

Good report on different types of software a petroleum technologist must know

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Introduction

As a field of engineering, petroleum engineering puts much emphasis on production of hydrocarbons in form of either natural gas or crude oil.

Production and exploration of these hydrocarbons is a difficult task which presents various challenges to the technologists. To handle this problem, a number of tools and softwares have been created to ensure the task is easy. Although there are many softwares that are used in this industry, some of them are more basic. These may include the ArcGIS, Goggle Earth, he Petra, excel and PHDWin. This paper discusses these softwares and the role they play in the petroleum engineering industry. Further, the paper gives reasons why a petroleum technologist must have these softwares.

- ArcGIS

This is a very important software for any petroleum technologist. It is a form of geographic information system (GIS) that is used by technologists to get geographical information and maps. Technologists use this software to create and use maps (Ormsby, 2004). Some of the uses of this software include compiling geographic data, using geographic information and maps in various applications, helping the technologist to analyze information that is mapped and assisting technologists to discover and share geographic information. The system helps in providing infrastructure used to make geographic information and maps which are available across the petroleum community, an organization or even in the web.

What the ArcGIS can do

The ArcGIS has a number of windows softwares. It has the ArcReader which enables the technologist to see and query maps that the other ArcGIS products create. Apart from this, it also has ArcGIS for Desktop Basic (ArcView). This software enables the technologist to create maps that are layered, perform the spatial analysis and view spatial information. Its ArcGIS for Desktop Standard (ArcEditor) has tools that are advanced in order to help manipulate shapefiles. The ArcGIS for Desktop Advanced (ArcInfo) enables the technologist to edit, analyze and manipulate data. These functions make the ArcGIS a very important and essential tool for any petroleum technologist.

Boosting functionality

Google Earth

This is a geobrowser that has access to ocean bathymetry, aerial and satellite imagery among other data on the internet. This software represents the earth and its surface in form of a 3D dimensional globe. It uses images from aerial photography, geography information system and satellite imagery to map the earth. Google Earth is a browser similar to Earthbrowser (Angela, 1998). At times, technologists refer it to as a virtual globe because it gives technologists the ability to understand how the earth is. This software can be downloaded or be purchased, depending on the type that the technologist wants.

Its role

Google Earth gives the technologist the ability to zoom, rotate, tilt or even pan the Earth. With this, a petroleum technologist will be in a better position to understand the earth and its composition. The technologist will also be in a position to make or obtain new data about volcanoes and terrains that are located on servers that Google owns. The software saves the technologist from moving from one place to another in search of geographical information. The fact that this software has the license to use elevation data available from the Shuttle radar Topography Mission allows the technologist to a 3D visualized landscape. This program is made in a way that it has the ability provide varying resolutions, depending on the technologist's demands. In the modern day technology, petroleum technologists, more so those from the western regions use the high-resolution visualization. Despite this, it would be wrong to classify Google Earth among the Geographic Information System (GIS). The analytical capabilities of GIS are extensive as compared to the Google Earth. The simplicity and easiness to use this program makes it an absolute must-have for any petroleum technologist. The software is compatible to most ArcGIS software, combining to perform a wide range of tasks. For instance, a technologist can transfer information to ArcGIS Desktop from Google Earth for further analytical purposes (Ormsby, 2004). This compatibility makes it an essential program in the industry.

The Petra

This software is used by technologists in different ways to accomplish various workflows. As such, it is a multi-purpose software which the

technologist can use according to their demands. The Petra has been used in analyzing the production process. With this, the technologist gets to understand the extent to which the process has succeeded or failed. Apart from this, the Petra is used by technologists who engage in reserve analysis. Other uses of this software include exploration, exploitation, infill drilling and unconventional. The program gives the petroleum technologist a well logs platform through which they can conduct a multi-well analysis (Angela, 1998).

For the Petra to perform all the above duties, it is fitted with the necessary components. For instance, it has analysis tools which are essential for any exploitation activity. The technologist has to understand the extent of exploitation that is required from them. Apart from this component, the Petra has QA/QC tools which are very essential. The software has cross sections which are used by digital and raster logs. Its 3D visualization is an amazing feature too, giving the technologists a better view of the wells. To add up on these components, the program has horizontal and deviated wells.

Its role

In technology, this software plays a crucial role in project and data management. Its role in petroleum engineering is to quickly define reservoirs and prospects. It also analyzes mergers, acquisitions and divestitures. Because of this, the software is essential for any petroleum technologist.

PHDWin

This program is essential for any technologist in the petroleum industry. The program is full-featured and completely integrated to analyze a decline curve

and economics. In one way or another, this software offers petroleum engineers a total solution to organize, manage and evaluate economics and reserves. The ability of the program to simplify these tasks makes it a handy tool in the industry.

PHDWin configurations

The PHDWin can be configured to calculate economics. The availability of a flexible modeling for any country means the software can be used anywhere on earth. It can make economic calculations both before and after tax is included. In addition to this, the software has the ability to make a report of the results that have been achieved. The technologist has the laxity to pick from 60 formats that the program provides. The program makes it easy for technologists to define summaries and roll-ups after the program is automated. Because of this, one can make informed decisions which are based on the Internal Rate of Return and the Net Present Value.

How it works

The software is handy in the sector of forecast production. It has graphics module that are unsurpassed and easy to use. The program displays economic results on a graph immediately modification has been done (Ormsby, 2004). Because of this, the technologist does not have to compile their projects since the software can work on it, giving him more time to attend to other issues.

The software is integrated with a volumetric calculator which analyzes the decline curves. This makes it possible to calculate in-place volumes. The software displays the results of these calculations automatically, calculating

the recovery factor percentages. In addition to this, the software has a gas material balance and has the ability to estimate reserves. This is essential in that it enables companies to understand what they have exploited and what remains to be exploited. This is essential in calculating the total estimated recovery. All these feature and abilities make the PHDWinner an important instrument in the petroleum engineering career.

Excel

This software is crucial in making petroleum engineering calculations. In most cases, the software is in form of excel add-in and is commonly used by technologists in petroleum engineering. The software has calculations and formulas on pipe flow, PVT correlations and interpolation/table lookup (Angela, 1998). It has a help file which explains the calculations and the formulas used. This may include a description on the functions of the software and how to use the syntax. The software does not have equations, meaning the information available is easily available for the technologist to use. This program can be downloaded freely or be purchased. Because of these roles it plays in making petroleum engineering calculations, this software is important for any petroleum engineering technologist.

Conclusion

The above softwares and programs play an essential role in making work easy for the petroleum engineers. Because of the complexities of matters to do with engineering, there is a need for them to have programs that reduce their workload. These softwares are universal; they are functional in any part of the world. Their simplicity to use makes them essential. The fact that they

are readily available is an added advantage to the technologists who wish to have their work easier. All a technologist needs to do is understand the basic configurations on how to use the software. Although there are many more softwares, petroleum technologists must have the above-discussed.

Works Cited

Angela, Gibson. Arcgis Explorer Desktop. Redlands: Environmental Systems Research Institute, 1998. Print.

Ormsby, Tim. Getting to Know Arcgis Desktop: Basics of Arcview, Arceditor, and Arcinfo. Redlands: ESRI Press, 2004. Print.