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Pinehurst House Fire
Review of Emergency Plans and Procedures

Overview

On Monday, Sept. 26, 2011, a tragic sequence of events in Seattle's Pinehurst neighborhood led to an outcome PSE strives to prevent: injury and damage from a natural gas explosion. Following the explosion, PSE conducted two reviews of its management of the incident. The first was an internal, after-action review. The second was made pursuant to the settlement entered in UTC Docket PG-111723. Following is a report on the second review.

The review focused on PSE's actions and response prior to the explosion. It was intended to determine whether changes are warranted and to ensure sufficient resources in an emergency. It encompassed emergency procedures, plans and contracts with service providers, vendors and consultants for potential gas leak situations.

PSE reviewed all of its emergency procedures and plans, including the Incident Command Plan, Energy System Restoration Plan, Gas Operating Standards Manual, Gas Field Procedures Manual(s), and various emergency response tools such as the Response Planning Engineering Program and job aids developed to support gas emergencies. PSE reviewed its contracts with InfraSource (IFS), which is responsible for gas infrastructure maintenance work and second response to any gas emergency; and Surveys & Analysis (S&A), which is primarily responsible for gas leak survey and leak evaluation.

These reviews led to changes in several areas of PSE's management of emergencies:

- Better tools – improved maps and leak survey procedures
- More community outreach – onsite incident outreach teams to enhance communication
- Continuous learning and sharing of lessons from arcing incidents

What PSE learned from Pinehurst is important. Our knowledge, use of tools and application of resources during electric arcing events have evolved through subsequent events. While there are similarities between each event, each electric arcing event has unique circumstances that reinforce the need for PSE to be adaptable in its efforts to protect the public.

Better tools

Improvements in mapping systems and leak surveys have enhanced PSE's ability to manage emergency situations. Awareness of an existing job aid is being improved. A remote leak detection technology is being studied.

Mapping systems. In 2012, PSE implemented a geospatial information system (GIS). Although this system was planned independently of Pinehurst, it has significantly improved the maps used during such events:

- Infrastructure along map boundaries is now depicted seamlessly, eliminating overlap that could lead to ambiguity over who is responsible for inspecting which areas.
- The boundaries of special leak surveys are now more clearly communicated, and PSE now provides full-size leak survey maps to field staff.
- Platted services more closely represent the installation recorded on service records (D-4 cards). System information, such as existing leaks, is now more readily available.

With these improvements, field staff can be more certain that they've surveyed the correct area.

Job aids. A job aid PSE developed to outline actions to consider when managing an electrical arcing event has been reviewed with and is now being made more accessible to personnel involved in an arcing situation. This Ground Fault & Lightning Strike Job Aid helps maximize effectiveness in the midst of a stressful situation.

Special leak surveys. PSE is changing its gas standards and procedures to make permanent a number of interim changes that were implemented shortly after the event. These changes to the standards will be effective March 1, 2014. Three standards were modified to require greater detail in the instructions for conducting special leak surveys, including what facilities to be surveyed and the boundaries of the survey, and to utilize the most current maps produced from the company's GIS.

Remote leak detection. A continuing challenge is how to conduct leak surveys that require access to customer property that is behind secured gates or when surveys are conducted after nightfall. Every situation has unique circumstances that impact the approach taken, but regardless of the circumstances, PSE's decision making will benefit from lessons learned in past situations, by use of the job aid, and by heightened public awareness through display of leak survey sidewalk signs (more below). In addition, PSE is evaluating the use of leak detection

tools that may be appropriate for use when direct access is not available or employee safety may be a concern. The study will be finished in the second quarter of 2014.

Improved quality control. The quality of leak surveys has been enhanced in several ways. S&A has greater technological capabilities than its predecessor, including the ability to create a digital GPS trace of a visit to a meter. S&A is also applying colored stickers to meters to make it easy for field staff to know whether and when a service last had a leak survey. Special leak surveys will be distinguishable from periodic leak surveys by the color of the sticker. The new tagging system and GPS information will be incorporated in PSE's quality assurance efforts as necessary to verify the completeness of special leak surveys. With these mechanisms, PSE has developed a timely way to determine if survey quality expectations are met in an emergency.

Availability of resources

PSE's examination of its internal and contractor resources concluded that existing contractor resources meet PSE's needs for emergency support. However, PSE formalized the language guiding contractor emergency response. Not related to Pinehurst, PSE expanded engineering support for emergencies and has integrated S&A into PSE's incident command system.

Engineering support. In 2012 PSE moved to increase its bench strength in emergency management by pairing a less-experienced response planning engineer (RPE) with an experienced RPE on duty. As a result, there are now at least two RPEs on duty at any given time. In addition, the entire gas engineering staff is now informed of all emergencies, so that while two-to-three engineers are specifically assigned to a given event, all can engage.

The RPE is the incident commander's source of engineering expertise for needs such as repair procedures and boundaries for leak surveys. A team approach enhances emergency response by combining the varied experiences of multiple RPEs with the expertise of field staff. The RPEs and the incident commander collaborate and evaluate the need for additional office or field support, which may include departments such as Maps, Records, & Technology, Electric First Response, and coordination with other utilities.

A preliminary list of emergency contacts for other utilities has been developed. This will be enhanced through planned workshops pursuant to this settlement. This contact resource is available now to the RPEs and will be finalized to meet incident command plan guidelines.

Contractor resources and contracts. The service providers that PSE relies on most in a natural gas emergency are InfraSource and Surveys & Analysis. S&A became PSE's primary leak survey service provider in 2013. InfraSource has been PSE's primary natural gas maintenance

and construction service provider since 2011. Leak investigation and repair is one of the services InfraSource provides PSE.

S&A and IFS are contractually obligated to respond to an emergency and to provide qualified personnel and equipment necessary for a given incident. The contract language has not changed from previous contracts or since the Pinehurst event, but specifics on how they engage in an emergency have been formalized in incidence response plans. PSE's review confirmed that its service providers have the staff and equipment necessary to respond to emergencies, and that emergency callout expectations are clear.

In an emergency, personnel from S&A, IFS and PSE are all are under the direction of the incident commander. All activities in the field in response to an emergency situation are coordinated and communicated through the PSE incident command structure (ICS). ICS is designed to ensure unity of command, define lines of communication, and provide a manageable span of control. It is also scalable to suit a wide range of emergencies.

S&A, having contracted with PSE in 2013, became integrated with PSE's incident command structure and adopted an ICS as of October 23, 2013.

Community outreach

PSE's community outreach in leak situations has been enhanced through use of onsite community incident outreach (CIO) teams in emergencies and by the display of sidewalk signs to announce leak surveys in both emergency and routine situations.

Community incident outreach teams. PSE's communications efforts in an emergency focus on only one topic: safety. The intent is to deliver information in a manner that is helpful, yet won't make the situation worse by inadvertently prompting unsafe behavior or creating panic. CIO teams, which evolved from PSE's Pinehurst response, meet this need.

The CIO is both a tool for the incident commander and a resource for the community to receive situation updates and safety information from the moment a safety risk is identified. Working from a conspicuous location near the event, it is staffed by a cross-functional team that can arrange emergency supplies, such as food, water and generators; respond to the media; liaise with municipal officials; and assist with internal communications. The CIO team and the incident commander coordinate and consult on communication strategies.

PSE's after-event response to Pinehurst was generally well received by the neighborhood and led to a PSE initiative to further improve public outreach in the event of an emergency. CIO teams

demonstrated the value of localized, on-site communications and have since been formalized as a tool available in all emergency situations.

Sidewalk signs. In 2013, PSE developed sandwich boards to display on sidewalks and along roads to indicate that a leak survey is under way in the neighborhood. The sandwich boards identify the location of the leak surveyors, describe how to recognize PSE employees or service providers, and include natural gas safety brochures. Surveyors wear high visibility safety vests with a PSE logo so that they are easily recognizable to the public.

Continuous learning and sharing of lessons

Approximately a dozen electrical arcing events have occurred since Pinehurst, and PSE has used each as an opportunity for further learning. PSE conducts reviews of significant events, including ground fault and lightning strike events, during quarterly meetings of engineering and field operations staff. The reviews provide a "lessons learned" account of the event to promote continuous improvement of current practices, knowledge, and emergency preparedness for future events.

An electric arcing PowerPoint presentation summarizing the lessons learned has been developed and is being shared at gas operations meetings. Approximately 200 personnel have received this presentation. PSE is taking steps to ensure all appropriate personnel have the benefit of this presentation through either further forums or PSE's online training system.

In addition, the job aid referenced above is consistently utilized to help ensure appropriate actions are considered during ground fault and lightning strike events.

PSE recognizes the need to keep this topic at the forefront as subsequent events create additional learning opportunities. The company is committed to sharing those learnings in a timely way.