

**Portland Water Bureau**

# **Annual Watershed Control Program Report for Water Year 2015**

**December 2015**



**Submitted to Oregon Health Authority  
Public Health Division Drinking Water Services**





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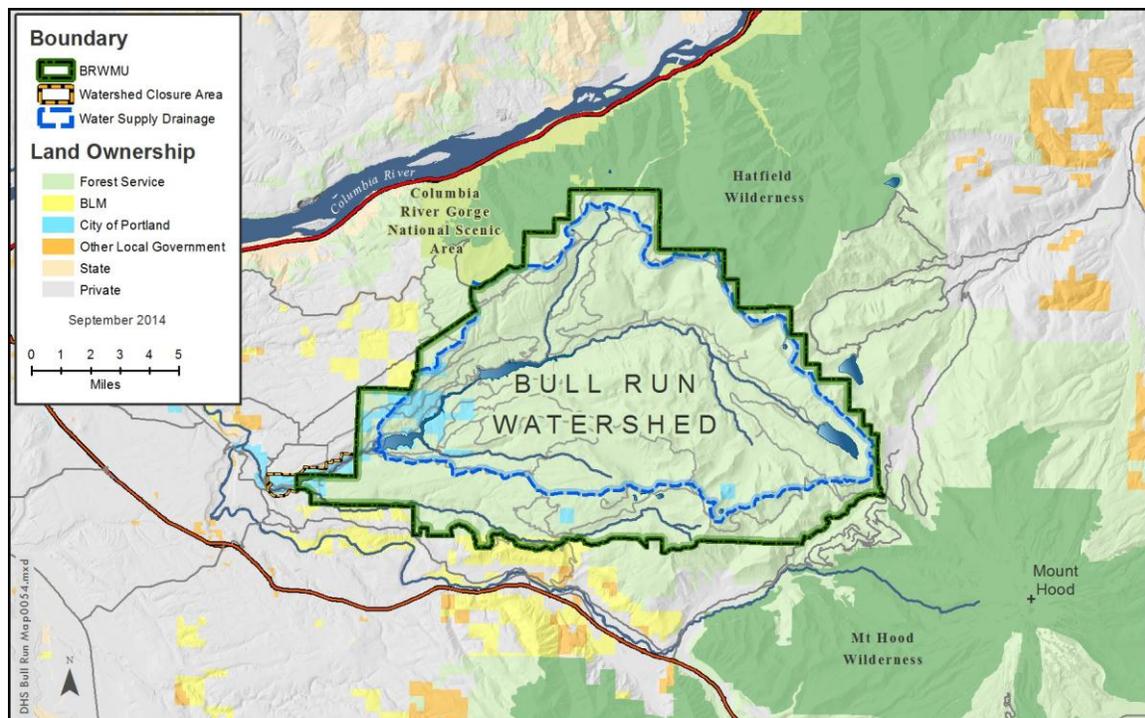


# Annual Watershed Control Program Report for Water Year 2015

## 1. Introduction

For unfiltered water systems, the federal Surface Water Treatment Rule and the Oregon Administrative Rules (OARs) require annual reporting of the control programs in place for these systems' watersheds "identifying any special concerns about the watershed, the procedures used to resolve the concern, current activities affecting water quality, and projections of future adverse impacts or activities and the means to address them" [OAR 333-061-0032 (2)(c)(B)]. This Annual Watershed Control Program Report for Water Year 2015 is submitted to the Oregon Health Authority (OHA) in fulfillment of requirements for unfiltered systems. Water Year 2015 started on October 1, 2014, and ended on September 30, 2015.

This report covers the Bull Run water supply drainage, referred to hereafter as the Bull Run Watershed. The Bull Run Watershed encompasses 102 square miles of land upstream of the intake for the Portland Water Bureau (PWB) drinking water supply and is within the Bull Run Watershed Management Unit (BRWMU). The BRWMU is a legal boundary defined by federal law (Public Law 95-200 and amended by the Oregon Resources Conservation Act of 1996 and the Little Sandy Act of 2001) for 147 square miles of land (see Figure 1). An additional 1.3 square miles of City-owned land on the western edge of the unit, closed by a 2010 City of Portland Code amendment, adds to the protected area and forms what is known as the Bull Run Watershed Closure Area.



**Figure 1. Bull Run Water Supply Drainage, Bull Run Watershed Management Unit, and Watershed Closure Area Boundaries**

A separate report, the Bull Run Treatment Variance Watershed Report for Water Year 2015, describes inspections and monitoring conducted in the Bull Run Watershed in fulfillment of conditions in OHA's Final Order in the Matter of Portland Water Bureau's Request for Variance Under 42 USC § 300g-4(a)(1)(B). The Final Order provides PWB with a method of alternative compliance to the Environmental Protection Agency's (EPA) Long Term 2 Enhanced Surface Water Treatment Rule. The variance report documents the results of field inspections and environmental monitoring conducted during each water year.<sup>1</sup>

## 2. Land Ownership and Management

About 95 percent of the BRWMU is federal land administered by the U.S. Forest Service (Forest Service); 4 percent is owned by the City of Portland; and 1 percent is federal land administered by the U.S. Bureau of Land Management (BLM). The land in the Bull Run Watershed is protected through a variety of federal, state, and local legal controls, listed below.

### Federal Controls

- Bull Run Management Act (PL 95-200 (1977), as amended by PL 104-208 (1996) and PL 107-30 (2001); 16 U.S. Code, Section 482b Notes)
- 1990 Mt. Hood National Forest Land and Resource Management Plan (pages 4-295 through 4-317)
- 1994 Northwest Forest Plan
- 1995 Bureau of Land Management, Salem District, Record of Decision and Resource Management Plan
- 2012 Mt. Hood National Forest Closure Order for the Bull Run Watershed Management Unit—Closure Order MH-2012-05 [pursuant to 36 Code of Federal Regulations (CFR) 261.50(a) and (b), 36 CFR 261.52(a), 36 CFR 261.53(e), 36 CFR 261.54(e), and 36 CFR 261.55(a)]
- 2011 BLM Permanent Closure Order for the Bull Run Watershed Management Unit (pursuant to 43 U.S.C. 1733(a), 43 CFR 8360.0-7, and 43 CFR 8364.1)
- 2007 Bull Run Watershed Management Unit Agreement between the U.S. Department of Agriculture (USDA) Forest Service, Mt. Hood National Forest and the City of Portland

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<sup>1</sup> The Bull Run Treatment Variance Watershed Report is available on the Portland Water Bureau website at [www.portlandoregon.gov/water/treatmentvariance](http://www.portlandoregon.gov/water/treatmentvariance).

## State Controls

- Oregon Revised Statute (ORS) 448.295 to ORS 448.325
- State of Oregon Department of Forestry Regulated Closure Proclamations (for the Bull Run Regulated Use Area during fire season, pursuant to ORS 477.35 to 477.550)
- Bull Run Treatment Variance Final Order, March 14, 2012

## Local Controls

- Portland City Code Chapter 21.36, Bull Run Watershed Protection
- Section 00203, Bull Run Watershed Closure Area, of Portland Water Bureau contract specifications for construction projects in the Bull Run Watershed Closure Area<sup>2</sup>
- Section 00202, Security, of Portland Water Bureau contract specifications for construction projects in the Bull Run Watershed Closure Area<sup>2</sup>

PWB and the Forest Service are pursuing a land exchange to better align land ownership responsibilities with the respective missions of the two agencies, while also reducing administrative burdens. The exchange would consolidate City holdings to lands surrounding the reservoirs and associated infrastructure. The two agencies signed a formal agreement, referred to as the Agreement to Initiate (ATI), in February 2010. During 2015, Forest Service and PWB personnel continued to work on refining information for the National Environmental Policy Act (NEPA) analysis and the land appraisal. It is not yet known when the land exchange process will be complete.

In addition, the PWB continues to implement an Aquatic Invasive and Nuisance Species Standard Operating Protocol and terrestrial Invasive Plant Standard Operating Protocol. These SOPs are consistent with standards in place on federal lands and are intended to reduce the risks to water quality from invasive species in the watershed.

## 3. Security and Trespass

Security measures and trespass restrictions are in place to protect the ecological features that make the Bull Run a source of high-quality water. PWB Security and Forest Service law enforcement officers patrol the watershed regularly. PWB controls watershed access through policies that limit entry privileges to approved staff and contractors; procedures that control electronic CyberKeys, access badges, and keys; and surveillance at the main watershed gate including a camera and the monitoring of CyberKey entry data. The

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<sup>2</sup> Available at [www.portlandoregon.gov/water/47998](http://www.portlandoregon.gov/water/47998).

limited-entry policy<sup>3</sup> includes a requirement for entry permits. Law-enforcement and emergency-response personnel are allowed to enter the BRWMU when necessary to perform their duties. Domesticated animals are expressly prohibited from entering the BRWMU. The Forest Service has similar policies and practices limiting access.

Forest Service lands in the BRWMU are closed through a combination of policy in the federal Bull Run Act (Public Law [PL] 95-200, as amended in 1996 and 2001) and an administrative closure order that was most recently updated by the Mt. Hood Forest Supervisor in October 2012. The update added specific restrictions on the use of fire, campfires, and fire stoves. The BLM is the other federal agency that administers land in the BRWMU. In December 2011, the BLM issued a permanent administrative closure of the lands that the agency manages within the BRWMU.

In addition to the Forest Service and BLM closure regulations, the City of Portland has enacted City Code changes to further strengthen the protections for the BRWMU. In February 2010, the Portland City Council approved adoption of City Code (Chapter 21.36) that prohibits entry into Forest Service lands within the BRWMU and adjacent City of Portland-owned lands to the west of the unit. The 2010 code provides the City with additional enforcement capabilities to deal with trespassers.

In October 2014, the Portland City Council approved adoption of amendments to Chapter 21.36 of the City Code that includes BLM as a managing partner for enforcing restricted access to the Bull Run Watershed Closure Area, updates enforcement provisions, and extends the Closure Area boundary to include all BLM lands within the BRWMU. These changes became effective November 8, 2014.

In 2015, the PWB also developed a booklet titled: “Working in the Bull Run. A Water Bureau Employee Guide to Policies and Procedures.” The booklet serves as a reference guide for all employees working in the BRWMU to help them quickly locate important information on BRWMU policies and procedures. It will also be used to help train new employees on the requirements of working within the BRWMU. The booklet was distributed to PWB staff in September 2015.

The security and access measures implemented by PWB, the Forest Service, and BLM support the legal direction to manage the watershed in a way that protects the ecological features of the water source. PWB and the Forest Service coordinate access policies and security efforts. A list of specific access, entry, and security control measures follows.

### **Access and Entry**

- All roads leading into the Bull Run Watershed are gated.
- With few exceptions, all gates are operated with an electronic programmable

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<sup>3</sup> Portland Water Bureau. Bull Run Watershed Security Access Policies and Procedures (S.02), Final Revision. 2012. Portland, Oregon.

CyberKey and lock system that records information—such as the lock number, time, and date—every time the key is used.<sup>4</sup>

- The main watershed gate can also be opened by authorized access card holders. The access card reader records the time and date of entry every time the access card is used.
- Access cards, CyberKeys, or physical keys are issued through a security control process and only to employees, agencies, and contractors with a demonstrated need for watershed access.
- In addition to the access controls, PWB and the Forest Service issue vehicle permits to contractors to authorize the use of contractors' vehicles in the Bull Run.
- Most PWB contractors receive an electronic programmable CyberKey for the automated main gate only. The electronic CyberKeys are disabled and returned after the authorized use period expires.
- All authorized public access into the watershed is through public tours or escorted access by PWB, Forest Service, or BLM staff.
- Recreational trail access inside the BRWMU is prohibited except for a 1.0-mile segment of the Oneonta Creek trail to the north and an 8.3-mile segment of the Pacific Crest Trail (PCT) and the Huckleberry Trail, to the east. The PCT and Huckleberry Trail are located outside the Bull Run water supply drainage, except for 1.2 miles.
- The segment of the PCT and Oneonta Creek trails within the BRWMU are well signed with Bull Run "No Trespassing" signs instructing hikers not to trespass on the drainage side of the trail.
- The BLM Sandy Ridge bike trail system abuts the southern border of the BRWMU, but is located approximately 2 miles from the water supply drainage boundary. The steep terrain in this area provides a natural deterrent for human incursion into the BRWMU.

## Security

- PWB maintains a private property at the main gate that provides office and residence for the Water Bureau Lead Ranger who conducts security patrols for trespassers in the Bull Run Watershed.
- In April 2015, a second permanent, full-time Ranger was appointed to provide additional coverage.
- PWB Rangers conduct patrols to check for evidence of trespass and confirm the condition of boundary signage. They also check the condition and functionality of all gates and locks.

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<sup>4</sup> The few gates with conventional padlocks are not primary gates and do not provide direct access to the BRWMU.

- Security patrols are also provided by the Forest Service law enforcement officer assigned to Zigzag Ranger District of the Mt. Hood National Forest. The Multnomah and Clackamas County Sheriff's Offices as well as Oregon State Police are available to assist with incidents as well.
- The main gate surveillance camera is monitored by PWB's security staff.
- Security staff have access to all electronic CyberKey transaction data.
- PWB monitors surveillance cameras on Dam 1 and Dam 2—the live video feed is monitored by Headworks operators who staff the facility 24 hours a day, 365 days a year. PWB's Security Dispatch Center and Water Control Center staff also have the capacity to monitor the video.
- Motion-activated cameras provide surveillance at several undisclosed locations. PWB Security staff collect digital image files from these cameras as part of regular surveillance and patrols. Use of trail cameras increased in Water Year 2015.
- During Water Year 2015, PWB conducted a total of four trail patrols: two on the Oneonta Creek trail to the north and two on the Pacific Crest Trail to the east. The area near the BLM Sandy Ridge bike trails to the south is also frequently patrolled.

### **Human Incursion**

PWB rangers reported a total of 28 trespass incidents at the boundary or in the BRWMU for Water Year 2015. Of the 28 trespass incidents, 3 were confirmed to have occurred inside the water supply drainage boundary. The increase in trespass detections compared to last year is consistent with PWB's increased security efforts: the addition of a second full-time Bull Run Ranger, and the increased use of concealed security cameras. Based on the evaluation of the circumstances around the trespass events, there were no concerns for contamination that required further investigation.

### **Domesticated Animal Incursion**

No incidents of domesticated animal incursion were reported in Water Year 2015.

## **4. Wildlife**

The potential sources of microbial contamination are mammalian species common to the Bull Run (such as deer, black bear, and rodents) and Canada geese. As part of the Bull Run Treatment Variance, PWB monitors wildlife in the watershed. The monitoring includes 1) wildlife inspections of areas that are in close proximity to the reservoirs and water intake structures, and 2) scat sampling throughout the watershed to test for the presence of *Cryptosporidium* and *Giardia*.

PWB conducts wildlife studies to better understand the risk of microbial contamination posed by wildlife, particularly with regards to *Cryptosporidium*. The Bull Run

Treatment Variance Watershed Report for Water Year 2015 contains detailed information on the scat monitoring and wildlife inspection programs as well as any separate wildlife studies initiated by PWB.

## 5. Hydrology, Turbidity, and Erosion

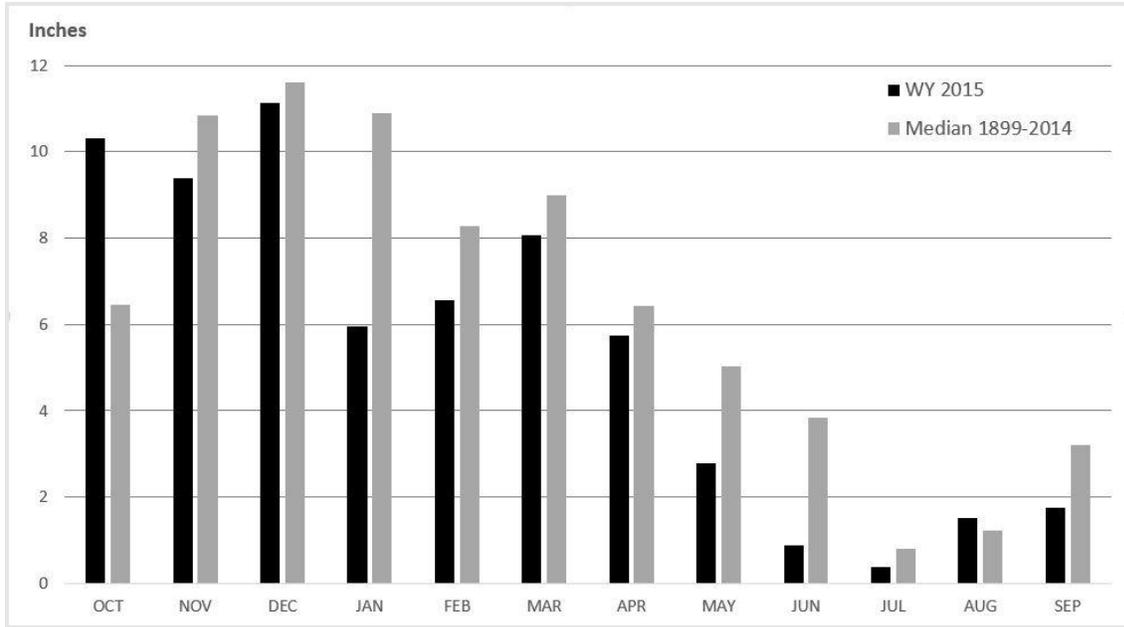
Water Year 2015 was, overall, drier than average in the Bull Run Watershed. A total of 64.5 inches of precipitation was recorded at Headworks during the water year. The long-term average annual precipitation for this location is slightly less than 80 inches. A comparison of monthly total precipitation levels at Headworks is shown in Figure 2. October 2014 was considerably wetter than the historical median; August 2014 was somewhat wetter than the median. All other months were drier than the median, most notably January-February, May-June, and September.

Figure 3 shows mean daily flows at the Bull Run main stem Key Station, located upstream of Reservoir 1. A flow of 5,000 cubic feet per second (cfs) at this station typically heightens the concern that a turbidity event that approaches or exceeds 5 nephelometric turbidity units (NTU) may occur.<sup>5</sup> The maximum mean daily flow recorded at this site during Water Year 2015 was 3,520 cfs on December 21, 2014, and was not associated with a turbidity event.

A landslide on the South Fork Bull Run tributary to Reservoir 2 occurred in January 2012. The landslide caused two turbidity spikes at the raw water intake resulting in one shutdown in January 2012 and reducing conduit flows in February 2012. The landslide was inspected twice from the air in Water Year 2015—once in October 2014 and once in August 2015. Both inspections showed that there were no signs of further large-scale sediment movement toward the stream.

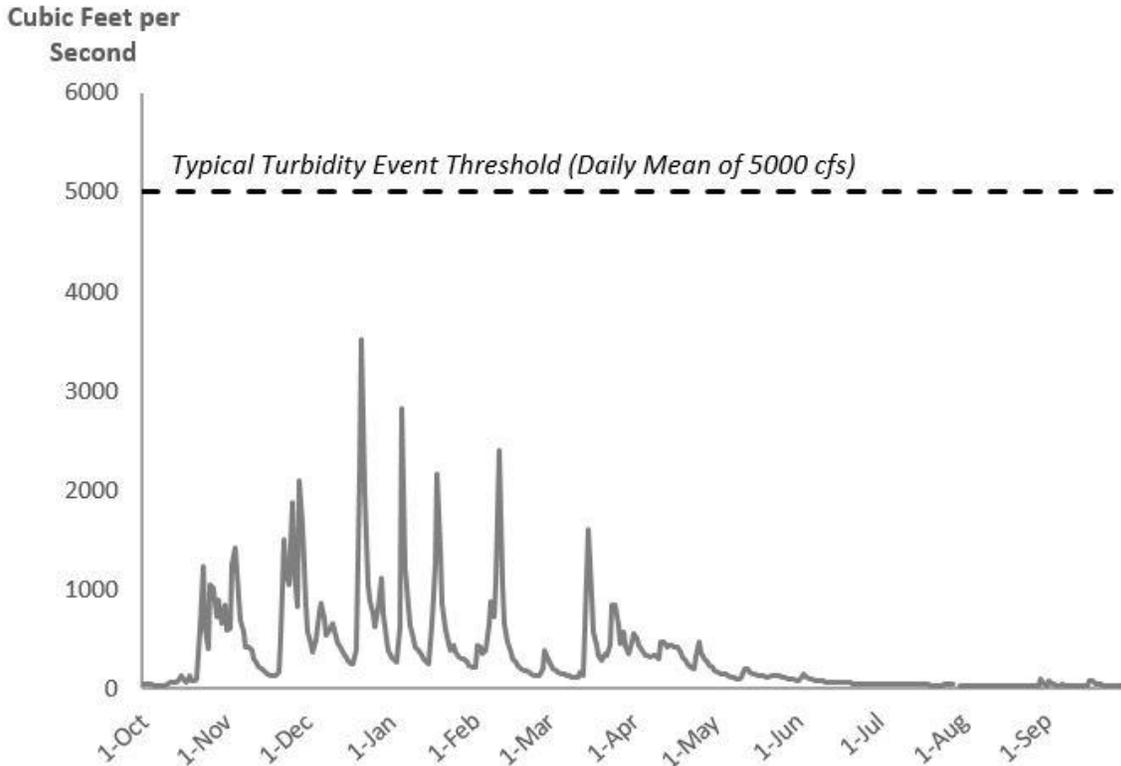
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<sup>5</sup> The source-water criteria for unfiltered systems include maintaining turbidity levels at less than 5 nephelometric turbidity units (NTU) for source water.



**Figure 2. Monthly Precipitation at Headworks, Bull Run, Oregon: Historical Monthly Medians and Water Year 2015 Monthly Totals**

During Water Year 2015, PWB used pairs of HF Scientific MicroTOL 3 process online turbidimeters at each raw water intake location—the Primary Intake Structure and Screenhouse 3—for compliance with the Surface Water Treatment Rule. All four online turbidimeters were set up to read turbidity in the range of 0–20 NTU. Bureau staff performed a two-point calibration of these turbidimeters with ProCal® (a styrene divinylbenzene co-polymer) monthly at minimum, and verified them twice weekly using the mid (7.0 NTU) and low (0.2 NTU) secondary standards. In addition, an HF Scientific Micro 1000 laboratory bench-top turbidimeter was used for routine measurement of grab samples. This bench-top turbidimeter uses the same technology as the online turbidimeters.



**Figure 3. Mean Daily Stream Flow in the Main Stem Bull Run River Measured at Key Station 18 above Reservoir 1, Water Year 2015**

## 6. Fire Protection

Fire-protection responsibilities for the Bull Run are shared among the Forest Service, the Oregon Department of Forestry (ODF), and PWB. In July 2006, staff from the Forest Service, ODF, and PWB prepared an update to the Bull Run Fire Management Plan. The plan identifies fire-suppression resources available to respond to fires in the Bull Run, defines policies on the use of aerial resources, and defines the roles and responsibilities of the three agencies.

The Forest Service's Closure Order for the BRWMU was updated in October 2012 to prohibit hikers from building and using a fire, campfire, or fire stove (except for a pressurized liquid or gas stove) on trails located within the unit. (See Section 3, Security and Trespass, for more information about trails located within the unit.)

One small fire occurred just inside the BRWMU during Water Year 2015 and no significant fires burned in areas bordering the watershed.

The small (0.1 acre) fire within the BRWMU boundary was reported on the evening of September 30, 2015 by a Life Flight helicopter in the vicinity of Blue Lake and Buck Peak, along the eastern boundary of the BRWMU and the Pacific Crest Trail. On

October 1, Forest Service firefighters located the fire and three firefighters were repelled in to the remote site. The fire was extinguished and all firefighters departed the area by October 2. The fire was human-caused, possibly from an abandoned campfire on the Pacific Crest Trail.

### **Fire Suppression Resources**

The Forest Service has the primary responsibility for initial attack on Forest Service lands and ODF has primary responsibility for initial attack on City and BLM land. However, those two parties operate under the “closest forces” incident command policy, whereby the agency that arrives at the fire earliest assumes the role of incident commander until authority is transferred to the primary agency.

The Sandy Fire Department has responsibility for protection of structures in the Bull Run Watershed because the wildland fire protection agencies are not trained to participate in extinguishing structure fires. Portland Fire & Rescue plays a secondary role and would respond to a structure fire or vehicle fire in the watershed if the Sandy Fire Department deemed that it needed additional resources.

PWB crews and contractors comply with the Industrial Fire Precaution Level guidelines on projects and maintenance activities that involve use of heavy equipment, power saws, and other spark-emitting equipment during fire season. PWB provides funding to the Forest Service to staff a fire lookout on Hickman Butte, located on the southern boundary of the Bull Run Watershed, from early July through mid-to-late September. Aerial surveillance of the watershed from fixed-wing aircraft is routinely conducted after lightning storms.

## **7. Project Planning and Construction**

### **Road Maintenance**

In December 2007, the Portland Water Bureau (PWB) and the U.S. Forest Service entered into a 20-year intergovernmental agreement called the Bull Run Watershed Management Unit Agreement. The agreement identifies the roles and responsibilities for the two agencies and formally assigns responsibility for roads maintenance to PWB. PWB has assumed responsibility for the maintenance, repair, and upgrades of nearly all roads in the Bull Run necessary for long-term access. Routine maintenance includes activities such as trimming vegetation and cleaning ditches and culverts. The technical details of the roads maintenance program are described in the 2009 Bull Run Transportation System Maintenance Plan. Major repairs and upgrades are implemented as capital road construction projects. In addition to major road projects, the Water Bureau conducts annual culvert condition assessment surveys for a subset of the large- and small-diameter culverts.

Two major road projects occurred in the BRWMU during Water Year 2015. A project along a 1.2-mile section of Road 10—the primary access road to Headworks and other critical water supply infrastructure—began in September 2014 (Water Year 2014) and was completed in Water Year 2015. This project included repaving the 1.2-mile section; improving ditch lines; and widening and reconstructing the road surface as needed to improve drainage and pavement condition, meet safety standards, and address road surface slumping. A second project began in the summer of 2015. For this project, a 0.5 mile section of Road 1010, a road that provides secondary access to PWB facilities and watershed monitoring locations, and the paved portion of the Road 1010125, a small spur road off of the Road 1010, were repaved. The road surface was also widened and reconstructed at discrete locations to improve drainage and pavement condition, meet safety standards, and address road surface slumping. This project was completed in October 2015 (Water Year 2016). The bureau's erosion-control, invasive species, and portable sanitation requirements are part of PWB's standard contract for road projects. PWB inspectors check for conformance to these requirements as part of standard construction project inspections.

### **Bull Run Watershed Landslide Hazard Mapping**

In 2013, an Intergovernmental Agreement (IGA) was signed between the PWB and the Oregon Department of Geology and Mineral Industries (DOGAMI) to update landslide hazard mapping for the Bull Run Watershed. The new mapping uses light detection and ranging (lidar) data and provides more accurate maps than was possible with older methods. The project was completed in the summer of 2015. Results of the project will facilitate protection of water quality by helping to inform project planning and maintenance practices within the BRWMU.

## **8. Hazardous Materials Spills**

Hazardous materials spills are handled in accordance with the PWB's Emergency Operations Plan. The bureau also takes measures to prevent spills. For any project, a detailed plan is required to address potential problems—for example, machine operators are required to use absorbent spill pads. PWB personnel conduct on-site inspections for all projects with the potential to affect water quality.

In May 2012 a diesel fuel spill was discovered near the Portland Hydroelectric Project (PHP) Powerhouse 2, which is maintained and operated by Portland General Electric (PGE). PGE initiated cleanup, remediation, and a three-year follow-up water quality monitoring plan for groundwater contamination around the remediation site.<sup>6</sup>

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<sup>6</sup> The Annual Watershed Control Program Report for Water Year 2012 provides a detailed description of the cleanup, the water sampling, and PGE's remediation plan. The Annual Watershed Control Program

As part of the remediation plan, follow-up groundwater quality monitoring at PHP Powerhouse 2 was again conducted by the PGE contractor in Water Year 2015. Samples from three groundwater monitoring wells were tested for diesel contaminants. None of the samples contained contaminant levels above the Method Reporting Limit (MRL), which is the smallest concentration of a substance that can be reliably measured using a given analytical method. The next round of groundwater monitoring will occur during Water Year 2016 and will be reported in the 2016 Annual Watershed Control Program Report. This will be the final year of monitoring if diesel contaminant levels in the monitoring wells continue to be less than the Method Report Limits.

On October 21, 2014, a spill occurred at Bull Run Lake during underwater operations to repair piping near the outlet of the lake. Divers were using a hydraulic saw to cut the high density polyethylene pipe. A light sheen was observed around the small amount of pipe cuttings that had floated to the surface. Staff halted operations and deployed absorbent pads and a containment boom and were able to remove the material.

On October 29, 2014, a spill occurred in the Diversion Pool in connection with the start-up of operations at Powerhouse 2. A sheen from an unknown substance was reported on the surface of the Diversion Pool approximately 150 yards east of the Diversion Pool spillway, downstream of the tailrace of Powerhouse 2. The release remained on the surface and was contained in the Diversion Pool using absorbent pads and a containment boom. The water supply was transferred to the South Tower via the Pressure Reducing Valve, to bypass the Diversion Pool. Samples were collected of the sheen and at the intake sampling point 2P and tested for total petroleum hydrocarbons (TPHs) and volatile organic compounds (VOCs). The sheen sample was positive for TPHs in the diesel range (the 2P sample was negative for TPHs). All results were negative for VOCs. Follow-up samples for TPHs were collected in the Diversion Pool inside and outside the boom area on November 3, with the North Howell Bunker Valve in operation and on November 4, with Powerhouse 2 in operation. All samples tested negative. Powerhouse 2 lubricants were tested and compared to that of the sheen. There was a good match to the GST68 lubricant used in the powerhouse turbine. The MSDS for the lubricant states that it is not expected to be harmful if swallowed. Once the sheen had cleared, and after receiving the negative results on all follow-up samples, the Diversion Pool was put back into service.

## 9. Tours

The bureau typically conducts public tours of the Bull Run Watershed from May through October. The purpose of public tours is to provide the public with access to the otherwise closed watershed to educate the participants about the history, natural resources, and function of the watershed within Portland's drinking water system.

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Report for Water Year 2013 provides results for PGE monitoring conducted during that water year.

All public tours are conducted with an emphasis on protecting water quality. PWB staff inspect tour vehicles for fuel and other possible automotive leaks before entering the watershed. At the beginning of the tour, educators inform all participants of the watershed rules, which include requirements that participants use only the provided sanitary facilities as restrooms and that they avoid contact with Bull Run raw water. To prevent the spread of invasive species, educators also require all tour participants to use a boot brush to clean shoes prior to boarding the tour vehicle.

From October 1, 2014 to September 30, 2015, PWB conducted 76 tours, with a total of 1,952 participants.

## 10. Compliance with Unfiltered Criteria

The criteria for unfiltered systems include source-water and site-specific criteria. The source-water criteria include the following source-water bacteriological quality and turbidity requirements:

- The fecal coliform concentration must be equal to or less than 20/100 ml, or the total coliform concentration must be equal to or less than 100/100 ml in representative samples of the source water immediately prior to the first or only point of disinfectant application in at least 90 percent of the measurements made for the 6 previous months
- The turbidity level cannot exceed the maximum contaminant level of 5 NTU (as prescribed in OAR 333-061-0030(3)(a)(A)).

These are reviewed in the Annual On-Site Watershed Control Program Inspection Report prepared by OHA staff.

The site-specific conditions include the following:

- Meet disinfection requirements:
  - (a) Three-log inactivation of *Giardia* cysts and four-log inactivation of viruses
  - (b) Redundant disinfection components or automatic shutoff of delivery of water to the distribution system when the chlorine residual is below 0.2 milligrams per liter (mg/L)
  - (c) The residual disinfection concentration at the entry point cannot be less than 0.2 mg/L for more than four hours.
  - (d) Disinfectant residuals in distribution system cannot be undetectable in more than 5% of the samples each month for any two consecutive months.
- Maintain a watershed control program and submit an annual watershed control program report

- Be subject to an annual on-site inspection of the watershed control program and the disinfection treatment by OHA
- Not be identified by OHA as a source of waterborne disease outbreak
- Comply with total coliform requirements for 11 of the previous 12 months
- Comply with requirements for total trihalomethanes, haloacetic acids, bromate, chlorine, chloramines, and chlorine dioxide

PWB has met all of these criteria during Water Year 2015.

## **11. Results of OHA 2015 Annual On-Site Watershed Inspection**

The watershed and disinfection system inspection for Water Year 2015 was conducted on July 31, 2015. OHA transmitted its annual on-site watershed control program inspection report to PWB on November 30, 2015. OHA's overview of the site visit states the following:

Overall, the watershed is well protected and the treatment facilities have redundant disinfection options with auxiliary power. The Portland Water Bureau continues to do an excellent job maintaining the water quality from Bull Run and being proactive with the watershed control program.

No significant deficiencies were noted and the report concludes with the following:

The Portland Water Bureau continues to meet all of the criteria for the exemption from filtration, and can therefore remain using an unfiltered surface water source as allowed in the Surface Water Treatment Rule.