

DIRECT TESTIMONY
OF
JAMES WATTS
PIPELINE SAFETY ANALYST II
ENERGY DIVISION
ILLINOIS COMMERCE COMMISSION

Illinois Commerce Commission On Its Own Motion

vs.

Bushnell, Illinois, a municipal corporation

Docket No. 10-0668

Citation for alleged violations of Federal Rules Incorporated by the Illinois Commerce
Commission

November 30, 2011

1 **WITNESS IDENTIFICATION**

2 **Q. What is your name and business address?**

3 A. My name is James Watts. My business address is 527 East Capitol
4 Avenue, Springfield, Illinois 62701.

5 **Q. By whom are you employed and in what capacity?**

6 A. I am employed by the Illinois Commerce Commission (“Commission”) as a
7 Pipeline Safety Analyst II in the Commission’s Pipeline Safety Program
8 (“PSP”) in the Energy Division. In my current position, I perform audits
9 and inspections for the Commission’s PSP, which ensures that natural gas
10 system operators in Illinois are meeting minimum federal safety standards
11 prescribed by 49 Code of Federal Regulations (“CFR”) Parts 192
12 and 199, and by the Illinois Gas Pipeline Safety Act (“Act”) (220 ILCS 20).

13 **Q. Please describe your education and experience?**

14 A. Prior to my employment with the Commission, I held the position of
15 Assistant Superintendent of Utilities (“Assistant Superintendent”) with the
16 City of Waverly, Illinois. My duties as Assistant Superintendent were to
17 manage, schedule, and perform daily operations, maintenance and
18 construction activities on the gas, water and sewer distribution systems. I
19 was also responsible for maintaining the documentation necessary to
20 establish that the gas, water, and sewer systems were being operated and
21 maintained as required by applicable state and federal requirements.
22 Since accepting my position at the Commission, I have received extensive
23 technical training at the Transportation Safety Institute (“TSI”) in Oklahoma

24 City, Oklahoma, which is where state and federal pipeline safety
25 inspectors receive technical education relating to the enforcement and
26 interpretation of pipeline safety standard. My training at TSI has included
27 subjects such as Introduction to Part 192; Pipeline Safety Regulation,
28 Application and Compliance; Natural Gas Odorization; Joining of Pipeline
29 Materials; Incident Investigation; Pipeline Integrity Management; Operator
30 Qualification; Pipeline Corrosion Control, Pressure Regulation and
31 Overpressure Protection and various other technical aspects of natural
32 gas pipeline operations. I have worked as a Pipeline Safety Analyst for
33 the Commission for 23 years as of June 1, 2011 and have a total of 32
34 years experience in the natural gas transportation industry.

35 **PURPOSE OF TESTIMONY**

36 **Q. What is the purpose of this proceeding?**

37 A. The purpose of this proceeding is to demonstrate that the City of Bushnell
38 ("Bushnell") has violated numerous natural gas system safety
39 requirements established by 49 CFR Parts 192 and 199 in operation of the
40 Bushnell Municipal natural gas system.

41 **Q. What is the purpose of your testimony?**

42 A. The purpose of my testimony is to present Commission Staff's ("Staff")
43 position. I performed the incident investigation and reviewed the
44 documents provided by Bushnell per Staff's requests and created, or
45 participated in creating reports, including the Staff Report filed on
46 November 1, 2010, which led to the initiating order in this proceeding. The

47 Staff Report is attached to and incorporated into my testimony as
48 Attachment A.

49 **Regulatory and Enforcement Provisions**

50 **Q. What authority or jurisdiction does the Commission have in this**
51 **matter?**

52 A. Enforcement of the Minimum Federal Safety Standards is granted to the
53 Commission under an agreement pursuant to 49 U.S.C. §60105 with the
54 U. S. Department of Transportation (“USDOT”) Office of Pipeline Safety.
55 The federal standards codified under 49 CFR Parts 192 and 199 have
56 been adopted by the State of Illinois in 83 Ill. Adm. Code Part 590.

57 **Q. Please describe the Bushnell natural gas system?**

58 A. According to the 2010 Annual Report filed with the U.S. Department of
59 Transportation, Pipeline and Hazardous Materials Safety Administration
60 (“PHMSA”), the Bushnell natural gas distribution system has
61 approximately 43 miles of cathodically- protected steel gas main and 14
62 miles of polyethylene (“PE”) gas main. The system has 353 plastic
63 service lines and 1300 steel service lines serving approximately 1652
64 customers based on the service line count. The distribution system is
65 supplied by one pressure reducing station.

66 **Q. How did you become aware of the probable violations identified in**
67 **the Staff Report?**

68 A. The probable violations were identified after Staff completed an
69 investigation into an incident that occurred on November 25, 2009. Staff

70 received telephonic notification from Bushnell that an explosion had
71 occurred at 519 N. Washington in Bushnell, Illinois. Bushnell reported that
72 an excavation contractor installing water main for Bushnell had damaged
73 a gas main while performing direction bore operations and that the
74 damage had resulted in natural gas leakage. Staff's investigation
75 established that the excavator failed to uncover the gas main prior to
76 performing the directional bore and damaged a 2-inch natural gas main
77 and a 6-inch sanitary sewer main while performing directional bore
78 operations. Illinois law requires an excavator to ensure that sufficient
79 clearance is maintained between the bore path and existing utility
80 facilities. Specifically, the Illinois Underground Utility Facilities Damage
81 Prevention Act ("DP Act") (220 ILCS 50) requires an excavator to perform
82 the following;

83
84 **SECTION 4. Required activities.**

85
86 Every person who engages in non-emergency excavation or
87 demolition shall:

- 88
89 (a) Take reasonable action to inform himself of the location
90 of any underground utility facilities or CATS facilities in and
91 near the area for which such operation is to be conducted;
92 (b) Plan the excavation or demolition to avoid or minimize
93 interference with underground utility facilities or CATS
94 facilities within the tolerance zone by utilizing such
95 precautions that include, but are not limited to, hand
96 excavation, vacuum excavation methods, and visually
97 inspecting the excavation while in progress until clear of the
98 existing marked facility; (220 ILCS 50/4)
99

100 Due to the excavation contractor failing to expose these facilities, the two
101 utility facilities were damaged during the directional bore operations.

102 Natural gas escaped from the damaged gas main operating at 50 pounds
103 per square inch/gauge (“psig”) and migrated into the damaged sanitary
104 sewer main located approximately three feet away from the gas main.
105 Due to the pressure of the escaping natural gas and the close proximity of
106 the damaged sewer main, the migrating natural gas followed the sewer
107 system piping and eventually entered the residence at 519 N. Washington
108 Street. Approximately 20 minutes after Bushnell officials were notified of
109 the damaged gas main, the residence at 519 N. Washington Street
110 exploded and the explosion also resulted in damage to two adjacent
111 homes. The occupant in the home at 519 N. Washington Street received
112 minor injuries and was treated and released from a local hospital on the
113 day of the incident.

114 **Q. What was your role in the investigation of the incident that occurred**
115 **at 519 N. Washington Street in Bushnell, Illinois on November 25,**
116 **2009?**

117 A. I was assigned as the lead inspector on the incident investigation and
118 Kevin Ketchum from the PSP Program was assigned to observe and
119 assist in the investigation as he was receiving training on incident
120 investigations. As lead inspector, I conducted the investigation to
121 establish the cause of the incident. In the process of establishing cause, I
122 reviewed Bushnell’s actions to determine if their current operation,
123 maintenance and emergency procedures were followed and were
124 adequate. After completing the investigation and required analysis, an

125 incident report was completed. The report was finalized, probable
126 violations were identified, and the PSP Manager determined the actions to
127 be taken.

128 **Q. What did your investigation and analysis determine to be the cause**
129 **of the incident?**

130 A. The source of gas that migrated and resulted in the explosion at 519 N.
131 Washington was established to have resulted from a damaged 2-inch
132 diameter natural gas main. The damaged adjacent 6-inch diameter sewer
133 main served as a conduit, allowing natural gas to migrate into the house at
134 519 N. Washington.

135 Staff established that the leak investigation performed by the Bushnell gas
136 system personnel after arriving on scene at the damaged main was
137 inadequate and was a contributing factor to the incident. Failure by
138 Bushnell gas system personnel to establish that the gas escaping from the
139 damaged gas main was migrating into the nearby sanitary sewer system
140 resulted in a failure to initiate adequate emergency response procedures.

141 Staff also established that Bushnell gas personnel received a gas odor
142 report from the occupant at 519 N. Washington Street approximately four
143 minutes after receiving notification of the damaged gas main from the
144 water superintendent and approximately 16 minutes prior to the explosion.
145 Bushnell gas personnel failed to respond to the 519 N. Washington
146 address to conduct a leak investigation at the residence as required by the
147 emergency plan outlined in their Operation and Maintenance Manual

148 (“O&M Manual”). Bushnell gas personnel were excavating the damaged
149 gas main to stop the flow of gas at the time of the explosion. The gas
150 serviceman, who was dispatched to respond to the odor report made by
151 the occupant at 519 N. Washington Street, did not inform either Bushnell’s
152 gas superintendent or Bushnell’s utility manager of the odor report. The
153 failure of the gas serviceman to complete the required notifications was an
154 additional contributing factor to the failure to establish that natural gas was
155 migrating into the sanitary sewer.

156 **Q. How was Bushnell informed of the damaged gas main and leak and**
157 **how did they respond to the notification?**

158 A. The excavator performing the directional bore operations, which was
159 under contract with the Bushnell water department, made the initial gas
160 odor notification to the Bushnell water superintendent. The excavator
161 reported that he was detecting an odor of natural gas in the vicinity of the
162 directional bore opening at the West Hail Street location. Upon receiving
163 the odor report from the excavator, the water superintendent notified the
164 Bushnell gas department of the possible damage and leak. Bushnell gas
165 system personnel gathered the necessary equipment and responded to
166 the location where the initial gas odor was reported by the water
167 superintendent.

168 **Q. Were there any other notices or reports received by Bushnell that**
169 **would have indicated that the gas was migrating into the sewer**
170 **system?**

171 A. Yes, the Bushnell Utility Office received notification from the homeowner
172 at 519 N. Washington Street stating that he detected a strong odor of
173 natural gas inside his home. The Bushnell Utility Clerk (“Clerk”) followed
174 established procedures and advised the resident not to operate any light
175 switches and that someone would be there as soon as possible to
176 investigate the odor report. The Clerk then notified the Bushnell gas
177 serviceman of the strong gas odor reported at 519 N. Washington at
178 approximately 2:16 p.m. This odor report was received approximately 10
179 minutes after Bushnell gas superintendent received the initial notification
180 of the gas odor and possible main damage reported by the water
181 superintendent, and was dispatched to the gas serviceman approximately
182 16 minutes prior to the explosion. After receiving the odor report from the
183 Clerk, the gas serviceman responded back that Bushnell had received a
184 report of a damaged gas main near that address. The gas serviceman
185 himself then responded to the location of the damaged gas main. Upon
186 arrival at the damaged gas main, he began assisting the Bushnell
187 employees with the leak repair rather than responding to the house at 519
188 N. Washington to investigate the reported gas odor. The gas serviceman
189 did not inform the Bushnell utility manager or gas superintendent of the
190 inside gas odor report received from 519 N. Washington, as required by
191 the Bushnell emergency procedures in Section B.4.2 (b) (4) of the
192 Bushnell O&M Manual which states “that the Serviceman responsibilities
193 are to maintain communication with authorities on the scene and consult

194 with your supervisor to determine whether or not it is necessary and
195 advisable to shut off the gas supply to a building or an area". The gas
196 serviceman's failure to inform the utility manager and gas superintendent
197 meant that they were not aware of all reported information regarding the
198 gas leak, which indicated the gas might be migrating.

199 **Q. What affect did Bushnell's failure to follow the established**
200 **procedures have on this incident?**

201 1. Staff established that Bushnell's failure to follow the delineated
202 procedures outlined in their O&M Manual in Section B, titled
203 Operations, which also includes the Emergency Plan, and in
204 Section K, titled Gas Leaks, Repairs and Replacement, were a
205 contributing factor to the outcome of the incident. By Bushnell's
206 failing to follow the established procedures, the extent of the gas
207 migration was not confirmed. By failing to confirm the extent of gas
208 migration, Bushnell failed to determine that the escaping gas was
209 migrating into the sanitary sewer and posing a serious threat to
210 public safety.

211 2. Bushnell chose to utilize squeeze-off tools to stop the flow of gas
212 rather than closing emergency valves. This decision required
213 making two excavations to allow for the safe installation of the
214 squeeze off tools on the leaking gas main: the leaking main was
215 being supplied gas from two directions.

216 3. Bushnell failed to inspect a sewer manhole located approximately
217 25 feet south of the damaged gas main location for the presence of
218 migrating gas. The failure to conduct atmosphere tests in the sewer
219 manhole prevented Bushnell from establishing that the gas was
220 migrating into the sanitary sewer.

221 4. Due to the failure of gas serviceman to notify the gas
222 superintendent and or the utility manager of the odor report
223 received from 519 N. Washington Street, those individuals were
224 making decisions without all of the known information regarding the
225 gas leak and the possible extent of gas migration. After the
226 explosion occurred at 519 N. Washington, Bushnell made the
227 decision to utilize emergency valves to isolate and stop the flow of
228 gas to the damaged segment of gas main rather than using
229 squeeze off tools as initially planned.

230 **Q. Do the findings of your investigation indicate that violations of**
231 **applicable regulations occurred?**

232 A. Yes. I issued a Notice of Probable Violation (“NOPV”) for each of five
233 separate code sections of 49 CFR Part 192 and Part 199 due to the
234 findings of the incident investigation.

235 **Q. Please describe the probable violations issued due to the findings of**
236 **your investigation?**

237 A. The first NOPV cited 49 CFR §192.605(a), which states in part:

238 Section 192.605 Procedural manual for operations,
239 maintenance, and emergencies.
240 (a) General. Each operator shall prepare and follow for
241 each pipeline, a manual of written procedures for conducting
242 operations and maintenance activities and for emergency
243 response.
244
245 Staff's review of Bushnell's O&M manual determined that Bushnell had the
246 necessary procedures defined in their Operation, Maintenance and
247 Emergency Plans as required by Section 192.605(a). Staff's investigation
248 established that, upon receiving the notification of the damaged gas main
249 from the Bushnell water superintendent, Bushnell employees responded
250 to the damaged gas main after collecting the necessary tools and arrived
251 at the West Hail Street location approximately 10 minutes after receiving
252 the initial leak report. Upon arrival, Bushnell reported detecting the sound
253 of natural gas escaping from the bore rod opening near the directional
254 bore machine, approximately 50 feet east of the gas main. Upon
255 establishing that gas was escaping from the bore opening, the decision
256 was made by Bushnell to excavate the damaged main and isolate the gas
257 supply utilizing using squeeze-off tools. Bushnell failed to perform a
258 thorough leak investigation to establish the extent of gas migration and
259 failed to establish if gas was migrating into and through the sewer.

260 **Q. Did Bushnell have established procedures defining how they should**
261 **investigate a gas leak?**

262 A. Yes, the established procedures for a leak investigation are defined in the
263 Operations and Emergency Plan implementation sections of Bushnell's

264 O&M Manual. Section B.4.1 General, of the Bushnell Emergency Plan
265 Implementation states that gas detected near or inside a building, or a
266 Class 1 condition, requires the appropriate emergency procedures to be
267 applied. Subsection B.4.2 (b)(2) of that emergency plan states that, upon
268 arrival of the gas serviceman at the emergency location, the spread of gas
269 and the area affected must be determined and any necessary steps taken
270 to ensure the safety of people and property. That subsection also
271 references Subsection K.3 Classification and Schedule for repairs of gas
272 leaks. Subsection K.3.3 requires that any detected leak or any leak odor
273 call from the general public, police, fire other authorities, notification of
274 damaged facilities by contractors, or other sources shall require immediate
275 investigation and classification.

276 **Q. Describe the second violation notice issued.**

277 A. The second NOPV was issued because Staff discovered that Bushnell
278 was not maintaining adequate levels of odorant in the natural gas. The
279 rule requires that the odorant added to the natural gas be readily
280 detectable, by a person with a normal sense of smell, at one-fifth of the
281 lower explosive limit.

282 49 CFR §192.625(a) states in part:

283

284 Section 192.625 Odorization of gas.

285 (a) A combustible gas in a distribution line must contain a
286 natural odorant or be odorized so that at a concentration
287 in air of one-fifth of the lower explosive limit, the gas is
288 readily detectable by a person with a normal sense of
289 smell.

290

- 291 **Q. Why is odorant required in natural gas?**
- 292 A. Pipeline quality natural gas is odorless and requires odorant to be added
293 to be detectable. The level of odorant is required to be maintained at a
294 concentration sufficient to allow for an individual with a normal sense of
295 smell to detect natural gas in the atmosphere at or before it reaches one-
296 fifth the lower explosive limit of natural gas.
- 297 **Q. How does the level of odorization being maintained in gas supplied**
298 **from a distribution system affect the ability of a person to detect a**
299 **gas leak using their sense of smell?**
- 300 A. If the gas is not adequately odorized, an individual may not be able to
301 detect a gas leak using their sense of smell before the gas concentration
302 accumulating within a structure reaches a combustible level. Upon
303 reaching a concentration of gas in air between 4.5% and 14.5 %, the
304 mixture is considered combustible and can be ignited by any of a number
305 of sources of ignition within a confined space or structure.
- 306 **Q. How did you determine the level of odorant was not being**
307 **maintained at a concentration required by 49 CFR §192.625(a)?**
- 308 A. As part of an incident investigation, I requested that Bushnell perform
309 odorometer testing at or near the incident site on November 25, 2009.
310 Upon arrival at the Incident scene, and after making contact with the
311 Bushnell gas superintendent, I was informed that an odorometer test was
312 performed outside the residence at 509 N. Washington Street at
313 approximately 6:00 p.m. and the testing indicated that the odorant was at

314 a level detectable at a level of 1.29% gas in air. After establishing that the
315 odorometer test was performed at 509 N. Washington Street, I requested
316 that Bushnell perform another test in the area to establish if the odorant
317 level detected at 509 N. Washington Street was correct. While observing
318 the odorometer testing being performed by Bushnell, I observed that the
319 manufacturers' procedures for preparing the odorometer for the test were
320 not being followed. The Bushnell employee informed me that during the
321 testing, the odorator calibration interval had exceeded the 12-month
322 requirement as suggested by the manufacturer. To meet the 12-month
323 interval, the calibration check was should have been conducted in
324 September of 2009.

325 **Q. Was any other documentation requested by Staff to establish the**
326 **odor concentration levels prior to the incident?**

327 A. Yes. As part of the incident investigation, Staff requested odorometer test
328 documentation from Bushnell for the period of July 16th through November
329 9th, 2009. This time period was used to establish if the odorant
330 concentrations reported during testing performed by Bushnell were
331 consistent or varied widely. The odorometer testing results received from
332 Bushnell established detection levels reported from July 16th through
333 November 9th, 2009 indicated odorant detection levels at 0.9% to 1.33%
334 gas in air. Tests performed by Bushnell personnel after the incident, but
335 before Staff arrived on the evening of November 25th, 2009 indicate the
336 odorant level was readily detectable only at 1.27% gas in air. The

337 odorometer test performed with Staff present was recorded as being
338 readily detectable at levels from .65% to 1.2% gas in air. With the results
339 provided to Staff, it was determined that the detection levels were in most
340 instances above 1/5th of the lower explosive limit of natural gas.

341 **Q. Since the time of the incident, have the odorant detection levels**
342 **improved?**

343 A. Yes, after Bushnell employees received the training on the proper use of
344 the odorator and after increasing the odorant injection rates, the detection
345 levels reported by Bushnell to Staff indicate odorant concentrations are
346 detectable well below 1/5th of the lower explosive limit of natural gas.

347 **Q. Describe the third violation notice issued.**

348 A. The third NOPV issued involves Bushnell's failure to comply with 49 CFR
349 §192.741(c). Bushnell failed to inspect the pressure chart recorder on the
350 gas distribution system on a weekly or monthly basis. An NOPV was
351 issued for failure to inspect the pressure recording chart to monitor and
352 record the system pressure and allow for determination of when abnormal
353 pressure fluctuations have occurred.

354 49 CFR §192.741(c) states in part:

355
356 Section 192.741 Pressure limiting and regulating stations,
357 Telemetering or recording gauges
358 (c) If there are indications of abnormally high- or low-
359 pressure, the regulator and the auxiliary equipment
360 must be inspected and the necessary measures
361 employed to correct any unsatisfactory operating
362 conditions.
363

364 A pressure recording chart was submitted to Staff after the November 25,
365 2009, incident. The chart indicted a spike in pressure at some
366 undetermined point in time. Bushnell could not determine what caused
367 the spike in pressure that reached approximately 55 to 60 psig. The spike
368 was recorded as occurring on day 5 and continued until day 11 on the 31-
369 day chart. However, Bushnell could not provide Staff with the date that
370 the paper recording chart was installed on the chart recorder: therefore,
371 neither Bushnell nor Staff could establish when the pressure spike
372 occurred. The chart was removed on the morning after the incident and
373 appeared to have multiple pressure recording cycles recorded on the
374 chart. Due to the multiple indications of pressure recordings, Staff
375 established that Bushnell was not inspecting the pressure chart recorder
376 on a monthly basis and issued the above NOPV.

377 **Q. What affect would failing to monitor the pressure recording chart**
378 **have on a gas distribution system?**

379 A. Staff's review of the pressure chart removed from chart recorder on the
380 day after the explosion revealed indications where the distribution system
381 pressure appeared to have increased over the system's established
382 maximum allowable operating pressure of 50 psig. Since Bushnell
383 employees failed to inspect the chart for what appeared to be multiple
384 recording intervals, they could not determine when those pressure
385 increases occurred. Since Bushnell employees could not determine when
386 the pressure increases occurred, they likewise could not determine what

387 caused the sudden increase in system pressure and attempt to prevent it
388 from recurring in the future. Section 192.741(c) of the CFR requires that
389 when a chart recorder is present on a system, it should be reviewed as
390 frequently as necessary to observe indications of high or low pressure.
391 Once indications are observed, actions must be taken to reduce the
392 pressure if it has not already decreased to a safe level and then attempt to
393 establish why the change in pressure occurred.

394 **Q. Has the operator begun monitoring the pressure recorder as**
395 **requested by Staff's recommendations?**

396 A. Yes. The operator has stated that they are now changing the chart on a
397 monthly interval and have not observed any pressure increases as
398 indicated on the chart reviewed by Staff.

399 **Q. Describe the fourth violation notice issued.**

400 A. The fourth NOPV was issued to Bushnell because of their failure to
401 conduct post-accident drug testing of employees whose actions may have
402 contributed to, or whose actions cannot be ruled out as contributing to, an
403 incident. Staff's investigation established that Bushnell failed to comply
404 with 49 CFR §199.105(b) in that it did not conduct proper drug testing of
405 the employees who responded to the incident investigation.

406 49 CFR §199.105, titled Drug tests required, states in part:

407 (b) Post-accident testing. As soon as possible but no later
408 than 32 hours after an accident, an operator shall drug test
409 each employee whose performance either contributed to the
410 accident or cannot be completely discounted as a
411 contributing factor to the accident. An operator may decide
412 not to test under this paragraph but such a decision must be

413 based on the best information available immediately after the
414 accident that the employee's performance could not have
415 contributed to the accident or that, because of the time
416 between that performance and the accident, it is not likely
417 that a drug test would reveal whether the performance was
418 affected by drug use.
419

420 **Q. Why is post-incident drug testing required?**

421 A. Post-incident drug testing is required to ensure that Bushnell personnel
422 involved in the actions taken during an emergency were not impaired to a
423 point that could have prevented them from performing their duties in a
424 safe manner. In this case, actions taken by the individuals responding to
425 the notification of an emergency failed to follow prescribed procedures.
426 Those actions, or lack of action, as it relates to establishing the extent of
427 the natural gas migration, may have contributed to the incident.

428 **Q. Please describe the last probable violation notice issued as a result
429 of your investigation?**

430 A. The fifth NOPV was issued because of Bushnell's failure to conduct post-
431 accident alcohol testing for the presence of alcohol if the actions of
432 employees may have contributed to, or whose actions cannot be ruled out
433 as contributing to, an incident. Staff's investigation determined that the
434 Bushnell failed to comply with 49 CFR §199.225(a) in that it did not
435 conduct post accident alcohol testing of employees who responded to the
436 incident.

437 49 CFR §199.225, titled "Alcohol tests", required, states:
438

439 Each operator shall conduct the following types of alcohol
440 tests for the presence of alcohol:
441 (a) Post-accident.
442 (1) As soon as practicable following an accident, each
443 operator shall test each surviving covered employee for
444 alcohol if that employee's performance of a covered function
445 either contributed to the accident or cannot be completely
446 discounted as a contributing factor to the accident. The
447 decision not to administer a test under this section shall be
448 based on the operator's determination, using the best
449 available information at the time of the determination, that
450 the covered employee's performance could not have
451 contributed to the accident.
452 (2) (i) If a test required by this section is not administered within
453 two hours following the accident, the operator shall prepare and
454 maintain on file a record stating the reasons the test was not
455 promptly administered. If a test required by paragraph (a) is not
456 administered within eight hours following the accident, the operator
457 shall cease attempts to administer an alcohol test and shall state in
458 the record the reasons for not administering the test.
459 (ii) [Reserved]
460 (3) A covered employee who is subject to post-accident
461 testing who fails to remain readily available for such testing,
462 including notifying the operator or operator representative of
463 his/her location if he/she leaves the scene of the accident
464 prior to submission to such test, may be deemed by the
465 operator to have refused to submit to testing. Nothing in this
466 section shall be construed to require the delay of necessary
467 medical attention for injured people following an accident or
468 to prohibit a covered employee from leaving the scene of an
469 accident for the period necessary to obtain assistance in
470 responding to the accident or to obtain necessary
471 emergency medical care.
472

473 **Q. Why is post-incident alcohol testing required?**

474 A. Post-incident alcohol testing is required to ensure that Bushnell personnel
475 involved in the actions taken during the incident were not impaired to a
476 point that could have prevented them from performing their duties in a

477 safe manner. In this case, actions taken by the individuals responding to
478 the notification of an emergency failed to follow prescribed procedures.
479 Again, actions taken by the operator cannot be discounted as contributing
480 factor.

481 **Q. How was Bushnell informed of the probable violations issued due to**
482 **the findings of the investigation?**

483 A. A NOPV Letter was sent registered mail to the Mayor of the City of
484 Bushnell and a copy was sent to the Bushnell gas superintendent on
485 August 26, 2010.

486 **Q. Did Bushnell respond to the NOPV letter as requested by the**
487 **Commission?**

488 A. Yes, on September 24, 2010, the Commission's PSP Manager received a
489 response from Bushnell to the NOPV letter. In the response letter,
490 Bushnell stated that they have increased their odorant injection rates and
491 now are maintaining odorization levels to permit below 1% gas-in-air
492 detection levels on their distribution system, as corrective action for the
493 NOPV regarding 49 CFR §192.625(a).

494 Bushnell representatives stated that the system is now changing and
495 reviewing its pressure recording chart each month, as corrective action for
496 49 CFR §192.741(c), and have observed no indication of abnormally high
497 or low pressures. Bushnell representatives stated that the system and
498 their its consulting engineer will review procedures in its O&M Manual and

499 see that each employee follows the plan requirements, as corrective
500 actions to 49 CFR §192.605 (a).
501 Bushnell representatives stated that they were unaware of the drug and
502 alcohol testing requirements for employees working the gas leak prior to
503 the explosion at 519 N. Washington Street as they felt that none of their
504 employee's actions contributed to this incident. The letter indicated that
505 they are now aware of the post-incident testing requirements and Bushnell
506 will initiate the necessary testing, as defined in 49 CFR §199.105(b) and
507 §199.225(a).

508 Upon receiving the revised procedures for directional boring, requirements
509 for marking of gas facilities during a locate request, and customer call out
510 procedures on November 17, 2010, Staff completed a review and found
511 further issues with the facility marking and customer leak call out
512 procedures. These were sent back to the Bushnell operator by e-mail for
513 further revisions on December 29, 2010. Bushnell provided revised
514 procedures per Staff's request on January 24, 2011, stating that they had
515 made the changes requested by Staff and that their gas engineer will be
516 conducting a full review of the O&M Manual.

517 **Conclusions**

518 **Q. What is your recommendation to the Commission?**

519 A. I recommend that the Commission find that Bushnell has violated 49 CFR
520 Sections 192.605(a), 192.625(a), 192.741(c), 199.105(b) and 199.225(a)

521 as Bushnell failed to comply with the minimum federal safety standards
522 that are addressed above and failed to follow established procedures.

523 **Q. Under the Illinois Gas Pipeline Safety Act, what factors should be**
524 **considered in determining the amount of penalty?**

525 A. For purposes of determining the amount of penalty, Section 7(b) states;
526 the Commission shall consider the appropriateness of the
527 penalty to size of the business of the person charged, the
528 gravity of the violation, and the good faith of the person
529 charged in attempting to achieve compliance, after
530 notification of the violation.

531
532 **Q. How would you describe the size of Bushnell's natural gas**
533 **distribution system?**

534 A. According to data submitted on the calendar year 2010 PHMSA Annual
535 Report, Bushnell has a total of 1652 service lines and would be
536 considered a small system.

537 **Q. How would you describe the gravity of these offenses?**

538 A. Bushnell failed to demonstrate minimum compliance with the applicable
539 pipeline safety requirements by failing to follow established procedures in
540 an emergency situation, thereby contributing to the loss of property
541 because of the gas main leak and the danger to public safety.

542 Bushnell also failed to demonstrate minimum compliance with applicable
543 pipeline safety requirements by failing to maintain sufficient odorant levels
544 within the distribution system to allow for the detection of natural gas at a
545 concentration of one fifth of the lower explosive limit of natural gas, by
546 failing to check for calibration on a 12-month interval the odorant detection

547 equipment being used to detect the level of odorant being maintained in
548 the gas system, by failing to follow the manufacturer-suggested
549 procedures when operating the odorometer to establish the level of
550 odorant being maintained in the distribution system, by failing to conduct
551 the required post incident drug and alcohol testing on the employees
552 working at the leak site, and by failing to inspect the pressure recording
553 chart currently in place on the distribution system on a required inspection
554 interval to check for the indications of abnormal pressure or operation and
555 take the necessary actions to correct any observed abnormalities.

556 **Q. Has Bushnell made a good faith effort in trying to achieve**
557 **compliance?**

558 A. Bushnell has done so only to a modest degree. Bushnell responded to
559 the NOPV letter by the date indicated, but only identified what they had
560 done to correct the items covered in the NOPVs issued. Staff's review of
561 the initial procedure revisions submitted by Bushnell resulted in further
562 revisions being required as many procedures were lacking sufficient detail.
563 Since that date, they have submitted various revisions of procedures in
564 their O&M Manual to Staff for review. Bushnell stated that their O&M
565 Manual was to be given to their consulting engineer for a review, but Staff
566 has not seen any results of that review being submitted since the last
567 revision received in June of 2011. Bushnell has maintained minimal
568 communications with Staff when further revisions were requested after

569 Staff completed reviews of O&M Manual procedures submitted by
570 Bushnell.

571 **Q. What penalties may be assessed against Bushnell?**

572 A. 49 U.S.C. §60122, adopted by Section 7(b) of the Act, allows for civil
573 penalties of not more than \$100,000 for each violation, for a maximum of
574 \$1,000,000. Both the Act and the federal regulations state that each day a
575 violation persists is also a separate violation.

576 **Q. In this situation, what would be considered a violation?**

577 A. Bushnell failed to comply with each section of the Code cited and violation
578 of each section would be considered a separate violation. Each day that
579 Bushnell allowed the violation to exist, after being informed of the
580 violation, would also be considered a separate violation.

581 **Q. What is your recommendation as to what penalty should be
582 assessed against Bushnell?**

583 A. Given the serious nature of the violations which resulted in this incident,
584 the loss of property, and the potential for loss of life resulting from the
585 violations, Staff would normally be recommending the maximum penalty of
586 \$100,000 for each violation of 49 CFR Sections 192.605(a), 199.105(b)
587 and 199.225(a). Staff recommends \$20,000 for each of the above three
588 violations totaling a civil penalty of \$60,000. Staff is also recommending a
589 penalty of \$10,000 for each violation of Sections 192.625(a) and
590 192.741(c) for a total civil penalty of \$20,000. Based on the statutory
591 considerations for determining the amount of the penalty, Staff therefore

592 recommends that Bushnell be required to pay a civil penalty of a total of
593 \$80,000 for the five violations.

594 **Q. Please summarize your position.**

595 A. Staff concludes that Bushnell should be found in violation of Commission's
596 pipeline safety rules and subject to penalties as outlined above.

597 **Q. Does this conclude your direct testimony?**

598 A. Yes, it does.

Staff Report
Bushnell Municipal Gas
Bushnell, Illinois
November 1, 2010

Subject

Bushnell Municipal Gas System Compliance Violations

Introduction

As authorized by Section 3 of the Illinois Gas Pipeline Safety Act (the "Act") [220 ILCS 20/3], the Illinois Commerce Commission ("Commission") adopted, in 83 Ill. Adm. Code 590, federal safety standards in 49 CFR Sections 191.23, 192, 193, and 199 as minimum standards for the transportation of gas and for gas pipeline facilities.

At 2:02 p.m., on November 25, 2009, the Bushnell Gas Department ("Bushnell") was notified that a natural gas ("gas") line was damaged by a contractor installing water lines using directional boring. Upon receipt of the damage notification, Bushnell responded and arrived at location of the damaged gas line at 2:10 p.m. The damaged line was located near a residential property located at 519 N. Washington St. The resident of 519 N. Washington St. notified Bushnell City Hall of a gas odor inside the home at 2:10 p.m. At 2:15 p.m. City Hall notified a Bushnell Gas Serviceman of the gas odor report at 519 N. Washington St. The Bushnell Gas Serviceman informed City Hall that he was already on the scene. At 2:26 p.m., an explosion occurred at the 519 N. Washington St. residence.

On August 11, 2010, a compliance audit was conducted of Bushnell. The compliance inspection included records relating to emergency response, public awareness and systems maintenance.

Emergency Response Issues

Staff conducted an investigation of the November 25, 2009, incident at 519 N. Washington St. in Bushnell, Illinois. The investigation concluded that an excavator had damaged the gas main and adjacent sanitary sewer facilities. The damage to the sanitary sewer allowed gas to enter the sewer main. Gas traveled through the sewer main and sewer lateral to 519 N. Washington St. and then migrated from the sewer lateral into the residence. The gas accumulated inside the residence and combined with air until it reached an explosive level. The gas-air mixture came in contact with a source of ignition and an explosion occurred.

Staff's incident investigation findings indicate that Bushnell failed to adequately respond and take appropriate actions in several respects regarding the gas odor notification.

First, the incident investigation established that Bushnell failed to meet the requirements of 49 CFR 192.605 (a), Procedural manual for operations, maintenance, and emergencies. An operator is required by 192.605(a) to prepare and follow an operations and maintenance ("O&M") manual. Bushnell had the appropriate O&M manual, including a Section B thereof which details the procedure to follow during a gas leak emergency. Staff's investigation established that the Bushnell gas serviceman who responded to the gas leak took no actions to, and did not, determine the extent of the gas migration. Failure to identify the extent of leak migration resulted in the failure of Bushnell employees to initiate the appropriate corrective actions necessary to control the flow of escaping natural gas.

Second, the incident investigation established that Bushnell failed, following the November 25, 2009, incident to meet the requirements of 49 CFR 199.105 (b), Drug tests required. An operator is required to conduct post-accident drug testing. The CFR allows the operator 32 hours after an incident to drug test employees whose actions may have contributed to, or whose actions can not be ruled out as contributing to, an incident. The Bushnell gas service employees that responded to the gas main hit and gas odor complaint did not determine the extent of the gas leak. That failure to determine the extent of leak migration was a direct "cause" of the explosion. However, Bushnell then failed to conduct the proper drug testing within the time frame permitted.

Third, the incident investigation established that Bushnell failed, following the November 25, 2009, incident to meet the requirements of 49 CFR 199.225 (a), Alcohol tests required. An operator is required to conduct post-accident alcohol testing. The operator has up to eight hours after an incident to test for the presence of alcohol if the actions of the employee(s) may have contributed to, or the actions by the employee(s) can not be ruled out as contributing to, an incident. The Bushnell gas service employees who responded to the gas main hit and gas odor complaint did not determine the extent of the gas leak. The failure to determine the extent of the gas leak was a direct cause of the explosion that occurred. Bushnell failed to conduct post-accident alcohol testing within the time frame permitted.

Fourth, the incident investigation established that Bushnell failed, prior to the November 25, 2009, incident to meet the requirements of 49 CFR 192.625 (a), Odorization. An operator is required to odorize the gas in the distribution system at a concentration that is readily detectable at 1% gas in air or below. Odor intensity testing equipment that mixes measured quantities of gas with measured quantities of air is used to provide the test sample. Odor intensity readings obtained after the incident and varied from .65% to 1.2% gas in air. A review was conducted by Staff of the odor intensity readings taken throughout the Bushnell system, prior to the incident and those odor intensity readings, recorded from July 16th thru November 9th, varied from .9% to 1.33% gas in air.

Finally, the incident investigation established that Bushnell failed to meet the requirements of 49 CFR 192.741 (c), Pressure limiting and regulating stations: Telemetering or recording gauges. An operator is required to inspect pressure recordings and take the necessary actions when indications of

abnormally high pressures or low pressures are indicated. Staff inspected the pressure recording chart that had been in place on for the Bushnell gas system prior to, and including, November 25, 2009. The chart was a monthly (31 day) chart, but the installation date of the chart was not recorded. A pressure spike was recorded on the chart. The pressure spike lasted for seven days. Bushnell was not able to provide Staff with the cause of that pressure spike. Bushnell also failed to investigate the pressure spike or to take corrective action and, although the pressure spike itself had no direct contribution to the November 25, 2009, explosion, the violation was noted by Staff.

Record Audit Issues

During the course of the incident investigation process, Bushnell became due for a routine compliance record audit. A Commission Pipeline Safety Staff member conducted a record audit of the Bushnell Municipal Gas System on August 11, 2010. The purpose of the record audit was to review 2009 operating records to determine compliance with 49 CFR 191, 192 and 199. Staff discovered four violations as part of this audit and issued a letter identifying each violation on August 13, 2010.

Staff requested records and performed an inspection to determine if 49 CFR Section 192.615 (b) (3), Emergency Plan, requirements had been met. Section 192.615 (b) (3) requires the operator to review employee activities to determine whether the procedures were effectively followed in each emergency. Bushnell could not provide to Staff documentation that the incident which occurred on November 25, 2009, was reviewed to determine if the procedures were effectively followed.

Staff requested records and performed an inspection to determine if 49 CFR Section 192.615 (c), Emergency Plan, requirements had been met. Section 192.615 (c) requires the operator to establish and maintain liaison with appropriate fire, police, and other public officials. Bushnell could not provide to Staff documentation that liaison meetings were conducted with fire, police, and public officials in 2009.

Staff requested records and performed an inspection to determine if 49 CFR Section 192.616 (a)-(d), Public Awareness, requirements had been met. Section 192.616 requires the operator to develop and implement a written continuing public education program that follows the guidance provided in the American Petroleum Institute's ("API") Recommended Practice (RP) 1162. Further, the operator is specifically required to educate excavators regarding damage prevention activities, steps that should be taken for public safety in the event of a gas pipeline release and procedures for reporting such an event. Bushnell could not provide to Staff documentation that the required information was provided to excavators in 2009.

Staff requested records and performed an inspection to determine if 49 CFR Section 192.747 (a), Valve maintenance: Distribution Systems, requirements had been met. Section 192.747 (a) requires the operator to check and service each valve, once per calendar year not to exceed 15 months, which may be necessary for the safe operation of a distribution system. Bushnell could not provide to Staff documentation that the required valve inspections were conducted in 2009.

Staff Compliance Action

On August 13, 2010, a Notice of Probable Violation letter was sent by the Manager of the Pipeline Safety Program to Bushnell Municipal Gas System for failure to comply with 49 CFR 192.615 (b)(3), for failure to review employees actions during an emergency; 192.615 (c), for failure to maintain liaison with fire, police and other public officials; 192.616 (a)-(d), for failure to follow the Public Awareness Program and 192.747 (a), for failure to perform emergency valve maintenance.

On August 26, 2010, a Notice of Probable Violation ("NOPV") letter was sent by the Manager of the Pipeline Safety Program to Bushnell Municipal Gas System for failure to comply with 49 CFR 192.625 (a), regarding deficient odorant levels in the gas; 192.741 (c), regarding failure to maintain adequate pressure indication records and failure to address abnormally high readings; 192.605 (a), for failure to follow the emergency procedures; 199.105 (b), for failure to perform post-accident drug testing; and 199.225 (a), for failure to perform post-accident alcohol testing.

Operator Response To Compliance Actions

On August 23, 2010, a letter was received from the Honorable Steve Russell, Mayor of Bushnell. The letter addressed the NOPV issued citing 49 CFR Part 192.615 (b) (3). The letter stated that the Bushnell Emergency Plan was amended to include incident review under the "Duties and Responsibilities for the Utility Superintendent". However, the letter did not discuss whether a review of the November 25, 2009 incident had been conducted.

A second letter received on August 23, 2010, from Mayor Russell regarding the NOPV issued citing 49 CFR Part 192.747, explained that a sign-off sheet will be created for each of the valves in the Bushnell system. The employee(s) conducting the inspection will be required to sign the form indicating that the appropriate maintenance has been performed. The letter did not state if the inspections have been conducted.

The response letters received did not address the NOPVs citing 192.615 (c) and 192.616 (d) discussed in the August 13, 2010 NOPV letter. Staff contacted Bushnell and explained that all NOPV issues cited in the NOPV letter must be addressed.

On September 15, 2010, a letter was received from Mayor Russell. The letter explained that meetings had been held with the fire department in 2010 and that meetings with the police and public officials should be scheduled in the near future. The meetings are intended to bring Bushnell into compliance with the requirements of 192.615 (c) but had not been conducted.

The September 15, 2010 letter also addressed the NOPV issued citing 192.616 (d). The letter stated that Mike McCleery, Utility Superintendent had attended a preconstruction meeting at the City Hall. Minutes from the meeting were attached to the letter. Neither the letter nor the notes from the meeting include reference to discussions relating to the requirements of CFR part 192.616 (d).

The response to the NOPV letter dated August 26, 2010, is due on September 27, 2010 and has not been received.

Conclusion

Bushnell's failure to comply, and to maintain records to demonstrate compliance, with numerous sections of the CFR noted above constitutes a disregard of the standards and processes that each operator under the jurisdiction of the Illinois Commerce Commission must meet to maintain compliance with required federal standards.

Recommendation

Staff recommends that a Citation Order be issued to initiate a proceeding to determine whether Bushnell Municipal Gas failed to comply with 49 CFR 192.605 (a), 192.615 (b) (3), 192.615 (c), 192.616 (a)-(d), 192.625 (a), 192.741 (c), 192.747 (a), 199.105 (b), and 199.225 (a) and whether civil penalties should be assessed as allowed by Section 7 of the Illinois Gas pipeline Safety Act (220 ILCS20/7).



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