

Massachusetts Department of Public Health  
Bureau of Environmental Health  
Radiation Control Program

**Environmental Radiation Monitoring at  
Pilgrim Nuclear Power Station (PNPS)**

2015

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**I. MDPH and Nuclear Power Facilities**

- Conduct environmental radiation monitoring outside the fence line (NRC maintains jurisdiction inside)
- Collect fees from facilities that generate LLRW (345 CMR 3.03(2)) (NRC maintains oversight of storage and disposal)
- Provide technical support on ongoing tritium in groundwater investigation (non-regulatory role)

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**II. PNPS Real-Time Monitoring System  
– Updates and Enhancements**

- The MDPH real-time monitoring system currently has 14 monitors
- Three monitors were relocated in 2013
  - Gurnet Point
  - Plymouth Waterfront
  - Old Colony Place
- All three have co-located wind speed and direction measuring capacity
- As with all monitors, data is reported to a central computer remotely accessible and checked daily by MDPH staff
- Monitors are calibrated annually according to Envinet specifications to ensure data quality



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## PNPS Real-Time Monitoring System – Updates and Enhancements

### ■ Duxbury Monitor

- Funding provided by Town of Duxbury
- Memorandum of Agreement signed November 22, 2013 (MDPH maintains ownership)
- Radiation Monitor received from manufacturer March 2014
- MDPH worked with Duxbury and Utility companies to secure pole access at the Duxbury Harbormaster site
- Duxbury monitor to be integrated into Real-Time monitoring system Spring 2014

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## PNPS Real-Time Monitoring System – Updates and Enhancements



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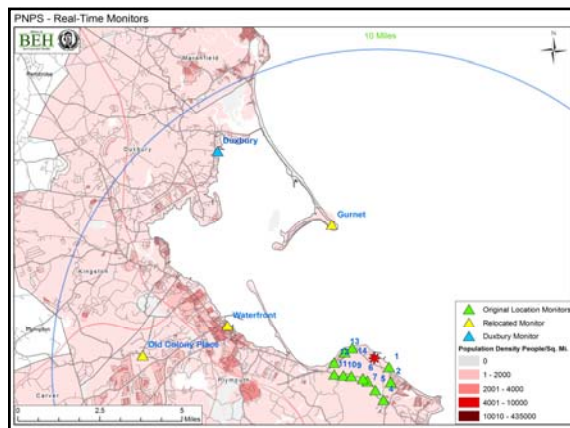
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## PNPS Real-Time Monitoring System – Updates and Enhancements

- Real-time radiation monitor system has been enhanced with state-of-the-art anemometers (wind speed and direction sensors) that are solar powered and transmit data wirelessly to a central computer
- MDPH consulted with experts to ensure anemometers were placed at optimal locations designed to take the sea breeze effects into account:
  - Plymouth Waterfront
  - Gurnet Point
  - Old Colony Place
  - Duxbury (Spring 2014)
- Continuous wind speed and direction data are being logged at 1 minute, 10 minute, and hourly intervals and transmitted to a central location remotely accessible by MDPH staff like the radiation data
- These enhancements provide a robust system of watchfulness

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## PNPS Real-Time Monitoring System – Updates and Enhancements

- Real-Time radiation monitor and anemometer at Gurnet Point:



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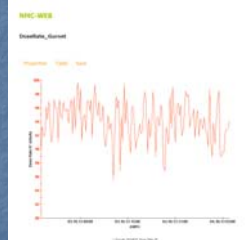
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## PNPS Real-Time Monitoring System – Updates and Enhancements

Gurnet Radiation Monitor Software Output



Gurnet Anemometer Software Output



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## PNPS Real-Time Monitoring System – Updates and Enhancements

- Anemometers (wind speed and direction sensors) are calibrated upon installation by MDPH contractor according to industry standards
- Calibrations will occur on a semi-annual basis
- Data are visually verified by MDPH staff from a desktop computer on a regular basis to ensure data are being reported to the central computer
- MDPH will validate and verify the meteorological data being collected according to EPA's Quality Assurance standards
- After one year of data collection and quality assurance, summaries of wind speed and direction data (e.g., wind roses) and accuracy statistics will be available

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## PNPS Real-Time Monitoring System – Updates and Enhancements

- Future use of data under discussion:
  - Simultaneously collected meteorological data and radiation data can be displayed and analyzed together
  - Environmental monitoring reports will be supplemented with meteorological data collected
  - MDPH is in discussions with MEMA on use of validated meteorological data to support site specific modeling efforts

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## V. Summary

- MDPH will continue to conduct environmental monitoring consistent with statutory roles
- Enhanced monitoring capacity associated with relocated/new monitors, wind speed and direction sensors; enhancements allow for exploring future data uses

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## QUESTIONS?

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