Allen, Pam, NMENV

From: Kliphuis, Trais, NMENV
Sent: Tuesday, January 17, 2012 12:48 PM
To: Allen, Pam, NMENV
Cc: Maestas, Ricardo, NMENV
Subject: FW: Karst in salt rock

Another (January)

From: George Veni [mailto:gveni@nckri.org]
Sent: Tuesday, January 03, 2012 2:23 PM
To: Kliphuis, Trais, NMENV
Subject: RE: Karst in salt rock

I'm flexible all of next week. Just pick a day, time, and place and I'll be happy to meet you for lunch. If you want to brownbag it, you're welcome to come by office instead.

Is there karst at WIPP? Yes, no, and maybe. Of course the answer won't be clear cut. That would be too easy! It all depends where and how you look. The really question is, "Does karst have the potential to adversely impact WIPP?" My answer is "maybe" but depends on how you define impact, over what time period, and what probability factors. I'll explain when we meet, but my bottom line position with WIPP at the moment is that while there is potential for adverse impact due to karst issues we have not yet fully defined or studied, I believe that potential and risk are low within the current designated storage lifespan of the facility.

George

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George Veni, Ph.D.
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From: Kliphuis, Trais, NMENV [mailto:trais.kliphuis@state.nm.us]
Sent: Tuesday, January 03, 2012 14:04
To: gveni@nckri.org
Subject: RE: Karst in salt rock

Thank you. That would be wonderful! I am not a geologist but I need to make a determination on whether there is much validity to the claim that there may be karsts at the WIPP site. I am aware of some DOE studies showing there are no karsts but the concerned citizen is asserting that they were flawed.

I will be in Carlsbad for a training all next week but am not yet sure of my exact schedule. Will you be around next week? Maybe I can touch base during the lunch hour one day?

Thanks for connecting. I really appreciate it.

Trais Kliphuis
WIPP Staff Manager
Hazardous Waste Bureau
New Mexico Environment Department
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Santa Fe, New Mexico 87505

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Front Desk: 505-476-6000

From: George Veni [mailto:gveni@nckri.org]
Sent: Tuesday, January 03, 2012 12:27 PM
To: 'Currens, James C'; Kliphuis, Trais, NMENV
Subject: RE: Karst in salt rock

Dear Mr. Kliphuis,

With the National Cave and Karst Research Institute being located in Carlsbad, we are essentially a neighbor of WIPP and are quite familiar with the facility, the hydrogeology of the region, as well as the occurrence of salt karst worldwide. If you have any questions that we might be able to assist you with, please give me a call and/or stop by the next time you're in the area.

George

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From: Currens, James C [mailto:currens@email.uky.edu]
Sent: Tuesday, January 03, 2012 06:56
To: Kliphuis, Trais, NMENV
Cc: George Veni
Subject: Karst in salt rock

Dear Dr. Kilphuis,
I apologize for the long delay in getting back to you. The University of Kentucky is on holiday between Christmas and the New Year.

The term karst refers to the collective surficial geomorphology and subsurface geomorphology and hydrogeology that is a consequence of the dissolution of bedrock, in both the deep (100's of meters) and shallow (zero to 10's of meters)

subsurface. Expression of karst proces[redacted]at the surface is common but not inevita[redacted]and karst development can and does occur in the subsurface without immediate expression at the surface. Karst in rock salt is less common than in limestone because salt occurs less commonly and because salt in the meteoric groundwater zone doesn't last very long after karst. That is to say the karst process quickly destroys the salt bedrock in most cases, potentially before it can be recognized in the field.

Please refer to the following references.

White, W.B., 1988, Geomorphology and Hydrology of Karst Terrains, p. 337-338

Ford, Derek, and Williams, Paul, 2007, Karst Hydrogeology and Geomorphology, p. 27-28

Klimchouk, A.B., Ford, D.C., Palmer, A.N., and Dreybrodt, Wolfgang, eds., 2000, Speleogenesis, Evolution of Karst Aquifers, p. 54-56.

Palmer, A.N.,2007, Cave Geology, p. 74-75.

Also, you might contact Dr. George Veni at the

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Cordially,
James C. Currens

From: Kliphuis, Trais, NMENV [mailto:trais.kliphuis@state.nm.us]
Sent: Friday, December 30, 2011 6:07 PM
To: Currens, James C
Subject: Karst question

Greetings Dr. Currens,

I am hoping you can help me understand why the definition of Karst located at:
http://www.uky.edu/KGS/water/general/karst/karst_landscape.htm
includes salt as a foundation for a Karst. Specifically the sentence:

"The term "karst" describes the whole landscape, not a single sinkhole or spring. A karst landscape most commonly develops on limestone, but can develop on several other types of rocks, such as dolostone (magnesium carbonate or the mineral dolomite), gypsum, and salt."

In my brief review of Karst definitions, I found only this one to include salt. This is very relevant to some public interest and concern at the DOE Waste Isolation Pilot Plant.

Perhaps I might call sometime next week at your convenience. Please let me know if this is possible. I look forward to speaking with you.

Thanks,

Trais Kliphuis

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Practicing "good will to all" this holiday season.