



Highway 36 Public Health Assessment Summary

Original Exposure Investigation questions:

1. Are residents in the Highway 36 Corridor being exposed to pesticides from local application practices?
2. If residents are being exposed:
 - a. To what pesticides are they being exposed?
 - b. To what levels are they being exposed?
 - c. What are potential source(s) of the pesticides to which they are exposed?
 - d. What are potential routes (pathways) of residents' exposures?
 - e. What health risks are associated with these exposures?

The Oregon Health Authority (OHA) has released an interim report for the Highway 36 Corridor Exposure Investigation (EI). This fact sheet summarizes the main findings of the report, and the progress made toward answering the EI's original questions (See questions to the left.) The report is open for public comment until July 9, 2013. Directions on how to submit comments are provided at the end of this fact sheet.

This EI was initiated in response to community concerns about local pesticide application practices near their homes and schools. Citizens have raised concerns about the effects these pesticides may have on their health, and the health of their families.

This public health assessment (PHA) reports on the following data:

- Urine sample data collected by community members in the spring of 2011;
- Urine samples collected by the Agency for Toxic Substances and Disease Registry (ATSDR) and OHA in the fall of 2011;
- Environmental samples (water, soil and homegrown food) collected by the U.S. Environmental Protection Agency (EPA) and the Oregon Department of Environmental Quality (DEQ) in the fall of 2011;
- 2011 pesticide application record data from the Oregon Department of Forestry (ODF) and the Oregon Department of Agriculture (ODA);
- Community-collected air and water samples;
- Qualitative information in the form of comments, questions, communications, surveys, historical and legal documents, media articles, and recorded events.

Main conclusions of the report and how they relate to the original EI questions:

Are residents in the Highway 36 Corridor being exposed to pesticides from local application practices, and if so, to what pesticides?

- This investigation found evidence that residents of the investigation area were exposed to 2,4-D and atrazine in the spring of 2011, and 2,4-D in the fall of 2011.
- OHA could not determine if participants were exposed to pesticides other than 2,4-D and atrazine because we could not locate a laboratory that had the ability to test for other chemicals in urine.

To what levels are residents being exposed?

- The spring 2011 samples showed residents had statistically higher levels of 2,4-D than the general U.S. population when compared to the National Health and Nutrition Examination Survey (NHANES).
- The spring samples showed residents had evidence of atrazine exposure. However, we do not know how the levels found compare to the general U.S. population because there is no NHANES or other health based reference value for the atrazine metabolites tested.
- The fall 2011 samples showed residents had levels of 2,4-D that were similar to those of the general U.S. population, while there were no detections of atrazine. The fall sampling was intended to establish baseline information about residents' exposure levels, and was carried out during the time of year when applications were presumably at their lowest.

What are potential source(s) of the pesticides to which they are exposed?

- This investigation could not confirm that the spring 2011 exposures were from aerial and ground applications of 2,4-D and atrazine that occurred in the area during the same time period. However, available evidence suggests it may be possible. Atrazine levels in some residents' urine were statistically higher after aerial atrazine applications than before applications.

What are potential routes (pathways) of residents' exposures?

- Results from the analysis of drinking water, soil and food samples gathered in the fall of 2011 indicate they were not pathways of exposure for the 2,4-D found in participants' urine during the same time period.
- Air data is a critical, missing piece of information about exposures in the investigation area. Neither OHA nor the EI team members have had the capacity to monitor air for the pesticides used in the area, and community-collected air samples were too few in number to confirm or eliminate air as a route of exposure. EPA is developing a plan to address this gap in our understanding.

What is NHANES?

The National Health and Nutrition Examination Survey (NHANES) is an annual survey that reports on many health indicators, including the results of 212 chemicals measured in the blood or urine of thousands of participants across the United States.

NHANES tracks 2,4-D nationwide but it does not track the atrazine metabolites measured in the community-collected urine samples. NHANES findings show that chemical exposures are widespread among Americans.

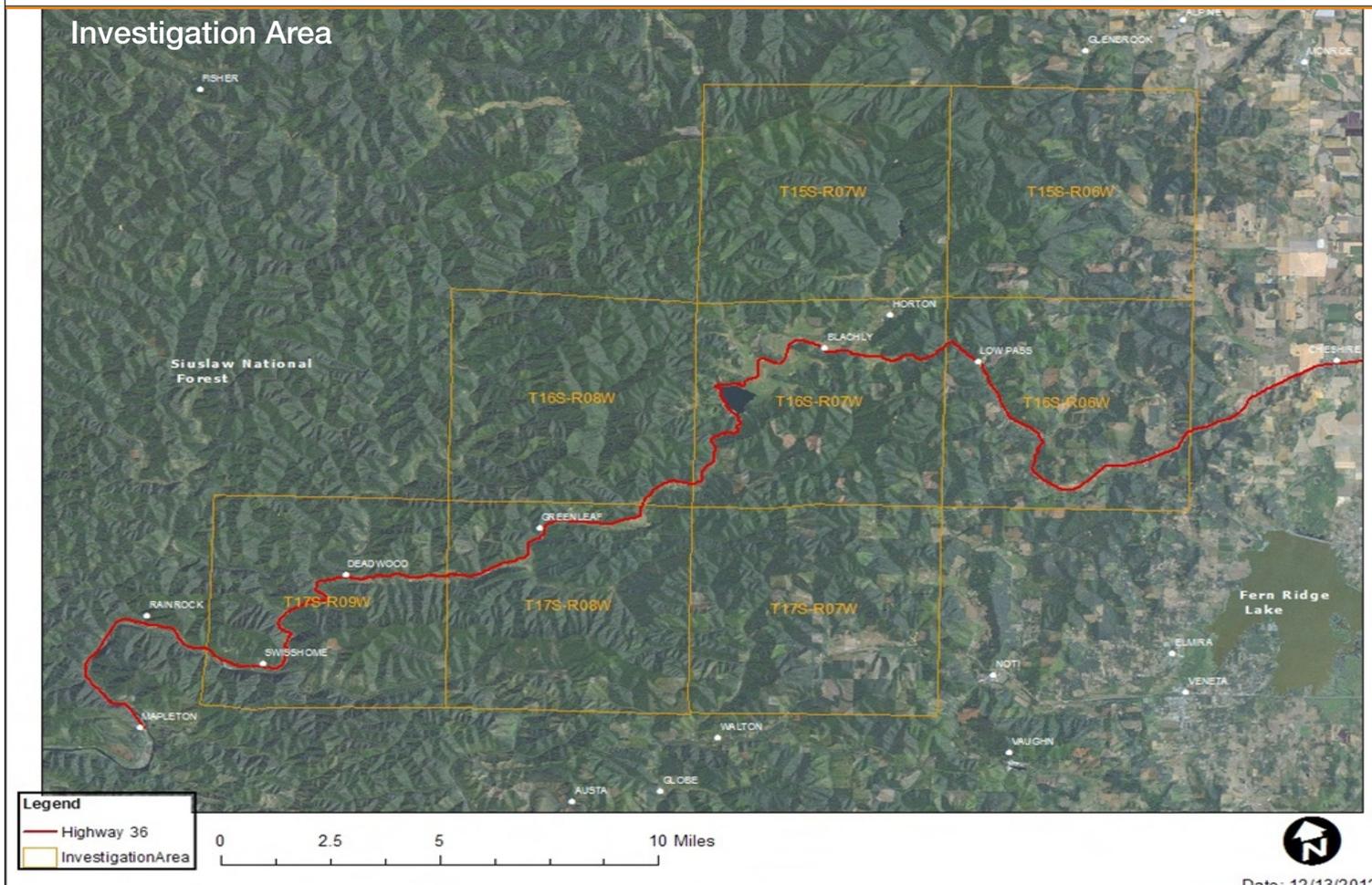
What health risks are associated with these exposures?

- The levels of 2,4-D found in participants' urine in both the spring and fall of 2011 were below levels known to cause harm to health and were well below the health-based reference value for 2,4-D.
- We are unable to determine if the levels of atrazine metabolites found in participants' urine in the spring of 2011 indicate harm to health. Unlike 2,4-D, there is no reference value for the atrazine metabolites tested for in participants' urine.
- We are also unable to determine the health effects of exposure to multiple pesticides at low doses. There is a limited but growing body of scientific evidence on the health effects from exposure to multiple pesticides, but current methods do not allow for a determination of risk resulting from exposure to multiple chemicals.

Recommendations and next steps

Pertaining to the Exposure Investigation under way, OHA recommends that:

- U.S. EPA work with the EI team on developing a sampling and analysis plan designed to evaluate exposures to pesticides in air. At this time, passive air monitoring over several application seasons appears to be the best option to collect community-wide air data.
- ODA and ODF continue to provide pesticide application data as needed to interpret air sampling (or other) data collected as part of this investigation.
- State and federal agencies involved in the ongoing EI develop a plan that includes identifying resources needed to carry out activities appropriate to each agency's role in this effort.



Pertaining to broader and/or longer-term issues identified by the Exposure Investigation, OHA recommends that:

- ODA and ODF work with pesticide applicators to develop consistent pesticide application record-keeping processes to ensure that records are accurately maintained and usable.
- State agencies explore the feasibility of implementing a system that would allow sensitive populations to be notified of imminent pesticide applications in such time and with such specificity that they could take action to avoid exposure to those applications. Such policies could include adoption of systems developed by other jurisdictions or modification of existing regulatory systems designed to monitor pesticide applications.
- State and federal agencies involved in the EI develop a plan to address these recommendations, including identification of resources to carry out activities appropriate for each agency's role in serving the communities of Oregon. That plan should include a recommendation on how the agencies should coordinate, collaborate and share resources.
- Community members, including local government representatives and other community leaders, consider seeking the assistance of a professional mediation group to address immediate and long-term community conflicts and identify actions to move these conflicts toward resolution.

OHA will:

- Review and respond to all public comments received and release a final version of this report upon completion.
- Work with state and federal partners, community members and other stakeholders to implement the recommendations in this report.
- Continue to maintain and provide updates through the Highway 36 Website and listserv.
- Compare application records from 2011 to application records from 2009 and 2010, to determine if there were noticeable (substantial) changes in application practices after the EI began in 2011.
- Review air sampling data once it is collected by the EPA.
- Develop and release another PHA, which will include all previous sampling data, pesticide application data from 2009–2011 and air sampling data collected by the EPA.



PUBLIC HEALTH DIVISION
Environmental Health Assessment Program

www.healthoregon.org/ehap

For more information about this Health Consultation, please contact EHAP at **ehap.info@state.or.us** or call 1-877-290-6767.

This document can be provided upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request this publication in another format or language, contact the Environmental Health Assessment Program at 971-673-1244 or 971-673-0372 for TTY.

This summary fact sheet is supported by ATSDR grant award U61 TS000150

OHA 8617 (5/2013)

How to submit public comment:

OHA will be accepting public comment on this report for 60 days, until July 9, 2013. Please submit written comments via email to ehap.info@state.or.us, or via postal service to: Environmental Health Assessment Program (EHAP), 800 N.E. Oregon St., Suite 640 Portland, OR 97232