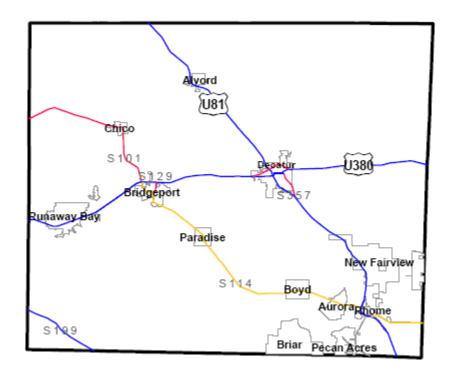
Quality of Life and Energy Production in Wise County, Texas: An Illustrative Summary



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Acknowledgements

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I wish to express my gratitude to the citizens of Wise County, Texas. I also want to extend a special thanks to Brooklynn Anderson who provided invaluable technical assistance while collecting, coding, cleaning, and entering the survey data.

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Introduction

This document provides an illustrative summary of the results obtained from a 2006 general population survey of individuals in Wise County, Texas.

The purpose of this document is to provide insights into the current social impacts associated with the exploration and production of natural gas in Wise County, Texas. Moreover, attitudes and behaviors of the citizens of Wise County, as well as information on selected individual-level characteristics are presented. Figures and tables are used to simplify presentation of the data. No conclusions or inferences are made. County leaders and members of the general public interested in statistical analyses and more detailed information should contact Dr. Gene L. Theodori at:

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Methodology

During the late spring and early summer of 2006, a survey questionnaire was mailed to a randomly selected sample of 800 households in Wise County, Texas. A cover letter explaining the purpose of the study and an addressed postage-paid return envelope accompanied the questionnaire.

To obtain a representative sample of individuals within residences, we stated in the cover letter that the questionnaire was to be completed by the adult in the household who celebrated his or her birthday most recently.

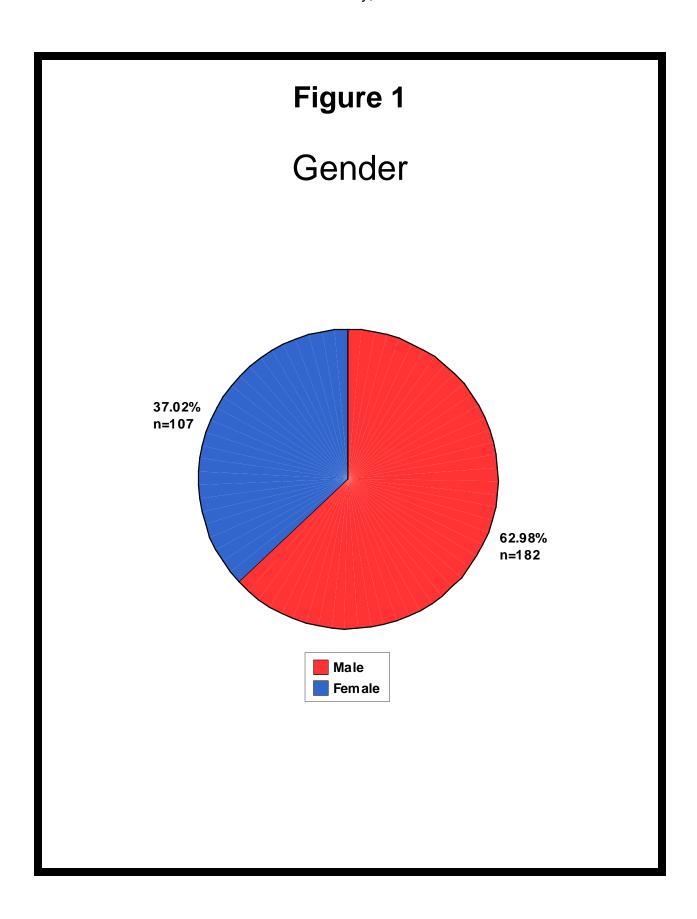
Approximately three weeks after the initial mailing, a reminder postcard was mailed to each sampled household that had not yet completed and returned the questionnaire. One week later a second wave of surveys was mailed. Then, approximately three weeks after the second mailing, a third and final wave was mailed.

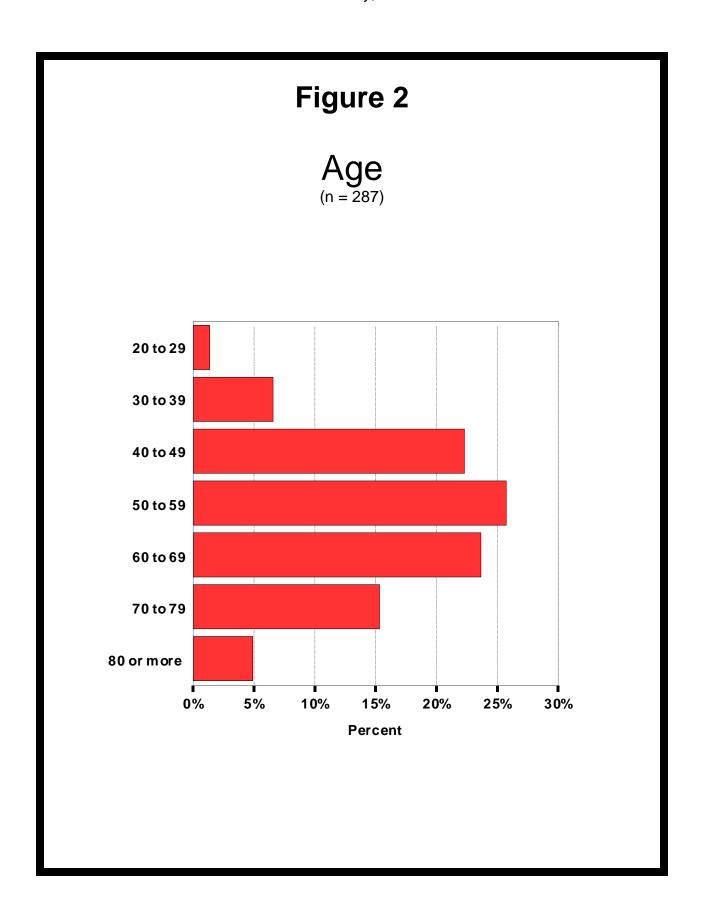
The survey instrument, organized as a self-completion booklet, contained 42 questions and required approximately 60 minutes to complete. After three mailings, we received completed surveys from 299 individuals.

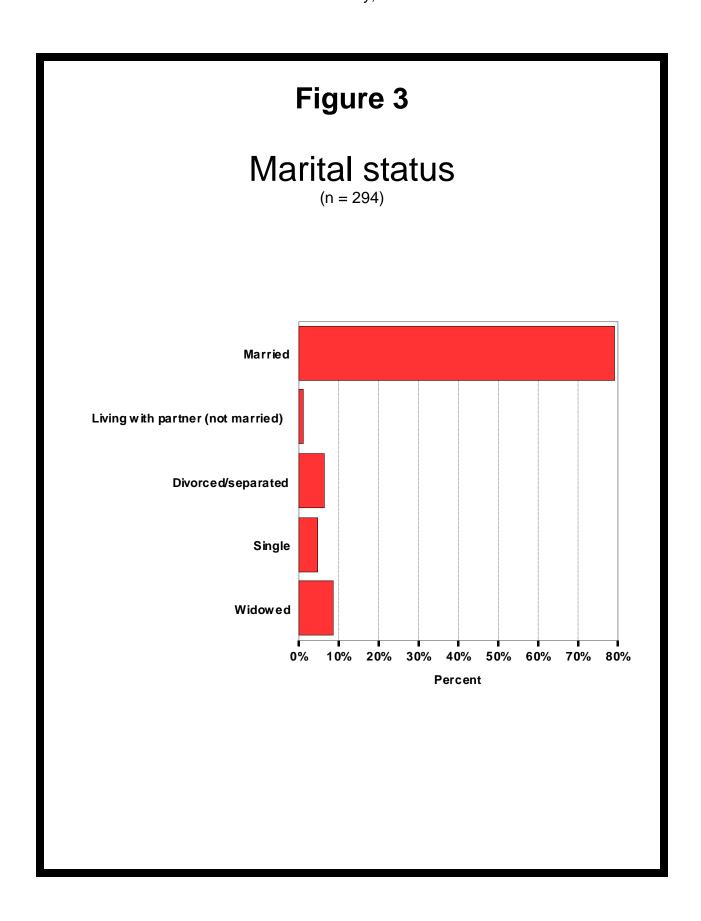
Section I

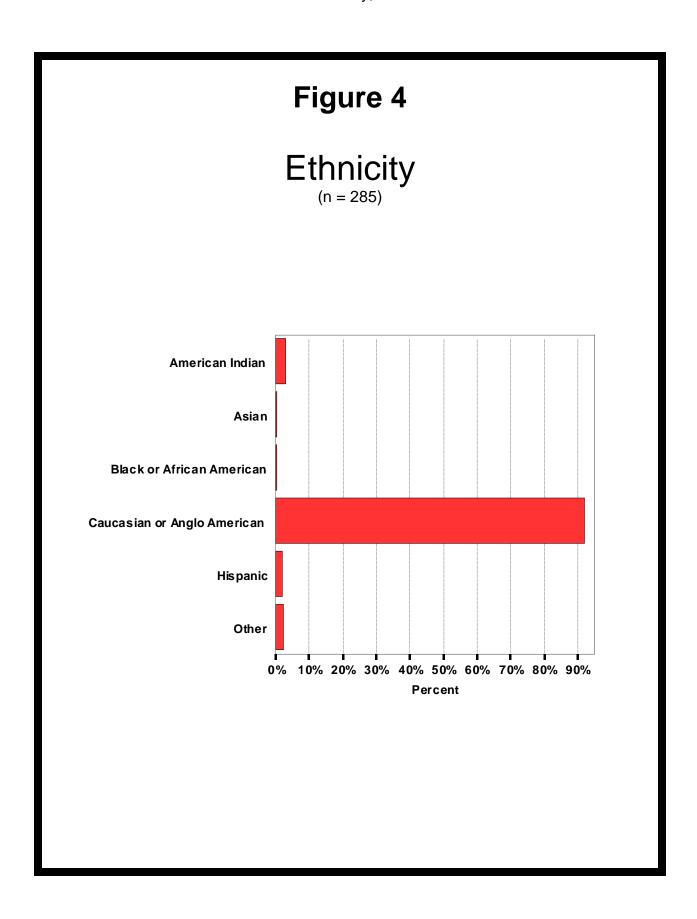
Individual-Level Characteristics

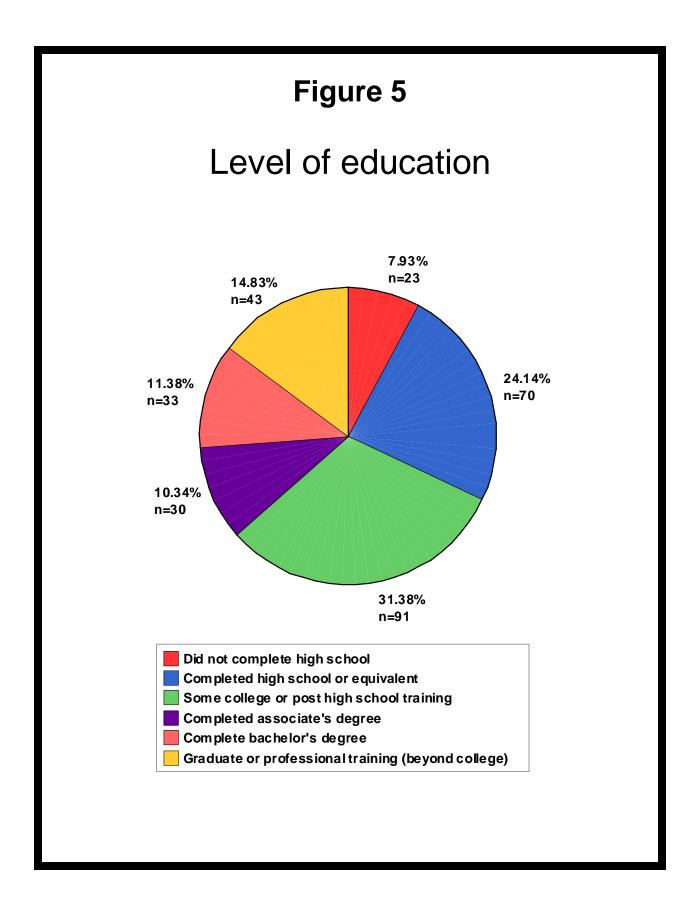
Figures 1 through 15 summarize selected individual-level traits of the survey respondents. Included here are characteristics such as gender, age, marital status, ethnicity, level of education, employment status, household income, home ownership, length of residence in the county, land ownership, and mineral rights ownership.

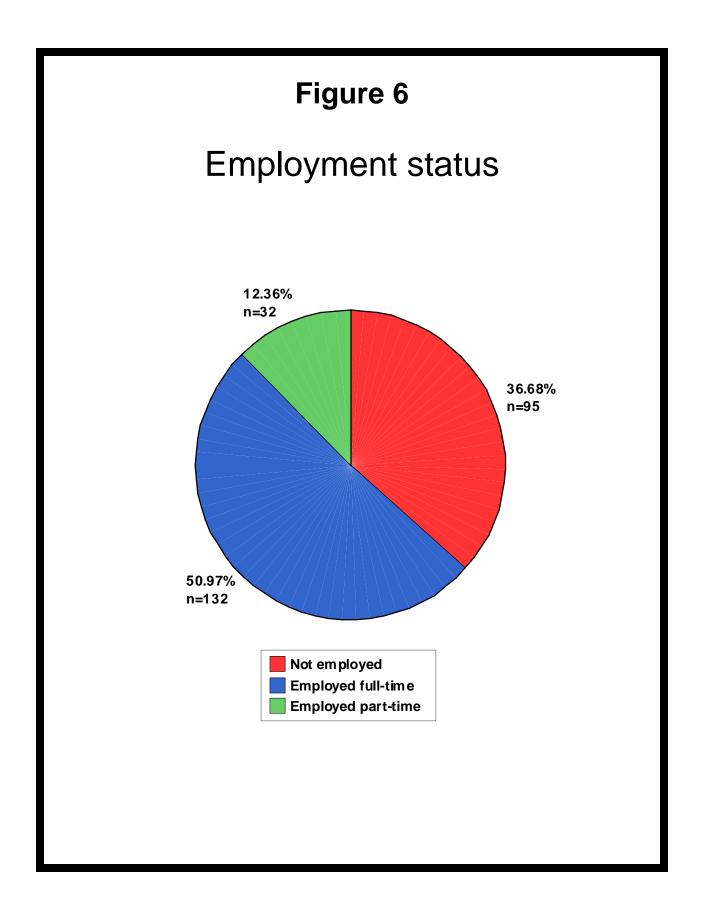


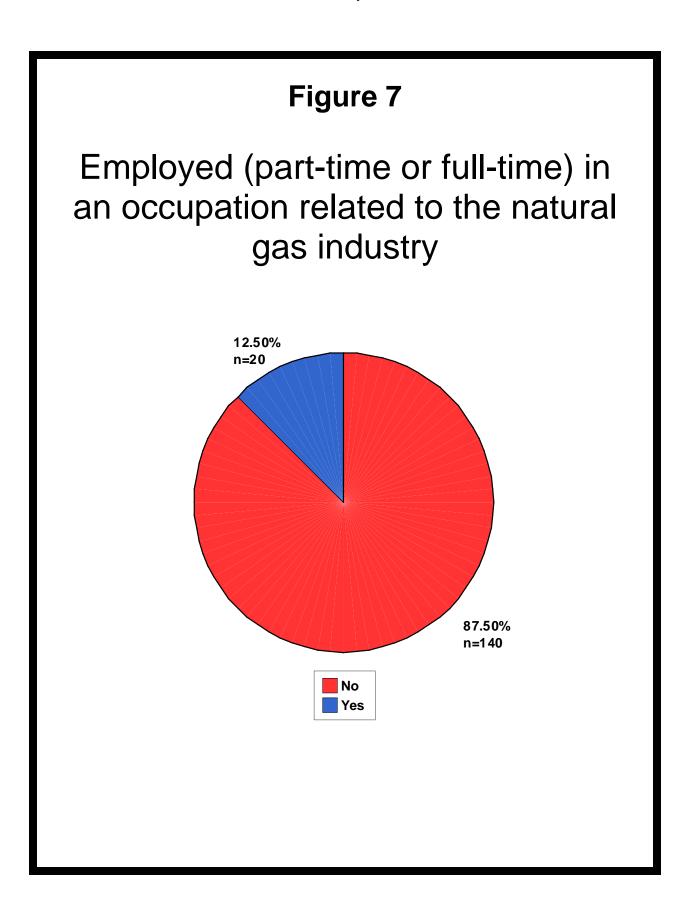


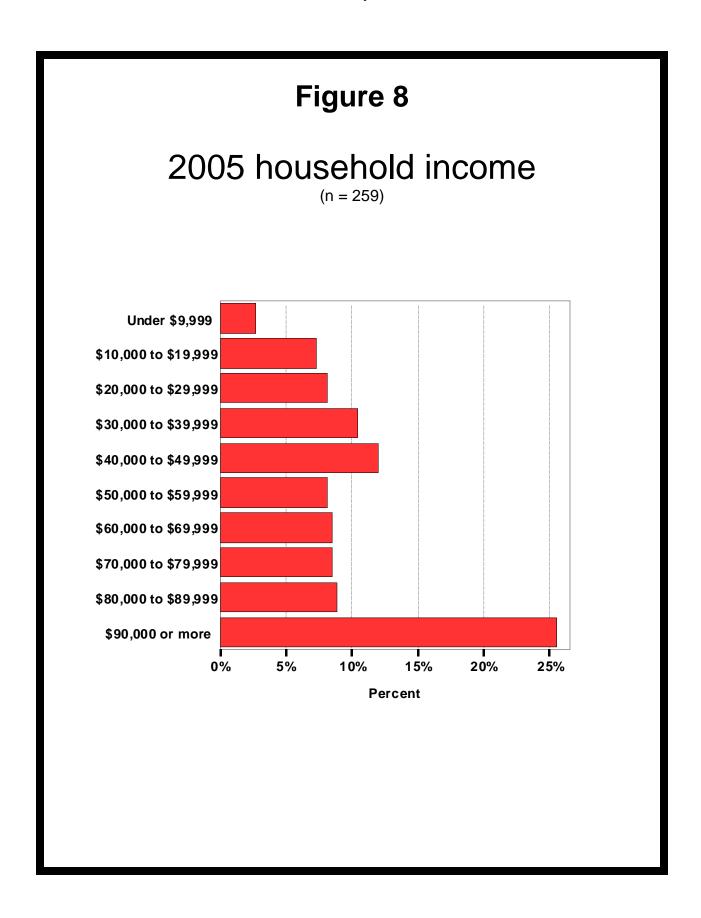


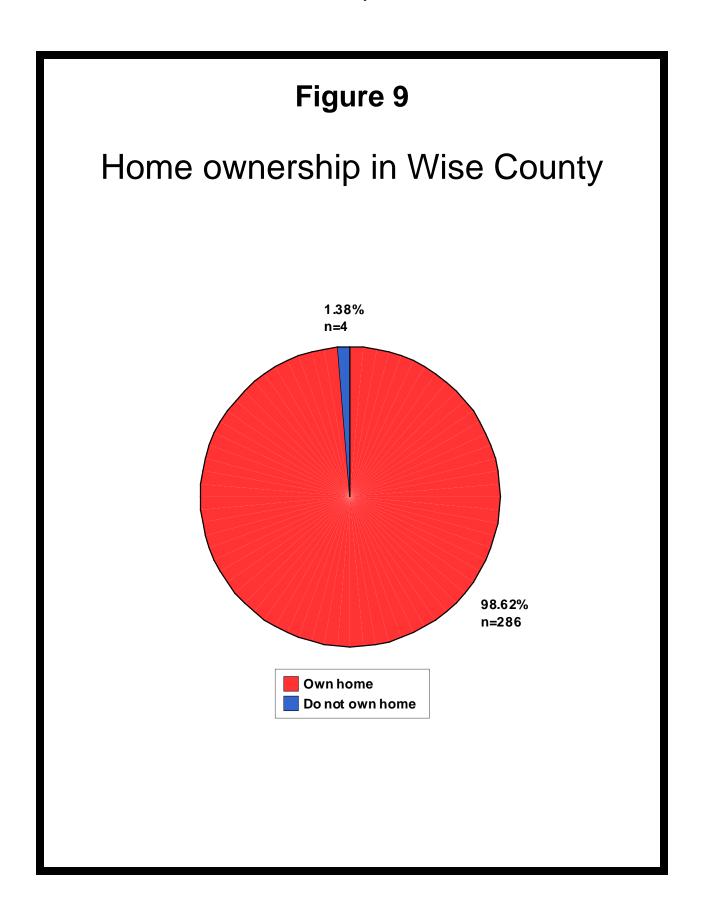


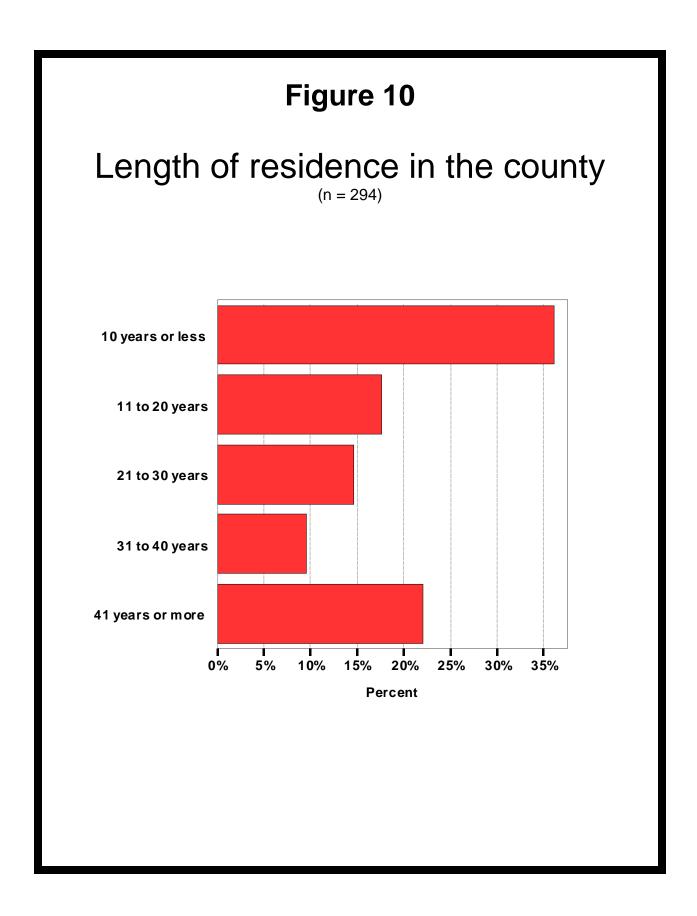


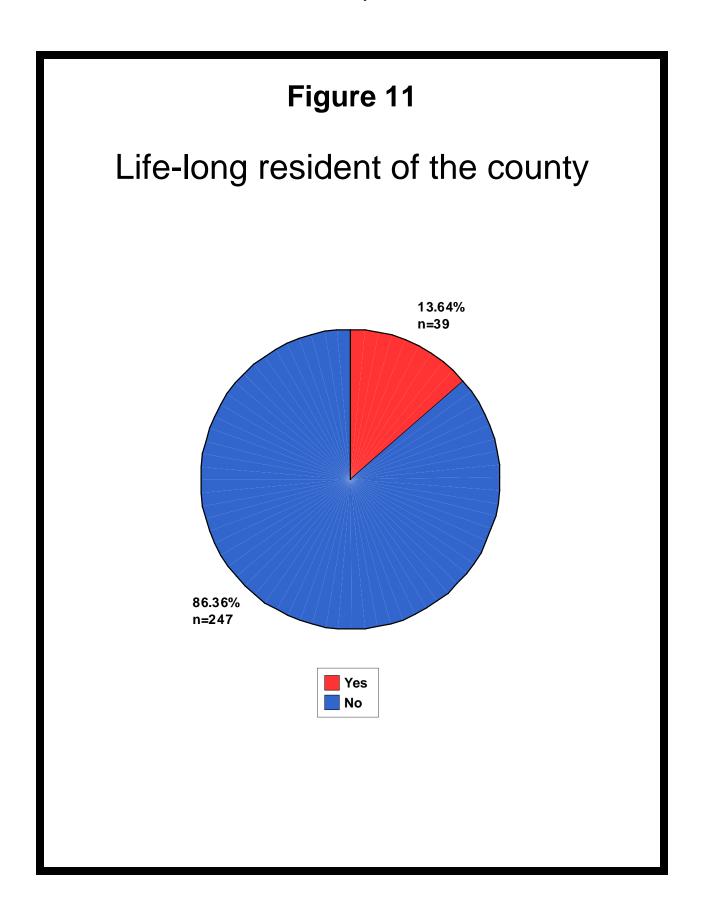


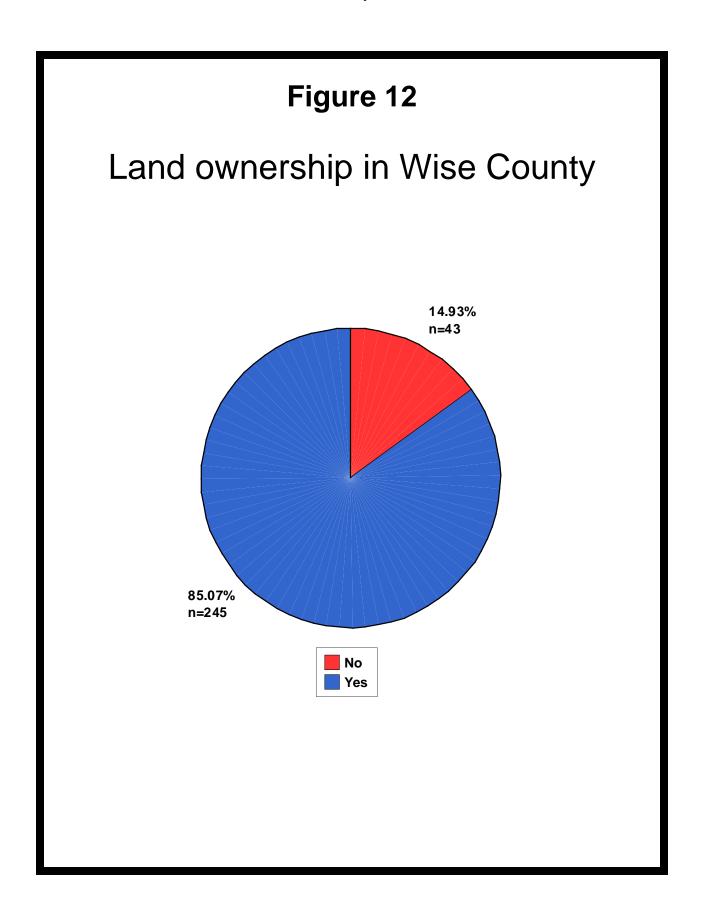


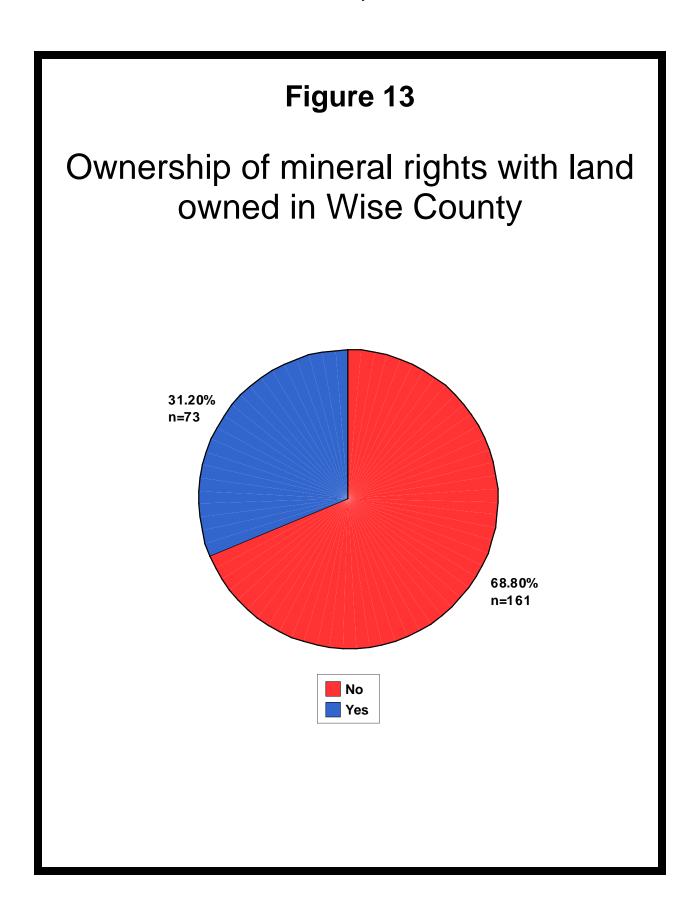


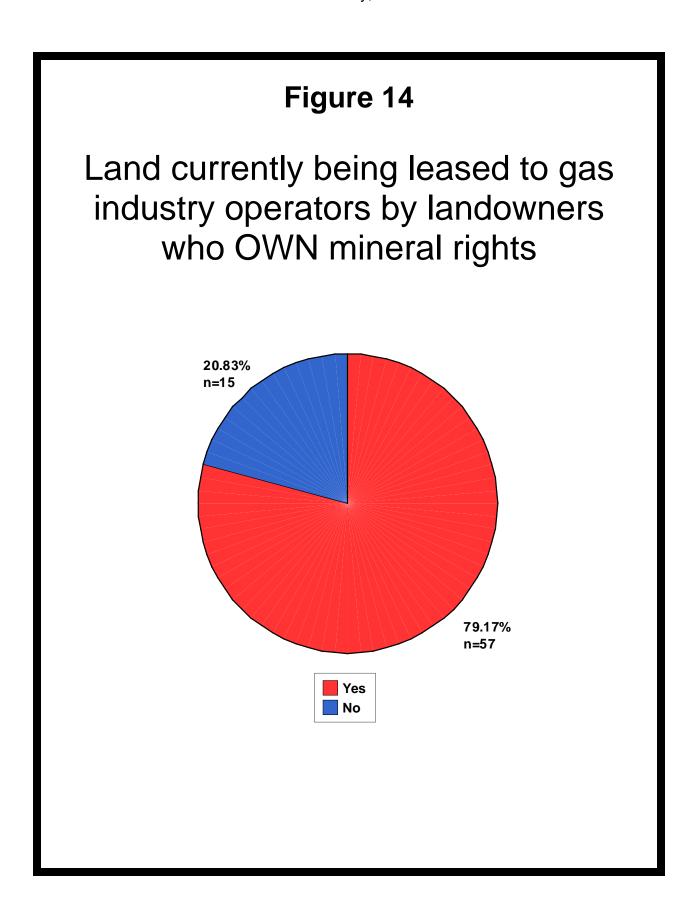


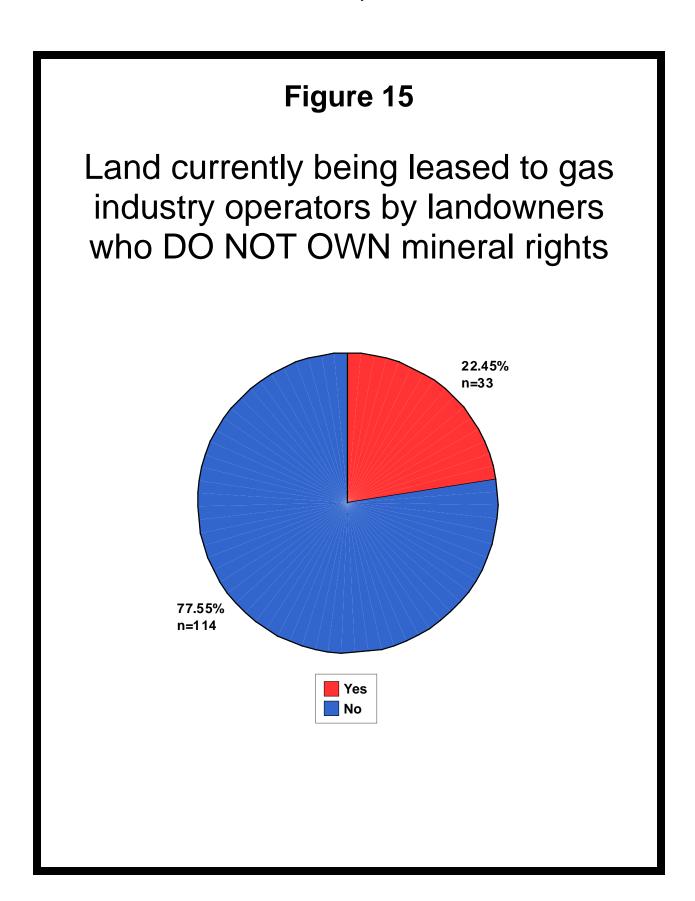










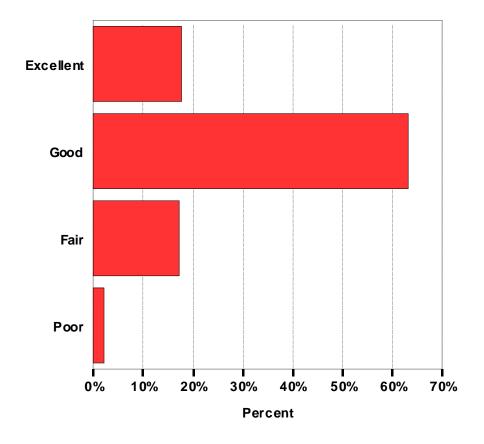


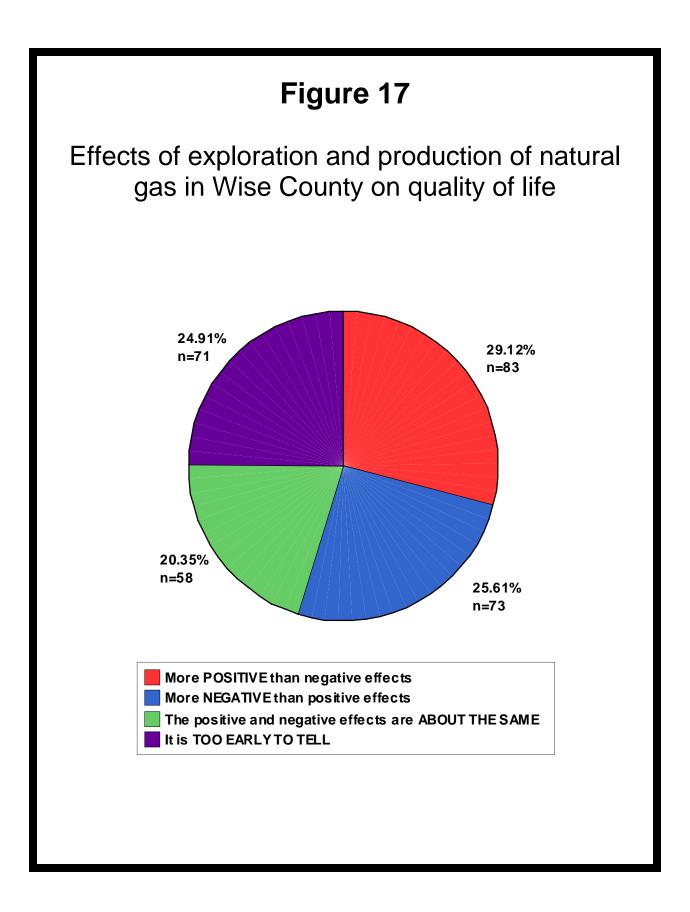
Section II

Quality of Life

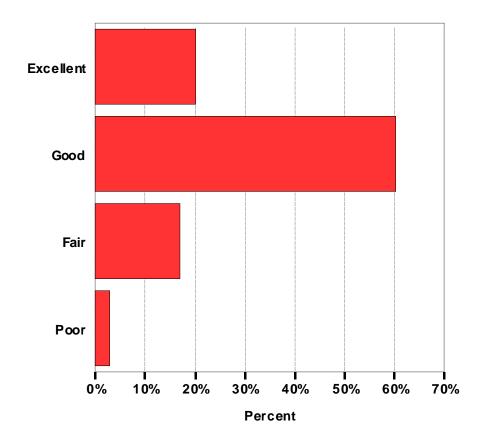
Figures 16 through 19 illustrate residents' perception of the overall quality of life in Wise County. Included here are past and present-day ratings of the quality of life, as well as the perceived effect on quality of life from the large-scale exploration and production of natural gas. In addition, residents' likelihood of moving away from Wise County in the near future is summarized.

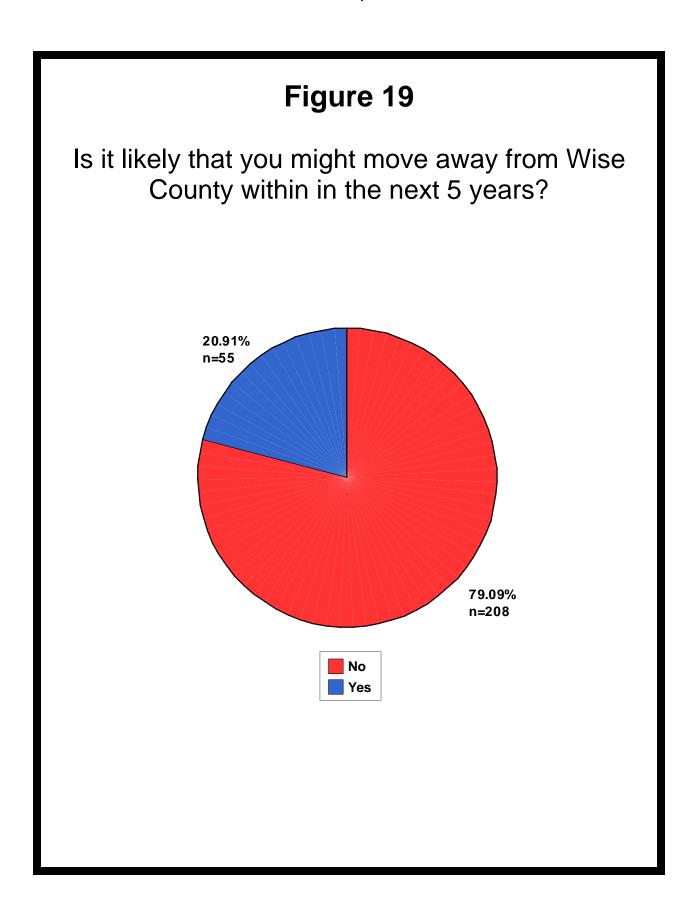
Overall, how would you rate the quality of life in Wise County today?





How would you rate the quality of life in Wise County BEFORE the large-scale exploration and production of natural gas began?





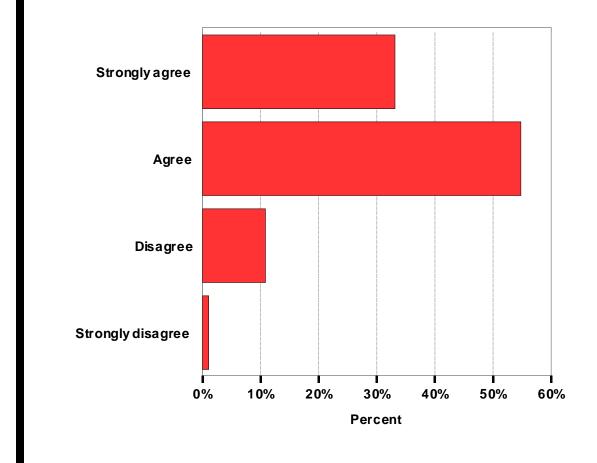
Section III

Attitudes Toward the Exploration and Production of Natural Gas in Wise County

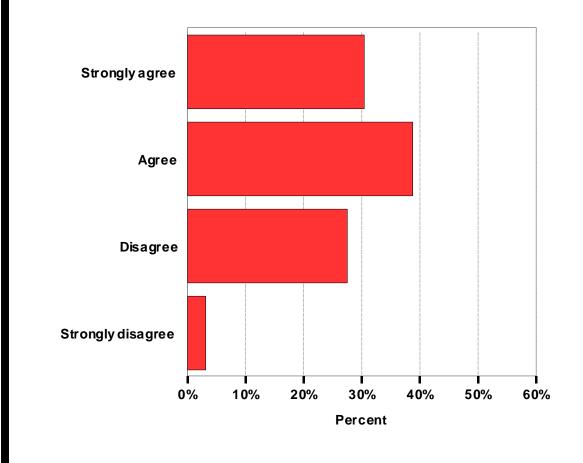
Figures 20 through 38 summarize residents' attitudes toward the production and exploration of natural gas in Wise County.

The natural gas industry is important to the local economy.

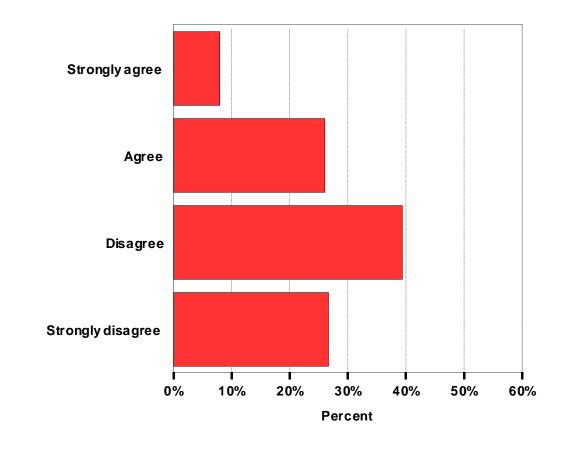
(n = 292)



Natural gas industry operators in this area are too politically powerful.

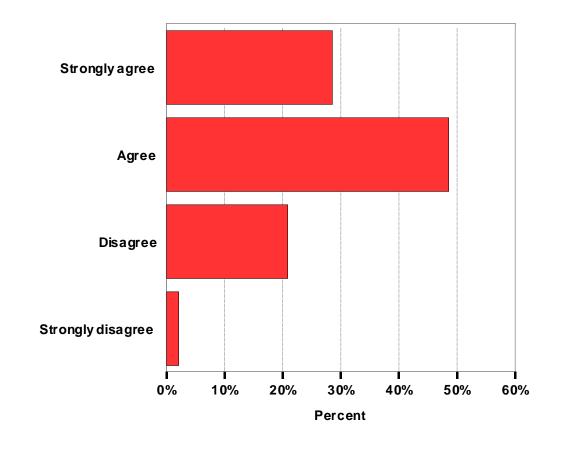


Decisions about natural gas-related development should be made solely on economic grounds. (n = 277)



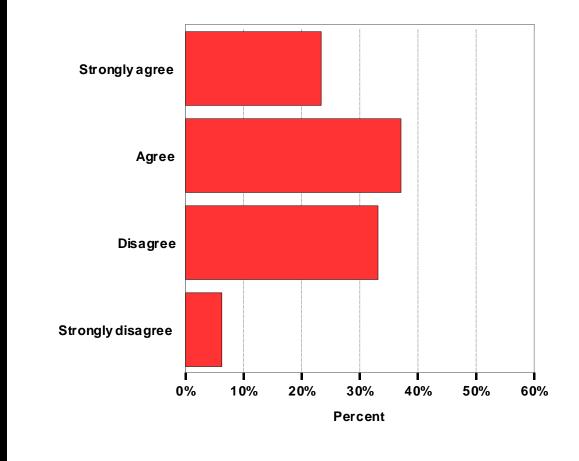
Not enough information concerning the development of natural gas is being made available to the general public.

(n = 284)

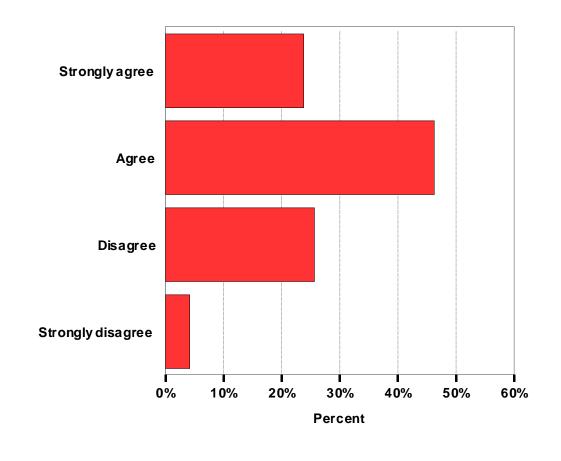


Even when carefully controlled, natural gas development is likely to upset the quality of life in a local area.

(n = 283)

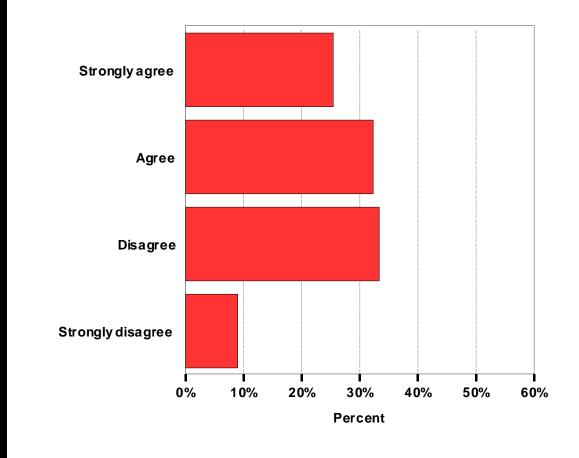


Too little attention is being paid to the social costs of natural gas development.



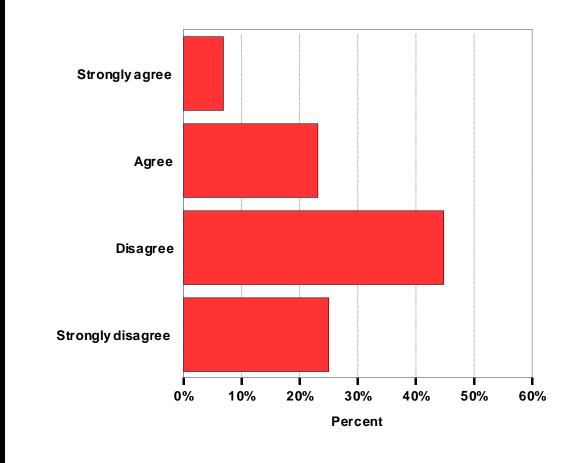
The natural gas companies have no compassion for our natural environment.

(n = 276)

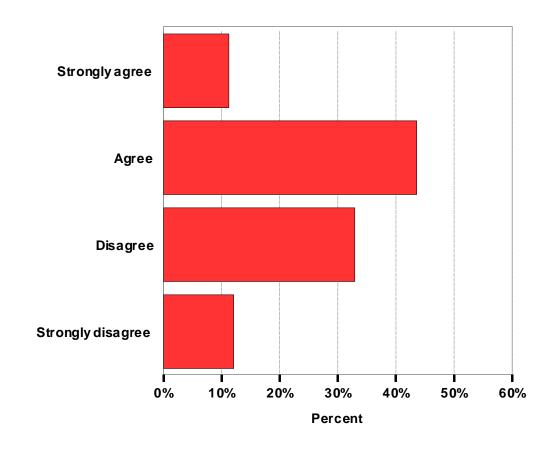


Because industries have to be competitive, it is unfair to expect them to tell the public about their plans.

(n = 276)

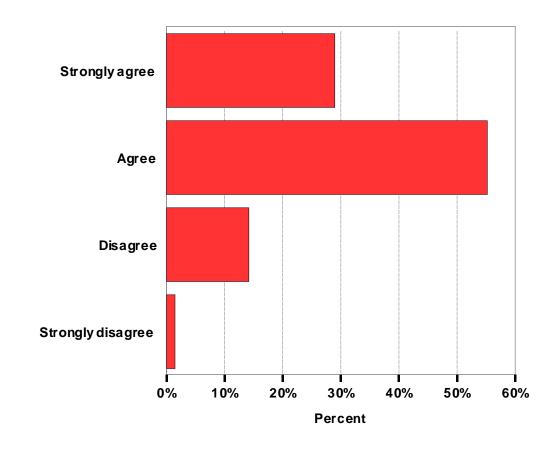


All in all, the benefits of natural gas development for this area are greater than the costs. (n = 273)

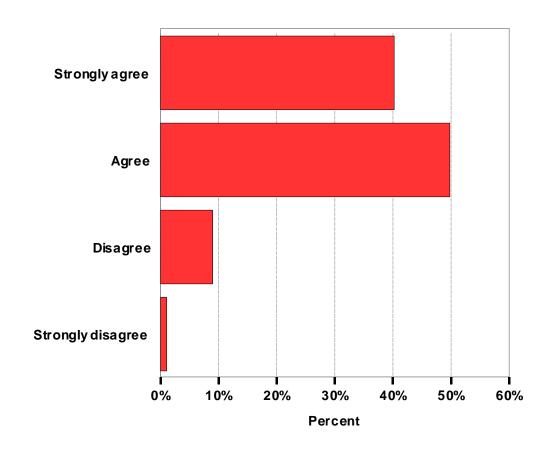


Decisions about natural gas development should be given to the effects on lifestyles and values of the people in this area.

(n = 273)

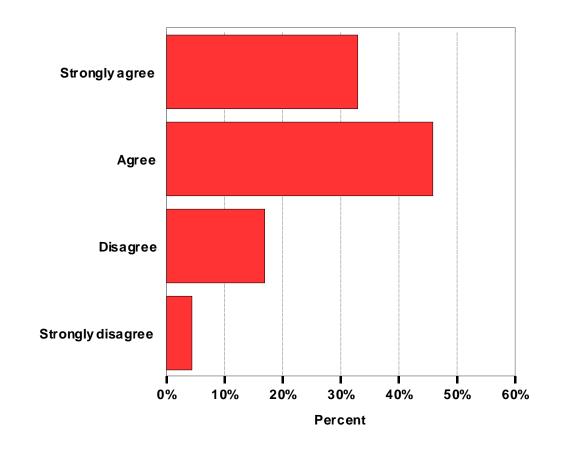


Natural gas operators MUST adopt and use more environmentally friendly drilling practices. (n = 281)



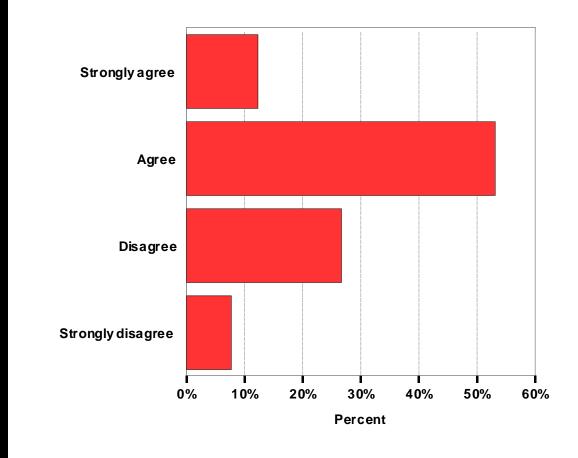


Natural gas companies will do only what's required by law.



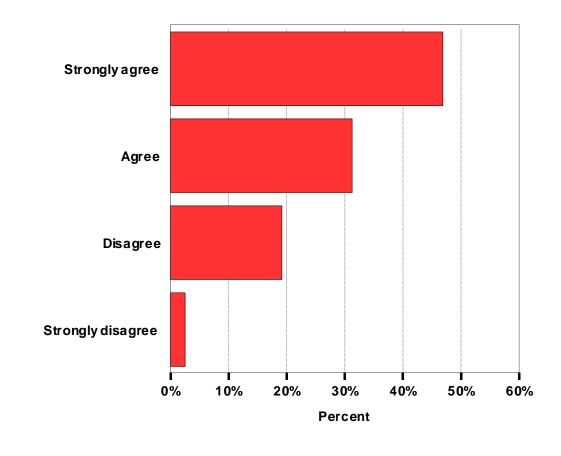
In the long run, I'm sure that people in this area will be better off if our natural gas resources are developed.

(n = 284)



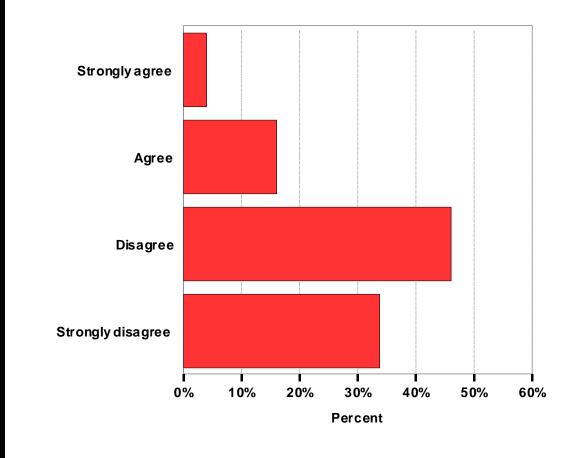
Natural gas operators are drilling and producing too close to homes and businesses.

(n = 281)



People who object to natural gas development in this area should move someplace else.

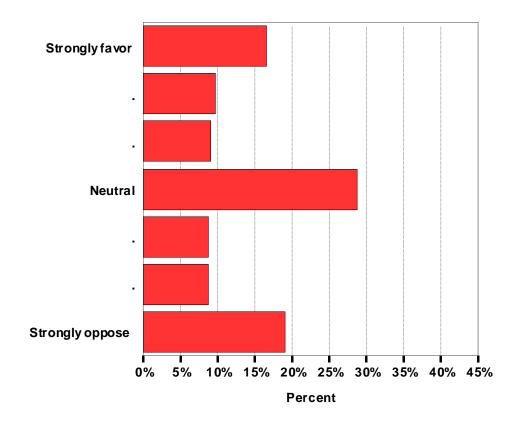
(n = 278)

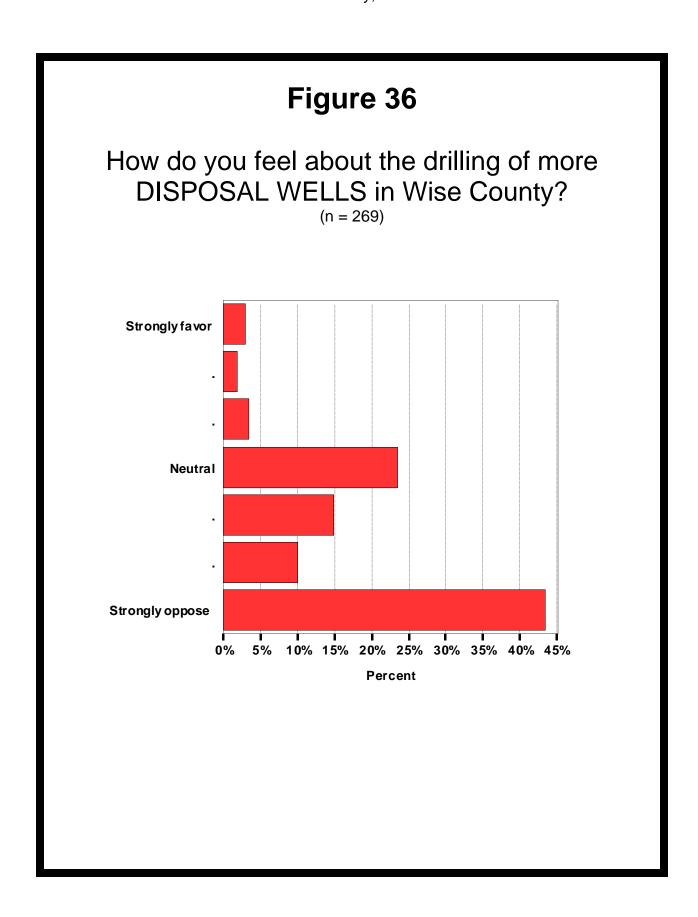




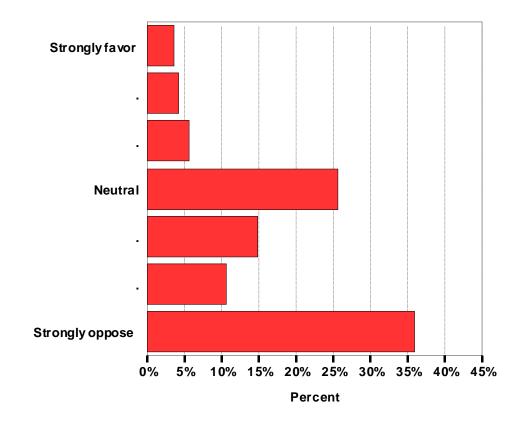
How do you feel about the drilling of more GAS WELLS in Wise County?

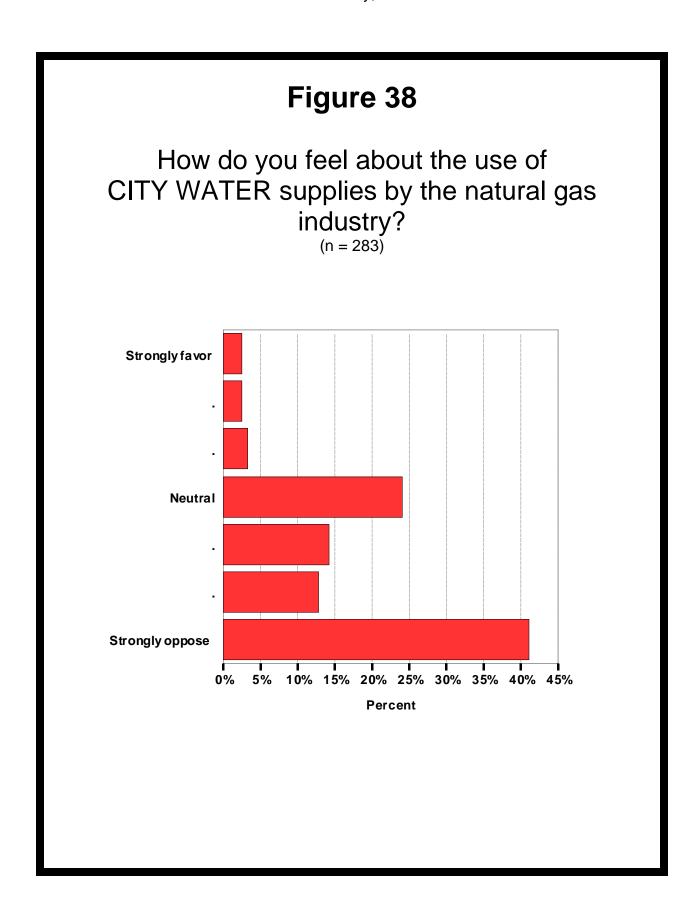
(n = 279)





How do you feel about the drilling of WATER WELLS in Wise County to provide water for the natural gas industry?





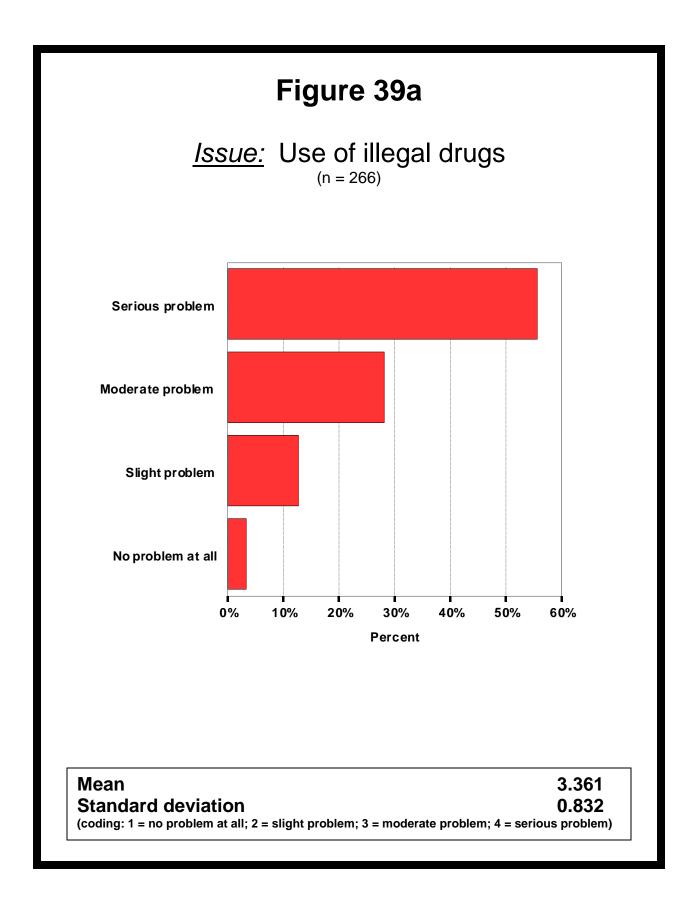
Section IV

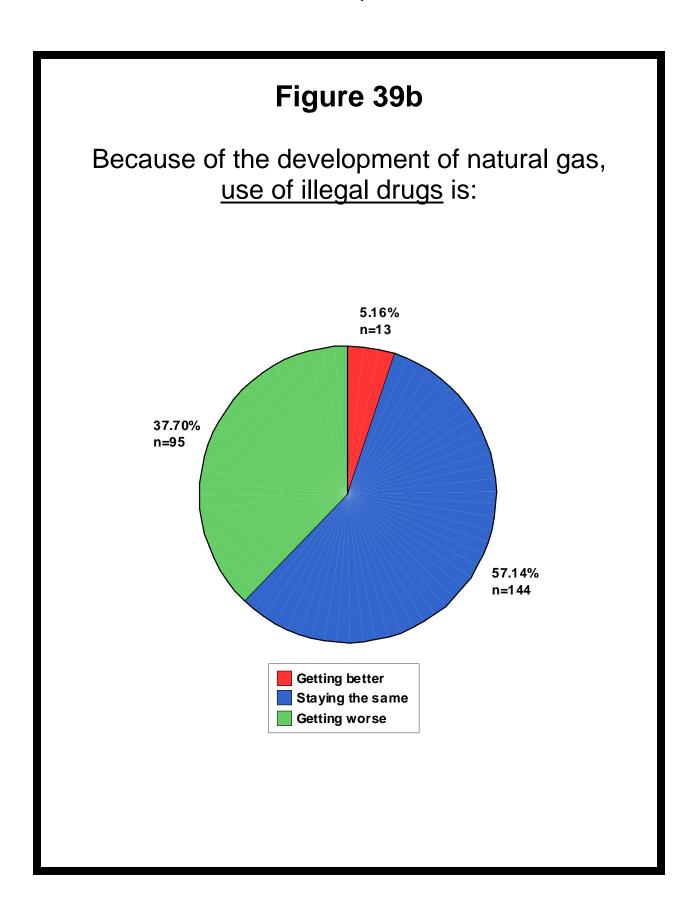
Potential Problems in Wise County

This section deals with residents' perceptions of the potential problems in Wise County which may or may not be associated with the continued development of natural gas. Survey respondents were presented with 33 issues which may or may not be problems in Wise County. Respondents were asked to indicate whether they believe each issue currently is "no problem at all," a "slight problem," a "moderate problem," or a "serious problem." Respondents were then asked to indicate whether the seriousness of the problem is "getting better," "staying the same," or "getting worse" with the continued development of natural gas. The results are summarized below.

Figures 39a through 71a illustrate the perceived problematic extent of the issue today. Figures 39b to 71b illustrate the apparent seriousness of the problem with the continued development of natural gas.

For purposes of presentation, the issues were ranked from the perceived "most serious" to the "least serious" (see the Mean Score and coding notation).

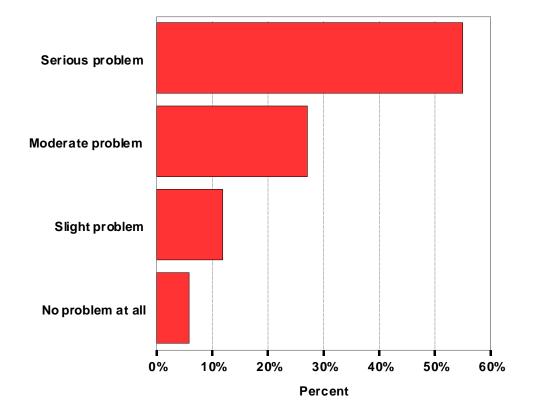






<u>Issue:</u> Increased truck traffic

(n = 276)

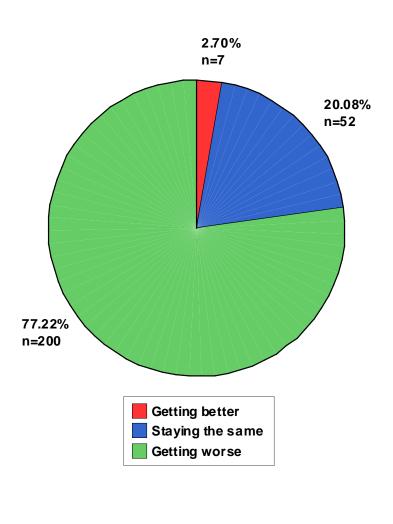


Mean Standard deviation 3.315

0.898

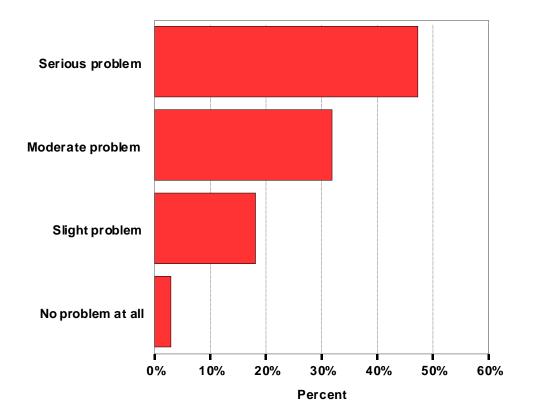
Figure 40b

Because of the development of natural gas, increased truck traffic is:





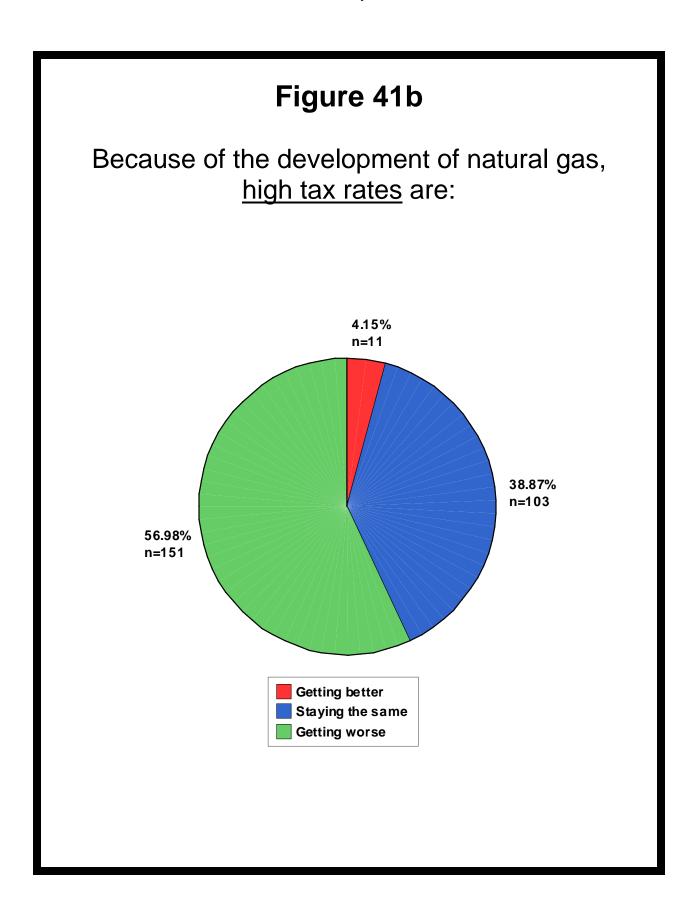
<u>Issue:</u> High tax rates (n = 283)



Mean
Standard deviation

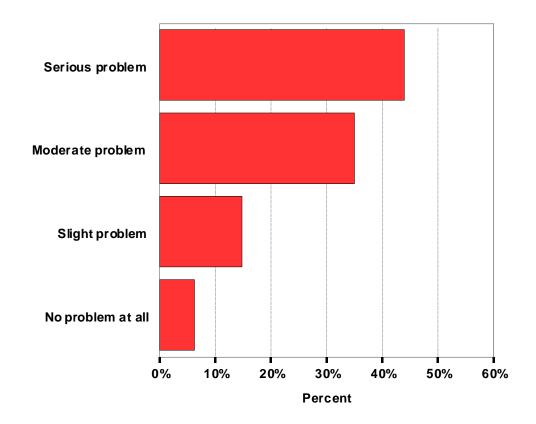
3.237

0.845



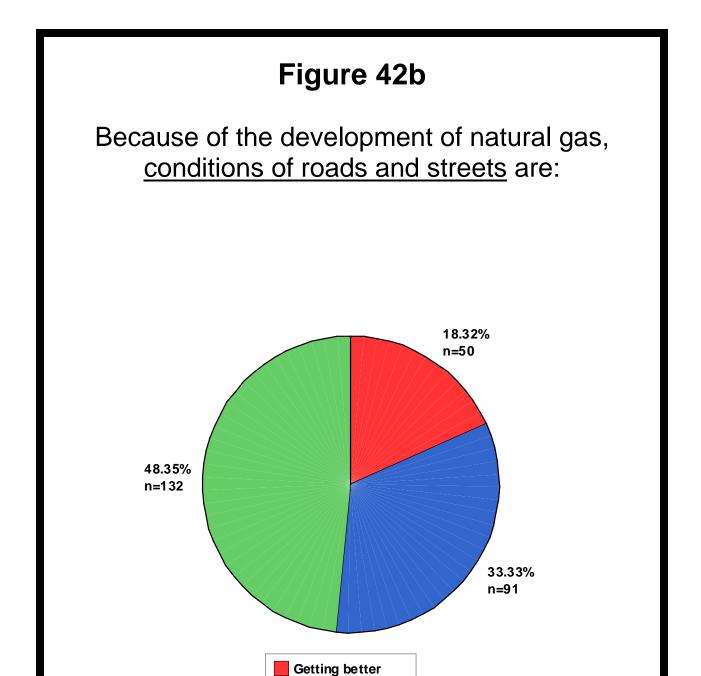


<u>Issue:</u> Conditions of roads and streets

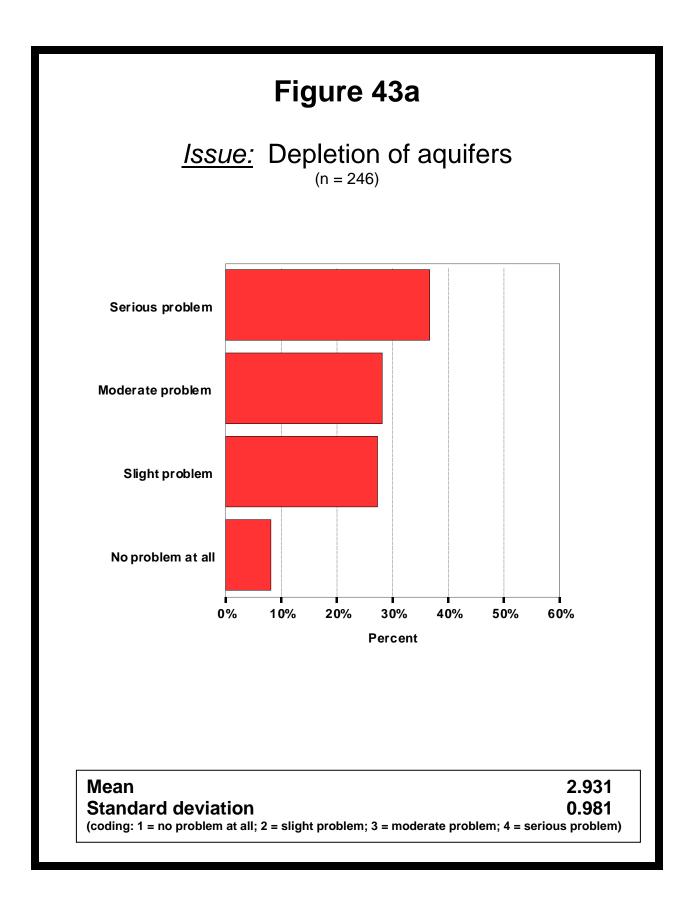


Mean Standard deviation 3.165

0.902



Staying the same Getting worse



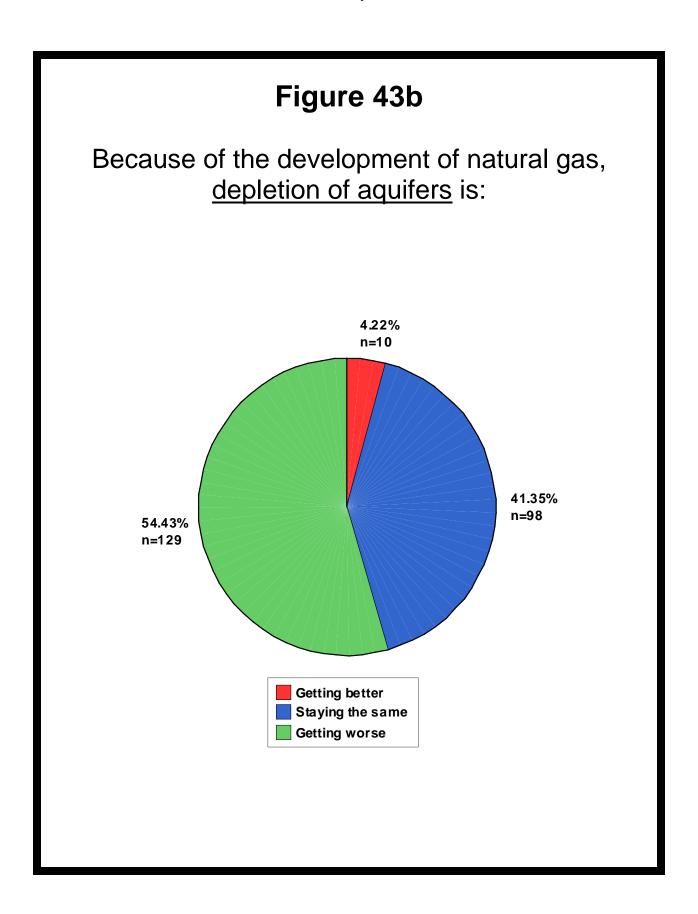
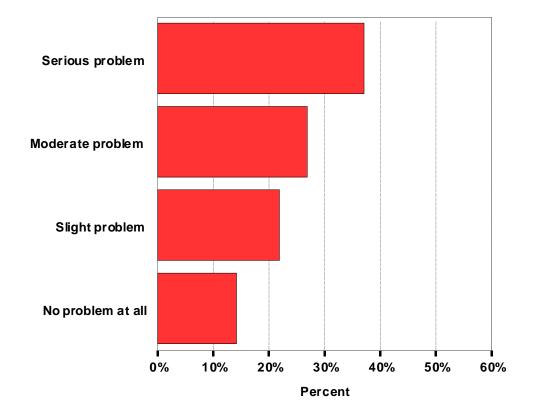


Figure 44a

Issue: Amount of freshwater used by gas producers

(n = 261)

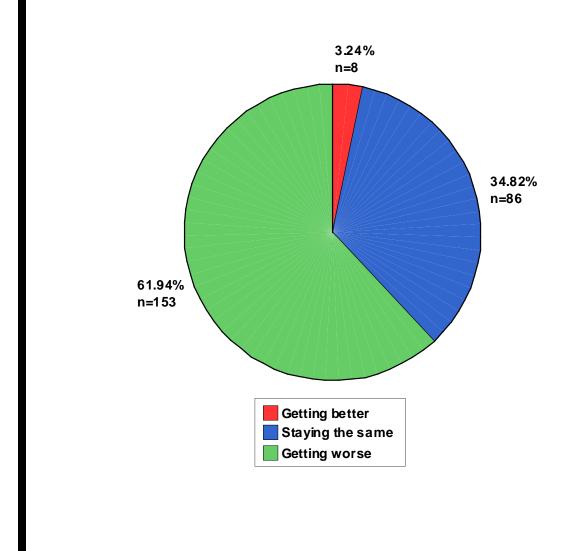


Mean Standard deviation 2.870

1.070

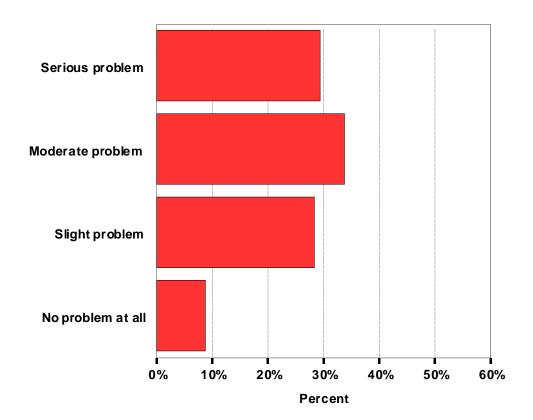
Figure 44b

Because of the development of natural gas, amount of freshwater used by gas producers is:



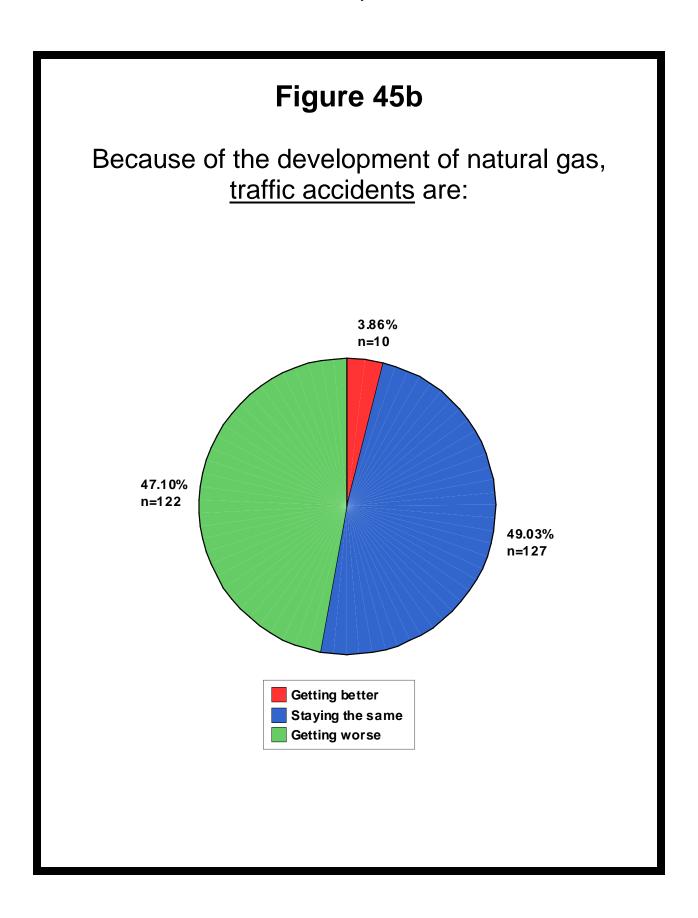


<u>Issue:</u> Traffic accidents



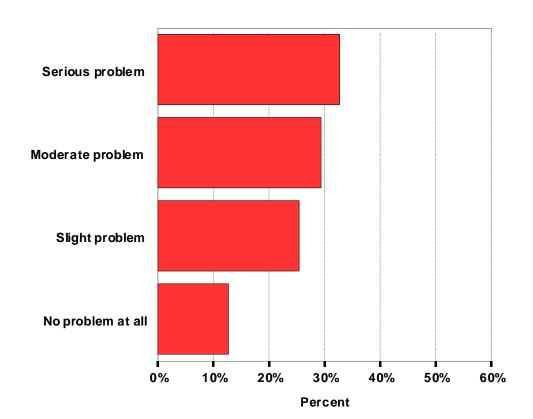
Mean Standard deviation 2.837

0.949



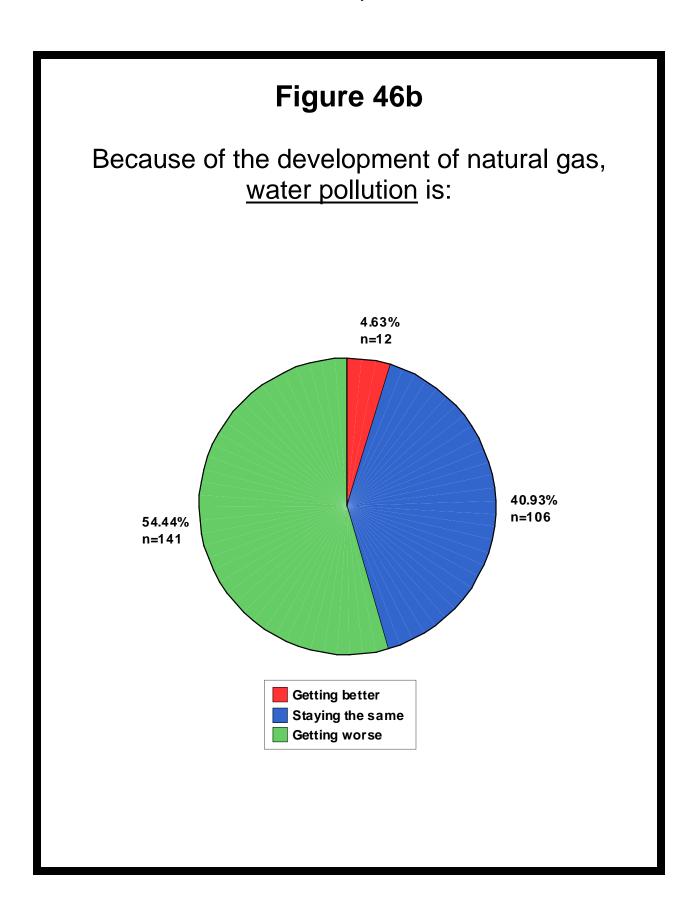


<u>Issue:</u> Water pollution (n = 276)



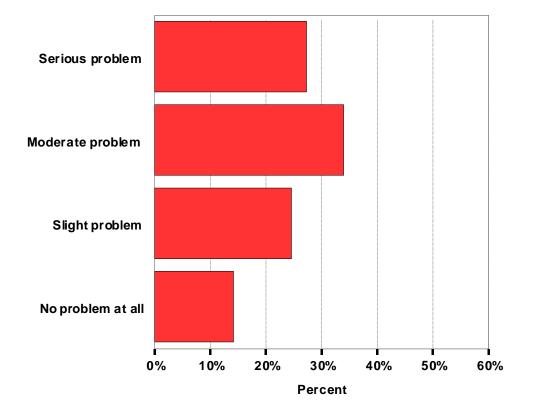
Mean Standard deviation 2.819

1.029





<u>Issue:</u> Absence of zoning regulations (n = 260)

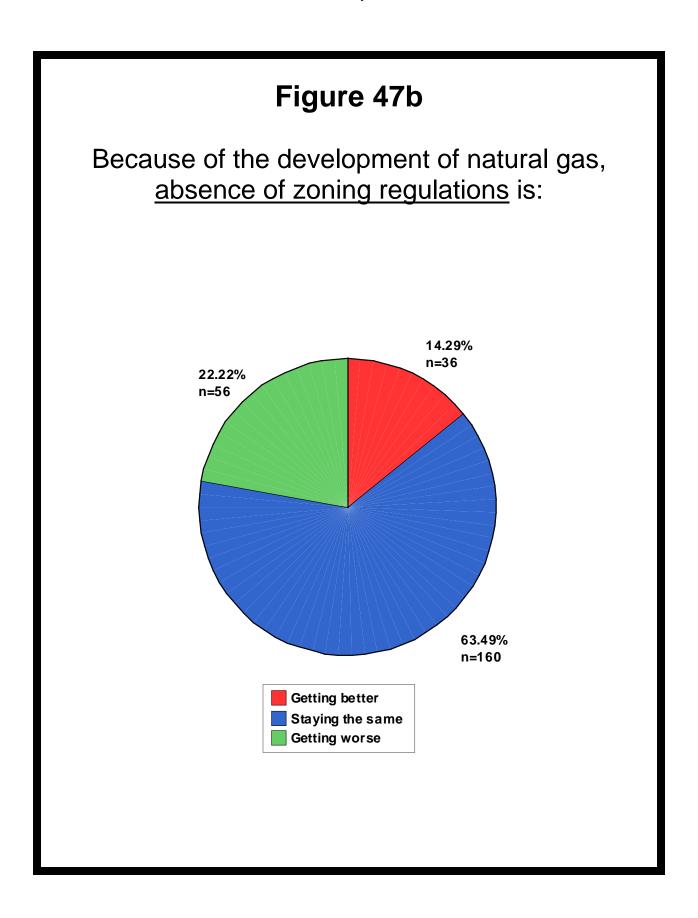


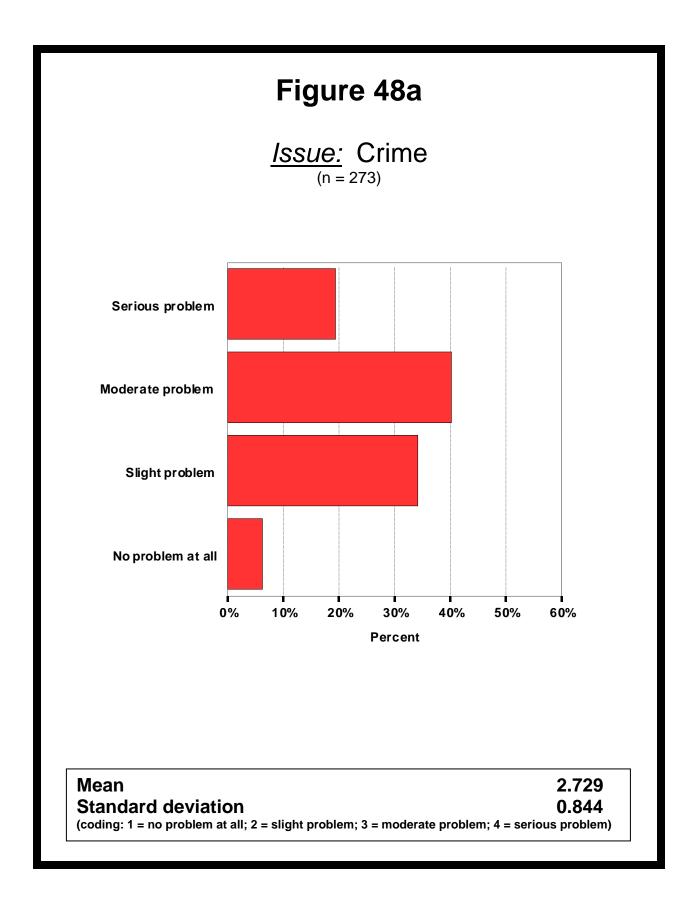
Mean
Standard deviation

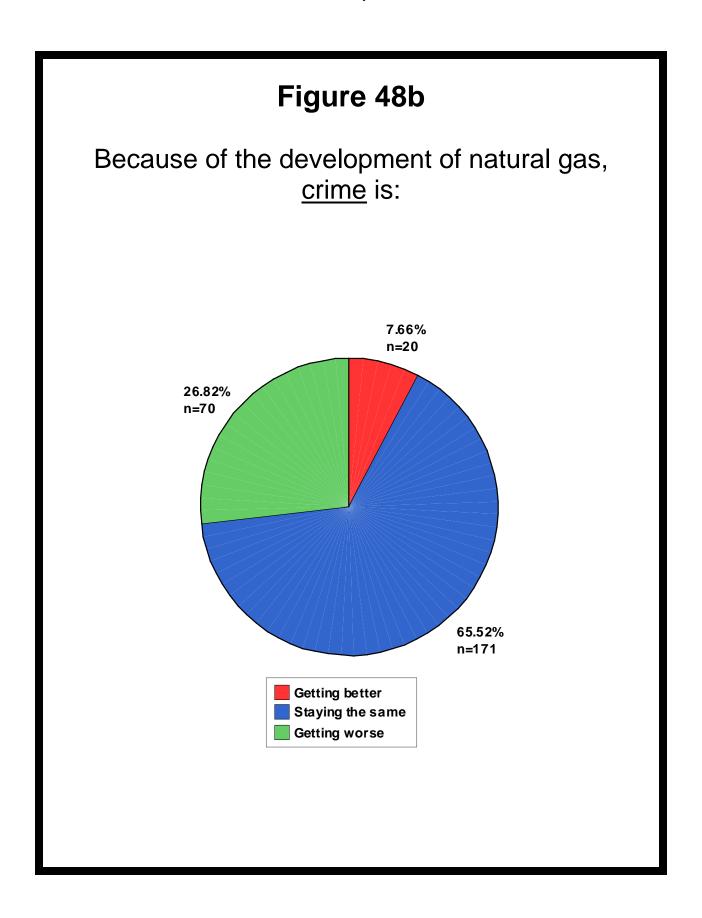
(coding: 1 = no problem at all; 2 = slight problem; 3 = moderate problem; 4 = serious problem)

2.742

1.013



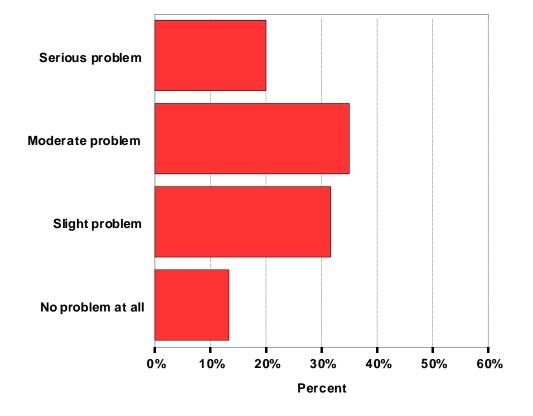




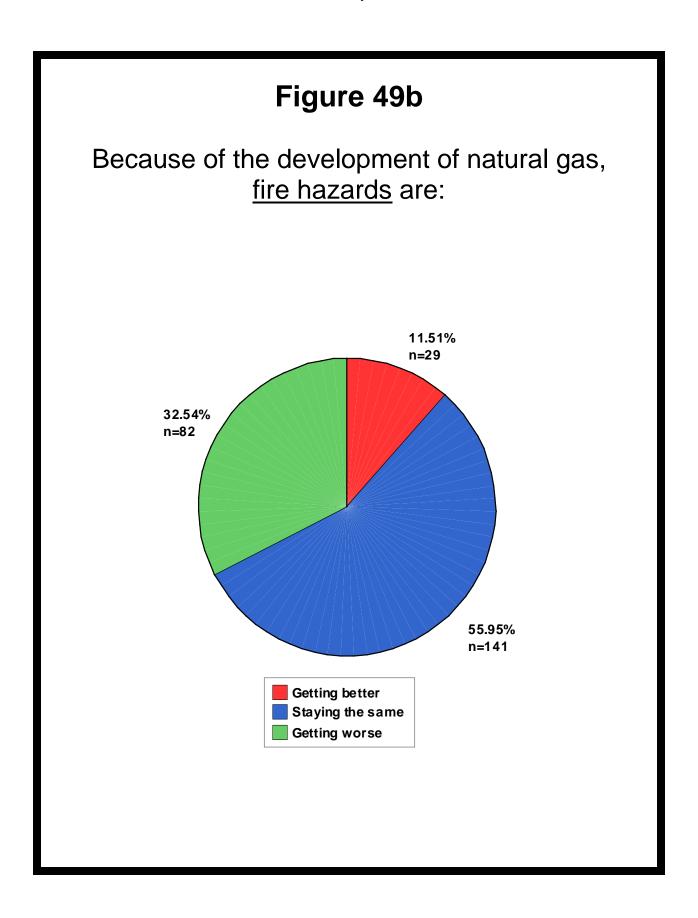


Issue: Fire hazards

(n = 269)

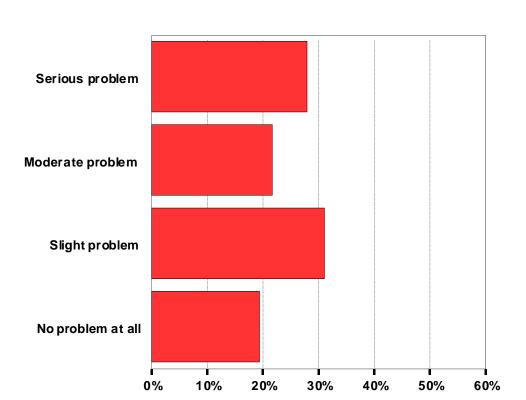


Mean Standard deviation 2.617 0.953





<u>Issue:</u> Land use conflicts

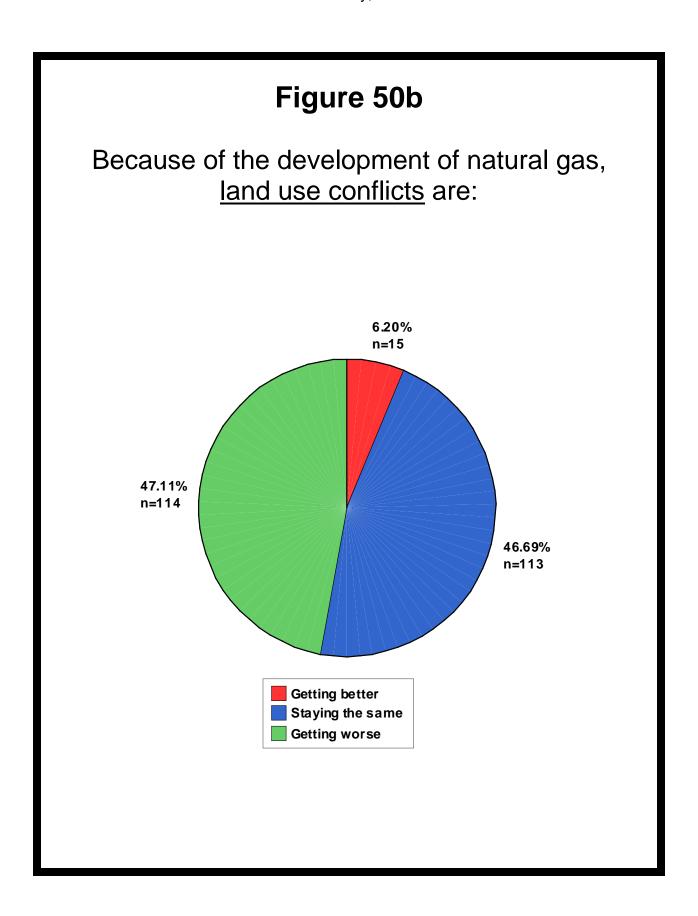


Mean Standard deviation 2.581

1.093

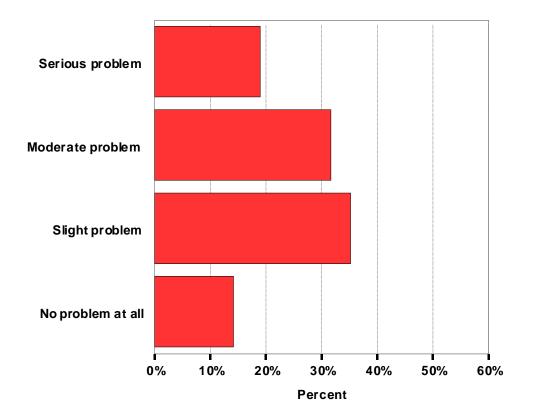
(coding: 1 = no problem at all; 2 = slight problem; 3 = moderate problem; 4 = serious problem)

Percent



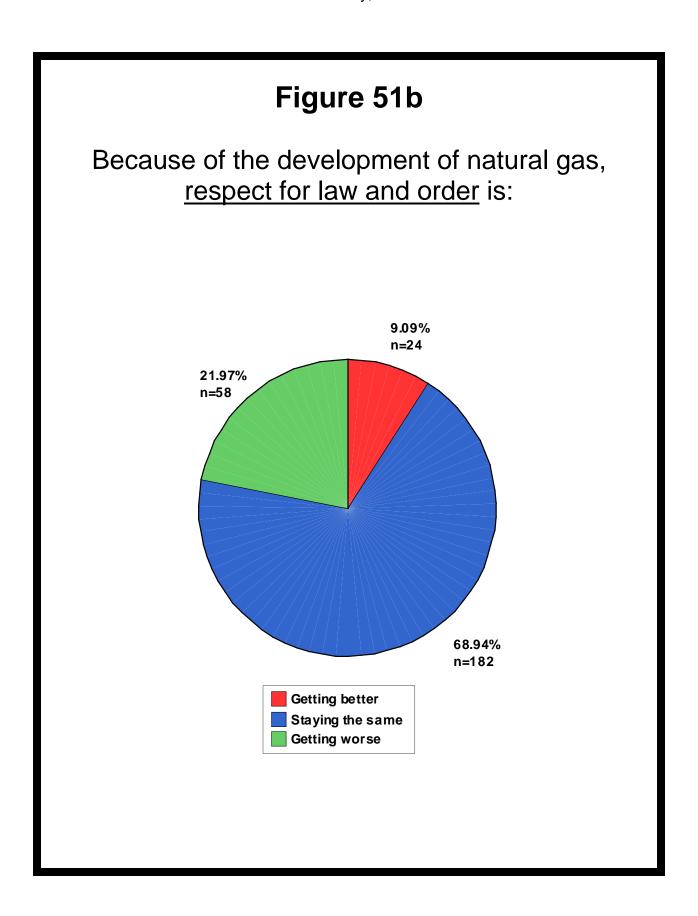


Issue: Respect for law and order (n = 275)



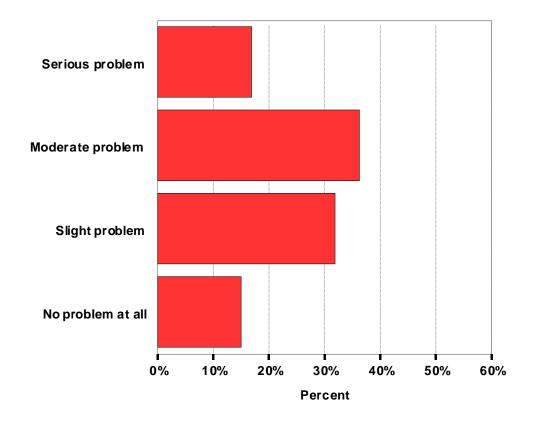
Mean Standard deviation 2.553

0.955





<u>Issue:</u> Effectiveness of city governments

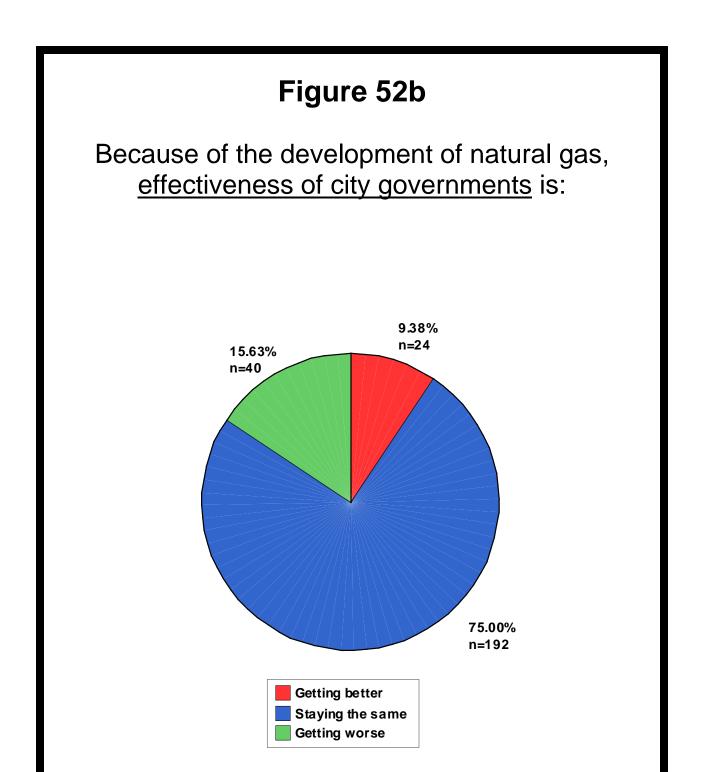


Mean
Standard deviation

(coding: 1 = no problem at all; 2 = slight problem; 3 = moderate problem; 4 = serious problem)

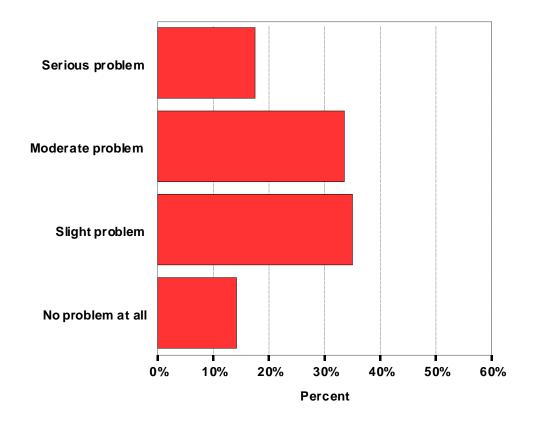
2.551

0.942





Issue: Effectiveness of county government (n = 269)

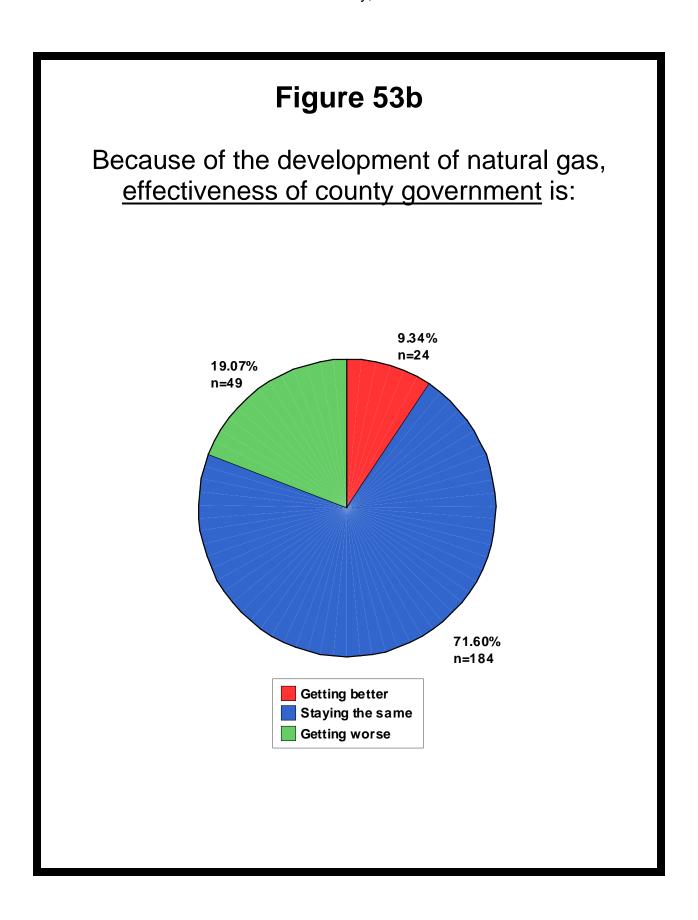


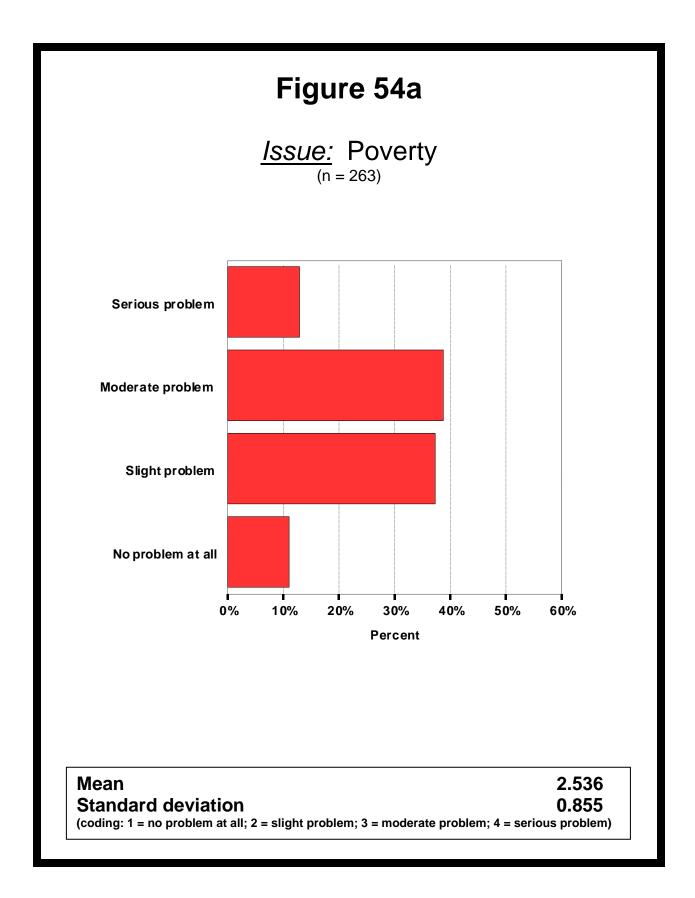
Mean
Standard deviation

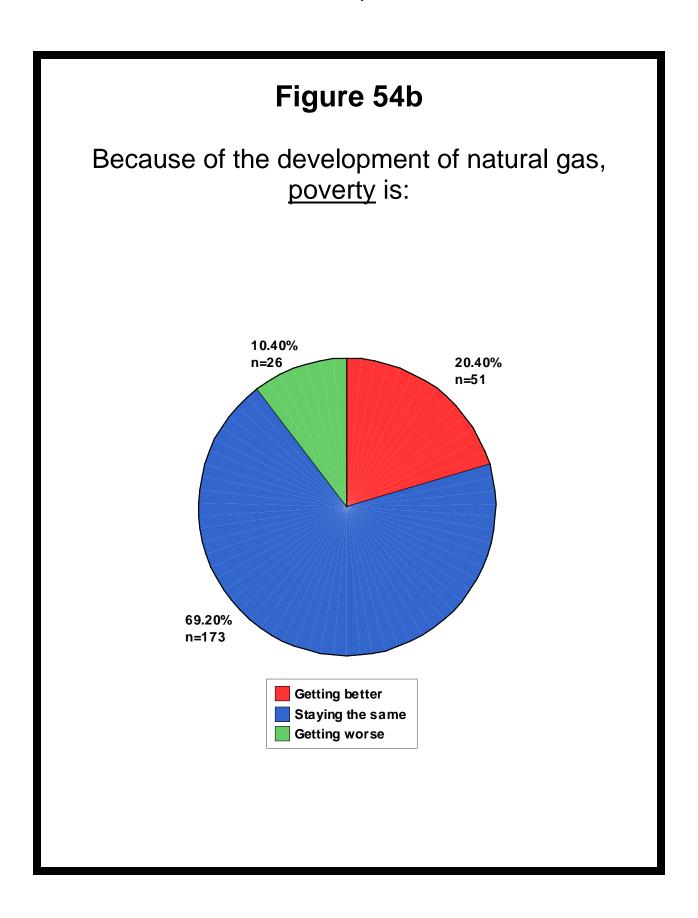
(coding: 1 = no problem at all; 2 = slight problem; 3 = moderate problem; 4 = serious problem)

2.543

0.940



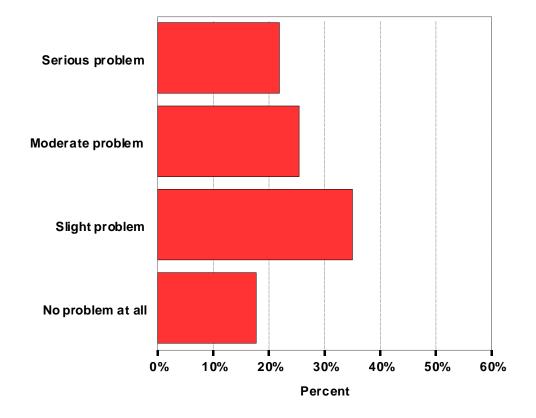






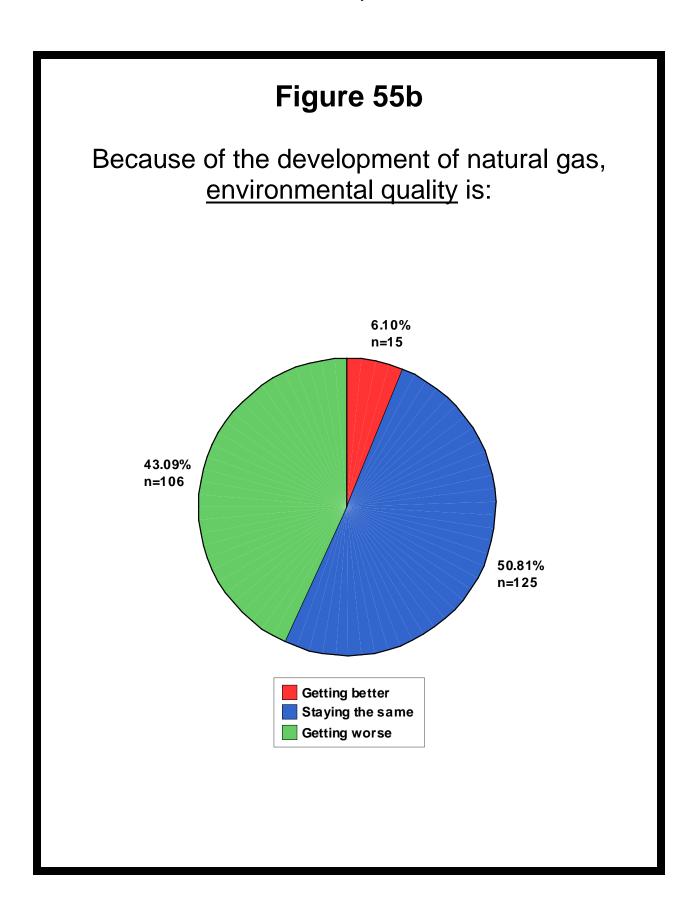
Issue: Environmental quality

(n = 260)



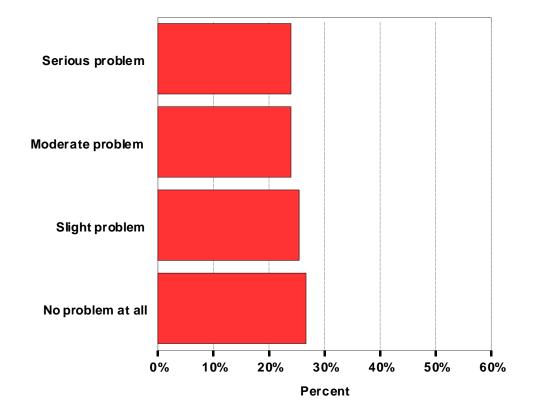
Mean Standard deviation 2.515

1.023

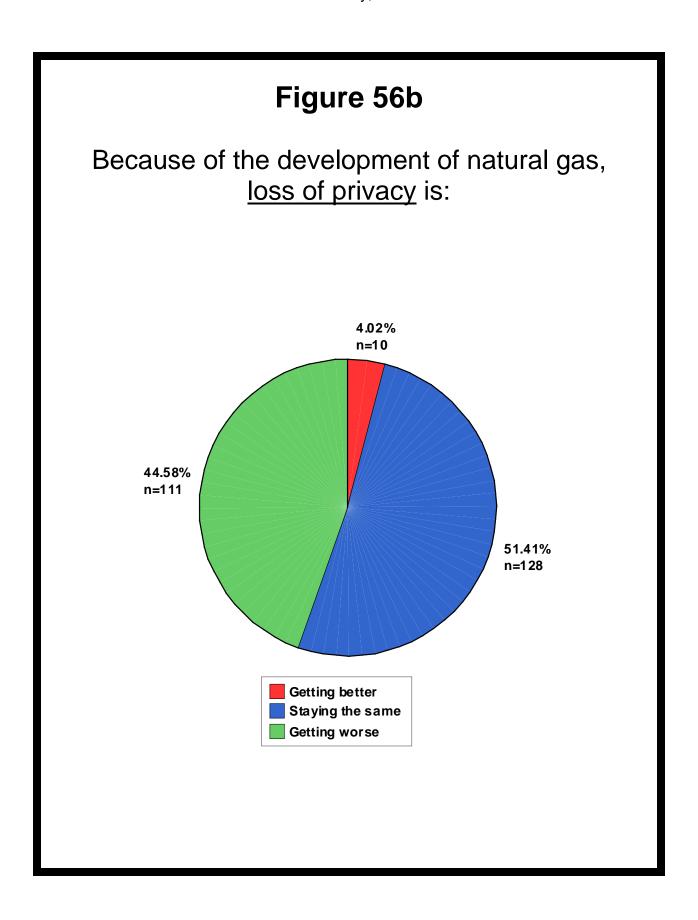


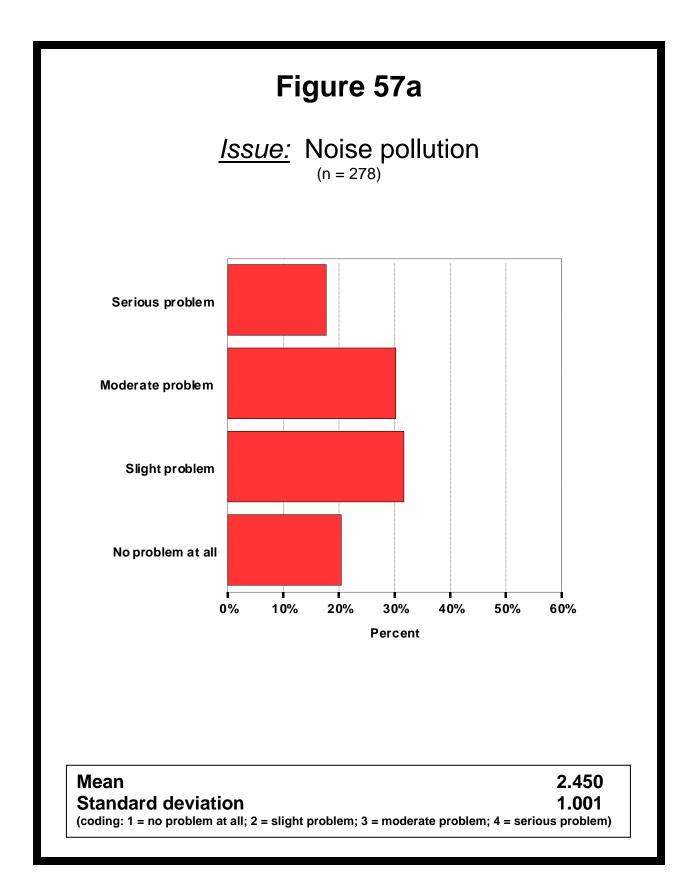


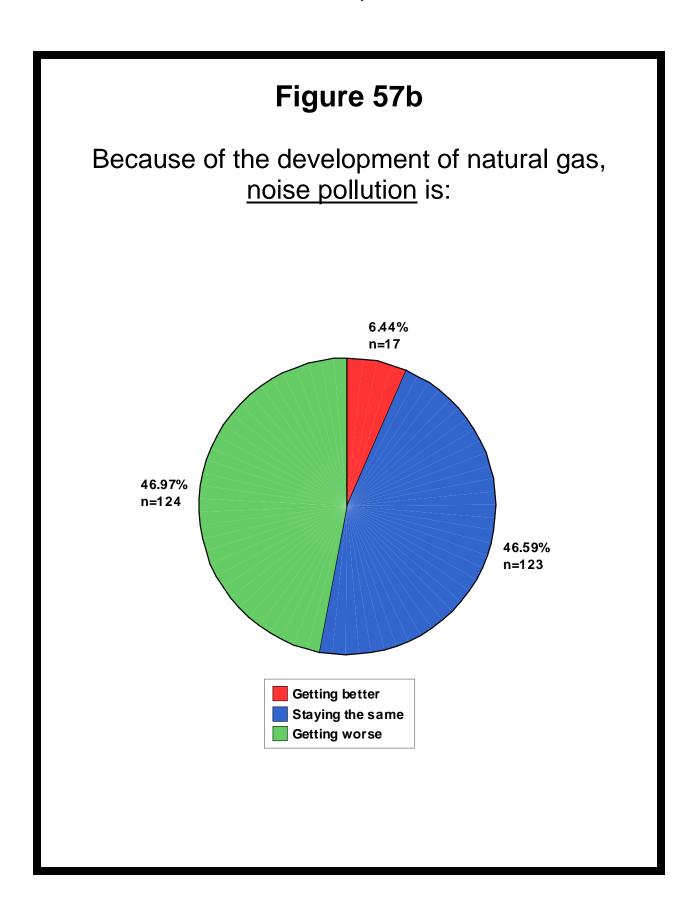
<u>Issue:</u> Loss of privacy (n = 263)

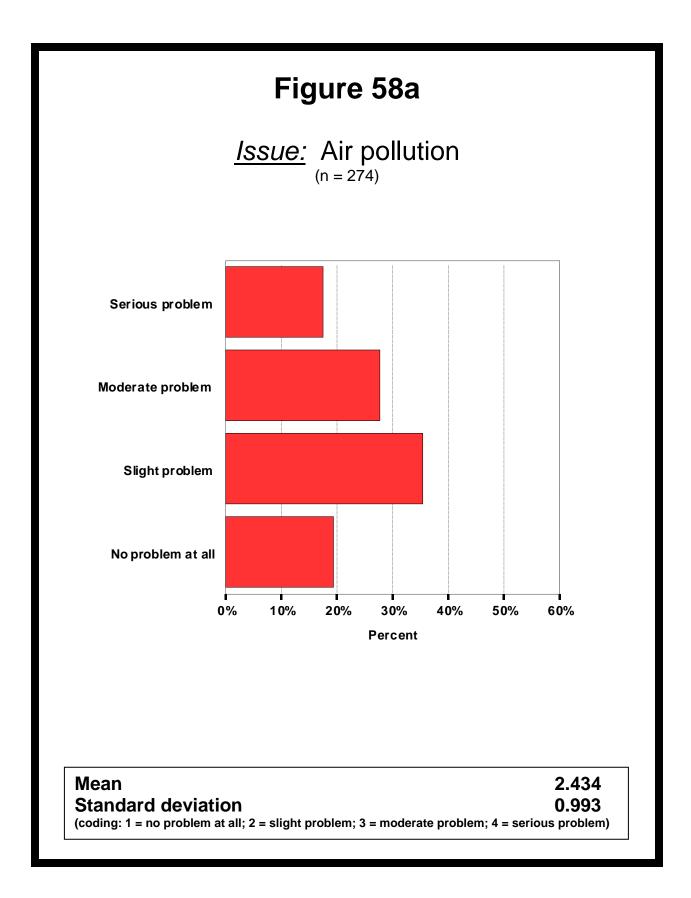


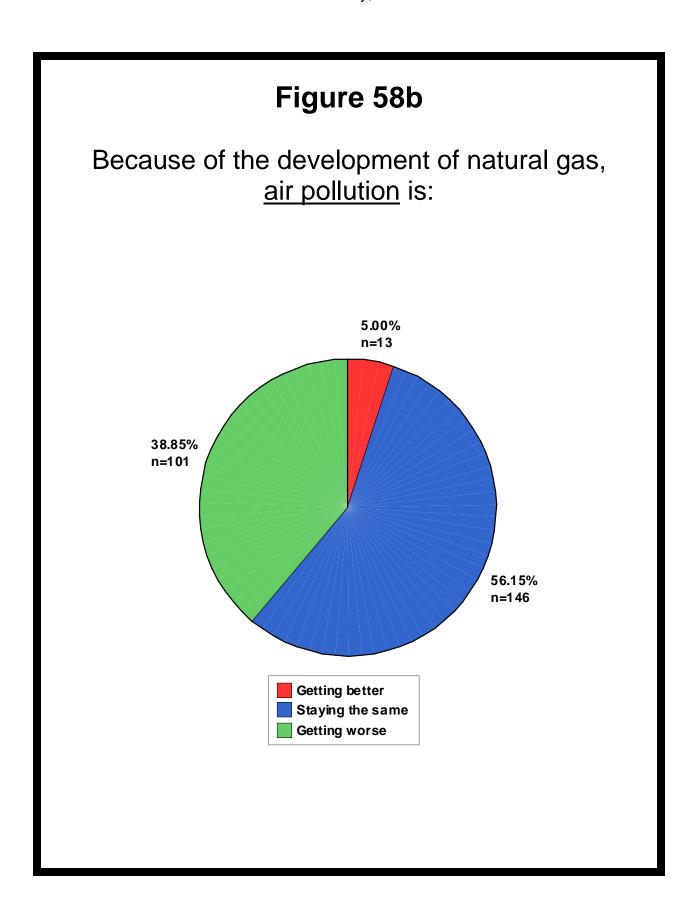
Mean2.452Standard deviation1.124





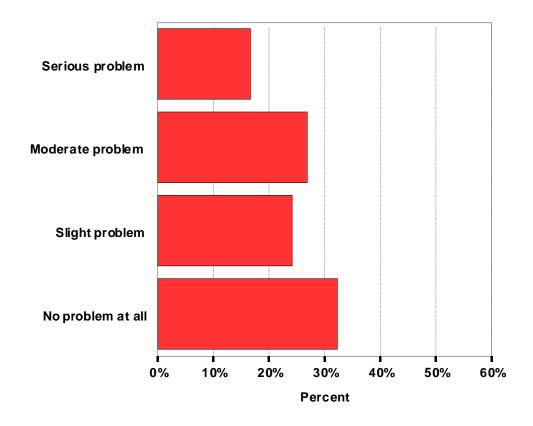








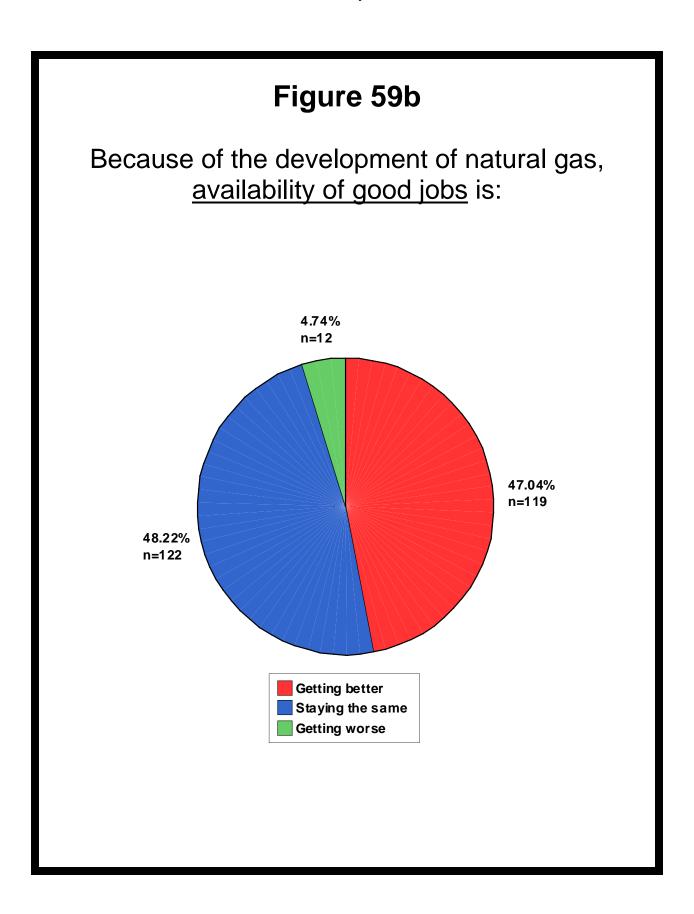
<u>Issue:</u> Availability of good jobs (n = 269)



Mean
Standard deviation

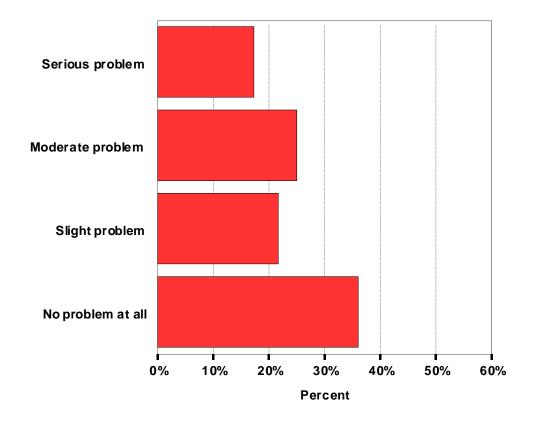
2.279

1.089





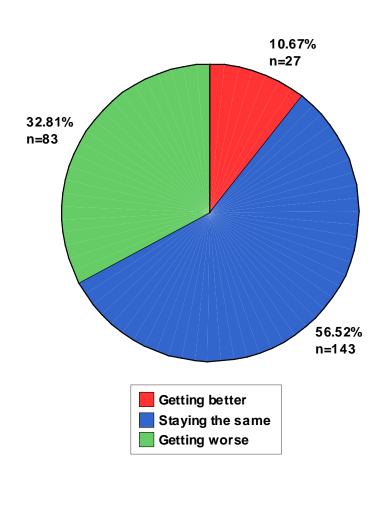
Issue: Too much residential development (n = 272)



Mean2.235Standard deviation1.118



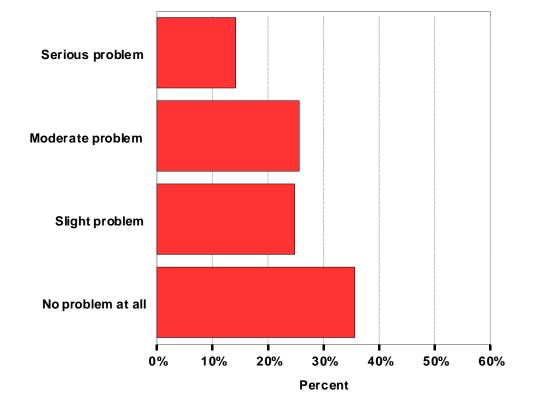
Because of the development of natural gas, too much residential development is:





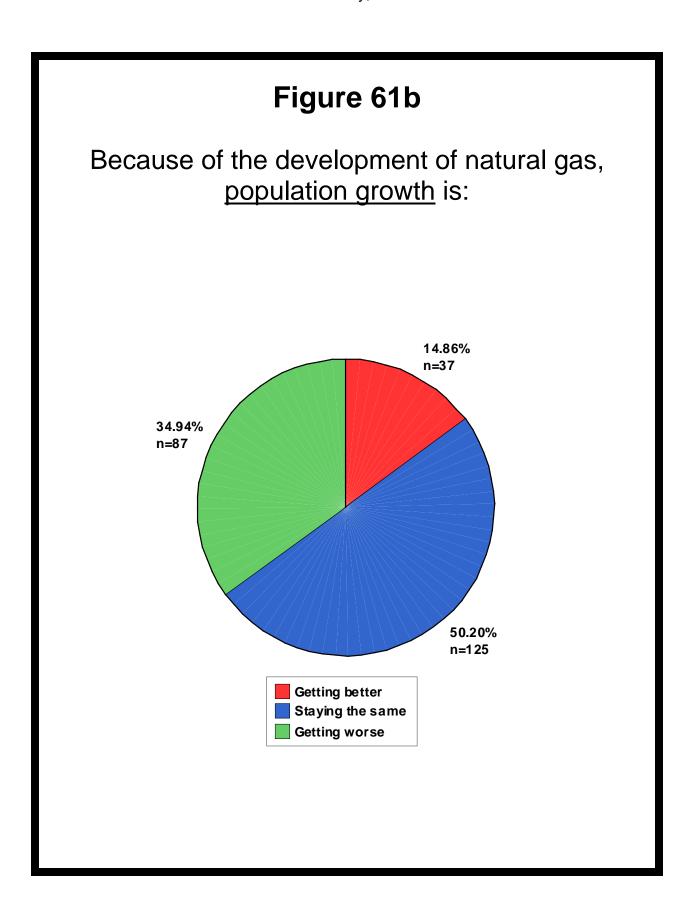
<u>Issue:</u> Population growth (n = 270)

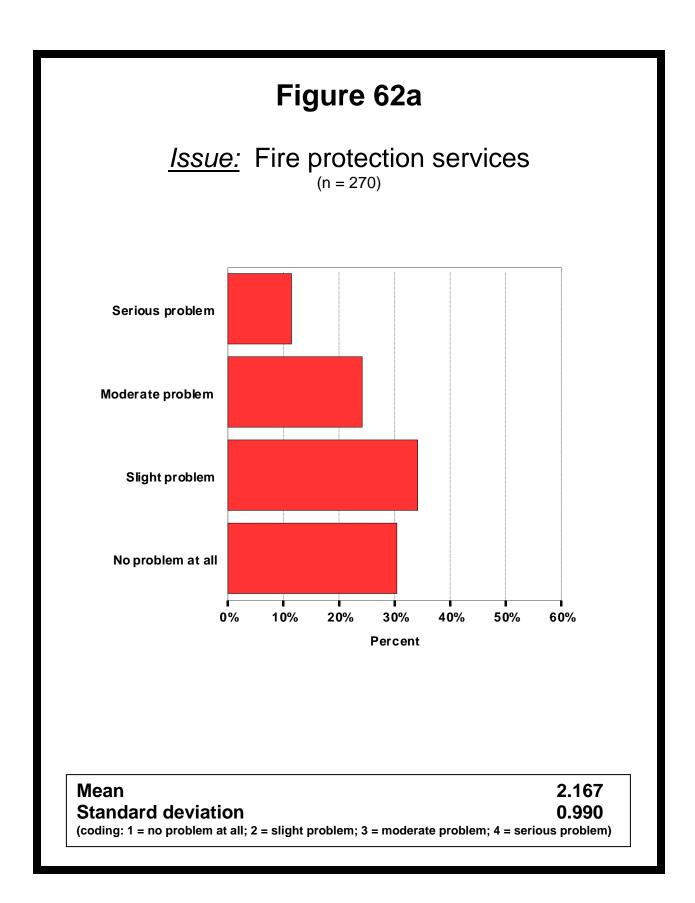


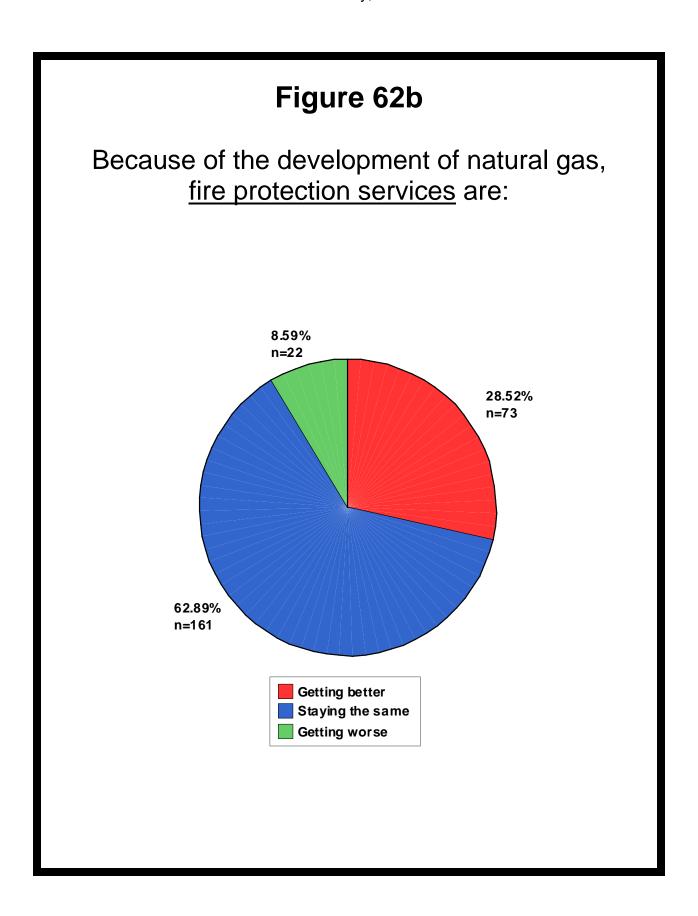


Mean Standard deviation 2.181

1.070

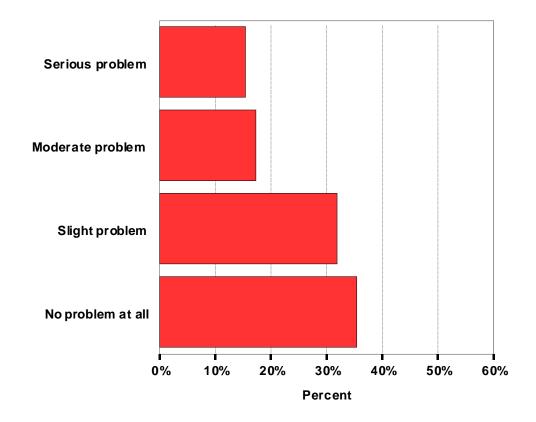




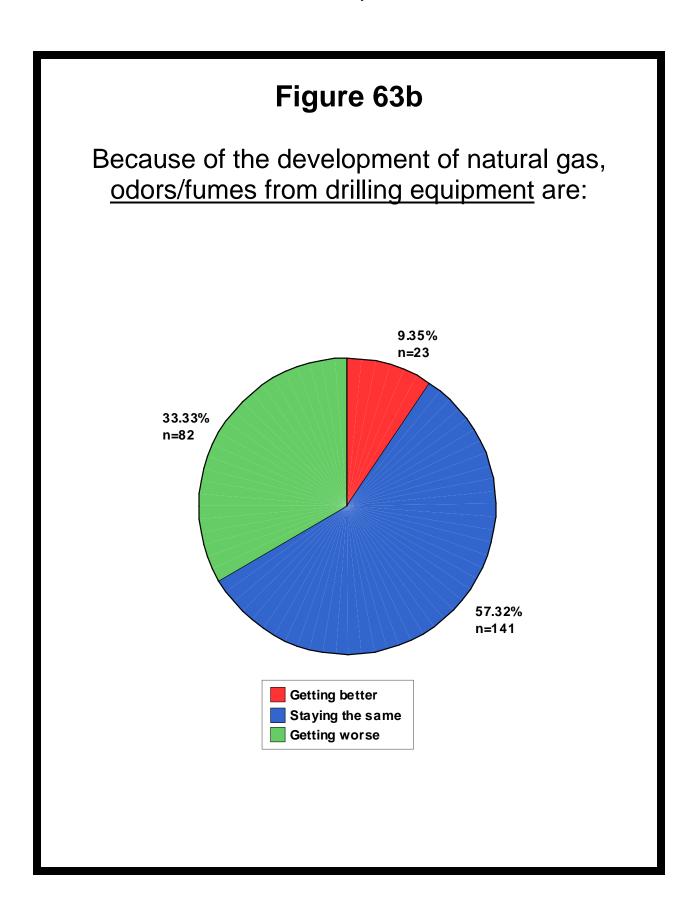




<u>Issue:</u> Odors/fumes from drilling equipment

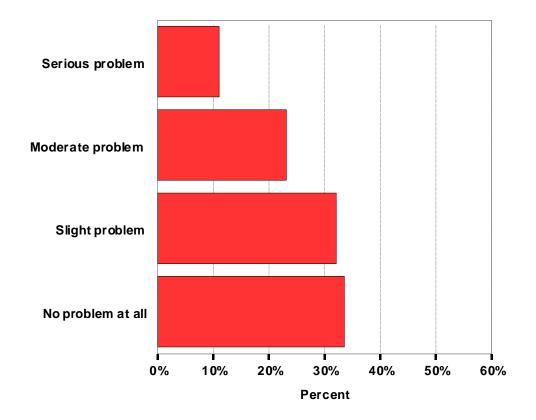


Mean2.128Standard deviation1.063





<u>Issue:</u> Medical and health care services

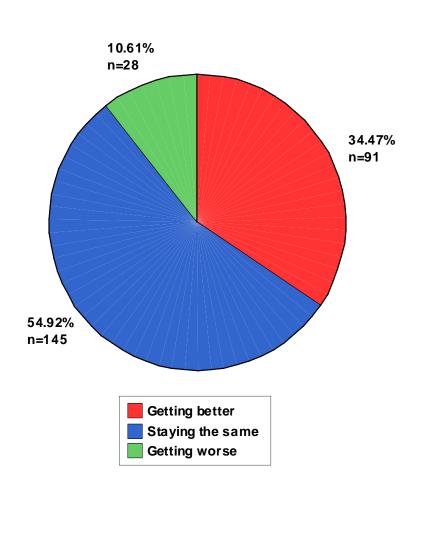


Mean Standard deviation 2.118

1.000

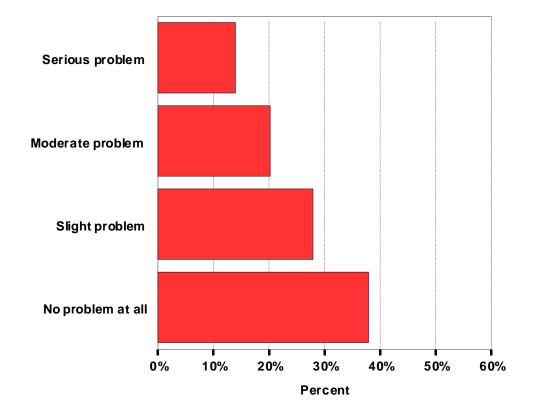
Figure 64b

Because of the development of natural gas, medical and health care services are:





<u>Issue:</u> Light from gas drilling operations

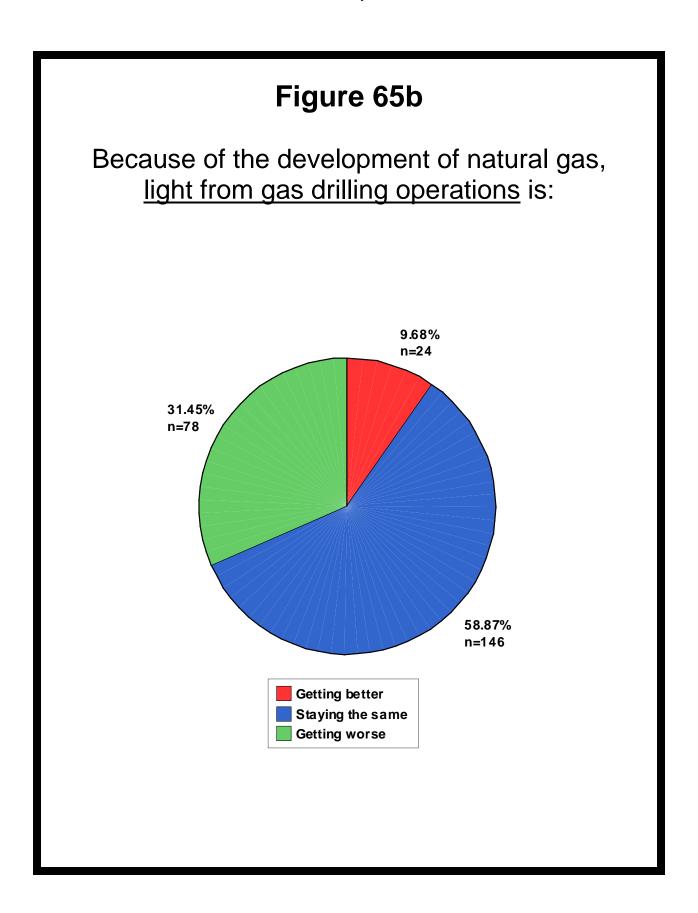


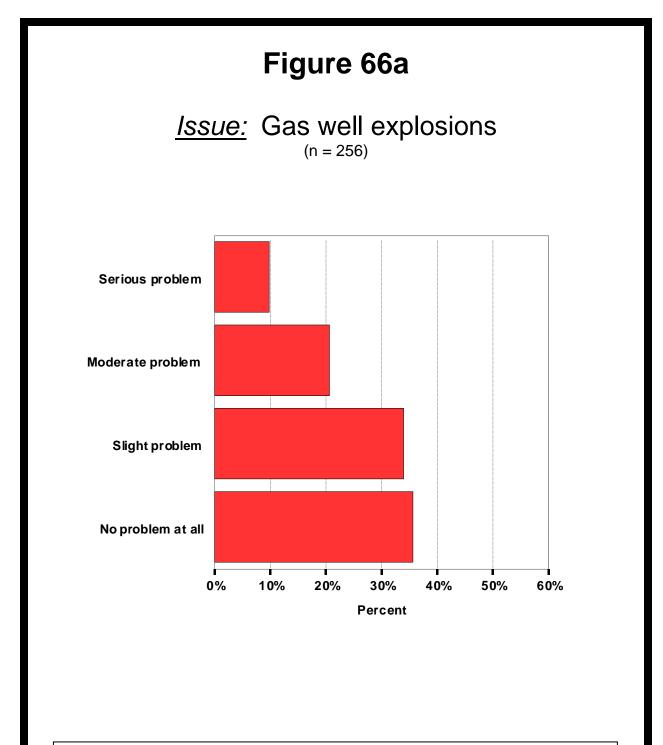
Mean Standard deviation

(coding: 1 = no problem at all; 2 = slight problem; 3 = moderate problem; 4 = serious problem)

2.102

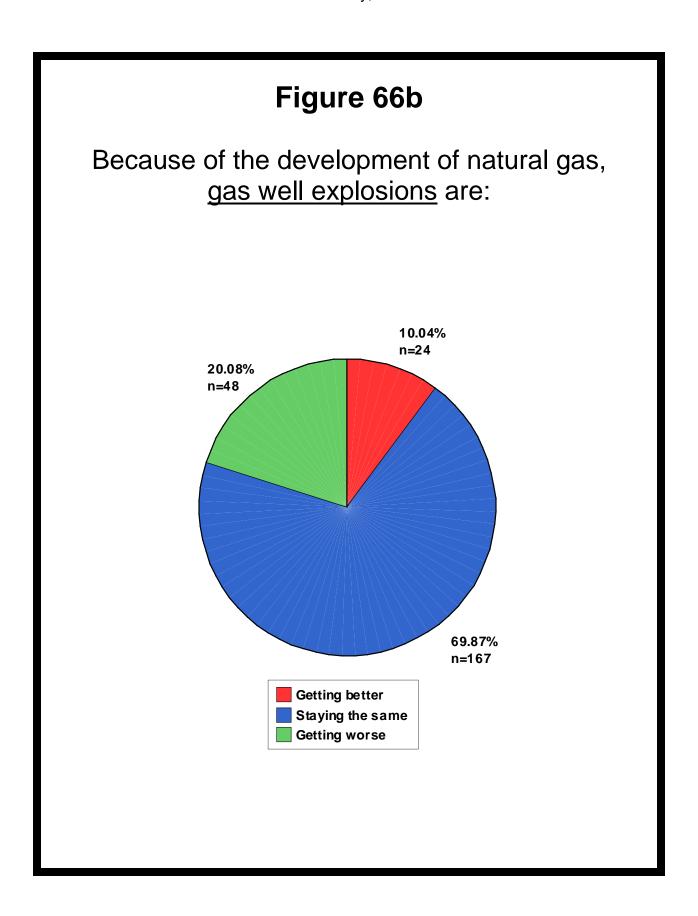
1.064

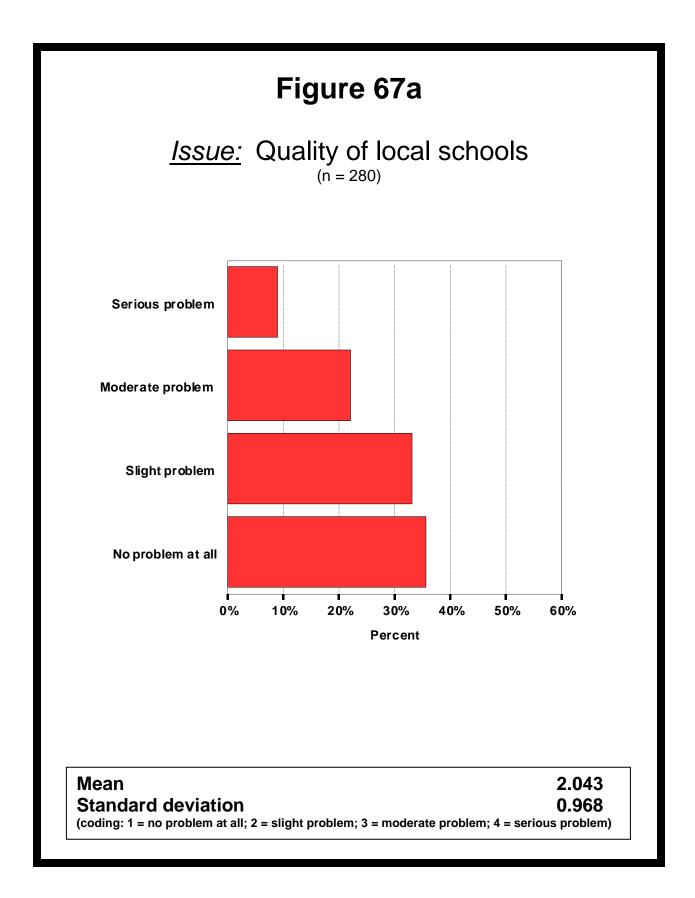


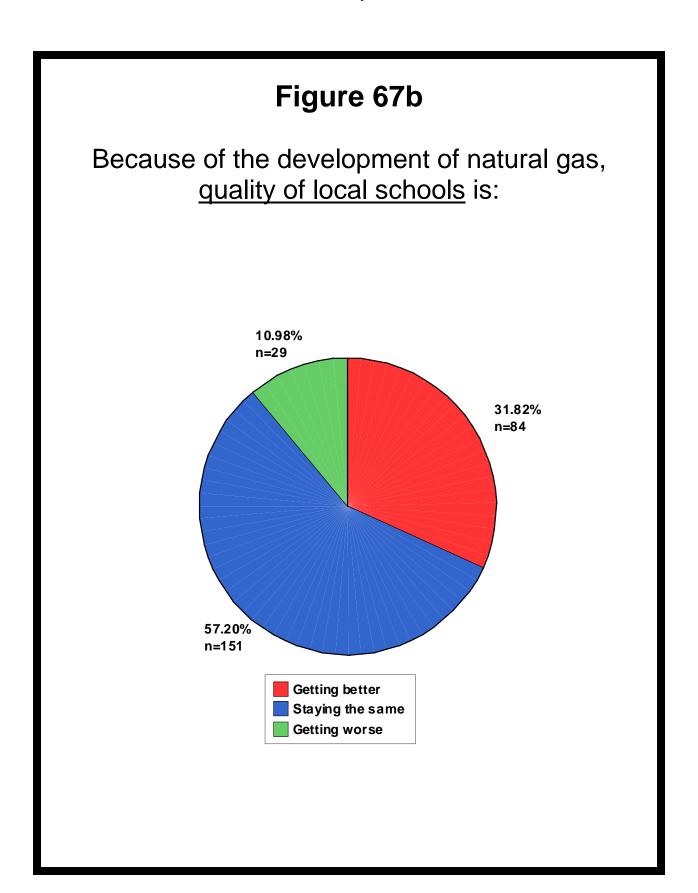


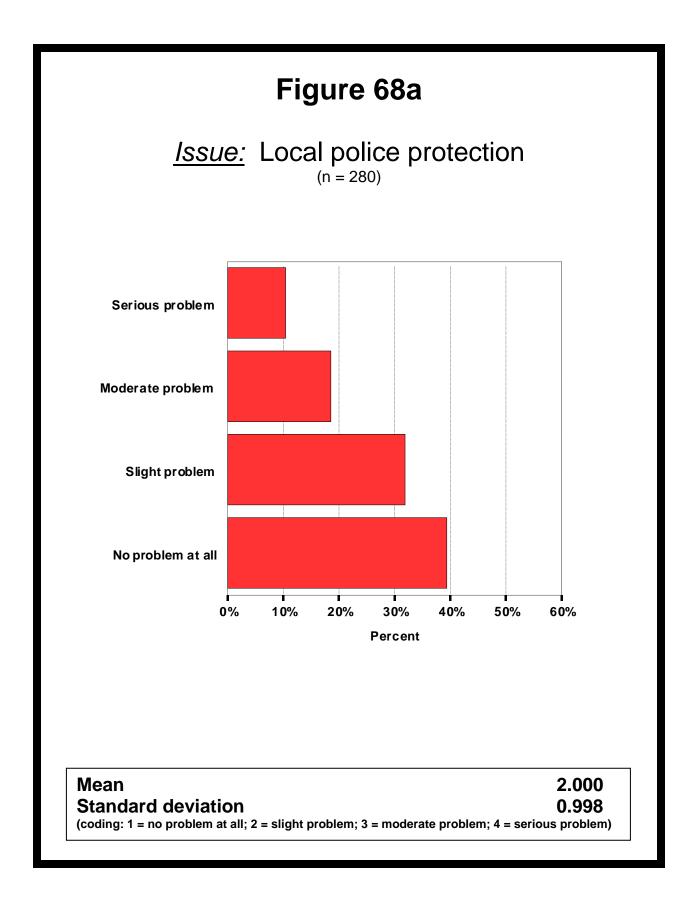
Mean

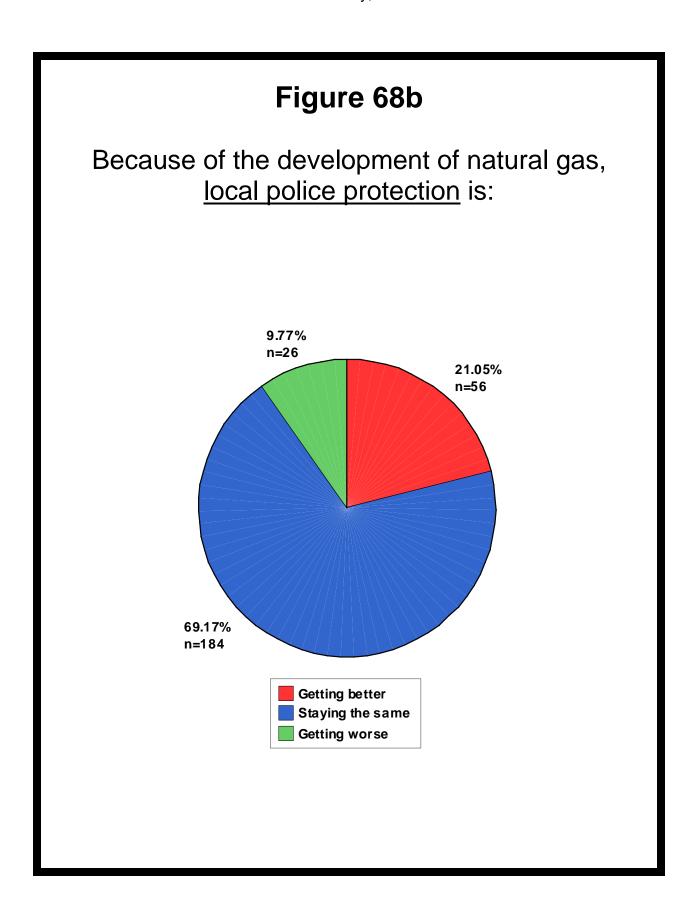
Standard deviation
(coding: 1 = no problem at all; 2 = slight problem; 3 = moderate problem; 4 = serious problem)





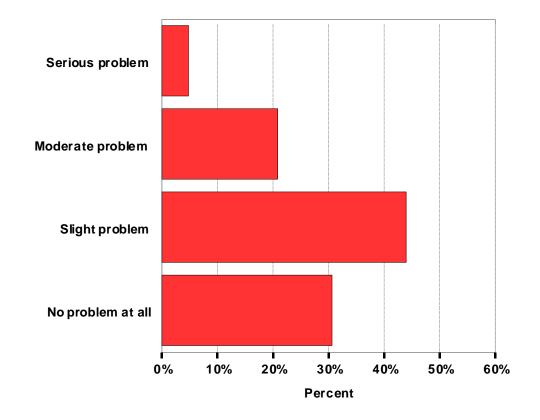






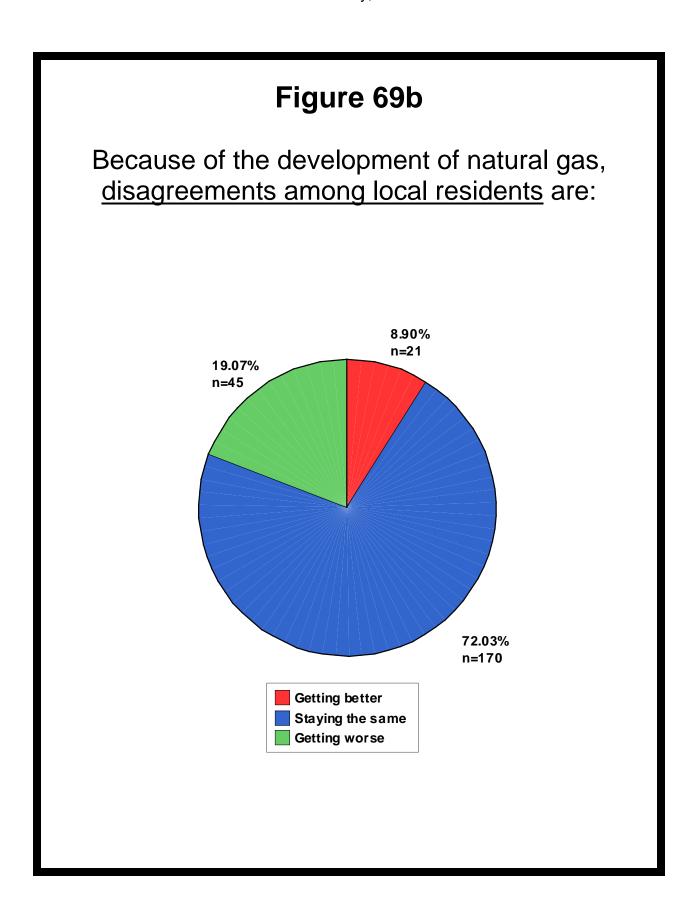


Issue: Disagreements among local residents (n = 255)



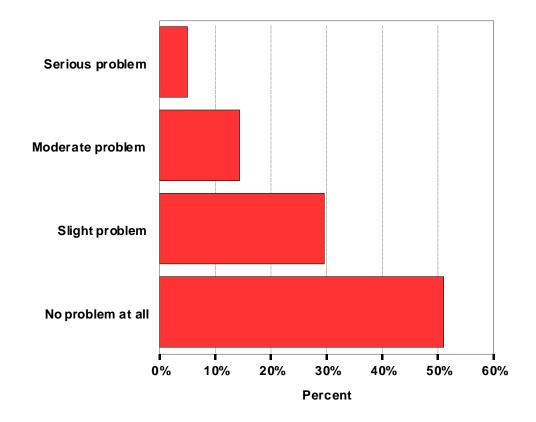
Mean Standard deviation 1.996

0.839





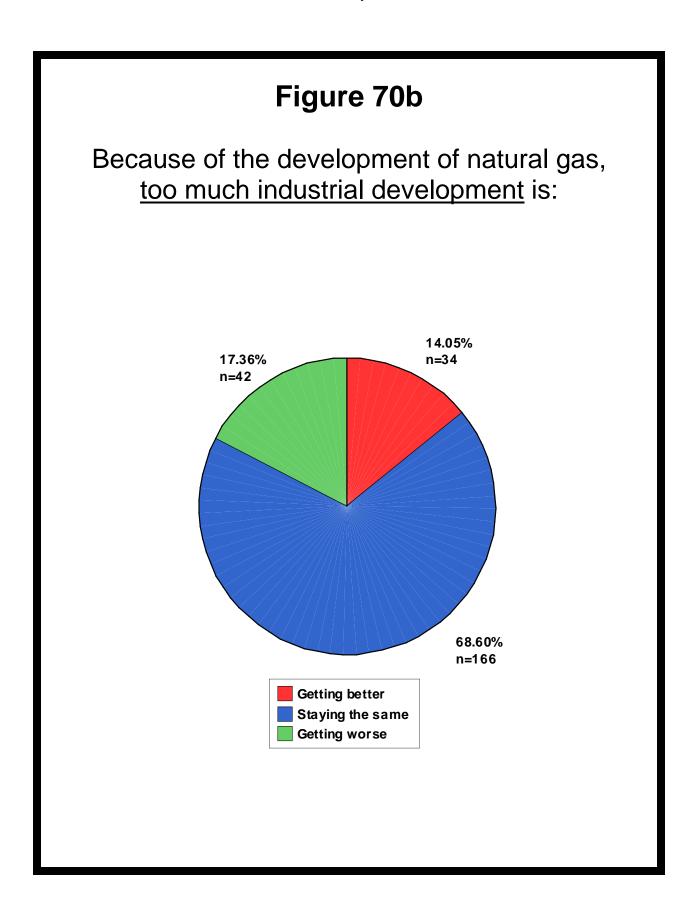
Issue: Too much industrial development (n = 263)



Mean Standard deviation 1.734

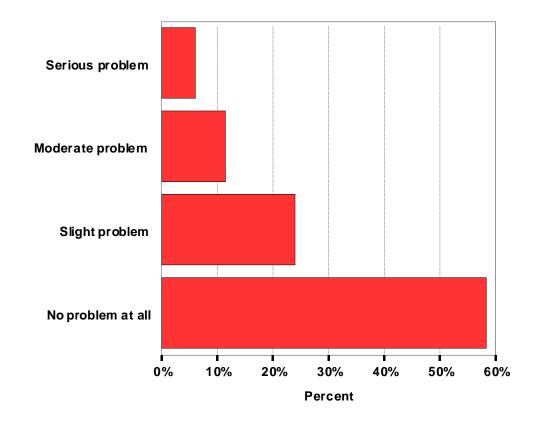
0.885

(coding: 1 = no problem at all; 2 = slight problem; 3 = moderate problem; 4 = serious problem)





Issue: Too much commercial development (n = 263)



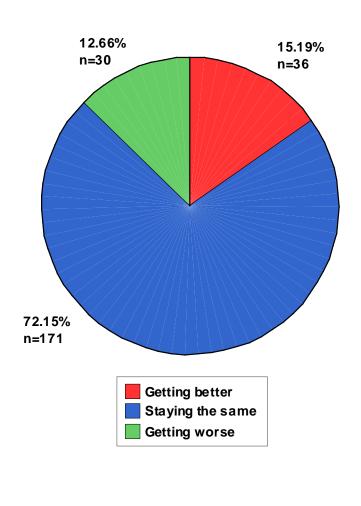
Mean Standard deviation 1.653

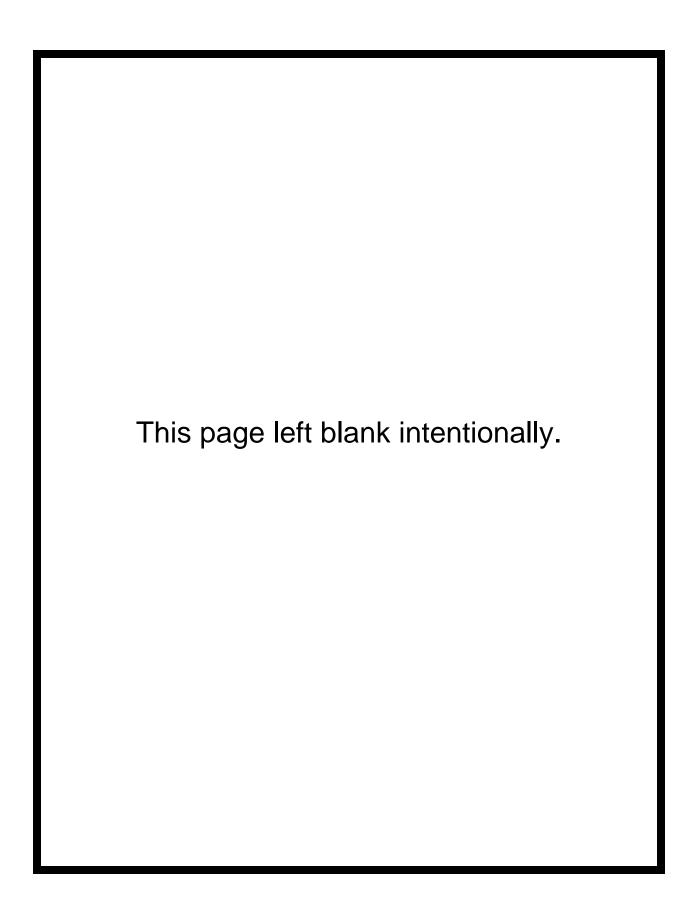
0.908

(coding: 1 = no problem at all; 2 = slight problem; 3 = moderate problem; 4 = serious problem)



Because of the development of natural gas, too much commercial development is:





Section V

Actions Which May or May Not Have Been Taken in Response to the Exploration and Production of Natural Gas in Wise County

This section deals with eight actions which residents may or may not have taken in response to exploration and production of natural gas in Wise County. Survey respondents were asked to indicate whether or not they had engaged in such actions. Respondents were then asked to indicate their likelihood of engaging in such actions in the future. The results are summarized below.

Figures 72a through 79a illustrate the extent to which respondents had engaged in such actions. Figures 72b to 79b illustrate the likelihood of engaging in such actions in the future.

Figure 72a

Action: Attended a meeting to get information and learn more about the drilling and production of natural gas

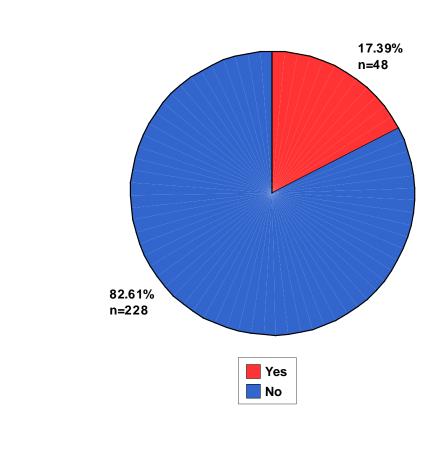


Figure 72b

<u>Likelihood in the future:</u> To attend a meeting to get information and learn more about the drilling and production of natural gas

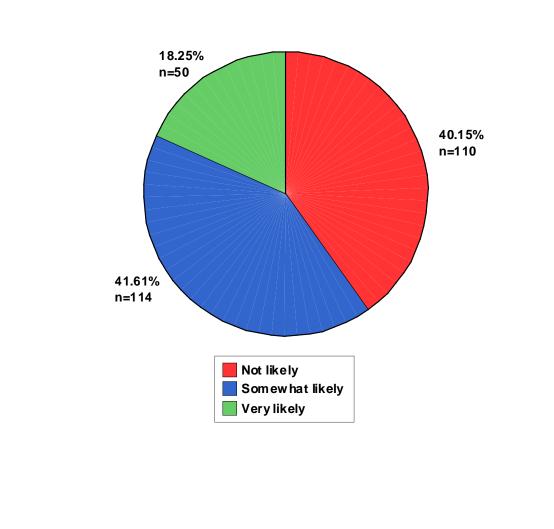


Figure 73a

Action: Contacted a local elected official or governmental agency to complain about a natural gas drilling and/or production issue

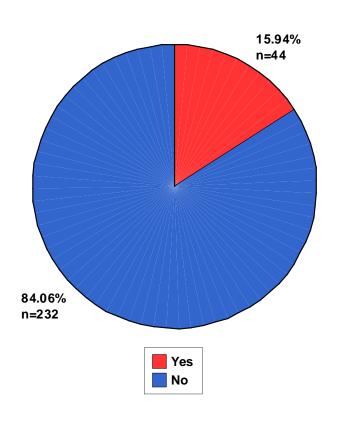


Figure 73b

<u>Likelihood in the future:</u> To contact a local elected official or governmental agency to complain about a natural gas drilling and/or production issue

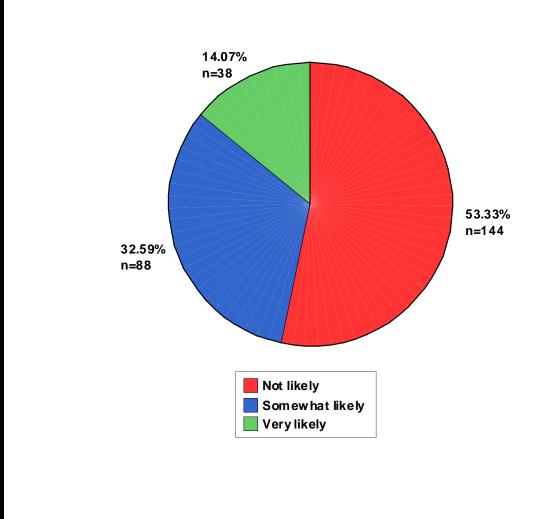
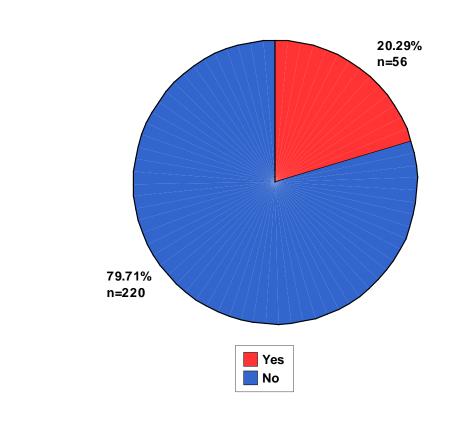
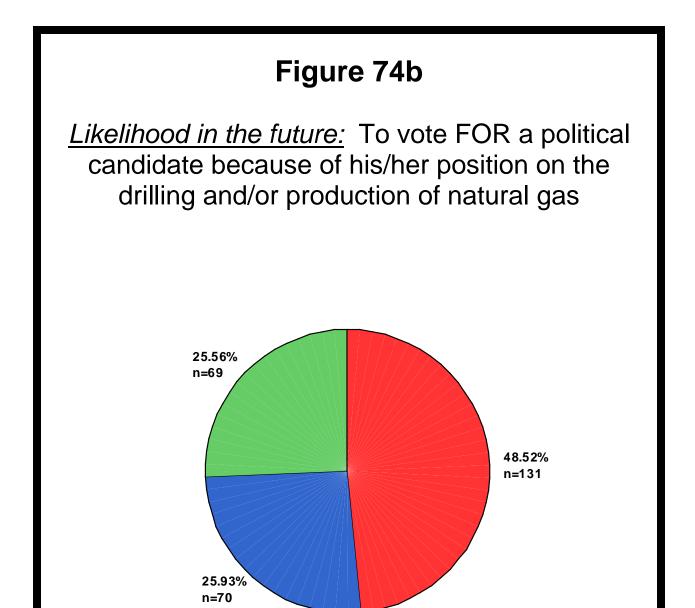


Figure 74a

Action: Voted FOR a political candidate because of his/her position on the drilling and/or production of natural gas





Not likely

Very likely

Som ew hat likely

Figure 75a

Action: Voted AGAINST a political candidate because of his/her position on the drilling and/or production of natural gas

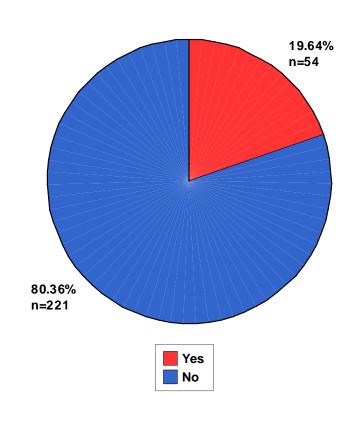


Figure 75b

<u>Likelihood in the future:</u> To vote AGAINST a political candidate because of his/her position on the drilling and/or production of natural gas

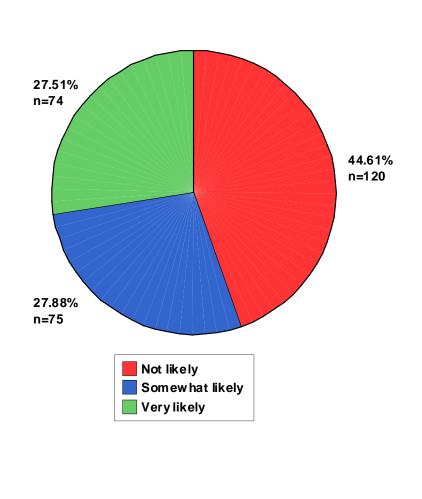


Figure 76a

Action: Attended a gas industry-sponsored meeting to get information and learn more about leasing options

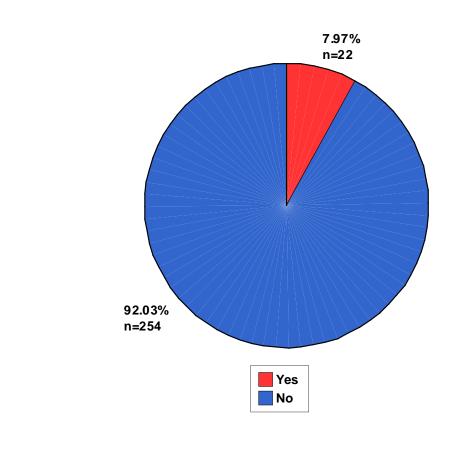


Figure 76b

<u>Likelihood in the future:</u> To attend a gas industry-sponsored meeting to get information and learn more about leasing options

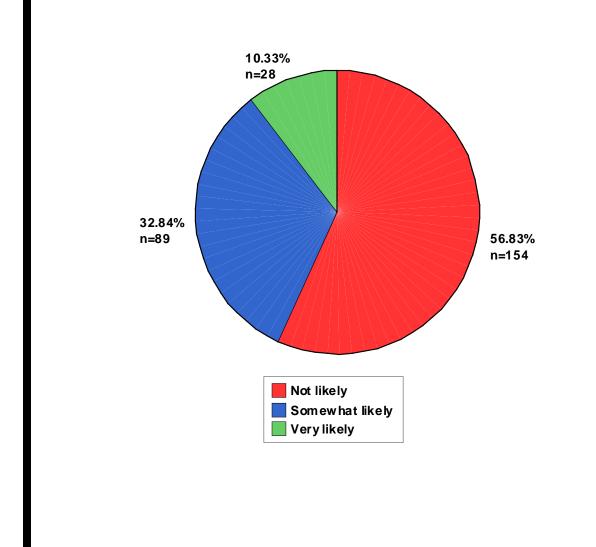
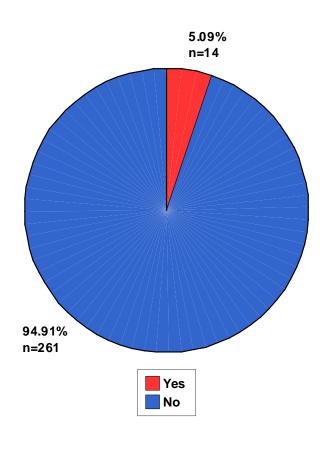


Figure 77a

Action: Attended a public meeting to OPPOSE the continued exploration and production of natural gas



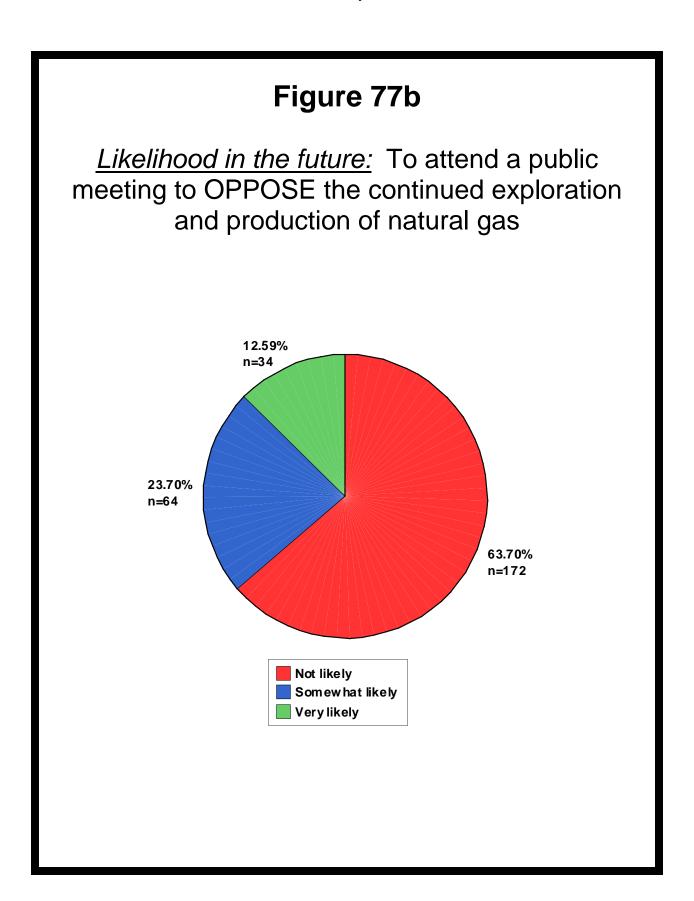


Figure 78a

Action: Attended a public meeting to SUPPORT the continued exploration and production of natural gas

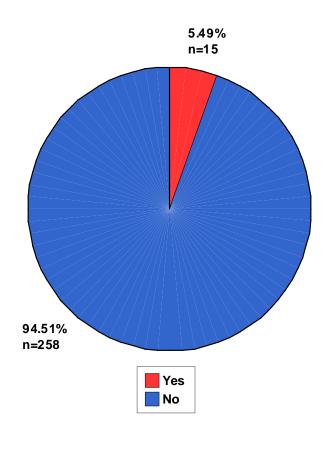


Figure 78b

<u>Likelihood in the future:</u> To attend a public meeting to SUPPORT the continued exploration and production of natural gas

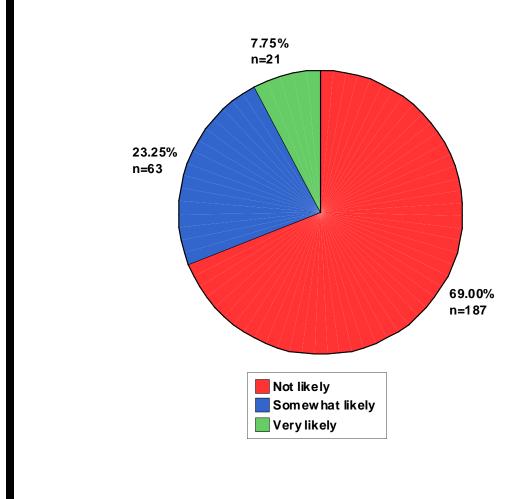
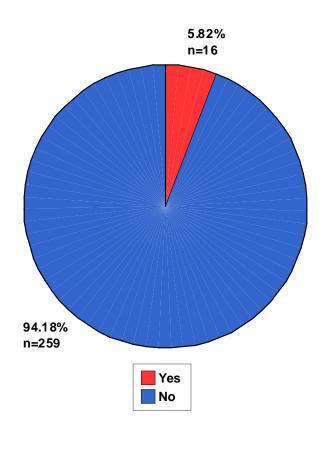
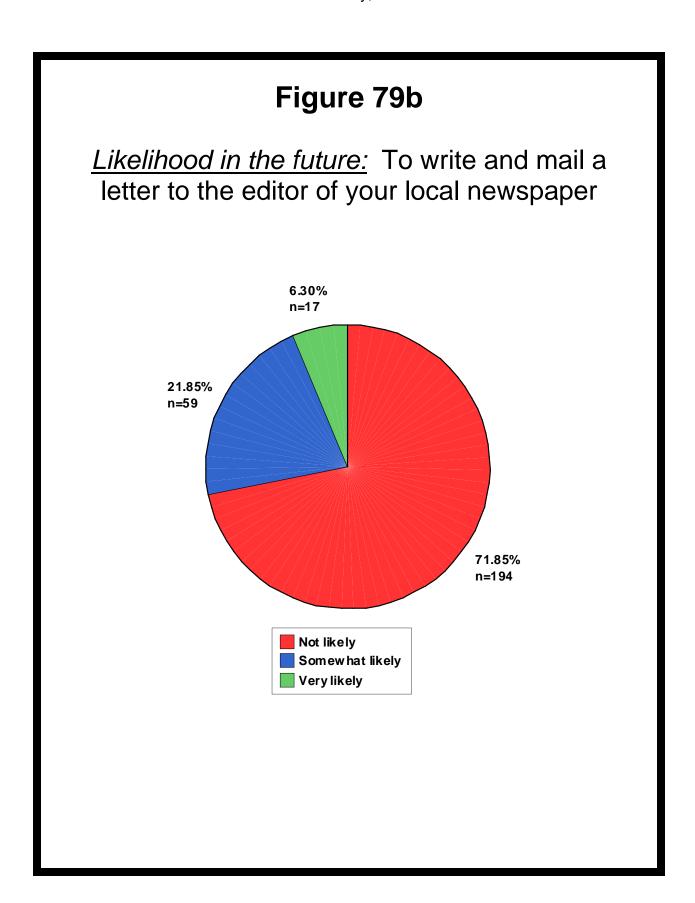


Figure 79a

Action: Wrote and mailed a letter to the editor of your local newspaper





Section VI

Desalination of water

Desalination is a process by which salt and other contaminants are removed from the water produced in gas and oil operations. With desalination technology, such water is treated and purified, in turn, creating a beneficial freshwater resource that can be used in many different ways.

Figures 80 through 82 and Tables 1 and 2 summarize respondents' level of familiarity with desalination and their attitudes toward the process.

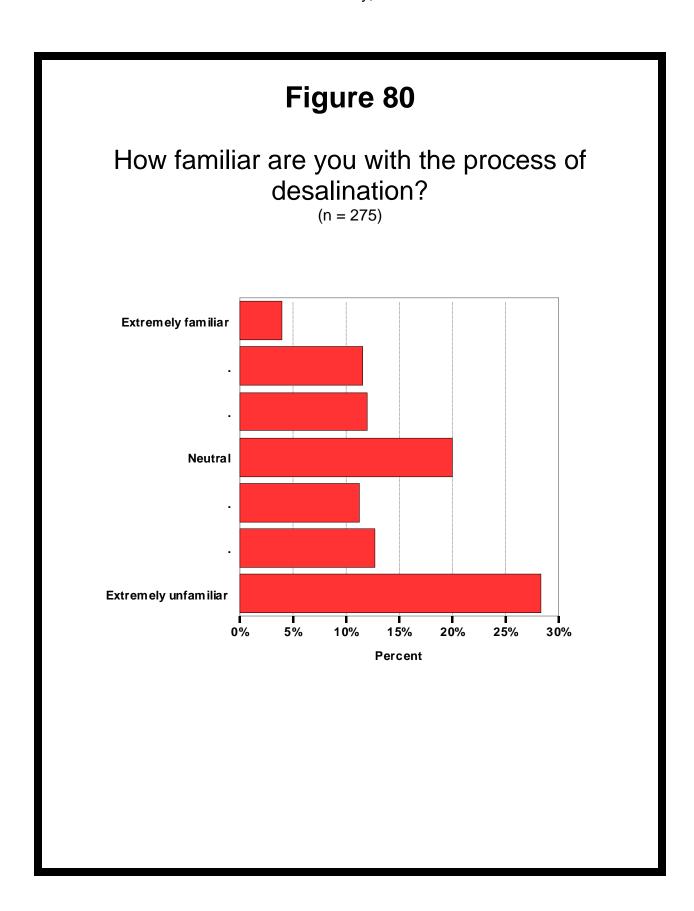


Table 1

A ranking of ways desalinated water from gas and oil field operations might safely be used

Ways desalinated water could be safely used:	Yes	No
Re-use by gas and oil industry operators (n = 269)	94.8%	5.2%
Industrial use (e.g., manufacturing, etc.) (n = 268)	90.3%	9.7%
Municipal uses (e.g., watering golf courses and city	74.00/	20.40/
parks, etc.) (n = 266)	71.9%	28.1%
Home irrigation purposes (e.g., watering lawns and	0.4.007	0= 00/
shrubs, etc.) (n = 268)	64.2%	35.8%
Irrigation of farmland and/or rangeland (n = 266)	62.0%	38.0%
Maintenance of stream flows/reservoir levels (n = 263)	37.6%	62.4%
Watering of livestock (n = 263)	37.3%	62.7%
Aquifer recharge (n = 253)	31.6%	68.4%
People's drinking water (n = 262)	16.0%	84.0%

Figure 81

What is your level of confidence that desalinated water from gas and oil field operations could meet HUMAN DRINKING WATER quality and purity standards?

(n = 278)

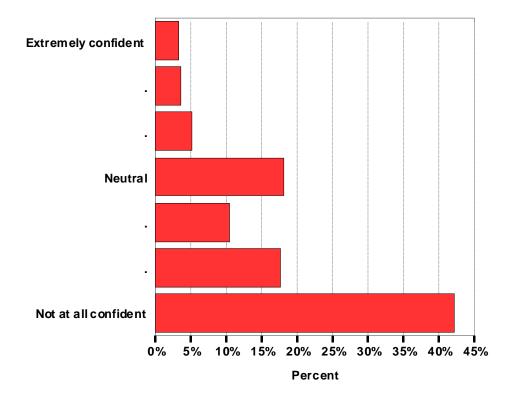


Figure 82

Should industry operators be required to desalinate water produced in the drilling and production of oil and natural gas?

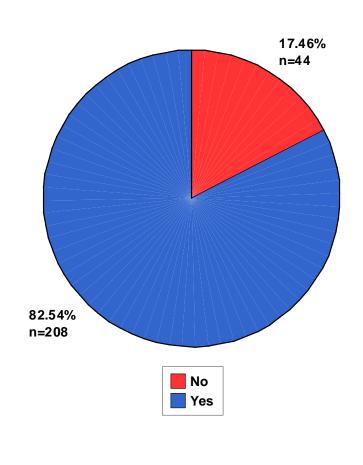


Table 2

A ranking of who might be likely to buy desalinated water if available for purchase

Who might be likely to buy desalinated water:	Yes	No
Industrial users (n = 273)	82.4%	17.6%
Farmers (n = 273)	47.3%	52.7%
Developers (n = 273)	41.4%	58.6%
Business owners (n = 273)	36.3%	63.7%
Ranchers (n = 273)	35.9%	64.1%
Municipal water systems (n = 273)	26.4%	73.6%
Rural water systems (n = 273)	19.0%	81.0%
Home owners (n = 273)	13.6%	86.4%
People like me (n = 273)	12.1%	87.9%

Section VII

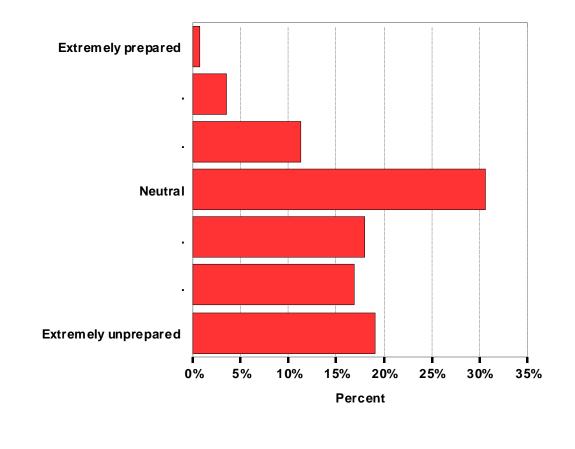
Preparedness of Local Leaders

This final item (Figure 83) deals with residents' perceptions of the preparedness of local leaders for the large-scale exploration and production of natural gas in Wise County.

Figure 83

How prepared, overall, do you think LOCAL LEADERS were for the large-scale exploration and production of natural gas in Wise County?

(n = 284)



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