Reclaimed Water Infiltration Study

LOTT Clean Water Alliance
Lacey • Olympia • Tumwater • Thurston County

Introduction

LOTT is conducting a study to answer community questions and concerns about residual chemicals that may remain in reclaimed water, and what happens to them when reclaimed water is infiltrated into the ground.

The many household and personal care products we all use, such as medicines, soaps, shampoos, cleaning products, lawn care products, and even some foods, contain a broad variety of chemicals. Some of these chemicals end up in wastewater that gets sent to a treatment plant for cleaning before it is released back to the environment. Most of our wastewater from the Lacey-Olympia-Tumwater area is currently treated at LOTT's Budd Inlet Treatment Plant and discharged to Budd Inlet. Some is treated to reclaimed water standards and reused in the community or infiltrated into the ground where it mixes with groundwater, our region's source of drinking water. Infiltrating reclaimed water to groundwater is a key part of our communities' long-range plan for managing wastewater into the future.

Study Goal

The goal of the Reclaimed Water Infiltration Study is to provide local scientific data and community perspectives to help policymakers make informed decisions about future reclaimed water treatment and uses.

The key question that the Reclaimed Water Infiltration Study is intended to answer is:

What are the risks from infiltrating reclaimed water into groundwater because of chemicals that may remain in the water from products people use every day, and what can be done to reduce those risks?

Study Structure

The Reclaimed Water Infiltration Study is a dual track study focusing on science and public engagement.

- The scientific portion of the study will provide local data about potential risks from infiltrating reclaimed water into groundwater.
- Public engagement will encourage community conversations about what can be done to reduce those risks.

Both the scientific data and the community perspectives are essential for meeting the study's goal.

Oversight and Implementation

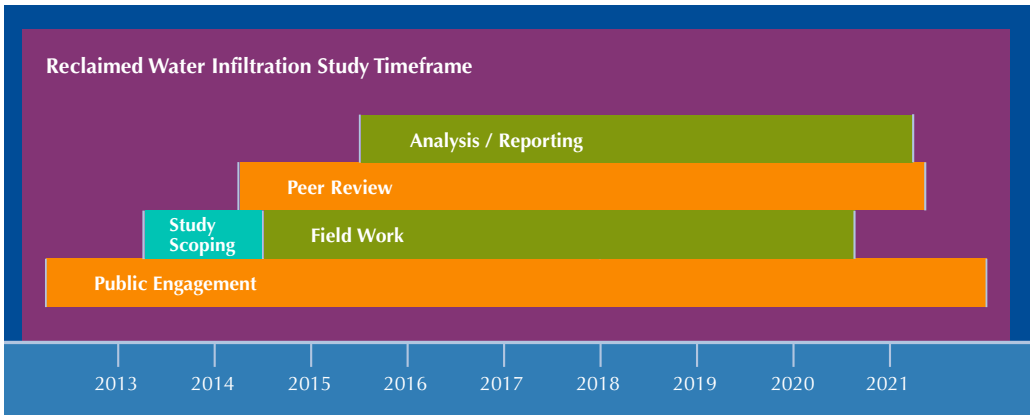
Several different groups and committees are involved in guiding and conducting the study:

- LOTT Board of Directors – The Board of Directors have directed staff to conduct a study that is objective, credible, transparent, and science-driven.
- LOTT Technical Sub-Committee – The Technical Sub-Committee consists of the Public Works Directors for each of LOTT's partner jurisdictions, as well as LOTT's Executive Director, Operations & Facilities Director, and Engineering Director, and the County's Environmental Health Division Director. This group serves as the Steering Committee for the study.

- Community Advisory Group – This group of local citizens provides input to help ensure community questions are addressed by the study.
- Science Task Force – This group is made up of technical staff from LOTT, LOTT's partner jurisdictions, the Squaxin Island Tribe, and the State Departments of Ecology and Health.
- Peer Review Panel – The National Water Research Institute is an independent third party charged with leading study review by a team of nationally-recognized experts representing the fields of health, toxicology, hydrogeology, wastewater treatment, and more.
- Study Team – HDR Engineering serves as the primary consultant for the study, with a full suite of sub-consultants to assist with various specialties. LOTT staff members provide project support for the study and its associated public engagement efforts.

Timeframe

This study is an ambitious multi-year effort. The study is anticipated to be complete in 2021.



Community Questions and Concerns

One of the first steps of the study involved identifying questions and concerns that the community has regarding infiltration of reclaimed water to help guide study design. Through meetings of the Community Advisory Group, public opinion surveys and interviews, meetings of the Science Task Force, and other interactions with the public, a list of more than 85 questions was developed. These questions generally fall into one of four question areas that form the basis for the study framework. Objectives and activities relating to each of the four study components incorporate many of the community questions into the study framework.

Study Framework

Task 1: Water Quality Characterization

What is the current quality of our local waters: groundwater, surface waters, drinking water, wastewater, and reclaimed water?

Approach

- Analyze quality of area groundwater and surface water
- Analyze LOTT wastewater and reclaimed water for residual chemicals

Task 2: Treatment Effectiveness Evaluation

What happens to reclaimed water that is infiltrated to groundwater: where does it travel and how quickly, and how does the quality of the water change over time?

Approach

- Learn more about where reclaimed water infiltrated at the Hawks Prairie site goes, and how quickly
- Analyze groundwater at Hawks Prairie along reclaimed water flow paths to learn how water quality changes

Task 3: Risk Assessment

What are the relative risks of replenishing groundwater with reclaimed water?

Approach

- Determine the types and degrees of risk associated with infiltrating reclaimed water into local area groundwater
- Evaluate both human and ecological risks

Task 4: Cost/Benefit Analysis

What are the costs and benefits of various approaches for treating and using reclaimed water?

Approach

- Calculate long-term costs and benefits of various options for managing reclaimed water
- Consider various treatment levels and alternative uses of reclaimed water

Study Outcomes

Local data and community perspectives will help policymakers with decisions about future treatment and uses of reclaimed water. Possible outcomes include:

- Continuing infiltration of reclaimed water as currently planned
- Using additional or alternative treatment processes to improve water quality
- Investing in other uses of the water to reduce the need for more infiltration
- Making changes to how reclaimed water is infiltrated
- Investing in other actions to protect our local water resources

Learning More

LOTT welcomes public input about the study effort. To learn more about the Reclaimed Water Infiltration Study, visit www.lottcleanwater.org.

To share questions or comments, or if you would like to receive updates about the reclaimed water study and opportunities for public involvement, please send an email with your contact information to: reclaimedwaterstudy@lottcleanwater.org.

Your comments or requests for information can also be sent to:

Reclaimed Water Infiltration Study
LOTT Clean Water Alliance
500 Adams Street NE
Olympia, WA 98501

Reclaimed Water Infiltration Study Current Participants

LOTT Board of Directors

Carolyn Cox – City of Lacey Council Member
Lisa Parshley – City of Olympia Council Member
Leatta Dahlhoff – City of Tumwater Council Member
Tye Menser – Thurston County Commissioner

Steering Committee (LOTT Technical Sub-Committee)

Scott Egger – City of Lacey Public Works Director
Rich Hoey – City of Olympia Public Works Director
Dan Smith - City of Tumwater Water Resources & Sustainability Director
Jennifer Walker – Thurston County Public Works Director
Art Starry – Thurston County Environmental Health Division Director
Michael Strub – LOTT Executive Director
Terri Prather – LOTT Operations & Facilities Director
Brian Topolski – LOTT Engineering Director

Community Advisory Group

Maureen Canny
John Cusick
Holly Gadbaw
Karen Janowitz
Bill Liechty
Scott Morgan
Pixie Needham
Tina Peterson
Edward Steinweg
Richard Wallace

Science Task Force

Erik Iverson – City of Lacey Water Quality Analyst
Peter Brooks - City of Lacey Water Resources Manager
Erin Conine – City of Olympia Senior Water Resources Specialist
Dan Smith – City of Tumwater Water Resources & Sustainability Director
Carrie Gillum – City of Tumwater Water Resources Specialist
Art Starry – Thurston County Environmental Health Division Director
Kevin Hansen – Thurston County Hydrogeologist
Erica Marbet – Squaxin Island Tribe Water Resources Biologist
Hans Qiu – Department of Ecology Hydrogeologist
Mallory Little – Department of Health Toxicologist
James Watt – Department of Health Toxicologist

Peer Review Panel

Paul Anderson, Ph.D. – ARCADIS US, Risk Assessment Consultant
James Crook, Ph.D., P.E. – Environmental Engineering Consultant
Michael Dodd, Ph.D.– University of Washington Environmental & Occupational Health Sciences
Michael Kenrick, M.S. – GeoEngineers Hydrology Consultant
Edward Kolodziej, Ph.D. – University of Washington Civil & Environmental Engineering Professor
John Stark, Ph.D. – Washington State University Ecotoxicology Professor and
Washington Stormwater Center Director

Study Team

Jeff Hansen – HDR Engineering Project Engineer
Shane McDonald, P.G. – HDR Project Hydrologist
Michael Murray, Ph.D. – HDR Project Soil Scientist
Wendy Steffensen – LOTT Reclaimed Water Infiltration Study Project Manager
Lisa Dennis-Perez – LOTT Environmental Planning & Communications Director
Joanne Lind – LOTT Public Communications Manager