Oil Field Definitions

There are two excellent on-line Oil Field Definitions that may help supplement these definitions. These include:

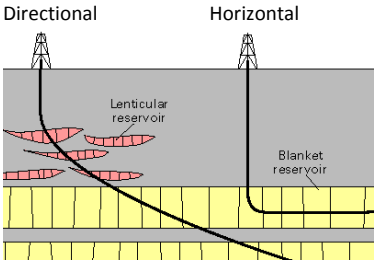
http://www.glossary.oilfield.slb.com/default.cfm
http://oilgasglossary.com/

Battery- the facility in which oil, gas and water are separated and stored.

Core- a cylindrical rock sample taken from a rock formation for the purpose of examination.

Development Well- means a well that is not an exploratory well and is only confidential for 30 days from the end of drilling. The majority of wells are Development wells.

Directional Drilling – The technique of drilling at an angle. They are drilled for a number of reasons: to develop and offshore lease from one platform; to reach a zone beneath land where drilling cannot be done (beneath a railroad or lake)



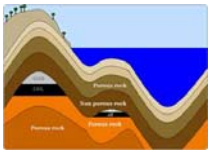
Emulsion- A suspension of small globules of one liquid in a second liquid with which the first will not mix: an emulsion of oil in water

(After after being shaken)

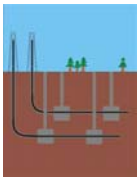
(Less than 1 Minute later)

Exploratory Well- Is a well that is located more than .8 kms from any well that is producing oil in the same or a deeper formation.

Formation- A primary unit used to classify and divide rocks on the basis of lithology or rock type. All formations can be delineated on regional geologic maps and can vary in thickness from less than a meter to several thousand meters.



Horizontal Well- A horizontal well is drilled vertically until the kick off point is reached. At this point the well is angled until it meets the targeted producing formation. The wellbore is then drilled horizontally through this reservoir. Horizontal wells provide for a greater drainage area than a conventional vertical well and therefore are generally more productive.
Most horizontal wells are drilled through multiple locations from one surface lease. This technology is rapidly evolving and long reach horizontals have the potential to extend almost 3 kilometres in length. Horizontal wells are more expensive to drill than vertical wells, but in Manitoba they usually replace up to 4 vertical wells. Over 90 plus percent of the wells currently drilled in the province are horizontal. New drilling and completion technologies have made horizontal wells economic.



Lease- There are two types of leases – mineral and surface. In Manitoba the owners of the surface and the mineral rights are separate and to drill a well a company would need a lease agreement from the landowner to use the surface and a mineral lease to gain access to the minerals.

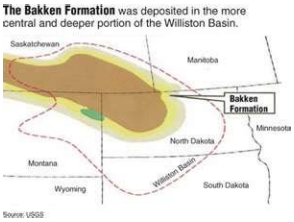
LSD - represents the legal land description of property in the province of Manitoba. The Dominion Land Survey (DLS) was the method used to divide most of Western Canada into one-square-mile sections for agricultural and other purposes. The DLS is the dominant survey method in the Prairie provinces, the DLS contains a Township, Section and Range. Each township is divided into 36 sections, each of which is nominally 640 acres in size with 160-acre quarter sections.

Mineral Rights- right of ownership of gas, oil and other minerals beneath the surface. Manitoba GIS mineral information shows the general ownership in the following manner

Crown Mineral Rights – 100% of the mineral ownership belongs to the Crown (Provincial Government)
Portional Mineral Rights - A Portion of the mineral rights are Crown and a portion are Freehold (private)
Freehold Mineral Rights - 100% of the mineral ownership belongs to a private (freehold) owner.

Oil Field- a surface land area where wells which produced or are producing oil from multiple formations and reservoirs are grouped together. Example: Daly Sinclair Oil Field

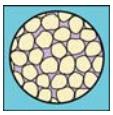
Oil Pool- a surface land area where wells which produced or are producing oil from the same formation and reservoir are grouped together.



Oil Well- An oil well is a layman's term for any perforation through the Earth's surface designed to find and release both petroleum oil and gas hydrocarbons.

Perforations- holes made through the casing wall and cement

Porous- containing voids or other openings in which may or may not be interconnected



Production- means any fluid produced from a well and includes oil, water and gas

Royalty- The share of oil or gas production paid by the oil company to the owner of the mineral rights. This amount is based on an agreed upon percentage of the value of gross production from the property.

Surface Rights- The landowner owns the surface rights to the land and may or may not own the minerals.

Unique Well Identifier (UWI)- means a series of numbers and letters assigned by the Petroleum Branch to a well for the purpose of identifying that well. The UWI is very important as there can be up to 5 wells on an LSD.

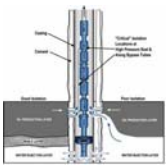
Example: 100.16-09-010-09W1.00
The first 3 numbers indicates which well on the LSD it is, for example the first, second or third well drilled on an LSD.
100.16-09-010-09W1.00

Code	Drilling Sequence
0 (100)	1st Well in the location
2 (102)	2nd Well in the location
3 (103)	3rd well in the location (to a maximum of 9)

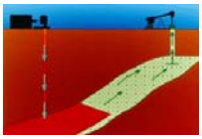
100.16-09-010-09W1.00
This is the location of the well LSD 16 Section 9 Township 10 Range 9

100.16-09-010-09W1.00
This is the formation the well is producing from. If it is producing from more than one zone the well will be assigned two or more UWI's and the last two digits will change.

Vertical Well- A hole drilled or bored vertically into the earth usually cased with metal pipe for the production of oil or gas. Most wells prior to 2006 were drilled vertically. Due to better drilling and completion technology in Manitoba most wells now are drilled horizontally.



Waterflood- secondary recovery operation in which water is injected to displace additional oil to wellbores where it can be recovered.



Well Status Symbols

- Abandoned dual completion
- Abandoned producer
- Abandoned salt water disposal
- Abandoned salt water disposal (former producer)
- Abandoned structure test hole
- Abandoned water injection well
- Abandoned water injection well (former producer)
- Abandoned water supply well
- Dry and abandoned
- X Horizontal or directional surface location
- Junked and abandoned
- Location (Well Licensed)
- Producer
- Salt solution well
- Salt water disposal
- Salt water disposal (former producer)
- Standing (Well Drilled)
- Water injection well
- Water injection well (former producer)
- Water supply well
- Dual completion
- Gas injection well
- Water alternating gas injection well
- Abandoned salt solution well
- Abandoned potash

Core Descriptions:

Oldest - Shale was once the fine grained mud/sand, rich in organic matter that you'd find at the bottom of a lake. With time and pressure it has come to be compressed into this core (see sample below). The organic material which was once plants/bugs etc has been compressed with time and became a hydrocarbon. This is a source rock in the Mississippian Bakken formation. This sample was from a producing well in the Daly Sinclair Field.

Crinoidal Limestone from Mississippian Lodgepole Formation – This core is found shallower than the above shale sample. This core was taken from a well producing in the Lodgepole formation. The Lodgepole formation covers a lot of South Western Manitoba. This is a good oil bearing reservoir that has been productive since 1950's. Crinoids are an important index fossil found in rocks of this age and within this formation. Index fossils are used to identify certain rocks at certain ages.

Interbedded Sandstone from the Lower Amaranth of Triassic Age. Also known as the Red Beds. The Lower Amaranth Formation extends over the Pierson and Waskada fields. This reservoir is characterized by its interbeds of shale, siltstone and sandstone and was likely deposited in a tidal setting.