SWT training program
 - Identify the critical learning objectives of the training program (e.g. operational elements which can have high HSE impact, establishing connections between theory and Halliburton Management System)
 - Get consensus from the SME on what materials need to be retained / taken out (e.g. outdated information)
- Data collected from SWT training material were used to:
 - Understand SWT operation.
 - Secure learning content for the training program

Topic Analysis

Concepts

- **Surface Well Testing**

Surface well testing is the only technique available today that assesses the true reservoir potential at full scale under dynamic conditions. It validates well performance during cleanup and commissioning and allows reservoir monitoring for better field management. Halliburton provides surface well testing services and products including planning, specialized equipment, and monitoring and measurement of all factors relating to the production of oil, gas, and water at a well site.

- **Objectives of Surface Well Testing**

- To estimate reservoir volume
- To establish reservoir parameters (permeability, porosity, skin factor etc.) which will enable the prediction of inflow performance of future development wells.
- To confirm reservoir pressure and temperature.
- To obtain representative fluid samples of the reservoir fluid for subsequent laboratory analysis and process modelling.
- To evaluate and confirm lack of near wellbore barriers/depletion.

- **Types of jobs in SWT**
 - a. **Clean-up**
To clean drilling debris and fluids out of the formation.
 - b. **Frack flow back**
Frac flowback is a process in which fracture fluid is recovered from the well to the surface. The purpose of the flow back is to safely recover the large volume of frac fluids from the well and transition the marketable hydrocarbons of the well stream to sales in a timely manner.
 - c. **Drill Stem Testing (DST)**
DST has been the industry standard for testing new and especially exploration wells for almost a century. These tests are one of the primary methods used to evaluate a new formation to determine its commercial feasibility.

- **Roles and responsibilities of a Surface Well Tester**
 - Prepare equipment for loading out
 - Assist in rigging up / rigging down equipment as required for the job
 - Assist in inspection, repair and pressure testing of equipment
 - Report concerns related to safety
 - Ensure customer requirements are met
 - Post job maintenance of equipment
 - Exhibit good safety practices and commitment to improvement

- **Key components of Surface Well Testing**
 - Control and shut-in
 - Process and measurement
 - Well fluid disposal

- **Equipment used in Surface Well Testing operation**
 1. **Surface Test Tree**
 - Allows flow of well fluid and also a mechanism to kill the well (if required)
 - Common problems associated with STT:
 - Stiff valves
 - Hydraulic valves not functioning
 - Connection/threads are damaged

- Position of STT should be identified from process and instrumentation diagram**
- STT technical specifications should be verified from data sheet*.

2. Pipework

- It is a system of pipes that acts a flow line to convey fluids.
- The selection of this equipment material based on the expected wellbore conditions (pressure, temperature, hydrogen sulfide etc.)
- Position of Pipework should be identified from process and instrumentation diagram.
- Pipework's technical specifications should be verified from data sheet.
- HMS guideline on pressure rating selection of pipework can be obtained from the following link: (*Internal information of Halliburton, cannot be disclosed here*)

3. Emergency Shutdown System

- Designed to minimize the consequences of emergency situations on rig.
- Means of quick closure of the well in case of leakage or fire
- Position of the equipment to be identified from process and instrumentation diagram
- Technical specification of the equipment needs to be verified from data sheet
- Common problems associated with ESD system:
 - ESD valve taking long time to shut off
 - ESD system trips due to air leak
- HMS guideline on ESD timing sheet can be obtained from the following link: (*Internal information of Halliburton, cannot be disclosed here*)

4. Surface Safety Valve

- It is a hydraulically fail-safe gate valve for testing oil & gas well with high flow rates, high pressures or the presence of Hydrogen Sulfide.
- Means of additional shut down system in case of emergency like overpressure, leakage in downstream etc.

- Position of Surface Safety Valve to be identified from process and instrumentation diagram
- Technical specification SSV specifications to be verified from data sheet.
- Common problems associated with SSV
 - a) SSV takes long time to shut off
 - b) SSV trips.
- HMS guideline on operations of SSV can be retrieved from the following link: *(Internal information of Halliburton, cannot be disclosed here)*

5. Coflexip Flexible Pipe

- These are high pressure flexible flow lines.
- Means of carrying fluid from surface test tree to the rest of the surface well test package, kill pumps, or stimulation package.
- Position of the equipment to be identified from process and instrumentation diagram
- Technical specification of the Coflexip Flexible Pipe should be verified from data sheet.
- HMS guideline on operation & maintenance of CFP can be retrieved from the following link: *Internal information of Halliburton, cannot be disclosed here)*

6. Data Header

- Means of injecting chemical into flow line; means of testing temperature, pressure.
- Position of the equipment to be identified from process and instrumentation diagram
- Technical specification of the data header should be verified from data sheet.

7. Chemical Injection Pump

- Means for injecting chemicals to prevent hydrate formation within well flow system
- The equipment should be identified from process and instrumentation diagram
- Technical specification of Coflexip Flexible Pipe to be verified from data sheet.

- HMS guideline on operations & pre/post job maintenance of chemical injection pump can be retrieved from the following link: (*Internal information of Halliburton, cannot be disclosed here*)

8. Choke Manifold

- Used to control rate of fluid production, also acts a mean to reduce downstream pressure
- Types of choke:
 - Adjustable choke
 - Changeable choke tubes allow the user to put different chokes in by simply unscrewing one and replacing it with another.
 - Fixed choke
 - The fixed choking (reduction in diameter) is either fitted in, or machined in.
- Position of the equipment to be identified from process and instrumentation diagram
- HMS guidelines on operations, pre and post job maintenance of choke manifold can be retrieved by using the following link: (*Internal information of Halliburton, cannot be disclosed here*)

**Datasheet is a document that summarizes the performance and other technical characteristics of a product or machine etc.)*

*** A Process & Instrumentation Diagram shows information on piping, fittings, equipment, instrumentation, and process plant in a representative and sequential arrangement on the basis of product flow paths. The P&ID layout does not necessarily reflect physical arrangements. A P&ID is not drawn to scale.*

Training Goals and Objective

Service assistants and operators will acquire fundamental knowledge about the various equipment and safe operational procedures as used in Surface Well Testing according to Halliburton Management Standard

- Goal 1: To improve performance of SWT operators:
 - Objective 1: By the end of this course, learners will be able to classify three key components of Surface Well Testing and distinguish the difference in each component.
 - Objective 2: By the end of this course, learners will be able to distinguish and differentiate the three key applications of Surface Well Testing (Clean up, Frac Flow Back and Drill Stem Testing).
 - Objective 3: By the end of this course, learners will be able to articulate and manage the six key responsibilities of a Surface Well Tester, as mentioned in their job roles.

- Goal 2: To learn about HMS standards associated with SWT operations:
 - Objective 1: By the end of this course, learners will be able to correctly identify features of all the equipment used in control and shut in package as per HMS guidelines with 100% accuracy
 - Objective 2: By the end of this course, learners will be able to distinguish & verify the 3 key technical specification of each equipment used in control and shut -in from data sheet.
 - Objective 3: By the end of this course, learners will be able to assemble equipment related to control and shut-in as per piping and instrumentation diagram.
 - Objective 4: By the end of this course, learners will be able to combine & use HMS procedures in their daily SWT operational activities.
 - Objective 5: By the end of this course, learners will be able to articulate and categorize the two common problems associated with each equipment and explain how to troubleshoot them.

Training Design

Prerequisites:

The learner should complete the following training courses from Learning Central before attending the e-learning course on Introduction to Surface Well Testing. This will help the learners to develop a foundation on the basics of Well Testing before they are ready for their next level of learning.

- Introduction to Rig Types and Basic Drill String Components (Course ID 00006718)
- Geology of Petroleum (Course ID 555110001)
- Exploration of Oil and Gas (Course ID 555110002)
- Drilling Operations Basics (Course ID 555110003)
- Production of Oil and Gas (Course ID 555110004)
- PSL value proposition for SWT (Course ID 00022865)
- Introduction to Halliburton Management System (Course ID 00025776)
- TSS Global HSE (Course ID 00032700)
- H2S Safety and Awareness Training

Learning Goal: To learn about HMS standards associated with SWT operations

Performance Objective: By the end of this course, learners will be able to correctly identify features of all the equipment used in control and shut in package as per HMS guideline with 100% accuracy

Content Sequencing Strategy: The learning content will be organized as per the operations (and also level of difficulty).

Total Time Frame: 90 minutes

Time Frame	Content	Notes
2 minutes	<p>Introduction Training will be in the form of e-learning.</p> <p>The training will start by the welcoming the learners and explaining the objectives of the training program.</p>	Explaining the objectives will help learners to establish goals throughout the learning experience.
3 minutes	<p>Learners are then prompted to reflect on a scenario, where before starting a job, the field personnel decided not to visit the rig, because they had worked in the same rig 4 months back.</p> <p>Learners are asked to reflect and answer to this question:</p> <p>What could happen in this case? Were the processes being followed in this case?</p> <p>After the learners respond to the above question, the learners will receive feedback that Halliburton Management System are essential components of daily operations. Failure to abide by those guidelines could result in non-productive time, safety incidents, service quality issues, damage of reputation and loss of revenue.</p>	<p>Visual image of the scenario with prompts on text</p> <p>The scenario will help learners to connect their experience with the objectives of the course to align their work with the overall business strategy of Halliburton.</p> <p>Learners should feel motivated & realize the importance to learn about HMS standards related to the daily operation because it will help reduce safety incidents, service quality and loss of revenue.</p>
5 minutes	<p>Learners will then get to know about the names of equipment used in the control and shut in package</p> <p>Content: For a standard surface well testing operations, the following equipment are used: surface test tree, coflexip flexible pipe, emergency shutdown system, surface safety valve, pipeworks, data header, chemical injection pump, choke manifold</p>	Learners will watch a video on SWT about different equipment used in control and shut in package. This will give them a broad overview about the equipment used in control and shut-in. Learners will be able to connect their work

		<p>experience with this video.</p> <p>Learners will see a visual image showing the arrangement of equipment used in control and shut-in process through a standard process and instrumentation diagram.</p> <p>By looking at both video and standard instrumentation diagram learners will better identify instruments in a standard package.</p>
<p>5 minutes</p>	<p>Learners will be introduced to the first equipment used in control and shut in package starting with the definition, purpose with example and ending with a video of HMS standards.</p> <p>Content: 1-Surface Test Tree: The hydrocarbons are brought to the surface through surface test tree.</p> <p>Purpose:</p> <ul style="list-style-type: none"> - Provides a mean to control or shut down the well in case of downstream equipment failure - Allows tools, coil tubing and/or wireline to be run into the well through the swab valve - Provides the kill line to be installed for pressure testing, injection of any kind and/or killing the well <p>Components of surface test tree: Swab valve, kill valve, swivel, flow valve, master valve, lower master</p> <ul style="list-style-type: none"> - A short video on how to access HMS guideline on the operation of Surface Test Tree. 	<p>Learners will be watching this equipment content on their screens and understand the usage of this equipment on rig.</p> <p>Learners will also think how to use this equipment when they will be working on the rig.</p> <p>After watching a short video learners will understand how to perform the task with the equipment as per the HMS standards.</p> <p>Learners will also locate the HMS</p>

		<p>documents related to surface test tree operation, download it for referencing in their daily operation so that they be able to work in an incident free environment.</p> <p>Learners will be reminded to read the HMS guideline on surface test tree operation for upcoming knowledge check</p>
	<p>Knowledge Check</p> <p>Two questions related to surface test tree.</p>	
5 minutes	<p>Learners will be introduced to the second equipment of control and shut –in package.</p> <p>Content: 2. Coflexip flexible pipe From the surface test tree, the hydrocarbon flow is distributed through the coflexip flexible pipe.</p> <p>Purpose: Coflexip pipes are installed on the surface test tree. They act as kill/flow line from the surface test tree. They can be also used to transport hydrocarbon from the surface test tree to rig floor.</p> <p>- A 30 seconds video on how to retrieve HMS guideline on the operation of coflexip flexible pipe</p>	<p>Learners will be watching this equipment content on their screens and understand the usage of this equipment on rig.</p> <p>Learners will also be able to think how to use this equipment while working on the rig.</p> <p>After watching a short video, learner will understand the implications of HMS standards when operating with the particular equipment.</p>

		<p>Learners should also know how to locate the HMS documents related to coflexip pipe operation, download it for referencing in their daily operation and able to work in an incident free environment.</p> <p>Learners will be reminded to read the HMS guideline on Surface Test Tree operation for upcoming knowledge check</p>
<p>5 minutes</p>	<p>Knowledge Check:</p> <ul style="list-style-type: none"> • Four questions. • Fill in the blank, drag and drop and open-ended questions. 	<p>Learners will be provided with four-assessment question to further practice and should be able to differentiate between each equipment used.</p> <p>Feedback of correct and incorrect answers will be provided.</p> <p>Incorrect answers will show along with an option allowing learners to go back to the content they mistaken, so that they can review the knowledge and learn from their mistake</p> <p>Learners will be allowed to move forward only when</p>

		they successfully complete this section.
25 minutes	<p>For rest of the equipment, as mentioned below, the training design will follow the same sequence as above: definition, purpose with examples, HMS guideline reading exercise and knowledge check.</p> <p>3-Emergency shutdown system 4- Surface safety valve 5-Pipe work 6- Data header 7-Chemical injection pump 8- Choke manifold</p> <p>A 30 seconds video on how to retrieve HMS guidelines for these 6 equipment separately.</p>	<p>-Learners will be watching the equipment content on their screens and understand the usage of these 6 equipment on rig.</p> <p>Learners will also think how to use this equipment when they will be working on the rig.</p> <p>After watching a short video learners will understand the implications of HMS standards when operating with these equipment.</p> <p>Learners will also be able to locate the HMS documents in Haliburton world and download for future reference.</p> <p>Learners will recall the HMS standards while using this equipment on rig in order to successfully utilize it and can keep them away from safety incidents.</p> <p>Learners will be directed to read the HMS guideline for the upcoming questionnaire</p>

10 minutes	<p>Knowledge Check: Knowledge checks after each equipment is introduced</p> <ul style="list-style-type: none"> • Three questions for each equipment. • Fill in the blank & true/false questions. 	<p>Learners will be provided with three-assessment question to further practice and should be able to differentiate between rest of the equipment used.</p> <p>Feedback of correct and incorrect answers will be provided. Incorrect answers will show along with an option allowing learners to go back to the content they mistaken, so that they can review the knowledge and learn from their mistake</p> <p>Learners will be allowed to move forward only when they successfully complete this section.</p>
20 minutes	<ul style="list-style-type: none"> • Cumulative Evaluation ○ Total 20 Questions ○ Multiple choice, drag and drop, true/false, and fill in the blank questions. 	<p>Learner will take assessment to test their knowledge and understanding of the equipment according to HMS standards.</p> <p>Learners will drag the image of the equipment and drop it to the name of that particular equipment in drag & drop questions.</p>

		<p>Learners should retake quiz if they score less than 80% and there are 3 chances. If they cannot score 80% on 3rd attempt, they will have to go through the training all over again.</p> <p>Learners need to pass to complete the course.</p> <p>Learners will be able to review their progress in the progress bar.</p> <p>At the end, when learners submit their answers learners will be able to see feedback associated with each question and an option to go back and read the content relates to the feedback</p>
Glossary	Glossary of the terms used in Surface Well Testing	

Evaluation Plan

Levels	Purpose	Formative (How)	Summative (How)
Reaction	To see if training design is conducive to learning	Ask questions <ul style="list-style-type: none"> • Observe learners while they accomplish learning activities. 	Give a reaction questionnaire that focuses on learner’s involvement, learning environment, what hindered or assisted in learning.
Learning	By the end of this course, learners will be able to correctly identify features of all the equipment used in control and shut in package as per HMS guidelines with 100% accuracy	Assessment during the learning experience: <ul style="list-style-type: none"> • Throughout the e-module, learners will be given 2-3 assessment questions after each equipment to confirm their newly acquired learning. <ul style="list-style-type: none"> ○ The assessment will provide feedback to extend the comprehension. ○ In order to successfully complete the training, the learner must receive 80% or higher. 	Final assessment at the end of module to judge the level of achievement of performance objective: <ul style="list-style-type: none"> • 20 question quiz • Questions will be comprised of multiple choice, true/false, fill in the blank and open-ended questions. • Learners need to retake quiz if they score less than 80% • Learners will receive feedback to correct and incorrect answers • 3 attempts will be allowed. If they don’t pass in the final attempt, they will have to start the training all over again.

<p>Transfer</p>	<p>Climate for transfer: Halliburton’s mandatory six-month policy for new hire to complete the pre-requisites and familiarize themselves with SWT equipment enables congenial climate for transfer of knowledge.</p> <p>Extensive training culture with focus on employees’ skill development and promotion within product line facilitate the transfer.</p> <p>Management support: Every SWT supervisor needs to show evidence of how they have coached their juniors formally and informally. Supervisors are responsible to make necessary arrangement so that an employee can complete their training.</p> <p>Opportunity to perform: An operator who has completed formal SWT training and has been formally evaluated by a Rater (an internal expert who</p>	<ul style="list-style-type: none"> • A month after the training, Supervisors on the rig will evaluate the transfer of learning by observing the level of performance of SWT operators in operating all the equipment used in control and shut in package • Performance development coordinator will be requested to compile SQ metrics for every quarter to see if there has been decreasing trend of SQ and HSE events as a result of the training 	<p>Once the operators complete the training and start working in the rig, their performance will be judged by three components:</p> <ol style="list-style-type: none"> 1. Passing the annual competence: The operators will be rated by their Supervisor according to the competency scorecard to ensure that they are able to meet their job objectives. (Competence assessment is done annually) 2. Field demonstration: Every quarter, the supervisors will evaluate the operators based on their demonstration of using the equipment on rig while performing Service well test. 3. Supervisors will also assess the performance of operators based on the feedback from customers at the end of each job.
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	<p>assesses) is ready to work in field.</p> <p>Technical support: Halliburton has well established maintenance yard equipped with computers and machineries, easily accessible trainees for hands-on classes. In addition, dedicated training rooms for face-to-face training and LMS Learning Central for online classes.</p>		
<p>Results</p>	<p>Surface Well Testing accounts to about 60% of TSS revenue. Lack of proper training can lead to poor performance, thereby causing non-productive time, customer dissatisfaction, loss of revenue and reputation in the long-run.</p>	<p>Supervisors and Performance Development Co-coordinator will track the KPI's every quarter to the understand if</p> <ul style="list-style-type: none"> • Nonproductive time has decreased • Frequency of service quality and HSE incidents has decreased • Time for rigging-up and rigging down has decreased 	<p>Success case interviews:</p> <ul style="list-style-type: none"> • Once the operators complete the e-module, every region will be requested to identify their top performing SWT operator (Level I and II), based on the feedback from their supervisor. • The operators and their supervisors will be notified that the training department will be conducting a brief telephone interview with the operators. • The operators will be interviewed about how they have implemented their learning from training to on-the-job execution.

			<ul style="list-style-type: none">• Based on their feedback, necessary changes will be made to the e-learning project.
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