

Commonwealth of Kentucky
Before the Public Service Commission

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COMMISSION

In the Matter of:

Charles E. Hardin, Jr., Individually and)
Charles E. Hardin, Jr., Magoffin County)
Judge Executive O/B/O the Magoffin) Case No. 2014-00038
County Fiscal Court and Consumers)
of Magoffin County Receiving Natural)
Gas Services from Kentucky Frontier)
Gas, LLC)

ANSWER OF KENTUCKY FRONTIER GAS, LLC

Kentucky Frontier Gas, LLC, (Frontier) by counsel, submits its answer to the Complaint of Charles E. Hardin, Jr., individually and as Magoffin County Judge Executive.

1. It admits the portion of the allegations in paragraph 1 of the Complaint that Charles Hardin is the Magoffin County Judge Executive, but denies that Charles Hardin, Jr., individually is a customer of Frontier.

2. Frontier is without sufficient information to admit or deny the material allegations in paragraph 2 of the Complaint.

3. It admits the allegation in paragraph 3 of the Complaint.

4. It admits the allegations in paragraph 4 of the Complaint.

5. It denies the material allegations in paragraphs 5 and 6 of the Complaint. The County Judge Executive requested Frontier to cut off service to the Courthouse as reflected in the following Facebook post:

<https://www.facebook.com/pages/Magoffin-County-Emergency-Management/351198821586130>

“Judge Hardin has instructed Frontier Gas to divert the gas supply of the Justice Center in Magoffin County to the residents that are without gas service. Unfortunately measures like these must be taken in order to serve those that are

without service. However, Judge Hardin has stated that he will address this issue with the Public Service Commission to find out what they will do in the future to avoid this untimely situation.

6. The Complaint fails to state a claim for which relief can be granted.

7. Charles Hardin, individually, is not a customer of Frontier and has failed to state any basis for a complaint against Frontier and is without standing to file a complaint for the matters alleged.

8. The Commission cannot award damages.

9. Frontier denies all allegations not specifically admitted.

RESPONSE TO COMPLAINT

The extreme weather pattern for the winter of 2013-2014 caused the demand for natural gas to exceed any previous demand. Frontier gas sales for January were 34% higher than average 2010-13. Frontier does not have daily flow records for the BTU or Sigma systems, since the gas supply to the Salyersville area comes from many different sources and daily flows are not recorded. Frontier has excellent records on the Auxier Gas system around Prestonsburg, which is directly analogous. As the table below shows, demands on Auxier for the months of January and February, 2014 were beyond any reasonably predictable volumes.

Analysis of whole-system Auxier flows compared with Average 2010-2013:

o	Deliveries from Columbia*			
o	Peak Day	1592 DTh	vs ave 1062 DTh	+50%
o	3 Day Peak	4213 DTh	vs ave 3005 DTh	+40%
o	7 Day Peak	10,038 DTh	vs ave 6823 DTh	+47%
o	*also took significant emergency gas from Chesapeake, not included			

The table below compares sales for the peak months of the last 3 winters:

MCF Sold For the period:	Dec 2011	Jan 2012	Feb 2012	Dec 2012	Jan 2013	Feb 2013	Dec 2013	Jan 2014	Feb 2014
BTU	5231	2582	4875	4317	5731	3761	5663	5030	NA
Cow Creek	5805	8672	8237	5171	9679	9863	7787	12,067	9155
Heating Degree Days	642	774	668	622	807	770	758	1135	817

From January 6-9, 2014 during the first outage, the temperatures ranged from -7 to 6 above. On January 24, the temperatures ranged -3 to 1 above, with a brief respite then another 2-3 days of below zero temperatures starting January 27. Frontier had a few widely scattered outage reports in the last week of January, but no reportable incident.

The first winter season Frontier operated BTU Gas (2011-2012) it experienced no outages in the nearby Sigma system, but 16 outages for various lengths of time in the BTU system. For 2012-2013, it again had no outages in Sigma and only experienced four outages in BTU. The fewer outages experienced can be attributed to securing more reliable sources of gas for the BTU system. This heating season (2013-2014) is the first time it has experienced an outage in the Sigma system. The cause of these outages can be directly connected to dependence on local production and the excessive demand on these wells due to the severe weather.

Many of these wells had never operated at below-zero temperatures, so the equipment and even the well operators were not prepared for such extreme conditions. In addition, the wells were temporarily depleted by sustained maximum production over two weeks without relief. Frontier receives most of its gas from four producers in the area that can normally supply 450 mcf/d, but which dropped to under 100 mcf/d in this period.

Frontier had added a delivery point from the Licking River Gas System in mid-December. The producer had shown 500-600 mcf/d of production wells behind this delivery and assured Frontier of at least 200 mcf/d. But when the peak demand came, the new delivery never exceeded 90 mcf/d and averaged much less.

In addition to local wells, Frontier has supplemented its winter gas supply with 200-400 mcf/d from Jefferson Gas, an intrastate pipeline gathering gas along the Parkway. In this period of extreme cold Jefferson lost much of its supply and experienced reduced pressure of 1/3 to 1/4 of normal, which reduced the supplemental supply to Frontier to less than 100 mcf/d for the entire period and at worst nearly zero.

As a temporary measure, Frontier delivered gas from Auxier Road Gas Company facilities into Magoffin County during the last half of January. Frontier moved gas from Columbia's Stone Crest delivery in the middle of Auxier's system, through DLR into Sigma and some into BTU. This section of pipe is hydraulically limited with almost 25 miles of 4 and 6 inch pipe to reach Magoffin County systems, and the Auxier system was also experiencing the same extreme peak flows. Frontier requested re-activation of an EQT delivery near US 23, which would shorten the hydraulic distance into Sigma and BTU, but the project could not move quickly enough to relieve this problem. Even so, as a result of these efforts, Frontier was able to minimize the number of days Magoffin County was without gas.

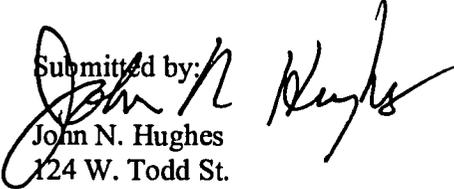
Given the combination of extreme weather and the failure of local producers to meet their previous years' gas supply, Frontier was faced with a difficult situation. By managing the limited supply and adding new supply connections and daisy-chaining together four Frontier-operated systems, a much more serious situation was avoided and only a limited number of customers were without gas for a relatively short period. While any outage is unacceptable, the convergence of events in January and February could not have been foreseen. The attached forecast analysis from the National Weather Service indicates that there was no expectation of the extreme weather experienced in early 2014. This was the worst weather in decades, and likely the coldest peak period in the history of these small gas systems.

Frontier has been diligent in its efforts to maintain an adequate gas supply. However, the unforeseen conditions of 2014 made even the best preparations inadequate. In response to the problems faced by Frontier, it kept the Commission updated on the status of its efforts. Copies of the numerous emails to the Commission are attached. These messages give a great deal of detail of the day to day efforts of the company and of the obstacles faced in addressing the problems.

The complaint seeks answers to the company's efforts to meet the needs of its customers and the actions taken to assure that similar problems will not occur. While there are no guarantees that outages will never occur, Frontier believes it has taken every reasonable step to provide reasonable service to all of its customers. BTU and Sigma historically relied on low cost local production, but also ran the risk of being dependent on unreliable or even uncooperative producers. There is no easy source of pipeline gas to Magoffin County customers, but if greater volumes of higher cost gas from pipeline sources are needed to assure the minimization of future disruptions, then that may be a price all of Frontier's customers will have to pay.

Frontier requests that the Complaint be dismissed as failing to allege any violation of a Commission regulation and because Frontier has taken all reasonable measures to provide safe, reliable service to its customers. In the alternative, Frontier requests a hearing to present testimony about its activities related to the issues in the Complaint.

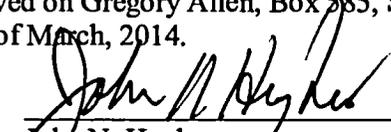
Submitted by:


John N. Hughes
124 W. Todd St.
Frankfort, KY 40601
PH 502 227 7270
jnhughes@fewpb.net

Attorney for Kentucky Frontier
Gas Company, LLC

Certificate of Service:

I certify that a copy of this answer was served on Gregory Allen, Box 585, Salyersville, KY 41465, by first class mail the 10th day of March, 2014.



John N. Hughes

PROGNOSTIC DISCUSSION FOR MONTHLY OUTLOOK
NWS CLIMATE PREDICTION CENTER COLLEGE PARK MD
830AM EST THURSDAY DEC 19 2013

30-DAY OUTLOOK DISCUSSION FOR JANUARY 2014

RECENT OCEANIC AND ATMOSPHERIC OBSERVATIONS ACROSS THE EQUATORIAL PACIFIC OCEAN CONTINUE TO SUPPORT ENSO NEUTRAL CONDITIONS. SEA SURFACE TEMPERATURE (SST) ANOMALIES ARE CLOSE TO ZERO ACROSS THE EAST-CENTRAL EQUATORIAL PACIFIC (NINO 3.4 REGION). SLIGHTLY POSITIVE SST ANOMALIES WERE OBSERVED IN THE WESTERN PORTION OF THE BASIN (NINO 4 REGION), WITH THE LATEST WEEKLY SST DEPARTURE OF +0.2 DEG C. IN CONTRAST, SLIGHTLY NEGATIVE SST ANOMALIES WERE OBSERVED NEAR THE SOUTH AMERICAN COAST (NINO 1+2 REGION), WITH THE LATEST WEEKLY SST DEPARTURE OF -0.2 DEG C. NEAR-EQUATORIAL SUBSURFACE HEAT CONTENT (TO A DEPTH OF 300 METERS) HAS AVERAGED CLOSE TO A HALF-DEGREE C ABOVE NORMAL DURING NOVEMBER AND THE FIRST HALF OF DECEMBER. LOW-LEVEL EASTERLY WIND ANOMALIES CONTINUED OVER THE WESTERN EQUATORIAL PACIFIC, WHILE UPPER-LEVEL WESTERLY WIND ANOMALIES WERE EVIDENT OVER THE CENTRAL AND EAST-CENTRAL EQUATORIAL PACIFIC. LARGE SCALE CONVECTIVE ACTIVITY OVER PARTS OF INDONESIA AND THE FAR WESTERN PACIFIC CONTINUE TO BE ENHANCED, WHILE CONVECTION OVER THE CENTRAL PACIFIC REMAINS SUPPRESSED. TAKEN COLLECTIVELY, THE OCEANIC AND ATMOSPHERIC OBSERVATIONS ARE CONSISTENT WITH ENSO NEUTRAL CONDITIONS. STATISTICAL AND DYNAMICAL MODELS PREDICT SST'S IN THE ENSO SENSITIVE REGION OF THE EAST-CENTRAL PACIFIC TO BE NEAR NORMAL FOR AT LEAST THE NEXT FEW MONTHS, SUGGESTING THAT THE ENSO STATE WILL REMAIN NEUTRAL DURING JANUARY 2014.

THERE ARE CONFLICTING INDICATIONS FOR CLIMATIC ANOMALIES OVER THE UNITED STATES FOR THE JANUARY OUTLOOK. THIS OUTLOOK IS BASED IN LARGE PART ON ENSO-NEUTRAL CONDITIONS, PROBABILISTIC FORECASTS FROM THE CFS, NMME, IMME, AND LONG TERM TRENDS. THE MJO HAS BEEN GENERALLY WEAK AND THERE IS HIGH UNCERTAINTY IN ITS FUTURE EVOLUTION.

THE JANUARY 2014 TEMPERATURE OUTLOOK INDICATES ELEVATED ODDS FOR ABOVE-NORMAL MONTHLY MEAN TEMPERATURES FROM NEAR THE CENTRAL AND SOUTHERN PACIFIC COAST SOUTHEASTWARD ACROSS THE CENTRAL AND SOUTHERN ROCKIES AND THE SOUTHERN HALF OF THE GREAT PLAINS, CONTINUING EASTWARD ACROSS THE LOWER MISSISSIPPI VALLEY AND GULF COAST STATES TO GEORGIA AND FLORIDA. ODDS FOR ABOVE-NORMAL TEMPERATURES ARE ALSO ELEVATED OVER NORTHERN ALASKA. THESE AREAS ARE BASED LARGELY ON RECENT TRENDING OF CFS PROBABILISTIC TEMPERATURE FORECASTS, AND IMME FORECASTS. ODDS FOR BELOW-NORMAL MEAN TEMPERATURES ARE ENHANCED OVER MONTANA, DUE PRIMARILY TO NEGATIVE PACIFIC DECADEAL OSCILLATION (PDO) COMPOSITES USING DATA FROM THE PAST 30 YEARS. ODDS ARE ALSO TILTED TOWARDS BELOW-NORMAL MEAN TEMPERATURES ALONG THE SOUTHERN COAST OF ALASKA, FROM KODIAK ISLAND TO KETCHIKAN. THIS HAS SUPPORT FROM VARIOUS NMME INPUTS AND RECENT TRENDING TOWARD NEAR-BELOW NORMAL SSTs. ELSEWHERE, CLIMATE SIGNALS ARE EITHER WEAK OR CONFLICTING, SO EQUAL CHANCES (EC) OF BELOW-, NEAR-, AND ABOVE-NORMAL TEMPERATURES ARE FAVORED.

THE JANUARY 2014 PRECIPITATION OUTLOOK INDICATES ELEVATED CHANCES FOR ABOVE-MEDIAN PRECIPITATION AMOUNTS FOR THE NORTHERN HIGH PLAINS AND NORTHERN ROCKIES, MUCH OF NORTHERN AND WESTERN ALASKA, AND THE ALASKAN PANHANDLE. THESE AREAS ARE SUPPORTED BY RECENT PROBABILISTIC FORECASTS OF THE CFS, THE NMME, AND THE IMME. ODDS FOR BELOW-MEDIAN PRECIPITATION AMOUNTS ARE ELEVATED OVER CALIFORNIA AND MUCH OF NEVADA, AND FROM TEXAS EASTWARD ACROSS THE GULF COAST STATES TO GEORGIA AND FLORIDA. THESE AREAS HAVE SOME SUPPORT FROM THE CFS, NMME, IMME, AND THE CCA. ELSEWHERE, CLIMATE SIGNALS ARE EITHER WEAK OR CONFLICTING, SO EQUAL CHANCES (EC) OF BELOW-, NEAR-, AND ABOVE-MEDIAN PRECIPITATION AMOUNTS ARE FAVORED.

THE MAIN FACTORS WHICH USUALLY INFLUENCE THE MONTHLY CLIMATE OUTLOOK INCLUDE:

- 1) EL NINO AND LA NINA - WHICH COMPRISE ENSO. IMPACTS OF THESE EVENTS ARE SUMMARIZED BY SEPARATING 3-MONTH OBSERVATIONS FROM THREE OR MORE DECADES INTO EL NINO, NEUTRAL AND LA NINA SETS, AVERAGING EACH SEPARATELY, AND THEN COMPUTING ANOMALIES. THESE ARE CALLED "COMPOSITES" AND USED AT TIMES TO SUBJECTIVELY MODIFY THE FORECAST.
- 2) TRENDS - APPROXIMATED BY THE OCN TOOL AS THE DIFFERENCE BETWEEN THE MOST RECENT 10-YEAR MEAN OF TEMPERATURE OR 15-YEAR MEAN OF PRECIPITATION FOR A GIVEN LOCATION AND TIME OF YEAR AND THE 30-YEAR CLIMATOLOGY PERIOD (CURRENTLY 1981-2010).
- 3) THE TROPICAL 30-60 DAY OSCILLATION - CALLED THE MADDEN JULIAN OSCILLATION (MJO) - AFFECTS CLIMATE VARIABILITY WITHIN SEASONS.
- 4) THE ARCTIC OSCILLATION (AO), THE SIMILAR NORTH ATLANTIC OSCILLATION (NAO), AND THE PACIFIC NORTH AMERICAN (PNA) PATTERNS - WHICH AFFECT THE TEMPERATURE ANOMALY PATTERN ESPECIALLY DURING BOREAL WINTER AND ARE GENERALLY CONSIDERED TO HAVE LOW PREDICTABILITY.
- 5) THE PACIFIC DECADAL OSCILLATION (PDO) - AN ENSO-LIKE PATTERN OF CLIMATE VARIABILITY AFFECTING THE TROPICS AND THE NORTH PACIFIC AND NORTH AMERICAN REGIONS, BUT WHICH VARIES ON A MUCH LONGER TIME-SCALE THAN ENSO.
- 6) PERSISTENTLY DRY OR WET SOILS IN THE SPRING AND SUMMER AND SNOW AND ICE COVER ANOMALIES IN THE WINTER. THESE FACTORS TEND TO PERSIST FOR LONG PERIODS AND ACT AS A KIND OF MEMORY IN THE CLIMATE SYSTEM.
- 7) STATISTICAL FORECAST MODELS - CANONICAL CORRELATION ANALYSIS (CCA), SCREENING MULTIPLE LINEAR REGRESSION (SMLR), CONSTRUCTED ANALOG (CA), AND ENSEMBLE CCA (ECCA).
- 8) DYNAMICAL FORECAST MODELS - INCLUDING THE NCEP CLIMATE FORECAST SYSTEM VERSION 2 (CFS) AND FOR THE ZERO-LEAD UPDATE FORECASTS THE NCEP GLOBAL ENSEMBLE FORECAST SYSTEM (GEFS). AN EXPERIMENTAL FORECAST SYSTEM, THE NATIONAL MULTI-MODEL ENSEMBLE (NMME), COMPRISED OF SEVERAL DYNAMICAL MODELS IS ALSO USED.

FORECASTER: ANTHONY ARTUSA

THE CLIMATIC NORMALS ARE BASED ON CONDITIONS BETWEEN 1981 AND 2010, FOLLOWING THE WORLD METEOROLOGICAL ORGANIZATION CONVENTION OF USING THE MOST RECENT 3 COMPLETE DECADES AS THE CLIMATE REFERENCE PERIOD. THE PROBABILITY ANOMALIES FOR TEMPERATURE AND PRECIPITATION BASED ON THESE NEW NORMALS BETTER REPRESENT SHORTER TERM CLIMATIC ANOMALIES THAN THE FORECASTS BASED ON OLDER NORMALS.

AN UPDATED MONTHLY OUTLOOK... FOR JAN WILL BE ISSUED ON TUE DECEMBER 31 2013

THESE OUTLOOKS ARE BASED ON DEPARTURES FROM THE 1981-2010 BASE PERIOD.

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PROGNOSTIC DISCUSSION FOR MONTHLY OUTLOOK
NWS CLIMATE PREDICTION CENTER COLLEGE PARK MD
830AM EST THURSDAY JAN 16 2014

30-DAY OUTLOOK DISCUSSION FOR FEBRUARY 2014

SEA SURFACE TEMPERATURES (SST) ARE NEAR-AVERAGE ACROSS MUCH OF THE EQUATORIAL PACIFIC OCEAN. SST ANOMALIES ARE SLIGHTLY POSITIVE IN THE WESTERN PACIFIC, WITH SOME ANOMALIES EXCEEDING +0.5 C, AND SLIGHTLY NEGATIVE IN PARTS OF THE EASTERN PACIFIC WITH SOME ANOMALIES COOLER THAN -0.5 C. AVERAGE SUBSURFACE OCEAN TEMPERATURES TO A DEPTH OF 300 M COOLED IN THE LAST SEVERAL WEEKS AND ARE NOW NEAR-AVERAGE, WITH THE RECENT DEVELOPMENT OF NEGATIVE ANOMALIES IN THE EAST-CENTRAL PACIFIC AT DEPTHS OF 100 TO 200 M. LOW-LEVEL EASTERLY WIND ANOMALIES CONTINUE OVER THE WESTERN PACIFIC, WHILE UPPER-LEVEL WESTERLY WIND ANOMALIES WERE OBSERVED OVER THE EASTERN PACIFIC. CONVECTIVE ACTIVITY CONTINUES TO BE ABOVE AVERAGE OVER THE MARITIME CONTINENT AND WESTERN PACIFIC AND BELOW AVERAGE NEAR THE DATE LINE, AS INDICATED BY ANOMALIES IN THE OUTGOING LONGWAVE RADIATION (OLR). OVERALL CONDITIONS IN THE TROPICAL PACIFIC ARE CONSIDERED TO BE ENSO NEUTRAL. THE CONSENSUS OF RECENT FORECASTS PREDICT A CONTINUATION OF ENSO NEUTRAL CONDITIONS INTO NORTHERN HEMISPHERE SUMMER FOR 2014.

THE FEBRUARY 2014 U.S. CLIMATE OUTLOOK IS BASED LARGELY ON DYNAMICAL MODEL FORECASTS FROM THE NATIONAL MULTI-MODEL ENSEMBLE (NMME), THE INTERNATIONAL MULTI-MODEL ENSEMBLE (IMME), AND THE NCEP CLIMATE FORECAST SYSTEM (CFS) MODEL WITH SOME CONSIDERATION OF STATISTICAL FORECASTS AND DECADAL CLIMATE TRENDS.

THE FEBRUARY TEMPERATURE OUTLOOK INDICATES GREATER PROBABILITIES FOR ABOVE NORMAL TEMPERATURE ANOMALIES FOR CALIFORNIA, THE GREAT BASIN AND THE CENTRAL AND SOUTHERN ROCKIES, AS WELL AS ACROSS TEXAS AND THE SOUTHEAST TO THE SOUTH ATLANTIC COAST. ABOVE NORMAL TEMPERATURES IN THE WEST AND SOUTH ARE PREDICTED BY THE NMME AND IMME MEAN AND PROBABILITY FORECASTS, AND GENERALLY AGREE WITH RECENT FORECASTS OF THE CFS. GREATER PROBABILITIES FOR BELOW NORMAL TEMPERATURES ARE INDICATED FOR THE NORTHERN PLAINS AND THE GREAT LAKES REGION. BELOW NORMAL TEMPERATURES FOR THIS AREA ARE PREDICTED BY MOST RECENT RUNS OF THE CFS SUPPORTED BY SOME MEMBER MODELS OF THE NMME. OVERALL THE TEMPERATURE PATTERN IS CONSISTENT WITH A PERSISTENT RIDGE AND WARM SST ANOMALY OVER THE NORTHERN PACIFIC OCEAN, AS WELL AS SOMEWHAT CONSISTENT WITH A NEGATIVE PACIFIC DECADAL OSCILLATION (PDO). PROBABILITIES OF ABOVE NORMAL TEMPERATURES ARE INCREASED FOR WESTERN AND NORTHERN ALASKA BASED ON FORECASTS OF THE CFS AND IMME THAT ARE CONSISTENT WITH DECADAL CLIMATE TRENDS.

THE FEBRUARY PRECIPITATION OUTLOOK INDICATES GREATER PROBABILITIES FOR BELOW MEDIAN PRECIPITATION ANOMALIES FOR CALIFORNIA, THE GREAT BASIN AND ARIZONA, AS WELL AS FOR THE GULF COAST AND THE SOUTH ATLANTIC COAST. THIS PRECIPITATION PATTERN IS INDICATED BY FORECASTS FROM THE NMME AND IMME AND BY MOST RECENT RUNS OF THE CFS. BELOW MEDIAN PRECIPITATION IN THESE REGIONS ARE GENERALLY CONSISTENT WITH THE WARM SST ANOMALY OVER THE NORTHERN PACIFIC FORCING A CIRCULATION PATTERN SIMILAR TO A NEGATIVE PDO. INCREASED PROBABILITIES OF ABOVE MEDIAN PRECIPITATION FOR THE SOUTHERN ALASKAN PANHANDLE ARE PREDICTED BY RECENT RUNS OF THE CFS.

IN AREAS WHERE CLIMATE SIGNALS ARE NOT CLEAR OR ARE WEAK, EQUAL CHANCES (EC) OF BELOW, NEAR AND ABOVE ARE INDICATED FOR THE TEMPERATURE AND PRECIPITATION OUTLOOKS.

THE MAIN FACTORS THAT USUALLY INFLUENCE THE MONTHLY CLIMATE OUTLOOK INCLUDE:
1) EL NINO AND LA NINA - WHICH COMPRISE ENSO. IMPACTS OF THESE EVENTS ARE SUMMARIZED BY SEPARATING 3-MONTH OBSERVATIONS FROM THREE OR MORE DECADES INTO EL NINO, NEUTRAL AND LA NINA SETS, AVERAGING EACH SEPARATELY, AND THEN

- COMPUTING ANOMALIES. THESE ARE CALLED "COMPOSITES" AND USED AT TIMES TO SUBJECTIVELY MODIFY THE FORECAST.
- 2) TRENDS - APPROXIMATED BY THE OCN TOOL AS THE DIFFERENCE BETWEEN THE MOST RECENT 10-YEAR MEAN OF TEMPERATURE OR 15-YEAR MEAN OF PRECIPITATION FOR A GIVEN LOCATION AND TIME OF YEAR AND THE 30-YEAR CLIMATOLOGY PERIOD (CURRENTLY 1981-2010).
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- 5) THE PACIFIC DECADAL OSCILLATION (PDO) - AN ENSO-LIKE PATTERN OF CLIMATE VARIABILITY AFFECTING THE TROPICS AND THE NORTH PACIFIC AND NORTH AMERICAN REGIONS, BUT WHICH VARIES ON A MUCH LONGER TIME-SCALE THAN ENSO.
- 6) PERSISTENTLY DRY OR WET SOILS IN THE SPRING AND SUMMER AND SNOW AND ICE COVER ANOMALIES IN THE WINTER. THESE FACTORS TEND TO PERSIST FOR LONG PERIODS AND ACT AS A KIND OF MEMORY IN THE CLIMATE SYSTEM.
- 7) STATISTICAL FORECAST MODELS - CANONICAL CORRELATION ANALYSIS (CCA), SCREENING MULTIPLE LINEAR REGRESSION (SMLR), CONSTRUCTED ANALOG (CA), AND ENSEMBLE CCA (ECCA).
- 8) DYNAMICAL FORECAST MODELS - INCLUDING THE NCEP CLIMATE FORECAST SYSTEM VERSION 2 (CFS) AND FOR THE ZERO-LEAD UPDATE FORECASTS THE NCEP GLOBAL ENSEMBLE FORECAST SYSTEM (GEFS). AN EXPERIMENTAL FORECAST SYSTEM, THE NATIONAL MULTI-MODEL ENSEMBLE (NMME), COMPRISED OF SEVERAL DYNAMICAL MODELS IS ALSO USED.

FORECASTER: DAN COLLINS

THE CLIMATIC NORMALS ARE BASED ON CONDITIONS BETWEEN 1981 AND 2010, FOLLOWING THE WORLD METEOROLOGICAL ORGANIZATION CONVENTION OF USING THE MOST RECENT 3 COMPLETE DECADES AS THE CLIMATE REFERENCE PERIOD. THE PROBABILITY ANOMALIES FOR TEMPERATURE AND PRECIPITATION BASED ON THESE NEW NORMALS BETTER REPRESENT SHORTER TERM CLIMATIC ANOMALIES THAN THE FORECASTS BASED ON OLDER NORMALS.

AN UPDATED MONTHLY OUTLOOK... FOR FEB WILL BE ISSUED ON FRI JANUARY 31 2014

THESE OUTLOOKS ARE BASED ON DEPARTURES FROM THE 1981-2010 BASE PERIOD.

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From: Kentucky Frontier Gas LLC
Sent: Wednesday, February 05, 2014 9:00 AM
To: Steve Shute ; Bob Oxford
Subject: PSC Incident Report for Magoffin County Gas outage 01-06-14

I am attaching our final version of this incident report that I will be sending to the PSC tomorrow, please review and let me know what you think.

Heather Powers
Kentucky Frontier Gas LLC

2/03/14 [REDACTED]

- [REDACTED]
- Wx much better, 60's highs
- BTU South end small section at Puncheon has 5-6 customers on line fed by well that died, producer gave line to BTU under R.Wms; freeze off last week no supply, [REDACTED] made move to take over, told several he could supply him; now again fed off 8-inch
- [REDACTED]
- Oakley outage above Slone meter, 30 meters on Rte 1635 to Carver & Beetree, subject of PSC line dispute with Thompson; meters apparently back on, although Chris said he wouldn't revive wells; Slone bills Frontier as FTs (we read meters) then sell residual gas to Frontier at bottom; need to operate as utility if wells are gone

From: Steven Shute
Sent: Thursday, January 30, 2014 1:37 PM
To: Heather Oney [Salyersville Indpt newspaper]
Cc: Bob Oxford
Subject: Frontier Gas in Salyersville

Heather,
Update on gas situation in Sigma and BTU Gas:

The toughest period was Tues-Weds, both Sigma and BTU Gas were hanging by a thread for several days. The 3 Frontier-heated schools are back in session today. Temps are now high

20s, pressures are rebuilding, and it looks like temps won't be back below 25F for next 10 days, if at all this winter.

After the outages in the Dixie area last Friday morning, we've had just a few random outages, including about 10 last night in Litteral & Flat Fork at the far reaches of the BTU system. Some 30 "farm taps" near Oakley are fed directly by a producer whose wells failed and they're off, now we're trying to supply them from the main BTU system.

Some local producers improved their production rate. The Jefferson Pipeline is our usual backup source in winter, but this whole week was virtually empty. Most of the extra gas came from Auxier Road Gas' feed at the Prestonsburg Stonecrest golf course.

There were no known outages in or around Salyersville, since last Friday morning.

There were a few non-outage complaints, but all seemed to be appliance-related and not our system.

One of your local politicians has made numerous complaints to the Ky PSC this week about "hundreds" of outages. Again, There were no known outages in or around Salyersville, since last Friday morning. These reports are outrageously false.

Steven Shute
970-928-9208

From: Steven Shute
Sent: Thursday, January 30, 2014 1:15 PM
To: DeRouen, Jeff (PSC)
Cc: dhorner@kyfrontiergas.com ; lrich@kyfrontiergas.com ; robert.j.oxford@att.net
Subject: Salyersville update

Jeff,

This should be the final update. The toughest period was Tues-Weds, pressures are rebuilding, temps are now 26F and won't be back below that for next 10 days, if at all this winter.

We met with EQT this morning on restoring the old delivery, which will mostly replace Jefferson as a backup, although the location is not as good.

See below our Customer Service Rep Heather's email to Melissa Holbrook. We lost a few customers (10 called in) at Litteral Fork and Coon Creek in the far north reaches of BTU, but

those were the only known outages on Sigma or BTU. There were no known outages in or around Salyersville. There were a few complaints, but all seemed to be equipment-related and not our system.

The southern part of BTU around Royalton is segmented from the Salyersville system. It was hanging by a thread for several days (2 to 8psi), but we don't have any outage complaints on the BTU system there. The South Magoffin school is back in session today and was never off.

Near that southern part of BTU, aprx 30 customers on the Oakley lateral have been sporadic. These are fed from a producer whose wells failed, and we're trying to figure out a way to supply them from the main BTU system.

You've had my daily updates since last week, and we've had very few outages since aprx 100 last Friday morning.

Judge Doc Hardin's reports of "hundreds" of outages on this Round 3 are completely, demonstrably false.

Steven Shute
970-928-9208

From: "Kentucky Frontier Gas LLC" <hpowers@kyfrontiergas.com>
To: "Holbrook, (PSC)" <MelissaC.Holbrook@ky.gov>
Subject: Report on Gas Pressures in Magoffin County
Date: Thu, 30 Jan 2014 09:08:20 -0800

Melissa,

We have a field technician, John White, who is staying in Magoffin County watching our pressures and reporting regularly to the field supervisor. The latest report that we have from him is that we are holding pressure at all locations with the exception of the Litteral Fork area, the pressure there is lower than we would like, but has been progressively increasing all morning. John is currently meeting with a supplier there who will be able to help us increase it even further. In this location we have had calls from a few people at the end of the line in Flat Fork who appear to not have enough pressure to run their appliances. As of right now, these are the only outages that we have reported for today, the number is around 10 customers. John expects that this will be remedied by later this afternoon as the pressure is moving up.

Both of the schools are holding pressure and we have not had a call about any issues at either the North or South Side Schools. If you have any other question, please do not hesitate to call me.

Heather Powers
Kentucky Frontier Gas LLC

From: pipeline@rof.net [mailto:pipeline@rof.net]
Sent: Wednesday, January 29, 2014 9:39 AM
To: DeRouen, Jeff (PSC)
Cc: dhorner@kyfrontiergas.com; lrich@kyfrontiergas.com; robert.j.oxford@att.net
Subject: Salyersville update

Jeff,

Survived last 24hrs ok, should have been the worst period with 15F high and 0F last night.

Pressure is low ~12 psi in both BTU and Sigma around Salyersville, with a few scattered outages on the far ends. Pressure should build through the day in mid-20s, critical again tonight 3F.

Yesterday we lost aprx 30 customers on a section of BTU on the south side near Oakley, which is fed by a producer whose wells watered off. The south side of BTU is pretty thin, producers are nearly off and we have a feed from Sigma that is apparently blocked in the last 1000 ft, trying to diagnose.

EQT has responded but "expedited" is still 5-10 days, not gonna help this winter.

Will be a stressful day today, Thurs looking a lot better so any outage should be short-lived.

1/27/14 Cold siege #3

Mon 1/27 1215pm MST Conf Bob-DH-LR-Mike

- NOAA forecast 8am was for 31F high, revised by 10am to 22F
- JeffPL flowing 40 mcf; Carty & Larry heard Jack Banks say they'd taken out the meter, Jason checked this am
- John Carty called SS 1155am; said they'd flowed 330 mcf to Jefferson but holding back for Frontier; he has 115 psi now at Hwy 30 meters

- MH: 30psi at Blockhouse this am, now 28psi
- Ken Carty was at 40psi at 9pm Sunday, BTU north system was pumped up
- John White got red spring for 57S for 35-55 psig
- Present reg maxed at 35 psi; John headed now, will change spring & set up pressure
- Frontier PRVs set at 60 psi
- BTU connection to Sigma is tenuous, Mike thought 1-inch but Jackie & Louie say 2-inch; Mike doesn't think it will help Sigma, but only 3 miles from Rte 30;
- Slone texted Sat 1115pm; Frontier had outage calls in Oakley area FTs; Slone got other calls downstream of that; 1230am his pumper said back in business; John White was in area same time, went there; Slone found a landowner had frozen off and shut off his well; now back on, 60 mcf/d incl 8 mcf/d to parasites in Lone Creek
- John checked pressures back to Sigma-BTU connection and found a freezeoff somewhere near connector
- Carty wells at Puncheon were re-piped same day as Hwy 30 meter installed; John found meter wasn't zeroed, chart 6" wc but no flow; says this am he's flowing 14"wc at 34 psi on 1/2" orfc into Puncheon; Mike suspects his landowner / customers are out, and he's bypassing Frontier's meter into his customer lines
- AUX 44psi at office; TCO gave critical flow notice; penalty if MDQ over 500 mcf/d; CVR asked Dennis to notify TCO to bump HoBr to 1000 mcf/d
- AUX Chesapeake froze off last week, critical to maintain lower pressure on their line; wet field gas, have a desiccant tank but haven't looked at it recently, probably salted off
- MagoffCo said they don't have an emergency shelter set up and certificated for Red Cross, Mike Wilson "not a good use of taxpayer money"

110pm John Carty:

- he has 100psi at Hwy 30 meter, Frontier reg limited to 27psi;
- shut off, briefly, took 5mins to fall 2psi, then immediately pumped back up when back on; suspects blockage to US 460

4pm MST Conf Bob-DH-LR-Mike + John White

- 5pm SIG Blockhouse 28psi, BTU N School 34psi (vs 24psi Sun pm & 30psi this am)
- John White changed out spring in 57S reg, set up to 54psi vs BTU MAOP 45psi; Thompson pressure was at 80psi, sucked down to 49 psi in a few minutes; John Carty drove past John, headed for Hendricks school
- John Gray not checked, 130 mcf/d on Sunday, consistent >100 mcf/d
- Schools are turned way down, no kids so much reduced use; principal pours hot water over reg each morning, believes regs are freezing up; J&M haven't seen freezes

- Carty alleges blockage from Hwy 30 to US 460, but N School shows higher pressure already; John saw many mcfs through the meter, if blocked would have pumped up in 2 minutes; Carty will have to adjust wells for higher flow
- Larry says Hwy 30 line is buried under deep fill, may be pinched but ^^ seems not
- Jefferson PL only 33psi, flowed 14 all day; DH says CVR told him lost a pipeline and a bunch of wells, don't know whether temp or perm
- BTU S School 17psi on 8-inch, Slone is flowing 59 mcfd at Puncheon
- Oakley customers called in outages, Slone says wells watered off
- EQT Jeff Burke supposed to call per PSC DeRouen, hasn't yet; need to re-install a Roots meter in 30" gap now blind flanged; AUX has a reg (same model as Chespk feed) downstream of meter & EQT regs, need to check before use; tie in is along US 23 and aprx 3.5 mi to Abbott meter with 100 customers on AUX
- EQT line is 75 psi; AUX block valve, could shut off to east and run 60psi on AUX-DLR-SIG
- Limited on Sensus regs on AUX and SIG, sticker on reg stamped "40 max inlet pressure"
- Sensus 143 LPCO, Green spring 7.5 to 15" wc, 5/16" orifice, 40 psi max psi, Feb05
- Mike had AUX line at 55psi before, no problems then; likely limit on IRV
- Larry says "limited to 67% of stamped pressure", ??? SS can't be true, is 110%
- Ky Reserve some gas at Lakeview; Mike talked to him in first freeze, Jeff PL needed the gas and is his "bread & butter"; Danny McCarty said he would do that if we'll pay him in advance
- AUX 43psi at office; could open Stonecrest reg bypass and get 10mcfh; Mike doesn't trust, don't run tonight, early am and let go Tuesday
- Tracy on call; nobody up there right now
- Mike check 9pm at Office, Blockhouse and NSchl

1030pm EST Mike

- Blockhouse 29 psi N Magoff 32 psi
- Hwy 30 meter is Frontier 37 psi and 40 psi inlet, took all gas away from Thompson

Tues 1/28 8am text from Mike

- Blockhouse 21 psi N Magoff 23 psi S Magoff 8 psi
- AUX office 34 psi
- AUX Stonecrest turned on bypass 8am, says running ½ faster than without, 55 psi
- NOAA now 5F JKL was 9F midnt drop to 4F at 8+9am, not as cold as fcst
- Forecast Tues 15/3 Weds 21/9 Thurs 37/26 then 40s

3pm Mike call

- High 15F for day
- Blockhouse 24 psi N Magoff 23 psi both built P through day, flow into Sigma

ix

- Hwy 30 only 100 mcf for 24hrs, Carty says that's all they have
- S Magoff 8 psi almost no gas from Slone, may lose some tonight
- Carty's meter at Puncheon was showing 6"wc with no audible flow; Mike called Carty from office, JC said he'd meet there in 40 minutes; John.W and Dan Wade already there, Carty came there 2 mins after Mike call (not 40), meter showed 14"wc on ½" plate, and still no audible flow; busted
- Sigma 2-inch into Royalton has a blockage in last 1000ft, 21psi on Sigma side to 8psi on BTU; might tie Sigma directly into 8-inch and feed BTU off that; close to existing tie

Weds 1/29 9am EST Mike

- SS at Cheyenne PSC hearing
- Overnight low JKL was -1F and single digits 9pm to 10am
- 12psi at Blockhouse, survived worst
- South BTU only 2-3psi, will lose some;
- Oakley section that Slone got from Thompson has ~30 customers on it, his wells completely watered off; can back-feed from BTU, treat as FTs any way, deduct that volume from meter at bottom end of that section

7pm EST Mike

- High for day 21F, Low 10F tonight
- Blockhouse 22psi so should be ok
- Heather: ~20 calls mostly Coon Creek and Flat Fork ends of BTU

Thurs 1/30 noon Heather

- Overnight low 9F for 4 hrs (JKL), Betty had 4F
- 26F by noon forecasts all >mid-20s for 7 days
- Salyersville Blockhouse 20psi this am but now building
- S Magoff School 6psi, now back up; none lost in Royalton
- Schools never off, back to school today
- Oakley customers ~30 are on and off; billed as BTU Utility not FTs
- Melissa called, wanted a report right now, Heather sent; Doc Hardin called PSC Weds and said 150 customers out, not remotely close to accurate
- John watching 530am; lost a few ~10 reported at Flat Fork on the end of N BTU

From: Steven Shute [mailto:pipeline@rof.net]

Sent: Tuesday, January 28, 2014 10:45 AM

To: DeRouen, Jeff (PSC)

Subject: Salyersville update

Sigma & BTU made it through the night ok.

Have 21 psi at the center of Sigma and 23 psi on BTU, vs 11 psi last Thurs-Friday, much help from producer stepping up. We are hand-regulating a TCO feed this morning, one last thing to increase flow from Auxier into Sigma.

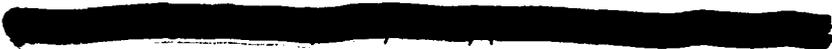
High for today will be 15F. If we can hold about 25 psi through the day, we will make it through the night, now fcst 3F and not negative. Weds will moderate, and Thursday much more. We need 24 hrs of good production karma,

From: Steven Shute
Sent: Tuesday, January 28, 2014 8:52 AM
To: chattacoinc@yahoo.com
Cc: Bob Oxford ; Larry Rich ; Dennis Horner - Frontier
Subject: Hwy 30 delivery to Frontier

Thanks to you and John for the help yesterday.

We have 23 psi in BTU this am, higher than the last several days. We re-sprunged our regulator at the Hwy 30 meter and can take gas at 55 psi vs cutting back at 35. We took everything you had last night and your system was down to 40 psi, but John planned to adjust some wells today for higher flows.

Today / tonight is the critical period of the year, we have a good chance at no further outages, Thx.

 Mike pulled detailed EFM report for email sent 2/28; report is difficult to decipher, because some days have multiple readings; but the delivery has never exceeded 90 MCFD and many days are 50-60 MCFD well after the peak cold, far less than 200 promised]

From: Steven Shute
Sent: Monday, January 27, 2014 5:10 PM
To: DeRouen, Jeff (PSC)
Cc: lrich@kyfrontiergas.com ; Bob Oxford ; Dennis Horner - Frontier
Subject: Salyersville update

Survived the day on BTU & Sigma, no outages reported, pressure is about same tonight as early this am, ~30psi in center of Salyersville.

We called all hands on deck with producers today and a couple of them stepped up deliveries. We changed a regulator spring and bumped up one delivery. Jefferson PL is lower than ever, 14 mcf all day vs 250 in the past.

No contact from EQT Jeff Burke.

Will check pressures again at 9pm EST tonight. We expect to be ok tonight, Tuesday night will be the hard one, with 2 days of cold-soaked homes & people.

Magoffin County emergency manager has no provision for emergency shelter, "have never certified" any facility to Red Cross standards, "would not be a good use of taxpayer dollars" as quoted from county official.

[SS: ...county official that is Hardin's underling. Seen same day as this declaration, on MagCo EMS Facebook:

"City of Salyersville Fire Dept will be opening a shelter for those individuals and families that have loss of heat due to the gas issue. Any citizens needing this service should contact the Salyersville City Fire Dept"

<https://www.facebook.com/pages/Magoffin-County-Emergency-Management/351198821586130>

From: Steven Shute
Sent: Monday, January 27, 2014 8:41 AM
To: chattacoinc@yahoo.com
Cc: Bob Oxford ; Larry Rich ; Dennis Horner - Frontier
Subject: Hwy 30 delivery to Frontier

Harry,
BTU ran out of gas again last week in the bitter cold, in the section including your Hwy 30 delivery. The shortfall was 30-40 mcf.

Your Hwy 30 delivery was promised at 200 mcf, but on Friday it was 80 mcf and maxed out. There was no line restriction on Frontier (per your email) or problem with Frontier regulators alleged by John Carty. Your line pressure had fallen along with ours to 10 psi at the meter, so the problem was upstream in your system.

The Puncheon wells were thought to be completely off.

The next 72 hrs are forecast for another round of bitter. Magoffin County has filed a protest with Ky PSC over these outages. Please do what you can to deliver 200 mcf/d or more at Hwy 30 over the next 3 days.

Steven Shute
970-928-9208

From: Steven Shute
Sent: Monday, January 27, 2014 8:23 AM
To: Larry Rich
Cc: Bob Oxford ; Dennis Horner - Frontier ; Mike Harris ; John White
Subject: BTU Sigma

See below, Jeff DeRouen suggests asking the County to open a shelter.

Pressures are ok this morning (no figures given), and we didn't seem to lose anybody over the weekend. NOAA forecast Salyersville 41465:
Monday now 22F to Hi 31 then Lo -1F
Tuesday Hi 13F then Lo 1F
Weds 23F then Lo 12F
Thurs 35/26 should be recovered
Tuesday night is the critical period, when houses are cold-soaked and the gas system has lost pressure.

MagoffCo Emergency Mgmt is 606-349-2313. On their Facebook page, Doc Hardin took credit for ordering Frontier to turn off/down the Courthouse to divert gas elsewhere, of course after we told them we were doing it.

A school would be the best choice for a shelter. The N and S Magoff rural schools are on BTU where supply is thin. Larry thinks the larger school may be all-electric. Larry will call the Emerg Mgmt office and Mike Wilson (Hardin's right hand).

After guys make the rounds, let's convene a conf call at 2pm EST for update.

S

From: Steven Shute [mailto:pipeline@rof.net]
Sent: Sunday, January 26, 2014 11:20 PM
To: Bob Oxford <bobo@kyfrontiergas.com>
Cc: Larry Rich <lrich@kyfrontiergas.com>; DeRouen, Jeff (PSC)
Subject: Gas in Salyersville

This was my response to a reporter for the Salyersville paper. For old BTU customers, this was an every-week deal before Frontier.

We didn't lose anybody we know of Friday-Saturday-Sunday,
but Tuesday night may be different.
S

From: Steven Shute
Sent: Sunday, January 26, 2014 9:16 PM
To: Heather Oney [Salyersville Independent newspaper]
Subject: Gas in Salyersville

Heather,

Frontier had some sporadic outages in the Polar Vortex 2 wks ago with 3 days of -5 to -10F weather. We had to make the decision to shut off a section of Sigma along Hwy 40 for a day, but that saved most of the rest of Sigma and BTU.

That's a very tough call; I've been there. Twenty years ago during 3 nights of -33F in Colorado, I had to shut off 2200 customers in a ski village near Aspen, to save 4500 others in old Aspen. We heard from ~2000 restaurants and shops and Wall Street guys on expensive ski vacations that were extremely not happy, but we had no other option. After 3 days of Arctic weather, our storage wells were gutted and losing ground.

This winter has been similar in Eastern Kentucky, abnormally cold and abnormally persistent. The gas wells are maxed and can't recover before the next wave hits.

Most of our employees are mid-30s and cannot remember below 0F temperatures ever, in their lifetimes. These are the coldest temperatures experienced in the history of Sigma and BTU, which were built in the 1980-90s.

Thursday was only 12°F at noon then 8 hours of below 0°F overnight. Many of our suppliers went down, and we had about 100 outage calls on Friday morning, many in the Dixie section of Salyersville and a few scattered outliers.

Friday was better, with most customers back on by end of day, as far as we know. To preserve as many customers as practical on Friday night, we turned off the 3 large schools and courthouse. We don't know of any outages over the weekend. Monday eve to Weds morning is a big concern, with forecast temps below 0°F both nights.

Here's the problem in Magoffin County: Frontier's other gas systems (and most towns and cities) get their supply from a large interstate pipeline system, where Frontier's small volumes are barely noticeable. But Sigma and BTU Gas have never had such a pipeline connection; all gas comes from local producers or the Jefferson Pipeline, which is a small pipeline across 4 counties.

This bitter cold siege is a major event for local gas production, similar to a flood-tornado-ice storm. The wells & equipment freeze off, or the sustained hard production literally makes them "run out of gas" and volume falls off for each well. Our 3 main supply points from producers have fallen flat this month to about 20% of normal. Our normal backup from Jefferson Pipeline has been almost unavailable, as they're also running out of gas. We connected a new supplier in December, and they're producing about 1/3 the volume promised.

Several weeks ago, Frontier asked a large pipeline to re-activate an old connection near US 23, but they haven't yet acted. Had any 1 of these suppliers not faltered, this wouldn't have been a news event.

There are other gas suppliers around Salyersville, but all of them have trouble with hydrogen sulfide H₂S or "sour gas", which is dangerous to customers if leaked. It's inconceivable that 10,000 wells in Magoffin County can't make enough gas for 1000 small customers, but sour gas and poor production are the reality.

As these local sources failed to deliver, much of your supply has come from a pipeline connection near the Prestonsburg Stonecrest golf course, daisy-chained through 3 or 4 Frontier systems. But as we have found this winter, there are too many miles of pipeline to Salyersville to count on this as the only source of gas, especially at -10°F.

We understand customers are upset, and Frontier would do about anything to solve this but have used every source available. We have greatly improved the gas supply cushion for BTU and Sigma, but couldn't foresee that in this cold, all our various suppliers would be simultaneously and suddenly and catastrophically down. We're not the only ones scrambling;

major gascos like Louisville and Duke have lost sections of customers. Throughout the Midwest, propane prices have spiked to \$5.00 per gallon from the huge demand.

Frontier was working on plans to bolster the entire Sigma-BTU system with outside supply, but we had no way to handle a 50-100 year winter event, let alone 3 of them in January. We should see some relief on Thursday, and hope to permanently resolve it this summer.

Steven Shute
970-928-9208

From: Bell, Stephanie (PSC)
Sent: Sunday, January 26, 2014 11:39 AM
To: DeRouen, Jeff (PSC) ; 'pipeline@rof.net'

And andrew.

From: DeRouen, Jeff (PSC)
Sent: Saturday, January 25, 2014 01:14 PM
To: 'pipeline@rof.net' <pipeline@rof.net>
Cc: Holbrook, Melissa C (PSC); 'lrich@kyfrontiergas.com' <lrich@kyfrontiergas.com>; 'bobo@kyfrontiergas.com' <bobo@kyfrontiergas.com>; 'mike@kyfrontiergas.com' <mike@kyfrontiergas.com>; 'dhorner@kyfrontiergas.com' <dhorner@kyfrontiergas.com>; Gregg, Virginia W (PSC); Raff, Richard (PSC); Willard, Kyle (PSC); Rice, James D (PSC); Aitken, Bill (PSC)
Subject: Re: Magoffin Co outages

Thank you for your email. As of friday, no complaint had been filed. If one is we will process as we do all complaints. As with all outages our engineering division will follow up in the normal procedures.

After talking to mr rich on friday I tried to contact EQT but they did not return my call.

Sent: Saturday, January 25, 2014 04:14 PM
Correction. He called consumer services to complain.

From: Steven Shute [mailto:pipeline@rof.net]
Sent: Saturday, January 25, 2014 01:07 PM
To: DeRouen, Jeff (PSC)
Cc: Holbrook, Melissa C (PSC); Larry Rich <lrich@kyfrontiergas.com>; Bob Oxford <bobo@kyfrontiergas.com>; Mike Harris <mike@kyfrontiergas.com>; Dennis Horner - Frontier <dhorner@kyfrontiergas.com>
Subject: Magoffin Co outages

As you know, Magoffin County Judge Doc Hardin filed a complaint against Frontier with PSC, over outages in Magoffin County:

<http://www.wkyt.com/wymt/home/headlines/Hundreds-without-heat-in-Magoffin-County-Judge-Executive-files-complaint-241891351.html#.UuMjVCIBGgo.email>

We had some sporadic outages in the Polar Vortex 2 wks ago with 3 days of -5 to -10F weather. We made the decision to shut off a section of Sigma along Hwy 40 NE of Salyersville with about 170 customers for 36 hrs, which saved most of the rest of Sigma and BTU.

That's a very tough call; I've been there. Twenty years ago during 3 nights of -33F in Colorado, I had to shut off 2200 customers in a ski village near Aspen, to save 4500 others in old Aspen. We heard from ~2200 restaurants and shops and Type A Wall Street guys on \$400/night ski vacations that were extremely not happy, but we had zero option. After 3 days of Arctic weather, our storage wells were gutted and losing ground.

1) This week's spell wasn't quite as cold as the Vortex, but still very serious. Recent history:

Thursday /23 was 16F at midnight, 12F at noon then 8 hours of below 0F overnight (hourly NOAA records from Jackson airport JKL ~30mi away). Sigma started the evening with 11psi at Salyersville and slipped from there. We had about 100 calls on Friday morning, many in the Dixie section of Sigma (formerly fed by BTU), some likely due to a small diameter jumper when we cut this section over from BTU. We also lost some on the north end of BTU at Flat Fork and Coon Creek.

Friday /24 started with -0F for 8 hrs but warmed through the day, with 11F at noon and 19F at midnight. Sigma pressure at Salyersville was back up to 11psi last night, and most customers were back on, as far as we know. To preserve as many customers as practical, we turned off the 3 large schools and MagoffCo courthouse last night about 9pm. The low temp wasn't as sharp as predicted, and we don't know of any outages last night.

Today Saturday /25 the pressure built up overnight to 13psi, snowing now but fcst 30F today and 11F tonight, should be ok. Sunday + Monday is forecast 37-26-30F so we should build pressure into Monday evening.

2) Monday eve to Weds morning is a big concern, with temps to 0F both nights. Monday should be ok with building pressure, but concerned about Tuesday night. After Weds night we're 30s to 40s, winter may be over.

3) This bitter cold siege is a Force Majeure event, similar to a flood-tornado-ice storm for the fragile gas supply to BTU and Sigma:

- Most of our employees are mid-30s and cannot remember below 0F temperatures ever, in their lifetimes.
- Typical E.KY peak last 20 yrs has been 3 days of 10 to 25F temps.
- Our 2 main supply points from producers have fallen flat this winter, from 250 mcf/d at Nytis Dickerson to zero, and from 200 mcf/d at John Gray to 70 mcf/d.
- Jefferson Pipeline is out of gas; that has been our fallback supply for years, usually 200-400 mcf/d and Thursday was 100 mcf/d, has been less.
- In December we made a new connection to Licking River Gas System on Hwy 30 (through the section of line disputed with Thompson) with a promise of 200-500 mcf/d; this week it was 70-100 mcf/d and falling.
- For the last several weeks we have pushed gas from Columbia's Stone Crest delivery in the middle of Auxier system, through DLR into Sigma and some into BTU. This is hydraulically limited, that's 25 miles of 4- and 6-inch, at the same time the Prison & Hospital were already taxing Auxier.
- We implored EQT 3 weeks ago to re-activate the Auxier delivery west of US 23, which would shorten the hydraulic distance; they have been unresponsive so far, and looks like it won't happen until it's 50F again.
- We explored a delivery from Cumberland Valley near our Burning Fork compressor on Sigma, with which CVR feeds Jefferson; they have a reliable gas supply but sporadic problems with H₂S; we may do that, but can't risk the H₂S and will need a SulfaTreat system, also won't happen until warmer.

We understand that customers are upset, we would do about anything to solve this but have used every bullet in the 9 yard belt. Our supply shortfall was aprx 30-40 mcf/d to lose 100 customers. From the math above, our various supplies were simultaneously and suddenly down 700 mcf/d, which is inconceivable except for production well problems caused by Act-of-God weather. We're not the only ones scrambling; other bigger LDCs are losing a few sections, and propane prices have spiked to \$5/gl.

It's also inconceivable that 10,000 wells in Magoffin County can't make 1000 mcf/d, but the few that produce are sour gas. We already had several plans to bolster the entire Sigma-BTU system with outside supply, but had no way to handle a 50-100 year winter event, let alone 2 of them in January.

Steven Shute
970-928-9208

From: Heather Oney
Sent: Friday, January 24, 2014 8:52 AM
To: Steven Shute
Subject: Gas in Salyersville

Hi Steven,

With the recent extremely cold temperatures, we've received several complaints about the lack of pressure in the gas lines and some homes and businesses are reporting they don't have any gas. Is Frontier Gas under a gas shortage or does the weather affect the pressure naturally? Is anything being done to assure customers don't run out of gas when they need it most? Is there anything the customers can do to make sure their gas doesn't go out?

Any answer you can release at this time will be much appreciated.
Thanks,

Heather Oney
Salyersville Independent

1/24/14 Cold siege #2

- Wild night on Thursday, -3F after several days of single digits
- Thompson 100 mcf, Jefferson 123 mcf at 40 psi, AUX Abbott full on
- NYTIS freezing off, Dickerson quit
- 730am Mike with pressures: Jeff 40psi, 5psi N BTU school, 6psi Blockhouse
- 70 calls last night, lost ~50 meters in Dixie; 1-inch jumper feeds ~10 customers incl Big Red Church and Courthouse, only connector to Sigma
- Total 405 mcf to Sigma & BTU
- CVR spooked about H2S in their gas, dn want to connect w/o treater at delivery point; have treaters at wells, but no H2S monitor until JeffPL calls them if >4 ppm

- [REDACTED] quit calling on US 23 delivery and Estill's meter (submitted Jan 8, deadline Jan 13, no response); if approved, would take 10 days to install a meter
- KVV scrambling to keep gas flowing to all customers
- Prison was down to 3psi, Chesapeake on but not keeping up, Honey Branch isolated from Stone Crest side for SIG

Mike 530pm EST update:

- Now 20F, fcst 8F tonight vs 6hrs of -4F last night
- 10psi Blockhouse now (less 5pm Thursday), most customers back on; few out on fringes Hwy 40, Bloomington, Litteral 3.5psi
- TCO Honey Branch used bypass regulator to increase 15 to 47 mcfh; now 1000 mcf; 57S with 1" orfc, meter can do more
- Prison inlet now 40 psi; suspect Chesapeake feed of raw gas may be salted off in salt shaker dehy;
- Thompson Hwy 30 delivery is maxed at 80 mcf, blamed regs; Mike took out downstream 57S reg (30-55 psi spring) and only have reg upstream of meter (60 psi transducer), their line pressure 12 psi;
- Larry talked to John Carty, suspects restriction in Thompson's line, he would turn off our meter and check his line; J.White waited on him for 45 mins, called J.Carty, said he's working on project to get Columbia to feed Jefferson to Carty to Frontier, dumb tack
- Last cold spell – afterward, Chesapeake strained and wanted us to pinch valve
- Stone Crest 50 psi full on; may change out Big Joe 626 reg/mon with spare 57s; last night 20 psi at Abbott, maxed out
- John Gray was 70 mcf last night, more on today but using up SulfaTreat
- Hi H2S shut offs last week on Gray, Tackett and 1 Nytis, pulled too hard
- Jack Banks wouldn't answer phone, Meliss PSC called, said Jefferson has no more
- Sigma pumped up to 42 psi after last siege before this one
- SS: may force majeure: turn off 3 Schools + Courthouse; from Nov13 BREG, Cthse is #6 customer, S MagoffCo school next
- Plan tonight: Jordan on call, notify Schools and County, turn off now and see temp fall by 9am restore after peak hrs

Mike 11pm EST text

- 8pm Blockhouse at 11psi, BTU N School at US 460 at 8psi
- Turned off 3 schools and Courthouse 830pm to 9pm; called Schools & County
- 22F now with fcst low 16F

Heather 11am EST call

- Thursday night outage about 100 calls; probably not all called, but not "hundreds" per Judge Hardin complaint

- Friday night seemed they were mostly back on
- Jackie in hospital 2-3 wks, has bad COPD from smoking and worked on strip mines; docs say his lungs are like 90 yr old; wife says he may not be back

Mike 11am EST call

- Didn't get colder last night, now 22F with snow
- Still doing ok mostly blockhouse 13psi; N School only 2.5psi
- Ballenger well 35 mcf
- BTU has 8000ft of 1-inch W of Ballenger tie-in before J.Gray on Brushy Fk
- No more problem with Dwale after last spell
- Age 36, don't remember -0F ever; typical 3-day peak period is 10 to 25°F
- Nytis slipping all over; Dickerson would do 200-300 mcf, not flowing at all; new well tender Oct13 is terrible; John saw 100 mcf on chart but no hear gas flow
- AUX is open HonBr to StnCrest, system not segregated now .
- Dixie friend 7pm Friday said they were ok
- Summer project: rework compressor, Nytis not paying compr bills, power bills higher than revenue, no reason to run it; suggest re-pipe to pump E to W for winter peak; \$200/mo land lease
- Ivyton south line to Royalton is tied into BTU with 1.25" hole in 2" tap tee; some TOG and steel crap at Hwy 7, Melissa mentions often

Tech plans

- SS & Box plan to hire a helper for Tracy, put Jeff back as runaround Tech
- Jackie is sick, maybe another Tech pending

John 1230pm snowing

- Royalton 17psi
- Ken Carty said he got shut off overnight, back this am
- Thompson just doesn't have the gas, 40-90 mcf; line pressure at 13psi; Carty says maybe restriction in his line; will up-spring our reg to 60psi.
- Carty meter at Puncheon trying to screw us; 6" wc differential was fixed, blew down and didn't change
- Schools and Courthouse back on if able this aft, surely Sunday
- Got ERTs but not yet AC630s

From: Robert Oxford

Sent: Thursday, January 16, 2014 1:29 AM

To: Larry Rich ; Steve Shute ; Dennis Horner - Frontier ; IGS Inc.

Subject: Fw: Gas deliverabilty at Hwy 30

Larry, Steve, Dennis:

After I wrote the email to Harry Tuesday, I received a call from John Carty early Wednesday, followed by an email from Harry (shown below.) I wanted to get the producer's explanation of what I thought was a failure on their part to deliver gas during the cold weather. You can read Harry's explanation. John C. said that the 15-40 psi regulator that we had downstream of the meter would not let more gas through when there was over 100 psi upstream of the meter.

He said he was talking with Mike H. during this time trying to determine if there was a blockage between the meter and the junction with the Elk River line at Hwy. 460. We need to see a picture of the meter chart, if there is one (phone camera okay), so we can determine what was happening. This is important for us to assess the deliverability of Thompson's wells.

Let's work with John to solve the reason for the choke point if it has not already been solved. We may have been able to feed from Hwy 30 over to Salyersville if we could have utilized the pressure that was alleged to be available.

John said there was adequate gas at Puncheon also. Larry, after you have the facts from Mike lets discuss so we can plan for the next deep freeze. I still think we need to pursue the feed from CGR at Ivyton regardless.

Bob O

From: Harry Thompson <chattacoinc@yahoo.com>
To: Robert J. Oxford <robert.j.oxford@att.net>
Sent: Wednesday, January 15, 2014 6:01 AM
Subject: Re: Gas deliverabilty

Bob: It is my understanding that there is a restriction in your line from the Route 30 meter to the line on Route 460. The meter on Route 30 shows that we delivered 4000 already. John believes that he will be able to keep up our delivery. Harry

From: Robert J. Oxford <robert.j.oxford@att.net>
To: "chattacoinc@yahoo.com" <chattacoinc@yahoo.com>
Sent: Tuesday, January 14, 2014 7:09 PM
Subject: Gas deliverabilty

Hi Harry:

KFG had a few customer shut downs earlier this month due low deliverabilities from some of our suppliers. Our Cow Creek system lost customers in Salyersville because Nytis wells were running at less than 50% deliv. BTU system was okay, but your wells at Hwy 30 were less than

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50% of the expected 200 Mcfd . Was there freeze offs or well bore restrictions? What does your deliv look like now and for the rest of winter for Hwy 30 and Puncheon Cr? Is there enough gas at PC to justify a KFG spec meter?

Let's discuss before the next cold snap.

Thanks, bob

1/06/14 Cold siege #1

- No email traffic from Larry
- 170 customers turned off on Sigma system Rte 40 northeast of Salyersville, to maintain pressure and service in remainder of Sigma
- See PSC Incident Report