

General Bulletin

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TO: All Oil and Gas Operators

APPLICATION OF STABLE CARBON ISOTOPE RATIO MEASUREMENTS TO THE INVESTIGATIONS OF GAS MIGRATION AND SURFACE CASING VENT FLOW SOURCE DETECTION

The Canadian Association of Petroleum Producers, Environment Canada, and participating environmental services companies sponsored a study to develop and field validate a novel method to determine the sources of surface vent flows and gas migration (SCVF/GM). The five year research program, conducted by the University of Alberta, measured stable carbon isotope ratios of hydrocarbon gases, to establish “signatures” or “finger prints” that uniquely characterize origin and transformation of the gases.

Use of stable carbon isotopic ratios in the investigation of SCVF/GM is considered a new field technique currently under refinement. The protocol promises to enhance and complement other diagnostic methods for SCVF/GM investigation in current use. Therefore, the Alberta Energy and Utilities Board (EUB) and Saskatchewan Energy and Mines (SEM) are prepared to accept the use and validity of this method on a site specific basis.

Development and availability of high quality regional databases, containing interpreted analytical and geological information, are necessary prerequisites to defensible, extrapolated diagnoses for SCVF/GM problems. The need to involve qualified expertise is also necessary.

Technical questions pertaining to the application of stable carbon isotopic ratios should be directed to CAPP at (403) 267-1100. For clarification of regulatory questions, contact James Fujikawa at the EUB (403) 297-6952 or Todd Han at Saskatchewan Energy and Mines (306) 787-2221, depending upon applicable jurisdiction.

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