# GOVERNMENT FLATS FIRE: RISKS AND TREATMENT CHALLENGES

#### The Dalles Municipal Watershed



Dave Anderson Public Works Director City of The Dalles

#### Service population – 12,500

Annual water supply - 90+% surface water
22,000-acre Watershed cooperatively managed for protection of water quality and quantity

of The Dalles Water System

- Wicks Water Treatment Plant Class 4 conventional water treatment, staffed 24/7, one operator per shift
- Rated capacity of 6.05 MGD (max flow for 2.5-log Giardia removal); realistic max treatment rate of about 5.6 MGD
- Plant is a member of the Partnership for Safe Water; 0.1 NTU finished water goal

### Fire Statistics

- Fire occurred in August 2013
- Blackburn Fire, inside Watershed, was one of three fires started by lightening that became the Government Flat Complex Fire
- Total area burned = 11,354 acres
- Area burned within The Dalles Municipal Watershed = 5400 acres
- Burned area extends from City water treatment plant 4 miles upstream
- Fire was in same area that burned in 1967; adverse water quality impacts for about 20 years



# Initial Water Supply Concerns

During the fire:

WTP operation or evacuation –

- Plan for back-up water supply if needed (City)
- Retardant
  - Coordination with IC Aerial Attack planners (IC)
  - Field observation of retardant use (IC/City)
  - Monitored raw water quality at WTP 3x/day during fire visual, cyanide (City)

#### Ash/smoke -

- After a couple days of high-intensity burning and heavy smoke, received "smoky taste/odor" complaints
- Conducted WTP and dist'n system sampling, increased blending with groundwater, added PAC at WTP (City)

■ Fuel/lubricants from fire fighting equipment

- Minimize creek crossings (IC/City)
- Secondary containment and spill pads for all pumps (IC)



















#### Mitigation for Suppression Impacts

- Stabilization of areas disturbed by suppression activities
- Directed by IMT
- Work performed by suppression crews











#### Impact and Recovery Planning

- City initiated Watershed rehabilitation discussions during fire
- Immediately after fire, larger inter-agency Watershed rehab work group formed:
  - Natural Resource Conservation Service (NRCS)
  - Wasco Co Soil & Water Conservation District (SWCD)
  - Oregon Dept of Environmental Quality (DEQ)
  - Oregon Dept of Forestry (ODF)
  - US Forest Service
  - The Dalles Area Watershed Council
  - City of The Dalles

### **Post-fire Concerns**

- Increased raw water turbidity from erosion of burned area
- Increased potential for landslides
- Potential debris flows
- Residual fire retardant contamination
- Increased algal blooms/cyanotoxins
- Increased risk of flooding along Mill Creek and within downtown The Dalles



### **Rehabilitation Plan**

Post-fire near-term stabilization plan:

- Aerial grass seeding in areas with highest burn intensity and steepest slopes completed Fall 2013
- Salvage logging of stands with high tree mortality performed in 2014





## Rehabilitation Plan - cont'd

Long-term stabilization plan:
Planting of Ponderosa Pine/Douglas fir to restore conifer component

## Monitoring/Early Warning

- Installed temporary precipitation monitoring station with telemetry within the burned area in cooperation with SWCD
- Installed temporary stream level gaging station with telemetry on North Fork Mill Creek in cooperation with USGS and SWCD
- Conducted post-fire and "first flush" raw water sampling at WTP intake by DEQ – all results negative for fire retardant indicators

#### **Observed Water Quality Impacts**

#### □ September 2013 –

- First significant rain on the burn, heavy at times, total about 1" rain in 3 days
- No adverse water quality impacts
- February 2014
  - Rain-on-snow event
  - About 18" snow on the burn area, frozen ground, then gradual warming with fairly continuous rain over 3 days
  - Stream flow at WTP increased from 6 MGD to 96 MGD.
  - Raw water turbidity spiked at 1760 NTU, several excursions >200 NTU; finished water quality <0.1 NTU</li>





## **Government Flats Fire: Risks and Treatment Challenges**

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### Relationships

- Watershed rehabilitation and recovery planning was facilitated because of the City's pre-existing relationships with other agencies
  - City and US Forest Service jointly manage the Watershed with a primary goal of protecting water quality, 40+ year partnership
  - City and ODF work closely on fire risk reduction planning
  - City and ODFW work together on Watershed fish passage projects

 Advice - Know your neighbors and partners before the emergency arises

### Grass seed mix

Slender Wheatgrass (Revenue)	Elymus tracycaulus	2 lbs
Sheep Fescue (Covar or VNS)	Festuca ovina	1 lb
Thickspike Wheatgrass (Bannock)	Elymus lanceolatus	2 lbs
Hard Fescue	Festuca brevipila	1 lb
Orchard Grass	Dactylis glomerata	2 lbs
Pubescent Wheatgrass (Luna)	Agropyron trichophorum	3 lbs
Ladak Alfalfa	Medicago sativa	2 lbs
Small Burnett	Sanguisorba minor	1 lb
Spring Wheat or Spring Oats	Triticum spp. or Avena spp.	8 lbs

Total

22 lbs

- Broadcast (including aerial) application rate = 38-48 lbs/acre
- All seed certified to be noxious-weed free