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DISASTER IN JAPAN INCIDENT RESPONSE

March 2011 to May 2011

EVENT AFTER ACTION REPORT / IMPROVEMENT PLAN

July 29, 2011

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EXECUTIVE SUMMARY

This After Action Report/Improvement Plan covers the public health response in Washington to the disaster in Japan that began with the earthquake off of Japan's northeastern coast on March 11, 2011. The 9.0 earthquake caused widespread devastation throughout Japan, and the resulting tsunami crippled the nation even further. The Fukushima Nuclear Power Plant, located in Fukushima Prefecture of Japan, was severely damaged by the earthquake and tsunami, creating a radiological disaster. The tsunami from the earthquake also made landfall across the Pacific Ocean including coastal areas of Washington state. The radiological release at the Fukushima Nuclear Power Plant was due to the loss of cooling capability in the reactor cores, causing a partial melt down of nuclear fuel, a buildup of hydrogen gas in containment that had to be vented, and resulting explosions that caused radioactivity from damaged fuel to enter the atmosphere and be carried by the jet stream to the Pacific Northwest. For the state of Washington, responding to potential public health and medical impacts of both the tsunami and radiation issues from the earthquake in Japan culminated in many lessons learned — strengths as well as areas in need of improvement. Those lessons learned are captured in this after action report.

The Washington State Department of Health worked hard to make sure that all emergency management, public health, and medical partners were involved in the response. From local public health agencies to governmental partners and tribal partners, the agency worked hard to provide information on radiation and the health messages to share with the public. The response strengthened our relationships with our partners and provided our Office of Radiation Protection staff an opportunity to educate a broader audience in radiological preparedness.

The objectives for the response were:

- Manage the event using the incident command system.
- Provide the residents of Washington and response partners with timely and accurate information about the response to the disaster in Japan and potential impact in our state.
- Provide leadership to the state on the possible radiological impacts of the incident.
- Provide education and open communication to partners, media, and the public.

Major Strengths

The major strengths identified during this incident were:

- Use of the incident command system (ICS) to manage the response effectively.
- Development and distribution of consistent public messaging to our partners and the public.
- Use of the agency website with specific information about the incident that consolidated data and education materials onto one site, so it was easy to find and easy to understand.
- Radiological technical staff providing expertise and education to guide the incident response.
- Collaboration between Department of Health divisions.

General Areas for Improvement

During the response to the tsunami and radiological concerns there were several areas identified for improvement. The primary areas for improvement identified were:

- Lack of planning for this type of incident. There was no plan in place for an incident that happened around 5,000 miles away in Japan having a possible impact in Washington.
- Lack of information being shared by federal partners hindered the state's ability to respond timely and effectively.
- The incident command team had difficulty at times identifying and sharing information with all the appropriate staff in a timely and effective manner.
- Staff responding to the incident were overburdened without monitoring them for stress and exhaustion.
- Timely sharing of information among public health professionals with our partners.
- Identifying roles and responsibilities regarding authority to determine what should be tested and prioritizing those tests.
- Lack of radiological benchmark standards to be used for test result comparisons. Too many of the standards that are currently used are for long-term exposure and are not applicable to this type of event.

Overall the response to the disaster in Japan by state health and its partners went very well. The lessons learned from both the response to the tsunami and radiological contamination are great lessons to build on. Some of the lessons learned helped to build even greater confidence in the agency's ability to respond effectively, and others will help the agency be better prepared for a future incident. The after action items in this report will be used to improve plans and procedures, better train staff, and build a more resilient agency. The response to the disaster in Japan has already strengthened the agency's ability to respond to public health emergencies, and the continued implementation of the lessons learned will only strengthen that ability.

SECTION 1: INCIDENT OVERVIEW

Event Details

Event Name

Disaster in Japan Incident Response, March 2011 to May 2011

Type of Event

Tsunami / Radiological Contamination

Event Report Start Date

Tsunami- March 10, 2011/ Radiological Contamination- March 13, 2011

Event End Date

Response activities turned over to normal business operations on May 3, 2011. Some activities are still ongoing.

Duration

March 10, 2011 to May 3, 2011

Location

Statewide response to the threat of a tsunami from the 9.0 earthquake that struck off the coast of Northeastern Japan, on March 11, 2011.

Statewide response to radiological contamination from the Fukushima Nuclear Facility disaster caused by damage to the facility by the earthquake and tsunami.

Event Response Team

Department of Health implemented the Incident Command System with involvement from:

- Office of the Secretary
  - Public Health Emergency Preparedness and Response Program
  - Office of Public Health Systems Development
  - Office of Communications

- Division of Environmental Health
  - Office of Drinking Water
  - Office of Radiation Protection
  - Office of Shellfish and Water Protection
  - Office of Environmental Health, Safety and Toxicology

- Division of Epidemiology, Health Statistics, and Public Health Laboratories
  - Public Health Laboratories

- Health Systems Quality Assurance Division
  - Office of Health Professions and Facilities

Participating Organizations

- Washington State Department of Health
- Local health jurisdictions (LHJ)
- Tribal Health jurisdictions
- Washington State Emergency Management Division (EMD), including the Military Department
- County Departments of Emergency Management
- Washington State Department of Ecology
- Washington State Patrol (WSP)
- Washington State Department of Social and Health Services (DSHS)
- Centers for Disease Control and Prevention (CDC)
- Health and Human Services (HHS)
- Environmental Protection Agency (EPA)
- Association of State and Territorial Health Officials (ASTHO)
- National Association of County and City Health Officials (NACCHO)
- U.S. Food and Drug Administration (FDA)

Number of Department of Health Participants

More than 70 Department of Health employees were involved in responding to the event on a regular basis. Some other staff also assisted with the response in different aspects. A list of names of those who had a major role in the response is below.

Office of the Secretary
Mary Selecky
Greg Grunenfelder
Maria Gardipee
Maxine Hayes
Marie Flake

Communications
Allison Cook
Cindy Marjamaa
Donn Moyer
Gordon MacCracken
Greg Nordlund
Larry Champine
Laura Blaske
Mardy Beck
Tim Church
Bob Clark

PHEPR
John Erickson
Brad Halstead
Dave Owens
Ken Back
Dan Banks
Stan Carlton
Carrie McGee
Shawn Roberts
Gina Yarborough
Chris Williams

EH
Maryanne Guichard
Leo Wainhouse
Al Conklin
Lynn Albin
Billie Harvey
Mark Henry
Bob Ruben
Brandin Ketter
Mike Brennan
Carolyn Cox
Mike Means
Craig Lawrence
Mike Priddy
David Gifford
Phyllis Barney
Debra McBaugh
Quinna Renner
Denise Clifford
Scott McDonald
Dick Cowley
Terry Frazee
Earl Fordham
Sharon Grundhoffer
Scott Van Verst
Ginny Stern
Joe Graham
John Martell
Kelee Attebery
Kristin Felix
Tom Rogers
Eileen Kramer
Vicky Dix
Ted Dale
Elysa Jones
Ernest McCormick
Fred Adams
Judy Thomas

EHSPHL
Jennifer Tebaldi
Romesh Gautom
Steve Officer
Anthony Tellez-Marfin
Blain Rhodes
Bud Taylor
Cate Franklin

David Robbins
Hung Tran
John Raney
Josephine Pompey
Karen Kerr
Ken Nelson
Magda Skrzypkowski
Paul Marbourg
Rich Hinderer

HSQA
Karen Jensen
Tim Fuller
Susan Teil Boyer

SECTION 2: INCIDENT SUMMARY

Incident Description

The state health response to the disaster in Japan started on March 10, 2011, ending on May 3, 2011. The Washington State Department of Health learned of the earthquake and resulting tsunami through the duty officer at the Washington State Military Department, Emergency Management Division (EMD). The Department of Health duty officer was notified at 10:30 PM on March 10, 2011, of the earthquake that struck Japan. The estimated time of the tsunami hitting the coast of Washington was around 7:00 AM March 11, 2011. Several conference calls where held and we contacted our local partners who were most likely to be effected by the tsunami. We also reached out to our regional partners including Alaska, Oregon, and British Columbia. The public health and medical response to the tsunami was minimal, and no damage was reported. A few facilities were evacuated as a precaution, and evacuees were allowed to return by late afternoon of March 11, 2011.

After business hours on March 11, 2011 state health staff learned of the damage to the Fukushima Nuclear Facility. Our Public Health Emergency Preparedness and Response Program (PHEPR) and also our Office of Radiation Protection in our Division of Environmental Health, began to monitor the situation. On Saturday March 12, 2011 we began to get media calls asking about potential health risks in our state from radioactive material coming here from Japan. We quickly developed messages and a plan to respond to the potential radiological disaster in Japan. On March 15 we established incident command due to the hydrogen explosions at the facility and fear of radiological release reaching the atmosphere. On March 16 we reached out to our regional partners in the response including Region 10 Health and Human Services, Oregon, Idaho, Alaska, British Columbia, and even some of the Region 9 partners.

From March 15 until April 27 state health operated under incident command to respond to the disaster in Japan. We monitored and tested rainwater and air samples to track radiation levels. Specifically, we monitored for levels of Iodine-131, Cesium-137, and other isotopes, which are not a part of normal background radiation levels. This testing was in addition to the routine, daily testing done by the federal Environmental Protection Agency (EPA) RadNet program. The Department of Health Radiation Protection staff did not expect levels of radioactive material from Japan to reach our state in quantities that would threaten public health. We monitored these radiation levels to make sure. We found radiation in both air samples and rainwater, but well below any levels of concern. The EPA also found low levels of Iodine-131 in milk samples from Spokane. Though radiation was found in many samples across the state, there was never any level that would be a public health concern. Radiation Protection staff responded to more than 1,000 phone calls and e-mails from concerned residents. The agency did scores of news interviews and provided countless hours of advice and education to local public health, government partners, and private medical providers on radiological preparedness and concerns.

Incident Purpose and Goals

The purpose of the response to the disaster in Japan was to make sure the public's health was not

threatened through monitoring and testing for radiological contamination, and to provide our partners and Washington residents with timely and accurate information.

Incident Objectives, Capabilities, and Activities

Based on the event objectives, the event response team identified several capabilities that were used during this event:

The objectives for the response were:

- Manage the event using the incident command system.
- Provide the people of Washington with timely and accurate information on the response to the disaster in Japan.
- Provide leadership to the state on the radiological impacts of the incident.
- Provide education and open communication to partners, media, and the public.

The Target Capabilities addressed are:

I. Community Preparedness
II. Emergency Operations Coordination
III. Emergency Public Information and Warning
IV. Information Sharing
V. Public Health Laboratory Testing
VI. Public Health Surveillance and Epidemiological Investigation
VII. Responder Safety and Health

Previous exercise/responses that may have informed this response

State health staff has participated in many exercises and some real events related to tsunami and radiation.

Real Incidents
1986-Chernobyl disaster: Nuclear accident at Chernobyl Nuclear Power Plant, Ukraine (formerly USSR)

1997-Department of Energy (Hanford) Plutonium Reclamation Facility Alert: Explosion, building 236-Z

1998-Department of Energy (Hanford) Alert: Explosive materials found: Picric Acid (explosive material) discovered in 327 building

2000-Department of Energy (Hanford) wildland fire: Range fire on the Hanford reservation that required environmental sampling and monitoring

2007-Columbia Generating System (Hanford) facility fire: Fire in the Reactor Protection System Division 2 Equipment Room

2007-Department of Energy (Hanford) wildland fire: Range fire on the Hanford reservation that required environmental sampling and monitoring

Exercises/Drills

Annually:

- Columbia Generating Station (CGS) Emergency Response Organization Exercises and Drills – Quarterly (Radiological)
- Department of Energy (DOE) Exercise (Radiological)
- Waste Isolation Pilot Plant (WIPP) drill (Radiological)
- At least two Civil Support Team (CST) drills (Radiological)

Every other year:

- CGS dress rehearsal and a CGS evaluated exercise (in addition to annual exercises and drills) (Radiological)
- Areva—a fuel fabrication facility north of Richland, WA (Radiological)
- PermaFix NW—a fuel fabrication facility north of Richland, WA (Radiological)

At least once every six years:

- Emergency Worker/Assistance Centers (EW/AC) (Radiological)
  1. One drill and one exercise per EW/AC each 6 year cycle for each EW/AC
  2. Four drill/exercises per cycle current total
- Laboratory exercise (Radiological)
  1. Two drills and one evaluated exercise per cycle
  2. At least three total in six years
- MS-1 (Medical Services) hospitals (Radiological)
  1. One drill and One exercise per hospital
  2. Three hospitals currently – total of six drills/exercises per cycle
- CGS Food Control / Ingestion – at least once every six year cycle DOH does a multiple day Ingestion exercise with an associated dress rehearsal (this is part of the every other year CGS exercise program, but these are multi-day events). State health radiation staff often does an off-year ingestion drill. (Radiological)

Non-routine Drills & Exercises:

- Defense Nuclear Detection Office (DNDO) (Radiological)
- Preventative Radiological / Nuclear Detection (PRND) (Radiological)
- Mobilissa—sea-based nuclear/radiation detection capability exercise/drill (Radiological)
- Puget Sound Pilot Project (Radiological)
- Navy Nuclear Propulsion Program (about one exercise every three years, some with tabletops and dress rehearsals) (Radiological)
- Emergency Protection Agency (EPA) training drills/exercises (Radiological)
- Top Officials Exercise 4 (Portland, OR) — 2008 (Radiological)
- Top Officials Exercise 2 (Seattle, WA) — 2003 (Radiological)
- Army North drills (possibly every year or two) (Radiological)
- Police & Fire games (Radiological)

SECTION 3: INCIDENT ANALYSIS

The Analysis of Capabilities section of the report reviews the performance of the event capabilities, activities, and tasks. In this section activities are broken down into activities that went well during the response and then areas that need improvement. In this section observations are organized by capability and associated functions. Each function is followed by related observations, which include references, analysis, and recommendations.

I. Capability: Community Preparedness

I.A Function: Determine risks to the health of the jurisdiction.

I.A.1 **Observation:** Area for Improvement: Though Washington is 5,000 miles away from the damaged nuclear facility; the public in Washington had very strong concerns and opinions.

References: Radiological plans and procedures.

Analysis: Planning assumptions before this event were that it would take a close proximity event to Washington to cause such a demand to respond. Those assumptions were wrong and the demand for information on state and local health was much greater than anticipated. Even though there was no direct public health threat, there was a strong psychosocial effect.

Recommendations: Based on this event, update the planning assumptions of the plans and procedures on radiological response. The planning assumptions should include the assumption that responses may be driven by events thousands of miles away because of the psychosocial impacts and may require staff to be redirected from everyday activities to respond.

I.B Function: Build Community Partnerships to support health preparedness.

I.B.1 **Observation:** Area for Improvement: The lack of strong relationships with local environmental health (EH) directors caused difficulties for state health radiation technical staff.

Analysis: The state's radiation technical staff had to spend time educating the EH directors while trying to build relationships at the same time; a huge challenge. Since many of the relationships were not built before the event, there were trust issues that at times hindered communication.

Recommendations: The Radiation Protection staff should continue to develop training on radiation preparedness for local EH staff and leadership. The training will educate local partners

on the impacts of a radiological event while helping to foster stronger relationships and more regular interaction.

I.B.2 **Observation:** Area for Improvement: There is limited radiological technical expertise at the local level.

Analysis: The lack of radiological expertise at the local level caused several issues including the misinterpretation of technical data by some local health officers. The lack of expertise caused technical staff to spend valuable time clarifying the actual situation, which distracted them from doing other important tasks.

Recommendations: Since most local health agencies do not have the resources to develop the knowledge base on radiation, the Office of Radiation Protection should consider working with local health partners to provide professional level training. While Radiation Protection has begun this effort with some local health partners, the work should be expanded across the state. The training will educate the local health on impacts of a radiological event, help create a trusted relationship with state radiation staff, and make them an information resource for health officers.

I.C Function: Coordinate training or guidance to ensure engagement in preparedness efforts.

I.C.1 **Observation:** Strength: Washington has done a great job of training and educating people on the threat of earthquakes and tsunamis.

Analysis: The training and education allowed people to respond more effectively to the threats generated by this event and helped the evacuations on the coast due to the tsunami work well.

I.C.2 **Observation:** Area for Improvement: There is not enough staff that can be used to help respond to emergencies that have radiological knowledge. The response to this event was hindered because many staff members had little or no experience in radiological responses.

Analysis: The lack of training on the basics of radiation preparedness and exercises for staff made it difficult to find people who could fill certain roles. Though many response activities are the same for non-radiological and radiological emergencies, fear of the unknown with radiation makes many staff feel unprepared. Having more staff trained in the basics of radiation will help to reduce fear and anxiety. Giving them opportunities to exercise their knowledge will help to build confidence.

Recommendations: Radiation Protection should update its radiation basics course and offer it to select response staff in the agency. The course can be offered online, in person, or via video conference. The agency should develop exercises that are either radiation-specific threats or have radiological aspects as part of the exercise. The focus would be to coordinate activities across the agency and develop knowledge.

I.C.3 **Observation:** Area for Improvement: The training and exercises that have been done for years as part of the Department of Emergency (DOE) at Hanford and the Columbia Generating Station (CGS) programs did not adequately prepare the agency for this type of response.

References: Appendix 2 Radiation Emergencies, to the Department of Health Comprehensive Emergency Management Plan (CEMP); CEMP Exercises and Training Plan.

Analysis: Radiation Protection had to develop relationships with other programs and offices in the agency during this response. That could have been done during previous exercises and training. PHEPR and Radiation Protection have been working for the past several years to coordinate response plans and even opened the agency emergency operations center in support of a U.S. DOE exercise. That effort should be expanded.

Recommendations: Radiation Protection should adopt an all-hazards approach to radiological planning and include a broader group across the agency in planning. The program should also coordinate training and exercises with all programs in the agency that may have a role in responding to make sure communication channels and coordination are working properly.

I.C.4 **Observation:** Area for Improvement: The public and our public health partners are in need of much more education on basic radiation principles.

Analysis: The fear generated as a result of this event has been off the scale. We should do more to educate the public, the media, and local health partners. Many issues raised in this incident were due to the lack of knowledge on what radiation is and how it can affect the public's health.

Recommendations: We should develop more training opportunities for our local partners and the general public. Having basic radiation information and training materials available will help in future responses. Consider developing more materials for conferences, large events, and possibly an improved radiation basics course that can be posted on the agency website.

II. Capability: Emergency Operations Coordination

II.A Function: Conduct preliminary assessment to determine need for public activation.

II.A.1 **Observation:** Strength: The agency's quick assessment and response to the tsunami was very effective.

References: Department of Health Duty Officer Procedures, CEMP.

Analysis: Our duty was effective on coordinating the information quickly with the correct personnel, and communications were established with local and regional partners even before normal business hours. DOH was proactive and participated in the EMD conference calls, which were valuable to the response. DOH was the first notification of the tsunami to some local partners, which allowed them to activate their response in plenty of time.

II.A.2 **Observation:** Strength: The decisions made early on by agency management were done very quickly and effectively. The decisions were instrumental in getting the response started.

Analysis: The agency duty officer, executive on-call, and other executive management responded quickly to the developing threat of a tsunami and the Fukushima incident. The quick action by those involved allowed for quicker identification of necessary resources and technical expertise to respond and the development of preliminary objectives to guide the response. We reacted swiftly and did a great job anticipating issues before they arose, including holding a media briefing on a Saturday — the first Saturday after the earthquake. That set the tone.

Recommendations: The Operations Annex that will be developed in the coming year should include a section on how we will conduct preliminary assessments and activate a response, even during off hours.

II.A.3 **Observation:** Area for Improvement: The response to the disaster in Japan once again proved that all responses are local.

Analysis: Even though the federal government was trying to lead the charge, it was the state and local officials that had to answer to the public and media. We did not get the help from some of our federal partners that we expected, and we had to prioritize what information we needed in order to respond effectively.

Recommendations: Update plans and procedures to address this lesson learned by ensuring that coordination with our local and federal partners happens early in the response.

II.B Function: Activate public health emergency operations.

II.B.1 **Observation:** Strength: Radiological technical expertise used during the incident response was extremely valuable. Their accurate and timely responses proved invaluable to the development of materials and decision making.

References: Appendix 2, Radiation Emergencies to the Department of Health CEMP.

Analysis: Quickly identifying the appropriate technical experts on radiological response issues enabled the agency to respond much more quickly, to be more accurate, and provide timelier messaging. The technical expertise provided management with confidence to make decisions, even when not much information was available.

Recommendations: We should continue to build on the lessons learned in this event to update plans, procedures, and processes to include technical expertise in responses.

II.B.2 Observation: Strength: The Department of Health was able to establish and use the incident command system (ICS) effectively during the response.

Analysis: ICS made reporting-lines clearer and helped to keep people appropriately informed. Most staff appreciated its use more than during any prior response.

Recommendations: We should include the process for initiating ICS in the operations section of the agency CEMP that will be developed in the coming year. Take lessons learned and continue to train employees and management on ICS.

II.B.3 Observation: Strength: Communication across the EH division was very successful.

Analysis: The relationships that Radiation Protection has developed with the Office of Drinking Water and some of the other programs over the last couples of years helped the division respond quicker to the emergency. Having these contacts already established made for easier, more effective communication through the appropriate channels.

Recommendations: EH division should continue to build from the lessons learned in this event to update plans, procedures, and processes.

II.B.4 Observation: Strength: The agency did a great job being inclusive in who was involved in the response across the agency.

References: Department of Health CEMP.

Analysis: Including staff from many different programs across the agency in incident command was a real asset. Staff members were able to bring different perspectives and insights that helped the agency to respond more effectively and efficiently.

II.B.5 Observation: Strength: We did a great job of implementing lessons learned from past experiences such as H1N1 and flood responses.

Analysis: The improvements made from past experience, such as using ICS and developing public information materials, worked very well. We've really grown and matured as an agency in its emergency preparedness and response ability.

II.B.6 Observation: Strength: The resources provided by state health to local partners helped answer the public's questions.

Analysis: Pictures, lists of measurements, and information made that we made available to public health partners and the public really helped reduce the anxiety we initially heard.

II.B.7 **Observation:** Area for Improvement: Some designated emergency response staff, with knowledge and experience that would have been valuable to the response, were not used.

Analysis: Some emergency preparedness designated staff were not used during this response, including the EH Emergency Planning Workgroup that were included in the planning for and exercises around radiological events in the past. When this response started, they were not notified or involved, which caused problems when trying to follow protocols and keeping staff from being overwhelmed. One factor in this oversight was the recent change in many of the leadership positions across the agency.

Recommendations: The agency should make sure that plans and procedures are clear on how staff are notified of an emergency and should train supervisors and management on those plans and procedures. If the processes are not currently captured in the plans and procedures, they should be updated and staff should be trained to the process. For the EH division, the EH Emergency Planning Workgroup can be the lead for this work.

II.B.8 **Observation:** Area for Improvement: We did not use the Emergency Operations Center (EOC) during the response.

References: Department of Health CEMP; EOC Operations Manual.

Analysis: The agency missed an opportunity to use the EOC during this event. Even if the EOC was not activated fully it could have helped keep people informed, address assignment issues, and keep a broader audience involved. Communication and information sharing channels were difficult to establish early in the response because the agency EOC was not used. Some of the other challenges listed in this report may have been avoided or reduced by using the EOC.

Recommendations: We should always consider the demand of information gathering, maintaining a common operating picture, and delegation of assignments in determining if the agency EOC should be used. If there is a potential for high demand in these areas, the EOC should be used to help manage the response, even if only at a virtual level.

II.B.9 **Observation:** Area for Improvement: There was no plan that guided the response of the Environmental Health Division. With the new leadership in several positions throughout the division, they had to make decision without the benefit of advance knowledge or planning.

References: Department of Health CEMP.

Analysis: Though many of the decisions made by EH leadership were very effective, at times significant people and processes in the divisional emergency preparedness planning were left out. Having a centralized plan for the division would have helped clarify roles and responsibilities and

the communication structure for EH during the response. The lack of an emergency response plan for the division has been identified through a gap analysis in the past and something that would be beneficial to develop.

Recommendations: The agency should develop an Environmental Health Emergency Response Plan that guides the Environmental Health Division during a response. The plan should cover the roles and responsibilities of the different offices in EH and how the programs and offices will maintain ICS during a response. The plan, once finished, should be attached to the Department of Health Comprehensive Emergency Management Plan, and staff should be trained and exercised on the plan.

II.B.10 Observation: Area for Improvement: The incident command team and the program level management had difficulty identifying staff that could operate in specific roles.

References: Department of Health CEMP.

Analysis: Having skill-sets among agency staff identified before an incident would have allowed for those in the incident command team to identify a gap and the skills needed to fill the gap. The incident command team could then find the appropriate person with the skills to fill the role.

Recommendations: The agency should update all emergency response plans with the process to identify skill-sets needed for response positions and also a process for programs to identify skills among their employees. Specialized training and certification, such as hazmat, should be included in the identification of skills that employees have.

II.B.11 Observation: Area for Improvement: Based on this event, if there was a radiation release situation in Washington, Radiation Protection does not have enough technical staff to support all areas in need of that support under the plans.

References: Appendix 2 Radiation Emergencies, to the Department of Health CEMP.

Analysis: There must be a re-prioritization of where Radiation Protection expertise would go if an incident were to occur in Washington. As the plans are written now, there will be no designated radiological staff to support the agency EOC, Assessment Response Team, or Senior Management Team. The current plans don't provide enough staff to assign a liaison to the local public health agency responsible for the actual public health and medical response.

Recommendations: The agency should evaluate where staff are assigned to go in a radiological emergency. The lessons learned from this event should be used to evaluate this and make sure the appropriate locations and positions and identified. After identifying the priorities, a strategy should be developed to make sure the response positions can be filled, with multiple shifts for a long period of time.

II.B.12 Observation: Area for Improvement: The Public Health Laboratories were a little slow in getting involved in the response.

Analysis: At first it was difficult to get up-to-date information on what was being done at the lab and to determine when results would be released. It seemed that at times there was confusion on the communication channels and working with the incident command team. Once the Public Health Laboratories (PHL) were connected with incident command and communication channels established, the coordination and support went well. Formally announcing to agency managers that we had entered incident command could have helped to get the PHL involved earlier.

Recommendations: We should update plans and procedures with a process to notify agency management of when incident command is established in a response. Early notification and regular updates will help make sure the correct programs and offices respond accordingly.

II.B.13 Observation: Area for Improvement: It was difficult getting some staff to transition into an emergency response mode and to follow the Incident Command System.

Analysis: Many times things were being done without the Incident Command team's knowledge and the common excuse used was, "we've always done it this way." There seemed to be a lack of full understanding of how this impacted the overall response and a misunderstanding that we were not under normal business operations.

Recommendations: We should broaden agency training on incident command, including staff that may not have a direct role in a response. Employees who may actually take part in a response should be enrolled in IS-100 and 200 courses. Consider updating annual preparedness training that employees take with a section on the importance of all response related activities, even if those staff members are outside of the incident command team.

II.B.14 Observation: Area for Improvement: The agency did not notify all employees that we'd moved to incident command and did not remind staff that all activities related to the response were to be coordinated through the Incident Command Team.

References: Department of Health CEMP Basic Plan.

Analysis: Because there was no formal announcement of that incident command had been established, many program staff did not understand the significance of the response. The lack of notification caused some programs to be caught off guard and not know how to handle calls and inquiries about the response.

Recommendations: We should always send out e-mail memos to all staff when the agency enters incident command in response to an incident or event. Notifying employees is an important step in maintaining situational awareness and command and control. Update the agency CEMP with the process of notifying staff when incident command begins.

II.B.15 Observation: Area for Improvement: Lack of involvement of the Assessment Response Team in the response left executive management out of the response.

References: Department of Health CEMP Basic Plan.

Analysis: The Assessment Response Team (ART) is the body that has been given authority to make decisions for the agency in an emergency response. It is the body that decides if the agency EOC should be opened and what response structure will be used. It is also the group that analyzes the impact of the event on the agency to make sure the appropriate programs are involved. Early on the EH Assistant Secretary was not kept in the loop, which caused problems when she took over the role of incident commander. ART should always be activated anytime there's a need to enter into incident command during a response.

Recommendations: Follow the plans laid out in the agency CEMP and detail in the ART procedures. Activate the ART at the first notification of an event or incident that may require a major agency response.

II.B.16 Observation: Area for Improvement: We could have used the Secure Electronic Communication, Urgent Response and Exchange System (SECURES) alert ability more often to update partners.

Analysis: We missed an opportunity to use SECURES to keep local partners up to date on response activities. Though SECURES was used to share daily reports and event related information, the alert function was not used effectively. The alert function of SECURES is a great tool to inform partners of significant changes or significant updates in a response. By sending an alert out to public health partners, we can make sure that updates and significant changes are quickly sent out and received by our partners. SECURES should be used more often in a response.

Recommendations: We should use the alert function of SECURES more often in a response. When a situation changes or when significant new information or updates are available a SECURES alert should be used to send the update to public health partners.

II.B.17 Observation: Area for Improvement: Procedures were not followed to contact executive and on-call staff during the weekends.

Analysis: The agency uses a duty officer who is responsible for making sure the appropriate executive management and program staff is notified of significant events. When we first responded to the radiological threats standard e-mail was used to keep management and other staff informed. The duty officer received e-mails to his personal work account and the duty officer address, which was confusing. Many employees do not monitor e-mail over the weekend and were unaware of the response. The duty officer could have been used to send an alert of the significance of the incident, and staff at home would have known to monitor email traffic.

Recommendations: Always use the agency duty officer and appropriate tools to notify management of a significant event. SECURES is designed to reach out and notify all ART members of what is happening in the incident response and the potential involvement that may be needed. Role-based communications such as the agency duty officer should follow the appropriate channels in order to avoid confusing the person filling the role.

II.C Function: Develop incident response strategy.

II.C.1 **Observation:** Strength: Assignment management was done successfully by identifying the need for an assignment coordinator and filling it with qualified personnel. The position was very valuable to the Incident Command team.

References: Department of Health CEMP.

Analysis: The assignment coordinator was responsible to be sure tasks were clear and that assignments were completed. The other positions in the incident command team worked well with the coordinator and appreciated the follow-up so that no assignments were overlooked.

Recommendations: The role and responsibility of the assignment coordinator during a response should be included in the operations plan that will be developed in the coming year.

II.C.2 **Observation:** Strength: The process to work out the issues surrounding intervention levels worked well.

Analysis: The intervention levels that are in plans and procedures did not apply to this type of event and caused difficulty for both program subject matter experts and executive level staff. The ability of Radiation Protection staff to meet face-to-face with the Assistant Secretary of Environment Health to work out the issues around intervention levels worked well. It allowed the program staff to express concerns, and allowed executive staff to give clear and concise direction based on a much stronger understanding of the issues.

Recommendations: EH division should continue to build from the lessons learned in this event to update plans, procedures, and processes.

II.C.3 **Observation:** Strength: The daily morning meetings for the incident command team worked well and helped direct the response.

Analysis: The daily meetings kept everyone informed of all the issues that were being addressed, or needed to be addressed. They were also great for handing out assignments and tracking the progress of the response.

II.C.4 **Observation:** Strength: The decision to focus on “what is new” in the daily meetings helped the incident command team meetings go smoothly.

Analysis: By focusing on new developments and new issues, the incident command team was able to stay ahead of the response and anticipate possible changes.

II.C.5 **Observation:** Area for Improvement: The agency planning and processes have been contingent on an emergency being declared or one that may be declared. This event did not warrant a declaration of an emergency in the state, yet we had to respond as though it was an emergency due to public fear and the huge demand by the public for information.

References: Appendix 2 Radiation Emergencies, Department of Health CEMP.

Analysis: We must redefine how emergencies are viewed. This was a public health scare that pushed our staff to respond to it as though it was an emergency. Though by definition this was not a designated or declared emergency, it was a public information and psychosocial emergency. Our last two major responses (including H1N1) have not been declared emergencies.

Recommendations: We should reevaluate planning assumptions around declared emergencies. Since state health has actively responded to two separate events in the last two years without a declared emergency, it is important to make sure the lessons learned are used to make sure plans address the need to respond no matter if a declaration is made or not.

II.C.6 **Observation:** Area for Improvement: Lack of plans and procedures for this type of event made it difficult to develop and incident response strategy quickly.

References: Appendix 2 Radiation Emergencies, Department of Health CEMP.

Analysis: There were no plans or procedures that guided the process for sampling during the event. Current plans and procedures are written with fixed nuclear facilities in our state in mind, not accidents 5,000 miles away that cause the response to be similar to an emergency. Having relevant plans would have helped to prevent the confusion on what should be sampled and who was doing what sampling. Written plans and procedures would allow quicker responses and quicker decisions with more confidence.

Recommendations: Radiation Protection should develop all-hazard focused plans that can be scalable to the incident. Though some activities are specific to different threats, there are many communal elements in all radiological responses that can be included in an all-hazards focused Radiation Response plan. Take lessons learned from this and past events to include in the update of the plans and procedures.

II.C.7 **Observation:** Area for Improvement: Federal assets that we expected to be available during this event were not available and could not be used.

References: Appendix 2 Radiation Emergencies, Department of Health CEMP.

Analysis: Planning assumptions included many federal assets that were unavailable to us in this response. Our federal partners were only allowed to use their assets for federal work and that meant that we had no access them, including plume development equipment and processes. Not having assets like plume modeling available to the states made it difficult to make decisions with confidence.

Recommendations: We should revisit the planning assumptions used in the plans and procedures and identify if they are still valid. If they are out of date or have changed due to the experience of this event, update the plans and procedures to address the issues.

II.C.8 Observation: Area for Improvement: Several staff responding to the event received assignments from multiple people inside the incident command structure. It was confusing and made it hard to determine the priority assignment and the chain of command.

Analysis: With a nontraditional form of the incident command system in use, some of the reasons that an incident command is set up were missed. Several staff received assignments from multiple people that were a part of the structure. There was a lack of clear communication and tasking channels and clear direction. Staff became overwhelmed and confused about the chain of command. The lack of an agency Operations Plan hindered the process of fully establishing an effective incident command structure.

Recommendations: The agency should include the use of incident command in the operations plan that will be developed in the next year. Include how the structure is set and how it is maintained. Also include standards that can be used in an event including structures that have the agency EOC and Reception, Storage and Staging (RSS) operations included.

II.C.9 Observation: Area for Improvement: The response to the disaster in Japan showed that the protective action procedures for radiological events must be rewritten with updated information.

References: Appendix 2 Radiation Emergencies, Department of Health CEMP.

Analysis: The protection actions as they are written are not applicable to this incident and would not be effective in a non-fixed facility incident. The lessons learned from this event will help educate those who will be using the recommendations to clarify and guide decision making.

Recommendations: Update the protective actions section of the radiological response plan. Include these changes in the State Radiological Response Plans for Radiological Dispersal Devices. Include radiological background information, when to increase monitoring levels, and protective action levels.

II.C.10 Observation: Area for Improvement: Copies of the radiological plans and procedures in the Secretary of Health's binder were outdated.

References: Radiological plans and procedures.

Analysis: Investigation showed the Secretary of Health's and Environmental Health Assistant Secretary's plans and procedures were out of date. Outdated plans and procedures could be a distraction in the response and could lead to wrong decisions. The plans and procedures should help guide leadership through a response and help them understand the implications of each decision.

Recommendations: Radiation Protection should update all plans and procedures for responding to radiological events. Also, take inventory of who has a copy of the plans and procedures and develop a process to keep them up to date.

II.D Function: Manage and sustain the public health response.

II.D.1 Observation: Strength: Communication between the radiological staff in Tumwater and Richland and the PHL worked very well. There was no difficulty ensuring situational awareness.

References: Department of Health CEMP Basic Plan, Appendix 2, Radiation Emergencies.

Analysis: It's vital that staff in Radiation Protection and at the Public Health Laboratories know each other's roles, know what each other are doing, and understand the situation clearly. Radiation Protection staff members analyze the lab test results and help management make decisions. Lab works with Radiation Protection to get samples for and prioritize testing.

Recommendations: Continue to strengthen the working relationship between the PHL and Radiation Protection. Hold meetings at least once a year between the programs so they continue developing strong communications channels and relationships. Strengthen procedures that were used in the response with the lessons learned from this event.

II.D.2 Observation: Strength: With the use of ICS, communications between programs and across divisions were very effective.

References: Department of Health CEMP Basic Plan, Appendix 2, Radiation Emergencies.

Analysis: Quick and efficient communication helped responding staff gather and distribute information effectively (despite the problems with federal partners). The coordination helped to strengthen areas that may have been a weakness without the coordination.

Recommendations: Include best practices from this response in cross divisional communication in the update of the agency CEMP, including the new Operations Section that will be developed.

II.D.3 Observation: Strength: Decision making throughout the response by the incident command team was very successful.

References: Department of Health CEMP.

Analysis: Even with little or incomplete information, the incident command team was very successful at making decisions quickly and adjusting those decisions once more information was made available.

Recommendations: Continue to use this best practice in future responses and exercises.

II.D.4 **Observation:** Strength: The Radiation Protection use of a conference room as a "war room" was very successful.

References: Appendix 2, Radiation Emergencies, Department of Health CEMP.

Analysis: The Radiation Protection staff in Richland used a conference room as the central area for keeping charts, graphs, and data. They used the room to post data and track updated information. The command room was a great success and tool in the Richland staff response.

Recommendations: Radiation Protection should update plans and procedures with the process for setting up and using a command room in a response. Once the procedures have been developed, they should be tested in an upcoming exercise.

II.D.5 **Observation:** Strength: The agency responded effectively to the issues surrounding Potassium Iodide (KI).

Analysis: The state Department of Health responded effectively and quickly to issues about the use of KI in this incident. The website was a valuable asset to this aspect of the response.

Recommendations: Continue to build from the lessons learned in this event to update plans, procedures, and processes.

II.D.6 **Observation:** Strength: The daily Radiation Protection meetings were very helpful to its staff responding to the event.

References: Appendix 2, Radiation Emergencies, Department of Health CEMP.

Analysis: The daily meetings for Radiation Protection staff were valuable and appreciated by staff responding to the incident. Setting up Incident Command early gave management support to devote resources to response.

Recommendations: Radiation Protection should continue to build from the lessons learned in this event to update plans, procedures, and processes.

II.D.7 Observation: Strength: The agency moved quickly and effectively from responding to the threat of a tsunami on Friday, to responding to the concern of radiological contamination the next day.

Analysis: By remaining flexible and anticipating issues, we were able to quickly move from responding to the threat of a tsunami to the threat of radiological contamination. Clear communication, concise decision making, and including all affected programs in updates helped us make this transition smoothly.

II.D.8 Observation: Area for Improvement: The agency incident command team had difficulty disseminating information about the response to other agency staff members who were responding in some capacity.

References: Department of Health CEMP.

Analysis: At times, the leadership in the incident command team was too slow in sharing information with other response team members. The delay caused missed assignments, delayed deadlines, gaps in communication, and a feeling of disconnection from some of the responding staff. There were never any official announcements when changes in command happened. At times, staff were confused who to report to in the chain of command.

Recommendations: Make sure that all staff members who may fill an incident command role during a response are up to date on the IS 100, 200, 700, and 800 courses. The training will help them understand the impact of not keeping responders abreast of decisions made by the incident command team and help with delegation of assignments. Also, identify a process to keep staff updated on decisions and changes in the incident command structure. A daily report including an organization chart or updated contacts would be helpful.

II.D.9 Observation: Area for Improvement: The Office of Drinking Water temporarily lost its communications person to Radiation Protection due to the response, which created difficulty with issues not related to the response.

Analysis: The Drinking Water communications person was tasked to be the Communications Liaison for Radiation Protection during the response. This was a great benefit to the agency response, yet Drinking Water had workload issues as a result. For the Drinking Water program, losing that capability for so long hindered its day-to-day communications work. Because the topic of radiation is difficult to grasp, Radiation Protection was reluctant to let go of a liaison that they had trained. There should be more staff available to fill this role, and rotate them.

Recommendations: Evaluate the use of embedding a communications person in a program for response purposes. By embedding a communications person to work with technical staff to develop messaging materials, it can help clarify messages early on and prevent an unnecessary burden on the Office of Communications for reviewing and editing the material. If this practice is valuable, a pool of agency staff should be identified to fill this role, and a training schedule for them should be developed.

II.D.10 Observation: Area for Improvement: Budgetary reductions and the loss of experienced and trained staff caused work load issues.

Analysis: Due to the budgetary crisis, the Public Health Laboratories had to cut positions. Some of the lost positions were staff who would have been able to help in the radiological testing lab. With the position loss, the lab was not able to do as much and had to have staff work overtime to complete the testing. Data entry was a bottleneck and required staff to work longer hours. Contingency plans must be adopted to handle the loss of staff and trained personnel.

Recommendations: During a response the incident command team has the ability to work with the ART and redirect staff resources if needed. We should develop a process for identifying gaps in staff resources quickly in a response and a process for the ART to make a decision quickly. Along with the identification and decision process, a mechanism should be created to monitor redirected staff resources and how demobilization would occur.

II.D.11 Observation: Area for Improvement: Important programs in the incident command structure were not represented in the daily command team meetings.

Analysis: The lack of representation in the daily meetings from staff at the PHL and the Environmental Monitoring staff in Richland created confusion and missed assignments.

Recommendations: Include a section in the operations plan that will be developed over the coming year on incident command structures and how incident command should regularly assess the situation and staff representation in meetings and the response. Exercise the process.

II.D.12 Observation: Area for Improvement: The process the EPA used to control Washington data made it difficult for state health to maintain leadership over the state's response. EPA frequently released data without prior warning or discussions with our staff, which then became responsible for explaining the data to the public.

Analysis: We spent numerous hours trying to coordinate with the EPA to make sure it was not releasing data from tests in Washington without our knowledge. EPA did not share what it was doing, and did not inform the state prior to releasing data, nor did EPA discuss the impact on our state. The difficulties coordinating with EPA created a higher demand on state health to answer calls from the media, public, local partners, and other government about what EPA was doing, and created some short-term credibility issues for us.

Recommendations: We should engage the EPA to work on this coordination issue.

II.D.13 Observation: Area for Improvement: The process for handling a public disclosure request during the response was not clear.

Analysis: The public disclosure request during the response caused difficulty for agency staff. Staff did not understand the vulnerability of the e-mails, documents, and materials that were being developed and making sure they understood how they are affected by public disclosure requests. Staff also did not understand how this issue should be prioritized.

Recommendations: Training on public disclosure requests should be required regularly by all agency staff.

II.D.14 Observation: Area for Improvement: We had to play catch up at times when the media used independent research groups such as universities to get the information they were looking for that they thought they could not get from the government.

Analysis: Department of Health and government institutions have more regulatory requirements before data can be released with confidence, but some independent groups do not have to follow the same criteria. We had to release our own data and information while also addressing the misinformation that was being released by advocacy and other groups. Managing information was focal point of the response effort.

Recommendations: Anticipate early in any response that there will be private research groups providing information quickly. By anticipating what these groups may do, we'll be more able to respond quickly and maintain credibility.

II.D.15 Observation: Area for Improvement: There was a lack of knowledge on the roles and responsibilities between HSQA and Radiation Protection on the use of Potassium Iodide (KI) in response to a radiological release.

Analysis: There was no coordination early on between the Division of Health Systems Quality Assurance (HSQA), the Board of Pharmacy, and the Office of Radiation Protection on KI. Each group believed it was the lead in decision making on KI, but were not aware that other programs were involved. Though the overall response by the agency to the KI issue was effective, the miscommunication could have created issues and duplication of efforts.

Recommendations: Establish a workgroup between the HSQA, Board of Pharmacy, and Radiation Protection to work on coordination issues around pharmaceutical treatments for radiation exposure. The main goal for the workgroup should be to clearly identify roles and responsibilities between the two programs.

II.D.16 Observation: Area for Improvement: Managing this event was made much more difficult with the East Coast focus messaging from the federal government that was responding to the incident.

Analysis: The event went from the West Coast to the East Coast of the U.S., which caused our federal partners to view the threat differently. They were farther away, so they did not see this as a priority issue early on like the West Coast states. The public and our partners were confused by

the public messaging coming from the federal government agencies without input by the impacted state.

Recommendations: We must work closely with federal partners and other regional state partners to address this issue. This may not be an issue that can be addressed quickly or efficiently, but steps should be taken to educate federal partners on their role and how it impacts states on the West Coast.

II.D.17 Observation: Area for Improvement: Initially we had difficulty coordinating air sampling both internally and externally.

References: Appendix 2 Radiation Emergencies, Department of Health CEMP.

Analysis: The capability and/or capacity of each air sampler being used was not initially known. Samplers vary on what they can detect and how they detect different isotopes. This caused confusion early on regarding how to use them more effectively.

Recommendations: Radiation Protection should include the process for air sampling and testing in its response plans. This should include identifying who has what samplers and how sampling will be coordinated in future responses.

II.D.18 Observation: Area for Improvement: Command and control was difficult to maintain at times, and there were visible negative consequences when personal decisions were made by staff outside of the incident command structure.

Analysis: Incident Command is established to maintain command and control to make sure that the agency is operating in a coordinated and efficient way. When staff members decide to act outside of that structure and operate on their own, it creates confusion and a negative view on the agency's response. Policies should be developed to make the adherence to the incident command structure mandatory for all agency staff, no matter if they are directly or indirectly associated with the emergency response operations.

Recommendations: Develop policies that guide the agency and staff during a response. Include the effects that incident command has on the agency during an emergency response and how the structure is to operate when staff members are reporting to positions outside of their normal management chain.

II.D.19 Observation: Area for Improvement: Early in the response the incident command leadership changed without a formal briefing, which caused several communication and operational issues.

Analysis: There was no formal process established for changing incident command leadership. The leadership that is leaving incident command should brief both the incoming replacement and the rest of incident command team on what has been done and still has to be done. Including both

the outgoing and incoming leadership in an incident command meeting helps to bridge the information gap and keep operations moving smoothly.

Recommendations: Develop a plan and procedure for shift changes in incident command, similar to what has been established in the agency EOC. The shift change should include briefing the incoming leadership and guidance on official announcements of incident command changes.

II.D.20 Observation: Area for Improvement: Many reports and documents that were generated during the response did not have a date and time on them or information on who had created the report.

Analysis: Having the date, time, and name of the originator on all products developed in a response should be a priority. The date and time allows for confidence on if the information is up to date and accurate and having the contact name gives responders someone to contact for clarification and more understanding.

Recommendations: Develop a procedure to make sure the date and time is posted on all documentation related to a response, even when the agency EOC is not activated. Also, include the name of the document owner or originator.

II.D.21 Observation: Area for Improvement: E-mail traffic was confusing at times when the "Reply All" was used and there was no direct comment made to whom assignments were being given to or to whom questions were being asked.

Analysis: When replying to all recipients in an e-mail chain it is important to make sure that communication is clear and concise. If an assignment is included in the reply make sure to identify who the assignment is being given to and when the assignment is due.

Recommendations: Include e-mail management in training of staff and also include a piece on the importance of being clear on assignment distribution.

II.D.22 Observation: Area for Improvement: The agency was not prepared for the psychosocial impacts of this incident on the public and its own staff.

Analysis: There was no direct threat to the public health at anytime during this event, but that did not prevent the public from being concerned. We received many phone calls and e-mails from concerned people fearing that the contamination would harm them and their families. Our technical staff spent many hours debunking some of the information on TV and online that was causing hysteria. We had no plan for the psychosocial effects of this type of event.

Recommendations: Develop a plan to handle the psychosocial effects of a radiological event and all events. Psychosocial impacts are difficult to measure but can require as much effort to respond to as other activities in an event.

II.D.23 Observation: Area for Improvement: We had difficulty anticipating questions that came from healthcare providers and developing talking points for them and local partners.

References: Appendix 2 Radiation Emergencies, Department of Health CEMP.

Analysis: Local health partners and providers asked questions about exposure and treatment that we could not answer right away. Some of the issues were due to the difficulty of developing the talking points and answering the questions quickly with other response activities happening at the same time. Having talking points and fact sheets developed before an event would be helpful.

Recommendations: Radiation Protection should include a section in the Appendix 2 Radiation Emergencies plan for information that can be provided quickly to local health partners and medical providers. The section should include fact sheets, talking points, and additional information that would be beneficial for them to understand the impacts of radiation.

II.E Function: Demobilize and evaluate public health emergency operations.

II.E.1 Observation: Area for Improvement: Although the use of ICS worked well during the response, it hindered and sometimes prevented the normal day-to-day operations in responding programs from functioning.

Analysis: Many day-to-day operational activities were delayed or not completed, which caused difficulties in other program areas outside the response. When radiation staff resources are committed to an emergency event, Radiation Protection should develop and draw on more outside resources to continue the standard radiation activities that are essential to the program, such as compliance and contractual work. This will ensure that the most important program elements are identified and addressed even in emergency situations.

Recommendations: The agency should develop a mechanism to monitor effects of responses on program activities outside the response, especially compliance, legislative, or required contract work. The information on the effects should be fed into the decision making process by the incident command team and ART. The ART should be used to address areas that may be of higher concern or priority.

III. Capability: Emergency Public Information and Warning

III.A Function: Activate the emergency public information system.

III.A.1 Observation: Strength: The initial public messaging that had to be developed quickly was well done, accurate, and can be an asset to future responses. It allowed the agency to be first, be right, and to maintain credibility.

References: Appendix 2, Radiation Emergencies, Department of Health CEMP; Appendix 5, Public Information.

Analysis: We were able to set up the public information system for this incident quickly. The system began working effectively early on in the response and was a continued strength throughout the incident.

Recommendations: We should update plans and procedures from lessons learned in this response to strengthen the public messaging process.

III.A.2 Observation: Strength: The agency did a great job preparing staff being requested to talk with and be interviewed by media outlets including local news stations. The preparation allowed us to have credible people speak on the subject, which helped to reinforce the public messaging.

References: Appendix 2, Radiation Emergencies, Department of Health CEMP; Appendix 5, Public Information.

Analysis: The just-in-time training and subject matter training that the Office of Communications provided to staff early in the response on preparing for interviews was well received and invaluable. Staff members were well prepared to answer questions even in live interviews, and it made the Department of Health a credible source of information in the public's eye. The Incident Command Team did a great job of identifying and using spokespersons throughout the event. The identified people covered the full spectrum of knowledge of the response on the technical side, policy side, public information side, etc.

Recommendations: The agency should update plans and procedures from lessons learned in this response and include the process for just-in-time training of staff who may be asked to do media outreach and interviews.

III.A.3 Observation: Strength: The use of the Office of Drinking Water's communications person as a Communications Liaison to Radiation Protection was valuable to the staff responding. She was able to work directly with radiological technical staff to make complex issues more understandable.

References: Appendix 2, Radiation Emergencies, Department of Health CEMP; Appendix 5, Public Information.

Analysis: The ability to reach into another program and pull technical expertise that was not present in Radiation Protection was invaluable to the response. The communications expertise allowed for more development of Frequently Asked Questions (FAQ) documents and news

releases to be done at the program level and ease the burden on the Office of Communications. The person that was selected as the Communications Liaison to Radiation Protection felt welcomed and received effective just-in-time training on radiation.

Recommendations: The agency should update plans and procedures to include the process of reaching out for technical expertise across the agency without hindering other programs' ability to conduct day-to-day work. Include a process for requesting technical expertise and how the program and incident command works together to address the request.

III.A.4 Observation: Area for Improvement: Some of our executive and responding staff could not access Town Center 1 on the weekends, including March 12, for response activities.

References: Department of Health building access guidelines.

Analysis: Access to our Tumwater facilities is controlled by a badge system that has access levels. The access levels for staff responding to the event did not allow them access to Town Center 1, which was being used as the central building for the response.

Recommendations: Make sure the identified staff, including executive management, has the appropriate access to Town Center 1. With Town Center 1 being the central point for ART meetings and the agency EOC, it is important that staff have access during non-business hours.

III.A.5 Observation: Area for Improvement: We had difficulty balancing communication and science. Some staff questioned why the more technical data was not being shared quickly and more openly.

References: Appendix 2 Radiation Emergencies, Department of Health CEMP; Appendix 5 Public Information.

Analysis: Some technical staff didn't understand the danger of sharing technical information in messaging without context during response. Releasing information that is too technical in nature and graphical charts without context may do more harm than good during a communication crisis. Technical data can be confusing to someone that does not have the contextual perspective of what they are reading or hearing. This disconnect was much greater initially in the response but was better after educating involved staff.

Recommendations: Develop a process for basic training on risk communication to staff that have a role in an emergency response. The training can be made available online if necessary so that staff can have access to it easily. Also, update plans and procedures with lessons learned on risk communication from this response.

III.B Function: Establish and participate in information system operations.

III.B.1 Observation: Strength: The Office of Communications and Office of Radiation Protection did a great job coordinating and developing messaging, including talking points for communications staff and executives, which allowed the message to remain the same no matter the audience. The talking points had great value throughout the response.

References: Appendix 2, Radiation Emergencies, Department of Health CEMP; Appendix 5, Public Information.

Analysis: The quick coordination and development of messages and talking points by the Office of Communications, with assistance from technical experts in Radiation Protection, was a great asset to the response. We maintained a strong and accurate message throughout the response.

Recommendations: Update plans and procedures with the lessons learned on public information coordination between the Office of Communications and Radiation Protection programs.

III.B.2 Observation: Area for Improvement: The media and general public did not know that state health has the lead for radiological issues, and not the Department of Ecology.

References: Appendix 2, Radiation Emergencies, Department of Health CEMP.

Analysis: The lack of knowledge about the lead agency for radiological issues caused some confusion early on with media and the public contacting the wrong agency to get information about the radiological issues. We were quick to work with partners to make sure they knew who the lead in the state was for radiological issues.

Recommendations: Develop a working relationship with the local media on this issue.

III.C Function: Establish avenues for public interaction and information exchange.

III.C.1 Observation: Strength: The sharing of the radiation monitoring data on the Department of Health website helped satisfy demands for more information from the public and media.

References: Appendix 5, Public Information, Department of Health CEMP.

Analysis: Once the data was posted on the agency website, the Office of Communications received significantly less requests for information. It also quelled suspicions that government was hiding information that people should be able to see. Updating the monitoring data daily allowed the department to focus on other media and public information demands and kept those looking for the data satisfied.

Recommendations: Update Appendix 5, Public Information, Department of Health CEMP with the lessons learned and best practices from this response.

III.C.2 Observation: Strength: Radiation Protection was very successful at handling huge numbers of calls from the public, other employees, and even the media wanting information about the potential radiological contamination and possible health effects.

Analysis: Radiation Protection handled 722 phone calls and e-mails as of 4/25/11. Technical experts were very effective at making the interactions personal, helping to explain the situation accurately, which helped calm fears. Through this personal interaction Radiation Protection was also able to identify issues that needed the attention of other programs including the Office of Communications.

III.C.3 Observation: Strength: Use of administrative staff to support public inquiries was very effective and beneficial to the response.

References: Appendix 2, Radiation Emergencies, Department of Health CEMP; Appendix 5, Public Information.

Analysis: The ability of radiation technical staff to use admin staff to help with handling simple and less complex calls from the public helped tremendously. It allowed the technical staff to concentrate on more complex and difficult inquiries.

Recommendations: Build on the lessons learned from this event and update the agency CEMP (Appendix 2 and 5) to include this process.

III.C.4 Observation: Strength: The establishment of a single e-mail contact for both partners and public to send questions to worked very well.

Analysis: The quick establishment and use of a single e-mail address for the agency's response worked very well. Responses to questions and inquiries were timely and efficient.

Recommendations: Update plans and procedures with the best practices and consider including the e-mail account that can be used in any response, no matter the scenario. The account "prepare@doh.wa.gov" would be a great way to create consistency and clarity.

III.C.5 Observation: Area for Improvement: How media contacts are handled. There were several times during the response that contact was made with media outside of the incident command structure.

References: Appendix 2 Radiation Emergencies, Department of Health CEMP; Appendix 5 Public Information,.

Analysis: Some technical staff members had difficulty with or were unaware of the process that was established for handling media requests and inquiries, which caused many stories to be run without official agency input. Radiation Protection has a history of working directly with media contacts on topics and incidents in the Hanford area. During this response leadership set up a single contact point for all media interactions. Staff members were directed to send all media inquiries to the Office of Communications. Several times this protocol was not followed, having a negative impact on the response. During emergencies such as this, clarity and consistency of messaging is the highest priority. Educating involved staff on why the single contact point for media is necessary is very important. In the early phase of the response, it was not clear to some staff in Radiation Protection that the single point of contact for the media was established.

Recommendations: Update plans and procedures with the process for identifying and establishing the single point of contact for media during emergency responses. Also, build in a training and education program for staff to understand the impacts of communicating with media in an event, and that when an agency employee speaks to the media, they speaking for the agency.

III.C.6 Observation: Area for Improvement: After we created a web page for all materials on the disaster in Japan, some programs put up materials related to the response on their own websites. The information on their program sites was not vetted through the incident command team.

References: Appendix 2 Radiation Emergencies, Department of Health CEMP; Appendix 5 Public Information.

Analysis: Centralizing all web-related information on the dedicated site was a great tool during the response. It gave media, the public, and our partners a central website for information on the response. When different agency programs decided to put up information about the response on individual sites without incident command knowledge, it caused confusion with some of our partners.

Recommendations: Update plans and procedures to more clearly outline how the agency websites will be used in an emergency response. When a website is created for an incident or event, all related materials for public and partners should be located on the central site.

III.C.7 Observation: Area for Improvement: Radiation Protection staff would benefit from training on website messaging.

Analysis: Short, concise messaging is important in developing strong messages for websites. Technical staff did not seem to understand the short attention span and minimal reading practices common with Internet users. Most Internet users will not wade through long paragraphs of information, much less pages to find answers to their questions. High stress risk communication situations such as this also reduce comprehension, so simple messages are vital.

Recommendations: Radiation Protection should identify at least two staff members to attend training on website messaging. Consider sending some Radiation Protection outreach staff to training on website messaging.

III.C.8 Observation: Department of Health has limited communications capacity across the agency.

References: Appendix 5 Public Information, Department of Health CEMP.

Analysis: Responding to the communication aspect of this event overwhelmed and showed limitations of the agency's communications capacity. Staff members that have been trained on communications were overwhelmed with calls from the media and the public. Balancing the demand for public information while trying to plan ahead and respond was very difficult. We need greater capacity and knowledge across the agency to increase the communications capacity.

Recommendations: Identify staff across the agency with ability to fill roles in communications during an event. Once staff members are identified, a training plan can be developed to train them in risk communications and other areas in which they will need to respond effectively.

III.D Function: Issue public information, alerts, warnings, and notifications.

III.D.1 Observation: Strength: The process set up for the development of frequently asked questions (FAQ) by Department of Health worked well during the response.

References: Appendix 2, Radiation Emergencies, Department of Health CEMP; Appendix 5, Public Information.

Analysis: The timely development and dissemination of FAQs worked to lessen public calls and inquiries. Quickly identifying the appropriate subject matter experts and the process for having the FAQs developed, reviewed, and approved helped to clarify roles and responsibilities. It also allowed the agency to be flexible and respond quickly to changes in the situation.

Recommendations: Build from the lessons learned from this event and update the agency CEMP (Appendix 2 and 5) to include this process. This process should be tested in the annual functional level exercise.

III.D.2 Observation: Strength: The agency's use of a single webpage to centralize information on the response to the disaster in Japan was successful. It allowed for more clarity on the response and easy access for the public and our local partners. It also allowed the agency to get information out much more quickly.

References: Appendix 5, Public Information, Department of Health CEMP.

Analysis: Dedicating a page of the agency website to response-specific information made it much easier on our partners and the public to quickly find the information they wanted. Consolidating information allows for message consistency and a more accurate picture of the response.

Recommendations: Update Appendix 5 with the process for establishing an incident specific web page and update procedures on how the process can be used during a response.

III.D.3 Observation: Strength: Briefing to the Washington State Board of Health and other public health partners worked well.

Analysis: The agency used a Board of Health meeting to give an update on the disaster in Japan response and the public health impacts. The meeting was a great educational opportunity.

Recommendations: Update agency plans and procedures with the best practices.

III.D.4 Observation: Area for Improvement: The public perceived that the EPA RadNet monitor in Richland belonged to the Washington State Department of Health, and when it stopped reporting data, calls came to the state health department, not EPA, to find out why. EPA did not fix it.

Analysis: The lack of action by EPA to fix the error with the RadNet monitor in Richland caused an undue burden on state health. We received many calls and inquiries about the RadNet monitor in Richland, but did not have any answers because we don't own the monitor. There was concern about the last reading the Richland monitor reported because it was a lot higher than other readings, and the next day it didn't work. This led to speculation that the monitoring data were purposely not reported because the readings were "so high." The readings were well within normal range, but people unfamiliar with radiation didn't understand that. The confusion due to lack of response by EPA and few answers from state health caused public concern and inquiries to go up, not down. State health did not effectively communicate the forms of sampling we owned and which agencies owned the other monitors.

Recommendations: State health should be more detailed on which agencies are doing each type of sampling and who owns each monitor. Though we should pull data from every source to respond, it is important to clearly identify where the data are coming from and who owns it.

III.D.5 Observation: Area for Improvement : Department of Health was too slow at times in developing public information materials and press releases.

References: Appendix 2 Radiation Emergencies, Department of Health CEMP; Appendix 5, Public Information.

Analysis: The development of the iodine chart for the state health website took too long and created a higher demand on technical staff to answer questions from concerned public. Some agency staff felt the delay in developing and releasing materials caused confusion and undue

concern in the public and put us behind the response instead of leading it. Many of the things that caused the development process to be slow in the early stages of the response were improved with the addition of the communications liaison from Drinking Water, who helped get draft communications products to the Communications Office faster and more appropriately written for a public audience. That allowed Communications staff to more efficiently finalize and post the newly developed material. The Media Relations section of the Communications Office also pulled a public information officer from the Public Awareness and Emergency Communications section to process these products immediately.

Recommendations: Take lessons learned on the development of public messaging from this response and update plans and procedures. Include a process in the updated plans to develop public information materials quickly that include the technical experts and communications experts.

III.D.6 Observation: Area for Improvement: The lack of pre-developed materials on radiological dangers and concerns directly affected the response by putting an undue burden on staff to quickly develop information that could be used during the response.

References: Appendix 2 Radiation Emergencies, Department of Health CEMP.

Analysis: If materials were developed before the event, it would have allowed technical experts to handle more pressing issues and allowed them to be more effective. Without having materials ready, technical staff had to take time away from analyzing data and performing other response duties to spend considerable time developing the messaging. Examples of materials that could have been pre-developed are comparisons of U.S. measurement systems to international measurements, descriptions of routine radiological sampling in Washington, how food is protected from radiological contamination, etc.

Recommendations: Include an attachment to the Appendix 2 Radiation Emergencies on public messaging. Take the messages, frequently asked questions, and news releases from this event and adapt them to be more generalized and include them in the plan.

III.D.7 Observation: Area for Improvement: Radiological facts sheets were out of date and not useful.

References: Appendix 2 Radiation Emergencies, Department of Health CEMP

Analysis: The radiological fact sheets that were developed in the past were out of date and not useful for this event. They had to be revised during the response, which was time consuming and made it difficult for the agency to project a clear message.

Recommendations: Radiation Protection should see if pre-existing fact sheets can be updated and if not, create new ones based on the lessons learned from this event. Once the fact sheets are current, they should be added to plans and procedures, and regularly checked for needed updates.

III.D.8 Observation: Area for Improvement: Radiological preparedness and planning has not kept up with the development of technology, including social media, making it difficult on Radiation Protection.

References: Appendix 2 Radiation Emergencies, Department of Health CEMP; Appendix 5 Public Information.

Analysis: With information spreading faster than ever through social media and other technology, it is difficult to keep up. During the event some agency employees were approached by friends and neighbors wanting information about what they just saw on the news and social media sites. Addressing the many sources that people use to get information now in a response is not easy, but must be factored into planning.

Recommendations: Take lessons learned on the development of technology and social media from this response and update plans and procedures. Include a process in the updated plans to include these resources in public information dissemination.

III.D.9 Observation: Area for Improvement: There seemed to be a lack of knowledge with technical staff on risk communications.

References: Appendix 2 Radiation Emergencies, Department of Health CEMP; Appendix 5 Public Information.

Analysis: There was a feeling in the early stages of the response from technical staff that the information state health should give to the public should be more reassuring than factual. The push for reassuring messages produced information that leaned towards absolutes, such as "there will be no contamination reaching Washington." When contamination did reach Washington, we had to go back and re-message that the contamination will be no threat to the public's health. Messaging should always lean harder on the facts and less on the side of reassuring the public. State health officials should provide factual, accurate, and timely information so that people are well informed with current status updates so they understand and can make their own decisions.

Recommendations: Train emergency response technical staff on risk communications. The focus of the training should be on how to take their program and subject matter knowledge and help prepare factual, accurate, and timely information to the public.

III.D.10 Observation: Area for Improvement: We had difficulty at times communicating technical aspects of radiation to concerned citizens. Explaining "no risk" versus "no public health risk from this event" was difficult.

Analysis: The most important thing to do when communicating with the public is to keep complex information and technical data simple. The more simple the information, the better it will be understood by the public. Keeping information simple yet factually accurate will help to diminish the public concern over something they do not fully understand. Also, by not balancing

the information and making it simple, some journalists and media can take things out of context and increase the concern.

Recommendations: State health should always try to keep technical information from being released without some simple explanation or context of what data means. Procedures should be established to make sure that information is clear and concise no matter how technical the topic.

IV. Capability: Information Sharing

IV.A Function: Identify stakeholders to be incorporated into information flow.

IV.A.1 Observation: Strength: Region 10 coordination led by HHS was valuable to the response.

Analysis: Having conference calls with regional partners including British Columbia was invaluable in understanding what was being tested in other areas and why. It gave state health more information for decisions that needed to be made.

Recommendations: We should continue working closely with U.S. Department of Health and Human Services (HHS) Region 10 on planning and exercises to keep the coordination strong and efficient.

IV.A.2 Observation: Strength: Conference calls with local health officials were very effective.

References: PHRAT Procedures.

Analysis: Once the conference calls were used, they were valuable to clarify and answer questions on radiological topics with locals. The agendas kept the conference calls focused and timely.

Recommendations: Start the conference calls much sooner in future responses. Continue working closely with local public health leadership and act quickly to have conference calls during events to make sure responses are coordinated and to maintain situational awareness.

IV.A.3 Observation: Strength: Department of Health was successful in including tribal representatives in conference calls, press releases, and information sharing. Tribes reported they felt included in the response.

References: PHRAT Procedures.

Analysis: A lesson learned from previous responses, including response to the H1N1 pandemic influenza, was the importance of including tribes in the public health response. By building from

previous lessons learned, we invited tribal contacts to conference calls, included them in news releases, and kept them updated through daily reports.

Recommendations: Continue to use this best practice in future responses and exercise.

IV.B Function: Identify and develop rules and data elements for sharing.

IV.B.1 Observation: Area for Improvement: Important information for public health professionals must reach the professional partners quickly so that they can feel confident in the information they are receiving.

Analysis: Our local health and emergency management partners may have to reach out to someone else if the state health department waits too long to get them the professional level information. This is the information that we provide to our partners, so they understand the agency focus, the impacts of the event, and what the common messages should be. The timelier the information, the better we can maintain consistency in the information especially in a radiological event when there is little expertise at the local level.

Recommendations: Build a process in the agency's plans and procedures to quickly identify and disseminate professional level information during a response. The plans should contain pre-event messaging that can be used during any response. For example, a document on the basic impacts of radiological events and basic information on what is a threat to public health.

IV.B.2 Observation: Area for Improvement: There was no standard format for the daily situation reports from the Public Health Laboratories.

Analysis: Standard forms must be used for reports and plans, such as for the situation report at the PHL. Using a standardized form will help to make sure the correct information is captured and shared with other parts of the agency consistently.

Recommendations: The PHL should develop a standard situation report that the lab can use for all hazards. Consider using standard NIMS forms as a starting point, and add additional pieces that are necessary. Include a distribution list of who the report will be sent to no matter the event. List should include, SMT, CAG, ART, PHEPR, and the Office of Communications.

IV.C Function: Exchange information to determine a common operating picture.

IV.C.1 Observation: Strength: The agency's daily reports on the disaster in Japan were very informative and timely. They were a great tool for keeping the staff not directly tied to the

response appraised of the issues being addressed. The reports were also a great tool for keeping partners updated.

Analysis: We did not use a daily situation report (sitrep) that is normally used for emergency operations, but instead developed a simplified progress report of daily activities. It functioned as a sitrep but did not have as much detail, which was well received by staff and partners.

IV.C.2 Observation: Strength: The Public Health Laboratories daily situation report was a great tool to share information on the testing results and made the information much easier to understand.

Analysis: The information in the daily situation report from the lab was important to the incident command team and allowed for the test results to be shared in a controlled and informative way. The lab's situation report was sent to everyone that was in the incident command team, and the report was also used in the development of the Disaster in Japan Daily Report.

Recommendations: Incorporate the development of the PHL situation report in the operational plan being developed over the coming year.

IV.C.3 Observation: Strength: The PHL found the federal laboratory conference calls valuable to situational awareness, and during one of the calls the Department of Health PHL was highlighted as a strength in data collection.

Analysis: The federal laboratory calls allowed laboratories across the United States to hear a general status update that would not have been achieved through any other mechanism. The calls helped the PHL know what other labs are doing and what is being reported at the national level.

Recommendations: PHL continue to participate in federal sponsored calls and meetings.

IV.C.4 Observation: Strength: Sharing information with public health partners on the SECURES Document Library was very successful.

Analysis: Using the SECURES Document Library as a central location to share information with partners was a great tool. Local, state, and regional partners were able to access the information in a secure location whenever they wanted.

Recommendations: Continue to use this best practice in future responses and exercises.

IV.C.5 Observation: Strength: Personal relationships with federal partners helped to get information that was not being shared through professional and standard channels.

Analysis: Though professional channels to get information from federal partners were closed, personal relationships were a great resource to get information from. Building these relationships should be expanded in planning and used in exercises.

Recommendations: Continue to build and strengthen relationships with federal partners.

IV.C.6 Observation: Strength: The daily Radiation Protection report on the Fukushima Nuclear Power Plant was helpful to the response.

Analysis: The daily report from Al Conklin with the most up-to-date information on the damaged reactors was beneficial to the response. It was a tool that kept management and those working in incident command up to date on the threat and issues surrounding the response. It also provided insight into potential concerns of Washington residents based on the latest events in Japan so we could anticipate the need for answers and public messages.

Recommendations: Radiation Protection should update plans and procedures with the process that were used to develop and distribute the daily reports.

IV.C.7 Observation: Strength: Federal coordination conference calls were much more successful when the Association of State and Territorial Health Officials (ASTHO) began facilitating them.

Analysis: Before ASTHO took over facilitation of the conference calls, the topics were not well coordinated and important information was left out of the calls. Once ASTHO took over, they sent out an agenda for each call, and separated the call. One call was for secretaries and directors of health and the other was more technical in nature.

Recommendations: The agency should recommend that federal partners continue to use this best practice in future responses.

IV.C.8 Observation: Area for Improvement: EMD conference call capacity was not large enough to provide room for all emergency management and public health partners to participate in the tsunami conference calls.

Analysis: The conference calls that were set up by EMD for the tsunami response did not have the necessary capacity to include more partners. Many local partners were not able to join in on the call. At times, primary responding agencies on the coast were left out of the call due to the lack of capacity.

Recommendations: EMD should identify resources needed to have more capacity for conference calls. The conference calls should be able to handle enough participation to accommodate agencies from across the state to listen in and participate.

IV.C.9 Observation: Area for Improvement: Technical radiation assistance and educational calls with local health partners should have happened sooner in the response.

References: Appendix 2 Radiation Emergencies, Department of Health CEMP.

Analysis: The calls were valuable for sharing information, but they were not used soon enough in the response. The technical calls should have happened early on to help control and accurately influence the information that was being disseminated by federal and media entities, which was confusing to some in the public health community.

Recommendations: Update Appendix 2 Radiation Emergencies plan with the process for establishing the technical calls early in the response. Also, include the process for establishing local health calls in the operations plan that will be developed over the coming year.

IV.C.10 Observation: Area for Improvement: Standard communication channels with federal partners, such as the Nuclear Regulatory Commission (NRC), were not effective. Also, the lack of sharing of radiological data by federal partners created difficulties for state health during the response.

Analysis: Not being kept current on what radiological data federal agencies were sharing with the media, specifically on RadNet, caused creditability issues. There seemed to be a gap in the information that we had and what was being reported by EPA and others. Several times our regional and local federal partners were not aware of what their headquarters in Washington, DC were doing. Standard communication channels with federal partners were not effective or were closed. Federal partners need to work directly with states before releasing information.

Recommendations: Radiation Protection, Drinking Water, and PHEPR should develop a strategy to bring federal regional partners together to work on the issues of sharing information during a response. The reason for the information not being shared during the response was never clear and needs further investigation. Data must be sent to affected states before federal partners release it to the media.

IV.C.11 Observation: Area for Improvement: There was no formal process to maintain centralized situational awareness and many times staff members were working on the same assignment or did not have the same information that other staff had.

References: Department of Health EOC Operations Manual.

Analysis: The agency did not use WebEOC during the event. WebEOC is a tool that has significantly helped maintain situational awareness even when staff is in different parts of the state. WebEOC helps keep our partners updated, including local health, emergency management agencies, and tribal entities that use the tool.

Recommendations: Use WebEOC during response activities even when the agency EOC is not activated. WebEOC will help to maintain situational awareness and provide a mechanism for better coordination.

IV.C.12 Observation: Area for Improvement: There was a lack of clarity and purpose for the conference calls with local health officials.

Analysis: The calls worked well for updating partners on information, allowing time for clarification of issues and decisions, and are a great opportunity to share local concerns. During the response local concerns dominated the calls and there did not seem to be a defined purpose for the calls. Ground rules for the calls should be established prior to beginning the call, and if necessary, discussions that may distract from the call should be taken offline. By having a stronger purpose for the call, local health will have much more clarity and a greater opportunity to provide input. The calls did become much more productive as the response evolved.

Recommendations: Establish procedures for how calls will be conducted in an emergency and a quick reference sheet that can be provided before calls. The reference sheet can have the basic information and ground rules for the calls and also remind staff of how the calls will be conducted.

IV.C.13 Observation: Area for Improvement: There was no conference call for public information officers (PIOs) held during the event.

Analysis: A conference call just for PIOs would have been helpful for state and local health communications staff to develop strategy and messaging that is consistent and accurate. It would also give an opportunity for information sharing and product development updates.

Recommendations: Consider developing a process to have PIO calls with state and local health during events.

IV.C.14 Observation: Area for Improvement: The lack of guidance on passenger screening protocols from the federal government caused state health to have to develop its own protocols during the response.

Analysis: The lack of federal guidance on passenger screening created difficulties for Radiation Protection to respond effectively to issues in the state. The Department of Health had to develop its own protocols without the input of federal partners who had valuable knowledge in the process for passenger screening. Though we developed a strong protocol that was effective and efficient, it was not entirely consistent with what other states were doing. The CDC developed a comprehensive protocol but by the time it was released it was no longer a pressing issue for the situation in Washington. The delay in releasing the guidance caused several other states to develop their own protocol, creating inconsistencies in the processes used by the different states.

Recommendations: State health should ask CDC and other federal partners to update the passenger screening protocol guidance, using the protocol that was released by CDC during the disaster in Japan incident. Once the guidance is updated it can be used as a planning tool for Washington and other states to use to update plans and procedures.

V. Capability: Public Health Laboratory Testing

V.A Function: Manage laboratory activities.

V.A.1 **Observation:** Strength: The PHL was prepared with an air sampler and usable iodine cartridges for initial sample collection.

Analysis: Having the materials to do testing prior to the event allowed the PHL to respond more effectively. They were able to quickly pull together everything they needed to do the initial sampling and testing, which allowed them to get quick initial results.

V.A.2 **Observation:** Area for Improvement: There was confusion during the response of what was being tested at the PHL and what was being tested by other labs.

References: Department of Health CEMP.

Analysis: With EPA RadNet testing and the PHL also doing testing, it caused confusion even in the media of who was doing what and who owned what testing process. The confusion strained the relationships between state health, partners, and the media.

Recommendations: Develop a Laboratory Operations plan that can be included in the agency CEMP. The plan should capture how the PHL integrates into an emergency response and how sampling is prioritized and data is reported. The plan should also identify the capabilities of other labs in the region and how to integrate them into a response. Once the plan is completed, state health staff and leadership should be trained to the plan, and the plan should be exercised.

V.A.3 **Observation:** Area for Improvement: The impacts of the PHL/regional partner MOU/MAAs are not clearly understood in a radiological event. If another state were to request assistance in testing radiological samples, how would the request impact DOH response?

Analysis: We must have a firm understanding of how MOU/MAAs can impact the agency, specifically the PHL. If media or the public heard that state health was testing drinking water from another state through one of the agreements, but not in Washington, it could create a heavy burden on public relations. In that circumstance it would not matter if we found there to be no reason to test drinking water in the state. Knowing how MOU/MAAs can impact us before an event will help management understand the impact of the agreements and will allow them to determine if the agreements can be met.

Recommendations: The state health PHL should do an analysis of how the MOU/MAA can impact the agency during a response and how the MOU/MAA can be used. Once that is known, PHL should develop a process to involve agency senior leadership in the decision process for when the PHL will fulfill the MOU/MAA obligations.

V.A.4 Observation: Area for Improvement: The PHL did not use ICS during the response.

Analysis: Use of an ICS approach would have assisted the PHL in organizing and guiding the response. ICS is flexible and can be used in any type of incident. PHL would benefit from developing procedures and training for the use of ICS at the lab.

Recommendations: PHL should work with PHEPR to bring ICS training to the staff at the PHL. The PHL should also develop an ICS that can be used in an event and integrate with the agency ICS through the agency EOC.

V.B Function: Perform sample management.

V.B.1 Observation: Area for Improvement: The PHL did not have a stock of local sampling devices to support the response.

Analysis: Lack of a calibrated air sampler for the initial iodine cartridges resulted in analysts having to recalculate sample data when the sampler finally was calibrated. Having the items in stock will make the response much more effective.

Recommendations: PHL must have an inventory of local sampling devices, such as air samplers and iodine cartridges and support items to maintain and properly use these, such as calibrators. The PHL should look at developing a process for stocking the necessary sampling devices. Work with Radiation Protection to identify funding sources if necessary and to establish procedures for maintenance and testing.

V.B.2 Observation: Area for Improvement: There was no sampling plan developed by Radiation Protection for the PHL to follow in the early stages of the response. Because there was no plan, there was sample testing that was done without analyzing its impact on the response.

Analysis: Radiation Protection needs a way to rapidly develop a sampling plan for incidents such as this, in addition to their established standards of operating procedure (SOP) for local nuclear material releases. Initial samples were collected based on 'that sounds like a good idea' rather than a plan, e.g., urine samples at the lab. Also, it has never been clear where many of the water and milk samples were collected or what they represent. Sampling has not been coordinated well. During a response to an emergency, especially a public information emergency, it is important that all steps in the response are analyzed for possible impacts.

Recommendations: Radiation Protection should work with the PHL to develop a sampling plan for non-fixed nuclear facility incidents. Radiation Protection should develop a sample management plan that details how samples are selected for testing and how the results are shared. SOPs should be developed for both Radiation Protection and PHL staff to use during a response.

V.C Function: Conduct testing and analysis for routine and surge capacity.

V.C.1 Observation: Strength: The PHL was able to effectively pull in other programs to support sample collection and testing activities in response to the event.

Analysis: The presence of the Chemical Incident Response (CIR) group and their ability to assist due to our well established all-hazards preparedness approach worked well. Support by the CIR in confirming that previously used iodine cartridges were suitable for air sample was essential to document the validity of PHL results. Support by FERN-Radiation contamination of Food project staff in continuity of operations and quality assurance review also worked well.

Recommendations: Continue to use this best practice in future responses and exercise.

VI. Capability: Public Health Surveillance and Epidemiological Investigation

VI.A Function: Recommend, monitor, and analyze mitigation actions.

VI.A.1 Observation: Area for Improvement: State health and its federal partners had difficulty identifying the appropriate standards with which to compare radiological testing data. At times, standards were inappropriately used and test results were compared to standards that were not appropriate for this event. A particular problem was a comparison of rainwater and milk to EPA's municipal drinking water standards (a very low standard instead of FDA's much higher standards, making it look like the rainwater was unsafe).

References: Appendix 2, Radiation Emergencies, Department of Health CEMP.

Analysis: It is important to understand the applicable standards to the situation and then consistently adhere to those standards. In order to create a consistent message and to not cause further confusion with a difficult message, standards should be applied only when they are directly related to the incident. When the EPA radiological drinking water standard was used to compare rainwater samples, it created confusion and the inappropriate conclusion that it wasn't safe. We must analyze information and caparisons that are used by federal partners to make sure they are appropriate and applicable to the state.

Recommendations: Update Appendix 2, Radiation Emergencies in the agency CEMP with a process to identify appropriate standards and to monitor the standards that are used in a response. Consider developing messaging on the issues around standards so that there are messages that can

be disseminated quickly in a real incident. If standards are not in place, a process for creating or communicating risk to both our partners and the public should be considered.

VI.A.2 Observation: Area for Improvement: There is a great deal of confusion between the use of American radiation units (rem, picocuries, etc.) and International Units (Sieverts, Becquerel's, etc.).

References: Appendix 2, Radiation Emergencies, Department of Health CEMP.

Analysis: There should be standard units and more use of the international system. One step to start this process is to include both units in agency training and correspondence (American followed by SI in parentheses).

Recommendations: Radiation Protection should consider using both sets of units in radiological training. Also, a quick reference sheet should be developed that can be used in a response to educate both agency staff and local partners on the different units.

VII. Capability: Responder Safety and Health

VII.A Function: Monitor responder safety and health actions.

VII.A.1 Observation: Strength: Staff that responded to the incident were very appreciative of the support of management even coming to visit many of them in their sections.

References: Agency CEMP

Analysis: Staff members worked long hours and were under a tremendous amount of pressure at times during the response. The appreciation shown by management to the staff helped to lessen the stress and lift morale. Continuing the practice in future responses would be a best practice.

VII.A.2 Observation: Area for Improvement: Radiation Protection did not use staff efficiently and overburdened a number of staff.

References: Appendix 2, Radiation Emergencies, Department of Health CEMP.

A**nalysis:** Radiation Protection did not reach out to more staff within the office and the rest of agency to help spread out the work and keep the stress level under control.

Recommendations: Update the Appendix 2 Radiation Emergencies plan with a portion on managing stress and health of responding staff. Have a person assigned to specifically address this concern during a response.

VII.A.3 Observation: Area for Improvement: Incident command did not do a sufficient job on making sure staff were not overwhelmed or overly stressed during the response.

References: N/A

Analysis: The workload overburdened a handful of staff and the incident command team did not reach out to the agency to create more depth. There was no assigned safety officer to monitor stress and the mental wellness of responding staff.

Recommendations: Incident command positions should be rotated more frequently during a response. Establishing a safety officer that is part of the incident command team, or designating someone in the incident command to take the role, would help to monitor the situation and determine when a rotation is needed.

SECTION 4: CONCLUSION

The earthquake and tsunami that struck Japan devastated that country, and it will take years them to fully recover from the disaster. Between the damaged buildings from the shaking and the damage and loss from the tsunami and the nuclear facility incident, Japan has had to deal with one of the most significant disasters in modern time. Though the most significant affects remain in Japan, many states across the United States were affected, including Washington.

The Washington State Department of Health quickly responded to the risk of the tsunami that was generated by the earthquake in Japan. It acted swiftly to contact local partners and was prepared to help if needed. Once the information about the nuclear facility in the Fukushima Prefecture came to light, the agency acted quickly to develop messages for the public. For almost two months agency employees responded to the potential threat of radiological contamination by sampling, testing, and monitoring different areas. Radiological contamination from the damaged nuclear facility in Japan did reach the state of Washington but never at levels that would be a public health concern. The staff worked tirelessly to educate public health partners, public, and media, providing them with factual information that helped them understand the situation, thereby reducing concerns. The response to the disaster in Japan highlighted many areas that the agency responded to well and some areas needing improvement.

Major Strengths

- Use of the incident command system (ICS) to manage the response effectively
- Development and distribution of consistent messages to our partners and to the public
- Use of the agency website with specific information about the incident that consolidated data and education materials into one site, so it was easy to find information for the public, partners, and the media
- Use of radiological technical staff to provide expertise and education to guide the incident response
- Collaboration within Department of Health between the divisions

General Areas for Improvement

- Lack of planning for this type of event. There was no plan in place for an incident that happened 5,000 miles away in Japan and to respond to potential impacts and concerns here
- Lack of information being shared by federal partners hindered the state's ability to respond timely and effectively
- The incident command team had difficulty at times sharing information with all the appropriate staff in a timely and effective process
- Overburdening of staff responding to the incident without monitoring them for stress and exhaustion
- Timely sharing of information among public health professionals with our partners
- Identifying roles and responsibilities of who has the authority to say what should be tested

and the priority of what needs to be tested

- Lack of radiological standards that the test results could be compared too. Too many of the standards that are currently used are for long-term exposure and not applicable to this type of event

Lessons learned from past real events and exercises helped the agency prepare for responding to this event. Though the disaster was close to 5,000 miles away, the agency had to respond to the perceived threat. The response to the H1N1 pandemic flu was a great building block to build the public information campaign on, which was necessary to respond to the tsunami and radiological contamination. Though state health was very successful in responding to the tsunami and radiological threat, there are lessons to be learned and improvements that need to be made.

A response to earthquakes, tsunamis, or radiological events in the future is a possibility. For the Washington State Department of Health to continue to grow and strengthen the ability of the agency to effectively protect the health of the people in Washington in an emergency, the agency must build from lessons learned in this incident. To accompany the After Action Report, a Corrective Action Plan will be developed to implement lessons learned and improve plans, procedures, training, and education. Agency leadership will evaluate each recommendation in this report and implement the appropriate corrective action to address the issues raised. Challenges to implementing the corrective actions, such as budget issues and staffing resources, may limit what can be implemented quickly or not at all. The agency will work to prioritize the corrective actions to make sure that resources can be used efficiently and effectively. Continuing to grow and learn from past, present, and future threats will help this agency maintain a leadership role in public health emergency preparedness.

APPENDIX A: IMPROVEMENT PLAN

This IP has been developed specifically for Washington State Department of Health and its partners as a result of the 2011 disaster in Japan event that ran from March 2011 – May 2011. These recommendations draw on both the After Action Report and the After Action Conferences.

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
Community Preparedness	I.A.1: Though Washington is 5,000 miles away from the damaged nuclear facility, the public in Washington had very strong concerns and opinions.	Based on this event, update the planning assumptions of the plans and procedures on radiological response. The planning assumptions should include the assumption that responses may be driven by events thousands of miles away because of the psychosocial impacts and may require staff to be redirected from everyday activities to respond.						
	I.B.1: The lack of strong relationships with local environmental health (EH) directors caused difficulties for state health radiation technical staff.	The Radiation Protection staff should continue to develop training on radiation preparedness for local EH staff and leadership. The training will educate local partners on the impacts of a radiological event while helping to foster stronger relationships and more regular interaction.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	I.B.2: There is limited radiological technical expertise at the local level.	Since most local health agencies do not have the resources to develop the knowledge base on radiation, the Office of Radiation Protection should consider working with local health partners to provide professional level training. While Radiation Protection has begun this effort with some local health partners, the work should be expanded across the state. The training will educate the local health on impacts of a radiological event, help create a trusted relationship with state radiation staff, and make them an information resource for health officers						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	I.C.2: There is not enough staff that can be used to help respond to emergencies that have radiological knowledge. The response to this event was hindered because many staff members had little or no experience in radiological responses.	Radiation Protection should update its radiation basics course and offer it to select response staff in the agency. The course can be offered online, in person, or via video conference. The agency should develop exercises that are either radiation-specific threats or have radiological aspects as part of the exercise. The focus would be to coordinate activities across the agency and develop knowledge.						
	I.C.3: The training and exercises that have been done for years as part of the Department of Emergency (DOE) at Hanford and the Columbia Generating Station (CGS) programs did not adequately prepare the agency for this type of response.	Radiation Protection should adopt an all-hazards approach to radiological planning and include a broader group across the agency in planning. The program should also coordinate training and exercises with all programs in the agency that may have a role in responding to make sure communication channels and coordination are working properly						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	I.C.4: The public and our public health partners are in need of much more education on basic radiation principles.	We should develop more training opportunities for our local partners and the general public. Having basic radiation information and training materials available will help in future responses. Consider developing more materials for conferences, large events, and possibly an improved radiation basics course that can be posted on the agency website.						
Emergency Operations Coordination	II.A.3: The response to the disaster in Japan once again proved that all responses are local.	Update plans and procedures to address this lesson learned by ensuring that coordination with our local and federal partners happens early in the response.						
	II.B.1: Radiological technical expertise used during the incident response was extremely valuable. Their accurate and timely responses proved invaluable to the development of materials and decision making.	We should continue to build on the lessons learned in this event to update plans, procedures, and processes to include technical expertise in responses.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	II.B.2: The Department of Health was able to establish and use the incident command system (ICS) effectively during the response.	We should include the process for initiating ICS in the operations section of the agency CEMP that will be developed in the coming year. Take lessons learned and continue to train employees and management on ICS.						
	II.B.7: Some designated emergency response staff, with knowledge and experience that would have been valuable to the response, were not used.	The agency should make sure that plans and procedures are clear on how staff are notified of an emergency and should train supervisors and management on those plans and procedures. If the processes are not currently captured in the plans and procedures, they should be updated and staff should be trained to the process. For the EH division, the EH Emergency Planning Workgroup can be the lead for this work.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	II.B.8: We did not use the Emergency Operations Center (EOC) during the response.	We should always consider the demand of information gathering, maintaining a common operating picture, and delegation of assignments in determining if the agency EOC should be used. If there is a potential for high demand in these areas, the EOC should be used to help manage the response, even if only at a virtual level.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	II.B.9: There was no plan that guided the response of the Environmental Health Division. With the new leadership in several positions throughout the division, they had to make decision without the benefit of advance knowledge or planning.	The agency should develop an Environmental Health Emergency Response Plan that guides the Environmental Health Division during a response. The plan should cover the roles and responsibilities of the different offices in EH and how the programs and offices will maintain ICS during a response. The plan, once finished, should be attached to the Department of Health Comprehensive Emergency Management Plan, and staff should be trained and exercised on the plan.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	II.B.10: The incident command team and the program level management had difficulty identifying staff that could operate in specific roles.	The agency should update all emergency response plans with the process to identify skill-sets needed for response positions and also a process for programs to identify skills among their employees. Specialized training and certification, such as hazmat, should be included in the identification of skills that employees have.						
	II.B.11: Based on this event, if there was a radiation release situation in Washington, Radiation Protection does not have enough technical staff to support all areas in need of that support under the plans.	The agency should evaluate where staff are assigned to go in a radiological emergency. The lessons learned from this event should be used to evaluate this and make sure the appropriate locations and positions and identified. After identifying the priorities, a strategy should be developed to make sure the response positions can be filled, with multiple shifts for a long period of time.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	II.B.12: The Public Health Laboratories were a little slow in getting involved in the response.	We should update plans and procedures with a process to notify agency management of when incident command is established in a response. Early notification and regular updates will help make sure the correct programs and offices respond accordingly						
	II.B.13: It was difficult getting some staff to transition into an emergency response mode and to follow the Incident Command System.	We should broaden agency training on incident command, including staff that may not have a direct role in a response. Employees who may actually take part in a response should be enrolled in IS-100 and 200 courses. Consider updating annual preparedness training that employees take with a section on the importance of all response related activities, even if those staff members are outside of the incident command team						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	II.B.14: The agency did not notify all employees that we'd moved to incident command and did not remind staff that all activities related to the response were to be coordinated through the Incident Command Team.	We should always send out e-mail memos to all staff when the agency enters incident command in response to an incident or event. Notifying employees is an important step in maintaining situational awareness and command and control. Update the agency CEMP with the process of notifying staff when incident command begins.						
	II.B.15: Lack of involvement of the Assessment Response Team in the response left executive management out of the response.	Follow the plans laid out in the agency CEMP and detail in the ART procedures. Activate the ART at the first notification of an event or incident that may require a major agency response.						
	II.B.16: We could have used the SECURES alert ability more often to update partners.	We should use the alert function of SECURES more often in a response. When a situation changes or when significant new information or updates are available a SECURES alert should be used to send the update to public health partners.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	II.B.17: Procedures were not followed to contact executive and on-call staff during the weekends.	Always use the agency duty officer and appropriate tools to notify management of a significant event. SECURES is designed to reach out and notify all ART members of what is happening in the incident response and the potential involvement that may be needed. Role-based communications such as the agency duty officer should follow the appropriate channels in order to avoid confusing the person filling the role.						
	II.C.1: Assignment management was done successfully by identifying the need for an assignment coordinator and filling it with qualified personnel. The position was very valuable to the Incident Command team.	The role and responsibility of the assignment coordinator during a response should be included in the operations plan that will be developed in the coming year.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	II.C.5: The agency planning and processes have been contingent on an emergency being declared or one that may be declared. This event did not warrant a declaration of an emergency in the state, yet we had to respond as though it was an emergency due to public fear and the huge demand by the public for information.	We should reevaluate planning assumptions around declared emergencies. Since state health has actively responded to two separate events in the last two years without a declared emergency, it is important to make sure the lessons learned are used to make sure plans address the need to respond no matter if a declaration is made or not.						
	II.C.6: Lack of plans and procedures for this type of event made it difficult to develop and incident response strategy quickly.	Radiation Protection should develop all-hazard focused plans that can be scalable to the incident. Though some activities are specific to different threats, there are many communal elements in all radiological responses that can be included in an all-hazards focused Radiation Response plan. Take lessons learned from this and past events to include in the update of the plans and procedures.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	II.C.7: Federal assets that we expected to be available during this event were not available and could not be used.	We should revisit the planning assumptions used in the plans and procedures and identify if they are still valid. If they are out of date or have changed due to the experience of this event, update the plans and procedures to address the issues.						
	II.C.8: Several staff responding to the event received assignments from multiple people inside the incident command structure. It was confusing and made it hard to determine the priority assignment and the chain of command.	The agency should include the use of incident command in the operations plan that will be developed in the next year. Include how the structure is set and how it is maintained. Also include standards that can be used in an event including structures that have the agency EOC and Reception, Storage and Staging (RSS) operations included.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	II.C.9: The response to the disaster in Japan showed that the protective action procedures for radiological events must be rewritten with updated information.	Update the protective actions section of the radiological response plan. Include these changes in the State Radiological Response Plans for Radiological Dispersal Devices. Include radiological background information, when to increase monitoring levels, and protective action levels.						
	II.C.10: Copies of the radiological plans and procedures in the Secretary of Health's binder were outdated.	Radiation Protection should update all plans and procedures for responding to radiological events. Also, take inventory of who has a copy of the plans and procedures and develop a process to keep them up to date						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	II.D.8: The agency incident command team had difficulty disseminating information about the response to other agency staff members who were responding in some capacity.	Make sure that all staff members who may fill an incident command role during a response are up to date on the IS 100, 200, 700, and 800 courses. The training will help them understand the impact of not keeping responders abreast of decisions made by the incident command team and help with delegation of assignments. Also, identify a process to keep staff updated on decisions and changes in the incident command structure. A daily report including an organization chart or updated contacts would be helpful.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	II.D.9: The Office of Drinking Water temporarily lost its communications person to Radiation Protection due to the response, which created difficulty with issues not related to the response	Evaluate the use of embedding a communications person in a program for response purposes. By embedding a communications person to work with technical staff to develop messaging materials, it can help clarify messages early on and prevent an unnecessary burden on the Office of Communications for reviewing and editing the material. If this practice is valuable, a pool of agency staff should be identified to fill this role, and a training schedule for them should be developed.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	II.D.10: Budgetary reductions and the loss of experienced and trained staff caused work load issues.	During a response the incident command team has the ability to work with the ART and redirect staff resources if needed. We should develop a process for identifying gaps in staff resources quickly in a response and a process for the ART to make a decision quickly. Along with the identification and decision process, a mechanism should be created to monitor redirected staff resources and how demobilization would occur.						
	II.D.11: Important programs in the incident command structure were not represented in the daily command team meetings.	Include a section in the operations plan that will be developed over the coming year on incident command structures and how incident command should regularly assess the situation and staff representation in meetings and the response. Exercise the process.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	II.D.12: The process the EPA used to control Washington data made it difficult for state health to maintain leadership over the state's response. EPA frequently released data without prior warning or discussions with our staff, which then became responsible for explaining the data to the public.	We should engage the EPA to work on this coordination issue.						
	II.D.13: The process for handling a public disclosure request during the response was not clear.	Training on public disclosure requests should be required regularly by all agency staff.						
	II.D.14: We had to play catch up at times when the media used independent research groups such as universities to get the information they were looking for that they thought they could not get from the government.	Anticipate early in any response that there will be private research groups providing information quickly. By anticipating what these groups may do, we'll be more able to respond quickly and maintain credibility						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	II.D.15: There was a lack of knowledge on the roles and responsibilities between HSQA and Radiation Protection on the use of Potassium Iodide (KI) in response to a radiological release.	Establish a workgroup between the HSQA, Board of Pharmacy, and Radiation Protection to work on coordination issues around pharmaceutical treatments for radiation exposure. The main goal for the workgroup should be to clearly identify roles and responsibilities between the two programs.						
	II.D.16: Managing this event was made much more difficult with the East Coast focus messaging from the federal government that was responding to the incident.	We must work closely with federal partners and other regional state partners to address this issue. This may not be an issue that can be addressed quickly or efficiently, but steps should be taken to educate federal partners on their role and how it impacts states on the West Coast.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	II.D.17: Initially we had difficulty coordinating air sampling both internally and externally.	Radiation Protection should include the process for air sampling and testing in its response plans. This should include identifying who has what samplers and how sampling will be coordinated in future responses.						
	II.D.18: Command and control was difficult to maintain at times, and there were visible negative consequences when personal decisions were made by staff outside of the incident command structure.	Develop policies that guide the agency and staff during a response. Include the effects that incident command has on the agency during an emergency response and how the structure is to operate when staff members are reporting to positions outside of their normal management chain.						
	II.D.19: Early in the response the incident command leadership changed without a formal briefing, which caused several communication and operational issues.	Develop a plan and procedure for shift changes in incident command, similar to what has been established in the agency EOC. The shift change should include briefing the incoming leadership and guidance on official announcements of incident command changes.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	II.D.20: Many reports and documents that were generated during the response did not have a date and time on them or information on who had created the report.	Develop a procedure to make sure the date and time is posted on all documentation related to a response, even when the agency EOC is not activated. Also, include the name of the document owner or originator.						
	II.D.21: E-mail traffic was confusing at times when the "Reply All" was used and there was no direct comment made to whom assignments were being given to or to whom questions were being asked.	Include e-mail management in training of staff and also include a piece on the importance of being clear on assignment distribution.						
	II.D.22: The agency was not prepared for the psychosocial impacts of this incident on the public and its own staff.	Develop a plan to handle the psychosocial effects of a radiological event and all events. Psychosocial impacts are difficult to measure but can require as much effort to respond to as other activities in an event.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	II.D.23: We had difficulty anticipating questions that came from healthcare providers and developing talking points for them and local partners.	Radiation Protection should include a section in the Appendix 2 Radiation Emergencies plan for information that can be provided quickly to local health partners and medical providers. The section should include fact sheets, talking points, and additional information that would be beneficial for them to understand the impacts of radiation.						
	II.E.1: Although the use of ICS worked well during the response, it hindered and sometimes prevented the normal day-to-day operations in responding programs from functioning.	The agency should develop a mechanism to monitor effects of responses on program activities outside the response, especially compliance, legislative, or required contract work. The information on the effects should be fed into the decision making process by the incident command team and ART. The ART should be used to address areas that may be of higher concern or priority.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
Emergency Public Information and Warning	III.A.3: The use of the Office of Drinking Water's communications person as a Communications Liaison to Radiation Protection was valuable to the staff responding. She was able to work directly with radiological technical staff to make complex issues more understandable	The agency should update plans and procedures to include the process of reaching out for technical expertise across the agency without hindering other programs' ability to conduct day-to-day work. Include a process for requesting technical expertise and how the program and incident command works together to address the request.						
	III.A.4: Some of our executive and responding staff could not access Town Center 1 on the weekends, including March 12, for response activities	Make sure the identified staff, including executive management, has the appropriate access to Town Center 1. With Town Center 1 being the central point for ART meetings and the agency EOC, it is important that staff have access during non-business hours.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	III.A.5: We had difficulty balancing communication and science. Some staff questioned why the more technical data was not being shared quickly and more openly.	Develop a process for basic training on risk communication to staff that have a role in an emergency response. The training can be made available online if necessary so that staff can have access to it easily. Also, update plans and procedures with lessons learned on risk communication from this response.						
	III.B.1: The Office of Communications and Office of Radiation Protection did a great job coordinating and developing messaging, including talking points for communications staff and executives, which allowed the message to remain the same no matter the audience. The talking points had great value throughout the response.	Update plans and procedures with the lessons learned on public information coordination between the Office of Communications and Radiation Protection programs.						
	III.B.2: The media and general public did not know that state health has the lead for radiological issues, and not the Department of Ecology.	Develop a working relationship with the local media on this issue.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	III.C.5: How media contacts are handled. There were several times during the response that contact was made with media outside of the incident command structure.	Update plans and procedures with the process for identifying and establishing the single point of contact for media during emergency responses. Also, build in a training and education program for staff to understand the impacts of communicating with media in an event, and that when an agency employee speaks to the media, they speaking for the agency.						
	III.C.6: After we created a web page for all materials on the disaster in Japan, some programs put up materials related to the response on their own websites. The information on their program sites was not vetted through the incident command team.	Update plans and procedures to more clearly outline how the agency websites will be used in an emergency response. When a website is created for an incident or event, all related materials for public and partners should be located on the central site.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	III.C.7: Radiation Protection staff would benefit from training on website messaging.	Radiation Protection should identify at least two staff members to attend training on website messaging. Consider sending some Radiation Protection outreach staff to training on website messaging.						
	III.C.8: Department of Health has limited communications capacity across the agency.	Identify staff across the agency with ability to fill roles in communications during an event. Once staff members are identified, a training plan can be developed to train them in risk communications and other areas in which they will need to respond effectively.						
	III.D.4: The public perceived that the EPA RadNet monitor in Richland belonged to the Washington State Department of Health, and when it stopped reporting data, calls came to the state health department, not EPA, to find out why. EPA did not fix it.	State health should be more detailed on which agencies are doing each type of sampling and who owns each monitor. Though we should pull data from every source to respond, it is important to clearly identify where the data are coming from and who owns it.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	III.D.5 : Department of Health was too slow at times in developing public information materials and press releases.	Take lessons learned on the development of public messaging from this response and update plans and procedures. Include a process in the updated plans to develop public information materials quickly that include the technical experts and communications experts.						
	III.D.6: The lack of pre-developed materials on radiological dangers and concerns directly affected the response by putting an undue burden on staff to quickly develop information that could be used during the response.	Include an attachment to the Appendix 2 Radiation Emergencies on public messaging. Take the messages, frequently asked questions, and news releases from this event and adapt them to be more generalized and include them in the plan.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	III.D.7: Radiological facts sheets were out of date and not useful.	Radiation Protection should see if pre-existing fact sheets can be updated and if not, create new ones based on the lessons learned from this event. Once the fact sheets are current, they should be added to plans and procedures, and regularly checked for needed updates.						
	III.D.8: Radiological preparedness and planning has not kept up with the development of technology, including social media, making it difficult on Radiation Protection.	Take lessons learned on the development of technology and social media from this response and update plans and procedures. Include a process in the updated plans to include these resources in public information dissemination.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	III.D.9: There seemed to be a lack of knowledge with technical staff on risk communications.	Train emergency response technical staff on risk communications. The focus of the training should be on how to take their program and subject matter knowledge and help prepare factual, accurate, and timely information to the public						
	III.D.10: We had difficulty at times communicating technical aspects of radiation to concerned citizens. Explaining “no risk” versus “no public health risk from this event” was difficult.	State health should always try to keep technical information from being released without some simple explanation or context of what data means. Procedures should be established to make sure that information is clear and concise no matter how technical the topic.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
Information Sharing	IV.B.1: Important information for public health professionals must reach the professional partners quickly so that they can feel confident in the information they are receiving.	Build a process in the agency's plans and procedures to quickly identify and disseminate professional level information during a response. The plans should contain pre-event messaging that can be used during any response. For example, a document on the basic impacts of radiological events and basic information on what is a threat to public health.						
	IV.B.2: There was no standard format for the daily situation reports from the Public Health Laboratories.	The PHL should develop a standard situation report that the lab can use for all hazards. Consider using standard NIMS forms as a starting point, and add additional pieces that are necessary. Include a distribution list of who the report will be sent to no matter the event. List should include, SMT, CAG, ART, PHEPR, and the Office of Communications.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	IV.C.8: EMD conference call capacity was not large enough to provide room for all emergency management and public health partners to participate in the tsunami conference calls.	EMD should identify resources needed to have more capacity for conference calls. The conference calls should be able to handle enough participation to accommodate agencies from across the state to listen in and participate.						
	IV.C.9: Technical radiation assistance and educational calls with local health partners should have happened sooner in the response.	Update Appendix 2 Radiation Emergencies plan with the process for establishing the technical calls early in the response. Also, include the process for establishing local health calls in the operations plan that will be developed over the coming year.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	IV.C.10: Standard communication channels with federal partners, such as the Nuclear Regulatory Commission (NRC), were not effective. Also, the lack of sharing of radiological data by federal partners created difficulties for state health during the response.	Radiation Protection, Drinking Water, and PHEPR should develop a strategy to bring federal regional partners together to work on the issues of sharing information during a response. The reason for the information not being shared during the response was never clear and needs further investigation. Data must be sent to affected states before federal partners release it to the media.						
	IV.C.11: There was no formal process to maintain centralized situational awareness and many times staff members were working on the same assignment or did not have the same information that other staff had.	Use WebEOC during response activities even when the agency EOC is not activated. WebEOC will help to maintain situational awareness and provide a mechanism for better coordination.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	IV.C.12: There was a lack of clarity and purpose for the conference calls with local health officials.	Establish procedures for how calls will be conducted in an emergency and a quick reference sheet that can be provided before calls. The reference sheet can have the basic information and ground rules for the calls and also remind staff of how the calls will be conducted.						
	IV.C.14: The lack of guidance on passenger screening protocols from the federal government caused state health to have to develop its own protocols during the response.	State health should ask CDC and other federal partners to update the passenger screening protocol guidance, using the protocol that was released by CDC during the disaster in Japan incident. Once the guidance is updated it can be used as a planning tool for Washington and other states to use to update plans and procedures.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
Public Health Laboratory Testing	V.A.2: There was confusion during the response of what was being tested at the PHL and what was being tested by other labs	Develop a Laboratory Operations plan that can be included in the agency CEMP. The plan should capture how the PHL integrates into an emergency response and how sampling is prioritized and data is reported. The plan should also identify the capabilities of other labs in the region and how to integrate them into a response. Once the plan is completed, state health staff and leadership should be trained to the plan, and the plan should be exercised.						
	V.A.3: The impacts of the PHL/regional partner MOU/MAAs are not clearly understood in a radiological event. If another state were to request assistance in testing radiological samples, how would the request impact DOH response?	The state health PHL should do an analysis of how the MOU/MAA can impact the agency during a response and how the MOU/MAA can be used. Once that is known, PHL should develop a process to involve agency senior leadership in the decision process for when the PHL will fulfill the MOU/MAA obligations.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	V.A.4: The PHL did not use ICS during the response.	PHL should work with PHEPR to bring ICS training to the staff at the PHL. The PHL should also develop an ICS that can be used in an event and integrate with the agency ICS through the agency EOC.						
	V.B.1: The PHL did not have a stock of local sampling devices to support the response.	PHL must have an inventory of local sampling devices, such as air samplers and iodine cartridges and support items to maintain and properly use these, such as calibrators. The PHL should look at developing a process for stocking the necessary sampling devices. Work with Radiation Protection to identify funding sources if necessary and to establish procedures for maintenance and testing.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
	V.B.2: There was no sampling plan developed by Radiation Protection for the PHL to follow in the early stages of the response. Because there was no plan, there was sample testing that was done without analyzing its impact on the response.	Radiation Protection should work with the PHL to develop a sampling plan for non-fixed nuclear facility incidents. Radiation Protection should develop a sample management plan that details how samples are selected for testing and how the results are shared. SOPs should be developed for both Radiation Protection and PHL staff to use during a response.						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
Public Health Surveillance and Epidemiological Investigation	VI.A.1: State health its and federal partners had difficulty identifying the appropriate standards with which to compare radiological testing data. At times, standards were inappropriately used and test results were compared to standards that were not appropriate for this event. A particular problem was a comparison of rainwater and milk to EPA's municipal drinking water standards (a very low standard instead of FDA's much higher standards, making it look like the rainwater was unsafe).	Update Appendix 2, Radiation Emergencies in the agency CEMP with a process to identify appropriate standards and to monitor the standards that are used in a response. Consider developing messaging on the issues around standards so that there are messages that can be disseminated quickly in a real incident. If standards are not in place, a process for creating or communicating risk to both our partners and the public should be considered.						
	VI.A.2: There is a great deal of confusion between the use of American radiation units (rem, picocuries, etc.) and International Units (Sieverts, Becquerel's, etc.).	Radiation Protection should consider using both sets of units in radiological training. Also, a quick reference sheet should be developed that can be used in a response to educate both agency staff and local partners on the different units						

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
Responder Safety and Health	VII.A.2: Radiation Protection did not use staff efficiently and overburdened a number of staff.	Update the Appendix 2 Radiation Emergencies plan with a portion on managing stress and health of responding staff. Have a person assigned to specifically address this concern during a response.						
	VII.A.3: Incident command did not do a sufficient job on making sure staff were not overwhelmed or overly stressed during the response.	Incident command positions should be rotated more frequently during a response. Establishing a safety officer that is part of the incident command team, or designating someone in the incident command to take the role, would help to monitor the situation and determine when a rotation is needed						

APPENDIX B: ACRONYMS

Table B.1: *Acronyms*

Acronym	Definition
APHL	Association of Public Health Laboratories
ART	Assessment Response Team
ASTHO	Association of State and Territorial Health Officials
CAG	Chief Administrators Group
CAP	Corrective Action Plan
CDC	Center for Disease Control and Prevention
CEMP	Comprehensive Emergency Management Plan
CFH	Community Family Health Division, DOH
CIP	Critical Infrastructure Protection
COOP	Continuity of Operations Plan
DHS	Department of Homeland Security
DIRM	Division of Information Resource Management, DOH
DOH	Department of Health
DSHS	Department of Social and Health Services
EHD	Environmental Health Division, DOH
EHSPHL	Epidemiology, Health Statistics, Public Health Laboratory, DOH
EMD	Emergency Management Division, Washington State
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOP	Emergency Operating Procedures
FDA	U.S. Food and Drug Administration
FEMA	Federal Emergency Management Agency
HHS	Health and Human Services
HSQA	Health Systems Quality Assurance, DOH
ICS	Incident Command Structure
JIC	Joint Information Center
LHJ	Local Health Jurisdiction
LRN	Laboratory Resource Network
MAC	Multi-agency coordination
MOU	Memorandum of Understanding
MX	Managing Executive
NACCHO	National Association of County and City Health Officials
NIMS	FEMA National Incident Management System

Acronym	Definition
ODW	Office of Drinking Water
ORP	Office of Radiation Protection
PHEPR	Public Health Emergency Preparedness & Response
PHL	Public Health Lab, DOH
PIO	Public Information Officer
PMT	Program Management Team
SECURES	Secure Electronic Communication, Urgent Response and Exchange System
SITREP	Situation Report
SME	Subject Matter Expert
SMT	Senior Management Team
SNS	Strategic National Stockpile
SOP	Standard Operating Procedure
TCL	Target Capabilities List
TTX	Tabletop Exercise
WA	Washington State
WebEOC	Web Emergency Operations Center
WSP	Washington State Patrol