Callaway2COLPEm Resource

From: Steve Hanna [steven_hanna@insightbb.com]
Sent: Monday, March 16, 2009 8:47 PM
To: Mazaika, Michael; Robert Kornasiewicz
Cc: Harvey, Brad; Galletta, Thomas; Quinlan, Kevin; Brown, Leta; Charles Cox; Ramsdell, James V Jr (Van); Callaway2COL Resource
Subject: RE: Reference Documents TO59

Mike - Concerning the mixing heights - I normally use what was developed using the EPA method. It is available at NCDC for many sites, if they were previously asked by somebody to generate mixing heights at that location. Many other locations are available for a cost from companies such as Trinity and Lakes, who market windows-based EPA model software and data files. Multiple years are in the archives.

This begs the question of whether the mixing heights are valid representations or not. The methodology is a bit outmoded, and the mixing heights less than about 100 m are sort of ignored or glossed over. This is important for near-ground sources such as used in NRC calculations.

Concerning the wind gusts, there is much new work on this because of wind energy issues. At the AMS Annual conference in January there was a session devoted to studies of wind gusts. Julie Lundquist <lundquist1@llnl.gov> at LLNL was the chairman, and might be able to direct you to the latest references and numbers.

Steve

At 06:31 PM 3/16/2009, Michael Mazaika wrote:

Bob:

Thanks for the info on the wind references. See my annotations below.

Mike

From: Robert Kornasiewicz [mailto:rkorna@comcast.net]
Sent: Monday, March 16, 2009 4:23 PM
To: Michael Mazaika
Subject: Reference Documents TO59

Mike,

FYI

I was looking through the references in NUREG 1555 and noticed that, on page 2.7-16 , the three extreme wind speed NUREG/CR's that Leta Brown brought over last Friday are all included in the list of references on that page. **- Interesting observation. Still has the same limitations that we discussed - info is dated and utilizes fastest mile wind speed instead of 3-second gust (although you pointed out there is a conversion factor available); but may be good for at least a sanity check. Wouldn't, however, rely on those reports as sole basis for determining acceptability as they are not cited in SRP Section 2.3.1. NUREG-1555 is vintage**

late 1999. I presume Van intends to update references as well when Section 2.7 of NUREG-1555 gets the overhaul he was mentioning during the orientation.

On a related matter, I was trying to find an online website with information on mixing heights. The U.S. Forest Service ventilation index site is being reconstructed and is not available **- As we discussed; I was disappointed to see that the web site was down and won't be back up until later this year**. Do you know of another website that might have data on mixing height climatology that I can use in the Callaway review? **- We can look at it from one of two persepctives - first, the VCIS web site is not cited among the references in SRP Section 2.3.1; Holzworth is. But, as we discussed, Holzworth is limited to a 5-year POR and not as climatologically representative of the nominal 40-year POR that the VCIS data base uses. When staff sets about revising SRP Section 2.3.1, this would be one of the references that I believe we could change. It's also reasonably easy to use once you understand the system. The second approach is more of a number crunching exercise. On Page 77 of the orientation slides for FSAR Section 2.3.1, I identifed another source of mixing height data (from U.S. EPA), but it branches in two directions: (1) one of the data bases is the actual sounding data, and (2) the other data base drives EPA dispersion models and daily (morning and afternoon) values are already processed for input to EPA dispersion models. The latter would require finding a representative site (possibly the same station (Springfield, MO) mentioned in FSAR Section 2.3.2.1.5). Without looking into it further, the applicant appears to have taken the number crunching approach for that reasonably close location and used a fairly decent period of record (i.e., ten years). A value based on these data is not used in the dispersion modeling but I would consider an RAI to reconcile the difference between the annual average value input to the model (i.e., 845 m per Table 2.3-88) and the corresponding value in Table 2.3-82 (i.e., 1086 m). <u>Steve</u> - are you aware of any other mixing height summaries for the U.S. that cover a reasonably long POR?**

If you get a chance, I still need the ASHRAE and ASCE information **- I'll be working on that this week and hopefully get it resolved before I leave for the audit at Callaway next week** and the ultimate heat sink data from Section 2.4.4 of the Unit 1 SER **- Haven't taken any action of this yet.**. thanks for your help.

Bob

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Recipients:
"Harvey, Brad" <Brad.Harvey@nrc.gov>
Tracking Status: None
"Galletta, Thomas" <Thomas.Galletta@nrc.gov>
Tracking Status: None
"Quinlan, Kevin" <Kevin.Quinlan@nrc.gov>
Tracking Status: None
"Brown, Leta" <Leta.Brown@nrc.gov>
Tracking Status: None
"Charles Cox" <>
Tracking Status: None
"Ramsdell, James V Jr (Van)" <van.ramsdell@pnl.gov>
Tracking Status: None
"Callaway2COL Resource" <Callaway2COL.Resource@nrc.gov>
Tracking Status: None
"Mazaika, Michael" <Michael.Mazaika@nrc.gov>
Tracking Status: None
"Robert Kornasiewicz" <rkorna@comcast.net>
Tracking Status: None

Post Office: asav03.insightbb.com

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