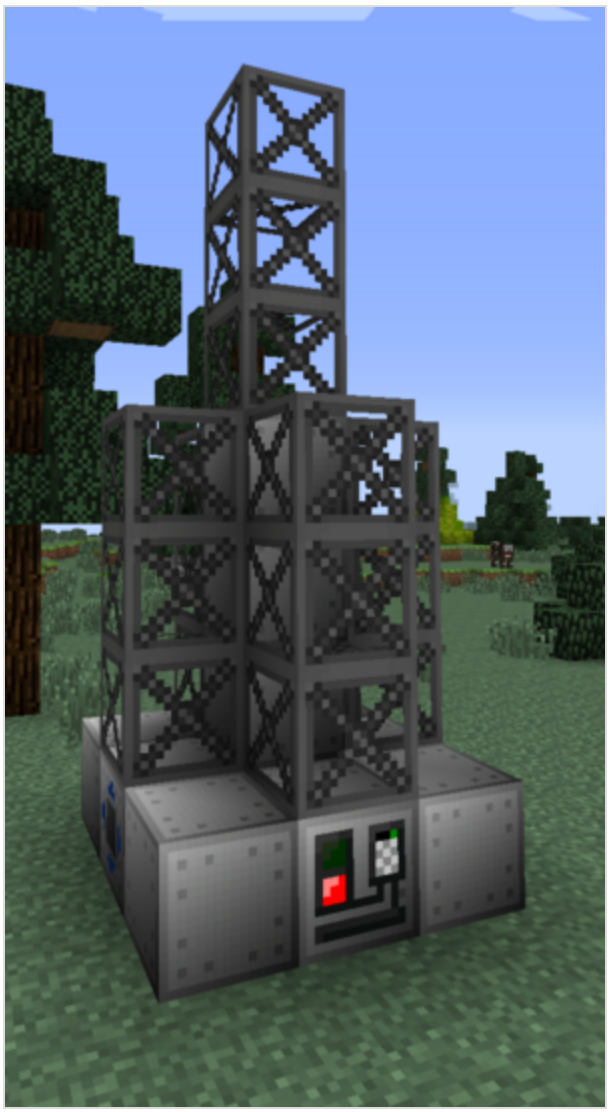
GT New Horizons

Oil/Gas/Fluid Drilling Rig

< Oil

Drilling Rig is a multiblock structure available in five tiers, beginning at MV capable of harvesting fluids located underneath the Bedrock in a chunk. Each chunk will have a certain amount of one fluid, which will decrease over time as it's harvested. "Drilling Rig", "Oil Drilling Rig", "Fluid Drilling Rig" and "Gas Drilling Rig" are all used interchangeably on this page and refer to to the same multiblock structure.



A fully formed Oil Drilling Rig

Construction

The base of the rig is a 3x3 of solid blocks. The controller has to be centered on one side, and any hatches and busses go on this layer as well. A pillar of three Machine Casings is added to the center of the 3x3 base, then each side of it gets a three block pillar of Frame Boxes. Finally a fifth three-tall pillar of Frame Boxes is placed on the top of the Machine Case pillar.

Requires:

- 1 Controller; Oil/Gas/Fluid Drilling Rig
- 1 Output Hatch
- 1 Maintanance Hatch
- 1 Energy Hatch
- 0-1 Input Bus, optional (If you need to provide more than 64 Mining Pipes or a Circuit)
- 8-9 Machine Casings
- 15 Frame Boxes

The tier of Energy Hatch and type of Machine Casing/Frame Box depends on the tier of Fluid Drilling Rig. Make sure to read the tooltip to determine the specific requirements and shape. It's advisable to keep the Void Mode set to 'nothing' in the Machine Controller and remember to cover the Rig in dimensions where it rains. A Long Distance Fluid Pipeline can be used to cheaply transport fluids over distances greater than four chunks.

Prospecting for Fluids

There are many different fluids which can be extracted, not just oil. The specific fluid depends on the

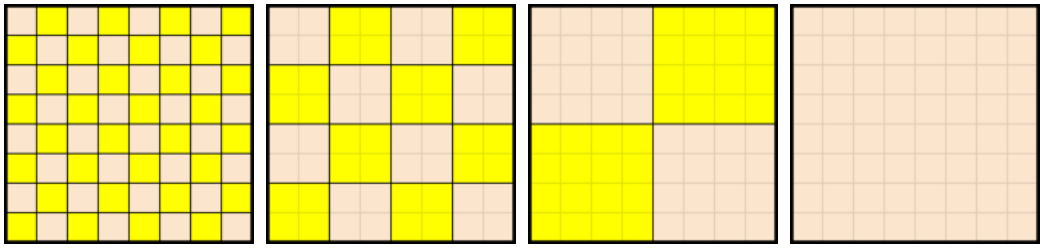
Like Ore Generation, fluids are placed during World Generation on a predefined grid and unknown to the player until prospected for, using the Seismic Prospector or hand-held Prospector's Scanners on bedrock. The each field is a group of 8x8 chunks with no offset and the same fluid - if using portable scanners that need access to bedrock, dig down at the corner of four fields for best efficiency. Any chunk 200L+ is considered good; theoretical maximum is ~750 and most chunks will have 50 or less.

- Further Reading: Oil Generation

Usage

The only thing that determines the area from which a Drilling Rig pumps is which chunk it's placed in, relative to the oil field. The exact position of the drill in the chunk never matters. There is no way to let one drill extract form multiple oil fields or non-aligned chunks at the same time. Press F9 twice to see chunk borders.

- T1 rig always pumps only from the single chunk it's placed in.
- T2 rig draws from a 2x2 chunk area, aligned with the edges of the oil field.
- T3 rig pumps a 4x4 chunk quadrant, aligned to the oil field.
- T4 rig pumps the entire oil field it's placed in.



Tier 1 - one chunk | Tier 2 - 2x2 chunks | Tier 3 - one quadrant | Tier 4 - entire field

Oil Yields

Calculating how much oil a drill will yield is a little complicated. The drills run on "operations" and how many ticks equal one operation varies based on the drill machine tier, and the energy hatch tier. The amount of oil pulled from each chunk per operation depends on the tier of the energy hatch above the minimum tier as well.

One important concept is that the oil drill will always drill on range size boundaries. For a 1x1 tier 1 oil drill, that isn't important. For 2x2 or 4x4 tier 2 or 3, the drill, no matter where it is placed in the 2x2 or 4x4 grid, will always pull oil from the same group of chunks. For example, looking at X for a 4x4 drill

Chunks and how they group for a 4x4 drill

Chunk X	Group
-5	-2
-4	-1
-3	-1
-2	-1
-1	-1
0	0
1	0
2	0
3	0
4	1
5	1

Here are some oil values in a 4x4 chunk group.

Example oil found in chunks

Amount	Amount	Amount	Amount	Total oil in the row
423	432	654	633	2142
630	499	563	476	2168
476	602	560	444	2082
458	651	490	525	2124

Total oil in 4x4 grid = 8516

To calculate the ticks per operation, use the base values below

Base ticks per operation

Tier	Base value
1	8
2	32
3	32

For each tier the energy hatch is above the minimum, divide the base value by 2. For example, if you are using an HV energy hatch on an MV oil drill, your ticks per operation is 4.

Now, the amount of oil pulled out of each chunk is (the amount in the chunk) * (.5 + .25 (tiers above minimum)). So for an MV energy hatch on an MV oil drill, your oil removed is .5. For an HV hatch on

So now we can combine these together. For a T3 oil drill with HV energy hatches (the minimum) 8516 * (.5) = 4258 oil per operation.

To calculate oil per second (4258L / operation) * (20 ticks per second) / (32 ticks per operation) = 2661 L/s

Measuring for 30s, I retrieved 80902L, or 80902L/30S = 2692L/s

Watch out for the values given by the prospector. The rounding it does is not the same as the oil pump code, so you may get +-1L per each chunk.

Total oil Yield per Chunk

The total oil or any fluid that can be extracted from a chunk can be approximated by the given formula

(assuming x > 31, the approximated formula gives error < 0.1%)

$$TotalOilYield \approx 500 * x^2$$

The exact formula is (assuming x > 1):

$$TotalOilYield = 500 * x^2 + 0.5 * x - 499.5$$

x - displayed liters of oil in the chunk
