

## Callaway2COLPEM Resource

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**From:** Mazaika, Michael  
**Sent:** Thursday, March 12, 2009 11:54 AM  
**To:** Robert Kornasiewicz  
**Cc:** Harvey, Brad; Steve Hanna; Charles Cox; Callaway2COL Resource  
**Subject:** RE: Callaway LCD's  
**Attachments:** Climate Observing Stns Within About 50 Mi of Callaway Site.doc

Bob:

Local Climatological Data (LCD) summaries are typically only generated by NCDC for first-order NWS stations. The observing stations listed in your e-mail are cooperative network stations and do not have the type of tabular and narrative summaries that you may have in mind. Further, coop stations usually only record temperature and precipitation (e.g., daily max/min temperatures, temperature at time of observation, rainfall, snow, and snow depth). In some cases, experimental stations are part of the coop network (e.g., at agricultural or forest service test locations) and may also include wind and evaporation measurements, but these stations do not appear to be of that type.

If what you are looking for are long-term tabular summaries of normal, mean, and extreme temperatures, rain and snowfall totals, the CLIM20 (Climatology of the U.S. - No. 20) series is one of the sources that we discussed (subject to the limitations mentioned in my PowerPoint presentation for FSAR Section 2.3.1). Station normals for the current 30-year normal period (i.e., 1971-2000) are also provided in the CLIM81 series from NCDC.

Four of the six stations appear to be outside the 50-mile nominal radius from the site that we discussed - for example, Boonville (about 60 miles WNW); Rolla - Univ. of Missouri (about 60 miles SSE); Sedalia (about 85 miles W); and Union (about 60 miles ESE). That doesn't necessarily mean that they should not be considered if they contribute some meaningful characterization. However, below is an excerpt from FSAR Section 2.3.1.1 of the V.C. Summer COLA regarding the selection of climatological stations that I prepared before joining NRC. It provides the rationale for the station selection process that we discussed and that I plan to use as the yardstick for evaluating other applications.

"Several sources of data are used to characterize regional climatological conditions pertinent to Units 2 and 3. This includes data acquired by the National Weather Service (NWS) at its Columbia, South Carolina, first-order station and from 13 other nearby locations in its network of cooperative observer stations, as compiled and summarized by the National Climatic Data Center (NCDC).

These climatological observing stations are located in Fairfield, Newberry, Lexington, Union, Chester, Saluda, Kershaw, Lancaster, York, and Edgefield Counties, South Carolina. Table 2.3-201 identifies the specific stations and lists their approximate distance and direction from the midpoint between the Units 2 and 3 reactors at the site. Figure 2.3-201 illustrates these station locations relative to the site for Units 2 and 3.

The objective of selecting nearby, offsite climatological monitoring stations is to demonstrate that the mean and extreme values measured at those locations are reasonably representative of conditions that might be expected to be observed at the VCSNS site. The 50-mile radius circle shown in Figure 2.3-201 provides a relative indication of the distance between the climate observing stations and the VCSNS site.....

The identification of stations to be included was based on the following general considerations:

- Proximity to the site (i.e., within the nominal 50-kilometer **(should have read "mile")** radius indicated above, to the extent practicable).

- Coverage in all directions surrounding the site (to the extent possible).
- Where more than one station exists for a given direction relative to the site, a station was included if it contributed one or more extreme conditions (e.g., rainfall, snowfall, maximum or minimum temperatures) for that general direction or added context for variation of conditions over the site area.

Nevertheless, if an overall extreme precipitation or temperature condition was identified for a station located within a reasonable distance beyond the nominal 50-kilometer (**should have read "mile"**) radius, and that event was considered to be reasonably representative for the site area, such stations were also included, regardless of directional coverage."

The text doesn't mention, but the referenced table lists, the Climate Division(s) that the stations are located in within the state or states, as well as the respective station elevations. The applicant should also be providing this information. Climate Divisions are identified in the CLIM85 series from NCDC.

I did a quick check of the Utah Climate Center web site late yesterday afternoon to get an idea of stations within about 50 miles of the Callaway site (see the attached file). There are numerous observation stations within that nominal area that can be used for evaluating the applicant's characterization of climatological conditions. Not all stations need to be considered given the rationale above and some of the stations have been decommissioned but they should not necessarily be eliminated from consideration if a reasonably long period of record exists for the station and the data add context.

Please let me know if you have any questions about the information here. See you tomorrow.

Thanks,

Mike

**From:** Robert Kornasiewicz [mailto:rkorna@comcast.net]  
**Sent:** Wednesday, March 11, 2009 10:17 AM  
**To:** Michael Mazaika; Brad Harvey  
**Subject:** Callaway LCD's

Mike & Brad,

Could you print out a set of the following LCD's for stations in the vicinity of Callaway?

Location	Station Number
Booneville, Mo	230817
Jefferson City, Mo	234271
Mexico, Mo	235541
Rolla, Mo	237263
Sedalia, Mo	237632
Union, Mo	238515

I could use all of them if they are available. Otherwise, any of the above would be very useful in my review and in developing any RAI's. Thank you very much for your assistance.

Bob.

**Hearing Identifier:** CallawayPlant\_Unit2\_COL\_Public  
**Email Number:** 91

**Mail Envelope Properties** (3DF2506A7257014AAC5857E5E852DEAC05971E9E3C)

**Subject:** RE: Callaway LCD's  
**Sent Date:** 3/12/2009 11:54:26 AM  
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**From:** Mazaika, Michael

**Created By:** Michael.Mazaika@nrc.gov

**Recipients:**

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Tracking Status: None  
"Steve Hanna" <hannaconsult@roadrunner.com>  
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Tracking Status: None  
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Tracking Status: None

**Post Office:** HQCLSTR02.nrc.gov

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MESSAGE	6283	3/12/2009 11:54:27 AM
Climate Observing Stns Within About 50 Mi of Callaway Site.doc		27642

**Options**

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**Return Notification:** No  
**Reply Requested:** Yes  
**Sensitivity:** Normal  
**Expiration Date:**  
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## **Climatological Observing Stations Within About 50 miles of the Callaway Site**

Higbee 4 S (5/1/1949 – 12/31/2008)  
Moberly (7/1/1936 – 12/31/2008)  
Madison (4/1/1934 – 11/30/2001)\*  
Centralia (9/1/1938 – 11/30/2006)\*  
Mexico (1/1/1893 – 11/30/2008)  
Perry (10/1/1930 – 5/31/1951)\*  
Martinsburg (6/1/1944 – 4/30/1986)\*  
Vandalia (2/1/1911 – 11/30/2008)  
Clarence Cannon Dam (4/1/1989 – 11/30/2008)  
Bowling Green 4 NW (2/1/1931 – 11/30/2008)  
Middletown 5 ENE (8/1/1948 – 9/30/1972)\*  
New Florence 2 (5/1/1980 – 7/31/1989)\*  
Auxvasse 4 SSW (6/1/1944 – 12/31/1979)\*  
Columbia – Univ of MO (2/1/1997 – 11/30/2008)  
Columbia WSO AP (7/1/1948 – 10/31/1969)\*  
Columbia 9 WNW (6/1/1944 – 2/28/1953)\*  
Columbia Rgnl AP (11/1/1969 – 11/30/2008)  
Fulton (2/1/1893 – 11/30/2008)  
New Franklin 1 W (4/1/1956 – 12/31/2008)  
Boonville (10/31/1937 – 8/31/2008)  
Boonville 3 SW (1/1/2005 – 12/31/2008)  
California (8/1/1954 – 11/30/2008)  
High Point (11/1/1948 – 1/31/1997)\*  
Eldon (2/1/1893 – 11/30/2008)  
Lakeside (11/1/1931 – 11/30/2008)  
Jefferson City Water Treatment Plant (1/1/1893 – 11/30/2008)  
St. Thomas 4 N (12/31/1931 – 11/30/1950)\*  
Vienna 2 WNW (11/1/1948 – 11/30/2008)  
Rich Fountain 3 E (10/1/1987 – 11/30/2008)  
Freedom (7/1/1962 – (11/30/2008)  
Vichy Rolla Natl AP – (7/1/1948 – 11/30/2008)  
Herman – (7/1/1892 – 11/30/2008)  
Owensville – (10/31/1923 – 1/31/1979)\*  
Rosebud – (12/1/1980 – 11/30/2008)  
Gerald – (6/1/1940 – 11/30/1978)\*

### Notes:

(a) \* = Station decommissioned

(b) For general orientation, stations thru Boonville are generally north of I-70 and the remainder thru Gerald are south of I-70.