



## **PIPELINES MEASURED BY ULTRASONIC TECHNIQUES**

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Paraffin is a product of petroleum crude oil which is liquid in a hot environment but turns into a solid when it cools down. Crude oil pipelines are subject to gradual build up of paraffin on the inner surface, which restricts the flow of oil. The pipelines must be cleaned periodically to remove this obstacle in order to maintain flow in acceptable conditions. A thickness ultrasonic method of measurement of paraffin accumulation in petroleum crude pipelines was developed at laboratory by requirement of a company. Ultrasonic waves are applied from outside surface of the pipe with normal beam pulse-echo and transmission application. The study analyze the effects of acoustic impedance and attenuation of related materials. Piping were tested with different thickness accumulation of paraffin. Choice of the best ultrasonic frequency and technique. Limitations of techniques.