

# **BASS**

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October 26, 2011

**VIA HAND DELIVERY**

filed electronically in docket office on 10/26/11

Chairman Kenneth C. Hill  
c/o Sharla Dillon  
Tennessee Regulatory Authority  
460 James Robertson Parkway  
Nashville, Tennessee 37243

Re: ***Petition of Piedmont Natural Gas Company, Inc. Inc., for an Adjustment to Its Rates, Approval of Changes to Its Rate Design, Amortization of Certain Deferred Assets, Approval of New Depreciation Rates, Approval of Revised Tariffs and Service Regulations, and Approval of a New Energy Efficiency Program and GTI Funding, Docket No. 11-00144***

Dear Chairman Hill:

Enclosed please find an original and four (4) copies of Piedmont Natural Gas Company, Inc.'s Responses to the Consumer Advocate and Protection Division's First Set of Discovery Requests.

This material is also being filed today by way of email to the Tennessee Regulatory Authority docket manager, Sharla Dillon. Please file the original and four copies of this material and stamp the additional copy of this cover letter as "filed." Then please return the stamped copy to me by way of our courier.

Should you have any questions concerning this matter, please do not hesitate to contact me at the email address or telephone number listed above.

Sincerely,



David Killion

Enclosures

Chairman Kenneth C. Hill  
October 26, 2011  
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cc: Mr. David Foster, Chief of Utilities Division (w/o enclosure)  
Mr. Jerry Kettles, Chief of Economic Analysis & Policy Division (w/o enclosure)  
Ryan McGehee, Esq. (w/ enclosure)  
C. Scott Jackson, Esq. (w/ enclosure)

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**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

1. Identify each and every person whom the company expects to call as an expert witness at the hearing on the merits of this matter and the subject matter on which the expert is expected to testify.

**Response:** Piedmont presently expects to call the following expert witnesses at the hearing on the merits of this matter to testify on the subject matters indicated:

Daniel P. Yardley  
Principal, Yardley & Associates  
2409 Providence Hills Drive  
Matthews, NC 28105  
(704) 708-9261

Subjects: Allocated cost of service study, rate design, rate derivation, and NGV rates as discussed in Mr. Yardley's prefiled direct testimony.

Donald A. Murry, Ph.d.  
C.H. Guernsey & Co.  
555 North Grand Blvd.  
Oklahoma City, OK 73312  
(405) 416-8100

Subjects: Cost of capital and rate of return on common equity as discussed in Dr. Murry's prefiled direct testimony.

Rhonda Watts  
Senior Consultant  
Alliance Consulting Group  
1410 Avenue K, Suite 1105B  
Plano, TX 75074  
(214) 473-6771

Subjects: Depreciation expense and depreciation rates applicable to Piedmont's rate base as discussed in Ms. Watts' prefiled testimony.

Gary D. Shambaugh  
Principal, AUS Consultants  
275 Grandview Avenue, Suite 100  
Camp Hill, PA 17011  
(717) 763-9890

Subjects: Cash working capital/lead lag study as discussed in Mr. Shambaugh's prefiled direct testimony.

**Piedmont Natural Gas Company**  
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Piedmont reserves its right to call additional expert witnesses or to expand upon the matters testified to by the foregoing experts in response to the direct prefiled testimony of the Consumer Advocate or other intervenors. In the event that Piedmont makes such a determination, it will supplement its response to this data request in a timely manner.

Piedmont would also note that several witnesses testifying on behalf of the Company, whose testimony is fundamentally factual in nature, would also qualify as experts in the respective subject areas to which they are testifying. Notwithstanding this fact, and because their testimony relates to information, data, and opinions gathered in their capacity as officers or employees of Piedmont, or in Mr. Dzuricky's case, as a soon to be retired officer of Piedmont, they are not identified as expert witnesses in this data response. Notwithstanding this fact, Piedmont intends to call these witnesses to testify at the hearing of this matter consistent with their prefiled testimony.

Response provided by Piedmont Natural Gas on October 26, 2011.



**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

2. Provide a copy of the monthly NOAA reports for the Nashville weather station showing the daily high temperature, daily low temperature and daily heating degree days from 1980 through 2010.

**Response:** Piedmont does not retain all the NOAA monthly reports going back to 1980. As part of the preparation of this rate case, the Company requested and received from NOAA an electronic file (CD) showing their official, final weather information for the Nashville station. The NOAA CD contained official Nashville weather station data from January 1, 1971 through December 31, 2010. See attached copy of the electronic file received from NOAA (converted to excel format), plus a file from NOAA explaining the data fields presented in that electronic file.

Upon receipt of the CD from NOAA, Piedmont noticed that the daily low temperature for three days -- June 22, 1996; December 22, 1998; and June 22, 1998 -- was missing on the NOAA CD. To complete Piedmont's computation of thirty-year average degree days (which is used in the Company's weather-normalization analysis in this rate case), Piedmont utilized the daily low temperature information per the monthly NOAA reports for those specific 3 days. Likewise, the weather data for the period January 1, 2011 through May 31, 2011 comes from monthly NOAA reports, since this period of time was not captured on the official CD received from NOAA. A copy of these monthly NOAA reports is also attached.

Response provided by Piedmont Natural Gas on October 26, 2011.

July 20, 2010

DAILY SURFACE DATA  
(PRIMARILY U.S.)

National Climatic Data Center  
151 Patton Ave.  
Asheville, North Carolina

Field numbers are shown with column positions in parenthesis.

FIELD 1 (1-4): DATA ORIGIN

The original NCDC tapedeck of the dataset. Referred to in some of the tables below.

\*\*\* Important Note: If tapedeck number is 3201 or 3202, this indicates the data are preliminary, with less quality control applied than the final data (indicated by 3200 or 3210). The 3201/02 data are replaced online by the final data as soon as final data are available. \*\*\*

FIELD 2 (6-11): COOPERATIVE STATION NUMBER

This 6-character alphanumeric station identifier is assigned by the National Climatic Data Center. The first two digits refer to a state code (value range is 01-91; reference Table "A"). The next four digits refer to the Cooperative Network Index number (value range is 0001-9999). Missing/not assigned = 999999.

FIELD 3 (13-17): WBAN STATION NUMBER

This 5-character alphanumeric station identifier is assigned by the National Climatic Data Center. It originally referred to Weather Bureau, Army, and Navy (WBAN) stations which mailed weather observational forms to NCDC. These stations normally have more detailed data available than strictly cooperative stations, so stations with WBAN numbers will usually have additional data elements.

Optional Field (19 - 48): STATION NAME

This 30-character alphanumeric field is displayed if the data selection is for data with Station Name. Spacing for all fields following are adjusted 31 characters (e.g., Division Number = 50-51).

FIELD 4 (19-20): DIVISION NUMBER

These two digits refer to the Cooperative Network Division Number (value range is 01-10; 99 = missing Division Number; reference Table "B").

FIELD 5 (22-25): METEOROLOGICAL ELEMENT-TYPE

The type of meteorological elements stored in this data record. Range of values are listed below. Note: 'b' in DATA-VALUE indicates ascii blank.

ASMM

Average Cloudiness Midnight to Midnight (begin September 1992 for ASOS sites). This is the average of all available 30-second

ceilometer data for the 24-hour period expressed in tenths of cloud cover at or below 12,000 feet. The DATA-VALUES are defined in Reference Table "C".

ASSS

Average Cloudiness Sunrise to Sunset (begin September 1992 for ASOS sites). This is the average of all available 30-second ceilometer data for the period from sunrise to sunset expressed in tenths of cloud cover at or below 12,000 feet. The DATA-VALUES are defined in Reference Table "C".

AWND

Average Daily Wind Speed (begin 1984). Units expressed in miles per hour to tenths. From January 1984 through June 1987 the Element Unit is incorrectly listed as TK (Tenths of Knots), it should be MH (Miles per Hour).

CLDG

Cooling Degree Day (begin 1984). Base 65 degrees Fahrenheit.

DPNT

Departure from Normal Temperature. DATA-VALUE = -00099 to b00099 degrees Fahrenheit.

DPTP

Average Daily Dew-Point Temperature (begin 1984). Units expressed in tenths of degrees Fahrenheit.

DYSW

The different types of weather occurring that day (reference Table "D" if FIELD 1 = 3200, Table "E" if FIELD 1 = 3210).

DYVC

Days with Weather in the Vicinity (begin July 1996). The present (or prevailing) weather occurring at the time of the observation in the vicinity of the station, between 5 and 10 statute miles of the point of observation.

NOTE: This element is used beginning July 1996 and is coded in the same manner as the element DYSW. See the description for DYSW for details. (Reference Table "E")

EVAP

Daily evaporation (not reported when temperature below freezing). Unit Measurement, Inches & Hundredths of Inches.

F2MN

Fastest 2-minute Wind Direction and Speed (begin September 1992 for ASOS sites). Direction is expressed in tens of degree from true north. Speed is expressed in miles per hour. When two or more equal speeds have occurred, the most recent speed and direction are entered.

Example of DATA-VALUE field XYYYY for wind direction and speed: 22048. Wind is from 220 degrees at 48 miles per hour.

F5SC

Fastest 5-second Wind Direction and Speed (begin September 1992 for ASOS sites). Direction is expressed in tens of degrees from true north. Speed is expressed in miles per hour. When two or more equal speeds have occurred, the most recent speed and direction are entered.

FMTM

Time of Fastest Mile or Fastest 1-minute Wind (begin 1984), or

Fastest 2-minute Wind (begin September 1992). Units are expressed in hours and minutes.

FRGB

Base of Frozen Ground Layer. The depth below the surface of the ground at which frozen ground is last struck. Data available through 1964 only for designated stations. DATA-VALUE = b00000 to b00099 expressed in whole inches.

FRGT

Top of frozen ground layer. The depth below the surface of the ground at which frozen ground is first struck. Data available through 1964 only for designated stations. DATA-VALUE = b00000 to b00099 expressed in whole inches.

FRTH

Thickness of Frozen Ground Layer. Base value minus top value. Data available through 1964 only for designated stations. DATA-VALUE = b00000 to b00099

FSIN

Highest Instantaneous Wind Direction and Speed. This is the highest gust or peak reached by the pen of the gust recorder during the 24 hour period. Direction is expressed in 16 Point WBAN Code (Reference Table "F1"). Speed generally expressed in miles per hour. When two or more equal wind speeds occur the most recent is archived.

FSMI

Fastest Mile Wind Direction and Speed. Recorded by stations having triple or multiple register type recording instruments. The speed of a mile of wind occurring in the shortest time is used. This is determined by measuring the jogs on the chart made by the one mile contacts of the anemometer. Speed expressed in miles per hour. Example of value field XYYYY for wind direction and speed: 18045; 18 = wind direction from 169 degrees to 191 degrees. 045 = wind speed 45 miles per hour. FSMI is not digitized for Air Weather Service stations. (Reference Table "F2")

FSMN

Fastest Observed One-minute Wind Direction and Speed. This is used at stations not equipped with recording instruments. It is obtained by observation of an indicator for one minute and using an average value. Direction is expressed in Tens of Degrees Code. Speed expressed in miles per hour. Example of value field XYYYY for wind direction and speed: 18045; 18 = wind direction from 169 degrees to 191 degrees. 045 = wind speed 45 miles per hour. FSMN is not digitized for Air Weather Service Stations. (Reference table "F2")

GAHT

River Gauge Height - Below zero gauge readings. DATA-VALUE = negative values of b00000 to b00999, expressed to the nearest tenth of a foot.

HTDG

Heating Degree Days (begin 1984; however, several stations reported this element as early as 1961). Base 65 whole degrees Fahrenheit.

MNPN

Daily minimum temperature of water in an evaporation pan (effective September 1963). Unit Measurement, Whole Degrees Fahrenheit.

(Reference Table "P").

MNRH

Minimum Relative Humidity (through 1955). DATA-VALUE = b00000 to b00100, expressed in whole percent. (AWS stations through January 1958, NWS, FAA, and Navy stations through December 1964. Most stations restarted in 1984; some stations reported this element as early as 1961).

MNTP

Average Temperature (begin 1984). The value is the (Max Temp. + Min Temp.)/2, expressed in whole degrees Fahrenheit. (Reference Table "P").

MXPN

Daily maximum temperature of water in an evaporation pan (effective September 1963). Unit Measurement, Whole Degrees Fahrenheit. (Reference Table "P").

MXRH

Maximum Relative Humidity. DATA-VALUE = b00000 to b00100, expressed in whole percent. (AWS stations through June 1958, NWS, FAA, and Navy stations through December 1964. Most stations restarted in 1986.)

PGTM

Peak Gust Time or Maximum 5-second Wind Speed Time. Value = b00000 to b02359, expressed in hours and minutes. Example: 2359 = 23 hours and 59 minutes.

PKGS

Peak Gust Direction and Speed. If two or more equal peak gust speeds occurred on the same day, the first was digitized for the period July, 1968 through December 1972. Beginning in January 1973, the last was digitized. The direction is generally expressed in 16 Point WBAN Code, with the following exceptions:

(1) Air Force stations used 36 Point code from January, 1964 through February, 1967, 16 Point WBAN Code from March, 1967 through June, 1968, and 36 Point code again from July, 1968 through December, 1970. Air Force data was generally discontinued by December, 1970.

(2) Navy stations used 16 Point WBAN Code from the beginning of record through January, 1971, and 36 Point Code from February, 1971 through the present.

Wind speeds are generally expressed in miles per hour through December, 1954, and in knots from January, 1955 to the present. A consistent exception is Navy stations, which used knots for the entire period of record. Example of value field XXYYY after 1954 for wind direction and speed: 44032; 44 = Wind direction from the SE. 032 = Wind speed 032 knots.

Beginning July 1996, wind direction is expressed in 36 Point WBAN Code (Reference Table "F2").

PRCP

Daily precipitation. Precipitation reading for 24 hours ending at time of observation. Trace is less than 0.005 inch. Unit Measurement, Inches to Hundredths.

PRES

Average Daily Station Pressure (begin 1984). Based on eight 3-hourly observations per day. Units expressed in thousandths of inches of Mercury.

PSUN

Daily Percent of Possible Sunshine (begin January 1965). Data Value = b00000 to b00100, expressed in percent.

PWND

Prevailing daily wind direction. Unit Measurement, Whole Degrees.

RDIR

Resultant Wind Direction (begin 1984). DATA-VALUE expressed to the nearest whole degree code. From January 1984 through late 1994 the Meteorological Element Measurement units code is incorrectly recorded as DT (wind direction in tens of degrees). It should be DW (wind direction in whole degrees).

RWND

Resultant Wind Speed (begin 1984). DATA-VALUE is expressed in miles per hour to tenths. From January 1984 through June 1987, the Meteorological Element Measurement Units Code is incorrectly recorded as TK (tenths of knots) and incorrectly recored as MH (miles per hour) from July 1987 through late 1994. It should be TL tenths of miles per hour.

SAMM

Average Cloudiness Midnight to Midnight - (begin September 1992 for ASOS sites). This is the average of all available 30-second ceilometer data for the 24-hour period expressed in oktas of cloud cover at or below 12,000 feet. The DATA-VALUES are defined in Reference Table "C1".

SASS

Average Cloudiness Sunrise to Sunset (begin September 1992 for ASOS sites). This is the average of all available 30-second ceilometer data for the period from sunrise to sunset expressed in oktas of cloud cover at or below 12,000 feet. The DATA-VALUES are defined in Reference Table "C1".

SCMM

Average Sky Cover Midnight to Midnight (begin January 1965). Element not recorded at stations where personnel were not on duty 24 hours a day. See Elements ASMM and STMM for ASOS sites. DATA-VALUES are expressed in tenths and are defined in Reference Table "C".

SCSS

Average Sky Cover Sunrise to Sunset - (begin January 1965). DATA-VALUES are expressed in tenths and are defined in Reference Table "C". See Elements ASSS and STSS for ASOS sites.

SGMM

Average Cloudiness Midnight to Midnight (begin September 1992; end June 1996; derived from GOES satellite data). The areal coverage is approximately 50km by 50km centered on the ASOS site. DATA-VALUE is the average of all satellite scans of the site during the 24-hour period, expressed in oktas of cloud cover occurring above 12,000 feet. The DATA-VALUES are defined in Reference Table "C1".

SGSS

Average Cloudiness Sunrise to Sunset (begin September 1992; end

June 1996; derived from GOES satellite data). The areal coverage is approximately 50km by 50km centered on the ASOS site. DATA-VALUE is the average of all satellite scans of the site during period from sunrise to sunset, expressed in oktas of cloud cover occurring above 12,000 feet. The DATA-VALUES are defined in Reference Table "C1".

SKYC

Daily cloudiness (clear, partly cloudy or cloudy). Clear is zero tenths coverage of the sky by clouds, partly cloudy is four tenths coverage, and cloudy is eight tenths coverage. Unit Measurement, Tenths of sky coverage.

SLVP

Average Daily Sea Level Pressure (begin 1984). DATA-VALUE expressed in tenths of millibars.

SMMM

Average Sky Cover Midnight to Midnight (begin January 1965). Element not recorded at stations where personnel were not on duty 24 hours a day. See Elements SMMM and SGMM for ASOS sites. DATA-VALUES are expressed in oktas and are defined in Reference Table "C1".

SMSS

Average Sky Cover Sunrise to Sunset - (begin January 1965) DATA-VALUES are expressed in oktas and are defined in Reference Table "C1". See Elements SASS and SGSS for ASOS sites.

SNOW

Daily Snowfall (Snowfall includes sleet). Amount is for 24-hour period ending at observation time. Hail was included with snowfall from July 1948 through December 1955. Hail occurring alone was not included with either snowfall or snow depth before and after that period. Trace is less than 0.05 inch. Unit Measurement, Inches to Tenths.

SNWD

Snow depth at observation time. (Snow depth is depth of snow on the ground at time of observation. Trace is depth less than 0.5 inch.) Unit Measurement, Whole Inches. See Table "H".

SNyz

Daily minimum soil temperature (see note below). Unit Measurement, whole degrees Fahrenheit. (Reference Table "P").

SOyz

Soil temperature at observation time (see note below). Unit Measurement, whole degrees Fahrenheit. (Reference Table "P").

STMM

Average Cloudiness Midnight to Midnight (begin September 1992; end June 1996; derived from GOES satellite data). The areal coverage is approximately 50km by 50km centered on the ASOS site. DATA-VALUE is the average of all satellite scans of the site during the 24-hour period, expressed in tenths of cloud cover occurring above 12,000 feet.

STSS

Average Cloudiness Sunrise to Sunset (begin September 1992; end June 1996; derived from GOES satellite data). The areal coverage is approximately 50km by 50km centered on the ASOS site. DATA-VALUE is the average of all satellite scans of the site during period from sunrise to sunset, expressed in tenths of cloud cover

occurring above 12,000 feet.

SXyz

Daily maximum soil temperature (see note below). Unit Measurement, whole degrees Fahrenheit. (Reference Table "P").

Note: Positions "y" and "z" of the soil temperatures are encoded using reference Table "I", e.g., SN12 indicates that the daily minimum soil temperatures that follow are measured in an area covered with grass and at a depth of four inches or 10 centimeters.

TAVG

Daily mean temperature. Unit Measurement, Whole Degrees Fahrenheit.

THIC

Thickness of Ice on Water. Measured each Monday at noon LST, or more frequently if ice conditions are changing rapidly. Data available through December 1964 only for designated stations. DATA-VALUE = b00000 to b00999, expressed in tenths of inches.

TMAX

Daily maximum temperature. (Maximum temperature reading for 24 hours ending at time of observation.) Unit Measurement, Whole Degrees Fahrenheit.

Important Note: For 1990 - 1994, this element is often shown as missing if FIELD 1 = 3210 and the max temperature was reported as -10 F or lower. NCDC will attempt to correct this problem as soon as resources allow.

TMIN

Daily minimum temperature. (Minimum temperature reading for 24 hours ending at time of observation.) Unit Measurement, Whole Degrees Fahrenheit.

Important Note: For 1990 - 1994, this element is often shown as missing if FIELD 1 = 3210 and the min temperature was reported as -10 F or lower. NCDC will attempt to correct this problem as soon as resources allow.

TMPW

Average Daily Wet-Bulb Temperature (begin 1984). DATA-VALUE = -00199 to b00199, expressed in whole degrees Fahrenheit. (Reference Table "P").

TOBS

Temperature at observation time. Unit Measurement, Whole Degrees Fahrenheit.

TRNG

Daily temperature range. (Maximum temperature minus minimum temperature.) Unit Measurement, Whole Degrees Fahrenheit.

TSUN

Daily Total Sunshine. DATA-VALUE = b00000 to b01440, expressed in minutes. (Reference Table "J")

WDMV

24-hour wind movement. Unit Measurement, Whole Miles.

WTEQ

Water equivalent of snow depth. (For principal stations only. Effective October 1963 for snow depth equal or greater than 2 inches). Unit Measurement, Inches to Tenths.



FIELD 6 (27-28): METEOROLOGICAL ELEMENT MEASUREMENT UNITS CODE

The units and decimal position (precision) of the data value for this record (reference Table "K"). See "Known Uncorrected Problems" for additional details.

FIELD 7 (30-35): YEAR-MONTH

This is the year and month of the data record. Range of values is 1850-current year and 01-12. Example: 199512 = December 1995.

FIELD 8 (37-40): DAY OF MONTH and HOUR OF OBSERVATION

DAY: The day of the month on which the data element was observed. Range of values is 01-31 LST. Will always begin with day 01 and end with day 31.

HOUR OF OBSERVATION: Contains the hour of the daily observation. Hour of observation is reported using the 24-hour clock with values ranging from 00-23 LST, except in the cases of soil temperatures element-type (where the hour is 99 to indicate missing) and "days with weather" (where the hour is 24). Through June 1967 observations were designated as "AM" or "PM"; these values were set to 06 or 18 respectively during the conversion to TD-3200. From July 1967 through 1981, all observations were set to hour 18 (because the majority are p.m. observations). Beginning January 1982, the actual hour of the observation is indicated.

FIELD 9 (42-47): SIGN AND VALUE OF METEOROLOGICAL ELEMENT

SIGN: The algebraic sign of the meteorological data value is given as either a blank or a minus sign (-). Blank indicates a positive value and a minus sign represents a negative value.

VALUE OF METEOROLOGICAL ELEMENT

The actual data value is given as a five-digit integer. One major exception does exist however, for the DYSW (days with weather code) element-type values as explained in Table "D". A very small number of data values are known to have non-numeric entries.

When a data value is missing, the sign of the data value is set to "--", the data value is set to "99999", flag position 1 is set to "M" and flag position 2 is blank.

Prior to September 1991, when no daily precipitation reading was taken but the amount from that day (if any) is included in a subsequent value, the data value of precipitation is set equal to "00000" and flagged with an "S" in flag position 1. In turn, the successive accumulated amount will be flagged with an "A" in flag position 1. Since September 1991, it has been a practice at NCDC to set the precipitation value to "99999" in this situation; the flagging procedure has not changed.

FIELD 10 (49-49): FLAG1

The Data Measurement FLAG (reference Table "N"). This field will not be present if the user chooses a delimited format without data flags.

FIELD 11 (51-51): FLAG2

The Data Quality FLAG (reference Table "O"). This field will not be present if the user chooses a delimited format without data flags.

FIELDS 8-11 are then repeated for each day of the month, beginning with 01 in the DAY field, and ending with 31 in the DAY field. So, the data for DAY 02 will occupy columns 53-67, DAY 03 = 69-83, etc.

#### TABLES

##### \*\*\*\*\*TABLE "A"\*\*\*\*\*

##### State-Code Table

01 Alabama	28 New Jersey
02 Arizona	29 New Mexico
03 Arkansas	30 New York
04 California	31 North Carolina
05 Colorado	32 North Dakota
06 Connecticut	33 Ohio
07 Delaware	34 Oklahoma
08 Florida	35 Oregon
09 Georgia	36 Pennsylvania
10 Idaho	37 Rhode Island
11 Illinois	38 South Carolina
12 Indiana	39 South Dakota
13 Iowa	40 Tennessee
14 Kansas	41 Texas
15 Kentucky	42 Utah
16 Louisiana	43 Vermont
17 Maine	44 Virginia
18 Maryland	45 Washington
19 Massachusetts	46 West Virginia
20 Michigan	47 Wisconsin
21 Minnesota	48 Wyoming
22 Mississippi	49 Not Used
23 Missouri	50 Alaska
24 Montana	51 Hawaii
25 Nebraska	66 Puerto Rico
26 Nevada	67 Virgin Islands
27 New Hampshire	91 Pacific Islands

##### \*\*\*\*\*TABLE "B"\*\*\*\*\*

##### Cooperative Network Division Table

NOTE: The division number for a station may change over time.

##### HAWAII (STATE 51)\*

ISLAND NAME	DIVISION
Kauai	01
Oahu	02
Molokai	03

Lanai	04
Maui	05
Hawaii	06

\*NOTE: Hawaii (State 51) division numbers were changed during the initial conversion of this file. Divisions within islands no longer exist. Division numbers now represent each island.

## PACIFIC ISLANDS (STATE 91)

## Division

- 02 - East of 180th Meridian - Phoenix Islands, Line Islands, and American Samoa
- 03 - Western Pacific Islands, North of 12N
- 04 - Caroline and Marshall Islands

## \*\*\*\*\* TABLE "C" \*\*\*\*\*

SKY COVER in TENTHS for ELEMENTS:  
ASMM/ASSS/SCMM/SCSS/STMM/STSS

DATA-VALUE	SKY COVER
00000	= Clear or less than .1 coverage
00001	= .1 Coverage
00002	= .2 Coverage
00003	= .3 Coverage
00004	= .4 Coverage
00005	= .5 Coverage
00006	= .6 Coverage
00007	= .7 Coverage
00008	= .8 Coverage
00009	= .9 Coverage
00010	= 1.0 Coverage - Overcast

## \*\*\*\*\* TABLE "C1" \*\*\*\*\*

SKY COVER in OKTAS for ELEMENTS:  
SMM/SASS/SGMM/SGSS/SMMM/SMSS

DATA-VALUE	SKY COVER
00000	= Clear or less than .1 coverage
00001	= .1 Coverage
00002	= .3 Coverage
00003	= .4 Coverage
00004	= .5 Coverage
00005	= .6 Coverage
00006	= .8 Coverage
00007	= .9 Coverage
00008	= 1.0 Coverage - Overcast

## \*\*\*\*\*TABLE "D"\*\*\*\*\*

## DYSW - Daily Occurrence of Weather Table

- 00 - Day of no occurrence
- 01 - Day with smoke or haze (POR through 1963 and 1982 to Present)
- 02 - Day with fog (POR through 1963 and 1982 to Present)
- 04 - Day with drizzle (POR through 1963 and 1982 to Present)
- 05 - Day with ice pellets (sleet)
- 06 - Day with glaze
- 07 - Day with thunder
- 08 - Day with hail
- 09 - Day with dust or sand storm (POR through 1963 and 1982 to Present)
- 10 - Day with blowing snow
- 11 - Day with high wind (POR through 1963 and 1982 to Present)
- 12 - Day with tornado (POR through 1963 and 1982 to Present)
- 13 - Day with rain (1982 to Present)
- 14 - Day with snow (1982 to Present)

From 1980 forward, these two-character DYSW element-type codes are stored into the rightmost four characters of the data value portion of the meteorological element. Within the four characters used, the weather codes are entered left justified. Thus, if one type of weather occurs during a day, the data values would appear as OXXOO, where XX is the appropriate weather code. If two types of weather occur, the data value will contain OXXYY, where XX is value 1 and YY is value 2. If more than two types of weather occur on the same day, they will be stored into additional "DLY" records of the element-type code "DYSW" as needed.

NOTE: Prior to 1980, each weather code for DYSW is written as a unique DATA PORTION. Only the left position (XX) of the DYSW code is used (e.g., appears as OXXOO).

## \*\*\*\*\* TABLE "E" \*\*\*\*\*

## DYSW/DYVC

- 00 No occurrence
- 01 Day with haze (smoke also included through August 1992; see code 30 in this table)
- 02 Day with fog (ice fog included through 1983; see code 17 in this table)
- 03 Day with heavy fog (heavy ice fog included through 1964)
- 04 Day with drizzle (begin 1984)
- 05 Day with ice pellets (sleet and small hail; small hail included through June 1996; see code 31 in this table)
- 06 Day with glaze
- 07 Day with thunder

- 08 Day with hail (1/4 inch or larger in diameter beginning July 1996)
- 09 Day with volcanic ash (begin September 1992; dust or sandstorm with visibility < 5/8 mile was reported as code 09 through August 1992; see codes 27 and 29 in this table)
- 10 Day with blowing snow (includes drifting snow beginning July 1996)
- 11 Day with high wind (squall; speeds increasing to at least 16kts/18mph and sustained at 22kts/25mph or more for at least one minute; begin July 1996)
- 12 Day with tornado (funnel cloud, waterspout included through Aug 1992; see codes 20 and 21 in this table)
- 13 Day with snow (snow pellets, snow grains, and ice crystals included through Aug 1992; see codes 22, 23, 24 in this table)
- 14 Day with rain (drizzle, freezing drizzle, and freezing rain included through 1983)
- 15 Day with freezing rain (begin 1984)
- 16 Day with freezing drizzle (begin 1984)
- 17 Day with ice fog (begin 1984; includes freezing fog beginning July 1996)
- 18 Day with blowing spray (begin 1984; includes spray beginning July 1996))
- 19 Day with unknown source of precipitation (begin 1991 with automated stations)
- 20 Day with funnel cloud (begin September 1992)
- 21 Day with waterspout (begin September 1992; includes tornado beginning July 1996)
- 22 Day with snow pellets (begin September 1992 through June 1996; see code 31 in this table)
- 23 Day with snow grains (begin September 1992)
- 24 Day with ice crystals (begin September 1992)
- 25 Day with ground fog (begin September 1992)
- 26 Day with dust (begin September 1992)
- 27 Day with blowing dust (begin September 1992; includes duststorm when visibility is reduced to less than 5/8 miles beginning July 1996)
- 28 Day with blowing obstruction (begin September 1992 through June 1996)
- 29 Day with blowing sand (begin September 1992); also includes sand as well as sandstorm when visibility is reduced to less than 5/8 mile (begin July 1996)
- 30 Day with smoke (begin September 1992)
- 31 Day with small hail and/or snow pellets (begin July 1996; diameter less than 1/4 inch)
- 32 Day with well developed dust/sand whirls (begin July 1996)
- 33 Day with mist (begin July 1996)
- 34 Day with rain or snow shower; used in reference to weather in the vicinity only (begin July 1996)

## \*\*\*\*\* TABLE "F1" \*\*\*\*\*

## FSIN

WIND DIRECTION CODE  
(16 Point WBAN Code)

12 = NNE	66 = SW
22 = NE	76 = WSW
32 = ENE	77 = W
33 = E	78 = WNW
34 = ESE	88 = NW

44 = SE      18 = NNW  
 54 = SSE    11 = N  
 55 = S      00 = Calm  
 56 = SSW      = Unknown

Example of DATA-VALUE field XYYYY for wind direction and speeds:  
 12037 Wind is from the NNE at 37 miles per hour.

\*\*\*\*\* TABLE "F2"\*\*\*\*\*

FSMI & FSMN

WIND DIRECTION CODES

00 = Calm  
 01 = 010  
 02 = 020  
 "      "  
 "      through      "  
 36 = 360  
 99 = Unknown

\*\*\*\*\* TABLE "G" \*\*\*\*\*  
 PKGS

WIND DIRECTION CODE  
 (36 Point WEAN Code)

03 = NNE      21 = SSW  
 05 = NE      24 = SW  
 07 = ENE      25 = WSW  
 09 = E      27 = W  
 12 = ESE      30 = WNW  
 14 = SE      32 = NW  
 16 = SSE      34 = NNW  
 18 = S      36 = N

\*\*\*\*\* TABLE "H" \*\*\*\*\*

SNWD

DEPTH of SNOW OBSERVED AT:

00:30 GMT prior to July 1952  
 12:30 GMT 1 July 1952 to 30 May 1957  
 12:00 GMT 1 June 1957 to present

DATA-VALUE = b00000 to b09999 in whole inches. Trace of snow depth is less than 0.5 inches. Some Alaska and part-time stations take snow depth measurements at different hours.

\*\*\*\*\*TABLE "I"\*\*\*\*\*

Soil Temperature Table

(y = Code for soil cover)  
 (z = Code for soil depth)

\*\*\*\*\*  
 |Code| Cover | |Code | Depth | Depth |

			(inches)	(cm)
*****	*****	*****	*****	*****
y=1	Grass			
2	Fallow	z = 1	2	5
3	Bare			
	ground	2	4	10
4	Brome			
	grass	3	8	20
5	Sod			
6	Straw			
	mulc	4	20	50
7	Grass			
	muck	5	40	100
8	Bare			
	muck	0	Unknown	Unknown
0	Unknown			
*****	*****	*****	*****	*****

NOTE: Soil records are kept since 1982.  
Some stations may report soil temperatures  
at observation time twice a day. Separate  
records will occur for both observation  
times.

\*\*\*\*\* TABLE "J" \*\*\*\*\*

TSUN

Conversion of minutes to tenths of hours is:

MIN TENTHS

1-2	0.0	33-38	0.6
3-8	0.1	39-44	0.7
9-14	0.2	45-50	0.8
15-20	0.3	51-56	0.9
21-26	0.4	57-60	1.0
27-32	0.5	A	ASOS

\*\*\*\*\* TABLE "K" \*\*\*\*\*

METEOROLOGICAL ELEMENT MEASUREMENT UNITS CODE

The units and decimal position of the data value for this record.  
Range of values is listed below.

C	Whole degrees Celsius
CM	Centimeters
D	Whole Fahrenheit degree days
DT	Wind direction in tens of degrees
DW	Wind direction in whole degrees
F	Whole degrees Fahrenheit
FN	Feet and tenths
FT	Whole feet
HF	Hundreds of feet
HI	Hundredths of inches
HM	Hundredths of miles
HR	Time in hours and minutes
HT	Hundredths of inches but observation was only made to tenths
I	Whole inches
IH	Hundredths of inches of mercury

IT Thousandths of inches of mercury  
 KD Knots and direction in tens of degrees  
 KS Knots and direction in 16 pt. code  
 M Whole miles  
 MD MPH and direction in tens of degrees  
 ME Whole meters  
 MH Miles per hour  
 MM Millimeters  
 MN Minutes  
 MS MPH and direction in 16 pt. code  
 MT Tenths of millibars  
 NA No units applicable (none-dimensional)  
 N1 No units applicable - element to tenths  
 N2 No units applicable - element to hundredths  
 OS Oktas of sky cover  
 P Whole percent  
 TC Tenths of degree Celsius  
 TD Tenths of Fahrenheit degree days  
 TF Tenths of degrees Fahrenheit  
 TH Tenths of hours  
 TI Tenths of inches  
 TK Tenths of knots  
 TL Tenths of miles per hour  
 TM Tenths of millimeters  
 TP Tenths of percent  
 TS Tenths of sky cover

Note: All single digit Element-Units are left justified and blank filled.

\*\*\*\*\* TABLE "N" \*\*\*\*\*

Data Measurement Flag 1

A - Accumulated amount since last measurement.  
 B - Accumulated amount includes estimated values (since last measurement).  
 E - Estimated (see Table "O" for estimating method).  
 J - Value has been manually validated.  
 M - Flag1 is "M" if the data value is missing. In this case, the sign of the meteorological value is assigned "-" and the value of the meteorological element is assigned "99999".  
 S - Included in a subsequent value. (data value = "00000" OR "99999").  
 T - Trace (data value = 00000 for a trace).  
 ( - Expert system edited value, not validated.  
 ) - Expert system approved edited value.  
 Blank - Flag not needed.

Flag 1 values of "S" and "A" usually occur in pairs (ie. a daily value will have Flag



1 assigned as "S" and the next daily value will have Flag 1 assigned as "A"). For some daily values these flags do not occur in pairs.

Other values occasionally appear in Data Measurement Flag 1 for which documentation is not currently available, e.g., "C" and "s".

\*\*\*\*\* TABLE "O" \*\*\*\*\*

Data Quality Flag 2

- 0 - Valid data element.
- 1 - Valid data element (from "unknown" source, pre-1982).
- 2 - Invalid data element (subsequent value replaces original value).
- 3 - Invalid data element (no replacement value follows).
- 4 - Validity unknown (not checked).
- 5 - Original non-numeric data value has been replaced by its deciphered numeric value.
- 6 - Data element passed through MCCDP QC
- 7 - value in MCCDP verifies, estimated value in TD-3200 accepted as replacement (Wisconsin only)
- 8 - Estimated value from Michigan quality control (Michigan only)
- 9 - Value shifted by a day.
- A - Substituted TOBS for TMAX or TMIN
- B - Time shifted value
- C - Precipitation estimated from snowfall
- D - Transposed digits
- E - Changed units
- F - Adjusted TMAX or TMIN by a multiple of + or -10 degrees
- G - Changed algebraic sign
- H - Moved decimal point
- I - Rescaling other than F, G, or H
- J - Subjectively derived value
- K - Extracted from an accumulated value
- L - Switched TMAX and/or TMIN
- M - Switched TOBS with TMAX or TMIN
- N - Substitution of "3 nearest station mean"
- O - Switched snow and precipitation data value
- P - Added snowfall to snow depth
- Q - Switched snowfall and snow depth
- R - Precipitation not reported; estimated as "0"
- S\*\*- Manually edited value
- T - Failed internal consistency check
- U - Failed areal consistency check (beginning Oct. 1992)
- V - Replacement value based on Temp Val QC process (beginning Feb. 2006)
- \*\* - Manually edited value could be derived by any of the procedures noted by Flags A-R.

## \*\*\*\*\*TABLE "P"\*\*\*\*\*

## Units of Measurement Table

Range of values where b = Blank:

bF Whole degrees Fahrenheit (right justified)  
 HI Hundredths of inches  
 bI Whole inches (right justified)  
 bM Whole miles (right justified)  
 NA No units applicable (nondimensional)  
 TI Tenths of inches

## KNOWN UNCORRECTED PROBLEMS AND DATA CAVEATS:

For maximum and minimum temperature, from 1990 - 1994, the value is often shown as missing if FIELD 1 = 3210 and the temperature was reported as -10 F or lower. NCDC will attempt to correct this problem as soon as resources allow.

For snowfall and snow depth data: For July 1996 to present, this element is not valid and should not be used if FIELD 1 = 3210. NCDC will attempt to correct this problem as soon as resources allow.

For October 1990, there are numerous duplicate data records in the daily data. In using the data, choose the data record with the most daily values for the month.

During the period 1984-86 there are numerous entries for element PRCP of "NA" for the Meteorological Element Units Code. These should be coded as "HI".

In 1988 for states 31-91 (North Carolina to Pacific Islands), the algebraic sign of positive meteorological data values may be coded as "+" symbols instead of as blanks.

The historical data were converted from existing digital files and placed in the element structure format in 1983. At that time these data were only processed through a gross value check. In January 1984, NCDC instituted greatly enhanced computer algorithms for automated validation of digital archives. The revised edit system performs internal consistency checks, climatological limits checks and serial checks. It is the goal of the NCDC that, as resources permit, these historical files will be brought up to the same level of quality as those from 1984 onward.

Quality control "flags" are appended to each element to show how they fared during the edit procedures and to indicate what, if any, action was taken.

The typical progression of temperature instruments was from liquid-in-glass thermometers, to (1960 series) Hygrothermometers, to (1980 series) Hygrothermometers. Scientists are currently investigating the effect these instrument changes (especially the 1980 series) may have on long term temperature records.

Users should also be aware of a potential for a "lag" in the change of observation times used in the logical record and what is actually in practice at the site (that is, several months may be archived digitally under an "old" observation time before NCDC received notification).

Prior to the 1970's, accumulated amounts of precipitation were not always flagged with the "A". Instead the convention was to treat the value following a series of data values flagged with "S" as an accumulated value.

A very small number of data values are known to have non-numeric entries.

#### Maximum and Minimum Temperature--

National Weather Service, and Federal Aviation Stations: These values are determined from stations equipped with maximum and minimum thermometers or recording instruments. For some sites, when instruments were inoperative, values were selected from hourly observations.

#### Maximum and Minimum Relative Humidity--

For the period July 1996 through December 1998, the twenty four (24) hour maximum and minimum relative humidities reported as 00000 and 00100 respectively, are incorrect. These values were incorrectly generated for stations that did not report relative humidity.

U.S. Air Force Stations: From May 15, 1955, for stations taking 24 record observations per day, the maximum and minimum temperatures are determined from hourly observations. The observations at the beginning and ending of day are considered. The values are reported as missing when more than 3 of the hourly observations pertinent to the determination of maximum and minimum temperatures for each 24-hour period are missing or erroneous.

U.S. Navy Stations: When maximum and minimum thermometer readings are not available, the data at most stations are reported as missing. Some Navy stations determine the maximum and minimum temperatures from hourly observations when readings from maximum and minimum thermometers are not available.

#### Hail and Snowfall Amounts--

Although the inclusion of hail amounts with snowfall amounts was discontinued after December 31, 1955, some stations may have hail amounts included with snowfall after this date, as late as 1963 at a few stations. This occurred because on the original manuscript form the same column was used for the entry of snow, sleet and hail, and the entry was not indicated as hail. For NWS sites, hail was again included in snowfall amounts beginning in 1989.

#### Confidence Factors--

Days with Weather Code: The "days with weather" element-type (DYSW) cannot be used with any measure of confidence when FIELD 1 = 3200. Principal climatological stations operating 24 hours a day are expected to be the most reliable source of "days with weather". Reporting of this element by cooperative observers is not a requirement and criteria for reporting is not definitive. Most cooperative stations do not record this information.



DEC 1989  
NASHVILLE, TN  
NAT'L WEA SER OFF  
1415 MURFREESBORO RD.

ISSN 0198-4853

# LOCAL CLIMATOLOGICAL DATA

## Monthly Summary

METROPOLITAN AIRPORT



LATITUDE 36° 07' N LONGITUDE 86° 41' W ELEVATION (GROUND) 590 FEET TIME ZONE CENTRAL 13897

DATE	TEMPERATURE °F					DEGREE DAYS BASE 65°F		WEATHER TYPES 1 FOG 2 HEAVY FOG 3 THUNDERSTORM 4 ICE PELLETS 5 HAIL 6 GLAZE 7 DUSTSTORM 8 SMOKE, HAZE 9 BLOWING SNOW	SNOW ICE PELLETS OR ICE ON GROUND AT 0600 INCHES	PRECIPITATION		AVERAGE STATION PRESSURE IN INCHES ELEV. 605 FEET ABOVE H.S.L.	WIND (H.P.H.)					SUNSHINE		SKY COVER (TENTHS)			
	MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	HEATING SEASON BEGINN WITH JUL	COOLING SEASON BEGINN WITH JAN			WATER EQUIVALENT INCHES	SNOW, ICE PELLETS INCHES		RESULTANT DIR.	RESULTANT SPEED	AVERAGE SPEED	PEAK GUST		FASTEST 1-MIN		MINUTES	PERCENT OF TOTAL POSSIBLE	SUNRISE TO SUNSET	MIDNIGHT TO MIDNIGHT
																SPEED	DIRECTION	SPEED	DIRECTION				
1	2	3	4	5	6	7A	7B	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01	55	27	41	-3	28	24	0		0	0.00	0.0	29.640	18	3.1	3.5	12	S	8	19	390	66	6	7
02	56	30	43	-1	21	22	0		0	0.00	0.0	29.510	30	6.9	10.0	35	NW	23	33	476	80	4	4
03	32	18	25	-19	10	40	0		0	0.00	0.0	29.725	33	8.5	9.9	30	NW	22	34	568	96	0	0
04	50	17	34	-9	14	31	0		0	0.00	0.0	29.360	21	9.9	10.4	25	SW	20	19	579	98	0	2
05	66	35	51	8	27	14	0		0	0.00	0.0	29.195	20	6.2	6.7	15	SW	10	20	489	83	4	5
06	70*	41	56*	13	40	9	0		0	0.00	0.0	29.220	29	3.6	10.4	25	N	17	36	349	59	6	7
07	43	31	37	-6	28	28	0	1	6	0.15	0.0	29.530	03	10.0	10.4	21	N	15	04	0	0	9	9
08	32	30	31	-12	28	34	0	1	4	0.42	0.0	29.440	02	11.2	11.4	24	N	16	01	0	0	10	10
09	30	27	29	-13	27	36	0	1	6	0.0	0.0	29.390	32	2.6	7.0	17	SW	10	33	0	0	10	10
10	37	28	33	-9	30	32	0	1	6	0.00	0.0	29.360	17	7.7	8.0	15	S	13	17	0	0	10	8
11	43	35	39	-3	35	26	0	1	6	0.03	0.0	29.370	01	5.9	8.8	16	N	13	36	0	0	10	10
12	35	18	27	-15	20	38	0	1	0	0.0	0.0	29.410	36	12.6	13.0	22	N	17	35	6	1	10	7
13	36	13	25	-16	12	40	0	0	0	0.00	0.0	29.440	22	5.6	7.9	15	S	12	21	504	86	1	1
14	36	21	29	-12	15	36	0	0	0	0.00	0.0	29.490	24	2.4	7.5	17	S	13	18	447	77	5	4
15	44	4	24	-17	13	41	0	1	4	0.03	0.1	29.420	30	6.8	15.0	37	NW	23	31	0	0	10	8
16	21	2	12	-29	2	53	0	1	0	0.0	0.0	29.710	35	5.5	6.4	17	N	13	03	456	78	2	4
17	24	13	19	-22	12	46	0	1	0	0.02	0.2	29.650	02	5.1	5.8	12	N	8	04	45	8	10	10
18	34	14	24	-16	16	41	0	1	4	0.01	0.0	29.600	05	4.9	5.9	13	E	8	07	239	41	6	7
19	32	14	23	-17	22	42	0	1	4	0.12	0.0	29.560	35	7.7	8.4	17	N	16	34	0	0	10	8
20	24	9	17	-23	13	48	0	1	6	0.0	0.0	29.670	03	3.9	5.5	12	E	9	07	90	15	7	4
21	20	-2	9	-31	5	56	0	1	0	0.0	0.0	29.800	36	10.7	12.6	25	N	20	02	212	36	5	4
22	3	-10*	-4*	-44	-11	69	0	0	0	0.0	0.0	30.080	36	14.7	14.8	24	N	18	36	249	43	9	5
23	14	-8	3	-36	-5	62	0	0	0	0.00	0.0	30.070	36	11.6	11.8	23	N	17	36	462	79	2	1
24	21	-1	10	-29	4	55	0	0	0	0.0	0.0	29.800	26	1.8	5.7	17	N	12	25	129	22	7	6
25	33	19	26	-13	19	39	0	0	0	0.01	0.1	29.440	21	9.2	9.5	18	SW	13	20	0	0	10	10
26	39	25	32	-7	19	33	0	0	0	0.00	0.0	29.440	31	4.4	8.6	23	N	16	36	321	55	5	6
27	55	27	41	2	28	24	0	0	0	0.0	0.0	29.390	26	3.9	8.3	22	N	16	29	386	66	3	4
28	52	24	38	-1	29	27	0	1	8	0.00	0.0	29.530	13	3.9	5.3	10	E	8	18	422	72	3	4
29	60	34	47	9	44	18	0	1	0	0.04	0.0	29.390	18	9.7	10.6	28	S	17	20	8	1	10	10
30	57	53	55	17	54	10	0	1	0	0.74	0.0	29.330	17	10.0	10.2	21	S	14	18	0	0	10	10
31	56	32	44	6	41	21	0	1	0	0.40	0.0	29.240	28	8.1	10.8	25	N	17	30	0	0	10	10
SUM										SUM		FOR THE MONTH:					TOTAL		2		SUM		
1210										620		29.520/33					37		23		6827		
AVG.										AVG.		DATE: 15					DATE: 15		POSSIBLE		AVG.		
39.0										20.0		29.5					-11.4		20.6		348		
NUMBER OF DAYS										TOTAL		GREATEST IN 24 HOURS AND DATES					GREATEST DEPTH ON GROUND OF		SNOW, ICE PELLETS OR ICE AND DATE		26+		
MAXIMUM TEMP.										MINIMUM TEMP.		PRECIPITATION					SNOW, ICE PELLETS		1.2		30-31		
1 90°										1 32°		0.2					17		T		T		
0										11		CLEAR 7					PARTLY CLOUDY 10		CLOUDY 14				

\* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.  
† TRACE AMOUNT.  
+ ALSO ON EARLIER DATE(S).  
HEAVY FOG: VISIBILITY 1/4 MILE OR LESS.  
BLANK ENTRIES DENOTE MISSING OR UNREPORTED DATA.

DATA IN COLS 6 AND 12-15 ARE BASED ON 21 OR MORE OBSERVATIONS AT HOURLY INTERVALS. RESULTANT WIND IS THE VECTOR SUM OF WIND SPEEDS AND DIRECTIONS DIVIDED BY THE NUMBER OF OBSERVATIONS. COLS 16 & 17: PEAK GUST - HIGHEST INSTANTANEOUS WIND SPEED. ONE OF TWO WIND SPEEDS IS GIVEN UNDER COLS 18 & 19: FASTEST MILE - HIGHEST RECORDED SPEED FOR WHICH A MILE OF WIND PASSES STATION (DIRECTION IN COMPASS POINTS). FASTEST OBSERVED ONE MINUTE WIND - HIGHEST ONE MINUTE SPEED (DIRECTION IN TENS OF DEGREES). ERRORS WILL BE CORRECTED IN SUBSEQUENT PUBLICATIONS.

I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, AND IS COMPILED FROM RECORDS ON FILE AT THE NATIONAL CLIMATIC DATA CENTER

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CLIMATIC DATA CENTER  
ASHEVILLE NORTH CAROLINA

*Kenneth D. Hadden*  
DIRECTOR  
NATIONAL CLIMATIC DATA CENTER

## OBSERVATIONS AT 3-HOUR INTERVALS

DEC 1989 13097  
NASHVILLE, TN

OBSERVATIONS AT 5 HOUR INTERVAL										NASHVILLE, TN																				
HOUR L.S.T.	VISI- BILITY			TEMPERATURE				WIND		SKY COVER (TENTHS)	VISI- BILITY			TEMPERATURE				WIND		SKY COVER (TENTHS)	VISI- BILITY			TEMPERATURE				WIND		
	CEILING IN HUNDREDS OF FEET	WHOLE MILES	16THS MILE	AIR OF	WET BULB OF	DEW POINT OF	REL. HUMIDITY %	DIRECTION	SPEED (KNOTS)		CEILING IN HUNDREDS OF FEET	WHOLE MILES	16THS MILE	AIR OF	WET BULB OF	DEW POINT OF	REL. HUMIDITY %	DIRECTION	SPEED (KNOTS)		CEILING IN HUNDREDS OF FEET	WHOLE MILES	16THS MILE	AIR OF	WET BULB OF	DEW POINT OF	REL. HUMIDITY %	DIRECTION	SPEED (KNOTS)	
DEC 1st																														
03	8	UNL	15	29	28	25	85	18	5	3	250	12		38	34	28	67	19	4	0	UNL	15		23	19	10	57	36	12	
06	5	UNL	15	27	26	24	89	18	3	5	UNL	12		37	34	29	73	20	4	0	UNL	15		19	16	8	62	34	12	
09	7	UNL	10	38	35	29	70	00	0	5	UNL	12		47	40	29	50	25	7	1	UNL	15		23	19	9	55	35	10	
12	5	UNL	10	51	41	28	41	00	0	4	UNL	12		55	42	24	30	27	8	0	UNL	15		30	23	6	36	32	10	
15	5	UNL	10	54	43	28	37	19	3	3	UNL	12		55	40	14	20	31	9	0	UNL	15		31	25	10	41	34	9	
18	7	UNL	9	47	40	31	54	18	3	2	UNL	15		47	35	13	25	30	9	0	UNL	15		25	21	11	55	35	5	
21	8	UNL	10	37	35	31	79	19	5	0	UNL	15		39	31	14	36	34	11	0	UNL	15		25	21	11	55	31	4	
24	8	UNL	12	36	34	30	79	18	5	0	UNL	15		30	24	11	45	34	19	0	UNL	15		18	17	14	84	19	4	
DEC 2nd																														
DEC 3rd																														
DEC 4th																														
03	0	UNL	15	18	17	14	84	18	4	3	UNL	15		44	35	21	40	24	8	9	250	15		53	46	38	57	20	6	
06	0	UNL	15	10	17	13	81	18	5	3	UNL	15		36	31	22	57	20	4	10	250	15		54	47	40	59	20	6	
09	0	UNL	15	30	25	15	54	18	8	3	UNL	12		48	39	25	41	19	7	8	130	15		58	51	44	60	21	8	
12	0	UNL	15	45	33	6	20	21	13	0	UNL	15		60	45	27	29	18	6	1	UNL	15		66	55	46	49	23	8	
15	1	UNL	15	50	36	12	22	22	16	8	UNL	15		65	49	30	27	22	8	7	150	15		66	54	44	45	31	12	
18	5	UNL	15	45	34	14	29	22	9	8	250	15		54	44	31	42	19	5	6	140	15		52	47	41	66	35	10	
21	8	UNL	15	45	34	15	30	21	10	7	250	15		50	42	31	48	20	4	9	90	12		45	41	37	74	01	10	
24	5	UNL	15	44	35	10	35	24	6	7	250	15		53	45	35	51	20	4	7	80	10		41	38	33	73	36	10	
DEC 5th																														
DEC 6th																														
DEC 7th																														
03	7	80	10	37	34	28	70	02	8	10	7	3	ZRF	32	31	30	92	03	9	10	14	9		29	28	25	85	01	8	
06	2	UNL	12	34	32	28	79	04	6	10	5	3	IPWF	30	30	29	96	03	8	10	11	10		28	27	24	85	36	9	
09	10	150	9	37	34	28	70	05	7	10	9	3	ZLF	30	29	28	92	03	6	10	8	5		28	27	26	92	29	5	
12	10	150	9	42	36	27	55	04	8	10	9	8		30	29	28	92	02	12	10	5	2		29	28	27	92	35	5	
15	10	130	10	41	35	26	55	03	8	10	12	7	SG	31	30	28	89	02	14	10	5	1		30	29	28	92	26	5	
18	10	70	12	37	34	29	73	04	13	10	13	7		31	30	28	89	02	11	10	7	1		30	29	28	92	22	4	
21	10	30	3	34	33	31	89	01	10	10	12	9		30	29	27	89	36	11	10	5	2		29	29	28	96	20	7	
24	10	25	3	31	30	29	92	04	11	10	12	9		30	29	27	89	03	9	10	3	1		29	29	28	96	18	5	
DEC 8th																														
DEC 9th																														
DEC 10th																														
03	10	5	2	30	29	28	92	18	5	10	60	7		40	38	35	82	18	6	10	17	7		32	30	27	82	03	11	
06	10	6	2	30	29	28	92	18	7	10	19	7		40	39	37	89	01	5	8	29	7		30	28	24	78	01	12	
09	10	8	2	31	30	29	92	18	8	10	19	4		41	40	38	89	01	3	10	25	7		28	26	22	78	36	13	
12	10	8	2	33	32	31	92	17	7	10	11	5		42	40	37	83	36	11	10	18	7		30	27	21	69	01	12	
15	10	9	2	34	33	32	92	17	7	10	13	5		38	36	34	86	01	10	10	23	7		30	27	20	66	35	11	
18	0	UNL	4	32	32	31	96	17	4	10	27	3		37	36	34	89	01	10	4	UNL	12		25	22	15	66	36	10	
21	0	UNL	4	31	31	30	96	17	5	10	32	3		35	34	33	92	03	9	0	UNL	12		20	18	12	71	35	9	
24	10	55	7	37	35	32	82	17	6	10	29	3		35	34	32	89	36	10	0	UNL	12		18	16	11	74	33	7	
DEC 11th																														
DEC 12th																														
DEC 13th																														
03	0	UNL	12	16	15	10	77	31	7	0	UNL	15		28	25	19	69	23	6	10	250	12		41	35	24	51	19	15	
06	0	UNL	12	14	13	9	80	25	4	5	UNL	12		25	23	18	75	32	10	10	45	9		41	37	31	68	19	16	
09	0	UNL	8	20	18	11	68	26	4	8	UNL	9		24	21	15	69	35	5	10	9	4		29	28	25	85	32	18	
12	0	UNL	15	30	23	6	36	17	8	5	UNL	12		31	25	10	41	25	4	10	19	6		19	17	12	74	32	16	
15	3	UNL	15	34	27	11	38	20	10	2	UNL	15		36	28	9	32	21	6	9	25	7		16	14	9	74	31	12	
18	0	UNL	15	29	24	14	53	20	6	5	UNL	15		22	26	13	45	11	3	6	28	12		13	11	2	61	35	10	
21	0	UNL	15	31	26	16	54	21	9	5	UNL	15		31	26	17	56	12	5	1	UNL	12		8	6	-4	58	36	10	
24	6	80	12	31	27	18	59	20	8	10	95	15		36	30	20	52	18	11	0	UNL	12		4	3	-5	66	35	10	
DEC 14th																														
DEC 15th																														
DEC 16th																														
03	10	20	7	5	4	-1	76	35	8	10	100	9		14	13	8	77	02	5	5	UNL	9		18	17	13	81	01	5	
06	10	16	9	4	3	-2	76	32	7	10	45	4		13	12	8	80	02	6	6	1	UNL	9		15	14	10	81	02	5
09	2	UNL	15	6	5	-1	73	36	9	10	13	4		16	15	11	81	04	4	6	3	UNL	9		21	19	13	71	05	6
12	0	UNL	15	16	13	1	51	25	5	10	19	7		20	18	11	68	08	4	6	3	UNL	9		31	25	11	43	03	6
15	3	UNL	15	21	17	3	46	02	3	9	100	9		24	21	14	66	05	6	10	UNL	12		33	28	17	52	08	6	
18	3	UNL	15	25	13	7	70	01	5	10	55	9		22	20	14	71	04	7	10	250	12		30	26	18	61	07	6	
21	3	UNL	15	12	11	7	80	02	4	10	70	8		21	19	14	74	02	3	10	65	0		31	28	21	67	09	5	
24	8	UNL	15	13	12	7	77	02	5	9	70	9		20	19	15	81	36	5	10	45	6		31	29	25	79	16	5	
DEC 17th																														
DEC 18th																														

## OBSERVATIONS AT 3-HOUR INTERVALS

DEC 1989  
NASHVILLE, TN 13897

HOUR L.S.T.	VISI-BILITY				TEMPERATURE				WIND		HOUR L.S.T.	VISI-BILITY				TEMPERATURE				WIND																																																
	SKY COVER (TENTHS)	CEILING IN HUNDREDS OF FEET	WHOLE MILES	16THS MILE	WEATHER	AIR of	WET BULB of	DEW POINT of	REL HUMIDITY %	DIRECTION		SPEED (KNOTS)	SKY COVER (TENTHS)	CEILING IN HUNDREDS OF FEET	WHOLE MILES	16THS MILE	WEATHER	AIR of	WET BULB of	DEW POINT of	REL HUMIDITY %	DIRECTION	SPEED (KNOTS)																																													
DEC 19th																							DEC 20th																							DEC 21st																						
03	10	14	3		ZRF	31	29	26	82	31	7	1	UHL	10				12	11	9	88	02	4	0	UHL	5				13	13	11	92	21	4																																	
06	10	6	3		ZLF	28	28	27	96	03	4	1	UHL	10				10	9	7	88	34	3	0	UHL	5				12	12	10	92	21	4																																	
09	10	6	3		ZLF	30	30	29	96	36	4	10	12	5			SF	16	15	13	88	07	8	0	UHL	7				18	16	9	68	02	11																																	
12	10	14	6			29	27	24	82	35	11	5	UHL	5			F	20	18	12	71	09	4	0	22	8				19	16	9	65	36	11																																	
15	10	14	7			27	26	23	85	35	10	4	UHL	5			H	23	22	18	81	04	5	7	110	9				15	13	6	67	36	12																																	
18	10	15	7			22	21	18	85	35	10	3	UHL	5			F	19	18	17	92	07	3	6	110	9				17	5	-3	63	34	12																																	
21	2	UHL	7			18	17	14	84	34	5	0	UHL	5			F	19	18	16	88	28	4	3	UHL	9				2	1	-7	66	01	16																																	
24	1	UHL	7			14	13	11	80	36	7	0	UHL	5			F	15	15	14	96	35	5	3	UHL	10				-2	-3	-10	68	36	16																																	
DEC 22nd																							DEC 23rd																							DEC 24th																						
03	7	21	7		IC	-7	-8	-15	68	35	15	0	UHL	10				-7	-8	-13	75	36	10	0	UHL	10				0	-1	-5	79	32	5																																	
06	3	UHL	8			-10	-11	-17	71	35	13	0	UHL	10				-7	-8	-13	75	35	12	0	UHL	10				0	-1	-4	83	33	5																																	
09	9	250	10			-8	-9	-15	71	35	13	3	UHL	10				-3	-4	-9	75	35	9	0	UHL	7				8	7	1	73	01	4																																	
12	10	250	10			0	-1	-8	69	36	10	0	UHL	12				9	7	-2	61	35	8	10	110	6				15	13	4	62	22	3																																	
15	9	100	10			2	1	-7	66	36	15	2	UHL	12				13	11	3	64	36	13	10	120	7				19	16	7	59	13	3																																	
18	0	UHL	10			-1	-2	-11	62	01	10	0	UHL	10				7	6	-1	69	01	10	10	75	7				19	17	11	71	20	4																																	
21	0	UHL	10			-2	-3	-11	65	36	12	0	UHL	10				4	3	-3	72	35	8	10	60	9				20	18	11	68	20	6																																	
24	0	UHL	10			-5	-6	-12	71	35	13	0	UHL	10				1	0	-5	76	34	7	10	55	8			S	20	18	14	78	22	9																																	
DEC 25th																							DEC 26th																							DEC 27th																						
03	10	40	8		S	20	18	14	78	20	6	4	UHL	9				29	27	24	82	23	7	10	110	9				32	29	24	72	17	5																																	
06	10	33	8			20	18	13	74	19	7	10	38	9				34	32	29	82	28	8	10	110	9				31	29	25	79	07	5																																	
09	10	31	8			23	20	13	65	21	10	9	30	12				36	33	29	76	35	12	3	UHL	10				40	35	28	62	18	7																																	
12	10	23	12			26	23	15	63	23	11	3	UHL	15				35	30	21	57	30	10	0	UHL	8				53	43	30	42	27	9																																	
15	10	21	10			30	27	21	69	20	11	2	UHL	15				37	28	9	31	35	9	2	UHL	10				53	44	34	49	29	14																																	
18	10	17	7		S	29	28	25	85	19	8	3	UHL	15				28	23	11	49	02	5	0	UHL	10				40	37	32	73	23	8																																	
21	10	38	8			31	30	27	85	20	5	8	100	12				28	24	14	56	16	3	0	UHL	10				34	32	29	82	05	6																																	
24	3	UHL	9			29	27	24	82	21	6	8	UHL	12				27	23	15	61	17	5	0	UHL	10				29	28	27	92	20	6																																	
DEC 28th																							DEC 29th																							DEC 30th																						
03	0	UHL	7			26	25	24	92	19	7	10	250	10				36	34	32	85	11	4	10	4	3			RF	54	54	53	96	18	7																																	
06	0	UHL	7			25	24	22	88	11	4	9	250	12				44	40	34	68	15	8	10	6	3			F	54	54	53	96	17	7																																	
09	1	UHL	5			32	31	29	89	07	3	10	34	12				50	44	38	64	17	7	10	6	2			RF	56	55	55	97	18	4																																	
12	4	UHL	6			49	42	33	54	15	5	10	75	10				57	51	46	67	20	15	10	17	1			RF	57	56	56	97	18	8																																	
15	4	UHL	8			52	44	34	51	09	6	10	27	10				58	53	48	70	20	10	10	12	4			RF	57	56	55	93	17	11																																	
18	8	250	10			45	40	34	66	12	4	10	24	6				54	53	52	93	20	13	10	16	4			RF	54	53	52	93	15	10																																	
21	6	UHL	10			33	32	29	85	16	6	10	6	5				53	52	51	93	17	7	10	13	4			F	56	54	53	90	17	12																																	
24	8	250	10			34	33	31	89	08	3	10	5	3				55	54	53	93	20	11	10	25	6			RF	56	54	53	90	19	10																																	
DEC 31st																																																																				
03	10	18	6		RF	56	55	54	93	20	8																																																									
06	8	85	9			54	53	52	93	19	4																																																									
09	10	3	2			46	46	45	96	30	10																																																									
12	10	10	6			42	41	39	89	30	15																																																									
15	10	11	9			40	39	37	89	29	7																																																									
18	10	25	9			38	36	33	82	27	10																																																									
21	10	33	12			37	34	29	73	29	13																																																									
24	5	UHL	15			32	30	26	79	21	7																																																									

## SUMMARY BY HOURS

HOUR L.S.T	SKY COVER (TENTHS)	AVERAGES						RESULTANT WIND	
		STATION PRESSURE (INCHES)	TEMPERATURE			REL HUMIDITY %	WIND SPEED (MPH)	DIRECTION	SPEED (MPH)
			AIR TEMP of	WET BULB of	DEW POINT of				
03	6	29.520	27	24	20	78	8.2	29	1.0
06	6	29.520	25	24	20	80	7.9	34	1.4
09	7	29.555	29	26	21	74	8.6	35	2.8
12	6	29.530	35	30	21	61	9.8	31	3.1
15	7	29.500	36	31	21	60	10.6	33	3.4
18	6	29.510	31	28	21	68	8.8	36	2.8
21	5	29.525	29	26	20	73	8.7	35	1.9
24	6	29.520	27	25	20	76	9.0	32	1.5

## HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DEC 1989  
NASHVILLE, TN

13897

DATE	A.M. HOUR ENDING AT												P.M. HOUR ENDING AT												DATE
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
01																									01
02																									02
03																									03
04																									04
05																									05
06																									06
07																									07
08	0.09	0.06	0.05	0.02	0.03	0.06	0.01	0.05	0.03	0.02											0.02	0.03	0.04	0.06	08
09																									09
10																									10
11																									11
12	T	T																							12
13																									13
14																									14
15																									15
16																									16
17																									17
18																									18
19	0.03	0.03	0.03	0.01	0.01	0.01	T	T	T	T	T	T	T	T										0.01	19
20																									20
21																									21
22																									22
23																									23
24																									24
25	T	T	T	T																					25
26																									26
27																									27
28																									28
29																									29
30	T		0.01	0.01			T	T	T	0.04	0.08	0.11	0.19	0.07	0.02	0.05	0.01	0.01	0.02	T			0.01	0.01	30
31	0.04	0.22	0.04	0.03	0.06	0.01																		0.03	31

## MAXIMUM SHORT DURATION PRECIPITATION

TIME PERIOD (MINUTES)	5	10	15	20	30	45	60	80	100	120	150	180
PRECIPITATION (INCHES)	0.05	0.06	0.08	0.09	0.13	0.18	0.22	0.24	0.27	0.30	0.35	0.40
ENDED: DATE	30	31	30	31	31	31	31	31	30	30	30	30
ENDED: TIME	1213	0152	1219	0152	0152	0157	0159	0206	1246	1304	1334	1251

THE PRECIPITATION AMOUNTS FOR THE INDICATED TIME INTERVALS MAY OCCUR AT ANY TIME DURING THE MONTH. THE TIME INDICATED IS THE ENDING TIME OF THE INTERVAL. DATE AND TIME ARE NOT ENTERED FOR TRACE AMOUNTS.

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JUNE 1996  
NASHVILLE, TN  
METROPOLITAN AIRPORT

published by: National Climatic Data Center

JUNE 1996  
NASHVILLE, TN

[illegible]

# HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

 JUNE 1996  
NASHVILLE, TN  
WBAN # 13897

DATE	A.M. HOUR (L.S.T.) ENDING AT												P.M. HOUR (L.S.T.) ENDING AT												DATE
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
01																									01
02																									02
03																									03
04																									04
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29																									29
30																									30

PUBLISHED BY: NCDC, ASHEVILLE, NC.

\* The sum of the hourly totals follows the  
 \* when it disagrees  
 with the daily total  
 on page 1. NWS does  
 not edit ASOS hourly  
 precipitation but may  
 edit daily and monthly  
 totals. Hourly, daily,  
 and monthly totals are  
 printed as reported by  
 the ASOS site.

## MAXIMUM SHORT DURATION PRECIPITATION (MSDP) \*\*

TIME PERIOD (MINUTES)	5	10	15	20	30	45	60	80	100	120	150	180
PRECIPITATION (INCHES)												
ENDED: DATE												
ENDED: TIME												

\*\* NCDC derives  
 MSDP data from one-  
 Minute ASOS data.  
 The MSDP data are  
 not printed when  
 inconsistent with  
 ASOS hourly totals.

The time indicated is the ending time of the interval.  
 Date and time are not entered for trace amounts.

## REFERENCE NOTES :

WFO = WEATHER FORECAST OFFICE.  
 ASOS = AUTOMATED SURFACE OBSERVING SYSTEM.  
 \* = EXTREME FOR THE MONTH (LAST OCCURRENCE IF MORE THAN ONE).  
 T = TRACE PRECIPITATION AMOUNT.  
 + = ALSO OCCURS ON EARLIER DATES.  
 F+ = HEAVY FOG, VISIBILITY .25 MILES OR LESS.  
 BLANK ENTRIES DENOTE MISSING OR UNREPORTED DATA.  
 THE HEATING DEGREE DAY SEASON BEGINS JULY 1.  
 THE COOLING DEGREE DAY SEASON BEGINS JANUARY 1.  
 CEILOMETER (30-SECOND) DATA ARE USED TO DERIVE CLOUDINESS AT OR BELOW 12,000 FEET. THIS CLOUDINESS IS THE MEAN CLOUD COVER DETECTED DURING THE TIME INTERVAL (HOUR, SUNRISE TO SUNSET, OR MIDNIGHT TO MIDNIGHT).  
 SATELLITE DATA ARE USED TO DERIVE CLOUDINESS ABOVE 12,000 FEET. EFFECTIVE CLOUD AMOUNT IS BASED ON THE CLOUD COVER AND THE TRANSPARENCY OF THE CLOUDS WITHIN THE SATELLITE FIELD OF VIEW (APPROX.  $50 \times 50$  KM).  
 SKY CONDITION IS BASED ON THE SUM (NOT TO EXCEED 10) OF THE SUNRISE TO SUNSET CLOUD COVER BELOW AND ABOVE 12,000 FEET. BOTH CEILOMETER AND SATELLITE DATA MUST BE PRESENT TO COMPUTE SKY CONDITION. CLEAR = 0 - 3 TENTHS, PARTLY CLOUDY = 4 - 7 TENTHS, AND CLOUDY = 8 - 10 TENTHS.  
 RESULTANT WIND IS THE VECTOR SUM OF THE WIND SPEEDS AND DIRECTIONS DIVIDED BY THE NUMBER OF OBSERVATIONS.  
 WIND DIRECTION IS RECORDED IN TENS OF DEGREES (2 DIGITS) CLOCKWISE FROM TRUE NORTH. '00' INDICATES CALM.  
 SR-SS = SUNRISE TO SUNSET. MN-MN = MIDNIGHT TO MIDNIGHT.  
 SNOWFALL IS FOR THE 24-HOUR PERIOD ENDING AT THE TIME INDICATED IN COLUMN HEADING.  
 WATER EQUIVALENT OF SNOW ON THE GROUND IS REPORTED ONLY WHEN THE DEPTH IS 2 OR MORE INCHES.  
 H, F, F+, P-, R, S, AND ZR ARE REPORTED FROM ASOS AUTOMATED SENSORS. OTHER WEATHER TYPES MAY BE ADDED TO THE REPORT BY STATION PERSONNEL OR BE PROVIDED BY THE WEATHER FORECAST OFFICE (WFO).  
 A HAIL GL GLAZE SG SNOW GRAINS  
 BD BLOWING DUST H HAZE SP SNOW PELLETS  
 BN BLOWING SAND IC ICE CRYSTALS T THUNDER  
 BS BLOWING SNOW IF ICE FOG V VOLCANIC ASH  
 BY BLOWING SPRAY IP ICE PELLETS ZL FREEZING DRIZZLE  
 D DUST K SMOKE ZR FREEZING RAIN  
 F FOG L DRIZZLE & TORNADO  
 F+ HEAVY FOG P- UNKN. PRECIP. & C FUNNEL CLOUD  
 GP GROUND FOG R RAIN & W WATERSPOUT  
 S SNOW

NORMALS ARE FOR THE YEARS 1961 - 1990.  
 A HEATING (COOLING) DEGREE DAY IS THE DIFFERENCE BETWEEN THE AVERAGE DAILY TEMPERATURE AND 65°F.  
 DEW POINT IS THE TEMPERATURE TO WHICH THE AIR MUST BE COOLED TO ACHIEVE 100% RELATIVE HUMIDITY.  
 WET BULB IS THE TEMPERATURE THE AIR WOULD HAVE IF THE MOISTURE CONTENT WAS INCREASED TO 100% RELATIVE HUMIDITY.

## TEMPERATURE - HUMIDITY INDEX (STEADMAN, 1979)

TEMPERATURE ° F	RELATIVE HUMIDITY (PERCENT)											APPARENT TEMPERATURE
	0	10	20	30	40	50	60	70	80	90	100	
120	107	116	130	148								
115	103	111	120	135	151							
110	99	105	112	123	137	150						
105	95	100	105	113	123	135	149					
100	91	95	100	104	110	120	132	144				
95	87	90	93	96	101	107	114	124	136			
90	83	85	87	90	93	96	100	106	113	122		
85	78	80	82	84	86	88	90	93	97	102	108	
80	73	75	77	78	79	81	82	85	86	88	91	
75	69	70	72	73	74	75	76	77	78	79	80	
70	64	65	66	67	68	69	70	71	71	71	72	

## WIND CHILL EQUIVALENT TEMPERATURE (SIPLE &amp; PASSEL, 1945)

TEMPERATURE ° F	WIND VELOCITY (MPH)											
	4	5	10	15	20	25	30	35	40	45		
45	45	43	34	29	26	23	21	20	19	18		
40	40	37	26	23	19	16	13	12	11	10		
35	35	32	22	16	12	8	6	4	3	2		
30	30	27	16	9	4	1	-2	-4	-5	-6		
25	25	22	10	2	-3	-7	-10	-12	-13	-14		
20	20	16	3	-5	-10	-15	-18	-20	-21	-22		
15	15	11	-3	-11	-17	-22	-25	-27	-29	-30		
10	10	6	-9	-18	-24	-29	-33	-35	-37	-38		
5	5	0	-15	-25	-31	-36	-41	-43	-45	-46		
0	0	-5	-22	-31	-39	-44	-49	-52	-53	-54		
-5	-5	-10	-27	-38	-46	-51	-56	-58	-60	-62		
-10	-10	-15	-34	-45	-53	-59	-64	-67	-69	-70		
-15	-15	-21	-40	-51	-60	-66	-71	-74	-76	-78		
-20	-20	-26	-46	-58	-67	-74	-79	-82	-84	-85		
-25	-25	-31	-52	-65	-74	-81	-86	-89	-92	-93		
-30	-30	-36	-58	-72	-81	-88	-93	-97	-100	-102		

## ADDITIONAL INFORMATION :

JUNE 1996  
NASHVILLE, TN  
WEAN # 13897

## OBSERVATIONS AT 3-HOURLY INTERVALS

HOUR (LST)	SATELLITE > 12K FT		VISIBILITY (MILES)	WEATHER	TEMPERATURE ° F		WIND SPEED (KPH)	WIND DIRECTION	PRESSURE (INCHES, HG)	SEA LEVEL	RELATIVE HUMIDITY (PCT)	TEMPERATURE ° F		WIND SPEED (KPH)	WIND DIRECTION	PRESSURE (INCHES, HG)	SEA LEVEL				
	CEILING FEET	SATELLITE 100'S OF FT			DRY BULB	WET BULB						DRY BULB	WET BULB								
JUN 01																					
SUNRISE: 0431																					
03	NC	0201	8 260 380	10.00	66	50	57	57	29.50	30.13	03	91	0202	9 230 260	10.00	R	5	25	29.32	29.95	
06	NC	0501	9 210 260	10.00	65	50	57	59	29.55	30.19	06	2	NC	0502	8 170 260	10.00	R	17	29.33	29.96	
09	150	0801	8 210 300	10.00	70	54	61	57	29.57	30.20	09	5	NC	0801	4 220 380	10.00		26	29.29	29.92	
12	NC	1102	7 260 380	10.00	77	58	65	52	29.55	30.19	12	5	NC	1102	6 260 440	10.00		12	26	29.29	29.92
15	NC	1401	7 260 380	10.00	76	57	65	52	29.50	30.14	15	3	NC	1402	6 300 440	10.00		6	28	29.27	29.90
18	NC	1702	9 300 380	10.00	73	59	65	62	29.48	30.11	18	5	NC	1702	10 260 330	10.00	TR	7	5	29.25	29.88
21	100	2002	9 290 330	10.00	71	59	64	66	29.48	30.11	21	10	43	2002	10 260 330	10.00	TR	7	5	29.25	29.88
24	NC	2303	10 300 440	10.00	71	57	63	61	29.46	30.10	24	100	2303	8 190 380	7.00		3	17	29.28	29.91	
SUNSET: 1859																					
JUN 02																					
SUNRISE: 0431																					
03	50	0202	10 280 330	10.00	67	61	63	81	29.48	30.11	03	10	18	0202	9 180 330	7.00	R	6	01	29.21	29.84
06	45	0502	10 280 330	10.00	64	62	63	93	29.50	30.14	06	10	27	0502	10 150 330	1.00	TRF	6	00	29.22	29.85
09	15	0802	9 140 260	10.00	65	62	63	90	29.52	30.16	09	10	60	0801	10 120 300	10.00		3	23	29.23	29.86
12	20	1102	7 130 230	3.00	66	65	65	97	29.52	30.16	12	10	70	1102	9 180 380	10.00		6	28	29.25	29.88
15	20	1401	0 NT	5.00	67	66	66	97	29.48	30.13	15	5	35	1402	10 330 350	10.00		6	28	29.25	29.88
18	16	1702	0 NT	10.00	67	63	65	87	29.46	30.11	18	0	NC	1702	4 200 330	10.00		7	04	29.19	29.82
21	10	2002	0 NT	10.00	65	62	63	90	29.50	30.14	21	0	NC	2002	4 200 330	10.00		0	00	29.20	29.83
24	8	2303	0 NT	10.00	64	62	63	93	29.48	30.12	24	1	NC	2303	8 190 330	7.00		0	00	29.17	29.80
SUNSET: 1859																					
JUN 03																					
SUNRISE: 0430																					
03	10	0202	4 130 440	7.00	64	61	62	90	29.46	30.10	03	10	41	0202	9 190 380	2.50	TRF	13	04	29.13	29.75
06	8	0502	0 NT	5.00	65	62	63	90	29.46	30.10	06	8	65	0501	6 180 300	10.00		0	00	29.16	29.78
09	NC	0802	0 NT	7.00	71	64	67	79	29.44	30.08	09	10	10	0801	3 180 380	10.00		6	21	29.17	29.80
12	60	1102	6 240 330	10.00	77	62	68	60	29.40	30.03	12	0	NC	1102	7 130 300	10.00		7	10	29.16	29.78
15	NC	1402	6 220 380	10.00	79	61	68	54	29.33	29.95	15	7	10	1402	6 190 460	10.00		5	26	29.21	29.85
18	NC	1702	1 130 380	10.00	76	59	66	56	29.30	29.93	18	10	47	1702	1 130 440	10.00		5	26	29.21	29.85
21	NC	2002	5 380 380	10.00	61	57	59	87	29.36	29.99	21	3	NC	2002	1 130 440	10.00		5	21	29.25	29.89
24	60	2303	0 NT	10.00	60	58	59	93	29.37	30.00	24	8	95	2303	6 140 380	10.00		5	21	29.27	29.91
SUNSET: 1860																					
JUN 04																					
SUNRISE: 0430																					
03	75	0201	3 130 380	10.00	59	58	58	97	29.33	29.96	03	NC	0202	2 130 460	7.00		7	17	29.27	29.91	
06	0 NC	0501	9 130 230	7.00	60	58	59	93	29.37	30.05	06	5	100	0501	1 150 300	7.00		6	19	29.30	29.93
09	0 NC	0801	9 180 290	10.00	69	55	61	61	29.41	30.05	09	2	NC	0801	7 190 300	10.00		12	20	29.32	29.96
12	3 NC	1102	1 130 300	10.00	75	57	64	54	29.40	30.04	12	4	NC	1102	4 180 460	10.00		10	23	29.29	29.93
15	1 NC	1402	1 1240 380	10.00	76	53	62	45	29.38	30.03	15	4	NC	1401	7 150 380	10.00		7	23	29.27	29.90
18	0 NC	1702	1 130 380	10.00	74	52	61	46	29.37	30.03	18	9	100	1702	0 NT	10.00		5	24	29.28	29.92
21	0 NC	2002	5 380 380	10.00	67	55	60	66	29.41	30.05	21	3	NC	2002	4 130 260	10.00		0	00	29.31	29.94
24	0 NC	2303	0 NT	10.00	59	56	57	90	29.43	30.06	24	10	90	2302	6 150 350	10.00	R	3	18	29.27	29.91
SUNSET: 1900																					
JUN 05																					
SUNRISE: 0430																					
03	0 NC	0201	3 130 380	10.00	58	55	56	90	29.44	30.08	03	10	90	0201	6 150 440	10.00		7	19	29.23	29.86
06	100	0501	9 130 230	7.00	60	57	58	90	29.50	30.13	06	7	75	0501	2 130 440	4.00	F	6	19	29.26	29.89
09	7 110	0801	9 180 290	10.00	67	60	63	78	29.52	30.16	09	9	47	0801	2 130 440	10.00		6	22	29.28	29.92
12	0 NC	1102	0 NT	10.00	77	62	68	60	29.50	30.13	12	7	1102	3 130 230	10.00		6	25	29.24	29.87	
15	4 80	1402	4 150 300	10.00	77	61	67	58	29.48	30.13	15	6	39	1401	1 130 300	10.00		8	25	29.24	29.88
18	0 NC	1702	1 130 380	10.00	71	64	67	79	29.44	30.08	18	4	55	1702	0 NT	10.00		8	25	29.24	29.88
21	0 NC	2002	0 NT	10.00	68	63	65	84	29.44	30.08	21	9	120	2004	4 130 260	10.00		8	18	29.27	29.91
24	0 NC	2303	0 NT	10.00	66	62	64	87	29.42	30.05	24	3	NC	2302	6 150 350	10.00		7	20	29.26	29.90
SUNSET: 1901																					
JUN 06																					
SUNRISE: 0430																					
03	0 NC	0202	3 1440 440	10.00	63	60	61	90	29.43	30.06	03	7	100	0201	6 150 440	10.00	R	6	20	29.28	29.91
06	0 NC	0502	2 330 440	10.00	67	62	64	84	29.45	30.08	06	0	NC	0501	2 130 440	4.00	F	5	19	29.32	29.96
09	0 NC	0801	4 260 440	10.00	79	65	70	62	29.45	30.08	09	0	NC	0801	2 130 440	10.00		7	25	29.34	29.97
12	2 NC	1102	6 330 380	10.00	84	66	72	55	29.40	30.03	12	5	46	1102	6 150 310	10.00	T	10	35	29.32	29.94
15	2 NC	1401	3 260 440	10.00	86	65	72	50	29.32	29.97	15	2	100	1402	6 150 380	10.00		7	24	29.32	29.95
18	2 NC	1702	0 NT	10.00	83	65	71	55	29.32	29.94	18	0	NC	1702	3 240 330	10.00		6	21	29.30	29.93
21	2 NC	2002	8 180 300	10.00	80	65	70	60	29.32	29.95	21	0	NC	2002	1 150 380	10.00		5	21	29.33	29.96
24	7	2303	8 260 440	10.00	80	65	70	60	29.32	29.95	24	0	NC	2302	3 220 380	10.00		5	21	29.35	29.98

## OBSERVATIONS AT 3-HOURLY INTERVALS

JUNE 1996  
NASHVILLE, TN  
WBAN # 13897

NASHVILLE, TN														
HOUR (LST)	≤ 12K SATELLITE > 12K FT	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F			WIND	PRESSURE (INCHES, HG)		SEA LEVEL	STATION	PRESSURE (INCHES, HG)	LEVEL	SEA
				DRY BULB	WET BULB	RELATIVE HUMIDITY (PCT)		SPEED (MPH)	STATION					
JUN 13														
SUNRISE: 0430														
03	0 NC	1 150 330	7.00	0201	0 NT	NT	03	0 NC	0201	1 130 380	7.00	68	69	87
06	0 NC	0 NT	NT	0501	0 NT	NT	06	0 NC	0501	0 NT	NT	71	67	87
09	19	1 150 330	7.00	0801	1 150 330	0 NT	09	0 NC	0801	0 NT	NT	80	70	73
12	1 NC	4 180 380	10.00	1102	4 180 380	0 NT	12	0 NC	1102	0 NT	NT	86	68	74
15	2 NC	1 130 300	10.00	1402	1 130 300	0 NT	15	0 NC	1401	2 150 330	10.00	89	67	74
18	0 NC	5 150 460	10.00	2002	5 150 460	0 NT	18	0 NC	2002	3 130 300	10.00	87	68	74
21	1 NC	0 NT	NT	2302	0 NT	NT	21	60	2302	7 240 330	10.00	78	67	71
24	1 NC	0 NT	NT	0001	0 NT	NT	24	00	2302	7 240 330	10.00	66	67	90
JUN 14														
SUNRISE: 0429														
03	0 NC	0 NT	NT	0201	0 NT	NT	03	0 NC	0201	5 200 300	10.00	69	67	93
06	4 39	0 NT	NT	0502	0 NT	NT	06	0 NC	0501	6 210 330	10.00	70	67	90
09	0 NC	0 NT	NT	0801	0 NT	NT	09	0 NC	0802	1 180 380	10.00	79	71	74
12	4 NC	1 NT	10.00	1102	0 NT	NT	12	1 NC	1102	0 NT	NT	88	73	77
15	1 NC	0 NT	10.00	1402	1 130 210	0 NT	15	5	1402	0 NT	NT	90	67	74
18	6 120	0 NT	10.00	2002	5 130 380	0 NT	18	0 NC	2002	0 NT	NT	82	68	73
21	2 45	0 NT	10.00	2302	0 NT	NT	21	0 NC	2302	0 NT	NT	69	70	87
24	0 NC	0 NT	NT	0001	0 NT	NT	24	0 NC	2302	0 NT	NT	73	69	70
JUN 15														
SUNRISE: 0429														
03	0 NC	0 NT	NT	0201	0 NT	NT	03	0 NC	0202	0 NT	NT	74	71	87
06	0 NC	0 NT	NT	0501	0 NT	NT	06	0 NC	0501	0 NT	NT	74	69	71
09	0 NC	0 NT	NT	0801	0 NT	NT	09	0 NC	0801	0 NT	NT	83	73	76
12	2 NC	0 NT	NT	1102	0 NT	NT	12	2 NC	1102	0 NT	NT	88	71	76
15	0 NC	0 NT	NT	1401	0 NT	NT	15	0 NC	1402	0 NT	NT	90	71	77
18	0 NC	0 NT	NT	2002	0 NT	NT	18	1 NC	1702	1 130 380	10.00	88	69	75
21	0 NC	0 NT	NT	2302	0 NT	NT	21	0 NC	2302	0 NT	NT	82	71	73
24	0 NC	0 NT	NT	0001	0 NT	NT	24	0 NC	2302	0 NT	NT	76	71	73
JUN 16														
SUNRISE: 0429														
03	0 NC	4.00 F	4.00 F	0201	0 NT	NT	03	0	0202	0 NT	NT	73	74	91
06	0 NC	3.00 F	4.00 F	0501	0 NT	NT	06	0	0501	0 NT	NT	71	72	90
09	0 NC	5.00 H	7.00 H	0801	0 NT	NT	09	0	0801	0 NT	NT	74	71	72
12	0 NC	10.00	10.00	1102	0 NT	NT	12	0	1102	0 NT	NT	76	71	73
15	1 NC	0 NT	10.00	1402	0 NT	NT	15	0	1402	1 150 440	10.00	92	73	78
18	2 NC	0 NT	10.00	2002	0 NT	NT	18	0	2002	0 NT	NT	93	72	78
21	0 NC	0 NT	7.00	2302	0 NT	NT	21	0	2302	0 NT	NT	83	72	75
24	0 NC	5.00 H	5.00 H	0001	0 NT	NT	24	0 NC	2302	0 NT	NT	80	68	72
JUN 17														
SUNRISE: 0429														
03	0 NC	0 NT	NT	0201	0 NT	NT	03	0 NC	0201	0 NT	NT	76	73	91
06	0 NC	3 130 440	4.00 F	0501	3 130 440	0 NT	06	0 NC	0501	0 NT	NT	74	71	72
09	0 NC	0 NT	NT	0801	0 NT	NT	09	0 NC	0801	0 NT	NT	76	71	73
12	0 NC	1 130 440	7.00	1102	1 130 440	0 NT	12	0 NC	1102	0 NT	NT	92	73	78
15	3 NC	2 130 380	7.00	1402	2 130 380	0 NT	15	0 NC	1401	0 NT	NT	93	72	78
18	0 NC	10.00	10.00	2002	10.00	0 NT	18	50	2002	10 380 460	10.00	83	72	75
21	0 NC	7.00	7.00	2302	7.00	0 NT	21	75	2302	7 180 300	10.00	68	67	70
24	0 NC	7.00	7.00	0001	7.00	0 NT	24	0 NC	2302	7 180 300	10.00	76	71	73
JUN 18														
SUNRISE: 0430														
03	0 NC	0 NT	NT	0201	0 NT	NT	03	0 NC	0201	9 130 230	10.00	76	70	72
06	0 NC	5.00 H	5.00 H	0501	5.00 H	0 NT	06	0 NC	0502	2 130 330	10.00	77	71	73
09	0 NC	7.00	7.00	0801	7.00	0 NT	09	0 NC	0802	0 NT	NT	84	73	76
12	2 NC	10.00	10.00	1102	10.00	0 NT	12	0 NC	1103	0 NT	NT	90	71	77
15	7 NC	1 130 460	7.00	1402	1 130 460	0 NT	15	2 NC	1402	0 NT	NT	91	71	77
18	0 NC	9 190 400	7.00	2002	9 190 400	0 NT	18	3 NC	2002	0 NT	NT	86	71	76
21	0 NC	0 NT	NT	2302	0 NT	NT	21	2 NC	2302	0 NT	NT	77	70	72
24	0 NC	0 NT	NT	0001	0 NT	NT	24	0 NC	2302	9 290 440	10.00	76	69	71
JUN 19														
SUNRISE: 0430														
03	0 NC	1 130 380	7.00	0201	1 130 380	0 NT	03	0 NC	0201	5 200 300	10.00	69	67	90
06	0 NC	0 NT	NT	0501	0 NT	NT	06	0 NC	0501	6 210 330	10.00	70	67	88
09	19	1 150 330	10.00	0801	1 150 330	0 NT	09	0 NC	0801	0 NT	NT	80	70	73
12	1 NC	4 180 380	10.00	1102	4 180 380	0 NT	12	0 NC	1102	0 NT	NT	86	68	74
15	2 NC	1 130 300	10.00	1402	1 130 300	0 NT	15	0 NC	1401	2 150 330	10.00	89	67	74
18	0 NC	5 150 460	10.00	2002	5 150 460	0 NT	18	0 NC	2002	3 130 300	10.00	87	68	74
21	1 NC	0 NT	NT	2302	0 NT	NT	21	60	2302	7 240 330	10.00	78	67	71
24	1 NC	0 NT	NT	0001	0 NT	NT	24	00	2302	7 240 330	10.00	66	67	90
JUN 20														
SUNRISE: 0430														
03	0 NC	0 NT	NT	0201	0 NT	NT	03	0 NC	0201	5 200 300	10.00	69	67	93
06	4 39	0 NT	NT	0502	0 NT	NT	06	0 NC	0501	6 210 330	10.00	70	67	90
09	0 NC	0 NT	NT	0801	0 NT	NT	09	0 NC	0802	1 180 380	10.00	79	71	74
12	4 NC	1 NT	10.00	1102	0 NT	NT	12	1 NC	1102	0 NT	NT	88	73	77
15	1 NC	0 NT	10.00	1402	1 130 210	0 NT	15	5	1402	0 NT	NT	90	67	74
18	6 120	0 NT	10.00	2002	5 130 380	0 NT	18	0 NC	2002	0 NT	NT	82	68	73
21	2 45	0 NT	10.00	2302	0 NT	NT	21	0 NC	2302	0 NT	NT	69	70	87
24	0 NC	0 NT	NT	0001	0 NT	NT	24	0 NC	2302	0 NT	NT	73	69	70
JUN 21														
SUNRISE: 0430														
03	0 NC	0 NT	NT	0201	0 NT	NT	03	0 NC	0202	0 NT	NT	74	71	87
06	0 NC	0 NT	NT	0501	0 NT	NT	06	0 NC	0501	0 NT	NT	74	69	71
09	0 NC	0 NT	NT	0801	0 NT	NT	09	0 NC	0801	0 NT	NT	83	73	76
12	2 NC	0 NT	NT	1102	0 NT	NT	12	2 NC	1102	0 NT	NT	88	71	76
15	0 NC	0 NT	NT	1401	0 NT	NT	15	0 NC	1402	0 NT	NT	90	71	77
18	0 NC	0 NT	NT	2002	0 NT	NT	18	1 NC	1702	1 130 380	10.00	88	69	75
21	0 NC	0 NT	NT	2302	0 NT	NT	21	0 NC	2302	0 NT	NT	82	71	73
24	0 NC	0 NT	NT	0001	0 NT	NT	24	0 NC	2302	0 NT	NT	76	71	73
JUN 22														
SUNRISE: 0430														
03	0 NC	4.00 F	4.00 F	0201	0 NT	NT	03	0	0202	0 NT	NT	73	74	91
06	0 NC	3.00 F	4.00 F	0501	0 NT	NT	06	0	0501	0 NT	NT	71	72	90
09	0 NC	5.00 H	7.00 H	0801	0 NT	NT	09	0	0801	0 NT	NT	74	71	72
12	0 NC	10.00	10.00	1102	0 NT	NT	12	0	1102	0 NT	NT	76	71	73
15	1 NC	0 NT	10.00	1402	0 NT	NT	15	0	1402	1 150 440	10.00	92	73	78
18	2 NC	0 NT	10.00	2002	0 NT	NT	18	0	2002	0 NT	NT	93	72	78
21	0 NC	0 NT	7.00	2302	0 NT	NT	21	0	2302	0 NT	NT	83	72	75
24	0 NC	5.00 H	5.00 H	0001	0 NT	NT	24	0 NC	2302	0 NT	NT	80	68	72
JUN 23														
SUNRISE: 0431														
03	0 NC	0 NT	NT	0201	0 NT	NT	03	0 NC	0201	0 NT	NT	76	73	91
06	0 NC	3 130 440	4.00 F	0501	3 130 440	0 NT	06	0 NC	0501	0 NT	NT	74	71	72
09	0 NC	0 NT	NT	0801	0 NT	NT	09	0 NC	0801	0 NT	NT	76	71	73
12	0 NC	1 130 440	7.00	1102	1 130 440	0 NT	12	0 NC	1102	0 NT	NT	92	73	78
15	3 NC	2 130 380	7.00	1402	2 130 380	0 NT	15	0 NC	1401	0 NT	NT	93	72	78
18	0 NC	10.00	10.00	2002	10.00	0 NT	18	50	2002	10 380 460	10.00	83	72	75
21	0 NC	7.00	7.00	2302	7.00	0 NT	21	75	2302	7 180 300	10.00	68	67	70
24	0 NC	7.00	7.00	0001	7.00	0 NT	24	0 NC	2302	7 180 300	10.00	76	71	73
JUN 24														
SUNRISE: 0431														
03	0 NC	0 NT	NT	0201	0 NT	NT	03	0 NC	0201	9 130 230	10.00	76	70	72
06	0 NC	5.00 H	5.00 H	0501	5.00 H	0 NT	06	0 NC	0502	2 130 330	10.00	77	71	73
09	0 NC	7.00	7.00	0801	7.00	0 NT	09	0 NC	0802	0 NT	NT	84	73	76
12	2 NC	10.00	10.00	1102	10.00	0 NT	12	0 NC	1103	0 NT	NT	90	71	77
15	7 NC	1 130 460	7.00	1402	1 130 460	0 NT	15	2 NC	1402	0 NT	NT	91	71	77
18	0 NC	9 190 400	7.00	2002	9 190 400	0 NT	18	3 NC	2002	0 NT	NT	86	71	76
21	0 NC	0 NT	NT	2302	0 NT	NT	21	2 NC	2302	0 NT	NT	77	70	72
24	0 NC	0 NT	NT	0001	0 NT	NT	24	0 NC	2302	9 290 440	10.00	76	69	71
JUN 25														
SUNRISE: 0431														
03	0 NC	1 130 380	7.00	0201	1 130 380									

## OBSERVATIONS AT 3-HOURLY INTERVALS

JUNE 1996  
NASHVILLE, TN

WBAN # 13897

HOUR (LST)	CEILOMETER TENTHS	CEILING 100'S OF FT	SATELLITE > 12K FT	VISIBILITY (MILES)	WEATHER	TEMPERATURE ° F			WIND SPEED (MPH)	RELATIVE HUMIDITY (PCT)	PRESSURE (INCHES, HG)		
						DRY BULB	WET BULB	DEW POINT			STATION	SEA	LEVEL
03	0 NC	0201	0190	10.00		75	70	72	85	31	29.33	29.96	
06	0 NC	0502	1140	10.00		74	70	71	87	6	29.38	30.01	
09	0 NC	0801	0 NT	10.00		80	71	74	74	0	29.41	30.03	
12	2 NC	1102	0 NT	10.00		85	70	75	61	13	29.42	30.05	
15	1 NC	1402	0 NT	10.00		86	65	72	50	9	29.40	30.02	
18	0 NC	1702	0 NT	10.00		83	62	70	49	9	29.39	30.02	
21	0 NC	2002	0 NT	10.00		75	60	66	60	7	29.44	30.07	
24	0 NC	2303	0 NT	10.00		69	61	64	76	7	29.45	30.09	
SUNRISE: 0431													
03	0 NC	0201	0 NT	10.00		67	60	63	78	3	29.45	30.09	
06	0 NC	0501	0 NT	10.00		66	61	63	84	7	29.50	30.13	
09	0 NC	0801	0 NT	10.00		75	63	67	66	10	29.52	30.16	
12	3 NC	1102	0 NT	10.00		80	61	68	52	8	29.50	30.13	
15	1 NC	1401	0 NT	10.00		82	61	69	49	10	29.45	30.09	
18	1 NC	1701	2 220	10.00		80	60	67	51	13	29.46	30.11	
21	0 NC	2002	4 270	10.00		73	60	65	64	8	29.48	30.12	
24	0 NC	2303	0 NT	10.00		69	60	64	73	5	29.48	30.11	
SUNRISE: 0432													
03	0 NC	0202	0 NT	10.00		66	60	62	81	5	29.48	30.10	
06	0 NC	0501	0 NT	10.00		66	60	62	81	6	29.50	30.14	
09	5 45	0801	0 NT	10.00		76	64	68	67	7	29.50	30.17	
12	4 36	1102	0 NT	10.00		83	68	73	61	7	29.50	30.14	
15	1 NC	1401	0 NT	10.00		86	67	73	53	9	29.45	30.09	
18	0 NC	2002	0 NT	10.00		85	66	72	53	13	29.43	30.06	
21	0 NC	2302	0 NT	10.00		78	66	70	67	7	29.48	30.11	
24	0 NC	2302	0 NT	10.00		74	65	68	74	3	29.46	30.09	
SUNRISE: 0432													
03	0 NC	0201	0 NT	10.00		71	63	66	76	3	29.48	30.10	
06	0 NC	0501	0 NT	10.00		70	63	66	79	3	29.50	30.14	
09	0 NC	0801	0 NT	10.00		80	62	69	54	7	29.52	30.16	
12	0 NC	1102	0 NT	10.00		87	62	71	43	6	29.50	30.13	
15	0 NC	1402	0 NT	10.00		90	62	72	39	5	29.45	30.09	
18	0 NC	2002	0 NT	10.00		87	63	71	45	9	29.45	30.07	
21	0 NC	2302	0 NT	10.00		80	67	71	65	5	29.48	30.11	
24	0 NC	2302	0 NT	10.00		77	67	70	71	0	29.50	30.12	
SUNRISE: 0433													
03	0 NC	0201	0 NT	10.00		73	67	69	82	0	29.48	30.11	
06	0 NC	0501	0 NT	10.00		71	67	68	87	0	29.50	30.13	
09	0 NC	0801	0 NT	10.00		85	70	75	61	6	29.52	30.16	
12	2 NC	1102	0 NT	10.00		89	68	75	50	9	29.52	30.14	
15	0 NC	1402	0 NT	10.00		91	67	75	45	8	29.46	30.10	
18	0 NC	2002	0 NT	10.00		88	68	74	52	7	29.45	30.07	
21	0 NC	2302	0 NT	10.00		82	70	74	67	3	29.44	30.08	
24	0 NC	2302	0 NT	10.00		77	70	72	79	3	29.45	30.08	
SUNRISE: 0433													
03	0 NC	0201	0 NT	10.00		73	69	70	87	0	29.45	30.08	
06	0 NC	0501	0 NT	10.00		73	69	70	87	0	29.48	30.11	
09	0 NC	0801	2 150	4.00		85	72	76	65	7	29.48	30.10	
12	2 NC	1102	0 NT	10.00		92	67	75	44	10	29.44	30.07	
15	3 NC	1402	1 150	4.00		93	64	74	38	9	29.39	30.02	
18	0 NC	2002	1 150	4.00		90	70	76	52	9	29.36	29.99	
21	0 NC	2302	0 NT	10.00		85	72	76	65	3	29.39	30.01	
24	0 NC	2302	0 NT	10.00		79	73	75	82	24	29.38	30.01	

## HOURLY SUMMARY NOTES

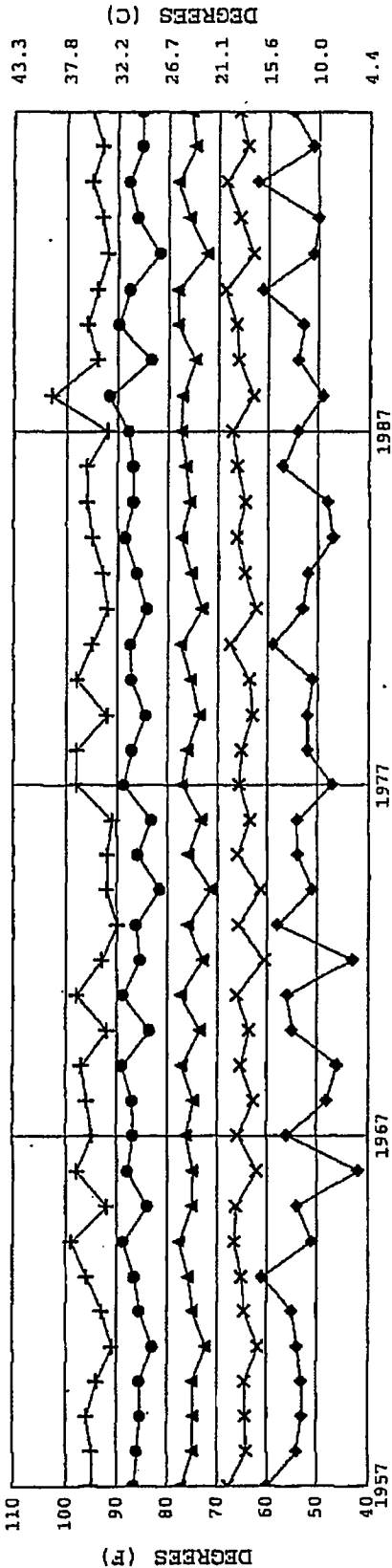
CEILING IS REPORTED IN HUNDREDS OF FEET (ABOVE GROUND LEVEL)  
 FOR CLOUDS AT OR BELOW 12,000 FEET.  
 CLOUD TOPS ARE REPORTED IN HUNDREDS OF FEET (ABOVE MEAN  
 SEA LEVEL) FOR CLOUDS ABOVE 12,000 FEET.  
 NC = A CEILING WAS NOT DETECTED AT OR BELOW 12,000 FEET.  
 NT = CLOUD TOPS WERE NOT DETECTED ABOVE 12,000 FEET.  
 SEE PAGE 3 FOR ADDITIONAL NOTES.

## SUMMARY BY HOURS

HOUR (LST)	CEILOMETER	EFF CLOUD AMT	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY	PRESSURE (INCHES, HG)	SEA LEVEL	VISIBILITY (MILES)	WIND SPEED (MPH)	WIND DIRECTION	RESULTANT
01			69	64	66	85	29.35	29.98	8.01	4	2	20
02			69	64	66	86	29.35	29.98	7.95	4	2	19
03			68	64	66	87	29.35	29.98	7.67	4	2	18
04			67	64	65	89	29.36	29.99	7.38	4	2	19
05			67	64	65	90	29.37	30.00	6.38	4	3	17
06			69	64	66	87	29.38	30.01	6.57	4	2	19
07			71	67	69	81	29.39	30.02	7.43	5	3	18
08			74	66	69	76	29.40	30.03	8.24	5	2	21
09			77	67	70	71	29.40	30.03	8.59	7	3	21
10			79	67	71	67	29.39	30.02	8.45	8	3	21
11			81	66	71	62	29.39	30.02	8.55	8	3	24
12			82	66	72	59	29.38	30.01	8.93	8	3	25
13			83	66	72	59	29.36	29.99	9.23	8	3	23
14			84	66	72	56	29.34	29.97	9.91	8	3	22
15			84	65	71	55	29.34	29.97	9.04	8	3	25
16			82	65	71	57	29.32	29.95	9.33	8	2	25
17			82	65	71	59	29.32	29.95	9.34	7	2	26
18			80	65	70	61	29.33	29.96	9.61	8	1	34
19			78	65	69	66	29.33	29.96	9.63	6	0	0
20			76	65	69	75	29.34	29.97	9.43	5	1	17
21			74	65	69	75	29.36	29.99	9.21	5	1	21
22			73	66	69	79	29.35	29.98	8.03	6	2	18
23			72	65	67	79	29.36	29.99	8.62	4	2	17
24			71	64	67	82	29.36	29.99	8.23	4	3	17

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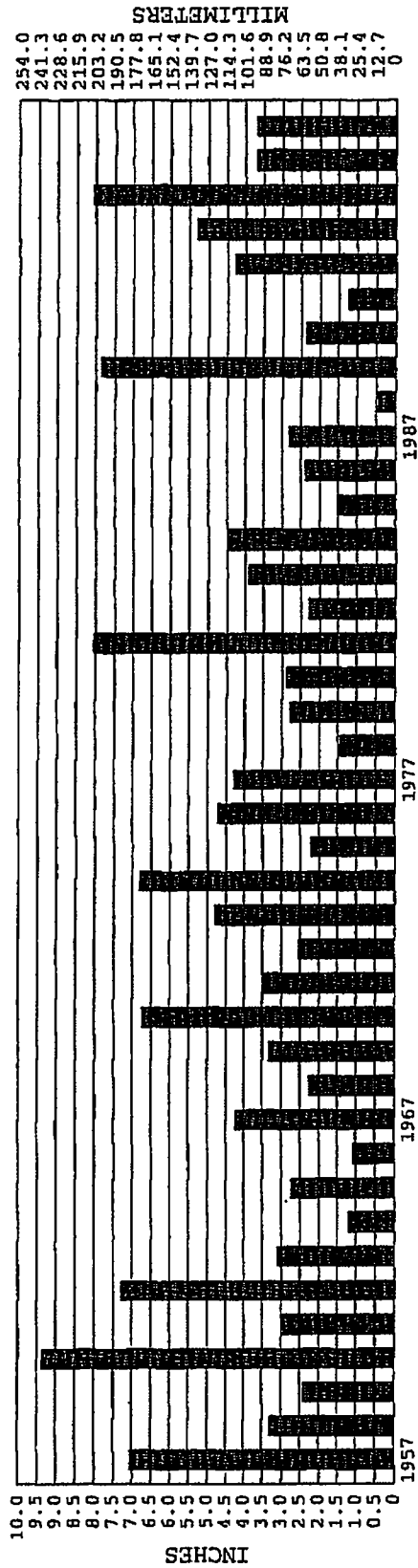
NASHVILLE, TN JUNE TEMPERATURES



+ Extreme Max.    ● Mean Max.    ▲ Mean    × Mean Min.    ◆ Extreme Min.

Long-Term (1957-1996) Mean: 75.6    1961-1990 Normal: 75.6

NASHVILLE, TN JUNE PRECIPITATION



Long-Term (1957-1996) Mean Monthly Total: 3.89    1961-1990 Normal: 3.57

I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION,  
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*Kenneth D. Haden*  
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ASHEVILLE, NORTH CAROLINA      NATIONAL CLIMATIC DATA CENTER

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**HOURLY PRECIPITATION**

(WATER EQUIVALENT IN INCHES)

**NASHVILLE, TN****JUNE 1998****BNA****WBAN # 13897**

DATE	FOR HOUR (LST) ENDING AT												DATE	FOR HOUR (LST) ENDING AT												Sum if Different (See Note 2)	2400 LST Water Equiv.
	1	2	3	4	5	6	7	8	9	10	11	12		13	14	15	16	17	18	19	20	21	22	23	24		
01	T	0.31	0.32	T									0.12	T						T					01	T	0.63
02																									02	T	3.41
03																									03	T	2.65
04																									04	T	
05																									05	T	
06																									06	T	
07																									07	T	
08																									08	T	
09																									09	T	
10																									10	T	
11																									11	T	
12																									12	T	
13																									13	T	
14																									14	T	
15																									15	T	
16																									16	T	
17																									17	T	
18																									18	T	
19																									19	T	
20	0.01																								20	T	0.01
21																									21	T	
22																									22	T	
23																									23	T	
24																									24	T	
25																									25	T	
26																									26	T	
27																									27	T	
28																									28	T	
29																									29	T	
30																									30	T	0.69

**MAXIMUM SHORT DURATION PRECIPITATION (See Note 1)**

Time Period (Minutes)	5	10	15	20	30	45	60	80	100	120	150	180
Precipitation (Inches)												
Ending Date												
Ending Time (Hour/Min)												

Date and time are not entered for TRACE amounts.

Note 1: NCDC derives these data from one-minute ASOS values. The table is not printed when inconsistent with ASOS hourly totals.

Note 2: The sum of the hourly totals is given when it differs from the daily total. NWS does not edit ASOS hourly values but may edit daily and monthly totals. Hourly, daily, and monthly totals are printed as reported by the ASOS site.

REFERENCE NOTES & SUPPLEMENTAL SUMMARIES

\* = Extreme for the month (last occurrence if more than one)  
T = Trace precipitation amount  
+ = also occurs on earlier date  
FG+ = Heavy fog, visibility .25 miles or less  
BLANK entries denote missing or unreported data

Resultant wind is the vector sum of the wind speeds and directions divided by the number of observations.

Wind direction is recorded in tens of degrees (2 digits) clockwise from true north. '00' = calm, 'VR' = variable.

Precipitation is for the 24-hour period ending at the time indicated in the column heading.

Water Equivalent of snow on the ground is reported only when the depth is 2 or more inches.

NORMALS ARE FOR THE YEARS 1961 – 1990

WEATHER NOTATIONS

QUALIFIER		WEATHER PHENOMENA	
DESCRIPTOR	PRECIPITATION	OBSCURATION	OTHER
BC Patches	DZ Drizzle	BR Mist	DS Duststorm
BL Blowing	GR Hail	DJ Widespread Dust	FC Funnel Cloud
DR Low Drifting	GS Small Hail and/or Snow Pellets	FG Fog	+FC Tornado Waterspout
FZ Freezing	IC Ice Crystals	FU Smoke	PO Wall-Developed Dust/Sand Whirls
MI Shallow	PE Ice Pellets	HZ Haze	SO Squalls
PR Partial	RA Rain	PV Spray	SS Sandstorm
SH Shower(s)	SG Snow Grains	SA Sand	GL Glaze
TS Thunderstorm	SN Snow	VA Volcanic Ash	
VC In the Vicinity	UP Unknown Precipitation		
Intensity (as indicated on pages 4 to 6): '+' = Heavy    ' ' = Moderate    ' - ' = Light			

NASHVILLE, TN JUNE 1998

Ceilmeter (30-second) data are used to derive cloudiness at or below 12,000 feet. This cloudiness is the mean cloud cover detected during sunrise to sunset (SR-SS), or midnight to midnight (MN-MN).

Satellite data are used to derive cloudiness above 12,000 feet. Effective Cloud Amount is based on the cloud cover and the transparency of the clouds within the satellite field of view (approx. 31x31 miles).

Sky Condition is based on the sum (not to exceed 8) of the sunrise to sunset cloud cover below and above 12,000 feet. Both ceilometer and satellite data must be present to compute Sky Condition. Clear = 0-2 oktas, Partly Cloudy = 3-6 oktas, Cloudy = 7-8 oktas.

A Heating (Cooling) Degree Day is the difference between the average daily temperature and 65 degrees F. The HDD season begins July 1, the CDD season begins January 1.

Dew Point is the temperature to which the air must be cooled to achieve 100% relative humidity. Wet Bulb is the temperature the air would have if cooled at constant pressure by evaporation of moisture into it, to 100% relative humidity.

Snow Depth, Snowfall, and Sunshine data may come from nearby sites that the National Weather Service deems Climatologically representative of this site.

ADDITIONAL NOTES AND CORRECTIONS:  
Sunrise and sunset times listed in the March and April 1998 LCD were incorrect and should not be used.

DATE	SUNSHINE		CLOUDINESS (OKTAS)				VISIBILITY (MILES)		RESERVED
	TOTAL MINUTES	PERCENT POSSIBLE	SR-SS		MN-MN		MINIMUM	MAXIMUM	
			CEILOMETER	SATELLITE	CEILOMETER	SATELLITE			
01							5.00	10.00	
02							4.00	10.00	
03							8.00	10.00	
04							.50	10.00	
05							.50	10.00	
06							4.00	10.00	
07							10.00	10.00	
08							10.00	10.00	
09							1.00	10.00	
10							8.00	10.00	
11							7.00	10.00	
12							5.00	10.00	
13							5.00	10.00	
14							4.00	10.00	
15							10.00	10.00	
16							10.00	10.00	
17							6.00	10.00	
18							6.00	10.00	
19							2.00	10.00	
20							.25	10.00	
21							3.00	10.00	
22							10.00	10.00	
23							7.00	10.00	
24							3.00	10.00	
25							4.00	7.00	
26							3.00	6.00	
27							4.00	10.00	
28							10.00	10.00	
29							7.00	10.00	
30							4.00	10.00	
MONTHLY AVGS							5.38	9.77	
Total:							SUNSHINE (MINUTES)		
Possible:							Percent Possible:		
NUMBER OF DAYS WITH:							SKY CONDITION		
CLR							PTY CLDY CLOUDY MISSING		
							30		
MINIMUM VISIBILITY (MILES)							<=0.25 <=3.0 >=7.0		
1							8 11		

# OBSERVATIONS AT 3-HOURLY INTERVALS

## NASHVILLE, TN

### JUNE 1998

WBAN # 13897

BNA

HOUR (LST)	SKY COVER	CEILING 100'S OF FT	OBSERVATION TIME (LST)	EFF CLD AMT Okla's	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F				WIND DIRECTION TENS OF DEG	PRESSURE (INCHES HG)	SEA LEVEL									
							DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)												
JUN 01																						
SUNRISE: 0431																						
03	OVC	070			7.00		73	72	72	96	5	28.29	29.79									
06	SCT	NC			10.00		72	64	67	76	3	29.21	29.83									
09	SCT	NC			10.00		78	60	67	76	3	29.22	29.85									
12	BKN	250			10.00		84	60	69	44	9	29.19	29.82									
15	BKN	230			10.00		85	59	68	42	10	29.15	29.77									
18	FEW	NC			10.00		83	61	69	48	7	29.11	29.74									
21	SCT	NC			10.00		72	65	67	79	5	29.11	29.74									
24	OVC	043			10.00		71	66	68	84	5	29.10	29.72									
JUN 02																						
SUNRISE: 0431																						
03	OVC	055			10.00		70	69	69	97	5	29.03	29.65									
06	SCT	NC			10.00		74	72	73	94	0	29.07	29.70									
09	SCT	NC			10.00		85	75	78	72	10	29.10	29.73									
12	SCT	NC			10.00		93	68	76	44	12	29.11	29.72									
15	SCT	NC			10.00		93	70	77	47	12	29.11	29.73									
18	FEW	NC			10.00		90	72	77	56	6	29.11	29.73									
21	CLR	NC			10.00		84	72	76	67	6	29.13	29.75									
24	SCT	NC			10.00		80	72	74	76	6	29.14	29.76									
JUN 03																						
SUNRISE: 0431																						
03	FEW	NC			10.00		79	71	74	77	3	29.16	29.78									
06	FEW	NC			10.00		77	73	74	88	3	29.17	29.79									
09	SCT	NC			10.00		85	75	78	72	8	29.15	29.77									
12	BKN	047			10.00		91	72	78	54	16	29.16	29.78									
15	SCT	NC			10.00		89	72	78	54	13	29.12	29.75									
18	SCT	NC			10.00		81	72	78	61	7	29.09	29.72									
21	BKN	034			10.00		73	64	67	74	9	29.18	29.81									
24	SCT	NC			10.00		72	63	66	73	3	29.16	29.78									
JUN 04																						
SUNRISE: 0430																						
03	BKN	250			10.00		69	65	66	87	0	29.15	29.78									
06	OVC	049			10.00		69	68	68	96	3	29.20	29.81									
09	OVC	007			10.00		69	68	68	96	3	29.20	29.83									
12	OVC	080			10.00		71	70	70	96	7	29.18	29.81									
15	OVC	015			10.00		73	70	71	90	12	29.17	29.80									
18	OVC	006			10.00		69	67	68	93	5	29.18	29.81									
21	OVC	010			10.00		69	67	69	100	13	29.20	29.83									
24	OVC	050			10.00		68	67	67	96	6	29.13	29.76									
JUN 05																						
SUNRISE: 0430																						
03	OVC	060			10.00		67	65	66	93	13	29.09	29.72									
06	OVC	033			10.00		66	65	65	96	13	29.15	29.79									
09	SCT	NC			10.00		74	69	71	85	13	29.12	29.75									
12	BKN	038			10.00		82	67	72	60	10	29.13	29.76									
15	OVC	046			10.00		75	70	72	84	9	29.16	29.79									
18	OVC	017			10.00		70	69	69	97	8	29.19	29.83									
21	OVC	012			10.00		62	61	61	93	9	29.28	29.91									
24	OVC	012			10.00		59	55	57	87	12	29.31	29.94									
JUN 06																						
SUNRISE: 0430																						
03	OVC	016			10.00		57	53	55	87	8	29.33	29.96									
06	OVC	010			10.00		55	52	53	90	10	29.40	30.03									
09	FEW	NC			10.00		62	45	53	54	16	29.43	30.06									
12	FEW	NC			10.00		67	46	56	47	12	29.46	30.10									
15	BKN	055			10.00		69	46	57	44	10	29.46	30.10									
18	SCT	NC			10.00		67	44	55	44	10	29.49	30.13									
21	SCT	NC			10.00		61	46	53	58	3	29.53	30.16									
24	CLR	NC			10.00		56	50	53	81	0	29.54	30.17									
JUN 07																						
SUNRISE: 0430																						
03	OVC	070			10.00		52	50	51	93	0	29.54	30.19									
06	SCT	NC			10.00		54	47	52	87	0	29.60	30.24									
09	SCT	NC			10.00		66	47	56	50	0	29.63	30.28									
12	BKN	250			10.00		72	47	58	41	8	29.62	30.26									
15	BKN	230			10.00		74	47	59	38	7	29.58	30.22									
18	FEW	NC			10.00		73	46	58	38	6	29.56	30.20									
21	SCT	NC			10.00		62	53	57	73	7	29.57	30.21									
24	OVC	043			10.00		57	53	55	87	5	29.56	30.19									
JUN 08																						
SUNRISE: 0430																						
03	OVC	055			10.00		55	51	53	87	0	29.55	30.19									
06	SCT	NC			10.00		58	53	55	84	3	29.58	30.22									
09	SCT	NC			10.00		71	52	60	51	8	29.58	30.21									
12	SCT	NC			10.00		74	53	62	48	9	29.55	30.19									
15	SCT	NC			10.00		74	54	62	50	6	29.53	30.17									
18	FEW	NC			10.00		72	56	62	57	8	29.47	30.11									
21	CLR	NC			10.00		69	60	64	73	5	29.52	30.15									
24	SCT	NC			10.00		67	59	62	76	10	29.47	30.10									
JUN 09																						
SUNRISE: 0429																						
03	FEW	NC			10.00		65	61	63	87	13	29.40	30.03									
06	FEW	NC			10.00		64	63	63	96	8	29.41	30.04									
09	SCT	NC			10.00		66	65	65	96	6	29.42	30.05									
12	BKN	047			10.00		71	68	69	90	7	29.40	30.03									
15	SCT	NC			10.00		82	75	77	79	7	29.34	29.97									
18	SCT	NC			10.00		83	72	75	70	9	29.34	29.97									
21	BKN	034			10.00		79	73	75	82	6	29.36	29.99									
24	SCT	NC			10.00		77	72	74	85	6	29.36	29.99									
JUN 10																						
SUNRISE: 0429																						
03	BKN	250			10.00		77	72	74	85	6	29.35	29.97									
06	OVC	049			10.00		79	73	75	82	9	29.37	30.00									
09	OVC	007			10.00		80	73	75	79	13	29.37	30.00									
12	OVC	080			10.00		74	70	71	88	0	29.39	30.02									
15	OVC	015			10.00		82	73	76	74	17	29.36	29.98									
18	OVC	006			10.00		77	73	74	88	7	29.34	29.97									
21	OVC	010			10.00		72	69	70	91	8	29.37	30.00									
24	OVC	050			10.00		71	68	69	90	7	29.35	29.98									
JUN 11																						
SUNRISE: 0429																						
03	OVC	060			10.00		72	70	71	94	7	29.29	29.92									
06	OVC	033			10.00		75	72	73	90	7	29.34	29.97									
09	SCT	NC			10.00		84	72	76	70	12	29.34	29.97									
12	BKN	038			10.00		85	72	76	65	12	29.34	29.96									
15	OVC	046			10.00		86	70	75	59	13	29.26	29.89									
18	OVC	017			10.00		85	68	73	57	10	29.23	29.8									

# OBSERVATIONS AT 3-HOURLY INTERVALS

## NASHVILLE, TN

WBAN # 13897

BNA

JUNE 1998

HOUR (LST)	WEATHER			SATELLITE			VISIBILITY (MILES)			WEATHER			PRESSURE (INCHES, HG)			SEA LEVEL			STATION			PRESSURE (INCHES, HG)				
	SKY COVER	CEILING 100'S OF FT	OBSERVATION TIME (LST)	EFF. CLOUD AMT	OBSERVATION TIME (LST)	EFF. CLOUD AMT	VISIBILITY (MILES)	WEATHER	PRESSURE (INCHES, HG)	SEA LEVEL	HOUR (LST)	SKY COVER	CEILING 100'S OF FT	OBSERVATION TIME (LST)	EFF. CLOUD AMT	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F			WIND SPEED (MPH)	DIRECTION	TENS OF DEG			
																		DRY BULB	WET BULB	RELATIVE HUMIDITY (PC)						
JUN 13																										
SUNRISE: 0429																										
03	CLR	NC	10.00	10.00	0429	10.00	0430	03	29.18	29.80	03	OVC	100	10.00	0430	10.00	0430	03	29.18	29.80	03	29.18	29.80	03	29.18	29.80
06	SCT	NC	10.00	10.00	0430	10.00	0430	06	29.22	29.84	06	OVC	055	10.00	0430	10.00	0430	06	29.22	29.84	06	29.22	29.84	06	29.22	29.84
09	CLR	NC	10.00	10.00	0430	10.00	0430	09	29.26	29.88	09	OVC	037	10.00	0430	10.00	0430	09	29.26	29.88	09	29.26	29.88	09	29.26	29.88
12	FEW	NC	10.00	10.00	0430	10.00	0430	12	29.23	29.85	12	OVC	230	10.00	0430	10.00	0430	12	29.23	29.85	12	29.23	29.85	12	29.23	29.85
15	SCT	NC	10.00	10.00	0430	10.00	0430	15	29.20	29.82	15	OVC	200	10.00	0430	10.00	0430	15	29.20	29.82	15	29.20	29.82	15	29.20	29.82
18	FEW	NC	10.00	10.00	0430	10.00	0430	18	29.17	29.79	18	OVC	200	10.00	0430	10.00	0430	18	29.17	29.79	18	29.17	29.79	18	29.17	29.79
21	SCT	NC	10.00	10.00	0430	10.00	0430	21	29.17	29.80	21	BKN	200	10.00	0430	10.00	0430	21	29.17	29.80	21	29.17	29.80	21	29.17	29.80
24	BKN	100	10.00	10.00	0430	10.00	0430	24	29.12	29.75	24	CLR	NC	10.00	0430	10.00	0430	24	29.12	29.75	24	29.12	29.75	24	29.12	29.75
JUN 14																										
SUNRISE: 0429																										
03	OVC	060	10.00	10.00	0429	10.00	0430	03	29.11	29.74	03	CLR	NC	10.00	0430	10.00	0430	03	29.11	29.74	03	29.11	29.74	03	29.11	29.74
06	BKN	120	10.00	10.00	0429	10.00	0430	06	29.06	29.67	06	CLR	NC	10.00	0430	10.00	0430	06	29.06	29.67	06	29.06	29.67	06	29.06	29.67
09	BKN	050	10.00	10.00	0429	10.00	0430	09	29.00	29.62	09	BKN	080	10.00	0430	10.00	0430	09	29.00	29.62	09	29.00	29.62	09	29.00	29.62
12	BKN	048	10.00	10.00	0429	10.00	0430	12	29.00	29.62	12	BKN	250	10.00	0430	10.00	0430	12	29.00	29.62	12	29.00	29.62	12	29.00	29.62
15	BKN	160	10.00	10.00	0429	10.00	0430	15	28.89	29.51	15	OVC	150	10.00	0430	10.00	0430	15	28.89	29.51	15	28.89	29.51	15	28.89	29.51
18	OVC	043	10.00	10.00	0429	10.00	0430	18	28.87	29.49	18	OVC	120	10.00	0430	10.00	0430	18	28.87	29.49	18	28.87	29.49	18	28.87	29.49
21	OVC	130	10.00	10.00	0429	10.00	0430	21	28.87	29.48	21	BKN	250	10.00	0430	10.00	0430	21	28.87	29.48	21	28.87	29.48	21	28.87	29.48
24	BKN	250	10.00	10.00	0429	10.00	0430	24	28.87	29.49	24	BKN	075	10.00	0430	10.00	0430	24	28.87	29.49	24	28.87	29.49	24	28.87	29.49
JUN 15																										
SUNRISE: 0429																										
03	CLR	NC	10.00	10.00	0429	10.00	0430	03	28.87	29.49	03	SCT	NC	10.00	0430	10.00	0430	03	28.87	29.49	03	28.87	29.49	03	28.87	29.49
06	SCT	NC	10.00	10.00	0429	10.00	0430	06	28.92	29.53	06	BKN	150	10.00	0430	10.00	0430	06	28.92	29.53	06	28.92	29.53	06	28.92	29.53
09	SCT	NC	10.00	10.00	0429	10.00	0430	09	28.95	29.57	09	OVC	050	10.00	0430	10.00	0430	09	28.95	29.57	09	28.95	29.57	09	28.95	29.57
12	BKN	048	10.00	10.00	0429	10.00	0430	12	28.98	29.59	12	BKN	100	10.00	0430	10.00	0430	12	28.98	29.59	12	28.98	29.59	12	28.98	29.59
15	SCT	NC	10.00	10.00	0429	10.00	0430	15	29.00	29.62	15	BKN	150	10.00	0430	10.00	0430	15	29.00	29.62	15	29.00	29.62	15	29.00	29.62
18	FEW	NC	10.00	10.00	0429	10.00	0430	18	29.03	29.65	18	BKN	250	10.00	0430	10.00	0430	18	29.03	29.65	18	29.03	29.65	18	29.03	29.65
21	CLR	NC	10.00	10.00	0429	10.00	0430	21	29.05	29.67	21	SCT	NC	10.00	0430	10.00	0430	21	29.05	29.67	21	29.05	29.67	21	29.05	29.67
24	BKN	250	10.00	10.00	0429	10.00	0430	24	29.06	29.68	24	SCT	NC	10.00	0430	10.00	0430	24	29.06	29.68	24	29.06	29.68	24	29.06	29.68
JUN 16																										
SUNRISE: 0429																										
03	SCT	NC	10.00	10.00	0429	10.00	0430	03	29.09	29.72	03	FEW	NC	10.00	0430	10.00	0430	03	29.09	29.72	03	29.09	29.72	03	29.09	29.72
06	FEW	NC	10.00	10.00	0429	10.00	0430	06	29.15	29.78	06	BKN	150	10.00	0430	10.00	0430	06	29.15	29.78	06	29.15	29.78	06	29.15	29.78
09	SCT	NC	10.00	10.00	0429	10.00	0430	09	29.18	29.81	09	FEW	NC	10.00	0430	10.00	0430	09	29.18	29.81	09	29.18	29.81	09	29.18	29.81
12	SCT	NC	10.00	10.00	0429	10.00	0430	12	29.21	29.84	12	SCT	NC	10.00	0430	10.00	0430	12	29.21	29.84	12	29.21	29.84	12	29.21	29.84
15	SCT	NC	10.00	10.00	0429	10.00	0430	15	29.24	29.87	15	SCT	NC	10.00	0430	10.00	0430	15	29.24	29.87	15	29.24	29.87	15	29.24	29.87
18	FEW	NC	10.00	10.00	0429	10.00	0430	18	29.24	29.87	18	FEW	NC	10.00	0430	10.00	0430	18	29.24	29.87	18	29.24	29.87	18	29.24	29.87
21	CLR	NC	10.00	10.00	0429	10.00	0430	21	29.30	29.93	21	CLR	NC	10.00	0430	10.00	0430	21	29.30	29.93	21	29.30	29.93	21	29.30	29.93
24	FEW	NC	10.00	10.00	0429	10.00	0430	24	29.34	29.97	24	SCT	NC	10.00	0430	10.00	0430	24	29.34	29.97	24	29.34	29.97	24	29.34	29.97
JUN 17																										
SUNRISE: 0429																										
03	CLR	NC	10.00	10.00	0429	10.00	0430	03	29.35	29.98	03	OVC	060	10.00	0430	10.00	0430	03	29.35	29.98	03	29.35	29.98	03	29.35	29.98
06	FEW	NC	10.00	10.00	0429	10.00	0430	06	29.42	30.05	06	BKN	065	10.00	0430	10.00	0430	06	29.42	30.05	06	29.42	30.05	06	29.42	30.05
09	FEW	NC	10.00	10.00	0429	10.00	0430	09	29.46	30.09	09	CLR	NC	10.00	0430	10.00	0430	09	29.46	30.09	09	29.46	30.09	09	29.46	30.09
12	SCT	NC	10.00	10.00	0429	10.00	0430	12	29.46	30.09	12	SCT	NC	10.00	0430	10.00	0430	12	29.46	30.09	12	29.46	30.09	12	29.46	30.09
15	FEW	NC	10.00	10.00	0429	10.00	0430	15	29.43	30.06	15	SCT	NC	10.00	0430	10.00	0430	15	29.43	30.06	15	29.43	30.06	15	29.43	30.06
18	FEW	NC	10.00	10.00	0429	10.00	0430	18	29.43	30.06	18	FEW	NC	10.00	0430	10.00	0430	18	29.43	30.06	18	29.43	30.06	18	29.43	30.06
21	CLR	NC	10.00	10.00	0429	10.00	0430	21	29.43	30.06	21	CLR	NC	10.00	0430	10.00	0430	21	29.43	30.06	21	29.43	30.06	21	29.43	30.06
24	SCT	NC	10.00	10.00	0429	10.00	0430	24	29.41	30.04	24	FEW	NC	10.00	0430	10.00	0430	24	29.41	30.04	24	29.41	30.04	24	29.41	30.04
JUN 18																										
SUNRISE: 0430																										
03	SCT	NC	10.00	10.00	0430	10.00	0431	03	29.40	30.03	03	FEW	NC	10.00	0431	10.00	0431	03	29.40	30.03	03	29.40	30.03	03	29.40	30.03
06	FEW	NC	10.00	10.00	0430	10.00	0431	06	29.43	30.05	06	CLR	NC	10.00	0431	10.00	0431	06	29.43	30.05	06	29.43	30.05	06	29.43	30.05
09	SCT	NC	10.00	10.00	0430	10.00	0431	09	29.43	30.06	09	CLR	NC	10.00	0431	10.00	0431	09	29.43	30.06	09	29.43	30.06	09	29.43	30.06
12	BKN	250	10.00	10.00	0430	10.00	0431	12	29.41	30.03	12	FEW	NC	10.00	0431	10.00	0431	12	29.41	30.03	12	29.41	30.03	12	29.41	30.03
15	BKN	250	10.00	10.00	0430	10.00	0431	15	29.36	29.98	15	FEW	NC	10.00	0431	10.00	0431	15	29.36	29.98	15	29.36	29.98	15	29.36	29.98
18	OVC	200	10.00	10.00	0430	10.00	0431	18	29.32	29.94	18	FEW	NC	10.00	0431	10.00	0431	18	29.32	29.94	18	29.32	29.94	18	29.32	29.94
21	OVC	150	10.00	10.00	0430	10.00	0431	21	29.33	29.95	21	CLR	NC	10.00	0431	10.00	0431	21	29.33	29.95	21	29.33	29.95	21	29.33	29.95
24	OVC	130	10.00	10.00	0430	10.00	0431	24	29.31	29.93	24	SCT	NC	10.00	0431	10.00	0431	24	29.31	29.93	24	29.31	29.93	24	29.31	29.93
JUN 19																										
SUNRISE: 0430																										
03	SCT	NC	10.00	10.00	0430	10.00	0431	03	29.43	30.05	03	FEW	NC	10.00	0431	10.00	0431	03	29.43	30.05	03	29.43	30.05	03	29.43	30.05

# **OBSERVATIONS AT 3-HOURLY INTERVALS** | **NASHVILLE, TN** | **JUNE 1998** | **BNA** | **WBAN # 13897**

HOUR (LST)	SATellite			VISIBILITY (MILES)	WEATHER	TEMPERATURE ° F			RELATIVE HUMIDITY (PCT)	WIND		PRESSURE (INCHES HG)	SEA LEVEL	
	SKY COVER	CEILING 100'S OF FT	OBSERVATION TIME (LST)			EFF CLD AMT Chas	DRY BULB	DEW POINT		WET BULB	SPEED (MPH)			DIRECTION TENS OF DEG
JUN 25														
SUNRISE: 0431														
03	SCT	NC		6.00BR		74	70	71	88	3	15	29.42	30.05	
06	CLR	NC		7.00		76	72	73	88	0	00	29.45	30.07	
09	CLR	NC		6.00HZ		89	74	78	61	0	00	29.47	30.09	
12	SCT	NC		6.00HZ		94	73	79	51	7	21	29.45	30.08	
15	SCT	NC		6.00HZ		94	73	79	51	6	19	29.41	30.04	
18	FEW	NC		6.00HZ		91	75	79	59	5	18	29.38	30.00	
21	CLR	NC		5.00HZ		84	77	79	80	3	18	29.40	30.02	
24	FEW	NC		4.00BR		79	75	76	88	6	18	29.40	30.03	
JUN 26														
SUNRISE: 0431														
03	SCT	NC		6.00BR		74	70	71	88	3	15	29.42	30.05	
06	CLR	NC		7.00		76	72	73	88	0	00	29.45	30.07	
09	CLR	NC		6.00HZ		89	74	78	61	0	00	29.47	30.09	
12	SCT	NC		6.00HZ		94	73	79	51	7	21	29.45	30.08	
15	SCT	NC		6.00HZ		94	73	79	51	6	19	29.41	30.04	
18	FEW	NC		6.00HZ		91	75	79	59	5	18	29.38	30.00	
21	CLR	NC		5.00HZ		84	77	79	80	3	18	29.40	30.02	
24	FEW	NC		4.00BR		79	75	76	88	6	18	29.40	30.03	
JUN 27														
SUNRISE: 1907														
03	SCT	NC		6.00BR		74	70	71	88	3	15	29.42	30.05	
06	CLR	NC		7.00		76	72	73	88	0	00	29.45	30.07	
09	CLR	NC		6.00HZ		89	74	78	61	0	00	29.47	30.09	
12	SCT	NC		6.00HZ		94	73	79	51	7	21	29.45	30.08	
15	SCT	NC		6.00HZ		94	73	79	51	6	19	29.41	30.04	
18	FEW	NC		6.00HZ		91	75	79	59	5	18	29.38	30.00	
21	CLR	NC		5.00HZ		84	77	79	80	3	18	29.40	30.02	
24	FEW	NC		4.00BR		79	75	76	88	6	18	29.40	30.03	
JUN 28														
SUNRISE: 1907														
03	SCT	NC		6.00BR		74	70	71	88	3	15	29.42	30.05	
06	CLR	NC		7.00		76	72	73	88	0	00	29.45	30.07	
09	CLR	NC		6.00HZ		89	74	78	61	0	00	29.47	30.09	
12	SCT	NC		6.00HZ		94	73	79	51	7	21	29.45	30.08	
15	SCT	NC		6.00HZ		94	73	79	51	6	19	29.41	30.04	
18	FEW	NC		6.00HZ		91	75	79	59	5	18	29.38	30.00	
21	CLR	NC		5.00HZ		84	77	79	80	3	18	29.40	30.02	
24	FEW	NC		4.00BR		79	75	76	88	6	18	29.40	30.03	
JUN 29														
SUNRISE: 0431														
03	SCT	NC		6.00BR		74	70	71	88	3	15	29.42	30.05	
06	CLR	NC		7.00		76	72	73	88	0	00	29.45	30.07	
09	CLR	NC		6.00HZ		89	74	78	61	0	00	29.47	30.09	
12	SCT	NC		6.00HZ		94	73	79	51	7	21	29.45	30.08	
15	SCT	NC		6.00HZ		94	73	79	51	6	19	29.41	30.04	
18	FEW	NC		6.00HZ		91	75	79	59	5	18	29.38	30.00	
21	CLR	NC		5.00HZ		84	77	79	80	3	18	29.40	30.02	
24	FEW	NC		4.00BR		79	75	76	88	6	18	29.40	30.03	
JUN 30														
SUNRISE: 0431														
03	SCT	NC		6.00BR		74	70	71	88	3	15	29.42	30.05	
06	CLR	NC		7.00		76	72	73	88	0	00	29.45	30.07	
09	CLR	NC		6.00HZ		89	74	78	61	0	00	29.47	30.09	
12	SCT	NC		6.00HZ		94	73	79	51	7	21	29.45	30.08	
15	SCT	NC		6.00HZ		94	73	79	51	6	19	29.41	30.04	
18	FEW	NC		6.00HZ		91	75	79	59	5	18	29.38	30.00	
21	CLR	NC		5.00HZ		84	77	79	80	3	18	29.40	30.02	
24	FEW	NC		4.00BR		79	75	76	88	6	18	29.40	30.03	
JUN 01														
SUNRISE: 0431														
03	SCT	NC		6.00BR		74	70	71	88	3	15	29.42	30.05	
06	CLR	NC		7.00		76	72	73	88	0	00	29.45	30.07	
09	CLR	NC		6.00HZ		89	74	78	61	0	00	29.47	30.09	
12	SCT	NC		6.00HZ		94	73	79	51	7	21	29.45	30.08	
15	SCT	NC		6.00HZ		94	73	79	51	6	19	29.41	30.04	
18	FEW	NC		6.00HZ		91	75	79	59	5	18	29.38	30.00	
21	CLR	NC		5.00HZ		84	77	79	80	3	18	29.40	30.02	
24	FEW	NC		4.00BR		79	75	76	88	6	18	29.40	30.03	
JUN 02														
SUNRISE: 0431														
03	SCT	NC		6.00BR		74	70	71	88	3	15	29.42	30.05	
06	CLR	NC		7.00		76	72	73	88	0	00	29.45	30.07	
09	CLR	NC		6.00HZ		89	74	78	61	0	00	29.47	30.09	
12	SCT	NC		6.00HZ		94	73	79	51	7	21	29.45	30.08	
15	SCT	NC		6.00HZ		94	73	79	51	6	19	29.41	30.04	
18	FEW	NC		6.00HZ		91	75	79	59	5	18	29.38	30.00	
21	CLR	NC		5.00HZ		84	77	79	80	3	18	29.40	30.02	
24	FEW	NC		4.00BR		79	75	76	88	6	18	29.40	30.03	
JUN 03														
SUNRISE: 0431														
03	SCT	NC		6.00BR		74	70	71	88	3	15	29.42	30.05	
06	CLR	NC		7.00		76	72	73	88	0	00	29.45	30.07	
09	CLR	NC		6.00HZ		89	74	78	61	0	00	29.47	30.09	
12	SCT	NC		6.00HZ		94	73	79	51	7	21	29.45	30.08	
15	SCT	NC		6.00HZ		94	73	79	51	6	19	29.41	30.04	
18	FEW	NC		6.00HZ		91	75	79	59	5	18	29.38	30.00	
21	CLR	NC		5.00HZ		84	77	79	80	3	18	29.40	30.02	
24	FEW	NC		4.00BR		79	75	76	88	6	18	29.40	30.03	
JUN 04														
SUNRISE: 0431														
03	SCT	NC		6.00BR		74	70	71	88	3	15	29.42	30.05	
06	CLR	NC		7.00		76	72	73	88	0	00	29.45	30.07	
09	CLR	NC		6.00HZ		89	74	78	61	0	00	29.47	30.09	
12	SCT	NC		6.00HZ		94	73	79	51	7	21	29.45	30.08	
15	SCT	NC		6.00HZ		94	73	79	51	6	19	29.41	30.04	
18	FEW	NC		6.00HZ		91	75	79	59	5	18	29.38	30.00	
21	CLR	NC		5.00HZ		84	77	79	80	3	18	29.40	30.02	
24	FEW	NC		4.00BR		79	75	76	88	6	18	29.40	30.03	
JUN 05														
SUNRISE: 0431														
03	SCT	NC		6.00BR		74	70	71	88	3	15	29.42	30.05	
06	CLR	NC		7.00		76	72	73	88	0	00	29.45	30.07	
09	CLR	NC		6.00HZ		89	74	78	61	0	00	29.47	30.09	
12	SCT	NC		6.00HZ		94	73	79	51	7	21	29.45	30.08	
15	SCT	NC		6.00HZ		94	73	79	51	6	19	29.41	30.04	
18	FEW	NC		6.00HZ		91	75	79	59	5	18	29.38	30.00	
21	CLR	NC		5.00HZ		84	77	79	80	3	18	29.40	30.02	
24	FEW	NC		4.00BR		79	75	76	88	6	18	29.40	30.03	
JUN 06														
SUNRISE: 0431														
03	SCT	NC		6.00BR		74	70	71	88	3	15	29.42	30.05	
06	CLR	NC		7.00		76	72	73	88	0	00	29.45	30.07	
09	CLR	NC		6.00HZ		89	74	78	61	0	00	29.47	30.09	
12	SCT	NC		6.00HZ		94	73	79	51	7	21	29.45	30.08	
15	SCT	NC		6.00HZ		94	73	79	51	6	19	29.41	30.04	
18	FEW	NC		6.00HZ		91	75	79	59	5	18	29.38	30.00	
21	CLR	NC		5.00HZ		84	77	79	80	3	18	29.40	30.02	
24	FEW	NC		4.00BR		79	75	76	88	6	18	29.40	30.03	
JUN 07														
SUNRISE: 0431														
03	SCT	NC		6.00BR		74	70	71	88	3	15	29.42	30.05	
06	CLR	NC		7.00		76	72	73	88	0	00	29.45	30.07	
09	CLR	NC		6.00HZ		89	74	78	61	0	00	29.47	30.09	
12	SCT	NC		6.00HZ		94	73	79	51	7	21	29.45	30.08	
15	SCT	NC		6.00HZ		94	73	79	51	6	19	29.41	30.04	
18	FEW	NC		6.00HZ		91	75	79	59	5	18	29.38	30.00	
21	CLR	NC		5.00HZ		84	77	79	80	3	18	29.40	30.02	
24	FEW	NC		4.00BR		79	75	76	88	6	18	29.40	30.03	
JUN 08														
SUNRISE: 0431														
03	SCT	NC		6.00BR		74	70	71	88	3	15	29.42	30.05	
06	CLR	NC		7.00		76	72	73	88	0	00	29.45	30.07	
09	CLR	NC		6.00HZ		89	74	78	61	0	00	29.47	30.09	
12	SCT	NC		6.00HZ		94	73	79	51	7	21	29.45	30.08	
15	SCT	NC		6.00HZ		94	73	79	51	6	19	29.41	30.04	
18	FEW	NC		6.00HZ		91	75	79	59	5	18	29.38	30.00	
21	CLR	NC		5.00HZ		84	77	79	80	3	18	29.40	30.02	
24	FEW	NC		4.00BR		79	75	76	88	6	18	29.40	30.03	
JUN 09														
SUNRISE: 0431														
03	SCT	NC		6.00BR		74	70	71	88	3	15	29.42	30.05	
06	CLR													

## **3-HOURLY OBSERVATION NOTES**

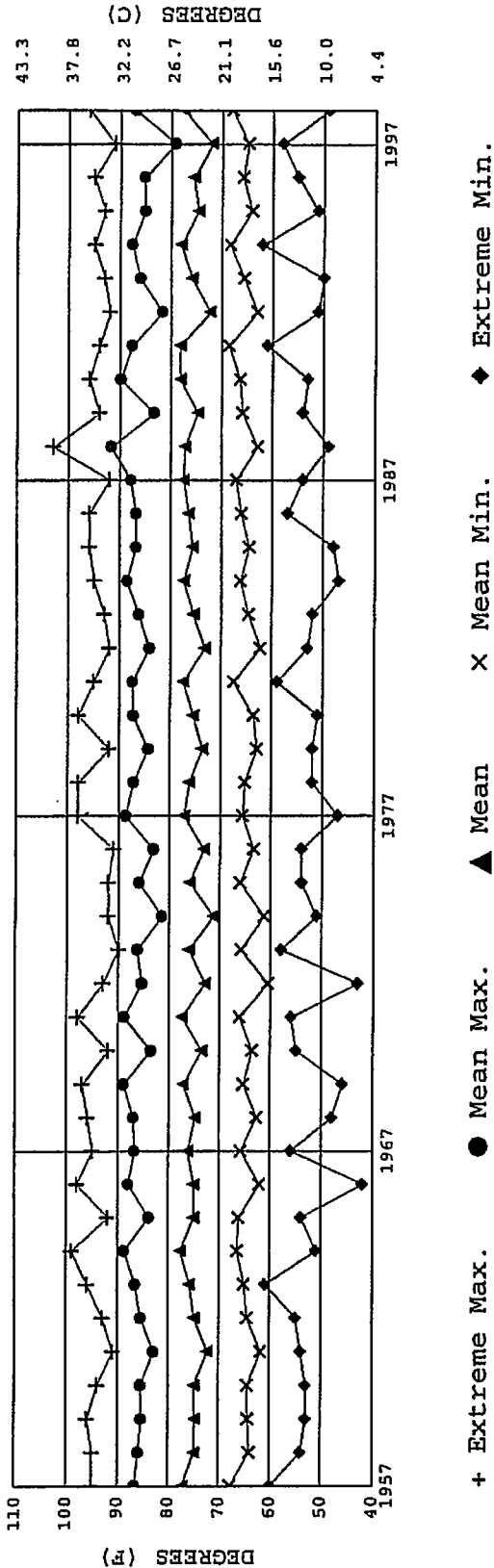
Sky Cover is the amount of the sky obscured. CLR or SKC = 0, FEW = 1/8-2/8, SCT = 3/8-4/8, BKN = 5/8-7/8, OVC = 8/8, VW = Vertical Visibility = 8/8.  
 Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet.  
 NC = No ceiling detected.  
 & = Original observation contained additional weather elements.  
 See page 3 for additional notes.

## **SUMMARY BY HOUR**

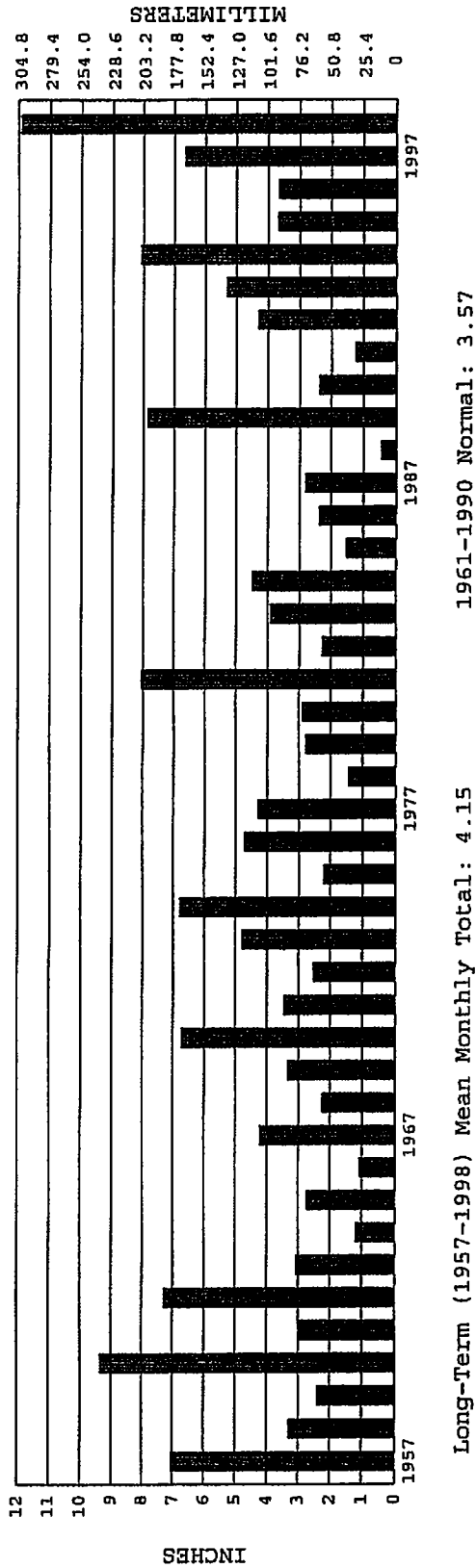
HOUR (LST)	CEILOMETER	EFF CLD AMT	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY	STATION PRESSURE (INCHES HG)	SEA LEVEL	VISIBILITY (MILES)	WIND SPEED (MPH)	WIND DIRECTION	RESIDANT WIND (MPH)
01			72	67	69	83	29.29	29.91	8.53	5	3	19
02			71	67	68	86	29.29	29.92	8.20	5	1	18
03			71	66	68	86	29.29	29.92	8.63	5	2	18
04			71	66	68	86	29.29	29.92	8.87	5	2	17
05			70	66	68	87	29.31	29.94	7.67	5	2	20
06			71	67	68	86	29.32	29.95	8.07	5	2	20
07			74	67	70	81	29.33	29.96	8.23	6	3	21
08			77	68	71	75	29.33	29.96	9.27	6	3	22
09			79	67	72	68	29.33	29.95	9.08	7	3	25
10			81	67	72	65	29.33	29.96	9.07	9	5	25
11			82	67	72	62	29.33	29.96	9.35	8	4	24
12			84	66	72	58	29.32	29.95	9.40	9	6	25
13			85	66	72	56	29.31	29.93	9.47	8	4	25
14			85	67	73	56	29.29	29.92	9.63	8	5	23
15			86	67	73	55	29.29	29.91	9.33	8	5	25
16			85	67	73	55	29.28	29.91	9.35	8	5	24
17			85	67	73	57	29.27	29.90	9.40	9	6	24
18			84	67	72	59	29.28	29.91	9.43	7	4	24
19			81	67	72	64	29.28	29.91	9.23	6	3	22
20			79	68	72	70	29.28	29.91	9.47	5	2	18
21			77	68	71	74	29.30	29.93	9.37	6	3	19
22			75	67	70	78	29.31	29.94	8.90	5	2	20
23			74	67	69	80	29.30	29.93	8.93	5	3	19
24			73	67	69	82	29.30	29.92	9.10	6	4	18

Published By: National Climatic Data Center

NASHVILLE, TN JUNE TEMPERATURES



NASHVILLE, TN JUNE PRECIPITATION



# JANUARY 2011 NASHVILLE, TN

## JANUARY 2011 LOCAL CLIMATOLOGICAL DATA NOAA, National Climatic Data Center

NASHVILLE, TN  
NASHVILLE INTERNATIONAL AIRPORT (KBNA)  
Lat: 36° 7' N Long: 86° 41' W Elev (Ground) 600 Feet  
Time Zone : CENTRAL WBAN: 13897 ISSN#: 0198-4853

Temperature °F										Deg Days BASE 65°		WEATHER	SNOW/ICE ON GND(IN)				PRECIPITATION ON GND(IN)				PRESSURE (INCHES OF HG)		WIND SPEED = MPH DIR = TENS OF DEGREES						Date				
MAXIMUM		MINIMUM		AVERAGE		DEP FROM NORMAL		AVERAGE DEW PT		AVERAGE WET BULB			HEATING		COOLING		0600 LST	1200 LST	2400 LST	2400 LST	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	MAXIMUM		DIR		SPEED	DIR		
1	2	3	4	5	6	7	8	9	10	11	12		13	14	15	16										17	18					19	20
01	60	30	45	8	38	42	20	0	TS TSRA RA BR	0	0.79	0.0	0.0	0.79	29.42	30.04	3.4	28	9.9	40*	16	31*	15	01									
02	39	21	30	-7	16	26	35	0		0	0.00	0.0	0.00	0.00	29.67	30.31	3.1	33	3.9	17	36	13	16	02									
03	45	18	32	-5	16	26	33	0	BCFG	0	0.00	0.0	0.00	0.00	29.59	30.28	2.7	17	3.1	18	03	9	16	03									
04	54	31	43	6	20	34	22	0		0	0.00	0.0	0.00	0.00	29.44	30.12	2.2	28	4.8		8	31	04										
05	37	29	33	-4	27	32	32	0	RA DZ SN PL BR	0	0.09	T	0.09	0.09	29.38	29.96	3.5	04	4.1	16	15	12	05	05									
06	48	25	37	0	25	32	28	0	BCFG BR	0	0.00	0.0	0.00	0.00	29.11	29.80	4.8	28	5.6	24	27	13	27	06									
07	48	31	40	3	28	34	25	0	RA SN	0	0.00	T	0.00	0.00	29.90	30.57	4.4	30	6.7	31	31	23	32	07									
08	35	16	26	-11	15	22	39	0	SN BR	0	0.01	0.1	0.01	0.01	29.28	29.90	8.1	34	9.3	29	33	18	36	08									
09	30	13*	22	-15	9	20	43	0		0	0.00	0.0	0.00	0.00	29.60	30.25	8.5	06	8.8	20	07	15	06	09									
10	31	25	28	-8	24	27	37	0	SN BR	3	0.24	2.5	0.24	0.24	29.52	30.20	5.6	05	5.8	16	14	13	06	10									
11	33	25	29	-7	23	27	36	0	SN BR	2	0.6	0.6	T	0.6	29.57	30.22	7.2	26	8.0	37	29	21	28	11									
12	27	21	24	-12	15	21	41	0	SN	1	0.4	0.4	T	0.4	29.83	30.49	8.0	31	8.6	21	31	15	29	12									
13	29	14	22	-14	13	19	43	0	SN	0	0.1	0.1	T	0.1	29.88	30.57	1.7	02	3.7	14	35	12	35	13									
14	37	14	26	-10	16	23	39	0	BR	T	0.0	0.0	0.00	0.00	29.72	30.42	3.9	19	4.4	15	19	12	20	14									
15	48	24	36	0	21	30	29	0		0	0.0	0.0	0.00	0.00	29.54	30.22	5.0	20	5.3		14	20	15										
16	46	28	37	0	27	32	28	0	BR HZ	0	0.0	0.0	0.00	0.00	29.49	30.17	2.7	01	2.8	15	31	10	02	16									
17	48	32	40	3	33	37	25	0	RA BR HZ	0	0.0	0.0	T	0.0	29.24	29.94	3.3	16	3.9	23	07	14	18	17									
18	47	37	42	5	41	42	23	0	RA DZ BR	0	0.0	0.0	0.37	0.37	29.18	29.83	2.5	23	6.9	21	33	16	32	18									
19	37	32	35	-2	29	32	30	0	DZ SN BR	0	0.01	T	0.01	0.01	29.44	30.08	5.0	34	6.3	18	33	14	32	19									
20	34	21	28	-9	26	29	37	0	DZ SN FG FZFG BR HZ	0	1.1	1.1	0.08	0.08	29.40	30.06	3.3	31	6.8	25	31	20	32	20									
21	26	17	22*	-15	10	18	43	0		1	0.0	0.0	0.00	0.00	29.45	30.13	5.9	35	6.2	18	34	14	34	21									
22	36	17	27	-10	12	22	38	0		0	0.0	0.0	0.00	0.00	29.39	30.05	0.5	31	1.2	13	30	9	28	22									
23	43	25	34	-3	22	30	31	0		0	0.0	0.0	0.00	0.00	29.51	30.17	2.3	10	2.8		7	08	23										
24	50	34	42	5	30	36	23	0	RA BR	0	0.0	0.0	T	0.0	29.47	30.14	3.1	18	4.2	21	18	16	19	24									
25	45	35	40	3	38	40	25	0	RA SN BR	0	0.53	T	0.53	0.53	29.33	30.00	3.6	03	5.9	22	34	16	34	25									
26	35	28	32	-5	26	29	33	0	DZ SN BR	1	1.1	1.1	0.14	0.14	29.40	30.05	8.4	31	8.6	22	32	16	32	26									
27	47	21	34	-3	28	33	31	0	BR	1	0.0	0.0	0.00	0.00	29.31	30.00	4.7	20	5.7	17	21	12	25	27									
28	50	31	41	4	28	35	24	0		0	0.00	0.0	0.00	0.00	29.31	29.96	2.2	28	4.4	23	30	10	32	28									
29	66*	29	48	11	33	41	17	0		0	0.00	0.0	0.00	0.00	29.32	29.97	1.7	24	3.3	15	29	12	29	29									
30	65	34	50*	13	41	45	15	0		0	0.00	0.0	0.00	0.00	29.41	30.05	0.6	25	4.9	16	22	13	02	30									
31	55	42	49	12	42	45	16	0	RA DZ BR HZ	0	0.05	0.0	0.05	0.05	29.42	30.08	1.5	08	4.3	15	17	12	18	31									
42.9	25.8	34.4	24.9	31.0	30.4	0.0	0.0	0.0	<MONTHLY AVERAGES   TOTALS>	5.9	2.31	1.66	1.66	29.43	30.10	1.4	31	5.5	<MONTHLY AVERAGES														
-2.7	-2.1	-2.4	<----->										DEPARTURE FROM NORMAL										SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3										
DEGREE DAYS										GREATEST 24-HR PRECIPITATION: 0.79 DATE: 01										SEA LEVEL PRESSURE										DATE		TIME	
MONTHLY										GREATEST 24-HR SNOWFALL: 2.5 DATE: 10										MAXIMUM:										13		0959	
TOTAL DEPARTURE										GREATEST SNOW DEPTH: 3 DATE: 10										MINIMUM:										07		1331	
HEATING: 941										NUMBER OF -> DAYS WITH										MINIMUM TEMP <= 32: 26										PRECIPITATION >= 0.01 INCH: 10		5	
COOLING: 0										THUNDERSTORMS: 1										MAXIMUM TEMP <= 32: 5										PRECIPITATION >= 0.10 INCH: 3		3	



NASHVILLE, TN  
NASHVILLE INTERNATIONAL AIRPORT (KENA)  
Lat:36 ° 7'N Long: 86 ° 41'W Elev (Ground) 600 Ft  
Time Zone : CENTRAL WBAN: 13897 ISSN#: 0

WBAN: 13897 ISSN#: 0198-4853

Time Zone: CENTRAL

**NOAA, National Climatic Data Center**

**FEBRUARY 2011  
NASHVILLE, TN**

Date		Temperature of						Deg Days BASE 65°		WEATHER	SNOW/ICE ON GND(IN)				PRECIPITATION ON GND(IN)				PRESSURE (INCHES OF HG)		WIND SPEED = MPH DIR = TENS OF DEGREES						Date												
		MAXIMUM		MINIMUM		AVERAGE		WET BULB			HEATING		COOLING		DEPTH		WATER EQUIV		SNOW-FALL		WATER EQUIV		AVERAGE STATION		AVERAGE SEA LEVEL			RESULTANT SPEED		RES DIR		AVERAGE SPEED		3-SEC		2-MIN		MAXIMUM	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																
01	56	38	47	9	46	48	18	0	RA BR	0		0.0	0.85	29.17	29.80	8.9	18	12.5	36	23	27	01																	
02	37	22	30	-8	15	24	35	0	SN	0		0.0	T	29.69	30.30	9.9	31	12.0	35	27	22	28	02																
03	32	21	27	-11	16	24	38	0		0		0.0	0.00	29.79	30.46	7.3	03	7.9	20	02	16	03	03																
04	40	28	34	-5	23	30	31	0	RA DZ SN HZ	0		T	0.01	29.43	30.16	3.6	06	3.8	13	10	10	11	04																
05	40	32	36	-3	28	32	29	0	RA DZ SN BR	0		T	0.04	29.21	29.88	8.1	23	8.3	35	25	22	26	05																
06	53	26	40	1	28	35	25	0		0		0.0	0.00	29.33	29.98	6.3	19	6.9	20	15	20	06																	
07	45	30	38	-1	30	34	27	0	RA SN FG+ FG BR	0		0.7	0.35	29.29	29.93	6.0	33	7.7	31	31	25	32	07																
08	30	19	25	-15	18	24	40	0		T		0.0	0.00	29.67	30.32	7.0	35	8.1	21	33	17	33	08																
09	29	16	23	-17	16	21	42	0	SN FG+ F2FG BR	T		1.4	0.14	29.60	30.28	6.3	36	6.9	20	33	15	36	09																
10	32	9	21*	-19	8	17	44	0	BR HZ	2		0.0	0.00	29.60	30.28	3.4	35	4.4	18	33	12	35	10																
11	40	7*	24	-16	7	20	41	0	BCFG	1		0.0	0.00	29.57	30.25	2.9	24	3.7	16	26	12	25	11																
12	52	29	41	1	21	32	24	0		0		0.0	0.00	29.64	30.30	4.0	26	5.3	20	28	14	28	12																
13	65	32	49	8	23	40	16	0		0		0.0	0.00	29.46	30.14	8.8	21	9.2	23	22	17	21	13																
14	64	39	52	11	28	42	13	0		0		0.0	0.00	29.54	30.16	6.9	31	10.3	25	25	18	35	14																
15	58	33	46	5	28	38	19	0		0		0.0	0.00	29.60	30.26	2.7	09	4.6	20	22	10	06	15																
16	69	43	56	14	36	47	9	0		0		0.0	0.00	29.51	30.17	10.0	18	10.3	29	20	21	20	16																
17	63	44	54	12	44	50	11	0		0		0.0	0.00	29.42	30.08	10.2	19	10.6	30	20	23	20	17																
18	69	48	59	17	50	54	6	0	RA	0		0.0	0.06	29.54	30.17	3.6	25	7.2	28	34	18	36	18																
19	53	42	48	6	29	41	17	0	BR	0		0.0	0.00	29.62	30.28	5.6	05	6.0	17	07	14	07	19																
20	73	46	60	17	41	50	5	0	RA	0		0.0	T	29.30	29.99	9.4	19	10.3	33	20	26	20	20																
21	68	49	59	16	50	54	6	0	RA BR	0		0.0	0.32	29.15	29.80	8.2	22	10.6	31	21	22	35	21																
22	52	33	43	0	33	40	22	0		0		0.0	0.00	29.49	30.11	7.2	34	8.3	21	33	15	34	22																
23	56	31	44	0	30	38	21	0		0		0.0	0.00	29.49	30.17	2.7	11	4.1	15	15	12	17	23																
24	68	51	60	16	51	53	5	0	TS TSRA RA DZ BR	0		0.0	2.10	29.13	29.84	8.1	16	10.8	38	17	28	19	24																
25	61	37	49	5	34	39	16	0	TS RA DZ	0		0.0	T	29.42	30.03	5.8	32	11.1	37	26	25	28	25																
26	62	29	46	2	36	42	19	0	BR HZ	0		0.0	0.00	29.33	29.99	3.5	19	5.0	20	20	15	19	26																
27	75*	58	67*	22	54	59	0	2	RA	0		0.0	0.04	29.19	29.86	11.6	19	12.1	33	20	26	19	27																
28	72	38	55	10	48	51	10	0	TS TSRA RA BR	0		0.0	1.63	29.30	29.90	4.5	30	12.6	38*	20	30*	19	28																
54.1	33.2	43.7	2.0	2.4	31.1	38.5	21.0	0.1	< MONTHLY AVERAGES   TOTALS >		2.1	5.54	29.45	30.10	1.9	23	8.2	< MONTHLY AVERAGES																					
DEGREE DAYS										DEPARTURE FROM NORMAL										DEPARTURE FROM NORMAL																			
MONTHLY										SEASON TO DATE										GREATEST 24-HR PRECIPITATION: 2.10 DATE: 24																			
TOTAL DEPARTURE										TOTAL DEPARTURE										GREATEST 24-HR SNOWFALL: 1.4 DATE: 09																			
589										3035										GREATEST SNOW DEPTH: 2 DATE: 10																			
HEATING: 2										2										NUMBER OF DAYS WITH																			
COOLING: 2										2										MAXIMUM TEMP >= 90: 0																			
																				MINIMUM TEMP <= 35: 4																			
																				THUNDERSTORMS: 3																			
																				PRECIPITATION >= 0.01 INCH: 10																			
																				MINIMUM TEMP <= 0: 0																			
																				SNOWFALL >= 1.0 INCH: 1																			
																				SEA LEVEL PRESSURE																			
																				MAXIMUM: 30.57																			
																				MINIMUM: 29.47																			
																				DATE																			
																				03																			
																				TIME																			
																				0853																			
																				23																			
																				2153																			

# MARCH 2011

## NASHVILLE, TN

### MARCH 2011

### LOCAL CLIMATOLOGICAL DATA

### NOAA, National Climatic Data Center

NASHVILLE, TN

NASHVILLE INTERNATIONAL AIRPORT (KBNA)

Lat: 36° 7' N Long: 86° 41' W Elev (Ground) 600 Feet

Time Zone : CENTRAL WBAN: 13897 ISSN#: 0198-4853

Date	Temperature °F						Deg Days BASE 65°		WEATHER	SNOW/ICE ON GND(IN)				PRECIPITATION ON GND(IN)				PRESSURE (INCHES OF HG)		WIND SPEED = NIPH DIR = TENS OF DEGREES					Date										
	MAXIMUM	MINIMUM	AVERAGE	DEP FROM NORMAL	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING		0600 LST	1200 LST	2400 LST	WATER EQUIV	SNOW- FALL	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT	SPEED	RES DIR	AVERAGE SPEED	MAXIMUM													
																						3-SEC	2-MIN	DIR	SPEED	DIR									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24												
01	59	34	47	2	29	38	18	0		0		0.0	0.00	29.61	30.27	2.0	01	3.8	17	36	15	36	01												
02	65	31	48	3	32	41	17	0	BCFG	0		0.0	0.00	29.62	30.27	2.9	05	4.6	13	04	10	05	02												
03	71	35	53	7	34	45	12	0		0		0.0	0.00	29.54	30.21	7.1	15	9.3	29	18	23	18	03												
04	68	55	62	16	41	50	3	0	RA	0		0.0	T	29.49	30.16	18.3	17	18.5	38	17	29	18	04												
05	57	38	48	2	46	48	17	0	RA DZ BR	0		0.0	1.29	29.38	30.02	3.4	20	11.7	36	20	26	17	05												
06	38	35	37*	-10	31	35	28	0		0		0.0	0.00	29.51	30.17	9.6	35	10.1	28	35	21	36	06												
07	49	37	43	-4	30	37	22	0		0		0.0	0.00	29.49	30.15	4.5	09	5.8	17	10	15	10	07												
08	57	40	49	2	37	43	16	0	TSRA RA BR	0		0.0	0.00	29.42	30.10	9.4	15	9.8	33	15	24	17	08												
09	66	43	55	7	48	51	10	0	RA DZ BR	0		0.0	0.71	29.26	29.88	10.0	20	14.8	45*	14	32*	17	09												
10	44	38	41	-7	34	38	24	0	RA DZ BR	0		0.0	0.03	29.46	30.09	10.6	31	10.7	28	32	21	31	10												
11	57	34	46	-2	26	37	19	0		0		0.0	0.00	29.51	30.16	4.2	29	6.6	21	31	16	31	11												
12	74	43	59	11	34	48	6	0		0		0.0	0.00	29.42	30.07	7.7	22	6.6	25	20	20	21	12												
13	60	47	54	5	40	47	11	0	RA	0		0.0	0.07	29.55	30.19	3.2	01	4.4	20	32	13	35	13												
14	55	44	50	0	46	48	15	0	RA BR	0		0.0	0.24	29.42	30.09	5.1	08	8.0	25	04	21	03	14												
15	55	43	49	-1	40	44	16	0	RA	0		0.0	T	29.48	30.12	5.7	25	7.2	23	26	17	28	15												
16	63	43	53	3	38	44	12	0		0		0.0	0.00	29.59	30.24	0.7	14	5.1	16	14	12	10	16												
17	78	40	59	8	42	51	6	0		0		0.0	0.00	29.52	30.17	8.5	20	9.1	31	20	24	19	17												
18	82	55	69	18	51	58	0	4		0		0.0	0.00	29.52	30.15	2.1	26	7.9	29	36	23	36	18												
19	70	53	62	11	36	49	3	0		0		0.0	0.00	29.64	30.28	10.2	04	10.5	22	03	17	05	19												
20	82	48	65	14	47	56	0	0		0		0.0	0.00	29.55	30.21	7.6	19	8.5	25	20	20	19	20												
21	80	57	69	17	51	59	0	4		0		0.0	0.00	29.49	30.15	10.2	20	10.6	24	22	20	20	21												
22	84*	54	69*	17	48	57	0	4		0		0.0	0.00	29.26	29.93	7.8	21	8.9	28	28	22	20	22												
23	72	52	62	9	53	58	3	0	RA	0		0.0	0.05	29.08	29.70	8.4	23	11.3	33	33	24	34	23												
24	52	36	44	-9	31	39	21	0		0		0.0	0.00	29.39	30.01	10.0	34	10.8	26	31	18	32	24												
25	46	31*	39	-14	35	38	26	0	RA BCFG BR	0		0.0	0.10	29.35	30.02	3.6	05	4.6	14	05	12	05	25												
26	52	39	46	-8	39	42	19	0	TS TSRA RA BR	0		0.0	0.23	29.17	29.84	10.0	04	10.6	26	36	18	01	26												
27	46	35	41	-13	32	37	24	0	RA BR	0		0.0	0.02	29.33	29.99	10.8	03	11.5	29	34	18	05	27												
28	56	37	47	-7	33	40	18	0	RA BR	0		0.0	0.14	29.42	30.06	8.1	04	9.0	21	32	15	05	28												
29	62	39	51	-4	36	43	14	0	TS TSRA RA BR	0		0.0	0.46	29.41	30.07	4.3	07	6.2	25	33	21	02	29												
30	43	39	41	-14	37	39	24	0	TS TSRA RA DZ BR HZ	0		0.0	1.05	29.24	29.92	7.1	35	7.5	23	34	15	36	30												
31	47	38	43	-12	34	39	22	0	RA DZ BR	0		0.0	T	29.14	29.81	1.6	35	3.3	21	29	14	21	31												
61.0	41.7	51.4	38.4					0.4	< MONTHLY AVERAGES				TOTALS >				29.43	30.08	0.4	17	8.7	< MONTHLY AVERAGES													
0.3	2.3	1.3																																	
DEGREE DAYS									DEPARTURE FROM NORMAL									SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3																	
MONTHLY																																			
TOTAL DEPARTURE																																			
TOTAL DEPARTURE																																			
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HEATING: COOLING:	DEGREE DAYS		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE		TOTAL DEPARTURE	
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# APRIL 2011 NASHVILLE, TN



## APRIL 2011 LOCAL CLIMATOLOGICAL DATA NOAA, National Climatic Data Center

NASHVILLE, TN

NASHVILLE INTERNATIONAL AIRPORT (KBNA)

Lat: 36° 7' N Long: 86° 41' W Elev (Ground) 600 Feet

Time Zone : CENTRAL WBAN: 13897 ISSN#: 0198-4853

Temperature °F				Deg Days BASE 65°		WEATHER										SNOW/ICE ON GND(IN)				PRECIPITATION ON GND(IN)				PRESSURE (INCHES OF HG)				WIND SPEED = MPH DIR = TENS OF DEGREES						Date									
MAXIMUM		MINIMUM		AVERAGE		WET BULB		HEATING		COOLING												0600		1200		2400		AVERAGE STATION		AVERAGE SEA LEVEL		RESULTANT SPEED		RES DIR		AVERAGE SPEED		3-SEC		2-MIN		Date	
1	2	3	4	5	6	7	8	9	10													LST	DEPTH	LST	WATER- EQUIV	LST	SNOW- FALL	LST	WATER EQUIV	15	16	17	18	19	20	21	22	23	24				
01	57	39	48	-7	37	43	17	0	BR	0	0	0	0	0	0	0	0	0	0	0	0	29.15	29.80	4.7	24	6.0	22	26	15	26	01												
02	69	44	57	2	30	44	8	0		0	0	0	0	0	0	0	0	0	0	0	29.34	29.97	7.0	28	8.6	32	29	23	30	02													
03	82	40	61	6	41	53	4	0		0	0	0	0	0	0	0	0	0	0	0	29.20	29.87	13.5	19	13.7	43	19	30	19	03													
04	73	44	59	4	52	55	6	0	TS TSRA RA GS FG BR HZ	0	0	0	0	0	0	0	0	0	0	0	29.06	29.68	8.2	22	14.2	59*	29	36	27	04													
05	58	39	49	-6	26	40	16	0		0	0	0	0	0	0	0	0	0	0	0	29.36	29.98	6.1	30	7.8	24	26	17	26	05													
06	72	37	55	-1	30	45	10	0		0	0	0	0	0	0	0	0	0	0	0	29.35	30.00	12.0	20	12.1	33	19	25	20	06													
07	76	53	65	9	48	55	0	0		0	0	0	0	0	0	0	0	0	0	0	29.31	29.96	8.5	18	9.1	23	18	17	07	07													
08	84	60	72	16	59	64	0	7		0	0	0	0	0	0	0	0	0	0	0	29.28	29.92	5.5	22	6.9	23	26	17	21	08													
09	91*	65	78	22	58	65	0	13		0	0	0	0	0	0	0	0	0	0	0	29.34	29.96	6.8	22	8.4	31	25	22	25	09													
10	86	63	75	19	60	66	0	10		0	0	0	0	0	0	0	0	0	0	0	29.28	29.93	11.4	20	11.7	30	21	23	19	10													
11	79	54	67	10	59	62	0	2	TS TSRA RA FG BR	0	0	0	0	0	0	0	0	0	0	0	29.13	29.76	5.8	21	12.1	45	28	32	29	11													
12	69	49	59	1	43	51	6	0	RA	0	0	0	0	0	0	0	0	0	0	0	29.32	29.94	9.8	32	11.0	31	32	23	32	12													
13	72	42	57	-1	41	50	8	0		0	0	0	0	0	0	0	0	0	0	0	29.40	30.04	1.3	05	2.3	12	13	9	13	13													
14	76	45	61	3	42	52	4	0	BCFG	0	0	0	0	0	0	0	0	0	0	0	29.32	29.98	2.0	10	3.4	10	14	14	14	14													
15	61	54	58	0	51	54	7	0	TS TSRA RA BR SQ	0	0	0	0	0	0	0	0	0	0	0	29.05	29.73	10.7	16	12.1	48	16	35	14	15													
16	55	39	47*	-12	39	44	18	0	RA	0	0	0	0	0	0	0	0	0	0	0	29.21	29.83	8.8	25	9.6	25	25	20	27	16													
17	72	35*	54	-5	38	47	11	0		0	0	0	0	0	0	0	0	0	0	0	29.34	29.98	6.4	19	7.1	25	18	22	18	17													
18	77	52	65	6	49	56	0	0		0	0	0	0	0	0	0	0	0	0	0	29.26	29.91	8.8	19	9.2	25	20	20	18	18													
19	86	69	78*	19	61	66	0	13		0	0	0	0	0	0	0	0	0	0	0	29.19	29.82	17.6	20	17.7	43	19	31	19	19													
20	75	50	63	3	53	55	2	0	TS TSRA RA DZ BR	0	0	0	0	0	0	0	0	0	0	0	29.46	30.07	3.7	35	7.0	56	26	33	28	20													
21	66	47	57	-3	45	51	8	0		0	0	0	0	0	0	0	0	0	0	0	29.51	30.17	6.8	05	7.8	18	03	15	03	21													
22	82	55	69	9	58	63	0	4	RA BR	0	0	0	0	0	0	0	0	0	0	0	29.31	29.96	9.9	19	10.0	32	17	25	19	22													
23	83	68	76	15	59	64	0	11		0	0	0	0	0	0	0	0	0	0	0	29.36	29.98	10.1	20	11.1	29	19	22	20	23													
24	81	63	72	11	63	66	0	7	TSRA RA BR	0	0	0	0	0	0	0	0	0	0	0	29.36	30.00	4.8	20	6.6	26	18	20	18	24													
25	83	63	73	11	60	65	0	8	RA	0	0	0	0	0	0	0	0	0	0	0	29.16	29.83	13.0	19	13.4	35	17	25	19	25													
26	80	58	69	7	60	63	0	4	TS TSRA RA BR	0	0	0	0	0	0	0	0	0	0	0	29.08	29.72	12.9	18	13.5	40	18	32	19	26													
27	71	56	64	2	58	60	1	0	TS TSRA RA FG BR SQ	0	0	0	0	0	0	0	0	0	0	0	28.97	29.58	5.6	18	10.2	58	32	40*	30	27													
28	69	49	59	-3	42	51	6	0	RA	0	0	0	0	0	0	0	0	0	0	0	29.33	29.95	7.2	26	8.4	30	31	20	30	28													
29	76	50	63	1	44	53	2	0		0	0	0	0	0	0	0	0	0	0	0	29.36	30.00	2.4	27	5.8	26	33	20	32	29													
30	79	49	64	1	48	57	1	0		0	0	0	0	0	0	0	0	0	0	0	29.33	29.97	9.3	17	9.5	29	17	23	17	30													
74.7		51.0	62.9	4.9		4.9	3.9	4.4	48.5	55.3	4.5	2.6	< MONTHLY AVERAGES   TOTALS >				T	7.51	29.27	29.92	5.7	20	9.5	< MONTHLY AVERAGES																			
										DEPARTURE FROM NORMAL										3.58																							
										GREATEST 24-HR PRECIPITATION: 1.84										DATE: 26-27																							
										GREATEST 24-HR SNOWFALL: T										DATE: 04																							
										GREATEST SNOW DEPTH: 0										DATE:																							
										NUMBER OF -> DAYS WITH										MAXIMUM TEMP >= 90: 1																							
																				MINIMUM TEMP <= 32: 0																							
																				THUNDERSTORMS: 7																							
																				HEAVY FOG: 0																							
																				PRECIPITATION >= 0.01 INCH: 10																							
																				PRECIPITATION >= 0.10 INCH: 7																							
																				SNOWFALL >= 1.0 INCH: 0																							

# MAY 2011

## NASHVILLE, TN

### MAY 2011

### LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

### NASHVILLE, TN

### NASHVILLE INTERNATIONAL AIRPORT (KBNA)

Lat: 36° 7' N Long: 86° 41' W Elev (Ground) 600 Feet

Time Zone : CENTRAL WBAN: 13897 ISSN#: 0198-4853

Date		Temperature °F						Deg Days BASE 65°		WEATHER	SNOW/ICE ON GND(IN)				PRECIPITATION ON GND(IN)				PRESSURE (INCHES OF HG)		WIND						SPEED = MPH DIR = TENS OF DEGREES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
		MAXIMUM		MINIMUM		AVERAGE		DEF FROM NORMAL			AVERAGE DEW PT		AVERAGE WET BULB		HEATING	COOLING	DEPTH	WATER- EQUIV	SNOW- FALL	WATER EQUIV	2400 LST	2400 LST	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT		RES DIR	AVERAGE SPEED	MAXIMUM		3-SEC	2-MIN	DIR	SPEED	DIR	Date																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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01	74	62	68	5	58	62	0	3	TS TSRA RA BR	0	0	0.71	0.0	29.41	30.01	9.5	17	10.7	37	17	31	15	01	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
02	80	53	67	4	59	62	0	2	TS TSRA RA BR	0	0	0.37	0.0	29.41	30.04	2.1	21	7.7	26	19	20	20	02	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
03	58	44	51*	-12	45	48	14	0	RA BR	0	0	1.53	0.0	29.54	30.17	4.2	34	7.3	22	33	15	36	03	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
04	62	41	52	-11	37	45	13	0	BCFG BR	0	0	0.00	0.0	29.70	30.33	7.0	36	7.8	25	36	18	36	04	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
05	68	38*	53	-11	38	46	12	0	BCFG BR	0	0	0.00	0.0	29.53	30.21	2.0	12	3.1	15	10	12	11	05	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
06	72	50	61	-3	44	51	4	0	RA	0	0	T	0.0	29.35	30.01	1.6	29	3.8	17	31	12	29	06	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
07	72	45	59	-5	51	56	6	0	RA	0	0	T	0.0	29.28	29.94	3.8	20	4.4	24	19	20	19	07	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
08	86	58	72	8	58	64	0	7	BCFG BR HZ	0	0	0.00	0.0	29.25	29.89	2.1	21	3.1	15	29	10	27	08	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
09	86	63	75	10	63	67	0	10	BCFG BR HZ	0	0	0.00	0.0	29.26	29.89	3.1	19	4.0	16	18	14	20	09	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
10	89	65	77	12	64	69	0	12	BCFG BR HZ	0	0	0.00	0.0	29.25	29.88	4.8	22	5.7	18	21	15	21	10	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
11	89	65	77	12	64	69	0	12	BR	0	0	0.00	0.0	29.30	29.93	4.0	21	4.6	18	20	15	19	11	11	12	13	14	15	16	17	18	19	20	21	22	23	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
12	89	64	77	11	63	67	0	12	TS TSRA RA	0	0	0.03	0.0	29.26	29.92	3.3	21	5.4	47*	28	33*	28	12	12	13	14	15	16	17	18	19	20	21	22	23	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
13	73	60	67	0	61	63	0	2	TSRA RA BR	0	0	0.36	0.0	29.11	29.79	4.3	20	7.0	38	30	30	29	13	13	14	15	16	17	18	19	20	21	22	23	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
14	66	54	60	-7	55	57	5	0	RA DZ BR	0	0	0.04	0.0	29.08	29.72	6.5	27	7.6	25	31	16	29	14	14	15	16	17	18	19	20	21	22	23	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
15	57	52	55	-12	49	51	10	0	RA DZ BR	0	0	T	0.0	29.12	29.76	7.0	28	7.3	20	25	15	28	15	15	16	17	18	19	20	21	22	23	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
16	58	49	54	-13	46	49	11	0	RA DZ BR HZ	0	0	0.03	0.0	29.19	29.83	7.5	34	8.3	25	33	18	01	16	16	17	18	19	20	21	22	23	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
17	60	47	54	-13	42	48	11	0	RA	0	0	0.00	0.0	29.18	29.83	6.2	35	6.8	22	32	15	35	17	17	18	19	20	21	22	23	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
18	65	48	57	-11	48	52	8	0	RA	0	0	T	0.0	29.24	29.88	2.6	24	4.3	15	28	10	27	18	18	19	20	21	22	23	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
19	79	56	68	-1	53	58	0	3	RA	0	0	T	0.0	29.40	30.02	2.7	14	3.8	20	23	10	18	19	20	21	22	23	24	25	26	27	28	29	30	31																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
20	84	58	71	2	58	63	0	6	RA	0	0	0.00	0.0	29.37	30.01	3.8	10	4.1	16	08	12	09	20	20	21	22	23	24	25	26	27	28	29	30	31																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
21	88	61	75	6	63	67	0	10	TS TSRA RA BR	0	0	0.08	0.0	29.29	29.94	4.5	18	5.5	32	21	25	21	21	21	22	23	24	25	26	27	28	29	30	31																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
22	85	63	74	5	62	66	0	9	TS TSRA RA BR	0	0	0.00	0.0	29.31	29.93	5.9	20	6.8	33	25	33	21	22	22	23	24	25	26	27	28	29	30	31																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
23	84	63	74	5	64	67	0	9	TS TSRA RA BR	0	0	0.32	0.0	29.28	29.91	8.3	21	9.5	45	29	30	29	23	23	24	25	26	27	28	29	30	31																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
24	85	65	75	5	66	69	0	10	TS TSRA RA BR	0	0	0.30	0.0	29.24	29.87	5.7	21	6.8	23	18	16	20	24	24	25	26	27	28	29	30	31																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
25	87	63	75	5	64	69	0	10	TS TSRA RA BR	0	0	0.33	0.0	29.13	29.76	13.7	19	14.1	45	25	30	28	25	25	26	27	28	29	30	31																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
26	79	60	70	0	59	62	0	5	TS TSRA RA BR	0	0	0.28	0.0	29.17	29.79	6.5	23	10.4	29	19	20	26	26	26	27	28	29	30	31																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
27	68	57	63	-7	54	58	2	0	TS TSRA RA BR	0	0	0.00	0.0	29.28	29.92	2.0	34	3.6	18	01	9	13	27	27	28	29	30	31																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
28	86	52	69	-2	60	65	0	4	TS TSRA RA BR	0	0	0.00	0.0	29.24	29.88	7.6	17	7.9	24	18	20	18	28	28	29	30	31																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
29	92	67	80	9	64	69	0	15	TS TSRA RA BR	0	0	0.00	0.0	29.37	29.99	7.6	19	7.9	28	18	21	18	29	29	30	31																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
30	93	67	80	9	66	71	0	15	TS TSRA RA BR	0	0	0.00	0.0	29.50	30.12	3.7	18	4.1	18	17	15	17	30	30	31																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
31	94*	70	82*	11	67	72	0	17	HZ	0	0	0.00	0.0	29.57	30.19	0.3	20	2.9	15	08	9	09	31	31																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
77.7		56.8	67.3	0.2	56.3	60.7	3.1	5.6	<MONTHLY AVERAGES   TOTALS>		0	0	4.38	0.69	29.31	29.95	2.6	21	6.3	<MONTHLY AVERAGES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

3. For each of the Company's rate tariffs, provide a schedule showing the number of customers, total sales, total margin at current rates, total margin at proposed rates and the percentage increase in margin in incremental 1% usage blocks for the test period.

**Response:** See the CONFIDENTIAL excel attachment. Please take note that the representation and calculation of margin in the requested format does not capture margin from the monthly "Billing Demand" charge under Rate Schedules 303, 310 and 313.

Response provided by Piedmont Natural Gas on October 26, 2011.

**This Response/Attachment is designated**

**CONFIDENTIAL**

**and has been filed under seal.**

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

4. Provide a copy of the Company's current tariffs in North and South Carolina.

**Response:** See attachments.

Response provided by Piedmont Natural Gas on October 26, 2011.

Piedmont Natural Gas Company, Inc.

Page 1 of 4

## NORTH CAROLINA RATES AND CHARGES

## Residential

Residential Service - Rate 101

Monthly Charge			Rate Per Therm		
November - March	\$	10.00	November - March	\$	0.97756 *
April - October	\$	10.00	April - October	\$	0.92125 *

Outdoor Gaslight Service - Rate 105

Monthly Charge Per Fixture	\$	25.00
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## Commercial

Small General Service - Rate 102

Monthly Charge	\$	22.00	Rate Per Therm		
			November - March	\$	0.86090 *
			April - October	\$	0.82453 *

Medium General Service - Rate 152

Monthly Charge	\$	75.00	Rate Per Therm		
			November - March	First 5,000	\$ 0.88366 *
				Over 5,000	\$ 0.86871 *
			April - October	First 5,000	\$ 0.78721 *
				Over 5,000	\$ 0.75660 *

Natural Gas Vehicle Fuel - Rate 142

Monthly Charge **	\$	22.00	Rate Per Therm	Rate Per GGE ***
			November - March	\$ 0.80334 * 1.01221 *
			April - October	\$ 0.81444 * 1.02619 *

\* Piped natural gas deliveries are subject to State Excise Tax. Natural Gas Vehicle Fuel is subject to Federal, State and local highway motor fuel taxes and fees.

\*\* The Monthly Charge for Rate 142 is not applicable to gas Service provided at the Company's Premises.

\*\*\* The Company may bill in units of Gasoline Gallon Equivalent ("GGE") for gas Service provided at the Company's Premises under Rate 142. The rates above convert 1.26 Therms to 1 GGE.

Issued to comply with the authority granted by  
The North Carolina Utilities Commission  
Docket No. G-9, Sub 599

Issued:  
Effective: November 1, 2011



Piedmont Natural Gas Company, Inc.

Page 2 of 4

## NORTH CAROLINA RATES AND CHARGES

## Industrial

Large General Sales Service - Rate 103

Monthly Charge	\$	350.00
Demand Charge (monthly per peak day therm usage)	\$	1.23104
Rate Per Therm		

November - March

First 15,000	\$	0.63203 *
Next 30,000	\$	0.57499 *
Next 90,000	\$	0.54551 *
Next 165,000	\$	0.52601 *
Next 300,000	\$	0.53233 *
Over 600,000	\$	0.49533 *

April - October

First 15,000	\$	0.58032 *
Next 30,000	\$	0.53018 *
Next 90,000	\$	0.51184 *
Next 165,000	\$	0.50099 *
Next 300,000	\$	0.49173 *
Over 600,000	\$	0.48673 *

Interruptible Sales Service - Rate 104

Monthly Charge	\$	350.00
Rate Per Therm		

November - March

First 15,000	\$	0.66007 *
Next 30,000	\$	0.62996 *
Next 90,000	\$	0.60033 *
Next 165,000	\$	0.56883 *
Next 300,000	\$	0.55574 *
Over 600,000	\$	0.55399 *

April - October

First 15,000	\$	0.58532 *
Next 30,000	\$	0.55584 *
Next 90,000	\$	0.54179 *
Next 165,000	\$	0.52157 *
Next 300,000	\$	0.50658 *
Over 600,000	\$	0.49165 *

Large General Transportation Service - Rate 113

Monthly Charge	\$	350.00
Demand Charge (monthly per peak day therm usage)	\$	0.26057
Standby Sales Service Charge (monthly per peak day therm usage)	\$	1.20000
Rate Per Therm		

November - March

First 15,000	\$	0.15996 *
Next 30,000	\$	0.10338 *
Next 90,000	\$	0.07388 *
Next 165,000	\$	0.05338 *
Next 300,000	\$	0.05396 *
Over 600,000	\$	0.02110 *

April - October

First 15,000	\$	0.10831 *
Next 30,000	\$	0.05837 *
Next 90,000	\$	0.04025 *
Next 165,000	\$	0.02928 *
Next 300,000	\$	0.01852 *
Over 600,000	\$	0.00943 *

Interruptible Transportation Service - Rate 114

Monthly Charge	\$	350.00
Rate Per Therm		

November - March

First 15,000	\$	0.14544 *
Next 30,000	\$	0.12246 *
Next 90,000	\$	0.09435 *
Next 165,000	\$	0.05833 *
Next 300,000	\$	0.04182 *
Over 600,000	\$	0.03037 *

April - October

First 15,000	\$	0.09121 *
Next 30,000	\$	0.06169 *
Next 90,000	\$	0.04860 *
Next 165,000	\$	0.02802 *
Next 300,000	\$	0.01346 *
Over 600,000	\$	0.00943 *

\* Piped natural gas deliveries are subject to State Excise Tax.

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Piedmont Natural Gas Company, Inc.

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## NORTH CAROLINA RATES AND CHARGES

## Industrial

Transportation Service to Military Installations with Contract Demand in Excess of 5,000 DT per Day - Rate T-10

Demand Charge (monthly per peak day therm usage)	\$	0.80755	*
Rate Per Therm			
November - March	\$	0.10184	*
April - October	\$	0.06260	*

Service to Military Installations Located in Onslow County - Rate 12

Rate Per Therm			
November - March	\$	0.75547	*
April - October	\$	0.70534	*

Transportation Service to Military Installations in Onslow County - T-12

Rate Per Therm			
November - March	\$	0.29677	*
April - October	\$	0.24677	*

Standby On-Peak Supply Service - ST-1

Demand Charge (monthly per peak day therm usage)	\$	0.42600	*
Capacity Charge	\$	0.12700	

\* Piped natural gas deliveries are subject to State Excise Tax.

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NORTH CAROLINA RATES AND CHARGES

Miscellaneous Fees And Charges

<b><u>Schedule For Limiting And Curtailing Service - Rate 106</u></b>		
Emergency Service Rate Per Therm	\$ 1.00	In addition to commodity prices as defined in Rate Schedule 106, Rate For Emergency Service.
Unauthorized Over Run Penalty Per Therm	\$ 2.50	In addition to commodity prices as defined in Rate Schedule 106, Rate For Emergency Service.
<b><u>Reconnect Fees</u></b>		
Residential		
February Through August	\$ 55.00	
September Through January	\$ 85.00	
All Others		
February Through August	\$ 55.00	
September Through January	\$ 110.00	
<b><u>Returned Check Charge</u></b>		
Returned Check Charge	\$ 25.00	

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**Piedmont Natural Gas Company**  
**North Carolina**  
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**Service Regulations**

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**RATE SCHEDULE 101  
RESIDENTIAL SERVICE**

**Applicability and Character of Service**

Gas Service under this Rate Schedule is available in the area served by the Company in the State of North Carolina to a residential unit which is individually metered and to family care homes as defined in G.S.168-21, upon application to and consent by the Company to such Service, as provided in the Company's Service Regulations. The nature of Service provided by Company to Customer under this Rate Schedule is firm sales Service.

**Rates and Charges**

The rates to be charged for gas Service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject adjustment from time to time with the approval of the North Carolina Utilities Commission.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 25 days after bill date.

**Late Payment Charge**

A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas Service under this Rate Schedule is subject to the provisions contained with Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

**Applicable Documents Defining Obligations of the Company and Its Customers**

The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

**Piedmont Natural Gas Company, Inc.**

**Rate Schedule 102**

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**RATE SCHEDULE 102  
SMALL GENERAL SERVICE**

**Applicability and Character of Service**

Gas Service under this Rate Schedule is available in the area served by the Company in the State of North Carolina to any full requirements non-residential Customer whose average daily usage is less than 20 dekatherms per day, upon application to and consent by the Company to such Service, as provided in the Company's Service Regulations. Average daily gas usage will be based on the Customer's usage during the most recent past calendar year ended on December 31 and adjusted for cycle length. Availability of this Rate Schedule for new Customers or for Customers without at least one full year of usage history will be based on reasonably anticipated usage.

The nature of Service provided by Company to Customer under this Rate Schedule is firm sales Service. Any reclassification or change in quantity or character of Service to Customer will be subject to the procedures set forth in the Company's Service Regulations.

At its option, a family care home, as defined in G.S. 168-21, may elect service under Rate Schedule 101 – Residential.

**Rates and Charges**

The rates to be charged for gas Service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Late Payment Charge**

A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

**Applicable Documents Defining Obligations of the Company and Its Customers**

The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

**RATE SCHEDULE 103  
LARGE GENERAL SALES SERVICE**

**Availability**

Gas Service under this Rate Schedule is available in the area served by the Company in the State of North Carolina to any full requirements non-residential Customer whose average daily gas usage is reasonably anticipated to equal or exceed 50 dekatherms per day, upon application to and consent by the Company to such Service, as provided in the Company's Service Regulations.

Upon commencement of Service under this Rate Schedule, any reclassification or change in quantity or character of Service to Customer shall be subject to the provisions of this Rate Schedule 103 and the procedures set forth in the Company's Service Regulations.

**Character of Service**

The nature of Service provided by Company to Customer under this Rate Schedule is firm sales Service.

Once a qualified Customer is approved by the Company for Service under this Rate Schedule, all services will be provided under the terms and conditions of this Rate Schedule for a term extending through the following May 31. Subject to the requirements set forth above, a Customer may, subject to the consent of the Company, elect to discontinue Service under this Rate Schedule and receive Service under Rate Schedule 113 by giving written notice to the Company prior to March 1 of any year. The Company will not withhold such consent provided (a) the Company continues to offer large general transportation Service under Rate Schedule 113, (b) the Company is able to provide Service under Rate Schedule 113 under commercially reasonable terms and conditions, and (c) the analyses applicable to reclassifications or changes in Service set forth in the Company's Service Regulations support such consent. If timely notice is received from Customer and consent is provided by Company, the Customer shall discontinue Service under this Rate Schedule and Company shall provide service under Rate Schedule 113 effective the first June 1 following the notice.

All gas delivered pursuant to this Rate Schedule shall be metered by the Company separately from any gas delivered to Customer under any of the Company's other Rate Schedules.

**Rates and Charges**

The rates to be charged for gas service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

**Billing Demand**

A Customer's billing demand determinant shall be the highest daily usage during the period from November 1 to March 31 of the previous winter period as metered and reported to the Company by the telemetering equipment installed by the Company.

Changes to the Customer's billing demand determinant will become effective June 1 of each year.

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**RATE SCHEDULE 103  
LARGE GENERAL SALES SERVICE**

For Customers commencing initial gas service under this Rate Schedule, the billing demand shall be the highest actual daily consumption to date during that initial partial year, but shall be a minimum of 50 dekatherms. If a Customer has received gas Service from the Company prior to receiving Service under this Rate Schedule but does not have daily telemetered records to determine peak day usage as described above, the Company shall use 6% of that Customer's highest previous winter month's consumption for the billing demand determinant.

The calculation of Customer billing determinants hereunder shall not create any right to Service at a specified level. All changes to character or quantity of Service shall be subject to the Company's consent based on the evaluation and analysis described in the Company's Service Regulations.

**Volumetric Charges**

The rate per therm shall be billed on the quantity of gas delivered by Company to Customer.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Late Payment Charge**

A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

**Applicable Documents Defining Obligations of the Company and Its Customers**

The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.



**RATE SCHEDULE 104  
INTERRUPTIBLE SALES SERVICE**

**Availability**

Gas Service under this Rate Schedule is available in the area served by the Company in the State of North Carolina on an interruptible basis to any full requirements non-residential Customer whose average daily gas usage is reasonably anticipated to equal or exceed 50 dekatherms per day, upon application to and consent by the Company to such Service, as provided in the Company's Service Regulations.

Upon commencement of Service under this Rate Schedule, any reclassification or change in quantity or character of Service to Customer shall be subject to the provisions of this Rate Schedule 104 and the procedures set forth in the Company's Service Regulations.

**Character of Service**

The nature of Service provided by Company to Customer under this Rate Schedule is interruptible sales Service.

Once a qualified Customer is approved by the Company for Service under this Rate Schedule, all Services will be provided under the terms and conditions of this Rate Schedule for a term extending through the following May 31. Subject to the requirements set forth above, a Customer may, subject to the consent of the Company, elect to discontinue Service under this Rate Schedule and receive Service under Rate Schedule 114 by giving written notice to the Company prior to March 1 of any year. The Company will not withhold such consent provided (a) the Company continues to offer large general interruptible transportation Service under Rate Schedule 114, (b) the Company is able to provide Service under Rate Schedule 114 under commercially reasonable terms and conditions, and (c) the analyses applicable to reclassifications or changes in Service set forth in the Company's Service Regulations support such consent. If timely notice is received from Customer and consent is provided by Company, the Customer shall discontinue Service under this Rate Schedule and Company shall provide service under Rate Schedule 114 effective the first June 1 following the notice.

All gas delivered pursuant to this Rate Schedule shall be metered by the Company separately from any gas delivered to Customer under any of the Company's other Rate Schedules.

**Standby Alternate Fuel Capability Requirement**

Customers purchasing gas pursuant to this Rate Schedule shall maintain, in useable condition, alternate fuel facilities with ample on-site alternate fuel capability for supplying 100% of the establishment's gas requirements during periods of gas interruption or curtailment. Such interruption or curtailment shall be immediately effective upon verbal or written notification by the Company and Customer shall refrain from using gas until permitted to do so by the Company. It is understood and agreed that the Company will have the right to suspend gas Service without further notice to the Customer in the event Customer fails to curtail Customer's use of gas in accordance with the Company's notice of curtailment.

**Piedmont Natural Gas Company, Inc.**

**Rate Schedule 104**

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**RATE SCHEDULE 104  
INTERRUPTIBLE SALES SERVICE**

**Rates and Charges**

The rates to be charged for gas Service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

**Volumetric Charges**

The rate per therm shall be billed on the quantity of gas delivered by Company to Customer.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Late Payment Charge**

A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service" and the Company's Service Regulations.

**Applicable Documents Defining Obligations of the Company and Its Customers**

The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

**Piedmont Natural Gas Company, Inc.**

**Rate Schedule 105**

**Page 1 of 1**

**RATE SCHEDULE 105  
OUTDOOR GASLIGHT SERVICE**

**Applicability and Character of Service**

Gas Service under this Rate Schedule is available in the area served with natural gas by the Company in the State of North Carolina to Customers with non-metered gas, when a meter cannot easily be installed, in mantle-equipped outdoor gas lights, upon application to and consent by the Company to such Service, as provided in the Company's Service Regulations.

**Rates and Charges**

The rates to be charged for gas Service for each gas light pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 25 days after bill date.

**Late Payment Charge**

A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

**Applicable Documents Defining Obligations of the Company and Its Customers**

The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

## **RATE SCHEDULE 106**

### **SCHEDULE FOR LIMITING AND CURTAILING SERVICE**

**Applicability and Character of Service**

This Service Schedule defines the types of curtailment or interruption that the Company may invoke for Customers with interruptible Service from time to time due to the occurrence of extreme weather conditions, operating condition constraints, Force Majeure events, or other causes for limitation of Service specified in the Company's Service Regulations and Rate Schedules and describes the process and procedures to be followed in the implementation of gas Service restrictions.

**Curtailment of Service**

Whenever the Company curtails Service pursuant to the Service Regulations and/or Rate Schedules, Service shall be curtailed in accordance with the provisions and priorities set forth in the Service Regulations. Upon curtailment of Service to Customers receiving redelivery Service from the Company, such Customers shall take all reasonably available measures to adjust their deliveries to the Company in order to minimize any imbalances on upstream pipelines. Customer shall be responsible for resolving all such imbalances on upstream pipelines.

**Emergency Service**

The Company will make every reasonable effort to deliver plant protection volumes to industrial and commercial Customers that do not have standby fuel systems sufficient to prevent damage to facilities or danger to personnel, or to Customers that find it impossible to continue operations on the Customer's standby or alternate energy source as a result of a bona fide existing or threatened emergency. This includes the protection of such existing material in process that would otherwise be destroyed, or deliveries required to maintain plant production. All emergency gas Service is interruptible and is of a discretionary nature on the part of the Company and implies no present or future obligation of the Company to any Customer to provide such Service on either a temporary or continuing basis. Deliveries of emergency Service hereunder shall be made pursuant only to advance operating arrangements between the Company's authorized personnel and the Customer and shall be subject to curtailment and interruption at any time should the Company deem it necessary.

**Rate for Emergency Service**

If the Company has authorized the Customer to consume limited quantities of emergency gas as provided in the above paragraph, then all gas so delivered by the Company to the Customer will be at a rate set forth on the Company's "Rates and Charges" tariff sheet plus the higher of two commodity indices - a "Monthly Contract Price" or a "Daily Price" - for each dekatherm of consumption. "Monthly Contract" shall be defined as the monthly contract index price for the applicable calendar month as first published in Inside F.E.R.C.'s - Gas Market Report in the table titled "Prices of Spot Gas Delivered to Pipelines" under the heading "Transcontinental Gas Pipe Line Corp. - Zone 3 (pooling points)" in the column titled "Index", plus Transco's zone 3 to zone 5 IT transportation rate inclusive of all surcharges and fuel. "Daily Price" shall be defined as the daily price for gas defined by Gas Daily as stated in the "Daily Price Survey", "Citygates", "Transco Z6 (non-NY)", "Midpoint" price. For days of gas delivery when the Gas Daily is not published, the Gas Daily price shall equal the price as published on the nearest subsequent day by Gas Daily. The gas delivery to Customer will continue to be billed hereunder until the Company

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**Rate Schedule 106**

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**RATE SCHEDULE 106  
SCHEDULE FOR LIMITING AND CURTAILING SERVICE**

notifies the Customer that either (1) further gas sales or redelivery may be made under the Customer's regular Rate Schedule or (2) complete curtailment is unavoidable and that further gas sales and redelivery will be considered unauthorized.

**Unauthorized Over Run Penalty**

If at any time a Customer fails to discontinue the consumption of gas after being directed to do so by the Company pursuant to an Operational Order, or otherwise takes gas at levels in excess of the quantities specified by the Company or in violation of the provisions of the Company's Rate Schedules or Service Regulations, such quantities shall constitute an unauthorized over run volume. For each dekatherm of such unauthorized over run volume taken by such Customer, such Customer shall pay to the Company a rate set forth on the Company's "Rates and Charges" tariff sheet plus the higher of two gas commodity indices - a "Monthly Contract Price" or a "Daily Price" as both are defined above plus the maximum transportation unit rate for Rate Schedule 114. Customers that take unauthorized over run volumes shall be further subject to immediate termination of Service or disconnection from the Company's system. In the event of such termination of Service or disconnection, service shall not be restored until the reconnection fee specified in the Company's Service Regulations has been paid by Customer to Company.

The Customer's consumption will continue to be unauthorized until the Company notifies the Customer that either (1) further gas sales or redelivery may be made under the Customer's regular Rate Schedule or (2) the Company agrees to provide Emergency Service under this Rate Schedule or (3) the Company terminates flow at the valve.

The Customer shall be liable for the above charges together with and in addition to any incremental charges or assessments (including, but not limited to penalties) by the upstream interstate pipeline during the time of the unauthorized usage by such Customer. The payment of a penalty for unauthorized over run volumes shall not under any circumstances be considered as giving any such Customer the right to take unauthorized over-run volumes, nor shall such payment be considered as a substitute for any other remedies available to the Company or any other Customer against the offending Customer for failure to adhere to its obligations under the provisions of this Rate Schedule.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Late Payment Charge**

A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

**Applicable Documents Defining Obligations of the Company and Its Customers**

The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

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**RATE SCHEDULE 107**  
**BALANCING, CASH-OUT, AND AGENCY AUTHORIZATION**

**Applicability**

The provisions of this Rate Schedule 107 shall apply to all tariffed transportation services provided by the Company under Rate Schedules 113, 114, T-10, and T-12, as well as all transportation special contracts, unless expressly provided otherwise therein.

**Limitations on Intra-month Imbalances**

Receipts and deliveries of gas hereunder shall be at uniform rates of flow with no significant fluctuations or imbalances. Customers (or its Agent) are responsible to match daily gas deliveries into the Company's system with daily gas consumption by Customer as closely as possible. Any imbalances shall be corrected by the Customer (or its Agent), insofar as practicable, during the month in which they occur. Customers (or its Agent) are expected to proactively manage intra-month imbalances. Customer (or its Agent) may adjust its daily nominations during a month in order to correct any accumulated imbalance and maintain a monthly balance subject to the operating limitations of the Company. The Company reserves the right to limit the amount of such imbalances to avoid operating problems, comply with balancing requirements of the upstream pipeline(s), and to mitigate the need to acquire additional daily supply at prices that would adversely affect sales customers. The Customer (or its Agent) will be responsible for any imbalance charges assessed by upstream pipeline(s) in connection with any gas transported by the Customer under this Rate Schedule.

In the event Customer (or its Agent) fails to abide by the requirements set forth above, the Company shall have the right to curtail deliveries to Customer (Customers in a transportation pool operated by a single Agent will be curtailed on a pro rata basis based on nominated quantities) if an imbalance is negative or reducing Customer's nominated quantities if an imbalance is positive. The Customer will be responsible for any imbalance charges assessed by upstream pipeline(s) in connection with any gas transported by the Customer. The Company reserves the right to take other reasonable action to mitigate system operational problems. The Company will use its reasonable efforts to notify the Customer or the Customer's Agent before proceeding with a unilateral nomination reduction or delivery curtailment and will notify Customer of any reduction to Customer's nomination that has been instituted by the Company. The Company reserves the right to initiate Standby Sales Service if elected by the Customer pursuant to Rate Schedule 113 when, in the judgment of the Company, such action is necessary to reduce or eliminate operational problems resulting from the gas imbalances of the Customer. The Company will use reasonable efforts to notify the Customer or the Customers' Agent before initiating Standby Sales Service hereunder.

By 11:30 am Eastern Time on the fifth business day prior to the beginning of each month, the Customer must inform the Company of the nominating Agent for gas to be transported. If no notification to the contrary is provided, the Agent providing service during the prior month shall be deemed to be the nominating Agent by default. By 11:30 am Eastern Time on the fourth business day prior to the beginning of each month, the Customer shall submit a timely and valid nomination for transportation. Changes to nominations for gas transportation within the month are due by 11:30 am Eastern Time on the day prior to gas flow. Company will have no obligation to accommodate intraday nomination changes.

**RATE SCHEDULE 107**  
**BALANCING, CASH-OUT, AND AGENCY AUTHORIZATION**

**Balancing On Upstream Pipeline(s)**

It shall be the Customer's responsibility to remain in balance on a daily and monthly basis with upstream pipeline(s) to avoid any assessment of penalties by such pipeline(s) against the Company. If the Company is assessed a penalty by an upstream pipeline, the Company shall have the right to pass-through all such penalties to the Customer or its Agent if the Customer has had an imbalance with the Company during the period for which the penalty was assessed.

**Monthly Imbalance Resolution**

Any differences between the monthly quantities delivered to the Company's city gate facilities for the account of the Customer monthly, and the monthly quantities consumed by the Customer as metered by the Company, shall be the monthly imbalance. The Percentage of Imbalance is defined as the monthly imbalance divided by the monthly quantities consumed by the customer. Unless the Company and Customer agree to correct imbalances "in kind," the imbalance shall be resolved monthly by "cashing out" the imbalances as they are known to exist at that time. If the Customer consumes more gas than it has delivered to the Company, the Customer will be deemed to be "short" by the amount of the deficiency, and the Company will sell the amount of the deficiency to the Customer by charging the price as specified below. If the Customer consumes less gas than has been delivered to the Company, the Customer will be deemed to be "long" by the amount of the surplus, and the Company will buy the amount of the surplus from the Customer by paying the price as specified below.

If the Customer's imbalance is less than or equal to 2% of the total monthly volume consumed, or if the total aggregated imbalance for the Agent is less than or equal to 2% of the total volume consumed by all of the Agent's Customers in that transportation pool, then the price paid by the Company if the imbalance is long or the price paid by the Customer (or Agent) if the imbalance is short will be the sum of (a) the average of all published indices for the month as published in Natural Gas Week as stated in the "Gas Price Report" table under "Louisiana, Gulf Coast, Onshore, Spot Delivered to Pipeline" plus (b) the rate under Transcontinental Gas Pipe Line's Rate Schedule IT, including applicable fuel and surcharges, for service from Zone 3 to Zone 5.

If the Customer's Percentage of Imbalance is more than 2%, or if the total aggregated Percentage of Imbalance for the Agent is more than 2% for all of the Agent's Customers in that transportation pool, then the price paid by the Company if the imbalance is long is the lower of the monthly index price listed in Platts Inside FERC's Gas Market Report for Transcontinental Gas Pipe Line Zone 3 deliveries plus applicable fuel and FT variable charges under Transcontinental Gas Pipe Line's Rate Schedule FT for service from Zone 3 to Zone 5 or the lowest weekly index price listed in Natural Gas Week's Gas Price Report "Delivered to Pipeline" for volumes listed under Louisiana – Gulf Coast, Onshore plus applicable fuel and FT variable charges under Transcontinental Gas Pipe Line's Rate Schedule FT for service from Zone 3 to Zone 5. If Customer (or Agent) imbalance is short, then the price paid by the Customer (or Agent) will be the higher of the monthly index price listed in Platts Inside FERC's Gas Market Report for Transcontinental Gas Pipe Line Zone 3 deliveries plus applicable fuel and IT variable charges under Transcontinental Gas Pipe Line's Rate Schedule IT for service from Zone 3 to Zone 5 or

**RATE SCHEDULE 107**  
**BALANCING, CASH-OUT, AND AGENCY AUTHORIZATION**

the highest weekly index price listed in Natural Gas Week's Gas Price Report "Delivered to Pipeline" for volumes listed under Louisiana -- Gulf Coast, Onshore plus applicable fuel and IT variable charges under Transcontinental Gas Pipe Line's Rate Schedule IT for service from Zone 3 to Zone 5.

If the Percentage of Imbalance for the Customer (or Agent) is "short" by more than 2%, the price paid by the Customer (or Agent) to the Company for each dekatherm of the total deficiency will be equal to the price listed above for short imbalances times the premium percentage corresponding to the percentage of the deficiency listed in the table below.

If the Percentage of Imbalance for the Customer (or Agent) is "long" by more than 2%, the price paid by the Company to the Customer (or Agent) for each dekatherm of the total surplus will be equal to the price listed above for long imbalances times the discount percentage corresponding to the percentage of the surplus listed in the table below.

Percentage of the Imbalance	Short (Premium)	Long (Discount)
Over 2% & equal to or less than 5%	110%	90%
Over 5% & equal to or less than 10%	120%	80%
Over 10% & equal to or less than 15%	130%	70%
Over 15% & equal to or less than 20%	140%	60%
Over 20%	150%	50%

**Agency Authorization Form**

Certain Rate Schedules permit a Customer to appoint a Customer's Agent to act on its behalf with respect to nominations, imbalance resolution, and/or billing. Customer shall authorize a Customer's Agent by executing an Agency Authorization Form in the form attached to this Rate Schedule. In order to be considered a Customer's Agent, a third party must execute and be in compliance with all of the terms of the Customer Agent Agreement form set forth in Appendix B to the Company's Service Regulations. To the extent that the Agent appointed by the Customer is common to other Customers of the Company, the Company will permit such Agent to aggregate all such qualifying Customers' transportation quantities for purposes of administering service to such Agent. Once a Customer has designated an Agent, the Agent is then authorized to act on behalf of that Customer and as such, the Agent will be considered as the Customer in all corresponding references contained within this Rate Schedule. The Customer may not change Agents within the calendar month without the permission of the Company, unless the Agent's right to conduct business has been suspended by the Company, in which case, the Customer may act without an Agent or may provide written notice to the Company of the new Customer's Agent designated by the Customer. The Company will provide reasonable notice to Customer in the event of any suspension of Customer's Agent and will provide copies to Customer, on an expeditious basis and by electronic or other means, of any formal notices issued to the Customer's Agent. All Agents must utilize the electronic means made available by the Company in order to submit nominations. The Company may recover from the Agent all costs incurred in providing the Agent access to the electronic bulletin board.



**Piedmont Natural Gas Company, Inc.** **Rate Schedule 107**

**Page 4 of 5**

**RATE SCHEDULE 107**  
**BALANCING, CASH-OUT, AND AGENCY AUTHORIZATION**

**Applicable Documents Defining Obligations of the Company and Its Customers**

The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

Issued by Thomas E. Skains, Chairman, President and CEO  
Issued to comply with authority granted by the  
North Carolina Utilities Commission in  
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Piedmont Natural Gas Company, Inc.Rate Schedule 107

Page 5 of 5

## RATE SCHEDULE 107 BALANCING, CASH-OUT, AND AGENCY AUTHORIZATION

**AGENCY AUTHORIZATION FORM****EFFECTIVE DATE** \_\_\_\_\_**CUSTOMER** \_\_\_\_\_**NAME OF FACILITY** \_\_\_\_\_**ACCOUNT NUMBER (S)** \_\_\_\_\_**AGENT** \_\_\_\_\_**AGENT CONTACT** \_\_\_\_\_ **PHONE #** \_\_\_\_\_

This is to advise Piedmont Natural Gas Company that \_\_\_\_\_ **(Customer)** has authorized \_\_\_\_\_ **(Agent)** to act on its behalf for the following transactions:

\_\_\_\_\_ nominations, \_\_\_\_\_ imbalance resolution \_\_\_\_\_ billing,

of gas for the above listed account(s). Piedmont Natural Gas Company is hereby authorized to deal with the Agent directly, and the **CUSTOMER AND THE AGENT UNDERSTAND THAT THEY ARE RESPONSIBLE, JOINTLY AND SEVERALLY, FOR ANY AMOUNTS DUE PIEDMONT NATURAL GAS COMPANY ARISING UNDER THIS RATE SCHEDULE, PIEDMONT'S NORTH CAROLINA SERVICE REGULATIONS, OR AGENT'S CUSTOMER AGENT AGREEMENT** which are not paid on these accounts. Customer will provide Piedmont Natural Gas Company with a revised "AGENCY AUTHORIZATION FORM" at least five (5) business days prior to the beginning of the month for the accounts designated, unless the Agent's right to conduct business has been suspended by Piedmont Natural Gas Company without prior notice.

AUTHORIZED  
SIGNATURE \_\_\_\_\_  
FOR THE CUSTOMER

AUTHORIZED  
SIGNATURE \_\_\_\_\_  
FOR THE AGENT

**Please Print**

AGENT'S NAME \_\_\_\_\_ TITLE \_\_\_\_\_

PHONE # \_\_\_\_\_ FAX # \_\_\_\_\_

**MAILING ADDRESS**

**Please submit to:** End User Transportation      End User Transportation  
Piedmont Natural Gas Company   OR      Fax Number: (704) 364-8320  
P. O. Box 33068  
Charlotte, N.C. 28233

Issued by Thomas E. Skains, Chairman, President and CEO  
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**Piedmont Natural Gas Company, Inc.**

**Rate Schedule 108**

**Page 1 of 1**

**RATE SCHEDULE 108  
NEGOTIATED SERVICE**

**Applicability and Character of Service**

On occasions, the Company may have gas that it cannot sell or transportation service that it cannot provide pursuant to its Rate Schedules because its maximum rates are not competitive with alternate fuels. On such occasions, a service opportunity is lost to the Company and to its Customers. This Rate Schedule is designed to permit the Company to provide Services at negotiated rates.

Gas Service under this Rate Schedule is available on a limited term basis to Customers in the area served by the Company in the State of North Carolina who receive Services under the Company's Rate Schedules 104 or 114 or those Special Contracts whose contracts permit negotiated service. The Company may provide negotiated transportation and sales Service to Customers who receive service under Rate Schedule 114 in order to compete with alternate fuels. In addition, the Company may negotiate to permit a Customer to recoup the cost of converting equipment from other fuels to natural gas; to induce any Customer or Applicant to attach new gas loads to Company's system which would not be attached to the system absent Company's agreement to use this Rate Schedule; to provide incentives for any Customer to use gas on weekends, holidays, and other off-peak periods so the Company may meet its obligations to firm suppliers or may avoid uneconomic storage injections or imbalance penalties from its interstate pipeline suppliers; and in similar circumstances where gas sales and/or transportation would otherwise be lost to the Company and its other Customers. Unless otherwise agreed to by the Company, Service under this Rate Schedule is interruptible and the Company has the right to discontinue such Service as provided by the Company's Rate Schedules and Service Regulations.

**Rate**

The rate to be charged for gas Service pursuant to this Rate Schedule is subject to negotiation between the Customer and the Company.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Late Payment Charge**

A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

**Applicable Documents Defining Obligations of the Company and Its Customers**

The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

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**Piedmont Natural Gas Company, Inc.**

**Rate Schedule 113**

**Page 1 of 4**

**RATE SCHEDULE 113  
LARGE GENERAL TRANSPORTATION SERVICE**

**Availability**

Gas Service under this Rate Schedule is available in the area served by the Company in the State of North Carolina to any full requirements non-residential Customer whose average daily gas usage is reasonably anticipated to equal or exceed 50 dekatherms per day, upon application to and consent by the Company to such Service, as provided in the Company's Service Regulations.

Upon commencement of Service under this Rate Schedule, any reclassification or change in quantity or character of Service to Customer shall be subject to the provisions of this Rate Schedule 113 and the procedures set forth in the Company's Service Regulations.

**Character of Service**

The nature of Service provided by Company to Customer under this Rate Schedule is firm redelivery Service.

Once a qualified Customer is approved by the Company for Service under this Rate Schedule, all Services will be provided under the terms and conditions of this Rate Schedule for a term extending through the following May 31. Subject to the requirements set forth above, a Customer may, subject to the consent of the Company, elect to discontinue Service under this Rate Schedule and receive Service under Rate Schedule 103 by giving written notice to the Company prior to March 1 of any year. The Company will not withhold such consent provided (a) the Company continues to offer firm sales Service under Rate Schedule 103, (b) the Company is able to acquire firm gas supplies and capacity necessary to provide Service under Rate Schedule 103 under commercially reasonable terms and conditions, and (c) the analyses applicable to reclassifications or changes in Service set forth in the Company's Service Regulations support such consent. If timely notice is received from Customer and consent is provided by Company, the Customer shall discontinue Service under this Rate Schedule and Company shall provide Service under Rate Schedule 103 effective the first June 1 following the notice.

All gas delivered pursuant to this Rate Schedule shall be metered by the Company separately from any gas delivered to Customer under any of the Company's other Rate Schedules.

The Company will redeliver gas received by the Company from upstream pipeline(s) for the Customer's account under this Rate Schedule in accordance with the Customer's scheduled and confirmed nominations and subject to the Company's Operating Conditions.

**Balancing, Cash-Out, and Agency Authorization**

Service under this Rate Schedule shall be subject to all of the provisions and requirements of Rate Schedule 107, "Balancing, Cash-Out, and Agency Authorization."

**Standby Sales Service**

The Customer may elect by written notice to the Company prior to March 1 of any year to purchase Standby Sales Service from the Company under this Rate Schedule for an annual period

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**RATE SCHEDULE 113**  
**LARGE GENERAL TRANSPORTATION SERVICE**

commencing the first June 1 following the notice. Customers that have purchased transportation service under this Rate Schedule without Standby Sales Service may elect such service in future annual periods only with the written consent of the Company received within 30 days of Customer's notice. Having made this election, the Customer may nominate gas supplies from third party providers or nominate gas supplies from the Company for delivery to the Customer at the Company's city gate. The Customer may activate the Standby Sales Service during any month by giving notice to the Company during the normal nomination process described above, or by default, if the Customer (or the Customer's Agent) fails to submit a timely and valid nomination for transportation service. In addition to paying the Standby Sales Service Charge each month and the Monthly Standby Index Price set forth below for quantities actually purchased hereunder, the Customer will utilize the transportation services and incur the charges otherwise applicable under this Rate Schedule to cause such gas supplies to be transported and delivered to the Customer's meter. The gas supply commodity price which the Customer shall pay for the gas supplied under this paragraph will be the Monthly Standby Index Price defined as follows:

The index price each month as first published in that month in Inside FERC's - Gas Market Report in the table titled "Prices of Spot Gas Delivered to Pipelines" under the heading "Transcontinental Gas Pipe Line Corp. - Zone 3 (pooling points)" in the column titled "Index". Applicable firm transportation part 284 tariff commodity charges, fuel and any other surcharges as defined in Transco's FERC approved tariffs from Transco's zone 3 to zone 5 will be added to the above index price.

If the Customer has made the annual election to receive Standby Sales Service, and the Customer (or Agent) properly submits a timely and valid nomination for transportation service, and, for whatever reason, the Customer (or Agent) fails to deliver to the Company adequate quantities of gas for the Customer's account, then the Company shall have the right, at its sole discretion, to initiate Standby Sales Service to the Customer. The price for such service shall be the same as set forth above except when the Company is required by such imbalance shortfall to purchase incremental volumes of gas supplies. In this case the Customer receiving Standby Sales Service will pay the higher of (on a daily basis) the Monthly Standby Index Price or the Daily Standby Index Price defined as the absolute high index price as published in Gas Daily for the day of consumption as stated in the "Daily Price Survey," "Louisiana - Onshore South," for "Transco, St. 65" in the column titled "Absolute." Applicable firm transportation part 284 tariff commodity charges, fuel and any other surcharges as defined in Transco's FERC approved tariffs from Transco's zone 3 to zone 5 will be added to the above index price. For days of consumption when the Gas Daily is not published, the Gas Daily price shall equal the price as published on the nearest subsequent day by Gas Daily.

The Customer shall also pay all applicable taxes, fees and assessments levied by governmental authorities having jurisdiction.

**RATE SCHEDULE 113  
LARGE GENERAL TRANSPORTATION SERVICE**

During the month that the Customer receives Standby Sales Service under this provision, the Company shall perform the necessary balancing activities related to such sales and therefore the monthly imbalance resolution provisions will not be applicable.

Gas cost variances related to the Standby Sales Service will be recorded in compliance with the Company's N.C.U.C. Service Regulations Appendix A (Procedure for Rate Adjustments Under G.S. 62-133.4), except that the "benchmark" cost of gas will be the adjusted Monthly or Daily Standby index price as billed. Increments or decrements which may result from the procedures under G.S. 62-133.4 shall not apply to Standby Sales Service. Any increments or decrements applicable to Rate Schedule 113 shall be applicable to all quantities delivered under Rate Schedule 113, whether purchased from third parties or the Company as Standby Sales Service.

**Rates and Charges**

The rates to be charged for gas service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

**Billing Demand**

A Customer's billing demand determinant shall be the highest daily usage during the period from November 1 to March 31 of the previous winter period as metered and reported to the Company by the telemetering equipment installed by the Company. Changes to the Customer's billing demand determinant will become effective June 1 of each year.

For Customers commencing initial gas Service under this Rate Schedule, the billing demand shall be the highest actual daily consumption to date during the partial year, but shall be a minimum of 50 dekatherms. If a Customer has received gas Service from the Company prior to receiving Service under this Rate Schedule but does not have daily telemetered records to determine peak day usage as described above, the Company shall use 6% of that Customer's highest previous winter month's consumption for the billing demand determinate.

The calculation of Customer billing determinants hereunder shall not create any right to Service at a specified level. All changes to character or quantity of Service shall be subject to the Company's consent based on the evaluation and analysis described in the Company's Service Regulations.

**Volumetric Charges**

The rate per therm shall be billed on the quantity of gas delivered by Company to Customer.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Piedmont Natural Gas Company, Inc.**

**Rate Schedule 113**

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**RATE SCHEDULE 113  
LARGE GENERAL TRANSPORTATION SERVICE**

**Late Payment Charge**

A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service" and the Company's Service Regulations.

**Applicable Documents Defining Obligations of the Company and Its Customers**

The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

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**RATE SCHEDULE 114  
INTERRUPTIBLE TRANSPORTATION SERVICE****Availability**

Gas Service under this Rate Schedule is available in the area served by the Company in the State of North Carolina **on an interruptible basis** to any full requirements non-residential Customer whose average daily gas usage is reasonably anticipated to equal or exceed 50 dekatherms per day, upon application to and consent by the Company to such Service, as provided in the Company's Service Regulations.

Upon commencement of Service under this Rate Schedule, any reclassification or change in quantity or character of Service to Customer shall be subject to the provisions of this Rate Schedule 114 and the procedures set forth in the Company's Service Regulations.

**Character of Service**

The nature of Service provided by Company to Customer under this Rate Schedule is interruptible redelivery Service.

Once a qualified Customer is approved by the Company for Service under this Rate Schedule, all Services will be provided under the terms and conditions of this Rate Schedule for a term extending through the following May 31. Subject to the requirements set forth above, a Customer may, subject to the consent of the Company, elect to discontinue Service under this Rate Schedule and receive Service under Rate Schedule 104 by giving written notice to the Company prior to March 1 of any year. The Company will not withhold such consent provided (a) the Company continues to offer interruptible sales Service under Rate Schedule 104, (b) the Company is able to acquire gas supplies and capacity necessary to provide Service under Rate Schedule 104 under commercially reasonable terms and conditions, and (c) the analyses applicable to reclassifications or changes in Service set forth in the Company's Service Regulations supports such consent. If timely notice is received from Customer and consent is provided by Company, the Customer shall discontinue Service under this Rate Schedule and Company shall provide service under Rate Schedule 104 effective the first June 1 following the notice.

All gas delivered pursuant to this Rate Schedule shall be metered by the Company separately from any gas delivered to Customer under any of the Company's other Rate Schedules.

The Company will redeliver gas received by the Company from upstream pipeline(s) for the Customer's account under this Rate Schedule in accordance with the Customer's scheduled and confirmed nominations and subject to the Company's Operating Conditions.

**Standby Alternate Fuel Capability**

Customers purchasing gas pursuant to this Rate Schedule shall maintain, in useable condition, alternate fuel facilities with ample on-site alternate fuel capability for supplying 100% of the establishment's gas requirements during periods of gas interruption or curtailment. Such interruption or curtailment shall be immediately effective upon verbal or written notification by the Company and Customer shall refrain from using gas until permitted to do so by the Company. It is understood and agreed that the Company will have the right to suspend gas Service without



**Piedmont Natural Gas Company, Inc.**

**Rate Schedule 114**

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**RATE SCHEDULE 114  
INTERRUPTIBLE TRANSPORTATION SERVICE**

further notice to the Customer in the event Customer fails to curtail Customer's use of gas in accordance with the Company's notice of curtailment.

**Balancing, Cash-Out, and Agency Authorization**

Service under this Rate Schedule shall be subject to all of the provisions and requirements of Rate Schedule 107, "Balancing, Cash-Out, and Agency Authorization."

**Rates and Charges**

The rates to be charged for gas Service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

**Volumetric Charges**

The rate per therm shall be billed on the quantity of gas delivered by Company to Customer.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Late Payment Charge**

A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

**Applicable Documents Defining Obligations of the Company and Its Customers**

The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

**RATE SCHEDULE 142  
NATURAL GAS VEHICLE FUEL**

**Applicability and Character of Service**

Gas Service under this Rate Schedule is available to any Customer in the area served by the Company in the State of North Carolina for the consumption and/or resale of natural gas as a motor fuel, upon application to and consent by the Company to such Service, as provided in the Company's Service Regulations.

Gas Service under this Rate Schedule shall be metered at the Customer's Premises, or at the Company's Premises for purposes of providing public access to compressed natural gas filling stations. All gas delivered pursuant to this Rate Schedule shall be metered separately from any gas delivered under any of the Company's other Rate Schedules.

**Rates and Charges**

The rates to be charged for gas Service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

**Highway Use Taxes**

The rates to be charged for gas Service pursuant to this Rate Schedule do not include applicable Federal, State and/or local highway motor fuel use taxes and fees. If applicable, bills rendered under this Rate Schedule will include such taxes and fees.

**Payment of Bills**

Bills are net and due upon receipt. Bills rendered for Service provided at the Customer's Premises become past due 15 days after bill date. Bills rendered for Service provided at the Company's Premises shall be paid at the time of Service with a valid credit or debit card accepted by the Company.

**Late Payment Charge**

For Service provided at the Customer's Premises, a late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

**Applicable Documents Defining Obligations of the Company and Its Customers**

The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

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**Piedmont Natural Gas Company, Inc.**

**Rate Schedule 142**

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**RATE SCHEDULE 142  
NATURAL GAS VEHICLE FUEL**

**Rider**

Service to Customers under this Rate Schedule using Company owned and maintained compressor facilities shall be billed at a maximum rate of \$0.40 per therm, in addition to the base rate for Service under this Rate Schedule 142 as set forth on the Company's "Rates and Charges" tariff sheet.

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**RATE SCHEDULE 152  
MEDIUM GENERAL SERVICE**

**Applicability and Character of Service**

Gas Service under this Rate Schedule is available in the area served by the Company in the State of North Carolina to any full requirements non-residential Customer whose average daily usage is equal to or greater than 20 dekatherms per day but less than 50 dekatherms per day, upon application to and consent by the Company to such Service, as provided in the Company's Service Regulations. Average daily gas usage will be based on the Customer's usage during the most recent calendar year ended on December 31 and adjusted for cycle length. Availability of this Rate Schedule for new Customers or for Customers without at least one full year of usage history will be based on reasonably anticipated usage.

The nature of Service provided by Company to Customer under this Rate Schedule is firm sales Service. Any reclassification or change in quantity or character of Service to Customer will be subject to procedures set forth in the Company's Service Regulations.

At its option, a family care home, as defined in G.S. 168-21, may elect service under Rate Schedule 101.

**Rates and Charges**

The rates to be charged for gas Service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Late Payment Charge**

A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

**Applicable Documents Defining Obligations of the Company and Its Customers**

The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

**RATE SCHEDULE 12**  
**SERVICE TO MILITARY INSTALLATIONS LOCATED IN ONSLOW COUNTY**

**Availability**

Gas Service under this Rate Schedule is available for the purchase from Company of natural gas by any military installation (Customer) located in Onslow County adjacent to Company's mains or to whom Company will extend its mains and who enters into a Service Agreement with the Company, pursuant to the Company's Service Regulations and subject to the terms and conditions of this Rate Schedule.

**Character of Service**

The nature of Service provided by Company to Customer under this Rate Schedule is firm sales Service.

The Service Agreement shall stipulate the maximum hourly and daily demand in therms and gas shall not be consumed hereunder in excess of the maximum hourly or daily demand so specified without specific permission of Company's dispatcher. Consumption in violation of this provision shall be subject to the Unauthorized Over Run Penalty provision of Rate Schedule 106.

Once a qualified Customer is approved by the Company for Service under this Rate Schedule, all Services will be provided under the terms and conditions of this Rate Schedule for a term extending through the following May 31. Subject to the requirements set forth above, a Customer may, subject to the consent of the Company, elect to discontinue Service under this Rate Schedule and receive Service under Rate Schedule T-12 by giving written notice to the Company prior to March 1 of any year. The Company will not withhold such consent provided (a) the Company continues to offer redelivery Service under Rate Schedule T-12, (b) the Company is able to provide Service under Rate Schedule T-12 under commercially reasonable terms and conditions, and (c) the analyses applicable to reclassifications or changes in Service set forth in the Company's Service Regulations support such consent. If timely notice is received from Customer and consent is provided by Company, the Customer shall discontinue Service under this Rate Schedule and Company shall provide service under Rate Schedule T-12 effective the first June 1 following the notice.

All gas delivered pursuant to this Rate Schedule shall be metered by the Company separately from any gas delivered to Customer under any of the Company's other Rate Schedules.

Gas Service hereunder shall be through a single point of delivery or through such number of delivery points as Company and Customer may agree upon.

**Rates and Charges**

The rates to be charged for gas Service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

**RATE SCHEDULE 12  
SERVICE TO MILITARY INSTALLATIONS LOCATED IN ONSLOW COUNTY**

**Minimum Bill**

The minimum bill shall be as provided in the Service Agreement.

**Volumetric Charges**

The rate per therm shall be billed on the quantity of gas delivered by Company to Customer.

**Service Interruption and Curtailment**

Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule Limiting and Curtailing Service," and the Company's Service Regulations.

In all cases where continuous operation of Customer's gas-using facilities is necessary, it shall be Customer's responsibility to provide, in useable condition, alternate fuel facilities and the fuel required for their operation to the extent necessary in Customer's opinion to supply 100% of the establishment's gas requirements during periods of gas interruption or curtailment.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Late Payment Charge**

A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

**Contract Period**

The initial Service Agreement contract period for service to the military installations in Onslow County under this Rate Schedule shall be not less than ten years.

**Applicable Documents Defining Obligations of the Company and Its Customer**

The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

**RATE SCHEDULE T-10  
TRANSPORTATION SERVICE TO MILITARY INSTALLATIONS WITH  
CONTRACT DEMAND IN EXCESS OF 5,000 DT PER DAY**

**Availability**

Gas Service under this Rate Schedule is available for the delivery from Company of natural gas on a firm basis by any military installation (Customer) having natural gas requirements in excess of 5,000 dekatherms per day located adjacent to Company's mains or to whom Company will extend its mains upon application to and consent by the Company to such Service, as provided in the Company's Service Regulations, and subject to the terms and conditions of this Rate Schedule.

**Character of Service**

The nature of Service provided by Company to Customer under this Rate Schedule is firm redelivery Service.

All gas delivered pursuant to this Rate Schedule shall be metered by the Company separately from any gas delivered to or for Customer under any of the Company's other rate schedules.

The Company will redeliver gas received by the Company from upstream pipeline(s) for the Customer's account under this Rate Schedule in accordance with the Customer's scheduled and confirmed nominations and subject to the Company's Operating Conditions.

**Balancing, Cash-Out, and Agency Authorization**

Service under this Rate Schedule shall be subject to all of the provisions and requirements of Rate Schedule 107, "Balancing, Cash-Out, and Agency Authorization."

**Rates and Charges**

The rates to be charged for transportation service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

**Minimum Bill**

Customer shall pay the monthly Demand Charge multiplied by the maximum daily demand set forth in the Service Agreement, regardless of the quantity of gas transported under this Rate Schedule during such month.

**Volumetric Charges**

The rate per therm shall be billed on the quantity of gas delivered by the Company to or for Customer.

**Delivery Obligation**

The Service Agreement shall set forth a maximum quantity in dekatherms per hour and per day that Company is required to deliver to Customer, which quantities shall not exceed the maximum delivery obligation per hour and per day specified in Customer's Service Agreement

Issued by Thomas E. Skains, Chairman, President and CEO  
Issued to comply with authority granted by the  
North Carolina Utilities Commission  
Docket No. G-9, Sub 550

Issued: 10/30/2008  
Effective: 11/01/2008

**Piedmont Natural Gas Company, Inc.**

**Rate Schedule T-10**

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**RATE SCHEDULE T-10  
TRANSPORTATION SERVICE TO MILITARY INSTALLATIONS WITH  
CONTRACT DEMAND IN EXCESS OF 5,000 DT PER DAY**

with the Company. Consumption in violation of this provision shall be subject to the Unauthorized Over Run Penalty provision of Rate Schedule 106.

**Service Interruption and Curtailment**

Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Late Payment Charge**

A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

**Applicable Documents Defining Obligations of the Company and Its Customers**

The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.



**RATE SCHEDULE T-12  
TRANSPORTATION SERVICE TO MILITARY INSTALLATIONS  
IN ONSLOW COUNTY**

**Availability**

Gas Service under this Rate Schedule is available for transportation by Company of natural gas for any military installation (Customer) located in Onslow County adjacent to Company's mains or to whom Company will extend its mains and who enters into a Service Agreement with the Company, upon application to and consent by the Company to such Service, as provided in the Company's Service Regulations, and subject to the terms and conditions of this Rate Schedule.

**Character of Service**

The nature of Service provided by Company to Customer under this Rate Schedule is firm redelivery Service.

All gas delivered pursuant to this Rate Schedule shall be metered by the Company separately from any gas delivered to or for Customer under any of the Company's other Rate Schedules.

The Company will redeliver gas received by the Company from upstream pipeline(s) for the Customer's account under this Rate Schedule in accordance with the Customer's scheduled and confirmed nominations and subject to the Company's Operating Conditions.

**Balancing, Cash-Out, and Agency Authorization**

Service under this Rate Schedule shall be subject to all of the provisions and requirements of Rate Schedule 107, "Balancing, Cash-Out, and Agency Authorization."

**Standby Sales Service**

The Customer may elect by written notice to the Company prior to March 1 of any year to purchase Standby Sales Service from the Company under this Rate Schedule for an annual period commencing the first June 1 following the notice. Customers that have purchased transportation service under this Rate Schedule without Standby Sales Service may elect such service in future annual periods only with the written consent of the Company received within 30 days of Customer's notice. Having made this election, the Customer may nominate gas supplies from third party providers or nominate gas supplies from the Company for delivery to the Customer at the Company's city gate. The Customer may activate the Standby Sales Service during any month by giving notice to the Company during the normal nomination process described above, or by default, if the Customer (or the Customer's Agent) fails to submit a timely and valid nomination for transportation service. In addition to paying the Standby Sales Service Charge each month and the Monthly Standby Index Price set forth below for quantities actually purchased hereunder, the Customer will utilize the transportation services and incur the charges otherwise applicable under this Rate Schedule to cause such gas supplies to be transported and delivered to the Customer's meter. The gas supply commodity price which the Customer shall pay for the gas supplied under this paragraph will be the Monthly Standby Index Price defined as follows:

**RATE SCHEDULE T-12  
TRANSPORTATION SERVICE TO MILITARY INSTALLATIONS  
IN ONSLOW COUNTY**

The index price each month as first published in that month in Inside FERC's - Gas Market Report in the table titled "Prices of Spot Gas Delivered to Pipelines" under the heading "Transcontinental Gas Pipe Line Corp. - Zone 3 (pooling points)" in the column titled "Index". Applicable firm transportation part 284 tariff commodity charges, fuel and any other surcharges as defined in Transco's FERC approved tariffs from Transco's zone 3 to zone 5 will be added to the above index price.

If the Customer has made the annual election to receive Standby Sales Service, and the Customer (or Agent) properly submits a timely and valid nomination for transportation service, and, for whatever reason, the Customer (or Agent) fails to deliver to the Company adequate quantities of gas for the Customer's account, then the Company shall have the right, at its sole discretion, to initiate Standby Sales Service to the Customer. The price for such service shall be the same as set forth above except when the Company is required by such imbalance shortfall to purchase incremental volumes of gas supplies. In this case the Customer receiving Standby Sales Service will pay the higher of (on a daily basis) the Monthly Standby Index Price or the Daily Standby Index Price defined as the absolute high index price as published in Gas Daily for the day of consumption as stated in the "Daily Price Survey," "Louisiana - Onshore South," for "Transco, St. 65" in the column titled "Absolute." Applicable firm transportation part 284 tariff commodity charges, fuel and any other surcharges as defined in Transco's FERC approved tariffs from Transco's zone 3 to zone 5 will be added to the above index price. For days of consumption when the Gas Daily is not published, the Gas Daily price shall equal the price as published on the nearest subsequent day by Gas Daily.

The Customer shall also pay all applicable taxes, fees and assessments levied by governmental authorities having jurisdiction.

During the month that the Customer receives Standby Sales Service under this provision, the Company shall perform the necessary balancing activities related to such sales and therefore the monthly imbalance resolution provisions will not be applicable.

Gas cost variances related to the Standby Sales Service will be recorded in compliance with the Company's Service Regulations Appendix A (Procedure for Rate Adjustments Under G.S. 62-133.4), except that the "benchmark" cost of gas will be the adjusted Monthly or Daily Standby index price as billed. Increments or decrements which may result from the procedures under G.S. 62-133.4 shall not apply to Standby Sales Service. Any increments or decrements applicable to this Rate Schedule shall be applicable to all quantities delivered under this Rate Schedule, whether purchased from third parties or the Company as Standby Sales Service.

**Rates and Charges**

The rates to be charged for transportation service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the

**RATE SCHEDULE T-12  
TRANSPORTATION SERVICE TO MILITARY INSTALLATIONS  
IN ONSLOW COUNTY**

North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

**Minimum Bill**

The minimum bill for service under this rate schedule shall be satisfied by the minimum bill payable under Customer's Service Agreement with Company.

**Volumetric Charges**

The rate per therm shall be billed on the quantity of gas delivered by the Company to or for Customer.

**Delivery Obligation**

The Service Agreement shall set forth a maximum quantity in dekatherms per hour and per day that Company is required to deliver to Customer, which quantities shall not exceed the maximum delivery obligation per hour and per day specified in Customer's Service Agreement with the Company. Consumption in violation of this provision shall be subject to the Unauthorized Over Run Penalty provision of Rate Schedule 106.

**Service Interruption and Curtailment**

Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Late Payment Charge**

A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

**Applicable Documents Defining Obligations of the Company and Its Customers**

The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

**RATE SCHEDULE ST-1  
STANDBY ON-PEAK SUPPLY SERVICE**

**Availability**

Gas Service under this Rate Schedule is available at Company's sole discretion, and upon application to and consent by the Company to this Service, as provided in the Company's Service Regulations, to any existing Customer who has entered into a Service Agreement for this Rate Schedule prior to November 1, 2003. This Service will only be available in the months from November through March and must be contracted for the full period.

**Character of Service**

The nature of Service provided by Company to Customer under this Rate Schedule is standby on-peak supply Service.

Customer may request deliveries under this Rate Schedule whenever Company has issued a Curtailment Order to Customer under one or more of Company's other Rate Schedules or special contracts or under its Service Regulations. Customer may not request more than the maximum daily quantity or, cumulatively, more than the maximum seasonal quantity set forth in Customer's Service Agreement for Service hereunder. If Company issues a restoration of service order terminating Company's Curtailment Order, Customer's service shall revert to the Rate Schedule(s) affected by such restoration of service order, as of the effective time of such order, and Customer's request for deliveries under this Rate Schedule shall be deemed to have been reduced to the quantity of gas actually delivered to Customer hereunder prior to the effective time of such restoration of service order.

**Rate**

The applicable monthly per dekatherm Daily Demand Charge and Seasonal Demand Charge and the per therm Commodity Charge are set forth on the Company's "Rate and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

The Daily Demand Charge and Seasonal Reservation Charge shall be payable for each month of the service period of November through March based on the maximum daily and seasonal quantities set forth in Customer's Service Agreement for Service hereunder.

**Minimum Bill**

Customer shall pay the monthly Daily Demand Charge and monthly Seasonal Reservation Charge multiplied by the maximum daily and seasonal quantities set forth in Customer's Service Agreement for Service hereunder for each month of the service period of November through March regardless of the quantity of gas purchased under this Rate Schedule during each such month.

**Piedmont Natural Gas Company, Inc.**

**Rate Schedule ST-1**

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**RATE SCHEDULE ST-1  
STANDBY ON-PEAK SUPPLY SERVICE**

**Volumetric Charges**

The rate per therm shall be billed on the quantity of gas delivered by Company to Customer.

**Delivery Obligation**

The maximum daily and seasonal quantities of natural gas which the Company is obligated to deliver to Customer under this Rate Schedule shall be set forth in Customer's Service Agreement.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Late Payment Charge**

A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption And Curtailment**

Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

**Applicable Documents Defining Obligations of the Company and Its Customer**

The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

**PIEDMONT NATURAL GAS COMPANY, INC.  
NORTH CAROLINA SERVICE REGULATIONS**

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1. Foreword. Piedmont Natural Gas Company, Inc. is a natural gas distribution company and is engaged in the business of selling and transporting natural gas for various Customers. The purpose of these Service Regulations is to set forth the respective obligations of the Company and its North Carolina Customers. These Service Regulations, as well as the Company's approved Tariffs and Rate Schedules, apply to all Service rendered by the Company.

2. Definitions. As used in these Service Regulations, the following terms shall have the meanings assigned below:

- (a) "Applicant" shall mean any person, firm, association, partnership, joint venture, limited liability company, or corporation, or any agency of the Federal, State or local government applying for gas service from the Company.
- (b) "Bill Cycle Month" shall mean the period from a Customer's current meter read date to their previous meter read date.
- (c) "British Thermal Unit" (Btu) shall mean the quantity of heat necessary to raise the temperature of one (1) pound of water one (1) degree Fahrenheit from 58.5 to 59.5 degrees Fahrenheit under standard pressure of 30 inches of mercury at or near its point of maximum density.
- (d) "City Gate" shall mean the outlet side of the interstate pipeline meter that connects to the Company's system.
- (e) "Commission" shall mean the North Carolina Utilities Commission or any subsequent state administrative agency, which regulates gas utilities operating within the State of North Carolina.
- (f) "Commission Rules" shall mean the Rules and Regulations of the Commission.
- (g) "Company" shall mean Piedmont Natural Gas Company, Inc.
- (h) "Cubic Foot of Gas" is the volume of gas which occupies one (1) cubic foot at a temperature of 60 degrees Fahrenheit and at a pressure of 14.73 pounds per square inch absolute (psia), except that when gas is delivered at a pressure normally used for residential appliances, a cubic foot of gas shall be deemed to be that quantity of gas which, at the temperature and pressure existing in the meter, occupies one (1) cubic foot. The Cubic Foot of Gas is the basic measurement unit used by the Company.

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NORTH CAROLINA SERVICE REGULATIONS**

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- (i) "Curtailment" is the interruption of gas service as permitted by the Commission rules and the terms of the Company's Rate Schedules, Special Contracts, or Service Regulations.
- (j) "Customer" shall mean any person, firm, association, partnership, joint venture, limited liability company, or corporation, or any agency of the Federal, State or local government receiving Service at a Premises and through a single Gas Service Line from the Company.
- (k) "Customer's Agent" shall mean a person or other entity authorized to act for or on behalf of a Customer.
- (l) "Cycle Month" is a period beginning on a gas Day, at the point of delivery on the first Day of the calendar month and ending at the aforesaid time on the first Day of the succeeding calendar month.
- (m) "Day" is a period of 24 consecutive hours as defined in the FERC Gas Tariff of Transcontinental Gas Pipe Line Corporation, or its successor.
- (n) "Dekatherm" is the basic energy unit purchased by the Company and shall mean the unit of energy equivalent to 1,000,000 Btus.
- (o) "Force Majeure" shall mean acts of God, extreme weather conditions, strikes, lockouts, or other industrial disturbances, acts of the public enemy or terrorists, war, blockades, insurrections, riots, epidemics, landslides, lightning, earthquakes, fires, hurricanes, tornadoes, storms, floods, washouts, arrests and restraints of governments and people, the order of any court or government authority having jurisdiction while the same is in force and effect, civil disturbances, explosions, act of sabotage or terrorism, breakages or freezing of or accidents or damage to wells, machinery, lines of pipe or the Company's other facilities (including, without limitation, Mains, Gas Service Lines, Service Facilities, Meter Assemblies, LNG facilities, and compression equipment), National Weather Service warnings or advisories, whether official or unofficial, that result in the evacuation of facilities, partial or complete curtailment of deliveries to the Company by its suppliers, reduction in gas pressure by its suppliers, inability to obtain or unavoidable delay in obtaining rights-of-way or permits or materials, equipment or supplies for use in the Company's facilities, and any other causes, whether of the kind herein enumerated or otherwise, not within the control of the Company and which by the exercise of due diligence the Company is unable to prevent or overcome. It is understood and agreed that the settlement of strikes or lockouts shall be entirely within the discretion of the Company, and that the Company shall not be required to settle strikes or lockouts when such course is inadvisable in the discretion of the Company.

**PIEDMONT NATURAL GAS COMPANY, INC.  
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- (p) “Gas” or “Natural Gas” shall mean processed or unprocessed natural gas, vaporized liquid natural gas, synthetic gas, gas from coal seams or any mixture of these gases.
- (q) “Gas Service Line(s)” shall mean the pipe or pipes that run between a Main or a pipe and a Customer’s Meter. As determined by and in the Company’s discretion, more than one Gas Service Line may be connected in order to deliver service to multiple Customer Meters from a single Main connection.
- (r) “Main” shall mean a gas pipe, owned, operated or maintained by the Company, which is used for the purpose of transmission or distribution of gas, but does not include Gas Service Line.
- (s) “Margin”, for curtailment purposes, shall mean the filed tariff rate per unit of gas or negotiated rate per unit of gas for a Customer, less the per unit cost of gas, where applicable, as determined in the Company’s last general rate case or Purchased Gas Adjustment proceeding, adjusted for any Commission approved temporary decrements or increments in the filed tariff rate.
- (t) “Meter”, without other qualification, shall mean any device, or instrument which is used by the Company in measuring a quantity of gas.
- (u) “Meter Assembly” shall mean Company’s meters, regulator, piping, valves, vents, relief valves, gauges and/or other apparatus required to meter and control the flow and/or pressure of gas.
- (v) “Operating Conditions” shall mean the prevailing conditions on the Company’s system as they relate to conditions under which Piedmont is providing or attempting to provide service, including the impact of any modifications, tests or scheduled or unscheduled repairs to the Company’s distribution system, which in the Company’s discretion are necessary or appropriate to maintain the integrity of the Company’s distribution system or to provide for the safety of the Company or the public.
- (w) “Operational Order” shall mean an order by Company’s dispatcher, or other Company representative acting on behalf of Company’s dispatcher, to limit, modify, curtail or interrupt the use of Natural Gas as required or permitted by the Commission Rules and the Company’s Service Regulations, Special Contracts, and Rate Schedules.
- (x) “Premises” shall mean a single contiguous piece of land or real estate, including buildings and other appurtenances thereon.



**PIEDMONT NATURAL GAS COMPANY, INC.  
NORTH CAROLINA SERVICE REGULATIONS**

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- (y) "Rate Schedules" shall mean the Company's various rate schedules approved by and on file with the Commission, as the same may be changed or amended from time to time.
- (z) "Service(s)" shall mean any sales, transportation, redelivery or other service provided by the Company to a Customer pursuant to the provisions of the Company's filed and approved Rate Schedules, Special Contracts, or Service Regulations.
- (aa) "Service Facilities" are all Natural Gas delivery equipment and gas service piping to a Customer's Meter that the Company considers necessary to safely serve the Customer's connected gas equipment.
- (bb) "Service Regulations" shall mean the Company's Service Regulations approved by and on file with the Commission as the same may be changed or amended from time to time.
- (cc) "Special Contract" shall mean any contract for Services entered into between the Company and a Customer that provides for rates, terms or conditions of service that vary from those set forth in the Company's tariffs, Rate Schedules or Service Regulations.
- (dd) "Transportation" shall mean the receipt of Natural Gas supplies that have been delivered by or on behalf of the Customer to the Company's City Gate and the redelivery of such Natural Gas supplies to the Customer's Premises.

3. Applicable Documents Defining Obligations of the Company and its Customers. The obligations of the Company to provide Service and the obligations of the Customer upon receipt of Service are governed by and set forth in (a) applicable statutes, including those set forth in Chapter 62 of the North Carolina General Statutes, (b) applicable Commission Rules, (c) applicable tariffs or Rate Schedule(s), (d) these Service Regulations, (e) any application, agreement, Special Contract, or similar document executed by Customer and approved, as necessary, by the Commission pertaining to such service, and (f) any standard operating procedures of the Company reasonably necessary for the provision of such Service and administered on a nondiscriminatory basis. Copies of Chapter 62 of the General Statutes, applicable Commission Rules, Rate Schedules, and these Service Regulations are available from the Company for public inspection, as are copies of forms of applications, agreements, and other documents approved by the Commission. A copy of the Commission's Rules may also be obtained from the Chief Clerk of the North Carolina Utilities Commission, 4325 Mail Service Center, Raleigh, North Carolina, 27699-4325, upon payment of the applicable fee or at the Commission's Web Site at [www.ncuc.net](http://www.ncuc.net). Unofficial copies of the Company's Rate Schedules and Service Regulations are also available at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). The Company shall provide all new non-residential Customers

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with a copy of the applicable Rate Schedule(s) and written application for Service and/or other documents executed by the Company and the Customer pertaining to such Service. After a Customer has executed a written application and/or contract, no promise, statement or representation by an employee or agent of the Company or by any other person inconsistent with the written application and/or contract shall bind the Company to provide Service or to change the terms and conditions upon which Service will be rendered unless the same is in writing and is executed by an authorized representative of the Company. In the event there is a conflict between these Service Regulations and the provisions of the applicable currently effective Rate Schedule, the provisions of the Rate Schedule shall govern. The Commission Rules shall govern in the event of a conflict with these Service Regulations. The Company may not make any representation that conflicts with Commission Rules, its Rate Schedules or these Service Regulations.

4. Applicable Documents Subject to Change. All of the documents defining the obligations of the Company to provide Service and the obligations of the Customer upon the receipt of Service are subject to change from time to time upon order of or approval by the Commission and by other duly constituted governmental authorities. The Company does not undertake to advise any Customer of any such change except as may be required by the Commission or other duly constituted governmental authority.

5. Delivery Pressure. The Company will provide to Residential Customers a delivery pressure of either 7 inches water column (approximately ¼ pounds per square inch, gauge (psig)) or 2 psig. Commercial and Large General Customers can be provided a delivery pressure of up to 5 psig. The Company will consider providing delivery pressures greater than 5 psig on a case-by-case basis provided (1) it receives a request in writing, and (2) greater pressures are justified by requirements of Customer's Gas burning equipment. Approval will be conditioned on the Company's distribution system pressure availability and documentation supporting the need for a delivery pressure greater than 5 psig. Exceptions are subject to the approval of the Company.

6. Non-Waiver. The failure of the Company to enforce any provision of any applicable documents defining the obligations of the Company and its Customers shall not be deemed to be a continuing waiver of such provisions for any Customer or a waiver of any other provision of any of the applicable documents.

7. Process for Obtaining Consent to New or Changed Service. All Customers shall be required to make application to the Company for new or changed Service under any of the Company's Rate Schedules in such form and manner as may reasonably be required by the Company. Such applications shall be required in order to initiate Service under any Rate Schedule irrespective of whether Customer is then receiving service under any other Company Rate Schedule and for changes in the quantity of Service to be provided under an existing Rate Schedule. At a minimum, such application shall set forth the date of the application, the name of the Applicant, the location of the Premises for which Service is requested, the type of Service applied for and estimated gas consumption. Prior to being obligated to provide Service to Customer pursuant to such application,

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Issued to comply with authority granted by the  
North Carolina Utilities Commission in  
Docket No. G-9, Sub 550

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Company shall conduct an examination and review of Customer's application for Service to determine: (1) that the Company has the operational ability to provide the Service requested, including the requisite upstream supply and/or capacity assets; (2) that the requested Service will not impede or interfere with the Company's ability to maintain Service to existing Customers with the same or a higher priority of service; (3) that provision of the requested Service will not have a materially adverse impact on the Company's ability to recover its approved margin; (4) that provision of the requested Service is economically feasible; and (5) that Customer is creditworthy as determined in accordance with the Commission's Rules and the Company's procedures. Provided that the Company's review and analysis indicates that Service can be provided as requested, the Company will then approve the requested Service. Company shall have no obligation to provide the requested Service absent such approval.

When the requested Service is to be provided to a Residential, Small or Medium General Service Customer, and the provision of such Service is economically feasible, the application and the Company's acceptance thereof may be oral at the Company's option. In such event, the Company's applicable Rate Schedules and these Service Regulations shall become effective and applicable to any Service rendered to such Applicant in the same manner as if the Company's standard written form of application for Service had been signed by the Applicant and accepted by the Company. Upon the provision of Service by the Company to such Customer, such oral service agreement shall be presumed to exist in any case where there is no written application accepted in writing by the Company.

In the event a Customer receiving Service under the Company's commercial or industrial (large general) sales Rate Schedules anticipates a reduction in its gas consumption, it shall provide prompt notice thereof to Company.

8. Gas Quality. All Gas delivered by the Company originates from upstream sources of supply over which the Company has no control. The quality requirements associated with such Gas are matters under the exclusive jurisdiction of the Federal Energy Regulatory Commission. As such, the Company shall have no liability for damages of any kind related to or arising from the quality or constituent characteristics of Gas delivered or sold to Customer. Company shall further have no responsibility to process, condition or otherwise modify Gas delivered to its system for redelivery or sale to Customers. It is Customer's sole responsibility to install, adjust, maintain, and operate their Gas burning equipment in a manner consistent with the prevailing quality of Gas delivered to the Company.

9. Non-Assignability of Right to Service. Any rights which accrue to the Customer under any of the applicable documents defining the obligations of the Company and its Customers are personal to Customer and may not be transferred or assigned without the written consent of the Company.

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10. Vacated Premises. The Customer will notify the Company before quitting or vacating the Premises served and will pay, upon presentation, all bills due the Company for Service at the Premises. In the absence of the notice required by this paragraph, Customer shall remain fully liable for all Gas usage at the Premises on a continuing basis.

11. Right-of-Way. The Customer shall at all times furnish the Company a satisfactory and lawful right-of-way, at no cost to the Company, onto the Customer's Premises for the installation or servicing of Mains, Gas Service Lines, Meter Assemblies and other apparatus or Service Facilities necessary or incidental to the furnishing of Service to the Customer. The obligation of the Company to supply Service is dependent upon the Company securing and retaining all necessary rights-of-way, privileges, franchises or permits, for the delivery of such Service, and the Company shall not be liable to the Customer for any failure to deliver Service because of the Company's inability to secure or retain such rights-of-way, privileges, franchises or permits.

12. Access to Customer's Premises. The Company shall at all reasonable times have the right of ingress to and egress from the Premises of the Customer for any and all purposes connected with the delivery or termination of Service. The Company shall have the right, at its option and at its own expense, to place demand meters, pressure gauges, or other instruments on the Premises of the Customer for billing, testing, or other purposes with respect to the Customer's Service.

If a condition exists on a Premises, which in the Company's opinion is dangerous to Company employees or facilities and/or prevents normal access to the Company's facilities, including Meters, the Company may at its sole option and at the sole expense of the Customer remove or relocate its Service Facilities, Meter Assemblies and accessory equipment.

13. Installation and Maintenance of Facilities. The Company will install and maintain the necessary Mains, Gas Service Lines, Service Facilities, valves, regulators, Meter Assemblies, over-pressure devices, indexes, gauges, and/or other equipment or facilities required to provide Service. All facilities from the point of connection at the outlet of the Meter Assembly shall be owned, installed and maintained by and at the expense of the Customer. The Company may specify the content and pressure of the Gas to be furnished, the location of the Meter and the point where the service connection shall be made. The Company's obligation to install all such equipment and facilities, and to otherwise provide Service to Customer, shall be subject to Company's prior consent obtained through the processes set forth in paragraph 7 of these Service Regulations.

For residential customers, a presumption of the feasibility of providing new Service shall exist, and the connection of facilities needed to provide Service will be at no cost to the residential Customer, if (1) at a minimum, the Customer will be installing central gas primary heating, (2) the Gas Service Line extends along the route selected by the Company, (3) the Main borders the Customer's Premises and (4) the Gas Service Line is no more than 100 feet in length. In the event that the above conditions are not met for

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new residential Customers, and in all cases of applications for changed residential Service or new or changed Service under non-residential Rate Schedules, the Service to be rendered to the Customer must provide a reasonable return to the Company . If the Customer wishes the facilities to be constructed along a route other than the route selected by the Company and/or if the Gas Service Line is more than 100 feet (for residential Customers) and/or the Service to be rendered to the Customer will not produce a reasonable return to the Company, the Company may require the Customer to pay the excess cost of constructing the facilities along the alternate route or in excess of 100 feet, provide a minimum margin commitment for Service to be rendered through the facilities, and/or to make a contribution which will permit the Company to earn a reasonable return on the facilities needed to provide Service.

14. Relocation of Facilities. After a Service connection has been made, it may be relocated on the Customer's Premises by the Company upon request of the Customer. The Customer must agree to change the location of the right-of-way and to bear the expense of the relocation, except to the extent such expense is offset by any additional load gained in connection with such relocation, as reasonably determined by Company. The relocation will not be made where it will interfere with or jeopardize the Company's Service either to the Customer desiring the change or to any other Customer(s). All rights of the Company incidental to the original location shall apply to the new location.

15. Title to the Facilities. The title to all facilities including Mains, Service Facilities, Gas Service Lines, Meters and accessory equipment up to and including the outlet of the Meter Assembly shall be vested in the Company, notwithstanding any charge which may be made to the Customer or payment made by the Customer for placement or relocation thereof.

16. Responsibility Beyond Delivery Point.

- (a) All piping and equipment installed by or on behalf of the Customer must be installed and maintained in accordance with the requirements of the local, county, state, and federal authorities, and the Customer shall keep in good and safe repair and condition all such piping and equipment from the outlet side of the Meter.
- (b) If the Customer's equipment might create either a vacuum or a backpressure, a device must be installed and maintained by the Customer to protect the Company's facilities.
- (c) Company shall not be responsible for equipment failures or malfunctions attributable to the Customer's failure to install or operate equipment appropriate for the Service provided by the Company including but not limited to the pressure and chemical composition of Gas delivered to Customer.

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- (d) The Company's responsibility is to deliver Gas to the Customer at the outlet side of the Meter Assembly serving Customer in accordance with the applicable documents defining the obligations of the Company and its Customers. The Company is not responsible for the installation or maintenance of any pipes, facilities, gas using equipment or any other property beyond the point of delivery to the Customer. As between the Company and the Customer, the installation, maintenance and use of any pipes, facilities, gas using equipment or any other property beyond the outlet side of the Meter Assembly is the sole responsibility of the Customer.

17. Interference with Company Property. The Customer shall not tamper, interfere with or alter the Company's Meters or other property or permit the same to be done by any person other than the Company's authorized agents or employees. Damages caused or permitted by the Customer to said property shall be paid for by the Customer. North Carolina law makes it unlawful to alter, tamper with or by-pass a Gas Meter. This law provides for fines and/or imprisonment at the discretion of the court for this offense. In addition, this statute provides for recovery in a civil action by the Company for losses and damages sustained.

18. Excavation in Proximity of Company's Facilities. The Customer shall inform the Company of planned excavation activities in the proximity of the Company's facilities by calling 811 at least 48 business hours in advance of the planned excavation activities. The Customer will notify the Company prior to any additions or changes at the Customer's Premises which will extend over, under, or in close proximity to the Company's facilities, Mains, Meters, Gas Service Lines or Service Facilities.

19. Prohibition Against Resale of Gas. Gas is sold and/or delivered upon the express condition that the Customer shall not directly or indirectly sell or resell, assign, deliver, or otherwise dispose of Gas, or any part thereof, to any person, firm, or corporation, except where Service is provided under a Rate Schedule specifically providing for resale.

20. No Liability for Curtailment or Interruption of Service. In the event of a Curtailment or interruption of Service, regardless of cause, the Company shall use all reasonable diligence to remove the cause or causes thereof, but the Company shall not be liable for any loss or damage resulting directly or indirectly from such Curtailment or interruption.

21. Action to Maintain System Integrity. When the Company, in its sole discretion, determines that it is necessary to modify, curtail or interrupt service to maintain the integrity of its distribution or transmission system, to provide for its or the public's safety, or otherwise when Operating Conditions are such that the Company deems such action to be necessary, the Company shall have the right to modify, curtail or interrupt Service to any Customer through the issuance of an Operational Order. The Company shall not be liable for any loss or damage resulting from such Curtailment or interruption

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of Service. Violation of such Operational Orders by any Customer shall subject such Customer to disconnection and/or financial penalties as provided in Rate Schedule 106. All Gas consumed by Customer after receiving an Operational Order directing such Customer to cease consuming Gas, shall constitute an unauthorized overrun volume within the meaning of Rate Schedule 106.

22. Discontinuance of Service. The Company, subject to the Commission Rules, shall have the right to modify, suspend or discontinue its Service for (a) repairs or other necessary work on its Mains or systems, (b) nonpayment of bills in accordance with Rules 6-16, 12-8 and 12-10 of the Commission's Rules, as the same may be amended from time to time, and (c) for any of the following reasons:

- (a) For any material misrepresentation as to the identity of the Customer making the application for Service.
- (b) For a material violation by the Customer of any terms or conditions of the documents that are approved by the Commission defining the obligations of the Company to provide Service and the obligations of the Customer upon the receipt of Service.
- (c) For the reason that the Customer's use of the Company's Service is detrimental to the service of other Customers. This may cover a Customer's failure, directly or indirectly, to deliver Gas to the Company.
- (d) For the reason that the Customer's use of the Company's Service conflicts with or violates orders, ordinances or laws of the State of North Carolina, or any subdivision thereof, or of the Commission or of any other governmental agency having jurisdiction over the Company or the Customer.
- (e) For the reason that piping, equipment, appliances or devices are installed or in use on the Customer's Premises, which permit the Gas to be used without passing through the Company's Meter, or which prevent, or interfere with the accurate measuring of the Gas by the Company's Meter.
- (f) For failure of the Customer to make, restore, or increase his deposit as required.
- (g) In the event of any condition determined by the Company to be hazardous.
- (h) In the event of tampering with the facilities and/or equipment installed and owned by the Company.

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- (i) In the event of Operating Conditions or events of Force Majeure.

Where the Service has been discontinued for any reason except for the failure to pay for repairs or other necessary work by the Company, the Company shall have the right to refuse Service at the same Premises where there is clear, documented evidence of action taken by the Applicant with the intent to evade payment for utility Services. The Company may require reasonable proof of identity of the Applicant as a condition to providing Service.

23. Removal of Equipment. In the event of discontinuation of Service, the Company may enter the Premises of the Customer at any reasonable time and remove the Company's Meters, apparatus, appliances, fixtures or other property.

24. Non-Waiver of Default. Any delay or omission on the part of the Company in exercising its right to discontinue or suspend Service, or the acceptance of a part of any amount due, shall not be deemed a waiver by the Company of such right so long as any default in whole or in part or breach of contract on the part of the Customer shall continue, and whenever and as often as any default or breach of contract shall occur.

25. Establishment of Credit by Customer. The Company may require an Applicant for Service, or any existing Customer, to satisfactorily establish credit in accordance with the provisions of Rule R12-2 of the Commission Rules or to reestablish credit in accordance with the provisions of Rule R12-3 of the Commission Rules as the same may be amended from time to time. Applicants for new or changed service may be required to provide standard credit information at the request of Company in connection with the establishment or continuation of Service and to evidence continued creditworthiness for continuation of service in accordance with the Company's procedures.

26. Deposits. The Company may require a cash deposit prior to establishing, reestablishing, or continuing existing Service as one way for the Customer to establish credit in accordance with the provisions of Chapter 12 of the Commission Rules as the same may be amended from time to time.

27. Billing Procedure.

- (a) Meters will be read and bills rendered monthly for each Customer account on a cycle basis of approximately thirty (30) days. All bills are due and payable when rendered and become past due after twenty-five (25) days in the case of residential Customers and fifteen (15) days in the case of Customers other than residential, from the date the bill is rendered.
- (b) A late payment charge of one percent (1%) per month will be applied to all Customer's balances not paid prior to the next month's billing date.



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- (c) The Company will deliver to the Customer a monthly bill of the amount due to the Company by mailing said bill by first-class mail to the mailing address furnished by the Customer or, at the Customer's election with Company agreement, by sending the bill electronically by way of computer internet connection. As long as the Company has placed the bill in the mail or sent the bill electronically on or before the billing date, a Customer's failure to receive a bill will not entitle the Customer to any extension of time for payment beyond the past due date. For Customers that elect, with the consent of the Company, to receive their bills electronically, notices regarding rate or Service changes, account status, or other notices typically provided with written bills, shall also be provided electronically.
- (d) The Company may, in its discretion and upon reasonable terms, accept major credit cards as payment of the monthly bill.
- (e) Where a Meter for any reason is not read at the regular reading date, the Company may estimate the amount of Service used by referring to the Customer's history of consumption for a similar prior period. To the extent practicable, the Company will avoid sending a Customer two successive estimated bills; however, in cases of Force Majeure, including actions or inaction rendering the Meter unreadable, bill estimates may be permitted for two successive billing periods, or greater. The Company will bill the Customer on the basis of the estimated use and will make any necessary adjustments when the Meter is next read.
- (f) No claim or demand which the Customer may have against the Company shall be offset or counter-claimed against the payment of any sum of money due the Company by the Customer for Services rendered, and all such sums shall be paid in accordance with the applicable documents defining the obligations of the Company and the Customer regardless of such claim or demand.
- (g) Monthly charges will not be prorated and will be assessed in full for provision of Gas Service during a partial billing period, except that if an initial bill covers 5 or fewer days of a billing period, no monthly charge will be assessed.
- (h) Customers shall not be entitled to aggregate usage from different Premises or Customer accounts for billing or any other purposes.
- (i) Customers who elect, with the consent of Company, to receive their bills electronically, shall also receive initial notices of disconnection of Service for nonpayment through electronic means as part of their regular bill, as anticipated by Commission Rule R12-10.

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28. Adjustment of Bills Due to Failure or Inaccuracy of Meter. Bills which are incorrect due to meter or billing errors will be adjusted as provided in Rule R6-15 of the Commission Rules as the same may be amended from time to time.

Transportation Customers requiring adjustment to their bills for Meter failure or inaccuracy shall be adjusted in accordance with Rule R6-15 except for the commodity portion which will be cashed out in accordance with Rate Schedule 107.

29. Returned Check Charge. Where the Customer makes payment for Service by check which is not honored or paid by the bank, full payment will immediately be due and payable, and a Commission-approved handling charge will be added.

30. Curtailment Priority. It is contemplated that the Company will from time to time find it necessary to curtail or interrupt Gas Service to those Customers who purchase Gas from the Company under interruptible Rate Schedules. In addition, other factors beyond the control of the Company may make Curtailment or interruption of any Customer necessary. In all such events, to the extent practicable, and in the absence of a Commission directive requiring a different curtailment priority, the Company will curtail Customers based on the priorities established in Commission Rule R6-19.2.

31. Reconnection Fees. When Service has been discontinued at the request of the Customer or the Customer's Agent or for nonpayment of bills or pursuant to Section 22, and if reconnection is requested by the same Customer or the Customer's Agent at the same Premises, the Commission-approved Reconnection Fees will be charged.

32. Applicable Rate Schedules. The Company will at all times have current Rate Schedules on file with the Commission. The rates contained in these Rate Schedules are subject to change from time to time as permitted by the North Carolina Purchased Gas Adjustment Clause attached hereto as Appendix A, the Margin Decoupling Mechanism attached hereto as Appendix C and/or any lawful order of the Commission. The rates approved by and on file with the Commission shall prevail in the event of conflict with rates posted on the Company's Web Site.

33. Equal Payment Plan. The Equal Payment Plan ("EPP" or "Plan") is available to customers receiving service under Rate Schedules 101, 102 and 152. The availability and conditions of the Plan are attached hereto as Appendix D.

34. Small and Medium General Rate Service Classification. Small and Medium General Rate Service Classification under the Company's Rate Schedules 102 and 152 shall be based on the following criteria:

A. Definitions: As used in Small and Medium General Rate Service Classification, the following terms shall have the meanings assigned below:

(1) "Annual Review Period" shall mean the twelve (12) months ended

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on December 31 of each year.

- (2) “Actual Annual Usage” shall mean the actual Natural Gas volumes consumed by the Customer during the Annual Review Period as reflected on the Company’s invoices for the Customer.
- (3) “Average Dekatherm per Day” shall be the Customer’s Actual Annual Usage divided by the number of Service Days within the Annual Review Period.
- (4) “Classification Usage” shall mean the usage criteria that establishes the minimum and/or maximum average daily usage that must be maintained in order to receive Service under a Rate Schedule. The classification usage for Rate Schedule 102 shall be less than an average of 20 Dekatherms per day. The classification usage for Rate Schedule 152 shall equal or exceed an average of 20 Dekatherms per day but be less than an average of 50 Dekatherms per day.
- (5) “Involuntary Curtailment Days” shall mean those days or portions of days in a given Annual Review Period where Curtailment of the Customer’s Natural Gas Service was imposed by the Company’s decision to curtail.
- (6) “Service Days” shall mean 365 days less the number of Involuntary Curtailment Days.

**B. Procedures:**

(1) During January and February of each year, the Company will determine for each Customer served under Rate Schedule 102 and Rate Schedule 152 that Customer’s Average Dekatherm per Day usage for each of the two most recent Annual Review Periods.

(2) Those Customers currently receiving Service under Rate Schedule 102 whose usage in each of the most recent two (2) Annual Review Periods is equal to or exceeds 20 Dekatherms a day, will be eligible for transfer to Rate Schedule 152.

(3) Those Customers currently receiving Service under Rate Schedule 152 whose usage in each of the most recent two (2) Annual Review Periods is less than 20 Dekatherms a day, will be eligible for transfer to Rate Schedule 102.

(4) Those Customers currently receiving Service under Rate Schedule

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102 or 152 whose usage in each of the most recent two (2) Annual Review Periods is equal to or greater than 50 Dekatherms per day will be eligible for transfer to Rate Schedule 103, 104, 113, or 114 as applicable.

(5) All changes in rate classification under this section shall be effective on the first day of June following the review. The Company shall not be liable for any loss or damage resulting from a change in rate classification.

- C. Exceptions: If a Customer currently being billed under Rate Schedule 102 adds Natural Gas equipment that increases the Customer's Average Dekatherms per Day to the point where the customer will qualify for Rate Schedules 152 103 or 104, the Company may, upon notification from the Customer and subject to installation verification by the Company, transfer the Customer to the new Rate Schedule prior to June 1 of that year.

35. Large General Rate Service Classification. Large General Rate Service classification under the Company's Rate Schedules, 103, 104, 113 and 114 shall be based on the following criteria:

- A. Definitions: As used in Large General Rate Service Classification, the following terms shall have the meanings assigned below:
- (1) "Actual Annual Usage" shall mean the actual Natural Gas volumes sold or transported for the Customer by the Company as reflected on the Company's bills for that Customer.
  - (2) "Annual Review Period" shall mean the twelve (12) months ended on December 31 of each year.
  - (3) "Average Dekatherm per Day" shall mean the Actual Annual Usage of a Customer divided by the number of Service Days within the Review Period.
  - (4) "Classification Usage" shall mean the usage criteria that establishes the minimum and/or maximum average usage that must be maintained in order to receive service under any rate schedule. For existing Customers, the classification usage for Rate Schedule 102 and 152 shall not exceed an average usage of 50 Dekatherms per day. For existing Customers, the classification usage for Rate Schedules 103, 104, 113 and 114 shall exceed an average usage of 50 Dekatherms per day.
  - (5) "Involuntary Curtailment Days" shall mean those days or portions of days in a given Review Period where curtailment of the

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Customer's Natural Gas Service was imposed by the Company's decision to curtail.

- (6) "Service Days" shall mean 365 days less the sum of the number of Involuntary Curtailment Days and the number of days that Customer consumed an alternative fuel to Natural Gas.

**B. Procedures:**

(1) During January and February of each year, the Company will determine for each Customer served under Rate Schedules, 103, 104, 113 and 114 the Customer's Average Dekatherm per Day usage for each of the two most recent Annual Review Periods.

(2) A Rate Schedule 102 or 152 Customer whose usage is equal to or greater than the 50 Dekatherms threshold in the two most recent Review periods will be eligible for transfer to Rate Schedule 103, 104, 113 or 114, as applicable,. A Rate Schedule 103, 104, 113 or 114 Customer whose usage is less than the 50 Dekatherms threshold in both of the most recent two Review Periods will be eligible for transfer to the appropriate Small or Medium General Service Rate Schedule. Customers receiving Service under Rate Schedules 103 or 104 shall be eligible to elect transportation service to be effective with the rate reclassification.

(3) All changes in rate classification under this section shall be subject to Company consent as provided under Section 7 of these Service Regulations. All changes in rate classification under this section shall be effective on the first day of June following the review. The Company shall not be liable for any loss or damage resulting from a change in rate classification, including any loss resulting from the purchase of gas by a transportation Customer who has been reclassified to a sales Rate Schedule.

(4) Customers who are reclassified shall be notified of the change in Rate Schedule, and receive a copy of the tariff sheets applicable to his old and new Rate Schedules at least 21 days prior to the effective date of the change.

- C. Exceptions: If a Customer adds or retires a major piece of gas-burning equipment, changes the hours of operations or otherwise materially alters the Customer's business that will clearly increase, or decrease, the Customer's consumption on an ongoing basis to a level that will change the Customer's ability to qualify for a particular Rate Schedule, the Customer shall report such changes to the Company and afford the Company an opportunity to inspect the change in equipment and to meet with the Customer to review and discuss the anticipated future level of consumption. If, after such inspection and meeting, the Company is satisfied that reclassification is appropriate, utilizing the mechanisms set forth in Section 7 of

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these Service Regulations, the reclassification will occur within two months after the new equipment is in place and operational, or the retirement is completed, and the first Meter reading reflects the higher anticipated usage resulting from the new equipment or the lower anticipated usage resulting from the retirement. Any reclassification pursuant to this paragraph is subject to correction if actual experience so warrants. If the reclassification results in qualification for Service under Rate 103 or 104, the Customer shall provide an election form one week prior to reclassification if a transportation election is desired. Otherwise, Service will be provided under Rate Schedule 103 or 104, dependent upon rate qualification.

- D. Requirements: Upon reclassification from Rate 102 or 152 to either Rate 103, 104, 113, or 114, as well as new Customers on these Rate Schedules, the Customer will be responsible for installing and maintaining, at the Customer's expense, a dedicated 110v electrical service in a location suitable to provide electrical service for the Company's telemetering equipment.

36. Extra Facilities. At the request of the Customer with Company agreement, the Company will furnish, install, own and maintain facilities which are in addition to those necessary for delivery of Service at one point, through one Meter, at a maximum pressure in accordance with the applicable Rate Schedule, such additional facilities to be furnished under an "Extra Facilities Clause" added to and made a part of the Company's standard form of contract and containing the following provisions:

- A. Service shall be used solely by the contracting Customer in a single enterprise located entirely on a single, contiguous Premises, and there shall be no exemption from any of the other provisions of these Service Regulations.
- B. "Extra Facilities" shall consist of such of the following as may be required: Meter, Meter Assembly, Gas Service Line, Main, telemetering equipment or other equipment installed for the exclusive use of the contracting Customer, other than facilities which the Company would furnish to the Customer without cost under its standard form of contract.
- C. The facility to be supplied shall be Company standard Main, Gas Service Lines and Meter equipment installed only on the Company side of the point of delivery.
- D. A monthly "Extra Facilities Charge" equal to 1.7% of the installed cost of the facilities, but not less than \$25, shall be billed to the Customer in addition to the billing for facilities charge, demand charge and sales or transportation charges.
- E. The "Installed Cost of Extra Facilities" shall be the original cost of material used, including spare equipment, if any, plus applicable labor, transportation, stores, tax, engineering and general expenses, all estimated if not known. The original

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cost of materials used is the current market price of the equipment at the time the equipment is installed, whether said equipment is new or out of inventory.

- F. When the Extra Facilities requested by the Customer consist of those required to furnish Service at either more than one delivery point on the Premises or at more than one pressure, or both, the Installed Cost of the Extra Facilities to be used in the computation of the Extra Facilities Charge shall be the difference between the installed cost of the facilities made necessary by the Customer's request, and the installed cost of the facilities which the Company would furnish without cost to the Customer under its standard form of contract.
- G. The Company shall have the option of refusing requests for Extra Facilities if, on its own determination, the requested facilities are not feasible, or may adversely affect the Company's Service to other customers.
- H. Contracts containing the Extra Facilities clause shall have a minimum original term of 5 years to continue from year to year thereafter, but the Company may require the payment of removal costs in contracts with original terms of 10 years or less, and may require advance payment of the Extra Facilities Charge for a period equal to one-half the original term of the contract.

37. Complaints. Customers who have a disagreement with the Company may call the Public Staff Consumer Services Division at telephone number (919) 733-9277 for assistance, or write to the address below:

Public Staff - NC Utilities Commission  
Consumer Services Division  
4326 Mail Service Center  
Raleigh, NC 27699-4326

38. Taxes. Customer shall be responsible for payment of all taxes attributable to or due in connection with the provision of any Service by the Company to the Customer, including the excise taxes required by Article 5E of Chapter 105 of the North Carolina General Statutes.

39. Agency Authorization. Certain Rate Schedules permit a Customer to authorize a Customer's Agent to act on its behalf with respect to nominations, imbalance resolution, and/or billing. In order to be considered a Customer's Agent, the agent must execute and be in compliance with all of the terms of the Customer Agent Agreement form set forth in Appendix B to these Service Regulations.

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**APPENDIX A**

**PROCEDURE FOR RATE ADJUSTMENTS UNDER G.S. 62-133.4**

**1. Purpose.**

The purpose of this Appendix A is to set forth the procedures by which Piedmont Natural Gas Company, Inc. can file to adjust its rates pursuant to G.S. 62-133.4. The intent of these procedures is to permit Piedmont to recover 100% of its prudently incurred gas costs applicable to its North Carolina operations.

**2. Definitions.** As used in this Appendix, the following definitions shall apply:

- (a) **"LDC"** shall mean Piedmont Natural Gas Company, Inc.
- (b) **"Gas Costs"** shall mean the total delivered cost of gas paid or to be paid to Suppliers, including but not limited to all commodity/gas charges, demand charges, peaking charges, surcharges, emergency gas purchases, over-run charges, capacity charges, standby charges, reservation fees, gas inventory charges, minimum bill charges, minimum take charges, take-or-pay charges, take-and-pay charges, storage charges, service fees and transportation charges, and any other similar charges in connection with the purchase, storage or transportation of gas for the LDC's system supply.
- (c) **"Suppliers"** shall mean any person or entity, including affiliates of the LDC who locates, produces, purchases, sells, stores and/or transports natural gas or its equivalent to, for or on behalf of the LDC. Suppliers may include, but not be limited to, interstate pipeline transmission companies, producers, brokers, marketers, associations, intrastate pipeline transmission companies, joint ventures, providers of Liquefied Natural Gas, Liquefied Petroleum Gas, Synthetic Natural Gas and other hydrocarbons used as feed stock, other local gas distribution companies and end-users.
- (d) **"Benchmark Commodity Gas Costs"** shall mean the LDC's estimate of the City Gate Delivered Gas Costs for gas supplies, excluding Demand Charges and Storage Charges as approved in the LDC's last general rate case or gas cost adjustment proceeding. The Benchmark Commodity Gas Costs may be amended from time to time as provided in Section 3(a).



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- (e) **"City Gate Delivered Gas Costs"** shall mean the total delivered Gas Costs to the LDC at its city gate.
- (f) **"Commodity and Other Charges"** shall mean all Gas Costs other than Demand Charges and Storage Charges and any other Gas Costs determined by the Commission to be properly recoverable from sales Customers.
- (g) **"Demand Charges and Storage Charges"** shall mean all Gas Costs which are not based on the volume of gas actually purchased or transported by the LDC and any other gas costs determined by the Commission to be properly recoverable from applicable sales and transportation Customers.
- (h) **"Apportionment Percentage or Amount"** shall mean the percent or amount of Demand Charges and Storage Charges allocated to each rate schedule.

**3. Rate Adjustments Under These Procedures.**

- (a) **Sales Rates.** In the event the LDC anticipates a change in its City Gate Delivered Gas Costs, the LDC may apply and file at least 14 days prior to the proposed effective date, revised tariffs in order to increase or decrease its rates to its Customers as hereinafter provided. The Commission may issue an order allowing the rate change to become effective simultaneously with the effective date of the change or at any other time ordered by the Commission. If the Commission has not issued an order within 120 days after the application, the LDC may place the requested rate adjustment into effect. Any rate adjustment under this Section 3(a) is subject to review under Section 6.
- (i) **Demand Charges and Storage Charges.** Whenever the LDC anticipates a change in the Demand Charges and Storage Charges, the LDC may (as hereinabove provided) change its rates to Customers under each applicable rate schedule by an amount computed as follows:

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$$\frac{[(\text{Total Anticipated Demand Charges and Storage Charges} - \text{Prior Demand Charges and Storage Charges}) \times \text{NC Portion}^*] \times \text{Apportionment \% - age or Amount}}{\text{Sales and Transportation Volumes as applicable}^*} = \text{Increase (Decrease) Per Unit (by rate schedule)}$$

Sales and Transportation Volumes as applicable\*  
(by rate schedule)

\* Established by the Commission in the last general rate case

- (ii) **Commodity and Other Charges.** Whenever the LDC's estimate of its Benchmark Commodity Gas Costs changes, the LDC may (as hereinabove provided) change the rates to its Customers purchasing gas under its sales rate schedules, incorporating the Benchmark Commodity Gas Costs, by an amount computed as follows:

$$\frac{[\text{Volumes of gas purchased}^* (\text{excluding Company Use and Unaccounted For}) \times (\text{New Benchmark Commodity Gas Costs} - \text{Old Benchmark Commodity Gas Costs})] \times \text{NC Portion}^*}{\text{Volumes of gas purchased for System Supply}^* (\text{excluding Company Use and Unaccounted For})^* \times \text{NC Portion}^*} = \text{Increase (Decrease) Per Unit}$$

Volumes of gas purchased for  
System Supply\* (excluding Company Use and  
Unaccounted For)\* X NC Portion\*

\* Established by the Commission in the last general rate case

- (b) **Transportation Rate.** Transportation rates will be computed by adding the applicable Demand Charges and Storage Charges (at the Apportionment Percentage or Amount approved and allocated to each rate schedule by the Commission) to the per unit distribution margin established by the Commission in the last general rate case. Increments or decrements for Demand Charges and Storage Charges may apply to transportation rates based on the Apportionment Percentage or Amount.
- (c) **Other Changes in Purchased Gas Costs.** The intent of these procedures is to permit the LDC to recover its actual prudently incurred Gas Costs. If any other Gas Costs are incurred, they will be handled as in Section 3(a)(i) if they are similar to Demand Charges and Storage Charges, or as in Section 3(a)(ii) if they are similar to Commodity and Other Charges.

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**4. True-up of Gas Costs.**

- (a) **Demand Charges and Storage Charges.** On a monthly basis, the LDC shall determine the difference between (a) Demand Charges and Storage Charges billed to its Customers in accordance with the Commission-approved allocation of such costs to the LDC's various rate schedules and (b) the LDC's actual Demand Charges and Storage Charges. This difference shall be recorded in the LDC's deferred account for demand and storage charges. Increments and decrements for this deferred account, including the portion of the Commodity and Other Charges true-up calculated under Section (4)(b) and apportioned to this deferred account, flow to applicable sales and transportation rate schedules as allocated and approved by the Commission. Where applicable, the percentage allocation to North Carolina shall be the percentage established in the last general rate case.
- (b) **Commodity and Other Charges.** On a monthly basis, the LDC shall determine with respect to gas sold (including Company use and unaccounted for) during the month the difference between (a) the actual Commodity and Other Charges incurred and (b) the actual Commodity and Other Charges billed to Customers. This difference shall be apportioned each month to the LDC's deferred account for commodity and other charges based on the ratio of volumes sold to the volumes purchased for that month. The residual portion of the difference not apportioned to the LDC's deferred account for commodity and other charges shall be apportioned each month to the LDC's deferred account for Demand Charges and Storage Charges. Increments and decrements for Commodity and Other Charges flow to all sales rate schedules incorporating the Benchmark Commodity Gas Costs.
- (c) **Repealed.**

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- (d) **Supplier Refunds and Direct Bills.** In the event the LDC receives supplier refunds or direct bills with respect to gas previously purchased, the amount of such supplier refunds or direct bills will be recorded in the appropriate deferred account, unless directed otherwise by the Commission.

**5. Other.**

- (a) Gas Costs changes not tracked concurrently shall be recorded in the LDC's appropriate deferred account.
- (b) The Commodity and Other Charges portion of gas inventories shall be recorded at actual cost and the difference in that cost and the cost last approved under Section 3(a)(ii) shall be recorded in the deferred account when the gas is withdrawn from inventory.
- (c) The LDC shall file with the Commission (with a copy to the Public Staff) a complete monthly accounting of the computations under these procedures, including all supporting workpapers, journal entries, etc., within 45 days after the end of each monthly reporting period. All such computations shall be deemed to be in compliance with these procedures unless within 60 days of such filing the Commission or the Public Staff notifies the LDC that the computations may not be in compliance; provided, however, that if the Commission or the Public Staff requests additional information reasonably required to evaluate such filing, the running of the 60 day period will be suspended for the number of days taken by the LDC to provide the additional information.
- (d) Periodically, the LDC may file to adjust its rates to refund or collect balances in these deferred accounts through decrements or increments to current rates. In filing for an increment or decrement, the LDC shall state the amount in the deferred account, the time period during which the increment or decrement is expected to be in effect, the rate classes to which the increment or decrement is to apply, and the level of volumes estimated to be delivered to those classes. Any such increments or decrements shall be made on the applicable Apportionment Percentage or Amount basis for all affected rate classes, unless otherwise ordered by the Commission.
- (e) Notwithstanding the provisions of this Rule, the LDC may offset negotiated losses in any manner authorized by the Commission. As of the effective date of this Appendix A, the LDC is permitted to negotiate rates to certain industrial Customers when necessary or appropriate to meet the prices of competitive fuels or energy sources or otherwise to avoid the loss of sales or transportation service to these Customers. To permit the LDC to provide

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service to these Customers without suffering a loss of margin, the LDC shall record the negotiated losses in the "All Customers" deferred account. If the LDC should negotiate rates for any purpose other than meeting competition from alternate fuel or energy sources, the LDC will file a report with the Commission stating the reason for any such negotiation. Such reports will be filed within 45 days after the month in which the negotiation took place.

**6. Annual Review.**

- (a) **Annual Test Periods and Filing Dates.** The LDC will submit to the Commission the information and data required in Section 6(c) for an historical 12-month test period. This information will be filed on or before August 1 of each year based on a test period ended May 31.
- (b) **Public Hearings.** The Commission will schedule an annual public hearing pursuant to G.S. 62-133.4(c) in order to compare the LDC's prudently incurred Gas Costs with Gas Costs recovered from all its Customers that it served during the test period. The public hearing will be on the first Tuesday of October. The Commission, on its own motion or the motion of any interested party, may change the date for the public hearing and/or consolidate the hearing required by this section with any other docket(s) pending before the Commission with respect to the affected LDC.
- (c) **Information Required in Annual Filings.** The LDC will file information and data showing the LDC's actual gas costs, volumes of purchased gas, sales volumes, negotiated sales volumes and transportation volumes and such other information as may be directed by the Commission. All such information and data will be accompanied by workpapers and direct testimony and exhibits of witnesses supporting the information.
- (d) **Notice of Hearings.** The LDC will publish a notice for two (2) successive weeks in a newspaper or newspapers having general circulation in its service area, normally beginning at least 30 days prior to the hearing, notifying the public of the hearing before the Commission pursuant to G.S. 62-133.4 and setting forth the time and place of the hearing.
- (e) **Petitions to Intervene.** Persons having an interest in any hearing held under the provisions of this Appendix A may file a petition to intervene setting forth such interest at least 15 days prior to the date of the hearing. Petitions to intervene filed less than 15 days prior to the date of the hearing may be allowed at the discretion of the Commission for good cause shown.

**PIEDMONT NATURAL GAS COMPANY, INC.  
NORTH CAROLINA SERVICE REGULATIONS**

**Page 7 of 7**

- (f) **Filing of Testimony and Exhibits by the Public Staff and Intervenors.** The Public Staff and other intervenors may file direct testimony and exhibits of witnesses at least 15 days prior to the hearing date. If a petition to intervene is filed less than 15 days prior to the hearing date, it shall be accompanied by any direct testimony and exhibits of witnesses the intervenor intends to offer at the hearing.
- (g) **Filing of Rebuttal Testimony.** The LDC may file rebuttal testimony and exhibits within 10 days of the actual receipt of the testimony of the party to whom the Rebuttal Testimony is addressed.

**PIEDMONT NATURAL GAS COMPANY, INC.  
NORTH CAROLINA SERVICE REGULATIONS**

**Page 1 of 4**

**APPENDIX B**

**CUSTOMER AGENT AGREEMENT**

This Customer Agent Agreement ("Agreement") is made this \_\_\_\_ day of \_\_\_\_\_, 201\_, by and between Piedmont Natural Gas Company, Inc. ("Piedmont") and \_\_\_\_\_ ("Agent").

WHEREAS, Piedmont's natural gas transportation tariffs provide for the ability of customers receiving Piedmont's transportation services to designate and utilize a third-party agent for purposes of making nominations for and delivering natural gas to Piedmont on behalf of such customers and managing imbalances on the Piedmont system resulting from such activities; and

WHEREAS, in undertaking such activities on behalf of Piedmont's customers, such Agents have the capacity to create material economic and operational risks for Piedmont and its customers; and

WHEREAS, Agent desires to act as a Customer Agent on Piedmont's system; and

WHEREAS, Piedmont is willing to permit Agent to operate on its system under the terms and conditions set forth herein and under the parameters of Piedmont's approved tariffs and service regulations.

NOW, THEREFORE, in consideration of the premises, and other good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, Piedmont and Agent agree as follows:

1. Establishment and Maintenance of Creditworthiness. Except as otherwise expressly provided in this Paragraph 1, each Agent must establish credit with Piedmont in the form of a Letter of Credit, escrow deposit, parental guaranty, or otherwise, in form and substance acceptable to Piedmont, in an amount equal to or greater than the dollar value obtained by the following formula at all times:

The higher of Agent's average daily load for the previous month or Agent's First-of-Month confirmed daily nomination quantity for the new month x 3 days x (NYMEX prompt month close) x 1.25

Each month, prior to nominating transactions for the first of the month business, an evaluation will be made to ensure that the established credit does not fall below the value obtained from the formula shown above. In the event Agent's established credit falls below the value obtained

Issued by Thomas E. Skains, Chairman, President and CEO  
Issued to comply with authority granted by the  
North Carolina Utilities Commission  
Docket No. G-9, Sub 550

Issued: 10/30/2008  
Effective: 11/01/2008

**PIEDMONT NATURAL GAS COMPANY, INC.  
NORTH CAROLINA SERVICE REGULATIONS****Page 2 of 4**

through application of the formula shown above, either during this monthly evaluation or at any other time, Piedmont may require that the value of said Letter of Credit, escrow deposit, parental guaranty, or other form of assurance be changed at any time in order to reestablish adequate creditworthiness hereunder. In the event Agent fails to establish creditworthiness as set forth above, or fails to comply within 5 days with directions from Piedmont to increase the amount of its credit instruments as provided herein, then Agent's right to conduct business on the Piedmont system shall be suspended until such time as Agent shall be in compliance with the creditworthiness provisions set forth herein (including any requirements to increase said creditworthiness). The foregoing creditworthiness requirements shall not apply to any Agent to the extent that and for so long as such Agent's creditworthiness obligations under this Paragraph 1 would be less than or equal to \$100,000.

2. Customer Agent Imbalance Restrictions. Agent shall use all reasonable efforts to minimize intra-month imbalances. Agent agrees to adhere to the imbalance provisions set forth in Piedmont's Service Regulations and Rate Schedules, as in effect from time to time.

3. Allocation of Imbalance Quantities/Penalties. Concurrent with the submission of monthly nominations, Agent shall provide Piedmont with a schedule of allocated nominations for customers to be served by Agent for the following month. This allocation shall serve as the basis for resolving imbalances with Agent's customers to the extent those imbalances are not resolved by Agent. In the event Agent fails to submit such schedule, and further fails to resolve any monthly imbalance during the term hereof, those imbalances and any attendant penalties shall be allocated to Agent's customers, *pro rata*, based upon the actual usage of each such customer during the month to which the unresolved imbalance and/or penalties is attributable.

4. Failure to Comply with Operational Notices, and Agent Creditworthiness and Imbalance Requirements. If Agent fails to adhere to the imbalance and credit requirements set forth above, or to obey specific instructions issued by Piedmont and designed to preserve the operational integrity of Piedmont's system, Agent (a) shall be subject to the Unauthorized Over Run Penalty provisions of Piedmont's Rate Schedule 106, and (b) shall have its right to transact business on Piedmont's system suspended. Upon any such suspension, Agent's authorization to conduct business on the Piedmont system shall not be restored until such time as Agent is in full compliance with the provisions hereof and all applicable provisions of Piedmont's tariffs and service regulations.

5. Term. This Agreement shall become effective as of the date first written above and shall continue in full force or effect until terminated by either party hereto upon sixty (60) days written notice.

6. Supplemental Nature of Agreement. This Agreement is supplemental to the provisions of Piedmont's approved tariffs and service regulations, the provisions of which shall



**PIEDMONT NATURAL GAS COMPANY, INC.  
NORTH CAROLINA SERVICE REGULATIONS**

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also apply to services rendered hereunder. As such, the restrictions and requirements set forth herein are cumulative in nature and in addition to any other imbalance or penalty provisions set forth in Piedmont's approved tariffs and service regulations.

7. Billing and Payment. Billings to Agent for any amounts due hereunder, and payments by Agent on such billings, shall be made in a manner consistent with the billing and payment provisions of the underlying transportation tariffs pursuant to which service is rendered.

8. Miscellaneous.

- A. Modification. This Agreement may not be modified or amended except by the execution of a written agreement by the parties hereto.
- B. Waiver. No failure by any party to enforce this agreement with respect to any default in the performance of any of the provisions of this Agreement shall operate or be construed to operate as a waiver thereof or of any similar future default.
- C. Assignment. This Agreement may not be assigned by any party hereto without the express written consent of the other party hereto.
- D. Jurisdiction. This Agreement and the respective obligations of the parties hereto are subject to all valid laws, orders, rules and regulations of the North Carolina Utilities Commission and any other governmental bodies having jurisdiction.
- E. Conflict of Laws. The construction, interpretation, and performance of this Agreement shall be in accordance with the substantive laws of the State of North Carolina without regard to any conflicts of laws provisions thereof.

IN WITNESS WHEREOF, the undersigned parties have executed this agreement as of the year and date first written above.

AGENT

PIEDMONT NATURAL GAS COMPANY, INC.

By: \_\_\_\_\_  
Title: \_\_\_\_\_

By: \_\_\_\_\_  
Title: \_\_\_\_\_

Issued by Thomas E. Skains, Chairman, President and CEO  
Issued to comply with authority granted by the  
North Carolina Utilities Commission  
Docket No. G-9, Sub 550

Issued: 10/30/2008  
Effective: 11/01/2008

**PIEDMONT NATURAL GAS COMPANY, INC.  
NORTH CAROLINA SERVICE REGULATIONS**

**Page 4 of 4**

**MAILING ADDRESS**

Please submit to:      Transportation & Pipeline Services  
Piedmont Natural Gas Company  
P.O. Box 33068  
Charlotte, N.C. 28233

OR

Transportation & Pipeline Services  
Fax Number: (704) 364-8320

Issued by Thomas E. Skains, Chairman, President and CEO  
Issued to comply with authority granted by the  
North Carolina Utilities Commission  
Docket No. G-9, Sub 550

Issued: 10/30/2008  
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**PIEDMONT NATURAL GAS COMPANY, INC.  
NORTH CAROLINA SERVICE REGULATIONS**

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**APPENDIX C**

Margin Decoupling Tracker

1. Provision for Adjustment

The base rates per therm (100,000 Btu) for gas service set forth in Rate Schedules 101, 102 and 152 of Piedmont Natural Gas Company (Company) shall be adjusted by an amount hereinafter described which amount is referred to as the "Margin Decoupling Adjustment." The Margin Decoupling Adjustment shall be calculated, as a decrement or an increment, and applied to Rate Schedules 101, 102 and 152 to refund or recover the balance in the "Margin Decoupling Deferred Account." The Margin Decoupling Deferred Account shall be established by a monthly adjustment hereinafter described, which monthly adjustment is referred to as the "Margin Decoupling Deferred Account Adjustment."

2. Definitions

For the purposes of this Rider:

"Commission" means the North Carolina Utilities Commission

"Relevant Rate Order" means the final order of the Commission in the most recent litigated rate case of the Company fixing the rates of the Company or the most recent final order of the Commission specifically prescribing or fixing the factors and procedures to be used in the application of this Rider.

3. Computation of Margin Decoupling Deferred Account Adjustment

The Margin Decoupling Deferred Account Adjustment, for each of the Rate Schedules 101, 102 and 152, shall be computed monthly to the nearest dollar by the following formulas:

$\text{Base Load Therms}_i = \text{Actual Customers}_i \times \text{Base Load}_i$

$\text{Heat Sensitive Therms}_i = \text{Actual Customers}_i \times \text{Heat Sensitivity Factor}_i \times \text{Normal Degree Days}$

$\text{Normalized Therms}_i = \text{Base Load Therms}_i + \text{Heat Sensitive Therms}_i$

$\text{Normalized Margin}_i = \text{Normalized Therms}_i \times \text{R Factor}_i$

$\text{Actual Margin}_i = \text{Actual Therms}_i \times \text{R Factor}_i$

$\text{Margin Decoupling Deferred Account Adjustment}_i = \text{Normalized Margin}_i - \text{Actual Margin}_i$

**PIEDMONT NATURAL GAS COMPANY, INC.  
NORTH CAROLINA SERVICE REGULATIONS**

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**APPENDIX C**

Where:

$i$ =	any particular rate schedule
Actual Customers <sub><math>i</math></sub> =	Actual customers billed for the billing cycle month for the $i^{\text{th}}$ rate schedule
Actual Therms <sub><math>i</math></sub> =	Actual therms used for the billing cycle month for the $i^{\text{th}}$ rate schedule
R Factor <sub><math>i</math></sub> =	base rate (approved rate less fixed and commodity cost of gas) for the $i^{\text{th}}$ schedule or classification utilized by the Commission in the Relevant Rate Order for the purpose of determining normalized test year revenues.
Heat Sensitivity Factor <sub><math>i</math></sub> =	heat sensitive factor for the $i^{\text{th}}$ schedule of classification utilized by the Commission in the Relevant Rate Order for the purpose of determining normalized test year revenues.
Normal Degree Days =	normal, 15 <sup>th</sup> to 15 <sup>th</sup> , heating degree days utilized by the Commission in the Relevant Rate Order for the purpose of determining normalized test year revenues.
Base Load <sub><math>i</math></sub> =	base load sales for the $i^{\text{th}}$ schedule or classification utilized by the Commission in the Relevant Rate Order for the purpose of determining normalized test year revenues.

**4. Filing with Commission**

The Company will file monthly as directed by the Commission (a) a copy of each computation of the Margin Decoupling Deferred Account Adjustment by rate schedule, (b) a schedule showing the effective date of each such Margin Decoupling Deferred Account Adjustment, and (c) a schedule showing the factors of values derived from the Relevant Rate Order used in calculating such Margin Decoupling Deferred Account Adjustment. Such reports will be filed within 45 days after the end of the month for which the report is being filed.

**PIEDMONT NATURAL GAS COMPANY, INC.  
NORTH CAROLINA SERVICE REGULATIONS**

**Page 3 of 3**

**APPENDIX C**

**5. Computation of Margin Decoupling Adjustment**

Effective for both the first day of April's Bill Cycle Month and the first day of November's Bill Cycle Month, the Margin Decoupling Adjustment to refund or recover the balance in the Margin Decoupling Deferred Account, shall be calculated to the nearest one-thousandth cent per therm by the following formula:

$$\text{Margin Decoupling Adjustment} = \frac{\text{Margin Decoupling Deferred Account Balance}}{\text{Annual Therms}_{ti}}$$

Where:

Margin Decoupling Deferred Account Balance = Balance at January 31 and August 31

Annual Therms = Normalized volumes assigned in most recent rate case

$t_i$  = Total for Rate Schedules 101, 102 and 152

**6. Interest**

Interest will be applied to the Margin Decoupling Deferred Account at the Company's authorized overall rate of return.

**7. Filing with Commission**

The Company will file revised tariffs for Commission approval upon 14 days notice to implement a decrement or an increment each April and November. With the filing the Company will include a copy of each computation of the Margin Decoupling Adjustment.

**PIEDMONT NATURAL GAS COMPANY  
NORTH CAROLINA SERVICE REGULATIONS**

**Page 1 of 1**

**APPENDIX D**

**Equal Payment Plan (EPP)**

**AVAILABILITY**

The Equal Payment Plan ("EPP" or "Plan") is available to customers receiving service under Rate Schedules 101, 102 and 152 whose accounts are in good standing. For purposes of the EPP, a customer shall be in good standing if they have not had service terminated or been removed from the Plan within the immediately prior twelve (12) month period for non-payment of bills. The Plan is designed to provide the customer the option of paying equal payments over a twelve-month period and is available during any month of the year. The Company shall have discretion, but shall not be required, to include existing balances in the calculation of monthly EPP payments as provided below, where a customer has a difficult time paying his monthly bills. In circumstances where an existing balance exists, the Company may require that as much of the old balance as possible be paid up front in order to help keep future payments as low as possible.

**GENERAL TERMS AND CONDITIONS**

At the customer's election, the Company will calculate payments under the Plan based on the customer's actual consumption history during the past 12-months adjusted for normal weather. The estimated monthly usage will be priced at the Company's currently approved margin rates plus an estimated benchmark cost of gas based on the forward-looking NYMEX futures prices for the upcoming 12-month period. Applicable franchise fees and sales tax will then be added to arrive at the estimated annual billing amount. If the customer has an outstanding balance, and Company agrees to include some or all of that balance under the EPP, it will be added to the estimated annual amount. The monthly payment will be calculated by dividing the estimated annual billing amount plus any outstanding balance included under the EPP by twelve. After 11 payments have been made, the customer will be sent a twelfth-month "true-up" bill reflecting any underage or overage of the total of the past 11 payments. Underages will be treated as debits and overages will be treated as credits and applied to the next billing. Refunds may be made by check if the overage exceeds \$25.00. Unless otherwise requested, the customer will remain on EPP after the twelfth bill with a new monthly EPP amount calculated.

**MID-YEAR ADJUSTMENTS**

In order to avoid unusually large debit or credit balances to the customer's account, the Company may make mid-year adjustments to the EPP payments. During periods of highly volatile wholesale gas prices, more frequent EPP adjustments may be required to avoid unusually large debit or credit balances. The Company will notify the customer with a notation on the bill, bill insert or separate mailing of any adjustments to payments.



**Piedmont Natural Gas Company, Inc.**

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**SOUTH CAROLINA RATES AND CHARGES****Residential****Residential Service - Value Rate 201**

Monthly Charge		Rate Per Therm	
November - March	\$ 10.00	November - March	\$ 0.79383
April - October	\$ 8.00	April - October	\$ 0.74853

**Residential Service - Standard Rate 221**

Monthly Charge		Rate Per Therm	
November - March	\$ 10.00	November - March	\$ 1.00103
April - October	\$ 8.00	April - October	\$ 1.00739

**Outdoor Gaslight Service - Rate 205**

Monthly Charge	\$ 15.00
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Issued by Thomas E. Skains, Chairman, President and CEO  
Issued to comply with the authority granted by  
The Public Service Commission of South Carolina  
Docket No. 2011-7-G and GCRM - 131  
Order Nos. 2011-741 and 2011-\*\*\*

Issued: October 14, 2011  
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Piedmont Natural Gas Company, Inc.

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## SOUTH CAROLINA RATES AND CHARGES

## Commercial

**Small General Service - Standard Rate 202**

Monthly Charge	\$ 22.00	Rate Per Therm	
		November - March	\$ 0.90941
		April - October	\$ 0.87334

**Small General Service - Value Rate 232**

Monthly Charge	\$ 22.00	Rate Per Therm		
		November - March	First 2,000	\$ 0.84661
			Over 2,000	\$ 0.81538
		April - October	First 2,000	\$ 0.74723
			Over 2,000	\$ 0.71878

**Medium General Service - Standard Rate 252**

Monthly Charge	\$ 75.00	Rate Per Therm	
		November - March	\$ 0.88392
		April - October	\$ 0.84035

**Medium General Service - Value Rate 262**

Monthly Charge	\$ 75.00	Rate Per Therm		
		November - March	First 5,000	\$ 0.81210
			Over 5,000	\$ 0.77636
		April - October	First 5,000	\$ 0.71598
			Over 5,000	\$ 0.69009

**Small General Service - Motor Fuel Rate 242**

Monthly Charge *	\$ 22.00	Rate Per Therm		Rate Per GGE **
		November - March	\$ 0.63274	0.79725 **
		April - October	\$ 0.60037	0.75647 **

\* The Monthly Charge for Rate 242 is not applicable to gas service provided at the Company's Premises.

\*\* The Company may bill in units of Gasoline Gallon Equivalent ("GGE") for gas service provided at the Company's Premises under Rate 242. The rates above convert 1.26 Therms to 1 GGE.

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Piedmont Natural Gas Company, Inc.

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## SOUTH CAROLINA RATES AND CHARGES

## Industrial

Large General Sales Service - Rate 203

Monthly Charge				\$	250.00	
Demand Charge (monthly per peak day therm usage)				\$	1.79812	
Rate Per Therm						
	<u>November - March</u>				<u>April - October</u>	
	First 15,000	\$	0.64849		First 15,000	\$ 0.55725
	Next 15,000	\$	0.57774		Next 15,000	\$ 0.50826
	Next 75,000	\$	0.53857		Next 75,000	\$ 0.51203
	Next 165,000	\$	0.46553		Next 165,000	\$ 0.44696
	Next 330,000	\$	0.41021		Next 330,000	\$ 0.40521
	Over 600,000	\$	0.38164		Over 600,000	\$ 0.38164

Interruptible Sales Service - Rate 204

Monthly Charge				\$	250.00
Rate Per Therm					
	<u>November - March</u>			<u>April - October</u>	
	First 15,000	\$	0.72537	First 15,000	\$ 0.57184
	Next 15,000	\$	0.64845	Next 15,000	\$ 0.52235
	Next 75,000	\$	0.59148	Next 75,000	\$ 0.49413
	Next 165,000	\$	0.61209	Next 165,000	\$ 0.47587
	Next 330,000	\$	0.50865	Next 330,000	\$ 0.42021
	Over 600,000	\$	0.42164	Over 600,000	\$ 0.39164

Large General Transportation Service - Rate 213

Monthly Charge				\$	250.00
Demand Charge (monthly per peak day therm usage)				\$	0.59651
Standby Sales Service Charge (monthly per peak day therm usage)				\$	1.20161
Rate Per Therm					
	<u>November - March</u>			<u>April - October</u>	
	First 15,000	\$	0.24657	First 15,000	\$ 0.17511
	Next 15,000	\$	0.17984	Next 15,000	\$ 0.12679
	Next 75,000	\$	0.13337	Next 75,000	\$ 0.10095
	Next 165,000	\$	0.09015	Next 165,000	\$ 0.06829
	Next 330,000	\$	0.03546	Next 330,000	\$ 0.03021
	Over 600,000	\$	0.00664	Over 600,000	\$ 0.00664

Interruptible Transportation Service - Rate 214

Monthly Charge				\$	250.00
Rate Per Therm					
	<u>November - March</u>			<u>April - October</u>	
	First 15,000	\$	0.24629	First 15,000	\$ 0.17490
	Next 15,000	\$	0.17946	Next 15,000	\$ 0.12593
	Next 75,000	\$	0.13111	Next 75,000	\$ 0.09571
	Next 165,000	\$	0.08303	Next 165,000	\$ 0.06537
	Next 330,000	\$	0.03610	Next 330,000	\$ 0.05051
	Over 600,000	\$	0.00664	Over 600,000	\$ 0.00664

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Piedmont Natural Gas Company, Inc.

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SOUTH CAROLINA RATES AND CHARGES

Miscellaneous Fees And Charges

Schedule For Limiting And Curtailing Service - Rate 206

Emergency Service Rate Per Therm	\$ 1.00	In addition to commodity prices as defined in Rate Schedule 206, Rate For Emergency Service.
Unauthorized Over Run Penalty Per Therm	\$ 2.50	In addition to commodity prices as defined in Rate Schedule 206, Rate For Emergency Service.

Reconnect Fees

February Through August	\$ 40.00
September Through January	\$ 60.00

Returned Check Charge

Returned Check Charge	\$ 25.00
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Issued by Thomas E. Skains, Chairman, President and CEO  
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**Piedmont Natural Gas Company**  
**South Carolina**  
**Index of Tariff & Service Regulations**

<u>Rate Schedule 201</u>	<u>Residential Service – Value Rate</u>
<u>Rate Schedule 221</u>	<u>Residential Service – Standard Rate</u>
<u>Rate Schedule 202</u>	<u>Small General Service – Standard Rate</u>
<u>Rate Schedule 232</u>	<u>Small General Service – Value Rate</u>
<u>Rate Schedule 252</u>	<u>Medium General Service – Standard Rate</u>
<u>Rate Schedule 262</u>	<u>Medium General Service – Value Rate</u>
<u>Rate Schedule 203</u>	<u>Large General Sales Service</u>
<u>Rate Schedule 204</u>	<u>Interruptible Sales Service</u>
<u>Rate Schedule 205</u>	<u>Outdoor Gaslight Service</u>
<u>Rate Schedule 206</u>	<u>Schedule for Limiting and Curtailing Service</u>
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<u>Rate Schedule 213</u>	<u>Large General Transportation Service</u>
<u>Rate Schedule 214</u>	<u>Interruptible Transportation Service</u>
<u>Rate Schedule 242</u>	<u>Small General Service – Motor Fuel</u>

Service Regulations

Appendix A - Gas Costs Recovery Mechanism

Appendix B - Customer Agent Agreement

Economic Development Rider

Piedmont Natural Gas Company, Inc.

P.S.C.S.C. Tariff

**RATE SCHEDULE 201**  
**RESIDENTIAL SERVICE-VALUE RATE**

**Applicability**

Gas service under this Rate Schedule is available in the area served by the Company in the State of South Carolina to a residential unit, which is individually metered, and to governmental housing projects. Rate Schedule 201 applies to all residential customers whose base load usage in either of the cycle billing months of July and August is equal to or greater than 15 therms. Base load usage will be based upon Customer's usage in the Company's most recent residential base load period adjusted for cycle length. Availability of this Rate Schedule for new Customers will be based on reasonably anticipated base load usage. Reclassification of customers between rate schedules will be based upon procedures set forth in the Company's Service Regulations as approved by the Public Service Commission of South Carolina (the "Commission").

**Rates and Charges**

The rates to be charged for gas service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the Commission and at each of the district offices of the Company. Rates are subject to adjustment from time to time with the approval of the Commission. The rates on file with the Commission shall prevail in the event of conflict with those rates viewed on the Company's Web Site.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 25 days after bill date.

**Late Payment Charge**

A late payment charge of 1½% per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas service under this Rate Schedule is subject to the provisions contained with Rate Schedule 206, "Schedule for Limiting and Curtailing Service".

**Applicable Documents Defining Obligations of the Company and Its Customers**

Service under this rate schedule is subject to the Rules and Regulations of the Public Service Commission of South Carolina ("Commission Rules") and to the Company's Service Regulations. Among other things, the Commission Rules and the Company's Service Regulations permit the interruption or curtailment of service under certain conditions, including events of *force majeure* and operating conditions. A copy of the Commission's Rules may be obtained from the Public Service Commission of South Carolina, 101 Executive Center Dr., Columbia, SC 29210, upon payment of the applicable fee. The Company's Service Regulations may be obtained at each of the district offices of the Company. Unofficial copies of the Company's Service Regulations are available at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com).

Issued by Ware F. Schiefer, Chief Executive Officer  
Issued: November 1, 2002  
Docket No. 2002-63-G  
Effective: November 1, 2002

Piedmont Natural Gas Company, Inc.

P.S.C.S.C. Tariff

**RATE SCHEDULE 221**  
**RESIDENTIAL SERVICE-STANDARD RATE**

**Applicability**

Gas service under this Rate Schedule is available in the area served by the Company in the State of South Carolina to a residential unit, which is individually metered. Rate Schedule 221 applies to all residential customers whose base load usage in both of the cycle billing months of July and August is less than 15 therms. Base load usage will be based upon Customer's usage in the Company's most recent residential base load period adjusted for cycle length. Availability of this Rate Schedule for new Customers will be based on reasonably anticipated base load usage. Reclassification of customers between rate schedules will be based upon procedures set forth in the Company's Service Regulations as approved by the Public Service Commission of South Carolina (the "Commission").

**Rates and Charges**

The rates to be charged for gas service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the Commission and at each of the district offices of the Company. Rates are subject to adjustment from time to time with the approval of the Commission. The rates on file with the Commission shall prevail in the event of conflict with those rates viewed on the Company's Web Site.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 25 days after bill date.

**Late Payment Charge**

A late payment charge of 1½% per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas service under this Rate Schedule is subject to the provisions contained with Rate Schedule 206, "Schedule for Limiting and Curtailing Service".

**Applicable Documents Defining Obligations of the Company and Its Customers**

Service under this rate schedule is subject to the Rules and Regulations of the Public Service Commission of South Carolina ("Commission Rules") and to the Company's Service Regulations. Among other things, the Commission Rules and the Company's Service Regulations permit the interruption or curtailment of service under certain conditions, including events of *force majeure* and operating conditions. A copy of the Commission's Rules may be obtained from the Public Service Commission of South Carolina, 101 Executive Center Dr., Columbia, SC 29210, upon payment of the applicable fee. The Company's Service Regulations may be obtained at each of the district offices of the Company. Unofficial copies of the Company's Service Regulations are available at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com).

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Piedmont Natural Gas Company, Inc.

P.S.C.S.C. Tariff

**RATE SCHEDULE 202**  
**SMALL GENERAL SERVICE-STANDARD RATE**

**Applicability and Character of Service**

Gas service under this Rate Schedule is available in the area served by the Company in the State of South Carolina to any full requirements non-residential Customer whose average daily usage is less than 20 dekatherms per day and whose Summer Load Percentage (SLP) is equal to or less than 30%. Average daily gas usage will be based on the Customer's usage during the most recent past calendar year ended on December 31 and adjusted for cycle length. SLP will be determined based upon the percentage of the Customer's total annual usage represented by the Customer's seven (7) month summer usage (April – October). Availability of this Rate Schedule for new Customers or for Customers without at least one full year of usage history will be based on reasonably anticipated usage.

Reclassification of customers between rate schedules will be based upon procedures set forth in the Company's Service Regulations as approved by the Public Service Commission of South Carolina (the "Commission").

**Rates and Charges**

The rates to be charged for gas service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the Commission and at each of the district offices of the Company. Rates are subject to adjustment from time to time with the approval of the Commission. The rates on file with the Commission shall prevail in the event of conflict with those rates viewed on the Company's Web Site.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Late Payment Charge**

A late payment charge of 1½% per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas service under this Rate Schedule is subject to the provisions contained with Rate Schedule 206, "Schedule for Limiting and Curtailing Service".

**Applicable Documents Defining Obligations of the Company and Its Customers**

Service under this rate schedule is subject to the Rules and Regulations of the Public Service Commission of South Carolina ("Commission Rules") and to the Company's Service Regulations. Among other things, the Commission Rules and the Company's Service Regulations permit the interruption or curtailment of service under certain conditions, including events of *force majeure* and operating conditions. A copy of the Commission's Rules may be obtained from the Public Service Commission of South Carolina, 101 Executive Center Dr., Columbia, SC 29210, upon payment of the applicable fee. The Company's Service Regulations may be obtained at each of the district offices of the Company. Unofficial copies of the Company's Service Regulations are available at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com).

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Piedmont Natural Gas Company, Inc.

P.S.C.S.C. Tariff

**RATE SCHEDULE 232**  
**SMALL GENERAL SERVICE-VALUE RATE**

**Applicability and Character of Service**

Gas service under this Rate Schedule is available in the area served by the Company in the State of South Carolina to any full requirements non-residential Customer whose average daily usage is less than 20 dekatherms per day and whose Summer Load Percentage (SLP) is greater than 30%. Average daily gas usage will be based on the Customer's usage during the most recent calendar year ended on December 31 and adjusted for cycle length. SLP will be determined based upon the percentage of the Customer's total annual usage represented by the Customer's seven (7) month summer usage (April – October). Availability of this Rate Schedule for new Customers or for Customers without at least one full year of usage history will be based on reasonably anticipated usage.

Reclassification of customers between rate schedules will be based upon procedures set forth in the Company's Service Regulations as approved by the Public Service Commission of South Carolina (the "Commission").

**Rates and Charges**

The rates to be charged for gas service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the Commission and at each of the district offices of the Company. Rates are subject to adjustment from time to time with the approval of the Commission. The rates on file with the Commission shall prevail in the event of conflict with those rates viewed on the Company's Web Site.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Late Payment Charge**

A late payment charge of 1½% per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas service under this Rate Schedule is subject to the provisions contained with Rate Schedule 206, "Schedule for Limiting and Curtailing Service".

**Applicable Documents Defining Obligations of the Company and Its Customers**

Service under this rate schedule is subject to the Rules and Regulations of the Public Service Commission of South Carolina ("Commission Rules") and to the Company's Service Regulations. Among other things, the Commission Rules and the Company's Service Regulations permit the interruption or curtailment of service under certain conditions, including events of *force majeure* and operating conditions. A copy of the Commission's Rules may be obtained from the Public Service Commission of South Carolina, 101 Executive Center Dr., Columbia, SC 29210, upon payment of the applicable fee. The Company's Service Regulations may be obtained at each of the district offices of the Company. Unofficial copies of the Company's Service Regulations are available at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com).

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P.S.C.S.C. Tariff

**RATE SCHEDULE 252**  
**MEDIUM GENERAL SERVICE-STANDARD RATE**

**Applicability and Character of Service**

Gas service under this Rate Schedule is available in the area served by the Company in the State of South Carolina to any full requirements non-residential Customer whose average daily usage is equal to or greater than 20 dekatherms per day but less than 50 dekatherms per day and whose Summer Load Percentage (SLP) is equal to or less than 30%. Average daily gas usage will be based on the Customer's usage during the most recent calendar year ended on December 31 and adjusted for cycle length. SLP will be determined based upon the percentage of the Customer's total annual usage represented by the Customer's seven (7) month summer usage (April – October). Availability of this Rate Schedule for new Customers or for Customers without at least one full year of usage history will be based on reasonably anticipated usage.

Reclassification of customers between rate schedules will be based upon procedures set forth in the Company's Service Regulations as approved by the Public Service Commission of South Carolina (the "Commission").

**Rates and Charges**

The rates to be charged for gas service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the Commission and at each of the district offices of the Company. Rates are subject to adjustment from time to time with the approval of the Commission. The rates on file with the Commission shall prevail in the event of conflict with those rates viewed on the Company's Web Site.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Late Payment Charge**

A late payment charge of 1½% per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas service under this Rate Schedule is subject to the provisions contained with Rate Schedule 206, "Schedule for Limiting and Curtailing Service".

**Applicable Documents Defining Obligations of the Company and Its Customers**

Service under this rate schedule is subject to the Rules and Regulations of the Public Service Commission of South Carolina ("Commission Rules") and to the Company's Service Regulations. Among other things, the Commission Rules and the Company's Service Regulations permit the interruption or curtailment of service under certain conditions, including events of *force majeure* and operating conditions. A copy of the Commission's Rules may be obtained from the Public Service Commission of South Carolina, 101 Executive Center Dr., Columbia, SC 29210, upon payment of the applicable fee. The Company's Service Regulations may be obtained at each of the district offices of the Company. Unofficial copies of the Company's Service Regulations are available at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com).

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P.S.C.S.C. Tariff

**RATE SCHEDULE 262**  
**MEDIUM GENERAL SERVICE-VALUE RATE**

**Applicability and Character of Service**

Gas service under this Rate Schedule is available in the area served by the Company in the State of South Carolina to any full requirements non-residential Customer whose average daily usage is equal to or greater than 20 dekatherms per day but less than 50 dekatherms per day and whose Summer Load Percentage (SLP) is greater than 30%. Average daily gas usage will be based on the Customer's usage during the most recent calendar year ended on December 31 and adjusted for cycle length. SLP will be determined based upon the percentage of the Customer's total annual usage represented by the Customer's seven (7) month summer usage (April – October). Availability of this Rate Schedule for new Customers or for Customers without at least one full year of usage history will be based on reasonably anticipated usage.

Reclassification of customers between rate schedules will be based upon procedures set forth in the Company's Service Regulations as approved by the Public Service Commission of South Carolina (the "Commission").

**Rates and Charges**

The rates to be charged for gas service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the Commission and at each of the district offices of the Company. Rates are subject to adjustment from time to time with the approval of the Commission. The rates on file with the Commission shall prevail in the event of conflict with those rates viewed on the Company's Web Site.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Late Payment Charge**

A late payment charge of 1½% per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas service under this Rate Schedule is subject to the provisions contained with Rate Schedule 206, "Schedule for Limiting and Curtailing Service".

**Applicable Documents Defining Obligations of the Company and Its Customers**

Service under this rate schedule is subject to the Rules and Regulations of the Public Service Commission of South Carolina ("Commission Rules") and to the Company's Service Regulations. Among other things, the Commission Rules and the Company's Service Regulations permit the interruption or curtailment of service under certain conditions, including events of *force majeure* and operating conditions. A copy of the Commission's Rules may be obtained from the Public Service Commission of South Carolina, 101 Executive Center Dr., Columbia, SC 29210, upon payment of the applicable fee. The Company's Service Regulations may be obtained at each of the district offices of the Company. Unofficial copies of the Company's Service Regulations are available at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com).

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Piedmont Natural Gas Company, Inc.

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**RATE SCHEDULE 203**  
**LARGE GENERAL SALES SERVICE**

**Availability**

For new Customers, gas service under this Rate Schedule is available in the area served by the Company in the State of South Carolina to any full requirements non-residential Customer whose average daily gas usage is reasonably anticipated to equal or exceed 50 dekatherms per day.

Reclassification of Customers between rate schedules will be based upon procedures set forth in the Company's Service Regulations as approved by the Public Service Commission of South Carolina (the "Commission").

Once a qualified Customer elects service under this Rate Schedule, all services will be provided under the terms and conditions of this Rate Schedule for a term extending through the following May 31. Subject to the requirements set forth above, a Customer may elect to discontinue service under this Rate Schedule and receive service under Rate Schedule 213 by giving written notice to the Company prior to March 1 of any year. Proper notice having been provided, the Customer shall discontinue service under this Rate Schedule effective the first June 1 following the notice.

All gas delivered pursuant to this Rate Schedule shall be metered separately from any gas delivered under any of the Company's other Rate Schedules.

**Rates and Charges**

The rates to be charged for gas service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the Commission and at each of the district offices of the Company. Rates are subject to adjustment from time to time with the approval of the Commission. The rates on file with the Commission shall prevail in the event of conflict with those rates viewed on the Company's Web Site. The rates on file with the Commission shall prevail in the event of conflict with those rates viewed on the Company's Web Site.

**Billing Demand**

A Customer's billing demand determinant shall be the highest daily usage during the period from November 1 to March 31 of the previous winter period as metered and reported to the Company by the telemetering equipment installed by the Company.

Changes to the Customer's billing demand determinant will become effective June 1 of each year.

For Customers commencing initial gas service under this Rate Schedule, the billing demand shall be the highest actual daily consumption to date during that initial partial year, but shall be a minimum of 500 therms. If a Customer has received gas service from the Company prior to receiving service under this Rate Schedule but does not have daily telemetered records to determine peak day usage as described above, the Company shall use 6% of that Customer's highest previous winter month's consumption for the billing demand determinant.

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**RATE SCHEDULE 203**  
**LARGE GENERAL SALES SERVICE**

**Volumetric Charges**

The rate per therm shall be billed on the quantity of gas delivered by Company to Customer. Any adjustments to the quantity of gas delivered due to meter failure or inaccuracy of measurement shall be determined as provided in the Rules and Regulations of the Commission.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Late Payment Charge**

A late payment charge of one and a half percent (1 ½%) per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas service under this Rate Schedule is subject to the provisions contained within Rate Schedule 206, "Schedule for Limiting and Curtailing Service".

**Applicable Documents Defining Obligations of the Company and Its Customers**

Service under this rate schedule is subject to the Rules and Regulations of the Public Service Commission of South Carolina ("Commission Rules") and to the Company's Service Regulations. Among other things, the Commission Rules and the Company's Service Regulations permit the interruption or curtailment of service under certain conditions, including events of *force majeure* and operating conditions. A copy of the Commission's Rules may be obtained from the Public Service Commission of South Carolina, 101 Executive Center Dr., Columbia, SC 29210, upon payment of the applicable fee. The Company's Service Regulations may be obtained at each of the district offices of the Company. Unofficial copies of the Company's Service Regulations are available at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com).

Piedmont Natural Gas Company, Inc.

P.S.C.S.C. Tariff

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**RATE SCHEDULE 204**  
**INTERRUPTIBLE SALES SERVICE**

**Availability**

For new Customers, gas service under this Rate Schedule is available in the area served by the Company in the State of South Carolina **on an interruptible basis** to any full requirements non-residential Customer whose average daily gas usage is reasonably anticipated to equal or exceed 50 dekatherms per day.

Reclassification of Customers between rate schedules will be based upon procedures set forth in the Company's Service Regulations as approved by the Public Service Commission of South Carolina (the "Commission").

Once a qualified Customer elects service under this Rate Schedule, all services will be provided under the terms and conditions of this Rate Schedule for a term extending through the following May 31. Subject to the requirements set forth above, a Customer may elect to discontinue service under this Rate Schedule and receive service under Rate Schedule 214 by giving written notice to the Company prior to April 1 of any year. Proper notice having been provided, the Customer shall discontinue service under this Rate Schedule effective the first June 1 following the notice.

All gas delivered pursuant to this Rate Schedule shall be metered separately from any gas delivered under any of the Company's other Rate Schedules.

**Standby Alternate Fuel Capability**

Customers purchasing gas pursuant to this Rate Schedule shall maintain, in useable condition, alternate fuel facilities with ample on-site alternate fuel capability for supplying 100% of the establishment's gas requirements during periods of gas interruption or curtailment. Such interruption or curtailment shall be immediately effective upon verbal or written notification by the Company and Customer shall refrain from using gas until permitted to do so by the Company. It is understood and agreed that the Company will have the right to suspend gas service without further notice to the Customer in the event Customer fails to curtail Customer's use of gas in accordance with the Company's notice of curtailment.

**Rates and Charges**

The rates to be charged for gas service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the Commission and at each of the district offices of the Company. Rates are subject to adjustment from time to time with the approval of the Commission. The rates on file with the Commission shall prevail in the event of conflict with those rates viewed on the Company's Web Site. The rates on file with the Commission shall prevail in the event of conflict with those rates viewed on the Company's Web Site.

**Volumetric Charges**

The rate per therm shall be billed on the quantity of gas delivered by Company to Customer. Any adjustments to the quantity of gas delivered due to meter failure or inaccuracy of measurement shall be determined as provided in the Rules and Regulations of the Commission.

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**RATE SCHEDULE 204**  
**INTERRUPTIBLE SALES SERVICE**

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Late Payment Charge**

A late payment charge of one and a half percent (1 ½%) per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas service under this Rate Schedule is subject to the provisions contained within Rate Schedule 206, "Schedule for Limiting and Curtailing Service".

**Applicable Documents Defining Obligations of the Company and Its Customers**

Service under this rate schedule is subject to the Rules and Regulations of the Public Service Commission of South Carolina ("Commission Rules") and to the Company's Service Regulations. Among other things, the Commission Rules and the Company's Service Regulations permit the interruption or curtailment of service under certain conditions, including events of *force majeure* and operating conditions. A copy of the Commission's Rules may be obtained from the Public Service Commission of South Carolina, 101 Executive Center Dr., Columbia, SC 29210, upon payment of the applicable fee. The Company's Service Regulations may be obtained at each of the district offices of the Company. Unofficial copies of the Company's Service Regulations are available at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com).

Piedmont Natural Gas Company, Inc.

P.S.C.S.C. Tariff

**RATE SCHEDULE 205**  
**OUTDOOR GASLIGHT SERVICE**

**Applicability**

This Rate Schedule is available in the area served with natural gas by the Company in the State of South Carolina to Customers with non-metered gas in mantle-equipped outdoor gaslights installed and in use prior to November 1, 2002.

**Rates and Charges**

The rates to be charged for gas service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the Public Service Commission of South Carolina (the "Commission") and at each of the district offices of the Company. Rates are subject to adjustment from time to time with the approval of the Commission. The rates on file with the Commission shall prevail in the event of conflict with those rates viewed on the Company's Web Site.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 25 days after bill date.

**Late Payment Charge**

A late payment charge of 1½% per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas service under this Rate Schedule is subject to the provisions contained with Rate Schedule 206, "Schedule for Limiting and Curtailing Service".

**Applicable Documents Defining Obligations of the Company and Its Customers**

Service under this rate schedule is subject to the Rules and Regulations of the Public Service Commission of South Carolina ("Commission Rules") and to the Company's Service Regulations. Among other things, the Commission Rules and the Company's Service Regulations permit the interruption or curtailment of service under certain conditions, including events of *force majeure* and operating conditions. A copy of the Commission's Rules may be obtained from the Public Service Commission of South Carolina, 101 Executive Center Dr., Columbia, SC 29210, upon payment of the applicable fee. The Company's Service Regulations may be obtained at each of the district offices of the Company. Unofficial copies of the Company's Service Regulations are available at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com).

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**RATE SCHEDULE 206**  
**SCHEDULE FOR LIMITING AND CURTAILING SERVICE**

**Applicability and Character of Service**

This Service Schedule defines the types of curtailment that the Company may invoke from time to time due to the occurrence of extreme weather conditions, operating conditions or force majeure events, and describes the process and procedures to be followed in the implementation of gas service restrictions.

**Distribution Pressure Curtailments**

Due to extreme weather conditions, operating conditions or force majeure events as defined in the Company's Service Regulations, or the demands of the Company's firm Customers as the same may affect the Company's ability to provide interruptible service, the Company may experience localized pressure deficiencies. During such times and within the areas affected, the Company will curtail service to interruptible Customers served under Rate Schedule 204, Rate Schedule 208, or Rate Schedule 214, by priority of their margin contribution to the Company (curtailing Customers with the lowest margin rate first) until the pressure situation can be alleviated. In the unlikely event that further interruption is required, the Company will proceed with curtailment by margin contribution considering end use, impact on the local economy, and the Rules and Regulations of the Public Service Commission of South Carolina.

**Supply or Capacity Related Curtailments**

In situations when supply and capacity services contracted by the Company are not sufficient to meet the full requirements of Customers desiring sales services from the Company, the Company will first curtail service to interruptible sales Customers receiving service under Rate Schedule 204 or 208 by priority of their margin contribution to the Company. The Company reserves the right at the Company's discretion to purchase quantities being delivered to the Company by Customers under Rate Schedule 214 at market prices in order to serve Customers without operable alternative fuel capability. In the unlikely event that further interruption is required, the Company will proceed with curtailment by margin contribution considering end use, impact on the local economy, and the Rules and Regulations of the Public Service Commission of South Carolina.

**Emergency Service**

The Company will make every reasonable effort to deliver plant protection volumes to industrial and commercial Customers that do not have standby fuel systems sufficient to prevent damage to facilities or danger to personnel, or to Customers that find it impossible to continue operations on the Customer's standby or alternate energy source as a result of a bona fide existing or threatened emergency. This includes the protection of such existing material in process that would otherwise be destroyed, or deliveries required to maintain plant production. All emergency gas service is interruptible and is of a discretionary nature on the part of the Company and implies no present or future obligation of the Company to any Customer to provide such service on either a temporary or continuing basis. Deliveries of emergency service hereunder shall be made pursuant only to advance operating arrangements between the Company's authorized personnel and the Customer and shall be subject to curtailment and interruption at any time should the Company deem it necessary.

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**RATE SCHEDULE 206**  
**SCHEDULE FOR LIMITING AND CURTAILING SERVICE**

**Rate for Emergency Service**

If the Company has authorized the Customer to consume limited quantities of emergency gas as provided in the above paragraph, then all gas so consumed by the Customer will be at a rate set forth on the Company's "Rates and Charges" tariff sheet plus the higher of two commodity indices - a "Monthly Contract Price" or a "Daily Price" - for each dekatherm of consumption. "Monthly Contract" shall be defined as the monthly contract index price for the applicable calendar month as first published in Inside F.E.R.C.'s - Gas Market Report in the table titled "Prices of Spot Gas Delivered to Pipelines" under the heading "Transcontinental Gas Pipe Line Corp. - Zone 3 (pooling points)" in the column titled "Index", plus Transco's zone 3 to zone 5 IT transportation rate inclusive of all surcharges and fuel. "Daily Price" shall be defined as the daily price for gas defined by Gas Daily as stated in the "Daily Price Survey", "Citygates", "Transco Z6 (non-NY)", "Midpoint" price. For days of consumption when the Gas Daily is not published, the Gas Daily price shall equal the price as published on the nearest subsequent day by Gas Daily. The Customer's consumption will continue to be billed hereunder until the Company notifies the Customer that either (1) further gas sales may be made under the Customer's regular Rate Schedule or (2) complete curtailment is unavoidable and that further gas sales will be considered unauthorized.

**Unauthorized Over Run Penalty**

If at any time a Customer fails to discontinue the consumption of gas after being directed to do so by the Company or takes gas at levels in excess of the quantities specified by the Company, such quantities shall constitute an unauthorized over run volume. For each dekatherm of such unauthorized over run volume taken by such Customer, such Customer shall pay to the Company a rate set forth on the Company's "Rates and Charges" tariff sheet plus the higher of two gas commodity indices - a "Monthly Contract Price" or a "Daily Price" as both are defined above.

The Customer's consumption will continue to be unauthorized until the Company notifies the Customer that either (1) further gas sales may be made under the Customer's regular rate schedule or (2) the Company agrees to provide Emergency Service under this Rate Schedule, or (3) the Company terminates flow at the valve.

The Customer shall be liable for the above charges together with and in addition to any incremental charges or assessments (including, but not limited to penalties) by the upstream interstate pipeline during the time of the unauthorized usage by such Customer. The payment of a penalty for unauthorized over run volumes shall not under any circumstances be considered as giving any such Customer the right to take unauthorized over-run volumes, nor shall such payment be considered as a substitute for any other remedies available to the Company or any other Customer against the offending Customer for failure to adhere to its obligations under the provisions of this Rate Schedule.

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**RATE SCHEDULE 206**  
**SCHEDULE FOR LIMITING AND CURTAILING SERVICE**

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Late Payment Charge**

A late payment charge of one and one-half percent (1½%) per month will be applied to all customers' balances not paid prior to the next month's billing date.

**Applicable Documents Defining Obligations of the Company and Its Customers**

Service under this rate schedule is subject to the Rules and Regulations of the Public Service Commission of South Carolina ("Commission Rules") and to the Company's Service Regulations. Among other things, the Commission Rules and the Company's Service Regulations permit the interruption or curtailment of service under certain conditions, including events of *force majeure* and operating conditions. A copy of the Commission's Rules may be obtained from the Public Service Commission of South Carolina, 101 Executive Center Dr., Columbia, SC 29210, upon payment of the applicable fee. The Company's Service Regulations may be obtained at each of the district offices of the Company. Unofficial copies of the Company's Service Regulations are available at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com).

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**RATE SCHEDULE 207**  
**BALANCING, CASH-OUT, AND AGENCY AUTHORIZATION**

**Applicability**

The provisions of this Rate Schedule 207 shall apply to all tariffed transportation services provided by the Company under Rate Schedules 213 and 214, as well as all transportation special contracts, unless expressly provided otherwise therein.

**Limitations on Intra-month Imbalances**

Receipts and deliveries of gas hereunder shall be at uniform rates of flow with no significant fluctuations or imbalances. Customer (or its Agent) is responsible to match daily gas deliveries into the Company's system with daily gas consumption by Customer as closely as possible. Any imbalances shall be corrected by the Customer (or its Agent), insofar as practicable, during the month in which they occur. Customer (or its Agent) is expected to proactively manage intra-month imbalances. Customer (or its Agent) may adjust its daily nominations during a month in order to correct any accumulated imbalance and maintain a monthly balance subject to the operating limitations of the Company. The Company reserves the right to limit the amount of such imbalances to avoid operating problems, comply with balancing requirements of the upstream pipeline(s), and to mitigate the need to acquire additional daily supply at prices that would adversely affect sales customers. The Customer (or its Agent) will be responsible for any imbalance charges assessed by upstream pipeline(s) in connection with any gas transported by the Customer under this Rate Schedule.

In the event Customer (or its Agent) fails to abide by the requirements set forth above, the Company shall have the right to curtail deliveries to Customer (Customers in a transportation pool operated by a single Agent will be curtailed on a pro rata basis based on nominated quantities) if an imbalance is negative or reducing Customer's nominated quantities if an imbalance is positive. The Customer will be responsible for any imbalance charges assessed by upstream pipeline(s) in connection with any gas transported by the Customer. The Company reserves the right to take other reasonable action to mitigate system operational problems. The Company will use its reasonable efforts to notify the Customer or the Customer's Agent before proceeding with a unilateral nomination reduction or delivery curtailment and will notify Customer of any reduction to Customer's nomination that has been instituted by the Company. The Company reserves the right to initiate Standby Sales Service if elected by the Customer pursuant to Rate Schedule 213 when, in the judgment of the Company, such action is necessary to reduce or eliminate operational problems resulting from the gas imbalances of the Customer. The Company will use reasonable efforts to notify the Customer or the Customers' Agent before initiating Standby Sales Service hereunder.

By 11:30 am Eastern Time on the fifth business day prior to the beginning of each month, the Customer must inform the Company of the nominating Agent for gas to be transported. If no notification to the contrary is provided, the Agent providing service during the prior month shall be deemed to be the nominating Agent by default. By 11:30 am Eastern Time on the fourth business day prior to the beginning of each month, the Customer shall submit a timely and valid nomination for transportation. Changes to nominations for gas transportation within the month are due by 11:30 am Eastern Time on the day prior to gas flow. Company will have no obligation to accommodate intraday nomination changes.

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**RATE SCHEDULE 207**  
**BALANCING, CASH-OUT, AND AGENCY AUTHORIZATION**

**Balancing On Upstream Pipeline(s)**

It shall be the Customer's responsibility to remain in balance on a daily and monthly basis with upstream pipeline(s) to avoid any assessment of penalties by such pipeline(s) against the Company. If the Company is assessed a penalty by an upstream pipeline, the Company shall have the right to pass-through all such penalties to the Customer or its Agent if the Customer has had an imbalance with the Company during the period for which the penalty was assessed.

**Monthly Imbalance Resolution**

Any differences between the monthly quantities delivered to the Company's city gate facilities for the account of the Customer, and the monthly quantities consumed by the Customer as metered by the Company, shall be the monthly imbalance. The Percentage of Imbalance is defined as the monthly imbalance divided by the monthly quantities consumed by the customer. Unless the Company and Customer agree to correct imbalances "in kind," the imbalance shall be resolved monthly by "cashing out" the imbalances as they are known to exist at that time. If the Customer consumes more gas than it has delivered to the Company, the Customer will be deemed to be "short" by the amount of the deficiency, and the Company will sell the amount of the deficiency to the Customer by charging the price as specified below. If the Customer consumes less gas than has been delivered to the Company, the Customer will be deemed to be "long" by the amount of the surplus, and the Company will buy the amount of the surplus from the Customer by paying the price as specified below.

If the Customer's imbalance is less than or equal to 2% of the total monthly volume consumed, or if the total aggregated imbalance for the Agent is less than or equal to 2% of the total volume consumed by all of the Agent's Customers in that transportation pool, then the price paid by the Company if the imbalance is long or the price paid by the Customer (or Agent) if the imbalance is short will be the sum of (a) the average of all published indices for the month as published in Natural Gas Week as stated in the "Gas Price Report" table under "Louisiana, Gulf Coast, Onshore, Spot Delivered to Pipeline" plus (b) the rate under Transcontinental Gas Pipe Line's Rate Schedule IT, including applicable fuel and surcharges, for service from Zone 3 to Zone 5.

If the Customer's Percentage of Imbalance is more than 2%, or if the total aggregated Percentage of Imbalance for the Agent is more than 2% for all of the Agent's Customers in that transportation pool, then the price paid by the Company if the imbalance is long is the lower of the monthly index price listed in Platts Inside FERC's Gas Market Report for Transcontinental Gas Pipe Line Zone 3 deliveries plus applicable fuel and FT variable charges under Transcontinental Gas Pipe Line's Rate Schedule FT for service from Zone 3 to Zone 5 or the lowest weekly index price listed in Natural Gas Week's Gas Price Report "Delivered to Pipeline" for volumes listed under Louisiana -- Gulf Coast, Onshore plus applicable fuel and FT variable charges under Transcontinental Gas Pipe Line's Rate Schedule FT for service from Zone 3 to Zone 5. If Customer (or Agent) imbalance is short, then the price paid by the Customer (or Agent) will be the higher of the monthly index price listed in Platts Inside FERC's Gas Market Report for Transcontinental Gas Pipe Line Zone 3 deliveries plus applicable fuel and IT variable charges under Transcontinental Gas Pipe Line's Rate Schedule IT for service from Zone 3 to Zone 5 or the highest weekly index price listed in Natural Gas Week's Gas Price Report "Delivered to Pipeline" for volumes listed under Louisiana -- Gulf Coast, Onshore plus applicable fuel and IT

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**RATE SCHEDULE 207**  
**BALANCING, CASH-OUT, AND AGENCY AUTHORIZATION**

variable charges under Transcontinental Gas Pipe Line's Rate Schedule IT for service from Zone 3 to Zone 5.

If the Percentage of Imbalance for the Customer (or Agent) is "short" by more than 2%, the price paid by the Customer (or Agent) to the Company for each dekatherm of the total deficiency will be equal to the price listed above for short imbalances times the premium percentage corresponding to the percentage of the deficiency listed in the table below.

If the Percentage of Imbalance for the Customer (or Agent) is "long" by more than 2%, the price paid by the Company to the Customer (or Agent) for each dekatherm of the total surplus will be equal to the price listed above for long imbalances times the discount percentage corresponding to the percentage of the surplus listed in the table below.

Percentage of the Imbalance	Short (Premium)	Long (Discount)
Over 2% & equal to or less than 5%	110%	90%
Over 5% & equal to or less than 10%	120%	80%
Over 10% & equal to or less than 15%	130%	70%
Over 15% & equal to or less than 20%	140%	60%
Over 20%	150%	50%

**Agency Authorization Form**

Certain Rate Schedules permit a Customer to appoint a Customer's Agent to act on its behalf with respect to nominations, imbalance resolution, and/or billing. Customer shall authorize a Customer's Agent by executing an Agency Authorization Form in the form attached to this Rate Schedule. In order to be considered a Customer's Agent, a third party must execute and be in compliance with all of the terms of the Customer Agent Agreement form set forth in Appendix B to the Company's Service Regulations. To the extent that the Agent appointed by the Customer is common to other Customers of the Company, the Company will permit such Agent to aggregate all such qualifying Customers' transportation quantities for purposes of administering service to such Agent. Once a Customer has designated an Agent, the Agent is then authorized to act on behalf of that Customer and as such, the Agent will be considered as the Customer in all corresponding references contained within this Rate Schedule. The Customer may not change Agents within the calendar month without the permission of the Company, unless the Agent's right to conduct business has been suspended by the Company, in which case, the Customer may act without an Agent or may provide written notice to the Company of the new Customer's Agent designated by the Customer. The Company will provide reasonable notice to Customer in the event of any suspension of Customer's Agent and will provide copies to Customer, on an expeditious basis and by electronic or other means, of any formal notices issued to the Customer's Agent. All Agents must utilize the electronic means made available by the Company in order to submit nominations. The Company may recover from the Agent all costs incurred in providing the Agent access to the electronic bulletin board.

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**RATE SCHEDULE 207**  
**BALANCING, CASH-OUT, AND AGENCY AUTHORIZATION**

**Applicable Documents Defining Obligations of the Company and Its Customers**

Service under this Rate Schedule is subject to the Rules and Regulations of the Public Service Commission of South Carolina (the "Commission Rules") and to the Company's Service Regulations. Among other things, the Commission Rules and the Company's Service Regulations permit the interruption or curtailment of service under certain conditions, including events of force majeure and operating conditions. A copy of the Commission's Rules may be obtained from the Commission's Chief Clerk at the Public Service Commission of South Carolina, Koger Executive Center, Saluda Building, 101 Executive Center Drive, Columbia, SC 29210 upon payment of the applicable fee. The Company's Service Regulations may be obtained at each of the district offices of the Company. Unofficial copies of the Company's Service Regulations are available at the Company's Web page at [www.piedmontng.com](http://www.piedmontng.com).

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**RATE SCHEDULE 207**  
**BALANCING, CASH-OUT, AND AGENCY AUTHORIZATION**

**AGENCY AUTHORIZATION FORM****EFFECTIVE DATE** \_\_\_\_\_**CUSTOMER** \_\_\_\_\_**NAME OF FACILITY** \_\_\_\_\_**ACCOUNT NUMBER(S)** \_\_\_\_\_**AGENT** \_\_\_\_\_**AGENT CONTACT** \_\_\_\_\_ **PHONE #** \_\_\_\_\_

This is to advise Piedmont Natural Gas Company that \_\_\_\_\_ **(Customer)** has  
 authorized \_\_\_\_\_ **(Agent)** to act on its behalf for the following transactions:

\_\_\_\_\_ nominations, \_\_\_\_\_ imbalance resolution \_\_\_\_\_ billing,

of gas for the above listed account(s). Piedmont Natural Gas Company is hereby authorized to deal with the Agent directly, and the **CUSTOMER AND THE AGENT UNDERSTAND THAT THEY ARE RESPONSIBLE, JOINTLY AND SEVERALLY, FOR ANY AMOUNTS DUE PIEDMONT NATURAL GAS COMPANY ARISING UNDER THIS RATE SCHEDULE, PIEDMONT'S NORTH CAROLINA SERVICE REGULATIONS, OR AGENT'S CUSTOMER AGENT AGREEMENT** which are not paid on these accounts. Customer will provide Piedmont Natural Gas Company with a revised "AGENCY AUTHORIZATION FORM" at least five (5) business days prior to the beginning of the month for the accounts designated, unless the Agent's right to conduct business has been suspended by Piedmont Natural Gas Company without prior notice.

AUTHORIZED SIGNATURE _____ FOR THE CUSTOMER	AUTHORIZED SIGNATURE _____ FOR THE AGENT
---	--

**Please Print**  
 AGENT'S NAME \_\_\_\_\_ TITLE \_\_\_\_\_

PHONE # \_\_\_\_\_ FAX # \_\_\_\_\_

**MAILING ADDRESS**

**Please submit to:** End User Transportation  
 Piedmont Natural Gas Company OR End User Transportation  
 P. O. Box 33068 Fax Number: (704) 364-8320  
 Charlotte, N.C. 28233

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**RATE SCHEDULE 208**  
**NEGOTIATED SERVICE**

**Applicability and Character of Service**

On occasions, the Company may have gas that it cannot sell or transportation service that it cannot provide pursuant to its rate schedules because its maximum rates are not competitive with alternate fuels or energy sources. On such occasions, a service opportunity is lost to the Company and to its Customers. This Rate Schedule is designed to permit the Company to provide services at negotiated rates.

Gas service under this Rate Schedule is available on a limited term basis to all non-residential Customers in the area served by the Company in the State of South Carolina who receive services under the Company's Rate Schedules 202, 232, 252, 262, 242, 203, 213, 204 or 214. The Company may provide negotiated transportation and sales service to Customers who receive service under Rate Schedule 214 in order to compete with alternate fuels or energy sources. Unless otherwise agreed to by the Company, service under this Rate Schedule is interruptible and the Company has the right to discontinue such service on one hour's notice.

**Rate**

The rate to be charged for gas service pursuant to this Rate Schedule is subject to negotiation between the Customer and the Company.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Late Payment Charge**

A late payment charge of one and a half percent (1 ½%) per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas service under this Rate Schedule is subject to the provisions contained within Rate Schedule 206, "Schedule for Limiting and Curtailing Service".

**Applicable Documents Defining Obligations of the Company and Its Customers**

Service under this rate schedule is subject to the Rules and Regulations of the Public Service Commission of South Carolina ("Commission Rules") and to the Company's Service Regulations. Among other things, the Commission Rules and the Company's Service Regulations permit the interruption or curtailment of service under certain conditions, including events of *force majeure* and operating conditions. A copy of the Commission's Rules may be obtained from the Public Service Commission of South Carolina, 101 Executive Center Dr., Columbia, SC 29210, upon payment of the applicable fee. The Company's Service Regulations may be obtained at each of the district offices of the Company. Unofficial copies of the Company's Service Regulations are available at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com).



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**RATE SCHEDULE 213**  
**LARGE GENERAL TRANSPORTATION SERVICE**

**Availability**

For new Customers, gas service under this Rate Schedule is available in the area served by the Company in the State of South Carolina to any full requirements non-residential Customer whose average daily gas usage is reasonably anticipated to equal or exceed 50 dekatherms per day.

Reclassification of Customers between rate schedules will be based upon procedures set forth in the Company's Service Regulations as approved by the Public Service Commission of South Carolina (the "Commission").

Once a qualified Customer elects service under this Rate Schedule, all services will be provided under the terms and conditions of this Rate Schedule for a term extending through the following May 31. Subject to the requirements set forth above, a Customer may, subject to the consent of the Company, elect to discontinue service under this Rate Schedule and receive service under Rate Schedule 203 by giving written notice to the Company prior to March 1 of any year. The Company will not withhold such consent provided a) the Company continues to offer firm sales service under Rate Schedule 203 and b) the Company is able to acquire firm gas supplies and capacity under commercially reasonable terms and conditions. Proper notice having been provided and written consent received from the Company within 30 days thereafter, the Customer shall discontinue service under this Rate Schedule effective the first June 1 following the notice.

All gas delivered pursuant to this Rate Schedule shall be metered separately from any gas delivered under any of the Company's other rate schedules.

**Applicability and Character of Service**

The Company will redeliver gas received by the Company from upstream connecting pipeline(s) for the Customer's account under this Rate Schedule in accordance with the Customer's scheduled and confirmed nominations and subject to Company's operating conditions. The Company reserves the right to suspend transportation service on any day, when in the Company's sole opinion, its operating conditions are such that suspension of service is necessary.

**Balancing, Cash-Out and Agency Authorization**

Service Under this Rate Schedule shall be subject to all of the provisions and requirements of Rate Schedule 207, "Balancing, Cash-Out, and Agency Authorization."

**Standby Sales Service**

The Customer may elect by written notice to the Company prior to March 1 of any year to purchase Standby Sales Service from the Company under this Rate Schedule for an annual period commencing the first June 1 following the notice. Customers that have purchased transportation service under this Rate Schedule without Standby Sales Service may elect such service in future annual periods only with the written consent of the Company received within 30 days of Customer's notice. Having made this election, the Customer may nominate gas supplies from third party providers or nominate gas supplies from the Company for delivery to the Customer at

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**RATE SCHEDULE 213**  
**LARGE GENERAL TRANSPORTATION SERVICE**

the Company's city gate. The Customer may activate the Standby Sales Service during any month by giving notice to the Company during the normal nomination process described above, or by default, if the Customer (or the Customer's Agent) fails to submit a timely and valid nomination for transportation service. In addition to paying the Standby Sales Service Charge each month and the Monthly Standby Index Price set forth below for quantities actually purchased hereunder, the Customer will utilize the transportation services and incur the charges otherwise applicable under this Rate Schedule to cause such gas supplies to be transported and delivered to the Customer's meter. The gas supply commodity price which the Customer shall pay for the gas supplied under this paragraph will be the Monthly Standby Index Price defined as follows:

The index price each month as first published in that month in Inside FERC's - Gas Market Report in the table titled "Prices of Spot Gas Delivered to Pipelines" under the heading "Transcontinental Gas Pipe Line Corp. - Zone 3 (pooling points)" in the column titled "Index". Applicable firm transportation part 284 tariff commodity charges, fuel and any other surcharges as defined in Transco's FERC approved tariffs from Transco's Zone 3 to Zone 5 will be added to the above index price.

If the Customer has made the annual election to receive Standby Sales Service, and the Customer (or Agent) properly submits a timely and valid nomination for transportation service, and, for whatever reason, the Customer (or Agent) fails to deliver to the Company adequate quantities of gas for the Customer's account, then the Company shall have the right, at its sole discretion, to initiate Standby Sales Service to the Customer. The price for such service shall be the same as set forth above except when the Company is required by such imbalance shortfall to purchase incremental volumes of gas supplies. In this case the Customer receiving Standby Sales Service will pay the higher of (on a daily basis) the Monthly Standby Index Price or the Daily Standby Index Price defined as the absolute high index price as published in Gas Daily for the day of consumption as stated in the "Daily Price Survey," "Louisiana - Onshore South," for "Transco, St. 65" in the column titled "Absolute." Applicable firm transportation part 284 tariff commodity charges, fuel and any other surcharges as defined in Transco's FERC approved tariffs from Transco's Zone 3 to Zone 5 will be added to the above index price. For days of consumption when the Gas Daily is not published, the Gas Daily price shall equal the price as published on the nearest subsequent day by Gas Daily.

The Customer shall also pay all applicable taxes, fees and assessments levied by governmental authorities having jurisdiction.

During the month that the Customer receives Standby Sales Service under this provision, the Company shall perform the necessary balancing activities related to such sales and therefore the monthly imbalance resolution provisions will not be applicable.

Gas cost variances related to the Standby Sales Service will be recorded in compliance with the Company's South Carolina Service Regulations Appendix A, Gas Cost Recovery Mechanism (the

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**RATE SCHEDULE 213**  
**LARGE GENERAL TRANSPORTATION SERVICE**

"GCRM"), except that the "benchmark" cost of gas will be the adjusted Monthly or Daily Standby index price as billed. Increments or decrements which may result from the procedures under the GCRM shall not apply to Standby Sales Service. Any increments or decrements applicable to Rate Schedule 213 shall be applicable to all quantities delivered under Rate Schedule 213, whether purchased from third parties or the Company as Standby Sales Service.

**Rates and Charges**

The rates to be charged for gas service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the Commission and at each of the district offices of the Company. Rates are subject to adjustment from time to time with the approval of the Commission. The rates on file with the Commission shall prevail in the event of conflict with those rates viewed on the Company's Web Site.

**Billing Demand**

A Customer's billing demand determinant shall be the highest daily usage during the period from November 1 to March 31 of the previous winter period as metered and reported to the Company by the telemetering equipment installed by the Company. Changes to the Customer's billing demand determinant will become effective June 1 of each year.

For Customers commencing initial gas service under this Rate Schedule, the billing demand shall be the highest actual daily consumption to date during the partial year, but shall be a minimum of 500 therms. If a Customer has received gas service from the Company prior to receiving service under this Rate Schedule but does not have daily telemetered records to determine peak day usage as described above, the Company shall use 6% of that Customer's highest previous winter month's consumption for the billing demand determinate.

**Volumetric Charges**

The rate per therm shall be billed on the quantity of gas delivered by Company to Customer. Any adjustment to the quantity of gas delivered due to meter failure or inaccuracy of measurement shall be determined as approved in the Rules and Regulations of the Public Service Commission of South Carolina.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Late Payment Charge**

A late payment charge of one and a half percent (1½%) per month will be applied to all balances not paid prior to the next month's billing date.

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**RATE SCHEDULE 213**  
**LARGE GENERAL TRANSPORTATION SERVICE**

**Service Interruption and Curtailment**

Gas service under this Rate Schedule is subject to the provisions contained within Rate Schedule 206, "Schedule for Limiting and Curtailing Service".

**Applicable Documents Defining Obligations of the Company and Its Customers**

Service under this Rate Schedule is subject to the Rules and Regulations of the Public Service Commission of South Carolina (the "Commission Rules") and to the Company's Service Regulations. Among other things, the Commission Rules and the Company's Service Regulations permit the interruption or curtailment of service under certain conditions, including events of force majeure and operating conditions. A copy of the Commission's Rules may be obtained from the Commission's Chief Clerk at the Public Service Commission of South Carolina, Koger Executive Center, Saluda Building, 101 Executive Center Drive, Columbia, SC 29210 upon payment of the applicable fee. The Company's Service Regulations may be obtained at each of the district offices of the Company. Unofficial copies of the Company's Service Regulations are available at the Company's Web page at [www.piedmontng.com](http://www.piedmontng.com).

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**RATE SCHEDULE 214**  
**INTERRUPTIBLE TRANSPORTATION SERVICE**

**Availability**

For new Customers, gas service under this Rate Schedule is available in the area served by the Company in the State of South Carolina **on an interruptible basis** to any full requirements non-residential Customer whose average daily gas usage is reasonably anticipated to equal or exceed 50 dekatherms per day.

Reclassification of Customers between rate schedules will be based upon procedures set forth in the Company's Service Regulations as approved by the Public Service Commission of South Carolina (the "Commission").

Once a qualified Customer elects service under this Rate Schedule, all services will be provided under the terms and conditions of this Rate Schedule for a term extending through the following May 31. Subject to the requirements set forth above, a Customer may elect to discontinue service under this Rate Schedule and receive service under Rate Schedule 204 by giving written notice to the Company prior to April 1 of any year. Proper notice having been provided, the Customer shall discontinue service under this Rate Schedule effective the first June 1 following the notice.

All gas received pursuant to this Rate Schedule shall be metered separately from any gas received under any of the Company's other rate schedules.

**Standby Alternate Fuel Capability**

Customers purchasing gas pursuant to this Rate Schedule shall maintain, in useable condition, alternate fuel facilities with ample on-site alternate fuel capability for supplying 100% of the establishment's gas requirements during periods of gas interruption or curtailment. Such interruption or curtailment shall be immediately effective upon verbal or written notification by the Company and Customer shall refrain from using gas until permitted to do so by the Company. It is understood and agreed that the Company will have the right to suspend gas service without further notice to the Customer in the event Customer fails to curtail Customer's use of gas in accordance with the Company's notice of curtailment.

**Applicability and Character of Service**

The Company will redeliver gas received by the Company from upstream pipeline(s) for the Customer's account under this Rate Schedule in accordance with the Customer's scheduled and confirmed nominations and subject to the Company's operational conditions. The Company reserves the right to suspend service on any day, when in the Company's sole opinion; its operating conditions are such that suspension of service is necessary.

**Balancing, Cash-Out and Agency Authorization**

Service Under this Rate Schedule shall be subject to all of the provisions and requirements of Rate Schedule 207, "Balancing, Cash-Out, and Agency Authorization."

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**RATE SCHEDULE 214**  
**INTERRUPTIBLE TRANSPORTATION SERVICE**

**Rates and Charges**

The rates to be charged for gas service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the Commission and at each of the district offices of the Company. Rates are subject to adjustment from time to time with the approval of the Commission. The rates on file with the Commission shall prevail in the event of conflict with those rates viewed on the Company's Web Site.

**Volumetric Charges**

The rate per therm shall be billed on the quantity of gas delivered by Company to Customer. Any adjustment to the quantity of gas delivered due to meter failure or inaccuracy of measurement shall be determined as approved in the Rule and Regulations of the Public Service Commission of South Carolina.

**Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

**Late Payment Charge**

A late payment charge of one and a half percent (1 ½%) per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas service under this Rate Schedule is subject to the provisions contained within Rate Schedule 206, "Schedule for Limiting and Curtailing Service."

**Applicable Documents Defining Obligations of the Company and Its Customers**

Service under this Rate Schedule is subject to the Rules and Regulations of the Public Service Commission of South Carolina (the "Commission Rules") and to the Company's Service Regulations. Among other things, the Commission Rules and the Company's Service Regulations permit the interruption or curtailment of service under certain conditions, including events of force majeure and operating conditions. A copy of the Commission's Rules may be obtained from the Commission's Chief Clerk at the Public Service Commission of South Carolina, Koger Executive Center, Saluda Building, 101 Executive Center Drive, Columbia, SC 29210 upon payment of the applicable fee. The Company's Service Regulations may be obtained at each of the district offices of the Company. Unofficial copies of the Company's Service Regulations are available at the Company's Web page at [www.piedmontng.com](http://www.piedmontng.com).

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**RATE SCHEDULE 242**  
**SMALL GENERAL SERVICE – MOTOR FUEL**

**Applicability**

Gas service under this rate schedule shall be separately metered and is available in the area served by the Company in the State of South Carolina to customers for the consumption and/or resale of compressed natural gas as a motor fuel.

Gas service under this Rate Schedule shall be metered at the Customer's Premises, or at the Company's Premises for purposes of providing public access to compressed natural gas filling stations.

**Rates and Charges**

The rates to be charged for gas service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com). A copy of the "Rates and Charges" tariff sheet is also on file with the Public Service Commission of South Carolina (the "Commission") and at each of the district offices of the Company. Rates are subject to adjustment from time to time with the approval of the Commission. The rates on file with the Commission shall prevail in the event of conflict with those rates viewed on the Company's Web Site.

**Highway Use Tax**

The rates reflected on the Company's "Rates and Charges" tariff sheet do not include applicable Federal, State and/or local highway motor fuel use taxes and fees. Bills rendered under this rate schedule will include such taxes and fees.

**Payment of Bills**

Bills are net and due upon receipt. Bills rendered for service provided at the Customer's Premises become past due 15 days after bill date. Bills rendered for service provided at the Company's Premises shall be paid at the time of service with a valid credit or debit card accepted by the Company.

**Late Payment Charge**

For service provided at the Customer's Premises, a late payment charge of 1½% per month will be applied to all balances not paid prior to the next month's billing date.

**Service Interruption and Curtailment**

Gas service under this Rate Schedule is subject to the provisions contained with Rate Schedule 206, "Schedule for Limiting and Curtailing Service".

**Applicable Documents Defining Obligations of the Company and Its Customers**

Service under this rate schedule is subject to the Rules and Regulations of the Public Service Commission of South Carolina ("Commission Rules") and to the Company's Service Regulations. Among other things, the Commission Rules and the Company's Service Regulations permit the interruption or curtailment of service under certain conditions, including

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events of *force majeure* and operating conditions. A copy of the Commission's Rules may be obtained from the Public Service Commission of South Carolina, 101 Executive Center Dr., Columbia, SC 29210, upon payment of the applicable fee. The Company's Service Regulations may be obtained at each of the district offices of the Company. Unofficial copies of the Company's Service Regulations are available at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com).

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**PIEDMONT NATURAL GAS COMPANY  
SOUTH CAROLINA SERVICE REGULATIONS**

1. Foreword. Piedmont Natural Gas Company, Inc. (the "Company") is a natural gas distribution company and is engaged in the business of selling and transporting natural gas for various customers. The purpose of these Service Regulations is to set forth the respective obligations of the Company and its South Carolina customers.

2. Definitions. As used in these Service Regulations, the following terms shall have the meanings assigned below:

- (a) The "Commission" shall mean the Public Service Commission of South Carolina, which regulates gas utilities operating within the State of South Carolina.
- (b) The "Company" shall mean Piedmont Natural Gas Company, Inc.
- (c) "Customer" shall mean any person, firm, association, or corporation, or any agency of the Federal, State or local government receiving gas service from the Company.
- (d) "Dekatherm" is the basic energy unit purchased by the Company and shall mean the unit of energy equivalent to 1,000,000 BTU.
- (e) "Force Majeure" shall mean acts of God, extreme weather conditions, strikes, lockouts, or other industrial disturbances, acts of the public enemy, war, blockades, insurrections, riots, epidemics, landslides, lightning, earthquakes, fires, hurricanes, tornadoes, storms, floods, washouts, arrests and restraints of governments and people, civil disturbances, explosions, breakages or accidents to machinery, lines of pipe or the Company's peak shaving plants, freezing of wells or lines of pipe, partial or complete curtailment of deliveries to the Company by its suppliers, reduction in gas pressure by its suppliers, inability to obtain rights-of-way or permits or materials, equipment or supplies for use in the Company's peak shaving plants, and any other causes, whether of the kind herein enumerated or otherwise, not within the control of the Company and which by the exercise of due diligence the Company is unable to prevent or overcome. It is understood and agreed that the settlement of strikes or lockouts shall be entirely within the discretion of the Company, and the above requirement that any force majeure shall be remedied with all reasonable dispatch shall not require the settlement of strikes or lockouts when such course is inadvisable in the discretion of the Company.
- (f) "Gas" shall mean undiluted natural gas, or a substitute for or mixture thereof, as delivered by the Company.

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- (g) "Gas Service Line" shall mean the pipe that runs between a main or a pipeline and a Customer's meter.
- (h) "Main" shall mean a gas pipe, owned, operated or maintained by the Company, which is used for the purpose of transmission or distribution of gas, but does not include "Gas Service Line".
- (i) "Margin" for curtailment purposes shall mean the filed tariff rate per unit of gas or negotiated rate per unit of gas for a Customer, less the per unit cost of gas, where applicable, as determined in the Company's last general rate case or Purchased Gas Adjustment proceeding, adjusted for any temporary decrements or increments in the filed tariff rate.
- (j) "Meter", without other qualification, shall mean any device, or instrument which is used by the Company in measuring a quantity of gas.
- (k) "Meter assembly" shall mean Company's meters, regulator, piping, valves, vents, relief valves, gauges and/or other apparatus required to meter and control flow or pressure of gas.
- (l) "Operating Conditions" shall mean any modification, test or scheduled or unscheduled repair to the Company's distribution system which in the Company's discretion is necessary to maintain the integrity of the Company's distribution system or to provide for the safety of the Company or the public.
- (m) "Premise(s)" shall mean a piece of land or real estate, including buildings and other appurtenances thereon.
- (n) "Therm" is the basic billing unit of the Company and shall mean the unit of energy equivalent to 100,000 BTU.
- (o) "Transportation" shall mean the receipt of natural gas supplies that have been arranged by the Customer for delivery to the Company's city gate and the redelivery of such natural gas supplies to the Customer's premise.

**3. Applicable Documents Defining Obligations of the Company and its Customers.**

The obligations of the Company to provide service and the obligations of the customer upon receipt of service are set forth in (a) the applicable statutes as set forth in Section 58 of the Code of Laws of South Carolina, (b) the applicable Rules and Regulations of the Commission, (c) the applicable rate schedule(s), (d) these Service Regulations and (e) any written application or other document executed by the Company and the customer pertaining to such service. Copies of these documents described in (b)-(e) above are

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available for inspection at each of the district offices of the Company. Upon request of any customer, the Company will provide the customer with a copy of the applicable rate schedule(s), these Service Regulations and any written application for service or other documents executed by the Company and the customer pertaining to such service. No promise, statement or representation by an employee or agent of the Company or by any other person shall bind the Company to provide service or to change the terms and conditions upon which service will be rendered unless the same is in writing and is executed by an authorized representative of the Company. In no event shall the customer be relieved from its obligation to pay in full the amount due for service received from the Company by the customer. In the event there is a conflict between these Service Regulations and the provision of the applicable currently effective rate schedule, the provisions of the rate schedule shall govern.

4. Delivery Pressure. The Company will provide to residential Customers a delivery pressure of either 7 inches water column (approximately 1/4 psig) or 2 psig. Commercial and Industrial Customers can be provided a delivery pressure of up to 5 psig. Delivery pressures of higher than 5 psig will be considered only if 1) requested in writing 2) justified by requirements of the fuel burning equipment. Documentation of such requirements must also be provided. Approval will be conditioned on the Company's distribution system pressure availability. Exceptions are subject to the approval of the Company.

5. Applicable Documents Subject to Change. All of the documents defining the obligations of the Company to provide service and the obligations of the customer upon the receipt of service are subject to change from time to time upon approval of the Commission and by other duly constituted governmental authorities. The Company does not undertake to advise any customer of any such change except as may be required by the Commission or other duly constituted governmental authority.

6. Non-Waiver. The failure of the Company to enforce any provision of any applicable documents defining the obligations of the Company and its customers shall not be deemed to be a continuing waiver of such provisions for any customer or a waiver of any other provision of any of the applicable documents.

7. Application for Initial Service. The Company shall not be required to supply service to any customer unless and until the customer has executed an application for service which, among other things, contains the date of the application, the name of the applicant, the location of the premises for which service is requested, the type of service applied for and estimated gas consumption. The Company may, at its sole option, waive the requirement for a written application, in which event the obligations of the Company to provide service and the obligations of the customer upon receipt of service shall be

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controlled by the other applicable documents defining the obligations of the Company and its customers.

8. Application to Increase Gas Load. Residential customers receiving gas service from the Company will be permitted to increase their residential gas loads at the same premises without application to the Company. All other customers shall make application to the Company before increasing their gas load and before changing the purpose for which they use gas. The application will contain, among other things, the date of the application, the name of the applicant, the location of the premises for which service is requested, the type service applied for and estimated monthly gas consumption. If, in the Company's opinion, the Company has the capability to provide the additional or changed gas service without interfering with the Company's ability to provide service to its other customers, the Company will permit the customer to increase its load or to change the purpose for which it uses gas.

9. Non-Assignability of Right to Service. Any rights which accrue to the customer under any of the applicable documents defining the obligations of the Company and its customers are personal and may not be transferred or assigned without the written consent of the Company.

10. Vacated Premises. The customer will notify the Company before quitting or vacating the premises served and will pay upon presentation all bills due the Company.

11. Right-of-Way. The customer shall at all times furnish the Company a satisfactory and lawful right-of-way, at no cost to the Company, over the customer's premises for the Company's mains, services, and apparatus necessary or incidental to the furnishing of service. The obligation of the Company to supply service is dependent upon the Company securing and retaining all necessary rights-of-way, privileges, franchises or permits, for the delivery of such service, and the Company shall not be liable to the customer for any failure to deliver service because of the Company's inability to secure or retain such rights-of-way, privileges, franchises or permits.

12. Access to Customer's Premises. The Company shall at all reasonable times have the right of ingress to and egress from the premises of the customer for any and all purposes connected with the provision of service. The Company shall have the right, at its option and at its own expense, to place demand meters, pressure gauges, or other instruments on the premises of the customer for billing, testing, or other purposes with respect to the customer's service.

13. Installation and Maintenance of Facilities. The Company will install and maintain the necessary mains, gas service lines, valves, regulators, meters, over-pressure devices, indexes, gauges, and/or other equipment or facilities required to provide service. All

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facilities from the point of connection at the outlet of the meter assembly shall be installed and maintained by and at the expense of the customer. The Company may specify the content and pressure of the gas to be furnished, the location of the meter and the point where the service connection shall be made.

14. Service Line Policy. The facilities to be installed by the Company in accordance with the foregoing paragraph will be at no cost to the Residential Customer if (1) at a minimum the Customer will be installing central gas heating, (2) the gas service line extends along the route selected by the Company and (3) the gas service line is no more than 100 feet. In the event that the above conditions are not met, the service rendered to the Customer must provide a reasonable return to the Company. If the Customer wishes the facilities to be constructed along a route other than the route selected by the Company and/or if the gas service line is more than 100 feet and/or the service to be rendered to the Customer will not produce a reasonable return to the Company, the Company may require the Customer to pay the excess cost of constructing the facilities along the alternate route or in excess of 100 feet and/or to make a contribution which will permit the Company to earn a reasonable return.

15. Relocation of Facilities. After a service connection has been made, it may be relocated on the customer's premises by the Company upon request of the customer, but the customer must bear the expense of the relocation, and the relocation will not be made where it will interfere with or jeopardize the Company's service either to the customer desiring the change or to any other customer or customers. The customer must also agree to change the location of the right-of-way and to bear the expense of the change. In no event, however, will the Company be required to relocate facilities if the relocation would interfere with or jeopardize the Company's service, either to the customer requesting the change or to any other customer or customers. All privileges of the Company incident to the original location shall apply to the new location.

16. Title to the Facilities. The title to all facilities including mains, gas service lines, meters and accessory equipment up to and including the outlet of the meter assembly shall be vested in the Company, notwithstanding any charge which may be made to the customer for extending service.

17. Responsibility Beyond Delivery Point.

- (a) Before installing gas pipes or appurtenant facilities and before purchasing gas equipment, the customer shall give the Company notice, and shall ascertain the character of service available at such premise. The Company may specify the content and pressure of gas to be furnished, consistent with Commission rules.

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- (b) Before permitting the initial use of gas at any location, a certificate of inspections and tests of customer owned piping shall be furnished the Company by the customer or by the local inspecting authority.
- (c) All piping and equipment installed by or on behalf of the customer must be installed and maintained in accordance with the requirements of the local, county, state, and federal authorities, and the customer shall keep in good and safe repair and condition all such piping and equipment from the point of connection of the meter assembly with the facilities of the Company.
- (d) If the customer's equipment might create either a vacuum or a back pressure, a device must be installed and maintained by the customer to protect the Company's facilities.
- (e) Equipment which will operate in one locality may be useless in another due to difference in gas pressure or content; therefore, before piping a premises or purchasing equipment, the customer shall give the Company notice, and shall ascertain the character of service available at such premises.
- (f) The Company is merely a furnisher of gas at the point where it passes from the Company's mains and services to the piping of the customer, and the Company shall not be responsible for any damage or injury to the buildings or other property of the customer due to gas installations, defective equipment, or other causes not due to the negligence of the Company. The Company shall not be in any way responsible for the transmission, use, or control of gas beyond the delivery point, and the Company shall not be liable for any damage or injury to any person or property whatsoever, or for the death of any person or persons arising, accruing, or resulting in any manner from the receiving or use of gas.

18. Interference with Company Property. The customer shall not interfere with or alter the Company's meters or other property or permit the same to be done by any person other than the Company's authorized agents or employees. Damages caused or permitted by the customer to said property shall be paid for by the customer. South Carolina law makes it unlawful to alter, tamper with or by-pass a gas meter. This law provides for fines and/or imprisonment at the discretion of the court for this offense. In addition, this statute provides for recovery in a civil action by the Company for losses and damages sustained.

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19. Excavation in Proximity of Company's Facilities. The customer shall inform the Company of planned excavation activities in the proximity of the Company's facilities by calling the toll free number 1-800-922-0983 at least 72 hours in advance of the planned excavation activities. The customer will notify the Company prior to any additions or changes in his or her facilities which will extend over, under, or in close proximity to the Company's facilities.

20. Prohibition Against Resale of Gas. Gas is sold and delivered upon the express condition that the customer shall not directly sell or resell, assign, or otherwise dispose of gas, or any part thereof, to any person, firm, or corporation, except where service is supplied under a rate schedule specifically providing for resale. Under no circumstances will the Company supply gas for resale in competition with the Company.

21. Curtailment or Interruption of Service. In the event of a curtailment or interruption of service, the Company shall use all reasonable diligence to remove the cause or causes thereof, but the Company shall not be liable for any loss or damage resulting from such curtailment or interruption due to accidents, force majeure, extreme weather conditions, operating conditions or causes beyond its control.

22. Action to Maintain System Integrity. When the Company in its discretion determines that it is necessary to curtail service to maintain the integrity of its distribution system or to provide for its or the public's safety, the Company shall have the right to curtail delivery of gas to any customer.

23. Discontinuance of Service. The Company, subject to the rules of the Commission, shall have the right to suspend or discontinue its service for (a) repairs or other necessary work on its mains or systems, (b) for nonpayment of bill in accordance with the R103-452 of the Commission's Rules and Regulations, as the same may be amended from time to time, and (c) for any of the following reasons:

- (a) For any misrepresentation as to the identity of the customer making the application for service.
- (b) For violation by the customer of any terms or conditions of the documents defining the obligations of the Company to provide service and the obligations of the customer upon the receipt of service.
- (c) For the reason that the customer's use of the Company's service is detrimental to the service of other customers.
- (d) For the reason that the customer's use of the Company's service conflicts with or violates orders, ordinances or laws of the State of South Carolina, or any subdivision thereof, or of the Commission or of any

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other governmental agency having jurisdiction over the Company or the customer.

- (e) For the reason that piping, equipment, appliance or device is installed or in use on the customer's premises which permits the gas to be used without passing through the Company's meter, or which prevents or interferes with the accurate measuring of the gas by the Company's meter other than when such gas use is authorized under a non-metered rate schedule.
- (f) For failure of the customer to make, restore, or increase his or her deposit as required.
- (g) In the event of a condition determined by the Company to be hazardous.
- (h) In the event of tampering with the equipment furnished and owned by the Company.

Where the service has been discontinued for any reason except for the failure to pay for repairs or other necessary work by the Company, the Company shall have the right to refuse service at the same premises to any other applicant who is a member of the family of the former customer, or who resided on said premises until the reason for discontinuance has been resolved. The Company may require reasonable proof of identity of the applicant of service.

24. Removal of Equipment. In the event of such discontinuation of service, the Company may enter the premises of the customer at any reasonable time and remove the Company's meters, apparatus, appliances, fixtures or other property.

25. Non-Waiver of Default. Any delay or omission on the part of the Company to exercise its right to discontinue or suspend service, or the acceptance of a part of any amount due, shall not be deemed a waiver by the Company of such right so long as any default in whole or in part or breach of contract on the part of the customer shall continue, and whenever and as often as any default or breach of contract shall occur.

26. Establishment of Credit by Customer. The Company may require an applicant for service to satisfactorily establish credit pursuant to R103-431 of the Commission's Rules and Regulations.

27. Deposits. Pursuant to R103-431 of the Commission's Rules and Regulations the Company may require from any customer or from any prospective customer, a cash deposit intended to guarantee payment of bills for service. Interest paid on deposit and



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deposit retention will be in accordance with R103-433 and R103-436 of the Commission's Rules and Regulations.

**28. Billing Procedure.**

- (a) Meters will be read and bills rendered monthly on a cycle basis of not less than 28 days nor more than 34 days. All bills are due and payable at the office of the Company during regular business hours when rendered and become past due after twenty-five (25) days in the case of residential customers and fifteen (15) days in the case of customers other than residential, from the date the bill is rendered.
- (b) A late payment charge of one and one-half percent (1½%) per month will be applied to all customers' balances not paid within twenty-five (25) days from the billing date.
- (c) The Company will endeavor to deliver to the Customer a monthly bill of the amount due to the Company by mailing said bill by first-class mail to the mailing address furnished by the Customer or, at the Customer's election, by sending the bill electronically by way of computer internet connection. Failure to receive a bill will not entitle the Customer to any extension of time for payment beyond the past due date.
- (d) Where a meter for any reason is not read at the regular reading date, the Company may estimate the amount of service used by referring to the Customer's consumption for a similar prior period. To the extent practicable, the Company will avoid sending a Customer two successive estimated bills; however, in cases of force majeure, as defined under Section 2(e) Definitions, bill estimates may be permitted for two successive billing periods, or greater. The Company will bill the Customer on the basis of the estimated use and will make any necessary adjustments when the meter is next read.
- (e) No claim or demand which the customer may have against the Company shall be offset or counterclaimed against the payment of any sum of money due the Company by the customer for services rendered, and all such sums shall be paid in accordance with the agreement regardless of such claim or demand.

**29. Adjustment of Bills Due to Failure or Inaccuracy of Meter.** Bills which are incorrect due to meter or billing errors will be adjusted as provided in R103-440 of the Commission's Rules and Regulations. Transportation Customers requiring adjustment to their bills for meter or billing errors shall be adjusted in accordance with R103-440 of the Commission's Rules and Regulations except for the commodity portion which shall be cashed out in accordance with Rate Schedule 207.

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30. Returned Check Charge. Where the customer makes payment for service by check which is not honored or paid by the bank, full payment will immediately be due and payable, and the Commission approved handling charge will be made.

31. Curtailment of Service. It is contemplated that the Company will from time to time find it necessary to curtail gas service to those customers who purchase gas from the Company under interruptible rate schedules. In addition, unavailability of gas supplies, requirements of public safety or other factors beyond the control of the Company may make curtailment of any customer necessary. In all such events, to the extent practicable, the Company will curtail those customers paying the least margin per dekatherm first. If it is necessary or interrupt some but not all of the customers paying the same margin per dekatherm, then, to the extent practicable, service shall be curtailed to the customers paying the same margin per dekatherm on a pro rata basis.

32. Reconnection Fees. When service has been discontinued at the request of the Customer or a member of a Customer's family residing at the same residence, or for nonpayment of bills, and if reconnection is requested by the same Customer or a member of such Customer's family residing at the same residence, on the same premises within one year after date of discontinuance, the Commission-approved Reconnection Fees will be charged.

33. Applicable Rate Schedules. The Company will at all times have current rate schedules on file with the Commission. The rates contained in these rate schedules are subject to change from time to time as permitted by Commission.

34. Residential Rate Service Classification. Residential rate service classification under the Company's Rate Schedules 201 and 221 shall be based on the following criteria:

A. Definitions: As used in residential rate service classification, the following terms shall have the meanings assigned below:

(1) "Residential Base Load Period" shall mean the cycle billing months of July and August.

(2) "Base Load Usage" shall mean the amount of natural gas used by a customer as reflected by the Company's invoices for that Customer during the cycle billing months of July and August.

B. Procedure:

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Step 1. During the month of September of each year, the Company will determine for each customer served under Rate Schedules 201 and 221 the customer's Base Load Usage during each month of the Company's Residential Base Load Period.

Step 2. A Rate Schedule 201 Customer whose base load usage during each month of the Residential Base Load Periods of the most recent two years is less than 15 therms will be transferred to Rate Schedule 221. A Rate Schedule 221 Customer whose base load usage is equal to or greater than 15 therms in either month of the Residential Base Load Period of the most recent past year will be transferred to Rate Schedule 201.

All changes in rate classification under this section shall be effective on the first day of November following the most recent Residential Base Load Period.

**C. Exceptions:**

- (1) New Customers will be assigned a Residential Rate Classification according to their reasonably anticipated base load usage associated with the type and number of appliances installed at the customer's premise prior to the gas meter being set and turned on.
- (2) Existing Customers currently being billed under Rate Schedule 221 who add a piece of natural gas equipment that will clearly increase the Customer's base load usage to a level that will qualify that Customer for Rate Schedule 201 may, upon notification to the Company and subject to verification by the Company, be transferred to the new Rate Schedule prior to November 1.

**35. Commercial Rate Service Classification.** Commercial Rate Service Classification under the Company's Rate Schedules 202, 232, 252 and 262 shall be based on the following criteria:

**A. Definitions:** As used in Commercial Rate Service Classification, the following terms shall have the meanings assigned below:

- (1) "Annual Review Period" shall mean the twelve (12) months ended on December 31 of each year.
- (2) "Actual Annual Usage" shall mean the actual natural gas volumes consumed by the Customer during the Annual Review Period as

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reflected on the Company's invoices for the Customer.

- (3) "Classification Usage" shall mean the usage criteria that establishes the minimum and/or maximum average daily usage that must be maintained in order to receive service under a rate schedule. The classification usage for Rate Schedule 202 and Rate Schedule 232 shall be less than an average of 20 dekatherms per day. The classification usage for Rate Schedule 252 and Rate Schedule 262 shall equal or exceed an average of 20 dekatherms per day but be less than an average of 50 dekatherms per day.
- (4) "Involuntary Curtailment Days" shall mean those days or portions of days in a given Annual Review Period where curtailment of the Customer's natural gas service was imposed by the Company's decision to curtail.
- (5) "Service Days" shall mean 365 days less the number of Involuntary Curtailment Days.
- (6) "Average Daily Usage" shall be the Customer's Actual Annual Usage divided by the number of Service Days within the Annual Review Period.
- (7) "Summer Load Percentage" (SLP) shall mean the percentage of the Customer's Actual Annual Usage that occurs during the seven (7) month summer period of April through October in a given calendar year.

**B. Procedures:**

- (1) At the conclusion of the Annual Review Period of each year and prior to June 1<sup>st</sup> of the ensuing year, the Company will determine for each customer served under Rate Schedule 202, Rate Schedule 232, Rate Schedule 252, and Rate Schedule 262 that Customer's Average Daily Usage and their SLP.
- (2) Those customers currently receiving service under Rate Schedule 202 or Rate Schedule 232 whose Average Daily Usage is equal to or exceeds 20 Dekatherms a day, will be transferred to Rate Schedule 252 or Rate Schedule 262 as applicable, effective on the first day of June following the most recent Annual Review Period.

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- (3) Those customers currently receiving service under Rate Schedule 202 whose Average Daily Usage is less than 20 Dekatherms a day but whose SLP is greater than 30% will be transferred to Rate Schedule 232 effective the first day of June following the most recent Annual Review Period.
- (4) Those customers currently receiving service under Rate Schedule 232 whose Average Daily Usage is less than 20 Dekatherms a day but whose SLP in each of the most recent two (2) Annual Review Periods is equal to or less than 30% will be transferred to Rate Schedule 202 effective the first day of June following the most recent Annual Review Period.
- (5) Those customers currently receiving service under Rate Schedule 252 or Rate Schedule 262 whose Average Daily Usage in each of the most recent two (2) Annual Review Periods is less than 20 Dekatherms a day, will be transferred to Rate Schedule 202 or Rate Schedule 232 as applicable, effective on the first day of June following the second, and most recent, Annual Review Period.
- (6) Those customers currently receiving service under Rate Schedule 252 whose Average Daily Usage is equal to or greater than 20 Dekatherms a day but whose SLP exceeds 30% will be transferred to Rate Schedule 262 effective the first day of June following the most recent Annual Review Period.
- (7) Those customers currently receiving service under Rate Schedule 262 whose Average Daily Usage is equal to or greater than 20 Dekatherms a day but whose SLP in each of the most recent two (2) Annual Review Periods is equal to or less than 30% will be transferred to Rate Schedule 252 effective the first day of June following the most recent Annual Review Period.
- (8) Those customers currently receiving service under Rate Schedule 202, 232, 252, or 262 whose Average Daily Usage in each of the most recent two (2) Annual Review Periods is equal to or greater than 110% of 50 dekatherms per day will be transferred to Rate Schedule 203, 204, 213, or 214 as applicable.

- C. Exceptions: If a customer currently being billed under Rate Schedule 202 or Rate Schedule 232 adds natural gas equipment that increases the Customer's Average Daily Usage to the point where the customer will

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qualify for Rate Schedule 252 or Rate Schedule 262, the Company may, upon notification from the Customer and subject to installation verification by the Company, transfer the Customer to the new Rate Schedule prior to June 1 of that year.

36. Industrial Rate Service Classification. Rate service classification under the Company's Rate Schedules, 203, 204, 213 and 214 shall be based on the following criteria:

- A. Definitions: As used in rate service classification, the following terms shall have the meanings assigned below:
- (1) "Actual Annual Usage" shall mean the actual natural gas volumes sold or transported for the Customer by the Company as reflected on the Company's bills for that Customer.
  - (2) "Average Dekatherm per Day" shall mean the Actual Annual Usage of a Customer divided by the number of Service Days within the Review Period.
  - (3) "Classification Usage" shall mean the usage criteria that establishes the minimum and/or maximum average usage that must be maintained in order to receive service under any rate schedule. For existing Customers, the classification usage for Rate Schedule 202 shall not exceed an average usage of 50 dekatherms per day. For existing Customers, the classification usage for Rate Schedules 203, 204, 213 and 214 shall exceed an average usage of 50 dekatherms per day.
  - (4) "Involuntary Curtailment Days" shall mean those days or portions of days in a given Review Period where curtailment of the Customer's natural gas service was imposed by the Company's decision to curtail.
  - (5) "Review Period" shall mean the twelve (12) months ended on December 31, or the regularly scheduled meter reading nearest December 31.
  - (6) "Service Days" shall mean 365 days less the number of Involuntary Curtailment Days plus the number of days that Customer consumed an alternative fuel to natural gas.

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**B. Procedure:**

Step 1. During January and February of each year, the Company will determine for each Customer served under Rate Schedules, 203, 204, 213 and 214 the Customer's Average Dekatherm per Day usage for each of the two most recent Review Periods.

Step 2. A Rate Schedule 202, 232, 252 or 262 Customer whose usage is 110% of the 50 dekatherms threshold in the two most recent Review periods will be transferred to Rate Schedule 203, 204, 213 or 214, as applicable. A Rate Schedule 203, 204, 213 or 214 Customer whose usage is equal to or less than 90% of the 50 dekatherms threshold in both of the most recent two Review Periods will be transferred to the appropriate Medium General Service Rate Schedule. Customers receiving service under Rate Schedules 203 or 204 shall be eligible to elect transportation service to be effective with the rate reclassification.

All changes in rate classification under this section shall be effective on the first day of June following the review.

Step 3. Customers who are reclassified shall be notified of the change in rate schedule, and receive a copy of the tariff sheets applicable to his old and new rate schedules at least 21 days prior to the effective date of the change.

- C. Exceptions: If a Customer adds or retires a major piece of gas-burning equipment, changes the hours of operations or otherwise materially alters the Customer's business that will clearly increase, or decrease, the Customer's consumption on an ongoing basis to a level that will change the Customer's ability to qualify the Customer for a particular rate schedule, the Customer shall report such changes to the Company and afford the Company an opportunity to inspect the change in equipment and to meet with the Customer to review and discuss the anticipated future level of consumption. If, after such inspection and meeting, the Company is satisfied that reclassification is appropriate, the reclassification will occur within two months after the new equipment is in place and operational, or the retirement is completed, and the first meter reading reflects the higher anticipated usage resulting from the new equipment or the lower anticipated usage resulting from the retirement. Any reclassification pursuant to this paragraph is

Issued by Thomas E. Skains, Chairman, President and CEO

Issued to comply with authority granted by

The Public Service Commission of South Carolina

Docket No. 2009-4-G

Issued: June 11, 2009

Effective: September 1, 2009

**PIEDMONT NATURAL GAS COMPANY  
SOUTH CAROLINA SERVICE REGULATIONS**

subject to correction if actual experience so warrants. If the reclassification results in qualification for service under Rate 203 or 204, the Customer shall provide an election form one week prior to reclassification if a transportation election is desired. Otherwise, service will be provided under Rate Schedule 203 or 204, dependent upon rate qualification.

- D. Requirements: Upon reclassification from Rate 202, 232, 252 or 262 to either Rate 203, 204, 213, or 214, Customer will be responsible for installing and maintaining, at the Customer's expense, a dedicated 110v electrical service in a location suitable to provide electrical service for the Company's telemetering equipment.

37. Limitation on Liability for Rendering Service on an Incorrect Rate Schedule. If it is determined that a customer has been placed on an incorrect rate schedule, the customer shall be placed immediately on the correct rate schedule and the customer's bill shall be adjusted for such period (not to exceed 6 months) that the customer was on the incorrect rate schedule. The customer and/or Company shall have 90 days in which to pay any such adjustment. Except as herein provided, neither The Company nor the customer shall have any liability to the other party with respect to the purchase and/or sale of gas under an incorrect rate schedule.

38. Agency Authorization. Certain Rate Schedules permit Customer to authorize a Customer's Agent to act on its behalf with respect to nominations, imbalance resolution, and/or billing. In order to be considered a Customer's agent, the agent must execute and be in compliance with all the terms of the Customer Agent Agreement form.



PIEDMONT NATURAL GAS COMPANY, INC.

APPENDIX A  
S.C.P.S.C. GAS COSTS RECOVERY MECHANISM

Page 1 of 4

**1. Definitions.** The following definitions shall apply:

**“Benchmark Commodity Cost of Gas”** shall mean the Company’s estimate of the City Gate Delivered Cost of Gas for long-term gas supplies, excluding Demand Charges. The Benchmark Commodity Cost of Gas may be amended from time to time by the Company as provided for in this Gas Costs Recovery Mechanism (GCRM).

**“City Gate Delivered Cost of Gas”** shall mean the total delivered cost of gas to the Company at its city gate, including, but not limited to all commodity charges, demand charges, peaking charges, cost of propane, cost of LNG liquefaction/vaporization, surcharges, emergency gas purchases, over-run charges, capacity charges, customer charges, standby charges, reservation fees, gas inventory charges, minimum bill charges, minimum take charges, take-or-pay charges, take-and-pay charges, storage charges, service fees and transportation charges and any other charges of any kind whatsoever which are incurred by the Company in connection with the purchase, storage or transportation of volumes of gas by the Company.

**“Commodity and Other Charges”** shall mean all charges for the purchase of gas or for the transportation of gas other than Demand Charges.

**“Demand Charges”** shall mean all charges for the purchase of gas or the transportation or storage of gas which are not billed on the volume of gas actually purchased or transported by the Company.

**“Tariff Sales”** shall mean gas delivered to customers under a sales rate schedule of general applicability. Tariff sales excludes gas delivered under transportation rate schedules, special contracts, off-system or sales for resale transactions or other arrangements under which the gas is not billed under a sales rate schedule of general applicability.

**II. Gas Costs Recovery Mechanism**

In the event the Company anticipates a change in its “City Gate Delivered Cost of Gas,” the Company may increase or decrease its rates to its customers as follows:

**A. Sales rates**

**1. Demand Charges**

Whenever the Company anticipates a change in the Demand Charges, the Company may change its rates to customers under all rate schedules by an amount computed as follows:

Issued by: Thomas E. Skains, Chairman, President and CEO  
Issued to comply with authority granted by  
The Public Service Commission of South Carolina  
Docket No.: 2009-435-G  
Issued:  
Effective: August 1, 2010

## PIEDMONT NATURAL GAS COMPANY, INC.

APPENDIX A  
S.C.P.S.C.                      GAS COSTS RECOVERY MECHANISM

Page 2 of 4

(Total Anticipated Demand Charges  
- Prior Demand Charges  
And Storage Charges) X S.C. Portion\*  
-----  
Sales and Transportation Volumes\*                      = Increase (Decrease)  
Per Unit

**2.      Commodity and Other Charges**

Whenever the Benchmark Commodity Cost of Gas is changed, the Company may change the rates to its customers purchasing gas under all of its sales rate schedules by an amount computed as follows:

Volumes of gas purchases for system supply\* X  
(New Benchmark Commodity Cost of Gas –  
Old Benchmark Commodity Cost of Gas)  
X S.C. Portion\*  
-----  
Volumes of gas purchased for                      = Increase (Decrease)  
System Supply\* (less Company Use\* and                      Per Unit  
Unaccounted For\*) X S.C. Portion\*

\*Established by Commission in the Company's last general rate case or Rate Stabilization Act proceeding.

**B.      Transportation Rates**

Firm and/or interruptible transportation rates shall be computed on a per unit basis by subtracting the per unit Commodity and Other Charges from the applicable firm or interruptible sales rate schedule exclusive of any increments or decrements.

**C.      Other Changes in Purchased Gas Costs**

The purpose of this GCRM is to permit the Company to recover the applicable actual cost of gas from its tariff customers. If, at any time, it should appear that the computations required under this GCRM do not accomplish that purpose, the Company may use a different method to compute changes in its rates; however, any such changes shall not be effective until approved by the Commission.

Issued by: Thomas E. Skains, Chairman, President and CEO  
Issued to comply with authority granted by  
The Public Service Commission of South Carolina  
Docket No.: 2009-435-G  
Issued:  
Effective: August 1, 2010

PIEDMONT NATURAL GAS COMPANY, INC.

APPENDIX A  
S.C.P.S.C. GAS COSTS RECOVERY MECHANISM

Page 3 of 4

**III. Monthly True up of Gas Costs**

**A. Demand Charges**

On a monthly basis, the Company shall determine the difference between (a) the Demand Charges recovered and (b) the Company's actual Demand Charges incurred for South Carolina determined by the ratio of South Carolina tariff sales volumes to the combined total of North Carolina and South Carolina tariff sales volumes. This difference shall be placed in the Company's Deferred Account No. 253.

**B. Commodity and Other Charges**

On a monthly basis, the Company shall determine with respect to gas sold during the month the per unit difference between (a) the Benchmark Commodity Cost of Gas included in the Company's most recently approved GCRM and (b) the actual Commodity and Other Charges incurred for South Carolina. This difference shall be placed in the Company's Deferred Account No. 253.

**C. Supplier Refunds and Direct Bills**

In the event the Company receives supplier refunds or direct bills with respect to gas previously purchased, the amounts of such supplier refunds or direct bills applicable to South Carolina shall be placed in the Company's Deferred Account No. 253.

**D. Interest on Deferred Account 253**

The Company shall compute interest on the Deferred Account as directed by the Commission.

**E. Other**

(a) The Company shall file with the Commission a monthly report of the deferred account. The report shall identify the cost of gas reduction related to capacity released.

(b) Periodically, the Company may file to adjust its rates to refund or collect the balance in the deferred account. Increments and/or decrements shall apply across the board to all sales rate schedules unless the Commission specifically approves otherwise.

(c) The Company is permitted to negotiate rates to certain customers to meet the prices of competitive fuels or otherwise to avoid losing these customers. To permit the Company to make sales to these tariff customers without suffering a loss of margin, the

PIEDMONT NATURAL GAS COMPANY, INC.

Company shall record the sales and transportation negotiated losses in the deferred account.

- (d) Reserved for future use.
- (e) The operation of this GCRM and the related Deferred Account can be modified as necessary to accommodate rulings of the Commission that affect its operation as herein defined. For example, recording the WNA balance in the Deferred Account as authorized by the Commission.

IV. Notice to the Commission

The Company shall file with the Commission at least 15 days prior to the date on which any change in its existing rates is to become effective as a result of the GCRM a computation of the rate adjustment and a single rate sheet, entitled “GCRM \_\_\_\_\_,” containing the following information:

<u>Rate</u> <u>Schedule</u>	<u>Present</u> <u>Rate</u>	<u>Current</u> <u>Adjustment</u>	<u>Rate after</u> <u>Current</u> <u>Adjustment</u>
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**PIEDMONT NATURAL GAS COMPANY  
SOUTH CAROLINA CUSTOMER AGENT AGREEMENT**

**APPENDIX B**

**CUSTOMER AGENT AGREEMENT**

This Customer Agent Agreement ("Agreement") is made this \_\_\_\_ day of \_\_\_\_\_, 201\_, by and between Piedmont Natural Gas Company, Inc. ("Piedmont") and \_\_\_\_\_ ("Agent").

WHEREAS, Piedmont's natural gas transportation tariffs provide for the ability of customers receiving Piedmont's transportation services to designate and utilize a third-party agent for purposes of making nominations for and delivering natural gas to Piedmont on behalf of such customers and managing imbalances on the Piedmont system resulting from such activities; and

WHEREAS, in undertaking such activities on behalf of Piedmont's customers, such Agents have the capacity to create material economic and operational risks for Piedmont and its customers; and

WHEREAS, Agent desires to act as a Customer Agent on Piedmont's system; and

WHEREAS, Piedmont is willing to permit Agent to operate on its system under the terms and conditions set forth herein and under the parameters of Piedmont's approved tariffs and service regulations.

NOW, THEREFORE, in consideration of the premises, and other good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, Piedmont and Agent agree as follows:

1. Establishment and Maintenance of Creditworthiness. Each Agent must establish credit with Piedmont in the form of a Letter of Credit, escrow deposit, parental guaranty, or otherwise, in form and substance acceptable to Piedmont, in an amount equal to or greater than the dollar value obtained by the following formula at all times:

The higher of Agent's average daily load for the previous month or Agent's First-of-Month confirmed daily nomination quantity for the new month x 3 days x (NYMEX prompt month close) x 1.25.

Each month, prior to nominating transactions for the first of the month business, an evaluation will be made to ensure that the established credit does not fall below the value obtained from the formula shown above. In the event Agent's established credit falls below the value obtained through application of the formula shown above, either during this monthly evaluation or at any other time, Piedmont may require that the value of said Letter of Credit, escrow deposit, parental guaranty, or other form of assurance be changed at any time in order to reestablish adequate creditworthiness hereunder. In the event Agent fails to establish creditworthiness as set forth above, or fails to comply within 5 days with directions from Piedmont to increase the amount of its credit instruments as provided herein, then Agent's right to conduct business on the Piedmont

PIEDMONT NATURAL GAS COMPANY  
SOUTH CAROLINA CUSTOMER AGENT AGREEMENT

system shall be suspended until such time as Agent shall be in compliance with the creditworthiness provisions set forth herein (including any requirements to increase said creditworthiness).

2. Customer Agent Imbalance Restrictions. Agent shall not create a cumulative intra-month imbalance which exceeds three times Agent's aggregate First-of-Month confirmed daily nomination quantity. If this cumulative month-to-date imbalance restriction is exceeded at any time, then Agent's authorization to conduct business on Piedmont's system shall be immediately suspended except to the extent of transactions designed to reduce Agent's cumulative month-to-date imbalance. Upon any such suspension, Agent's authorization to conduct business on the Piedmont system shall not be restored until such time as Agent is in full compliance with the provisions hereof and all applicable provisions of Piedmont's tariffs and service regulations.

3. Allocation of Imbalance Quantities/Penalties. Concurrent with the submission of monthly nominations, Agent shall provide Piedmont with a schedule of allocated nominations for customers to be served by Agent for the following month. This allocation shall serve as the basis for resolving imbalances with Agent's customers to the extent those imbalances are not resolved by Agent. In the event Agent fails to submit such schedule, and further fails to resolve any monthly imbalance during the term hereof, those imbalances and any attendant penalties shall be allocated to Agent's customers, *pro rata*, based upon the actual usage of each such customer during the month to which the unresolved imbalance and/or penalties is attributable.

4. Failure to Comply with Operational Notices, and Agent Creditworthiness and Imbalance Requirements. If Agent fails to adhere to the imbalance and credit requirements set forth above, or to obey specific instructions issued by Piedmont and designed to preserve the operational integrity of Piedmont's system, Agent (a) shall be subject to the Unauthorized Over Run Penalty provisions of Piedmont's Rate Schedule 206, and (b) shall have its right to transact business on Piedmont's system suspended.

5. Term. This Agreement shall become effective as of the date first written above and shall continue in full force or effect until terminated by either party hereto upon sixty (60) days written notice.

6. Supplemental Nature of Agreement. This Agreement is supplemental to the provisions of Piedmont's approved tariffs and service regulations, the provisions of which shall also apply to services rendered hereunder. As such, the restrictions and requirements set forth herein are cumulative in nature and in addition to any other imbalance or penalty provisions set forth in Piedmont's approved tariffs and service regulations.

7. Billing and Payment. Billings to Agent for any amounts due hereunder, and payments by Agent on such billings, shall be made in a manner consistent with the billing and payment provisions of the underlying transportation tariffs pursuant to which service is rendered.

PIEDMONT NATURAL GAS COMPANY  
SOUTH CAROLINA CUSTOMER AGENT AGREEMENT8. Miscellaneous.

- A. Modification. This Agreement may not be modified or amended except by the execution of a written agreement by the parties hereto.
- B. Waiver. No failure by any party to enforce this agreement with respect to any default in the performance of any of the provisions of this Agreement shall operate or be construed to operate as a waiver thereof or of any similar future default.
- C. Assignment. This Agreement may not be assigned by any party hereto without the express written consent of the other party hereto.
- D. Jurisdiction. This Agreement and the respective obligations of the parties hereto are subject to all valid laws, orders, rules and regulations of the Public Service Commission of South Carolina and any other governmental bodies having jurisdiction.
- E. Conflict of Laws. The construction, interpretation, and performance of this Agreement shall be in accordance with the substantive laws of the State of South Carolina without regard to any conflicts of laws provisions thereof.

IN WITNESS WHEREOF, the undersigned parties have executed this agreement as of the year and date first written above.

AGENT

PIEDMONT NATURAL GAS COMPANY

By: \_\_\_\_\_  
Title: \_\_\_\_\_By: \_\_\_\_\_  
Title: \_\_\_\_\_

## MAILING ADDRESS

Please submit to: Transportation & Pipeline Services  
Piedmont Natural Gas Company  
P.O. Box 33068  
Charlotte, N.C. 28233

OR

Transportation & Pipeline Services  
Fax Number: (704) 364-8320

Piedmont Natural Gas Company, Inc.

P.S.C.S.C. Tariff

Page 1 of 2

**ECONOMIC DEVELOPMENT RIDER**

**Applicability and Character of Service**

Natural gas service under this rider may be made available, at the Company's discretion, to any Customer that (1) locates a new plant or facility or expands an existing plant or facility within the Company's franchised territory in the State of South Carolina, (2) qualifies for the purchase or transportation of gas under Rate Schedules 203, 204, 213, or 214, and (3) contracts for natural gas consumption of not less than 50,000 Mcf per year of new or expanded load, at a single delivery address, for a minimum term of five years. Service under this schedule is interruptible and the Company has the right to discontinue such service on one hour's notice.

To qualify for service under this rider a written application shall be made to, and must be approved by, the Company. The application shall, at a minimum, include the following information: (a) a description of the gas-using facility, including its location and the nature of the business(es) to be conducted at such location; (b) an affirmation that the availability of this rider was a significant factor in the Customer's decision to locate the new or expanded load on the Company's system; (c) the number of full time employees to be employed at the facilities at the end of the first, second, and third years of operation; (d) the new capital to be invested at the facility; and (e) a description of the natural gas equipment, including the usage characteristics of the new or expanded gas load, to be installed at the facility. This rider will apply only to the amount of separately metered additional load added in the case of a facility expansion. Customers participating in this rider must also execute a written contract with the Company evidencing their agreement to the terms of this rider.

**Exclusions**

This rider is not available to or for (1) existing facilities that temporarily shut down and reopen; (2) gas loads moved from another site in the State; or (3) an existing facility that became a new Customer solely because of a change in ownership. Notwithstanding the foregoing, any such facilities may, upon application and approval, become eligible for the credits provided by the rider with respect to an expanded load at such facilities.

**Rate**

The monthly discount, which will be applied to only the portion of the bill calculated for the new or expanded load, shall be computed based upon a declining, three-year percentage reduction in the non-gas margin portion of the applicable rate schedule (203, 204, 213, 214). This discount will commence on the Customer's first month billing and continue for a period of three years.

The percentage reductions are as follows:	First Year	-----	45% Reduction
	Second Year	-----	25% Reduction
	Third Year	-----	15% Reduction

The Customer may still negotiate with the Company under the provisions of Rate Schedule 208 while being served on this rate.



Piedmont Natural Gas Company, Inc.

P.S.C.S.C. Tariff

Page 2 of 2

## **ECONOMIC DEVELOPMENT RIDER**

### **Termination/Penalties**

The Company may terminate service under this rider when:

1. During any consecutive 12 month period within the five year term of the contract the Customer fails to consume at least 50,000 Mcf of natural gas through the new or expanded facilities to which this rider is applicable; or
2. Discontinuance of service to Customer would be authorized under the Company's general tariff provisions.

In the event service under this rider is terminated by the Company or Customer defaults in its obligations hereunder, Customer will be required to reimburse to the Company, upon demand, an amount equal to all reductions received by Customer under this rider plus applicable interest from the date of such reduction at the rate paid by the Company for service deposits pursuant to Commission Rule R103-443 and R103-436.

### **Payment of Bills**

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

### **Late Payment Charge**

A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

### **Service Interruption and Curtailment**

Gas service under this Rate Schedule is subject to the provisions contained within Rate Schedule 206, "Schedule for Limiting and Curtailing Service".

### **Applicable Documents Defining Obligations of the Company and Its Customers**

Service under this rate schedule is subject to the Rules and Regulations of the Public Service Commission of South Carolina ("Commission Rules") and to the Company's Service Regulations. Among other things, the Commission Rules and the Company's Service Regulations permit the interruption or curtailment of service under certain conditions, including events of *force majeure* and operating conditions. A copy of the Commission's Rules may be obtained from the Public Service Commission of South Carolina, 101 Executive Center Dr., Columbia, SC 29210, upon payment of the applicable fee. The Company's Service Regulations may be obtained at each of the district offices of the Company. Unofficial copies of the Company's Service Regulations are available at the Company's Web Site at [www.piedmontng.com](http://www.piedmontng.com).

Issued by Ware F. Schiefer, Chief Executive Officer  
Issued: November 1, 2002  
Docket No. 2002-63-G  
Effective: November 1, 2002

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

5. Refer to Company Exhibit DPY-5, Schedules 8 - 13. Provide the source and support in excel format with all formulas intact for the Company's Allocated Cost of Service Study including the development of all allocation factors used in the study. Also, explain why this information was not properly included with the Company's response to MFR #55.

**Response:** The allocated cost of service study ("ACOSS") presented in Exhibit DPY-5 was developed using a proprietary model. Given the proprietary nature of the model, a working copy was not provided with the original filing consistent with practice in prior cases. A copy of the model is being supplied on a CONFIDENTIAL basis pursuant to the terms of the protective order entered into after the MFR filing date. The development of allocation factors utilized in the Company's ACOSS is described on pages 5-6 of Exhibit DPY-5. Electronic versions of all workpapers are provided in the accompanying ACOSS model (attached as an \*.exe file) and in the attached CONFIDENTIAL excel file.

Response provided by Piedmont Natural Gas on October 26, 2011.

**This Response/Attachment is designated**

**CONFIDENTIAL**

**and has been filed under seal.**

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

6. Refer to Company Exhibit DPY-10. Provide the source and support in excel format with all formulas intact for the Company's calculation of Average Monthly Use, Peak Monthly Use, and Projected NGV Monthly Load Factor. Also, explain why this information was not properly included with the Company's response to MFR #55.

**Response:** As explained in the direct testimony of witness Dan Yardley, the rates for NGV Service are derived based on those for Small General Service customers. NGV Service is not included in the Company's Allocated Cost of Service Study provided in MFR 55 because there are no NGV customers or therms reflected in the Attrition Period forecast. Relying on the rates for Small General Service customers as a proxy for prospective NGV customers is a reasonable method for deriving rates for a new service that is not included in an allocated cost of service study. Mr. Yardley also noted that the Company would reflect NGV Service in a subsequent Allocated Cost of Service Study to the extent that customers take service under the rate schedule in the future.

The average monthly use and peak monthly use for Small General Service classes are taken directly from the Company's weather-normalized and grown therms for the Attrition Period provided with the Company's filing. These are provided in the table below:

	<b>Total Annual</b>	<b>Average Month</b>	<b>Peak Month</b>
Small GS Standard	2,717,008	226,417	312,279
Small GS Value	2,411,114	200,926	621,190
Total Small GS		427,343	933,469

The anticipated load factor for NGV service is based on Mr. Yardley's judgment and experience in developing rates for new services and on the nature of NGV service as described in Mr. Yardley's testimony.

Response provided by Piedmont Natural Gas on October 26, 2011.

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

7. Provide, in excel format, the hiring date and termination date by employee monthly, for the test year ended 5/31/11. Include in your response the amount of any employment separation payments and the amount charged for terminated employees.

**Response:** See the CONFIDENTIAL excel attachment.

Response provided by Piedmont Natural Gas on October 26, 2011.

**This Response/Attachment is designated**

**CONFIDENTIAL**

**and has been filed under seal.**

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

8. Provide, in excel format, the payroll capitalization percentage rates for the years ended 5/31/08 and 5/31/09.

**Response:** See the CONFIDENTIAL excel attachment.

Response provided by Piedmont Natural Gas on October 26, 2011.

**This Response/Attachment is designated**

**CONFIDENTIAL**

**and has been filed under seal.**



**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

9. Provide, in excel format, the Mission – Values – Performance (MVP) plan, the Annual Incentive Plan (AIP) and Long-Term Incentive Plan (LTIP) amounts included in Salary and Payroll expenses for the test year ended 5/31/11, by employee, by month. In addition, provide, in excel format, the MVP Plan, AIP Plan, and LTIP Plan amounts included in Salary and Payroll expenses for the years ended 5/31/2008, 5/31/2009, and 5/31/2010.

**Response:** See CONFIDENTIAL excel attachment for the MVP, LTIP and STIP plans.

Response provided by Piedmont Natural Gas on October 26, 2011.

**This Response/Attachment is designated**

**CONFIDENTIAL**

**and has been filed under seal.**

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

10. Provide the Tennessee Direct wage (union and non-union) headcounts for the years ended 5/31/08, 5/31/09, and 5/31/10.

**Response:**

<u>Years Ended</u>	<u>Employee Count</u>
05/31/08	195
05/31/09	190
05/31/10	192

Response provided by Piedmont Natural Gas on October 26, 2011.

**Piedmont Natural Gas Company**  
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**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

11. Provide the number of part time employees, union, non-union, and salaried, for the test year ended 5/31/11.

**Response:** There is one part time employee for Tennessee direct at 5/31/2011. This employee is in an hourly, non-union position.

Response provided by Piedmont Natural Gas on October 26, 2011.

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

12. Provide, in excel format, the hire and termination dates of all partial year employees (not open positions) for the test year ended 5/31/11.

**Response:** See the Company's response to Item 7 of this data request.

Response provided by Piedmont Natural Gas on October 26, 2011.

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

13. Provide in excel format, the account and amount for any non-recurring charges, such as non-jurisdictional expenses, outside service expenses, and outsourcing of costs for the twelve months ended 5/31/2011.

**Response:** The Company provided, as part of its response to MFR 25, the account and amount for all non-recurring charges in the Test Period. Specifically, this information was included as part of the Test Period transaction detail shown in each of the excel file workpapers supporting the various O&M Attrition Period Adjustments. As marked in these workpapers, the Company excluded these non-recurring charges when calculating the O&M expense for the Attrition Period.

Response provided by Piedmont Natural Gas on October 26, 2011.

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

14. Provide, in excel format, monthly, the Bad Debt (Uncollectible Accounts) Actual Write-offs, the PGA Actual Write-offs, the Average Percentage, the Total Amounts (Payments) Recovered, the PGA Amounts Recovered, the Average Percentage, the Net Write-offs, and the Unrecovered Margin for the test year 5/31/11.

**Response:** See the information provided in excel format for MFR 25, file 13 ("13 - Adjustment\_5G\_Uncollectibles Attrition Adjustment.xls"), tabs "Uncollectibles Summary – PG 1" and "Uncollectibles Summary – PG 2."

Response provided by Piedmont Natural Gas on October 26, 2011.

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

15. Provide, in excel format, all of the lobbying expenses for the years ended 5/31/08, 5/31/09, 5/31/10.

**Response:** See the CONFIDENTIAL attachment.

Response provided by Piedmont Natural Gas on October 26, 2011.



**This Response/Attachment is designated**

**CONFIDENTIAL**

**and has been filed under seal.**

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

16. Provide, in excel format, the employee number and the salary and benefit expenses for employee Eddie Davidson for the test year ended 5/31/11.

**Response:** See the CONFIDENTIAL excel attachment. Considering that Mr. Davidson spends approximately 62 days per year performing lobbying activities, please note that the Company removed the equivalent of 62 days of his annual salary from Attrition Period salary and wages expense in this rate case.

Response provided by Piedmont Natural Gas on October 26, 2011.

**This Response/Attachment is designated**

**CONFIDENTIAL**

**and has been filed under seal.**

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

17. Provide, in excel format, using FERC account numbers, all of the work papers and documents, and supporting calculations for each of the adjustments in exhibit PKP-1, Schedule 3, Page 1, Line 7, and page 3, line 5.

**Response:** See the attached excel schedule which maps the referenced O&M adjustments to the account numbers and supporting workpapers. All supporting workpapers for these adjustments were previously provided in response to MFR 25.

Response provided by Piedmont Natural Gas on October 26, 2011.

GL Accounts for Requested Expense Categories, as represented in MFR 25

file name:  
tab name:

1- SUMMARY SCHEDULES.XLS

INCOME STATEMENT

- A) **Transmission and Distribution Expense**  
See Lines 1 - 52 (Maintenance Expenses) : Detail provided in MFR 25, file name "11 - Adjustment\_5F\_T&D Maintenance Adjustment\_rd.xls"  
See Lines 53 - 89 (Operation Expenses) : Detail Provided in MFR 25, file name "11 - Adjustment\_5F\_T&D Maintenance Adjustment\_rd.xls"
- B) **Uncollectible Accounts Expense**  
See Line 90: Detail provided in MFR 25, file name "13 - Adjustment\_5G\_Uncollectibles Attrition Adjustment.xls"
- C) **Other Customer Accounts Expense**  
See Lines 91 - 105: Detail provided in MFR 25, file name: "14 - Adjustment\_5H\_Other Customer Accounts Maintenance Attrition Adjustment\_rd.xls"
- D) **Administrative and General**  
See Line 106 (Rents) : Detail provided in file name "44 - Adjustment\_5R\_Rents Attrition Adjustment\_rd.xls"  
See Line 107 (Outside Services) : Detail provided in MFR 25, file name "26 - Adjustment\_5S\_Outside Services Attrition Adjustment\_rd.xls"  
See Lines 108 - 110 (Risk Insurance) : Detail Provided in MFR 25, file name "22 - Adjustment\_5O\_Insurance Expense Attrition Adjustment.xls"  
See Line 111 (Regulatory Expense) : Detail Provided in MFR 25, file name "24 - Adjustment\_5Q\_Regulatory Expense Attrition Adjustment\_rd.xls"  
See Lines 112 - 125 (Misc A&G) : Detail Provided in MFR 25, file name "28 - Adjustment\_5T\_Misc A&G Expense Attrition Adjustment.xls"
- E) **Sales Expense**  
See Line 126 (General Advertising) : Detail provided in MFR 25, file name "15 - Adjustment\_5I\_Advertising Attrition Adjustment\_rd.xls"  
See Lines 127 - 129 (Other Sales Expense) : Detail Provided in MFR 25, file name "16 - Adjustment\_5I\_Other Sales Attrition Adjustment\_rd.xls"
- F) **Other Compensation and Benefits**  
See Line 130 (Group Insurance) : Detail Provided in MFR 25, file name "21 - Adjustment\_5N\_Group Insurance Attrition Adjustment.xls"  
See Lines 131 - 132 (Defined Contribution Pension & Admin) : Detail Provided in MFR 25, file name "17 - Adjustment\_5J\_Defined Contribution Pension Attrition Adjustment.xls"  
See Line 133 (Salary & Payroll Investment Plan) : Detail Provided in MFR 25, file name "7 - Adjustment\_5B\_SIP & PIP Attrition Adjustment\_rd.xls"  
See Line 134 - 140 (Other Emp Benefits & Training) : Detail Provided in MFR 25, file name "23 - Adjustment\_5P\_Other Benefits and Training Attrition Period Adjustment\_rd.xls"  
See Line 141 (MVP) : Detail Provided in MFR 25, file name "10 - Adjustment\_5E\_MVP Attrition Adjustment.xls"  
See Line 142 (STIP) : Detail Provided in MFR 25, file name "9 - Adjustment\_5D\_STIP Attrition Adjustment.xls"  
See Line 143 (LTIP) : Detail Provided in MFR 25, file name "8 - Adjustment\_5C\_LTIP Attrition Adjustment.xls"  
See Line 144 (Other Pay & Incentives) : Detail Provided in MFR 25, file name "44 - Adjustment\_5A\_S&W Attrition Adjustment.xls"
- G) **Deferred Regulatory Amortizations**  
See Line 145 (Defined Benefit Pension) : Detail Provided in MFR 25, file name "18 - Adjustment\_5K\_Deferred Pension Attrition Adjustment.xls"  
See Line 146 (Environmental Cleanup) : Detail Provided in MFR 25, File Name "19 - Adjustment\_5L\_Deferred Environmental Cleanup Attrition Adjustment.xls"  
See Line 147 (2011 Rate Case Expense) : Detail Provided in MFR 25, file name "29 - Adjustment\_5U\_Deferred Rate Case Expense Attrition Adjustment.xls"  
See Line 148 (2010 TN Flood) : Detail Provided in MFR 25, file name "20 - Adjustment\_5M\_Deferred Nashville Flood Attrition Adjustment.xls"

Line No.	GL Account Number	GL Account Name
		<b>T&amp;D - Maintenance Expense</b>
1	74200	Manufactured Gas Production: Production Equipment: Maintenance Expense
2	84400	Other Gas Supply Expenses: Other Storage Expenses (LNG): Structures: Maintenance Expense
3	84700	Other Gas Supply Expenses: Other Storage Expenses (LNG): Liquefaction Equipment: Maintenance Expense
4	84810	Other Gas Supply Expenses: Other Storage Expenses (LNG): Compressor Equipment: Maintenance Expense
5	84820	Other Gas Supply Expenses: Other Storage Expenses (LNG): Measuring and Regulating Equipment: Maintenance Expense
6	84830	Other Gas Supply Expenses: Other Storage Expenses (LNG): Other Equipment: Maintenance Expense
7	86100	Transmission: Supervision and Engineering: Maintenance Expense
8	86300	Transmission: Mains: Maintenance Expense
9	86301	Transmission: Damage to Transmission Mains by Others: Maintenance Expense
10	86303	Transmission: Leak Survey: Maintenance Expense
11	86304	Transmission: Line Locate and Crossing: Maintenance Expense
12	86305	Transmission: Valve Inspection and Survey: Maintenance Expense
13	86306	Transmission: Valve Maintenance: Maintenance Expense
14	86307	Transmission: Rights of Way Maintenance: Maintenance Expense
15	86308	Transmission: Painting Transmission Valves: Maintenance Expense
16	86310	Transmission: Corrosion Control - Periodic Testing: Maintenance Expense
17	86320	Transmission: Corrosion Control - Troubleshooting: Maintenance Expense
18	86330	Transmission: Corrosion Control - Repair: Maintenance Expense
19	86340	Transmission: Maintenance of Mains - Pipe Integrity: Maintenance Expense
20	86400	Transmission: Compressor Maintenance: Maintenance Expense
21	86500	Transmission: Measuring and Regulating Station Equipment: Maintenance Expense
22	86510	Transmission: Maintenance of Meter and Regulator, Farm Taps and Post Regular Stations: Maintenance Expense
23	86800	Transmission: Maintenance of Power Generation Facilities: Maintenance Expense
24	88500	Distribution: Supervision and Engineering: Maintenance Expense
25	88600	Distribution: Structures and Improvements: Maintenance Expense
26	88700	Distribution: Mains: Maintenance Expense
27	88701	Distribution: Damage to Distribution mains by Others: Maintenance Expense
28	88702	Distribution: Billed for Damage by Others (Contra): Maintenance Expense
29	88703	Distribution: Leak Survey: Maintenance Expense
30	88704	Distribution: Valve Inspection and Survey: Maintenance Expense
31	88705	Distribution: Rights of Way Maintenance: Maintenance Expense
32	88710	Distribution: Corrosion Control - Periodic Testing: Maintenance Expense
33	88720	Distribution: Corrosion Control - Troubleshooting: Maintenance Expense
34	88730	Distribution: Corrosion Control - Repair: Maintenance Expense

Line No.	GL Account Number	GL Account Name
35	88900	Distribution: Measuring and Regulating Station Equipment: Maintenance Expense
36	88910	Distribution: Painting Measuring and Regulating Station Equipment: Maintenance Expense
37	89000	Distribution: Measuring and Regulating Station Equipment - Industrial: Maintenance Expense
38	89010	Distribution: Painting Industrial Measuring and Regulating Station Equipment: Maintenance Expense
39	89100	Distribution: Measuring and Regulating Station Equipment - City Gate Check Stations: Maintenance Expense
40	89110	Distribution: Painting City Gate Measuring and Regulating Station Equipment: Maintenance Expense
41	89200	Distribution: Maintenance of Services: Maintenance Expense
42	89201	Distribution: Damage to Services by Others: Maintenance Expense
43	89202	Distribution: Billed for Damage to Services by Others (Contra): Maintenance Expense
44	89203	Distribution: Relocation of Service: Maintenance Expense
45	89204	Distribution: Billed for Relocation of Service (Contra): Maintenance Expense
46	89210	Distribution: Maintenance of Services - Corrosion Control - Periodic Testing: Maintenance Expense
47	89220	Distribution: Maintenance of Services - Corrosion Control - Troubleshooting: Maintenance Expense
48	89230	Distribution: Maintenance of Services - Corrosion Control - Repair: Maintenance Expense
49	89310	Distribution: Maintenance of Meters and House Regulators: Labor and Expenses
50	89315	Distribution: Maintenance of Meters and House Regulators: Field Painting: Maintenance Expense
51	89320	Distribution: Maintenance of Meters and House Regulators - Materials: Maintenance Expense
52	89400	Distribution: Maintenance of Other Equipment: Maintenance Expense
		<b>T&amp;D - Operation Expense</b>
53	71700	Manufactured Gas Production: Vaporization Equipment: Operation Expense
54	80720	Manufactured Gas Production: Purchased Gas Expenses - Labor: Operation Expense
55	80750	Manufactured Gas Production: Telemeter Telegraph Lines: Operation Expense
56	84000	Other Gas Supply Expenses: Other Storage Expenses (LNG): Supervision and Engineering - Labor: Operation Expense
57	84010	Other Gas Supply Expenses: Other Storage Expenses (LNG): Supervision and Engineering - Expenses: Operation Expense
58	84100	Other Gas Supply Expenses: Other Storage Expenses (LNG): Labor: Operation Expense
59	84110	Other Gas Supply Expenses: Other Storage Expenses (LNG): Expenses: Operation Expense
60	84210	Other Gas Supply Expenses: Other Storage Expenses (LNG): Fuel Expense: Operation Expense
61	85000	Transmission: Supervision and Engineering: Operation Expense
62	85300	Transmission: Compressor Operation: Operation Expense
63	85600	Transmission: Mains Services Expense: Operation Expense
64	85700	Transmission: Measuring and Regulating Station Expense: Operation Expense
65	87000	Distribution: Supervision and Engineering: Operation Expense
66	87100	Distribution: Load Dispatching: Operation Expense
67	87400	Distribution: Mains and Services Expense: Operation Expense
68	87410	Distribution: Line Locate: Operation Expense
69	87500	Distribution: Measuring and Regulating Station - General: Operation Expense
70	87600	Distribution: Measuring and Regulating Station - Industrial: Operation Expense
71	87700	Distribution: Measuring and Regulating Station - City Gate Check Stations: Operation Expense

Line No.	GL Account Number	GL Account Name
72	87810	Distribution: Meter Changeout - State Regulations: Operation Expense
73	87815	Distribution: Meter Changeout - Nashville Renewals: Operation Expense
74	87821	Distribution: Installations On New Service: Operation Expense
75	87825	Distribution: Service Turn Ons/Offs - Reimbursable Cost: Operation Expense
76	87827	Distribution: Service Turn Ons/Offs - Non Reimbursable Cost: Operation Expense
77	87828	Distribution: Other Field Expenses: Operation Expense
78	87830	Distribution: Other Office Shop Expenses: Operation Expense
79	87830	Distribution: Free Work - Supervision: Operation Expense
80	87920	Distribution: Free Work - Air Conditioners: Operation Expense
81	87930	Distribution: Free Work - New Customers: Operation Expense
82	87940	Distribution: Free Work - Hazardous Conditions: Operation Expense
83	87950	Distribution: Free Work - Pilots - Turn Ons/Offs: Operation Expense
84	87960	Distribution: Free Work - Operation of Equipment and Appliances: Operation Expense
85	87970	Distribution: Free Work - Misc: Operation Expense
86	88010	Distribution: Other Distribution Expenses - Labor: Operation Expense
87	88020	Distribution: Other Distribution Expenses - Utilities: Operation Expense
88	88030	Distribution: Other Distribution Expenses - Misc: Operation Expense
89	88100	Distribution: Rents: Operation Expense
		<b>Uncollectible Accounts Expense</b>
90	90400	Provision for Uncollectible Accounts - Gas
		<b>Other Customer Accounts Expense</b>
91	90100	Supervision - Customer Accounting and Collecting
92	90200	Meter Reading
93	90205	Servicemen
94	90310	Customer Records - Applications - Credit Investigations - Orders
95	90315	Bill Investigations By Servicemen
96	90320	Collection Expenses (except for that covered by 90325)
97	90325	Collection Expenses By Servicemen
98	90330	Customer Billing and Accounting
99	90340	Equipment Rental - Customer Accounting
100	90360	Utility Services - Customer Accounting
101	90370	Postage - Customer Accounting
102	90500	Misc Customer Account Expenses
103	90900	Supervision - Customer Service
104	91020	Customer Assistance Expense - Other
105	91100	Informational Advertising Expense



Line No.	GL Account Number	GL Account Name
		<b>Rents</b>
106	93100	Rents
		<b>Outside Services</b>
107	92300	Outside Services Operations
		<b>Risk Insurance</b>
108	92400	Property Insurance
109	92510	Insurance Premiums - Injuries and Damages
110	92515	Self Insurance - Injuries and Damages
		<b>Regulatory Expenses</b>
111	92800	Regulatory Comm Expenses
		<b>Misc A&amp;G</b>
112	92110	Supplies And Expenses
113	92520	Safety Programs, Supplies and Training
114	93000	General Expenses
115	93105	Non-Rent Costs - IT Leases
116	93210	Maintenance of Telemetry: Labor and Expenses
117	93220	Maintenance of Telemetry: Materials
118	93230	Maintenance of Other General Plant: Labor - Materials - Expenses
119	92201	Salaries - Administrative Transfer Credit
120	92202	SIP - Administrative Transfer Credit
121	92203	Pension - Administrative Transfer Credit
122	92204	Insurance - Administrative Transfer Credit
123	92205	Other Administrative Expense - Transfer Credit
124	TBD	Energy Efficiency Program Funding
125	TBD	GTI Funding
		<b>General Advertising</b>
126	91700	General Advertising Expenses
		<b>Other Sales Expense</b>
127	91500	Sales Supervision
128	91600	Miscellaneous Sales Expenses
129	91631	Commercial Gas Cooking Education
		<b>Group Insurance Benefits</b>
130	92620	Employee Benefits: Insurance Premiums & Payments
		<b>Defined Contribution Pension &amp; Administration</b>
131	92610	Employee Pensions
132	92611	Employee Pension - Supplemental
		<b>Salary &amp; Payroll Investment Plan (401k)</b>
133	92625	Employee Benefits - 401k Plans

Line No.	GL Account Number	GL Account Name
<b>Other Employee Benefits &amp; Training</b>		
134	92150	Training - Internal - General and Administrative
135	92151	Training - External - General and Administrative
136	92900	Training
137	92905	Training - Service Apprentices
138	92630	Employee Benefits - Education
139	92640	Employee Benefits - Misc
140	92650	Employee Relocation Expenses
	<b>MVP</b>	
141	MVP (booked to GL 92000:	Administrative and General Salaries)
	<b>STIP</b>	
142	STIP (booked to GL 92000:	Administrative and General Salaries)
	<b>LTIP</b>	
143	LTIP (booked to GL 92000:	Administrative and General Salaries)
	<b>Other Pay &amp; Incentives</b>	
144	Other Pay & Incentives (booked to GL 92000:	Administrative and General Salaries) -- Not included for recovery in this rate proceeding
	<b>Deferred Expense Regulatory Amortizations</b>	
145	Defined Benefit Pension Expense Deferral - Regulatory Asset GL Account 18617 and O&M Account 92610	
146	Environmental Cleanup Expense Deferral - Regulatory Asset GL Accounts 18612 and 18645, and Other Deferred Credit Account 25360	
147	2011 Rate Case Expense Deferral - Regulatory Asset GL Account 18666	
148	2010 TN Flood Expense Deferral - Regulatory Asset GL Account 18640	

**Piedmont Natural Gas Company**  
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**September 23, 2011**

18. Provide, in excel format, the actual pension amount awarded by the TRA in Docket 03-00391.

**Response:** See attached CONFIDENTIAL workpapers from the Company's last general rate case (Docket 03-00313).

CONFIDENTIAL: 

Response provided by Piedmont Natural Gas on October 26, 2011.

**This Response/Attachment is designated**

**CONFIDENTIAL**

**and has been filed under seal.**

**Piedmont Natural Gas Company**  
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19. Provide, in excel format, the actual pension amounts contributed in the following years: 2003, 2004, 2005, 2006, 2007, 2008, 2009, and 2010.

**Response:** See the Company's response to MFR 25, file 18 ("18 - Adjustment\_5K\_Deferred Pension Attrition Adjustment.xls"), tab "Defined Benefit Pension Summary," cells F13:F22.

Response provided by Piedmont Natural Gas on October 26, 2011.

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20. Provide the latest Pension Plan actuarial report dated 2011.

**Response:** The Company provided in MFR 50 the following two confidential reports:

- “Actuarial valuation for funding purposes as of January 1, 2010, Retirement Plan of Piedmont Natural Gas Company, Inc.” dated February 2011.
- “Actuarial Valuation Report, Net periodic benefit cost, plan and employer disclosure for fiscal year ending October 31, 2009, and net periodic benefit cost for October 31, 2010, Piedmont Natural Gas Company, Inc. Postretirement Benefits Plan” dated May 26, 2010.

In response to this data request item, the Company further submits the attached CONFIDENTIAL report: “Retirement Plan of Piedmont Natural Gas Company, Inc., Actuarial Valuation Report: FAS 87 Expense for Fiscal Year Ending October 31, 2010 and FAS 132(R) (as modified by FAS 158) Disclosure for Fiscal Year Ending October 31, 2010” dated November 2010.

There are no other recent pension plan actuarial reports to provide on this matter.

Response provided by Piedmont Natural Gas on October 26, 2011.

**This Response/Attachment is designated**

**CONFIDENTIAL**

**and has been filed under seal.**

**Piedmont Natural Gas Company**  
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21. Provide, in excel format, the accounts, dates, and payees for athletic events and social club expenses during the test year ended 5/31/11.

**Response:** Response Not Required



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22. Provide, in excel format, a listing of any expense equal to or greater than \$5000 paid to any vendor, for any expense, during the test year ended 5/31/2011. List the payee, account number, FERC account number, date, business reason, and amount. Indicate if the expense is recurring or non-recurring. Include Tennessee and Corporate Office items.

**Response:** Response Not Required

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23. Provide the anticipated allocation factor for the attrition year ended 2/28/13 for corporate charges to Tennessee Direct.

**Response:** Following the precedent established in its prior rate cases, Piedmont set the Corporate Office 3-state allocation factor for the Attrition Period equivalent to Tennessee's share of the Company's Total Net Plant at the end of the Test Period. This share at 5/31/11 was 16.88%. At the time of the rate case filing, this represented the Company's best estimate of that allocation factor for the Attrition Period. For purposes of responding to this data request item, the Company currently estimates the allocation factor to be 16.73% going into the Attrition Period.

Response provided by Piedmont Natural Gas on October 26, 2011.

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24. Provide, in excel format, the Operation and Maintenance expenses for the attrition year ended 2/28/13 in the format of MFR 42.

**Response:** Response Not Required

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25. Provide the actual and estimated State of Tennessee Gross Receipts Tax Returns due August 1, 2011 and August 1, 2012.

**Response:** The computation of the Attrition Period State of Tennessee Gross Receipts Tax is shown in MFR 25, file 1 ("1 – SUMMARY SCHEDULES.xls"), tab "Taxes," cells L12 : M21.

See the CONFIDENTIAL attachment for State of Tennessee Gross Receipts Return filed for the taxable period July 1, 2011 through June 30, 2012, which was due August 1, 2011.

Response provided by Piedmont Natural Gas on October 26, 2011.

**This Response/Attachment is designated**

**CONFIDENTIAL**

**and has been filed under seal.**

**Piedmont Natural Gas Company**  
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26. Provide the estimated State of Tennessee Franchise and Excise Tax Return due August 15, 2012 and August 15, 2013.

**Response:** The computation of the estimated State of Tennessee Franchise Tax is shown in MFR 25, file 1 ("1 – SUMMARY SCHEDULES.xls"), tab "Taxes," cells L32 : L41.  
Estimated Excise Taxes are calculated within the tab "Rev Req" in the same file above.

Response provided by Piedmont Natural Gas on October 26, 2011.

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27. Provide the unequalized ad valorem assessment amounts for Piedmont Natural Gas Company (Tennessee Operations) as of August 31, 2011 and August 31, 2010 and copies of all ad valorem tax bills paid before March 1, 2011.

**Response:** See the CONFIDENTIAL attachments.

Response provided by Piedmont Natural Gas on October 26, 2011.

**This Response/Attachment is designated**

**CONFIDENTIAL**

**and has been filed under seal.**



**Piedmont Natural Gas Company**  
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28. Provide the total unequalized ad valorem assessment amount for 2007, 2008, and 2009.

**Response:** See the attached CONFIDENTIAL assessment letters.

Response provided by Piedmont Natural Gas on October 26, 2011.

**This Response/Attachment is designated**

**CONFIDENTIAL**

**and has been filed under seal.**

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29. Provide the basis for utilizing a 6.8% state income tax rate per Exhibit PKP-1, Schedule 3, Page 4, Line 8 rather than the statutory rate of 6.5%.

**Response:** A composite tax rate (rather than a jurisdiction-specific tax rate) is appropriate for Piedmont Natural Gas. Piedmont Natural Gas' operations in Tennessee are not provided through a subsidiary company, but rather through an operating division of Piedmont. The only legal entity for all of Piedmont's distribution operations is the single corporation, Piedmont Natural Gas. Thus, the only taxpayer is this single legal entity that operates in multiple jurisdictions. The total income tax expense that will be paid by this single taxpayer will be the combination of the federal income tax, plus the income taxes that are assessed based on after-the-fact allocations of income to each of the jurisdictional divisions of Piedmont.

Response provided by Piedmont Natural Gas on October 26, 2011.

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30. Provide a mapping from Piedmont Natural Gas (PNG) (Tennessee Operations) chart of account amounts to the amounts per PNG Exhibit PKP-1, Schedule 3, lines 1 through 25 for the test year ending May 31, 2011 and the attrition year ending February 28, 2013.

**Response:**

- Line 1 of Exhibit PKP-1, Schedule 3, Page 1: The amounts represented on this Line map to GL accounts 48010, 48020, 48100, 48110, 48120, 48300, and 48900.
- Line 2 of Exhibit PKP-1, Schedule 3, Page 1: The amounts represented on this Line map to GL accounts 48800, 48810, 48820, 48850, 49300, 49510, 49520 and 49530, with certain adjustments as shown in MFR 25, file 1, tab "Revenues Summary" and as clarified in the Company's response to Item 33 of TRA Data Request No. 1.
- Line 3 of Exhibit PKP-1, Schedule 3, Page 1: The amounts represented on this Line map to GL account 48700.
- Line 4 of Exhibit PKP-1, Schedule 3, Page 1: These amounts are calculated as the sum of those represented on Lines 1 thru 3.
- Line 5 of Exhibit PKP-1, Schedule 3, Page 1: The amounts represented on this Line map to GL accounts 80400, 80401 and 80710. See the further explanation provided in the Company's response to Item 36 of TRA Data Request No. 1.
- Line 6 of Exhibit PKP-1, Schedule 3, Page 1: These amounts are calculated as a subtraction of Line 5 from Line 4.
- Line 7 of Exhibit PKP-1, Schedule 3, Page 1: These amounts map to GL accounts 71700 thru 93230, with certain adjustments as shown in MFR 25, file 1, tab "O&M Summary" and as clarified in the Company's response to Item 17 of this data request.
- Line 8 of Exhibit PKP-1, Schedule 3, Page 1: These amounts map to GL accounts 40300 and 40400.
- Line 9 of Exhibit PKP-1, Schedule 3, Page 1: These amounts map to GL accounts 40801, 40813, 40815, 40816, 40817, 40819, 40835, 40836, 40837, 40838, 40839 and 40853, with certain adjustments as shown in MFR 25, file 1, tab "Taxes."
- Line 10 of Exhibit PKP-1, Schedule 3, Page 1: These amounts map to GL accounts 40908, 40911 and 40916, with certain adjustments as shown in MFR 25, file 1, tab "Taxes."
- Line 11 of Exhibit PKP-1, Schedule 3, Page 1: These amounts map to GL accounts 40909, 40910, 40914, 40915 and 41220, with certain adjustments as shown in MFR 25, file 1, tab "Taxes"
- Line 12 of Exhibit PKP-1, Schedule 3, Page 1: These amounts are calculated as the sum of those represented on Lines 7 thru 11.
- Line 13 of Exhibit PKP-1, Schedule 3, Page 1: These amounts are calculated as a subtraction of Line 12 from Line 6.
- Line 14 of Exhibit PKP-1, Schedule 3, Page 1: These amounts map to GL account 23500.
- Line 15 of Exhibit PKP-1, Schedule 3, Page 1: These amounts map to GL account 42000.
- Line 16 of Exhibit PKP-1, Schedule 3, Page 1: These amounts are calculated as the sum of Lines 13 and 15, less Line 14.

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- Line 17 of Exhibit PKP-1, Schedule 3, Page 1: These amounts map to the GL accounts listed in the Company's response to Items 31 and 32 of this data request.
- Line 18 of Exhibit PKP-1, Schedule 3, Page 1: These amounts map to GL account 27100.
- Line 19 of Exhibit PKP-1, Schedule 3, Page 1: These amounts map to the GL accounts listed in the Company's response to Items 31 and 32 of this data request.
- Line 20 of Exhibit PKP-1, Schedule 3, Page 1: These amounts map to GL account 25222.
- Line 21 of Exhibit PKP-1, Schedule 3, Page 1: These amounts map to GL account 27100.
- Line 22 of Exhibit PKP-1, Schedule 3, Page 1: These amounts are calculated as the sum of Lines 18 and 18, less Lines 19 thru 21.
- Line 23 of Exhibit PKP-1, Schedule 3, Page 1: These amounts map to GL accounts 25519 and 25520.
- Line 24 of Exhibit PKP-1, Schedule 3, Page 1: These amounts map to the GL accounts shown in MFR 25, file 33 ("33 - Adjustment\_16\_May 2011 Working Capital.xls").
- Line 25 of Exhibit PKP-1, Schedule 3, Page 1: These amounts map to GL accounts 28210, 28220, 28230 and 28240.

Response provided by Piedmont Natural Gas on October 26, 2011.

**Piedmont Natural Gas Company**  
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**September 23, 2011**

31. Provide in working excel format the information for Plant in Service and Accumulated Depreciation by account for Piedmont Natural Gas Company (Tennessee Operations) in the following format as of May 31, 2011:

(1)	(2)	(3)	(4)	(5)	(6)
FERC	Account	Plant in Service	Current	Accumulated	Net
Account #	Description	Balance	Depreciation Rate	Depreciation	Book Value

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**Response:** See the excel attachment for information in format requested. Also note that the May 31, 2011 Plant in Service by account is shown in MFR 25, file 32 ("32 - Adjustment\_12 & 13\_TN Plant in Service.xls"), tab "PIS", cells C6 : C66. In addition, Current Depreciation Rates are shown in MFR 25, file 30 ("30 - Adjustment\_6 & 14\_TN Dep Expense and Acc Dep.xls"), tab "TN Dep Expense," cells C15 : C62.

Response provided by Piedmont Natural Gas on October 26, 2011.

	(1)	(2)	(3)	(4)	(5)	(6)
	FERC Account	Account Description	Plant in Service Balance	Current Depreciation Rate	Accumulated Depreciation	Net Book Value
(a)	30100	Organization	30,035		30,035	0
(a)	30200	Franchises and Consents	109,186		109,186	0
	30300	Misc. Intangible Plant				
	36000	Land	630,064			630,064
	36100	Structures & Improvements	1,131,012	1.76%	543,967	587,045
	36200	Gas Holders	2,903,543	1.43%	3,387,283	(483,740)
	36300	Purification Equipment	404,453	1.43%	445,919	(41,466)
	36310	Liquefaction Equipment	1,317,772	1.42%	1,209,903	107,869
	36320	Vaporizing Equipment	1,179,849	1.42%	1,008,550	171,299
	36330	Compressor Equipment	983,401	3.65%	62,875	920,526
	36340	Meas. & Reg. Sta. Equip.	28,481	2.41%	19,285	9,196
	36350	Other Equipment	1,517,244	1.43%	1,206,695	310,549
	36512	Land Rights	532,392	1.64%	21,094	511,298
	36700	Mains	31,828,077	2.42%	1,918,689	29,909,388
	37410	Land	346,488			346,488
	37420	Land Rights				
	37500	Structures & Improvements	160,898	3.43%	139,034	21,864
	37600	Mains	263,397,832	2.42%	99,910,535	163,487,297
	37800	Meas. & Reg. Sta.-General	5,577,416	2.35%	1,462,760	4,114,656
	37900	Meas. & Reg. Sta.-City Gate	6,696,143	2.34%	1,086,678	5,609,465
	38000	Services	202,424,014	5.25%	156,451,425	45,972,589
	38100	Meters	17,627,458	2.82%	6,545,540	11,081,918
	38110	Meter Accessories		4.44%		
	38120	Meter Accessories ERTs		5.88%		
	38200	Meter Installations	12,096,491	2.89%	4,204,703	7,891,788
	38300	House Regulators	4,417,672	2.52%	1,394,788	3,022,884
	38400	House Regulators Installations	4,093,818	2.53%	1,498,182	2,595,636
	38500	Industrial Meas. & Reg. Sta.	1,302,013	2.11%	211,463	1,090,550
	38700	Other Equipment				
	38910	Land	4,995,994			4,995,994
	39000	Structures & Improvements	21,653,133	2.03%	4,023,311	17,629,822
	39010	Leasehold Improvements				
	39100	Office Furniture & Equipment	3,051,650	4.79%	2,127,140	924,510
	39110	Mainframe Equipment			19,951	(19,951)
	39120	PC-related Equipment				
	39130	Customer Information System				
	39140	Client/Server Applications				
	39200	Transportation Equipment	3,938,499		1,057,639	2,880,860
	39210	Transportation Equip. Leased Buyout	195,827			195,827
	39300	Stores Equipment	14,918	3.40%	14,028	890
	39400	Tools & Shop Equipment	2,274,884	6.77%	2,071,099	203,785
	39500	Laboratory Equipment	105,879	4.05%	20,392	85,487
	39600	Power Operated Equipment	539,913	7.61%	628,585	(88,672)
	39700	Communication Equipment	1,872,859	6.81%	1,491,983	380,876
	39800	Miscellaneous Equipment	251,769	5.05%	254,671	(2,902)
	39900	Other Tangible Property		2.22%		
			<u>599,631,077</u>		<u>294,577,388</u>	<u>305,053,689</u>

(a) Accounts 30100 and 30200 were amortized rather than depreciated. The Accumulated Amortization is accounted for in Accounts 11000 and 11500 respectively. Both accounts are fully amortized.

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

32: Provide in working excel format the information for Plant in Service and Accumulated Depreciation by account allocated by Piedmont Corporate Services to Piedmont Natural Gas Company (Tennessee Operations) in the following format as of May 31, 2011:

(1)	(2)	(3)	(4)	(5)	(6)
FERC	Account	Plant in Service	Current	Accumulated	Net
Account #	Description	Balance	Depreciation Rate	Depreciation	Book Value

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**Response:** See the excel attachment for information in format requested. Also note that the May 31, 2011 Plant in Service by account for Joint Property by is shown in MFR 25, file 32 ("32 – Adjustment\_12 & 13\_TN Plant in Service.xls"), tab "JP Allocat", cells G9 : G24. In addition, Current Depreciation Rates are shown in MFR 25, file 30 ("30 – Adjustment\_6 & 14\_TN Dep Expense and Acc Dep.xls"), tab "JP Dep Expense," cells C9 : C24.

Response provided by Piedmont Natural Gas on October 26, 2011.



Piedmont Natural Gas Company, Inc.					Attachment Page 1 of 1	
Docket No. 11-00144						
CAPD 1-32 Response Attachment						
	(1)	(2)	(3)	(4)	(5)	(6)
				Current		
	FERC	Account	Plant in Service	Depreciation	Accumulated	Net
	Account #	Description	Balance	Rate	Depreciation	Book Value
	38100	Meters	458,897	2.82%	(475,371)	934,268
	38110	Meter Accessories	499,422	4.44%	106,415	393,007
	38120	Meter Accessories ERTs	7,722,735	5.88%	2,215,178	5,507,557
	39000	Structures & Improvements	11,059	2.15%	(308,514)	319,573
	39010	Leasehold Improvements	429,595	10.00%	205,140	224,455
	39100	Office Furniture & Equipment	1,003,147	5.00%	223,691	779,456
	39110	Mainframe Equipment	3,169,916	7.52%	2,250,675	919,241
	39120	PC-related Equipment	947,769	25.00%	2,394,331	(1,446,562)
	39130	Customer Information System	2,892,948	7.62%	3,902,112	(1,009,164)
	39140	Client/Server Applications	9,877,437	10.66%	7,082,924	2,794,513
	39200	Transportation Equipment	98,044		65,916	32,128
	39210	Transportation Equip. Leased Buyout	51,087			51,087
	39400	Tools & Shop Equipment	22,459	5.00%	1,048	21,411
	39700	Communication Equipment	5,024,910	5.56%	1,670,057	3,354,853
			32,209,425		19,333,602	12,875,823

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

33. Provide in working excel format the forecasted plant additions, plant retirements, salvage, and the cost of removal by FERC account by month for Piedmont Natural Gas Company (Tennessee Operations) from May 2011 through February 28, 2013.

**Response:** See the excel attachment. Also note that forecasted plant additions and plant retirements are shown in MFR 25, file 32 ("32 – Adjustment\_12 & 13\_TN Plant in Service.xls"), tab "Proj Net Adds TN." In addition, the computation of salvage (less the cost of removal) is shown in MFR 25, file 30 ("30 – Adjustment\_6 & 14\_TN Dep Expense and Acc Dep.xls"), tab "Avg Net Salvage TN."

Response provided by Piedmont Natural Gas on October 26, 2011.



Piedmont Natural Gas C																
Docket No. 11-00144																
CAPD DR 1-33 Response																
FERC	September, 2011				October, 2011								November, 2011			
ACCOUNT	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	
NUMBER	Additions	Retirements	Salvage	Cost of Removal	Additions	Retirements	Salvage	Cost of Removal	Retirements	Salvage	Cost of Removal	Additions	Retirements	Salvage	Cost of Removal	
36100					498,875											
36300																
36310																
36320																
36340																
36350					58,831											
36700																
37600	800,156	10,277			788,770	10,277						3,528,433				
37800	238,080				163,398							1,287,177	10,277			
37900	6,689											5,593				
38000	365,856	88,603	0	7,060	478,921	88,603	0	7,060				424,944	88,603	0	7,060	
38100	64,216	9,979			88,877	9,979							9,979			
38200	0	30,596				30,596						66,447	30,596			
38300	11,152	12,233				12,233						10,780	12,233			
38400		10,470				10,470							10,470			
38500																
39000	15,235				15,444							14,468				
39200	150,000	1,882			150,000	1,882						125,000	1,882			
39210		8,978				8,978							8,978			
39400	8,400				8,400							20,833				
39700	60,000				60,000											
TOTAL UTILITY PLANT	1,719,784	173,018	0	7,060	2,311,516	173,018	0	7,060					5,483,675	173,018	0	7,060

Piedmont Natural Gas C												
Docket No. 11-00144												
CAPD DR 1-33 Respond												
FERC	December, 2011											
ACCOUNT	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected
NUMBER	Additions	Retirements	Salvage	Cost of Removal	Additions	Retirements	Salvage	Cost of Removal	Additions	Retirements	Salvage	Cost of Removal
36100	1,519,325											
36300												
36310					272,493				5,541,299			
36320									2,127,309			
36340									13,601,370			
36350												
36700	194,783				1,314,186				8,455,157			
37600	1,248,990	10,277			194,783				194,783			
37800					1,200,026	10,277			1,245,693	10,277		
37900												
38000	424,947	88,603	0	7,060	424,952	88,603	0	7,060	424,960	88,603	0	7,060
38100		9,979				9,979				9,979		
38200	66,447	30,596			66,447	30,596			66,447	30,596		
38300	10,780	12,233			10,780	12,233			10,780	12,233		
38400		10,470				10,470				10,470		
38500												
39000	14,420				14,375				14,333			
39200	125,000	1,882			125,000	1,882			125,000	1,882		
39210		8,978				8,978				8,978		
39400	20,833				20,833				20,833			
39700												
TOTAL UTILITY PLANT		3,625,525	173,018	0	7,060	3,643,875	0	7,060	31,827,964	173,018	0	7,060











**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

34. Provide in working excel format the forecasted plant additions, plant retirements, salvage, and the cost of removal by FERC account by month allocated by Piedmont Corporate Services to Piedmont Natural Gas Company from May 2011 through February 28, 2013.

**Response:** See attached excel schedule.

Response provided by Piedmont Natural Gas on October 26, 2011.

ACCOUNT NUMBER	June, 2011				July, 2011				August, 2011			
	Projected Additions	Projected Retirements	Projected Salvage	Projected Cost of Removal	Projected Additions	Projected Retirements	Projected Salvage	Projected Cost of Removal	Projected Additions	Projected Retirements	Projected Salvage	Projected Cost of Removal
37500	23,079				15,166				14,910			
37600	385,592				384,422				380,770			
38100	155,343				191,803				144,160			
38110		430,485				430,485						
38120		12,749				12,749						
38120		5,461				5,461						
39000	0	0			0	0			0	0		
39010	0				0				0			
39120	4,166	211,882			4,166	211,882			4,166	418,352		
39140	142,636				879,948							
39200		7,023				7,023						
39210		47,454				47,454						
39700	246,716	0			197,735	0			170,791	0		
39800	0	0			0	0			0	0		
TOTAL UTILITY PLANT IN SERVICE	957,532	715,054	0	0	1,673,241	715,054	0	0	1,133,148	0	0	0
Tennessee Net Plant Percentage	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%
TN Allocated JP Net Additions	161,631	120,701	0	0	282,443	120,701	0	0	191,275	0	0	0

ACCOUNT NUMBER	September, 2011				October, 2011				
	Projected Retirements	Projected Salvage	Projected Cost of Removal	Projected Additions	Projected Retirements	Projected Salvage	Projected Cost of Removal	Projected Additions	Projected Retirements
37500				15,290				15,498	
37600	0			384,489	0			386,287	0
38100	430,485			216,059	430,485			181,879	430,485
38110	12,749				12,749				12,749
38120	5,461				5,461				5,461
39000	0			0	0			0	0
39010				0				0	
39120	211,882			2,067,406	211,882			4,166	211,882
39140				446,571				3,154,363	
39200	7,023				7,023				7,023
39210	47,454				47,454				47,454
39700	0			130,152	0			110,544	0
39800	0			0	0			0	0
TOTAL UTILITY PLANT IN SERVICE					715,054	0	0	3,852,737	715,054
Tennessee Net Plant Percentage					16.88%	16.88%	16.88%	16.88%	16.88%
TN Allocated JP Net Additions				120,701	0	0	0	650,342	120,701

ACCOUNT NUMBER	November, 2011				December, 2011			
	Projected Salvage	Projected Cost of Removal	Projected Additions	Projected Retirements	Projected Salvage	Projected Cost of Removal	Projected Additions	Projected Retirements
37500			192,294	0			193,217	0
37600			983,136	430,485			983,802	430,485
38100			138,612	12,749			353,127	12,749
38110				5,461				5,461
38120			0	0			0	0
39000							14,095	
39010			14,106	211,882			6,250	211,882
39120			6,250				190,546	
39140			156,764	7,023				7,023
39200				47,454				47,454
39210				0			120,533	0
39700			120,594	0			12,252	0
39800			12,275					
TOTAL UTILITY PLANT IN SERVICE	0	0	1,624,030	715,054	0	0	1,873,820	715,054
Tennessee Net Plant Percentage	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%
TN Allocated JP Net Additions	0	0	274,136	120,701	0	0	316,301	120,701

ACCOUNT NUMBER	January 2012				February, 2012				
	Projected Salvage	Projected Cost of Removal	Projected Additions	Projected Retirements	Projected Salvage	Projected Cost of Removal	Projected Additions	Projected Retirements	Projected Salvage
37500			224,052				224,808		
37600			983,865	0			983,382	0	
38100			318,280	430,485			352,191	430,485	
38110				12,749				12,749	
38120				5,461				5,461	
39000			0	0			0	0	
39010			14,084				14,072		
39120			1,486,329	211,882			6,250	211,882	
39140			126,774				126,875		
39200				7,023				7,023	
39210				47,454				47,454	
39700			149,445	0			197,885	0	
39800			12,230	0			12,206	0	
TOTAL UTILITY PLANT IN SERVICE									
	0	0	3,315,058	715,054	0	0	1,917,669	715,054	0
Tennessee Net Plant Percentage									
	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%
TN Allocated JP Net Additions									
	0	0	559,582	120,701	0	0	323,703	120,701	0

ACCOUNT NUMBER	March, 2012			April, 2012		
	Projected Cost of Removal	Projected Additions	Projected Retirements	Projected Salvage	Projected Cost of Removal	Projected Additions
37500		225,492	0			226,111
37600		982,402	430,485			980,972
38100		278,902	12,749			214,039
38110			5,461			
38120			0			
39000		71,429				71,429
39010		14,061				14,050
39120		6,250	211,882			6,250
39140		2,476,786				126,973
39200			7,023			7,023
39210			47,454			47,454
39700		342,635	0			453,582
39800		12,184	0			12,162
TOTAL UTILITY PLANT IN SERVICE	0	4,410,141	715,054	0	0	2,105,568
Tennessee Net Plant Percentage	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%
TN Allocated JP Net Additions	0	744,432	120,701	0	0	355,420
						120,701
						16.88%
						0

ACCOUNT NUMBER	May, 2012			June, 2012		
	Projected Cost of Removal	Projected Additions	Projected Retirements	Projected Salvage	Projected Cost of Removal	Projected Additions
37500		226,671	0		197,178	1,106,466
37600		1,108,287	430,485		174,173	430,485
38100		521,601	12,749			12,749
38110			5,461			5,461
38120			0			0
39000		71,429			71,429	
39010		14,038			21,079	
39120		6,250	211,882		6,250	211,882
39140		380,049			2,273,947	
39200			7,023			7,023
39210		598,132	47,454		689,329	47,454
39700		12,138	0		19,167	0
39800			0			0
TOTAL UTILITY PLANT IN SERVICE	0	2,938,596	715,054	0	0	4,559,018
Tennessee Net Plant Percentage	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%
TN Allocated JP Net Additions	0	496,035	120,701	0	0	769,562
						120,701
						0
						16.88%
						0



ACCOUNT NUMBER	July, 2012			August, 2012			Projected Salvage	Projected Cost of Removal	Projected Retirements	Projected Salvage	Projected Retirements	Projected Salvage	Projected Cost of Removal
	Projected Cost of Removal	Projected Additions	Projected Retirements	Projected Cost of Removal	Projected Additions	Projected Retirements							
37500		197,637	0		198,052	0							
37600		1,104,184	430,485		1,101,482	430,485							
38100		210,750	12,749		251,989	12,749							
38110			5,461			5,461							
38120			0			0							
39000		71,429	0		71,429	0							
39010		14,010			13,998								
39120		6,250	211,882		6,250	211,882							
39140		1,749,270			230,146								
39200			7,023			7,023							
39210			47,454			47,454							
39700		601,887	0		490,246	0							
39800		12,087	0		12,062	0							
TOTAL UTILITY PLANT IN SERVICE	0	3,967,503	715,054	0	2,375,655	715,054	0	0	16.88%	0	16.88%	0	0
Tennessee Net Plant Percentage	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%
TN Allocated JP Net Additions	0	669,714	120,701	0	401,010	120,701	0	0	0	0	0	0	0

ACCOUNT NUMBER	September, 2012				October, 2012			
	Projected Additions	Projected Retirements	Projected Salvage	Projected Cost of Removal	Projected Additions	Projected Retirements	Projected Salvage	Projected Cost of Removal
37500	198,428	0			198,768	0		
37600	1,098,397				1,072,636			
38100	235,784	430,485			201,725	430,485		
38110		12,749				12,749		
38120		5,461				5,461		
39000	71,429	0			0	0		
39010	13,987				13,975			
39120	6,250	211,882			6,250	211,882		
39140	171,086				275,537			
39200		7,023				7,023		
39210		47,454				47,454		
39700	489,880	0			435,773	0		
39800	12,039	0			11,116	0		
TOTAL UTILITY PLANT IN SERVICE	2,297,279	715,054	0	0	2,215,781	715,054	0	0
Tennessee Net Plant Percentage	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%
TN Allocated JP Net Additions	387,781	120,701	0	0	374,024	120,701	0	0

ACCOUNT NUMBER	November, 2012				December, 2012				January, 2013	
	Projected Additions	Projected Retirements	Projected Salvage	Projected Cost of Removal	Projected Additions	Projected Retirements	Projected Salvage	Projected Cost of Removal	Projected Additions	Projected Additions
37500	7,118	0			6,442	0			5,830	
37600	30,794	0			27,868	0			25,219	
38100	25,429	430,485			25,586	430,485			25,743	
38110		12,749				12,749				
38120		5,461				5,461				
39000	0	0			0	0			0	
39010	1,078				1,085	0			1,091	
39120	0	211,882			0	211,882			0	
39140	126,326				126,605				126,774	
39200		7,023				7,023				
39210		47,454				47,454				
39700	347,410	0			347,217	0			375,993	
39800	0	0			0	0			0	
TOTAL UTILITY PLANT IN SERVICE	538,156	715,054	0	0	534,802	715,054	0	0	560,650	
Tennessee Net Plant Percentage	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%
TN Allocated JP Net Additions	90,841	120,701	0	0	90,275	120,701	0	0	94,638	

ACCOUNT NUMBER	February, 2013					
	Projected Retirements	Projected Salvage	Projected Cost of Removal	Projected Additions	Projected Retirements	Projected Cost of Removal
37500				5,276		
37600	0			22,823		
38100	430,485			25,901	430,485	
38110	12,749				12,749	
38120	5,461				5,461	
39000	0			0		
39010	0			1,098		
39120	211,882			0	211,882	
39140				126,875		
39200	7,023				7,023	
39210	47,454				47,454	
39700	0			424,298		
39800	0			0		
TOTAL UTILITY PLANT IN SERVICE	715,054	0	0	606,270	715,054	0
Tennessee Net Plant Percentage	16.88%	16.88%	16.88%	16.88%	16.88%	16.88%
TN Allocated JP Net Additions	120,701	0	0	102,338	120,701	0

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

35, Provide in working excel format the actual Construction Work in Progress for Piedmont Natural Gas Company (Tennessee Operations) at May 31, 2011.

**Response:** See the attached excel schedule.

Response provided by Piedmont Natural Gas on October 26, 2011.

At May 31, 2011, the balance in Construction Work in Progress for Tennessee Operations \$23,351,460. Effective May 1, 2010, Piedmont implemented a new fixed asset and capital expenditure tracking application called PowerPlant. PowerPlant does not maintain capital expenditures at the FERC account level. However, based on the current estimates included in the preparation of each project, the Construction Work in Progress for Tennessee Operations as of May 31, 2011 is as follows:

<u>Account</u>	<u>Amount</u>
36100	29,060
36300	3,950,366
36310	1,329,446
36320	9,578,034
36340	3,471
36350	3,169,930
36700	485,716
36900	18,381
37420	2,027,966
37600	2,460,806
37800	15,776
37900	3,101
38500	82,405
39010	44,844
39200	(14,485)
39400	132,034
39600	36,899
39700	5,681
39997	(7,971)
	<u>23,351,460</u>

**Piedmont Natural Gas Company**  
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36. Provide in working excel format the actual Construction Work in Progress allocated by Piedmont Corporate Services to Piedmont Natural Gas Company (Tennessee Operations) at May 31, 2011.

**Response:** See the attached excel schedule.

Response provided by Piedmont Natural Gas on October 26, 2011.

At May 31, 2011, the balance in Construction Work in Progress for Corporate Joint Property allocated to Tennessee Operations was \$573,636 (16.88% of \$3,398,317). Effective May 1, 2010, Piedmont implemented a new fixed asset and capital expenditure tracking application called PowerPlant. PowerPlant does not maintain capital expenditures at the FERC account level. However, based on the current estimates included in the preparation of each project, the Construction Work in Progress for Corporate Joint Property allocated to Tennessee Operations is as follows:

Account	Amount	TN %	TN Amount
37800	1,808	16.88%	305
39000	1,050,025	16.88%	177,244
39010	501	16.88%	85
39100	4,166	16.88%	703
39110	1,897,206	16.88%	320,248
39120	247,979	16.88%	41,859
39140	51,557	16.88%	8,703
39200	-14,059	16.88%	(2,373)
39400	26,364	16.88%	4,450
39600	27,410	16.88%	4,627
39700	28,815	16.88%	4,864
39800	76,545	16.88%	12,921
	<u>3,398,317</u>		<u>573,636</u>



**Piedmont Natural Gas Company**  
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37. Provide in working excel format the actual Materials & Supplies for Piedmont Natural Gas Company (Tennessee Operations) at May 31, 2011.

**Response:** See excel attachment.

Response provided by Piedmont Natural Gas on October 26, 2011.

The actual Materials & Supplies for Piedmont Natural Gas Company (Tennessee Operations) at May 31, 2011 was \$21,792.

**Piedmont Natural Gas Company**  
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38. Provide all work papers, calculations, and supporting documentation for Piedmont's Natural Gas (Tennessee Operations) forecast of Stored Gas Inventory from May 31, 2011 to February 28, 2013. Include in your response all monthly injections and withdrawals of LNG from stored gas inventory (dollars and volumes).

**Response:** See the attached PDF and CONFIDENTIAL excel attachments.

Response provided by Piedmont Natural Gas on October 26, 2011.

CME Group » Energy » Henry Hub Natural Gas

## Energy Products

REGULATORY  
ARBITRAGE

READ STORY ON OPEN MARKETS →

## Henry Hub Natural Gas Futures

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[Futures](#) | [Options](#)

## Trade Date

Monday, August 15 2011

## Daily Settlements for Henry Hub Natural Gas Futures (FINAL)

Trade Date: 08/15/2011

Month	Open	High	Low	Last	Change	Settle	Estimated Volume	Prior Day Open Interest
SEP 11	4.012	4.062	3.950	4.060	-.036	4.024	114,083	131,856
OCT 11	4.034	4.073	3.965	3.975	-.032	4.039	57,603	151,722
NOV 11	4.163	4.215	4.118	4.140	-.035	4.184	33,537	180,826
DEC 11	4.390	4.440	4.350	4.370	-.030	4.411	20,528	74,186
JAN 12	4.481	4.534	4.445	4.515	-.024	4.505	25,578	131,377
FEB 12	4.493	4.536B	4.448	4.520	-.023	4.508	7,897	30,171
MAR 12	4.458	4.502	4.414	4.430	-.021	4.474	6,622	48,456
APR 12	4.410	4.457	4.378	4.440	-.018	4.432	8,600	60,223
MAY 12	4.451	4.481	4.408A	4.420	-.018	4.459	993	14,075
JUN 12	4.474	4.516B	4.444	4.499B	-.017	4.494	1,754	12,544
JLY 12	4.495	4.556B	4.484	4.540B	-.017	4.535	738	10,667
AUG 12	4.515	4.580B	4.508A	4.564B	-.016	4.558	681	9,837
SEP 12	4.519	4.582B	4.510A	4.570B	-.013	4.563	521	7,143
OCT 12	4.588	4.613B	4.535	4.599B	-.012	4.593	1,876	37,477
NOV 12	4.708	4.770B	4.702	4.757B	-.006	4.753	320	6,743
DEC 12	4.947	5.005	4.938	5.000	+.001	4.990	144	12,044
JAN 13	5.079	5.130	5.079	5.120	+.003	5.119	432	18,344
FEB 13	5.106	5.106	5.054A	5.102	+.004	5.092	14	2,552
MAR 13	4.994	5.020	4.994	5.020	+.007	5.022	46	10,833
APR 13	4.840	4.880	4.825	4.880	+.012	4.866	37	5,575
MAY 13	4.857	4.857	4.857	4.857	+.013	4.880	2	1,677
JUN 13	4.892	4.912B	4.886A	4.912B	+.013	4.913	5	1,475
JLY 13	4.930	4.951B	4.923A	4.951B	+.014	4.950	5	1,307
AUG 13	4.954	4.975B	4.935	4.935	+.014	4.971	12	946
SEP 13	-	-	-	-	+.015	4.976	-	901
OCT 13	-	5.011B	4.982A	5.011B	+.015	5.011	8	2,407
NOV 13	-	-	-	-	+.015	5.143	-	804
DEC 13	5.360	5.361B	5.360	5.361B	+.015	5.370	1	6,087
JAN 14	-	-	-	-	+.015	5.484	6	3,611
FEB 14	-	-	-	-	+.015	5.452	-	408
MAR 14	-	-	-	-	+.015	5.370	-	702
APR 14	-	-	-	-	+.025	5.125	-	3,197
MAY 14	-	-	-	-	+.028	5.136	-	457
JUN 14	-	-	-	-	+.028	5.164	-	288
JLY 14	-	-	-	-	+.029	5.199	-	492
AUG 14	-	-	-	-	+.030	5.226	-	287
SEP 14	-	-	-	-	+.031	5.233	-	424
OCT 14	-	-	-	-	+.031	5.266	-	828
NOV 14	-	-	-	-	+.031	5.397	-	209
DEC 14	-	-	-	-	+.031	5.620	-	508
JAN 15	-	-	-	-	+.031	5.735	-	595
FEB 15	-	-	-	-	+.031	5.701	-	181
MAR 15	-	-	-	-	+.031	5.619	-	408
APR 15	5.280	5.285B	5.280	5.285B	+.049	5.352	4	1,797
MAY 15	-	-	-	-	+.049	5.360	-	504
JUN 15	-	-	-	-	+.049	5.392	-	1,200
JLY 15	-	-	-	-	+.049	5.428	-	191
AUG 15	-	-	-	-	+.049	5.458	-	459
SEP 15	-	-	-	-	+.049	5.466	-	105

**This Response/Attachment is designated**

**CONFIDENTIAL**

**and has been filed under seal.**

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
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39. Provide all work papers, calculations, and supporting documentation for Piedmont's Natural Gas (Tennessee Operations) forecast of Stored Gas Inventory using the NYMEX future price at May 31, 2011.

**Response:** See the CONFIDENTIAL excel attachment.

Response provided by Piedmont Natural Gas on October 26, 2011.

**This Response/Attachment is designated**

**CONFIDENTIAL**

**and has been filed under seal.**

**Piedmont Natural Gas Company**  
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40. Provide all work papers, calculations, and supporting documentation for Piedmont's Natural Gas (Tennessee Operations) forecast of Deferred Rate Case.

**Response:** See the CONFIDENTIAL workpaper provided in MFR 25, file 29 ("29 - Adjustment\_5U\_Deferred Rate Case Expense Attrition Adjustment.xls"). Also see the CONFIDENTIAL PDF and excel attachments provided herein, which detail the rate case expenses incurred to date.

Response provided by Piedmont Natural Gas on October 26, 2011.



**This Response/Attachment is designated**

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**Piedmont Natural Gas Company**  
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41. Provide the actual Accumulated Deferred Income Taxes per Piedmont Natural Gas Company (Tennessee Operations) Exhibit PKP-1, Schedule 3, Line 25 at May 31, 2011 and monthly net additions through February 28, 2013.

**Response:** See the CONFIDENTIAL attachment.

Response provided by Piedmont Natural Gas on October 26, 2011.

**This Response/Attachment is designated**

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**and has been filed under seal.**

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
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42. Provide the actual Accumulated Deferred Income Taxes per Piedmont Corporate Services Exhibit PKP-1, Schedule 3, Line 25 at May 31, 2011 and monthly net additions through February 28, 2013 allocated to Piedmont Natural Gas Company (Tennessee Operations) at May 31, 2011 and monthly net additions through February 28, 2013.

**Response:** See the CONFIDENTIAL attachment provided in the Company's response to Item 41 of this data request.

Response provided by Piedmont Natural Gas on October 26, 2011.

**This Response/Attachment is designated**

**CONFIDENTIAL**

**and has been filed under seal.**

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
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43. Provide the actual Contributions in Aid of Construction per Piedmont Natural Gas Company (Tennessee Operations) Exhibit PKP-1, Schedule 3, Line 21 at May 31, 2011 and monthly net additions through February 28, 2013.

**Response:** The actual Contributions in Aid of Construction at May 31, 2011, and the computation of the projected balance for the Attrition Period are shown in MFR 25, file 1 ("1 – SUMMARY SCHEDULES.xls"), tab "Rate Base", rows 42 thru 70.

Response provided by Piedmont Natural Gas on October 26, 2011.

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
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**September 23, 2011**

44. Provide the actual Customer Advances for Construction per Piedmont Natural Gas Company (Tennessee Operations) Exhibit PKP-1, Schedule 3, Line 20 at May 31, 2011 and monthly net additions through February 28, 2013.

**Response:** Exhibit PKP-1, Schedule 3, Line 20 shows a zero balance in Customer Advances for Construction for both the Test Period and the Attrition Period. In September 2009, the Company recorded an entry to transfer the balance in account 25222, Customer Advances for Construction, Nashville to Account 27100, Contributions in Aid of Construction.

Response provided by Piedmont Natural Gas on October 26, 2011.

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
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**September 23, 2011**

45. Provide the formula for the “adjustment recommended by Ibbotson Associates” referenced on page 43 of Dr. Murry’s testimony and explain how it was applied by Dr. Murry. Include the calculations performed by Dr. Murry in following this method.

**Response:** See the PDF and excel attachments.

Response provided by Piedmont Natural Gas on October 26, 2011.



Piedmont Natural Gas  
Proposed Capital Structure  
(in millions)

Item	Amount	Proportion
Long Term Debt	\$774,072	41.4%
Short Term Debt	\$109,667	5.9%
Common Equity	\$985,020	52.7%
Total	\$1,868,759	100.0%

Source: Piedmont Natural Gas Work Papers

Piedmont Natural Gas

Proposed Cost of Capital

(in millions)

Item	Amount	Share	Embedded Cost	Weighted Average Cost
Long Term Debt	\$774,072	41.4%	6.05%	2.51%
Short Term Debt	\$109,667	5.9%	1.59%	0.09%
Common Equity	\$985,020	52.7%	11.25%	5.93%
Total	\$1,868,759	100%		8.53%

Source: Piedmont Natural Gas Work Papers

Piedmont Natural Gas

Comparable Gas Distribution Companies

Comparison of After-Tax Times Interest Earned Ratios

Piedmont Natural Gas	@11.25% ROE	3.28
Atmos Energy Corp.		2.82
New Jersey Resources		9.75
Northwest Natural Gas		2.73
South Jersey Industries		4.98
Southwest Gas		2.44
WGL Holdings		4.01
Comparable Companies' Average		4.45

Source : Value Line Investment Survey

Piedmont Natural Gas

Comparison of After-Tax Times Interest Earned Ratios

LTD Interest (1)	LTD Out (2)	LTD Rate (3)	2010 LTD Ratio (4)	Wtd Cost of LTD (5)	Pref Divd. (6)	Pref Out (7)	Pref Rate (8)	Pref Ratio (9)	Wtd Cost of Pref (10)	Earned Equity Rate (11)	2010 Equity Ratio (12)	Wtd of Cost Equity (13)	Wtd Cost of Capital (14)	Times Interest Earned (15)
110.00	1807.30	6.09%	45.40%	2.76%	0.00	0.00	0.00%	0.00%	0.00%	9.20%	54.60%	5.02%	7.79%	2.82
11.70	430.00	2.72%	37.20%	1.01%	0.00	0.00	0.00%	0.00%	0.00%	14.10%	62.80%	8.85%	9.87%	9.75
38.50	551.70	6.98%	46.50%	3.24%	0.00	0.00	0.00%	0.00%	0.00%	10.50%	53.50%	5.62%	8.86%	2.73
24.00	401.40	5.98%	37.40%	2.24%	0.00	0.00	0.00%	0.00%	0.00%	14.20%	62.60%	8.89%	11.13%	4.98
72.00	1122.70	6.41%	49.10%	3.15%	0.00	0.00	0.00%	0.00%	0.00%	8.90%	50.90%	4.53%	7.68%	2.44
39.40	614.90	6.41%	33.40%	2.14%	1.30	28.20	0.00%	1.60%	0.00%	9.90%	65.00%	6.44%	8.58%	4.01
49.27	821.33	5.76%	41.50%	2.42%	0.22	4.70	0.00%	0.27%	0.00%	11.13%	58.23%	6.56%	8.98%	4.45
Average														

Source: Value Line Investment Survey

## Chapter 7

## Firm Size and Return

**The Firm Size Phenomenon**

One of the most remarkable discoveries of modern finance is that of a relationship between firm size and return. The relationship cuts across the entire size spectrum but is most evident among smaller companies, which have higher returns on average than larger ones. Many studies have looked at the effect of firm size on return.<sup>1</sup> In this chapter, the returns across the entire range of firm size are examined.

**Size and Liquidity**

Capitalization is not necessarily the underlying cause of the higher returns for smaller companies. While smaller companies are usually less liquid, with fewer shares traded on any given day, not all companies of the same size have the same liquidity. Stocks that are more liquid have higher valuations for the same cash flows because they have a lower cost of capital and commensurately lower returns on average. Stocks that are less liquid have a higher cost of capital and higher returns on average.<sup>2</sup>

While it would be very useful to estimate the equity cost of capital of companies that are not publicly traded, there is not a direct measure of liquidity for these companies because there are no public trades. Thus, there is usually no share turnover, no bid/ask spreads, etc. in which to measure liquidity. Even though liquidity is not directly observable, capitalization is; thus the size premium can serve as a partial measure of the increased cost of capital of a less liquid stock.

Size premiums presented in this book are measured from publicly traded companies of various sizes and therefore do not represent the full cost of capital for non-traded companies. The valuation for a non-publicly traded company should also reflect a discount for the very fact that it is not traded. This would be an liquidity discount and could be applied to the valuation directly, or alternatively reflected as an liquidity premium in the cost of capital.

This chapter does not tell you how to estimate this incremental liquidity valuation discount (or cost of capital liquidity premium) that is not covered by the size premium. At the end of this chapter, we show some empirical results on the impact of liquidity on stock returns.

**Construction of the Decile Portfolios**

The portfolios used in this chapter are those created by the Center for Research in Security Prices (CRSP) at the University of Chicago's Graduate School of Business. CRSP has refined the methodology of creating size-based portfolios and has applied this methodology to the entire universe of NYSE/AMEX/NASDAQ-listed securities going back to 1926.

The New York Stock Exchange universe excludes closed-end mutual funds, preferred stocks, real estate investment trusts, foreign stocks, American Depositary Receipts, unit investment trusts, and Americus Trusts. All companies on the NYSE are ranked by the combined market capitalization of their eligible equity securities. The companies are then split into 10 equally populated groups, or deciles. Eligible companies traded on the NYSE, the NYSE Amex Equities (AMEX), and the Nasdaq National Market (NASDAQ) are then assigned to the appropriate deciles according to their capitalization in relation to the NYSE breakpoints. The portfolios are rebalanced, using closing prices for the last trading day of March, June, September, and December. Securities added during the quarter are assigned to the appropriate portfolio when two consecutive month-end prices are available. If the final NYSE price of a security that becomes delisted is a month-end price, then that month's return is included in the quarterly return of the security's portfolio. When a month-end NYSE price is missing, the month-end value of the security is derived from merger terms, quotations on regional exchanges, and other sources. If a month-end value still is not determined, the last available daily price is used.

In October 2008, NYSE Euronext acquired the American Stock Exchange (AMEX) and rebranded the index as NYSE Amex Equities. To ease confusion, we will continue to refer to this index as AMEX through out this chapter.

**Table 7-1: Size-Decile Portfolios of the NYSE/AMEX/NASDAQ**  
Number of Companies, Historical and Recent Market Capitalization

Decile	Historical Average Percentage of Total Capitalization	Recent Number of Companies	Recent Decile Market Capitalization (in Thousands)	Recent Percentage of Total Capitalization
1-Largest	63.26%	168	8,586,385,656	62.30%
2	13.94	181	1,873,378,709	13.59
3	7.53	187	1,022,604,243	7.42
4	4.71	185	594,702,185	4.32
5	3.24	213	482,327,242	3.50
6	2.39	230	360,140,550	2.61
7	1.76	287	304,948,414	2.21
8	1.31	361	239,018,595	1.73
9	1.03	491	181,744,805	1.32
10-Smallest	0.83	1,320	136,119,075	0.99
Mid-Cap 3-5	15.48	585	2,099,633,670	15.24
Low-Cap 6-8	5.46	878	904,107,559	6.56
Micro-Cap 9-10	1.86	1,811	317,863,880	2.31

Data from 1926–2010. Source: Morningstar and CRSP. Calculated (or Derived) based on data from CRSP US Stock Database and CRSP US Indices Database ©2011 Center for Research in Security Prices (CRSP®), The University of Chicago Booth School of Business. Used with permission.

Historical average percentage of total capitalization shows the average, over the last 85 years, of the decile market values as a percentage of the total NYSE/AMEX/NASDAQ calculated each month. Number of companies in deciles, recent market capitalization of deciles and recent percentage of total capitalization are as of September 30, 2010.

**Table 7-2: Size-Decile Portfolios of the NYSE/AMEX/NASDAQ,**  
Largest Company and Its Market Capitalization by Decile

Decile	Recent Market Capitalization (in Thousands)	Company Name
1-Largest	\$314,622,574	Exxon Mobil Corp.
2	15,079,529	H.J. Heinz Co.
3	6,793,876	Ameren Corp.
4	3,710,985	Timken Co.
5	2,509,152	Compass Minerals Intl Inc.
6	1,775,966	Trinity Industries Inc.
7	1,212,290	Delphi Financial Group
8	771,789	RSC Holdings Inc.
9	477,539	DSW Inc.
10-Smallest	235,647	McClatchy Co.

Source: Morningstar and CRSP. Calculated (or Derived) based on data from CRSP US Stock Database and CRSP US Indices Database ©2011 Center for Research in Security Prices (CRSP®), The University of Chicago Booth School of Business. Used with permission. Market capitalization and name of largest company in each decile as of September 30, 2010.

Base security returns are monthly holding period returns. All distributions are added to the month-end prices, and appropriate price adjustments are made to account for stock splits and dividends. The return on a portfolio for one month is calculated as the weighted average of the returns for its individual stocks. Annual portfolio returns are calculated by compounding the monthly portfolio returns.

### Size of the Deciles

Table 7-1 reveals that the top three deciles of the NYSE/AMEX/NASDAQ account for most of the total market value of its stocks. Nearly two-thirds of the market value is represented by the first decile, which currently consists of 165 stocks, while the smallest decile accounts for just over one percent of the market value. The data in the second column of Table 7-1 are averages across all 85 years. Of course, the proportion of market value represented by the various deciles varies from year to year.

Columns three and four give recent figures on the number of companies and their market capitalization, presenting a snapshot of the structure of the deciles as of September 30, 2010.

Table 7-2 gives the current breakpoints that define the composition of the NYSE/AMEX/NASDAQ size deciles. The largest company and its market capitalization are presented for each decile. Table 7-3 shows the historical breakpoints for each of the three size groupings presented throughout this chapter. Mid-cap stocks are defined here as the aggregate of deciles 3–5. Based on the most recent data (Table 7-2), companies within this mid-cap range have market capitalizations at or below \$6,793,876,000 but greater than \$1,775,966,000. Low-cap stocks include deciles 6–8 and currently include all companies in the NYSE/AMEX/NASDAQ with market capitalizations at or below \$1,775,966,000 but greater than \$477,539,000. Micro-cap stocks include deciles 9–10 and include companies with market capitalizations at or below \$477,539,000. The market capitalization of the smallest company included in the micro-capitalization group is currently \$1,222,000.

### Presentation of the Decile Data

Summary statistics of annual returns of the 10 deciles over 1926–2010 are presented in Table 7-4. Note from this exhibit that both the average return and the total risk, or standard deviation of annual returns, tend to increase as one moves from the largest decile to the smallest. Furthermore, the serial correlations of returns are near zero for all but the smallest deciles. Serial correlations and their significance will be discussed in detail later in this chapter.

**Table 7-3**

Size-Decile Portfolios of the NYSE/AMEX/NASDAQ:

Largest and Smallest Company by Size Group (Continued)

1926-1965

Date (Sept 30)	Capitalization of Largest Company (in Thousands)			Capitalization of Smallest Company (in Thousands)		
	Mid-Cap 3-5	Low-Cap 6-8	Micro-Cap 9-10	Mid-Cap 3-5	Low-Cap 6-8	Micro-Cap 9-10
1926	\$62,865	\$14,128	\$4,188	\$14,363	\$4,200	\$31
1927	74,498	16,200	4,580	16,250	4,613	41
1928	89,494	21,350	5,976	21,500	6,028	82
1929	109,463	23,194	5,749	23,386	5,769	70
1930	59,033	11,550	2,413	11,557	2,422	24
1931	27,750	5,171	1,079	5,250	1,088	10
1932	26,240	4,175	1,006	4,187	1,013	49
1933	36,313	6,192	1,499	6,208	1,515	88
1934	32,663	5,813	1,440	5,875	1,443	63
1935	41,652	8,247	1,875	8,249	1,888	47
1936	53,606	12,917	3,294	13,031	3,325	90
1937	42,384	10,888	2,928	10,896	2,933	83
1938	40,140	8,574	2,213	8,660	2,235	53
1939	40,533	9,836	2,721	9,862	2,749	100
1940	32,813	8,832	2,100	8,867	2,112	93
1941	33,333	8,600	2,396	8,813	2,431	82
1942	28,091	7,308	2,040	7,372	2,052	145
1943	43,425	11,060	3,652	11,100	3,718	291
1944	45,659	13,466	4,820	13,500	4,875	328
1945	58,029	18,910	7,205	18,947	7,228	642
1946	59,575	18,070	7,080	18,075	7,132	613
1947	61,443	18,464	6,689	18,506	6,711	630
1948	58,468	17,216	6,281	17,224	6,297	665
1949	61,264	16,503	5,668	16,564	5,670	455
1950	72,628	20,904	7,326	21,021	7,363	605
1951	92,894	25,493	8,438	25,549	8,441	699
1952	94,051	25,114	8,366	25,118	8,428	480
1953	92,790	23,808	7,650	23,836	7,688	355
1954	134,699	31,612	9,328	31,625	9,444	509
1955	162,221	42,120	12,215	42,485	12,276	600
1956	178,589	45,750	13,283	45,765	13,298	601
1957	170,079	42,234	12,552	42,470	12,650	601
1958	219,269	52,572	15,513	52,601	15,561	800
1959	243,709	61,458	19,200	61,620	19,278	1,768
1960	240,600	58,590	18,340	58,591	18,480	775
1961	308,900	74,919	22,762	75,082	22,770	2,160
1962	252,500	60,771	19,327	61,053	19,346	236
1963	310,626	74,531	24,827	74,556	24,852	158
1964	358,730	81,950	27,931	82,429	28,092	278
1965	411,397	91,550	31,533	92,442	31,650	339

Table 7-3 (Continued)

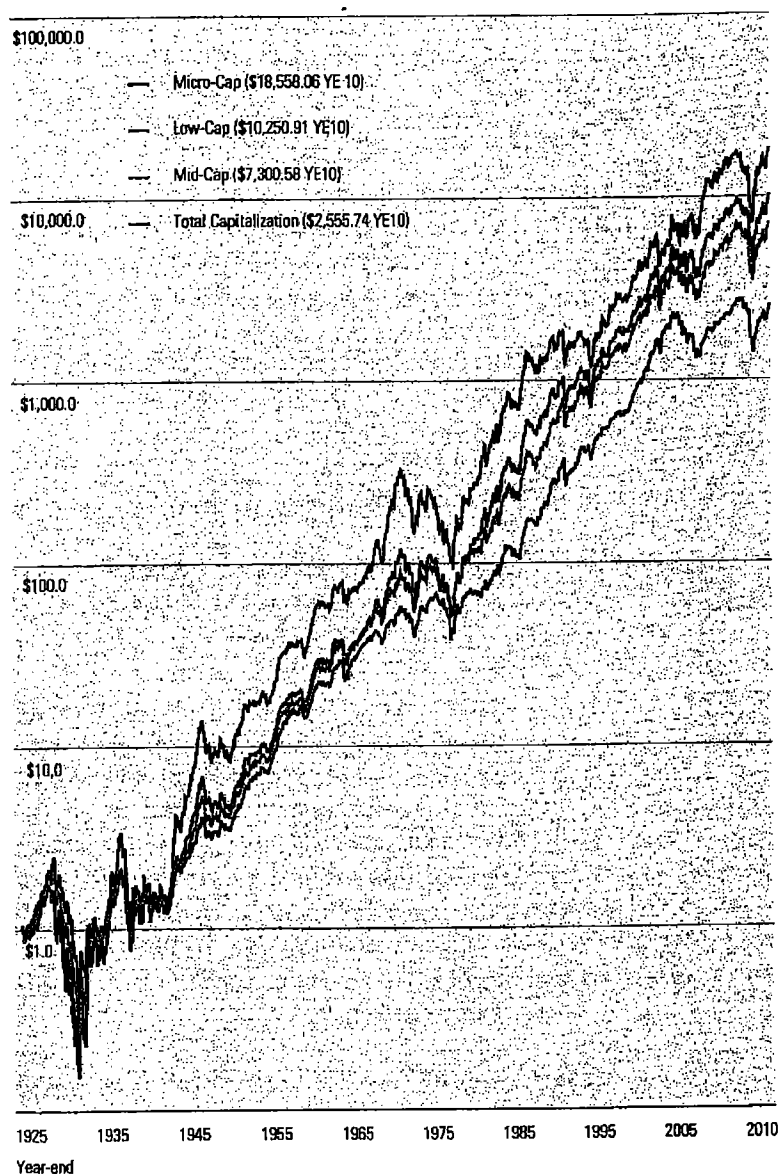
Size-Decile Portfolios of the NYSE/AMEX/NASDAQ:  
Largest and Smallest Company by Size Group (Continued)

1966-2010

Date (Sept 30)	Capitalization of Largest Company (in Thousands)			Capitalization of Smallest Company (in Thousands)		
	Mid-Cap 3-5	Low-Cap 6-8	Micro-Cap 9-10	Mid-Cap 3-5	Low-Cap 6-8	Micro-Cap 9-10
1966	355,976	86,301	29,616	86,309	29,628	162
1967	494,221	132,178	48,139	132,271	48,182	519
1968	545,337	156,776	62,725	156,914	62,920	2,661
1969	496,371	141,542	48,785	142,010	48,840	1,384
1970	452,155	115,353	37,038	116,246	37,071	1,216
1971	540,926	140,357	44,888	140,397	44,907	908
1972	550,011	140,676	41,938	140,711	41,958	996
1973	507,185	116,042	33,930	116,087	33,941	593
1974	278,010	61,009	18,020	61,379	18,032	244
1975	413,863	90,766	25,638	90,787	25,692	468
1976	554,693	120,260	34,541	120,379	34,542	362
1977	567,353	138,534	39,245	138,707	39,398	617
1978	626,508	180,503	52,850	181,148	52,875	1,071
1979	722,753	196,852	56,404	197,312	56,420	798
1980	843,224	232,001	60,516	232,504	60,550	1,197
1981	848,189	221,008	58,385	223,672	58,451	1,248
1982	857,822	229,809	60,007	230,450	60,138	943
1983	1,223,644	360,242	99,038	360,581	99,444	1,689
1984	1,192,530	340,262	91,162	340,950	91,492	1,935
1985	1,328,504	341,504	90,773	342,770	91,018	750
1986	1,757,617	394,738	86,391	395,134	96,480	656
1987	2,145,644	499,940	116,458	500,270	116,553	811
1988	1,928,870	432,006	96,064	434,359	96,086	308
1989	2,332,567	515,156	103,620	517,276	104,005	391
1990	1,809,083	360,000	71,792	360,715	71,825	199
1991	2,321,976	492,945	90,285	493,636	90,317	166
1992	2,471,131	512,510	102,376	513,251	102,969	325
1993	2,835,393	614,015	147,083	619,625	147,276	559
1994	2,630,763	633,433	151,759	633,578	151,814	817
1995	2,999,061	690,600	168,873	692,893	168,877	749
1996	3,222,158	747,859	192,659	748,150	192,788	1,405
1997	3,936,936	942,616	260,119	944,497	260,269	1,650
1998	3,537,903	723,517	192,465	724,133	192,864	515
1999	3,715,994	801,711	201,787	803,529	201,817	1,123
2000	4,592,543	922,582	189,370	922,800	189,474	1,287
2001	4,169,705	913,122	211,085	913,428	211,101	418
2002	3,998,995	926,123	242,171	926,647	242,226	269
2003	5,180,303	1,241,508	365,091	1,243,618	365,772	1,563
2004	6,320,713	1,558,386	512,655	1,560,109	512,954	1,293
2005	7,590,867	1,806,555	593,522	1,810,905	593,581	1,611
2006	7,913,370	1,985,969	639,397	1,988,656	639,915	1,746
2007	8,677,165	2,292,931	631,865	2,293,645	631,888	1,422
2008	5,840,629	1,680,752	442,559	1,688,943	442,596	1,462
2009	5,936,147	1,600,169	431,256	1,602,429	432,175	1,007
2010	6,793,876	1,775,966	477,539	1,778,756	478,102	1,222



**Graph 7-1: Size-Decile Portfolios of the NYSE/AMEX/NASDAQ**  
Wealth Indices of Investments in Mid-, Low-, Micro-, and Total Capitalization Stocks  
Index (Year-End 1925 = \$1.00)



Data from 1925–2010.

Graph 7-1 depicts the growth of one dollar invested in each of three NYSE/AMEX/NASDAQ groups broken down into mid-cap, low-cap, and micro-cap stocks. The index value of the entire NYSE/AMEX/NASDAQ is also included. All returns presented are value-weighted based on the market capitalizations of the deciles contained in each subgroup. The sheer magnitude of the size effect in some years is noteworthy. While the largest stocks actually declined 9 percent in 1977, the smallest stocks rose more

than 20 percent. A more extreme case occurred in the depression-recovery year of 1933, when the difference between the first and tenth decile returns was far more substantial, with the largest stocks rising 46 percent, and the smallest stocks rising 218 percent. This divergence in the performance of small and large company stocks is a common occurrence.

**Table 7-4: Size-Decile Portfolios of the NYSE/AMEX/NASDAQ**  
Summary Statistics of Annual Returns

Decile	Geometric Mean	Arithmetic Mean	Standard Deviation	Serial Correlation
1-Largest	9.1	10.9	19.3	0.07
2	10.5	12.9	22.3	0.01
3	10.9	13.6	23.8	-0.03
4	10.8	13.9	26.0	-0.02
5	11.4	14.8	26.8	-0.03
6	11.4	15.0	27.5	0.02
7	11.4	15.4	29.7	0.01
8	11.6	16.5	34.3	0.05
9	11.7	17.2	36.5	0.04
10-Smallest	13.3	21.0	44.9	0.14
Mid Cap	11.0	13.9	24.9	-0.03
Low Cap	11.5	15.4	29.3	0.02
Micro	12.3	18.4	39.0	0.07
NYSE/AMEX/ NASDAQ Total Value Weighted Index	9.7	11.7	20.4	0.02

Data from 1926–2010. Source: Morningstar and CRSP. Calculated (or Derived) based on data from CRSP US Stock Database and CRSP US Indices Database ©2011 Center for Research in Security Prices (CRSP®), The University of Chicago Booth School of Business. Used with permission.

Results are for quarterly re-ranking for the deciles. The small company stock summary statistics presented in earlier chapters comprise a re-ranking of the portfolios every five years prior to 1982.

#### Aspects of the Firm Size Effect

The firm size phenomenon is remarkable in several ways. First, the greater risk of small stocks does not, in the context of the capital asset pricing model (CAPM), fully account for their higher returns over the long term. In the CAPM only systematic, or beta risk, is rewarded; small company stocks have had returns in excess of those implied by their betas.

Second, the calendar annual return differences between small and large companies are serially correlated. This suggests that past annual returns may be of some value in predicting future annual returns. Such serial correlation, or autocorrelation, is practically unknown in the market for large stocks and in most other equity markets but is evident in the size premia.

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46. Provide a copy of the entire summary table in Ibbotson Associates 2011 SBBI Yearbook: Valuation Edition referenced on Dr. Murry's schedules DAM-21 and DAM-22 that shows the Total Returns, Income Returns, and Capital Appreciation for Basic Asset Classes. This should include the summary statistics for annual returns for Large Company Stocks, Long-Term Corporate Bonds, Long Term Government Bonds, Intermediate Term Government Bonds, and Treasury Bills as well as any other asset classes utilized by Dr. Murry.

**Response:** See attachment.

Response provided by Piedmont Natural Gas on October 26, 2011.

**Table C-1**

Key Variables in Estimating the Cost of Capital

				Value
<b>Yields (Riskless Rates)<sup>1</sup></b>				
<i>Long-term (20-year) U.S. Treasury Coupon Bond Yield</i>				4.1%
<b>Equity Risk Premium<sup>2</sup></b>				
<i>Long-horizon expected equity risk premium (historical): large company stock total returns minus long-term government bond income returns</i>				6.7
<i>Long-horizon expected equity risk premium (supply side): historical equity risk premium minus price-to-earnings ratio calculated using three-year average earnings</i>				6.0
<b>Size Premium<sup>3</sup></b>				
Decile	Market Capitalization of Smallest Company (in millions)		Market Capitalization of Largest Company (in millions)	Size Premium (Return in Excess of CAPM)
Mid-Cap (3–5)	\$1,778.756	–	\$6,793.876	1.20%
Low-Cap (6–8)	478.102	–	1,775.966	1.98
Micro-Cap (9–10)	1.222	–	477.539	4.07
<b>Breakdown of Deciles 1-10</b>				
1-Largest	15,273.943	–	314,622.574	-0.38
2	6,895.258	–	15,079.529	0.81
3	3,714.445	–	6,793.876	1.01
4	2,512.137	–	3,710.985	1.20
5	1,778.756	–	2,509.152	1.81
6	1,214.679	–	1,775.966	1.82
7	772.795	–	1,212.260	1.88
8	478.102	–	771.789	2.65
9	235.725	–	477.539	2.94
10-Smallest	1.222	–	235.647	6.36
<b>Breakdown of the 10th Decile</b>				
10a	143.887	–	235.647	4.55
10w	179.554	–	235.647	3.99
10x	143.887	–	179.316	4.96
10b	1.222	–	143.379	10.06
10y	85.706	–	143.379	9.15
10z	1.222	–	85.670	12.06

<sup>1</sup> As of December 31, 2010. Maturity is approximate.<sup>2</sup> See chapter 5 for complete methodology.<sup>3</sup> See chapter 7 for complete methodology.**Note:** Examples on how these variables can be used are found in Chapters 3 and 4.

**Table 2-1: Total Returns, Income Returns, and Capital Appreciation of the Basic Asset Classes: Summary Statistics of Annual Returns**

Series	Geometric Mean (%)	Arithmetic Mean (%)	Standard Deviation (%)	Serial Correlation
<b>Large Company Stocks</b>				
Total Returns	9.9	11.9	20.4	0.02
Income	4.1	4.1	1.6	0.90
Capital Appreciation	5.5	7.5	19.7	0.01
<b>Ibbotson Small Company Stocks</b>				
Total Returns	12.1	16.7	32.6	0.06
<b>Mid-Cap Stocks*</b>				
Total Returns	11.0	13.9	24.9	-0.03
Income	3.9	3.9	1.7	0.90
Capital Appreciation	6.9	9.7	24.2	-0.04
<b>Low-Cap Stocks*</b>				
Total Returns	11.5	15.4	29.3	0.02
Income	3.6	3.6	2.0	0.90
Capital Appreciation	7.7	11.6	28.6	0.02
<b>Micro-Cap Stocks*</b>				
Total Returns	12.3	18.4	39.0	0.07
Income	2.5	2.5	1.7	0.91
Capital Appreciation	9.7	15.7	38.4	0.06
<b>Long-Term Corporate Bonds</b>				
Total Returns	5.9	6.2	8.3	0.07
<b>Long-Term Government Bonds</b>				
Total Returns	5.5	5.9	9.5	-0.13
Income	5.1	5.2	2.7	0.96
Capital Appreciation	0.1	0.5	8.4	-0.26
<b>Intermediate-Term Government Bonds</b>				
Total Returns	5.4	5.5	5.7	0.13
Income	4.6	4.7	2.9	0.96
Capital Appreciation	0.6	0.7	4.5	-0.19
<b>Treasury Bills</b>				
Total Returns	3.6	3.7	3.1	0.91
Inflation	3.0	3.1	4.2	0.64

Data from 1926–2010. Total return is equal to the sum of three component returns: income return, capital appreciation return, and reinvestment return.

\*Source: Morningstar and CRSP. Calculated (or Derived) based on data from CRSP US Stock Database and CRSP US Indices Database ©2010 Center for Research in Security Prices (CRSP®). The University of Chicago Booth School of Business. Used with permission.

### Annual Total Returns

Annual and monthly total returns for large company stocks, small company stocks, long-term corporate bonds, long-term government bonds, intermediate-term government bonds, Treasury bills, and inflation rates are for the full 85-year time period presented in Appendix B. Those tables can be used to compare the performance of each asset class on both a monthly and an annual basis.

### Real Rates versus Nominal Rates

The cost of capital embodies a number of different concepts or elements of risk. Two of the most basic concepts in finance are real and nominal returns. The nominal return includes both the real return and the impact of inflation.

The real rate of interest represents the exchange rate between current and future purchasing power. An increase in the real rate indicates that the cost of current consumption has risen in terms of future goods. It is the real rate of interest that measures the opportunity cost of foregoing consumption.

The relationship between real rates and nominal rates can be expressed in the following equation:

$$\text{Real} = \left[ \frac{1 + \text{Nominal}}{1 + \text{Inflation}} \right] - 1$$

$$\text{Nominal} = [(1 + \text{Real}) \times (1 + \text{Inflation})] - 1$$

It is important to note that the conversion of nominal and real rates is not an additive process; rather, it is a geometric calculation. The arithmetic sum or difference is calculated by adding or subtracting one number from the other. As illustrated in the above equation, the real rate of return involves taking the geometric difference of the nominal rate of return and the rate of inflation. Conversely, the nominal rate of return can be determined by taking the geometric sum of the real rate of return and the rate of inflation. For example, if the real rate is 2.5 percent and the inflation rate is 5.0 percent, the nominal rate of interest is not 7.5 percent (2.5+5.0) but 7.625 percent, or  $[(1.025) \times (1.05) - 1]$ . Similarly, if the nominal rate is 7.625 percent and the inflation rate is 2.5 percent, the real rate is not 5.125 percent (7.625–2.5) but 5.0 percent,  $[(1.07625/1.025) - 1]$ .

Discount rates are most often expressed in nominal terms. That is, they usually have an inflation estimate included in them. Unless stated otherwise, the cost of capital data presented in this book are expressed in nominal terms.

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47. Provide copies of any documents or other support for Dr. Murry's statement on page 50, lines 5-8, of his testimony that, "After Tax Interest Coverage for Piedmont of 3.28 times...is consistent with the recent industry standards."

**Response:** Schedule DAM-26 shows that the 3.28 times After Tax Interest Coverage for Piedmont that would result from the recommended allowed return on total capital and the weighted cost of the components of Piedmont's long-term capital is within the range of similar statistics for the comparable gas distribution utilities. Also, Schedule DAM-9 shows a tendency by the same gas distribution utilities to increase common equity ratios during the recent period of financial volatility. This reveals a tendency toward more conservative capital structures during this period, and this also indicates a general increase in interest coverage ratios during this period. As a measure of financial risk during this period, the 3.28 times coverage is consistent with Dr. Murry's calculations of coverages for other utilities.

Response provided by Piedmont Natural Gas on October 26, 2011.

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48. Provide the capital structure for Piedmont Natural Gas on June 30, 2007 and 2008 in a format similar to that of Exhibit DJD-1 to the testimony of Mr. Dzuricky.

**Response:** See the excel attachment.

Response provided by Piedmont Natural Gas on October 26, 2011.

	ACTUAL BALANCES	
	Actual Balance as of June 30, 2007	Actual Balance as of June 30, 2008
Long-Term Debt	\$ 814,497,466	\$ 814,695,567
Short-Term Debt	\$ 147,500,000	\$ 107,500,000
Common Equity	\$ 900,436,827	\$ 924,614,468
Total	<u>\$ 1,862,434,293</u>	<u>\$ 1,846,810,035</u>



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49. Provide calculations of the weighted average embedded cost of long term debt for Piedmont Natural Gas as of June 30, 2010, 2009, 2008 and 2007, in a format similar to Exhibit DJD-2 to Mr. Dzuricky's testimony.

**Response:** See the excel attachments.

Response provided by Piedmont Natural Gas on October 26, 2011.

Embedded Cost of Long-Term Debt  
June 30, 2007

	Principal Amount	Less Unamortized Debt Discount and Expense	Total	Interest	Cost Debt Expense Amortization	Total
Senior Notes:						
8.51% - due 2017	\$35,000,000	\$15,980	\$34,984,020	2,978,500	\$2,436	\$2,980,936
Medium-Term Notes:						
6.87% - due 2023	45,000,000	234,689	44,765,311	3,091,500	14,430	3,105,930
8.45% - due 2024	40,000,000	221,962	39,778,038	3,380,000	12,892	3,392,892
7.40% - due 2025	55,000,000	315,416	54,684,584	4,070,000	17,278	4,087,278
7.50% - due 2026	40,000,000	224,768	39,775,232	3,000,000	11,820	3,011,820
7.35% - due 2009	30,000,000	56,829	29,943,171	2,205,000	25,728	2,230,728
7.95% - due 2029	60,000,000	436,683	59,563,317	4,770,000	19,656	4,789,656
7.80% - due 2010	60,000,000	170,995	59,829,005	4,680,000	52,692	4,732,692
6.55% - due 2011	60,000,000	203,135	59,796,865	3,930,000	47,952	3,977,952
5.0% - due 2013	100,000,000	533,053	99,466,947	5,000,000	82,658	5,082,658
6.0% - due 2033	100,000,000	1,051,412	98,948,588	6,000,000	39,753	6,039,753
Insured Notes:						
6.25% - due 2036	200,000,000	6,563,500	193,436,500	12,500,000	226,566	12,726,566
Premium:						
10.02% - due 2003	0	118,044	(118,044)	0	53,436	53,436
10.11% - due 2004	0	127,610	(127,610)	0	57,804	57,804
Shelf Registration	0	228,458	(228,458)	0	0	0
Total	<del>\$825,000,000</del>	<del>\$10,502,534</del>	<del>\$814,497,466</del>	<del>\$55,605,000</del>	<del>\$665,101</del>	<del>\$56,270,101</del>

Embedded Cost of Long-Term Debt  
June 30, 2008

	Principal Amount	Less Unamortized Debt Discount and Expense	Total	Interest	Cost Debt Expense Amortization	Total
Senior Notes:						
8.51% - due 2017	\$35,000,000	\$13,544	\$34,986,456	2,978,500	\$2,436	\$2,980,936
Medium-Term Notes:						
6.87% - due 2023	45,000,000	220,259	44,779,741	3,091,500	14,430	3,105,930
8.45% - due 2024	40,000,000	209,070	39,790,930	3,380,000	12,892	3,392,892
7.40% - due 2025	55,000,000	298,138	54,701,862	4,070,000	17,278	4,087,278
7.50% - due 2026	40,000,000	212,948	39,787,052	3,000,000	11,820	3,011,820
7.35% - due 2009	30,000,000	31,101	29,968,899	2,205,000	25,728	2,230,728
7.95% - due 2029	60,000,000	417,027	59,582,973	4,770,000	19,656	4,789,656
7.80% - due 2010	60,000,000	118,303	59,881,697	4,680,000	52,692	4,732,692
6.55% - due 2011	60,000,000	155,183	59,844,817	3,930,000	47,952	3,977,952
5.0% - due 2013	100,000,000	450,395	99,549,605	5,000,000	82,658	5,082,658
6.0% - due 2033	100,000,000	1,011,660	98,988,340	6,000,000	39,753	6,039,753
Insured Notes:						
6.25% - due 2036	199,533,000	6,336,933	193,196,067	12,470,813	226,566	12,697,379
Premium:						
10.02% - due 2003	0	64,608	(64,608)	0	53,436	53,436
10.11% - due 2004	0	69,806	(69,806)	0	57,804	57,804
Shelf Registration	0	228,458	(228,458)	0	0	0
	<u>\$824,533,000</u>	<u>\$9,837,433</u>	<u>\$814,695,567</u>	<u>\$55,575,813</u>	<u>\$665,101</u>	<u>\$56,240,914</u>

Embedded Cost of Long-Term Debt  
June 30, 2009

	Principal Amount	Less Unamortized Debt Discount and Expense	Total	Interest	Cost Debt Expense Amortization	Total
Senior Notes:						
8.51% - due 2017	\$35,000,000	\$11,108	\$34,988,892	2,978,500	\$2,436	\$2,980,936
Medium-Term Notes:						
6.87% - due 2023	45,000,000	205,829	44,794,171	3,091,500	14,430	3,105,930
8.45% - due 2024	40,000,000	196,178	39,803,822	3,380,000	12,892	3,392,892
7.40% - due 2025	55,000,000	280,860	54,719,140	4,070,000	17,278	4,087,278
7.50% - due 2026	40,000,000	201,128	39,798,872	3,000,000	11,820	3,011,820
7.35% - due 2009	30,000,000	5,373	29,994,627	2,205,000	5,373	2,210,373
7.95% - due 2029	60,000,000	397,371	59,602,629	4,770,000	19,656	4,789,656
7.80% - due 2010	60,000,000	65,611	59,934,389	4,680,000	52,692	4,732,692
6.55% - due 2011	60,000,000	107,231	59,892,769	3,930,000	47,952	3,977,952
5.0% - due 2013	100,000,000	367,738	99,632,262	5,000,000	82,658	5,082,658
6.0% - due 2033	100,000,000	971,907	99,028,093	6,000,000	39,753	6,039,753
Insured Notes:						
6.25% - due 2036	197,815,000	6,315,747	191,499,253	12,363,438	234,182	12,597,620
Premium:						
10.02% - due 2003	0	11,172	(11,172)	0	11,172	11,172
10.11% - due 2004	0	12,002	(12,002)	0	12,002	12,002
Medium Term Note	0	61,694	(61,694)	0	0	0
Shelf Registration	0	0	0	0	0	0
	<u>\$822,815,000</u>	<u>\$9,210,949</u>	<u>\$813,604,051</u>	<u>\$55,468,438</u>	<u>\$564,296</u>	<u>\$56,032,734</u>

Embedded Cost of Long-Term Debt  
June 30, 2010

	Principal Amount	Less Unamortized Debt Discount and Expense	Total	Interest	Cost Debt Expense Amortization	Total
Senior Notes:						
8.51% - due 2017	\$35,000,000	\$8,672	\$34,991,328	2,978,500	\$2,436	\$2,980,936
Medium-Term Notes:						
6.87% - due 2023	45,000,000	191,399	44,808,601	3,091,500	14,430	3,105,930
8.45% - due 2024	40,000,000	183,287	39,816,713	3,380,000	12,892	3,392,892
7.40% - due 2025	55,000,000	263,582	54,736,418	4,070,000	17,278	4,087,278
7.50% - due 2026	40,000,000	189,308	39,810,692	3,000,000	11,820	3,011,820
7.95% - due 2029	60,000,000	377,715	59,622,285	4,770,000	19,656	4,789,656
7.80% - due 2010	60,000,000	12,919	59,987,081	4,680,000	12,919	4,692,919
6.55% - due 2011	60,000,000	59,279	59,940,721	3,930,000	47,952	3,977,952
5.0% - due 2013	100,000,000	285,080	99,714,920	5,000,000	82,658	5,082,658
6.0% - due 2033	100,000,000	932,155	99,067,845	6,000,000	39,753	6,039,753
Insured Notes:						
6.25% - due 2036	197,010,000	6,081,565	190,928,435	12,313,125	234,182	12,547,307
Premium:						
Medium Term Note	0	60,873	(60,873)	0	0	0
Shelf Registration	0	0	0	0	0	0
	<u>\$792,010,000</u>	<u>\$8,645,834</u>	<u>\$783,364,166</u>	<u>\$53,213,125</u>	<u>\$495,976</u>	<u>\$53,709,101</u>

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

50. Provide calculations of the embedded cost of short-term debt for Piedmont Natural Gas for the fiscal years ending June 30, 2010, 2009, 2008 and 2007 in a format similar to Exhibit DJD-3 to Mr. Dzuricky's testimony.

**Response:** See the excel attachment.

Response provided by Piedmont Natural Gas on October 26, 2011.

	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>
Average Amount Outstanding	\$ 123,700,000	\$ 189,800,000	\$ 297,400,000	\$ 282,159,000
Interest Expense	\$ 6,982,061	\$ 7,303,614	\$ 2,562,951	\$ 810,907
Unused Fees	195,780	156,120	234,605	100,705
Facility Fees	115,728	115,728	115,728	115,728
Total Interest Expense	\$ 7,293,569	\$ 7,575,462	\$ 2,913,284	\$ 1,027,340
Embedded Cost of STD	5.90%	3.99%	0.98%	0.36%

**Piedmont Natural Gas Company**  
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**September 23, 2011**

51. Provide the instructions and/or training manual provided by Piedmont to the Company's personnel/customer service representatives for scenarios in which a Piedmont customer contacts the Company with an emergency. In responding to this request, the Company may consider an "emergency" as an explosion or reported and/or suspected natural gas or carbon monoxide leak within a home or business. In responding to this request, the Company may limit the response to excerpts of instructions, training materials and/or official protocols pertaining to emergency situations.

**Response:** See the CONFIDENTIAL attachments for training materials and job aids for the Company's customer service representatives related to actions for responding to a contact/call regarding an emergency situation.

Response provided by Piedmont Natural Gas on October 26, 2011.



**This Response/Attachment is designated**

**CONFIDENTIAL**

**and has been filed under seal.**

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

52. Provide copies of any consumer complaints received by Piedmont since September 22, 2010. In responding to this request, Piedmont should provide copies of complaints made in writing or complaints made by phone or other media for which the Company has documentation.

**Response:** See the CONFIDENTIAL excel attachments for a summary of the consumer complaints received since September 22, 2010.

Response provided by Piedmont Natural Gas on October 26, 2011.

**This Response/Attachment is designated**

**CONFIDENTIAL**

**and has been filed under seal.**

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

53. Referencing tariff "Service Schedule No. 312" and the Company's Equal Payment Plan ("EPP"), provide an example of the notice (i.e. "notation on bill, bill insert or separate mailing") provided to consumers when there are EPP adjustments.

**Response:** Please see CONFIDENTIAL attachments, where for purposes of responding to this data request item, the EPP bill messages and amounts have been boxed in red and noted in the PDF. The attached examples show the message on a residential customer's bill: 1) for the first billing month of this customer's EPP plan year, 2) for the mid year adjustment to the billed EPP amount in that plan year, and 3) for the settle-up bill, which shows the actual accrued balance owed for the ending EPP plan year and which notifies the customer of the new EPP monthly amount that will start billing the next month.

Response provided by Piedmont Natural Gas on October 26, 2011.

**This Response/Attachment is designated**

**CONFIDENTIAL**

**and has been filed under seal.**

**Piedmont Natural Gas Company**  
**Docket No. 11-00144**  
**CONSUMER ADVOCATE DISCOVERY REQUEST NO. 1**  
**September 23, 2011**

54. Provide the number of customers that currently participate in the EPP.

**Response:** As of 9/28/2011 there were 14,410 Tennessee customers on EPP.

Response provided by Piedmont Natural Gas on October 26, 2011.

**Piedmont Natural Gas Company**  
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**September 23, 2011**

55. Referencing tariff "Service Schedule No. 312", the Company indicates more than one adjustment may be made annually to the EPP. Provide the number of EPP adjustments made since September 1, 2007.

**Response:** Customers may choose to enroll in EPP at any time. Therefore, the EPP enrollment date for one participating customer may be different than for another participating customer. Piedmont's practice is to perform a midyear EPP adjustment in the 7th month of the customer's program year, and then another adjustment to reset the monthly EPP amount for the start of the new EPP program year. This cycle of adjustments then repeats.

As an example, consider a customer who enrolls in EPP effective September 1, 2007. As of September 2011, their EPP payment amount would have been adjusted eight times, as follows:

- |                                   |                                     |
|-----------------------------------|-------------------------------------|
| 1. midyear 1: new monthly EPP:    | rendered on April 08 cycle bill     |
| 2. begin year 2: new monthly EPP: | rendered on September 08 cycle bill |
| 3. midyear 2: new monthly EPP:    | rendered on April 09 cycle bill     |
| 4. begin year 3: new monthly EPP: | rendered on September 09 cycle bill |
| 5. midyear 3: new monthly EPP:    | rendered on April 10 cycle bill     |
| 6. begin year 4: new monthly EPP: | rendered on September 10 cycle bill |
| 7. midyear 5: new monthly EPP:    | rendered on April 11 cycle bill     |
| 8. begin year 5: new monthly EPP: | rendered on September 11 cycle bill |

It is also important to note that in the last billing month of the EPP year, the amount billed to the participating EPP customer is the annual settle-up amount, not the EPP amount. In other words, the amount billed that month of each year is the actual balance accrued since the start of that EPP plan year, rather than the set monthly EPP amount. Following the example above, the bill rendered to this customer for the August cycle bill each year would reflect the annual settle-up amount owed, rather than the set monthly EPP amount.

Response provided by Piedmont Natural Gas on October 26, 2011.

**CERTIFICATE OF SERVICE**

The undersigned hereby certifies that a copy of the foregoing document is being served this date  
via U.S. Mail or electronic mail upon:

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jane.lewis-raymond@piedmontng.com

This the 26<sup>th</sup> day of October, 2011.

/s/ David Killion  
C. David Killion