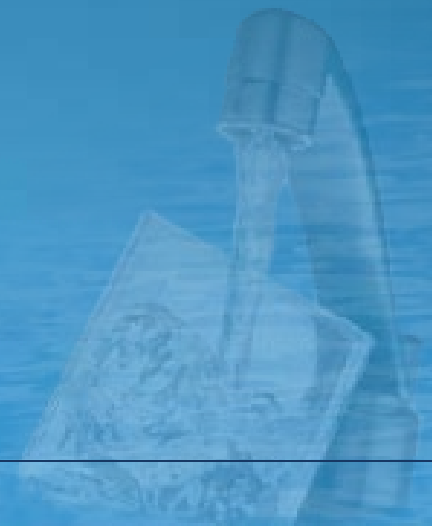


MINT FARM WELLFIELD WELLHEAD PROTECTION PROGRAM

LONGVIEW CITY COUNCIL MEETING
FEBRUARY 9, 2012

Jeff Cameron, Public Works Director
Amy Blain, Engineer/Project Manager



PRESENTATION OUTLINE

- Introduction
- Required Program Elements
- Susceptibility Assessment
- Wellhead Protection Area
- Potential Contaminants Inventory
- Wellhead Protection Program Strategies
- Groundwater Monitoring Plan
- Contingency Plan
- Spill & Incident Response
- Recommendations



INTRODUCTION

- Goals of the Wellhead Protection Program (WHPP):
 - Protect the quality of municipal drinking water
 - Utilize monitoring wells to provide early warning
 - Prescribe water quality sampling protocols
 - Comply with State and Federal requirements
 - Include more restrictive WHPP elements as appropriate
 - Enhance communication with local industry and other government agencies



REQUIRED PROGRAM ELEMENTS

- WAC 246-290-135 requires water system purveyors using a groundwater source to implement a WHPP that includes, at a minimum:
 - Completed susceptibility assessment
 - Delineation of the 6-month, 1-year, 5-year and 10-year time of travel zones for the Wellhead Protection Area (WHPA)
 - Inventory of known and potential contaminant sources in the WHPA
 - Notification to owners/operators of known or potential contaminant sources identified in the inventory
 - Notification to regulatory agencies and local governments of the WHPA boundary and inventory findings
 - Contingency plan to ensure adequate potable water supply in the event of contamination
 - Documentation of coordination with local emergency incident responders

SUSCEPTIBILITY ASSESSMENT

Regional Sources of Risk to Groundwater

| | 6-month | 1-year | 5-year | unknown |
|---|---------|--------|--------|---------|
| Likely pesticide application | ✓ | ✓ | ✓ | |
| Stormwater injection wells | | | | |
| Other injection wells | | | | |
| Abandoned groundwater well | ✓ | | | |
| Landfills, dumps, disposal areas | ✓ | ✓ | | |
| Known hazardous material clean-up site | ✓ | ✓ | | |
| Water system(s) with known quality problems | | | | |
| Population density > 1 house/acre | | ✓ | ✓ | |
| Residences commonly have septic tanks | | | | |
| Wastewater treatment lagoons | | | | |
| Sites used for land application of waste | | | | |

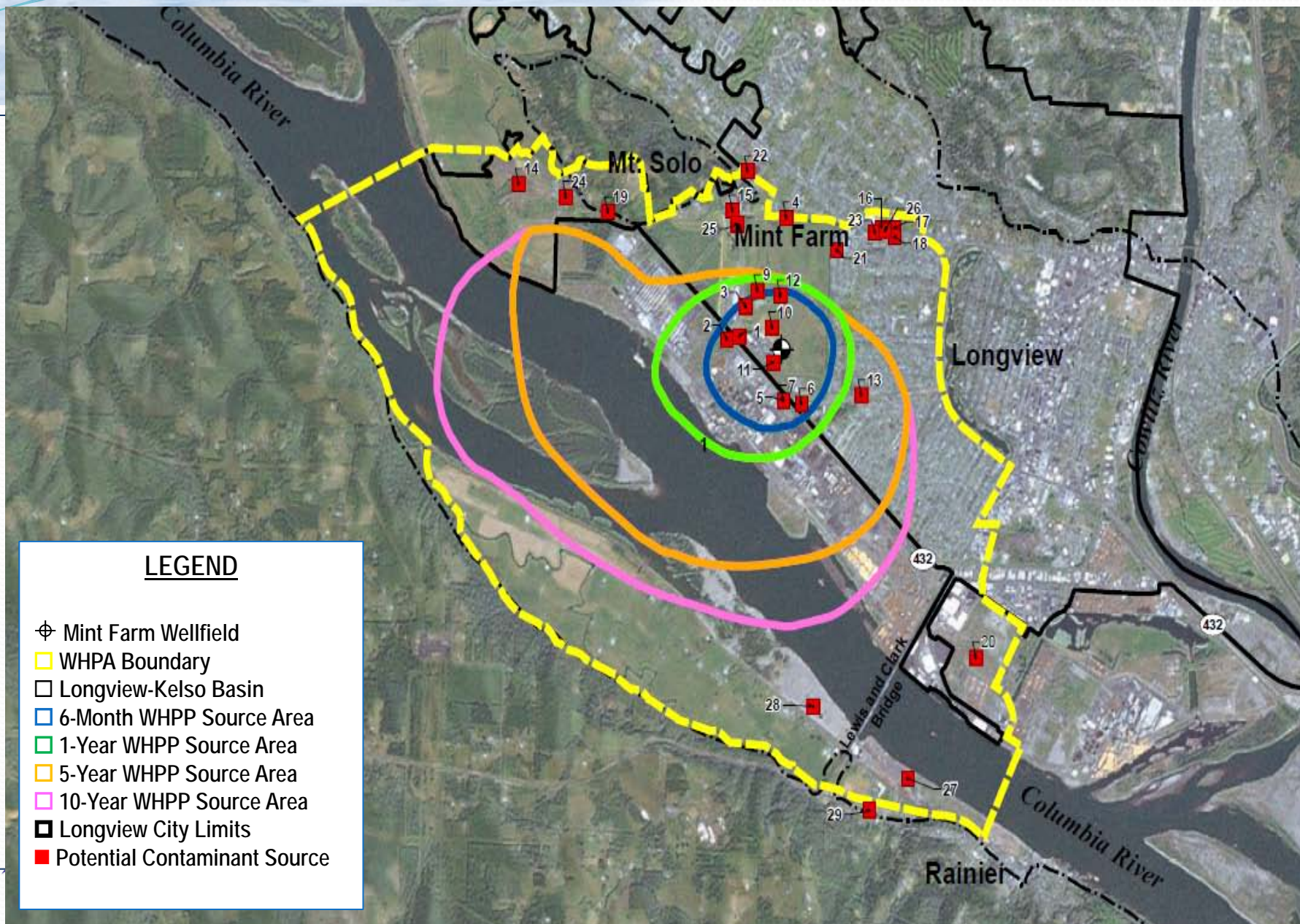
D.O.H. Required Table

- No recorded or potential sources of contaminants exist in the gravel aquifer
- Contaminants detected in shallow groundwater were below health risk levels
- Remedial action underway at:
 - WeyCo for mercury;
 - Millenium Bulk for flouride and cyanide
- No Further Action letter issued to Flexible Foam for VOCs

SUSCEPTIBILITY ASSESSMENT

- Aquifer water quality information
 - Samples taken from PW₁ were analyzed for all contaminants regulated by the state for drinking water
 - No contaminants detected above Maximum Contaminant Level (MCL)
 - No contaminants detected at levels of risk to human health
 - No nitrate was detected
 - No Volatile Organic Compounds (VOC's) or Semi-Volatile Organic Compounds (SOC's) were detected
 - No pesticides including ethylene dibromide (EDB) or dibromo-chloro-propane(DBCP) were detected
 - No toxic metals were detected

WELLHEAD PROTECTION AREA



POTENTIAL CONTAMINANTS INVENTORY

Table 5-2: List of Potential Sources of Contamination

| Company/Business | Site Name | Map Location | Latitude/Longitude | Time of Travel Zone |
|--|--------------------------------------|--------------|---------------------------|---------------------|
| Moeller Land/Cattle Co. | Flex Foam Facility | 1 | 46.1375/122.98583 | 6-Month |
| Bonneville Power Administration | Longview Substation | 2 | 46.13716/-122.98786 | 6-Month |
| Mint Farm Energy Ctr, LLC | Energy Plant | 3 | 48.14028/122.985 | 6-Month |
| Weyerhaeuser | Mint Farm | 4 | 46 8 54.83/122 58 43.62 | 6-month |
| Weyerhaeuser | HG Chlor Alkali | 5 | 46.13171/-122.9785 | 6-Month |
| Washington Way Market | Washington Way Market | 6 | 46.1315/-122.97555 | 6-Month |
| Weyerhaeuser | Plywood Mill | 7 | 46.13172/-122.9785 | 6-Month |
| Columbia/Cowlitz Railway | Rail Spur | 8 | N/A | 6-Month |
| Woodinville Lumber, Inc. | Tri County Truss | 9 | 46 8 30.38/122 58 59.29 | 6-Month |
| Solvay Interox | Solvay Interox Facility | 10 | 46 8 18.39/122 58 50.35 | 6-Month |
| HASA (J Huber) | HASA (J Huber) | 11 | 46 8 6.70/122 58 49.03 | 6-Month |
| Millennium Bulk Terminals | Millennium Bulk Terminals - Longview | 12 | 46 8 29/122 59 46 | 5-Year |
| Millers Market | Millers Market | 13 | 46.13252/-122.96597 | 5-Year |
| Unknown | Unknown Diesel Spill | 14 | 46 9 2.63/123 1 19.23 | Buffer area |
| Longview Auto Wrecking | Longview Auto Wrecking | 15 | 46 8 56.501/122 59 15 | Buffer area |
| Fred Meyer | Fred Meyer Fuel Stop | 16 | 46 08 52.43/-122 57 48.31 | Buffer area |
| Safeway | Safeway Fuel Station | 17 | 46 8 52.71 / 122 57 40.93 | Buffer area |
| Rio West Restaurant | Rio West Restaurant | 18 | 46 8 49.898/122 57 40.702 | Buffer area |
| McCall Trucking | McCall Trucking | 19 | 46.14846/-123.00753 | Buffer area |
| Port of Longview | Port of Longview | 20 | 46 6 31.63/122 56 47.33 | Buffer area |
| US EPA Dorothy Ave Mercury Spill | US EPA Dorothy Ave Mercury Spill | 21 | 46 8 44.84/122 58 13.99 | Buffer area |
| Longview School District | Longview School District 122 | 22 | 46.15274/-122.98525 | Buffer area |
| Shell/Texaco Station | Shell/Texaco Station | 23 | 46 8 51/122 57 52 | Buffer area |
| Robert Radakovich Sr/ Port of Longview | Mt. Solo Landfill | 24 | 46 8 59.04/123 00 51.68 | Buffer area |
| Toyocom | Toyocom Devices of America | 25 | 46 8 52.07/122 59 11.81 | Buffer area |
| Ocean Beach Chevron | Ocean Beach Chevron | 26 | 46 8 52/122 57 46 | Buffer area |
| Teevin Brothers | Teevin Brothers | 27 | 46.097391/122.956932 | Buffer area |
| US Gypsum Co | US Gypsum Co | 28 | 46 06 13.52/122 58 20.80 | Buffer area |
| Rainer Shell | Sheel Gas Station | 29 | 46.094352/122.963032 | Buffer area |

WHPP STRATEGIES

- **Communication**
 - Communicate with local industry, agencies, regulators, HazMat and First Responders to report and clean-up spills quickly
- **Education**
 - Educate customers and local industry about wellhead protection to prevent spills or surface contamination within the WHPA
- **Regulation**
 - Adopt a Water Supply Ordinance to create WHPA and:
 - Reinforce the use of Best Management Practices
 - Prevent the discharge of contaminants by local industry
 - Prohibit certain activities within the WHPA
 - Prevent construction techniques such as drilled pilings or piers that could penetrate the confining layer
 - Contact government agencies and industry outside the City regarding potential WHPP controls

GROUNDWATER MONITORING PLAN

- Semi-annual groundwater monitoring at select deep monitoring wells
 - 4 follow-up sampling events to-date: May and Nov in 2010 and 2011
 - Samples collected from DW-1, DW-2, DW-5, DW-6, DW-7, DW-9
 - Sampling wells selected based on location relative to industry near the wellfield
 - Samples analyzed for all analytes regulated by state and federal drinking water standards, plus some non-regulated analytes

| mg/L | Fe | Mn | As | VOCs | SVOCs |
|----------|-------|-------|-------|------|-------|
| Nov-2009 | 0.637 | 0.513 | 0.004 | ND | ND |
| Nov-2010 | 0.795 | 0.639 | 0.006 | ND | ND |
| Nov-2011 | 0.682 | 0.572 | 0.006 | ND | ND |
| MCL | 0.3 | 0.05 | 0.010 | - | - |

GROUNDWATER MONITORING PLAN



GROUNDWATER MONITORING PLAN

- Groundwater sampling recommended to continue on semi-annual basis
- If a contaminant is detected, groundwater sampling should be increased to quarterly for that specific contaminant
- One additional deep monitoring well is recommended to be installed to the southeast
 - On Weyerhaeuser property; or
 - Along SR-432 near the 300 block of 29th Avenue
- Including lab costs, each sampling event is estimated to cost \$15,000



CONTINGENCY PLAN

- Actions that can be implemented if contamination is detected
 - Confirm the presence of a contaminant with a repeat sample
 - Conduct additional sampling to determine the extent of contamination
 - Notify regulatory agencies, local government and consumers
 - Implement operational changes to reduce potential risk
 - Use stand-by wells if unaffected to the same extent
 - Alternate wells to reduce overall operating time
 - Reduce system demand through conservation or curtailment
 - Activate emergency inter-tie (City of Kelso)
 - Install additional treatment
 - Blend sources to dilute contaminant levels
 - Coordinate with regulators to locate the source of contamination and initiate clean-up efforts

SPILL & INCIDENT RESPONSE

- Develop procedures to contain spills and prevent further contamination
- Communicate with local agencies, Corps of Engineers, Coast Guard, Ports, HazMat and First Responders to report spills quickly
 - Most spills in river will float and be flushed downstream rapidly
 - Major spill of dense liquid could sink to the river bed and present minor risk
- Communicate importance of an approved Spill and Emergency Response Plan (SERP) to local industry to prevent and respond to releases of hazardous materials



RECOMMENDATIONS

- **Current Action:**
 - Approve WHPP for submittal to Dept of Health
- **Future Actions:**
 - Adopt Water Supply Ordinance
 - Construct one additional monitoring well
 - Continue semi-annual groundwater sampling
 - Collaborate with owners of wells in the target aquifer to abandon or maintain, improve and inspect wells
 - Update Water Emergency Response Plan