Risk Communication Assessment
Gas Leak Educational Materials and Outreach Strategies
March 24, 2014

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I. SUMMARY

In the fourth quarter of 2013, Puget Sound Energy (PSE) hired Cyera Strategies (Cyera), a risk communication and compliance consulting firm, to evaluate the company's communication outreach materials and strategies for educating customers and the general public regarding how to recognize, respond and report a gas leak.

Cyera reviewed PSE's materials to evaluate leak recognition and response messaging, graphics, communication vehicle selection, frequency and application of communication best practices. PSE's materials were compared to materials used by 15 natural gas utility companies and industry associations[1] including materials recognized as a best practice for use of high-impact media, effective leak response messaging and graphics. *(Refer to Appendix A for overview of PSE materials reviewed. Refer to Appendix B for examples of industry best practices identified through this project.)*

In addition, Cyera conducted 20 in-depth interviews with PSE customers to evaluate the effectiveness and impact of select communication materials and to solicit feedback and ideas for improvement.

Cyera's review confirms that PSE's materials consistently include relevant gas leak recognition and response messaging. In addition, the communication vehicles selected and overall message frequency is consistent with public awareness regulatory requirements and peer company outreach activities.

During the review process, Cyera identified opportunities for improving the effectiveness of core safety materials by including high-impact graphics and reducing the number of messages included in print materials such as bill inserts and brochures. In addition, feedback from customers identified opportunities for new and expanded ways PSE can promote leak recognition and response actions, including promoting the use of gas detection devices in homes and mailing postcards or magnets which can easily be posted for future reference. Customer feedback also reinforced the need for simplified messaging that directly emphasizes the urgency of recommended response actions.

Cyera encourages PSE to redesign core safety communication items in alignment with the recommendations outlined in this report. Cyera also recommends that PSE consider utilizing communication vehicles such as customer e-mail campaigns and television public service announcements to expand the reach and frequency of safety messages for customers and the general public.

[1] Benchmark review included materials used by Xcel Energy, Pacific Gas & Electric Company, SourceGas, San Diego Gas & Electric, Southern California Gas Company, Atmos Energy, CenterPoint Energy, Vectren, Southwest Gas, NorthWestern Energy, the Texas Pipeline Awareness Alliance, the Ohio Gas Association, the Indiana Gas Association, the American Gas Association and the Georgia Public Service Commission.

If existing devices are deemed effective, Cyera recommends exploring opportunities to lead the natural gas industry by actively promoting the use of gas leak detectors by customers in their homes and businesses. Cyera also recommends working in partnership with county emergency management organizations to create protocols that leverage existing technology and emergency management resources to enable localized community alerts during gas system emergencies. *(Refer to the following report sections for more details regarding these recommendations: Assessment of PSE Messaging, Assessment of PSE Vehicles and Campaigns, Recommendations for New & Expanded Activities.)*

II. PROJECT OVERVIEW

In the fourth quarter of 2013, PSE hired Cyera, a risk communication and compliance consulting firm, to evaluate the company's communication outreach materials and strategies for educating customers and the general public regarding how to recognize, respond and report a gas leak.

The objective of the project was to assess the effectiveness of PSE's current gas safety educational materials and outreach strategies and to identify areas of improvement focusing on gas leak recognition, response and reporting behaviors and behavioral intent.

Between December 18, 2013 and March 14, 2014, Cyera conducted a risk communication assessment to evaluate PSE's gas leak recognition and response messages, materials and outreach strategies and to identify areas for improvement.

Assessment activities included:

1) Communication expert review of gas safety materials used in 2012 and 2013 that include gas leak recognition and response messaging[2]

2) In-depth phone interviews with 20 PSE customers representing different geographic areas and demographic groups

3) Benchmark comparison of PSE materials to materials used by other natural gas utility companies and industry organizations[1]

The results of these three assessment phases were shared with PSE for feedback and are summarized in this report.

[2] Appendix A includes copies of all materials review as part of this project.

III. ASSESSMENT OF PSE LEAK RECOGNITION & RESPONSE MESSAGING

Cyera's review confirms that PSE's materials consistently include relevant gas leak recognition and response messaging. Overall, messaging is consistent with peer companies and industry associations. Exceptions are noted below.

Leak Recognition Messaging

Consistent with peer companies, PSE's leak recognition messaging describes visual, auditory and olfactory signs of a leak including those applicable to leaks outdoors as well as those indoors. PSE's interactive "scratch 'n sniff" bill insert includes messaging that encourages customers to scratch the paper to smell the odorant added to natural gas.

PSE's leak recognition messaging does not address risk of odor fade[3] nor does it create awareness that some individuals may not be able to smell a leak due to diminished sense of smell or certain health conditions.

Southern California Gas Company, Southwest Gas and Xcel Energy have each expanded leak recognition messaging in recent years to include reference to odor fade and instances when a gas leak may not be detectable by smell.

PSE should consider the need to expand leak recognition messaging to address odor fade, if relevant based on the likelihood of occurrence along its system. PSE should also consider including language regarding conditions that can create a diminished ability to smell a gas leak.

Leak Response Messaging

PSE's leak response messaging, like peer companies, emphasizes a series of actions that should be avoided or implemented if a gas leak is detected. PSE's leak response language encourages customers and the general public to leave the area and then call PSE or 911 if they suspect a leak.

PSE's leak response instructions included in the bill insert, web content and other materials use the word "immediately" to emphasize the need to quickly respond; however, when language regarding urgency is combined with other leak response actions, the effectiveness of the urgency message appears to be diminished.

Message recall testing with customers consistently identified that the "urgency to respond" text was often overlooked when combined with language regarding actions to take or avoid. Customer feedback was positive for the print ads featuring the word "Go!" in the headline text. The term "Go!" appears to convey both the desired initial response action and urgency.

[3] The term "odor fade" typically refers to instances where there is a decrease in the concentration of an odorant. This can be caused by absorption, which can occur in certain types of plastic pipe, or in situations when the odorant separates from the gas.

PSE is encouraged to review leak response language to ensure that messaging adequately conveys the urgency to respond as well as actions that should be avoided and/or implemented. *(Refer to Appendix B for examples of urgency messaging including Georgia Public Service Commission's "Smell Gas? Act Fast!" messaging and SourceGas' "Gas Leak? Don't Delay. Get Away!" headline.)*

IV. ASSESSMENT OF PSE COMMUNICATION VEHICLES & CAMPAIGNS

Like other peer gas utility operators, PSE relies on a combination of direct communication vehicles, such as bill inserts and customer newsletters, combined with earned media through press releases, social media posts, web content and mass media campaigns, to communicate gas leak and response safety information to customers and the general public. Comments regarding specific communication vehicles and ideas for improvement are listed below.

Scratch 'n Sniff Bill Insert

PSE is one of a few gas utility companies that integrate a scratch 'n sniff component within the bill insert. This component of the bill insert provides an interactive way to engage customers and educate them about the smell of odorant added to natural gas. Cyera recommends that PSE continue use of this element. Based on customer feedback, PSE should consider modifying the text near the scratch 'n sniff element to clearly identify the ability to scratch and smell.

PSE is one of the few dual commodity utilities that combine gas and electric safety messages in a common bill insert. While this aligns with the company's combined approach to emergency preparedness messaging, it also results in a bill insert that is dense with messages and that exceeds the communication best practice of no more than 3-5 messages in a single communication piece.

Customer feedback supports the recommendation that PSE should either simplify the messaging included in the current bill insert or create a separate bill insert that focuses exclusively on gas leak recognition and response messaging.

Customer feedback also supports the importance of creating and distributing an easy-to-scan document designed to provide one or two key messages. In redesigning the bill insert, PSE should consider use of punchy headline text, white space and high-impact graphics to aid in quickly communicating key messages.

Aided recall of leak response messaging was lower in customer interviews for the bill insert than other items tested. This appears to be related to the way leak recognition and response messages were divided between two separate panels within the insert. PSE should consider visually aligning leak recognition and response messaging in a redesigned bill insert.

In addition, customer feedback suggests that bill envelope messaging that highlights "important gas safety information enclosed" may increase the reach and recall for this item. Atmos Energy

and Pacific Gas & Electric Company have both utilized bill envelope messaging to reinforce messages included in bill inserts.

PSE Website Content

PSE's web content includes leak recognition and response information in a manner consistent with the information presented in bill inserts, customer newsletters and multi-media campaign materials. For future web updates, PSE should consider including links to multi-media video files and downloadable resources.

The Ohio Gas Association, Atmos Energy, Pacific Gas & Electric and the Texas Pipeline Awareness Alliance all include video content, downloadable reference materials and in some cases, interactive activities on their websites. Multi-media content and additional resources engage website visitors and encourage them to learn more about gas safety topics. It also provides a way to share safety information with others.

Think safe. Be Safe. Campaign Materials

Like other dual commodity utilities, PSE's *"Think safe. Be Safe"* campaign collectively communicates both gas and electric emergency preparedness messages. Customer feedback collected during interviews regarding the gas leak print ad was positive. While customers recognized the visual interest of the photograph, they consistently cited the text-only version of the ad as more effective in communicating the leak response message, particularly the urgency to respond.

The campaign's transit, online, print and radio public service announcements consistently communicate gas leak recognition and response messaging in a clear and effective way.

Customer feedback supports the effectiveness of messaging for this campaign. Aided leak recognition and response message recall was higher for the "*Think safe. Be safe."* print ads than for other pieces tested during interviews.

PSE should consider leveraging existing messaging in future campaigns with a focus on campaign reach and message frequency to expand the effectiveness of the campaign.

EnergyWise Customer Newsletter

Inclusion of gas leak recognition and response content in the customer newsletter provides an effective way to reinforce messages and increase the frequency of message communication.

To improve the effectiveness of this vehicle, Cyera recommends placing gas leak recognition and response messages on the front page and leveraging high-impact graphics to increase the visibility of these messages compared to 2012 and 2013 text placement and presentation.

Press Releases

PSE's "Stinky Bill" press release illustrates a creative and effective way to leverage earned media to support direct communication with customers. Continue use of creative press releases, and consider augmenting standard boilerplate language with a sentence that includes gas and electric safety information. Adding safety information to the corporate boilerplate directly aligns safety concepts with the company's brand identity.

Radio Public Service Announcements & On-Air Reads

Radio public service announcements provide a way to distribute timely and relevant safety information with broad potential reach to customers and the general public. Continue leveraging partnerships with communication organizations, like the Red Cross, and local media to expand the reach of on-air reads and public service announcements.

Social Media Posts

Social media provide a near real-time vehicle for communicating timely and relevant information with subscribers. Consider expanding the frequency of safety-focused posts. Continue to utilize engaging questions similar to the February 2013 Facebook post that resulted in a handful of comments.

Expand use of social media to include new social media vehicles. Atmos Energy regularly communicates gas safety information through their Twitter account, and Southern California Gas Company has utilized Pandora to communicate gas safety messages to customers and the general public.

V. ASSESSMENT OF INDUSTRY BEST PRACTICES FOR LEAK RECOGNITION & RESPONSE EDUCATION

As part of this project, PSE's materials were compared to materials used by 15 natural gas utility companies and industry associations.[4] Examples of best practices for use of high-impact media, effective leak response messaging and graphics are referenced below and included in Appendix B. In general, messaging and use of specific communication vehicles were consistent across the industry; however, a few notable exceptions provide ideas for how PSE and the natural gas utility industry overall can continue to improve the effectiveness of gas safety outreach activities.

Messaging Best Practices

[4] Benchmark review included materials used by Xcel Energy, Pacific Gas & Electric Company, SourceGas, San Diego Gas & Electric, Southern California Gas Company, Atmos Energy, CenterPoint Energy, Vectren, Southwest Gas, NorthWest Energy, the Texas Pipeline Awareness Alliance, the Ohio Gas Association, the Indiana Gas Association, the American Gas Association and the Georgia Public Service Commission.

Leak recognition and response messaging is relatively consistent across the industry; however, two examples are cited as best practices in this report due to the effectiveness of messaging that emphasizes the urgency to respond.

The Georgia Public Service Commission's Safe Gas campaign consistently includes the following tagline: "Smell Gas? Act Fast!" This phrase is utilized in all campaign materials and effectively summarizes leak recognition, response and urgency.

SourceGas' educational materials for schools include a poster with the following headline: "Gas Leak? Don't Delay. Get Away!" Like the Safe Gas tagline, the headline text for this poster effectively summarizes the desired initial response action and urgency to respond.

Refer to Appendix B for examples of how the text cited above is integrated into campaign materials.

Visual Communication & Graphics Best Practices

Most natural gas utility operators rely on text to communicate leak recognition and response messaging. Many have tried to create visuals to support leak recognition and response text; however, the result is typically a visual or series of visuals that communicate one element or concept but not the complete leak recognition and response sequence of desired activities.

One notable exception is the leak recognition and response graphic used by the Ohio Gas Association and the Indiana Gas Association. This high-impact graphic efficiently communicates both the leak recognition and initial response steps in one graphic and is used consistently in print, the web and television campaign elements.

Refer to Appendix B for examples of modified versions of the graphic used in Indiana and Ohio.

Communication Vehicle Best Practices

Most natural gas utility operators utilize a combination of bill inserts, web content and mass media advertising to reach customers and the general public with gas leak recognition and response messaging. Mass media campaigns typically feature the operator's current brand messaging and graphics.

Xcel Energy's outdoor, 3-D billboard in Denver is a notable exception and illustrates how high-impact creative can create a memorable experience with the message. The billboard features a 3-D nose and emphasizes leak recognition and response actions. The text on the billboard has evolved over the past few years along with Xcel's brand messaging, to support the high-impact creative element.

Refer to Appendix B for a photo of Xcel's 3-D billboard in downtown Denver, Colorado.

VI. CUSTOMER RESEARCH & FEEDBACK

In early February 2014, Cyera conducted in-depth interviews with 20 PSE customers to assess current knowledge regarding gas leak recognition and response messages; to evaluate message recall for leak recognition and response messages included in the most recent bill insert, customer newsletter and two print ads; and to solicit feedback and ideas for improving gas leak recognition and response educational outreach.

A summary of key takeaways is listed below.

Confidence Recognizing & Responding to a Gas Leak

Interview participants collectively expressed a high-level of confidence in their ability to recognize and respond to a gas leak. However, when asked to describe what they would do if they detected a gas leak, many cited actions such as "search for the source of the leak" or "check tubing attached to appliances" that are not recommended initial actions. Customer feedback suggests opportunity exists to improve awareness regarding initial recommended steps and the dangers associated with waiting or delaying to react.

Nearly all interviewees indicated that they would rely on smell as the main way to detect a leak and that they would call 911 or PSE to report the leak. Most had never experienced or reported a gas leak previously. Although a small sample size, older participants (55+ age group) had a higher combination of high-levels of confidence combined with actions that are not recommended initial steps.

Communication Vehicle & Message Recall

Aided recall of the bill insert, customer newsletter and print ads were low among all interview participants. Virtually all participants said it was the first time they had seen any of the materials included in their packet for review and feedback.

Aided recall of leak recognition and response messages was relatively high, particularly for the print ads. Leak message recall was highest for smell and substantially lower for some of the visual cues that apply exclusively to outdoor leaks. Aided recall for leak response actions was comparatively lower for the bill insert. Based on feedback from participants, this may be related to the way leak recognition and response content is presented in two separate places within the piece.

Ideas and Recommendations

Participants actively engaged in dialog regarding how PSE can ensure that they know how to recognize and respond to a gas leak. All participants deem the information important and indicated an interest in sharing the information with others. Recommendations primarily

focused on ways to improve existing communication items, particularly the bill insert and newsletter. Consistently, participants suggested simplifying the messaging, reducing the amount of content in each piece and including more visuals.

Participants also suggested that PSE consider a format that is easy to scan and keep for future reference such as a magnet or postcard that can be posted on a refrigerator. A couple of participants recommended PSE consider promoting the availability and use of gas leak detectors for homes and businesses.

VII. RECOMMENDATIONS FOR NEW AND EXPANDED ACTIVITES

In addition to the vehicle-specific recommendations and expanded messaging outlined above, Cyera recommends that PSE consider the following as opportunities to expand gas safety outreach and improve the public's "readiness to recognize and respond" to a gas leak:

- **Create simple and memorable graphics that can compliment leak recognition and response text in all outreach materials and campaign elements**

  Graphic(s) should include elements that address both leak recognition cues and response actions. Ideally graphic(s) will also visually communicate the urgency to immediately react to a gas leak.

- **Utilize e-mail campaigns to communicate key gas safety information to customers**

  E-campaigns provide a cost-effective, direct way to increase the frequency of gas safety communication with customers. E-mail is increasingly identified as a preferred communication by customers, particularly those who elect to receive e-bills rather than paper bills, and provides an effective way to drive customers to expanded safety content on PSE's website or to interactive safety campaign materials including videos, social media posts and downloadable resources.

- **Consider mailing gas safety information to customers in a separate mailing not connected with the bill**

  Customer feedback indicates that the bill insert may not be an effective vehicle for communicating gas safety information. *(Refer to research feedback referenced in assessment of bill insert above.)* Consider mailing gas safety information separately and in a format (such as postcards and/or magnets) that can easily be scanned and posted for future reference.

- **Develop and distribute a television Public Service Announcement that focuses on gas leak recognition and response messages**

Television advertising, primarily ads during local news, remains one of the few single outreach strategies that can effectively reach a broad demographic segment of the general public. Explore opportunities to create high-impact video creative to educate the public about gas leak recognition and response actions. Leverage existing partnerships with the Red Cross and local news stations to create value-add placement strategies including local news websites.

- **Evaluate commercially available gas leak detectors for homes and businesses and consider promoting the use and availability of these devices**

  Cyera recommends that PSE investigate the effectiveness of current gas leak detection devices for consumer use in homes and businesses, and if commercially available technology is reliable and affordable, that PSE lead the natural gas industry in promoting the availability of these devices and their use in homes and businesses.

  Promoting gas leak detectors provides a unique way for PSE to augment existing communication and education strategies with a technology-based approach to support leak recognition and response.

  During customer interviews, a customer who indicated that he currently has a natural gas and propane leak detector installed in his garage was asked if he would respond differently if he smelled signs of a natural gas leak or if he heard the sound of the gas detector's alarm. "Absolutely!" he said. "If I heard the alarm go off, I would react immediately."

  Not only do these devices aid in the detection of a leak, the alarm aspect appears to motivate individuals to immediately respond similarly to how they would respond to a fire alarm or security alarm.

- **Explore opportunities to partner with county emergency management organizations to create protocols that leverage existing technology and emergency management resources to enable localized community alerts during gas system emergencies**

  County emergency management organizations are rapidly adopting notification systems that alert citizens in localized areas regarding natural disaster warnings and other threats. PSE should explore the current technological capabilities used by county emergency management organizations within their gas service area and work with these organizations to establish protocols for leveraging existing alert systems and emergency management resources during gas system emergencies that pose a threat to a specific neighborhood or a section of the community.