

Powder River Basin – Air Monitoring Plan

Summary:

To deal with the increasing coal bed methane activity in Montana and Wyoming, the Air Task Group (Group) believes there is a need to develop a monitoring plan that would establish baselines conditions for southeastern Montana. Initiation of the monitoring plan should take place before continued development forever alters baseline conditions.

The terrain in the Powder River Basin tends to channel surface airflow up and down the river valleys, which are largely orientated north-south. The most common wind pattern is from the north with the second most common wind from the south. At this point, northerly winds do not pose many problems. The north winds carry relatively pristine air (little development) from southeastern Montana south to a well-developed monitoring network in Wyoming. The south winds are more problematic because they carry air pollution from the expanding gas fields in Wyoming into the less developed areas of southeastern Montana. Without an established monitoring network, baseline conditions will not be established for southeastern Montana nor will the changes be tracked

Location of Monitors:

- South of Broadus, MT, on State Highway 59
 - This site would characterize the Powder River Valley by capturing the airflows from both the Powder River and Little Powder River Valleys.
- Near Birney, MT
 - This site would characterize the Tongue River Valley by capturing the airflows from both the Tongue River and the Hanging Women Creek Valleys.

Monitored Pollutants:

- Nitrogen oxides (NO_x) – emitted from internal combustion engines
- PM_{2.5} – emitted from internal combustion engines
- PM₁₀ – from surface disturbances
- Ozone (O₃) – formed 10-20 miles downwind from NO_x emissions

Meteorological Data:

- Temperature
- Anemometer
- Relative humidity
- Precipitation gauge

Cost:

The group requested cost estimates from IML Inc. in Sheridan, WY, and Bison Engineering, Inc. in Billings, MT. The following cost estimates were provided:

- IML, Inc.

	<u>1 Site</u>	<u>2 Sites</u>
➤ Monitoring site installation	\$150,000	\$300,000
➤ Met. Site installation	\$12,000	\$24,000
➤ O & M (without met. sites)	\$45,000	\$90,000
➤ O & M (with met. Sites)	\$48,500	\$97,000
Total (with met. site)	\$210,500	\$421,000

- Bison Engineering, Inc.

	<u>1 Site</u>	<u>2 Sites</u>
➤ Monitoring site installation	\$163,466	\$294,239
➤ Met. Site installation	\$10,000	\$18,000
➤ O & M	\$58,013	\$104,423
Total (with met. site)	\$231,479	\$416,662