STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

Illinois Commerce Commission	)	
On Its Own Motion	)	
	)	
vs.	)	
	)	**Docket No. 03-0699**
Illinois Power Company	)	
d/b/a AmerenIP	)	
	)	
Reconciliation of revenues collected under	)	
gas adjustment charges with actual costs	)	
prudently incurred.	)	

AmerenIP's Brief on Exceptions to the Administrative Law Judge's Proposed Order

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TABLE OF CONTENTS

Page

I. Introduction and Summary of AmerenIP's Exceptions 1

II. Argument on Exceptions to Conclusion on Hillsboro Storage Field Issues 9

A. The Record Demonstrates That AmerenIP Prudently and Aggressively Investigated the Cause of the Hillsboro Deliverability Decline. 10

1. Expansion of the Hillsboro Storage Field 11

2. Identification of a Deliverability Problem at Hillsboro 12

3. AmerenIP's Investigation of Potential Structural Causes for the Hillsboro Deliverability Decline 12

4. Peterson Metering Study 16

5. Further Investigation and Analysis of Possible Structural Causes for the Hillsboro Deliverability Decline 18

6. Determination of the Cause of the Hillsboro Deliverability Decline 20

7. Summary 21

B. Staff's Arguments Do Not Show That AmerenIP Was Imprudent in Investigating, Determining and Remediating the Causes of the Hillsboro Deliverability Decline 23

1. Specific Hillsboro Storage Field Items 25

a. 1994 I/W Well Charts -- AmerenIP Was Not Imprudent in Not Using Well Chart Data in 2000 to Determine the Amount of the Injection Meter Over-Registration 25

b. Hillsboro Withdrawal Orifice Metering 31

i. Regulations and Guidelines Cited by Staff Do Not Apply to the HSF Withdrawal Metering 32

ii. Earlier Discovery of the Mis-labeled Orifice Plate on the HSF Withdrawal Meter Would Not Have Led to Earlier Discovery of the Amount of the Injection Meter Over-Registration 35

c. Withdrawal (Top Gas)Volumes 36

d. Even if AmerenIP Had More Accurately Estimated the Extent of the Injection Meter Over-Registration in 2000, 2001 or 2002, the Company Could Not Have Prudently Begun to Inject Substantial Replacement Inventory Before Eliminating Possible Reservoir or Structural Causes for the Hillsboro Deliverability Decline 38

TABLE OF CONTENTS
(continued)

Page

2. The Staff Witness's "Overall Storage Concerns" Do Not Demonstrate That AmerenIP Was Imprudent in its Investigation and Remediation of the Hillsboro Deliverability Decline or That the Company Should Have Discovered the Cause of the Deliverability Decline and Begun to Reinject Replacement Gas Inventory in 2000.. 43

a. Reduction in Peak Day Capacity 44

b. Manpower (Storage Field Supervisors) 45

c. Capital Expenditures 48

d. Identification of Problems/Root Cause Analysis 52

i. December 2000 Incident 53

ii. Gas Dispatch Tracking 54

C. The Reasoning in the Proposed Order's Conclusion is Flawed and Does Not Support a Determination That AmerenIP Was Imprudent in its Investigation and Determination of the Cause of the Hillsboro Deliverability Decline 57

D. Alternative Exception: Even if the Commission Were to Conclude that the Company was Imprudent in Failing to More Accurately Estimate the Amount of the Injection Metering Error, the Company Was Not Imprudent in Not Beginning to Reinject Significant Quantities of Gas in 2000 and 2001 67

III. Argument on Exceptions to Conclusions on Pipeline Overrun Charges 71

A. Overview 71

B. March 9 Pipeline Day 74

C. April 6 Pipeline Day 78

D. The Staff Witness's Assertions of Imprudence with Respect to the March 9 and April 6 Overruns Were Based on Hindsight and Substitution of Judgment and Should Be Rejected by the Commission 79

IV. Conclusion 83

I. Introduction and Summary of AmerenIP's Exceptions

Illinois Power Company d/b/a AmerenIP ("AmerenIP", "IP" or the "Company") submits this Brief on Exceptions to the Administrative Law Judge's ("ALJ") Proposed Order ("PO"). AmerenIP takes exception to the ALJ's conclusion that AmerenIP acted imprudently in its response to deliverability problems encountered at its Hillsboro Storage Field ("Hillsboro", "HSF" or the "Field"). (PO, pp. 33-35.) In addition, AmerenIP takes exception to the PO's conclusion that the Company acted imprudently in incurring pipeline overrun charges on just two of the five interstate pipelines supplying it on just two occasions during 2003. (PO, p. 5.) On each of these issues, the PO adopts the Staff witness's position.

AmerenIP's exceptions to the PO's conclusion concerning Hillsboro are based on three main points:

(1) The record affirmatively establishes that the Company acted prudently in its investigation and remediation of the Hillsboro deliverability decline.

(2) The specific arguments advanced by Staff did not establish that AmerenIP acted imprudently in investigating, determining and remediating the cause of the Hillsboro deliverability decline.

(3) The reasoning in the PO's Conclusion lacks foundation and does not provide a basis for concluding that AmerenIP acted imprudently in investigating and determining the cause of the Hillsboro deliverability decline.

Additionally, and as an alternative exception, assuming that there is any basis at all for finding that the Company acted imprudently in connection with the investigation and remediation of the Hillsboro deliverability decline (which there is not), AmerenIP takes exception to the PO's conclusion that "the Company was imprudent because it did not begin reinjecting substantial quantities of gas inventory into Hillsboro in 2000, 2001 or even 2002." (PO, p. 33.) The record shows that the Company acted prudently in not beginning to reinject

substantial quantities of gas inventory into HSF in 2000 or 2001, while the Company continued to investigate the possible causes of the deliverability decline.

Staff argued in this case that in AmerenIP's recent gas rate case, Docket 04-0476, the Commission did not allow AmerenIP to earn a return on a portion of its costs associated with the replacement of base gas caused by the Company's actions at Hillsboro, and that this position was advocated by Staff "based upon virtually the same information that was presented in the instant proceeding." (Staff Init. Br., p. 47.) With that in mind, AmerenIP points out that the ALJ reached the following conclusion in the Proposed Order in Docket 04-0476 concerning the prudence of AmerenIP's actions at Hillsboro:

> Finally, the Commission concludes that the record establishes the prudence of Illinois Power's actions in connection with the investigation and resolution of the declines in the deliverability of the Hillsboro Storage Field that resulted from the depletion of the storage field inventory, which in turn was caused by the turbine injection metering error. The record demonstrates that IP acted aggressively and expended considerable resources in attempting to identify and resolve the causes of the Hillsboro Storage Field deliverability decline. Based on the record, the Commission concludes that IP's actions and decisions met the standard of prudence that the Commission has adopted. . . . [T]he Commission has carefully considered all of Staff's arguments relating to prudence in arriving at its conclusions on this issue but concludes that the record does not establish that Illinois Power acted imprudently or that the increased base gas inventory value determined by IP should be excluded from rate base on grounds of any imprudence. (Docket 04-0476, Proposed Order, Mar. 22, 2005, p. 28.)

In its final Order in Docket 04-0476, the Commission did not accept the ALJ's recommendation that the additional HSF base gas cost should be included in rate base, and deleted the above text from the final Order. (Order in Docket 04-0476, May 17, 2005, p. 27.) However, in so doing, the Commission did *not* make a finding that AmerenIP had acted imprudently. Moreover, as discussed in §II.B.1.a below, the Appellate Court affirmed the Commission's determination on the basis that the record showed the Company's estimate of the amount by which the base gas

inventory had been depleted was not reliable -- not on the basis that the Company had been imprudent.[1] Yet, in *this* case, the ALJ, on the basis of what Staff describes as the same information relating to the same underlying events, has concluded that AmerenIP *was* imprudent in its actions in connection with the investigation and resolution of the Hillsboro deliverability decline. These outcomes are fundamentally inconsistent. As this brief will show, the Commission in this case must reach the same conclusion with respect to the prudence of AmerenIP's actions that the ALJ reached in Docket 04-0476.

With respect to the pipeline overrun charges, the prudence of AmerenIP's operations is demonstrated by the fact that the two instances of overrun charges that the PO concludes were imprudently incurred were the *only* pipeline overrun charges the Company incurred in the three-year period 2002 through 2004. Further, review of the Company's actions on the two days in question, in light of the circumstances facing the Company and the information available to it, shows that the overrun charges were not imprudently incurred.

AmerenIP's argument in support of its exceptions is set forth in this brief. Appendix A hereto contains the PO redlined to show AmerenIP's proposed revisions. The redlined PO includes alternative replacement language for use if the Commission concludes that AmerenIP was imprudent because it did not begin reinjecting replacement gas inventory in 2002.[2]

Following is a more detailed summary of AmerenIP's exceptions:

Hillsboro Storage Field. The record shows AmerenIP acted prudently in all respects in its investigation, management and resolution of the Hillsboro deliverability decline, and that

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[1]*Illinois Power Co. v. Illinois Commerce Comm'n*, No. 3-05-0479 (3d Dist. May 12, 2006), slip opinion at p. 14.

[2]In addition to revised and additional language reflecting the exceptions discussed in this brief, Appendix A contains revised and additional language to incorporate a number of corrections and additions to the summaries of the parties' positions in the PO.

there should be no disallowance relating to Hillsboro. AmerenIP prudently and aggressively pursued the causes of the decline in deliverability that began to be manifested after the capacity of the storage reservoir was approximately doubled in 1993. The Company applied significant attention and substantial internal and external resources to investigation of the problem and identification of its causes. Based on the fact that the deliverability issues arose after the storage reservoir was expanded, AmerenIP prudently focused on possible structural causes for the deliverability decline, including the possibility of an unidentified substructure to which injected gas was migrating, losses of gas through leaks or fractures in the reservoir structure or the caprock, unusual dispersion of injected gas rendering it unrecoverable, and underground impediments in the area of withdrawal wells that limited the ability to access and withdraw the gas inventory. AmerenIP also investigated potential problems with plant metering and other above-ground equipment. Further, AmerenIP acted prudently and reasonably in not beginning substantial reinjections of gas inventory into HSF while still investigating possible structural causes, since unless and until these possibilities were fully investigated and eliminated, reinjected gas could have been lost and become non-recoverable.

It was ultimately determined, however, that the cause of the HSF deliverability decline was over-registration of gas injections by the main plant injection meters, which had been recording more gas being injected into the Field than was actually the case. AmerenIP discovered and remediated the metering problem in 1999, but underestimated the cumulative effect of the over-registration. The Company continued to investigate potential reservoir or structural causes. In early 2003, AmerenIP completed its investigations, ruled out all remaining potential structural causes for the Hillsboro deliverability decline, and determined that the

injection meter over-registration had been the cause of the problem. The Company commenced reinjecting gas inventory during 2003.

Staff contended that AmerenIP should have recognized the true extent of the injection meter over-registration and begun reinjecting substantial quantities of replacement gas inventory into Hillsboro in 2000, even though at that point potential structural causes had not been eliminated. The PO adopts the Staff witness's position. Staff asserted that AmerenIP had three "opportunities" to detect sooner than 2003 that the injection meter over-registration was much larger than originally believed. However, each of Staff's three arguments is based on hindsight, fails to take into account all of (and only) the information available to and circumstances confronting AmerenIP at the time, and does not demonstrate any imprudence.

First, Staff contended that AmerenIP should have used a methodology in 2000 that it in fact employed in 2003 – the use of temperature and pressure data recorded at the individual injection/withdrawal ("I/W") wells at Hillsboro – to estimate the cumulative impact of the measurement error at the main plant injection meters. However, this I/W well data was not historically or normally used for this purpose, and records of the temperature and pressure data were not consistently maintained. In 1999 the Company only had data from one year of the six-year period. There is no basis to conclude that in 2000, reasonable management should have hit upon using the I/W well data to estimate the amount of the over-registration that had occurred on the main plant injection meters. Further, the estimate of the injection meter over-registration that AmerenIP did make at that time (through other means), although ultimately found to be inaccurate, was reasonable at the time based on the information available.

Second, Staff contended that AmerenIP failed to place a sufficiently high priority on accurate measurements for *withdrawals* from Hillsboro after its expansion, and therefore failed

to find a problem in one of the four plant *withdrawal* meters that resulted in an understatement of *withdrawals* from the Field. However, the premise of Staff's argument is that the Company should have followed maintenance and inspection practices for the HSF withdrawal meters embodied in a Commission regulation (83 Ill. Adm. Code §500.180(c)) and two American Gas Association documents that by their terms are *not applicable* to the non-custody-transfer storage field withdrawal meters. AmerenIP had maintenance and inspection practices for the withdrawal meters that were reasonable and adequate for the use to which the meters were put. Further, the HSF deliverability decline was not caused by any problems with the *withdrawal* meters; and even if AmerenIP had discovered the problem with the *withdrawal* meter sooner, this would not have changed its under-estimation (in 2000) of the main plant *injection* meter over-registration, which ultimately proved to be the cause of the deliverability decline.

Third, Staff contended that AmerenIP failed to recognize the significance of the fact that in the 1999-2000 and 2000-2001 winter seasons, it withdrew less gas from Hillsboro than it was able to withdraw before the Field's expansion. Staff asserted that this should have caused the Company to realize that Hillsboro had an "inventory problem". However, although AmerenIP was unable in those two winters to *withdraw* as much gas as it had prior to the expansion, this did not tell the Company what *volume* of gas inventory was in the reservoir. Based on the information available to AmerenIP at the time, and the potential causes it was investigating, it was quite possible that sufficient gas inventory volumes had been injected into the Field, but that IP was unable to *access and withdraw* the gas that had been injected due to structural problems such as leakage or migration from the main reservoir underground structure or obstructions in the vicinity of withdrawal wells.

Further, and perhaps more significantly, each of Staff's three arguments about missed "opportunities" was misplaced because in 2000-2001, the Company was continuing, based on the information available to it, to investigate plausible structural causes for the HSF deliverability decline. Even had AmerenIP recognized the significance of the three "opportunities" cited by Staff in 2000 or 2001, and developed a more accurate estimate of the amount of the injection meter over-registration, it would have been *imprudent* to begin reinjecting substantial quantities of gas inventory into the Field until the Company had finished investigating, and satisfactorily eliminated, the plausible structural and reservoir causes. It was not until 2003 that AmerenIP was able to eliminate the plausible structural causes and to begin to reinject substantial quantities of replacement gas inventory into HSF without risking that the reinjected gas would be lost. Based on the circumstances presented and information available in 2000, 2001 and 2002, the Company was reasonably concerned that replacement gas inventory injected into the Field could become lost and unrecoverable. Thus, Staff's arguments, and the PO's conclusion, failed to properly apply the prudence standard by not taking into account all of (and only) the information and circumstances facing management at the time.

In addition to his Hillsboro-specific arguments, the Staff witness also raised several "overall storage concerns." These "overall storage concerns" included the reduction in peak day capacity at another storage field for one winter (2001-2002), an event with respect to which the Commission, in AmerenIP's 2001 reconciliation case (Docket 01-0701) rejected Staff's recommendation for an imprudence disallowance. The "overall storage concerns" also included a reduction in the number of supervisors at AmerenIP's storage fields; a reduced level of storage field capital expenditures in certain years; and a purported inability (based on two examples) to conduct adequate root cause analysis and identify problems with the storage fields. However,

each of these "overall storage concerns" was unfounded. Perhaps more significantly, there was no causal connection between the "overall storage concerns" and the Hillsboro deliverability decline, or the speed and aggressiveness with which AmerenIP investigated, identified and remediated it. To the contrary, AmerenIP devoted significant resources to the investigation and remediation of the HSF deliverability problem, and was not constrained in its efforts by lack of manpower or capital.

Pipeline Overrun Charges. AmerenIP incurred pipeline overrun charges totaling $15,718 on two of its five pipelines on two days in 2003. Staff contended these charges were imprudently incurred, and the PO adopts the Staff position. These two incidents of overrun charges were the only two overrun charges AmerenIP incurred in the three years 2002-2004 – a total of two overrun charges out of 5,475 "pipeline days." As indicated by the low amount of the overrun charges on the two days, the amounts of the overruns were modest. AmerenIP used the same systems and procedures on the two days it incurred overruns that it used on all the other days on which it kept its deliveries on all five pipelines within allowed limits. Further, for several reasons, it is impossible for AmerenIP's gas dispatchers to know during the course of a day exactly how much gas is being delivered on each pipeline that day, or to precisely control the gas in-flows from the pipelines. AmerenIP's track record of avoiding overruns more than 99.8% of the time demonstrates that it prudently managed this function, and should not be penalized by a disallowance for the small amount of overrun charges incurred in these two instances. Further, although Staff made several hindsight-oriented suggestions as to how AmerenIP could have avoided these overruns, these suggestions would require actions that would be more costly to customers than the small amount of overrun charges AmerenIP has incurred.

II. Argument on Exceptions to Conclusion on Hillsboro Storage Field Issues

The PO concludes that "the record establishes that IP's actions in connection with the investigation, identification and remediation of the declines in deliverability of the Hillsboro Storage Field was not completely prudent" and that "the Company was imprudent because it did not begin reinjecting substantial quantities of gas inventory into Hillsboro in 2000, 2001 or even 2002." (PO, p. 33.) As a result, the PO imposes a disallowance of $6,870,109 for the 2003 reconciliation year, consisting of (i) $825,008 due to the reduced peak day capacity of HSF during the 2002-2003 winter and (ii) $6,045,101 due to the reduced working gas inventory (seasonal withdrawal capacity) available in 2003. (PO, p. 34.) The disallowance calculations are based on the theory that had the Company begun in 2000 to reinject gas to replace the inventory that had been depleted, by 2003 it would have restored the Field's peak day capacity and would have had a greater amount of working gas in inventory for withdrawal.

The PO's conclusion that AmerenIP was imprudent in its investigation, identification and remediation of the Hillsboro deliverability decline and in failing to begin reinjecting significant quantities of replacement gas in 2000, should be rejected by the Commission for three reasons. First, the record affirmatively demonstrates AmerenIP acted prudently in its investigation, identification and remediation of the HSF deliverability decline. (*See* §II.A below.) Second, Staff's arguments do not establish that AmerenIP acted imprudently in investigating and determining the cause of the Hillsboro deliverability decline, or in not starting reinjections of gas inventory until 2003. (*See* §II.B below.) Third, the reasoning in the PO's Conclusion lacks foundation and does not provide a basis for concluding that AmerenIP acted imprudently in investigating and determining the cause of the deliverability decline or in failing to begin substantial reinjections of replacement gas inventory into HSF prior to 2003. (*See* §II.C below.)

Section II.D presents an alternate exception and shows that even if Staff's principal argument (which the PO adopted) is accepted, there is not a basis for concluding that AmerenIP was imprudent for failing to begin substantial reinjections of replacement gas inventory in 2000 or 2001.

A. The Record Demonstrates That AmerenIP Prudently and Aggressively Investigated the Cause of the Hillsboro Deliverability Decline

The history of the Hillsboro deliverability issues and AmerenIP's efforts to identify and remediate the sources of the declining deliverability were described by AmerenIP witnesses Wayne Hood and Curtis Kemppainen, both Consulting Engineers in AmerenIP's Gas Operations Support Group, and Timothy Hower, President of MHA Petroleum Consultants, a geology and engineering consulting firm. Mr. Hood has been employed by AmerenIP or predecessor companies since 1977 and has been in positions directly supporting IP's gas storage fields since 1984. Mr. Kemppainen has 36 years of experience in the gas and oil industries and has been employed by IP since 1992 in gas storage and transmission operations. (IP Ex. 5.0, pp. 1-2.) Mr. Hower holds undergraduate and graduate degrees in Petroleum and Natural Gas Engineering, is a registered professional engineer, and has 23 years of experience working in the oil and gas industry, with much of that experience in the area of underground storage including design, analysis and implementation of gas storage reservoirs. (IP Ex. 6.0, pp. 1-2.)

The PO refers to the standard for judging the prudence of utility decisions and actions that the Commission has long followed:

> Prudence is that standard of care which a reasonable person would be expected to exercise under the same circumstances encountered by utility management at the time decisions had to be made. In determining whether a judgment was prudently made, only those facts available at the time judgment was exercised can be considered. Hindsight review is impermissible.
>
> Imprudence cannot be sustained by substituting one's judgment for that of another. The prudence standard recognizes that reasonable persons can have

> honest differences of opinion without the one or the other necessarily being "imprudent."[3]

In applying this standard to the context of this case, it is important to recognize that, as the Commission stated in its Order in Docket 01-0701, AmerenIP's 2001 reconciliation case, "a natural gas aquifer storage field is a complex physical system."[4] The actual characteristics of an underground reservoir and the manner in which the injected gas is dispersed into the aquifer cannot be observed directly but must be inferred from secondary information such as seismic analysis, hydrogen ion concentrations and well pressures. Further, industry experience shows that declines in deliverability are the most commonly-experienced problem in the gas storage industry, and that physical or structural problems are the most frequent causes of these deliverability declines. (IP Ex. 6.0, pp. 21-22.) Thus, in investigating the cause of the Hillsboro deliverability decline, it was logical and appropriate for AmerenIP to focus its attention on possible structural or geologic causes, in light of both overall industry experience and the specific factors at Hillsboro including the recent significant expansion of the Field.

1. Expansion of the Hillsboro Storage Field[5]

AmerenIP has had a storage field at Hillsboro since 1973; however, the Field was substantially expanded in the early 1990s. As a result of the upgrade, which was completed in 1993, the base and working gas volumes of the Field approximately doubled. (IP Ex. 5.0, p. 3.) Before the expansion, Hillsboro had five injection/withdrawal ("I/W") wells. In the expansion, nine additional I/W wells were drilled. The additional I/W wells were placed at various points

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[3]PO at 3, citing *Illinois Commerce Comm'n v. Commonwealth Edison Co.*, Docket 84-0395, Order, Oct. 7, 1987, p. 17.

[4]*Illinois Commerce Comm'n v. Illinois Power Co.*, Docket 01-0701, Order, Feb. 19, 2004, p. 25.

[5]The summary of the evidence in §II.A.1 through 6 below is a somewhat shortened version of the evidence recounted at pages 5-11 of the PO.

throughout the Field so as to enable AmerenIP to inject and withdraw the working gas inventory from the reservoir formation as the Company understood its structure. (*Id*., p. 7.) Additionally, AmerenIP increased the number of compressors, dehydration systems and regulator runs and installed other new above-ground plant equipment, including redundant programmable logic controllers and input/output devices to monitor and control the plant. In expanding the above-ground equipment, the Company replicated existing facilities that had performed satisfactorily for many years. (*Id*., p. 5.)

2. Identification of a Deliverability Problem at Hillsboro

Initially, the expanded Field performed as expected. In each of the 1993-1994 through 1996-1997 winters, Hillsboro tested at a peak deliverability of 125,000 Mcf/day or greater; and for the 1993-1994 winter, approximately 7.6 Bcf of working gas was cycled. (IP Ex. 5.0, p. 5.) In subsequent winters, however, the amounts of gas that could be withdrawn declined. (*Id*., pp. 5-6.) Based on several years of declining deliverability, AmerenIP first became concerned there could be a potential problem with HSF following the 1995-1996 winter season.[6] (*Id*., p. 6.)

3. AmerenIP's Investigation of Potential Structural Causes for the Hillsboro Deliverability Decline

AmerenIP initially focused its investigation on whether there was a reservoir or structural problem with Hillsboro, that is, whether either (i) gas injected into the Field was migrating from the underground reservoir as the Company understood its structure, or (ii) the shape of the underground structure was different than what had been expected. The result in either case would be that gas injected into the Field was moving or being pushed to areas where it could not

[6]A low withdrawal volume in a single inject-withdraw cycle would not necessarily indicate a problem, because exogenous factors such as weather and other load constraints could impact the volume of gas cycled in a given year. Observation of reduced deliverability over several years would be necessary to indicate that there could be a physical or operating problem that was reducing deliverability. (IP Ex. 5.0, pp. 6-7.)

be reached by the Field's withdrawal wells. (IP Ex. 5.0, p. 7.) Investigating whether a reservoir problem was the source of the deliverability decline was the most logical area on which to focus investigation, because HSF had been significantly expanded in 1993 and deliverability began to decline in the second winter season after the expansion. Based on the actions that had been taken to expand the Field, the possibility existed that the reservoir was physically breached during the expansion, thereby allowing portions of the newly-injected, expanded gas inventory to escape from the reservoir. (*Id*., pp. 7-8.) A related possibility was that one of the new I/W wells was drilled near an undetected fault, with the result that a portion of the gas injected into that well could migrate off structure. (*Id*., p. 8.) Yet another possibility was that the shape of the underground reservoir was not what it was believed to be, or that unknown substructures existed; in either case, some of the additional gas injected into HSF in the expansion could be migrating to areas from which it could not be recovered through the withdrawal wells. (*Id*.)

In contrast, AmerenIP did not at the outset concentrate its investigation on any potential problems with above-ground equipment. In expanding HSF, the Company had replicated and expanded existing above-ground facilities that had worked well prior to the expansion; therefore, it was not thought to be likely that a problem with above-ground facilities was the source of the deliverability problem. (*Id*., pp. 8-9.)

Because there was a wide range of specific potential causes for the deliverability problems, each of which could have warranted a unique set of corrective actions, it was appropriate for AmerenIP to take a cautious approach to identifying the actual cause of the problem. Further, it was appropriate for AmerenIP to focus initially on a potential reservoir or structural problem as the most likely cause. The potential causes included gas migration out of the storage reservoir, gas leaks to the surface or to geologic strata above the storage formation, or

damage to the I/W wells that would have inhibited gas withdrawals. (IP Ex. 6.0, pp. 6-7.) Increased gas volumes in a storage reservoir (such as were injected in the 1993 expansion) can often lead to gas migration out of the field across structural spill points; alternatively, it can create breaches in the caprock that forms a seal to hold the stored gas in place. (*Id*., p. 7.) Finally, it was important that AmerenIP first properly identify the cause(s) of the problem before designing and implementing corrective actions. (*Id*.)

To investigate potential reservoir problems as a cause of Hillsboro's declining deliverability, in 1997 AmerenIP had a vertical seismic profile ("VSP") of the Field prepared to evaluate if conducting a three-dimensional ("3-D") seismic profile of the Field would be a viable approach to defining its structure. The conclusion of the VSP study was that a 3-D seismic profile would be a viable approach, and therefore AmerenIP proceeded with a 3-D seismic analysis.[7] (IP Ex. 5.0, p. 9.) The preliminary results of the 3-D seismic study indicated that approximately 3.5 Bcf of gas had migrated to another sub-structure located to the northeast of HSF. (*Id*., p. 10.)

Based on the results of the 3-D seismic study, in November 2000 AmerenIP drilled a new well, the Furness well, to the northeast of the Field to confirm or reject the existence of the substructure and to access the gas believed to be migrating to it. (IP Ex. 5.0, p. 14; IP Ex. 6.0, p. 8.) When the new well was drilled, however, a substructure was not found. This result was not

[7]A 3-D seismic profile is developed by measuring the travel times of sound waves propagated through the sub-surface; the signals reflect off the underground rock formations and bounce back to the surface where they are recorded. The reservoir structure is thereby identified in a 3-D image because the travel time of the reflected signal from structurally higher locations is shorter than in areas where the reservoir is deeper or farther below the surface. This process is conducted across the entire reservoir area, and the resultant recorded data is processed to yield a 3-D image of the reservoir. (IP Ex. 5.0, pp. 9-10.)

consistent with the results of the 3-D seismic analysis. The Company therefore asked its external consultant to review and re-evaluate the results of the 3-D seismic survey. (IP Ex. 5.0, p. 15.)

Although drilling the Furness well did not locate an additional substructure to the northeast of the Field, this outcome did not invalidate the theory that the most likely cause of the HSF deliverability decline was that the underground structure was different than what the Company had understood it to be. (IP Ex. 6.0, p. 17.) It was still a distinct possibility that the general structural interpretation developed using the 3-D seismic data, namely, that gas was migrating away from the main reservoir, was correct, but that gas was not migrating to a separate structure specifically in the vicinity where the Furness well was drilled. (*Id*., pp. 17-18.) Based on the information AmerenIP had from the analyses it had completed as of 2001, including drilling the Furness well, there were still a number of structural or geologic causes that could have been the source of the Hillsboro deliverability decline, including the following:

- Gas losses into the caprock – in an underground reservoir, the caprock is assumed to form an impermeable seal on the top of the reservoir. In some cases, however, the caprock can be semi-permeable, so gas can migrate out of the storage reservoir into the overlying formation where it is no longer accessible. (*Id*., p. 10.)

- Unfavorable or irregular growth of the gas bubble due to adverse gas-water mobility in the reservoir – although gas injected into an aquifer like Hillsboro typically displaces the water in a piston-like manner, the injected gas can sometimes advance as thin channels or "fingers". This results in a very irregularly shaped gas bubble where, in some locations, gas migrates beyond the area of the field developed for storage. Gas that has migrated out of the developed area of the field becomes trapped and is not accessible as part of the active working gas volume. (*Id*., p. 10.)

- Gas losses across a fault or fracture in the reservoir. It is common in the gas storage industry that undetected faults or fractures (breaks or cracks in the reservoir rock) are found within storage reservoirs. Such faults or fractures can be conduits or pathways for gas to migrate out of the storage formation, causing it to be lost from the storage formation and no longer available as part of the working gas volume. (*Id*., p. 11.)

To assist in further analysis of the 3-D seismic data, in June 2001 AmerenIP had crosswell seismic surveys performed between the Furness and Snyder No. 2 well and the Roth Boyle No. 1 and Snyder No. 2 wells at the Field.[8] The information obtained from these surveys was used to reprocess the 3-D seismic study data. (IP Ex. 5.0, p. 15.) Based on the results from drilling the Furness well and the reprocessed 3-D seismic data, it was concluded in the Fall of 2001 that the additional structure that had been thought to exist to the northeast of the Hillsboro underground structure did not exist. (*Id*.)

4. Peterson Metering Study

While investigating possible structural causes for the Hillsboro deliverability decline, AmerenIP also retained Peterson Engineering to conduct an audit of the metering at the Hillsboro Field. Peterson issued its report in December 1999, identifying two problems (IP Ex. 5.0, p. 10):

(1) It was determined that two new turbine injection meters that had been installed at the Field were over-registering gas volumes under certain operating conditions. The plant compressors, when operating at certain loading steps, caused the turbine meters to over-spin thereby recording greater injection volumes than were in fact passing through the meters. Peterson calculated the over-registration to be 26% when the compressors were operating at 50% loadings but only about 1.7% when the compressors were operating at 100% loadings. (*Id*., pp. 10-11.)

(2) The audit found that the actual size of the orifice plate opening on the meter on the south secondary withdrawal run was smaller than the size value stamped on the orifice plate by the manufacturer.[9] The orifice opening size stamped on the equipment was the size that AmerenIP had ordered, but was larger than the actual size of the opening, by 10% (5.5 inches versus 5.0 inches). The fact that the size of the opening was smaller than the value stamped on the orifice plate by the manufacturer meant that less gas was being withdrawn from the Field through this meter than it recorded. (*Id*., pp. 11-12.)

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[8]A crosswell seismic survey is a high resolution process capable of resolving features much smaller than those visible with 3-D surface seismic analysis. (IP Ex. 5.0, p. 15.)

[9]This meter is one of the four withdrawal meters at the Field. The "primary run" is the principal withdrawal facility into the south pipeline exiting the Field. The "secondary run" only operates occasionally, during high withdrawal periods. (IP Ex. 5.0, p. 11.)

To eliminate the over-registration by the injection meters, AmerenIP made operating procedure changes to avoid the 25% and 50% compressor loadings levels, since these were the loadings that caused the most significant over-registration on the turbine meters. AmerenIP also relocated certain metering component. These steps, which were implemented in May 2000, corrected the injection meter measurement problem. (*Id*., pp. 12-13, 20-21.) To correct the withdrawal meter error, the correct value for the orifice opening was input into the meter's programmable logic controller so that it would accurately calculate the amount of gas passing through this meter. (*Id*., p. 13.)

Initially, it was determined that the over-registration at the injection meters and the over-registration due to the mis-labeled orifice opening on the withdrawal meter were approximately offsetting. (As discussed below, it was subsequently discovered that this was not the case and that the injection meter over-registration was much larger than the withdrawal meter over-registration.) (*Id*., p. 12.) The total amount of the over-registration on the withdrawal meter could be calculated with high accuracy, because it was a function of the difference between the actual size of the orifice opening and the incorrect size stamped on the orifice plate. (*Id*., p. 13.) In contrast, the amount of over-registration that had occurred on the injection meters could not be determined with certainty. AmerenIP estimated a range for the injection meter over-registration. The lower end of this range, 5.4%, was based on the estimate that the compressors had operated at 50% loadings 15% of the time and at 100% loadings 85% of the time. (*Id*., p. 14.) The volume of the injection over-registration at this end of the range was approximately the same as the volume of the withdrawal meter error. (*Id*.)

5. Further Investigation and Analysis of Possible Structural Causes for the Hillsboro Deliverability Decline

Although the determination was reached in the Fall of 2001 (*see* §II.A.3 above) that there was not a separate structure to the northeast of the Field to which gas was migrating, this did not enable AmerenIP to rule out a reservoir/structural problem or other physical problems as the source of the deliverability decline. AmerenIP initiated additional studies and analyses focusing on other possible causes. (IP Ex. 5.0, p. 16.) Other possible reservoir/structural causes included:

- Gas was "fingering" off to the edges of the underground structure.[10]
- Formation damage had occurred in the vicinity of one or more of the gas withdrawal wells, thereby limiting the ability to access all the working gas that had been injected into the Field.[11]
- Gas was leaking from the reservoir or was being lost due to recirculation through plant equipment. (*Id*., pp. 16-17.)

To address the possibility of formation damage at withdrawal wells as a cause of the deliverability decline, AmerenIP performed a number of well stimulation treatments. These treatments consist of injecting chemicals into a well bore and thus into the underground reservoir to clean up or remove any damage to the formation and thereby increase productivity of the well. Well stimulations were performed on two wells in November 2000, on two additional wells in December 2001, and on two more wells in November 2002. (*Id*., p. 17.) Initially, the well stimulation treatments dramatically improved the performance of the individual wells, thus supporting the possibility that the deliverability decline was related to formation damage. (*Id*.)

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[10]"Fingering", which results in gas becoming trapped and no longer available as part of the working gas inventory, is described in §II.A.3 above.

[11]"Damage" is an industry term referring to any barrier near the well bore that restricts injection or withdrawal, due to such causes as drilling, casing, cementing operations, perforating, solids invasion, scales, fines migration, emulsions or bacteria. (IP Ex. 5.0, pp. 16-17.)

AmerenIP also conducted a number of other analyses and investigations in the Spring of 2003 (*Id*., p. 18.):

- Neutron log analyses – these analyses were used to determine if there was gas leakage from the reservoir to a shallower formation.[12] The neutron logs did not indicate any leakage. Additionally, a comparison of these neutron logs to neutron logs performed in earlier years indicated that the gas "bubble" in the reservoir was thinning. One possible cause of the thinning of the gas bubble was that gas was "fingering" to the edges of the underground structure. (*Id*., p. 18.)

- Flame ionization surveys – these tests are conducted at ground level to identify any migration of gas at the surface that would not be detected through neutron logs. These surveys detected no gas leakage at the surface. (*Id*.)

- Field metering versus plant metering comparison – IP compared the gas injected into the Field as measured by the turbine meters to estimates of the gas injected at the individual I/W wells, using available data from various days during the injection seasons of 1994, 1995, 1998 and 1999. (*Id*., p. 19.)

- Analysis of reservoir performance – IP reviewed data on well water levels and water production over time at the Field's observation wells. This review indicated that the working gas volumes in the reservoir had declined to a level below the volume of the Field (3.1 Bcf) prior to the 1993 expansion. This indicated that the source of the deliverability problems was not a structural one, because if the total working gas capacity of the reservoir was only 3.1 Bcf, then the annual withdrawal volumes should have stabilized at 3.1 Bcf. (*Id*.)

- Volumetric analysis – This technique used data on the volume of the HSF reservoir and gas saturation data from the neutron logs to develop an estimate of gas volumes in the reservoir. A comparison of the gas volumes in the Field in the Spring of 1993 to the Spring of 2002 indicated there was approximately 5.5 Bcf less gas in the Field in the Spring of 2002 than in 1993. (*Id*.)

The field metering versus plant metering comparison and the volumetric analysis led to the conclusion that gas volumes in the reservoir had been significantly depleted. (*Id*., p. 20.) Further, the information gained from the other analyses and activities that had been conducted, including drilling the Furness well, the crosswell seismic surveys, reanalysis of the 3-D seismic

[12]A neutron log is a survey performed inside the well bore than can determine the gas-water mix within a reservoir by measuring the hydrogen ion concentration. (IP Ex. 5.0, p. 18.)

data, the well stimulation treatments, the neutron logs and the flame ionization surveys, enabled AmerenIP to rule out structural or geological problems as the source of the deliverability decline. The results of these analyses focused AmerenIP's attention on a measurement error as the source of the depletion of the gas volumes and thus of the deliverability decline. (*Id*.)

6. Determination of the Cause of the Hillsboro Deliverability Decline

As described in §II.A.5 above, the analyses the Company conducted in early 2003 led to the conclusions that (i) structural or geological problems could be eliminated as the source of the deliverability decline, and (ii) a measurement error should be pursued as the cause of the depletion of the gas in the Field. AmerenIP compared the gas volumes registered on the plant turbine injection meters to estimates of the gas volumes injected through the individual I/W well meters (determined as described below) on various days during the 1994, 1995, 1998 and 1999 injection seasons. These comparisons indicated that the turbine meters had recorded substantially more gas as injected than had actually been injected into the Field from 1994 to1999.[13] (IP Ex. 5.0, pp. 20-21.) AmerenIP therefore concluded in early 2003 that the gas volumes had been substantially depleted due to the injection meter over-registration. (*Id*., p. 22.)

To make the comparison of the gas volumes injected at the individual I/W well meters to the volumes recorded as injected by the turbine meters, AmerenIP used pressure and temperature data that had been recorded on charts at the meters for the individual I/W wells. There are 14 I/W wells at Hillsboro; each well has an injection meter that records pressure and temperature data on a chart. The data recorded on the charts from the I/W wells are used by the operators in adjusting methanol injection rates, opening or closing additional wells, monitoring wells, and

[13]As a result of the Peterson metering audit and the corrective actions AmerenIP took following that study (described in §II.A.4 above), the injection metering error had been largely mitigated by early 2000. (IP Ex. 5.0, pp. 20-21.)

assessing the relative contribution of each well to the total injections or withdrawals at the Field. The meters at the individual I/W wells do not record injected gas volumes injected into the Field; however, the pressure and temperature data recorded on the individual I/W well charts can be used to calculate the amount of gas injected at each well for a day. (*Id*., p. 21.)

Historically, the temperature and pressure data was not maintained for each individual I/W well for each day. However, for those days for which well charts had been preserved for all of the I/W wells that were operating that day, it was possible to combine, or "integrate", the data recorded on the individual well charts to develop an estimate of the total amount of gas injected into the Field through the I/W wells on that day. This total could then be compared to the volume of gas the turbine injection meters had recorded as injected on that day. By comparing the injected volumes as estimated from the integrated individual I/W well charts to the injection volumes as recorded on the turbine meters for several days in each month over the course of an injection season, AmerenIP was able to develop an estimate of the aggregate over-registration that had occurred on the turbine meters. (*Id*., pp. 21-22.)

Having concluded that the gas volumes in the Field were significantly depleted due to the injection meter over-registration, AmerenIP developed a plan to reinject gas so as to restore the Field's gas volumes to the original post-expansion amounts. Reinjection of gas to restore the HSF inventory began in 2003. (*Id*.)

7. Summary

The foregoing discussion of AmerenIP's activities shows that it acted prudently in investigating the causes of the Hillsboro deliverability decline, in systematically isolating and eliminating potential causes, and in ultimately identifying the cause and developing and implementing a plan to restore the Field to its intended levels of operation. AmerenIP investigated multiple possible causes for the deliverability decline, including structural or

geological causes, which at the time the deliverability decline was identified were the most likely source of the problem in light of the fact that the HSF reservoir had recently undergone a major expansion. However, AmerenIP did not limit its focus to structural or other problems with the underground reservoir, but rather investigated other possible causes including metering errors, damage to wells and leakage from above-ground equipment. Extensive internal and external resources were employed in the investigation. Corrective actions recommended by outside consultants for identified problems were implemented. Potential causes of the deliverability decline were eliminated based on the results of the analyses, until the Company could ultimately rule out potential reservoir or structural causes and establish depletion of the gas inventory due to the injection meter over-registration as the cause.

Further, the Company did not begin reinjections of substantial quantities of replacement gas inventory while it was still investigating potential reservoir problems or other structural causes of the deliverability decline, because based on the information the Company had at the time, beginning substantial reinjections carried the risk of losing more gas outside the reservoir structure (*i.e.*, outside the area in which it could be recovered by the withdrawal wells).

The history of AmerenIP's efforts to identify and remediate the cause of the Hillsboro deliverability decline demonstrates that it conducted a very thorough and logical work program to determine the cause of the deliverability decline. (IP Ex. 6.0, pp. 4-5.) The program AmerenIP carried out was a thorough root cause analysis. The Company followed a logical and systematic approach to determine the underlying cause of the deliverability decline. (*Id*., p. 6.)

In summary, the record demonstrates that in investigating, and ultimately identifying and resolving, the cause of the Hillsboro deliverability decline, AmerenIP exercised the standard of care that a reasonable person would be expected to exercise under the circumstances encountered

by management at the time its decisions were being made and actions were being taken, based on the information available to management at those times.

B. Staff's Arguments Do Not Show That AmerenIP Was Imprudent in Investigating, Determining and Remediating the Causes of the Hillsboro Deliverability Decline

The PO essentially accepts the arguments advanced by Staff that AmerenIP acted imprudently in investigating, determining and remediating the causes of the Hillsboro deliverability decline, and in particular in not concluding in 2000 that inventory depletion resulting from the injection meter over-registration was the cause of the problem, and commencing substantial reinjections of replacement gas inventory into HSF.[14] (PO, pp. 33-34.) Staff's arguments, however, are insufficient to overcome the evidence of the Company's careful, thorough and diligent investigation of the HSF deliverability decline or to support the PO's conclusion that AmerenIP acted imprudently.

Staff cited three pieces of information specific to Hillsboro that it contended showed AmerenIP acted imprudently by not recognizing in 2000 that the HSF gas inventory had been significantly depleted due to the injection meter over-registration and by not beginning at that point to reinject significant quantities of gas into the Field to replenish the depleted inventory:

(1) the Company could have used estimates, which had previously been prepared, of injection volumes at the individual I/W wells during 1994 to determine the size of the over-registration at the turbine injection meters;

(2) the Company did not place a high priority on accurate measurement of withdrawals from HSF after its expansion and did not follow guidelines of the American Gas Association ("AGA") to ensure accurate measurement of withdrawals; and

[14] *See* PO, pp. 26-27 (summarizing the Staff position).

(3) the volume of gas withdrawn from HSF in the 1999/2000 and 2000/2001 winter seasons was less than the amount withdrawn from HSF before its expansion.[15]

As shown in §II.B.1 below, the three points cited by Staff relating to the operation of HSF do not demonstrate that AmerenIP acted imprudently in its investigation and identification of the cause of the HSF deliverability decline, and do not demonstrate that AmerenIP acted imprudently by not beginning to reinject substantial quantities of replacement gas inventory into HSF in 2000, 2001 or 2002. To the contrary, consideration of the circumstances facing management and the information known and reasonably available to management in this time period demonstrates that it would have been *imprudent* to begin substantial reinjections, because the very real possibility remained that the cause of the Hillsboro deliverability decline was a structural or geological problem. Until these potential causes were adequately investigated and eliminated (or confirmed), commencing substantial reinjections of gas inventory into HSF (on the scale the Company initiated in 2003) ran the risk of loss of more gas into areas from which it could not be accessed and withdrawn. Thus, Staff's position (which the PO has adopted) was not an appropriate application of the prudence standard, because it failed to encompass *all* the circumstances and information that management had to take into account in 2000 - 2002. Rather, Staff's position was based on a few isolated items of information whose significance could only be appreciated in hindsight.

The Staff witness also based his position that AmerenIP was imprudent in not beginning in 2000 to reinject substantial quantities of gas into HSF to replace the depleted inventory on several concerns he had regarding the Company's overall operation of its storage fields.[16] As

[15]*See* Staff Ex. 2.00R, pp. 13-14 & 32-41, Staff Ex. 4.00R, p. 20, and PO, pp. 26-27. The PO at pages 27-30 summarizes Staff's testimony and arguments concerning the three specific items.

[16]*See* Staff Ex. 2.00, pp. 14-15, 44-61; Staff Ex. 4.00R, pp. 15-16; PO, p. 27. The PO at pages 30-32 summarizes Staff's testimony and arguments concerning its overall storage concerns.

shown in §II.B.2 below, Staff's concerns about the overall operation of the storage fields were unfounded. Further, there was no causal relationship between the overall storage concerns and the timing of the Company's determination of the cause of the Hillsboro deliverability decline and the commencement of reinjections of gas to replace the depleted inventory. Therefore, even if any of Staff's overall storage operations concerns had validity standing alone (which they do not), they do not provide justification for Staff's position, or the PO's conclusion, that AmerenIP was imprudent in its investigation, identification and remediation of the cause of the Hillsboro deliverability decline and in failing to begin reinjection of significant quantities of replacement gas inventory into HSF in 2000.

1. Specific Hillsboro Storage Field Items

a. 1994 I/W Well Charts -- AmerenIP Was Not Imprudent in Not Using 1994 Well Chart Data in 2000 to Determine the Amount of the Injection Meter Over-Registration

As described in §II.A.5 and 6 above, in 2003 AmerenIP used information from the well charts for the injection meters at the individual I/W wells at Hillsboro to compare estimates of injection volumes at the individual wells to injection volumes recorded on the plant turbine meters on certain days during the 1994, 1995, 1998 and 1999 injection seasons. From this comparison, the Company determined that the turbine meters had significantly over-recorded injections. As described above, the metering at the individual I/W wells does not record the volume of gas injected, but does record temperature and pressure data that the operators use for various purposes. (PO, p. 12.) However, it is possible to use the recorded temperature and pressure data to calculate an estimate of the amount of gas injected at an I/W well on a day, through a process known as "integration." (*Id.*) About 1500 charts from the individual I/W wells had been "integrated" in 1994; AmerenIP used 624 of these well charts in 2003 when it performed its comparison of injections recorded on the plant metering to injections recorded on

the individual well meters. Based on these facts, Staff contended that when AmerenIP determined in 1999 that the injection meter over-registration and the orifice withdrawal meter over-registration approximately offset each other, the Company "was in possession of information that disputed that conclusion" and in fact "squarely pointed to a significant inventory shortfall" at Hillsboro. (Staff Ex. 2.00R, pp. 34-35.) Staff also criticized the basis on which the Company determined that the injection meter over-registration and the orifice withdrawal meter over-registration approximately offset each other. (*Id*., pp. 32-34.) Therefore, Staff contended, AmerenIP should have discovered in 2000 that it had a significant measurement error at HSF, and should have begun to reinject gas to restore the inventory shortfall in 2000. (*Id*., p. 35.)

Staff's contentions were based on unsupportable premises, had the benefit of hindsight, and did not demonstrate any imprudence by AmerenIP. The Staff witness criticized the Company for using, in its initial estimate of the extent of the injection metering error, what he contended were unsupportable assumptions that the Hillsboro compressors had run on average 15% of the time at 50% loading and 85% of the time at 100% loading.[17] (Staff Ex. 2.00R, pp. 33-34.) However, in making its calculations, AmerenIP relied on information in the Peterson Report, and estimated the compressor loading levels based on its experience as to how they had been operated over time. Since Peterson had calculated the injection measurement error for two of the compressor loading steps (50% loading and 100% loading), these were the error measurements AmerenIP had available to use in developing an estimate of the overall injection over-registration. (IP Ex. 5.0, p. 24; PO, p. 12.) Staff never suggested any basis on which

[17] AmerenIP had not maintained logs of the operation of the compressors on a 24-hour basis, so it did not have documentation to determine the specific number of hours the compressors had operated at the various loading levels over the 1994-1999 period. (IP Ex. 5.0, p. 24.) Staff did not criticize the Company for not maintaining historic, 24-hour-per-day logs of the levels at which the HSF compressors were loaded and operated, and did not suggest that a prudent operator would have maintained such data.

AmerenIP could have made different or "better" estimates of the percentages of time at which the compressors had operated at various levels over the 1994-1999 period. In short, the Company's calculation of the cumulative amount of the injection meter over-registration was based on the best information it had available to make that calculation in early 2000 after the injection meter over-registration was discovered.[18]

Staff's assertion that in 1999, AmerenIP should have used the 1994 well charts from the individual I/W wells to determine that the injection meter over-registration was much larger than estimated, is also unfounded and does not demonstrate any lack of prudence. As noted above, the individual I/W wells do not actually record the volumes of gas injected at each well, but rather only record temperature and pressure data, which could be used to calculate the amount of gas injected at an individual well. (IP Ex. 5.0, p. 21; PO, p. 12.) Prior to the analysis performed in 2003, AmerenIP historically had not integrated and aggregated data from individual well charts for the purpose of determining total daily injection volumes at the injection wells. (IP Ex. 5.0, p. 25; PO, p. 12.) The well charts from 1994 had been integrated for a different purpose, specifically, to use in creating individual well histories to input into the Company's reservoir simulation model of the Hillsboro Field. (IP Ex. 5.0, p. 25.) Further, the individual injection well data historically was not even recorded or maintained for each individual well for each day. (*Id*., p. 21; PO, p. 12.) When AmerenIP did use the well chart data from 1994 in its 2003 study, it only had well chart data from about 45 days to use.[19] (IP Ex. 5.0, p. 25; PO, p. 12.)

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[18]The Company's calculation of the cumulative amount of the withdrawal measurement over-registration caused by the incorrectly-labeled orifice plate Peterson Engineering had identified could be performed with a high degree of accuracy, because the amount of the over-registration was a function of the difference between the actual size of the orifice and the incorrect size stamped on the orifice plate. (IP Ex. 5.0, p. 13; PO, p. 9.)

[19]In order to use the well chart data to calculate the total amount of gas injected at the individual wells on a particular day, it was necessary for the Company to have maintained the well chart for

Staff cited no information to indicate that it was a common (or even an occasional) practice in the gas utility industry to maintain well chart data, or to use it to determine aggregate volumes of gas injected at a storage field's individual wells from day to day (and AmerenIP is not aware of such a practice). Nor did Staff cite any information to suggest why the Company should have recognized in 2000 that well chart data could be used for this purpose. The fact that AmerenIP identified in 2003 that temperature and pressure data from the individual I/W well charts could be integrated to get a total injection volume estimate for a day, which could then be compared to the injection volumes recorded on the main plant meters for that day, in no way supports a conclusion that the Company was imprudent in not recognizing this possibility in 2000. Staff's argument was not supported by any evidence that making such comparisons was a typical or even an occasional practice by the Company or in the industry in general. Thus, Staff's argument was based on hindsight – knowledge acquired in 2003 that data recorded on the individual I/W well charts could be used for this purpose -- and does not show that the Company violated the prudence standard, i.e., what a reasonable person would be expected to do under the same circumstances encountered by utility management at the time (2000).

Further, as indicated above, there was limited availability of data from the individual I/W well charts to use to develop estimates of the amount of gas injected into the Field through the individual wells. This is because such estimates could be developed only for those days on which well charts had been retained for each of the 14 I/W wells that were injecting on that day, and the well charts historically had not been systematically retained. As the Commission will

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each of the individual I/W wells that had operated on that day. Historically, this data had not been systematically maintained. (IP Ex. 5.0, pp. 21-22; PO, p. 12.) Thus, Staff's observation that in 2003, the Company used 624 well charts from 1994, while accurate, may give a misimpression as to the amount of data the Company had available. Because there are 14 I/W wells, 624 well charts represents only 45 days of injection data (i.e., 624 divided by 14).

recall, for these and other reasons, in AmerenIP's recent gas rate case, Docket 04-0476, the same Staff witness contended that the Company's well chart analysis was not sufficiently accurate or reliable to produce an acceptable estimate of the amount of inventory depletion caused by the injection meter over-registration.[20] In its Docket 04-0476 Order, the Commission accepted Staff's arguments concerning the accuracy and reliability of AmerenIP's estimate of the amount of the inventory depletion that had occurred at Hillsboro due to the turbine meter over-registration.[21] Moreover, in AmerenIP's appeal of the Docket 04-0476 Order, the Appellate Court affirmed the Commission's conclusion on this point on the grounds that the conclusion was based on the Staff witness's testimony that the Company's estimate of the inventory depletion amount (*i.e.*, of the injection meter over-registration) was not accurate or reliable:

> The company contends that its determination of the amount of gas that was depleted was sufficiently reliable to justify inclusion of the investment in its rate base. The Commission disagreed with that contention and we must uphold that conclusion because it is not contrary to the manifest weight of the evidence. At the hearing, [Staff witness] *Lounsberry testified that it was unknown how much gas had been depleted from Hillsboro and that the Company's determination was not reliable. Lounsberry explained why he believed that the company's estimate in that regard could not be relied upon* . . . . The Commission ultimately adopted Lounsberry's analysis and rejected the analysis of [the Company witness] and the ALJ. . . . *The Commission's conclusions were founded upon Lounsberry's testimony* and thus, have adequate support in the record and are not contrary to the manifest weight of the evidence.[22]

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[20]*See, e.g.*, the Order in Docket 04-0476 (May 17, 2005), at page 13 ("According to Staff, *the methods used by IP to calculate the Hillsboro storage field measurement errors*, the resulting actual gas inventory, the recoverable base gas withdrawal, and *the injection amounts are simply too speculative and not sufficiently accurate* to provide a reasonable basis for an adjustment to and recalculation of the value of recoverable base gas amounts" (emphasis added)) and page 15 (referring to "Staff's criticisms of the well chart analysis.").

[21]*See* the Order in Docket 04-0476, p. 27 ("Based on its review of the record and the arguments of Staff and Illinois Power, the Commission concludes that Illinois Power's base gas inventory value for Hillsboro should be rejected").

[22]*Illinois Power Co. v. Illinois Commerce Comm'n*, No. 3-05-0479 (3d Dist. May 12, 2006), slip opinion at p. 14 (emphasis added).

Given that the Commission concluded in Docket 04-0476, based on Staff's testimony, that the use of the integrated I/W well chart data (from four years, not just one year) to produce an estimate of the amount of the injection meter over-registration (and thus of the inventory depletion) was not sufficiently accurate or reliable, it would be fundamentally inconsistent for the Commission to conclude that the Company was *imprudent* for failing to use the well chart data from just one year to estimate the amount of the injection meter over-registration.

Additionally, as Staff pointed out, in 2003 the Company used well chart data from four different years to develop the following estimates of injection meter over-registration:

1994: 22.1%
1995: 7.0%
1998: 12.7%
1999: 8.9%[23]

Certainly, had the Company in 2000 identified that it could use well chart data to attempt to estimate the amount of the injection meter over-registration, it would not have used just the well chart data from 1994 that had already been integrated, but it also would have had the well charts it had from 1995, 1998 and 1999 integrated, and used that information too – just as it did in 2003. But the average of the four estimates that the Company developed in 2003 is only about 12.7% (much less than the estimate of 22.1% from the 1994 well chart data); and the lower end of the range shown above (7.0%) is not much larger than the estimate AmerenIP made of the injection meter over-registration in 2000 (5.4%). (IP Ex. 5.0, pp. 13-14.)

In short, when the available information is considered, there is no reason to conclude that if AmerenIP, in early 2000, had in fact used the available I/W well charts from 1994-1999 to

[23]Staff Ex. 2.00R, p. 28; PO, p. 28. The disparate values produced for the four years was one of the reasons that Staff, in Docket 04-0476, concluded that the estimate of the injection meter over-registration developed using the well chart data was not accurate or reliable.

develop an estimate of the amount of the injection meter over-registration, it would have been able to determine that inventory depletion due to the injection meter over-registration was the cause of the Hillsboro deliverability decline.

b. Hillsboro Withdrawal Orifice Metering

The second of the three Hillsboro-specific facts on which the Staff witness based his position that AmerenIP was imprudent in not beginning to reinject substantial quantities of replacement gas inventory in 2000 was that from 1993 to 1999, the Company had not inspected the orifice plates on the four withdrawal meters at Hillsboro. (Staff Ex. 2.00R, p. 36.) He asserted that this was inconsistent with the Commission's regulation at 83 Ill. Admin. Code 500.180(c), although he acknowledged that this provision is only applicable to customer billing meters, not to storage field metering, and stated "I am not suggesting that IP violated a Commission rule." (*Id*., pp. 37-38.) The Staff witness also cited two AGA documents in support of his contention that AmerenIP should have inspected the orifice plates more frequently. (*Id*., pp. 38-39.) His overall conclusion was that "IP did not place a high priority on accurate measurement for withdrawals from the Hillsboro storage field immediately after the expansion of the field" (*Id*., p. 39), and that if it had found the orifice plate error sooner, this "would have also allowed IP to focus solely on just the injection metering error" in 1999-2000. (*Id*., p. 40.)

Staff's reliance on this point was misplaced and did not support its conclusion that AmerenIP was imprudent. First, the Company should not be found to have been imprudent for failing to follow regulations and guidelines which by their terms do not apply to storage field withdrawal meters. Second, there is no causal connection between the Company's maintenance practices for the HSF *withdrawal* meters and the fact that it was not determined until 2003 that the cause of the Hillsboro deliverability decline was the plant *injection* meter over-registration.

i. Regulations and Guidelines Cited by Staff Do Not Apply to the HSF Withdrawal Metering

The Staff witness testified that in maintaining the HSF withdrawal meters, AmerenIP did not follow "basic industry standards." (*See* PO, p. 28.) To support this assertion, he cited three documents as the basic industry standards he contended the Company should have followed. First, he cited the inspection schedules and procedures for orifice-type meters in 83 Ill. Adm. Code §500.180(c). (*Id*., p. 29.) However, as he acknowledged (*id.*, p. 15), Code Part 500.180 applies only to custody transfer meters (*i.e.* meters located at customer premises that are used to bill the customer for gas delivered). In fact, the Commission has no maintenance or inspection requirements for storage field metering. (IP Ex. 5.0, p. 30; IP Ex. 5.3, p. 8; PO, p. 15.) Code Part 500.180 simply is not a standard the Company was required to follow with respect to its storage field withdrawal meters. (IP Ex. 5.0, p. 30; PO, p. 15.) Staff provided no explanation as to why the prudence standard requires AmerenIP (or any other utility) to expend resources complying with Commission requirements that are not applicable to the meters in question.

Second, the Staff witness also relied on an AGA document titled Report No. 3, Part 2 – Specification and Installation Requirements. (*See* PO, p. 29.) This document, however, does not contain guidelines for inspection and maintenance of orifice meters, but rather contains guidelines for the *installation* of orifice meters. The Company in fact *installed* the four HSF withdrawal meters to the standards of this AGA document (IP Ex. 5.0, p. 30), and Staff did not dispute this fact.[24] (*Id*., pp. 30-31; PO, p. 15.)

[24]Additionally, when Hillsboro was expanded in 1993, the Company added instrumentation to electronically measure and perform the computation of withdrawal volumes, which improved measurement accuracy (as well as reducing processing time). (IP Ex. 5.0, p. 32; PO, p. 15.) Therefore, Staff's assertion that "the Company did not place a high priority on accurate measurements for natural gas withdrawals from the Hillsboro Storage Field immediately after the 1994 expansion" (*see* PO, p. 28) is unfounded.

The third document cited by Staff was an AGA document titled "AGA Gas Measurement Manual, Orifice Meters, Part No. 3." (*See* PO, p. 29.) However, this document is a guideline document only, not an industry standard. (IP Ex. 5.0, pp. 31-32; PO, p. 15.)

In addition to citing the three documents discussed above, the Staff witness also made a general assertion that "it is understood in the industry" that in order to maintain accurate metering, frequent checking of orifice plates is necessary. (Staff Ex. 4.00R, p. 26.) He did not support his assertion with any references to applicable regulations, codes or standards. The Company witnesses, who have many years of experience in gas storage field and transmission operations (IP Ex. 5.0, pp. 1-2), disputed the Staff witness's abstract and unsupported assertion, particularly in the context of non-custody transfer storage field metering. (IP Ex. 5.3, p. 8; PO, p. 15.) In fact, as discussed below, the circumstances of the operation of the HSF withdrawal meters indicate "frequent checking" is not necessary.

Thus, Staff did not identify any Commission regulations or industry standards applicable to non-custody-transfer storage field withdrawal metering that the Company was required to follow, but did not. Further, any implication that AmerenIP did not perform maintenance on the Hillsboro withdrawal meters would be incorrect. AmerenIP had (and continues to follow) an annual maintenance procedure for the HSF withdrawal meters.[25] (IP Ex. 5.0, p. 31.)

There are a number of reasons why it is not necessary to disassemble and inspect the withdrawal meter orifice plates at Hillsboro with the frequency contended by Staff:

[25]The Company annually calibrates the differential transmitters of each orifice fitting, calibrates the pressure transmitters for each pipeline, checks the calibration of the resistant temperature detectors for proper temperature indication, and checks the signal tubing between the orifice fitting and the differential transmitter for fluids. (IP Ex. 5.0, p. 31.)

- At Hillsboro the withdrawal meters sit a short distance downstream of the dehydration towers; due to this location, the opportunity for contaminants to impinge or degrade the orifice plates is remote.[26] (IP Ex. 5.3, p. 9; PO, p. 15.)

- The withdrawal meters only operate (have gas passing through them) when gas is being withdrawn from the Field, which as a general matter occurs only during the winter months (and then not necessarily every day). Further, the mis-labeled orifice plate was on the south secondary withdrawal run which is generally only operated during high withdrawal periods when the primary withdrawal runs are operating near full capacity. (IP Ex. 5.0, p. 11.) Thus, the frequency of operation of the storage field withdrawal meters is much less than the frequency of use of custody transfer meters (the type of meters to which the documents cited by Staff apply), through which gas is likely flowing almost every day of the year.

- There are other means of identifying potential problems with an orifice plate besides physical inspection of the plate, such as monitoring the pressure drops across the orifice openings to check that they are consistent (if one orifice has a significantly different pressure drop than the others, this would signal a potentially abnormal condition). (IP Ex. 5.3, p. 9; PO, p. 15.)

- The more frequently an orifice meter is disassembled and the plate is removed, the greater the potential to damage the plate in handling or to re-install it improperly. (IP Ex. 5.3, p. 9; PO, p. 15.) While a utility should expect its employees to be able to disassemble and reassemble an orifice meter without incident, opening the meter and removing the plates does involve a risk of improper re-installation which must be taken into account in evaluating the frequency of the procedure.

In fact, when the four HSF orifice plates were opened and inspected in 1999, they were found not to be degraded and were re-installed. The four plates are still in use today, subsequent inspections having shown no reason to replace them.[27] (IP Ex. 5.0, p. 31; IP Ex. 5.3, p. 9.)

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[26]The dehydration towers operate to remove moisture from the gas stream and therefore to remove or knock out particles or other contaminants carried in the gas stream.

[27]The Staff witness cited two papers on the potential impacts of dirty orifice plates on orifice meter accuracy. (Staff Ex. 4.00R, pp. 27-28; *see* PO, p. 29.) However, the conditions modeled or studied in these papers were not representative of conditions at the Hillsboro orifice meters. For example, the measurement error he cited from one of the papers was based on an orifice plate coated entirely on both sides with ¼ inch of valve grease. This condition far exceeded what was experienced with the Hillsboro orifice plates. (IP Ex. 5.3, p. 10.) The record shows that the two papers cited by Staff were not useful or applicable references. (*Id.*, pp. 9-10; IP Cross Ex. 1; *see* PO, pp. 15-16.)

In summary, the specific documents cited by Staff and the other facts and circumstances in the record show at most a difference of opinion between the Staff witness and the Company as to the maintenance and inspection practices AmerenIP should have followed with respect to the HSF non-custody transfer withdrawal metering during the period in question. However, this evidence does not provide a basis to conclude the Company was imprudent.

ii. Earlier Discovery of the Mis-labeled Orifice Plate on the HSF Withdrawal Meter Would Not Have Led to Earlier Discovery of the Amount of the Injection Meter Over-Registration

The focus of the discussion in §II.B.1.b.i above related to whether AmerenIP should have discovered the mis-labeled orifice plate on one of the four HSF withdrawal meters earlier than 1999. Staff contended that if the Company had found the mis-labeled orifice plate (and thus eliminated the withdrawal metering error) sooner, it would have "focus[ed] solely" on the injection meter over-registration when it was discovered in 1999. (Staff Ex. 2.00R, p. 40; Staff Ex. 4.00R, p. 29.) Staff's contentions were speculative and not supported by the record. Contrary to Staff's assertions, there is no basis to conclude that if AmerenIP had discovered the mis-labeled <u>withdrawal</u> meter orifice plate prior to 1999, this would have resulted in the Company developing a more accurate estimate of the <u>injection</u> meter over-registration when it was first discovered in late 1999.

After the injection meter over-registration and the mislabeled withdrawal meter orifice plate were discovered in late 1999, the Company estimated the cumulative amounts of these over-registrations and concluded that they were approximately off-setting. However, this determination was the product of independent estimates of the impacts of the two occurrences. The determination that the amounts of the two metering errors were approximately offsetting resulted because the Company significantly under-estimated the amount of the <u>injection</u> meter

over-registration. The cumulative amount of the withdrawal measurement error could be accurately calculated since it was simply a function of the difference between the mis-labeled orifice plate size that had been used in the metering algorithm and the actual orifice plate size (10% smaller). (IP Ex. 5.0, pp. 12-13.) The Company believed that the injection over-registration and the withdrawal over-registration were approximately equal *solely* because its calculation of the injection measurement over-registration was inaccurate. That calculation was 997,000 Mcf, which was not a large amount in the absolute, and certainly was not large enough to explain the Hillsboro deliverability decline.[28] (IP Ex. 5.0, pp. 33-34.)

Stated differently, even if the withdrawal meter over-registration had been *zero* in 1999 (because the Company had discovered and corrected it earlier or it had never occurred), the calculated injection meter over-registration would not have been large enough to cause AmerenIP, in 2000, to focus on the injection meter over-registration as the sole or even a primary cause of the deliverability decline. (*Id*., p. 34; PO, p. 16.) Thus, even if the Staff witness were correct that the Company's maintenance and inspection practices with respect to the HSF withdrawal meters were inadequate, this inadequacy did not cause or contribute to the inability to determine the actual amount of the injection meter over-registration at an earlier point in time.

c. Withdrawal (Top Gas)Volumes

The third and final Hillsboro-specific fact on which the Staff witness premised his assertion that AmerenIP was imprudent in the investigation and determination of the cause of the Hillsboro deliverability decline was that the amount of working gas the Company was able to cycle from HSF in the 1999-2000 and 2000-2001 winters was less than the working gas volume of the Field prior to its expansion. He stated that he "considers this another missed opportunity

[28]The cumulative amount of the withdrawal metering error was 937,000 Mcf. (IP Ex. 5.0, p. 34.)

to identify the inventory problem and return the gas to the field in a timely fashion." (Staff Ex. 2.00R, p. 41; *see* PO, p. 30.) However, while it is correct that in the 1999-2000 and 2000-2001 winters, AmerenIP withdrew less gas from HSF than the pre-expansion level, Staff's assertion as to the conclusion the Company should have drawn from this information was unfounded.

Specifically, the fact that AmerenIP was unable to *withdraw* more than 3.1 Bcf (the pre-expansion working gas volume) from the Field in these two winters did not tell the Company that the *volume* of gas in the Field had declined below 3.1 Bcf, or that there were no structural problems causing the inability to withdraw more gas. To the contrary, there could have been adequate gas injected into HSF to support higher withdrawal levels, but the inability to withdraw more than 3.1 Bcf could have been due to reservoir/structural problems, such as injected gas migrating or fingering to locations inaccessible by the existing withdrawal wells, or formation damage to I/W wells that limited the ability to access and withdraw all the working gas inventory. (IP Ex. 5.0, pp. 34-35; PO, p. 16.) In neither event, however, would the fact that working gas *withdrawals* had declined below the pre-expansion level signal that the cause of the deliverability decline was *not* a reservoir or structural problem. (PO, p. 16.) Further, as of the 2000-2001 winter, AmerenIP was still investigating a number of plausible reservoir or structural problems. These potential problems included the possible existence of a substructure to the northeast of the Field, gas losses into the caprock, loss of injected gas due to "fingering", and gas losses through faults or fractures in the reservoir formation. (IP Ex. 6.0, pp. 9-11.)

Here again the record showed at most a difference of opinion between the Staff witness and the Company personnel involved in investigating the causes of the deliverability decline as to the conclusions AmerenIP should have drawn from the reduced withdrawal volumes. This third item of Hillsboro-specific information relied on by Staff, just like the other two, does not

provide a basis for concluding that AmerenIP was imprudent in its investigation, identification and remediation of the HSF deliverability decline or that it was imprudent in not identifying the cause of the deliverability decline in 2000 and beginning to inject substantial quantities of replacement gas inventory into HSF in that year.

d. Even if AmerenIP Had More Accurately Estimated the Extent of the Injection Meter Over-Registration in 2000, 2001 or 2002, the Company Could Not Have Prudently Begun to Inject Substantial Replacement Inventory Before Eliminating Possible Reservoir or Structural Causes for the Hillsboro Deliverability Decline

Even if AmerenIP had recognized in 2000 (as Staff claims it should have) that the injection meter over-registration was much larger than estimated at the time, this information would not have warranted commencing substantial reinjections of replacement gas inventory into HSF at that time. Even had the Company recognized in 2000 that the injection meter over-registration was much larger than calculated at the time, that determination would not have enabled AmerenIP to rule out reservoir or structural problems as a cause of the Hillsboro deliverability decline. As a result (and contrary to Staff's position and the PO's conclusion), the Company could not have prudently commenced reinjecting significant amounts of replacement gas inventory into HSF in 2000, before completing its investigation of the potential reservoir and structural problems and eliminating such problems as causes of the deliverability decline.

As of the beginning of the 2000 injection season, the results of the 3-D seismic analysis indicated there was a substructure to the northeast of the Field to which approximately 3.5 Bcf of gas had migrated. (IP Ex. 5.0, p. 26; PO, p. 13.) Based on the information available at the time, injecting additional gas to compensate for the injection meter over-registration would have left the possibility that some or all of the additional gas injections would migrate off structure, and the deliverability problems would continue. (IP Ex. 5.0, p. 26; PO, p. 13.) Further, the injection

meter over-registration, the existence of the separate substructure and the other possible reservoir/structural issues being evaluated in 2000 were not mutually exclusive. (IP Ex. 5.0, p. 26; PO, p. 13.)

In short, in the Spring of 2000, even knowing that the injection meter over-registration substantially exceeded the withdrawal meter over-registration would not have been sufficient information to enable AmerenIP to conclude that the injection meter over-registration was the sole cause of the Field's deliverability decline, or to rule out possible structural causes. (*Id.*) The purpose of drilling the Furness well in November 2000 was to confirm or reject the existence of the substructure adjacent to the main reservoir to which gas was migrating, as indicated by the 3-D seismic analysis.[29] (IP Ex. 6.0, p. 8.) It was not until the Furness well was drilled in November 2000 that AmerenIP obtained additional information to cause the existence of a substructure to the northeast of the Field to be questioned. (PO, p. 13.) As AmerenIP witness Mr. Hower testified, "To commence reinjecting large volumes of replacement gas at this time [2000] would have been unthinkable as the Company, based on the information available to it at that time, reasonably believed that any replacement gas would migrate further away from the storage field and possibly be lost." (IP Ex. 6.0, p. 8.) Given the likelihood, in light of the recent expansion of the Field, that a structural problem was a cause of the deliverability decline, it was appropriate in 2000 for AmerenIP to continue with an investigation program relating to the potential structural causes, including drilling the Furness well, before making a final

[29]Additional potential reservoir or structural causes of the Hillsboro deliverability decline, based on the information available to the Company in 2000, were discussed in §II.A.3 above. Further, as of Spring 2000, AmerenIP also needed to perform well stimulation treatments (which it initiated in November 2000) to address the possibility that formation damage near some of the I/W wells was causing or contributing to the deliverability decline. (IP Ex. 5.0, p. 27.)

determination as to the cause of the deliverability problem and taking specific corrective actions or reinjecting large quantities of replacement inventory. (*Id*., pp. 8-9; PO, p. 13.)

In fact, the Staff witness testified that, "I agree that had the Company found the inventory shortfall problem in a timely fashion the Company would have still had to consider potential problems with the reservoir or other structural problems". Nevertheless, he asserted that "this does not mean that the Company could not have started replacing the inventory shortfall in 2000", but rather that "in my opinion, the Company would have begun replacing the inventory shortfall while it was investigating whether there were other problems with the reservoir." (Staff Ex. 4.00R, p. 22.) He also contended that there were other indications that the source of the deliverability problem was an "inventory shortfall."[30] (*Id*., p. 23.) The Staff position is untenable and certainly does not indicate *imprudent* actions by AmerenIP. Given the information that AmerenIP had available in early 2000, it would have been extremely unwise for the Company to have begun reinjecting substantial quantities of replacement gas into HSF before eliminating the realistic possibilities of structural or geologic-related problems with the reservoir. (IP Ex. 5.3, p. 2.) Even had AmerenIP possessed better knowledge of the full extent of the injection meter over-registration, it still would have been unwise and imprudent to being reinjecting significant quantities of replacement gas into the Field before fully investigating the

[30]At least one of the other indications cited by the Staff witness was factually erroneous. He cited a statement in the Peterson Report that "During the past three or four years, IPC had been monitoring and reviewing the measured injected and withdrawn gas volumes as part of a review of the gas storage reservoir behavior. Computed volumes from the plant metering and well metering have not been satisfactorily reconciled." (Staff Ex. 4.00, p. 23.) This statement in the Peterson Report was incorrect. In fact, the HSF operators only began tracking daily volumes for the individual I/W wells and the plant injection metering during 1999, and only for 1999 were the computed volumes for the plant injection metering and the well metering not reconciled. (IP Ex. 5.3, pp. 7-8.) Therefore, the suggestion that the Company had been unable to reconcile injected and withdrawn gas volumes for several years prior to 1999 is incorrect. (*Id*.)

implications of the data and analyses that indicated gas was migrating from the main reservoir structure to areas that were not accessible by the existing withdrawal wells. (*Id*., pp. 2-3.)

The Staff witness also argued that by reviewing observation well water levels and water production over time, AmerenIP had observed that the volume of gas in the reservoir was decreasing (Staff Ex. 4.00R, p. 23); and that through use of neutron logs, the Company had observed the gas bubble thinning over time, which "could be caused by gas moving away from the structure or from an inventory shortfall" (*Id*., p. 24). He contended this information "provided a very strong case that the inventory shortfall was the problem." (*Id*.) However, the assertion that AmerenIP should have recognized that there was an "inventory shortfall" or an "inventory problem" prove nothing:

- Staff's own testimony recognized that the observed gas bubble thinning could have been caused by "gas moving away from the structure." (PO, p. 13.)

- More generally, "inventory shortfall" was never the <u>cause</u> of the deliverability problem at Hillsboro, it was the <u>result</u> of the problem. (IP Ex. 6.1, p. 2; PO, p. 13.) The issue confronting management was isolating <u>why</u> there was an "inventory shortfall." The inability to withdraw 7.6 Bcf of gas from HSF over several winter seasons (i.e., the "inventory shortfall") could have been due to previously-injected gas migrating to locations where it could not be accessed for withdrawal (as the Staff witness acknowledged in the testimony quoted above). (PO, p. 13.)

- Further, the water levels at the observation wells and the gas bubble thinning indicated by neutron logs, as well as the decline of the working gas volume below pre-expansion levels, are all consistent with the loss of gas from the underground reservoir by leakage. (IP Ex. 5.3, p. 5.) Based on this information, the cause of the problem could have been that the structure of the expanded reservoir was different than what was originally believed, or that gas was being lost due to several possible causes such as leakage through the caprock or across a fault or fracture in the reservoir, or irregular growth of the gas bubble (fingering). (IP Ex. 6.1, p. 2.) These potential causes of the "inventory shortfall" needed to be investigated and either confirmed or ruled out before the Company could reasonably initiate specific corrective actions such as reinjecting significant quantities of replacement gas inventory.

In summary, based on the information available to it as of early 2000, AmerenIP had a reasonable basis to believe (despite the discovery of the injection meter over-registration) that there were reservoir or structural causes for the Hillsboro deliverability decline, and thus that any replacement gas it injected into the Field could migrate away from the reservoir and possibly be lost. (IP Ex. 6.1, pp. 1-2.) The Staff witness suggested that "the Company, in order to determine which avenue [i.e., a structural problem or an "inventory shortfall"] was the problem at Hillsboro should have started replacing inventory in the field, in order to determine the impact the replacement inventory would have, while at the same time continuing its investigation into potential reservoir problems." (Staff Ex. 4.00R, p. 24.) Injecting substantial quantities of gas into a storage reservoir experiencing potential structural or geologic problems could have been a costly mistake, resulting in millions of dollars of lost gas. Contrary to the course of action recommended by Staff (with the benefit of hindsight), the Company took a cautious approach at the time based on the information available to it and the potential reservoir and structural causes of the deliverability decline that had not yet been investigated and eliminated.

The Staff witness and the Company have a difference of opinion as to whether the Company should have begun reinjecting significant amounts of replacement gas into HSF in 2000. However, a difference of opinion is not sufficient basis to find the Company imprudent or to impose a disallowance.[31] Moreover, the Staff witness's opinion was arrived at with the benefit of hindsight – the knowledge that the completion of the Company's investigations in 2003 showed there was no reservoir or structural problem causing the deliverability decline. In contrast, the Company's actions were based on the information available to it in 2000. Unlike the Staff witness's recommendation, made in 2005, that AmerenIP should have begun reinjecting

[31] *Illinois Commerce Comm'n v. Commonwealth Edison Co.*, Docket 84-0395 (Oct. 17, 1987), p. 17; *Illinois Power Co. v. Commerce Comm'n*, 339 Ill. App. 3d 425, 435 (5th Dist. 2003).

significant amounts of replacement gas inventory into HSF in 2000, Company management did not have the luxury in 2000 of knowing that gas was not leaking or migrating from the reservoir area or otherwise becoming inaccessible from the existing withdrawal wells, due to breaches in the reservoir structure, existence of unknown sub-structures, fingering or other reservoir or structural problems. Therefore, the Company took a cautious approach to reinjections. Based on the information available to management at the time, the fact that AmerenIP did not begin reinjecting significant amounts of replacement gas inventory into HSF in 2000 cannot be considered imprudent.

2. The Staff Witness's "Overall Storage Concerns" Do Not Demonstrate That AmerenIP Was Imprudent in its Investigation and Remediation of the Hillsboro Deliverability Decline or That the Company Should Have Discovered the Cause of the Deliverability Decline and Begun to Reinject Replacement Gas Inventory in 2000

In addition to the three Hillsboro-specific items discussed in §II.B.1 above, the Staff witness also cited several "overall storage concerns" in support of his contention that AmerenIP had been imprudent in its investigation and determination of the cause of the Hillsboro deliverability decline. Specifically, he cited (i) the fact that the Company had reduced the peak day rating of Hillsboro and had also reduced (for one season, 2001-2002) the peak day rating of its Shanghai Storage Field; (ii) a reduction in the number of supervisors at the storage fields over the period 1991-2000; (iii) a reduced level of capital expenditure budgets for the storage fields in 2002-2004[32] compared to earlier years; and (iv) a purported inability to adequately identify problems. (Staff Ex. 2.00R, pp. 44-60; *see* PO, pp. 30-31.) As discussed below, none of these "overall storage concerns" are valid. More significantly, other than making general, unsupported assertions, the Staff witness showed no causal connection between any of these "concerns" and

[32]The year 2004 is subsequent to the year under consideration in this docket.

the Hillsboro deliverability decline or the speed with which AmerenIP investigated, identified and remediated the cause of the deliverability decline.

a. Reduction in Peak Day Capacity

The first "overall storage concern" was that on two occasions, AmerenIP has reduced the peak day capacity of a storage field. (Staff Ex. 2.00R, pp. 45-46; PO, pp. 30-31.) One of those instances is the reduction in Hillsboro's peak day capacity that is at issue in this case.[33] Since the HSF capacity reduction is at issue in this case, whether it occurred as a result of imprudent actions should be decided on the basis of the specific facts and circumstances discussed in §II.A and II.B.1 above, and not based on the mere fact that the capacity rating was reduced. (PO, p. 19.) It is circular reasoning to argue that the Company was imprudent in reducing the peak day capacity of Hillsboro because it reduced the peak day capacity of Hillsboro.

The other occurrence was the reduction of the peak day capacity of the Shanghai Field for the 2001-2002 winter. (Staff Ex. 2.00R, p. 45.) This capacity reduction was specifically at issue in the Company's PGA reconciliation case for 2001, Docket 01-0701, where the same Staff witness recommended the Commission find the Shanghai capacity reduction occurred due to imprudence. However, in its Order in Docket 01-0701 the Commission *rejected* the Staff recommendation and affirmatively found the Company had acted reasonably and prudently in reducing the peak capacity of Shanghai for the 2001-2002 winter. (Order in Docket 01-0701, Feb. 19, 2004, p. 25; PO, p. 19.) This determination was made on the basis of an extensive review of the facts relating to the causes for the temporary reduction in Shanghai's peak capacity and the Company's actions. (Order in Docket 01-0701, pp. 7-11, 16-19, 22-25.) In light of this prior, specific Commission finding, there is no basis for using the Shanghai capacity reduction in

[33]The peak day capacity rating of Hillsboro was restored to 125,000 Mcf/day during the 2003 reconciliation year. (Rev. IP Ex. 2.1, p. 21).

the 2001-2002 winter as grounds for an imprudence finding in 2003 relating to a *different* storage field. (PO, p. 19.)

The Staff witness asserted that reduction of the capacity of a storage field is an "uncommon event" and thus "is not a positive indication" of the utility's management or oversight over the storage facility. (Staff Ex. 2.00R, p. 45.) His assertion that reduction of the capacity of a storage field is an "uncommon event" was incorrect. Deliverability decline has been reported to be the most common problem encountered by operators in the gas storage industry. (IP Ex. 6.0, p. 21.) According to information published by the U.S. Department of Energy ("DOE"), based on more than 350 U.S. storage reservoirs, most gas storage operators experience a loss in deliverability over time. (*Id.*; PO, pp. 19-20.) The Staff witness's characterization of the reduction in the capacity of a storage field as an "uncommon event" is not consistent with the experience of the U.S. gas storage industry. (IP Ex. 6.0, p. 22; PO, p. 20.)

b. Manpower (Storage Field Supervisors)

The second "overall storage concern" cited by the Staff witness was that "manpower levels at the Company's storage field operations changed over time". (Staff Ex. 2.00R, p. 47.) Specifically, while the number of storage field operators has remained constant since 1991, the number of storage field supervisors was reduced from three or four during the 1991-1995 period to one in 2000. (*Id.*; *see* PO, p. 31.) The Staff witness made the general assertion that "IP's reduction in oversight has caused it to operate its storage fields in a manner that is not safe, reliable and efficient." (Staff Ex. 2.00R, p. 48.)

However, the Staff witness did not show any relationship between the reduction in the number of supervisors and the HSF deliverability issues, and there is no such relationship to be shown. (PO, p. 20.) In 1991 the Company had a total of 16 storage field operators and three supervisors. The number of supervisors was reduced to two in 1995 and to one in 2000.

Throughout this period, a staff of 16 operators was maintained. As of January 2003, the Company had 16 storage field operators and one supervisor, for a total of 17 employees at the storage fields, only two less than in 1991. (Rev. IP Ex. 2.1, p. 28; PO, p. 20.)

The reduction in number of supervisors occurred in conjunction with adoption, in 1995, of a new manpower plan that included upgrading one of the operator positions at each storage field to a foreman's position. The manpower plan embodied a self-directed work team approach in which the work team for each field is responsible and accountable for the functions to be performed at the field in order to provide safe and reliable service. (Rev. IP Ex. 2.1, p. 29; PO, p. 20.) AmerenIP's storage field operators have more than 240 total years of gas storage experience (Rev. IP Ex. 2.1, p. 28; PO, p. 20), which provides a strong foundation to carry out their responsibilities under the self-directed work team model.

In addition to the employees at the storage fields, throughout this period the Company has had a manager of storage who was responsible for supervision of all the storage fields, as well as engineering and administrative personnel on its headquarters staff whose responsibilities include the storage fields. The Company used outside consultants and contractors for specific projects and studies relating to the storage fields, including unusual problems or occurrences that may arise at a storage field. (Rev. IP Ex. 2.1, pp. 29-30; PO, p. 20.) Using outside consultants and contractors and headquarters engineering personnel to investigate and analyze such problems and occurrences minimizes the need to distract the personnel at the storage fields from their day-to-day operating responsibilities. (PO, p. 20.)

Nothing in the record supports the Staff witness's assertion that the reduction in the number of storage field supervisors caused the Company to operate its storage assets in a manner

that is not safe, reliable and efficient. AmerenIP's storage fields have had an excellent safety record, as indicated by these undisputed facts:

- From 1994-2004, the Company had only three lost time accidents at its storage fields, with no lost time accidents from August 1998 through 2004. (Rev. IP Ex. 2.1, pp. 30-31; PO, p. 20.)

- The Company has never had an incident which endangered public safety at any of its storage fields. (Rev. IP Ex. 2.1, p. 31; PO, p. 20.)

- The Company's storage field operators have received extensive training on numerous safety-related topics. (Rev. IP Ex. 2.1, p. 31.)

- The Commission's Office of Pipeline Safety ("OPS") performs annual audits of each AmerenIP storage field, including all records at each field and verification that leakage surveys and pipeline patrols have been performed. OPS issued only one "Non-Compliance" and two "Observations" in total to the Company for all seven of its storage fields for 2002-2004. The issues involved in these findings were minor and the Company addressed them immediately. (*Id*.; PO, p. 20.)

Additionally, over the period cited by the Staff witness, the Company improved the efficiency of its storage fields through capital improvement projects. (Rev. IP Ex. 2.1, p. 32; PO, p. 20.) AmerenIP has increased efficiencies at its storage fields by implementing advanced technologies as they have become available. (Rev. IP Ex. 2.1, p. 35.) The Company has improved the automation and remote control features of the control systems for the storage fields; all of the storage fields now have updated control systems that have been installed over the past eleven years, with the control system upgrade for the final storage field completed in 2004. (*Id*.) The upgraded control systems make the storage plants more efficient operationally and improve AmerenIP's ability to monitor their operations, both on-site and from the central gas dispatch center. As a result of these improvements, the gas system dispatchers at the central dispatch center are able to monitor the status and operations of the storage fields. (*Id*.; PO, p. 20.) AmerenIP has also adopted standardized operations software which enables operators from one field to go to any other field and control it. (Rev. IP Ex. 2.1, p. 35; PO, p. 20.)

In any event, there is no evidence that the reduction in storage field supervisors had anything to do with the speed with which AmerenIP investigated and determined the cause of the HSF deliverability decline. AmerenIP witnesses Hood and Kemppainen, who were directly involved in the investigation and remediation of the HSF deliverability issues, testified:

> [W]ith respect to the impacts, if any, of the reduction in the number of storage field supervisors on the Company's ability to determine the causes of the Hillsboro and Shanghai deliverability declines, we have been involved in the investigation, discovery and remediation of the problems that led to the temporary reduction of peak day capacity at Hillsboro and Shanghai and the deliverability decline at Hillsboro. Based on our involvement, we do not believe there is any connection between the reduction in the number of storage field supervisors and the reduction of peak day capacity and deliverability or the time it took to determine the root cause of the problems. To the contrary, Illinois Power diligently investigated the source of the declining performance at the Hillsboro Field over a number of years until it was identified and corrected. These efforts were not hampered by a lack of supervisory resources. Similarly, there is no causal connection to support Mr. Lounsberry's assertion in the "Conclusion" to the "Overall Storage Concerns" section of his testimony (lines 1248-1249) that "After reducing its manpower levels, IP's ability to identify and act upon problems at its storage fields declined." (IP Ex. 5.0, pp. 35-36; *see* PO, p. 21.)

Staff provided no rebuttal to this testimony other than reiterating generalized assertions concerning the reduction in number of supervisors. (PO, p. 21.) Staff's assertions concerning manpower do not support any conclusion that AmerenIP was imprudent in its investigation, determination and remediation of the Hillsboro deliverability decline or that AmerenIP should have begun reinjection of substantial amounts of replacement gas inventory into HSF in 2000.

c. Capital Expenditures

The Staff witness's third "overall storage concern" was that the Company's capital expenditures for its storage fields have decreased. He specifically pointed to the storage field capital expenditures for 2002 through 2004 which were lower than the levels in 2000 or 2001 and among the lowest years for storage field capital expenditures during the period 1995-2004. He stated that he was "concerned that IP is being reactive rather than proactive when

determining when to make upgrades or other improvements at its storage fields", which, he asserted, "has contributed negatively to IP's ability to maintain its storage operations." (Staff Ex. 2.00R, pp. 48-50; *see* PO, p. 31.)

The Staff witness's contention that AmerenIP's levels of annual capital expenditures have "contributed negatively to IP's ability to manage its storage operations" was another unsubstantiated assertion. As with the assertion concerning manpower levels, Staff provided no facts demonstrating a causal relationship between the Company's annual storage field capital expenditure levels and the speed with which the cause of the Hillsboro deliverability decline was investigated and identified. (PO, p. 21.)

IP Exhibit 2.7 showed the Company's annual storage field capital expenditures, on both a direct cost and loaded (i.e., with overheads charged to construction) basis, for the years 1995-2003. The annual capital expenditures have fluctuated over this period, and were higher in those years in which large, one-time projects were completed. (Rev. IP Ex. 2.1, p. 32; PO, p. 21.) IP Exhibits 2.8 and 2.9 provided a list of the storage field capital improvement projects, and a list of studies concerning the storage fields, that were completed over this period. The Company witness identified the specific large, one-time projects that were completed in those years that had higher capital expenditures. (Rev. IP Ex. 2.1, pp. 32-33; PO, p. 21.) AmerenIP has been proactive in identifying and correcting problems at all of its storage fields, and has initiated numerous projects to avoid potential problems while trying to ensure maximum deliverability ratings.[34] (Rev. IP Ex. 2.1, p. 33.)

[34]IP Exhibit 2.8 listed numerous projects that replaced or upgraded storage field facilities and equipment or installed new facilities and equipment. *See also* the discussion of the new control, monitoring and dispatch systems the Company has installed in §II.B.2.b above.

Due in part to the completion of several major capital project initiatives over the period 1995-2001, the Company simply did not identify any additional major projects that warranted capital expenditures in 2002 and 2003. (*Id*., pp. 34-35.) The year-to-year storage field capital expenditures over the 1995-2003 period are exactly what one would expect to see in the context of a relatively small gas system segment, that is, annual capital expenditures have been high in those years when specific, major capital projects are implemented and lower in years in which there is not a major project being implemented. The Company has not established its capital budgets in a manner intended to show relatively constant levels of spending from year to year, but rather has budgeted and scheduled significant larger projects as needed, which accounts for the year to year fluctuations in capital expenditures. (*Id*., p. 33; PO, p. 21.) In addition, the Company witness testified that in his experience in a management position through four annual budgeting cycles, a requested storage field capital project was never rejected by Company management due to capital budget limitations. (Rev. IP Ex. 2.1, p. 34.)

IP Exhibit 2.10 showed the annual storage field operation and maintenance ("O&M") expenditures and combined capital and O&M expenditures for 1995-2003. Amounts spent on O&M, like capital expenditures, contribute to the ability of the storage fields to operate in a safe, efficient and reliable manner. (Rev. IP Ex. 2.1, p. 36; PO, p. 21.) This exhibit showed that the Company's storage field O&M expenditures in each of 2001, 2002 and 2003 were <u>higher than in any of the preceding six years</u> (1995-2000).[35] (*Id*., pp. 37-38; IP Ex. 2.10.) Further, although Staff asserted that the Company may have been "reactive not proactive" in maintaining its storage fields (*see* PO, p. 21), many of the activities that would initially be undertaken to

[35]The two years cited by the Staff witness as having lower storage field capital expenditures, 2002 and 2003, actually had the second and third <u>highest</u> annual O&M expenditure totals in the 1995-2003 period. (Rev. IP Ex. 2.1, p. 38.)

investigate a problem at a storage field, such as hiring a consultant to conduct a review or perform a study, would typically be expensed, not capitalized. (Rev. IP Ex. 2.1, p. 37; PO, pp. 21-22.) The Staff witness was well aware of the Company's storage field O&M spending history over the 1995-2003 period, yet he expressed no criticism of the level of the Company's storage field O&M expenditures.

The Staff witness contended that AmerenIP may have been "reactive rather than proactive" in making improvements at its storage fields because it does not earn a return on capital investments until its next rate case, whereas gas supply costs are automatically recovered through the PGA. (*See* PO, p. 31.) The high, and generally increasing, levels of the Company's annual storage field O&M expenses disproves this accusation. If, between rate cases, a utility spends more in O&M than was included in the revenue requirement in its last rate case (which for AmerenIP was 1993-1994), the utility can *never* recover from its customers the increased O&M costs it incurs during the period between rate cases. Yet, AmerenIP's storage field O&M expenditures generally increased over the 1995-2004 period.

In the face of all this information, Staff was unable to identify any capital projects that should have been undertaken but were not, including any projects that would have enabled the Company to identify and remediate the cause of the Hillsboro deliverability decline sooner. (Rev. IP Ex. 2.1, p. 36; PO, p. 22.) Moreover, the years Staff pointed to in which capital expenditures were lower (2002-2004) do not correlate to the years in which Staff alleges there was imprudent management at HSF. The years 2000 and 2001 are the years in which, Staff contended, the Company should have discovered the cause of the HSF deliverability decline, <u>yet 2000 and 2001 were two of the years with *higher* storage field capital expenditures</u>. (*See* IP Ex.

2.8.) Obviously, the inability to determine the cause of the HSF deliverability decline by 2000 or 2001 were *not* caused by lower levels of capital expenditures in *2002 and 2003*. (*See* PO, p. 22.)

In any event, there is absolutely no evidence that AmerenIP's investigation of the cause of the Hillsboro deliverability decline was hampered or delayed by any lack of capital resources. As Company witnesses Hood and Kemppainen testified:

> [B]ased on our personal involvement in attempting to ascertain the cause of the Hillsboro deliverability decline, the failure to discover the underlying cause sooner did not result from the failure to undertake any particular capital projects or from the level of capital expenditures generally. As we have described in this testimony [IP Ex. 5.0], Illinois Power devoted considerable internal and external resources to determining the source of the Hillsboro performance decline. (IP Ex. 5.0, p. 36.)

Similarly, Company witness Shipp testified that:

> [I]n the one area that is specifically at issue in this case, i.e., the deliverability decline and inventory depletion of the Hillsboro Field, Illinois Power was extremely proactive, over an extended period of time, in trying to identify and correct the root causes of the problem. Mr. Lounsberry has not identified any capital projects, in either this case or in Docket 04-0476, which he contends could have enabled IP to identify and remediate the HSF deliverability issues sooner but which IP failed to undertake, for budgetary or any other reasons. (Rev. IP Ex. 2.1, p. 36.)

d. Identification of Problems/Root Cause Analysis

The Staff witness's final "overall storage concern" was that he questioned "IP's ability to identify problems or conduct thorough root cause analyses at its storage fields." (Staff Ex. 2.00R, p. 51.) His concern was based on two specific occurrences: (1) a December 2000 incident at Hillsboro in which a produced water tank became overpressurized and was launched from its foundation, and (2) the fact that, while the Hillsboro injection meters were recording more gas being injected into the Field than was actually the case over the 1994-1999 period, the Company did not recognize that additional volumes of gas were entering its gas system (rather than being injected into the storage field). (*Id.; see* PO, pp. 31-32.)

i. December 2000 Incident

The Staff witness contended that AmerenIP failed to conduct an adequate investigation of the root cause of the December 2000 Hillsboro incident, which he argued was evidence of poor management oversight. (Staff Ex. 2.00R, p. 58; Staff Ex. 4.00R, p. 41; *see* PO, p. 32.) His characterization of the Company's actions, and his conclusion, are wrong, for these reasons:

- Within two days following the December 16 incident, the Company hired a qualified outside consulting firm, Packer Engineering, a recognized forensic engineering expert[36], to conduct an investigation of the incident and submit a report, which Packer did on February 14, 2001. (IP Ex. 5.0, pp. 37-38.) The Staff witness did not question Packer Engineering's qualifications to conduct this investigation. (PO, p. 23.)

- Packer Engineering's report identified a specific root cause of the explosion. (IP Ex. 5.0, pp. 37-38; PO, p. 23.)

- The Commission's OPS conducted a thorough, independent investigation of the December 2000 incident and issued a report, but did not make any findings of violations or non-compliances by the Company, nor find any fault with the quality or completeness of the Company's (or Packer's) investigation. (IP Ex. 5.2; IP Ex. 5.3, p. 11; PO, p. 23.)

- Based on its investigation, including the recommendations of Packer Engineering as well as the ICC OPS report, the Company implemented a number of corrective actions for the purpose of preventing a repeat of the December 16 incident.[37] Neither the OPS, the Staff witness in this case nor any other Staff member has ever criticized the sufficiency or completeness of the Company's corrective actions. (IP Ex. 5.0, p. 43; IP Ex. 5.3, pp. 11-12; PO, pp. 23-24.)

Although the Staff witness stated in his rebuttal testimony that "Without conducting a thorough review of what actually happened, IP cannot be assured that it took appropriate corrective actions" (Staff Ex. 4.00R, p. 44), in the three dockets in which he has raised this same

[36]Packer Engineering specializes in investigating the causes of accidents involving chemicals, metallurgical failures, fire, explosions and similar circumstances. (IP Ex. 5.0, p. 37.)

[37]These corrective actions were listed at pages 41-42 of IP Exhibit 5.0.

issue relating to the December 2000 incident[38], he has never identified any respect in which he contended that the Company's corrective actions were insufficient or incomplete, nor has he identified any additional corrective actions that he believes AmerenIP should have implemented. (IP Ex. 5.0, pp. 42-43.) Staff criticized the sufficiency of AmerenIP's root cause analysis of the December 2000 incident, but the purpose of a root cause analysis is to identify corrective actions that can be taken to prevent the incident from occurring again. The Company implemented numerous corrective and preventative actions following the December 2000 incident, based on its investigation, and the sufficiency and completeness of these actions has not been questioned. (*Id*., p. 43; IP Ex. 5.3, pp. 11-12.)

In any event, there is no connection between the December 2000 incident or its causes and the injection metering over-registration that was the cause of the HSF deliverability decline, or the speed and aggressiveness with which the Company investigated the causes of the deliverability decline. Even if the Commission were to conclude that the Company's investigation of the root cause of the December 2000 incident was insufficient or not aggressive enough (a conclusion for which there would be no basis), this would provide no grounds to question the sufficiency and diligence of the Company's investigation into the causes of the Hillsboro deliverability decline, or to question the sufficiency of the resources and attention that the Company devoted to it.

ii. Gas Dispatch Tracking

The Staff witness noted that over the period the Hillsboro injection meter over-registration was occurring, approximately 1 Bcf of additional gas per year on average entered AmerenIP's gas system (rather than being injected into the HSF), but was not noticed by the

[38]The other two dockets were Dockets 01-0701 and 04-0476.

Company's gas dispatchers. (Staff Ex. 2.00R, pp. 59-60; *see* PO, p. 32.) However, when the 1 Bcf of gas is translated to a daily amount, it can be seen why this additional amount of gas would not be identified. The 1 Bcf of gas equates to about 4,000 Mcf per day on average during the injection season. (Rev. IP Ex. 2.1, p. 39; PO, p. 24.) During the months of April, May, October and November, AmerenIP's purchased gas volumes (including gas for storage) are approximately 300,000 Mcf to 400,000 Mcf per day. An incremental amount of 4,000 Mcf per day during this period would not stand out as a significant error. (Rev. IP Ex. 2.1, p. 39; PO, p. 24.) Further, in addition to the Company's gas purchases (for its system supply customers), customer-owned (transportation) gas also enters the system each day. On a real-time basis, the dispatchers cannot distinguish between deliveries for transport customers and other deliveries entering the system. (Rev. IP Ex. 2.1, p. 39; PO, p. 24.) Thus, an incremental amount of 4,000 Mcf per day would be even less apparent against the combined daily deliveries of transport customer purchases and AmerenIP gas purchases.

Moreover, AmerenIP's retail transportation tariff, Service Classification 76, as in effect during the 1993-1999 period, allowed transportation customers a daily variance of 50% between nominations and deliveries, which equates to a potential difference between aggregate nominations by and aggregate deliveries for transportation customers of 30,000 Mcf to 35,000 Mcf in a day. This variance far exceeds the 4,000 Mcf average daily injection over-registration that occurred at Hillsboro. (Rev. IP Ex. 2.1, pp. 39-40; IP Ex. 2.11, pp. 13-14.) Additionally, on any given day the line pack in the Company's gas system could be up to 10,000 Mcf. Thus, the average daily amount of excess gas, 4,000 Mcf, that entered the system due to the metering error was less than the amount of line pack typically in the system. (Rev. IP Ex. 2.1, p. 40.)

During the summer injection months (June-September), the amount of gas entering the system (utility purchases plus transport customer gas) is less, due to lower end-user demand, and is in the range of 220,000 Mcf to 280,000 Mcf per day. (*Id*., p. 40.) Again, a variance of 4,000 Mcf/day would not be noticeable in the context of these incoming daily volumes and the other factors mentioned immediately above. (*Id*.)

IP Exhibit 2.14 showed the gas delivery volumes to the system for every day of the 1994-1999 injection seasons, and the percent of each day's deliveries that 4,000 Mcf represented. On average, 4,000 Mcf/day was only 1.99% of the daily deliveries to the gas system. (IP Ex. 2.11, p. 14.) IP Exhibit 2.14 showed that on only five days in the entire six-year period did this percentage reach as high as 3% of deliveries to the system.

Finally, although the gas dispatchers may know what the total pipeline deliveries to the Company are on any given day, they do not know the actual customer consumption on a given day to enable them to compare the two values to determine if load equals deliveries. (Rev. IP Ex. 2.1, p. 40; IP Ex. 2.11, p. 13.) The vast majority of AmerenIP's end use customers are not metered on a daily basis, but rather on a non-calendar month basis.[39] (Rev. IP Ex. 2.1, p. 41; IP Ex. 2.11, p. 13.) Therefore, the dispatchers do not have the means to compare total daily deliveries from the pipelines to total daily deliveries to customers (system supply plus transport) to see if there are significant variances between the two values.

The Staff witness attempted to bolster his contention that AmerenIP's dispatchers should have seen an average measurement error of 4,000 Mcf/day, by presenting an analysis based on gas volumes on the system during a one-week period in July 2003. (Staff Ex. 4.00R, pp. 44-45.)

[39]That is, retail customers' meters are read on a cycled basis throughout the month, with the result that for most customers, the monthly period for which customer usage is measured is not the calendar month and does not correspond with the pipelines' billing periods.

His presentation, however, was flawed and incomplete. Specifically, he compared the average daily measurement error to *only* the daily throughput for *non-transportation customers* (i.e., AmerenIP's system supply load), and failed to include the gas delivered for transportation customers. (IP Ex. 2.11, pp. 12-13.) As noted above, the dispatchers are not able to distinguish on a daily basis between gas delivered for transport customers and gas delivered for system supply customers, but rather would see only the total deliveries to the system. (*Id*., p. 13.)

Additionally, the Staff witness argued that the delivery data for those delivery points on the Company's system that are primarily used for storage injections should have made the metering error more readily apparent. (Staff Ex. 4.00R, p. 45.) His argument was premised on an incorrect assumption, because there are not a small number of delivery points on the AmerenIP system that are used primarily for receipt of gas for storage injections. Rather, gas delivered to virtually any AmerenIP delivery point on the Natural Gas Pipeline Company of America, Panhandle Eastern Pipe Line Company or Mississippi River Transmission Corporation pipeline systems can be moved to the Hillsboro Field for injection. (IP Ex. 2.11, pp. 14-15.)

In summary, the Staff witness's "gas dispatch tracking" point, like his other "overall storage concerns" did not demonstrate that AmerenIP has failed to manage its storage fields in a safe, reliable and efficient manner.

C. The Reasoning in the Proposed Order's Conclusion is Flawed and Does Not Support a Determination That AmerenIP Was Imprudent in its Investigation and Determination of the Cause of the Hillsboro Deliverability Decline

The overall conclusion of the Proposed Order on the Hillsboro issue is that "IP's actions in connection with the investigation, identification and remediation of the declines in the deliverability of the Hillsboro Storage Field was not completely prudent." (PO, p. 33.) The PO states that "[t]he record demonstrates that the Company expended internal and external resources, in attempting to identify, and ultimately identifying and resolving, the causes of the

Hillsboro Storage Field deliverability decline." (*Id.*) Nonetheless, the PO states that "IP's actions and decisions did not meet the standard of prudence that the Commission has adopted" and that "the Company was imprudent because it did not begin reinjecting substantial quantities of gas inventory into Hillsboro in 2000, 2001 or even 2002." (*Id.*) In the remainder of the "Commission Conclusion" section, the PO states reasons supporting the foregoing overall conclusion. The reasons articulated in the PO do not warrant its overall conclusion. Further, as we pointed out at the start of this brief, in the proposed order in Docket 04-0476, the ALJ, based on essentially the same underlying set of facts, reached the conclusion that AmerenIP *was prudent* in its in actions in investigating and resolving the HSF deliverability decline.

First, the PO states that "the three specific Hillsboro-related items cited by Staff warrant a finding of imprudence", including not using the 1994 well chart data in 2000 to estimate the extent of the injection meter over-registration, and not basing its withdrawal meter inspection practices on Code Part 500.180(c) and the AGA documents cited by Staff. (*Id.*, pp. 33-34.) As shown in §II.B.1 above, however, none of "the three specific Hillsboro-related items cited by Staff" supports a conclusion that AmerenIP was imprudent in its investigation and identification of the cause of the HSF deliverability decline or in not beginning to reinject substantial quantities of replacement gas inventory into Hillsboro in 2000, 2001 or 2002. Further, the discussion in the PO's Conclusion expressly recognizes some of the facts that show "the three specific Hillsboro-related items cited by Staff" <u>do</u> <u>not</u> support a conclusion that the Company was imprudent. For example, the PO notes in its Conclusion that:

- "[I]n IP's recent gas rate case, Docket 04-0476, Staff criticized the well chart method as not being a reliable methodology for estimating the amount of the injection metering error and resulting inventory depletion." (PO, p. 33.)

- "[T]he Company had in its possession in 1999-2000 only a small portion of the data (the 1994 well charts) that IP used in 2003 to determine the actual amount of the injection metering error."[40] (*Id*., pp. 33-34.)

- "[L]ooking solely at the correction factors that IP calculated in 2003 for the four years using the well chart data, the average for the four years is much lower than 22%." (*Id*., p. 34.)

- "[T]he regulations and other documents cited by Staff concerning meter inspection practices are not specifically applicable to the storage field withdrawal metering." (*Id*., p. 34.)

- "[T]he record shows that IP failed to recognize the true extent of the turbine injection metering error sooner due to its inaccurate estimate of that error."[41] (*Id*.)

The PO's Conclusion states that "while the regulations and other documents cited by Staff concerning meter inspection practices are not specifically applicable to the storage field withdrawal metering, the Commission concludes that [sic; had] AmerenIP followed such practices, in all likelihood it would have uncovered the underlying problem in a timely fashion." (PO, p. 34.) This statement is unsupportable. It gives no explanation as to *why* the Company should have "followed such practices", and it fails to explain how the Company could be imprudent for failing to "follow such practices" when the PO acknowledges they are not applicable to the storage field withdrawal metering. Further, the statement that "in all likelihood [the Company] would have uncovered the underlying problem [*i.e.*, the amount of the *injection* meter over-registration] in a timely fashion" is completely speculative, and was not supported by

[40]The PO also notes that in 2003, the Company did not in fact estimate the total amount of inventory depletion at HSF by using well chart data, but rather that the Company's reservoir simulation model was used to develop the estimate. (PO, p. 34.)

[41]This statement negates any reliance on the <u>withdrawal meter inspection practices</u> as demonstrating imprudence, since it recognizes that the Company failed to identify the turbine meter injection over-registration as the source of the problem in 2000 because it under-estimated the extent of the injection meter over-registration – <u>not</u> due to any deficiencies in its inspection practices for the <u>withdrawal</u> meters.

even the Staff's testimony. Finally, this statement completely ignores the evidence (with which the Staff witness agreed) that even if the Company had recognized in 2000 that the amount of the injection meter over-registration was much larger than estimated at the time, the Company still would have needed to continue its investigation into potential structural or reservoir causes of the HSF deliverability decline. (*See* §II.B.1.d above.) That is, the PO's Conclusion completely fails to consider that AmerenIP had a sound and prudent basis for *not* "reinjecting substantial quantities of gas inventory into Hillsboro in 2000, 2001 or even 2002."

Second, the PO's Conclusion states that "[t]he Commission is persuaded that Staff's 'overall storage concerns' are an indicator that IP was less than prudent" (PO, p. 34), but does not support this statement with any discussion of the four "overall storage concerns", and does not find any causal relationship between the four "overall storage concerns" and the specific matter at issue, namely, whether the Company was imprudent in failing to recognize sooner than 2003 that the meter injection over-registration was the source of the HSF deliverability decline, and in failing to begin reinjecting substantial quantities of gas inventory into Hillsboro in 2000, 2001 or 2002.[42] The PO's Conclusion also states that "IP acted imprudently because the peak capacity of the Hillsboro storage field was reduced and AmerenIP should have discovered the problem more promptly."[43] (*Id.*) This statement again fails to address whether it was prudent or imprudent for the Company not to begin reinjecting substantial quantities of gas inventory into Hillsboro in 2000 when, based on the information available at the time, there were still a number of possible structural causes of the HSF deliverability decline to be investigated.

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[42]In fact, the PO's Conclusion later states (referring to one of Staff's "overall storage concerns") that "the Commission is not willing to conclude AmerenIP was imprudent in its staff reductions at its storage fields." (PO, p. 35.)

[43]The peak day capacity reduction at HSF accounts for only about 12% of the total Hillsboro-related disallowance imposed by the PO (*i.e.*, $825,000 of $6,870,000).

Third, the PO's Conclusion then launches into a discussion of "similarities" between the circumstances at Hillsboro and the circumstances of the Shanghai Field that were at issue in the 2001 reconciliation case, Docket 01-0701 (in which the Commission found the Company acted prudently). The PO states that "the circumstances surrounding the problems at the Hillsboro Storage Field bear some striking similarities to those surrounding the Shanghai Storage Field that was the subject of Docket No. 01-0701." (PPO, p. 34.) The PO does not state what these "striking similarities" are, and AmerenIP is frankly baffled as to the basis is for this statement. Other than the fact that the peak day capacities of both fields were reduced (albeit only for one winter at Shanghai), there was no discussion in this case by witnesses from either Staff or the Company, nor in the parties' briefs, as to what the underlying facts were with respect to the Shanghai capacity reduction. Further, review of the Order in Docket 01-0701 indicates that the principal cause of the Shanghai capacity reduction was deliverability problems experienced at individual withdrawal wells after 33 years of operation of the storage field, and that the principal issue was whether the Company should have engaged in other or different activities or studies that would have delayed or remediated the problems with individual wells. In contrast, individual well deliverability problems did not prove to be the source of the deliverability decline at HSF (although, as discussed earlier, AmerenIP thoroughly investigated the possibility that formation damage at the I/W wells was the source of the deliverability decline).[44]

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[44]The PO states that "it could be argued that given the similarities between the instant proceeding and Docket 01-0701 the Commission is required to find that AmerenIP's actions here were prudent." (PO, pp. 34-35.) To be clear, the Company has not argued that it should be found prudent with respect to the Hillsboro events just because it was found prudent with respect to the Shanghai peak capacity reduction. AmerenIP *has* argued that the peak capacity reduction that occurred for one season at Shanghai does not provide any basis for finding the Company was imprudent with respect to the Hillsboro events – particularly since the Commission found the Company had acted prudently in connection with the Shanghai capacity reduction. (*See, e.g.*, AmerenIP Init. Brief, p. 61.) In that regard the PO's reference to "the ineffective pattern

Fourth, the PO states that the Commission is "hard pressed to believe that prudent operation and oversight of two storage fields, Shanghai and Hillsboro, could result in the types of problems and associated costs being imposed on captive customers", that AmerenIP's "repeated claims of human error and that it did everything it could have become too much to accept", that "AmerenIP has failed repeatedly," and that "Ameren either lacked the resources or motivation to properly operate and manage its Hillsboro Storage Field in a prudent manner." (PO, p. 35.) The PO goes on to state that AmerenIP has had "repeated failures to properly operate and manage its natural gas storage fields in a prudent manner," that AmerenIP has experienced "repeated failures" which have "risen to the level of imprudence", and that "repeated human error demonstrates a lack of oversight and attention that constitutes imprudent operation and management of the Hillsboro Storage Field." (*Id*.) This series of diatribes is both indefensible and completely unwarranted by the record. It demonstrates complete inattention to *the record* in this case of the Company's efforts to determine the cause of the Hillsboro deliverability decline, and it does not even accurately represent the Company's arguments:

- The record of the Company's efforts, as summarized in §II.A above, evidences a thorough and comprehensive approach to considering the plausible causes of the HSF deliverability decline and to isolating, investigating and if possible eliminating each of these causes, until the proper corrective action could be identified. The record in no way supports the PO's statement that the Company "lacked the resources or motivation" to prudently operate and manage HSF.

- The statement that AmerenIP "lacked the resources or motivation to properly operate and manage" HSF ignores the evidence concerning (i) the numerous capital improvements the Company has implemented at all its storage fields to improve monitoring and control capabilities and to upgrade facilities, (ii) the numerous studies the Company has conducted concerning its storage fields, (iii) the level of the Company's O&M spending on its storage fields, which has not

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established for the Shanghai Storage Field" (which again has no basis in the record of this case) is unfounded since the Commission found, after a thorough review of the facts in Docket 01-0701, that the Company acted prudently concerning Shanghai.

been questioned by Staff, and (iv) the storage fields' excellent safety record. (*See* §II.B.2.b and c above.)

- The Company has not experienced "repeated failures" nor "failed repeatedly" in its management of its storage fields. The Company has successfully managed seven storage fields (IP Ex. 2.0, p. 12) over many years to provide reliable service for its retail customers. Over many years of PGA reconciliation cases, the peak capacity reduction for one season at Shanghai (as to which the Commission found the Company acted prudently) and the HSF deliverability decline following expansion of that Field in 1993 are the only two "failures" that have resulted in Staff recommendations for imprudence findings and cost disallowances.[45]

- AmerenIP has not made "repeated claims of human error." The Company is at a loss as to why the PO characterizes it as having made such an argument.

- Although the PO professes that "the Commission does not expect perfection from AmerenIP", that in fact is the import of this part of the PO's analysis – that "problems" equal imprudence.

This part of the PO's Conclusion is the antithesis of application of the prudence standard. As the PO correctly recites at pages 2-3, the prudence standard requires evaluation of whether the utility exercised "that standard of care which a reasonable person would be expected to exercise under the same circumstances encountered by utility management at the time decisions had to be made", based solely on evaluation of those facts available at the time judgment was exercised, and without resort to hindsight. In short, application of the prudence standard requires evaluation of the specific actions and decisions of management in light of the circumstances existing at the time and based on the information available at the time. But in this part of its Conclusion, the PO does not discuss the circumstances confronting the Company at the time of the specific events at Hillsboro that provide the basis for Staff's recommendation, nor what standard of care a reasonable person would have exercised based on those circumstances and the

[45]Moreover, the record shows that declines in deliverability are the most common problem experienced by gas storage field operators and that most gas storage fields experience losses in deliverability. (IP Ex. 6.0, pp. 21-22.) Would the Commission characterize all of these declines as "failures" by the utility?

information available. Instead, the PO simply equates "failures", "human errors" and "problems" with imprudence – which is *not* the prudence standard. The PO's equation of so-called "failures" with "imprudence" is results-oriented and hindsight-based.

Fifth, the PO states that "AmerenIP imprudently selected the easy path when it discovered there might be a problem at Hillsboro" and that "with inadequate thought, AmerenIP decided the problems at Hillsboro must be structural and began hiring consultants to identify the exact nature of the problem." (PO, p. 35.) These statements, too, are unsupportable and indefensible in light of the record:

- To begin with, the PO's statement that the Company "began hiring consultants to identify the exact nature of the problem" can hardly be squared with the PO's statement in the immediately preceding paragraph that AmerenIP "lacked the resources or the motivation" to properly operate and manage Hillsboro. If that were the case, the Company certainly would not have expended substantial resources on outside consulting services.

- The characterization that the Company "selected the easy path" is the <u>exact opposite</u> of what AmerenIP did. The "easy path" would have been to simply continue to inject as much gas as possible into the Field without regard to whether it may have been migrating off-structure or to areas of the reservoir where the gas could not be accessed from the withdrawal wells. In fact, the Company undertook a number of difficult and leading edge analyses, such as the VSP, the 3-D seismic surveys and the crosswell seismic surveys, to attempt to gain better understanding of the HSF underground structure and thus discover the source of the deliverability decline.[46]

- There is no basis for the PO's statement that "with inadequate thought, AmerenIP decided the problems at Hillsboro must be structural". To the contrary, as discussed in §II.A.1, 2 and 3 and II.B.1.d above, based on the circumstances confronting management and the information available at the time, a structural problem or breach of the reservoir occurring as a result of the recent expansion of the Field was the most logical source of the problems being experienced. AmerenIP agrees that at the outset of the investigation it focused attention and resources on potential structural problems, but there was nothing imprudent in that approach based on the circumstances and the information available at the

[46] *See* the discussion of these studies and analyses at pages 17-19 of the PO.

time.[47] Moreover, the Staff witness never criticized AmerenIP for initially focusing on possible structural causes when it first began investigating the deliverability decline in 1997-1998.

- Indeed, the Staff witness never criticized *any* of the studies and analyses undertaken by AmerenIP to investigate potential structural causes. To the contrary, he testified that if AmerenIP had found the inventory shortfall problem in a timely fashion, the Company would still have had to consider potential problems with the reservoir or other structural problems, and should have continued to investigate these potential problems. (Staff Ex. 4.00R, p. 22.)

- Further, and contrary to the implication of the PO's statement that *all* the Company did was investigate possible reservoir problems or other structural causes, the Company *also* retained Peterson Engineering to audit the metering at HSF. (*See* §II.A.4 above.) Additionally, the Company pursued other non-structural causes, such as leakage of gas from or recirculation of gas through above-ground plant equipment. (IP Ex. 5.0, p. 19.) The AmerenIP witnesses expressly stated that the Company did <u>not</u> simply assume that the only cause of the HSF deliverability decline could be a structural problem. (IP Ex. 5.3, pp. 1-2.)

Sixth, and finally, perhaps the most critical flaw in the PO's conclusion is that it completely fails to address, in any but the most conclusory way, what may be the ultimate "prudence" question in this case: Whether, *even if* the Company had more accurately estimated the scope of the injection meter over-registration in 2000 or 2001, it would have been prudent at that point to "begin reinjecting substantial quantities of gas inventory into Hillsboro" (PO, p. 33) *before* it had completed investigating, and ruled out, remaining potential reservoir or structural problems that could have resulted in "substantial quantities of gas inventory" migrating to inaccessible locations. (*See* §II.B.1.d above.) This issue is encapsulated in Staff's testimony:

> I agree that had the Company found the inventory shortfall problem in a timely fashion the Company would have still had to consider potential problems with the reservoir or other structural problems. However, this does not mean that the Company could not have started replacing the inventory shortfall in 2000. Rather,

[47]In contrast, AmerenIP had much less reason to believe the source of the deliverability decline was a problem with the above-ground equipment at Hillsboro, because although AmerenIP expanded or replaced above-ground facilities at HSF in connection with the expansion, in doing so it replicated facilities that had operated satisfactorily for many years. (IP Ex. 5.0, pp. 5, 8-9.)

> in my opinion, the Company would have begun replacing the inventory shortfall while it was investigating whether there were other problems with the reservoir. (Staff Ex. 4.00R, p. 22.)

AmerenIP's judgment is that based on the information available to it in 2000, 2001 and 2002 – and <u>even if</u> it had more accurately estimated the extent of the injection meter over-registration in this time period – it would not have been prudent to "begin reinjecting substantial quantities of gas inventory into Hillsboro in 2000, 2001 or even 2002." The Staff witness expressed a different opinion on this point. Although adopting Staff's overall position, the PO fails to address which judgment was more appropriate. The PO fails to apply the prudence standard to determine that not beginning reinjections of substantial quantities of replacement gas inventory in 2000, 2001 or 2002 was imprudent in light of the specific information AmerenIP had at the time concerning a separate substructure to which gas could be migrating, or other structural problems that could be enabling gas to leave the reservoir or migrate to inaccessible areas. Moreover, the PO's Conclusion fails to recognize that *imprudence cannot be based on differences in judgment* such as expressed by the Company witnesses and the Staff witness, particularly when one of those opinions (Staff's) is rendered with benefit of the knowledge, available only in hindsight, that there were no reservoir or structural problems at HSF.

Based on the record and on proper application of the prudence standard, the Commission should conclude that AmerenIP was not imprudent, but rather acted prudently, in not beginning to reinject significant quantities of replacement inventory into HSF in 2000, 2001 or 2002, and that this conclusion holds true *even if* the Company had more accurately estimated the amount of the injection meter over-registration in this time period.

D. Alternative Exception: Even if the Commission Were to Conclude that the Company was Imprudent in Failing to More Accurately Estimate the Amount of the Injection Metering Error, the Company Was Not Imprudent in Not Beginning to Reinject Significant Quantities of Gas in 2000 and 2001

The PO concludes that AmerenIP was imprudent "because it did not begin reinjecting substantial quantities of gas inventory into Hillsboro in 2000, 2001 or even 2002." (PO, p. 33.) The PO's Conclusion is premised on accepting Staff's argument that the Company was imprudent in not recognizing in 2000 that the amount of the injection meter over-registration was much larger than the Company had estimated, and therefore in not recognizing that an "inventory shortfall" was a significant cause of the HSF deliverability decline. (PO, pp. 33-34.) However, *even if* AmerenIP had more accurately estimated the extent of the injection meter over-registration in 2000 (as Staff contended it should have), it still would have been prudent for the Company, based on the information available to it at the time, *not* to begin reinjecting substantial quantities of replacement gas inventory into Hillsboro in 2000 or 2001.[48] Therefore, if the Commission were to conclude that AmerenIP should have determined in 2000 that the amount of the inject meter over-registration was much larger than the Company estimated at the time, the Commission should still find (contrary to the PO's conclusion) that the Company acted prudently in not beginning to reinject substantial quantities of gas in 2000 and 2001. The record shows this was a prudent course of action in light of the information available in 2000-2001 – even if AmerenIP had known the amount of the injection meter over-registration was much larger.

As of early 2000, AmerenIP had completed the 3-D seismic survey of the HSF reservoir. Analysis of the 3-D seismic survey results yielded the conclusion that a separate sub-structure

[48]In fact, as shown in §II.A and B above, the Company acted prudently by not beginning to reinject substantial quantities of gas inventory into Hillsboro until 2003, after investigating and eliminating possible reservoir problems or structural causes for the deliverability decline. AmerenIP maintain as its primary position that it was prudent not to begin reinjecting substantial quantities of gas into HSF until the 2003 injection season.

existed to the northeast of the known reservoir structure, in an area not accessible by the existing withdrawal wells, to which approximately 3.5 Bcf of gas had migrated. (IP Ex. 5.0, pp. 9-10; IP Ex. 6.0, p. 8.) This figure was consistent with the decline that had occurred in the Field's deliverability of about 3.1 Bcf (7.6 Bcf to 4.5 Bcf). Thus, the data and analyses at that time indicated gas was migrating out of the main reservoir structure to areas that were not accessible by the existing withdrawal wells. (IP Ex. 5.3, pp. 2-3; IP Ex. 6.0, p. 8.) The Company was preparing to drill the Furness well in the area in which the separate substructure was located, to confirm its existence and recover gas that had migrated to it. (IP Ex. 5.0, p. 14; IP Ex. 5.3, p. 3; IP Ex. 6.0, p. 8.) Given that, in light of the recent expansion of the Field, a structural problem was potentially the cause or one of the causes of the deliverability decline, as well as the specific results of the 3-D seismic analysis, it was appropriate for the Company to continue its analysis of possible structural causes by drilling the Furness well, before beginning to reinject substantial amounts of gas inventory into the Field. (IP Ex. 6.0, pp. 8-9.) The Furness well was drilled in November 2000, immediately following the 2000 injection season.[49] (IP Ex. 5.0, p. 14.)

The Staff witness recognized the possibility that the Commission could conclude it was reasonable and prudent for AmerenIP to follow up on the results of the 3-D seismic analysis by drilling the Furness well, before reinjecting substantial quantities of replacement inventory into HSF. He testified that "Since the Furness #1 well was not drilled until November 2000, it does not correspond to my recommendation that the Commission assume injections to replace the inventory shortfall start in the summer of 2000. However, it does mark another milestone for when IP should have discovered it was faced with an inventory problem and not a reservoir

[49]Substantial lead time is necessary prior to drilling a new well due to the precedent activities including determining exactly where to drill the well; obtaining permits; surveying, staking and grading the location; building access roads to the site; contracting for a drilling rig and crew through a bidding process; and scheduling the crew to do the drilling. (IP Ex. 6.0, p. 13.)

problem." (Staff Ex. 2.00R, p. 43.) Even after drilling the Furness well in November 2000 and not locating the separate 3.5 Mcf substructure indicated by the 3-D seismic analysis, however, it was not imprudent for AmerenIP to not begin reinjecting substantial quantities of gas during the 2001 injection season. Rather, it was reasonable and prudent for AmerenIP to continue to investigate possible structural or reservoir causes of the deliverability decline during the 2001 injection season, and to not begin reinjecting substantial quantities of gas inventory at that time. Although drilling the Furness well did not locate a separate substructure in the area indicated by the 3-D seismic analysis, this result did not invalidate the possibility of a reservoir or structural cause, and it did not even invalidate the possible existence of the substructure. (IP Ex. 5.0, pp. 28-29; IP Ex. 6.0, p. 17.) The results of drilling the Furness well only confirmed there was not a substructure at the specific location indicated by the 3-D seismic analysis. It did not invalidate the more general conclusion developed from the 3-D seismic data that gas was migrating away from the main reservoir to other structures. (IP Ex. 6.0, pp. 17-18; IP Ex. 6.1, p. 3.)

After drilling the Furness well, AmerenIP had conflicting information – the 3-D seismic analysis, which indicated the existence of a substructure to which approximately 3.5 Bcf of gas had migrated, and the results of drilling the Furness well, which did not confirm the existence of the substructure in the anticipated location. It was therefore necessary to have the 3-D seismic analysis results reinterpreted. (IP Ex. 6.0, p. 18; IP Ex. 5.0, p. 29.) The re-interpretation could have concluded that the substructure was in a different location than originally determined. (IP Ex. 5.0, p. 29.) Further, had it been the case that the general conclusion originally drawn from the 3-D seismic analysis – that there was a substructure to which gas was migrating – was correct, then commencing a massive reinjection program in 2001, after drilling the Furness well, would have only resulted in more gas migration and more losses. (IP Ex. 6.0, p. 18.)

In order to have the 3-D seismic analysis reinterpreted and to resolve the conflicting information, it was necessary to gather additional data, by performing crosswell seismic surveys involving the Furness well and two other wells. (IP Ex. 5.0, p. 29; IP Ex. 6.0, p. 18.) Whereas the 3-D seismic analysis provided a profile of the structure of the entire reservoir area, a crosswell seismic survey is a higher resolution process than the basic 3-D seismic process and provides more detailed information on the characteristics of the structure in a specific area of the reservoir. (IP Ex. 5.0, p. 15.) The crosswell seismic surveys were performed in June 2001.[50] (*Id*.) Thereafter, with the benefit of the results of the crosswell seismic surveys, the original 3-D seismic data was re-analyzed, and the conclusion was reached that there was not a sub-structure in the area originally indicated. (*Id*.) This re-analysis was completed in the Fall of 2001. (*Id*.)

Moreover, the results of drilling the Furness well did not rule other potential reservoir or structural causes that could have been the source of the HSF deliverability decline, including losses of gas through the caprock, gas migration via faults or fractures in the reservoir, formation damage in the wells, fingering of gas away from the withdrawal wells or other irregular growth of the gas bubble. All of these were very plausible causes that had not yet been eliminated as of late 2000. (*Id*., pp. 16-17, 30; IP Ex. 6.0, pp. 13-14.) In fact, the Staff witness testified that "the results of the Furness #1 well drilling did not necessarily eliminate the potential that other problems existed at the field." (Staff Ex. 4.00R, p. 32.)

The Staff witness contended that once the Furness well was drilled in November 2000 and did not locate the substructure that had been indicated by the 3-D seismic analysis, AmerenIP should have recognized that "the Furness #1 well completely invalidated the structural

[50]Although this was seven months after the Furness well was drilled, the planning and preparation of a crosswell seismic survey requires a considerable amount of lead time. (IP Ex. 6.0, p. 12.)

variance theory," and that at this point there could not have been any other problem at the Field besides an "inventory problem." (Staff Ex. 2.00R, p. 42.) However, as described above, as of November 2000, there continued to be a number of potential reservoir or structural causes for the HSF deliverability decline that needed to be investigated and eliminated (or confirmed) before the Company began to reinject substantial quantities of gas inventory into the Field, lest reinjected gas be lost as well. Further, Staff's characterization of the HSF deliverability decline as an "inventory problem" only begs the question of whether the inventory depletion was due to loss of gas from the reservoir structure or due to some other cause, such as a metering error (or both). At most, the Staff witness's contention was an expression of opinion, and one rendered with the benefit of the knowledge, in hindsight, that the HSF deliverability decline was not caused by any reservoir or structural problem.

Thus, based on the need to conduct the crosswell seismic surveys, to verify that there was no separate substructure to which gas was migrating – or to determine that the substructure was at a somewhat different location than originally believed – and to continue to investigate the other potential causes listed above, it was appropriate for AmerenIP to conduct and complete the additional analysis described above during 2001. Based on the information available after the Furness well was drilled, which continued to indicate the possibility of a significant structural cause for loss of gas from the reservoir, it was prudent for AmerenIP to not begin reinjecting substantial quantities of replacement gas inventory into HSF during the 2001 injection reason.

III. Argument on Exceptions to Conclusions on Pipeline Overrun Charges

A. Overview

During 2003, AmerenIP incurred unauthorized overrun charges on two pipelines on a total of two days. One overrun charge (incurred on NGPL on March 9) was $11,435. (Staff Ex. 2.00R, p. 6.) The other overrun charge (incurred on Panhandle Eastern Pipe Line Company

("PEPL") on April 6) was $4,283.[51] (*Id*., p. 9.) Staff contended that the incurrence of these two overrun charges was imprudent. The PO adopted Staff's proposed disallowance. However, although the Company and Staff presented extensive evidence and argument on this issue, the PO summarized and discussed virtually none of it.[52] (*See* PO, pp. 4-5.) The PO supported its conclusion to adopt Staff's position with only a single sentence: "The Commission agrees that the Company did not operate with the standard of care which a reasonable company would be expected to exercise under the same circumstances at the time of [sic] that the unauthorized use charges were incurred." (PO, p. 5.)

The starting point – and, AmerenIP submits, the ending point – for analyzing the Staff position (which the PO adopted) is to put the two overrun incidents into perspective. AmerenIP incurred unauthorized overrun charges on two days in 2003, or 0.5% of the days that year. In fact, AmerenIP incurred no unauthorized overrun charges in 2002 or 2004, so the PO has concluded the Company was imprudent in incurring overrun charges on two days out of a 1,095-day period, or 0.18% of those days. Further, AmerenIP is served by five pipelines and must keep its daily deliveries within daily nominations plus allowed tolerances on *each* of these pipelines to avoid overrun charges. Thus, AmerenIP had 5,475 "opportunities" during the three years 2002-2004 to incur a pipeline overrun charge (i.e., 365 days times 3 years times 5 pipelines) but only incurred overrun charges in two instances, representing 0.04% of the "opportunities." (Rev. IP Ex. 2.1, pp. 3-4.) Additionally, the aggregate amount of overrun gas on the two days constituted

[51]Unauthorized overrun charges may be imposed by a pipeline when the gas delivered by the pipeline to a customer on a day exceeds the customer's nominations for the day plus tolerances allowed by the pipeline. (Staff Ex. 2.00R, p. 4.)

[52]Appendix A, which is AmerenIP's proposed revised version of the PO, contains a summary of the evidence and arguments on this issue that was originally provided to the ALJ in the Draft Order Submitted by AmerenIP in this case. However, the ALJ excised most of this information, reducing the PO's discussion of the parties' evidence and arguments to less than a page.

0.002% of AmerenIP's total gas sendout during the reconciliation period. (*Id*., p. 4.) On March 9, the volume of overrun gas constituted 0.2% of the total gas entering AmerenIP's system and 0.6% of the total gas received by AmerenIP on NGPL, the pipeline that imposed the overrun charge. (*Id*.) On April 6, the volume of overrun gas constituted 0.1% of the total gas entering AmerenIP's system and 0.5% of the total gas received on PEPL, the pipeline that imposed the April 6 overrun charge. (*Id*.)

Thus, the amounts of overrun gas were minute in both absolute and relative terms, as well as in frequency of occurrence. (*Id*.) More importantly, AmerenIP did not do anything different in nominating and managing its gas deliveries on March 9 and April 6 than it did on the other 1,095 days in 2002, 2003, 2004 – except that on just those two days, AmerenIP incurred an overrun on one of its five pipelines. As the Company witness testified:

> Although [the Staff witness] has criticized several aspects of the processes the Company employed on March 9 and April 6, 2003, and has asserted that IP should have done certain things differently or in addition on those days, the manner in which IP operated on those two days to nominate, monitor and control gas flows and sources of supply were essentially the same processes it follows all the time. . . [T]he Company incurred unauthorized overrun charges only two times out of 5,475 pipeline gas days over the past three calendar years (2002-2004), with overrun charges equaling approximately $15,000 out of almost $1 billion dollars of gas purchases in that period. In short, IP obviously had systems, practices and procedures in place that were designed and implemented so as to avoid pipeline overrun charges more than 99.5% of the time, so IP should not be penalized with a disallowance due to the fact that these systems, practices and procedures failed to prevent small overruns on two occasions in three years. (IP Ex. 2.11, pp. 7-8.)

Further, review of the specific circumstances on the two days in 2003 shows there is no basis to impose a disallowance on AmerenIP for the overrun charges incurred on those two days.

B. March 9 Pipeline Day

The March 9 gas day ran from 9 A.M. on Sunday, March 9, to 9 A.M. on Monday, March 10.[53] Because suppliers charge a premium for changes made across a weekend, AmerenIP purchased supply on Friday, March 7 to cover the Saturday, Sunday and Monday loads. (Rev. IP Ex. 2.1, pp. 4-5.) Reservations for supply and the nominations to the pipelines were required to be made prior to 9 A.M. on Friday, March 7. On Friday morning, March 7, AmerenIP was forecasting load on its system from system supply customers plus transportation customers of 431,900 MMBtu for the March 9 pipeline day, based on a forecasted mean temperature from an independent weather service of 20 degrees. (*Id*., p. 5.) Supply purchased and nominated on March 7 for March 9, including transportation customer nominations, was 256,254 MMBtu; the remainder of AmerenIP's March 9 load was to be served from leased or Company-owned storage. (*Id*.) However, the actual mean temperature on March 9 was 13 degrees, and the actual telemetered load for the March 9 gas day was 466,007 MMBtu. (*Id*.) The actual pipeline receipts for the March 9 gas day were 466,351 MMBtu, but this number was not known until after the end of the month of March when all pipeline data became available. (*Id*.)

Staff cited the fact that AmerenIP receives telemetered data every 4 to 8 seconds throughout the day on the volumes of gas being delivered to its system by the pipelines. (Staff Ex. 2.00R, p. 5.) Staff therefore contended that short of extraordinary events, a utility should never incur unauthorized pipeline overrun charges. (*Id*.) Staff concluded there were no extraordinary events on March 9 and therefore AmerenIP should not have incurred an overrun, because "at some point it must have been apparent that the Company was not within tolerance

[53]The "pipeline day" or "gas day" is a 24-hour period from 9 A.M. to 9 A.M.

and would incur unauthorized use charges." (*Id*., p. 8.) This analysis was overly simplistic and failed to appreciate the limitations involved in real-time use of the telemetered data.

The Company's dispatch center receives telemetered information on volumes calculated and registered by equipment at pipeline delivery gate stations. This metering equipment is not the "custody transfer" metering and in most cases is not used for billing purposes. Further, this equipment records the gas data volumetrically (Mcf), not on the heat content basis (MMBtu) that is the basis for pipeline bills. (Rev. IP Ex. 2.1, pp. 5-6.) As a result, there is an inherent discrepancy between the telemetered load data seen by AmerenIP's dispatchers in real time and the data used by pipelines for billing purposes (including calculation of any unauthorized overruns). AmerenIP telemeters individual pipeline loads on an Mcf basis and then adjusts this data for Btu content, specific gravity and other factors to be consistent with the pipeline's billing basis.[54] As a result, in almost all instances there is a difference in the telemetered load data seen by the dispatchers for a day and the delivery amounts actually billed by the pipelines. (*Id*., p. 6.) Additionally, the delivery stations that AmerenIP has telemetered to the dispatch center deliver only about 95%-98% of the gas AmerenIP receives from pipelines. While the dispatchers can estimate the gas deliveries received at the other delivery stations by extrapolation, the possibility for minor deviations obviously exists. (*Id*., p. 7.)

Due to the factors described in the preceding paragraph, differences will exist between the telemetered data seen by the dispatchers during the course of the day and the actual values billed by the pipelines (and used to determine whether overruns have occurred) at the end of the month. The dispatchers must constantly monitor and correct the telemetered values to adjust for the Btu content of the gas and other factors. The pipelines post Btu content data on their

[54]As illustrated in IP Exhibit 2.12, the Btu content on a given day is not uniform for all deliveries from a particular pipeline, but rather varies from delivery station to delivery station.

websites, but the posted data is usually a day old. It is not unusual for the actual Btu factor of pipeline gas on a day to vary from the value the dispatchers were using during the course of that day (based on previous days' information). Any difference between previous days' Btu factors and the actual Btu content of the gas on the current day will cause the adjusted telemetered load data for the current day to be slightly incorrect.[55] (Rev. IP Ex. 2.1, pp. 7-8.)

On March 9, the amount of overrun gas was only 0.6% of AmerenIP's total actual deliveries from NGPL. This percentage is representative of the differences between the telemetered load data and the final, actual load data that can be caused by variations in the Btu factor and by the fact that on a real-time basis, not all pipeline deliveries are telemetered. (Rev. IP Ex. 2.1, p. 8.)

Additionally, although Staff pointed to the fact that telemetered data is received every 4 to 8 seconds, this data is not an accumulation of gas flows in real time, but rather only updates the average for the flow for the hour, then projects what the remaining hourly flow rates should be for the day in order to hit the contract limit (nominations plus allowed tolerances). Only after each hour ends do the dispatchers have an accumulation of the real gas flows that have occurred. Thus, it is possible, for example, that the gas flow averages could appear to be exactly where they need to be to stay within contract limits for most of the hour but still end up being over the contract limits at the end of the hour. (IP Ex. 2.11, pp. 3-4.) Again, all of this real–time data is subject to the inaccuracies inherent in the use of an estimated Btu content factor and the fact that not all deliveries are telemetered.

[55]IP Exhibit 2.12 illustrates this fact by showing the daily Btu adjustment factors for April 2003 for four of AmerenIP's delivery stations on PEPL. On the majority of days at each delivery station, the Btu content factors were different than on the preceding day.

Further complicating matters is the fact that the gas loads of AmerenIP's customers, and therefore the gas delivered to AmerenIP's system from the pipelines, are not uniform throughout the gas day. A surge in load at the end of the pipeline day (i.e., in the hours leading up to 9 A.M.) could result in an overrun even though, based on analysis of the telemetered data, deliveries appeared to be within the contract limits throughout most of the gas day. This can be particularly problematic if the gas day in question is 9 A.M. Sunday to 9 A.M. Monday (as it was on both March 9 and April 6), because system load can surge in the last several hours of the gas day as businesses, schools and other users that were not operating on Sunday resume operations on Monday morning. This impact is exacerbated if the actual temperature on the gas day is colder than it was predicted to be on the previous Friday when load forecasts and pipeline nominations were made – again, as was the case on both March 9 and April 6. In these circumstances, the dispatchers simply might not be able to react quickly enough (i.e., by increasing withdrawals from storage while remotely adjusting valves at delivery stations to reduce pipeline receipts) to avoid an overrun in the last few hours of the pipeline day.

Moreover, even when the telemetered data provides indications that the Company may be in danger of incurring an overrun, the dispatchers do not have the ability to make instantaneous changes throughout AmerenIP's gas system. For example, the dispatchers monitor and control mechanical devices throughout the gas system, including pressure control devices that allow the amount of gas to flow that will maintain a set pressure. If a dispatcher calls for a change in one of these devices, such as by calling for a lower flow rate, the response by the device in the field is not instantaneous; rather, it takes some time (up to 20 minutes) for the device to operate in response to the desired condition. Additionally, pressure drops on the system will result in

increased gas in-flows, and it may take several minutes for the dispatchers to respond to this change in conditions. (IP Ex. 2.11, p. 4.)

On March 9 the dispatchers monitored the telemetered load data and adjusted storage activity throughout the day in response to customer loads that differed from projections, to attempt to remain within the pipeline allowed limits and avoid any overruns. (Rev. IP Ex. 2.1, p. 8.) However, the real time data available to the dispatchers is incomplete and not fully accurate, for the reasons described above, and the amount of inaccuracy cannot be known in real time. (Rev. IP Ex. 2.1, pp. 8-9.) As a result, small overruns such as those on March 9 can occur despite the best efforts of the dispatchers – although it is notable that overruns only occurred on 0.1% of the pipeline days in 2003. (*Id*., p. 9.) The only way to systematically avoid overruns would be to have the dispatchers always work to a level of nominations or allowed pipeline tolerances lower than AmerenIP's actual nominations and allowed tolerances. This would result in AmerenIP not utilizing a portion of the pipeline resources for which its customers pay and (as discussed in §III.D below) would not be cost-effective for customers. (*Id*.; IP Ex. 2.11, p. 8.)

C. April 6 Pipeline Day

The April 6, 2003 gas day began at 9 A.M. Sunday, April 6 and ended at 9 A.M. on Monday, April 7. AmerenIP purchased supply on Friday, April 4 to cover the Saturday, Sunday and Monday loads. (Rev. IP Ex. 2.1, p. 9.) Reservations for supply and nominations to the pipelines had to be made prior to 9 A.M. on Friday, April 4. On Friday morning, April 4, AmerenIP was forecasting load on its system from system supply customers plus transportation customers of 239,300 MMBtu for the April 6 pipeline day, based on a forecasted mean temperature of 37.5 degrees. (*Id*.) Supply purchased and nominated on April 4 for April 6, including transportation customer nominations, was 185,242 MMBtu; the remainder of the April 6 load was to be served from leased or Company-owned storage. (*Id*.) The actual mean

temperature on April 6 was 36.6 degrees, and the actual telemetered load for the April 6 gas day was 322,630 MMBtu. (*Id*., p. 10.) The actual pipeline receipts for the April 6 gas day were 321,300 MMBtu, but this number was not known until after the end of the month when all pipeline data became available. (*Id*.) The unauthorized overrun on PEPL for April 6 was 415 dekatherms ("Dth") which was 0.5% of the total actual deliveries to AmerenIP on PEPL and 0.1% of the total pipeline deliveries to the AmerenIP system. (*Id*., pp. 4, 10.) These percentages are representative of the differences between the real-time telemetered load data and the final, actual load data that can be caused by variations in the daily Btu factors, as discussed above, and the fact that 3% to 5% of the pipeline deliveries are not telemetered. (*Id*.)

On April 6 the dispatchers monitored the telemetered gas data and adjusted storage activity throughout the gas day in response to variances between the actual customer loads being experienced and the loads that were projected when supply was ordered. (Rev. IP Ex. 2.1, p. 10.) Again, however, the dispatchers' efforts could not be completely accurate due to the variance between the actual Btu factor for the day and the Btu factor the dispatchers were using during the course of the day to adjust the telemetered volumes, as well as the fact that the telemetered data does not encompass 100% of the pipeline deliveries in real time. (Rev. IP Ex. 2.1, pp. 10-11.)

D. The Staff Witness's Assertions of Imprudence with Respect to the March 9 and April 6 Overruns Were Based on Hindsight and Substitution of Judgment and Should Be Rejected by the Commission

In his direct testimony, the Staff witness based his contention that the March 9 and April 6 pipeline overruns were imprudently incurred on the assertion that because the dispatchers receive telemetered data every 4 to 8 seconds, "at some point it must have been apparent that the Company was not within tolerance and would incur unauthorized charges", the Company had "the means to . . . confirm the Company usage was within tolerance levels", and "the Company

should have become aware that actions needed to be taken to remain within tolerance." (Staff Ex. 2.00R, pp. 8, 11.) As §III.B and C above show, however, that is not necessarily the case. To the contrary, the record shows not that AmerenIP should have been able to avoid overruns on the two days on which they occurred, but rather that AmerenIP remarkably incurred overruns on only these two days in a three-year period, representing 0.1% of the pipeline days in 2003 and about 0.036% of the pipeline days in the three-year period.

In his rebuttal testimony, the Staff witness resorted, with the benefit of hindsight, to second-guessing AmerenIP's actions. With respect to the March 9 gas day, he contended that "at the end of its March 9, 2003 gas day", AmerenIP calculated it had incurred an overrun on NGPL. (Staff Ex. 4.00R, p. 6.) While this statement is correct, it ignores that fact that (i) the calculation AmerenIP made at the end of the gas day was not necessarily the final, actual pipeline calculation due to the use of estimated Btu adjustment factors and the fact that not all delivery stations are telemetered; and (ii) more importantly, this determination was not made by the dispatchers until "the end of [the] March 9, 2003 gas day", when it was too late to take corrective action such as altering gas supply purchases or storage activity. (IP Ex. 2.11, p. 2.) As it turned out, the March 9 overrun on NGPL was equal to only 0.6% of the gas received on NGPL that day. (Rev. IP Ex. 2.1, p. 4.)

Staff also contended that AmerenIP had sufficient allowed tolerances on NGPL that it should have been able to avoid the March 9 overrun of 0.6%.[56] (Staff Ex. 4.00R, p. 7.) However, as the discussion in §III.B above showed, there is enough variance between the data available to the dispatchers in real time concerning pipeline deliveries and system loads and the final, actual pipeline delivery data for a day, as well as enough delay in the dispatchers' ability to

[56]As noted earlier, AmerenIP in fact used its allowed tolerances on NGPL to avoid overruns on 1,094 of 1,095 days in the three-year period 2002-2004.

alter system flows in response to information, that small overruns such as occurred on March 9 are not 100% avoidable. The only way to completely avoid overruns would be to require that the dispatchers always work to a level of nominations or allowed pipeline tolerances lower than AmerenIP's actual nominations and allowed tolerances. However, this would result in AmerenIP not utilizing part of the pipeline resources for which its customers pay. (Rev. IP Ex. 2.1, p. 9.) This would be an unjustifiable course of action in light of the minimal level of overrun charges ($15,718 in three years) AmerenIP has incurred while employing its current practices. Based on the factors discussed in AmerenIP's testimony and in light of the low incidence and amount of overrun charges it has experienced, the costs of measures to achieve 100% avoidance of overrun charges would not be economically justifiable. (IP Ex. 2.11, p. 8.)

With respect to the April 6 overrun, Staff contended that AmerenIP should have used different Btu heat content assumptions on that day to convert the telemetered Mcf data into MMBtu data. Specifically, Staff contended that on April 6, AmerenIP should have used the average of the PEPL Btu adjustment factors for April 3, 4 and 5, although Staff recognized that using this data would have only reduced the amount of the overrun, not eliminated it.[57] (Staff Ex. 4.00R, pp. 11-12.) Staff's contention was completely hindsight-based. It turns out, in hindsight, that the average of the April 3-5 Btu factors was quite close to the actual PEPL Btu factor for April 6. However, the record shows that when the Btu adjustment factors on PEPL are examined over a broader time period, the average of the prior three days' Btu factors will not consistently produce an accurate estimate of the current day's Btu factor. IP Exhibit 2.12

[57]Staff provided no explanation for using the arithmetic average of the previous 3 days' values, as opposed to using the previous 5 days or 2 days, or weighting the previous day's value more heavily than the values from the two preceding days, or any other use of the data. In other words, Staff did not base its analysis on any established standard of care, but rather on an unexplained and arbitrarily-selected three-day average.

provided the Btu factors for each day in April 2003 at each of four major AmerenIP delivery stations on the PEPL system, and for each day and station, the average of the Btu factor for the three preceding days. This exhibit showed that on many days the actual Btu conversion factor varied significantly from the average of the three previous day's Btu information posted on PEPL. In fact, there were several days during April 2003 that had AmerenIP used the Btu values from the previous three days, the calculated gas volumes for the day in question, based on telemetered data and the Btu adjustment, still would have varied from the final, actual takes by a large amount. (IP Ex. 2.11, p. 5.)

Staff also contended that AmerenIP should have operated by maintaining at least a one percent, or approximately 500 MMBtu, variance from the maximum tolerance allowed by PEPL, although Staff indicated that even this cushion would have been too small on April 6. (Staff Ex. 4.00R, pp. 10-12.) This contention was unsupported, factually incorrect, and hindsight-based. Staff provided no basis for using a one percent/500 MMBtu "cushion." (IP Ex. 2.11, p. 7.) In any event, AmerenIP already does what Staff suggested. Specifically, on PEPL, AmerenIP has tolerances of 10% of daily nominations (but not exceeding 4% of maximum contract capacity), and never plans on using these daily pipeline tolerances during its operations. (*Id*., pp. 5-6.) Thus, AmerenIP already has a "cushion" in place to accommodate variances between its load forecast and actual loads, weather changes, operational issues and other factors affecting gas demand on the particular day. (*Id*, p. 6.)

Further, Staff's position that a "prudent operator" should always maintain a "cushion" sufficient to eliminate any possibility of incurring unauthorized pipeline overruns would result in AmerenIP being unable to use a portion of its pipeline FT capacity, which its customers pay for via the PGA, to transport gas. The data on IP Exhibit 2.12 (which covered only one pipeline and

one month), showed that the pipeline Btu factor can change by as much as 10% from one day to the next. If AmerenIP maintained a "cushion" of 10% on PEPL (based on the data in IP Exhibit 2.12) to avoid overruns, it could utilize only 93.6% of its contracted FT on PEPL that customers are paying for. It would then be necessary to contract for an additional amount of supply, or, alternatively, to contract for additional pipeline FT. (IP Ex. 2.11, pp. 6-7.) Maintaining a "cushion" sufficient to avoid all unauthorized overruns would not be in the customers' best economic interests, because the cost of the unused FT capacity ($11.50 per Dth per month on PEPL), or of additional FT capacity, would be much greater than the infrequent overrun charges AmerenIP has incurred ($15,718 in three years). (*Id.*)

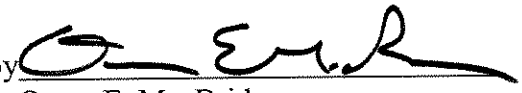
In summary, the Commission should reject Staff's position, which the PO has adopted, that AmerenIP be found to have acted imprudently in incurring the only two pipeline overrun charges it incurred in three years. The Company followed the same practices and procedures on these two occasions, when it incurred small overruns, as it employed on the other 5,473 pipeline days in the three-year period on which it incurred no overruns. The record showed it is not possible for the Company's gas dispatchers to know during the course of a given day exactly how much gas is being received from each pipeline, or to control the operation of the system with sufficient speed and precision to completely eliminate any possibility of incurring overruns. Further, in light of the very low number and dollar amount of pipeline overruns that AmerenIP has incurred, it is clear that any additional measures the Company might employ to ensure there will never be overruns – such as increasing the size of the pipeline tolerances it utilizes in daily operations, as Staff suggested – would not be cost-effective for customers.

IV. Conclusion

For the reasons set forth herein, the Commission should modify ALJ's Proposed Order in the manner set forth in this Brief on Exceptions and in Appendix A hereto.

Respectfully submitted,

ILLINOIS POWER COMPANY
d/b/a AMERENIP

by 

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