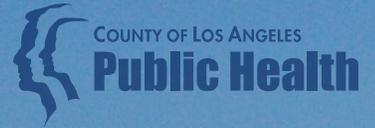




Aliso Canyon Disaster
Health Research Study



Aliso Canyon Disaster

Community Opinion Multimode Survey

March 2021

Table of Contents

| | |
|--------------------------------------------------|----|
| Background and Objectives..... | 3 |
| Methods..... | 3 |
| Sample Demographics and Characteristics..... | 4 |
| Results..... | 5 |
| Awareness of the Aliso Canyon Blowout..... | 5 |
| Impacts of the Aliso Canyon Blowout..... | 5 |
| Health Symptoms..... | 8 |
| Concern about Future Health and Safety..... | 9 |
| Aliso Canyon Disaster Health Research Study..... | 11 |
| Conclusions..... | 13 |

Background and Objectives

On October 23, 2015, the largest gas blowout in the history of the United States began at the Southern California Gas (SoCal Gas) Company's Aliso Canyon gas storage facility. An estimated total of 109,000 metric tons of methane flowed uncontrolled from Aliso Canyon Well SS-25. After seven failed attempts, the blowout was stopped on February 12 and the well was sealed on February 15, 2016.

In nearby communities, residents experienced foul odors, oily mists, and a range of health symptoms presumed to have been caused in part by natural gas sulfur odorants. The Los Angeles County Department of Public Health (Public Health) directed the temporary relocation of over 8,000 households in an effort to offer residents relief from odors and symptoms. After Well SS-25 was sealed and outdoor air contaminants returned to background levels, symptoms persisted, and residents expressed concerns about long-term health impacts. For this reason, Public Health identified the need for a health study.

On August 8, 2018, California Attorney General Xavier Becerra, along with the California Air Resources Board, Los Angeles City Attorney Mike Feuer, and the County of Los Angeles secured a \$119.5 million settlement with Southern California Gas Company over the disaster. As part of this settlement, \$25 million was secured for a long-term study of health impacts in communities affected by the Aliso Canyon blowout.

This community opinion survey was conducted to gain a broader understanding of: community concerns, perceptions, and attitudes regarding the Aliso Canyon blowout and impacts on health; and community priorities for the Aliso Canyon Disaster Health Research Study to inform the Study goals.

Methods

From Wednesday, September 23, 2020 to Sunday September 27, 2020, [Probolsky Research](#), an independent research firm, conducted a live-interviewer and online (multimode) survey among residents who live in a geographic sub-set of Los Angeles County. A total of 400 residents were surveyed (133 by telephone and 267 online) yielding a margin of error of +/- 5% with a confidence level of 95%. The geographical sampling frame and proportion of respondents surveyed from three geographic areas outlined below was determined by Aliso Canyon Disaster Health Research Study Community Advisory Group (CAG) members. The multimode survey sample was developed from consumer data and stratified randomly to ensure that the demographic proportions of survey respondents match the demographic composition of area residents.

This survey had a response rate of 20%. Interviews were conducted with respondents on both landline (39%) and mobile phones (61%) and were offered in English (90%) and Spanish (10%) languages. Online survey respondents were invited to participate via email (50%) and text message (50%). Security measures precluded individuals from completing the survey more than once and allowed only the designated respondents to complete the survey. Online respondents were able to use their computer, tablet, or smart phone.

The survey questions were developed with input from the Los Angeles County Department of Public Health and CAG members.

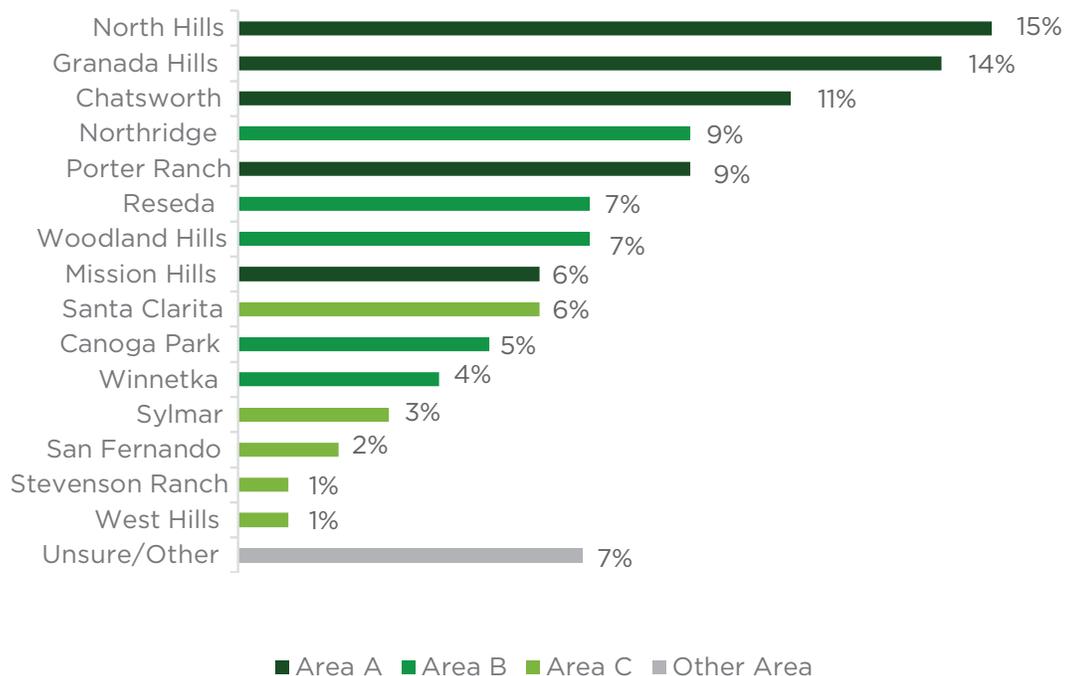
Sample Demographics and Characteristics

Of the 400 survey respondents, 44% identified their gender as male, 52% as female, and 4% either as trans male/man, trans female/woman, gender non-conforming or other. The survey sample consisted mostly of Latino/Hispanic (40%) or White/Caucasian (44%) respondents, with the remainder identifying as Asian (9%) or other (7%). Roughly equal proportions were sampled from the following age brackets: 18-24 (16%), 25-34 (18%), 35-44 (16%), 45-54 (17%), 55-64 (15%), 65+ (18%). The majority of respondents had either a bachelor's degree (35%) or a postgraduate education (18%) and had a household income of either \$75,000- \$99,999 (17%) or \$100,000 or more (33%).

Respondents were chosen from a broad geographical area determined by members of the CAG. Approximately half (54%) were sampled from neighborhoods closest to the Aliso Canyon gas storage facility (area A), including Porter Ranch, Granada Hills, North Hills, Mission Hills and Chatsworth. One third (32%) were chosen from neighborhoods that were more distant from the facility (area B), including Northridge, Reseda, Woodland Hills, Canoga Park, and Winnetka, and the remainder (13%) from neighborhoods furthest from the facility (area C), included Stevenson Ranch, Santa Clarita, Sylmar, San Fernando, and West Hills. The large majority (92%) of survey respondents were not relocated during the gas blowout.

Results of the survey are stratified by location of primary residence during the Aliso Canyon blowout (geographic areas A, B, and C) and by awareness of the blowout (aware, unaware). Both variables were identified by the CAG as important characteristics that could offer a more in-depth understanding of the survey results.

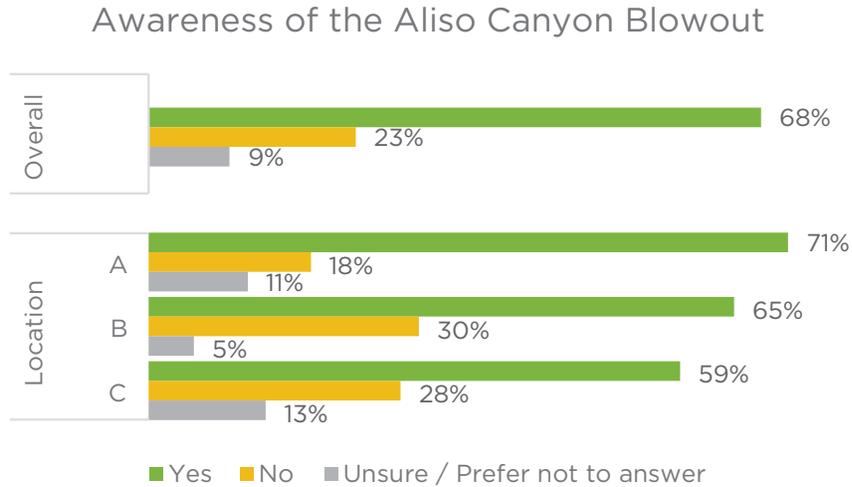
Primary Residence During the Aliso Canyon Blowout



Results

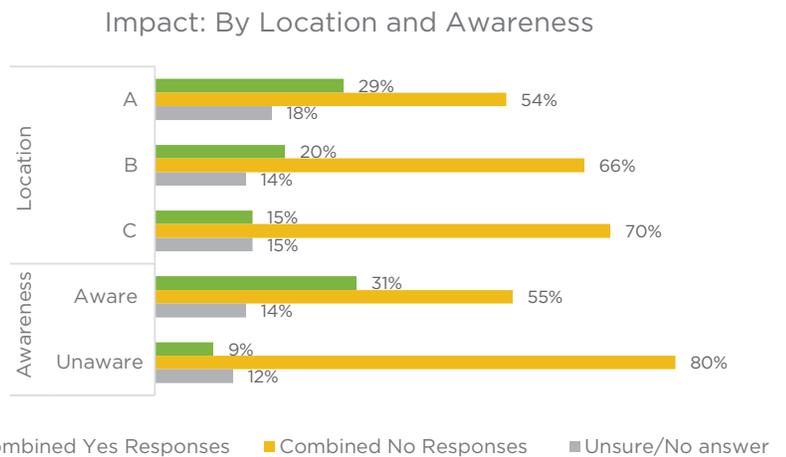
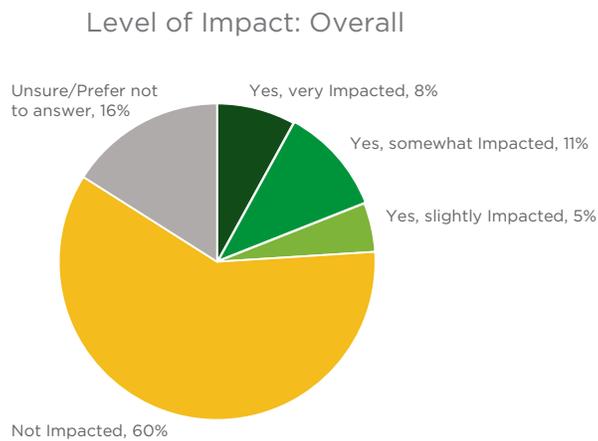
Awareness of the Aliso Canyon Blowout

Q: Are you aware of the Aliso Canyon Blowout that happened over the course of 4 months from October 2015 to February 2016?



Impacts of the Aliso Canyon Blowout and Gas Storage Facility

Q: Would you say that your daily life in your household was impacted by the Aliso Canyon gas blowout? And would you say that you were very, somewhat, or slightly impacted by the Aliso Canyon gas blowout?

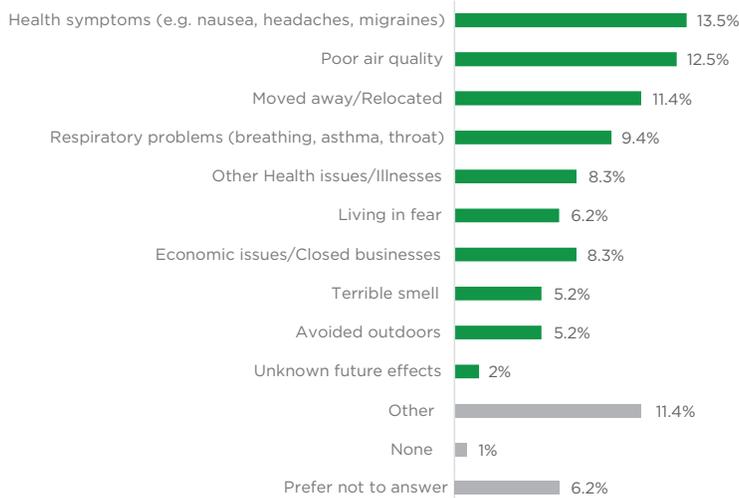


Q: Please describe how you and/or people in your household were impacted by the Aliso Canyon gas blowout. [The following percentages reflect a subset of respondents (24%, n=96) who responded "Yes" to the previous question.] The respondents provided the answers below.



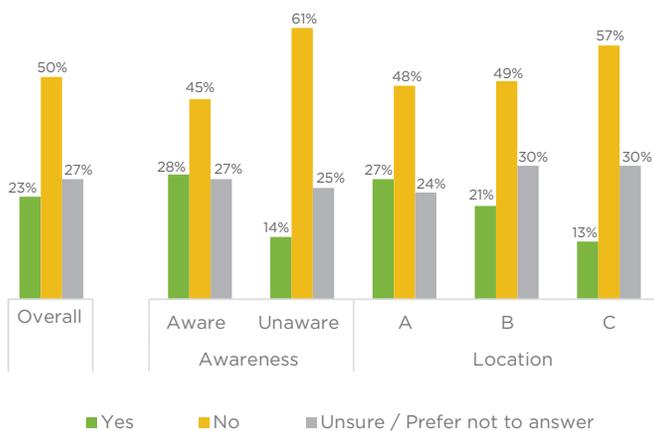
"I was pregnant and concerned about the health of my unborn child due to living in the area that was affected by the gas leak. It caused unnecessary stress."

Impacts of the Blowout



Q: Has your community as a whole been impacted by the Aliso Canyon gas blowout or gas storage facility?

Impact: Overall and by Awareness and Location

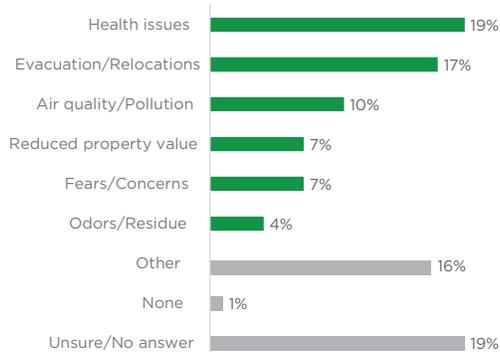


Q: How has your community as a whole been impacted by the Aliso Canyon gas blowout or Natural Gas Storage Facility? [The following percentages reflect a subset of respondents (23%, n=92) who responded "Yes" to the previous question.] The respondents provided the answers below.

"I've noticed many of my neighbors had migraines and complaints of breathing issues."

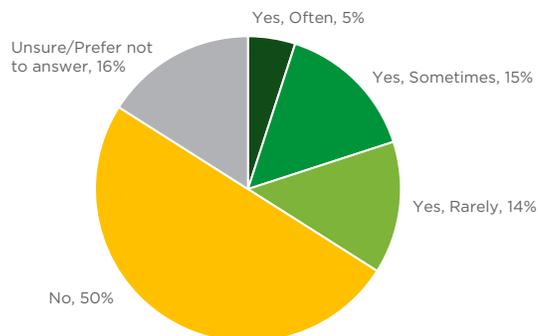


Types of Impacts Experienced

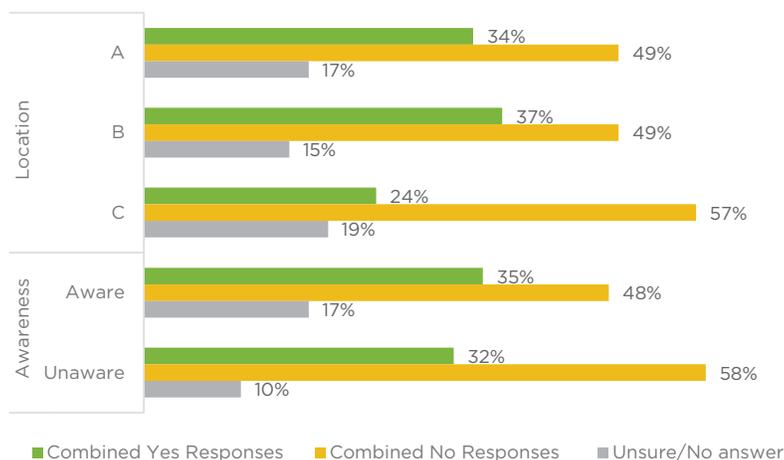


Q: Have you ever smelled gas-like odors outdoors at your home or in your neighborhood in the last year? If yes, how frequently?

Experience of Odors: Overall and Frequency

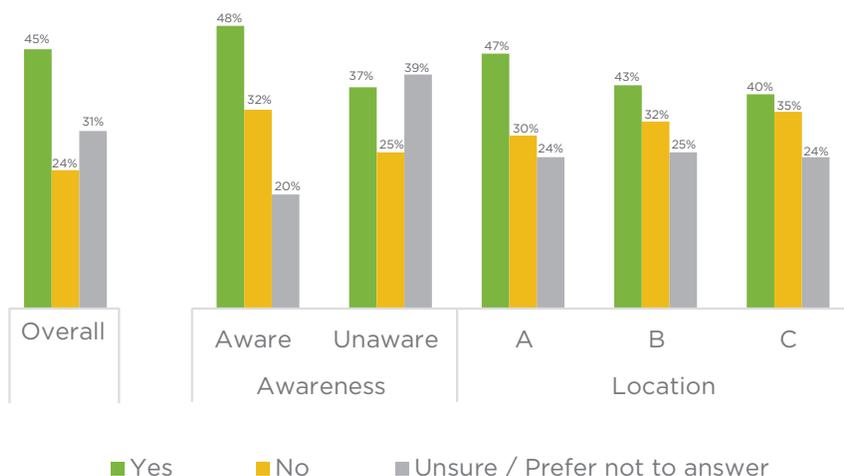


Experience of Odors: By Location and Awareness



Q: Do you think there are any long-term health effects to people in your community that may be caused by the Aliso Canyon gas blowout or Natural Gas Storage Facility?

Perceived Long-term Health Effects in the Community

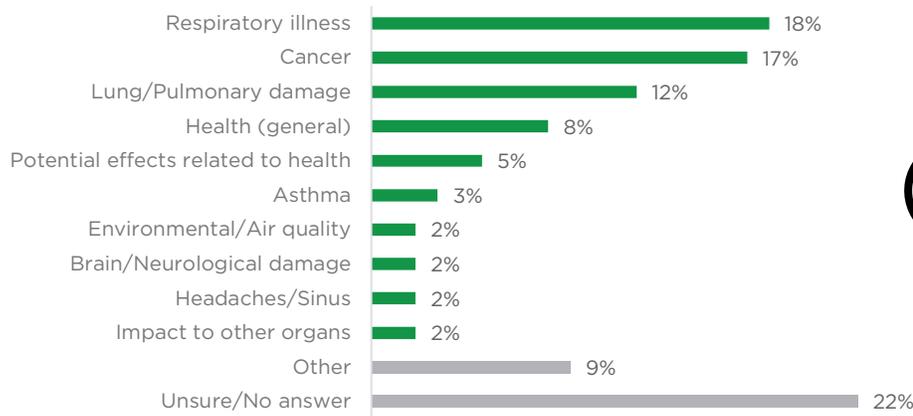


“Those who have immune compromised systems, the elderly or infants, seem to be the most impacted health wise.”



Q: What do you think the long-term health effects are or could be as a result of the Aliso Canyon gas blowout or Natural Gas Storage Facility? **[The following percentages reflect a subset of respondents (45%, n=180) who responded "Yes" to the previous question.]** The respondents provided the answers below.

Perceived Long-term Health Effects

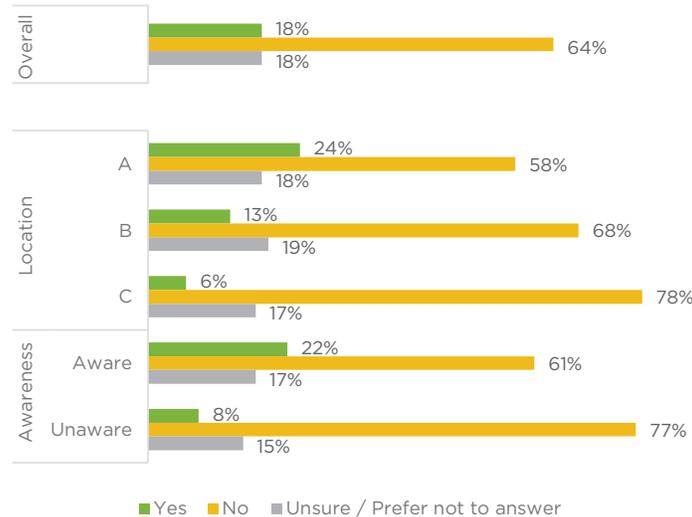


"I'm sure there are respiratory effects that could be long-term and any effects from the long-term inhalation of the gas."

Health Symptoms

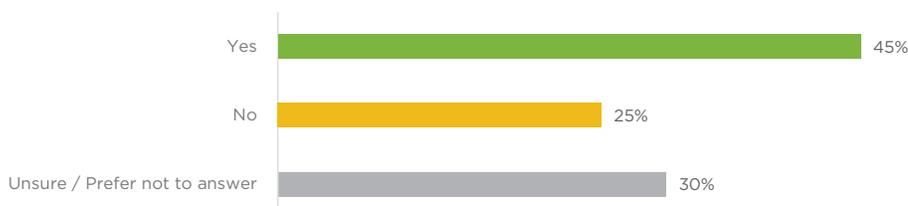
Q: Did you and/or anyone in your household experience physical health symptoms during and/or shortly after the October 2015 - February 2016 Aliso Canyon gas blowout?

Physical Symptoms: Overall and by Location and Awareness



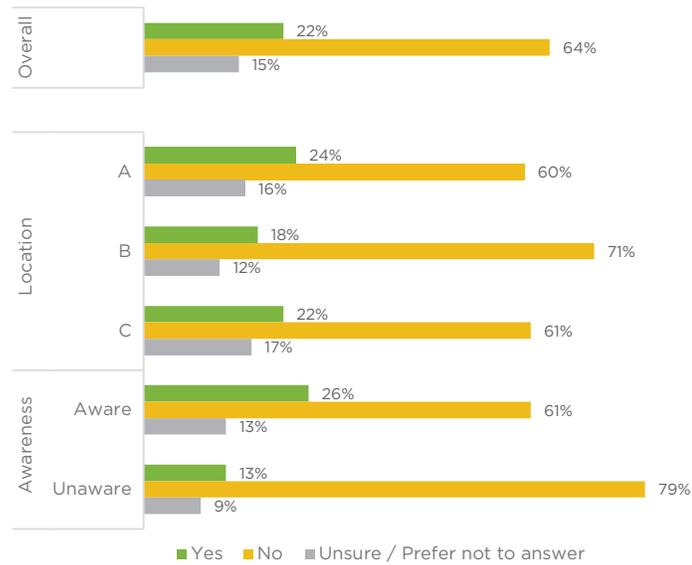
Q: Have you or anyone in your household experienced physical health symptoms in the last year that you believe are related to the Aliso Canyon gas blowout or Natural Gas Storage Facility? **[The following percentages reflect a subset of respondents (18%, n=72) who responded "Yes" to the previous question.]**

Physical Symptoms



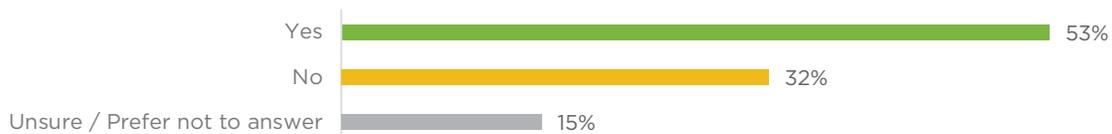
Q: Have you or anyone in your household experienced emotional health symptoms such as anger, anxiety, fear, or sadness during and/or shortly after the 2015-2016 Aliso Canyon gas blowout ?

Emotional Symptoms: Overall and by Location and Awareness



Q: Have you or anyone in your household experienced emotional health symptoms such as anger, anxiety, fear, or sadness in the last year that you believe are related to the Aliso Canyon blowout or Natural Gas Storage Facility? **[The following percentages reflect a subset of respondents (24%, n=96) who responded "Yes" to the previous question.]**

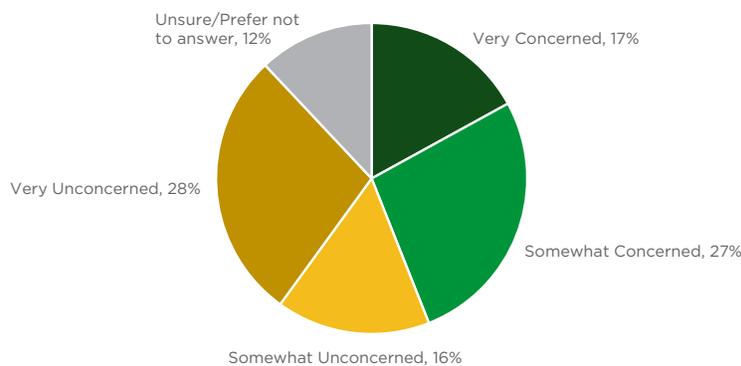
Emotional Symptoms



Concern about Future Health and Safety

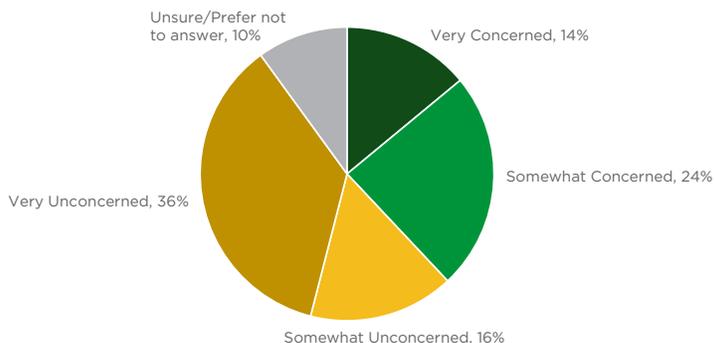
Q: Are you concerned about the future physical health of yourself and/or someone in your household in relation to the Aliso Canyon gas blowout or Natural Gas Storage Facility?

Concern about Future Physical Health



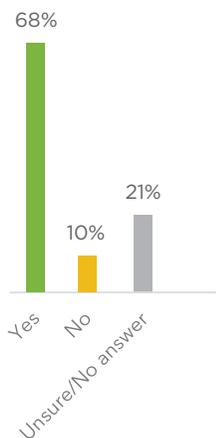
Q: Are you concerned about the future emotional health of yourself and/or someone in your household in relation to the Aliso Canyon gas blowout or Natural Gas Storage Facility?

Concern about Future Emotional Health

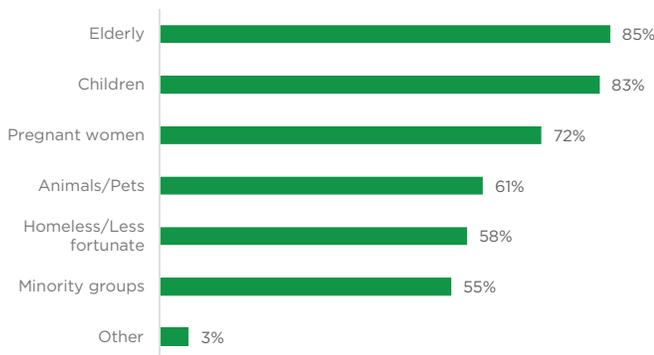


Q: Are you concerned about the future physical and emotional health of others in the community in relation to the Aliso Canyon gas blowout or Natural Gas Storage Facility? If yes, which community members are you concerned about? Respondents chose from the answers below.

Concern about Health of Community Members

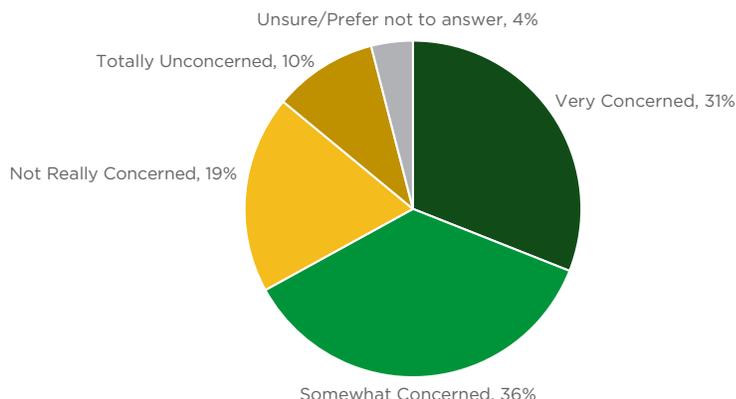


Community Groups of Concern



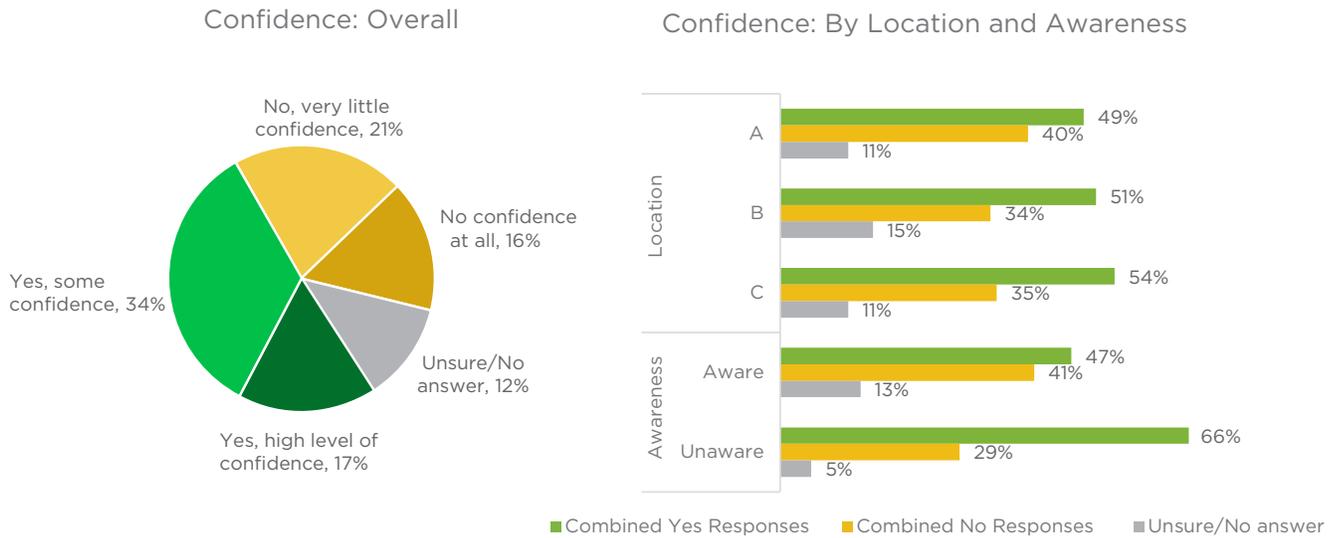
Q: Are you concerned that another gas blowout could occur in the future?

Concern about a Possible Future Gas Blowout



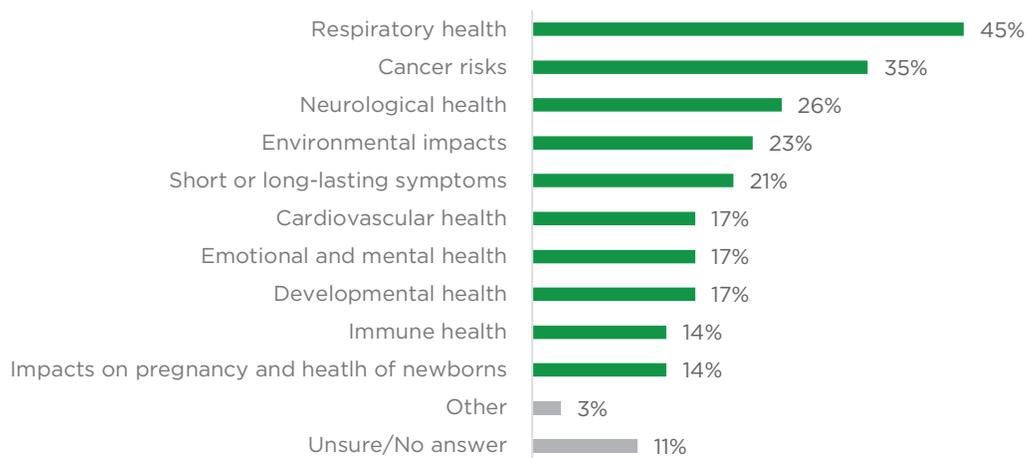
Aliso Canyon Disaster Health Research Study

Q: Do you have confidence that the LA County Department of Public Health can oversee a fair Health Research Study?



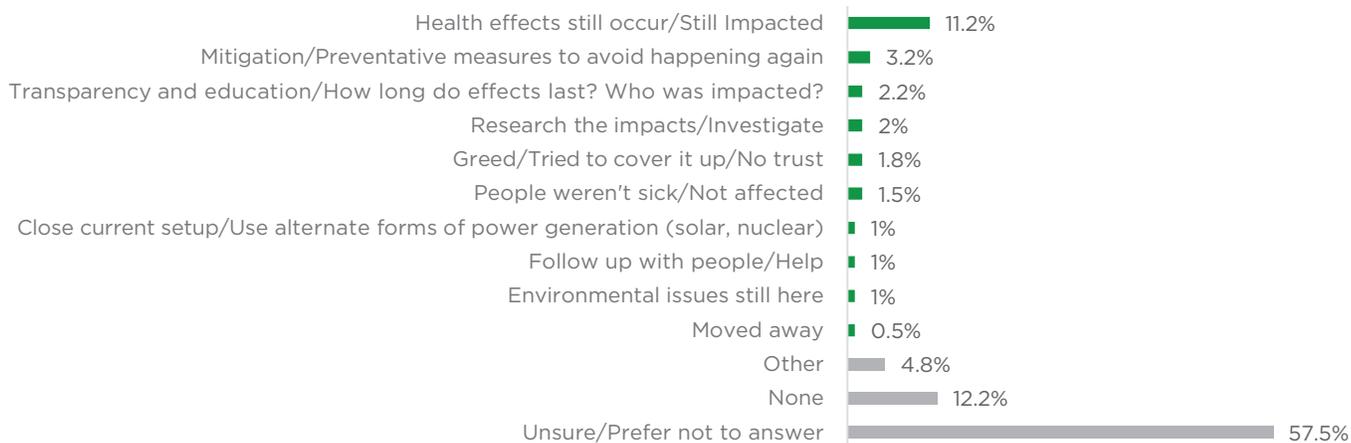
Q: What specific things about your family’s short-term and long-term health would you like the Health Research Study to look at and prioritize? Respondents chose from the answers below.

Priority Health Impacts for the Health Research Study



Q: What, if anything, do you want the Health Study researchers to know about the Aliso Canyon gas blowout and your health or the health of other members of your household? Respondents provided the answers below.

What Respondents want the Health Study Researchers to Know

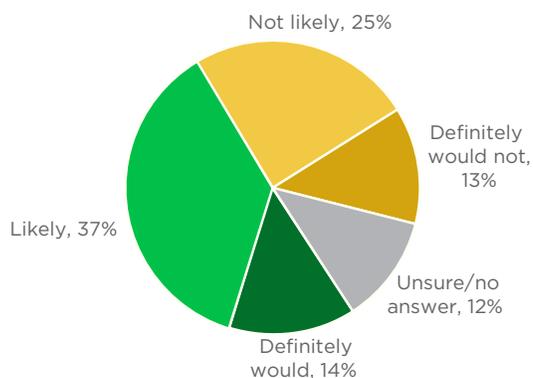


"I want them to know that the biggest concern that we have is the risk of this reoccurring, because it could be extremely dangerous to the thousands of residents here."



Q: Based on your current understanding of the Health Research Study, how likely would you be to participate in the study?

Participation Interest: Overall



Participation Interest: by Location and Awareness



Conclusion

Results of the community opinion survey indicate that residents of the North San Fernando Valley communities remain concerned about physical and emotional health due to the Aliso Canyon blowout and gas storage facility. Almost half (45%) of the respondents who reported physical symptoms during or shortly after the blowout also reported physical symptoms in the last year. The same was observed for emotional symptoms: approximately half (53%) of respondents who reported symptoms during or shortly after the blowout also reported symptoms in the last year. Respiratory illness and cancers are the top two health issues of concern and considered a priority for the Health Research Study.

The results also provide insight into how the blowout and gas storage facility affected the daily life of residents' households and communities. About one in four respondents felt that the blowout and facility impacted daily life in their household, or their community as a whole (24% and 23%, respectively). Residents most commonly reported health symptoms (such as nausea, headaches, migraines and respiratory symptoms), poor air quality, relocations, and fear as a result of the blowout or living near the facility. Additionally, two-thirds of respondents (67%) reported concern about the possibility of a future blowout.

Results of this survey and analysis should be interpreted in light of several limitations. For example, a significant amount of time has passed since the 2015-2016 blowout which could lead to errors in recall. Additionally, survey responses were self-reported which can introduce different types of bias. Finally, it is important to note that area A (Porter Ranch, Granada Hills, North Hills, Mission Hills, and Chatsworth) was oversampled and therefore the survey results reflect the concerns, attitudes, and perceptions of area A to a greater extent than the other geographic areas.

In conclusion, the survey results provide information on the experiences and concerns of those who reside near the gas storage facility, many of whom were directly impacted by the blowout disaster. The results will be used along with multiple other sources of information to help inform the planning of the Aliso Canyon Health Research Study. We appreciate the participation of the individuals who shared their experience with us and trust that the information they provided will be helpful to the scientific experts who are shaping the Study.