

LNG ENVIRONMENTAL ASSESSMENT AND MONITORING

OVERVIEW – There is a strong national and financial rational for development of liquid natural gas (LNG) in China. Transition to LNG, moving away from burning coal and oil, has potential to result in significantly less environmental impact. Success on undertaking a \$40 billion investment with a natural gas LNG project with Australia does entail a requirement to address a large range of potential changes in the environment. For example, concerns need to focus on impacts on air quality in terms of sulphur, nitrous and carbon dioxide release. There is also potential for new anthropogenic impact from new mining operations at well sites, during processing and in transport. A complete environmental assessment prior to development provides an efficient plan.

APPROACH - A wide variety of environmental impacts can be addressed with application of geochemical studies. Elemental isotope analysis has been shown to be useful in tracking the source of natural and anthropogenic inputs to an ecosystem and to study the cycling of the element between different molecules or groups of molecules. The adjacent figure highlights geochemical assessment that can be monitored for prediction of ecosystem health with atmospheric admissions (A), and fuel storage (B), transport and shipping (C), mining operations (D), and natural gas seepage (E). An important aspect of this application is a through site evaluation with isotope geochemistry prior to the start of industrial operations that is followed with



constant monitoring during the operations. Strategic Carbon (SC) provides field technology that can assess environmental impact from field operations that focuses on elemental isotope analyses to determine the anthropogenic input. This analysis is coupled with expertise from the University of Auckland for assessing sediment properties, University of Hawaii and NIVA-Bergen for installation of monitoring stations, Texas A&M University – Corpus Christi for geochemical analyses, and University of Bergen for ecosystem modeling (www.strategic-carbom.com).

EXPECTED SIGNIFICANCE – Prediction of environmental impact with a thorough site assessment and subsequent monitoring plan provides the ability to organize efficient industrial development. Lowering the environmental impact to an ecosystem results in a long term environmental and human health plan for cost saving and higher efficiency in the industrial operations.

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