

Major Water Well Quality Study Released

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Fredericton, NB ----- A major study on the assessment of private well water in areas of potential shale gas development has been completed; the first of its kind in New Brunswick.

Commissioned by the New Brunswick Energy Institute and carried out by the University of New Brunswick, the study covered four areas (Central, Kent, Shediac and Sussex) totalling some 6100 square kilometres. These areas were selected based on the locations of oil and natural gas leases that had been granted by the province in February 2014.

“The objective of this study, which was initiated by the New Brunswick Energy Institute, was to establish a baseline on groundwater quality in selected regions in southern New Brunswick where there has been interest and/or exploration activities related to unconventional shale gas production,” according to Dr. Dave Besner, Chair of the Energy Institute.

In 2014 and 2015, 434 private wells were sampled in four study areas across southeastern New Brunswick. One of the goals was to assess water quality in areas that are not influenced by oil and gas wells. Dissolved methane was detected in 55% of the wells sampled, however 99% of the wells with detectable methane had concentrations less than 10 mg/L and are not considered to be of concern. The highest methane concentration of 28.9 mg/L was measured in the Sussex study area. In that area, methane concentrations greater than 1 mg/L were commonly detected in wells where Horton Group rocks are inferred to be close to the ground surface, suggesting that the higher methane concentrations are related to the underlying bedrock geology.

In the Kent, Central and Shediac study areas, the highest dissolved methane concentrations were 3.2, 1.8 and 0.3 mg/L respectively. As there was no significant oil or gas resource development in the Central, Kent or Shediac study areas prior to the testing, the dissolved methane in groundwater in these regions is believed to be naturally occurring.

There was no correlation between methane concentration and proximity to oil or natural gas wells in the Sussex study area, which was the only area with any significant oil/gas production activities at the time of testing.

“In general, untreated groundwater quality in the four study areas did not present a significant public health concern,” study co-author Dr. Kerry MacQuarrie said. “However, at 76% of the testing locations at least one Health Canada drinking water guideline was exceeded, with the manganese guideline, which is currently based on aesthetic considerations, exceeded most frequently at 35.9%.”

“This study has assembled a comprehensive groundwater quality dataset including the occurrence of dissolved methane, ethane and propane in private wells,” study co-author Diana Loomer said. “The dataset represents a significant contribution to regional groundwater quality investigations in the province, and is unique in that it includes parameters that are not included in routine domestic water well analyses. As such, it should serve to better inform the public, regulators and industry of baseline groundwater quality conditions in the selected study areas.”

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