**Non-CO₂ Greenhouse Gases:** Methane

**Source/Sectors:** Natural Gas Systems (Field Production)

**Technology:** Options to reduce emissions during well testing and completion (A.1.2.1.1)

**Description of the Technology:**
In the United States and worldwide, many efforts have been made to identify and implement mitigation options to reduce methane emissions from the natural gas sector (USEPA, 2003). For example, the Natural Gas STAR program is a voluntary partnership between US EPA and the oil and gas industry to identify and implement cost-effective technologies and measures to reduce methane emissions. The measures to reduce methane emissions from the natural gas systems can be grouped into the following mitigation strategies: prevention, recovery and re-injection, recovery and utilization, and recovery and incineration (Hendriks & de Jager, 2001).

Technological options to reduce CH₄ emissions from natural gas field operations during well testing and completion include the following:

- Good housekeeping practices to reduce blowouts – Improved equipment, procedures, and training of personnel would reduce the risks of blowout during exploration (de Jager et al., 2001).
- Good operational procedures with regards to well-testing – Operational procedures can be optimized to minimize gas flow and duration of the tests during exploration. In the Netherlands, procedures have been tightened and the duration of a test is limited to 20 to 70 hours (de Jager et al., 2001).
- Flaring of gas produced at well tests (during exploration) – Mobile flare installations can be used for this purpose to reduce methane emissions (de Jager et al., 2001).
- Green completion – The common practice in gas well completion is to flare or vent initial produced gas. An alternative is to bring potable equipment to the well site that cleans up the initial produced gas to pipeline sales standard (Fernandez et al., 2005).

**Effectiveness:** Good

**Implementability:** Good

**Reliability:** Good

**Maturity:** Good

**Environmental Benefits:** It reduces methane emissions by minimizing venting and/or converting methane to carbon dioxide which has a much lower GWP.

**Cost Effectiveness:** Good

**Industry Acceptance Level:** Good

**Limitations:** Additional investment on equipment may be needed.

**Sources of Information:**