



SPU Water System Advisory Committee (WSAC)

February 18, 2015 Meeting Notes
Seattle Municipal Tower, 700 Fifth Avenue

Room 5965

5:30 pm – 7:30 pm

Chair: Kyle Stetler

Vice-Chair: Kelly McCaffrey

Committee Members & CAC Staff	Present?	SPU Staff & Guests	Role
Tom Grant	N	Bill Heubach	Seismic Programs
Jessy Hardy	Y	Alex Chen	Water Planning and Program Management
Chelsea Jefferson	N	Rick Scott	Deputy Director, Water LOB
Kelly McCaffrey	Y		
Kyle Stetler	Y		
Chris Thompson	N		
Heidi Fischer, CAC Program Support	Y		
Julie Burman, Policy Liaison	Y		
Sheryl Shapiro, Program Manager	Y		

PLEASE NOTE ACTION ITEMS ARE V MARKED AND HIGHLIGHTED IN YELLOW

Regular Business

- Committee Members, SPU staff, and guests introduced themselves.
- The January meeting notes are not completed. They will be sent out for Committee approval at the March meeting.

Status of Water System: Precipitation, Snowpack, Reservoir Storage, and Water Consumption, Alex Chen

Alex referred to the graph “Cumulative Snowpack Snow Water Equivalent.”

- Despite low snow pack, the current water supply outlook remains good. We have been storing additional rainfall in our reservoirs and making operational adjustments to compensate for lower-than-normal snowpack.

- The graph compares 2015 with 2014, 2005 (the last year we had less than normal snowpack), and with the average snowpack from years 1971-2000.
- Last year, snowpack caught up in February. This year, we haven't seen that happen, and snowpack is at about 20% of normal.

Alex then referred to the graph "Combined Reservoir Storage."

- October through March is flood management season, when we keep some space in the reservoirs for water in case of floods. March through October is refill season, when we maximize water storage.
- In 2005, we stored more water in the reservoirs during flood management season and then used rainfall in the spring and summer, and had a normal water year.
- This year, we are employing a similar technique, and have a similar amount of water stored in the reservoirs.
- We are watching the weather carefully to meet the refill target, which is not far away.
 - Rick Scott added that it's a bit of an art as well as a science to get the right balance in the reservoirs of space and storage. We are using lots of tools and feel very comfortable about water supply.
- There has been a lot of speculation and concern about the impact of snowpack on water supply lately, and SPU will be getting a statement to the media soon to explain that we expect the water supply to be normal.
 - ✓ The Policy Liaison noted that when the statement is finalized, she would send it to WSAC members for their input on its clarity.
 - The Policy Liaison added that while some utilities may be experiencing some supply issues, that is not the case with SPU at this time.
- Question: If we did have low water storage in the reservoirs, what action would we take?
 - Answer: We would consider other strategies such as using our groundwater wells for supplemental supply and releasing less water into the streams while still meeting minimum streamflow requirements.
- Comment: Last year, May, June, July, and August were dry.
 - Answer: The forecast for the next 90 days is warmer and drier than usual. Still, we are planning for that and expect the water supply to be normal.

WSAC Elections

- Three WSAC Members are present; three are absent. To better facilitate participation by all, elections will be done by email.
- Kyle will send out an email to Members tomorrow to ask for nominations.
 - Members can self-nominate as well as nominate another Member.
- The Policy Liaison noted that one of the Officer's responsibilities is to meet with City Council Member Sally Bagshaw, who chairs the Seattle Public Utilities Neighborhood (SPUN) Subcommittee.
- The Program Manager added that there should be a deadline for nominations, as well as for voting.
 - ✓ Kyle will facilitate elections for Chair and Vice Chair over email before the next WSAC meeting.

2015 Outlook for Water Planning and Program Management, Alex Chen

See the power point for more information.

- Alex noted six planning and policy highlights:
 - 1) Seismic Study
 - WSAC will be hearing more about this today in the next presentation.
 - 2) Water Rate Study
 - WSAC heard about this at January's meeting.
 - 3) Climate Change Impact Analysis
 - We will be using models from local universities to further study how our water system will be impacted.
 - We will use our water supply models to determine whether we will need to make upgrades in our system to meet supply goals.
 - We will have more information on this topic at the end of this year.
 - 4) Watershed Wildfire Risk Assessment
 - We want to look at how best to manage forests to minimize the risk of a significant fire in the watersheds.
 - 5) Development Services Office
 - We want to make it easy for people to hook up water to new buildings and projects.
 - 6) Emergency Response/Autodialer System
 - This will function like a reverse 911 call, allowing us to use our database to autodial our customers in an emergency.
 - We are almost done procuring this new system, which will be citywide.
 - We will overlap our new system with our old one for three months to ensure the new system is functioning as expected.
 - Currently, SPU customers can receive different levels of emergency alerts if they sign up for them.

- Question: Has a notice asking customers if they want to sign up for emergency alerts been sent out with customer bills?
 - ✓ Answer: Rick Scott will get the details on the notification system that currently exists, how people are notified about it, and how they sign up for it.

- 2015 Key Projects are listed below.
 - Alex referred to a map on his power point slide showing where the projects are located. One of our goals is to address problems before they cause significant issues.
 - Rick added that where possible, we try to rehabilitate infrastructure and equipment, rather than replace it.
 - Watersheds

- Answer: Yes, 100 feet underneath the Ship Canal.
- Distribution
 - 3rd Avenue West Pipeline
 - There's a water pipe and two wastewater pipes here that are all full and under pressure. SPU is not currently using the water pipe due to sanitary concerns associated with the wastewater pipes, but would like to use it to increase system reliability in that area of the city.
 - We are asking King County to remove the wastewater pipes and replace them with buried tunnel pipes located further away from the water pipe. We would also like to replace the water pipe, which is near the end of its useful service life.
 - This project is projected to cost SPU \$6-7 million.
 - Reservoir Seismic Retrofits
 - We are adding concrete to the floor in four reservoirs to enhance their earthquake resiliency.
 - Pilot uses of PVC pipe
 - Transportation projects

SPU's Seismic Program and Regional Resiliency Project, Bill Heubach

See the power point for more information.

- Earthquakes and the Water System
 - It's important to distinguish magnitude from intensity. Magnitude is how much energy an earthquake releases, while intensity is how strongly the ground shakes in a particular location.
 - For example, the 2001 Nisqually Earthquake's magnitude was 6.7, but ground shaking would be a lot stronger in Seattle from a magnitude 6.7 Seattle Fault earthquake because the earthquake would be so much closer to Seattle than the Nisqually Earthquake that was near Olympia.
 - There are three kinds of earthquakes that can occur in the Puget Sound area.
 - 1) Shallow fault earthquakes
 - Because these are so close to the surface, even moderately-sized (e.g., magnitude 6.0) earthquakes can cause lots of damage.
 - The Seattle Fault, which is actually a half mile wide zone of shallow faults, runs directly through Seattle and Bellevue. A trench across a portion of the Seattle Fault in Bellevue shows that some of these faults ruptured 1100 years ago in a major quake. This has been a game changer for seismic planning, as we now know that big and destructive earthquakes from shallow faults do occur in this region.
 - 2) Subduction zone
 - The largest earthquakes ever recorded are subduction zone quakes. Here, the Juan de Fuca plate (in the ocean) subducts below the North American plate. Subduction earthquakes occur here every 500 years or so, on average, and the last one was 300 years ago. This kind of quake could be as large as a magnitude 9.0 and would likely result in a tsunami along the Washington coast.

3) Deep earthquakes

- These occur deep below the earth's surface in the Juan de Fuca plate where it is being subducted below the North American plate. These occur about every 30 years, and the last one was the 2001 Nisqually quake.
 - The 2001 Nisqually Earthquake resulted in 19 pipe breaks, but minimal to moderate impact on SPU facilities, and no effect on the water system functionality.
- Earthquake hazards include ground shaking, fault rupture, landslide, and tsunami. A very large shallow earthquake beneath the Puget Sound could cause a tsunami in the Puget Sound but such an occurrence is very rare and likely occurs much less than once every 1000 years or so.
- Having water to fight fires is a big concern after an earthquake. If water lines and gas lines break, fires often result, and water is not available to extinguish them.
 - In the 1994 Northridge Earthquake in California, lots of damage was done to the water system, and swimming pools were used to help fight fires.
- While broken water pipes also affect drinking water supply, in developed countries, getting enough drinking water to affected people is usually not a problem.
- Restoring water as soon as possible is important.
 - In the 1995 Kobe Earthquake in Japan, water was out for two months in some locations.
 - If the water takes too long to be restored, people and businesses sometimes leave and do not return.
- Non-engineered fill (where the ground has been raised with material that was not planned and inspected to be safe and effective for that purpose) is a problem in earthquakes. Areas with non-engineered fill are much more likely to have significant damage in an earthquake, including broken water and gas lines and fires.
 - In an earthquake, non-engineered fill shakes like jello, and the soil acts like a liquid (called liquefaction). Buildings and other objects on the soil either float or sink.
 - Seattle's SODO area is built largely on non-engineered fill, and there are a significant number of water pipes in areas with high susceptibility to liquefaction.
 - Bill showed a video demonstration of liquefaction from U-Tube.
- Planning and Resiliency Actions
 - SPU Seismic Program has done several studies and system upgrades since 1990.
 - Reservoirs could shake and break in an earthquake. To mitigate that possibility, several SPU reservoirs (water tanks) have been seismically upgraded either by strengthening the reservoirs or placing them on isolators, which separate the tank from the shaking ground.
 - In Japan, an earthquake resistant ductile iron pipe (ERDIP) with a special joint is used for water pipes.
 - It's been in use since 1970, and there's never been a failure of this kind of pipe. Even in the 2011 Tohoku Earthquake and tsunami, there were places where slopes gave way, but the ERDIP held.
 - These pipes are expensive and come in metric sizes, which are not easily compatible with American pipe systems.

- However, Los Angeles and Portland both recently began trial programs that use ERDIP, and American manufacturers are working on creating a similar product in American sizes that will hopefully be less expensive.
- SPU wants to establish post-earthquake water transmission and distribution system performance goals.
 - We'll start by asking our stakeholders how they expect the water system to perform after an earthquake and consider the cost to meet those expectations.
 - In deciding on performance goals, we need to consider public policy, codes and design standards, economic realities, and time frame for implementation.
 - Oregon has some good post-earthquake performance goals. Some water utilities in California have also developed post-earthquake performance goals.
 - Although water system seismic upgrades have performed well in earthquakes, a large earthquake to test whether the system performance goals were satisfied has not yet occurred on a system that had established post-earthquake performance goals.
 - The communication strategy to elicit this input is being developed, but we are considering surveys and public meetings.
- The Water Supply Forum established four committees to look at water supply resiliency in the three counties (Snohomish, King and Pierce) with respect to earthquakes, water quality, climate change and drought. Bill is on the Earthquake Committee.
- SPU is also doing its own study and is currently doing seismic vulnerability assessments of all SPU facilities, including pipelines, reservoirs, pumps, and also support facilities.
 - We want to consider how the water system might respond as a whole, and use hydraulic models to determine the overall effect on water pressure, and the effect on water pressure by area.
 - We want to engage all of the stakeholders in helping to determine performance goals, including SPU customers and the public, wholesale customers, the fire department, City and SPU leadership, Seattle Emergency Management, and the Water Branch Staff.
 - Seismic standards are also being developed for new water facilities, particularly pipelines.
 - Mitigation measures and strategies will be developed as part of the study.
 - The project hopes to issue its final report by mid-2016.

Around the Table

- The Policy Liaison reported that SPU has decided to incorporate the water rate design in its next water rate study, rather than 2015. There will a proposal to Council for 2015 water rates but that proposal will not change the rate design or raise water rates this year.
 - The Program Manager added that the Strategic Business Plan limits SPU rate increases to an average yearly increase (across all branches, including solid waste and drainage and wastewater as well as water) to 4.6%.
- The Program Manager reminded the Committee:
 - To please complete the member survey online as soon as possible

- To please complete the Doodle poll about Member availability for the next Joint CAC meeting
- That we will be using the presenter feedback forms at CDWAC meetings beginning in March
- That there will be an SPU forum on how decentralized systems fit into the plan to protect our waters on March 25, from 5:30 – 8:30pm at the New Holly Gathering Hall. She hopes Members will attend.

Meeting adjourned, 7:16pm.