RADNET
Tracking Environmental Radiation Nationwide

RadNet Air Monitoring Program

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Overview

- The ***RadNet*** air monitoring

- Monitor placement and use
- ***RadNet*** Website

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Overview

- Originally created to monitor environmental radiation from above ground testing – Environmental Radiation Ambient Monitoring System (ERAMS)
- Modified and updated after 9/11

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The RadNet Program

- RadNet is a nationwide environmental radiation
  - track national / regional ambient radiation levels
  - identify the degree and extent of contamination in the event of an emergency

- RadNet
  - Supports EPA's role in incident assessment
  - Focuses on monitoring potential impacts to population and public health

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The RadNet Program

- RadNet provides data quickly in the event of a

Decision makers, dispersion modelers, nuclear/radiation health experts

- RadNet is not intended to
  - Monitor nuclear facilities
  - Provide an early warning system for nuclear accidents
  - Provide a means to monitor in the immediate locality of the incident – this is addressed by other assets

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The RadNet Program

EPA's radiation programs are involved in a

to prepare us to assist others before, during and after emergencies.

- EPA's upgraded air monitoring network, RadNet, with its new near real-time capability serves as an additional response asset in all phases on an incident.

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The RadNet Program

- RadNet consists of
  - 124 ***Fixed Air Monitors*** to provide national coverage and data during

Deployable Air Monitors

to improve system coverage around an incident

- The RadNet program includes
  - Near real-time gamma spectrometry
  - Telemetry to send data automatically
  - Improved field screening instruments for operators to quickly monitor gross alpha and beta radiation
  - Increased number of monitors to improve coverage

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The RadNet Program

Not JUST air monitors

quarterly samples of:

- Milk
- Precipitation
- Drinking Water

We can increase frequency of collection during emergencies.

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The RadNet Program

- **Fixed Air Monitors**

EPA has placed new radiation air monitors in the largest population centers across the United States.

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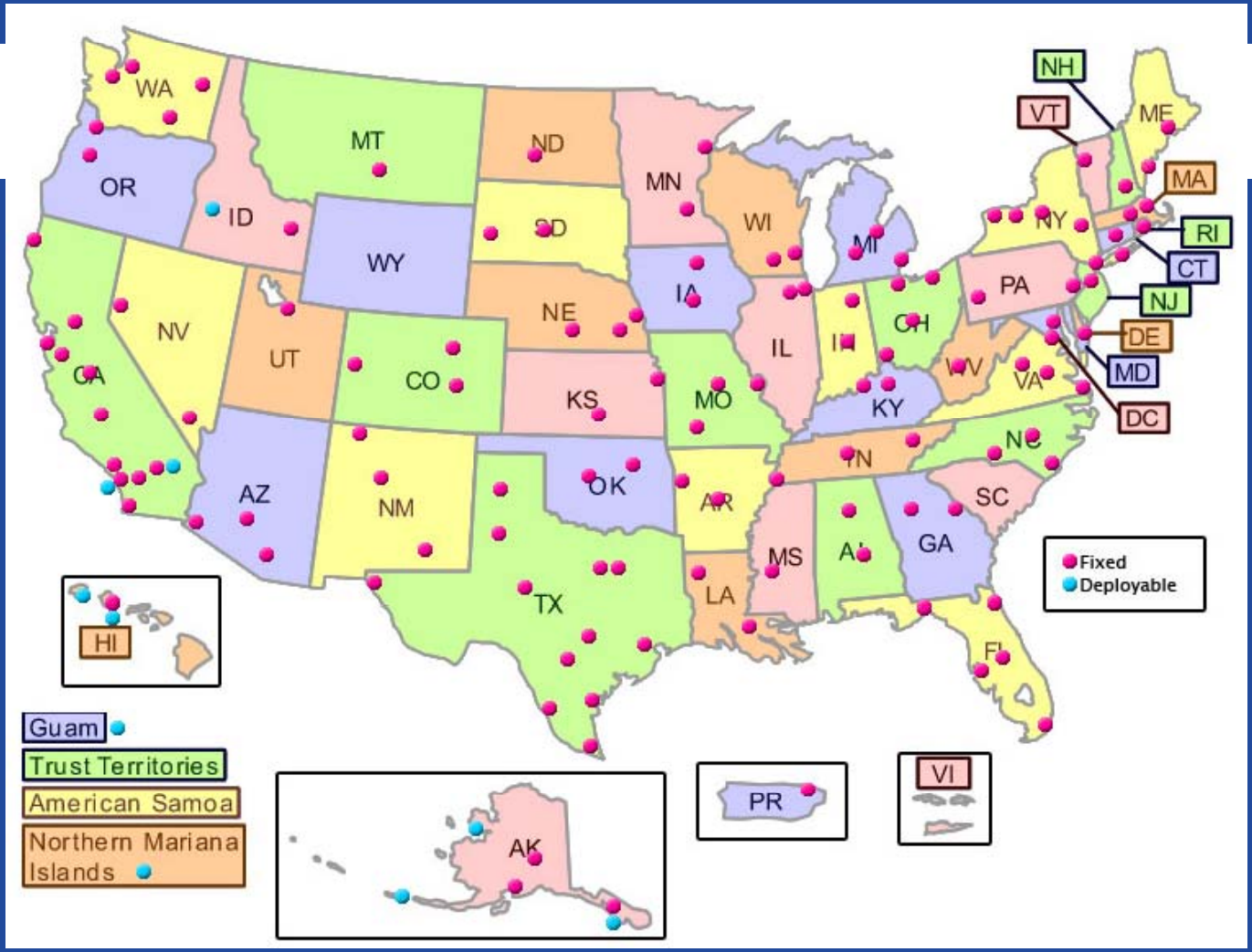
The RadNet Program

Fixed Air Monitor and Deployables



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The RadNet Program

- **Fixed Air Monitors**

gamma beta

detector, allowing for continuous monitoring of gamma and beta radiation emanating from particles collected on the air filter.

In addition, the air filters are sent to the EPA's lab in Montgomery, AL (NAREL) for more sensitive analysis and further identification of radionuclides.

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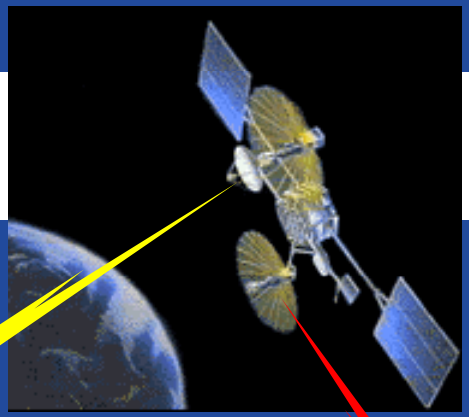
The RadNet Program

- **Fixed Air Monitors**



data directly to the NAREL facility automatically- a feature shared with RadNet's deployable air monitors.

telephone modem, and internet communications.

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The RadNet Program

- **Deployable Air Monitors**

deployable air monitor

gamma radiation levels in near real-time, and also collects airborne radioactivity samples for laboratory analysis.

Forty deployable air monitors are maintained, ready to deploy, at the Montgomery, Alabama and Las Vegas, Nevada laboratories. They are designed to be set up around the scene of a radiological incident or the location of an imminent threat.

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Summary

- EPA's RadNet radiation monitoring system
  - Identifies the degree and extent of contamination in the event of an emergency
- The RadNet Program
  - Supports EPA's role in incident assessment
  - Focuses on monitoring potential impacts to population and public health

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The RadNet Website

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- RadNet website will serve as one mechanism to provide data quickly in the

  – Decision makers, dispersion modelers, nuclear/radiation health experts

  – The public

Japanese Nuclear Emergency: EPA's Radiation Monitoring

April 10 Statement

As a result of the incident with the Fukushima nuclear plant in Japan, several EPA air monitors have detected very low levels of radioactive material in the United States consistent with estimated releases from the damaged nuclear reactors. EPA has stepped up monitoring of precipitation, milk, and drinking water in response to the Fukushima events. These detections in air, precipitation, and milk were expected, and the levels detected have been far below levels of public-health concern.

Today, EPA also released new data for milk, drinking water, precipitation and laboratory air analyses. Results have detected low levels of radioactive material consistent with estimated releases from the damaged nuclear reactors. These detections were expected and the levels detected are far below levels of public-

RadNet Monitoring Data

- Daily Data Summary
- EPA's RadNet Data
  - Real-Time Monitoring Data
  - Laboratory Data
- Frequently Asked Questions
  - Preguntas más frecuentes

Looking for the regular EPA Radiation home page?

About Radiation

- Understanding Radiation
- Sources of Radiation Exposure
- Radiation Doses in Perspective

Overview of EPA's Radiation Monitoring Experience

- Monitoring Radiological Incidents
- EPA's Radiation Response History

Common Power Plant Radionuclides

- Cesium
- Iodine
- Strontium

Contact Us

E-Mail Us At:

- For Members of the Public: radiation.questions@epa.gov
- For Press: press@epa.gov

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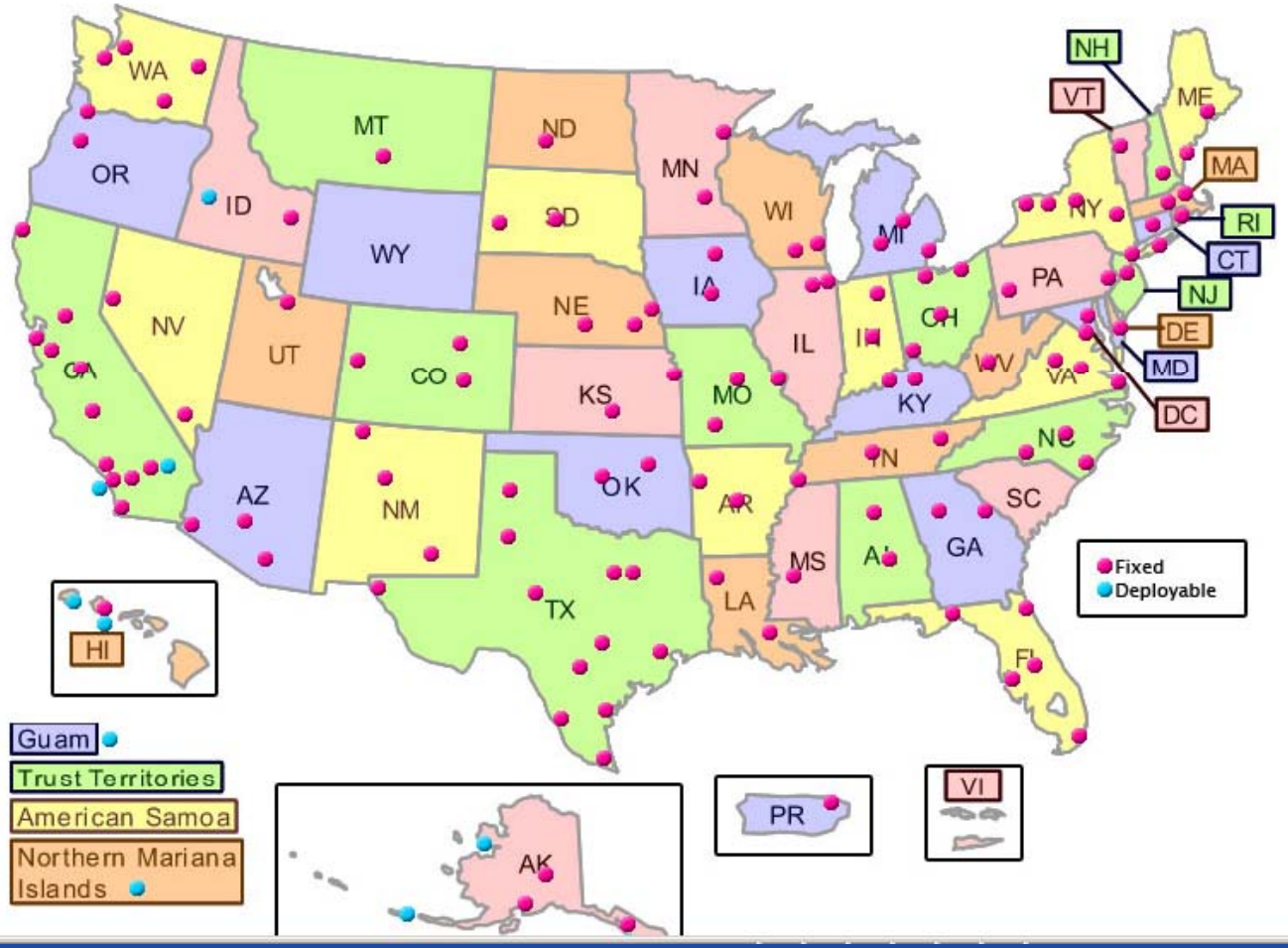
EPA's RadNet Monitoring Data

EPA's nationwide radiation monitoring system, RadNet, continuously monitors the nation's air and regularly monitors drinking water, milk and precipitation for environmental radiation. The RadNet system consists of both fixed and deployable air monitors, and we also send milk, drinking water and precipitation samples from these and other locations for laboratory analysis. Click a dot to see both near-real-time air data and lab data for that location. We also provide a Daily Data Summary and more information about EPA's Air Monitoring Data and Laboratory Data. You can also view laboratory results and monitors by state below.



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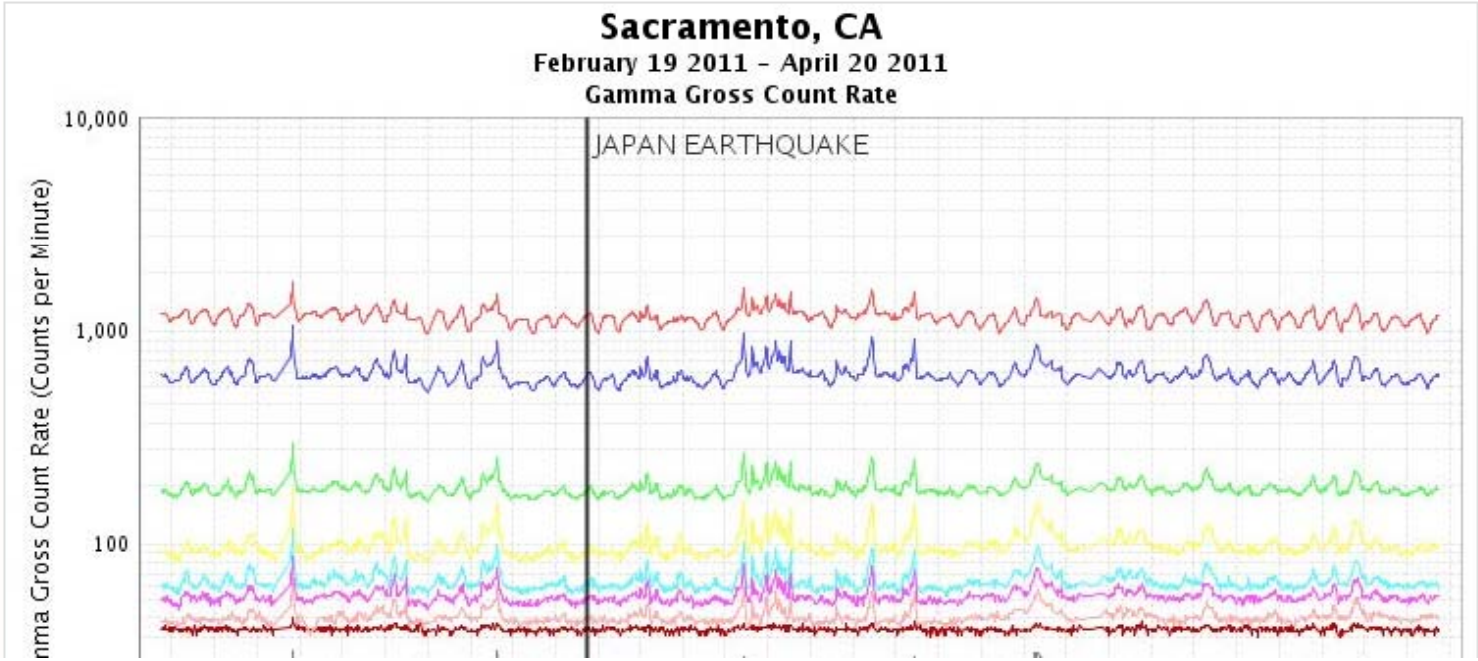
RadNet Data for Sacramento, CA

Two types of results from the RadNet near-real-time air monitor are presented below: gamma gross count rate and beta gross count rate. Gamma monitoring results are presented first, because they are a more useful indicator of the radionuclides associated with a nuclear power incident. Beta monitoring results indicate when there is a substantial spike in beta activity at this location.

On this page:

Gross Gamma Air Monitoring Data

To-date, levels recorded at this monitor have been thousands of times below any conservative level of concern.



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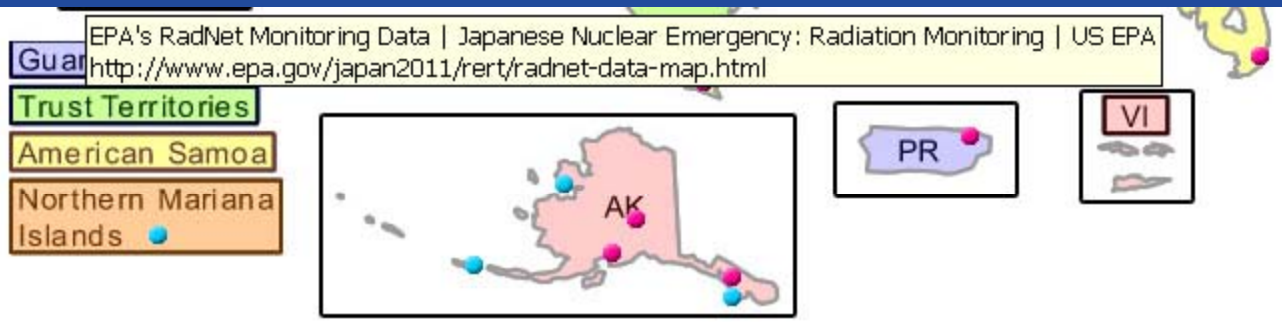

Laboratory Data

As of April 5, 2011, EPA will present its laboratory data in an interactive format and move away from posting sampling results in pdf's. This is part of our continued effort to make the data more useful to the public. The pdf's published in the past are still available below, but are also incorporated into the current interactive format.

For the latest interactive RadNet sampling results:

- Air Filter and Cartridge
- Precipitation
- Milk
- Drinking Water

Air Filter and Cartridge Results

- Table of previous Air Sample Results (PDF) (14pp,1017KB) [about pdf format]
  Last updated on April 6, 2011

Precipitation Results

- Table of previous Precipitation Sample Results (PDF) (2pp, 167KB) [about pdf format]
  Last updated on April 4, 2011

RadNet Laboratory Data

In the tables below we provide sampling results for:

- Air Filter and Air Cartridge
- Precipitation
- Milk
- Drinking Water
- All Results

The links above provide all data. You can also view the original sampling data reports published through April 6, 2011.

Historical data from EPA's RadNet system can be found on our EnviroFacts website.

Air Filter and Air Cartridge

During detailed filter analyses from several RadNet air monitor locations across the nation, the U.S. Environmental Protection Agency (EPA) identified trace amounts of radioactive isotopes consistent with the Japanese nuclear incident. These types of findings are to be expected in the coming days and are far below levels of public health concern.

About air filter and air cartridge laboratory data

EPA tests air, milk, precipitation and drinking water samples to determine radiation levels across the United States. In the data reports below, "ND" or "Non-detect" indicates that the radionuclide in question was not detected in EPA's analysis. If a cell is blank, further analysis is pending.

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Air Filter & Cartridge RadNet Laboratory Analysis

	State	Location	Date Posted	Date Collected	Sample Type	Unit	Ba-140	Co-60	Cs
1	AK	Dutch Harbor	04/10/2011	03/31/2011	Air Cartridge	pCi/m3	*Non-detect*	*Non-detect*	
2	AK	Dutch Harbor	04/10/2011	04/01/2011	Air Cartridge	pCi/m3	*Non-detect*	*Non-detect*	
3	AK	Dutch Harbor	04/10/2011	04/02/2011	Air Cartridge	pCi/m3	*Non-detect*	*Non-detect*	

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Milk

The milk sampling results are far below the Food and Drug Administration's Derived Intervention Level for iodine-131 in milk. These types of findings are to be expected in the coming days and are far below levels of public health concern, including for infants and children. Iodine-131 has a very short half-life of approximately eight days, and the level detected in milk and milk products is therefore expected to drop relatively quickly.

About milk laboratory data

EPA tests air, milk, precipitation and drinking water samples to determine radiation levels across the United States. In the data reports below, "ND" or "Non-detect" indicates that the radionuclide in question was not detected in EPA's analysis. If a cell is blank, further analysis is pending.

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Milk RadNet Laboratory Analysis

	State	Location	Date Posted	Date Collected	Sample Type	Unit	Ba-140	Co-60	Cs
1	AR	Little Rock	04/20/2011	04/13/2011	Milk	pCi/l	Non-detect	Non-detect	
2	AR	Little Rock	04/09/2011	03/30/2011	Milk	pCi/l	Non-detect	Non-detect	
3	AZ	Phoenix	04/09/2011	03/29/2011	Milk	pCi/l	Non-detect	Non-detect	
4	AZ	Phoenix	04/06/2011	03/28/2011	Milk	pCi/l	Non-detect	Non-detect	
5	CA	Los Angeles	04/20/2011	04/13/2011	Milk	pCi/l	Non-detect	Non-detect	
6	CA	Los Angeles	04/06/2011	03/28/2011	Milk	pCi/l	Non-detect	Non-detect	
7	CA	Oakland	04/20/2011	04/13/2011	Milk	pCi/l	Non-detect	Non-detect	

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Drinking Water

Drinking water samples collected by EPA since the Japanese nuclear incident have shown radioactive material at levels well below public-health concern. Similar findings are to be expected in the coming weeks.

About drinking water laboratory data

EPA tests air, milk, precipitation and drinking water samples to determine radiation levels across the United States. In the data reports below, "ND" or "Non-detect" indicates that the radionuclide in question was not detected in EPA's analysis. If a cell is blank, further analysis is pending.

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Drinking Water RadNet Laboratory Analysis

	State	Location	Date Posted	Date Collected	Sample Type	Unit	Ba-140	Co-60	Cs
1	AL	Dothan	04/10/2011	04/04/2011	Drinking Water	pCi/l			
2	AL	Montgomery	04/21/2011	04/15/2011	Drinking Water	pCi/l			
3	AL	Muscle Shoals	04/08/2011	03/31/2011	Drinking Water	pCi/l			
4	AL	Scottsboro	04/09/2011	03/30/2011	Drinking Water	pCi/l			
5	AR	Little Rock	04/08/2011	03/29/2011	Drinking Water	pCi/l			
6	CA	Los Angeles	04/10/2011	04/04/2011	Drinking Water	pCi/l			
7	CA	Los Angeles	04/21/2011	04/12/2011	Drinking Water	pCi/l			

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Precipitation

Elevated levels of radioactive material in rainwater have been expected as a result of the Japanese nuclear incident. Since radiation is known to travel in the atmosphere – precipitation data collected in several states show elevated levels of radiation in recent precipitation events. In all cases these are levels above the normal background levels historically reported in these areas. While short-term elevations such as these do not raise public health concerns – and the levels seen in rainwater are expected to be relatively short in duration – the U.S. EPA has taken steps to increase the level of monitoring of precipitation, drinking water, and other potential exposure routes to continue to verify that.

About precipitation laboratory data

EPA tests air, milk, precipitation and drinking water samples to determine radiation levels across the United States. In the data reports below, "ND" or "Non-detect" indicates that the radionuclide in question was not detected in EPA's analysis. If a cell is blank, further analysis is pending.

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Precipitation RadNet Laboratory Analysis

	State	Location	Date Posted	Date Collected	Sample Type	Unit	Ba-140	Co-60	Cs
1	AL	Montgomery	04/08/2011	03/30/2011	Precipitation	pCi/l	Non-detect	Non-detect	N
2	AL	Montgomery	04/04/2011	03/24/2011	Precipitation	pCi/l	Non-detect	Non-detect	N
3	AL	Montgomery	04/04/2011	03/21/2011	Precipitation	pCi/l	Non-detect	Non-detect	N
4	AL	Montgomery	04/13/2011	04/06/2011	Precipitation	pCi/l	Non-detect	Non-detect	N
5	AR	Little Rock	04/15/2011	04/05/2011	Precipitation	pCi/l	Non-detect	Non-detect	N
6	AR	Little Rock	04/13/2011	03/28/2011	Precipitation	pCi/l	Non-detect	Non-detect	N
7	CA	Richmond	04/10/2011	03/28/2011	Precipitation	pCi/l	Non-detect	Non-detect	N

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Radnet Provides:

- Accurate, near real-time data
- Nationwide and Pacific Islands
- Publicly accessible data

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Questions?

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Monitor Placement and Use

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- **Site Criteria for fixed monitors**

1. Is the elevation less than 50 meters above grade (ground

120 VAC

3. Can **access to the location be controlled** for security and to prevent vandalism?

4. Is the **minimum space needed** for the monitor, as shown on the installation drawings, available at the location?

5. Is the location far enough (>10 meters) from **public access** to minimize the potential for purposeful vandalism?

6. Can the location be **accessed** safely during all anticipated weather conditions?

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- **Site Criteria for fixed monitors**

7. Is CDMA (e.g., Verizon Wireless or Alltel) **cellular telephone service available**?

area network available?

9. Is there a clear line of sight to the southerly compass quadrant (for **satellite communication**)?

10. Can the location be kept clear of excessive dust or other materials that may inhibit **air flow**?

11. Is there **unrestricted airflow** in an arc of at least 270 degrees around the location?

12. Is the location at least 5 meters away from **building ventilation** exhausts and intakes?

13. Is the location at least **2 meters from walls** or other structures that might influence air flow?

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- **Site Criteria for fixed monitors**

14. Is the **location away from obstacles** such as buildings, so that the distance between obstacles and the monitor will be at least

nearby trees,

any tree's drip line?

16. Is the location at least 2 meters away from any **other air sampler** intake?

17. If the location is at grade level, is it in a paved area?

18. Is the location at least 50 meters from the nearest major street or highway?

19. If the location is a rooftop, are there **lightning rods** on the roof?

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- **Deployable Air Monitor Use**

deployable monitors

be useful:

1. A radiation release creating one or more sites, around which the Deployables could be set up to monitor the perimeter

2. A radiation release from a foreign source, resulting in radioactivity impacting very large areas of the U.S.

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- **Deployable Air Monitor Use**

Two scenarios may illustrate possible siting strategies:

- Scenario #1 – Locate deployable monitors around an incident or an immediate threat

- Scenario #2 – Locate deployable monitors to supplement fixed monitor coverage

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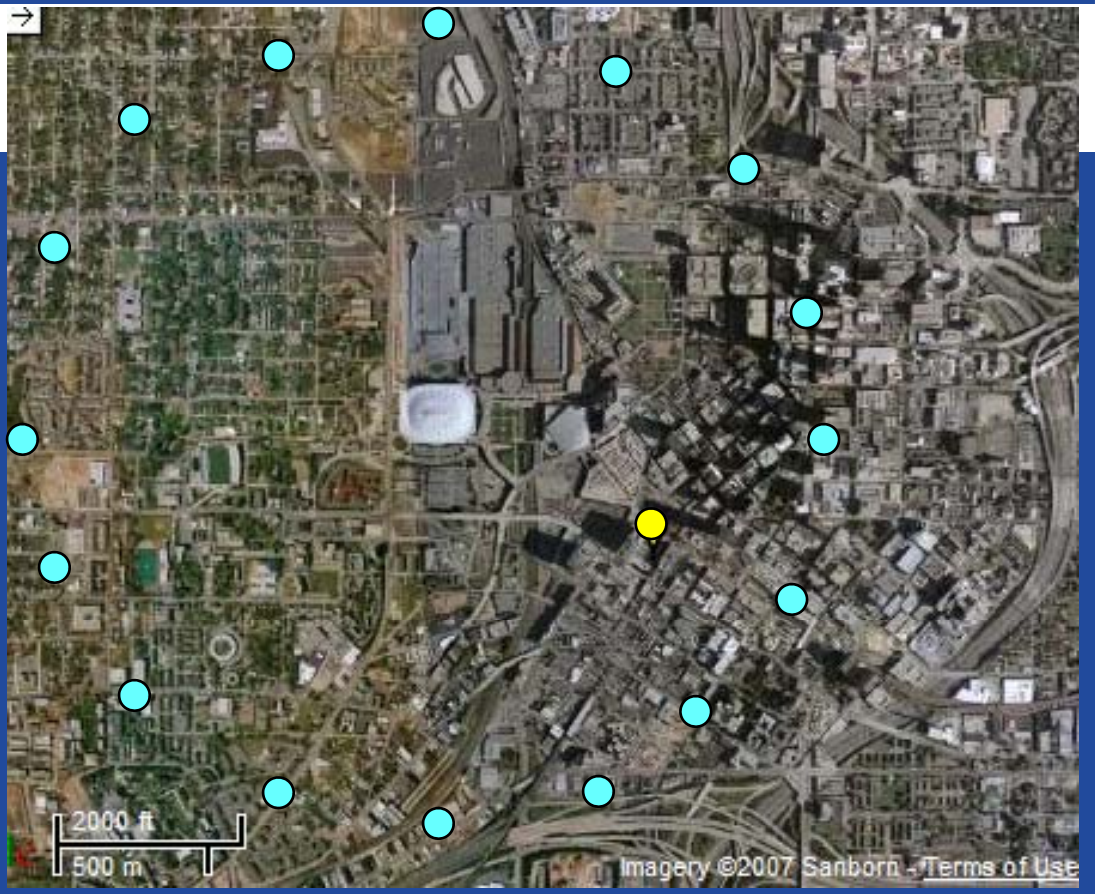
Placement criteria

- **Deployable Air Monitor Use**

Siting Scenario #1

Locate deployable monitors around an incident or an immediate threat



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Siting Scenario #2

Locate **deployables** to **fixed** monitoring the perimeter of a radiation incident site and adding greatly to the amount of data collected by RadNet for the incident.

This illustration shows the general concept of placing the deployables around an incident site, primarily to ensure that areas presumed to be safe for the public *continue* to be safe.