CCNPP3COLA PEmails

From: Biggins, James
Sent: Tuesday, February 23, 2010 12:23 PM
To: Arora, Surinder
Cc: Quinn, Laura
Subject: Calvert (public)- FW: Glimmer of local sunshine?
Attachments: Nuclear 2009 appeal Vogt refs.doc; ATT00003.htm; nuclear PSC appeal demand projection.docx; ATT00004.htm

Surinder,

We received this email and attachments from an interested member of the public. I am forwarding it to you because one of the attachments contains seismic information. Please provide it to the staff for their information. No response was requested, and I believe the information is similar to the information Mr. Vogt previously provided, so please forward it to the staff solely for their consideration.

Thanks,
-Jim

James Biggins, Senior Attorney
Office of the General Counsel
Mail Stop O 15 D-21
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
301-415-6305
301-415-3725 (FAX)
james.biggins@nrc.gov

From: William Johnston [mailto:wj3@comcast.net]
Sent: Tuesday, February 23, 2010 10:26 AM
To: Peter Vogt; June Sevilla; Tom Horton
Cc: Bruce Gordon; Tom Deming Esq; Wilson Parran; Susan Shaw; Frederick Tutman; Marty Madden; Jeff Newman; Christie Goodman; Chris Bush; Allison Fisher; Julia Clark; Quinn, Laura; Biggins, James; Kullen, Sue Delegate (Laptop)
Subject: Glimmer of local sunshine?

Peter, I debated whether to copy you (on my email below) and decided not to, out of respect for your opting out, though I could see an obligation to copy you nevertheless, in view of even your personal info below that I was sending out to the press. (Did not have much hope there, but is there in fact a glimmer of hope, for a glimmer of sunshine on this significant local issue?) Bill

June, Thank you for the updates on your single-handed PSC challenge, as per your first edition also attached below. Please keep it up. Hope you can raise all the big issues, not considered so far since never raised by our state agencies, a monstrous failing but not surprising I guess in the state of Spiro Agnew and all the interlocking campaign contributions Chris Bush has unveiled. The semi-public French corporation, hated by the French public for their reckless handling of nukes and wastes there, now owns half of our two nuke plants at Calvert Cliffs and their continuing waste streams, or do they (and Constellation, whatever) just own the plants and we the citizens/taxpayers own the wastes and maybe the plants after they stop operating in 40 years, in view of the corporate shields so carefully constructed? The PSC has made it's position clear, it does not care. Of course there is no local interest in these matters, no responsibility in the BoCC to even question, nor in the state, even

with the feds apparently abdicating federal responsibility for the third unit and its wastes, by premising federal preemption on a case by case evaluation which has not yet occurred for the new unit. Any chance of getting ecopies of the papers you will be filing, especially indicating the issues you will be raising? I will sign on as an interested party in PSC 9218, to get copies of all filings, but appreciate early notice, particularly for the single public comment opportunity in Baltimore April 19, on the same day as your hearing, as you indicate below. It is outrageous that the interested public must drive to Baltimore to comment. Can you appeal that decision, or request reconsideration? I will maybe appeal to the BoCC to ask to change this, maybe in the public comment period of the BoCC meeting next week, that is, to have that meeting held locally. It would be best if some of us could get an appointment with the BoCC re this and related matters. Even if alone, I will plan be there next Tuesday to present this request; hopefully others will join. Bill

PS to all: The Washington Post on Feb. 20 published a short editorial supporting moving ahead with nukes, asking if they might cost less than the boondoggles so far with new designs. The editors totally ignore the two points in green below (now in bold). All of this is hopefully the subject of the environmental impact statement draft supposedly to be released next month, with the final due a year later and before which no final decisions can be made, as I understand. Let us look to that for a fair and viable evaluation, for the sake of public guidance at this potentially crucial point in our economic and environmental destiny on this ever-more-rapidly degrading and overpopulated planet. Maybe we should not be concerned with survival beyond a couple hundred years, with ocean acidity rapidly rising and threatening many of the species that allow the oceans to absorb/recycle so much CO2 and other wastes. (That editorial must be answered.)

Begin forwarded message:

From: Peter Vogt <ptr_vogt@yahoo.com>
Date: February 22, 2010 10:24:02 PM EST
To: J Sevilla <qmakeda@chesapeake.net>
Cc: Bill Johnston <wj3@comcast.net>
Subject: earthquake letter to papers

June, I changed my mind and mailed my earthquake letter, including the initial changes I made in response to your comments, but not your later rewrite, to the local papers after all. I did so partly because I had already spent the time writing it, and partly because apparently my appeal with Bill to PSC last year was forwarded by someone, maybe Bill, to the BOCC, and one of them apparently asked Dr Curt Larsen (Drum Point), a local retired USGS geologist I know well, for his take on this possible fault. At least it got the BOCC's attention.

So I want to make sure I set the record straight. Curt emailed Susan Kidwell to get her paper I had cited, and in that email he opined that the fault was "plausible". This email exchange was copied to me.

But this will have to be the end of my involvement!

Peter

Begin forwarded message:

From: "J Sevilla" <qmakeda@chesapeake.net>
Date: February 17, 2010 12:33:54 AM EST
To: <Undisclosed-Recipient:;>
Subject: Calvert Cliffs 3-What happened today during PSC 9218 pre-hearing conference 2/16/10

Just to keep everyone informed on what transpired this morning at the PSC Case # 9218 CPCN pre-hearing conference for Calvert Cliffs 3. I was the only one to attend aside from the usual parties- UniStar, PSC, OPC, [DNR/PPRP, MDE] represented by Atty General's office.

1. The hearing examiner is new to the case - Dennis Sober (this did not seem to sit well with UniStar). He seems open and gave me every opportunity to speak (court reporter documented). Although I had sent to PSC by US mail the required Motion To Intervene (1 orig + 16 copies), I handed the examiner his personal copy just before we started, so he recognized me as a participant (only the lawyers were speaking, and now myself pro-se).
2. PSC Examiner read my Motion To Intervene and the motion for COMAR 20.07.01.01-1: **Waivers of Regulations** for good cause that I requested: motion to waiver for the general public and myself, the hard copy requirement on all submissions and to use email or e-filing (like NRC) for environmental impact reduction, conform with Paper Reduction Act and expense reduction. Since this is CPCN, as the acronym implies, make it convenient for the public! (PSC requires orig. + 16 copies of every doc submitted every time).
3. My motion also asked for email sent date as date of filing to PSC. If hard copy really required in special cases, to use postmark instead of date PSC receives the docs, which currently shortens the public's time to submit or respond.
4. UniStar (Jennings) immediately objected saying she just got my motion and this will further delay the process and they will file their objection by Feb 18th and expects me to respond by Feb 19th- yeah.... She had her own expedited agenda which she wanted to push thru very quickly (and "I am in her way" - really, no kidding?) When Sober asked her what would be delayed, her expedited schedule was not agreeable with everyone else's so she had to agree that March 10 was a good date for me to respond to her objection.
5. PSC lawyer Dean objected since they need the paper trail for admin purposes (16 copies given to the PSC Secretary's advisers and staff), but conceded there is also e-filing capability. PSC expected to file objection.
6. April 5th is the day for interveners to have everything in to PSC (need to reconfirm this) and UniStar wanted the public hearing for April 15th. I objected - tax time and so did OPC - bad under any circumstance, according to Peter Saar.
7. **April 19th** in Baltimore PSC hearing room, 10 AM is adjudicatory day and in the evening is the public hearing at 7PM one night only. When Sober asked why 1 night only for public hearing, UniStar/Jennings said she expects this to be very quickly concluded (uh-huh).
8. I asked that since everyone is trekking down to So. MD for the public hearing anyway, why not hold the adjudicatory hearing in So. MD. She (Jennings) said it will be complicated for them (awwww). To this I replied that it took me 3 hrs to commute from So. MD and that we will be late for the public hearing if the adjudicatory takes longer. Sober said that if that is the case,

we will terminate on time (4pm so we all can make the public hearing) and resume adjudicatory next day. Jeez, I am the only one who has to commute 3 hrs each way in traffic to Balto - but hey, I am only part of the public for which this Certificate of Public Convenience and Necessity is being conducted -- convenient and necessary for whom???

9. When we covered publications, UniStar presented that they published today's hearing in Wash Post (a very tiny ad) and the "Enquirer Gazette"; aka, Calvert Recorder. I asked why only one of the 2 local papers? Sober said requirement is only for one. When I asked if this was also to be the case for publishing the public hearing, he said yes. I asked why did UniStar chose the Calvert Recorder and not the Calvert Independent? I said not everyone subscribes to the Calvert Recorder, so that is not publishing it widely in Southern MD! UniStar was quiet and Sober decided they are sticking to the minimum requirement of one local paper. We shall see about that!

So I expect that unless anyone else submitted Motion to Intervene today 2/16/10, then that only leaves myself as the lone voice from the public as Intervener. Check the PSC website for submissions and updates at
http://webapp.psc.state.md.us/Intranet/casenum/CaseAction_new.cfm?CaseNumber=9218 .
.
June
Begin forwarded message:

From: William Johnston <wj3@comcast.net>
Date: February 19, 2010 6:22:41 AM EST
To: June Sevilla <qmakeda@chesapeake.net>
Cc: Susan Shaw <choosingsusan@verizon.net>, "Kullen, Sue Delegate (Laptop) (Laptop) Kullen" <Delegate.S.Kullen@house.state.md.us>, Wilson Parran <wparran01@comcast.net>
Subject: Fwd: apologies and please remove me from your list

June,I did not mean to leave you off this distribution yesterday. Bill

Begin forwarded message:

From: William Johnston <wj3@comcast.net>
Date: February 18, 2010 6:24:27 PM EST
To: Bruce Gordon <iyp@dmv.com>, Chris Bush <chris.bush@verizon.net>, Tom Deming Esq <tdeming@cablespeed.com>, Tom Horton <twh@intercom.net>
Cc: Marty Madden <editorial@calvertindependent.com>, Jeff Newman <jnewman@somdnews.com>, Christie Goodman <goodmanc@washpost.com>, Paulette Hammond <phamm001@earthlink.net>, Allison Fisher <afisher@citizen.org>
Subject: Fwd: apologies and please remove me from your list

(The following may be reasonably adapted, to improve comprehension, clarity, etc., or to remove excessively irreverent matter, into a letter to the editor. A prepublication draft of any revision would be appreciated, or I would be happy to consider any suggestions to improve fairness, etc. However, I expect again I'm just wasting my time. The intentional news blackout desired by the nukers on this whole subject has been successful.)

As per below, Peter Vogt is dropping out, leaving his two draft "appeals" for public use (attached here, again). His partial CV is included at the end of one of them, most impressive. We are honored by his service. His past service includes a lead role in establishing the American Chestnut Land Trust, offering miles of trails through conserved forests to the public, as per road signs along Rt. 4, an incredible boon to county image. He has done way beyond his share to try to bring this important issue to the public. He concludes no one, including the Maryland Public Service Commission, seems to care that there is a potential geologic fault very close to the nuclear plant, and that anyway hardly anyone reads the local papers anymore. I guess they are just trying to survive against the internet, with minimal investment in subject matter, and maybe fearsome of antagonizing our business community, which maybe sees the third nuke as a shot in the arm for business, **never mind if clean energy might come to the fore well before the new unit even gets built,** or cost to taxpayers, **with nary a worry for what it means to store the nuclear waste on site for one million years.** You say you love your children, I don't see it. There has been a conspiracy of silence, joined wholeheartedly by our BoCC, to keep this matter out of public attention. Why else would this significant matter not be forwarded for consideration by our county's Environmental Commission? We should be protecting the Chesapeake Bay, by constructing a superdooper cooling tower for the two existing nuke units, rather than the one proposed for the new third nuke unit, so we can stop pumping 3.5 billion gallons of Bay water through the old units every day, with significant fish/biology loss, and chemicals and heat added.

William Johnston, Huntingtown

Hearing Identifier: CalvertCliffs_Unit3Cola_Public_EX
Email Number: 1216

Mail Envelope Properties (9B0F2FAB6002B64EAABF7FE5FA27BC6C011F9B7706)

Subject: Calvert (public)- FW: Glimmer of local sunshine?
Sent Date: 2/23/2010 12:23:13 PM
Received Date: 2/23/2010 12:23:16 PM
From: Biggins, James

Created By: James.Biggins@nrc.gov

Recipients:
"Quinn, Laura" <Laura.Quinn@nrc.gov>
Tracking Status: None
"Arora, Surinder" <Surinder.Arora@nrc.gov>
Tracking Status: None

Post Office: HQCLSTR01.nrc.gov

Files	**Size**	**Date & Time**
MESSAGE	14413	2/23/2010 12:23:16 PM
Nuclear 2009 appeal Vogt refs.doc	55802	
ATT00003.htm	542	
nuclear PSC appeal demand projection.docx	15967	
ATT00004.htm	4946	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

A) SUMMARY OF APPEAL: The appellant notes that PSC CCNPP report and all previous reports/studies, dealing with possible risks to CCNPP, especially the proposed third reactor, have failed to note the probable presence of a potentially active earthquake fault which intersects the Calvert Cliffs 1 ¼ mile south of CCNPP, and is likely to pass closer to CCNPP. This is the only such structure known along the entire Calvert Cliffs. Appellant strongly recommends delaying any permit until geological mapping by experts demonstrates said fault is real (not mapping errors), and if so demonstrated, that boreholes with sediment cores be taken on land, and seismic chirp profiling conducted offshore, to determine the strike (map trend) and dip (incline) of the fault, and its history of activity.

B) BACKGROUND FOR APPEAL: Among the risks that have to be evaluated at proposed and present sites of nuclear power plants are the risks from shaking from earthquakes. Most earthquakes are caused by failure (rupture) of the earth's crust or upper mantle along faults; occasionally they are associated with volcanic eruptions and very rarely, including the very greatest, by comet or asteroid impacts. Even though the reactor containment structure may be engineered to withstand a major earthquake, coolant pipes with small defects (e.g. bad welds) may break, or alarm systems triggered, and in areas such as Calvert Cliffs where earthquakes are rare, power plant employees fooled into an inappropriate response.

These risks are generally estimated statistically, e.g. 'the probability this structure will be exposed to ground motion accelerations at least Y, of type X is estimated to be less than Z per year". Such statistics are obtained from 1) earthquake seismicity data during about the last half century of instrumentally recorded shocks, 2) historical accounts of earthquake-induced observations, including damage, which along the Eastern US coastal areas extend back 300-400 years; and 3) geological mapping of 'geologically recent' structures (faults or folds) in the earth's surface and shallow subsurface geology. However, many if not most major earthquakes are caused by failure along deeply buried faults, and have no surface or near-surface expression. The absence of earthquake seismicity during the instrumentally recorded and even the 'historical' reporting periods does not necessarily mean that no major earthquake could occur with small but significant probability over the expected lifetimes of a nuclear power plant (25-50+ years?). **A case in point is the 31 Aug 1886 Charleston, SC event (estimated at Richter magnitude between 6.6 and 7.3). There had been few or no earthquakes reported in this area prior to the shock. Had this earthquake not yet occurred, a low seismic risk would now still be assigned to the Charleston area.**

The CCNPP site, including proposed third reactor, is located on the US eastern seaboard (Coastal Plain), since the advent of plate tectonics placed more or less in the middle of the North America plate (Simkin et al.,2006), far from the seismically very active plate boundaries. However, the region (except for Florida) is not aseismic; earthquakes do occur, but less frequently. Much of the North America plate between the western North Atlantic and the Rockies appears to be under horizontal NE/ENE

compression (e.g., Zoback et al.,1986). Most earthquakes in the region are caused by rupture along deeply buried, ancient faults, which this current stress pattern is 'reactivating' because the old faults remain zones of persistent weakness. Faults which rupture and displace young, near surface sediments of the Coastal Plain are uncommon but exist. The Stafford Fault (Virginia) is a good example.

Major earthquakes, capable of massive damage, have occasionally occurred within the interior of the North American Plate. For example, a series of four major earthquakes with estimated "Richter" magnitudes from 7.0 to 8.1, struck the area of New Madrid, Missouri from 16 Dec, 1811 (largest) to 7 Feb 1812. Fortunately this area was then only sparsely populated, but New Madrid was destroyed and many houses damaged in St. Louis. The seismic waves were felt on the US East Coast, and were reported to have cracked ice on the Chesapeake Bay. The recurrence times for similar shocks in the same area are now estimated at ca. 300-500 years, several times longer than for large plate boundary earthquakes e.g. along the San Andreas fault in California.

On 31 Aug 1886, a ca. 6.6-7.3 magnitude event caused severe damage in Charleston, SC, and some damage as far north as southern Virginia. It was strong enough in Calvert County to be noted by the Drum Point lighthouse keeper and to scare guests in the old Evans Hotel to flee the building, as reported by the Calvert Gazette. Significant to this appeal is the fact that little or no prior earthquake activity had been reported in the Charleston area. Lesser earthquakes, felt but not damaging, have occurred (that is, their epicenters) historically in Maryland and surrounding states.

Geological mapping of the sedimentary strata (layers) exposed in the Calvert Cliffs (most recently conducted and summarized by Kidwell, 1997) shows the layers are more or less continuous (no faults) and only very gently folded, except at one place, hereafter called Moran's Landing (ML), located near (ca. 1 ¼ mile) south of CCNPP. At this point (See Figure) there appears to be a break in the strata, either due to mapping errors (considered possible but unlikely) or a neotectonic structure, hereafter called the "Moran's Landing Fault ?" or "MLF?" (The question mark needs to be retained pending certain verification or falsification). Because at present only the intersection of the MLF? with the Calvert Cliffs is known, its trend (and trace, or intersection with the ground surface, in a map view) remains unknown. **Therefore the closest approach of the fault to the CCNPP and to the site of the proposed third reactor is unknown, but cannot geometrically be any more than 1 ¼ mile, and could be much closer.** The south side of the MLF? appears offset "up" relative to the north side (see Figure), so the **structure is probably a thrust fault with the crust to the south shoved over the top of the crust to the north**. Thrust faulting is consistent with the regional NE to ENE compression of this region (e.g., Zoback et al., 1986). Because the shallow marine Miocene-aged strata (ca. 12 to 10 million years old at this site) are offset, the faulting must postdate this time. The offset appears to continue into the overlying 'Upland Gravel' formation, meaning the faulting was still going on until after about 2 or 3 million years ago. Based on this interpretation of long term and geologically "neo-tectonic" (post-Miocene) activity, the structure is unlikely to be extinct. For the purposes of risks (*sensu lato*) to nuclear power plants, it is not enough to say that CCNPP

is located in a region where destructive earthquakes occur rarely, if at all. Surface topography might help shed light on possible fault trends—because faulting generally loosens and weakens earth materials, facilitating erosion by water. GOOGLE-EARTH imagery suggests linear ravine/stream valley trends of about WNW and NW-NNW in the area from the Calvert Cliffs State Park north to the CCNPP area, so these are possible, but unproven fault strikes. If the MLF? strikes NW-NNW, it would pass through the CCNPP property not far from the present two and proposed third reactor.

Establishing an annual probability at less than 1:1,000,000 that an event with magnitude at least 7 or 7.5 occurs within 100 miles of CCNPP in a given year is very different from saying this probability is less than 1:500 or 1:1000. The point of this appeal is to emphasize that these probabilities (large shocks with low recurrence times) are not well established, due to the short historical and instrumental records and lack of detailed subsurface mapping. This makes it essential to evaluate and factor in any significant evidence for neotectonic structures such as the MLF?, which has been ignored, notwithstanding e.g. Kidwell's 1997 publication 12 years ago.

RECOMMENDATION: Given the possibility, or even probability, that a significant neotectonic structure ,"Moran's Landing Fault?"—a post-Miocene and potentially active earthquake-generating fault that offsets the strata exposed in the Calvert Cliffs such that the land on the south side has moved up relative to the north side- passes within 1 ¼ mile or less of the Calvert Cliffs Nuclear Power Plant, and that past CCNPP risk assessments—including the 2009 preliminary PSC report-- have failed to take this potentially seismically active (with high-frequency accelerations due to fault proximity) structure into account, this appeal recommends the following:

1) **No permit should be issued by PSC until detailed geological mapping, by experts, of the cliff exposures for at least several hundred meters on either side of the Moran's Landing area can discriminate with certainty between the "neotectonic fault" interpretation (considered more likely) and the "mapping errors" interpretation (considered less likely).** If (but only if) mapping errors are demonstrated, this appeal is groundless.

2) **In the event the Moran's Landing Fault (MLF?) is demonstrated to be real, no permit should be issued before a A) series of shallow (several hundred meters depth) boreholes have been placed, with core recovery and analysis, to determine the strike (trend) and dip (incline) of the fault, and of its offset history (when it was active, with an estimate of how often on average a fault offset occurred); and B) as a minimum a seismic 'chirp' profiler grid survey (similar to those conducted further north; see Vogt et al., 2000ab) be conducted in the Chesapeake Bay in the area where the putative MLF? would extend in the subbottom**. The chirp profiler could reveal evidence (or lack thereof) for offset of young sediment strata. The nearshore (with a mile or so of the cliffs) unconsolidated sediments range in age from a few thousand years (at most, a mile out) to zero (at the beach and in the shallow subbottom), so any offset of such strata along a fault would increase the odds of a new rupture in the future. It would

also be helpful to **deploy a small array of seismometers for several months to detect any local, low-magnitude activity, below the threshold felt by humans or detected by regional networks**.

APPPENDIX : CREDENTIALS OF APPELLANT AND DISCLAIMERS, and GEOLOGICAL REFERENCES: The following is an abbreviated Curriculum Vitae, with selected publications. Disclaimer: The appellant is speaking as a geoscientist and long-time (40 year) Calvert County resident for himself only, and in no way on behalf of any institution or employer with whom he is or has been associated. While a geophysicist by profession, the appellant does not claim specialized expertise in the fields of earthquake seismology nor in engineering applications of such knowledge. While the appellant is familiar with the geology of the Calvert Cliffs, he defers to Prof. Susan Kidwell, University of Chicago, as the geologist most knowledgeable in this field, having herself mapped the geology exposed in the Calvert Cliffs. The primary basis for this appeal is the apparent break in continuity (suggesting an earthquake fault) mapped by Prof. Kidwell (Kidwell, 1997) at just one locality along the entire cliffs: the site she labels as Moran's Landing, about 1 ¼ miles south of the BG&E/Constellation CEG nuclear power plant and proposed site of third reactor. Publications cited in this appeal are prefaced by an asterisk (*).

1) **Curriculum Vitae and selected publications by appellant**

Home Address:
3555 Alder Rd.
Port Republic, MD 20676

Phone: 410-586-0067
EMAIL: ptr_vogt@yahoo.com

Education:

PhD (Oceanography) Univ. of Wisconsin, Madison	1968
MA (Oceanography) Univ. of Wisconsin, Madison	1965
BS (Science; Geophysics; "With Honor"), Caltech	1961

Von Karman Scholarship 1957-61
US Fulbright Scholarship, Univ. Innsbruck, Austria (Glaciology) 1962-63

Professional Positions:

Currently (2009): Research Associate, Smithsonian Institution; Adjunct Professor, Horn Point Environmental Laboratory ; Professional Researcher, Marine Science Inst., Univ. California at Santa Barbara

Marine Geophysicist, US Naval Oceanographic Office- 1967-1975
Marine Geophysicist, Naval Research Laboratory - 1976-2004
Sabbatical, Univ. Oslo, Norway - 1978-1979

Professional Awards:

Within Navy:
Henry Kaminski Award, Research Society of America, 1971
(US Naval Oceanographic Office)
Alan Berman Research Publication Award, 1980, 1986, 1995
(Naval Research Laboratory)

Academia:
Fellow, Geological Society of America, 1973
Honorary Doctorate, Univ. Bergen, Norway, 2000
Foreign Member, Norwegian Academy of Science and Letters, 2000
Distinguished Alumni Award, Univ. of Wisconsin, 2003

Publications: over 150 authored or coauthored, and peer-reviewed professional publications, starting 1965. Those excerpted below demonstrate appellant's geoscience research publication history in the Chesapeake Bay, the western North Atlantic Ocean, global synthesis including seismicity, and geology of Calvert County, including the Calvert Cliffs.

Estuarine Processes & Gassy sediments: Chesapeake Bay

Hagen, R.A. and **Vogt, P.R.,** 1999, Seasonal variability of shallow biogenic gas in Chesapeake Bay, Mar. Geol., 158, 75-88.

***Vogt, P.R.**, Halka, J.P., Hagen, R.A. and Cronin, T., 2000, Geophysical environment in Chesapeake Bay: *Marion-Dufresne* Sites MD99-2205, 2206 and 2208, in Cronin, T., ed., Initial Report on IMAGES V Cruise of the *Marion-Dufresne* to the Chesapeake Bay June 20-22, 1999, USGS Open File Report 00-306, p.18-31.

***Vogt, P.R.,** Czarnecki, M. and Halka, J.P., 2000, *Marion-Dufresne* Coring in Chesapeake Bay: Geophysical Environments at Sites MD99-2204 and 2207, in: Cronin, T., ed., Initial Report on IMAGES V Cruise of the *Marion-Dufresne* to the Chesapeake Bay June 20-22, 1999, USGS Open File Report 00-306, p. 32-39.

Halka, J.P.,**Vogt, P.R.,** Colman, S.M. and Cronin, T.M., 2000, Geophysical Environment: Site MD99-2209, in: Cronin, T., ed., Initial Report on IMAGES V Cruise of the *Marion-Dufresne* to the Chesapeake Bay, June 20-22, 1999, USGS Open File Report 00-306, p. 40-48.

Colman, S.M., Baucom, P.C., Bratton, J.F., Cronin, T.M., McGeehin, J.P., Willard, D., Zimmerman, A.R. and **Vogt, P.R.,** 2002, Radiocarbon dating, chronologic

framework, and changes in accumulation rates of Holocene estuarine sediments from Chesapeake Bay, Quat. Res., 57, 58-70.

Shah, A.J., Brozena, J., **Vogt, P.**, Daniels, D., and Plescia, J., 2005, New surveys of the Chesapeake Bay impact structure suggest melt pockets and target-structure effect, Geology, 33, 417-420, doi:10.1130/G21213.1

Cronin, T.M., **Vogt, P.R**., Willard, D.A., Thunell, R., Halka, J., Berke, M., and Pohlman, J., 2007, Rapid sea level rise and ice sheet response to 8,200-year climate event, Geophys. Res. Lett., L20603, doi:10.1029/2007GL031318

Synthesis and Review

Vogt, P.R. and Tucholke, B.E., eds., 1986, The Western North Atlantic Region, v. M of The Geology of North America, Geol. Soc. Amer., Boulder.

Vogt, P.R. and Tucholke, B.E., 1989, North Atlantic Ocean Basin; Aspects of geologic structure and evolution: An overview, in Palmer, A. et al., eds., v. A. of The Geology of North America, p.53-80.

Regional and Global Charts:

Simkin, T., Unger, J.,Tilling, R.I., **Vogt, P.R.** and Spall, H., 1994, This Dynamic Planet—World map and interpretations of volcanoes, earthquakes, plate tectonics and bolide impact craters, Second Edition, US Geological Survey (Chart).

*Simkin, T., Tilling, R.I., **Vogt, P.R.,** Kirby, S., Kimberly, P. and Stewart, D., 2006, This Dynamic Planet, Third Edition (chart and website), US Geological Survey Geologic Investigations Series, Map I-2800

Local (Southern Maryland) geology:

***Vogt, P.R.** and Eshelman, R., 1987, Maryland's Cliffs of Calvert: A fossiliferous record of Mid-Miocene inner shelf and coastal environments, in: Roy, D.C., ed., Geological Society of America Centennial Field Guide-Northeastern Section, v.5, Geol. Soc. Amer., p.9-14.

***Vogt, P.R.,** 1991, Estuarine stream piracy: Calvert County, US Atlantic Coastal Plain, Geology, 19, 41-44.

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2) OTHER PUBLICATIONS RELATED TO THIS APPEAL:

*Kidwell, S.M., 1997, Anatomy of extremely thin marine sequences landward of a passive-margin hinge zone; Neogene Calvert Cliffs succession, Maryland, USA, Jour. Sedimentary Research, 67(2), 322-340.

*Zoback, M.L., Nishenko, S.P., Richardson, R.M., Hasegawa, H.S., and Zoback, M.D., 1986, Mid-plate stress, deformation, and seismicity, in **Vogt, P.R**. and Tucholke, B.E., The Western North Atlantic Region, v. M in The Geology of North America, Geol. Soc. Amer., Boulder, p.297-312.

APPEAL TO PSC initial findings (draft 3 June 2009)

Appellant: Peter R Vogt (PhD), 40 year resident of Calvert County, home address 3555 Alder Road, Port Republic, MD 20676. Marine geophysicist by profession. Email ptr_vogt@yahoo.com

Home phone 410-586-0067

SUMMARY OF APPEAL

Before issuing the Certificate of Convenience and **Necessity** for the proposed third nuclear reactor (Constellation Energy Group, CEG)) at the Calvert Cliffs Nuclear Power Plant (CCNPP), the PSC must demonstrate the **NECESSITY** of this 1600 MW power plant. Appellant considers this necessity not adequately justified, and requests that this be done prior to PSC approval. Appellant notes that per capita annual KW-hr use in the US has flattened in recent years (even prior to the economic downturn); appellant adduces per residence electric use in the Southern Maryland area (SMECO data) to demonstrate that per residence use has not only leveled off but actually declined over the last five years. Given these data, and probable further declines due to improved conservation, off-grid generation, etc., appellant argues that effect on total grid demand of population growth (ca. 1% per year in MD; ca. 0.9% per year in US) can easily be compensated with increased use of renewable energy, as this is less than already planned by State of Maryland.

BACKGROUND DISCUSSION

In making a decision whether to approve the construction of a major nuclear power plant (1600 MW), which will be in operation for decades and which imposes certain risks to the regional population, the PSC needs to evaluate statistically and realistically the long-term demand projections, and to share with the public the caveats , methodology, and uncertainties, statistical and otherwise, in such demand projections. The Maryland public deserves answers to three basic questions need to be answered, and these answers supported with quantitative data:

1) What do the per capita and per residence usage trends for recent years (5 to 10) predict, were these trends to continue?
2) What is the likelihood that such recent historical usage trends can be projected into the future?
3) When these usage projections are multiplied by plausible population growth rates and allowance is made for long term demographic trends, why cannot the State of MD's proclaimed leadership role in clean, renewable energy easily compensate for the ca. 1% annual growth rate?

Appellant does not have access to all industry data, but directs PSC attention to the following:

1) US per capita electric consumption stopped increasing around 1998 (Fig. 1-7, p. 9 of Makhijani, 2007; reproduced from Fig. 7, p. 13 of Chang et al., 2007). The annual per capita consumption has leveled out to around 12,000 kW-hr per year.

To obtain an example of residential consumption trends in the Mid-Atlantic (general area of Constellation/BG&E grid service), the appellant queried his own long-time provider, Southern Maryland Electric Cooperative (SMECO). SMECO kindly compiled the monthly electricity they had to purchase for their customers for the five years ending in 2008. They kindly also provided heating and cooling degree-days for each month, to help understand and correct for seasonal HVAC-related variability. These data (attached table and apellant's interpretation) suggest that not only has demand per residence leveled off, but has actually declined somewhat.

2) Appellant notes that demand projections using data from the recent real estate bubble, and prior to serious and unprecedented new US National policies to promote clean renewable energy (nuclear is not included in this category), such demand projections are very likely to strongly OVERESTIMATE future increases in demand. The PSC should take note of what happened to electricity consumption as a result of the 1973 OPEC oil embargo (Fig. 1-7 of Mahijani, 2007): The essentially exponential increase of US per capita consumption changed rather abruptly to a slower, linear rate of increase. In California the 1973 change was even more dramatic, with essentially flat consumption around or a bit above 7000 Kw-hr per year holding nearly steady for the last 35 years. The main point here is that US electricity consumption is not engraved in stone. Demand predictions made in 1973, using historical data for the previous decade would have wildly overestimated the future increase in per capita demand and thus new power plants. While no-one has a crystal ball, per capita or per residence demand projections based on the last 5 to 15 years are likely to overestimate, perhaps also wildly, the increased demand. Per capita demand is likely to slow further due to overseas export of manufacturing, better insulation and more efficient appliances, a reversal of trends to McMansions,

The public has the right to see and evaluate the demand projections made by industry to support the claimed need for the new CCNNP reactor at a time when so much (politically, economically, and technically) is in a change of rapid flux. As a minimum, several years of new consumption data are needed before realistic demand projections can be made. A third reactor at CCNPP, if built, would probably be in operation for the next half century. Building it is a sure way to handicap and thus slow conversion to clean energy technology.

3) Appellant notes that Maryland State government has recently proclaimed the state as a US leader in clean energy. State of MD plans for substantial reductions in traditional electricity demand and replacement with clean energy (e.g., solar photovoltaic, offshore wind turbines, ground loop geothermal, much improved insulation, etc) call for demand reductions in excess of the 1% per year required to compensate for population growth. Photovoltaic panels are rapidly declining in

cost, due largely to large scale production. Advanced thin film photovoltaic technology is under rapid development. The Atlantic continental shelf off the Mid-Atlantic is prime real estate for offshore wind farms. If clean energy, along with increasing efficiency and insulation, are able to compensate for the ca. 1% annual population growth rate—a rate which will almost certainly, based on all models, decline over the lifetime of the proposed third reactor-then no new fossil or nuclear grid power is required.

REFERENCE

Makhijani, A., 2007, Carbon-free and nuclear-free, IEER Press, Takoma Park, MD, 257 p.

ATTACHMENT

SMECO residential use in early 21st century and interpretation; SMECO data.

Begin forwarded message:

From: Peter Vogt <ptr_vogt@yahoo.com>
Date: February 18, 2010 9:01:30 AM EST
To: June Sevilla <qmakeda@chesapeake.net>, wj3@comcast.net
Subject: apologies and please remove me from your list

for being that uncommunicative. It's about personal issues, nothing to do with nuclear.

However, for personal reasons I also decided to end my efforts entirely, so pls no further emails etc on nuke 3. It's hopeless anyway--we're just flies on the back of a giant beast. This machine is powered by a massive lobby--now unstoppable given Obama-Cho's attitude-- and big financing.
We're just providing work for the lawyers and bureaucrats who earn big bucks.

It's not my responsibility to dumb down, let alone overdramatize, that PSC-directed fault appeal for the general public. My letters have had essentially no influence on anything, and few read the local papers any more. My wife is upset by every letter I write to local papers (I began in 1970, before the Recorder was founded)--but she never bothered to read the fault letter as promised. Nor did Sandra Jarrett, nor did Allison Fisher (who btw first recruited me in the fall of 2007, she got my name from Bob Boxwell, who also has not taken any interest, perhaps because of his working for Dominion-sponsored land trust).

I stand by everything I wrote in the appeal, and given it's wider circulation, I regard it in the public domain. Others are free to use this info and arguments assuming they do not misquote or quote out of context.

So thanks for taking me off your email list.

Peter