

Thurston County Water Utility Purveyor Technical Group Meeting

June 13, 2014

AGENDA

- | | |
|---------------|---|
| 8:15 - 8:30 | Sign-in, Get Snacks and Get Seated |
| 8:30 - 8:45 | Welcome and Introductions |
| 8:45 - 9:30 | Dave Christensen, Program Development and Operations Support
Section, Department of Ecology - Water Resources Program
Rural Water Supply Strategy |
| 9:30 - 10:15 | Bonnie Waybright, P.E., Regional Manager, SW Drinking Water
Regional Operations, Office of Drinking Water, Department of
Health, Washington State
Office of Drinking Water Update
Sophia Petro, DOH Source Water Quality Program Manager
Presentation – On-line Water Quality Monitoring Schedule by |
| 10:15 - 10:30 | Break |
| 10:30 - 11:00 | John Weidenfeller
Water System Security |
| 11:00 - 11:30 | John Kounts, Washington Water Utilities Council (WWUC)
Legislative Chair
Update on Legislative and Legal Issues |
| 11:30 - 12:00 | Roundtable Discussion – Everyone in Attendance |

Location - Washington Public Utility Districts Association (WPUDA) Building, 212 Union Avenue SE, Suite 201, Olympia, Washington 98501. We recommend you bring change for parking meters.

Note: Agendas and Presentation Materials will be posted on the Thurston PUD Web Site, www.thurstonpud.org in the Water Purveyor Group Tab at the top of the web page, If anyone has items that you would like posted on the website that are applicable to all the water utilities, send them to John Weidenfeller, jweidenfeller@thurstonpud.org, (360) 357-8783

Please provide your e-mail address information to jweidenfeller@thurstonpud.org if you are not on the e-mail list so we can send you announcements, updates and materials for the meetings.

2014 Meeting Schedule – Next Meeting: Friday, October 10, 2014, 8:30 - 12:30

Water Resources Stakeholder Discussion – Identifying Rural Water Supply Strategies

**Department of Ecology, Water Resources Program
Dave Christensen**

June 16, 2014

Background

For more than a decade Ecology's instream flow protection program has struggled to develop a water management framework that establishes future water supply for new consumptive uses and protects instream flows. The Supreme Court ruling in *Swinomish v. Ecology* in late 2013 increased that challenge.

Ecology has been evaluating how it can meet its competing water resource management mandates and comply with the restrictions identified by the court. A key piece of the decision includes a finding that Ecology erred in using the Overriding Consideration of Public Interest (OCPI) to justify creating reserves of water for use by people with private domestic wells.

Ecology now faces a greater challenge protecting instream flows and senior water rights holders while not precluding all rural development.

Ecology is engaging with stakeholders and Tribal governments and evaluating options they have identified, including those available under current statutory authorities and those that would require statutory change. As options are more fully detailed, Ecology staff will evaluate legal, political, and economic issues, as well as, the key challenges in implementing these options.

Stakeholders have provided input to Ecology about potential approaches to instream flow rule making. Options would apply only to water rights administered by the state.

Ecology's Goals

Develop a water management framework that protects instream resources and allows reliable water supplies to be allocated for new rural domestic uses. The approach must be implementable to be effective. As such, it should employ management strategies that are proportionate to the scale of potential impacts.

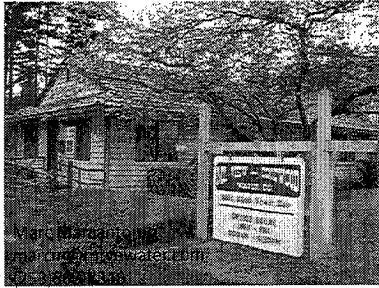
Rural water supply – Stakeholder ideas for options under current authorities:

- A. Continue to establish reserves in new and amended instream flow rules
 - Use OCPI to justify reserves in different manner than Skagit rule.
 - Could allocate water for future need and instream values simultaneously according to a maximum net benefits analysis without using OCPI.
 - Could rely on cisterns to be used during times of low flows.
- B. Use existing authorities to broaden mitigation options (RCW 90.44.055)
 - Could use conservation to make more water available.
 - No clear authority for out-of-kind mitigation options.
 - Rely on mitigation banking authorities; currently mitigation banks under scrutiny.
- C. Rely on local governments through better integration of land use planning
 - Working through Associations of Counties to update guidance.
 - Clear challenges ahead resolving unclear roles and responsibilities in the wake of the Kittitas decision.

Stakeholder ideas for options that would require changing statutory authorities:

- A. Broaden mitigation options
 - Provide additional flexibility for out-of-kind mitigation.
 - “Pay upfront” - all new users pay into a fund that could be used to offset their impacts to either stream flow or to senior users.
 - Disconnect mitigation from individual home scale.
 - Could consider full range of hydrologic impacts of development (stormwater, land cover changes, etc).
- B. New or modified “OCPI”
 - Provide Ecology with clear authority for allowing de minimis uses when stream flows are not being met.
 - Ecology could modify established instream flows or allow exceptions for continued new appropriation for permit exempt.
 - Could also address potential small impacts associated with permitting decisions.
 - Public interest could be established by watershed planning groups, consultation with Tribes/Fish Managers, or some other mechanism.
 - Exceptions could be broad (such as legislative clarification that domestic permit-exempt wells are not subject to instream flow rules) to narrow (such as exceptions are allowed only where in-kind mitigation is not available).
- C. Create statutory priority for domestic water use over other out-of-stream uses
 - Twelve of 17 western states have a domestic priority in statute or constitution.
 - Would have to be evaluated carefully because of separation of power issues.
 - Could apply to in-house use only, or also include outdoor lawn/garden use.
 - Could be limited to single domestic only (not group domestic like the current statutory exemption).

Dealing With Security



Today's Security Discussion

Terrorists

Thieves

Vandals

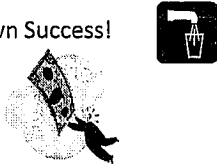
Customers

Goals

1. Understand the threat.
2. Protection ideas (defense).
3. Actions and Decisions to consider (offense).
4. Improve resilience.

Culture of Water Systems

- Victims of Our Own Success!
- Cost
 - Water Rates
 - Staffing
- Apathy
 - “Been here since 1925 without a problem.”
 - “Terrorists don’t care about our little system!”



Water is LIFE!

- Most Important Person in the Community?
- Critical Infrastructure/Essential Public Facilities.
- The Public Water Sector Needs to Promote It’s Importance.



Inform Leadership About Vulnerabilities and Capabilities

- Water Utilities are less prepared than many realize (again, victims of our own success).
- Large scale events are different than local events.
- Need to develop regional plans and response capabilities.

Vulnerabilities

- Physical Security.
- Target for metal thefts, tagging.
- Terrorism and Nuclear/Bio/Chemical Contamination Risks.
- Loss of control of your system.
- CyberSecurity.
- Customer Issues.



Contaminant Detection

- Contaminant Warning Systems.
- Employ protocols for detection.
(Monitor free and total chlorine residual, pressure change abnormalities, sampling, temperature change, dissolved oxygen, and conductivity).
- Local and state labs (compliance samples).
- Call US EPA Region 10 Emergency Response Unit.

Tampering is a Federal Offense!

- Critical infrastructure protection since 9/11.
- US Code Title 42, Section 300i-1 "Tampering with public water systems."
- Definition.
- Tampering: 20-year prison, \$1 million.
- Attempt or threat: 10-year prison, \$100,000.

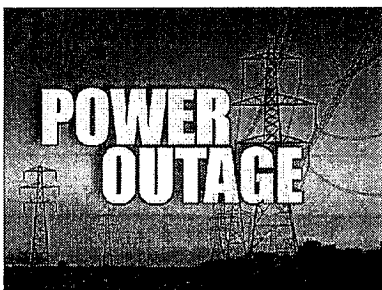
Terrorism

- Objective of terrorism?
- Best way to accomplish terrorism?
- Terrorists rely upon your laziness, apathy, and disbelief.

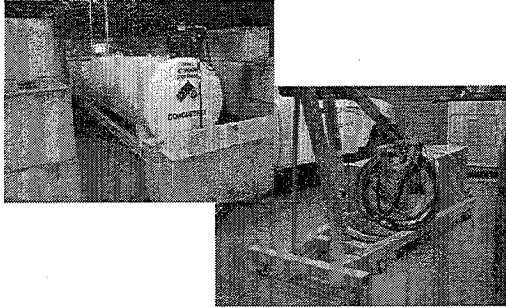
Exploiting Vulnerabilities

- Terrorists can impact a community water system (beyond contamination) by disrupting:
 - Power
 - Fuel
 - Communications
 - Disease

Electricity



Fuel



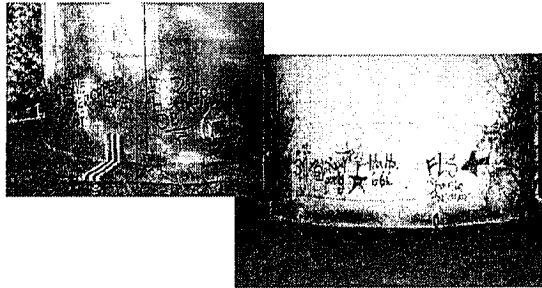
Interoperable Communications



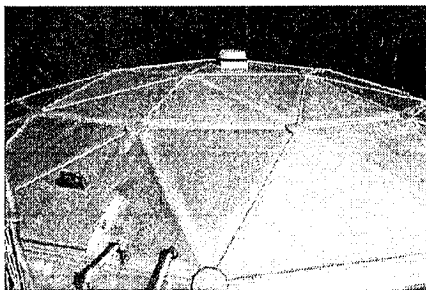
Protection of Force
(Disease)



Is it Tagging, or is it Terrorism?



What Would You Do if You Found This?



Is it a Tweaker, or Terrorist?

- Involve law enforcement.
- Be prepared for law enforcement to underplay this event. Educate law enforcement that tampering with water/wastewater facilities is a Federal Offense.
- Insist law enforcement file a report to the Washington State Fusion Center.
(1-877-843-9522, email: intake@wsfc.wa.gov).

Decision Protocols

- Do you issue an order to: "Boil water," or "Do not use?"
- Can you prove access to the drinking water was denied?
- Did the perpetrator go to unusual lengths to gain access?
- Remember the scene becomes a crime scene, which you will likely lose control. How can you protect public health and preserve the crime scene?

Well & Reservoir Incidents

- City of Orting.
- City of Kent.
- City of Bonney Lake.
- Lakewood Water District.
[King 5 News](#)

Lakewood Water District

- Attempted tank access on May 16, 2013.

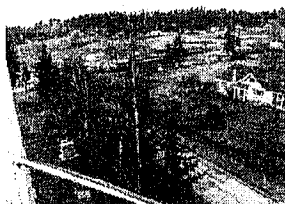
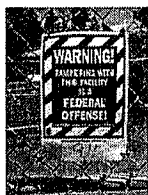


- This could be you. What will you do?

Break

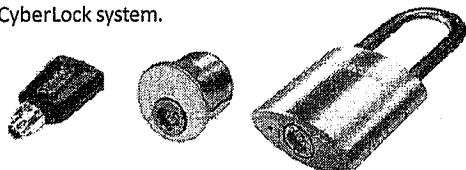
Access Control

- Identification (personnel and equipment).
- Clear lines of visibility (vegetation, darkness).
- Neighborhood watch.
- Signage.



Key Control

- Who enters your facilities?(pest control, landscaping contractor, wireless contractors, meter readers, etc.).
- How do they access the secured site?
- What background checks have been done?
- CyberLock system.



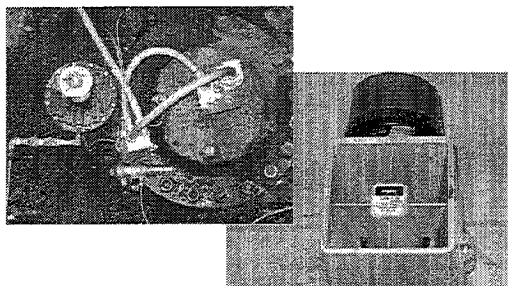
Perimeter Defense



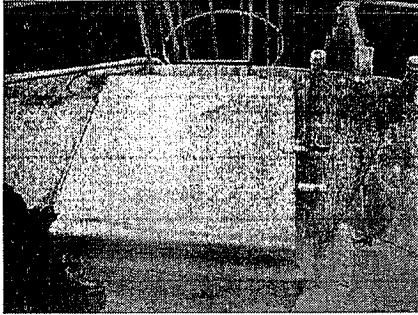
Perimeter Defense

- Fencing (8' heavy gauge, barbed wire).
- Locks (all possible entry points).
- Perimeter intrusion detection.
- Vegetation control, and lighting.
- Alarm sensors (hatches, vents, doors) and signals.
- Video cameras and Digital Video Recorders.
 - Unmonitored.
 - Live monitored.

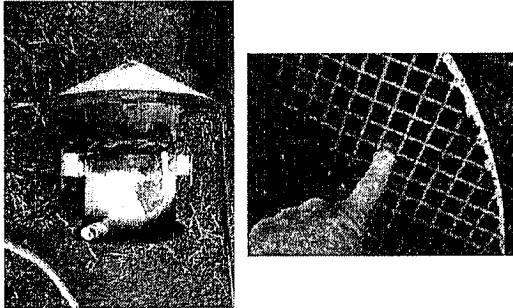
Shut-off Devices & Signals



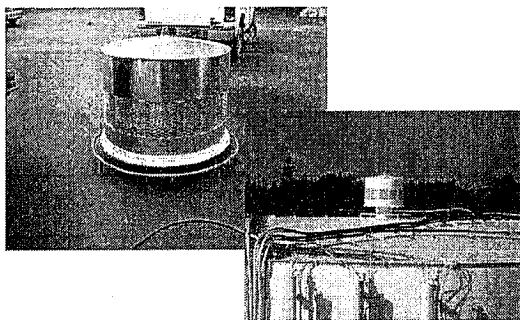
Wellhead and Reservoir Access



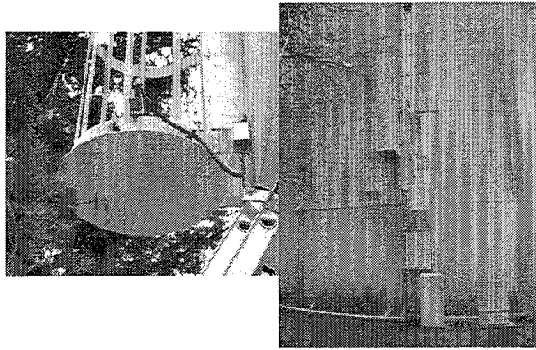
Reservoir Vents



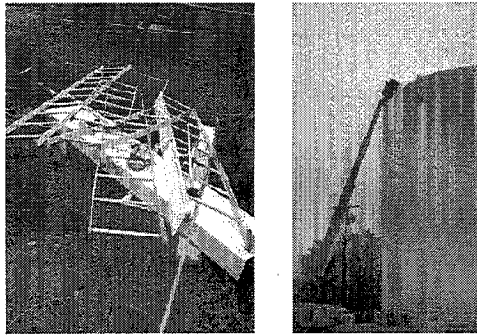
Tamper-proof Vent



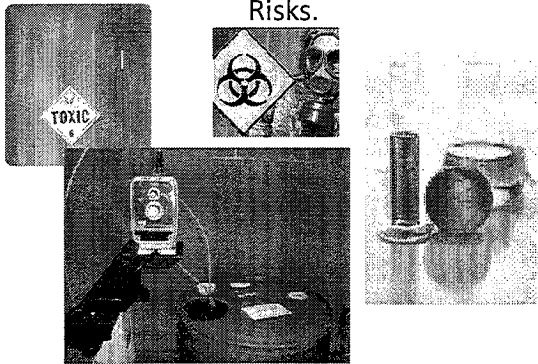
Problem



Solution



Bioterrorism and Chemical Poisoning
Risks.



Nuclear, Biological, & Chemical Contaminants

- Dilution is NOT necessarily the solution.
- Radiological material can contaminate drinking water.
- Bacteria, viruses, spores, cysts, parasites, etc. can be weaponized and dispersed in water.
- Chemical nerve agents (sarin, soman, tabun) easily mix in water. Many other chemical toxins exist.

Chlorine Gas Cylinders



Fire Hydrant Tampering



Cyber Security



Attacks on SCADA

- Lose control of system.
(Queensland, Australia wastewater utility: 46 attacks over 2 months. Released raw sewage killing marine life and turning waters black).
- Could over- or under-dose chemical injection.
(Fluoride: Hooper Bay, AK (1993). 1 death, 260 injured).
- Could disable alarms.
(Allowing intrusion and potential water contamination).

Preventing Cyber Attacks

- Limit access to networks.
- Update software on a regular basis.
- Require strong passwords.
- Install Virtual Private Networks (VPN).
- Install and maintain anti-virus software.
- Employ intrusion detection systems and firewalls.

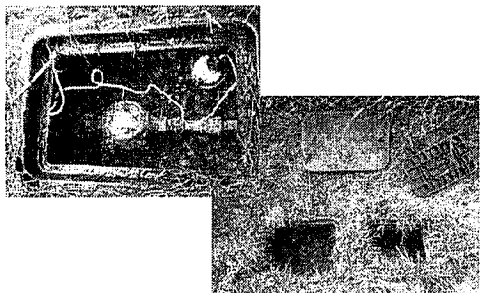
Training & Exercise Planning

- ICS/NIMS Training (ICS 100, 200, NIMS 700, 800). Provides a coordinated response, standardization, and interoperability.
- Required to receive federal funding.
- When an incident occurs at your utility, will you know how to work with the Incident Commander and staff?

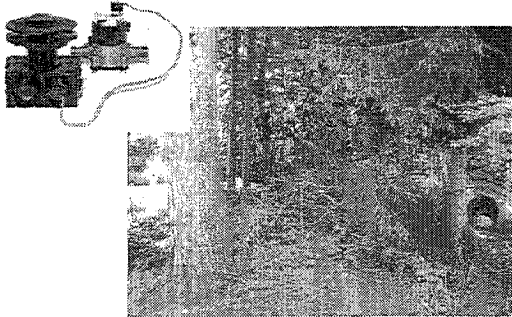
Customer Issues

- Enforcement techniques vary with circumstances (public vs. private, etc.).
- Courts side with utility for failure to pay water bill.
- Publish clear policy with regard to service interruption and notices.
- Be consistent and treat all according to your policy.
- Be clear about "Tamper Policy."

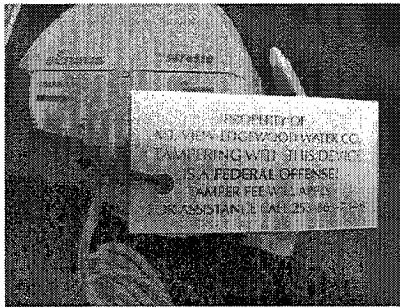
Meter Tampering



AMR Advantage



Tamper Tags



Fee Schedule

MISCELLANEOUS CHARGES:

Meter Turn-on:	\$ 25.00
Meter Shut-off:	\$ 25.00
Boil Water from Shop Fill Site (per 5,000 gal. per week):	\$ 50.00
Rental Application Fee (paid by member upon each rental):	\$ 50.00
Deposit for Water Service:	\$ 75.00
(Charged to Renters and Property Managers when they, rather than the Membership holder, are billed for services.)	
Decrease Meter Size from 1" to 3/4":	\$ 180.00
Purchase and installation of Storz Adapter:	\$ 450.00
Install Water Sampling Station:	\$ 1,600.00
Increase Meter Size (priced on request after inspection):	POR
Clearing meter access:	Cost + 20%
Tamper Fee (repair of damage to Water Company property):	Cost + 20%
Theft of water:	Volume in Cubic Feet multiplied by \$0.21

Note 7: Tampering with Water Company Property is a Federal Offense.

Messages on Utility Bills

MONTHLY CHARGES

Water Rate - A fee based on the size of your meter to cover the operating costs independent of your water usage.

Water Usage - The quantity of water used within the metered period, multiplied by the unit cost of the water.

Fire Charge - Collected to fund the storage, pumps, and distribution facilities necessary to meet the fire code requirements of the buildings served with water.

Membership Transfer Fee - Applied to transfer Membership to new owner(s).

Deposit - A charge to renters and management companies that is refundable upon closing account.

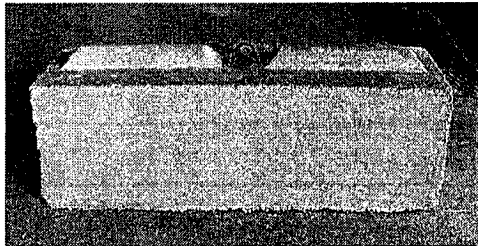
Miscellaneous Charges - This charge can include non-payment of fines, late fee, NSF fee, labor time involved to clear the meter box area, installation of backflow prevention meters, or any repairs that may have to be done at the meter because of damage caused by the customer.

Use Your Water Meter To Check For Invisible Leaks - Turn off all water taps inside and out, and watch the red triangle or needle on the meter. If it is moving, water is leaking somewhere in your system. The water company assumes no responsibility beyond the meter. 90% of household leaks occur in toilets, and are often "silent leaks." Check for toilet tank leaks by placing food coloring in the tank, wait 20 minutes and check the bowl to see if color leaks through. Check all faucets inside and outside for drips.

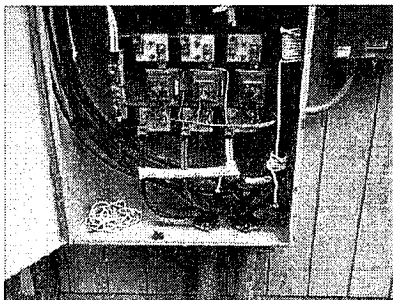
Keep Meters Clear. Customers must keep meters, sample stations, and valves outside of fences and clear of landscaping within a 2-foot radius. Meter must be accessible from the road at all times (don't park over meter). Tampering with water company valves is a federal offense.

Prevent Contamination. Many household activities are potential dangers to our water quality. Irrigation systems (including lawn sprinklers) must have a "backflow device" installed and inspected annually. Animal watering troughs, swimming pools, hot tubs, outdoor hoses filled with water, hose-end pesticide/fertilizer sprayers, poor plumbing, and even poor sanitation practices within homes can all put your water quality in danger. Always close outside hose bills after use. If pressure in a water main drops (when a fire hydrant is used, or a main pipe breaks), contaminated water within a home's plumbing system could back-siphon into our mains and contaminate our water.

Non-compliant Customers



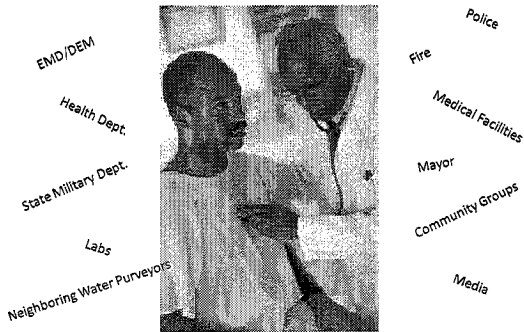
Tweaker Damage Ground/Neutral Cables



Cut Grounds & Well Service Line Neutral



Develop Relationships.



Conclusion

- "Failing to Plan is Planning to Fail."
- Change the Culture.
- Develop Relationships and Take Actions That Mitigate Vulnerabilities.
- Prevent Becoming a Victim of Our Own Success!



