

Saskatchewan Industry and Resources

Air Quality Requirements

Saskatchewan Industry and Resources

www.ir.gov.sk.ca



Saskatchewan Industry and Resources



Saskatchewan
Great People. Great Places.

Act and Regulations

- *The Oil and Gas Conservation Act*
 - *The Oil and Gas Conservation Regulations, 1985*
 - *Well and Facility Licensing*
 - *Compliance and Enforcement*
 - *Conservation of Non-Renewable Resources*
 - *Wells and Facilities Operation Standards including Air Pollution Emission Control and Destructions*
 - *Environmental and Public Safety Protection*
 - *Emergency Response Plans*



Saskatchewan Industry and Resources

www.ir.gov.sk.ca



Saskatchewan
Great People. Great Places.

Oil and Gas Well Locations





Saskatchewan Industry and Resources

www.ir.gov.sk.ca



Saskatchewan
Great People. Great Places.

1

Facility Licensing

- 367 companies own 4867 facilities requiring licenses under the RFLA program:
 - Oil & Gas Single-Well Batteries: 1799
 - Oil Multi-Well Batteries: 1057
 - Injection/Disposal Wells: 848
 - Compressor/Gas Batteries/Gas Gathering: 506
 - Satellites: 335
 - Crude Oil Cleaning/Skim/Recovery Plants: 103
 - Gas Processing Plant: 26
 - Miscellaneous: 193



Saskatchewan
Industry and
Resources

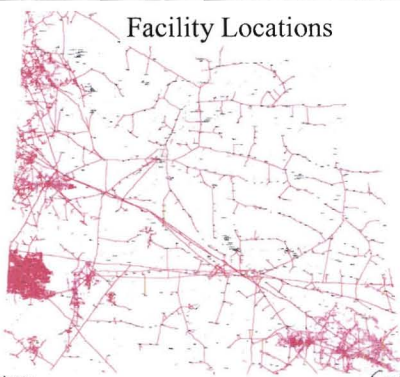
www.ir.gov.sk.ca




Saskatchewan

Our Future is Made of Stars


Facility Locations





Saskatchewan
Industry and
Resources

www.ir.gov.sk.ca



Saskatchewan

Our Future is Made of Stars

Reduced Sulfur Compounds Emission Control Initiatives



Saskatchewan
Industry and
Resources

www.ir.gov.sk.ca



Saskatchewan

Our Future is Made of Stars

RFLA H₂S Survey Results

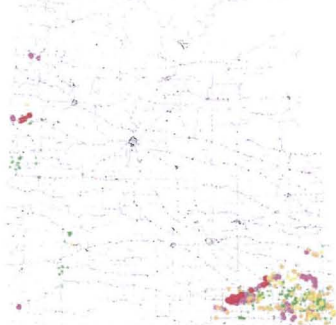
- 964 facilities reported H₂S inlet gas stream concentration greater than zero
- Mean H₂S concentration in inlet gas stream is 2.1%
- Highest reported H₂S concentration is 30%
- 411 facilities reported H₂S concentration less than 1% and 553 facilities reported H₂S concentration equal to or greater than 1%
- Sour gas production is localized in defined areas of the province



www.ir.gov.sk.ca

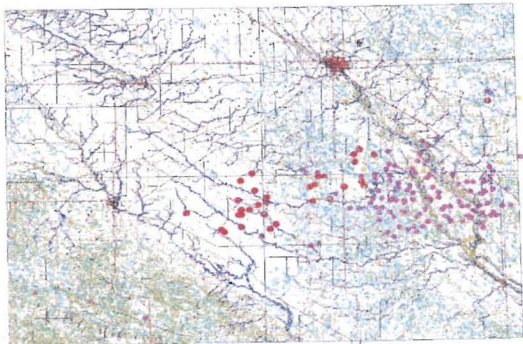
Saskatchewan
Our Future is Worth the Wait

Critical Sour Gas Locations



www.ir.gov.sk.ca

Saskatchewan
Our Future is Worth the Wait



www.ir.gov.sk.ca

Saskatchewan
Our Future is Worth the Wait



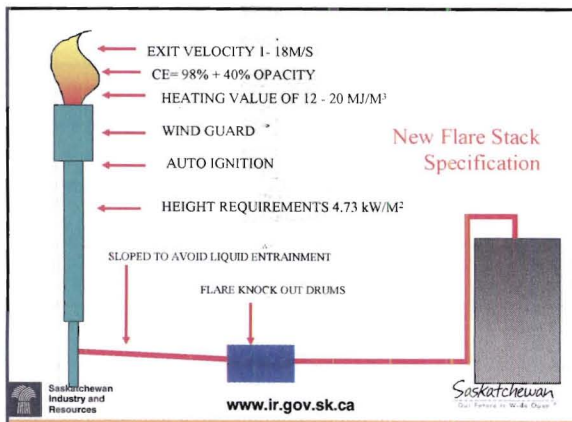
Sour Gas Site Requirements

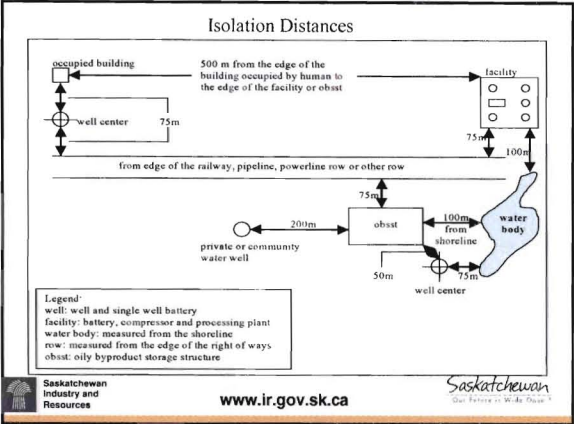
- If you have H_2S concentration of 10 moles per kilomole or greater (1.0% H_2S) in your oil or gas inlet stream you must install a VRU and Flare Destruction System.
- If you exceed ambient air standards for H_2S (10.8 ppb/hour or 3.6ppb/24 hours) you may be required to implement mitigative measures.



www.ir.gov.sk.ca

Saskatchewan
Our Future is Made of Oil





Separation Distances

Table 2. Minimum Distance Requirements Separating New Sour Gas Wells/Facilities from Residential and Other Developments

Level Of Sour Gas Facility	Sour Gas Well Release Rate m ³ /h	Sour Gas Facility Potential Release Volume m ³	Minimum Separation Distance To Developments
1	<0.3	<300	• the standard spacing requirements as per Appendix 1
2	0.3 - 2.0	300 - 2000	• for wells a minimum separation distance of 100m from a permanent dwelling and 500m from an urban centre or public facility • for facilities a minimum separation distance of 500m from a permanent dwelling and urban centre or public facility
3	2.0 - 6.0	2000 - 6000	• for wells a minimum separation distance of 100m from a permanent dwelling and 500m from an urban centre or public facility • for facilities a minimum separation distance of 500m from a permanent dwelling and a minimum separation distance of 1500m from an urban centre or public facility
4	>6.0	>6000	• as specified by SEM but not less than level 3

Saskatchewan
Industry and
Resources

www.ir.gov.sk.ca

Saskatchewan
Our Future is Worth Saving

**Green House Gas Emission
Reduction Initiatives**

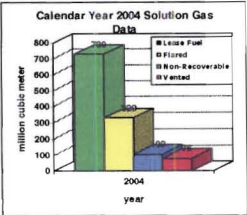
Saskatchewan
Industry and
Resources

www.ir.gov.sk.ca

Saskatchewan
Our Future is Worth Saving

Emission Statistics

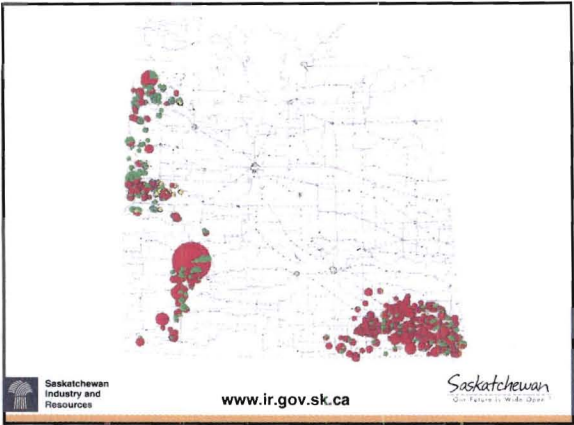
- During 2004 calendar year, 1,847 facilities flared and vented 405×10⁶ m³ of associated gas. This equates to \$90 million dollars worth of natural gas or emission of 749,000 metric tonnes of carbon dioxide.



Saskatchewan
Industry and
Resources

www.ir.gov.sk.ca

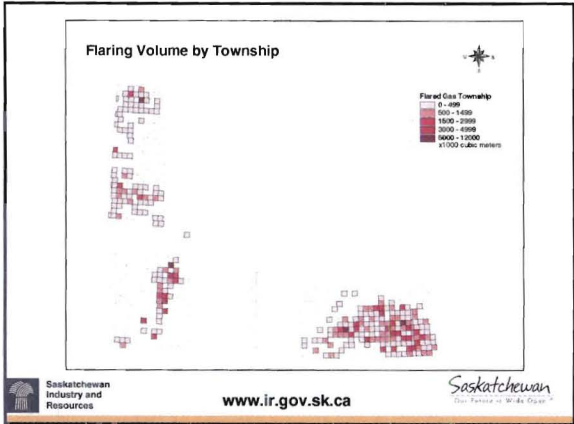
Saskatchewan
Our Future is Wide Open™



Saskatchewan
Industry and
Resources

www.ir.gov.sk.ca

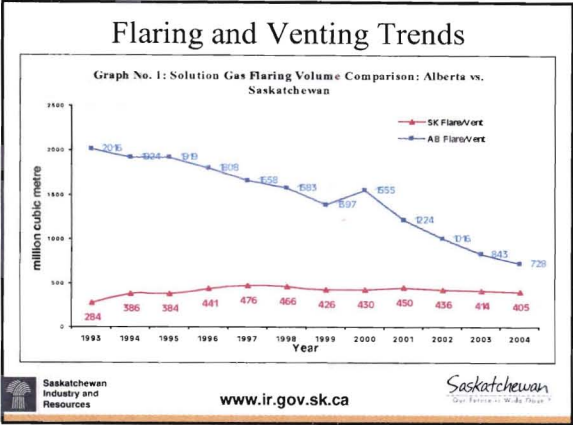
Saskatchewan
Our Future is Wide Open™

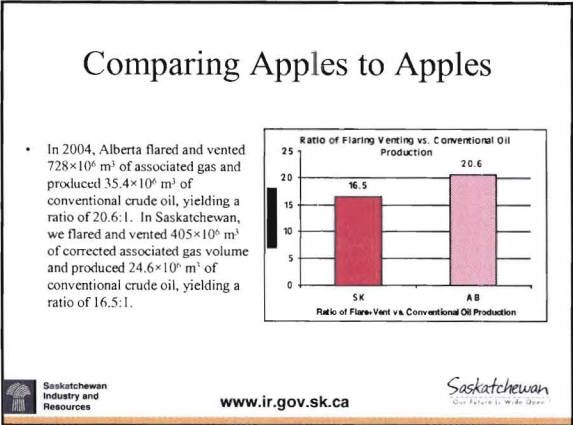


Saskatchewan
Industry and
Resources

www.ir.gov.sk.ca

Saskatchewan
Our Future is Wide Open™





What is SIR going to do?

- Under our new facility licensing program all facilities that currently employ continuous flaring system must cease flaring and will be required to conserve the gas, unless they can provide an acceptable justification to SIR.
- Venting at facilities will be banned, except in emergency situations.
- Site specific electronic emergency response plan database system is being developed as part of our new facility licensing program.
- Regulation requiring the operators to employ advanced air emission control, monitoring, modeling and mitigation system are being developed. In addition, economic instruments are being explored to encourage development novel conservation technologies.
- The oil and gas industry may be required to provide measurable air quality improvements in critical area. The air shed model is a good fit in realizing this requirement.

Saskatchewan Industry and Resources www.ir.gov.sk.ca Saskatchewan Our Future is Within Reach

Proposed Air shed Zones

- Southeast Saskatchewan Air shed Association Key Members:
 - Government:
 - Saskatchewan Environment
 - Saskatchewan Industry and Resources
 - Saskatchewan Agriculture and Food
 - Saskatchewan Health
 - Municipal Governments
 - Industry:
 - Power Generation Industry
 - Oil, Gas and Mining Industries
 - Agriculture and Intensive Livestock Operations
 - Transportation



www.ir.gov.sk.ca