Testimony in Favor of H 2167 – "An act relative to emergency planning."

Current (11/28/15) Radiological Monitoring Stations
Coverage and Blind Spot Analysis of
Pilgrim Nuclear Power Station (PNPS) relative to Cape Cod

Introduction

The current locations of PNPS monitoring stations create a blind spot on the Cape Cod Bay side of the plant because existing monitoring stations are located only on land. Current station locations are shaped more or less like a horseshoe with the open end directed towards Cape Cod Bay.

Figures, Maps and Diagrams

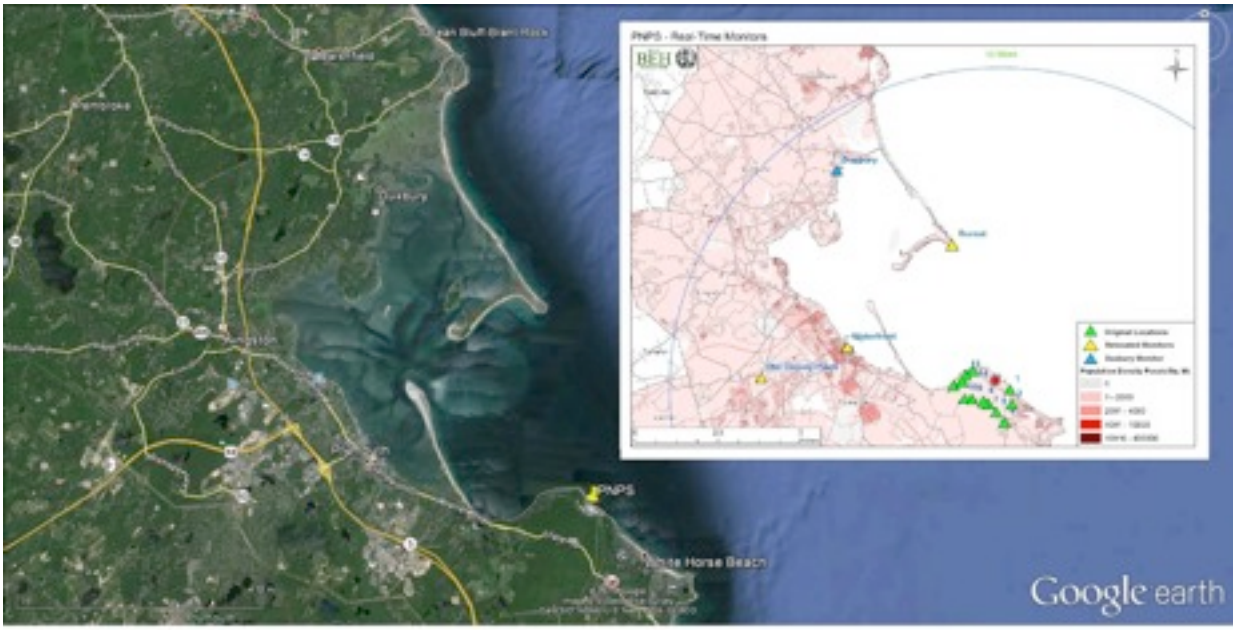

Figure 1 maps the current radiological monitoring station locations.[1]

[1] Massachusetts Department of Public Health, Bureau of Environmrntal Health, April, 2014, "Updates on Environmental Radiation Monitoring Activities at PNPS", pp 7, PNPS - Real Time Monitors http://www.mass.gov/eohhs/docs/dph/environmental/radiationcontrol/monitoring/radiation-monitoring-activities-pnps.pdf

Figure 2 identifies the coverage zones based on the location and capability of the existing monitoring stations. The horseshoe analogy and the “blind spot” should be obvious and is of significant proportions but appears to be located predominantly over open water.

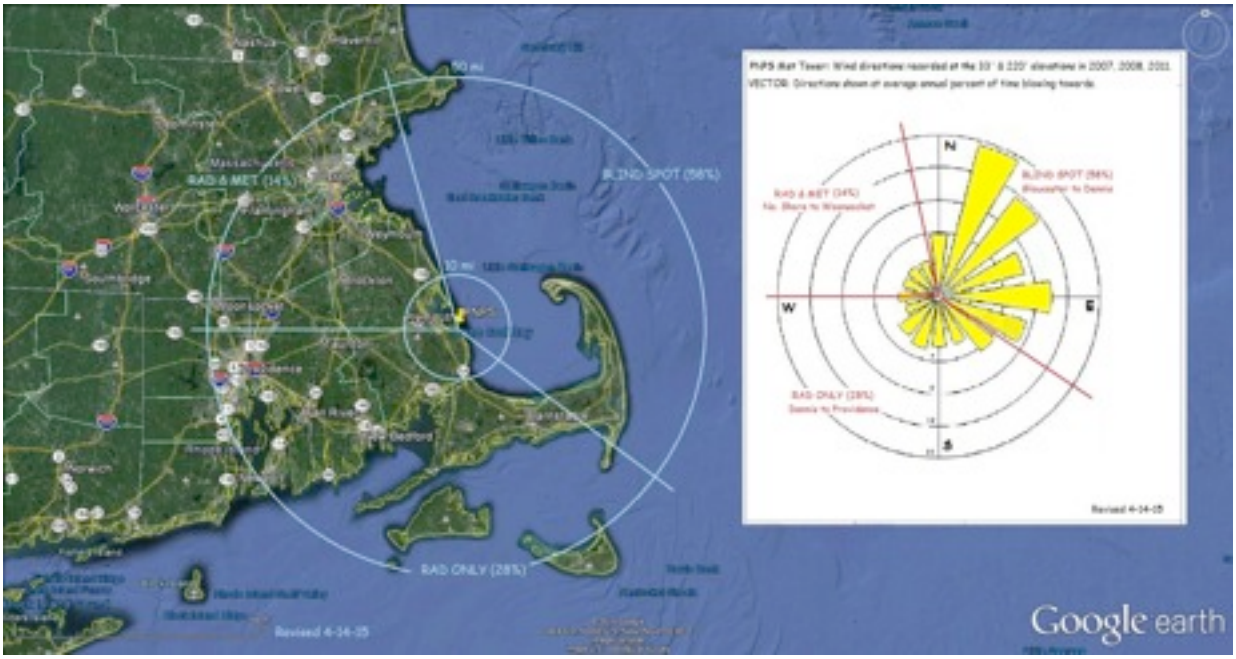

Figure 3 expands the geographical view revealing the blind spot to be more than of little consequence. For simplicity assume the wind blows in a straight direct, there’s an area from Gloucester to Dennis, MA that lies within the arc of a blind spot of the current radiological monitoring stations sampling ability. Figure 3 includes a wind rose diagram showing the

directional frequency that the wind blows at PNPS and within the arc of this blind spot which is 58% of the time on a yearly basis.[2]

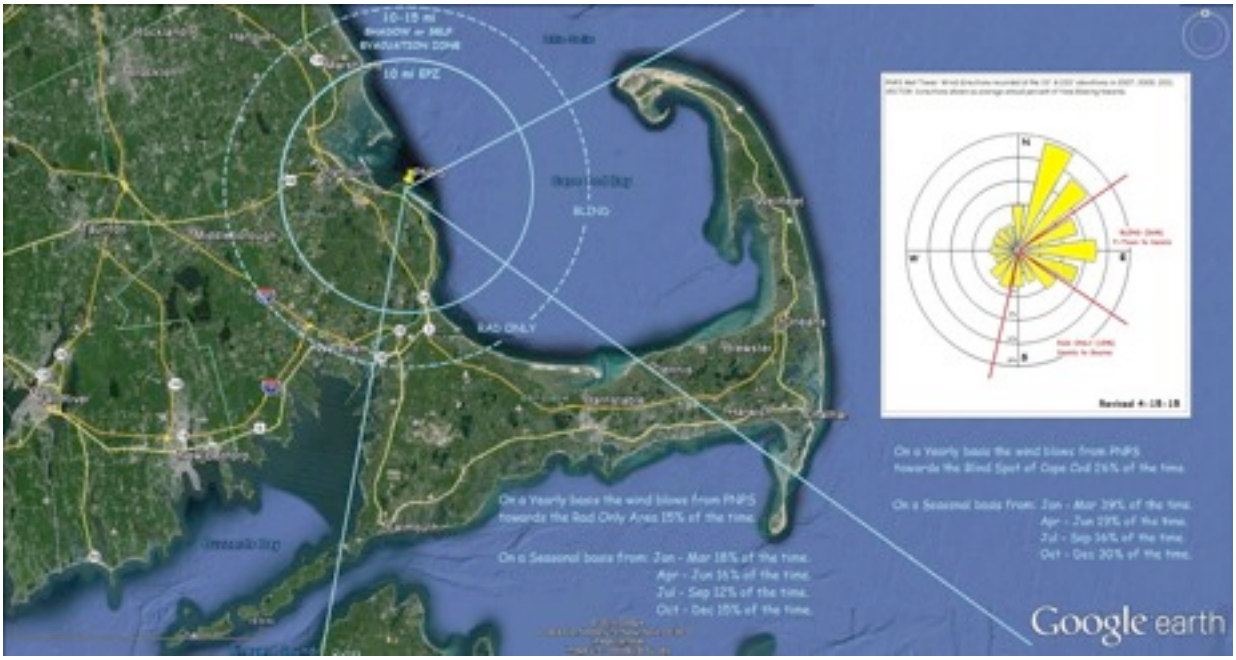

Figure 4 depicts the PNPS Radiological Monitoring Coverage Zones relative to Cape Cod and the yearly and seasonal breakdown showing the amount of time the wind blows towards Cape within two different Coverage Zones. In terms of vulnerability the worst case scenario exists from January to March when the wind blows 39% of the time towards the blind spot that arcs from Dennis to Provincetown.

[2] This data was obtained from Entergy's "Annual Radioactive Effluent Release Reports" to the NRC for 2007. 2008, 2011 http://pbadupws.nrc.gov/docs/ML1213/ML12136A555.pdf. At the time of this wind rose analysis these three years were the only years with complete meteorological data from PNPS. PNPS meteorological equipment is routinely not operational for significant periods of time. This recurrent situation also supports installation of monitoring stations on the Cape and Islands.

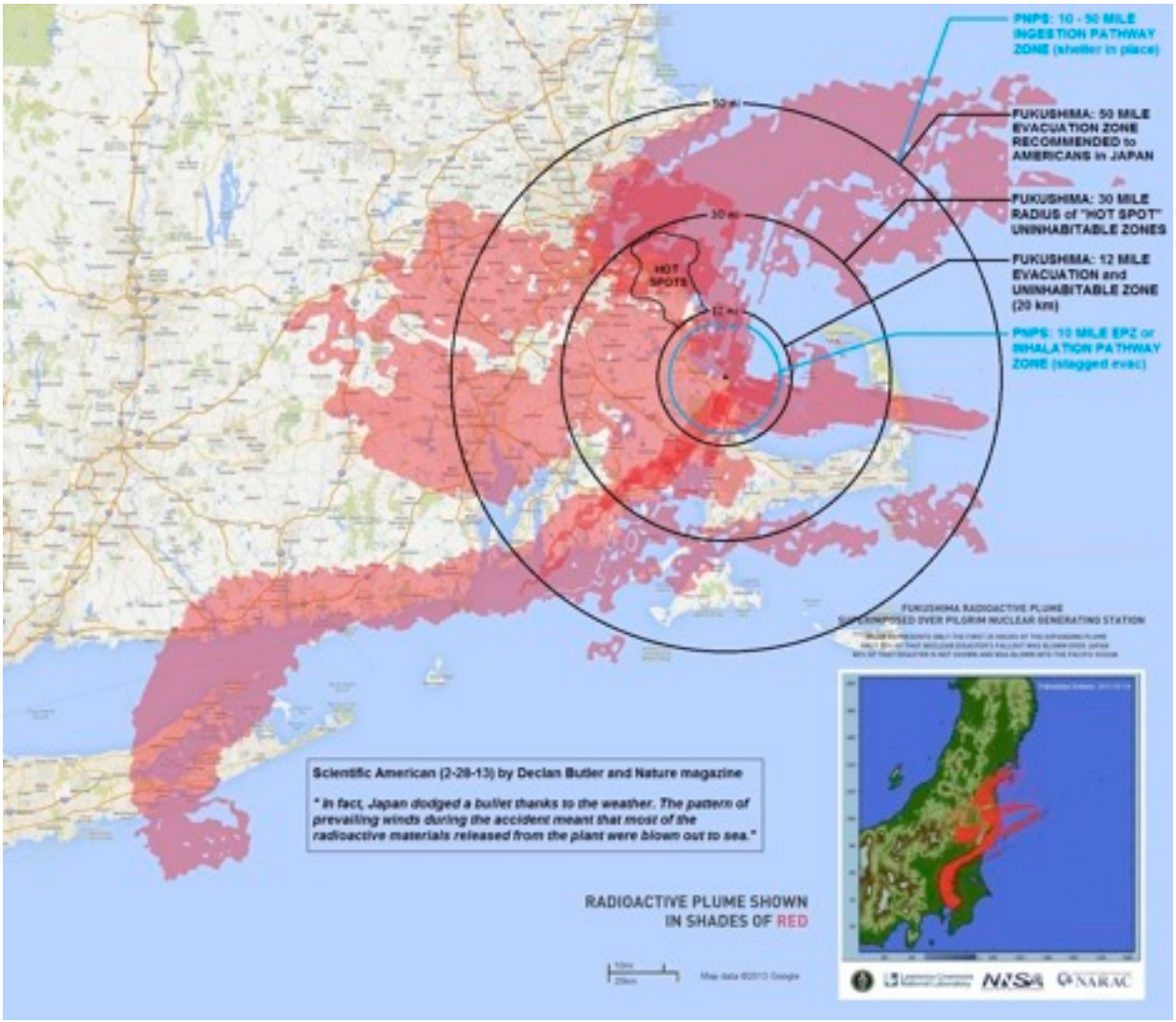

Figure 5 overlays the Fukushima plume and uninhabitable areas over the PNPS landscape. It is crystal clear, dependent on wind direction, Cape Cod residents and visitors are at risk of exposure during a serious radioactive release at PNPS.

Conclusions

A significant blind spot exists in the radiological monitoring grid at PNPS. A precedent was set when the Town of Duxbury's and the Massachusetts Department of Public Health added a combined "real-time" meteorological and radiological monitoring station in Duxbury using this same blind spot analysis.

The Cape Cod towns from Provincetown to Dennis are in this blind spot. The wind blows towards these Cape Towns 26% of the time and merits continuous real-time monitoring stations (Figure 4). To date it is unknown when and how much radiation has already blown into the arc of the larger blind spot, over Cape towns and into Cape Cod Bay during routine releases by PNPS.

Combined meteorological and radiological monitoring stations should be positioned appropriately throughout Cape Cod and the Islands to assist local Emergency Management in making informed decisions (i.e. evacuation or sheltering in place then relocation) during a PNPS emergency as well as monitor any consequences of routine releases during electricity generation and/or spent nuclear fuel storage operations.

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