

REBUTTAL TESTIMONY

OF

DENNIS L. ANDERSON

ENGINEERING DEPARTMENT

ENERGY DIVISION

ILLINOIS COMMERCE COMMISSION

PROPOSED GENERAL INCREASE IN RATES

NORTH SHORE GAS COMPANY

THE PEOPLES GAS LIGHT AND COKE COMPANY

Docket Nos. 07-0241 and 07-0242 (Consolidated)

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1 Q. Please state your name and business address.

2 A. My name is Dennis L. Anderson, and my business address is 527 East Capitol  
3 Avenue, Springfield, Illinois 62701.

4 Q. Are you the same Dennis Anderson who previously testified in this proceeding?

5 A. Yes, I am.

6 Q. What is the purpose of your rebuttal testimony?

7 A. The purpose of my rebuttal testimony is to respond to the rebuttal testimony of  
8 Peoples Gas Light and Coke Company's ("Peoples Gas") witnesses Thomas E.  
9 Zack and Thomas L. Puracchio.

10 Q. Please summarize the conclusions you made in your direct testimony.

11 A. I make the following recommendations and conclusions in my direct testimony:

12 1) I determined that Peoples Gas' expansion of its Manlove Storage Field by  
13 10.2 Bcf of working gas to provide Hub services required the addition of  
14 both recoverable and non-recoverable base gas. However, Peoples Gas  
15 did not and has not allocated the base gas necessary to support the 10.2  
16 Bcf of Hub working inventory at Manlove field to Hub services.

17 2) I noted that Peoples Gas failed to demonstrate that it charges the Hub its  
18 appropriate maintenance gas allocation as required by the Commission's  
19 Order in Docket No. 01-0707. Maintenance gas represents the  
20 percentage of working inventory injections into Manlove that migrates to

21 become non-recoverable gas. Peoples now states (North Shore/Peoples  
22 Gas Ex. TLP-2.0, page 3, lines 50 to 65) that there is no difference  
23 between maintenance gas and cushion or base gas.

24 3) I concluded that since Peoples Gas had allocated peak day capacity in  
25 addition to working inventory at Manlove to the Hub, the entities that make  
26 use of the Hub services should bear their share of costs for the system  
27 assets needed to provide these services.

28 4) I noted that ratepayers may be subsidizing Hub operations because it  
29 appears that the Hub will not bear its full share of the cost of the assets  
30 needed to support Hub services. This portion of my direct testimony  
31 supported the conclusion of Staff witness Rearden (ICC Staff Exhibit 12.0)  
32 that Peoples Gas was imprudent to start the Hub and as a consequence  
33 Hub operations will eventually result in increased costs to ratepayers.

34 5) My review indicated that Peoples Gas failed to inject or allocate to the Hub  
35 the base gas required to support the working inventory that is dedicated to  
36 Hub services. Further, Peoples Gas failed to provide information or  
37 studies that would allow a precise determination of how much base gas is  
38 required to support Hub operations. My review indicated that Illinois  
39 jurisdictional customers provided the base gas utilized to support Hub  
40 operations, since no base gas has been injected for or allocated to Hub  
41 services, and as a result ratepayers are subsidizing Hub operations. I  
42 determined it would be inappropriate to increase the value of base gas

43 and exacerbate the subsidization of non-jurisdictional activities by Illinois  
44 ratepayers; therefore, I recommended that Peoples Gas' requested  
45 capitalization of an additional 7.88 MMDth of injections as cushion or base  
46 gas into Manlove Field, at a cost of \$39,019,000, be denied.

47 Q. Has Peoples Gas' rebuttal testimony provided any information or analysis that  
48 caused you to change any of the conclusions or recommendations that you made  
49 in your direct testimony?

50 A. No. All of the conclusion and recommendation I made in my direct testimony  
51 remain the same.

## 52 **The Expansion of the Manlove Storage Field for Hub Services**

53 Q. What did you conclude in your direct testimony regarding the expansion of the  
54 Manlove field to provide Hub services?

55 A. I stated two concerns in my direct testimony. First, when Peoples Gas began  
56 offering Hub services, it did so by expanding the working inventory of the  
57 Manlove storage field; but it failed to inject recoverable and non-recoverable  
58 base gas to specifically support the Hub's working inventory. My concern is that  
59 since additional base gas was not injected at the time HUB services were  
60 expanded a significant amount of additional base gas will be needed to support  
61 the working inventory of the Hub in the future to maintain the operation of  
62 Manlove, and ratepayers will bear all or a disproportionate share of that cost.

63 Second, Peoples Gas has not demonstrated that the Hub is being allocated its  
64 fair share of (1) maintenance gas injections or (2) costs of rate-base and PGA  
65 assets needed to support its operation. My concern is that ratepayers are  
66 subsidizing the operation of the Hub since maintenance gas costs and the costs  
67 of rate-base and PGA assets are not being borne directly by the Hub and the  
68 total cost of using these assets may exceed the revenues being credited by the  
69 Hub through the PGA.

70 Q. Did Peoples Gas adequately respond to the concerns expressed in your direct  
71 testimony regarding recoverable and non-recoverable base gas, maintenance  
72 gas, and the costs of rate-based and PGA assets needed to support Hub  
73 operations?

74 A. No. Peoples Gas' witnesses disputed the findings of my direct testimony but  
75 failed to provide information or data demonstrating that recoverable and non-  
76 recoverable base gas volumes are appropriate for the continued operation of  
77 Manlove, that maintenance gas volumes are properly allocated, or that the costs  
78 of rate-based and PGA assets needed to support Hub operations are  
79 appropriately allocated. I will review the Peoples Gas' witnesses assertions in  
80 more detail below.

81 Q. Aside from the above concerns, did you make any other statements in your direct  
82 testimony?

83 A. Yes. I indicated that Peoples Gas failed to conduct any business case, studies,  
84 calculations, or analyses to support its decision to expand Manlove to perform  
85 Hub storage services.

86 Q. Did Peoples Gas respond to this statement?

87 A. No. Peoples Gas failed to discuss this topic in its rebuttal testimony. Peoples  
88 Gas provided no information to indicate that at the time it made the decision to  
89 expand Manlove to provide Hub services that it performed any analyses to  
90 support its decision. Therefore, the only conclusion that can be drawn is that  
91 Peoples Gas' management at the time of its decision to initiate the operations of  
92 the Hub did not perform any analysis regarding the reasonableness of operating  
93 the Hub.

#### 94 **Aquifer Storage Operation**

95 Q. What conclusions did you reach in your direct testimony regarding the expansion  
96 of Manlove to provide Hub services, and on the operation of the Manlove aquifer  
97 storage field?

98 A. I concluded (ICC Staff Exhibit 10.0, pages 10 to 14) that the expansion of the  
99 inventory in Manlove to provide Hub services caused the Manlove aquifer to  
100 expand and resulted in the loss of some of the expanded working inventory gas  
101 injections to recoverable and non-recoverable base gas. I also noted that  
102 Peoples Gas failed to allocate any recoverable or non-recoverable base gas to  
103 the Hub for the expanded inventory to support Hub services. Instead, Peoples

104 Gas made a decision to continuously inject maintenance or base gas volumes to  
105 support Hub operations after the initial expansion of the Hub inventory.

106 Q. What was Peoples Gas' response to your conclusion that the expansion of the  
107 inventory in Manlove to provide Hub services requires additional recoverable and  
108 non-recoverable base gas?

109 A. The rebuttal testimony of Peoples Gas witness Thomas L. Puracchio asserts that  
110 the expansion of the Manlove working inventory to support Hub services did not  
111 require the addition of base gas. Specifically, he states the following in his  
112 rebuttal testimony:

113 Early in the operation of the field, gas expansion occurred deeper and  
114 further out than would be necessary today for an equivalent amount of  
115 inventory. Partly as a result of this, most of the working gas growth  
116 concurrent with Hub operations took place in areas of the reservoir that  
117 were already saturated with gas. This is evident from a reservoir analysis  
118 of certain performance over time.

119 (North Shore/Peoples Gas Ex. TLP-2.0, page 11, lines 223-227)

120 Q. Do you agree with Mr. Puracchio's statement?

121 A. No. He is essentially maintaining that early gas injections into Manlove caused  
122 gas to go into areas of the reservoir which contained only water, but that later  
123 gas injections for the expansion of Manlove to support Hub services stayed only  
124 in the areas of the reservoir already containing gas. As discussed below in my  
125 testimony, this is not how an aquifer storage field operates.

126 Q. What is your reaction to witness Puracchio's statement that the expanded Hub  
127 inventory in Manlove stayed in areas of the Manlove field already containing  
128 gas?

129 A. I do not find witness Puracchio's testimony credible. Aquifer storage fields like  
130 Manlove do not operate in the manner described by witness Puracchio.

131 Q. Please briefly describe how natural gas is stored in an aquifer storage field such  
132 as Manlove.

133 A. As I explained in my direct testimony (ICC Staff Exhibit 10.0, page 10), an aquifer  
134 is a water bearing porous geologic structure. For an entity to use an aquifer for  
135 storage, the aquifer structure must be in the shape of a dome. This dome can be  
136 viewed as an upside down bowl. The top of the bowl is covered with an  
137 impermeable rock formation capable of preventing the upward migration of  
138 natural gas. Under this impermeable rock is porous, water-filled rock. Natural  
139 gas is injected into the pore space of this porous rock, displacing the water. The  
140 displaced water forms the seal on the bottom of the injected natural gas to  
141 contain it from below. The area storing the natural gas is referred to as the  
142 reservoir.

143 Q. Please explain the operation of an aquifer storage field during the injection of  
144 natural gas.

145 A. Natural gas is injected into the water filled porous reservoir described above  
146 through wells. These wells are simply vertical pipes that connect the storage

147 reservoir to the surface. In order for the injected gas to displace the water from  
148 the pore space of the reservoir, the gas must be injected at a pressure higher  
149 than the water pressure in the aquifer.

150 As the natural gas is injected, the water is displaced from the pore space in the  
151 reservoir and moves into other areas of the reservoir. However, not all of the  
152 water is displaced from the pore space because of the physical attraction  
153 properties that create a bond between the water and rock pore space. Attached  
154 to the Direct Testimony of Company witness Thomas L. Puracchio is a report  
155 dated February 3, 2003 from Charles R. Connaughton P. E. PhD of Smedvig  
156 Technologies, Inc., entitled "Manlove Field Trapped Gas Report"("February 3,  
157 2003 Report"), which states:

158           The gas storage zone should not be thought of as a large, hollow,  
159           underground tank. The injected gas displaces some of the water in  
160           the pores, but it bypasses much of the water. As a result, the  
161           highest gas saturations in the storage area are 60 – 70 percent.  
162           Most gas saturations in the storage area are 50 percent or less.  
163           The water in the gas area wets and surrounds the sand grains.  
164           The gas occupies the central part of pores and is surrounded by  
165           water. (Peoples Gas Ex. TLP-1.1, page 31 of 51)

166 The above statement indicates that the gas injected into the field does not  
167 displace all the water from the pore space. Therefore, even though gas

168 saturations may increase containing gas, there is no location in the reservoir that  
169 is comprised of all gas.

170 Q. Please explain the movement of water in the storage reservoir during the  
171 injection/withdrawal cycle.

172 A. As gas is injected into the storage reservoir, both initially and in all subsequent  
173 injections, it is at a higher pressure than the water in the reservoir and will  
174 displace the water to other areas of the reservoir. When gas is withdrawn from  
175 an aquifer, the gas pressure in the reservoir is reduced as gas volumes are  
176 withdrawn and the higher-pressure water will again invade or migrate back into  
177 the pore space previously occupied by the gas. This is a simplified explanation of  
178 a very complex phenomenon.

179 Q. Does an aquifer storage field operate like a storage tank?

180 A. No. Aquifer storage fields do not operate like a storage tank because they do not  
181 have a fixed volume. The aquifer's operation is a dynamic system in that as gas  
182 is injected, water is displaced to accommodate the volume of injected gas. As  
183 gas volumes are withdrawn, water migrates back into the area previously  
184 occupied by the gas. The movement of the water and gas is essentially  
185 determined by the respective pressure of the water and gas. In an aquifer  
186 storage field the movement of the water and gas is through pore spaces within  
187 the reservoir; therefore, a distinct area containing only gas does not exist. This is  
188 also consistent with the above discussion from the February 3, 2003 Report.

189 Q. Can you provide a simple analogy that demonstrates the operation of an aquifer  
190 storage field?

191 A. Yes. The operation of an aquifer storage field can be related to a person blowing  
192 up a balloon. The atmosphere or air on the outside of the balloon represents the  
193 water in the aquifer storage field. As the person blows into the balloon, the  
194 pressure inside the balloon becomes higher than atmospheric or air pressure  
195 outside of the balloon and the balloon inflates. The air blown into the balloon is  
196 comparable to gas being injected into the storage reservoir at a higher pressure  
197 than the water pressure in the reservoir. When the end of the balloon is released  
198 air is released from the balloon, the air pressure inside the balloon decreases  
199 and the balloon deflates as the relative pressures inside and outside of the  
200 balloon change. This is similar to how an aquifer storage field works. Gas is  
201 injected at higher pressure than the water pressure in the reservoir. The gas  
202 volume expands into the reservoir's pore space and displaces the water in the  
203 pore space similar to the way a balloon expands and displaces air outside the  
204 balloon. On withdrawal, the water migrates back into the gas area because the  
205 reduced gas volume also lowers the gas pressure in the reservoir similar to the  
206 way releasing air from a balloon lowers the pressure inside the balloon.

207 **Peoples Gas Contradictory Information**

208 Q. How is your description of aquifer operation and the above analogy relevant to  
209 Peoples Gas' claim that the expansion of inventory to provide Hub services did

210 not result in gas entering new or virgin areas of the aquifer and require additional  
211 base gas?

212 A. As I have explained, an aquifer storage field is not a fixed volume tank. When  
213 Peoples Gas expanded the working inventory in Manlove to provide Hub services  
214 by 10.2 Bcf or approximately 40% ( $10.2 \text{ Bcf} / 27 \text{ Bcf} = 37.8\%$ ), the gas had to  
215 expand into new or virgin areas of the reservoir, because that additional gas was  
216 at a higher pressure than the water and therefore forced the water into other  
217 areas of the reservoir to create a space for the gas to occupy. As noted in  
218 February 3, 2003 Report, gas occupies the central part of pores and is  
219 surrounded by water, and although gas saturations in the pores may increase all  
220 the water is not displaced.

221 If an aquifer storage field was a fixed volume tank, the expanded inventory  
222 volume would be confined by the tank and the tank pressure would increase as a  
223 result of the increased gas volume in the tank being contained in the same fixed  
224 volume area. The Manlove storage aquifer does not have a fixed volume, as the  
225 volume of gas injected is expanded or increased, additional water is displaced  
226 and new or virgin areas of the reservoir contain the expanded volume. In  
227 addition, new injected gas volumes are also trapped in pore space already  
228 having some gas saturation as described in the February 3, 2003 Report.  
229 Therefore, any expansion of the field incurs the need for additional base gas.

230 Q. Is Mr. Puracchio's explanation for how the 10.2 Bcf allocation of Manlove  
231 capacity to Hub operations without any base gas allocation consistent with your  
232 understanding of how an aquifer operates?

233 A. No. Mr. Puracchio would have us believe that the 10.2 Bcf of gas injected into  
234 Manlove, which represents the Hub's current Manlove allocation, is confined to  
235 the areas of the reservoir already containing gas. If that were true, the pressure  
236 in this fixed area would have to increase as a result of the increased gas volume  
237 injected. Since the gas in the existing areas of the reservoir is not contained in a  
238 tank but by the water pressure in the reservoir, the increased volume of high  
239 pressure gas results in additional water being displaced in the reservoir by the  
240 higher pressure gas. As a result, the increased volume of injected gas enters  
241 new or virgin areas of the reservoir. These basic principles of aquifer reservoir  
242 operation refute Peoples Gas' contention that the expansion of Manlove  
243 inventory by approximately 40% did not result in any gas entering new or virgin  
244 areas of the aquifer and demonstrate that Peoples Gas' expansion required  
245 additional base gas. Stated differently, Mr. Puracchio's claim is contrary to the  
246 manner that all aquifer storage fields operate.

247 Q. Does Mr. Puracchio discuss water movement in the Manlove aquifer in his direct  
248 testimony?

249 A. Yes. Mr. Puracchio stated in his direct testimony, Peoples Gas Ex. TPL-1.0, p.  
250 10, lines 214 to 216, "Gas in the Manlove Field reservoir is under pressure and  
251 tends to expand, radially invading new areas. As this occurs, some of the gas

252 inevitably becomes trapped as cushion gas.” Mr. Puracchio’s statement was  
253 made in the context of supporting the continuous need for maintenance or base  
254 gas injections into Manlove to maintain field performance over time.

255 Q. Do you agree with Mr. Puracchio’s statement from his direct testimony regarding  
256 the movement of water in the Manlove Field?

257 A. Yes. His explanation is consistent with my understanding of how an aquifer  
258 storage field operates.

259 Q. Is Mr. Puracchio’s statement from his direct testimony regarding water movement  
260 consistent with his rebuttal testimony statement regarding how Hub gas is  
261 contained within the storage field?

262 A. No. Apparently, Mr. Puracchio’s believes that gas injected into the Manlove Field  
263 expands radially, invading new areas, in connection with maintenance gas  
264 requirements, but not when gas is injected in connection with expanding Hub  
265 services.

266 Q. What then do you suppose happens to Manlove Field?

267 A. Manlove Field, when expanded for Hub services, has to expand and invade virgin  
268 areas. Mr. Puracchio’s direct and rebuttal testimonies directly contradict each  
269 other.

270 Q. Did Peoples Gas provide any other information that you consider consistent with  
271 your understanding regarding the impact on a storage field when additional gas  
272 is injected into the field?

273 A. Yes. As I noted in my direct testimony, attached to Mr. Puracchio direct  
274 testimony was a report dated February 3, 2003 from Charles R. Connaughton  
275 P.E. entitled "Manlove Field Trapped Gas Report" that references gas entering  
276 virgin areas of an aquifer. This report discusses what happens when an aquifer  
277 is expanded or grown, as when Manlove Field's inventory was expanded to  
278 provide Hub services. This report (Peoples Gas Ex. TLP-1.1, p. 30) noted that,  
279 "The above observations are consistent with past estimates that 56% of gas that  
280 moves into virgin aquifer pore space is trapped or lost. Some growth will occur in  
281 pore volumes already containing gas, and a much smaller fraction of that gas will  
282 be lost. However, most continued growth will invade virgin aquifer with lost gas  
283 on the order of 50%."

284 The February 3, 2003, report also contains a section titled "Gas Storage in an  
285 Aquifer", (Peoples Gas Ex. TLP-1.1, p. 2) that discusses basic aquifer operation,  
286 gas saturation, and trapped or lost gas (base gas). I believe this discussion  
287 supports my testimony on basic aquifer operation, which is also Mr. Puracchio's  
288 understanding in his direct testimony, but not his rebuttal. In particular, the last  
289 paragraph of this section states: "Pressures are necessarily above the initial  
290 aquifer pressure most of the time in Manlove. During this time, gas is continually  
291 moving from the working gas area into pores that previously had little or no gas  
292 saturation. A large fraction of that gas will become trapped (lost). If this lost gas

293 is not replaced, the effective working gas will decrease and long-term  
294 deterioration in field performance will occur ....”

295 In short, Peoples Gas’ own report states that because the gas injected into an  
296 aquifer is at a higher pressure than the water in the aquifer, it is continually  
297 moving from the working gas area into pore spaces that previously had little or no  
298 saturation. Given this, the increase in inventory in Manlove to support Hub  
299 services had to migrate into new or virgin areas and, therefore, require additional  
300 base gas. Thus, the February 3, 2003 report is not consistent with Mr.  
301 Puracchio’s rebuttal testimony.

302 Q. Is the information discussed within the February 3, 2003 report consistent with  
303 your understanding regarding what occurs when additional gas is injected into an  
304 aquifer storage field?

305 A. Yes.

306 Q. Is Mr. Puracchio’s rebuttal testimony regarding the movement of gas in an  
307 aquifer when discussing the Hub expansion consistent with the February 3, 2003,  
308 Report?

309 A. No. Mr. Puracchio’s rebuttal testimony (North Shore/Peoples Gas Ex. TLP-2.0)  
310 simply states that the working gas growth concurrent with Hub operations took  
311 place in areas of the reservoir that were already saturated with gas. This is not  
312 consistent with Mr. Puracchio’s justification for the continuous injection of  
313 maintenance gas because gas under pressure tends to expand radially invading

314 new areas. Neither is it consistent with the February 3, 2003, Report that states  
315 most continued growth will invade virgin aquifer with lost gas on the order of  
316 50%, and that gas is continually moving from the working gas area into pore  
317 space that previously had little or no gas saturation.

318 Further, as I explained above, the expansion of Manlove inventory by  
319 approximately 40% (for Hub operations) resulted in gas displacing water in virgin  
320 areas of the reservoir as a simple result of the gas volume at a higher pressure  
321 forcing water out of pore space to create space for the new expanded gas  
322 inventory volume. Again, an aquifer storage field is not a fixed volume tank and  
323 increasing the volume of gas in storage results in the displacement of water from  
324 new areas of the reservoir to create the new needed storage volume for the  
325 expanded inventory.

326 Mr. Puracchio is selectively choosing what information to consider and has  
327 ignored Peoples Gas' own report that continued growth will invade virgin aquifer  
328 with lost gas on the order of 50%. Peoples Gas' February 3, 2003, report also  
329 clearly states gas is continually moving to new pore space and that additional  
330 gas will also be lost as gas saturations increase in existing areas of the reservoir.  
331 Mr. Puracchio also chooses to ignore this statement.

332 **Lack of Base Gas Studies**

333 Q. What is your opinion of the studies attached to witness Puracchio's testimony  
334 that purport to demonstrate that no base gas is required for the expanded  
335 inventory at Manlove to support Hub services?

- 336 A. I find the studies and the Peoples Gas' methodology suspect. In my direct  
337 testimony, I requested Peoples Gas provide the amount of base gas in Manlove  
338 that is required to support the expanded Hub inventory. Peoples Gas failed to  
339 provide any information on how base gas requirements were determined over  
340 time for the Manlove aquifer, or what the historic relationship has been between  
341 working inventory in Manlove and base gas. Instead, Mr. Puracchio provides  
342 studies at a given point in time that purport to demonstrate Manlove is operating  
343 properly with its existing base gas, provided continuous maintenance or base gas  
344 injections are made at a rate of 3.5% of injection levels on a going forward basis.
- 345 Peoples Gas provided no analysis showing that it correlated its new base gas  
346 study to the historic performance of the Manlove field or the results produced  
347 from its previous base gas studies. The studies Peoples Gas provided appear to  
348 be designed to determine the amount of continuous maintenance or base gas  
349 injects needed for Manlove to continue to operate, not what base gas  
350 requirements are presently needed to support a 10.2 Bcf inventory expansion to  
351 support Hub services. This is significant because prior to the creation of the Hub,  
352 Peoples Gas only injected maintenance or base gas when Manlove performance  
353 declined, while after the Hub was created Peoples Gas altered its past practice  
354 and started to inject maintenance or base gas on a continuous basis as a  
355 percentage of injections.
- 356 Q, Should Peoples Gas have correlated its studies with its previous methodology for  
357 determining the base gas requirements for Manlove?

358 A. Yes. Peoples Gas changed the methodology it had used for determining base  
359 gas needs for Manlove, and has provided no explanations for its change in  
360 methodology or how this new methodology correlates to its previous methods. In  
361 addition, Peoples Gas' study that purports to demonstrate that the increased  
362 inventory for Hub services did not expand into new or virgin areas of Manlove  
363 reservoir was based on a time period from 1997 to 2006. This was a period  
364 during which the operations at Manlove were in a state of considerable change.

365 Q. Why do the changes in operating Manlove between 1997 and 2006 impact  
366 Peoples Gas' studies?

367 A. In my experience when an aquifer field like Manlove is operated in a relatively  
368 stable and consistent manner, performance can be reasonably predicted.  
369 However, Peoples substantially altered how Manlove was operated during the  
370 period 1997 to 2006. First, Peoples Gas increased the working inventory in  
371 Manlove in order to provide Hub services. The working inventory was first  
372 increased to approximately 8 Bcf (30% increase) and finally to 10.2 Bcf (40%  
373 increase).

374 Second, Peoples Gas changed its historic practice of only injecting maintenance  
375 or base gas to support Manlove operations when field performance deteriorated  
376 to continuously injecting maintenance or base gas at a rate of from 2% to 3.5% of  
377 the injected volume.

378 Finally, Peoples Gas withdrew gas from Manlove during the summers of 2000  
379 and 2002. Aside from those two occasions, Peoples Gas has never previously

380 withdrawn gas during Manlove's historic injection period. As a result, the  
381 operations at Manlove were substantially changed and were not consistent or  
382 stable.

383 Q. How do the operations at Manlove between 1997 and 2006 impact Peoples Gas'  
384 studies?

385 A. North Shore/Peoples Gas' Ex. TLP-2.1 Manlove Gas Storage Field Geological  
386 Characterization Study and Updated Reservoir Simulation Model discuss in detail  
387 the complex geologic information that is used to construct a computer model of  
388 Manlove. After this complex geologic information is used to construct a computer  
389 model of Manlove the models results are compared against actual historic  
390 Manlove field performance. The procedure is then to change various geologic  
391 data in the model until the model matches the actual historic performance of the  
392 field. This is a simplified description of a complex process.

393 However, the basic problem is that since Manlove operations have not been  
394 stable or consistent the ability of a computer model to accurately predict the  
395 future operations at Manlove is in question. If Peoples Gas had maintained  
396 stable and consistent operations at Manlove, the model results would have  
397 greater credibility.

398 The February 3, 2003, report from Charles R. Connaught P.E. entitled "Manlove  
399 Field Trapped Gas Report" attached to Mr. Puracchio's direct (Peoples Gas Ex.  
400 TLP-1.1, pp.29-43) contains a section titled Historic Document Overview. This  
401 section discusses that at least three updated reservoir models have been used

402 and tuned to field performance, and that the engineers performing the  
403 simulations developed a good degree of confidence to match performance  
404 history and to evaluate future performance under various operating scenarios.  
405 (*Id.*, p. 36) The report then states “It should be realized that the predictions of the  
406 simulations are for specific operating conditions and injection/withdrawal  
407 schedules that were imposed, and that those conditions did not change from year  
408 to year in the predictions. This is certainly not the situation in the field, but future  
409 operating conditions are difficult to predict and incorporate into reservoir  
410 performance predictions.” (*Id.*) This statement demonstrates the difficulties in  
411 simulating Manlove reservoir performance. It also takes note that results are  
412 based on specific operating conditions imposed and that conditions do not  
413 change from year to year in the predictions, and that this is certainly not the  
414 situation in the real world. I believe the changing operating conditions at  
415 Manlove since the expansion to support the Hub have made predicting Manlove  
416 performance difficult.

417 Q. What is your conclusion on this topic?

418 A. Neither in this proceeding nor in ICC Docket No. 01-0707 did Peoples Gas  
419 provide any evidence that it performed studies to determine the base gas  
420 requirements prior to the expansion of Manlove to support Hub services.  
421 Peoples Gas hindsight studies that show that no base gas is required to support  
422 Hub operations are not credible and are contradictory to People Gas’ historic  
423 base gas needs at Manlove and the basic operating principles of an aquifer  
424 storage field.

425 **Base Gas Requirement for Inventory Expansion**

426 Q. What conclusions did you reach in your direct testimony regarding base gas  
427 requirements for inventory expansion at Manlove to support Hub services?

428 A. I concluded that the expansion of Manlove inventory to support Hub services  
429 required the additional injection of base gas for the continued operation of the  
430 field. The expansion of Manlove inventory, initially about 30%, and recently  
431 reaching approximately 40%, can only be sustained if the historic ratios between  
432 inventory and base gas are maintained. The Hub inventory in Manlove is stored  
433 and co-mingled in the same geologic formation and under the same conditions  
434 as ratepayer gas. I concluded that Peoples Gas had failed to provide a  
435 reasonable explanation for why the Hub does not require base gas to support its  
436 operation.

437 In my direct testimony, I used the ratio of inventory gas to base gas prior to the  
438 expansion of Manlove for Hub service to provide a rough estimate of the base  
439 gas required to support the expanded Hub inventory. I concluded that over time  
440 the historic ratio of working gas inventory to recoverable and non-recoverable  
441 base gas that existed prior to the Hub services expansion can be expected to be  
442 needed and prevail at some time in the future. In addition, I concluded that  
443 Manlove could operate and provide the 10.2 Bcf of working Hub inventory without  
444 immediately needing the full amount of base gas by the continuous injection of  
445 maintenance gas.

446 Q. How did the Company respond to your conclusions on base gas requirements for  
447 inventory expansion at Manlove to support Hub services?

448 A. Mr. Puracchio rebuttal testimony states that the Manlove field is working and that  
449 therefore demonstrates that base gas was not required to support the expanded  
450 inventory in Manlove for Hub services. As I discussed previously, Mr. Puracchio  
451 maintains that the gas injected to support Hub services was contained in the  
452 areas of the reservoir already containing gas and did not enter new or virgin  
453 areas of the reservoir. As I have discussed, in detail, Mr. Puracchio's statement  
454 is not credible and is contrary to the operation of an aquifer storage field.

455 Mr. Puracchio also indicated in his rebuttal testimony (North Shore/Peoples Gas  
456 EX. TLP-2.0, p. 12), that expansion of working gas without a higher cushion  
457 allocation cannot continue indefinitely. He also noted that at some point, if  
458 growth were to continue, larger quantities of gas would begin to predominantly  
459 enter aquifer space not previously occupied by gas and that when and if that  
460 occurs, we should expect to need a much higher cushion gas allocation.

461 Q. How do you respond to Mr. Puracchio's statement?

462 A. I found his statement and logic contradictory. The early development of  
463 Manlove, according to Mr. Puracchio, needed cushion gas since gas entered  
464 new or virgin areas of the reservoir. However, Mr. Puracchio maintains that the  
465 expansion of Manlove for Hub services required no additional cushion gas, but  
466 then states if Manlove is expanded in the future, Peoples Gas should expect to  
467 need a much higher cushion base gas allocation. This makes no sense.

468 Manlove has the same geology, is storing gas under the same conditions, and  
469 should have the same base gas needs. The fact remains; when Peoples Gas  
470 began Hub operations and started injecting third-party gas into Manlove, a  
471 significant portion of that third-party gas expanded into new or virgin areas of the  
472 reservoir, just as the gas injected before the Hub was started and just as witness  
473 Mr. Puracchio anticipates will happen if gas is injected in the future to expand  
474 Manlove. Mr. Puracchio's statements on the cushion gas needs for Hub  
475 operations at the Manlove field are inconsistent and not credible.

476 Q. Why do you believe that the historic ratio of inventory to base gas is significant  
477 when determining the volume of base gas needed to support the expanded Hub  
478 inventory?

479 A. The Manlove field has been in service since the mid 1960's, and has therefore  
480 been in operation approximately 40 years. As I have previously stated, Manlove  
481 geology has not changed. Manlove and all aquifer storage fields require base or  
482 cushion gas to support the operation of the working inventory. This is recognized  
483 in the Commission's rate-making treatment of storage fields as well as by  
484 accounting standards. All aquifer storage fields require base gas to support the  
485 gas volumes withdrawn from those fields.

486 Since its development, Manlove has also required the periodic injection of  
487 additional volumes of base gas, or maintenance gas, to maintain its peak day  
488 and annual inventory performance. The table in my direct testimony, ICC Staff  
489 Exhibit 10.0, p. 17, demonstrates that the Peoples Gas initially expanded

490 Manlove inventory by 30% with no addition of base gas. No credible explanation  
491 has been provided by Peoples Gas as to how approximately 40 years of  
492 operation history requiring the support of base gas for inventory suddenly  
493 changed with the expansion of Manlove to provide Hub services.

494 Q. Did Peoples Gas provide any studies that were performed at the time of its  
495 decision to expand Manlove for Hub services that determined no additional base  
496 gas was needed?

497 A. No. Peoples Gas has not produced any reservoir studies showing that the Hub  
498 would not require any base gas support from the time period when Peoples Gas  
499 made its initial decision to operate the Hub nor for any subsequent time period.  
500 In short, Peoples Gas claim that no base gas was required to support Hub  
501 operations is contrary to the 40 year history of base gas requirements from the  
502 field as well as the operation and theory behind all aquifer storage fields.

503 Q. In your opinion, what would have had to occur for Mr. Puracchio's claim that the  
504 Manlove Field did not require additional base gas to initially provide Hub services  
505 to be true?

506 A. In order for Peoples Gas' contention that the inventory expansion to support the  
507 Hub required no base gas, Peoples Gas would have had to previously inject too  
508 much base gas into Manlove. Peoples Gas can not have it both ways. When  
509 Manlove base gas needs are determined, it either initially injected too much base  
510 gas before expanding Hub services or failed to support the Hub inventory with  
511 adequate base gas. My review indicates that Peoples Gas failed to inject base

512 gas to support the Manlove Hub inventory and then determined that it could inject  
513 maintenance gas over time to make up for that initial base gas shortfall  
514 associated with the Hub expansion.

515 Q. Are Peoples Gas' statements on the complexity of Manlove geology correct and,  
516 if so, do you believe Manlove performance is difficult to predict?

517 A. Yes. Manlove's geology is complex and predicting Manlove performance is  
518 difficult. Given that this is not in dispute, Peoples Gas' testimony does not  
519 explain how it knew Manlove could be expanded to serve the Hub with no  
520 additional base gas.

521 Q. Given the complexity of operating the Manlove storage field, was it prudent for  
522 Peoples Gas to expand the Manlove storage field to provide Hub services  
523 without conducting a reservoir study?

524 A. No. Peoples Gas has presented no evidence that it evaluated the expansion of  
525 Manlove for Hub services to determine if Manlove had the capability to perform  
526 Hub services. Manlove has complex geology and Manlove's performance is  
527 difficult to predict, so how was Peoples Gas able to enter into agreements to  
528 provide Hub services with apparently no knowledge that Manlove could perform  
529 the Hub services? The only study used by Peoples Gas to justify its position that  
530 no base gas was needed to support the Hub inventory concludes gas saturations  
531 increased in existing areas of the reservoir already containing gas. This  
532 conclusion could be reached only after the gas was injected, not prior to the  
533 expansion.

- 534 Q. If Peoples Gas has not injected additional base gas to support the expansion of  
535 Manlove for Hub services, how is Manlove able to operate?
- 536 A. This same question was posed in my direct testimony, ICC Staff Exhibit 10.0,  
537 page 22 to 23, and I responded that “I do not know”. At that time, I also indicated  
538 that the information I requested initially in Docket No. 01-0707 PGA case to be  
539 included a part of Peoples Gas’ next rate filing, which was not provided its filing in  
540 this docket, might answer this question.
- 541 Q. Did Peoples Gas provide any studies regarding base gas needs in its rebuttal  
542 filing?
- 543 A. Yes. Mr. Puracchio claims in his rebuttal testimony (North Shore/Peoples Gas  
544 Ex. TLP-2.0, page 3 to 13, lines 50 to 276) that the studies (Exhibits TLP2.1 to  
545 2.9) attached to his rebuttal testimony demonstrate that no additional base gas  
546 was needed for the expansion of Manlove for Hub services and that Manlove is  
547 performing as expected.
- 548 Q. Do you agree with Mr. Puracchio’s claims regarding the studies attached to his  
549 rebuttal testimony?
- 550 A. No. Peoples Gas’ studies failed to provide any information on how base gas  
551 requirements were determined over time for the Manlove aquifer, or what the  
552 historic relationship has been between working inventory in Manlove and base  
553 gas. Instead, as discussed in detail previously, Peoples Gas provides studies for  
554 a given point in time that purport to demonstrate Manlove is operating properly

555 with its existing base gas. Peoples Gas provided no information showing that it  
556 correlated the studies provided in its rebuttal testimony neither to the historic  
557 performance of the Manlove field nor to any previous studies to determine base  
558 gas needs. Without this correlation to previous studies, the new study results are  
559 questionable.

560 Q. Can you speculate on why the Manlove field appears to be operating properly?

561 A. In my direct testimony, ICC Staff Exhibit 10.0, page 22 to 23, I stated it appears  
562 that Manlove can operate and provide 10.2 Bcf of working gas without the full  
563 amount of recoverable and non-recoverable base gas by the continuous injection  
564 of maintenance gas. I believe the continuous injection of maintenance gas has,  
565 in the short-term, allowed Manlove to operate, but in the long-term, historic  
566 inventory to base gas ratio will again be needed. As I discuss below, this gas will  
567 likely come from higher percentages of gas retained from future injections.

## 568 **Maintenance Gas Injections into Manlove**

569 Q. What conclusions did you reach in your direct testimony regarding maintenance  
570 gas injections into Manlove?

571 A. I concluded that the Manlove field needs periodic injections of maintenance or  
572 base gas for it to continue to meet peak day and annual inventory demands.

573 I also discussed how Peoples Gas changed its policy of periodically injecting  
574 base gas into Manlove as needed and recovering the cost of this base gas when  
575 it filed rate cases. With the creation of the Hub, Peoples Gas started to

576 continually inject base gas, calling it maintenance gas, and flowed the cost of this  
577 maintenance gas through the PGA. The Commission stopped this practice as a  
578 result of the Commission's Order in Docket No. 01-0707 (Peoples Gas 2001  
579 PGA Case) where the Commission ordered Peoples Gas to revise its  
580 maintenance gas accounting procedures and to ensure all customers/consumers  
581 bear equal responsibility for maintenance gas.

582 Finally, I concluded Peoples Gas request for the capitalization of 7.88 MMDth of  
583 base gas at a cost of \$39,019,000 should be denied. I also questioned whether  
584 Peoples Gas' actions were in compliance with the Commission's Order from  
585 Docket No. 01-0707 that required all customers/consumers bear equal  
586 responsibility for maintenance gas.

587 Q. What was Peoples Gas' response to your conclusions on maintenance gas  
588 injections into Manlove?

589 A. Peoples Gas does not dispute the history of its policies regarding the injections of  
590 base or maintenance gas or the accounting treatment over time for this gas.  
591 However, Peoples Gas did not address my concerns that it was not in  
592 compliance with the Commission's Oder in Docket No. 01-0707 that required  
593 Peoples Gas to ensure that all customers/consumers bear equal responsibility for  
594 maintenance gas.

595 Q. Do you accept witness Puracchio's statements that Peoples Gas' current 3.5%  
596 maintenance gas injections are adequately supporting the operation of Manlove  
597 for the long term?

598 A. No. Witness Puracchio discusses (North Shore/Peoples Gas Ex. TLP-2.0, pages  
599 4 to 13) how the studies conducted by Peoples Gas support its determination of  
600 base gas needs for Manlove. Peoples Gas had initially determined through  
601 studies and analyses that maintenance gas injections at a level of 2% of injected  
602 volumes would adequately support the operation of Manlove. However, Peoples  
603 Gas now determines after actual testing of the Manlove field that the 2% of  
604 injected volume is not adequate to support the continued operation of Manlove.  
605 Instead, the studies indicated that Peoples Gas needed to almost double the  
606 maintenance gas volumes by suggesting that 3.5% of injected volumes are now  
607 needed to support Manlove performance.

608 Q. Mr. Puracchio provides a graph (North Shore/Peoples Exhibit TLP-2.6) that he  
609 apparently claims shows that cushion gas requirements were high in early years  
610 of Manlove development and decrease in later years, do you agree?

611 A. No. This graph provides a 7-year running average of the additional cushion gas  
612 added to the field since the field began operation and shows that the percent of  
613 total injections varied from 1.2% to 6.3% from 1964 to 2006. However, it should  
614 be noted that this graph covers a time period containing both the periodic (inject  
615 cushion gas when Manlove performance declines 1964 to 1998) and the  
616 continuous (inject a percentage of volume continuously 1999 to 2006) gas  
617 injection of maintenance gas to support Manlove operations. Since Peoples Gas  
618 employed two completely different cushion gas injection methodologies, it makes  
619 any conclusions drawn from the graph suspect. The only conclusion I can reach  
620 from Mr. Puracchio's graph is that maintenance or base gas requirements for

621 Manlove have and do vary over time and Peoples Gas ' ability to predict its base  
622 or maintenance gas needs is questionable. I can not conclude from Mr.  
623 Puracchio's testimony that maintenance gas needs, at Manlove, will not increase  
624 in the future.

625 Q. Please explain why you are concerned about the need for future maintenance  
626 gas injections to support Manlove operations?

627 A. I have concluded that Peoples Gas was able to avoid the injection of additional  
628 base gas when Manlove was expanded for Hub services by the continuous  
629 injection of maintenance gas. However, maintenance gas needs have just  
630 increased from 2% to 3.5% of injected volumes and Mr. Puracchio's testimony  
631 certainly does not demonstrate that the percentage allocation for maintenance  
632 gas will not have to be increased in the future.

633 Q. Why do you believe Peoples Gas changed its maintenance or base gas injection  
634 practices when the Hub was created?

635 A. I have concluded that Peoples Gas' strategy for offering Hub services appears to  
636 be one where it continuously makes maintenance gas injections to mask the fact  
637 that the expanded inventory at Manlove for the Hub required additional base gas.  
638 Peoples Gas then changed its accounting procedures to allow maintenance gas  
639 costs to flow through the PGA as a cost to ratepayers with none of those costs  
640 allocated to the Hub. This allowed Peoples Gas' Hub cost allocation to omit any  
641 costs associated with the necessary base gas to support its operations

642 Q. Is the increase of maintenance or base gas injections from 2% to 3.5% of the  
643 inject volume significant?

644 A. Yes. Mr. Puracchio states (North Shore/Peoples Gas Ex. TLP-2.0, page 9, lines  
645 194 to 198) that 2% of the cushion gas allocation amounts to 0.7 MMDth and  
646 3.5% would represent 1.3 MMDth for an increase of 0.6 MMDth. However, what  
647 is more significant is the cost associated with this gas. Using Peoples Gas  
648 system average price for gas in 2006 of \$8.75/Dth, the annual cost of the  
649 maintenance gas increases from \$6,125,000 ( $\$8.75/\text{Dth} \times 700,000 \text{ Dth} =$   
650  $\$6,125,000$ ) to \$11,375,000 ( $\$8.75/\text{Dth} \times 1,300,000 \text{ Dth} = \$11,375,000$ ) for an  
651 annual increase of \$5,250,000 ( $\$11,375,000 - \$6,125,000 = \$5,250,000$ ). At the  
652 current level of gas costs even a small percentage increase in maintenance or  
653 base gas allocations results in significant cost increases.

654 Q. What else does the increase in the percentage retained for maintenance gas  
655 signify to you?

656 A. Peoples Gas' need to retain a higher percentage of maintenance gas indicates to  
657 me that my concern that the reservoir would require additional base gas volumes  
658 to support Hub operation at the same ratio of working gas to base gas that  
659 existed prior to the Hub expansion is occurring. Peoples Gas' use of  
660 maintenance gas also suggests that Peoples Gas made the conscious decision  
661 at the time of the Hub expansion to not inject the necessary gas volumes to  
662 support Hub operations and instead elected to inject this gas over time.

663 Q. How does the decision to inject the necessary base gas over time potentially  
664 impact the cost of this maintenance or base gas?

665 A. In general, it will likely increase the cost of that base gas. Using the 2006 system  
666 average cost of gas of \$8.75/Dth the cost of the 7.88 MMDth of cushion gas  
667 recovery requested by Peoples Gas in the instant proceeding is \$68,950,000  
668 (\$8.75/Dth X 7,880,000 Dth = \$68,950,000) instead of the \$39,019,000 which is  
669 based of the average cost of gas over the period.

670 As I discussed in my direct testimony, ICC Staff Exhibit 10.0, pages 21 to 23, the  
671 average system gas cost in 1999, when the Hub expansion began was \$2.53/Mcf  
672 and using my rough estimate for base gas of 45.3 Bcf needed to support the Hub  
673 operations, the resulting cost for base gas in 1999 would have been  
674 \$114,609,000. Using the 2006 average system cost of \$8.75/Mcf, the cost of  
675 45.3 Bcf of base gas would be \$396,375,000. Peoples Gas' decision not to inject  
676 base gas when Manlove was expanded to support the Hub has resulted in a  
677 significant cost exposure to ratepayers for the future injections of maintenance or  
678 base gas to support the Hub operations.

679 Q. What is your recommendation in this proceeding regarding Peoples Gas' request  
680 for cost recovery of \$39,019,000 for maintenance or base gas injections of 7.88  
681 MMDth for Manlove field.

682 A. I recommend the Commission disallow Peoples Gas' request for cost recovery of  
683 the \$39,100,000. Peoples Gas' decision to expand Manlove for Hub services  
684 was not supported by studies, calculations, or analysis and was imprudent.

685 Peoples Gas has therefore not demonstrated the prudence of its 7.88 MMDth of  
686 maintenance or base gas injections. Further, I do not believe Peoples Gas has  
687 complied with the Commission's Order in Docket No. 01-0707 that required all  
688 customers/consumers to bear the cost of maintenance gas for Manlove.

689 **Failure to Justify Hub Economics**

690 Q. What conclusions did you reach in your direct testimony regarding the Peoples  
691 Gas' failure to justify Hub economics?

692 A. I concluded that Peoples Gas failed to perform studies, calculations, or analyses  
693 of the economics of expanding Manlove to provide Hub or non-tariff services. I  
694 also concluded that Hub services impact ICC tariffed rates and that Peoples Gas  
695 has not demonstrated that the costs incurred by Illinois ratepayers are just and  
696 reasonable. Peoples Gas has also failed to demonstrate that the expansion of  
697 Manlove for Hub services did not require additional base gas, or that its injections  
698 of maintenance gas will support the on going operations of Manlove.

699 I also noted that Peoples Gas has been inconsistent in its statements regarding  
700 peak day Hub services which impacts cost allocation issues. The Commission's  
701 Order in Docket No. 01-0707 found Hub revenue should flow through the PGA  
702 since PGA assets were used to provide Hub services. In addition, I conclude  
703 both peak day and working inventory from the Manlove storage complex should  
704 be allocated to the Hub as well as PGA assets (gas supply costs, leased storage  
705 costs, and pipeline transportation costs) used in providing Hub services.

706 Q. What was Peoples Gas' response to your conclusions on its failure to justify Hub  
707 economics?

708 A. Peoples Gas failed to directly respond to much of my direct testimony other than  
709 to maintain the Hub is a benefit to ratepayers and to the operation of Manlove.

710 Q. What does Peoples Gas maintain is a benefit to Manlove operation that results  
711 from the Hub?

712 A. Peoples Gas witnesses Thomas E. Zack, North Shore/Peoples Gas Ex. TZ-2.0,  
713 p. 66, and Thomas L. Puracchio, North Shore/Peoples Gas Ex. TLP-2.0, pp. 13  
714 and 14, claim that the expansion of inventory for the Hub has extended  
715 Manlove's decline curve and benefits the ratepayer.

716 Q. Has Peoples Gas made any similar claims in the past?

717 A. Yes. Peoples Gas made the same claim in Docket No. 01-0707 which the  
718 Commission rejected. In that proceeding, the Commission's Order on page 80  
719 indicated, in part:

720 Mr. Puracchio testified that PGL cycled more than 27 Bcf of gas per  
721 season at Manlove. Injecting more gas extends the field decline  
722 point, which extends how long Manlove is useful for storage. When  
723 more gas is injected, less gas becomes trapped. (Id. At 7; Tr. 681).  
724 During the time period in question, PGL personnel successfully  
725 extended the decline point of Manlove, which increased Manlove  
726 Field's storage capability. (Tr. 681). PGL presented no evidence  
727 establishing that this increase capacity was used to benefit  
728 consumers directly, through use of this extra capacity, or indirectly,  
729 through profits from the use of this extra capacity."

730 (emphasis added)

731 Q. Has Peoples Gas provided any studies, analyses, etc. in this proceeding that  
732 shows what benefits ratepayers receive from the extension of a decline point at  
733 Manlove Field?

734 A. No. Peoples Gas has merely restated the same claim it made in Docket No. 01-  
735 0707, without any corroborating analysis. Therefore, consistent with the  
736 Commission's prior Order, Peoples Gas has failed to show any benefits that  
737 accrue to rate payers as a result of Hub operations.

738 Q. Aside from Peoples Gas' failure to support the economic benefits associated with  
739 the Hub accruing to ratepayers, did Peoples Gas address any other topics with  
740 the Hub?

741 A. Yes. Mr. Zack discusses the Hub's peak day service offerings?

742 Q. Does the Hub provide peak day service?

743 A. I am not sure. In my direct testimony, ICC Staff Exhibit 10.0, pp. 30 to 31, I  
744 discussed Peoples Gas' statements on whether Hub services are firm or  
745 interruptible. During the 01-0707 PGA Case, Peoples Gas maintained Hub  
746 services were interruptible but failed to interrupt the Hub to the detriment of  
747 ratepayers during the 2000 to 2001 winter season. In response to a Staff Data  
748 Request ENG 2.13 in this proceeding, Peoples Gas states that it allocated  
749 23,899 Dth of peak day capacity to the hub for the period 1999 to 2006, which  
750 conflicts with its testimony in the 01-0707 case. Mr. Zack's rebuttal testimony in  
751 the instant proceeding now states (North Shore/Peoples Gas EX. TZ-2.0, p. 69,

752 “Peoples Gas is no longer marketing services supported by this peak day  
753 deliverability and will not have those obligations after the order in this case”.  
754 Peoples Gas statements are conflicting as to whether or not the Hub is providing  
755 peak day service.

756 Q. How did Peoples Gas allocate peak day costs to the Hub?

757 A. I do not know. As stated above, Peoples Gas’ testimony on peak day Hub  
758 services is inconsistent.

759 Q. How does Peoples Gas allocate PGA recoverable gas costs to the Hub?

760 A. I do not know. When Peoples Gas initially created the Hub, it did not flow Hub  
761 revenue through the PGA, and claimed in the 01-0707 PGA case that the Hub  
762 did not use PGA recoverable gas costs to provide Hub services. Peoples Gas  
763 apparently filed for its Federal Energy and Regulatory Commission (“F.E.R.C.”)  
764 Hub tariffs on the bases that PGA recoverable gas costs were not being used to  
765 provide Hub services. The Commission’s Order in the 01-0707 PGA rate case  
766 required Hub revenue flow through the PGA since PGA recoverable gas costs  
767 were used to provide Hub services. I do not know if or how Peoples Gas has  
768 implemented the Commission’s Order in its F.E.R.C. tariffs. Peoples Gas  
769 rebuttal testimony does not address this issue.

770 Q. Has Peoples Gas demonstrated that Illinois rate payers have not been harmed  
771 by Peoples Gas’ Hub cost allocations?

772 A. No. Peoples Gas has not demonstrated that Illinois ratepayers have not been  
773 harmed by Peoples Gas' Hub operations. In fact, Staff believes Illinois  
774 ratepayers have been and will continue to be harmed by the Peoples Gas'  
775 operation of the Hub. Peoples Gas' testimony is incomplete and fails to even  
776 address the Commission's Order in the 01-0707 PGA Case.

777 Q. Has Peoples Gas demonstrated that Hub revenues are greater than the Hub's  
778 costs to ratepayers?

779 A. No. Staff witness Rearden, ICC Staff Ex. 12.0 and 24.0, provides Staff's  
780 analyses of Hub revenues and the costs to ratepayers.

781 **Conclusions Regarding Hub Services at Manlove**

782 Q. What do you conclude regarding maintenance gas injections to support the  
783 increased working gas inventory in Manlove storage field for the Hub?

784 A. Ratepayers are being allocated a charge of 2% of the volume for all injections  
785 into Manlove to support the migration of working inventory to base gas. As of  
786 2006, this charge was increased to 3.5%. Peoples Gas has not demonstrated  
787 that the rates for Hub services are bearing an appropriate share of maintenance  
788 gas costs. Staff questions whether Peoples Gas has complied with the  
789 Commission's Order in the 01-0707 PGA Case that required **all**  
790 customers/consumers to bear the cost of maintenance gas for Manlove.

791 Q. What have you determined regarding the issue of the Hub being allocated peak  
792 day capacity in addition to working inventory at Manlove?

793 A. I determined that if the Hub is being allocated both peak day and working  
794 inventory from the Manlove storage complex, the entities that make use of the  
795 Hub services should bear its allocation of costs for the system assets needed to  
796 provided these services. Peoples Gas' statements regarding whether the Hub is  
797 allocated peak day services are inconsistent. Peoples Gas also fails to address  
798 if and how it assigns the costs associated with system and PGA assets to the  
799 Hub and its basis for those values, and as a result, Staff believes ratepayers  
800 maybe subsidizing Hub operation.

801 Q. What conclusions have you reached regarding the issue of the failure of Peoples  
802 Gas to increase recoverable and non-recoverable gas to support the working gas  
803 inventory in Manlove Field before providing Hub services?

804 A. Peoples Gas' failure to inject recoverable and non-recoverable gas to support the  
805 working gas inventory in Manlove for Hub services is troubling. In this  
806 proceeding, Peoples Gas has allocated and requested recovery of costs  
807 associated with recoverable and non-recoverable base gas at Manlove from  
808 ratepayers. However, Peoples Gas has not demonstrated that it has  
809 appropriately allocated recoverable and non-recoverable base gas to the Hub to  
810 support the Hub's operations, even though my testimony from the 01-0707 PGA  
811 Case requested Peoples Gas address this and similar topics in its testimony for  
812 its next rate case filing.

813 Further, the fact that the Commission's Order in the 01-0707 PGA Case directed  
814 Peoples Gas to ensure that all customers/consumers bear the cost of

815 maintenance gas injection into Manlove is relevant to the discussion of the failure  
816 of Peoples Gas to inject or allocate any recoverable and non-recoverable gas at  
817 Manlove when it expanded working inventory to support Hub services. The  
818 Commission conclusion that all customers/consumers bear the costs of  
819 maintenance gas certainly indicated that the cost of recoverable and non-  
820 recoverable gas were viewed by the Commission as a reasonable cost to be  
821 allocated to the Hub. It appears reasonable that if this logic is followed the Hub  
822 should also bear the cost of all recoverable and non-recoverable gas that support  
823 its 10.2 Bcf working inventory in Manlove, and not just the maintenance gas  
824 which represents only the volume of working inventory lost to base gas.

825 Q. What is your recommendation in this proceeding regarding the issue of  
826 recoverable and non-recoverable base gas and maintenance gas requirements  
827 to support Hub services?

828 A. Peoples Gas has provided no reasonable explanation or justification for not  
829 having the Hub bear its share of recoverable and non-recoverable base gas and  
830 maintenance gas that is required to support its working inventory in Manlove.  
831 The testimony of Staff witness Rearden, ICC Staff Exhibit 12.0 provides analyses  
832 comparing the incremental costs of providing Hub services using the ratepayer  
833 assets that I determine are required to support the Hub and the revenue  
834 generated from Hub activity.

835 In this proceeding, Peoples Gas requested the capitalization of an additional 7.88  
836 MMDth of injections as cushion or base gas into Manlove Field, at a cost of

837 \$39,019,000. (Direct Testimony of Thomas L. Puracchio, Peoples Gas Ex. TLP-  
838 1.0, page 11) My analysis of Peoples Gas' expansion of Manlove field to support  
839 Hub services discloses that Peoples Gas failed to inject or allocate to the Hub the  
840 base gas required to support the working inventory that is dedicated to Hub  
841 services. Peoples Gas failed to provide a reasonable explanation or studies that  
842 are correlated to Manlove performance over time to demonstrate that additional  
843 base gas was not needed to support the expansion of Manlove for Hub services.

844 Since Peoples Gas failed to demonstrate that the Manlove expansion could not  
845 be accomplished without additional base gas, it is clear that Illinois jurisdictional  
846 customers are supporting the base gas utilized for Hub operations. As a result,  
847 ratepayers are already bearing the cost of base gas that is supporting Hub  
848 services, and it would be inappropriate to increase recoverable base gas and  
849 exacerbate the subsidization of non-jurisdictional activities by Illinois ratepayers.

850 Thus, I recommend that the Commission not allow the cushion gas (recoverable  
851 and non recoverable base gas) capitalization requested by Peoples Gas.

852 Q. What is your overall conclusion regarding the Hub?

853 A. I am concerned that the Hub is not bearing its share of the cost of the assets  
854 needed to support Hub services, and as a result, ratepayers may be subsidizing  
855 Hub operations. Staff witness Rearden, in ICC Staff Exhibit 24.0 provides an  
856 analysis that compares the incremental revenue generated by the Hub and the  
857 incremental costs of the assets needed to provide Hub services. Staff witness  
858 Rearden concludes Peoples Gas' decisions to create the Hub and to continue

859 Hub operations were imprudent. Peoples Gas has not demonstrated that the  
860 operation of the Hub is not being subsidized by ratepayers and that its operation  
861 is in the best interests of ratepayers from both an economic as well as any  
862 intangible means in its rebuttal testimony.

863 Q. Does this conclude your prepared rebuttal testimony?

864 A. Yes.