The Vaporization Of Methane Hydrates Due To Undersea Oil Drilling Contributes Major Greenhouse Gas Emissions

Posted on October 22, 2010 by concernedcitizensofflorida

Our worst fears of vaporising hydrates from the deep confirmed-Part IIc of Root Causes.

- BK Lim
22 Oct 2010
hydrocomgeo@gmail.com

Figure 125-1
An Rov image showing pimpled seafloor with smooth shallow depressions, caused by continuous vaporisation of hydrates in the top sediment layer leaving behind clay-richer pods as remnant pimples (light patches followed by dark shadows in the light direction).

The seafloor feature is continually changing as the clayey hydrate sediment continue to disintegrate on contact with water and warming seafloor temp.

The video footage shows generally diffused gaseous mist rising from the seabed, with brief moments of clear seafloor when this image was captured.

Figure 125-1 Pimpled seafloor with shallow smooth depressions are features indicative of continuous vaporisation of hydrates from superficial clayey hydrate layer. The moving Rov video (recorded 18 Oct 2010) shows the general seafloor condition over a large area. Unfortunately the video did not display the coordinates.

See http://www.youtube.com/watch?v=EVdnkMxoclo&feature=player_embedded.

Figure 125-2 Methane vaporising from the seafloor at well A

Figure 125-2 Methane vaporising from seafloor at Well A.

Youtube.Com/Watch?V=5ylz4cfjg5y&Feature=Related. This stationary Rov video (recorded on 3rd Sept 2010) like many, shows the seafloor in the vicinity of Well A. The rising diffused gaseous mist is well enhanced by the lighted background.

~~~~ Quote from Wikipedia (http://en.wikipedia.org/wiki/Methane_clathrate)~~~~~~~

Methane clathrate, also called methane hydrate, hydromethane, methane ice or "fire ice" is a solid clathrate compound (more specifically, a clathrate hydrate) in which a large amount of methane is trapped within a crystal structure of water, forming a solid similar to ice.[1] Originally thought to occur only in the outer regions of the Solar System where temperatures are low and water ice is common, significant deposits of methane clathrate have been found under sediments on the ocean floors of Earth.[2]

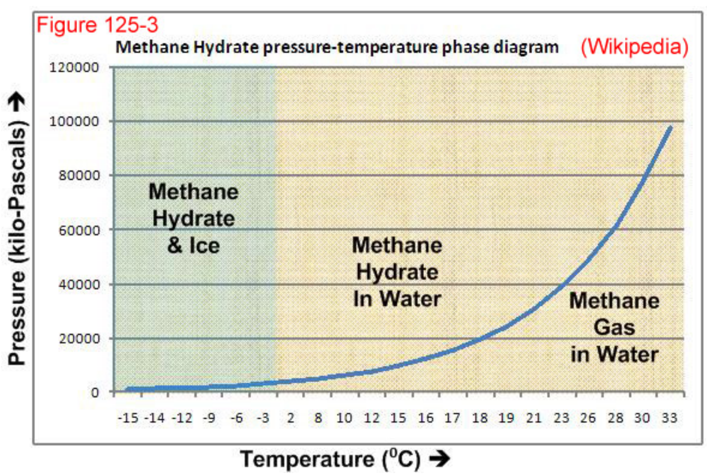
Methane clathrates are common constituents of the shallow marine geosphere, and they occur both in deep sedimentary structures, and as outcrops on the ocean floor. Methane hydrates are believed to form by migration of gas from depth along geological faults, followed by precipitation, or crystallization, on contact of the rising gas stream with cold sea water. Methane clathrates are also present in deep Antarctic ice cores, and record a history of atmospheric methane concentrations, dating to 800,000 years ago.[3] The ice-core methane clathrate record is a primary source of data for global warming research, along with oxygen and carbon dioxide.

The average methane clathrate hydrate composition is 1 mole of methane for every 5.75 moles of water, though this is dependent on how many methane molecules "fit" into the various cage structures of the water lattice. The observed density is around 0.9 g/cm3.[4] One litre of methane clathrate solid would therefore contain, on average, 168 litres of methane gas (at STP).[nb 1]

Methane forms a structure I hydrate with two dodecahedral (12 vertices, thus 12 water molecules) and six tetradecahedral (14 water molecules) water cages per unit cell. This compares with a hydration number of 20 for methane in aqueous solution.[5] A methane clathrate MAS NMR spectrum recorded at 275 K and 3.1 MPa shows a peak for each cage type and a separate peak for gas phase methane.[citation needed] Recently, a clay-methane hydrate intercalate was synthesized in which a methane hydrate complex was introduced at the interlayer of a sodium-rich montmorillonite clay. The upper temperature stability of this phase is similar to that of structure I hydrate.[6]

~~~~~~~end of quote~~~~~~~~~~~~~~

The methane – hydrate phase diagram is shown in figure 125-3 (from wikimedia.org/wikipedia/commons).



Our Our

Our
e

Our early fears that hot oil and gases from the deep reservoir brought up to the shallower soil strata (above the hydrate stabilization level) through the gushing rouge well (S20BC) and the eroded permeable fault zones, seem confirmed by these Rov videos. See The-Diagrammatic-Illustration-That-Says-It-All.

The later videos recorded after the well was supposedly killed, confirm that we cannot "put the genie back into the bottle". There is no point in fooling ourselves the well can be "capped, killed, sealed and delivered". Instead there should be concerted efforts to alleviate the problem of escaping and corrosive fluids (salt water in combination with high pressured gases especially **H_2S**) from the reservoir and getting into the upper fragile formation and Quaternary soil sequence where the environmental damages are "beyond patch-up".

Possibly related posts: (automatically generated)

- Hydrates-a Novel Concept for Plugging Deep-Sea Severed Pipeline: Proposed S...
- Did Deepwater methane hydrates cause the BP Gulf explosion?
- Those mean old hydrates are at it again!