Long-Term Methane Concentrations in the Peace River Region:

Insights from PRAMP’s Independent Air Monitoring Network

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Long-term monitoring by the Peace River Area Monitoring Program (PRAMP) shows a reduction in elevated methane concentrations across its network, demonstrating the impact of improved emissions management practices and place-based regulation in the region.

**Methodology**

PRAMP operates continuous air monitoring stations at key locations, including Stations 986-C, 842-B, and Reno-B. These stations collect hourly methane concentrations, along with wind speed and direction data, to assess potential emission sources and long-term trends. To evaluate methane concentration patterns, PRAMP analyzed data from 2010 to 2023, focusing on:

* Trends in annual and seasonal methane concentrations.
* Changes in the frequency and magnitude of elevated methane events.
* The role of external influences, including wildfire smoke events in 2023.

PRAMP data were compared against historical baselines to assess changes in methane levels over time.

**Results**

Long-term monitoring by PRAMP shows a steady decline in methane concentrations across its network since 2010. Stations 986-C, 842-B, and Reno-B now report some of the lowest industrially influenced methane levels in Alberta, reflecting improvements in emissions management practices. Despite reductions in elevated methane concentrations, background methane levels (~1.8 ppm) have remained stable, indicating that these trends are driven by enhanced emissions controls rather than changes in natural sources.

PRAMP’s analysis highlights advancements in site infrastructure, leak detection and repair (LDAR) programs, and emissions management technologies as key factors contributing to the observed reductions. While methane concentrations have generally trended downward, temporary increases were observed in 2023 due to wildfire smoke, which introduced additional methane sources from biomass combustion. However, PRAMP’s monitoring confirmed that these elevated concentrations were unrelated to industrial activity.

In addition to improved operational practices, Directive 84, a place-based, sector-specific regulation, was introduced to address emissions from heavy oil operations in the Peace River region. PRAMP’s independent, long-term dataset provides a valuable record to assess how methane levels have changed since its implementation, while also capturing broader industry-led mitigation efforts and external environmental influences. By maintaining a transparent, science-based approach to data collection and sharing, PRAMP plays a critical role in supporting regulators, industry, and local communities in making informed decisions on methane mitigation strategies.

**References** *(provide in APA – MBisaga)*

Peace River Area Monitoring Program (PRAMP) 2023 Annual Data Review

Alberta Ambient Air Quality Guidelines (AAAQG)

Historical PRAMP methane data (2010–2023)

Alberta Energy Regulator, Directive 84: Requirements for Methane Reduction

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Acknowledgments and references can be included and will not count towards the 2-page limit.

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