Well Abandonment Phase

Upstream | Well Abandonment Phase

[ww-shortcode-divider style="thin"]The end of the life of the field occurs when it is no longer economic for the operator to continue production, and consequently the wells will be plugged and abandoned.

Well workovers or stimulation, artificial lift, drilling new wells, etc, may help in prolonging the field's life, but they are undertaken if they can be economically justified by increased production.

Well plug & abandonment (P&A)

The basic of P&A operations vary little, whether the well is on land or offshore, and the oil and gas industry has developed methods and materials designed to provide long term zonal isolation even when downhole change over the time.

The objective of all P&A operations is to achieve the following:

- isolate and protect all fresh and near fresh water zones
- isolate and protect all future commercial zones
- prevent leaks in perpetuity from or into the well
- remove surface equipment and cut pipe to a mandated level below the surface

A traditional abandonment process begins with a well killing operation in which produced fluids are circulated out of the well, or bull headed into the formation, and replaced by drilling fluids heavy enough to contain any open formation pressures.

Xmas tree is removed and replaced by a blowout preventer,

through which the production tubing can be removed.

Cement is then pumped and placed across the open perforations and squeezed into the formation to seal off all productive layers.

Depending on the well configuration, a series of cement and wireline plugs in both the liner and production casing will be set to a depth level with the top of cement behind the production casing.

The production casing is cut and removed above the top of cement, and a cement plug positioned over the casing stub to isolate the annulus and any formation which may still be open below the intermediate casing shoe.

To read more about permanent well abandonment :

http://www.spe.org/twa/print/archives/2013/2013v9n3/13_Tech101_FINAL.pdf

http://www.slb.com/~/media/Files/resources/oilfield_review/ors12/spr12/or2012spr04_abandon.pdf***Offshore facilities decommissioning***

Different types of offshore production facilities have different options for decommissioning

Decommissioning Options

To learn more about decommissioning:

http://www.oilandgasuk.co.uk/cmsfiles/modules/publications/pdfs/OP073.pdf

Decommissioning works

Onshore facilities decommissioning

Onshore processing facilities have to be cleaned of all hazardous compounds and scrapped.

The land under the facilities may also have to be reconditioned, and environmental restoration at the original conditions must be carried out.

In some cases, before abandoning a hydrocarbon reservoir (gas field), it is worth examining the possibility of transforming it into a gas storage reservoir.

But not all depleted gas fields are suited for this “transformation”.

Moreover, the properties of the reservoir must be such that the gas injected for storage can be produced without losses, and the reservoirs must be able to guarantee productivity.

- Schlumberger, Oilfield Review: A review of abandonment and decommissioning practices – 2002
- Schlumberger, Oilfield Review: Offshore permanent well abandonment – 2012
- ELSEVIER – Developments in Petroleum Science: Hydrocarbon Exploration & Production – 2003
- TRECCANI – Encyclopaedia of Petroleum