

# VIALOGY<sup>®</sup>

## Sensor Policy Manager<sup>™</sup>

SPM<sup>®</sup> Data Sheet

PSIM Overview

CBRNE

Environmental Monitoring

Campus Security

Defense

### ViaLogy SPM<sup>®</sup> for Networked Air Quality Management

The growth of the oil and gas industry brings with it increased refining by-products and consequent exposure to people and the environment. Organizations such as the Clean Air Strategic Alliance (CASA) of Alberta monitor compliance with government mandates by collecting air quality measurements and selling this data to provincial government agencies. As illustrated below, the airshed infrastructure as of 2006 already monitored 35% of the province which included the areas of greatest oilfield activity.

#### Overview of Axia/CASA Objectives

Axia's SPM project requirements for CASA include the following:

- The ability to monitor in real time concentrations of three gases frequently of concern in the oilfield environment at remote, unmanned stations;
- Centralized, automated management of the aggregated data at a dedicated SPM server at Axia Corporate Headquarters in Calgary;
- Calculation of minute, hourly and daily average values for each gas;
- Automatic generation of daily, weekly and monthly reports that are sent by e-mail to Axia;
- Automatic alert notification of affected parties by phone or cell-phone when gas levels exceed threshold values.

*Unlike sensor-management solutions that only work with sensors from certain suppliers, the ViaLogy SPM<sup>®</sup> solution can communicate with network-attached sensors from many vendors, fuse and normalize their inputs for distributed, Web-based monitoring, and invoke real-time actions based on customer-defined policies.*

### Limitations of Today's Sensor Management Approaches



Problems facing a more complete monitoring of the airshed include:

**Accessibility** – information on pollution levels, if available to the public, is often difficult to find and to understand. The sensors themselves are distributed over a vast area, with many being subject to harsh environmental conditions in unmanned stations.

**Multiplicity of sensor types** – many disparate types of sensors are used to verify compliance and are maintained by different organizations. Each type is independently managed and monitored.

**Insufficient reporting capabilities** – until now the inability to automatically integrate data feeds from sensors at different locations and at different time intervals made it difficult to accurately map

and report changes throughout the province in a timely fashion.

**Complexity of integration** – while system integrators can integrate the input from multiple sensors, the process has historically been time-consuming and costly. Whenever an organization adds or removes new sensors or seeks to incorporate a new sensor network, the systems integrator must modify the back-end software, as well as the business logic, and, frequently, the user interface or dashboard. Moreover, temporary loss of coverage is liable to occur when new sensors or networks are added.

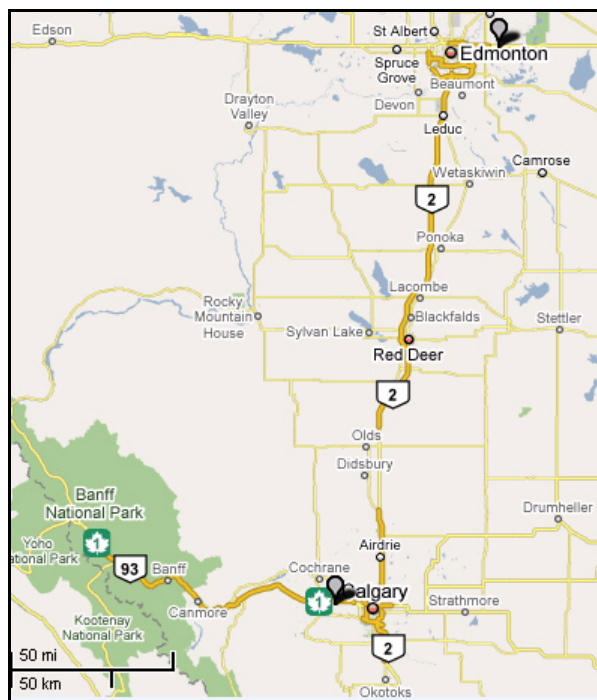
## SPM® Pilot Deployment within the Axia Alberta SuperNet

The Axia Alberta SuperNet is now using the SPM® solution to manage automated air monitoring stations at two of its Points-of-Presence (POPs), one at Springbank near Calgary, and the other at Ardossan northeast of Edmonton (see map). Each POP employs a leading manufacturer's sensors that monitor H<sub>2</sub>S, NO<sub>2</sub> and SO<sub>2</sub> levels.

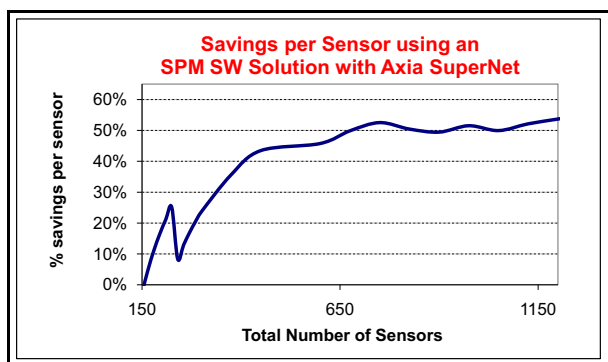
The sensors monitor the gases in real time; the readings are relayed to the SPM server in Calgary where they are converted by means of SPM sensor adapters into a common messaging protocol used by the SPM Sensor Integration Engine to execute policies and actions and to communicate with messaging, alerting and warning devices.

Axia's SPM calculates average gas levels for customer-specified time intervals (minutes, hours and days), and then generates daily, weekly and monthly reports which are sent to Axia, and then presented to CASA and the Albertan air quality authorities.

All stages of the process are automated and can run unattended, except in cases when an out-of-threshold reading or a hardware failure alarm indicates the need for human intervention.



## Customer Benefits in the Axia Deployment



**Utilization of existing capital installations** – minimal additional capital costs are incurred in the SPM deployment since the existing POP infrastructure and fibre optic connectivity can be integrated with little effort.

**Real time monitoring and averaging** – levels of the monitored gases are measured in real time and then averaged over customer specified intervals. Sensor data is digitized at an Ethernet gateway and sent to the Network Operations Center (NOC) in Calgary for monitoring, storage and later retrieval from a database.

**Automated alerting and notification** – SPM automatically generate alerts from the incoming data using on pre-established alarm levels set in customer-specific policies. Reports are sent directly to Axia by e-mail. Alerts and alarms are sent to networked monitors, via e-mail, LAN-line or cell phone.

**Economical scalability** – Points-of-Presence already exist near many public structures such as schools, hospitals and government buildings. These POPs currently deliver real-time environmental data to the communities that are monitored. In real dollars, if the SPM pilot project is expanded with a mix of environmental sensors and ViaLogy/Axia connectivity solutions, after 250 sensors there is a savings of 20% per sensor over a vendor-proprietary end-to-end solution. If the ViaLogy/Axia solution is scaled to over 700 sensors, the price to connect additional sensors drops to about US\$250 per sensor in the *entire network*, a 50% savings over a proprietary end-to-end solution.

**Leveraging industry-standard sensor technology** – the SPM/Axia collaboration is built on robust, industry-proven environmental sensors with Axia Quality of Service and SuperNet performance.

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### Contact Information

To learn more about the ViaLogy SPM® software solution, e-mail [sales@vialogy.com](mailto:sales@vialogy.com) or call (626) 768-2580 (U.S. headquarters) or +44 (0) 207 869 7014 (European headquarters).

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