

# ***Public Safety & Sour Gas***

*Provincial Advisory Committee on  
Public Safety and Sour Gas*

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October, 2000

***Random Sample Telephone  
Survey of Albertans***

***Final Report:***



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## Executive Summary

### **Purpose:**

The random sample telephone survey is one component of the Committee's public consultation process. Conducted in June 2000, the purpose of the random sample telephone survey is to provide an understanding of the awareness, perceptions and opinions of Albertans within areas known to have a high density of sour gas activities to the issues surrounding sour gas and public health and safety. The specific objectives of the telephone survey are:

- 1 to generate baseline information about the general public's awareness, concerns and knowledge about sour gas; and,
- 2 to solicit more detailed information related to perceptions, opinions and experiences from those who were more aware, exposed and/or knowledgeable about the issue.

### **Study Approach:**

*The survey results are representative of two major geographic segments. The first includes rural communities and surrounding areas in proximity to sour gas activity. The second geographic segment includes the urban centers of Edmonton, Calgary and Red Deer. The urban centers were further stratified to include only the communities in proximity to sour gas activity. The total population within each of these geographic segments is approximately 283,000 for the rural and 525,000 for the urban centers, representing about 27 per cent of Alberta's total population.*

*Both the rural and the urban samples were drawn randomly from telephone lists matched to postal codes within the target areas. Using a random sample approach allows inferences to be drawn about all the people who live within the areas of study. For values related to the entire population (urban and rural) the error is estimated to be +/- 3%, 19 times out of 20<sup>1</sup>. For example, if the survey revealed 65% of respondents indicating 'yes' to a question, the true value would lie between 62% and 68%.*

*The rural sample included the areas around Millarville/Vulcan, Pincher Creek, Drayton Valley, Rocky Mountain House/Sundre, Grande Prairie, Edson, Hinton, and Leduc. To ensure adequate representation a stratified sample was utilized that drew a random sample of approximately 100 people from each rural area and 400 people from Edmonton, Red Deer and Calgary combined.*

*The stratified sample was chosen to ensure all communities had representation in the survey. For example, had we drawn a simple random sample of 1300 from the combined urban and rural areas, we would have had only a hand full of responses from areas like Drayton Valley or Millarville in comparison to Calgary and Edmonton. However, the stratified sample ensures a minimum sample size for analysis is obtained for each area.*

### **Summary of Results:**

Overall the results indicate there is a good awareness of sour gas issues in the areas that were sampled. Although there are areas that could be improved, minimal dissatisfaction was evident. For example, most people affected by an emergency response zone felt that the plan provides a sense of safety. However, many also did not believe they are kept up-to-date with changes to

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<sup>1</sup> 19 times out of 20 is the level of confidence, also referred to as a 95% confidence interval. This means if the sample was repeated twenty times, the values would fall within the range of the true value 19 times. The level of confidence and the margin of error are a function of sample size.

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the plan and most have not had the plan or the response actions explained to them by a facility operator.

Few people surveyed have land that is affected by a setback, but those who do are relatively content with the setback distances. There was a general feeling by the respondents that they lacked information regarding sour gas proposals in their community, preventative precautions, activities of local operators, and emergency response actions. The results also indicated that the communication mechanisms between the public and government regulators and companies could be improved, as they were not believed to be adequate or readily accessible. Direct mail was considered to be the preferred method for delivery of information regarding sour gas issues to local residents.

Although the oil and gas companies were considered to be the best source for sour gas information, there was a general dissatisfaction or neutral feeling regarding the local operator's responsiveness to community concerns. The lack of responsiveness was considered to be a factor for all companies. The respondents also believed there is a lack of opportunity for public involvement in sour gas decisions.

People who had been involved in a public consultation process were satisfied with the ability of the process to resolve the issues. The timing of the consultations was also considered to be adequate and most believed that the process reduces public anxiety.

Three quarters of those surveyed had heard of the Alberta Energy and Utilities Board or EUB and most identified its role as that of a regulatory board with regard to sour gas and public health and safety. Few people actually had contact with an EUB employee, but those who did were satisfied with the contact. Just fewer than half of everyone surveyed indicated the regulatory board adequately considers health and public safety when making decisions regarding sour gas issues.

*Most of the respondents did not know any of the benefits to themselves and their community from sour gas developments. However the risks and inconveniences were better understood. Although health concerns were the biggest risk identified, just fewer than half of all participants believe that scientists clearly understand the effects of sour gas on public health. On the whole, about half of the respondents indicated that sour gas facilities were somewhat of a concern to them.*

## **Introduction**

The Advisory Committee on Public Safety and Sour Gas was established in January 2000. Through a multi-phase public outreach and consultation process, the Committee will examine public health and safety issues associated with sour gas and the regulatory framework that is in place to deal with those issues. Based on their review, the Committee will be providing the Alberta Energy and Utilities Board with recommendations to make the regulatory framework more effective. Public input will provide the foundation for the Committee's recommendations. The Committee's vision is a regulatory framework that is worthy of public confidence.

The random sample telephone survey is one component of the Committee's public consultation process. Conducted in June 2000, the purpose of the random sample telephone survey is to provide an understanding of the awareness, perceptions and opinions of Albertans within areas known to have a high density of sour gas activities to the issues surrounding sour gas and public health and safety. The specific objectives of the telephone survey are:

- to generate baseline information about the general public's awareness, concerns and knowledge about sour gas; and,
- to solicit more detailed information related to perceptions, opinions and experiences from those who were more aware, exposed and/or knowledgeable about the issue.

## **Study Approach**

The survey results are representative of two major geographic segments. The first includes rural communities and surrounding areas in proximity to sour gas activity. The second geographic segment includes the urban centers of Edmonton, Calgary and Red Deer. The urban centers were further stratified to include only the communities in proximity to sour gas activity. The total population within each of these geographic segments is approximately 283,000 for the rural and 525,000 for the urban centers, representing about 27 per cent of Alberta's total population.

Both the rural and the urban samples were drawn randomly from telephone lists matched to postal codes within the target areas. Using a random sample approach allows inferences to be drawn about all the people who live within the areas of study. However, there are several aspects of random sampling the reader should be aware of. First, with any sample, there is a margin of error associated with the estimates produced from the survey. For values related to the entire population (urban and rural) the error is estimated to be +/- 3%, 19 times out of 20<sup>1</sup>. For example, if the survey revealed 65% of respondents indicating 'yes' to a question, the true value would lie between 62% and 68%.

The rural sample included the areas around Millarville/Vulcan, Pincher Creek, Drayton Valley, Rocky Mountain House/Sundre, Grande Prairie, Edson, Hinton, and Leduc. To ensure adequate representation a stratified sample was utilized that drew a random sample of approximately 100 people from each rural area and 400 people from Edmonton, Red Deer and Calgary combined.

The stratified sample was chosen to ensure all communities had representation in the survey. For example, had we drawn a simple random sample of 1300 from the combined urban and

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rural areas, we would have had only a hand full of responses from areas like Drayton Valley or Millarville in comparison to Calgary and Edmonton. However, the stratified sample ensures a minimum sample size for analysis is obtained for each area.

### ***Weighting Data***

Data are weighted when some parts of the population are over-represented or under-represented in relation to their true proportions. Since we used a stratified sample, it is critical to weight the survey data to ensure the analysis is not biased. This is very important when we want to view the entire sample (urban and rural) since there are vastly different populations represented in the urban and rural areas by each of the sample strata. For example, the sample for Leduc, which represents 17,000 people, is not too much smaller than the west-Calgary sample that represents 358,000. Simply combining these samples to perform an aggregate analysis will not work since the views representing the urban respondents will be seriously under-represented. For this reason the survey data are weighted to adjust the sample in relation to the population it represents. Therefore, throughout the report we use population figures that have been adjusted through weighting of the data. We have also provided tables with un-weighted results in Appendix A for reference purposes.

A random sample is said to be representative of the population within a margin of error, assuming the sample size is adequate and there is no bias introduced through the data collection process. Nine hundred four participants were surveyed from the rural communities (Millarville, Vulcan, Pincher Creek, Drayton Valley, Rocky Mountain House, Sundre, Hinton, Leduc, and Grande Prairie) and 465 from the urban cities (Edmonton, Calgary, and Red Deer). When reviewing the results in this report it is important to keep in mind which population or sub-population is being referred to. To assist the reader, we have referenced the weighted population values. Table 1.0 below shows the sampling strata and the sample size for each. Weighted data simply extrapolates the sample to the number of people within the strata.

It should be noted the reliability of estimates declines when the individual cell sizes are very small. For example, if we split out Millarville responses to a question with 5 response categories it is possible that several of the categories may only have one or two actual respondents. In this case the sample fraction is too small to reliably infer that these few responses relate to the entire population. Throughout the report when cell sizes are small we have noted this with an asterisk and the reader should regard this as qualitative.

### ***Open Ended Questions***

After the pre-test, many of the open-ended questions were coded into categories based on re-occurring themes. For example, question four asked 'How did you find out about the Emergency Planning Zone?' The pre-test resulted in five common answers – 'telephone call', 'public forum', 'personal contact', 'local newspaper', and 'direct mail'. So although the interviewer did not list the options, if the respondent mentioned one of the categories, the response was coded accordingly. All other responses that did not fit into the coded categories were labeled as 'other' and are included in the qualitative analysis. The open-ended questions that were coded after the pre-test, are identified in the analysis report.

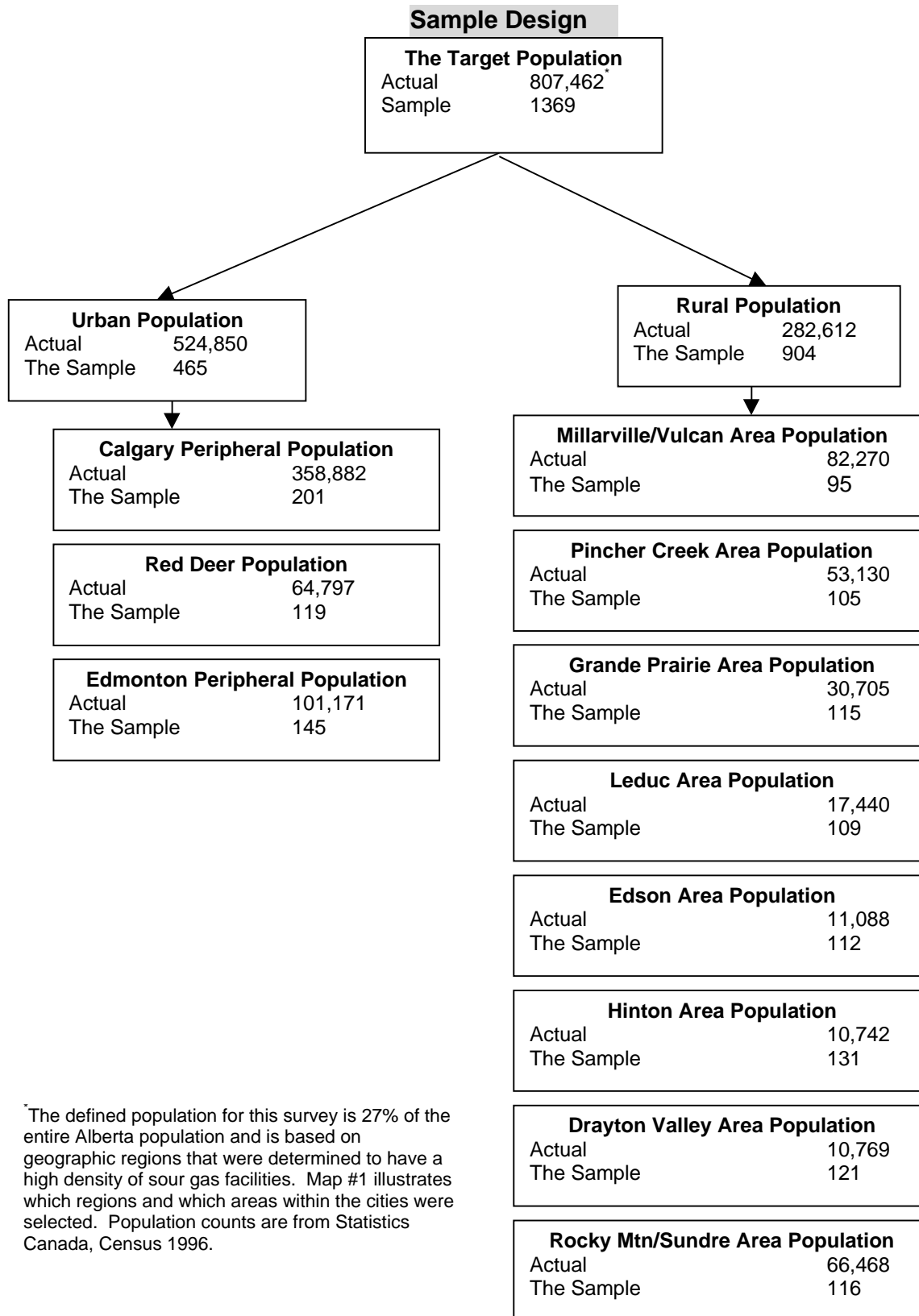
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**The Sample Locations**

The map located in Appendix C highlights the areas from which the samples were drawn. The following is a table that indicates which postal codes were chosen and what areas they included.

<b>Label</b>	<b>Postal Code(s)</b>	<b>Description</b>
Grande Prairie	T8V	North West Grande Prairie and area
Edson	T7E	Edson and area
Hinton	T7V	Hinton and area
Drayton Valley	T7A	Drayton Valley and area
Edmonton	T5S, T5T, T5V, T5X, T5Z, T6M, T6V, T6W	North West Edmonton and area
Leduc	T9E	Leduc and area
Rocky Mountain House/Sundre	T0M	includes the areas around Sundre and Rocky Mountain House as per the map and does not include Devon, Sylvan Lake, Innisfail, Red Deer, Olds, or Aidrie townsites
Red Deer	T4E, T4N, T4P, T4R	Red Deer and area
Calgary	T1X, T1Y, T2A, T2C, T2W, T2X, T2Y, T2Z, T3A, T3G, T3J, T3K, T3L, T3Z	North West, North East, East, South, and South West Calgary (the peripheries)
Millarville/Vulcan	T0L	includes Millarville and Vulcan areas as per the map and does not include Canmore or High River townsites
Pincher Creek	T0K	includes Pincher Creek area as per the map and does not include Coaldale, Taber, or Lethbridge townsites; it does include Fort Macleod

**Table 1.0**



## Survey Results

The target population for this survey was 807,462 people, which is 27% of the entire Alberta population (2,964,689 people)<sup>1</sup>. The population was based on only those areas that are known to have a high density of sour gas activities. The 'N' values in the analysis represent the actual population represented by the sample (see previous discussion on weighting). All percentages have been rounded.

### Section 1 Sour Gas Facilities

#### 1.1 Are you aware of a sour gas facility in your area?<sup>a</sup>

	Total (N=807,462)	Urban (N=524,850)	Rural (N=282,612)
<b>Yes</b>	41%	32%	57%
<b>No</b>	60%	68%	43%

<sup>a</sup> This question was asked of the entire sample

Although the total percentages indicated that most of the respondents were not aware of a sour gas facility in their area, the rural respondents were generally aware of a local sour gas facility.

#### 1.2 Do you know in kilometres, approximately how far you are from the sour gas facility?<sup>a</sup>

	Total (N=326,690)
<b>Yes</b>	88%
<b>No</b>	12%

<sup>a</sup> This question was asked of only those who were aware of a sour gas facility in their area

#### 1.3 Distance Away from the Sour Gas Facility

Distance	Total (N=286,655)	Urban (N=146,217)	Rural (N=140,438)
1km – 5 km	36%	34%	37%
6km – 10 km	19%	18%	20%
11km – 20 km	19%	18%	21%
21 km – 30 km	13%	18%	8%
31 km – 40 km	4%	2%	6%
41 km – 50 km	6%	6%	5%
51 km and more	4%	4%	4%

Of those who were aware of a sour gas facility in the area, 88% knew how far away they were from the sour gas facility. The distances ranged from 1 km to 200 km with the majority being within 10km of a sour gas facility. The graph in Appendix B illustrates the level of awareness by area. According to this graph the Edson area has the most people aware of a sour gas facility in their area, while Edmonton has the fewest number of people aware of a local sour gas facility.

<sup>1</sup> Statistics Canada, CANSIM, Matrices 6367-6378 and 6408-6409, July 1, 1999.

## Section 2 Emergency Response Plans

In general, Albertans who live in an emergency response zone indicated the emergency response plan makes them feel safe. However, they did not feel they are kept up-to-date regarding changes to the plan and most of them have not had the facility operator contact them to explain the purpose of the ERP or the actions that would be taken in the event of an emergency. The results suggest that urban participants living in an EPZ are less informed about the purpose of the ERP, the actions to be taken in the event of an emergency, and any changes to the plan, than the rural participants in the same situation did.

### 2.1 Do you live within a sour gas emergency planning zone?<sup>a</sup>

	Total (N=326,690)	Urban (N=166,516)	Rural (N=160,174)
<b>Yes</b>	18%	11%	26%
<b>No</b>	52%	60%	44%
<b>Don't Know</b>	30%	30%	30%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area

More rural Albertans were aware that they live in a sour gas emergency planning zone (EPZ) than urban Albertans were.

### 2.2 How did you find out about the emergency planning zone?<sup>a,b</sup>

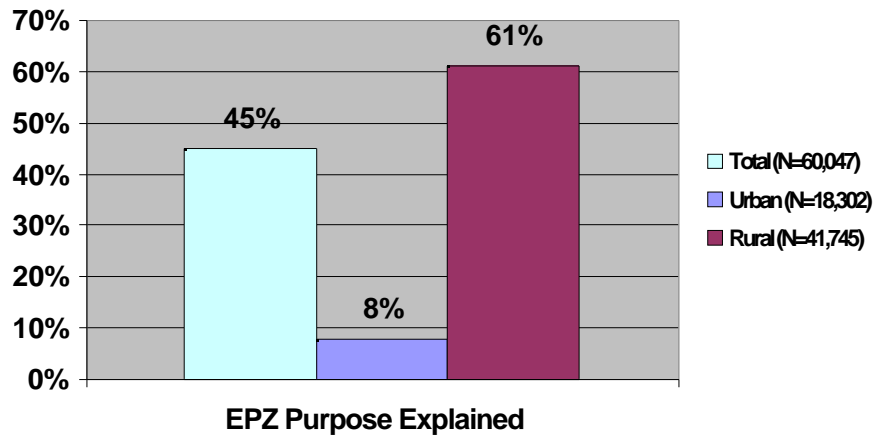
	Total (N=60,047)	Urban (N=18,302)	Rural (N=41,745)
<b>Personal Contact</b>	34%	20%	40%
<b>Telephone Call</b>	17%	29%	12%
<b>Local Newspaper</b>	11%	15%	9%
<b>Direct Mail</b>	11%	4.2%	14%
<b>Public Forum</b>	4%	-	6%
<b>Other</b>	23%	32%	19%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area and live in an emergency planning zone. Since only 139 people surveyed live within an EPZ (121 rural and 18 urban) these results should be treated with caution as the cell sizes in the table are very small.

<sup>b</sup> This was an open ended question that was coded after the pre-test – responses were not prompted during the survey.

The most commonly reported methods for finding out about their EPZ was through contact in person or by phone.

**2.3 Has the facility operator explained the purpose of the emergency planning zone?<sup>a</sup>**



<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area and live in an emergency planning zone. Since only 139 people surveyed live within an EPZ (121 rural and 18 urban) these results should be treated with caution as the cell sizes in the table are very small

Rural respondents living in an emergency planning zone were more likely to have the zone explained to them by a facility operator, than the urban participants living in an EPZ were.

**2.4 When the emergency planning zone was explained, how were you contacted?<sup>a,b</sup>**

	Total (N=26,795)	Urban (N=1,444)	Rural (N=25,351)
Personal Contact	59%	40%	60%
Telephone Call	20%	27%	20%
Local Newspaper	10%	-	11%
Direct Mail	8%	27%	7%
Other	3%	6%	3%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area, live in an emergency planning zone, and had the EPZ explained to them by the facility operator. These results should be treated with caution as the cell sizes in the table are very small.

<sup>b</sup> This was an open ended question that was coded after the pre-test – responses were not prompted during the survey.

‘Personal contact’ was the most common method for explaining the purpose of the EPZ to all those who live an emergency planning zone. ‘Direct mail’ was more common with the urban respondents than the rural participants.

**2.5 Has the facility operator in your area contacted you to explain the response actions that will be taken in the event of an emergency?<sup>a</sup>**

	Total (N=60,047)	Urban (N=18,302)	Rural (N=41,745)
<b>Yes</b>	44%	17%	55%
<b>No</b>	57%	83%	45%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area and live in an emergency planning zone. Since only 139 people surveyed live within an EPZ (121 rural and 18 urban) these results should be treated with caution as the cell sizes in the table are very small.

Rural respondents were more likely to have the response actions explained to them by the facility operator, than the urban respondents were. Most respondents who said the facility operator had explained the purpose of the EPZ, also said the response actions had been explained (88%). The results indicated that most respondents either had both the purpose and the actions explained to them by the facility operator, or had neither explained.

**2.6 Do you believe you are kept up-to-date with regard to your emergency response plan and any changes made to it?<sup>a</sup>**

	Total (N=60,047)	Urban (N=18,302)	Rural (N=41,745)
<b>Yes</b>	46%	17%	59%
<b>No</b>	43%	77%	28%
<b>Don't Know</b>	11%	7%	13%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area and live in an emergency planning zone. Since only 139 people surveyed live within an EPZ (121 rural and 18 urban) these results should be treated with caution as the cell sizes in the table are very small.

Forty-three percent of the residents did not feel like they are kept informed about changes to their emergency response plans while 46% believe they are kept informed. It is interesting to note that of those respondents who believed they are kept up-to-date with regard to their ERP, 63% also had the EPZ purpose and actions explained to them by the facility operator. Similarly, most of those who did not believe they are informed of changes to their ERP, did not have the purpose or the actions of the EPZ explained to them (92%).

**2.7 Does the Emergency Response Plan in your area make you feel comfortable about your safety?<sup>a</sup>**

	Total (N=60,047)	Urban (N=18,302)	Rural (N=41,745)
<b>Yes</b>	60%	50%	64%
<b>No</b>	40%	50%	36%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area and live in an emergency planning zone. Since only 139 people surveyed live within an EPZ (121 rural and 18 urban) these results should be treated with caution as the cell sizes in the table are very small.

Most of the participants who lived in an EPZ felt that the ERP makes them comfortable about their safety. As well, of those who had the purpose of the ERP explained by the facility operator, 76% also felt that the ERP makes them safe. Of those who did not have the purpose explained to them, 47% felt the ERP makes them safe.

Of the respondents who indicated that the ERP does not make them feel comfortable about their safety, the top four reasons given by rural respondents (n=44), in order of frequency, included: 'proximity to wells'; 'not having been contacted about the ERP'; 'response by companies would be too slow to be effective'; and, 'sour gas is lethal and evacuation would not be effective'. The top reason given by urban respondents (n=5) for not feeling comfortable about their safety was 'not having been told about the ERP'.

### **Section 3   Setbacks**

All of the responses in this section are based on those people who were aware of a sour gas facility in their area. Those people who said they were not aware of a sour gas facility were not asked questions about setbacks. Since only 45 people out of the sample of 1369 indicated they are affected by setbacks the results to these two questions should be regarded as qualitative only.

#### **3.1   Is your land affected by a sour gas setback?<sup>a</sup>**

	<b>Total (N=326,690)</b>	<b>Urban (N=166,516)</b>	<b>Rural (N=160,174)</b>
<b>Yes</b>	5%	0.4%	9%
<b>No</b>	83%	91%	75%
<b>Don't Know</b>	12%	8%	15%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area

Very few of those interviewed had land that was affected by a sour gas setback. Of those respondents who had land affected by setback, most (63%) said they live in an emergency response zone.

#### **3.2   Do you believe the setback distances are reasonable?<sup>a</sup>**

	<b>Total (N=15,712)</b>	<b>Urban (N=586)</b>	<b>Rural (N=15,126)</b>
<b>Yes</b>	49%	34%	49%
<b>No</b>	29%	-	30%
<b>Don't Know</b>	22%	66%	20%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area and have land affected by a sour gas setback

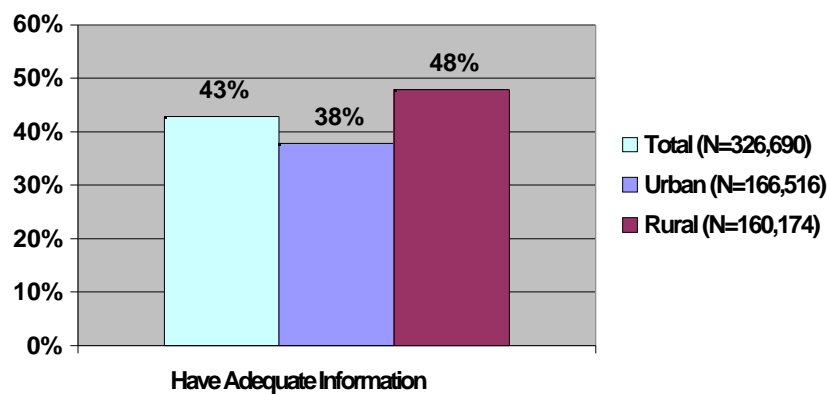
Just under half of the participants who have land in a setback believed the setback distances are reasonable while 29% believed the distances are not reasonable. Of the respondents who provided reasons why the setback distances are not reasonable (n=16 rural), almost half said it was because they are 'unsafe'.

## Section 4 Communications and Public Consultation

All of the responses in this section are based on those people who were aware of a sour gas facility in their area (n=696). Those people who said they were not aware of a sour gas facility were not asked questions about communications.

The results indicate the respondents believe they lack adequate information regarding sour gas proposals, precautions, activities of local companies, and response actions. The urban participants have a stronger feeling of lacking adequate information than the rural respondents. **In general, the closer a respondent is to a sour gas facility, the more likely they are to believe that they lack adequate information about the sour gas issues discussed in the survey.**

### 4.1 Do you believe you have adequate information about sour gas developments being proposed in your area?<sup>a</sup>



<sup>a</sup>This question was asked of only those who were aware of a sour gas facility in their area

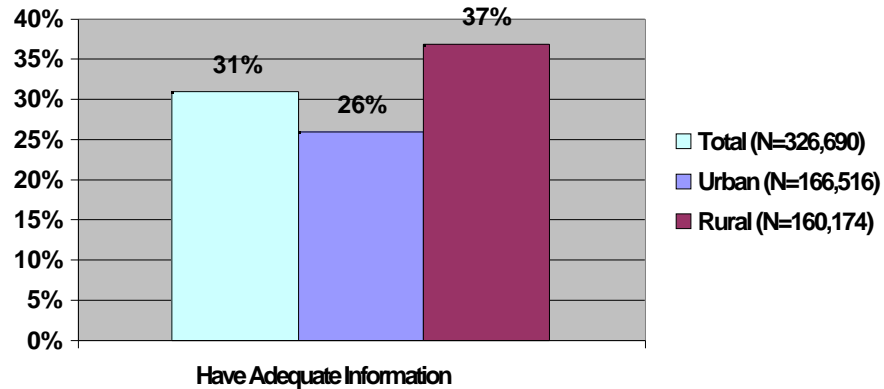
Just over half (51%) of those surveyed said they **did not have adequate information** about sour gas developments being proposed in their area. Of those who live within 5km of a sour gas facility, 57% said they did not have adequate information while 37% of those who live 21-30 km away, believed they did not have adequate information about local sour gas proposals.

### 4.2 Adequate Information Versus Distance from a Sour Gas Facility

Distance from a sour gas facility	Adequate Information	Not Adequate Information
1-5km (N=101,703)	38%	<b>57%</b>
6-10km (N=53,668)	31%	<b>65%</b>
11-20km (N=54,475)	<b>49%</b>	43%
21-30km (N=37,124)	<b>61%</b>	37%
31-40km (N=11,104)	<b>60%<sup>a</sup></b>	36% <sup>a</sup>
41-50km (N=16,810)	27% <sup>a</sup>	<b>67%<sup>a</sup></b>
51km & more (N=11,771)	<b>56%<sup>a</sup></b>	35% <sup>a</sup>

<sup>a</sup>Small cell sizes, interpret these results with caution

**4.3 Do you believe you have adequate information about the activities of sour gas companies operating in your area?<sup>a</sup>**



<sup>a</sup>This question was asked of only those who were aware of a sour gas facility in their area

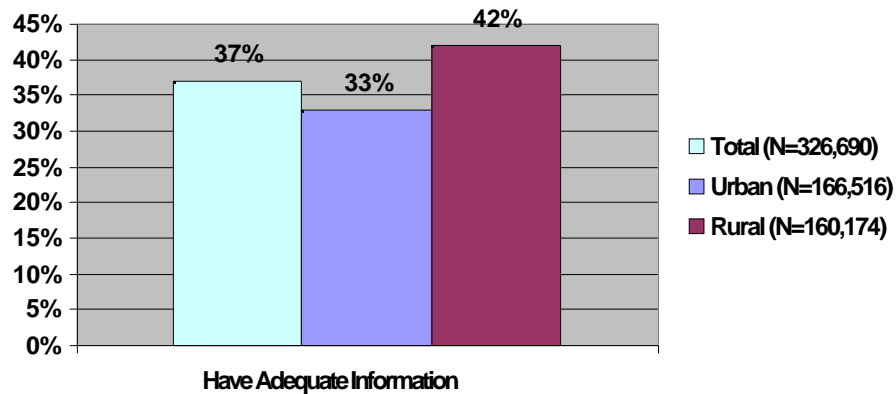
Almost 60 per cent of those surveyed said they **did not have adequate information** about the activities of sour gas companies operating in their area. Again, those respondents who live close to a sour gas facility (within 20km) believed they lack information about local sour gas companies' activities while those living further away generally believed they had adequate information.

**4.4 Adequate Information Versus Distance from a Sour Gas Facility**

Distance from a sour gas facility	Adequate Information	Not Adequate Information
1-5km (N=101,703)	26%	<b>58%</b>
6-10km (N=53,668)	26%	<b>68%</b>
11-20km (N=54,475)	34%	<b>59%</b>
21-30km (N=37,124)	<b>54%</b>	42%
31-40km (N=11,104)	<b>54%<sup>a</sup></b>	39% <sup>a</sup>
41-50km (N=16,810)	29% <sup>a</sup>	<b>65%<sup>a</sup></b>
51km & more (N=11,771)	<b>50%<sup>a</sup></b>	49% <sup>a</sup>

<sup>a</sup>Small individual cell sizes, interpret these results with caution

**4.5 Do you believe you have adequate information about the precautions being taken to prevent sour gas releases?<sup>a</sup>**



<sup>a</sup>This question was asked of only those who were aware of a sour gas facility in their area

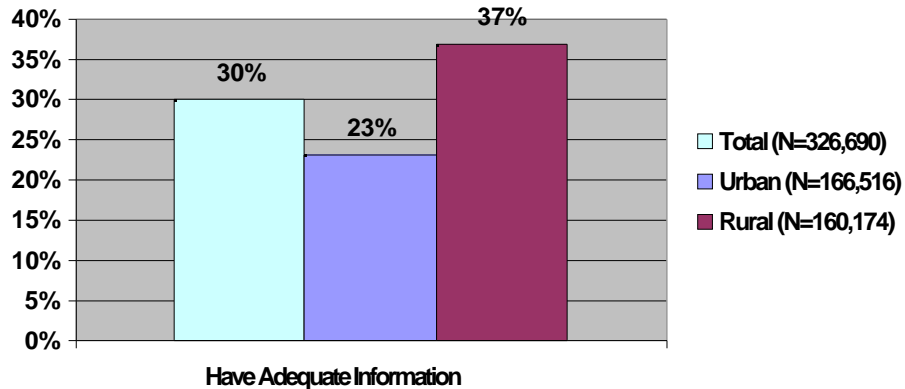
Of those surveyed, 53% said they **did not have adequate information** about the precautions being taken to prevent sour gas releases. The closer the respondent is to a sour gas facility the more likely they are to believe they do not have adequate information about the precautions being taken to prevent sour gas releases.

**4.6 Adequate Information Versus Distance from a Sour Gas Facility**

Distance from a sour gas facility	Adequate Information	Not Adequate Information
1-5km (N=101,703)	37%	<b>52%</b>
6-10km (N=53,668)	27%	<b>70%</b>
11-20km (N=54,475)	<b>52%</b>	45%
21-30km (N=37,124)	<b>45%</b>	37%
31-40km (N=11,104)	<b>54%<sup>a</sup></b>	36% <sup>a</sup>
41-50km (N=16,810)	16% <sup>a</sup>	<b>78%<sup>a</sup></b>
51km & more (N=11,771)	48% <sup>a</sup>	<b>51%<sup>a</sup></b>

<sup>a</sup>Small individual cell sizes, interpret these results with caution

**4.7 Do you believe you have adequate information about the emergency response procedures in place in the event of an accidental sour gas release?<sup>a</sup>**



<sup>a</sup>This question was asked of only those who were aware of a sour gas facility in their area

Fifty-six per cent of the survey participants believed they **did not have adequate information** about the emergency response procedures that are in place in the event of an accidental sour gas release. Unlike the previous questions, the distance from a sour gas facility did not seem to influence whether people believed they had adequate information about the emergency response procedures – most respondents believed they lack information.

**4.8 Adequate Information Versus Distance from a Sour Gas Facility**

Distance from a sour gas facility	Adequate Information	Not Adequate Information
1-5km (N=101,703)	26%	<b>54%</b>
6-10km (N=53,668)	20%	<b>72%</b>
11-20km (N=54,475)	39%	<b>51%</b>
21-30km (N=37,124)	41%	<b>42%</b>
31-40km (N=11,104)	42% <sup>a</sup>	<b>44%<sup>a</sup></b>
41-50km (N=16,810)	20% <sup>a</sup>	<b>76%<sup>a</sup></b>
51km & more (N=11,771)	44% <sup>a</sup>	44% <sup>a</sup>

<sup>a</sup>Small individual cell sizes, interpret these results with caution

Overall, the urban respondents thought the communication mechanisms between themselves and government regulators were more adequate than the rural participants did. Yet, the rural participants thought the communication mechanisms between themselves and the oil and gas companies were more adequate than the urban respondents did. The results also suggested communication mechanisms between the public and government regulators and sour gas companies could use general improvements as neither received overwhelmingly positive reviews.

**4.9 Do you feel the mechanisms to communicate your concerns to the companies are adequate and readily accessible?<sup>a</sup>**

	<b>Total (N=326,690)</b>		<b>Urban (N=166,516)</b>		<b>Rural (N=160,174)</b>	
	<b>Adequate</b>	<b>Readily Accessible</b>	<b>Adequate</b>	<b>Readily Accessible</b>	<b>Adequate</b>	<b>Readily Accessible</b>
<b>Yes</b>	39%	47%	33%	43%	46%	52%
<b>No</b>	38%	32%	44%	40%	31%	24%
<b>Don't Know</b>	23%	21%	23%	18%	23%	24%

<sup>a</sup>This question was asked of only those who were aware of a sour gas facility in their area

**4.10 Do you feel the mechanisms to communicate your concerns to government regulators are adequate and readily accessible?<sup>a</sup>**

	<b>Total (N=326,690)</b>		<b>Urban (N=166,516)</b>		<b>Rural (N=160,174)</b>	
	<b>Adequate</b>	<b>Readily Accessible</b>	<b>Adequate</b>	<b>Readily Accessible</b>	<b>Adequate</b>	<b>Readily Accessible</b>
<b>Yes</b>	39%	43%	42%	47%	35%	39%
<b>No</b>	37%	33%	40%	35%	33%	30%
<b>Don't Know</b>	25%	24%	18%	18%	32%	30%

<sup>a</sup>This question was asked of only those who were aware of a sour gas facility in their area

**4.11 What are the best methods for getting information about sour gas issues to you?<sup>a,b</sup>**

	<b>Total (N=326,690)</b>	<b>Urban (N=166,516)</b>	<b>Rural (N=160,174)</b>
<b>Direct Mail</b>	39%	38%	41%
<b>Local Newsletter</b>	11%	8%*	14%
<b>Telephone Call</b>	8%	7%*	9%
<b>TV</b>	8%	11%*	5%
<b>Internet</b>	7%	11%*	3%*
<b>Newspaper Articles</b>	7%	8%*	6%
<b>Personal Contact</b>	5%	2%	8%
<b>Public Forums</b>	4%	4%*	5%
<b>Report Form</b>	3%	4%*	2%*
<b>Radio</b>	1%	1%*	2%*
<b>Other</b>	7%	8%	7%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area

<sup>b</sup> This was an open ended question that was coded after the pre-test – responses were not prompted during the survey.

\*Small individual cell sizes, interpret these results with caution

‘Direct mail’ was indicated as the best method for getting information on sour gas issues to the respondents. It is interesting to note that although the respondents prefer direct mail as the communication method for information on sour gas issues, most of the communication

discussed (informing of the EPZ and explaining its purpose) was conducted either in person or over the telephone.

Most of the rural (n=248) and urban (n=70) respondents who provided 'other' responses about the best methods of getting information about sour gas issues to them identified combinations of methods (e.g. 'personal contact and telephone'; 'telephone, internet and direct mail').

**4.12 Who do you believe is the best source of information on sour gas?<sup>a,b</sup>**

	<b>Total (N=326,690)</b>	<b>Urban (N=166,516)</b>	<b>Rural (N=160,174)</b>
<b>Oil and Gas Companies</b>	28%	23%	32%
<b>Government</b>	17%	20%	14%
<b>Regulatory Board</b>	11%*	13%	10%
<b>Employees of Sour Gas Facilities</b>	6%*	3%	10%
<b>Other</b>	38%	42%	34%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area

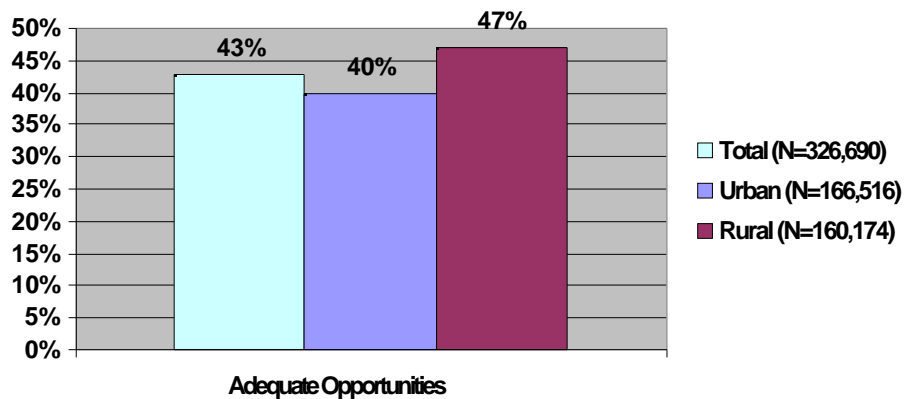
<sup>b</sup> This was an open ended question that was coded after the pre-test – responses were not prompted during the survey.

\*Small individual cell sizes, interpret these results with caution

Oil and gas companies were considered the best source of information on sour gas issues while the independent regulatory board was third.

Almost half of the rural (n=182) and urban (n=50) respondents who provided 'other' responses indicated that they were 'not sure' who offers the best source of information. This was followed by 'independent third parties' (e.g. health or environmental organizations) and 'newspapers' as the best sources.

**4.13 Do you feel there are adequate opportunities for public involvement in decisions about sour gas development that will affect the community?<sup>a</sup>**

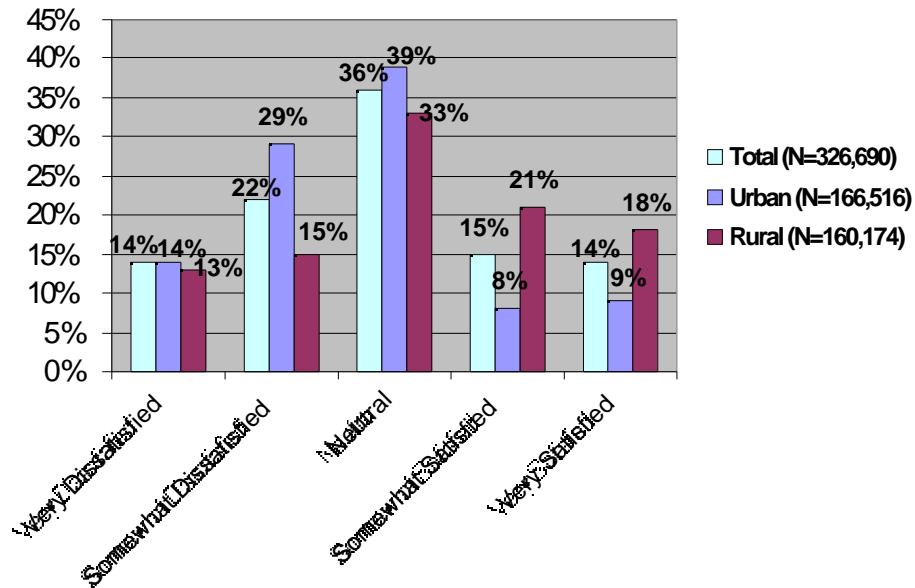


<sup>a</sup>This question was asked of only those who were aware of a sour gas facility in their area

Forty-three per cent of the respondents feel there are adequate opportunities for public involvement in decisions about sour gas development that will affect the community. Forty-three per cent also think there are not adequate opportunities and 13% did not know.

Respondents who did not believe there are adequate opportunities for public involvement in decisions were further probed to identify what could be done to provide adequate opportunities. The top three suggestions by both rural (n=263) and urban (n=61) respondents included: 'more information and public awareness about sour gas'; 'more public forums'; and 'more input from the public when making decisions'.

**4.14 How satisfied are you with the responsiveness of the sour gas companies operating in your area, to the concerns of your community?<sup>a</sup>**



<sup>a</sup>This question was asked of only those who were aware of a sour gas facility in their area

Of those surveyed, 36% indicated they were either 'very dissatisfied' or 'somewhat dissatisfied' with the responsiveness of the companies and another 36% of the participants were 'neutral'. A total of 29% were either 'somewhat satisfied' or 'very satisfied' with the responsiveness of the companies to the concerns of the community. The results illustrated that the rural respondents were usually more satisfied than the urban participants were.

Respondents who indicated they were either 'very dissatisfied' or 'somewhat dissatisfied' with the responsiveness of the companies were probed further to identify why they were dissatisfied. Responses from rural (n=153) and urban (n=47) respondents most frequently indicated that their dissatisfaction was a result of a 'lack of public awareness' and 'limited information from companies.' In addition, respondents indicated that they were dissatisfied because 'companies do not listen to the public', and 'communication with the companies is challenging'.

**4.15 Is the lack of responsiveness an issue with all companies in your area, or just some?<sup>a</sup>**

	<b>Total (N=116,665)</b>	<b>Urban (N=72,529)</b>	<b>Rural (N=44,136)</b>
<b>All Companies</b>	69%	69%	69%
<b>Just Some Companies</b>	31%*	31%	31%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area and were dissatisfied with the responsiveness of the companies in their area to the concerns of the community.

\*Small individual cell sizes, interpret these results with caution

The participants, who indicated they were either ‘somewhat dissatisfied’ or ‘very dissatisfied’ with the responsiveness of the companies to the concerns of the community, were also asked if the lack of responsiveness was an issue for all companies or just some. Most indicated that it was an issue for all companies.

**4.16 Have you been involved in a sour gas public consultation process in the past few years?<sup>a</sup>**

	<b>Total (N=326,690)</b>	<b>Urban (N=166,516)</b>	<b>Rural (N=160,174)</b>
<b>Yes</b>	11%	8%	14%
<b>No</b>	89%	92%	86%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area

Very few people interviewed had been involved in a sour gas public consultation process in the past few years.

Most of the rural (n=81) and urban (n=15) respondents who had participated in a sour gas public consultation process in the past few years indicated they had been involved as concerned citizens and had participated in public forums or meetings. A few indicated that they had participated as industry employees.

All of those who had participated in public consultations were further probed to identify what they liked most and what they liked least about the process(es) in which they had participated. The top three reasons, in order of frequency, for liking the process(es) were: ‘it was informative’; ‘the public had the opportunity to voice their concerns’; and ‘issues were brought into the open’. Reasons for disliking the process(es) provided by rural respondents centered on negative industry attitudes and a lack of public awareness. Examples of reasons for disliking the process(es) among urban respondents included: ‘a lack of good information provided by the EUB and the companies’, and ‘a lack of company involvement’.

**4.17 How satisfied are you that the public consultation process is successful in resolving the issues regarding sour gas development?<sup>a</sup>**

	Total (N=35,755)	Urban (N=13,030)	Rural (N=22,725)
<b>Very Dissatisfied</b>	9%	1%	14%
<b>Somewhat Dissatisfied</b>	7%	1%	11%
<b>Neutral</b>	28%	28%	28%
<b>Somewhat Satisfied</b>	23%	5%	33%
<b>Very Satisfied</b>	33%	65%	14%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area and have participated in a public consultation process in the past few years. The individual cell sizes are very small when broken into urban/rural by each of the five points, therefore caution should be used when interpreting these numbers.

Just over half (56%) said they were either 'somewhat satisfied' or 'very satisfied', and only 16% indicated that they were either 'somewhat dissatisfied' or 'very dissatisfied' with the success of the consultation process in resolving issues.

Respondents who indicated that they were 'very dissatisfied' or 'somewhat dissatisfied' were probed further to determine why. Some rural respondents (n=21) indicated that they were dissatisfied because 'nothing changes in response to public concerns'. A few rural respondents said it was because 'companies do not listen' and that 'the public consultation process is a waste of time'. Most of the urban respondents who were dissatisfied (n=3) indicated that 'companies do not listen' and that 'the process is a waste of time.'

**4.18 Is the timing of these consultations adequate?<sup>a</sup>**

	Total (N=35,755)	Urban (N=13,030)	Rural (N=22,725)
<b>Yes</b>	74%	98%*	60%
<b>No</b>	20%	2%*	30%*
<b>Don't Know</b>	7%	1%*	10%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area and had participated in a sour gas public consultation process in the past few years.

\*Small individual cell sizes, interpret these results with caution

Of those respondents who had been involved in the public consultation process, most indicated the timing of the consultations was adequate. For those who said the timing was not adequate (rural n=24; urban n=2), the primary suggestion was to 'conduct consultations earlier in the process, before development begins.'

**4.19 In your opinion, does the public consultation process reduce public anxiety?<sup>a</sup>**

	<b>Total (N=35,755)</b>	<b>Urban (N=13,030)</b>	<b>Rural (N=22,725)</b>
<b>Yes</b>	74%	92%	65%
<b>No</b>	20%	6%	28%
<b>Don't Know</b>	6%	3%	8%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area and had participated in a sour gas public consultation process in the past few years. The individual cell sizes are very small when broken into urban/rural therefore caution should be used when interpreting these numbers.

Most of those involved in public consultations believed that the process does reduce public anxiety. 'Not enough information being provided to the public' and 'the public not being listened to' were reasons provided by rural (n=21) and urban (n=4) respondents for why the process may not reduce anxiety.

Survey respondents were asked if they had any additional comments related to public consultations about sour gas development. Of the rural respondents (n=81), most had no comments. The remainder provided varying comments, with a few offering positive comments about the public consultation process and the companies; only a few indicated 'the process was negative and a waste of time'; and, the remainder suggested that there is 'a need to continue with more public consultation'. Half of the urban respondents (n=15) had no additional comments. Other comments included: 'consultations should continue' and 'the public should stop being confrontational'.

**Section 5 Alberta Energy and Utilities Board**

All of the participants, including those who were unaware of sour gas facility in their area, were asked if they had heard of the 'Alberta Energy and Utilities Board' or 'EUB'.

**5.1 Have you ever heard of the 'Alberta Energy and Utilities Board' also known as the EUB?<sup>a</sup>**

	<b>Total (N=807,462)</b>	<b>Urban (N=524,850)</b>	<b>Rural (N=282,612)</b>
<b>Yes</b>	74%	74%	73%
<b>No</b>	26%	26%	27%

<sup>a</sup> This question was asked of all participants

Most of the respondents indicated that they had heard of the Alberta Energy and Utilities Board or EUB. Those who had not heard of the EUB were not asked any of the further questions about the EUB.

**5.2 Do you know what the Alberta Energy and Utilities Board's role is with regard to sour gas and public health and safety?<sup>a</sup>**

	<b>Total (N=595,977)</b>	<b>Urban (N=390,438)</b>	<b>Rural (N=205,539)</b>
<b>Yes</b>	51%	52%	50%
<b>No</b>	49%	49%	50%

<sup>a</sup> This question was asked of only of the participants who had heard of the Alberta Energy and Utilities Board (EUB)

Of those participants who were aware of the EUB, half indicated they knew the role of the board with regard to sour gas and public health and safety.

**5.3 How would you describe that role?<sup>a,b</sup>**

	<b>Total (N=303,662)</b>	<b>Urban (N=200,908)</b>	<b>Rural (N=102,754)</b>
<b>Regulatory Board</b>	62%	66%	55%
<b>Watchdogs</b>	16%	15%	19%
<b>Ensure Public Safety</b>	15%	13%	20%
<b>Other</b>	6%	6%	6%

<sup>a</sup> This question was asked of only of the participants who had heard of the Alberta Energy and Utilities Board and were aware of its role in regards to sour gas

<sup>b</sup> This was an open ended question that was coded after the pre-test – response were not prompted during the interview.

Most respondents described the role as that of a 'regulatory board'. Of the rural individuals who provided 'other' answers (n=25), almost all said that they were 'not sure'. Urban respondents providing 'other' responses (n=13) offered a range of descriptions. Some examples included: 'investigating', 'information gathering' and 'licensing plants'.

Those respondents who were aware of the EUB were then asked what they considered to be the positive activities of the EUB and what aspects could be improved, with regard to sour gas and public safety. Of the rural participants who provided open-ended responses (n=653), over half indicated they were 'not sure' about what aspects of the EUB's activities were positive. Additional responses from rural respondents related to positive activities, in order of frequency, included: 'regulatory function', 'nothing positive', 'provide public awareness', and 'ensure public safety'. Of the urban participants who provided open-ended responses (n=344) about positive EUB activities, over half were 'not sure'. Additional responses, in order of frequency, included: 'regulating and monitoring', 'ensure public safety', and 'public awareness'.

When asked what the EUB needed to improve, about half of the rural respondents (n=653) were 'not sure'. Other answers provided by rural residents related to the improvements that are required by the EUB included: 'increase public awareness and provide more information about sour gas issues', 'improve communication and public relations', and 'no improvements are required'. Over half of the urban respondents (n=344) indicated that they were 'not sure' what EUB activities need improvement. Other responses about improvements, in order of frequency, given by the urban respondents included: 'more public awareness and information', improved public relations and communications', and 'more monitoring' and 'stricter regulations and enforcement'.

**5.4 In the past year, have you had direct contact with an employee from Alberta Energy and Utilities Board with regard to sour gas and public health and safety?<sup>a</sup>**

	Total (N=595,977)	Urban (N=390,438)	Rural (N=205,539)
<b>Yes</b>	4%	2%	8%
<b>No</b>	96%	98%	92%

<sup>a</sup> This question was asked of only of the participants who had heard of the Alberta Energy and Utilities Board

Very few of those who were aware of the EUB had also had direct contact with an EUB employee regarding sour gas and public health and safety.

**5.5 How satisfied are you with the contact you had with the Alberta Energy and Utilities Board?<sup>a</sup>**

	Total (N=22,946)	Urban (N=7,403)	Rural (N=15,543)
<b>Very Dissatisfied</b>	2%	1%	3%
<b>Somewhat Dissatisfied</b>	1%	-	2%
<b>Neutral</b>	9%	-	13%
<b>Somewhat Satisfied</b>	42%	56%	35%
<b>Very Satisfied</b>	46%	43%	48%

<sup>a</sup> This question was asked of only of the participants who had heard of the Alberta Energy and Utilities Board and had contact with an EUB employee in the past year in regards to sour gas and public health and safety. The individual cell sizes are very small when broken into urban/rural by each of the five points, therefore caution should be used when interpreting these numbers.

Most of those surveyed were either 'somewhat satisfied' or 'very satisfied' with the contact they had with the EUB employee. Those respondents who said they were dissatisfied were asked why. Most of the rural respondents (n=7) who indicated that they were dissatisfied said it was because their concerns were not sufficiently addressed. The dissatisfied urban respondent (n=1) indicated that 'there was no response to their complaint'.

## Section 6 Perceptions

All of those surveyed were asked about their perceptions of sour gas and public safety.

**6.1 Are you aware of any benefits to you and your community from sour gas development?<sup>a</sup>**

	Total (N=807,462)	Urban (N=524,850)	Rural (N=282,612)
<b>Yes</b>	34%	29%	42%
<b>No</b>	61%	65%	53%
<b>Don't Know</b>	6%	6%	5%

<sup>a</sup> This question was asked of all the participants

Most respondents were not aware of any benefits to themselves and their community from sour gas development. This suggests that the public may need more information regarding why sour gas developments are important to the economy and Albertans.

## 6.2 What are the benefits?<sup>a,b</sup>

	Total (N=271,347)	Urban (N=151,640)	Rural (N=119,707)
<b>Financial and Economic</b>	42%	43%	41%
<b>Employment</b>	35%	24%	49%
<b>Natural Resources</b>	16%	21%	10%
<b>Other</b>	7%	13%	-

<sup>a</sup> This question was asked of only the participants who were aware of the benefits of sour gas developments

<sup>b</sup> This was an open ended question that was coded after the pre-test – responses were not prompted during the survey.

‘Financial and economic’ was the most commonly mentioned benefit of sour gas developments. No rural respondents provided ‘other’ responses. Examples of ‘other’ responses given by urban respondents (n=8) included: ‘bi-products’, ‘natural gas for heating’, ‘source of energy’, and ‘low price for electricity’.

## 6.3 Are you aware of any risks and inconveniences to you and your community from sour gas development?<sup>a</sup>

	Total (N=807,462)	Urban (N=524,850)	Rural (N=282,612)
<b>Yes</b>	58%	59%	56%
<b>No</b>	38%	37%	40%
<b>Don't Know</b>	4%	4%	4%

<sup>a</sup> This question was asked of all the participants

Not surprisingly, more respondents were aware of the risks and inconveniences of sour gas development than the benefits.

## 6.4 What are the risks?<sup>a,b</sup>

	Total (N=468,908)	Urban (N=311,374)	Rural (N=157,534)
<b>Health Concerns</b>	39%	36%	45%
<b>Uncontrolled Leaks</b>	14%	15%	13%
<b>Death of People</b>	14%	14%	12%
<b>Sour Gas Blowouts</b>	13%	12%*	14%
<b>Sulphur Smell</b>	10%	12%*	7%
<b>Public Safety</b>	8%	8%*	8%
<b>Other</b>	2%	4%	1%

<sup>a</sup> This question was asked of only the participants who were aware of the risks of sour gas developments to them and their community

<sup>b</sup> This was an open ended question that was coded after the pre-test – responses were not prompted during the survey.

\*Small individual cell sizes, interpret these results with caution

‘Health concerns’ were identified as the most significant risk, mentioned by 39% of the respondents. ‘Other’ risks or inconveniences identified by rural respondents (n=3) included:

'lower property value' and 'noise'. Urban respondents (n=7) noted 'environmental issues', 'fires' and 'acid rain' as 'other' risks or inconveniences.

#### **6.4 Risks versus Distance from a Sour Gas Facility**

<b>Distance from a sour gas facility</b>	<b>Uncontrolled Leaks</b>	<b>Health Concerns</b>	<b>Death of People</b>
<b>1-10km</b> (N=110,074)	15%	<b>45%</b>	10%
<b>11-20km</b> (N=32,451)	15%	23%	<b>31%</b>
<b>21-30km</b> (N=24,181)	<b>24%</b>	22%	6%
<b>31km &amp; more</b> (N=24,992)	13%	<b>34%</b>	32%

Regardless of how far the respondents were from a sour gas facility, the risks mentioned by most people were 'health concerns', 'uncontrolled leaks', and 'death of people'.

Like distance from a sour gas facility, living in an EPZ did not appear to influence the risks mentioned. There was no significant difference in the perception of risk when comparing those who live within an EPZ with those who do not. For instance, 20% of respondents who mentioned 'health concerns', 'uncontrolled leaks', and 'death of people' live in an EPZ and 22% living outside an EPZ mentioned these same risks.

#### **6.5 Are sour gas facilities ... ?<sup>a</sup>**

	<b>Total (N=807,462)</b>	<b>Urban (N=524,850)</b>	<b>Rural (N=282,612)</b>
<b>Of No Concern to You</b>	22%	23%	20%
<b>Somewhat of a Concern to You</b>	55%	56%	53%
<b>Of Great Concern to You</b>	24%	22%	27%

<sup>a</sup> This question was asked of all the participants

Most of the respondents indicated that sour gas facilities were 'somewhat of a concern' to them. All of the respondents were then asked why sour gas facilities were of 'no concern', 'somewhat of a concern' or of 'great concern to them'. The primary reasons for sour gas being of 'no concern' given by rural (n=173) and urban (n=100) respondents were that they are not located in the immediate area of a sour gas facility, and that there is more public awareness about sour gas, suggesting that the issue is better understood and accepted. The key reasons for respondents who indicated that sour gas is 'somewhat of a concern' (rural n= 491; urban n= 255) or that sour gas is 'of great concern' (rural n= 240; urban n= 110) were health concerns (human, animal, environmental), and public safety (incidents, blowouts, and releases).

The results indicated that most of the respondents (53%) who lived 1 – 5km away from sour gas facilities considered the facilities to be 'somewhat of a concern' to them while 32% considered them to be 'of great concern'.

**6.6 To what extent do you agree that scientists have a clear understanding about the effects of sour gas on public health?<sup>a</sup>**

	Total (N=807,462)	Urban (N=524,850)	Rural (N=282,612)
<b>Strongly Disagree</b>	11%	9%	13%
<b>Somewhat Disagree</b>	13%	10%	18%
<b>Neutral</b>	32%	32%	32%
<b>Somewhat Agree</b>	24%	27%	19%
<b>Strongly Agree</b>	20%	21%	18%

<sup>a</sup> This question was asked of all the participants

Of those surveyed, 45% indicated they either ‘somewhat agree’ or ‘strongly agree’ and 25% said they ‘somewhat disagree’ or ‘strongly disagree’ with the statement. The rural respondents had 31% disagree with the statement while only 19% of the urban participants disagreed.

Individuals who indicated they ‘strongly disagree’ or ‘somewhat disagree’ that scientists have a clear understanding of the effects of sour gas on public health and safety were further questioned to identify what areas they believed require a greater level of understanding. The most common response by rural (n=268) and urban (n=96) respondents was that a greater level of understanding related to long term effects of sour gas exposure on human, animal and environmental health is required.

**6.7 Do you believe that the regulatory system adequately considers public health and safety issues when sour gas development occurs?<sup>a</sup>**

	Total (N=807,462)	Urban (N=524,850)	Rural (N=282,612)
<b>Yes</b>	47%	46%	50%
<b>No</b>	29%	29%	30%
<b>Don't Know</b>	24%	26%	20%

<sup>a</sup> This question was asked of all the participants

Slightly less than half of the respondents (49%) believe the regulatory system adequately considers public health and safety issues when sour gas development occurs while 29% believe the regulatory system **does not** adequately consider public health and safety issues. Individuals who indicated they do not believe the regulatory system adequately considers public health and safety issues were probed further to determine what more could be done. The top reasons, in order of frequency, given by both rural (n=284) and urban (n=122) respondents included: ‘increase public awareness about sour gas and provide more information to the public’; ‘improve communications with the public and provide more opportunity for public input’; ‘not sure’; ‘increase monitoring’, ‘stricter regulation, more enforcement’; and, ‘increase research, particularly as it relates to the long term effects of exposure to emissions’.

## **Section 7 Conclusion**

In concluding the survey, all respondents were asked what their number one concern or issue was with regard to sour gas and public health and safety. Among the rural respondents (n=905), several indicated that they were 'not sure' or had 'no concern'. Other rural concerns, in order of frequency, included: 'human health risks related to sour gas'; 'the need for more research (long term health effects, emissions from flaring)'; public safety issues such as: 'risk of incidents', 'accidents' and 'uncontrolled releases'; and, concerns about environmental problems and pollution related to emissions. Urban respondents (n=465) top concerns included: public safety issues, including: incidents ('blowouts', 'uncontrolled leaks'); 'response to incidents'; 'the adequacy of safety procedures'; and 'the proximity of sour gas activity to populated areas'.

## **Summary**

Overall the results indicate there is a good awareness of sour gas issues in the areas that were sampled. Although there are areas that could be improved, minimal dissatisfaction was evident. For example, most people affected by an emergency response zone felt that the plan provides a sense of safety. However, many also did not believe they are kept up-to-date with changes to the plan and most have not had the plan or the response actions explained to them by a facility operator.

Few people surveyed have land that is affected by a setback, but those who do are relatively content with the setback distances. There was a general feeling by the respondents that they lacked information regarding sour gas proposals in their community, preventative precautions, activities of local operators, and emergency response actions. The results also indicated that the communication mechanisms between the public and government regulators and companies could be improved, as they were not believed to be adequate or readily accessible. Direct mail was considered to be the preferred method for delivery of information regarding sour gas issues to local residents.

Although the oil and gas companies were considered to be the best source for sour gas information, there was a general dissatisfaction or neutral feeling regarding the local operator's responsiveness to community concerns. The lack of responsiveness was considered to be a factor for all companies. The respondents also believed there is a lack of opportunity for public involvement in sour gas decisions.

People who had been involved in a public consultation process were satisfied with the ability of the process to resolve the issues. The timing of the consultations was also considered to be adequate and most believed that the process reduces public anxiety.

Three quarters of those surveyed had heard of the Alberta Energy and Utilities Board or EUB and most identified its role as that of a regulatory board with regard to sour gas and public health and safety. Few people actually had contact with an EUB employee, but those who did were satisfied with the contact. Just fewer than half of everyone surveyed indicated the regulatory board adequately considers health and public safety when making decisions regarding sour gas issues.

Most of the respondents did not know any of the benefits to themselves and their community from sour gas developments. However the risks and inconveniences were better understood. Although health concerns were the biggest risk identified, just fewer than half of all participants believe that scientists clearly understand the effects of sour gas on public health. On the whole,

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about half of the respondents indicated that sour gas facilities were somewhat of a concern to them.

## Appendices

### Appendix A

#### Unweighted Data

The following tables contain the numbers and percentages for the actual urban and rural sample. The percentages will vary from those in the analysis report because these data are not weighted i.e. these data have not been adjusted in relation to the population they represent. When reporting unweighted results it is not statistically acceptable to report the combined urban and rural numbers due the sampling methods used in this study. Since urban and rural respondents were drawn as separate samples, they must be weighted to be analyzed in relation to each other.

#### **Are you aware of a sour gas facility in your area?<sup>a</sup>**

	Urban (n=465)	Rural (n=904)
<b>Yes</b>	33%	60%
<b>No</b>	67%	40%

<sup>a</sup> This question was asked of the entire sample

#### **Do you know in kilometres, approximately how far you are from the sour gas facility?<sup>a</sup>**

	Urban (n=465)	Rural (n=904)
<b>Yes</b>	87%	84%
<b>No</b>	13%	16%

<sup>a</sup> This question was asked of only those who were aware of a sour gas facility in their area

#### **Distance Away from the Sour Gas Facility**

Distance	Urban (n=130)	Rural (n=460)
1km – 5 km	30%	33%
6km – 10 km	17%	20%
11km – 20 km	19%	19%
21 km – 30 km	17%	11%
31 km – 40 km	5%	5%
41 km – 50 km	5%	6%
51 km & more	7%	6%

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***Do you live within a sour gas emergency planning zone?<sup>a</sup>***

	<b>Urban (n=152)</b>	<b>Rural (n=544)</b>
<b>Yes</b>	12%	22%
<b>No</b>	61%	43%
<b>Don't Know</b>	28%	34%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area

***How did you find out about the emergency planning zone?<sup>a,b</sup>***

	<b>Urban (n=18)</b>	<b>Rural (n=121)</b>
<b>Personal Contact</b>	33%	41%
<b>Telephone Call</b>	6%	8%
<b>Local Newspaper</b>	11%	10%
<b>Direct Mail</b>	11%	13%
<b>Public Forum</b>	-	6%
<b>Other</b>	39%	22%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area and live in an emergency planning zone

<sup>b</sup> This was an open ended question that was coded after the pre-test – responses were not prompted during the survey.

***Has the facility operator explained the purpose of the emergency planning zone?<sup>a</sup>***

	<b>Urban (n=18)</b>	<b>Rural (n=121)</b>
<b>Yes</b>	33%	57%
<b>No</b>	67%	43%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area and live in an emergency planning zone.

***When the emergency planning zone was explained, how were you contacted?<sup>a,b</sup>***

	<b>Urban (n=6)</b>	<b>Rural (n=69)</b>
<b>Telephone Call</b>	17%	20%
<b>Personal Contact</b>	50%	61%
<b>Local Newspaper</b>	-	10%
<b>Direct Mail</b>	17%	4%
<b>Other</b>	17%	4%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area, live in an emergency planning zone, and had the EPZ explained to them by the facility operator.

<sup>b</sup> This was an open ended question that was coded after the pre-test – responses were not prompted during the survey.

***Has the facility operator in your area contacted you to explain the response actions that will be taken in the event of an emergency?<sup>a</sup>***

	<b>Urban (n=18)</b>	<b>Rural (n=121)</b>
<b>Yes</b>	33%	52%
<b>No</b>	67%	48%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area and live in an emergency planning zone.

***Do you believe you are kept up-to-date with regard to your emergency response plan and any changes made to it?<sup>a</sup>***

	<b>Urban (n=18)</b>	<b>Rural (n=121)</b>
<b>Yes</b>	28%	60%
<b>No</b>	44%	29%
<b>Don't Know</b>	28%	12%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area and live in an emergency planning zone

***Does the Emergency Response Plan in your area make you feel comfortable about your safety?<sup>a</sup>***

	<b>Urban (n=18)</b>	<b>Rural (n=121)</b>
<b>Yes</b>	72%	64%
<b>No</b>	28%	36%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area and live in an emergency planning zone

***Is your land affected by a sour gas setback?<sup>a</sup>***

	<b>Urban (n=152)</b>	<b>Rural (n=544)</b>
<b>Yes</b>	2%	8%
<b>No</b>	90%	75%
<b>Don't Know</b>	9%	17%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area

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***Do you believe the setback distances are reasonable?<sup>a</sup>***

	<b>Urban (n=3)</b>	<b>Rural (n=42)</b>
<b>Yes</b>	67%	48%
<b>No</b>	-	38%
<b>Don't Know</b>	33%	14%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area and have land affected by a sour gas setback

***Do you believe you have adequate information about sour gas developments being proposed in your area?<sup>a</sup>***

	<b>Urban (n=152)</b>	<b>Rural (n=544)</b>
<b>Yes</b>	39%	48%
<b>No</b>	55%	43%
<b>Don't Know</b>	7%	9%

<sup>a</sup>This question was asked of only those who were aware of a sour gas facility in their area

***Do you believe you have adequate information about the activities of sour gas companies operating in your area?<sup>a</sup>***

	<b>Urban (n=152)</b>	<b>Rural (n=544)</b>
<b>Yes</b>	32%	40%
<b>No</b>	60%	52%
<b>Don't Know</b>	9%	9%

<sup>a</sup>This question was asked of only those who were aware of a sour gas facility in their area

***Do you believe you have adequate information about the precautions being taken to prevent sour gas releases?<sup>a</sup>***

	<b>Urban (n=152)</b>	<b>Rural (n=544)</b>
<b>Yes</b>	37%	42%
<b>No</b>	51%	49%
<b>Don't Know</b>	12%	9%

<sup>a</sup>This question was asked of only those who were aware of a sour gas facility in their area

**Do you believe you have adequate information about the emergency response procedures in place in the event of an accidental sour gas release?<sup>a</sup>**

	Urban (n=152)	Rural (n=544)
<b>Yes</b>	32%	39%
<b>No</b>	51%	50%
<b>Don't Know</b>	17%	11%

<sup>a</sup>This question was asked of only those who were aware of a sour gas facility in their area

**Do you feel the mechanisms to communicate your concerns to the companies are adequate and readily accessible?<sup>a</sup>**

	Urban (n=152)		Rural (n=544)	
	Adequate	Readily Accessible	Adequate	Readily Accessible
<b>Yes</b>	41%	49%	48%	53%
<b>No</b>	34%	30%	31%	27%
<b>Don't Know</b>	24%	22%	21%	20%

<sup>a</sup>This question was asked of only those who were aware of a sour gas facility in their area

**Do you feel the mechanisms to communicate your concerns to government regulators are adequate and readily accessible?<sup>a</sup>**

	Urban (n=152)		Rural (n=544)	
	Adequate	Readily Accessible	Adequate	Readily Accessible
<b>Yes</b>	49%	49%	40%	45%
<b>No</b>	33%	28%	33%	31%
<b>Don't Know</b>	18%	23%	28%	25%

<sup>a</sup>This question was asked of only those who were aware of a sour gas facility in their area

**Who do you believe is the best source of information on sour gas?<sup>a,b</sup>**

	Urban (n=152)	Rural (n=544)
<b>Regulatory Board</b>	11%	11%
<b>Oil and Gas Companies</b>	25%	33%
<b>Government</b>	25%	14%
<b>Employees of Sour Gas Facilities</b>	6%	9%
<b>Other</b>	33%	33%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area

<sup>b</sup> This was an open ended question that was coded after the pre-test – responses were not prompted during the survey.

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**What are the best methods for getting information about sour gas issues to you?<sup>a,b</sup>**

	Urban (n=152)	Rural (n=544)
<b>Direct Mail</b>	38%	38%
<b>Newspaper Articles</b>	9%	7%
<b>Local Newsletter</b>	11%	16%
<b>Public Forums</b>	5%	5%
<b>Report Form</b>	3%	2%
<b>Personal Contact</b>	4%	9%
<b>Telephone Call</b>	5%	9%
<b>Internet</b>	7%	3%
<b>TV</b>	11%	6%
<b>Radio</b>	1%	1%
<b>Other</b>	5%	6%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area

<sup>b</sup> This was an open ended question that was coded after the pre-test – responses were not prompted during the survey.

**Do you feel there are adequate opportunities for public involvement in decisions about sour gas development that will affect the community?<sup>a</sup>**

	Urban (n=152)	Rural (n=544)
<b>Yes</b>	45%	49%
<b>No</b>	40%	37%
<b>Don't Know</b>	15%	13%

<sup>a</sup>This question was asked of only those who were aware of a sour gas facility in their area

**How satisfied are you with the responsiveness of the sour gas companies operating in your area, to the concerns of your community?<sup>a</sup>**

	Urban (n=152)	Rural (n=544)
<b>Very Dissatisfied</b>	10%	13%
<b>Somewhat Dissatisfied</b>	20%	16%
<b>Neutral</b>	41%	32%
<b>Somewhat Satisfied</b>	16%	24%
<b>Very Satisfied</b>	12%	16%

<sup>a</sup>This question was asked of only those who were aware of a sour gas facility in their area

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***Is the lack of responsiveness an issue with all companies in your area, or just some?<sup>a</sup>***

	<b>Urban (n=47)</b>	<b>Rural (n=153)</b>
<b>All Companies</b>	62%	63%
<b>Just Some Companies</b>	38%	37%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area and were dissatisfied with the responsiveness of the companies in their area to the concerns of the community.

***Have you been involved in a sour gas public consultation process in the past few years?<sup>a</sup>***

	<b>Urban (n=152)</b>	<b>Rural (n=544)</b>
<b>Yes</b>	10%	15%
<b>No</b>	90%	85%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area

***How satisfied are you that the public consultation process is successful in resolving the issues regarding sour gas development?<sup>a</sup>***

	<b>Urban (n=15)</b>	<b>Rural (n=81)</b>
<b>Very Dissatisfied</b>	13%	15%
<b>Somewhat Dissatisfied</b>	7%	11%
<b>Neutral</b>	27%	31%
<b>Somewhat Satisfied</b>	13%	30%
<b>Very Satisfied</b>	40%	14%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area and have participated in a public consultation process in the past few years

***Is the timing of these consultations adequate?<sup>a</sup>***

	<b>Urban (n=15)</b>	<b>Rural (n=81)</b>
<b>Yes</b>	80%	62%
<b>No</b>	13%	30%
<b>Don't Know</b>	7%	9%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area and had participated in a sour gas public consultation process in the past few years

***In your opinion, does the public consultation process reduce public anxiety?<sup>a</sup>***

	Urban (n=15)	Rural (n=81)
<b>Yes</b>	68%	67%
<b>No</b>	27%	26%
<b>Don't Know</b>	7%	7%

<sup>a</sup> This question was asked only of those who were aware of a sour gas facility in their area and had participated in a sour gas public consultation process in the past few years.

***Have you ever heard of the 'Alberta Energy and Utilities Board' also known as the EUB?<sup>a</sup>***

	Urban (n=465)	Rural (n=904)
<b>Yes</b>	74%	73%
<b>No</b>	26%	28%

<sup>a</sup> This question was asked of all participants

***Do you know what the Alberta Energy and Utilities Board's role is with regard to sour gas and public health and safety?<sup>a</sup>***

	Urban (n=344)	Rural (n=653)
<b>Yes</b>	54%	48%
<b>No</b>	46%	52%

<sup>a</sup> This question was asked of only of the participants who had heard of the Alberta Energy and Utilities Board (EUB)

***How would you describe that role?<sup>a,b</sup>***

	Urban (n=187)	Rural (n=315)
<b>Watchdogs</b>	15%	19%
<b>Regulatory Board</b>	60%	56%
<b>Ensure Public Safety</b>	18%	17%
<b>Other</b>	7%	8%

<sup>a</sup> This question was asked of only of the participants who had heard of the Alberta Energy and Utilities Board and were aware of its role in regards to sour gas

<sup>b</sup> This was an open ended question that was coded after the pre-test, responses were not prompted.

***In the past year, have you had direct contact with an employee from Alberta Energy and Utilities Board with regard to sour gas and public health and safety?<sup>a</sup>***

	Urban (n=344)	Rural (n=653)
<b>Yes</b>	4%	9%
<b>No</b>	97%	91%

<sup>a</sup> This question was asked of only of the participants who had heard of the Alberta Energy and Utilities Board

**How satisfied are you with the contact you had with the Alberta Energy and Utilities Board?<sup>a</sup>**

	Urban (n=12)	Rural (n=57)
<b>Very Dissatisfied</b>	8%	7%
<b>Somewhat Dissatisfied</b>	-	5%
<b>Neutral</b>	-	16%
<b>Somewhat Satisfied</b>	58%	28%
<b>Very Satisfied</b>	33%	44%

<sup>a</sup> This question was asked of only of the participants who had heard of the Alberta Energy and Utilities Board and had contact with an EUB employee in the past year in regards to sour gas and public health and safety

**Are you aware of any benefits to you and your community from sour gas development?<sup>a</sup>**

	Urban (n=465)	Rural (n=904)
<b>Yes</b>	30%	44%
<b>No</b>	62%	51%
<b>Don't Know</b>	8%	5%

<sup>a</sup> This question was asked of all the participants

**What are the benefits?<sup>a,b</sup>**

	Urban (n=139)	Rural (n=398)
<b>Natural Resources</b>	25%	8%
<b>Employment</b>	27%	51%
<b>Financial and Economic</b>	42%	41%
<b>Other</b>	6%	-

<sup>a</sup> This question was asked of only the participants who were aware of the benefits of sour gas developments

<sup>b</sup> This was an open ended question that was coded after the pre-test – responses were not prompted during the survey.

**Are you aware of any risks and inconveniences to you and your community from sour gas development?<sup>a</sup>**

	Urban (n=465)	Rural (n=904)
<b>Yes</b>	57%	58%
<b>No</b>	39%	37%
<b>Don't Know</b>	5%	5%

<sup>a</sup> This question was asked of all the participants

**What are the risks?<sup>a,b</sup>**

	<b>Urban (n=264)</b>	<b>Rural (n=524)</b>
<b>Uncontrolled Leaks</b>	16%	15%
<b>Sulphur Smell</b>	13%	7%
<b>Sour Gas Blowouts</b>	9%	12%
<b>Public Safety</b>	7%	10%
<b>Health Concerns</b>	40%	41%
<b>Death of People</b>	13%	14%
<b>Other</b>	3%	1%

<sup>a</sup> This question was asked of only the participants who were aware of the risks of sour gas developments to them and their community

<sup>b</sup> This was an open ended question that was coded after the pre-test – responses were not prompted during the survey.

**Are sour gas facilities ...?<sup>a</sup>**

	<b>Urban (n=465)</b>	<b>Rural (n=904)</b>
<b>Of No Concern to You</b>	22%	19%
<b>Somewhat of a Concern to You</b>	55%	54%
<b>Of Great Concern to You</b>	24%	27%

<sup>a</sup> This question was asked of all the participants

**To what extent do you agree that scientists have a clear understanding about the effects of sour gas on public health?<sup>a</sup>**

	<b>Urban (n=465)</b>	<b>Rural (n=904)</b>
<b>Strongly Disagree</b>	8%	12%
<b>Somewhat Disagree</b>	12%	18%
<b>Neutral</b>	35%	33%
<b>Somewhat Agree</b>	23%	19%
<b>Strongly Agree</b>	22%	18%

<sup>a</sup> This question was asked of all the participants

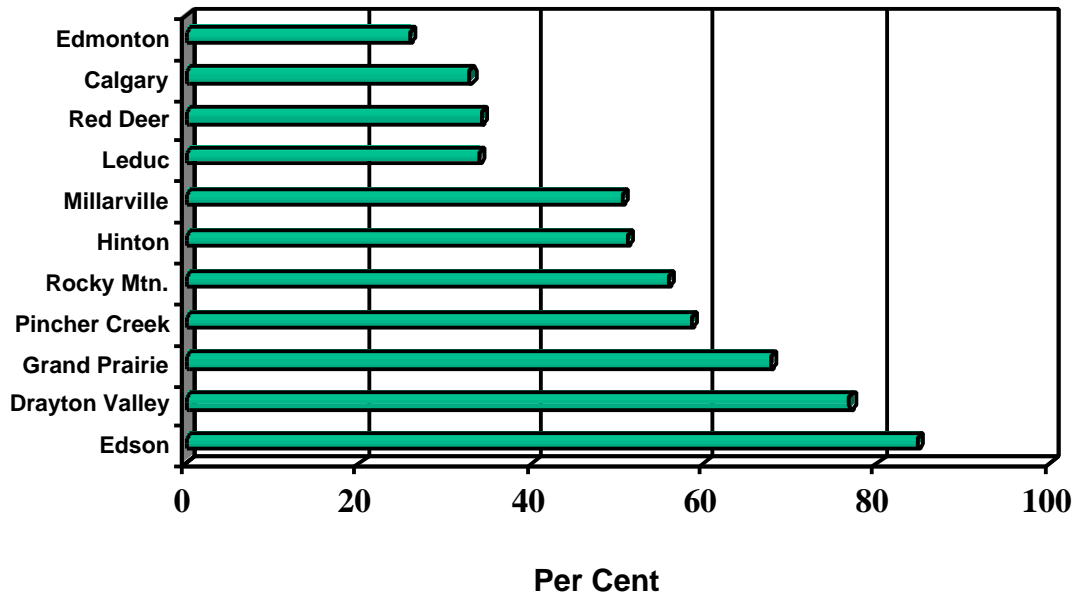
**Do you believe that the regulatory system adequately considers public health and safety issues when sour gas development occurs?<sup>a</sup>**

	<b>Urban (n=465)</b>	<b>Rural (n=904)</b>
<b>Yes</b>	48%	51%
<b>No</b>	26%	31%
<b>Don't Know</b>	26%	18%

<sup>a</sup> This question was asked of all the participants

## Appendix B

### Level of Awareness by Community



## Appendix C

Postal Codes for the Areas that were included in the survey

<b>Label</b>	<b>Postal Code(s)</b>	<b>Description</b>
Grande Prairie	T8V	North West Grande Prairie and area
Edson	T7E	Edson and area
Hinton	T7V	Hinton and area
Drayton Valley	T7A	Drayton Valley and area
Edmonton	T5S, T5T, T5V, T5X, T5Z, T6M, T6V, T6W	North West Edmonton and area
Leduc	T9E	Leduc and area
Rocky Mountain House/Sundre	T0M	includes the areas around Sundre and Rocky Mountain House as per the map and does not include Devon, Sylvan Lake, Innisfail, Red Deer, Olds, or Aidrie townsites
Red Deer	T4E, T4N, T4P, T4R	Red Deer and area
Calgary	T1X, T1Y, T2A, T2C, T2W, T2X, T2Y, T2Z, T3A, T3G, T3J, T3K, T3L, T3Z	North West, North East, East, South, and South West Calgary (the peripheries)
Millarville/Vulcan	T0L	includes Millarville and Vulcan areas as per the map and does not include Canmore or High River townsites
Pincher Creek	T0K	includes Pincher Creek area as per the map and does not include Coaldale, Taber, or Lethbridge townsites; it does include Fort Macleod

The three dots without postal code labels are Edmonton, Red Deer, and Calgary respectively.

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