DW 101 – Surveys

OHA-Drinking Water Services

Silver Falls Conference

April 22, 2015

Oregon Health Authority

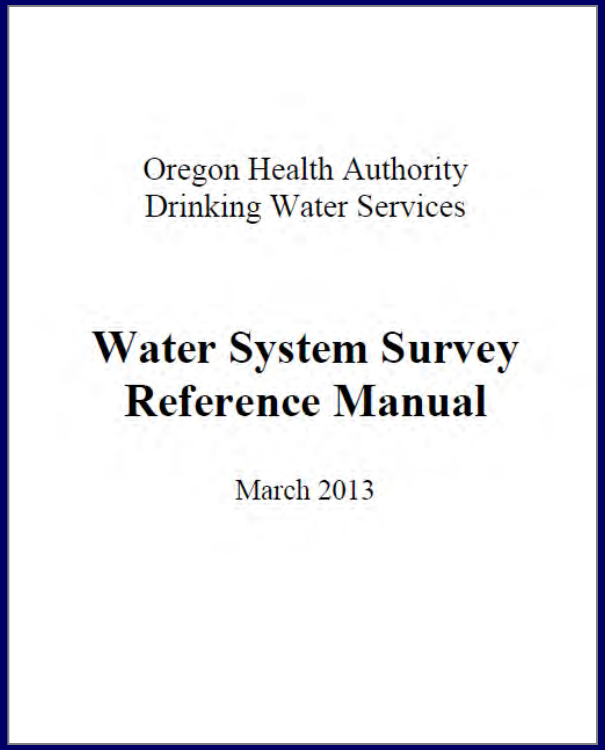
Why conduct surveys?

- Surveys evaluate capability of PWS, its sources, operations to reduce likelihood of introducing contamination & ensure safe drinking water
- Includes an on-site review & inspection of WS facilities, equipment, operations & monitoring.
- Required under OAR 333-061-0076.

Survey Resources

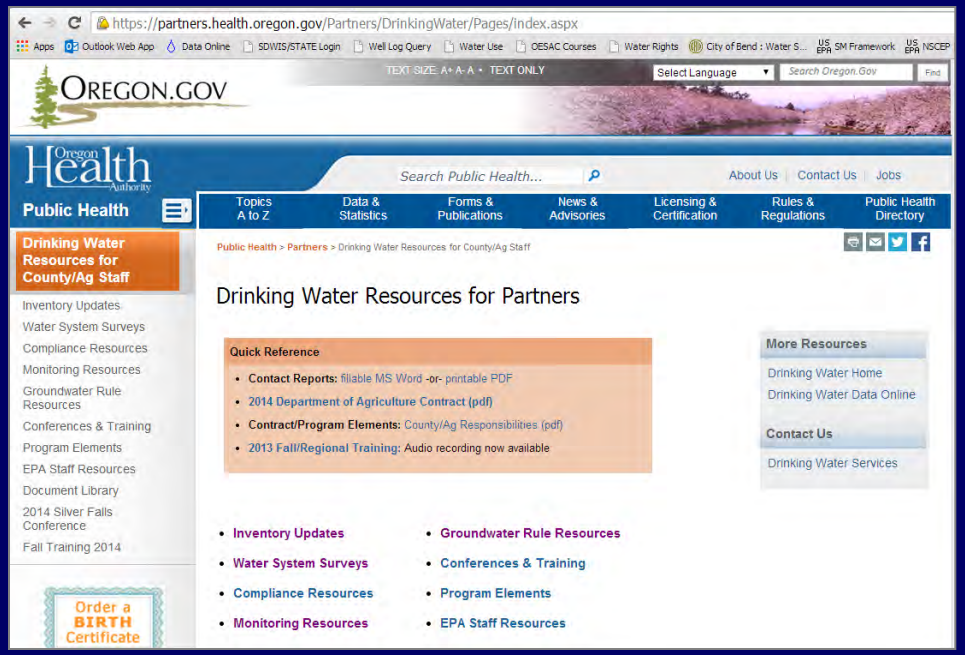
DW Resources for Partners Page on DWS website

Survey Reference Manual & Survey Forms packets


Oregon Health Authority
Drinking Water Services

Water System Survey Reference Manual

March 2013

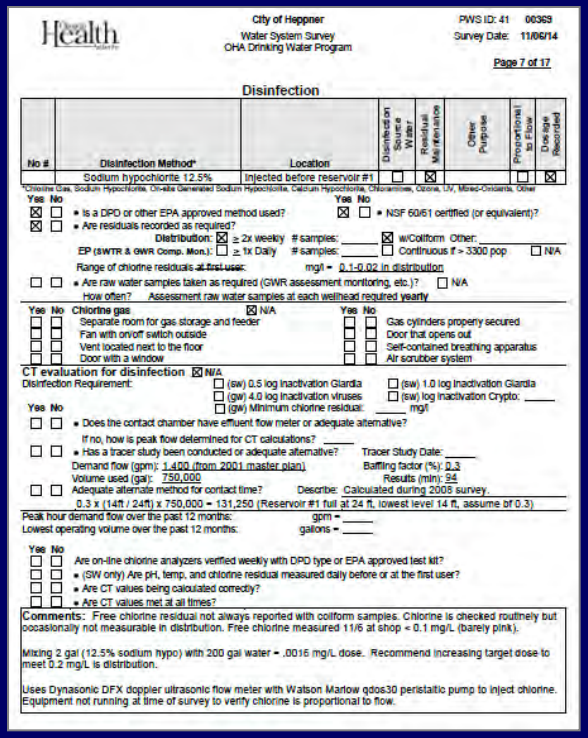


- Instructions on how to fill out survey forms
- Includes examples, tools & more…

Survey Basics

Survey Forms Packets on DWS Partners web page

- MS Word document (table structure)
- Data entry formats: Check boxes, text boxes, narrative
- Bulleted items note significant deficiencies



Health

City of Heppner
Water System Survey
OHA Drinking Water Program

PWS ID: 41 00369
Survey Date: 11/06/14

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Disinfection

No #	Disinfection Method*	Location	Disinfection Source Water	Residual Maintenance	Other Purpose	Proportional to Flow	Dosage Recorded
	Sodium hypochlorite 12.5%	Injected before reservoir #1	☐	☒		☐	☒

*Chlorine Gas, Sodium Hypochlorite, On-site Generated Sodium Hypochlorite, Calcium Hypochlorite, Chloramines, Ozone, UV, Mixed-Oxidants, Other

Yes No
☒ ☐ • Is a DPO or other EPA approved method used?
☒ ☐ • Are residuals recorded as required?

Yes No
☒ ☐ • NSF 60/61 certified (or equivalent)?

Distribution: ☒ ≥ 2x weekly # samples: ____ ☒ w/Coliform Other: ____
EP (SWTR & GWR Comp. Mon.): ☐ ≥ 1x Daily # samples: ____ ☐ Continuous if > 3300 pop ☐ N/A

Range of chlorine residuals ~~at first user~~: mg/l = 0.1-0.02 in distribution

☐ ☐ • Are raw water samples taken as required (GWR assessment monitoring, etc.)? ☐ N/A
How often? Assessment raw water samples at each wellhead required yearly

Yes No Chlorine gas ☒ N/A
☐ ☐ Separate room for gas storage and feeder
☐ ☐ Fan with on/off switch outside
☐ ☐ Vent located next to the floor
☐ ☐ Door with a window

Yes No
☐ ☐ Gas cylinders properly secured
☐ ☐ Door that opens out
☐ ☐ Self-contained breathing apparatus
☐ ☐ Air scrubber system

CT evaluation for disinfection ☒ N/A

Disinfection Requirement:
☐ (sw) 0.5 log inactivation Giardia ☐ (sw) 1.0 log inactivation Giardia
☐ (gw) 4.0 log inactivation viruses ☐ (sw) log inactivation Crypto: ____
☐ (gw) Minimum chlorine residual: ____ mg/l

Yes No
☐ ☐ • Does the contact chamber have effluent flow meter or adequate alternative?
If no, how is peak flow determined for CT calculations? ____
☐ ☐ • Has a tracer study been conducted or adequate alternative? Tracer Study Date: ____
Demand flow (gpm): 1,400 (from 2001 master plan) Baffling factor (%): 0.3
Volume used (gal): 750,000 Results (min): 24
☐ ☐ Adequate alternate method for contact time? Describe: Calculated during 2008 survey.
0.3 x (14ft / 24ft) x 750,000 = 131,250 (Reservoir #1 full at 24 ft, lowest level 14 ft, assume bf 0.3)
Peak hour demand flow over the past 12 months: gpm = ____
Lowest operating volume over the past 12 months: gallons = ____

Yes No
☐ ☐ Are on-line chlorine analyzers verified weekly with DPD type or EPA approved test kit?
☐ ☐ • (SW only) Are pH, temp, and chlorine residual measured daily before or at the first user?
☐ ☐ • Are CT values being calculated correctly?
☐ ☐ • Are CT values met at all times?

Comments: Free chlorine residual not always reported with coliform samples. Chlorine is checked routinely but occasionally not measurable in distribution. Free chlorine measured 11/6 at shop = 0.1 mg/L (barely pink).

Mixing 2 gal (12.5% sodium hypo) with 200 gal water = .0016 mg/L dose. Recommend increasing target dose to meet 0.2 mg/L is distribution.

Uses Dynasonic DFX doppler ultrasonic flow meter with Watson Marlow qdos30 peristaltic pump to inject chlorine. Equipment not running at time of survey to verify chlorine is proportional to flow.

Checklist of which pages to include in report

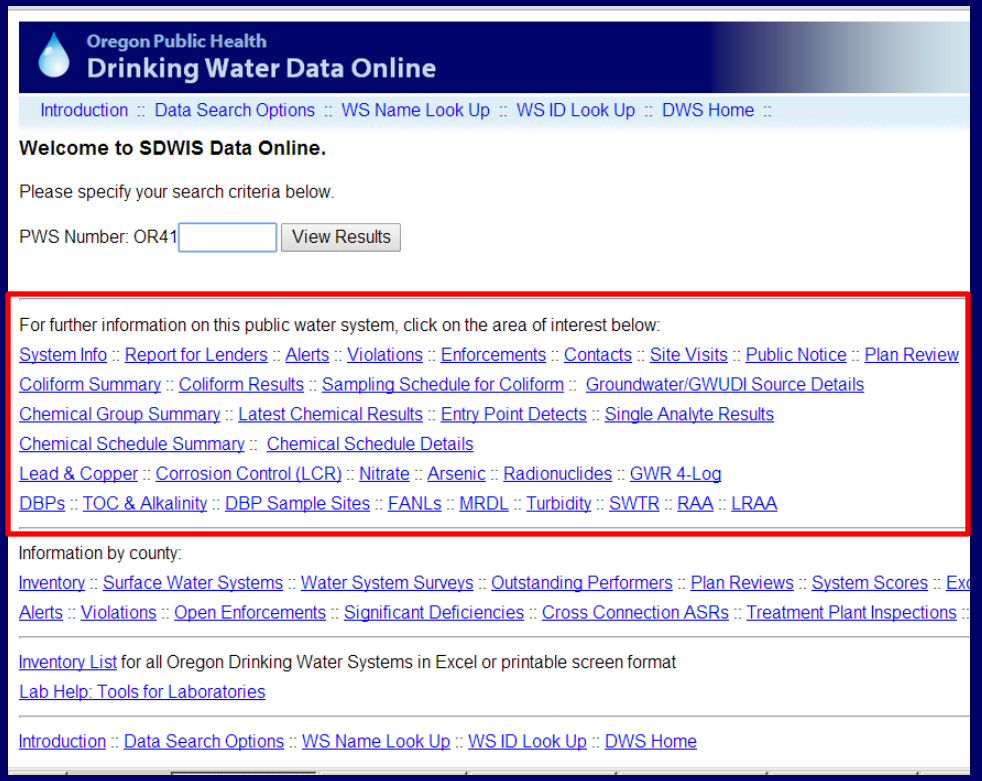
Survey Page	Packet 1 C / NTNC	Packet 2 TNC / Non-EPA
Deficiency Summary	X	X
Inventory and Narrative	X	X
Water System Schematic	X	X
Source Information	X	X
Well Information	X	X
Spring/Other Source	X	
Conventional and Direct Treatment Plant Inspection	X	
Alternative Technology Treatment Plant Inspection	X	
Disinfection	X	X
Treatment	X	
Storage & Pressure Tanks	X	X
Distribution System Information	X	
Water Quality Monitoring	X	
Management & Operations	X	
Transient (TNC) & State Regulated (Non-EPA)		X

*In the "C/NTNC" packet, treatment code definitions are listed on the back of the "Treatment" page, however, in the "TNC/Non-EPA" packet, treatment codes are listed on the back of the "Source Information" page.

Preparing Before for Survey

Review of WS information

- Previous surveys
- Monitoring & reporting
  - Data Online
- CCR reports, Cross Connection or ASR reports (CWS)
- Correspondence since last survey
  - Contact reports



Preparing WS for Survey

Notify WS of upcoming survey – Approx. 2 weeks prior

- WS should have received survey letter
- Provide overview of what survey involves & how long it will take
- Reminder that access to all facilities is needed
- WS records should be available for regulator to review

System-wide map, sampling plans, O&M, operator protocols, ERP, CCR, ASR, M&R records, NSF certification for chemicals

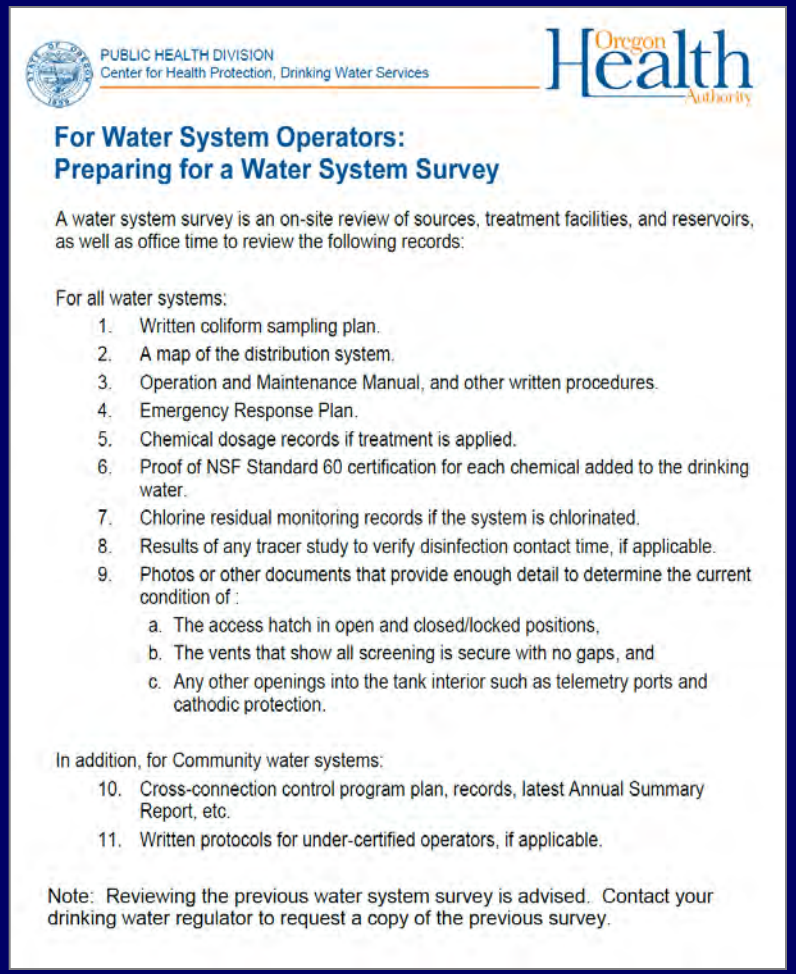
Requesting Storage Tank Photos

Verification that storage requirements are met

- Surveyors not advised to climb storage tanks
- Request photos 2 weeks before survey showing:
  - Access hatch/lid/door in open/closed/locked
  - Vents completely screened
  - Other openings/penetrations into tank interior
- Request photos during visit if not taken before survey
- 2-3 weeks can be given to WS to send photos
- Photos not received or inadequate, significant deficiencies apply.
- Recommend asking for photos of overflow protection

Preparing WS for Survey

Send WS list of items to check before site visit



PUBLIC HEALTH DIVISION
Center for Health Protection, Drinking Water Services

Oregon Health Authority

For Water System Operators: Preparing for a Water System Survey

A water system survey is an on-site review of sources, treatment facilities, and reservoirs, as well as office time to review the following records:

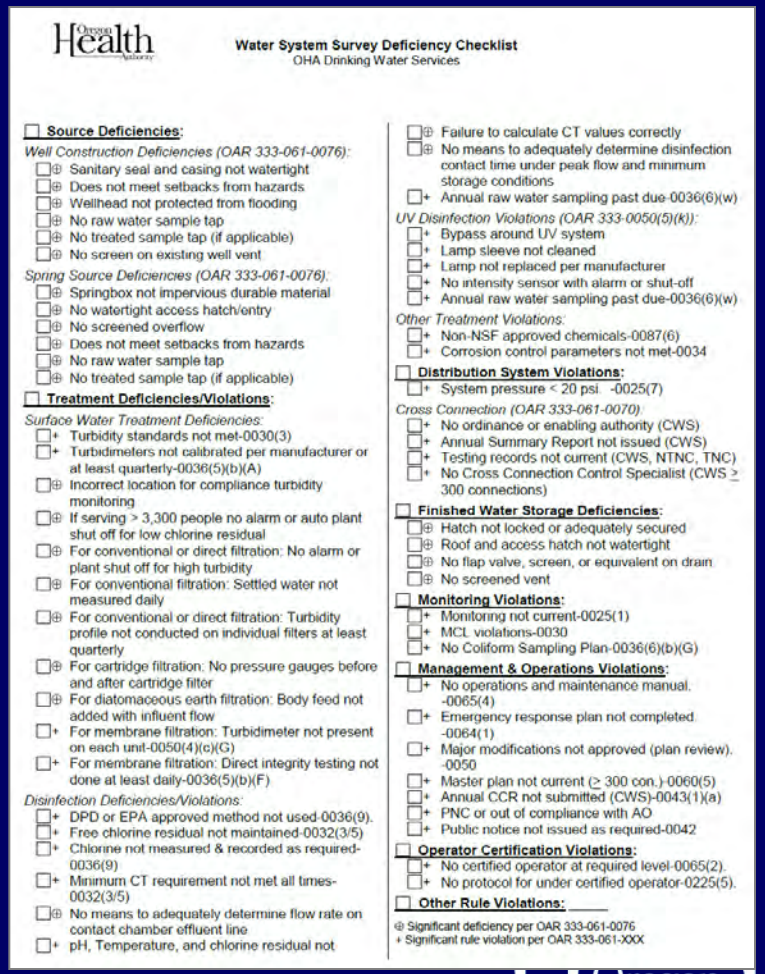
For all water systems:

1. Written coliform sampling plan.
2. A map of the distribution system.
3. Operation and Maintenance Manual, and other written procedures.
4. Emergency Response Plan.
5. Chemical dosage records if treatment is applied.
6. Proof of NSF Standard 60 certification for each chemical added to the drinking water.
7. Chlorine residual monitoring records if the system is chlorinated.
8. Results of any tracer study to verify disinfection contact time, if applicable.
9. Photos or other documents that provide enough detail to determine the current condition of :
   a. The access hatch in open and closed/locked positions,
   b. The vents that show all screening is secure with no gaps, and
   c. Any other openings into the tank interior such as telemetry ports and cathodic protection.

In addition, for Community water systems:

10. Cross-connection control program plan, records, latest Annual Summary Report, etc.
11. Written protocols for under-certified operators, if applicable.

Note: Reviewing the previous water system survey is advised. Contact your drinking water regulator to request a copy of the previous survey.



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Water System Survey Deficiency Checklist
OHA Drinking Water Services

☐ **Source Deficiencies:**

Well Construction Deficiencies (OAR 333-061-0076):
- ☐⊕ Sanitary seal and casing not watertight
- ☐⊕ Does not meet setbacks from hazards
- ☐⊕ Wellhead not protected from flooding
- ☐⊕ No raw water sample tap
- ☐⊕ No treated sample tap (if applicable)
- ☐⊕ No screen on existing well vent

Spring Source Deficiencies (OAR 333-061-0076):
- ☐⊕ Springbox not impervious durable material
- ☐⊕ No watertight access hatch/entry
- ☐⊕ No screened overflow
- ☐⊕ Does not meet setbacks from hazards
- ☐⊕ No raw water sample tap
- ☐⊕ No treated sample tap (if applicable)

☐ **Treatment Deficiencies/Violations:**

Surface Water Treatment Deficiencies:
- ☐+ Turbidity standards not met-0030(3)
- ☐+ Turbidimeters not calibrated per manufacturer or at least quarterly-0036(5)(b)(A)
- ☐⊕ Incorrect location for compliance turbidity monitoring
- ☐⊕ If serving > 3,300 people no alarm or auto plant shut off for low chlorine residual
- ☐⊕ For conventional or direct filtration: No alarm or plant shut off for high turbidity
- ☐⊕ For conventional filtration: Settled water not measured daily
- ☐⊕ For conventional or direct filtration: Turbidity profile not conducted on individual filters at least quarterly
- ☐⊕ For cartridge filtration: No pressure gauges before and after cartridge filter
- ☐⊕ For diatomaceous earth filtration: Body feed not added with influent flow
- ☐+ For membrane filtration: Turbidimeter not present on each unit-0050(4)(c)(G)
- ☐+ For membrane filtration: Direct integrity testing not done at least daily-0036(5)(b)(F)

Disinfection Deficiencies/Violations:
- ☐+ DPD or EPA approved method not used-0036(9).
- ☐+ Free chlorine residual not maintained-0032(3/5)
- ☐+ Chlorine not measured & recorded as required-0036(9)
- ☐+ Minimum CT requirement not met all times-0032(3/5)
- ☐⊕ No means to adequately determine flow rate on contact chamber effluent line
- ☐+ pH, Temperature, and chlorine residual not
- ☐⊕ Failure to calculate CT values correctly
- ☐⊕ No means to adequately determine disinfection contact time under peak flow and minimum storage conditions
- ☐+ Annual raw water sampling past due-0036(6)(w)

UV Disinfection Violations (OAR 333-0050(5)(k)):
- ☐+ Bypass around UV system
- ☐+ Lamp sleeve not cleaned
- ☐+ Lamp not replaced per manufacturer
- ☐+ No intensity sensor with alarm or shut-off
- ☐+ Annual raw water sampling past due-0036(6)(w)

Other Treatment Violations:
- ☐+ Non-NSF approved chemicals-0087(6)
- ☐+ Corrosion control parameters not met-0034

☐ **Distribution System Violations:**
- ☐+ System pressure < 20 psi. -0025(7)

Cross Connection (OAR 333-061-0070):
- ☐+ No ordinance or enabling authority (CWS)
- ☐+ Annual Summary Report not issued (CWS)
- ☐+ Testing records not current (CWS, NTNC, TNC)
- ☐+ No Cross Connection Control Specialist (CWS ≥ 300 connections)

☐ **Finished Water Storage Deficiencies:**
- ☐⊕ Hatch not locked or adequately secured
- ☐⊕ Roof and access hatch not watertight
- ☐⊕ No flap valve, screen, or equivalent on drain
- ☐⊕ No screened vent

☐ **Monitoring Violations:**
- ☐+ Monitoring not current-0025(1)
- ☐+ MCL violations-0030
- ☐+ No Coliform Sampling Plan-0036(6)(b)(G)

☐ **Management & Operations Violations:**
- ☐+ No operations and maintenance manual. -0065(4)
- ☐+ Emergency response plan not completed. -0064(1)
- ☐+ Major modifications not approved (plan review). -0050
- ☐+ Master plan not current (≥ 300 con.)-0060(5)
- ☐+ Annual CCR not submitted (CWS)-0043(1)(a)
- ☐+ PNC or out of compliance with AO
- ☐+ Public notice not issued as required-0042

☐ **Operator Certification Violations:**
- ☐+ No certified operator at required level-0065(2).
- ☐+ No protocol for under certified operator-0225(5).

☐ **Other Rule Violations:** _____

⊕ Significant deficiency per OAR 333-061-0076
+ Significant rule violation per OAR 333-061-XXX

DWS website – WS Operations – Fact Sheets & BMPs page

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Field equipment to take

- Chlorine Test Kit
  - DPD type for free & total chlorine
- pH meter (corrosion control)
- Maps (USGS, Google)
- Camera
- Flashlight
- Mirror
- Other useful items
  - binoculars, GPS receiver
- Be prepared for inclement weather!

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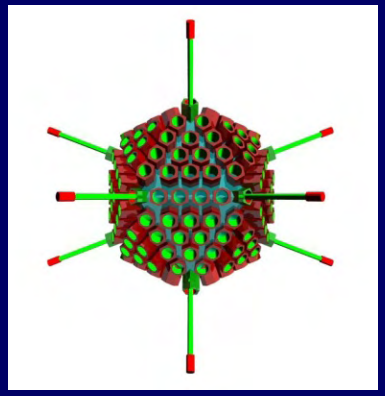
Survey Elements

- Water sources
- Treatment
- Distribution systems
- Finished water storage
- Pumping facilities & controls
- Monitoring & reporting
- Management & operations
- Operator certification

E. Coli photo credit: photobucket



Adenovirus photo credit: http://cronodon.com/

Multi-barrier Approach

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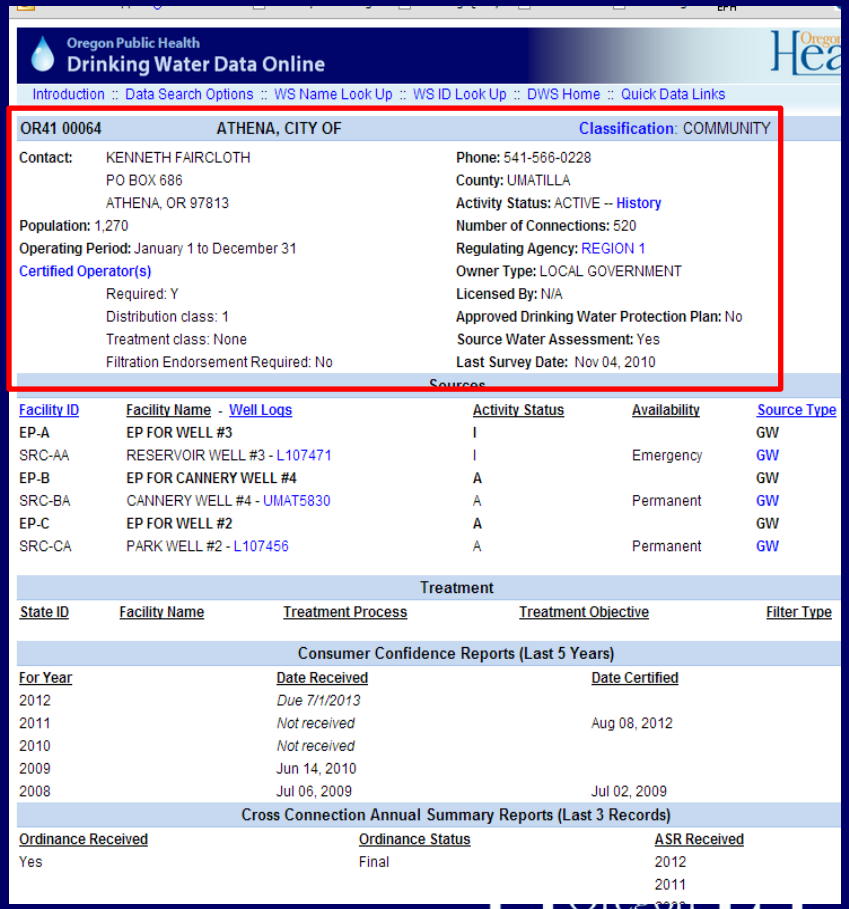
Inventory & Narrative

Verify WS information in Data Online is correct

- Verify contact information
- Where to mail correspondence
- Is facility license required?
- Operator certification level correct & current?
- Operating season – All year vs. seasonal use
  - Establishes coliform monitoring timeframe
- Emergency connections



Oregon Public Health
Drinking Water Data Online

Introduction :: Data Search Options :: WS Name Look Up :: WS ID Look Up :: DWS Home :: Quick Data Links

OR41 00064 ATHENA, CITY OF Classification: COMMUNITY

Contact: KENNETH FAIRCLOTH
PO BOX 686
ATHENA, OR 97813
Population: 1,270
Operating Period: January 1 to December 31
Certified Operator(s)
Required: Y
Distribution class: 1
Treatment class: None
Filtration Endorsement Required: No

Phone: 541-566-0228
County: UMATILLA
Activity Status: ACTIVE -- History
Number of Connections: 520
Regulating Agency: REGION 1
Owner Type: LOCAL GOVERNMENT
Licensed By: N/A
Approved Drinking Water Protection Plan: No
Source Water Assessment: Yes
Last Survey Date: Nov 04, 2010

Sources

Facility ID	Facility Name - Well Logs	Activity Status	Availability	Source Type
EP-A	EP FOR WELL #3	I		GW
SRC-AA	RESERVOIR WELL #3 - L107471	I	Emergency	GW
EP-B	EP FOR CANNERY WELL #4	A		GW
SRC-BA	CANNERY WELL #4 - UMAT5830	A	Permanent	GW
EP-C	EP FOR WELL #2	A		GW
SRC-CA	PARK WELL #2 - L107456	A	Permanent	GW

Treatment

State ID	Facility Name	Treatment Process	Treatment Objective	Filter Type

Consumer Confidence Reports (Last 5 Years)

For Year	Date Received	Date Certified
2012	*Due 7/1/2013*	
2011	*Not received*	Aug 08, 2012
2010	*Not received*	
2009	Jun 14, 2010	
2008	Jul 06, 2009	Jul 02, 2009

Cross Connection Annual Summary Reports (Last 3 Records)

Ordinance Received	Ordinance Status	ASR Received
Yes	Final	2012
		2011

Inventory & Narrative

Verify WS information in Data Online is correct

- Population, customer use or # service connections
  - Population based on average annual daily population
  - *Small community populations: http://www.pdx.edu/prc/population-estimates-0*
  - Service connections based on number of meters or connections in CWS. For TNC, use # of buildings, RV spaces, standpipes, etc.
    - Land ownership can also be considered

Determines WS type (CWS, NTNC, TNC, SR (non-EPA)

Inventory & Narrative

Verify WS information in Data Online is correct

- Coliform samples to collect & how often
  - Based on WS type & population
  - Monthly vs. quarterly
- Service characteristics & owner type codes

Service Area Characteristics

Primary	Secondary	CODE
Residential	City or Town	MU
	Mobile Home Park	MP
	Subdivision	SU
	Rural	RA
	Other	OR
Transient	Recreation (parks, campground, beaches, ski areas, marinas)	PA
	Service Station	SS
	Summer Camp	SK
	Restaurant/Store	RS
	Highway Rest Area	HR
	Hotel/Motel, B&B	HM
	Other (visitor ctr, church)	OT
Non-Transient Non-Community	School	SC
	Institution	IN
	Medical Facility	MF
	Industrial/Agricultural	IA
	Day Care Center	DC
	Other	OA
Other	Interstate Carrier	IC
	Wholesaler (sells water)	WH
	Other Area	OT

Determining System Type

Population/ Daily Use	Number of Connections	>25 Same Daily Users	≥25 Year Round Residents	System Type
<10	<4	No	No	Not a System
10 – 24	4-14	_	_	State Reg/Non-EPA
25+	_	No	No	Transient Non-Community
25+	_	Yes	No	Non-Transient Non-Community
25+	15+	Yes	Yes	Community

Coliform Bacteria Sampling

Community systems	Monthly samples based on population*		
Non-Transient, Transient, State-Regulated Systems	Groundwater population served		Surface water
	≤1000 1 per quarter	>1000 Monthly based on population*	Monthly sampling based on population*

Owner Type	Code
Federal Government	1
Private	2
State Government	3
Local Government	4
Mixed Public/Private	5

* Population	Samples per month
Up to 1,000	1
1,001 to 2,500	2
2,501 to 3,300	3
etc	See rules or call DWP

Narrative

Brief description of water system facilities

Narrative:

The Crooked River Ranch Water Company is approximately 8 miles from Terrebonne accessible via the NW Lower Bridge Market Rd. The water system serves residential and commercial customers including a summer recreational population. The system consists of two wells, two storage tanks, a pumping station, and over 100 miles of distribution piping. Two pressure zones divide the system with a well located in each zone. Both wells have the ability to serve either zone. There is an emergency well located at the golf course and is seldom used. The golf course has full control of this well. It is physically connected to the water system with a valve separating the two systems.

The survey was conducted with Frank Day and Art Sharkey with Avion Water Company.

- Driving directions
- Also serves summer recreational population
- Water facilities
- Pressure zones & distribution service areas
- Specifics on emergency sources
- Who participated in the survey visit

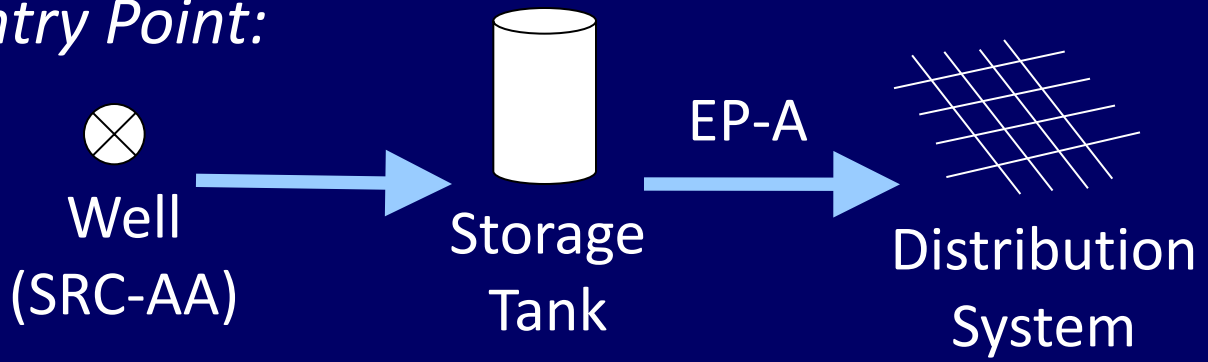
Schematic

Snapshot of how water flows through the system

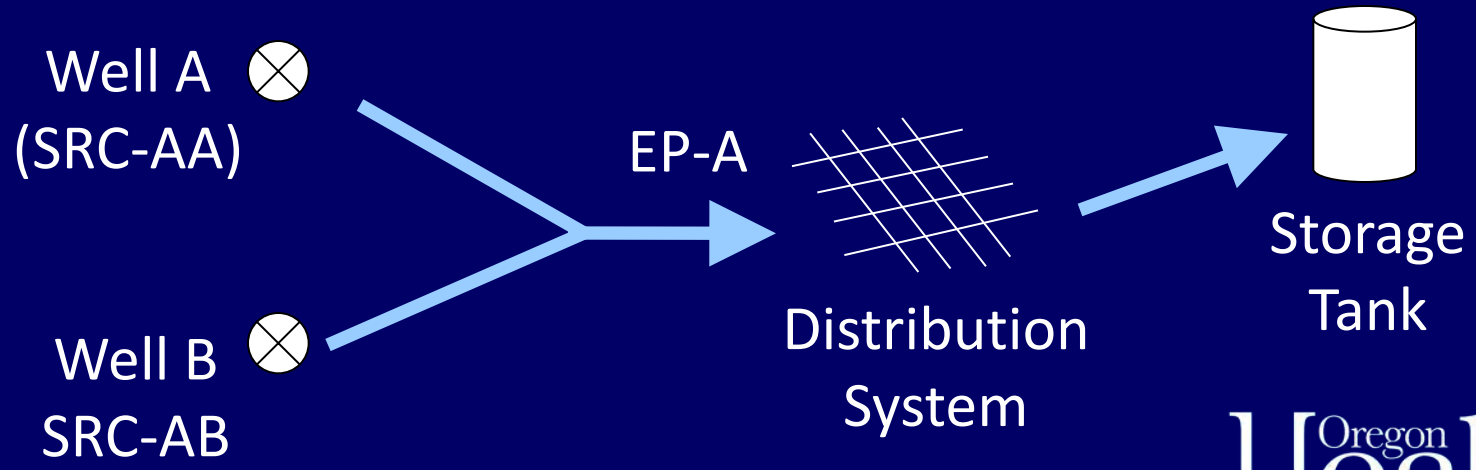
- Show all SRC, EP names & identifiers
- Storage facilities (flow directions to/from storage)
- Treatment (chemical injection & monitoring sites)
- Distribution system/pressure zones
- Interties & emergency connections
- Sanitary hazards & proximity to sources
- Other useful information to include:
  - Storage high/low levels, pipe diameters & distances
  - Location, aerial or other reference maps

Schematic examples

1 Well/Entry Point:

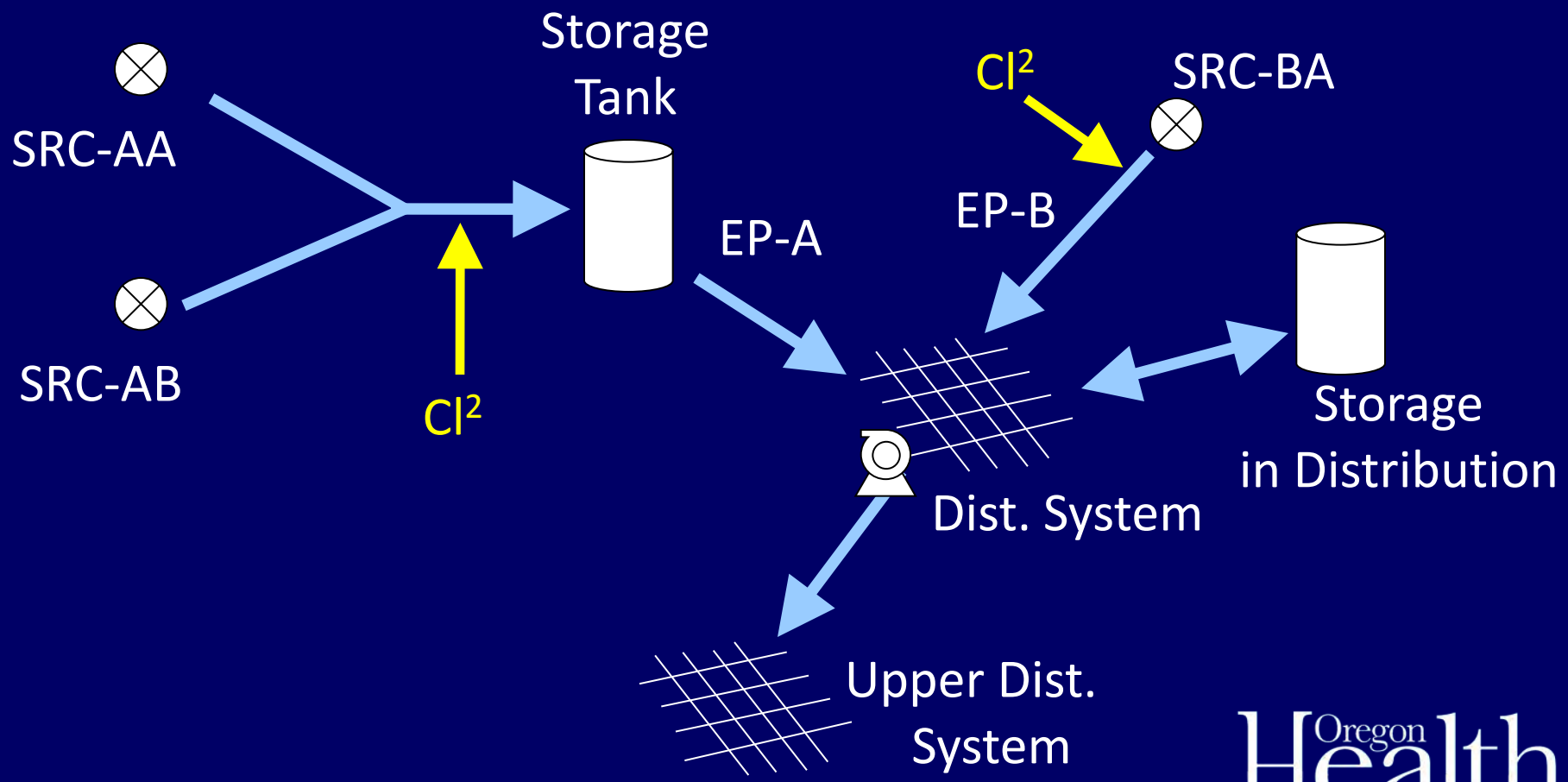


2 Wells/Entry Point:



Schematic examples

Multi-wells/multi-entry points/residual maintenance:



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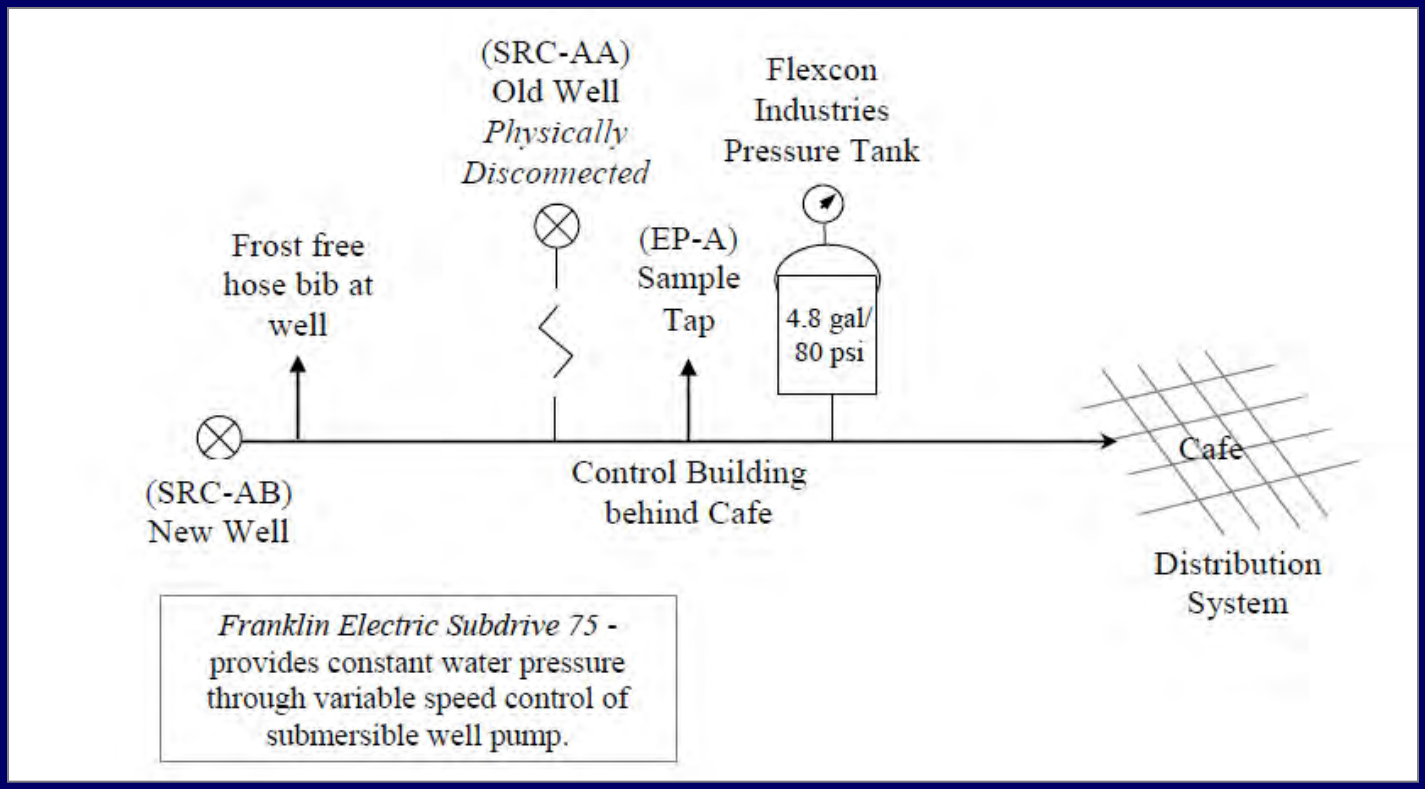
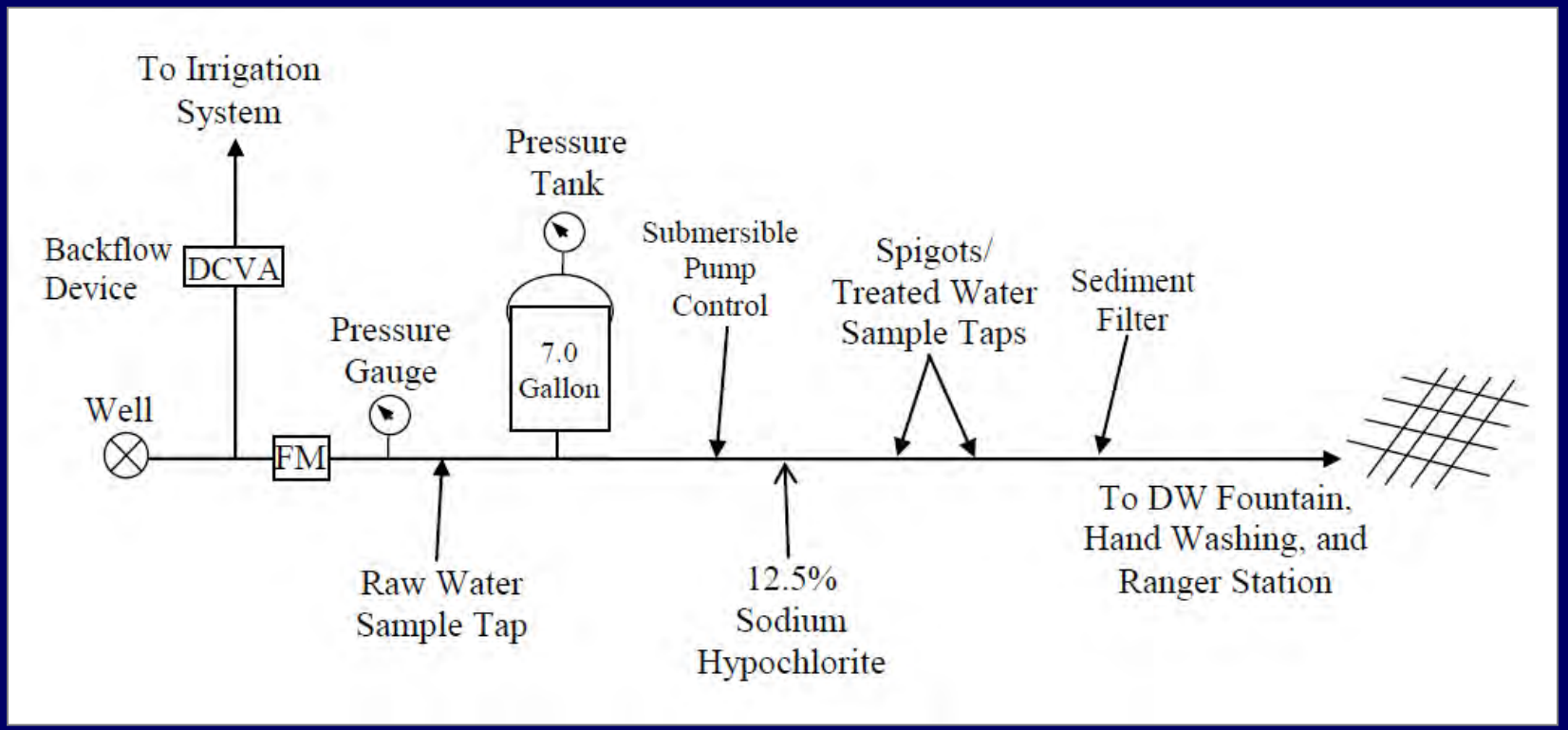
Schematic Examples
TNC with well, pressure tank



Schematic Example

TNC with well, pressure tank & chlorine



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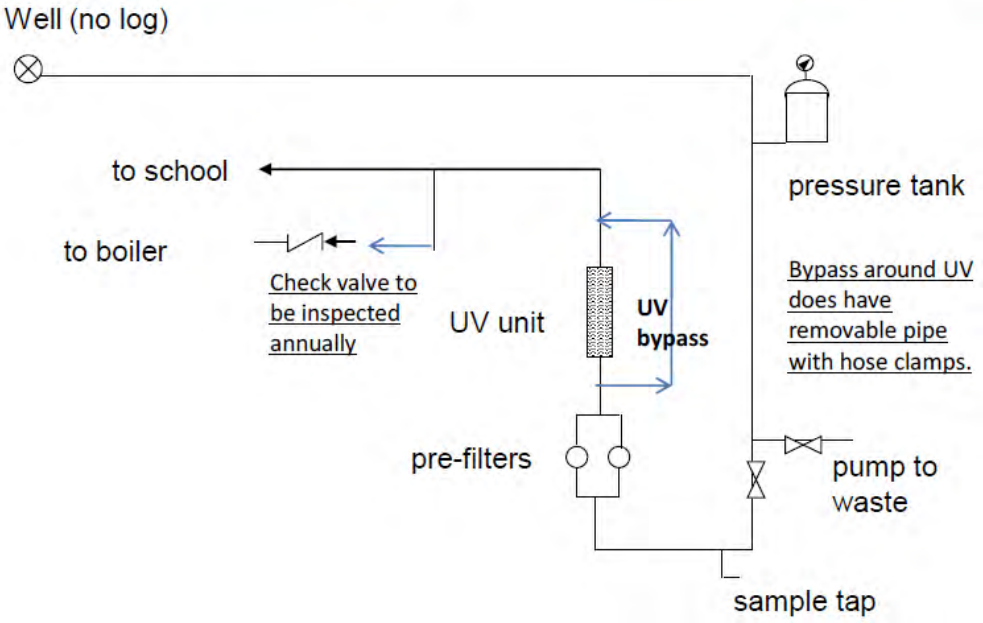
Schematic Example
NTNC with well, UV & pressure tank

Include:

- Photos
- Valve locations
- BFDs
- Pre-filter locations
- Notes & comments

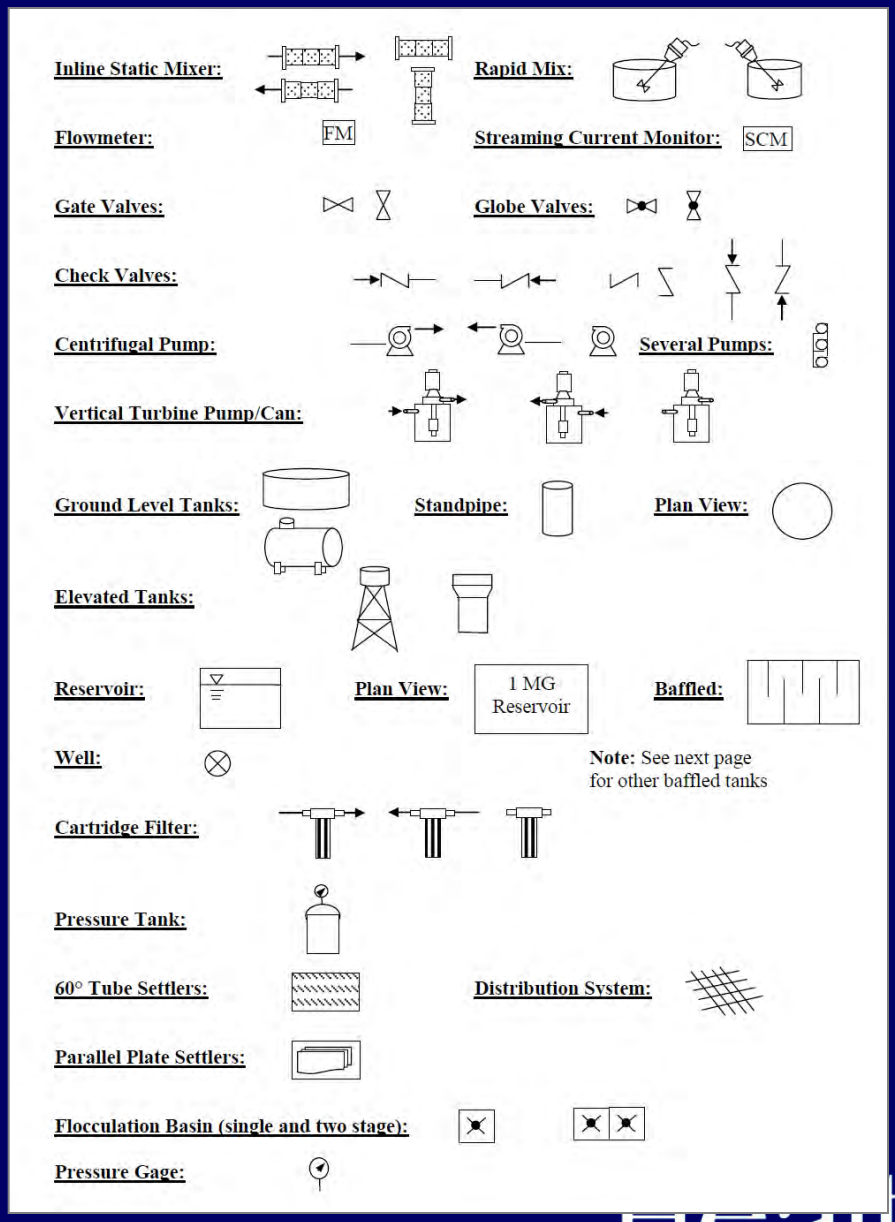


Notes:
- UV unit is custom built by Trojan Technologies – SN 191141-01
- pre-filters are Pentek DGD-5005 polypropylene
- well is located under a trap door in the school hallway

⋈ - valve

Symbols.doc

- Located on DW Resource Survey Page
- Pre-made graphics to copy & paste into form
- Easy to use
- Schematic should be easy to read & follow water flow from source to distribution



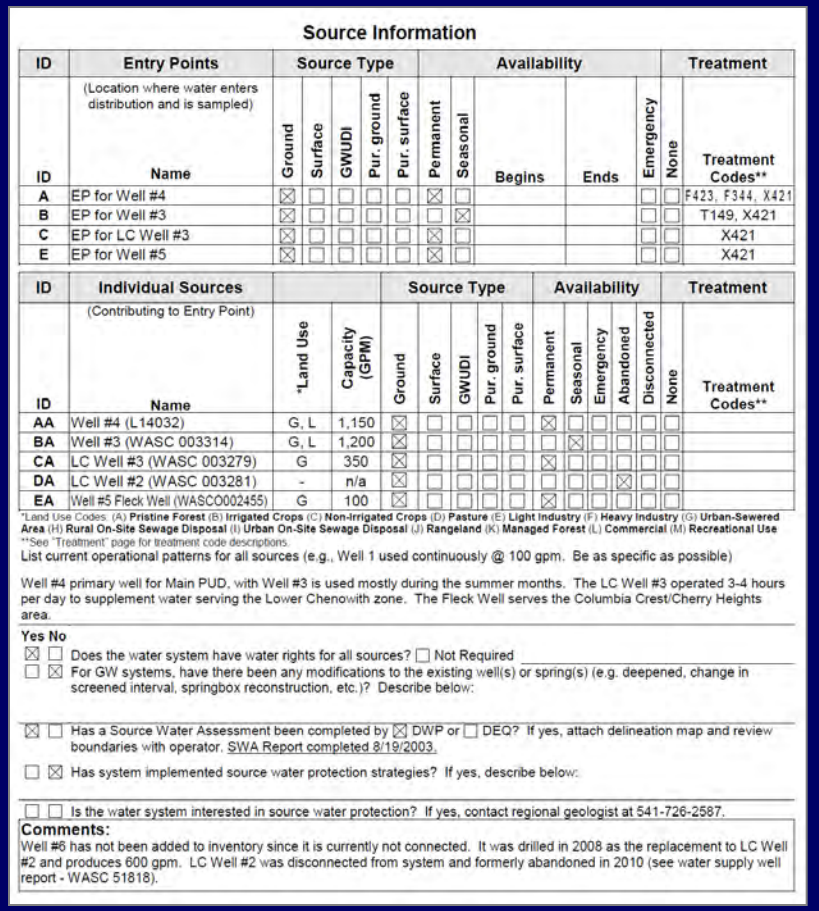
Authority

Source Info

Identify changes to Entry Point, Sources & Treatment

Entry Points & Individual Sources

- Name *(EP-A, SRC-AA, SRC-AB)*
- Source Type (GW, SW, GWUDI, purchaser)
- Availability (permanent/seasonal, emergency, abandoned, etc.)
- Treatment codes
- Land Use
- Source capacity (gpm)
- Operational use of sources
- Modification to existing sources
  - Plan review *(deepened well)*



Source Information

ID	Entry Points	Source Type					Availability				Emergency	None	Treatment
ID	Name (Location where water enters distribution and is sampled)	Ground	Surface	GWUDI	Pur. ground	Pur. surface	Permanent	Seasonal	Begins	Ends			Treatment Codes**
A	EP for Well #4	☒	☐	☐	☐	☐	☒	☐			☐	☐	F423, F344, X421
B	EP for Well #3	☒	☐	☐	☐	☐	☐	☒			☐	☐	T149, X421
C	EP for LC Well #3	☒	☐	☐	☐	☐	☒	☐			☐	☐	X421
E	EP for Well #5	☒	☐	☐	☐	☐	☒	☐			☐	☐	X421

ID	Individual Sources			Source Type					Availability					Treatment
ID	Name (Contributing to Entry Point)	*Land Use	Capacity (GPM)	Ground	Surface	GWUDI	Pur. ground	Pur. surface	Permanent	Seasonal	Emergency	Abandoned	Disconnected	None	Treatment Codes**
AA	Well #4 (L14032)	G, L	1,150	☒	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	
BA	Well #3 (WASC 003314)	G, L	1,200	☒	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	
CA	LC Well #3 (WASC 003279)	G	350	☒	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	
DA	LC Well #2 (WASC 003281)	-	n/a	☒	☐	☐	☐	☐	☐	☐	☐	☒	☐	☐	
EA	Well #5 Fleck Well (WASC002455)	G	100	☒	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	

*Land Use Codes: (A) **Pristine Forest** (B) **Irrigated Crops** (C) **Non-Irrigated Crops** (D) **Pasture** (E) **Light Industry** (F) **Heavy Industry** (G) **Urban-Sewered Area** (H) **Rural On-Site Sewage Disposal** (I) **Urban On-Site Sewage Disposal** (J) **Rangeland** (K) **Managed Forest** (L) **Commercial** (M) **Recreational Use**

**See "Treatment" page for treatment code descriptions.

List current operational patterns for all sources (e.g., Well 1 used continuously @ 100 gpm. Be as specific as possible)

Well #4 primary well for Main PUD, with Well #3 is used mostly during the summer months. The LC Well #3 operated 3-4 hours per day to supplement water serving the Lower Chenowith zone. The Fleck Well serves the Columbia Crest/Cherry Heights area.

Yes	No	
☒	☐	Does the water system have water rights for all sources? ☐ Not Required
☐	☒	For GW systems, have there been any modifications to the existing well(s) or spring(s) (e.g. deepened, change in screened interval, springbox reconstruction, etc.)? Describe below:
☒	☐	Has a Source Water Assessment been completed by ☒ DWP or ☐ DEQ? If yes, attach delineation map and review boundaries with operator. SWA Report completed 8/19/2003.
☐	☒	Has system implemented source water protection strategies? If yes, describe below:
☐	☐	Is the water system interested in source water protection? If yes, contact regional geologist at 541-726-2587.

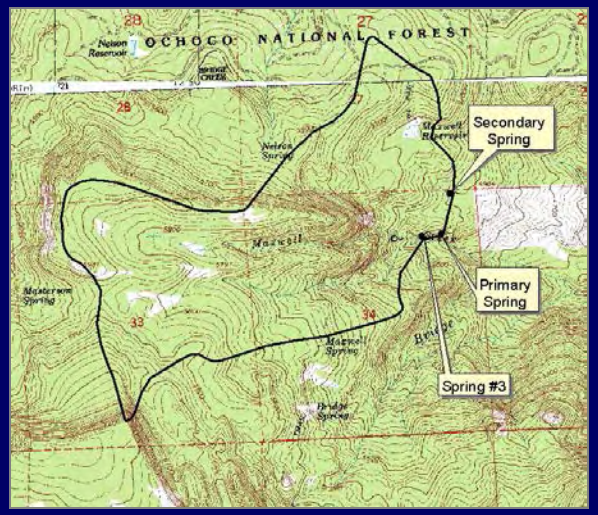
Comments:
Well #6 has not been added to inventory since it is currently not connected. It was drilled in 2008 as the replacement to LC Well #2 and produces 600 gpm. LC Well #2 was disconnected from system and formerly abandoned in 2010 (see water supply well report - WASC 51818).

List of treatment codes in survey forms

Oregon Health Authority

Source Info

- Source Water Assessment completed?
  - Check Inventory Page for SWA status
  - Review delineation with operator
- Has WS implemented protection?
- WS interested in source protection?
  - Notify DWS geologist



Emergency Wells

Ask about use.
Consider changing to seasonal if source is used every summer!

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Well Info

Significant Deficiencies:

- Sanitary Seal & casing watertight
- If vented, is well properly screened?
- Wellhead protected from flooding
- Well meet setbacks from hazards
- Raw/treated sample taps

Well Information

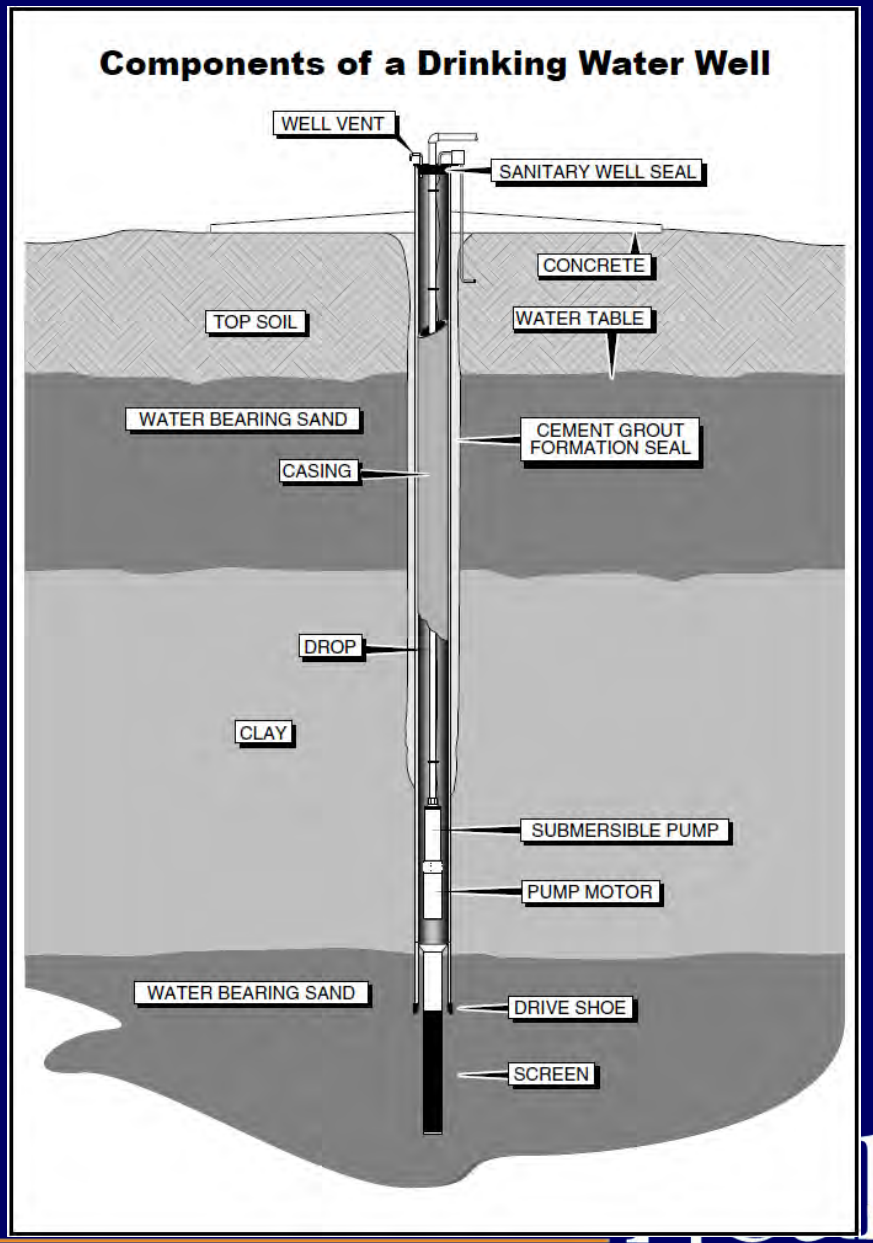
		AC	BA	CA	DA	EA		
	Source ID#:	Well #4	Well #3	LC Well #3	LC Well #2	Well #5 Fleck		
	Source Name:	14032	-	-	-	-		
	Well Tag ID (e.g. L12345): L	Yes No	Yes No	Yes No	Yes No	Yes No	Yes	No
	(if no well tag ID, enter WRD Well Log ID below)	☒ ☐	☒ ☐	☒ ☐	☒ ☐	☐ ☐	☐	☐
	Well Log on File:	WASC50457	WASC003314	WASC003279	WASC003281	WASC002455		
	WRD Well Log ID (e.g. COLU123):							
Wellhead Construction	Well still active	☒ ☐	☒ ☐	☒ ☐	☐ ☒	☐ ☐	☐	☐
	Depth of well (ft.)	242	275	217	~229	470		
	Depth of grout seal (ft.)	165	52	38				
	Year of installation (yr.)	1997	1956	1949/1997	Unknown	1967		
	Casing diameter (in.)	18/12/10	16	8	8	4		
	• Sanitary seal & casing watertight	☒ ☐	☒ ☐	☒ ☐	Well abandoned in 2010 (see well report WASC 51818)	☒ ☐	☐	☐
	• If vented, properly screened	☒ ☐	N/A	☒ ☐		N/A	☐	☐
	• Wellhead protected from flooding	☒ ☐	☒ ☐	☒ ☐		☒ ☐	☐	☐
	• Well meets setbacks from hazards	☒ ☐	☒ ☐	☒ ☐		☒ ☐	☐	☐
	Nearest hazard (ft)							
	Water level device	☒ ☐	☒ ☐	☒ ☐		☒ ☐	☐	☐
	Concrete slab around casing	☒ ☐	☒ ☐	☒ ☐		☒ ☐	☐	☐
	Casing height ≥ 12-in. above slab/grade	☒ ☐	☒ ☐	☒ ☐		☐ ☒	☐	☐
	Pitless adapter	☐ ☒	☐ ☒	☐ ☒		☐ ☒	☐	☐
	Constructed properly per SWA report	☒ ☐	☒ ☐	☒ ☐		☒ ☐	☐	☐
Control Building	Protective housing	☒ ☐	☒ ☐	☒ ☐		☒ ☐	☐	☐
	Flowmeter	☒ ☐	☒ ☐	☒ ☐		☒ ☐	☐	☐
	Pressure gauge	☒ ☐	☒ ☐	☒ ☐		☒ ☐	☐	☐
	Pump to waste piping	☒ ☐	☐ ☒	☒ ☐		☒ ☐	☐	☐
	• Raw sample tap	☒ ☐	☒ ☐	☒ ☐		☒ ☐	☐	☐
	• Treated sample tap ☐N/A	☒ ☐	☒ ☐	☒ ☐		☒ ☐	☐	☐
	Heated	☒ ☐	☒ ☐	☒ ☐		☒ ☐	☐	☐
	Lighted	☒ ☐	☒ ☐	☒ ☐		☒ ☐	☐	☐
	Floor drain	☒ ☐	☐ ☒	☒ ☐		☐ ☒	☐	☐
	Well pump removal provision	☒ ☐	☒ ☐	☒ ☐		☒ ☐	☐	☐
Pump	Pump type/hp*	VT/100	VT/100	SU/50		SU/25		
	Bearing lubrication (FG oil/water)	W	W	W		W		
	Pumping capacity (gpm)	350-1100	1200	350		100		
	Water pumped in 2010 in million gallons	222.704	47.102	8.949		1.746		
	Percent of total well supply provided (%)**	79.4	16.8	3.2		0.6		
	Static water level (ft below ground	111	95	109	-	49		
	Static water level date	5/2/11	5/2/11	5/2/11		5/2/11		

* **Pump Types:** (VT) Vertical Turbine (SU) Submersible (CE) Centrifugal (SJ) Shallow Jet (DJ) Deep Jet (OT) Other

** The sum of the % for all the wells should equal 100% (e.g. for 2 wells, if well #1 provides 80%, then well #2 must provide 20%).

Comments:

Main PUD Well #4 operates with a variable speed drive producing 350-1,100 gpm. Flow meter on discharge line after pressure sand filters. Main PUD Wells #4 & #3 were rebuilt in 2008 and 2009, respectively. The LC Well #3 and Fleck Well pumps were upgraded in 2009 and 2010, respectively. The LC Well #2 was disconnected and formally abandoned in 2010 due to elevated nitrate issues.

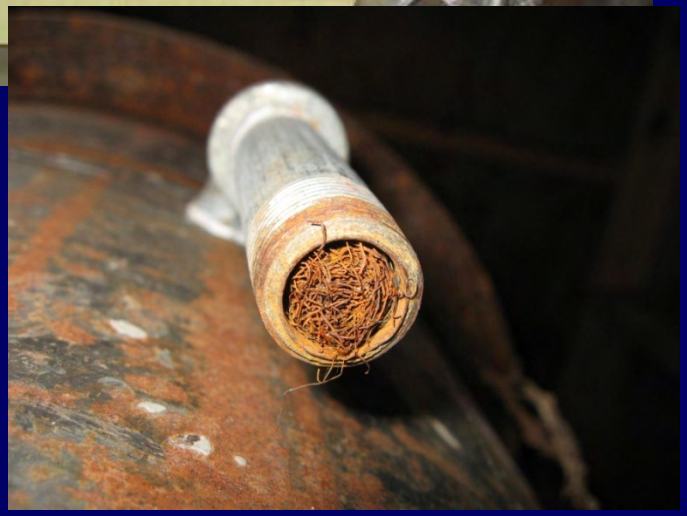

Components of a Drinking Water Well
WELL VENT
SANITARY WELL SEAL
CONCRETE
TOP SOIL
WATER TABLE
WATER BEARING SAND
CEMENT GROUT FORMATION SEAL
CASING
DROP
CLAY
SUBMERSIBLE PUMP
PUMP MOTOR
WATER BEARING SAND
DRIVE SHOE
SCREEN

Compromised well sanitary seals

Compromised sanitary seals

Oregon Health Authority

Well vent screening



Down-turned screened vent or alternative

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Wellhead Protected from Flooding

Wells in vaults

Casing height

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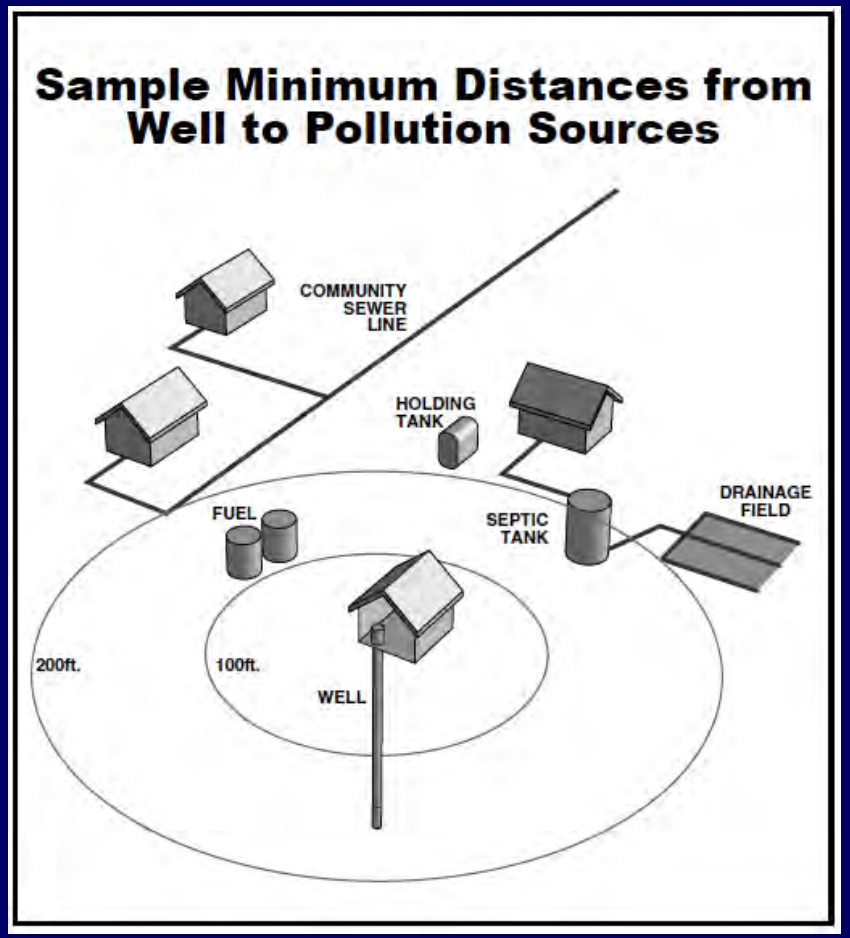
Potential Sanitary Hazards

Not allowed <100 feet of a well:

- See potential sanitary hazards listed on back of well info page
- Not allowed <50 feet of a well:
  - Gravity sewer line
  - Septic tank
- SW located <500 feet of source
  - Note distance to SW



Potential Sanitary Hazards

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What's this behind the well?

Raw Sample Tap

More Raw Sample Tap

Non-threaded tap work well to avoid cross connections

Springs

Significant Deficiencies:

- Meets setback from hazards
- Raw water sample tap
- Treated sample tap
- Constructed of impervious durable material
- Watertight access
- Screened overflow

Oregon Health Authority

City of Enterprise
Water System Survey
OHA Drinking Water Program

PWS ID: 41 00278
Survey Date: 08/26/14
Page 7 of 15

Spring/Other Source

Source ID: AA **Source Name:** Dorrance Springs

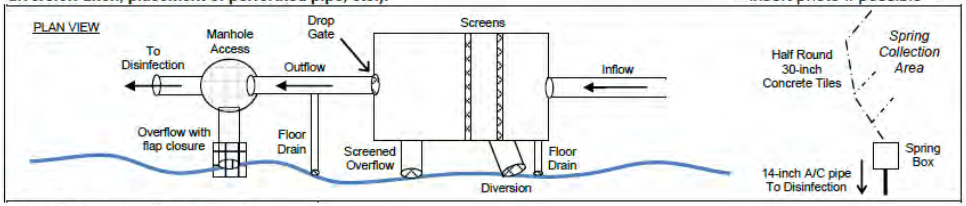
Type: ☒ Spring ☐ Infiltration Gallery ☐ Ranney Well ☐ Dug Well ☐ Other:

Spring Data	Yes	No	
• Meets setback from hazards	☒	☐	
• Raw water sample tap	☒	☐	Grab sample
• Treated water sample tap (if treating)	☒	☐	At chlorination bldg
Fencing around spring area	☒	☐	
Springbox	☒	☐	
Springbox Type:	Open concrete		
• Impervious durable material	☒	☐	
Hatch	☐	☒	
Locked	☒	☐	Building locked
Overlapping lid	☐	☒	
• Watertight access	☒	☐	
Intercepting ditch	☒	☐	Natural swale
• Screened overflow	☒	☐	Inside box
Bottom drain & shutoff valve	☒	☐	Screened outside

Infiltration Gallery
Number of laterals
Average depth (ft.)

Dug Well
Depth of well
Construction material

Drawing of source construction: (include details of access hatch, drain, overflow, description of collection piping, if known, diversion ditch, placement of perforated pipe, etc.). ---insert photo if possible---



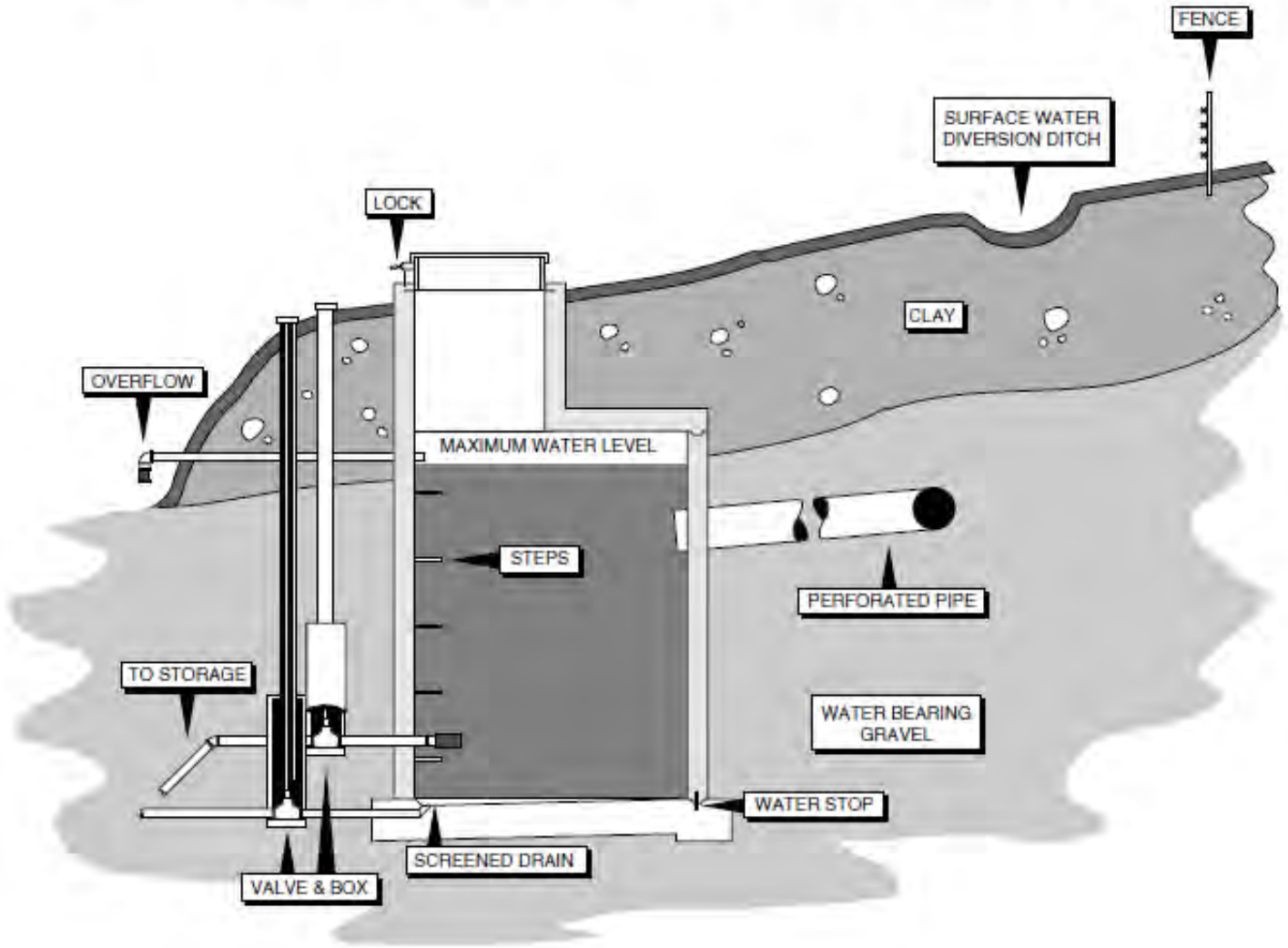
Does surrounding area have:

Yes	No		Distance away:	
☐	☒	Septic tanks/gravity sewer		(☐ ≥ 50 feet)
☐	☒	Drain field/pressure sewer		(☐ ≥ 100 feet)
☒	☐	Grazing	Grazing on adjacent private property	
☐	☒	Surface water body (name)	Area above bldg is spring fed. Water enters nearby ditch.	
☐	☒	Other sanitary hazards		
☐	☒	Is there evidence of Infiltration of surface water run off?		
☐	☒	Has source been evaluated by DWP for direct influence of surface water?		
☐	☒	Does water quality vary seasonally?	Explain: Water temp 42-45 degrees F	

G Is source considered: groundwater (G), surface water (S), or groundwater under the direct influence (I)?

Comments:
Dorrance Springs is city's primary source accessible from Dorrance Road. The drains and overflow piping from the collection box goes into a natural ditch next to building. The building is screened and sealed to prevent animals & insects from entering. The facility is routinely inspected and screens are cleaned.

Example of a Spring Collection System



Spring box in good condition

Buried spring box & overgrown vegetation

Culvert-style spring collector

Oregon Health Authority

Roots grown into inflow pipe to spring box

Surface water infiltration

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Access hatch not secure & watertight

Overflow pipe screened, close to collection box

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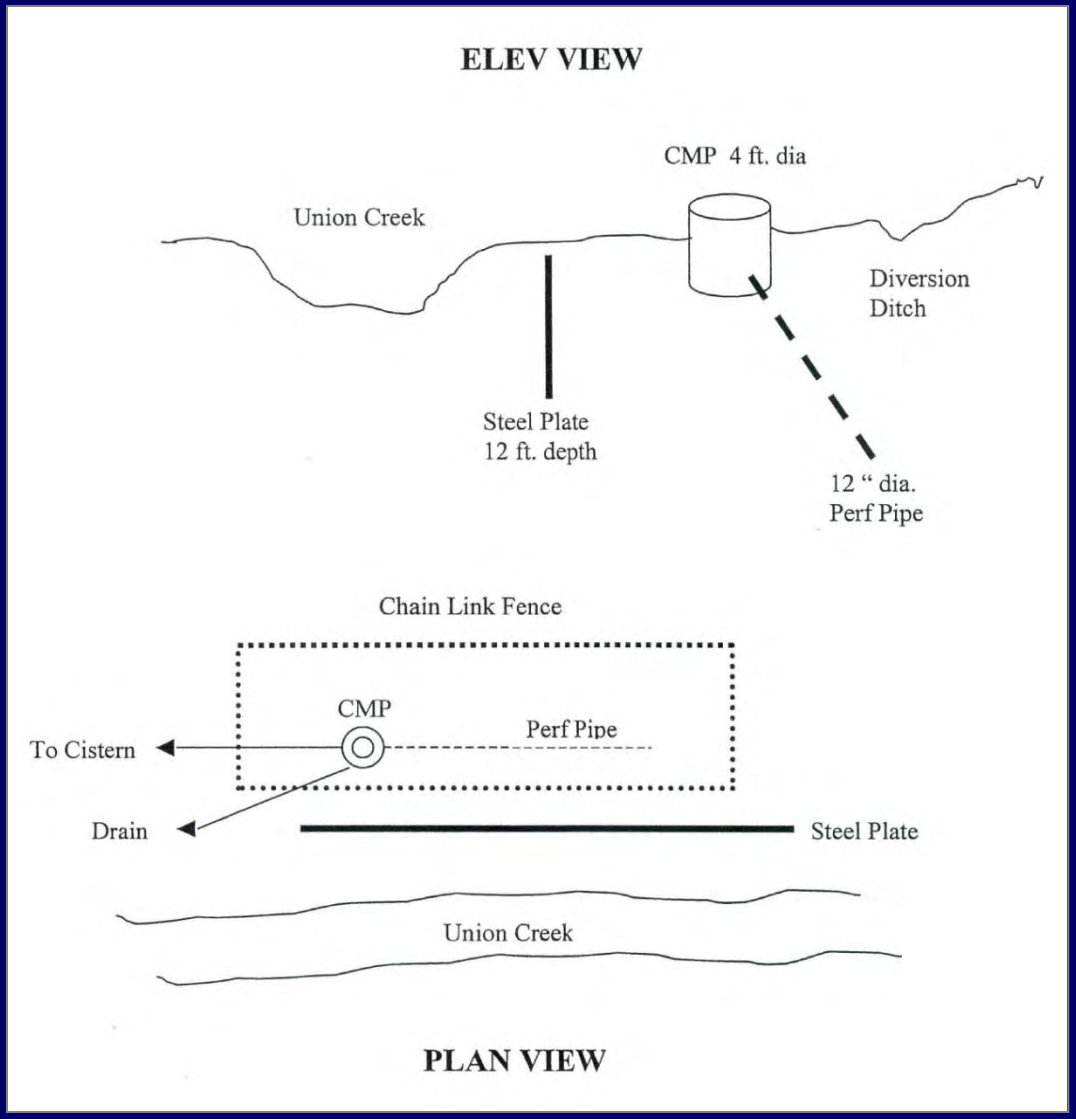
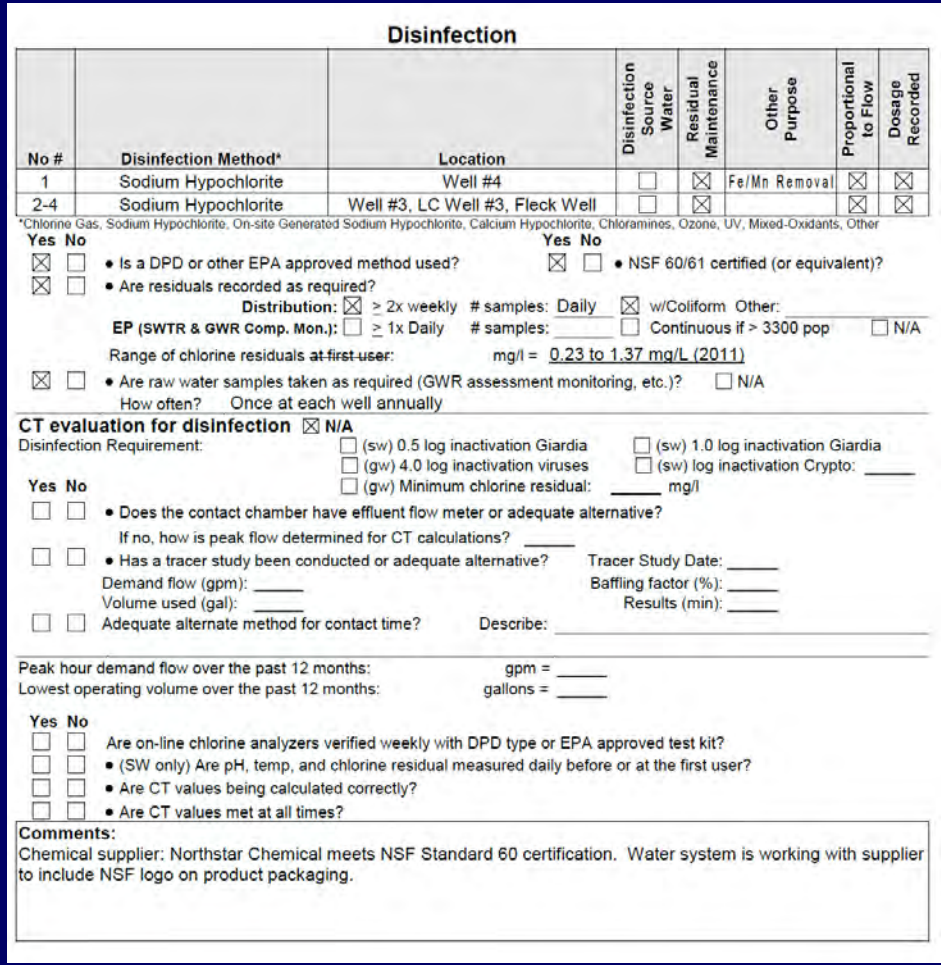
Drawing of spring source



Disinfection

- Disinfection method & location
- Disinfection Type:
  - Source water (SW/GW)
  - Detectable residual
  - Other purpose (Fe/Mg)
- Proportional to flow
- Dosage Recorded



Disinfection

No #	Disinfection Method*	Location	Disinfection Source Water	Residual Maintenance	Other Purpose	Proportional to Flow	Dosage Recorded
1	Sodium Hypochlorite	Well #4	☐	☒	Fe/Mn Removal	☒	☒
2-4	Sodium Hypochlorite	Well #3, LC Well #3, Fleck Well	☐	☒		☒	☒

*Chlorine Gas, Sodium Hypochlorite, On-site Generated Sodium Hypochlorite, Calcium Hypochlorite, Chloramines, Ozone, UV, Mixed-Oxidants, Other

Yes No
☒ ☐ • Is a DPD or other EPA approved method used?
☒ ☐ • NSF 60/61 certified (or equivalent)?
☒ ☐ • Are residuals recorded as required?
Distribution: ☒ ≥ 2x weekly # samples: Daily ☒ w/Coliform Other:
EP (SWTR & GWR Comp. Mon.): ☐ ≥ 1x Daily # samples: ☐ Continuous if > 3300 pop ☐ N/A
Range of chlorine residuals ~~at first user~~: mg/l = 0.23 to 1.37 mg/L (2011)
☒ ☐ • Are raw water samples taken as required (GWR assessment monitoring, etc.)? ☐ N/A
How often? Once at each well annually

CT evaluation for disinfection ☒ N/A
Disinfection Requirement:
☐ (sw) 0.5 log inactivation Giardia ☐ (sw) 1.0 log inactivation Giardia
☐ (gw) 4.0 log inactivation viruses ☐ (sw) log inactivation Crypto: _____
☐ (gw) Minimum chlorine residual: _____ mg/l

Yes No
☐ ☐ • Does the contact chamber have effluent flow meter or adequate alternative?
If no, how is peak flow determined for CT calculations? _____
☐ ☐ • Has a tracer study been conducted or adequate alternative? Tracer Study Date: _____
Demand flow (gpm): _____ Baffling factor (%): _____
Volume used (gal): _____ Results (min): _____
☐ ☐ Adequate alternate method for contact time? Describe: _____

Peak hour demand flow over the past 12 months: gpm = _____
Lowest operating volume over the past 12 months: gallons = _____

Yes No
☐ ☐ Are on-line chlorine analyzers verified weekly with DPD type or EPA approved test kit?
☐ ☐ • (SW only) Are pH, temp, and chlorine residual measured daily before or at the first user?
☐ ☐ • Are CT values being calculated correctly?
☐ ☐ • Are CT values met at all times?

Comments:
Chemical supplier: Northstar Chemical meets NSF Standard 60 certification. Water system is working with supplier to include NSF logo on product packaging.

Treatment Codes

4-log Viral inactivation – D361

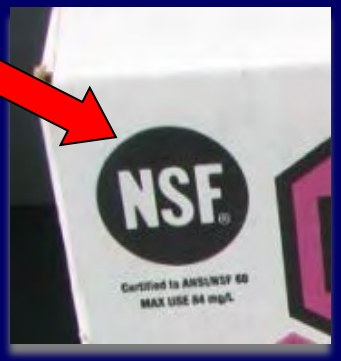
Residual maintenance – X401 (gas) or X421 (liquid)

Oregon Health Authority

Disinfection

Significant Deficiencies:

- DPD or other EPA approved method used
- NSF 60/61 certified (or equivalent)
  - Verify NSF logo on product
  - Request certification documents
- Are raw water samples taken as required (GWR)?
  - Applies to any WS adding disinfectant not meeting 4-log
  - Check Data Online for assessment samples



Sample Date	# Samples	Sample Type	Coliform Type	Results--ID	Repeat of Sample ID	Sample Site	Facility	Cl Residual	Re Da
May 08, 2012	1	RT	Total	Absent--B2E083004		City Hall	DIST-A	0.04	Ma
May 08, 2012	1	RT	Total	Absent--B2E083003		BLM Office	DIST-A	0.04	Ma
May 08, 2012	1	RT	Total	Absent--B2E083002		Airport	DIST-A	0.21	Ma
May 08, 2012	1	RT	Total	Absent--B2E083001		City Shop	DIST-A	0.37	Ma
Apr 17, 2012	1	AS	Total	Absent--B2D171709		SRC HA Barney	SRC-HA		Ma
Apr 17, 2012	1	AS	Total	Absent--B2D171708		SRC AA Stearns	SRC-AA		Ma
Apr 17, 2012	1	AS	Total	Absent--B2D171707		SRC DA Yancey	SRC-DA		Ma
Apr 17, 2012	1	AS	Total	Absent--B2D171706		SRC BA 4th St	SRC-BA		Ma
Apr 17, 2012	1	RT	Total	Absent--B2D171705		Hospital	DIST-A	0.09	Ma
Apr 17, 2012	1	RT	Total	Absent--B2D171704		City Hall	DIST-A	0.09	Ma
Apr 17, 2012	1	RT	Total	Absent--B2D171703		BLM	DIST-A	0.06	Ma
Apr 17, 2012	1	RT	Total	Absent--B2D171702		Airport	DIST-A	0.14	Ma
Apr 17, 2012	1	RT	Total	Absent--B2D171701		City Shop	DIST-A	0.03	Ma
Apr 03, 2012	1	RT	Total	Absent--B2D032305		Hospital	DIST-A	0.09	A
Apr 03, 2012	1	RT	Total	Absent--B2D032304		City Hall	DIST-A	0.08	A

Disinfection Options

- Chlorine Gas
- Sodium hypochlorite
- Calcium hypochlorite
- Ultra-violet light (UV)
- Chloramines (chlorine + ammonia)
- Mixed-oxidants
- Ozone
- Others?

It's good to ask operator…

– Do you *ever* chlorinate?

Chlorine Disinfection

Chlorine Gas

Sodium hypochlorite (liquid)

Calcium hypochlorite (solid)

Oregon Health Authority

Chlorine Disinfection

Sodium hypochlorite (liquid)

- Less hazardous, highly corrosive
- Varying strengths
- Loss of available chlorine over time
- Should not be stored with dry chemicals & petroleum products
- On-site generated (Brine tank, ~0.8 % strength)

Calcium hypochlorite (solid)

- Powder or pellet
- Uses dispenser
- Approx. 45% available chlorine

Disinfection – UV Light

Significant Deficiencies

- Plan Review approval?
  - NSF 55 Class A allowed if no EC detected & minimum distribution system
- All water contacts UV light (no by pass)?
- Annual raw water sampling done?
- Lamp sleeve cleaned & replaced per manufacturer
- Intensity sensor with alarm or shut-off

Disinfection

CT evaluation for disinfection:

- Applies to SW, GWUDI & GW systems required to meet 4-log inactivation for viruses
- Disinfection verification or tracer study is needed

Significant deficiencies:

- No effluent flow meter or adequate alternative on contact chamber or clear well
  - Determines peak flow for CT calculations
- Has a tracer study been conducted or adequate alternative?
  - If system experienced confirmed *E. coli* & practicing disinfection, refer to Disinfection Verification Form

Recording chlorine residual levels

Residual maintenance

- At least twice per week in distribution
- Recorded in log book

4-log Disinfection (GW)

- Viral inactivation
- Must measure chlorine residual daily at or before first user
- Reported monthly to DMCE

Treatment

Documents treatment:

- Process used
- Chemical added
- Purpose
- Location in system
- Treatment type codes (on opposite page)

Significant Deficiencies:

- Chemicals NSF 60 certified or equivalent?
- Corrosion control operated within parameters set by DWP

Treatment

Process Used*	Chemical Added**	Purpose	Location in System	Code***
Pre-Hypochlorination	Sodium Hypochlorite	Iron Removal	Well #4	F423
Pressure Sand Filtration	None	Iron Removal	Well #4	F344
Spray Aeration	None	Taste/Odor Control	Well #3	T149

*See "Treatment Plant Inspection" page for details on filtration. **See "Disinfection" page for details on disinfection equipment. ***See Treatment Codes on back.

Yes No

☒ ☐ Is equipment maintained properly? ____

☒ ☐ Is redundant equipment available? ____

What lab equipment is available and used? (jar testing, turbidimeter, pH meter, etc.):

☒ ☐ • Are chemicals NSF Standard 60 certified or equivalent? (☐N/A - no chemicals are used)

Comments:

Yes / No

☐ ☒ Does system practice corrosion control?

☐ ☐ • Is corrosion control operated within parameters set by DWP? ☒N/A

Comments:

Records Kept:

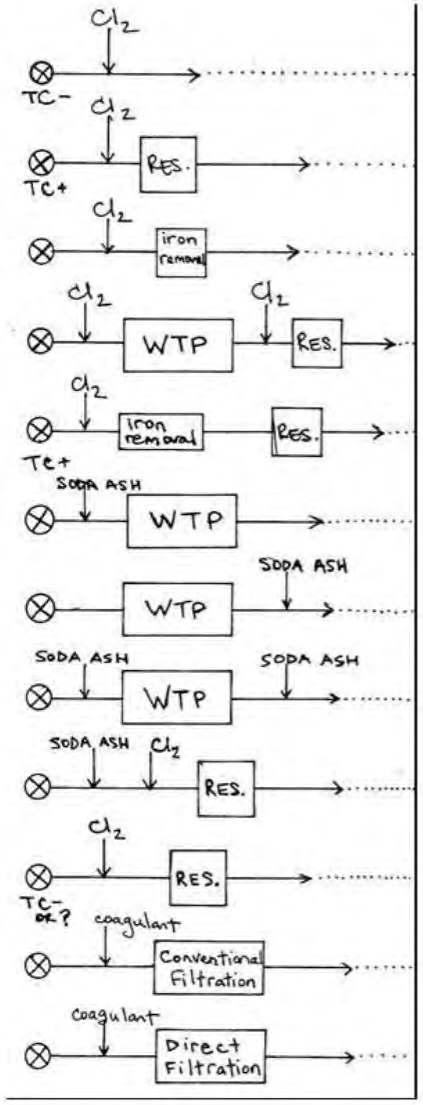
Yes / No		Yes / No	
☒ ☐	Dosages	☒ ☐	Flowrate
☐ ☐	Raw pH	☐ ☐	Treated pH
☐ ☐	Raw temperature	☐ ☐	Treated temperature
☐ ☐	Raw turbidity and/or particle counts	☐ ☐	Treated turbidity

Comments:

Water system has eight pressure sand filters installed. The brand is ATEC Systems, Media Filters, Hollister, CA (certified to NSF/ANSI Standard 61). Media regeneration not required when chlorine is used as oxidant. As part of maintaining filtration equipment, a backwash is performed every million gallons and the quality of backwash water is sampled and analyzed monthly.

The aeration chamber is cleaned yearly.

Treatment Code Configurations



Residual Maintenance:
X421

Disinfection, Hypochlorination, Post:
D421

Iron Removal, Hypo-, Pre:
F423

Disinfection, Hypo-, Pre and Post:
D423 & D421

Disinfection, Hypo, Pre:
D423 (Iron Removal is Secondary*)

pH adjustment, Pre:
P742 (never Corrosion Control if Pre)

Corrosion Control, pH adj, soda ash:
C502

Both P742 & C502

Corrosion Control and Disinfection, Post: C502 & D421

Disinfection, Post: (since no treatment) (could be X421 but if there is a TC+ it would be covered so go with D421)

Conventional Filtration:
P240, P360, P660, P345

Direct Filtration:
P240, P360, P345

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Corrosion Control

Levels must be measured, calculated & recorded daily

PWS adding soda ash to control pH

Treatment

State ID	Facility Name	Treatment Process	Treatment Objec
WTP-A	TP FOR WELLFIELD (WELLS #1 & #2)	ULTRAVIOLET RADIATION	OTHER
WTP-A	TP FOR WELLFIELD (WELLS #1 & #2)	RESID. MAINT. HYPOCHLORINATION	OTHER
WTP-A	TP FOR WELLFIELD (WELLS #1 & #2)	PH/ALKA ADJ-SODA ASH	CORROSION CONTR

Consumer Confidence Reports (Last 5 Years)

For Year	Date Received	Date Certified
2012	*Due 7/1/2013*	
2011	*Not received*	
2010	Jun 03, 2011	Jun 03, 2011
2009	Jul 28, 2010	Jul 28, 2010
2008	*Not received*	Oct 02, 2009

Cross Connection Annual Summary Reports (Last 3 Records)

Ordinance Received	Ordinance Status	ASR Receiv
Yes	Final	2010
		2009
		2007

For further information on this public water system, click on the area of interest below:

System Info :: Reports for Lenders :: Alerts :: Violations :: Enforcements :: Contacts :: Site Visits :: Public Notice :: Plan Review
Coliform Summary :: Coliform Results :: Sampling Schedule for Coliform :: Groundwater/GWUDI Source Details
Chemical Group Summary :: Latest Chemical Results :: Entry Point Detects :: Single Analyte Results
Chemical Schedule Summary :: Chemical Schedule Details
Lead & Copper :: Corrosion Control (LCR) :: Nitrate :: Arsenic :: Radionuclides :: GWR 4-Log
DBPs :: TOC & Alkalinity :: DBP/TOC/Bromate/Chlorine Monitoring :: FANLs :: MRDL :: Turbidity :: SWTR :: RAA :: LRAA

Minimum pH set at 7.2
with no excursions

Data Online - Oregon Drinkin

170.104.63.9/lcr.php?pwsno=00525

Outlook Web App | Data Online | SDWIS/STATE Login | Well Log Query | Water Use | Water Rights | US EPA SM Framework | NSF Certified Products

Oregon Public Health
Drinking Water Data Online

Introduction :: Data Search Options :: WS Name Look Up :: WS ID Look Up :: DWS Home :: Quick Data Links

Corrosion Control (LCR)

PWS ID: 00525 ---- VILLADOM MOBILE HOME PARK

Minimums Required For This System

Facility	pH	Alkalinity	Phosphate	Silicate	Required Frequency (months)
EP-A	7.2				

Empty minimums above indicate that the system is not required to test

Test Results

Period	FacilityID	Excursions This Period	Excursions This Period plus Prior 5 Periods
Jun, 2011	EP-A	0	0
May, 2011	EP-A	0	0
Apr, 2011	EP-A	0	0
Mar, 2011	EP-A	0	0
Feb, 2011	EP-A	0	0
Jan, 2011	EP-A	0	0
Dec, 2010	EP-A	0	1
Nov, 2010	EP-A	0	1
Oct, 2010	EP-A	0	1
Sep, 2010	EP-A	0	1
Aug, 2010	EP-A	0	1
Jul, 2010	EP-A	1	1
Jun, 2010	EP-A	0	0
May, 2010	EP-A	0	

Oregon Health Authority

Treatment

Aeration hydrogen sulfide removal

Iron removal

Questions to ask operator:

- Equipment inspected routinely & documented?
- Redundant equipment available (dosage pumps)?
- Operator aware of OSHA requirements for chemical storage, handling & containment?

Storage & Pressure Tanks

Significant Deficiencies:

- Secured hatch
- Watertight
- Overflow drain protected
- Screened vent

Request photos to verify if tanks cannot be climbed

Storage and Pressure Tanks

Number	Name	Tank Type*	Tank Material	Year Built	Volume (gal.)
6	Airport Reservoir East	G	Steel	1991	500,000
7	Southwest Area Reservoir	G	Steel	1992	1.1 MG
8	WTP Clearwell	G	Welded Steel	2001	1.8 MG

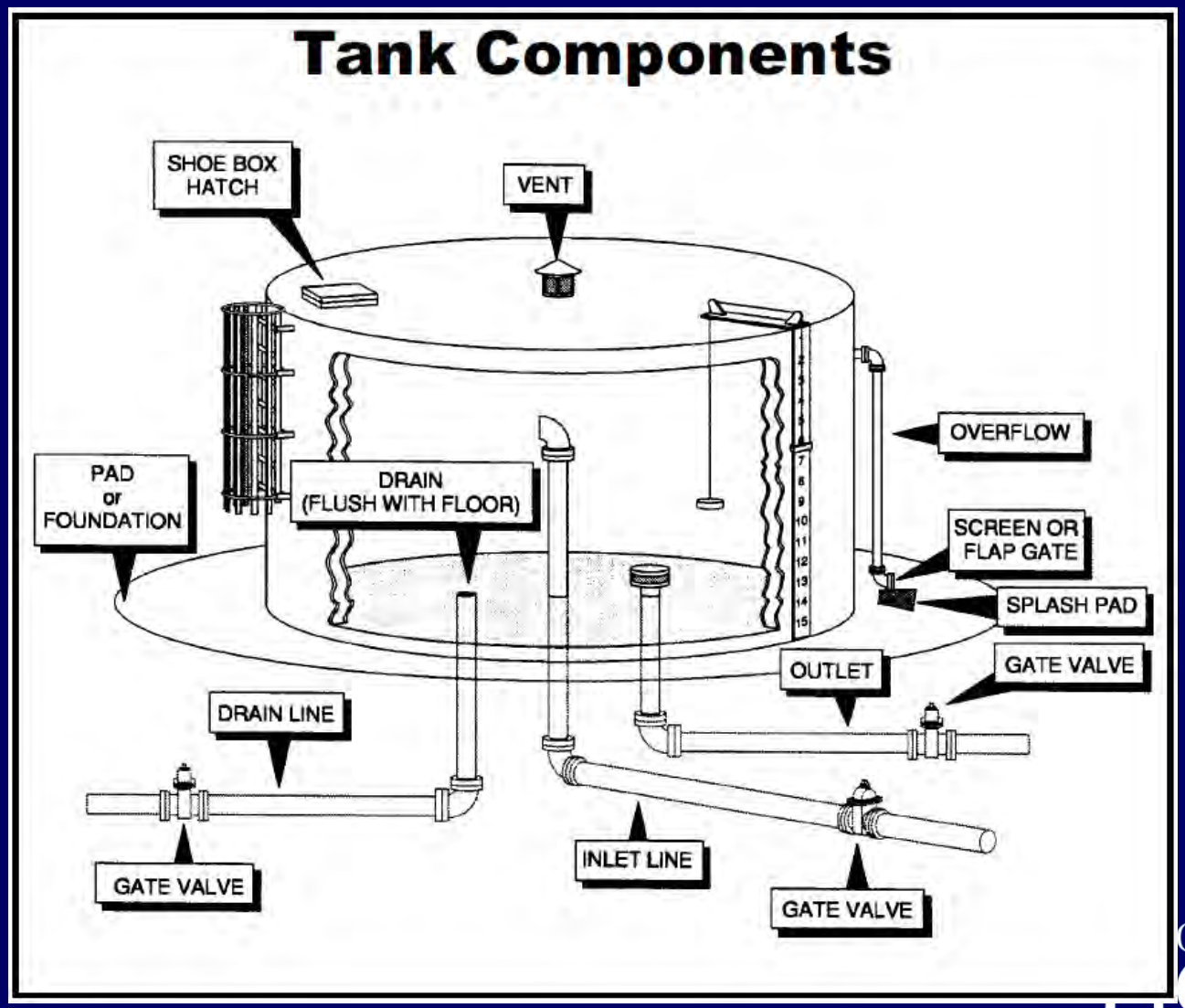
* (G) Ground (E) Elevated (P) Pressure — Total Volume: 7.2 MG

	Reservoir Number:	6		7		8					
	Reservoir Features	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Hatch	● Secured (e.g. locked, bolted, etc)	☒	☐	☒	☐	☒	☐	☐	☐	☐	☐
	● Watertight	☒	☐	☒	☐	☒	☐	☐	☐	☐	☐
	Curbed lid (shoe box style)	☒	☐	☒	☐	☒	☐	☐	☐	☐	☐
Features	Drain to daylight	☒	☐	☒	☐	☐	☐	☐	☐	☐	☐
	Overflow	☒	☐	☒	☐	☒	☐	☐	☐	☐	☐
	● Overflow/drain protected (screen/flap/valve)	☒	☐	☒	☐	☒	☐	☐	☐	☐	☐
	● Screened vent	☒	☐	☒	☐	☒	☐	☐	☐	☐	☐
	Water level gauge	☒	☐	☐	☒	☒	☐	☐	☐	☐	☐
	Bypass piping	☐	☒	☐	☒	☐	☒	☐	☐	☐	☐
	Fence/gate	☐	☒	Gate		☒	☐	☐	☐	☐	☐
	Cathodic plates watertight ☒ N/A	⊟	⊟	⊟	⊟	⊟	⊟	☐	☐	☐	☐
	Alarm for high or low levels	☒	☐	☒	☐	☒	☐	☐	☐	☐	☐
Maintenance	Exterior in good condition	☒	☐	☒	☐	☒	☐	☐	☐	☐	☐
	Interior in good condition	⊟	⊟	⊟	⊟	⊟	⊟	☐	☐	☐	☐
	Approved interior coating	⊟	⊟	⊟	⊟	⊟	⊟	☐	☐	☐	☐
	Inspection schedule	☒	☐	☒	☐	☒	☐	☐	☐	☐	☐
	Cleaning schedule	☒	☐	☒	☐	☒	☐	☐	☐	☐	☐
	Continuously disinfected (● post '81 redwood)	☒	☐	☒	☐	☒	☐	☐	☐	☐	☐
Plumbing Config.	Separate inlet/outlet	☐	☒	☐	☒	☒	☐	☐	☐	☐	☐
	Baffling	☐	☒	☐	☒	☐	☒	☐	☐	☐	☐
	Used for contact time	☐	☒	☐	☒	☐	☒	☐	☐	☐	☐
	Pressure Tanks Number:	N/A									
Pressure Tanks	Used for contact time	☐	☐	☐	☐						
	Accessible for maintenance	☐	☐	☐	☐						
	Separate inlet/outlet	☐	☐	☐	☐						
	Bypass piping	☐	☐	☐	☐						
	Access port ☐ N/A	☐	☐	☐	☐						
	Drain	☐	☐	☐	☐						
	Pressure relief device	☐	☐	☐	☐						
	Air bladder/diaphragm	☐	☐	☐	☐						
	Valve for adding air	☐	☐	☐	☐						
	Water level sight glass ☐ N/A	☐	☐	☐	☐						

Comments

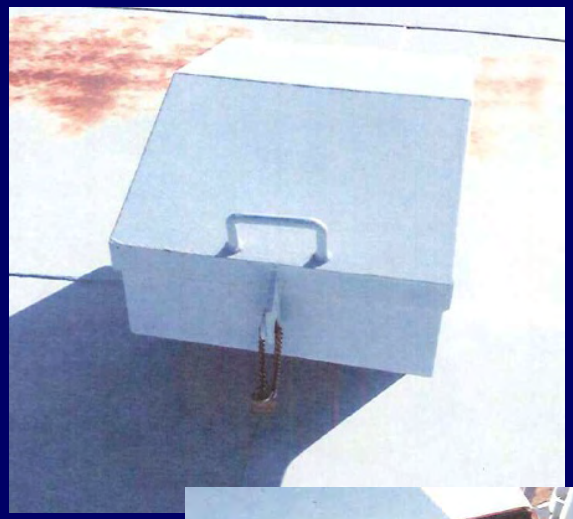
Bottom 1/3 (~8 ft) of WTP Clearwell is on distribution.

Storage Tanks



Storage Tanks

Access hatch open/closed/locked



Openings into tanks

Oregon Health Authority

Storage Tanks

Overflow pipes

Screened vents

Distribution System

Significant Deficiencies:

- Distribution system pressure > 20 psi

Distribution System Information

Service Area and Facility Map

Yes	No	
☒	☐	Does the system have a service area and facility map (indicate features on map):

☒ Booster pumps	☒ Sources-wells & withdrawal points
☒ Pressure regulating valves	☒ Storage facilities (reservoirs)
☒ Pressure zones	☐ Treatment facilities
☐ Sampling points	☒ Water lines (including size and material)

Distribution Data

Yes	No		Comments
☒	☐	• System pressure >20 psi	65-134 psi. Three pressure zones
☒	☐	Are service connections metered? (what %)	100%. Meters read monthly.
☒	☐	Water system leakage <10%	Estimated 7.3% loss (2011 production/consumption comparison). City is planning a new audit.
☒	☐	Waterline depth >30"	30 in. to 6 ft. Average depth of main lines is 48 in.
☒	☐	Piping looped	Several dead end lines
☒	☐	Hydrants or blowoffs on all dead ends	
☒	☐	Routine flushing (How often)	Every summer
☒	☐	Adequate valving	
☒	☐	Routine valve turning (How often)	Annually. Purchased auto-turn valve equipment.
☐	☒	Asbestos cement (AC) pipe absent from system	

Comments: Approximatley 65 miles distribution piping. Every year a section of waterlines is checked for leaks. Waterlines range from 4 to 18 inches in diameter. Distribution system is primarily constructed with ductile & cast iron pipe with some areas with asbestos-concrete, steel and PVC.

Cross Connection Control (CWS, NTNC, and TNC)

Yes	No	N/A		Comments
☒	☐	☐	• Ordinance or enabling authority (CWS)	
☒	☐	☐	List of installed devices (CWS, NTNC, TNC)	Approx. 400 devices
☒	☐	☐	• Devices tested annually (CWS, NTNC, TNC)	
☒	☐	☐	• Annual Summary Report submitted (CWS)	2011 ASR completed
☒	☐	☐	• Certified Cross Connection Control Specialist (CWS > 300 connections)	Douglas G. Harsin (cert# 4321), Jed A. Polfer (cert #4310)

Comments:

Booster Pumps

Number	Name (location)	Deficiencies or Comments	HP_{Total}	GPM_{total}	Aux. Power Yes	Aux. Power No
1	2nd and H Well Building	1-50 HP (to hospital); 1-150 HP VFD (to 3.5 MG); 1-2 HP	202	~1350	☒	☐
2	12 St Well Building	2-50 HP	100	2580	☒	☐
3	3.5 MG Reservoir PS	2-150	300	1350	☒	☐

Comments:
City owns a mobile backup generator.

Distribution System

- Service Area & facility map
  - Good to review before doing survey
- Metered service connections
- System leakage, waterline depth
- Looped piping, hydrants/blow offs on dead end lines
- Flushing program
- Adequate number of valves & valve turning program

Provides details on the overall maintenance of the distribution system

Distribution System

Cross Connection Control Deficiencies

- Ordinance or enabling authority (CWS only)
- Devices tested annually (CWS, NTNC, TNC)
- Annual Summary Report (CWS only)
- Certified CCC Specialist
  - Only for CWS >= 300 connections

Distribution System Information

Service Area and Facility Map

Yes ☒ No ☐ Does the system have a service area and facility map (indicate features on map):

- ☒ Booster pumps
- ☒ Pressure regulating valves
- ☒ Pressure zones
- ☐ Sampling points
- ☒ Sources-wells & withdrawal points
- ☒ Storage facilities (reservoirs)
- ☐ Treatment facilities
- ☒ Water lines (including size and material)

Distribution Data

Yes	No		Comments
☒	☐	• System pressure >20 psi	65-134 psi. Three pressure zones
☒	☐	Are service connections metered? (what %)	100%. Meters read monthly.
☒	☐	Water system leakage <10%	Estimated 7.3% loss (2011 production/consumption comparison). City is planning a new audit.
☒	☐	Waterline depth >30"	30 in. to 6 ft. Average depth of main lines is 48 in.
☒	☐	Piping looped	Several dead end lines
☒	☐	Hydrants or blowoffs on all dead ends	
☒	☐	Routine flushing (How often)	Every summer
☒	☐	Adequate valving	
☒	☐	Routine valve turning (How often)	Annually. Purchased auto-turn valve equipment.
☐	☒	Asbestos cement (AC) pipe absent from system	

Comments: Approximatley 65 miles distribution piping. Every year a section of waterlines is checked for leaks. Waterlines range from 4 to 18 inches in diameter. Distribution system is primarily constructed with ductile & cast iron pipe with some areas with asbestos-concrete, steel and PVC.

Cross Connection Control (CWS, NTNC, and TNC)

Yes	No	N/A		Comments
☒	☐	☐	• Ordinance or enabling authority (CWS)	
☒	☐	☐	List of installed devices (CWS, NTNC, TNC)	Approx. 400 devices
☒	☐	☐	• Devices tested annually (CWS, NTNC, TNC)	
☒	☐	☐	• Annual Summary Report submitted (CWS)	2011 ASR completed
☒	☐	☐	• Certified Cross Connection Control Specialist (CWS ≥ 300 connections)	Douglas G. Harsin (cert# 4321), Jed A. Polfer (cert #4310)

Comments:

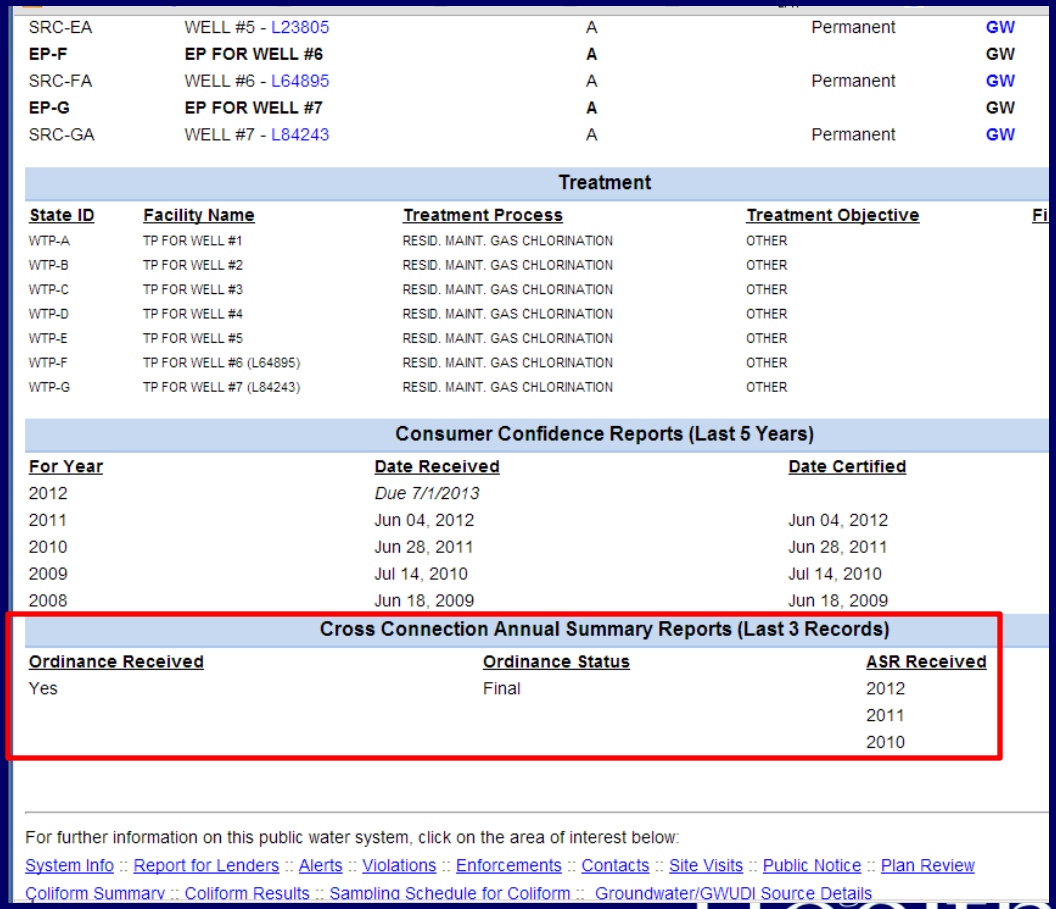
Booster Pumps

Number	Name (location)	Deficiencies or Comments	HP_{Total}	GPM_{total}	Aux. Power Yes	Aux. Power No
1	2nd and H Well Building	1-50 HP (to hospital); 1-150 HP VFD (to 3.5 MG); 1-2 HP	202	~1350	☒	☐
2	12 St Well Building	2-50 HP	100	2580	☒	☐
3	3.5 MG Reservoir PS	2-150	300	1350	☒	☐

Comments:
City owns a mobile backup generator.

Distribution System

- See Cross Connection section on Data Online Inventory Page
- Check with operator on list of devices to verify testing records
- Ask to review most recent ASR on file.



SRC-EA	WELL #5 - L23805	A	Permanent	GW
EP-F	**EP FOR WELL #6**	**A**		**GW**
SRC-FA	WELL #6 - L64895	A	Permanent	GW
EP-G	**EP FOR WELL #7**	**A**		**GW**
SRC-GA	WELL #7 - L84243	A	Permanent	GW

Treatment

State ID	Facility Name	Treatment Process	Treatment Objective	Fi
WTP-A	TP FOR WELL #1	RESID. MAINT. GAS CHLORINATION	OTHER	
WTP-B	TP FOR WELL #2	RESID. MAINT. GAS CHLORINATION	OTHER	
WTP-C	TP FOR WELL #3	RESID. MAINT. GAS CHLORINATION	OTHER	
WTP-D	TP FOR WELL #4	RESID. MAINT. GAS CHLORINATION	OTHER	
WTP-E	TP FOR WELL #5	RESID. MAINT. GAS CHLORINATION	OTHER	
WTP-F	TP FOR WELL #6 (L64895)	RESID. MAINT. GAS CHLORINATION	OTHER	
WTP-G	TP FOR WELL #7 (L84243)	RESID. MAINT. GAS CHLORINATION	OTHER	

Consumer Confidence Reports (Last 5 Years)

For Year	Date Received	Date Certified
2012	*Due 7/1/2013*	
2011	Jun 04, 2012	Jun 04, 2012
2010	Jun 28, 2011	Jun 28, 2011
2009	Jul 14, 2010	Jul 14, 2010
2008	Jun 18, 2009	Jun 18, 2009

Cross Connection Annual Summary Reports (Last 3 Records)

Ordinance Received	Ordinance Status	ASR Received
Yes	Final	2012
		2011
		2010

For further information on this public water system, click on the area of interest below:

System Info :: Report for Lenders :: Alerts :: Violations :: Enforcements :: Contacts :: Site Visits :: Public Notice :: Plan Review

Coliform Summary :: Coliform Results :: Sampling Schedule for Coliform :: Groundwater/GWUDI Source Details

Distribution System

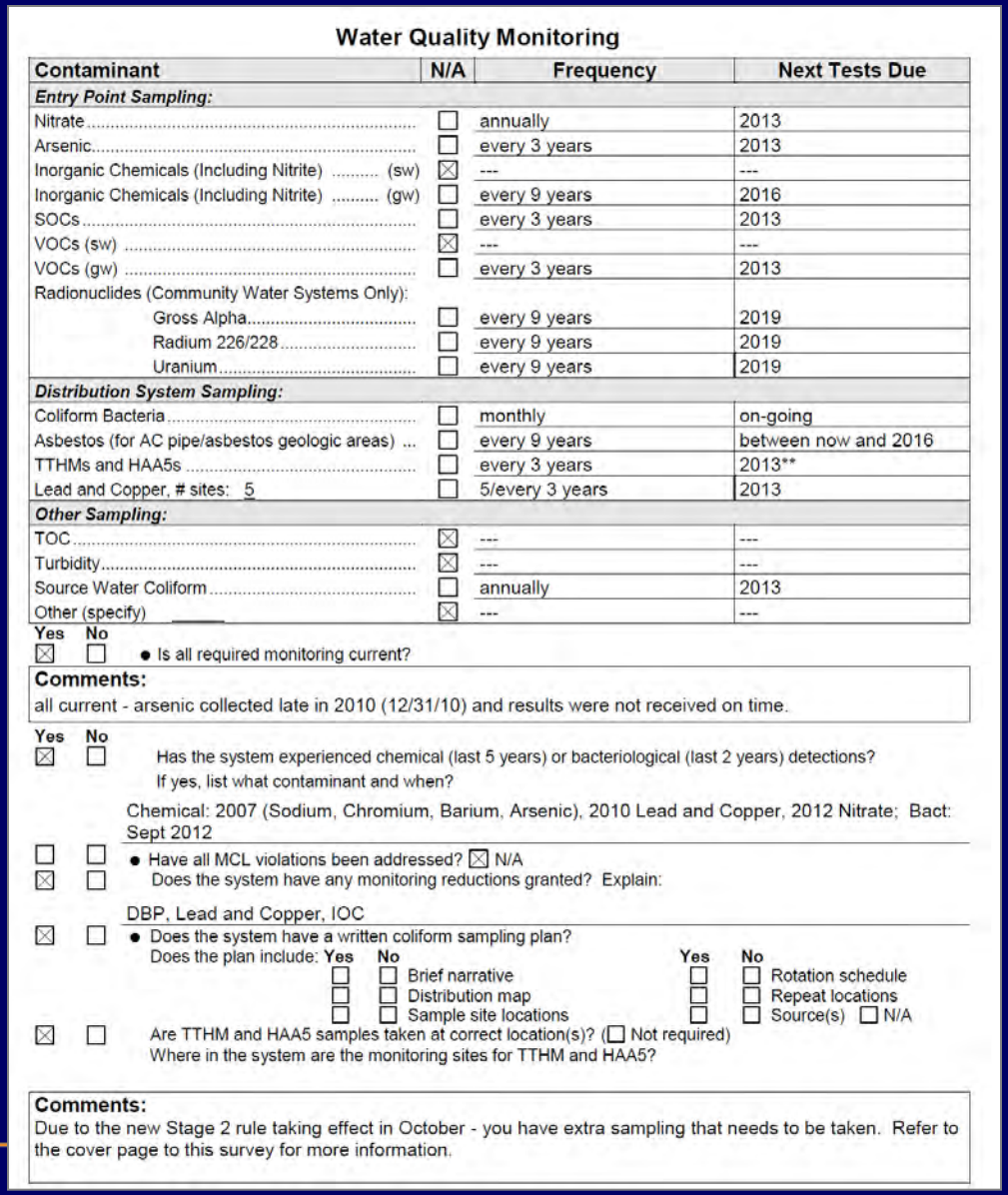
Booster Pumps & Auxiliary Power

Water Quality Monitoring

Significant Deficiencies:

- Is all monitoring current?
- Have MCL violations been addressed?
- Written coliform sampling plan?

- Review chemical schedules in Data Online.
- Reduced monitoring may apply.



Water Quality Monitoring

Contaminant	N/A	Frequency	Next Tests Due
Entry Point Sampling:			
Nitrate	☐	annually	2013
Arsenic	☐	every 3 years	2013
Inorganic Chemicals (Including Nitrite) ..... (sw)	☒	---	---
Inorganic Chemicals (Including Nitrite) ..... (gw)	☐	every 9 years	2016
SOCs	☐	every 3 years	2013
VOCs (sw)	☒	---	---
VOCs (gw)	☐	every 3 years	2013
Radionuclides (Community Water Systems Only):			
Gross Alpha	☐	every 9 years	2019
Radium 226/228	☐	every 9 years	2019
Uranium	☐	every 9 years	2019
Distribution System Sampling:			
Coliform Bacteria	☐	monthly	on-going
Asbestos (for AC pipe/asbestos geologic areas) ...	☐	every 9 years	between now and 2016
TTHMs and HAA5s	☐	every 3 years	2013**
Lead and Copper, # sites: 5	☐	5/every 3 years	2013
Other Sampling:			
TOC	☒	---	---
Turbidity	☒	---	---
Source Water Coliform	☐	annually	2013
Other (specify) _____	☒	---	---

Yes ☒ No ☐ • Is all required monitoring current?

Comments:
all current - arsenic collected late in 2010 (12/31/10) and results were not received on time.

Yes ☒ No ☐ Has the system experienced chemical (last 5 years) or bacteriological (last 2 years) detections?
If yes, list what contaminant and when?
Chemical: 2007 (Sodium, Chromium, Barium, Arsenic), 2010 Lead and Copper, 2012 Nitrate; Bact: Sept 2012

☐ ☐ • Have all MCL violations been addressed? ☒ N/A
☒ ☐ Does the system have any monitoring reductions granted? Explain:
DBP, Lead and Copper, IOC

☒ ☐ • Does the system have a written coliform sampling plan?
Does the plan include: Yes / No
☐ ☐ Brief narrative
☐ ☐ Distribution map
☐ ☐ Sample site locations
Yes / No
☐ ☐ Rotation schedule
☐ ☐ Repeat locations
☐ ☐ Source(s) ☐ N/A

☒ ☐ Are TTHM and HAA5 samples taken at correct location(s)? (☐ Not required)
Where in the system are the monitoring sites for TTHM and HAA5?

Comments:
Due to the new Stage 2 rule taking effect in October - you have extra sampling that needs to be taken. Refer to the cover page to this survey for more information.

Water Quality Monitoring

Sample Point ID	Analyte Group or Analyte		Sampling Interval	Monitoring Period Start	Monitoring Period End	Days Until End	Samples Required	Samples Received	Last Sample Date
DIST-A DISTRIBUTION SYSTEM	LEAD & COPPER		3 Years	01/01/2015 -	**12/31/2015**		**5**		06/21/2012
					Seasonal sampling period:		**06/01** thru **09/30**		
EP-A EP FOR WELLS	ARSENIC		3 Years	01/01/2011 -	12/31/2013	281	1	done	12/20/2011
EP-A EP FOR WELLS	IOC		3 Years	01/01/2011 -	12/31/2013	281	1	done	12/20/2011
EP-A EP FOR WELLS	NITRATE	notes	Yearly	01/01/2013 -	12/31/2013	281	**1**	**incomplete**	10/30/2012
EP-A EP FOR WELLS	NITRITE		3 Years	01/01/2011 -	12/31/2013	281	1	done	12/20/2011
EP-A EP FOR WELLS	RAD - GROSS ALPHA		9 Years	01/01/2014 -			1	future	08/14/2012
EP-A EP FOR WELLS	RAD - RADIUM 226/228		9 Years	01/01/2014 -			1	future	08/14/2012
EP-A EP FOR WELLS	RAD - URANIUM		Quarterly	01/01/2013 -	03/31/2013	6	**1**	**incomplete**	08/14/2012
EP-A EP FOR WELLS	SOC	notes	Yearly	01/01/2013 -	12/31/2013	281	**1**	**incomplete**	10/30/2012
EP-A EP FOR WELLS	VOLATILE ORGANICS	notes	Yearly	01/01/2013 -	12/31/2013	281	**1**	**incomplete**	10/30/2012

Last sample date + frequency gives you next sample date!

Coliform Sampling Plan

COLIFORM SAMPLING PLAN — Drinking Water Prog Pendleton Offic

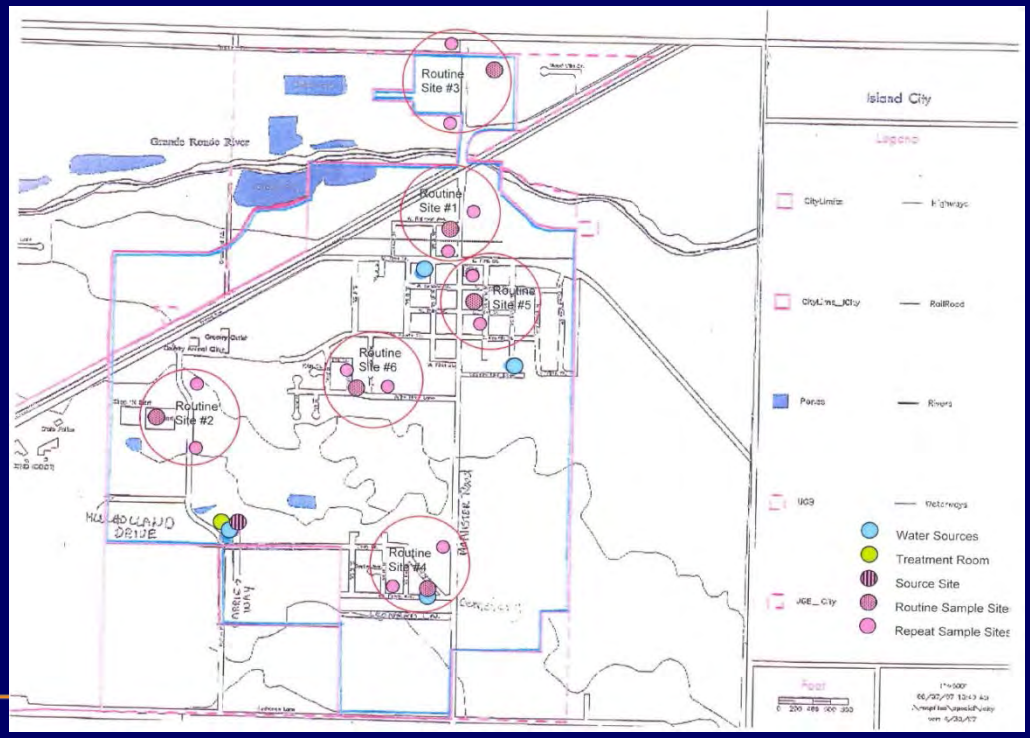
1. System: **City of Island City** PWS ID#: **4100454**
2. System Operator: **Hulse/Skillings** **(541) 963-5017** (Phone Number) Date: **04/18/11**
3. This water system must collect **2** (Number) routine Coliform samples every **Month.** (Month/Quarter)
4. ☐ **Ground water with 4-log viral disinfection** (chlorination with adequate contact time) and conducting compliance chlorine residual monitoring – all 4 repeats must be taken from distribution system, no source sample required
   ☐ **Surface Water** – all 4 repeats must be form distribution system, no source sample required.
   ☐ **Ground water with ultraviolet treatment only or practicing chlorine residual maintenance** – a source after sample* is required in addition to the 4 repeats
   ☒ **Ground water with no treatment** – a source sample * is required in addition to the 3 repeats.
5. Sampling Technique (attach sampling technique): **See Attachment**
6. Sampling Collection Site Rotation:

Routine	Repeat and Source Samples	Address/Location
Routine Site #1 **C&M** **10102 N. McAlister Rd** **Island City, OR 97850**	Repeat Site A	10102 N McAlister
	Repeat Site B	10201 N McAlister
	Repeat Site C	10101 W First St
	*Source	10809 Walton Rd
Routine Site #2 **Wal-Mart Subway** **11619 Island Ave** **Island City, OR 97850**	Repeat Site A	11619 Island Ave
	Repeat Site B	10705 Walton Rd
	Repeat Site C	11301 Island Ave
	*Source	10809 Walton Rd
Routine Site #3 **Union County Shops** **10513 N McAlister** **Island City, OR 97850**	Repeat Site A	10513 N McAlister
	Repeat Site B	63127 Fruitdale Ln
	Repeat Site C	10514 N McAlister
	*Source	10809 Walton Rd
Routine Site #4 **Mountain View Pumphouse** **10103 Emily Dr** **Island City, OR 97850**	Repeat Site A	10103 Emily Dr
	Repeat Site B	10906 S McAlister
	Repeat Site C	10202 Mt Fanny Ave
	*Source	10809 Walton Rd
Routine Site #5 **Harry Thomas (Residence)** **10202 S A St** **Island City, OR 97850**	Repeat Site A	10202 S A St
	Repeat Site B	10101 E First St
	Repeat Site C	10302 S A St
	*Source	10809 Walton Rd
Routine Site #6 **Robert Beeman (Residence)** **10413 F Ave** **Island City, OR 97850**	Repeat Site A	10413 F Ave
	Repeat Site B	10409 F Ave
	Repeat Site C	10208 White Birch Ln
	*Source	10809 Walton Rd

7. Attach a map of the distribution system showing the water source(s), treatment rooms, and sampling site locations.

Sampling Technique

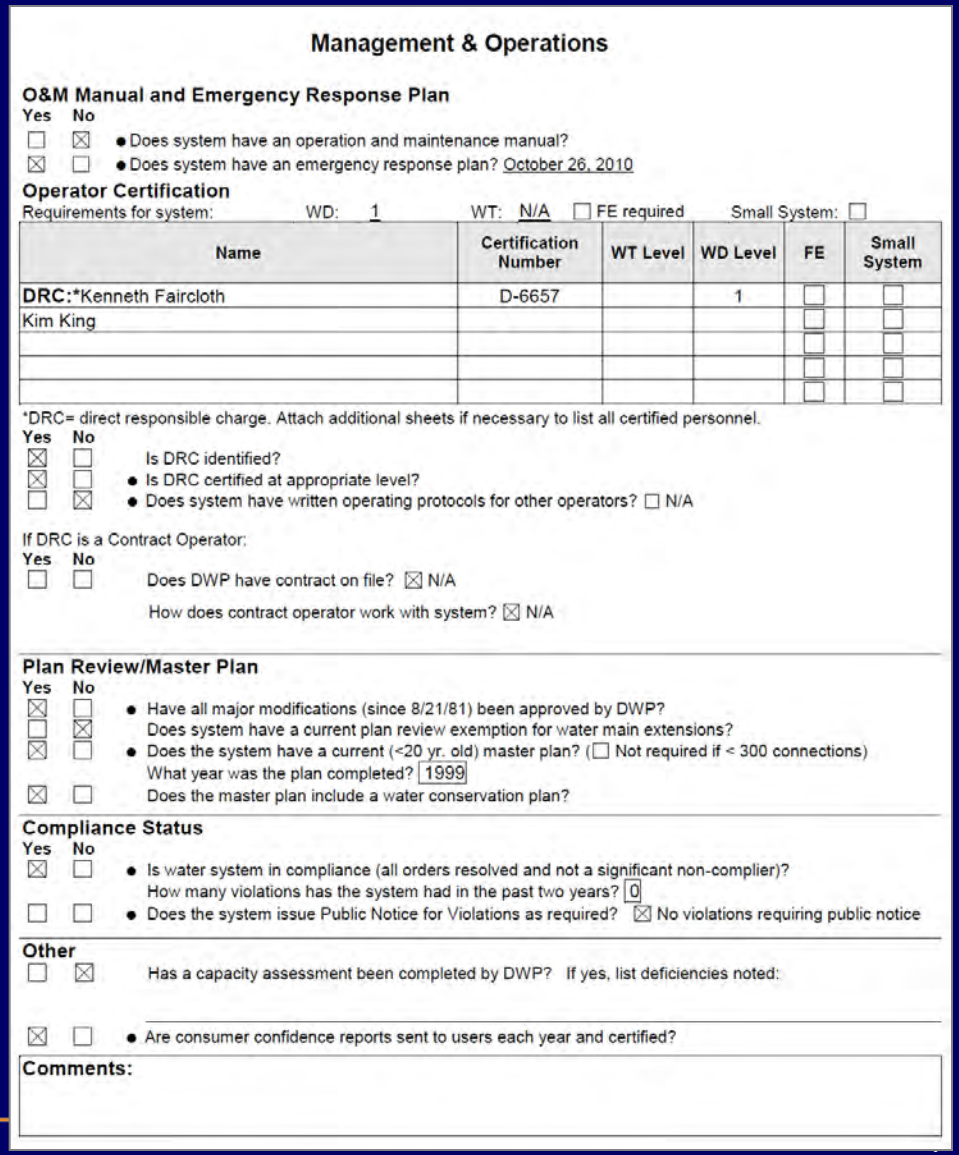
1. Remove aerator from faucet
2. Sterilize faucet
3. Run water for 3 to 5 minutes
4. Use sample bottle that was received for laboratory
5. Do not break seal until ready to take sample
6. Put on sterilized rubber gloves before breaking the seal on the bottle
7. Turn water down so not to splash
8. Remove seal and lid from bottle and take sample quickly
9. Fill bottle to ½ inch from top
10. As soon as filled return lid
11. Turn off water and return aerator to faucet
12. Fill out sample record with date, time, location, sample type, and sampler
13. Send water sample overnight to laboratory



Management & Operations

Significant Deficiencies:

- O&M Manual
  - Review & update as needed.
- Emergency Response Plan
  - Review < 5 years. Update contact information, phone numbers yearly.
  - Proof of completion



Management & Operations

O&M Manual and Emergency Response Plan

Yes No

☐ ☒ • Does system have an operation and maintenance manual?

☒ ☐ • Does system have an emergency response plan? October 26, 2010

Operator Certification

Requirements for system: WD: 1 WT: N/A ☐ FE required Small System: ☐

Name	Certification Number	WT Level	WD Level	FE	Small System
DRC:*Kenneth Faircloth	D-6657		1	☐	☐
Kim King				☐	☐
				☐	☐
				☐	☐
				☐	☐

*DRC= direct responsible charge. Attach additional sheets if necessary to list all certified personnel.

Yes No

☒ ☐ Is DRC identified?

☒ ☐ • Is DRC certified at appropriate level?

☐ ☒ • Does system have written operating protocols for other operators? ☐ N/A

If DRC is a Contract Operator:

Yes No

☐ ☐ Does DWP have contract on file? ☒ N/A

How does contract operator work with system? ☒ N/A

Plan Review/Master Plan

Yes No

☒ ☐ • Have all major modifications (since 8/21/81) been approved by DWP?

☐ ☒ Does system have a current plan review exemption for water main extensions?

☒ ☐ • Does the system have a current (<20 yr. old) master plan? (☐ Not required if < 300 connections)

What year was the plan completed? 1999

☒ ☐ Does the master plan include a water conservation plan?

Compliance Status

Yes No

☒ ☐ • Is water system in compliance (all orders resolved and not a significant non-complier)?

How many violations has the system had in the past two years? 0

☐ ☐ • Does the system issue Public Notice for Violations as required? ☒ No violations requiring public notice

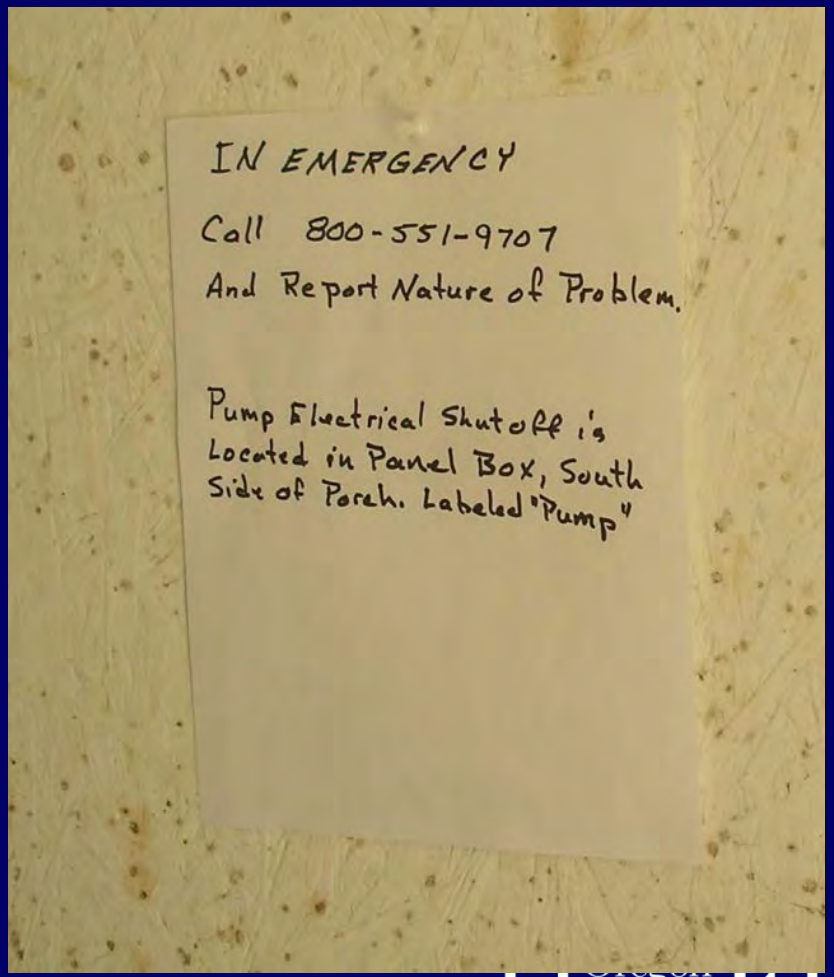
Other

☐ ☒ Has a capacity assessment been completed by DWP? If yes, list deficiencies noted:

☒ ☐ • Are consumer confidence reports sent to users each year and certified?

Comments:

Management & Operations



Management & Operations

O&M Manual:

- Document maintenance & operational tasks associated with sources, chemical analyzers and disinfection equipment, storage tanks & distribution system components (i.e., backflow devices, isolation valves, hydrants).

Emergency Response Plan:

- Written communications & authority, WS hazards review, emergency equipment & water supplies, emergency response procedures.

Staff need to be instructed & trained in using O&M & ERP

Management & Operations

- DRC certified at appropriate level?
  - Check Data Online
- Written protocols for under certified operators?
- Major modifications submitted for plan review?
- Is WS required to have master plan (>300 connections)?
- Is WS in compliance (under enforcement)?
- PN issued for violations?
- Are CCR delivered to customers yearly AND certified?

WS/Operator certification

- Check DRC & certification required for WS.
- # of connections & treatment can change certification requirements.

Oregon Public Health
Drinking Water Data Online

Introduction :: Data Search Options :: WS Name Look Up :: WS ID Look Up :: DWS Home :: Quick Data Links

OR41 00500 **MADRAS, CITY OF** **Classification**: COMMUNIT

Contact: KEITH BEDELL
800 SE GRIZZLY RD
MADRAS, OR 97741
Population: 3,494
Operating Period: January 1 to December 31

Certified Operator(s)
Required: Y
Distribution class: 2
Treatment class: None
Filtration Endorsement Required: No

Phone: 541-475-7259
County: JEFFERSON
Activity Status: ACTIVE -- **History**
Number of Connections: 896
Regulating Agency: REGION 1
Owner Type: LOCAL GOVERNMENT
Licensed By: N/A
Approved Drinking Water Protection Plan: No
Source Water Assessment: Yes
Last Survey Date: Jul 17, 2013

Sources

Facility ID	Facility Name - Well Logs	Activity Status	Availability
EP-A	**EP FOR DESCHUTES VALLEY WD (00501)**	**A**	
SRC-AA	DESCHUTES VALLEY WATER DIST (00501)	A	Permanent
EP-B	**EP FOR WELL #2**	**I**	
SRC-BA	WELL #2 - JEFF427	I	Emergency
EP-C	**EP FOR WELL #3**	**A**	
SRC-CA	WELL #3 - JEFF404	A	Permanent

Treatment

State ID	Facility Name	Treatment Process	Treatment Objective

Consumer Confidence Reports (Last 5 Years)

For Year	Date Received	Date Certified
2014	Due 7/1/2015	

Oregon Health Authority

S ID Look Up :: DWS Home :: Quick Data Links

Water System #: OR4100500
MADRAS, CITY OF
Certification Level Required
Distribution: 2
Treatment: None
Filtration: None

Licensed Operators and their certification levels

License Number(s)	Name	Distribution Level	Is DRC* Distribution	Treatment Level	Is DRC* Treatment	Filtration Endorsement	License Expires (D and/or T)
D-3569	Ivan Keith Bedell	3	DRC Dist				12/31/2016
D-3545	Gordon R. Wood	2					12/31/2015

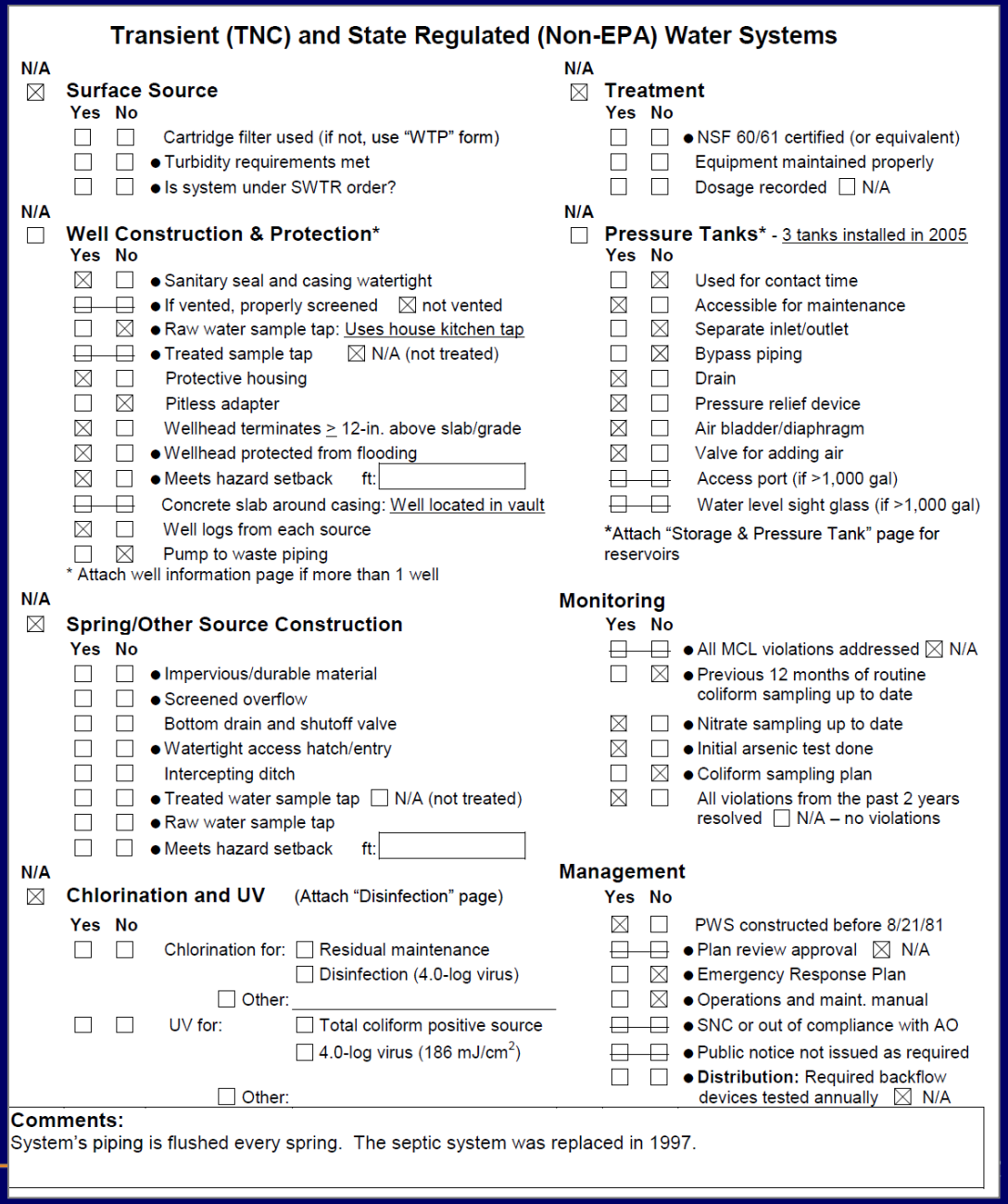
*Direct Resposible Charge
**Contract Operator
***Only Operators with a current certification will appear.

Distribution Grade 2

Oregon Administrative Rule	Requirements
333-061-0235 OPERATOR REQUIREMENTS LEVELS 1-4	HS/GED and 3 years experience, *OR* HS/GED and 1 year relevant post-high school education and 2 years experience

TNC Checklist

- Significant deficiencies are bulleted items
- Include other pages if more than 1 well and/or storage is used
- Add disinfection page if needed.



Transient (TNC) and State Regulated (Non-EPA) Water Systems

N/A ☒ Surface Source

Yes	No	
☐	☐	Cartridge filter used (if not, use "WTP" form)
☐	☐	● Turbidity requirements met
☐	☐	● Is system under SWTR order?

N/A ☐ Well Construction & Protection*

Yes	No	
☒	☐	● Sanitary seal and casing watertight
☐	☐	● If vented, properly screened ☒ not vented
☐	☒	● Raw water sample tap: Uses house kitchen tap
☐	☐	● Treated sample tap ☒ N/A (not treated)
☒	☐	Protective housing
☐	☒	Pitless adapter
☒	☐	Wellhead terminates ≥ 12-in. above slab/grade
☒	☐	● Wellhead protected from flooding
☒	☐	● Meets hazard setback ft:
☐	☐	Concrete slab around casing: Well located in vault
☒	☐	Well logs from each source
☐	☒	Pump to waste piping

* Attach well information page if more than 1 well

N/A ☒ Spring/Other Source Construction

Yes	No	
☐	☐	● Impervious/durable material
☐	☐	● Screened overflow
☐	☐	Bottom drain and shutoff valve
☐	☐	● Watertight access hatch/entry
☐	☐	Intercepting ditch
☐	☐	● Treated water sample tap ☐ N/A (not treated)
☐	☐	● Raw water sample tap
☐	☐	● Meets hazard setback ft:

N/A ☒ Chlorination and UV (Attach "Disinfection" page)

Yes	No		
☐	☐	Chlorination for:	☐ Residual maintenance
			☐ Disinfection (4.0-log virus)
			☐ Other:
☐	☐	UV for:	☐ Total coliform positive source
			☐ 4.0-log virus (186 mJ/cm^2)
			☐ Other:

N/A ☒ Treatment

Yes	No	
☐	☐	● NSF 60/61 certified (or equivalent)
☐	☐	Equipment maintained properly
☐	☐	Dosage recorded ☐ N/A

N/A ☐ Pressure Tanks* - 3 tanks installed in 2005

Yes	No	
☐	☒	Used for contact time
☒	☐	Accessible for maintenance
☐	☒	Separate inlet/outlet
☐	☒	Bypass piping
☒	☐	Drain
☒	☐	Pressure relief device
☒	☐	Air bladder/diaphragm
☒	☐	Valve for adding air
☐	☐	Access port (if >1,000 gal)
☐	☐	Water level sight glass (if >1,000 gal)

*Attach "Storage & Pressure Tank" page for reservoirs

Monitoring

Yes	No	
☐	☐	● All MCL violations addressed ☒ N/A
☐	☒	● Previous 12 months of routine coliform sampling up to date
☒	☐	● Nitrate sampling up to date
☒	☐	● Initial arsenic test done
☐	☒	● Coliform sampling plan
☒	☐	All violations from the past 2 years resolved ☐ N/A – no violations

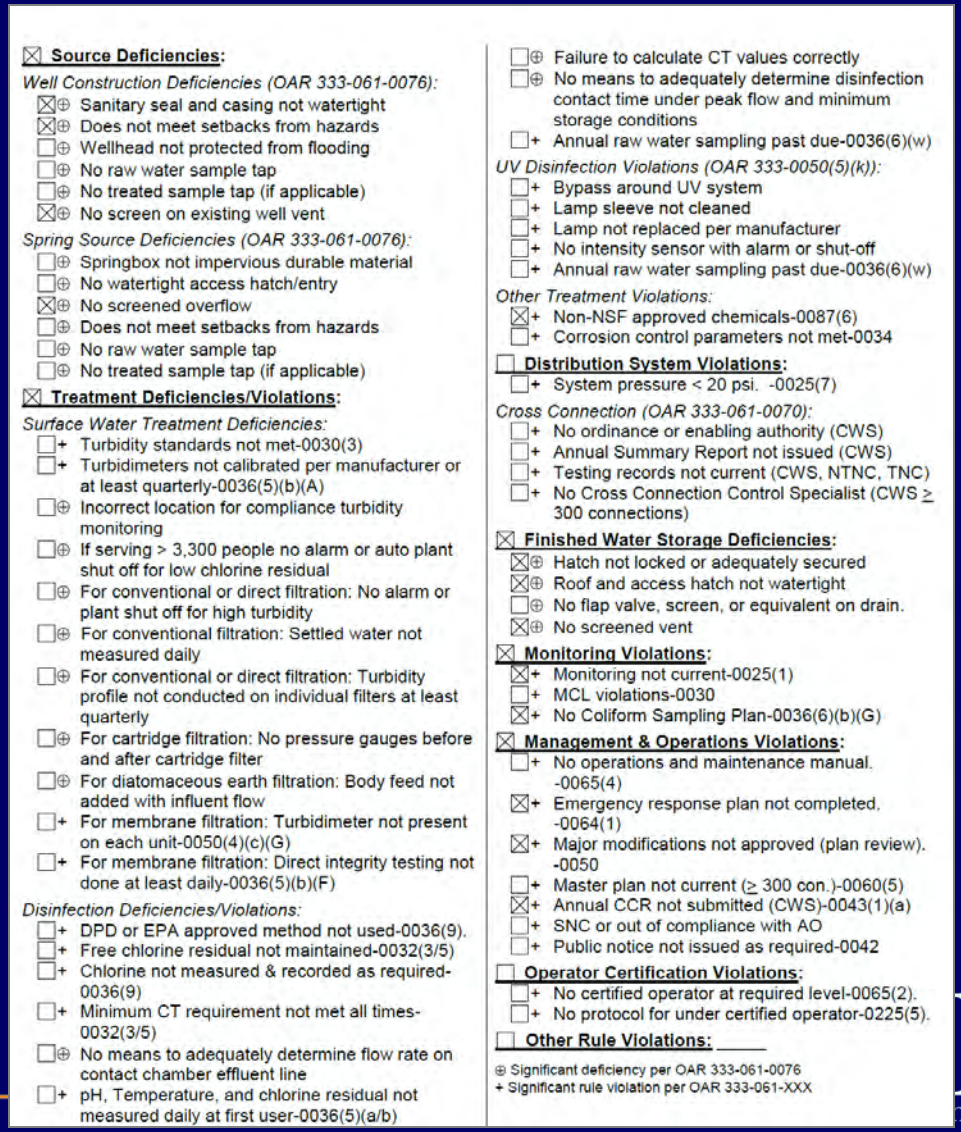
Management

Yes	No	
☒	☐	PWS constructed before 8/21/81
☐	☐	● Plan review approval ☒ N/A
☐	☒	● Emergency Response Plan
☐	☒	● Operations and maint. manual
☐	☐	● SNC or out of compliance with AO
☐	☐	● Public notice not issued as required
☐	☐	● **Distribution:** Required backflow devices tested annually ☒ N/A

Comments:
System's piping is flushed every spring. The septic system was replaced in 1997.

Deficiency Summary & Checklist

- Checklist provides a quick review of deficiencies identified
- Be sure deficiencies (bulleted items) in forms matches checklist



☒ **Source Deficiencies:**

Well Construction Deficiencies (OAR 333-061-0076):
- ☒⊕ Sanitary seal and casing not watertight
- ☒⊕ Does not meet setbacks from hazards
- ☐⊕ Wellhead not protected from flooding
- ☐⊕ No raw water sample tap
- ☐⊕ No treated sample tap (if applicable)
- ☒⊕ No screen on existing well vent

Spring Source Deficiencies (OAR 333-061-0076):
- ☐⊕ Springbox not impervious durable material
- ☐⊕ No watertight access hatch/entry
- ☒⊕ No screened overflow
- ☐⊕ Does not meet setbacks from hazards
- ☐⊕ No raw water sample tap
- ☐⊕ No treated sample tap (if applicable)

☒ **Treatment Deficiencies/Violations:**

Surface Water Treatment Deficiencies:
- ☐+ Turbidity standards not met-0030(3)
- ☐+ Turbidimeters not calibrated per manufacturer or at least quarterly-0036(5)(b)(A)
- ☐⊕ Incorrect location for compliance turbidity monitoring
- ☐⊕ If serving > 3,300 people no alarm or auto plant shut off for low chlorine residual
- ☐⊕ For conventional or direct filtration: No alarm or plant shut off for high turbidity
- ☐⊕ For conventional filtration: Settled water not measured daily
- ☐⊕ For conventional or direct filtration: Turbidity profile not conducted on individual filters at least quarterly
- ☐⊕ For cartridge filtration: No pressure gauges before and after cartridge filter
- ☐⊕ For diatomaceous earth filtration: Body feed not added with influent flow
- ☐+ For membrane filtration: Turbidimeter not present on each unit-0050(4)(c)(G)
- ☐+ For membrane filtration: Direct integrity testing not done at least daily-0036(5)(b)(F)

Disinfection Deficiencies/Violations:
- ☐+ DPD or EPA approved method not used-0036(9).
- ☐+ Free chlorine residual not maintained-0032(3/5)
- ☐+ Chlorine not measured & recorded as required-0036(9)
- ☐+ Minimum CT requirement not met all times-0032(3/5)
- ☐⊕ No means to adequately determine flow rate on contact chamber effluent line
- ☐+ pH, Temperature, and chlorine residual not measured daily at first user-0036(5)(a/b)
- ☐⊕ Failure to calculate CT values correctly
- ☐⊕ No means to adequately determine disinfection contact time under peak flow and minimum storage conditions
- ☐+ Annual raw water sampling past due-0036(6)(w)

UV Disinfection Violations (OAR 333-0050(5)(k)):
- ☐+ Bypass around UV system
- ☐+ Lamp sleeve not cleaned
- ☐+ Lamp not replaced per manufacturer
- ☐+ No intensity sensor with alarm or shut-off
- ☐+ Annual raw water sampling past due-0036(6)(w)

Other Treatment Violations:
- ☒+ Non-NSF approved chemicals-0087(6)
- ☐+ Corrosion control parameters not met-0034

☐ **Distribution System Violations:**
- ☐+ System pressure < 20 psi. -0025(7)

Cross Connection (OAR 333-061-0070):
- ☐+ No ordinance or enabling authority (CWS)
- ☐+ Annual Summary Report not issued (CWS)
- ☐+ Testing records not current (CWS, NTNC, TNC)
- ☐+ No Cross Connection Control Specialist (CWS ≥ 300 connections)

☒ **Finished Water Storage Deficiencies:**
- ☒⊕ Hatch not locked or adequately secured
- ☒⊕ Roof and access hatch not watertight
- ☐⊕ No flap valve, screen, or equivalent on drain.
- ☒⊕ No screened vent

☒ **Monitoring Violations:**
- ☒+ Monitoring not current-0025(1)
- ☐+ MCL violations-0030
- ☒+ No Coliform Sampling Plan-0036(6)(b)(G)

☒ **Management & Operations Violations:**
- ☐+ No operations and maintenance manual. -0065(4)
- ☒+ Emergency response plan not completed. -0064(1)
- ☒+ Major modifications not approved (plan review). -0050
- ☐+ Master plan not current (≥ 300 con.)-0060(5)
- ☒+ Annual CCR not submitted (CWS)-0043(1)(a)
- ☐+ SNC or out of compliance with AO
- ☐+ Public notice not issued as required-0042

☐ **Operator Certification Violations:**
- ☐+ No certified operator at required level-0065(2).
- ☐+ No protocol for under certified operator-0225(5).

☐ **Other Rule Violations:** _____

⊕ Significant deficiency per OAR 333-061-0076
+ Significant rule violation per OAR 333-061-XXX

Deficiency Summary & Checklist

- Note significant deficiencies & rule violations from survey
- Include due dates for correction & *CAP*
- Update *Date Corrected* on summary sheet in file.
- Notify DMCE when deficiencies are corrected to avoid WS incurring violation

Deficiency Summary

Surveyor: Michelle Byrd

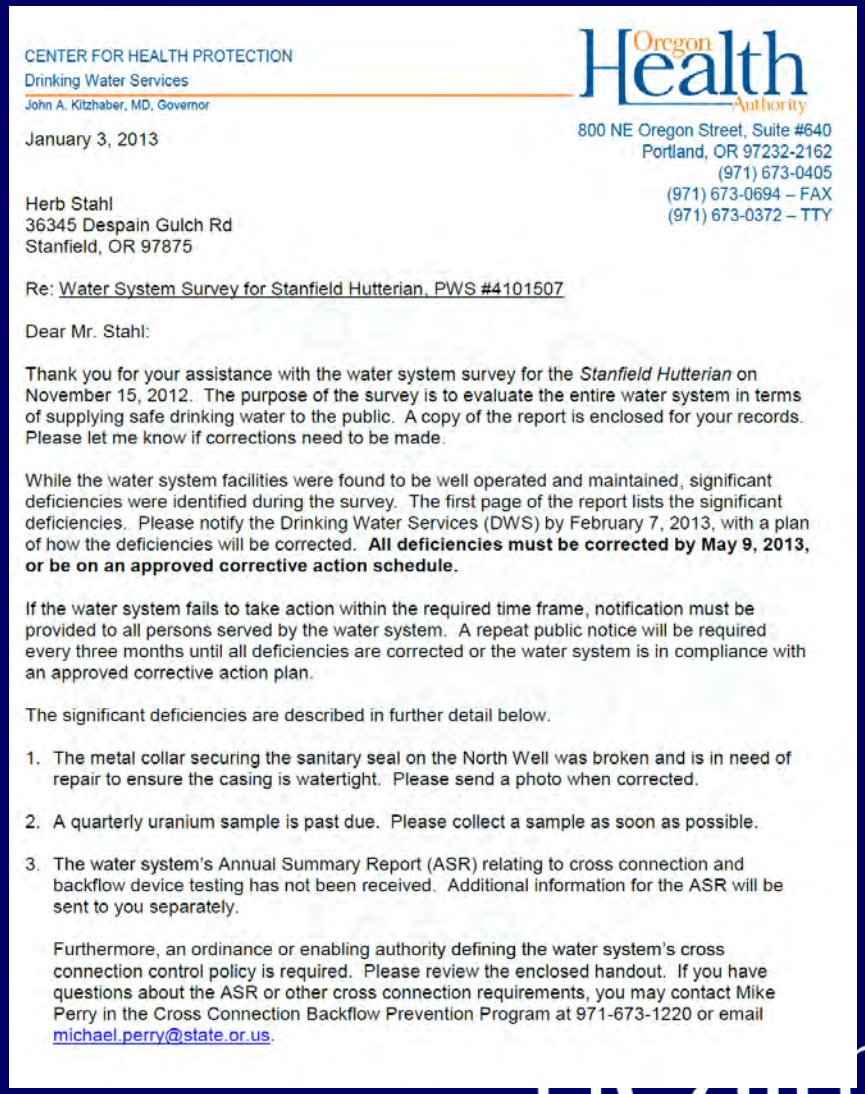
Date Corrective Action Plan is due: December 30, 2011 **County:** Wheeler

Yes	No	Significant Deficiencies and Rule Violations:	Date to be corrected	Date corrected
☒	☐	**Source:**		
		Well construction:		
		• Seal opening on top of Fairgrounds Well.		
		• Remove evidence of rodent activity within Deep Well building and prevent their access. Improve vent screen.	4/1/15	3/30/15
		Spring/other source:		
		• Replace screen on outflow pipe inside springbox.		
		• Locate overflow pipe for springbox to verify it is protected with screen or flap valve.		
☒	☐	**Treatment:**		
		Surface water treatment:		
		• N/A		
		Disinfection:		
		Other treatment:		
		• Discontinue use of non-NSF chlorine tablet dispensers in North & South reservoirs.	4/1/15	
☒	☐	**Finished Water Storage:**		
		• Add lock to hatch on steel reservoir.		
		• Seal all openings in North & South reservoirs.		
		• Verify all vent screens are installed.		
☐	☒	**Distribution:**		
☒	☐	**Monitoring:**		
		• Collect Radium 226/228 sample during 3rd Quarter this year to complete initial monitoring.		
☒	☐	**Management & Operations:**		
		• Develop an Emergency Response Plan specific to water system.		
		• Develop Consumer Confidence Report to send to customers annually.		
		• Develop a Coliform Sampling Plan.		
		• Modifications made to 3rd & Chase Well not approved by Drinking Water Program.	4/1/15	
☐	☐	**Operator Certification:**		
☐	☐	**Other Rule Violations:**		

Comments:
See cover letter for recommendations.

Survey Cover Letter

- Cover letter mailed to WS primary contact. Can also send copy to owner (ask)
- Letter outlines deficiencies, corrective action timelines & documentation needed once corrected.



CENTER FOR HEALTH PROTECTION
Drinking Water Services
John A. Kitzhaber, MD, Governor

Oregon Health Authority

800 NE Oregon Street, Suite #640
Portland, OR 97232-2162
(971) 673-0405
(971) 673-0694 – FAX
(971) 673-0372 – TTY

January 3, 2013

Herb Stahl
36345 Despain Gulch Rd
Stanfield, OR 97875

Re: Water System Survey for Stanfield Hutterian, PWS #4101507

Dear Mr. Stahl:

Thank you for your assistance with the water system survey for the *Stanfield Hutterian* on November 15, 2012. The purpose of the survey is to evaluate the entire water system in terms of supplying safe drinking water to the public. A copy of the report is enclosed for your records. Please let me know if corrections need to be made.

While the water system facilities were found to be well operated and maintained, significant deficiencies were identified during the survey. The first page of the report lists the significant deficiencies. Please notify the Drinking Water Services (DWS) by February 7, 2013, with a plan of how the deficiencies will be corrected. **All deficiencies must be corrected by May 9, 2013, or be on an approved corrective action schedule.**

If the water system fails to take action within the required time frame, notification must be provided to all persons served by the water system. A repeat public notice will be required every three months until all deficiencies are corrected or the water system is in compliance with an approved corrective action plan.

The significant deficiencies are described in further detail below.

1. The metal collar securing the sanitary seal on the North Well was broken and is in need of repair to ensure the casing is watertight. Please send a photo when corrected.
2. A quarterly uranium sample is past due. Please collect a sample as soon as possible.
3. The water system's Annual Summary Report (ASR) relating to cross connection and backflow device testing has not been received. Additional information for the ASR will be sent to you separately.

   Furthermore, an ordinance or enabling authority defining the water system's cross connection control policy is required. Please review the enclosed handout. If you have questions about the ASR or other cross connection requirements, you may contact Mike Perry in the Cross Connection Backflow Prevention Program at 971-673-1220 or email michael.perry@state.or.us.

Survey Cover Letter

- WS has 30 days to consult with regulator on corrective action
- WS must submit written *Corrective Action Plan* within 120 days (18 weeks) from survey letter date (*GW only*)

  Note: *SW purchasing systems* submit CAP within 45 days (7 weeks). Talk with DWS regulator if letter language is needed.

  Date calculation tool - http://www.timeanddate.com/date/dateadd/html
- Include recommendations & comments on WS improvements
- Commendation can also be noted in letter.

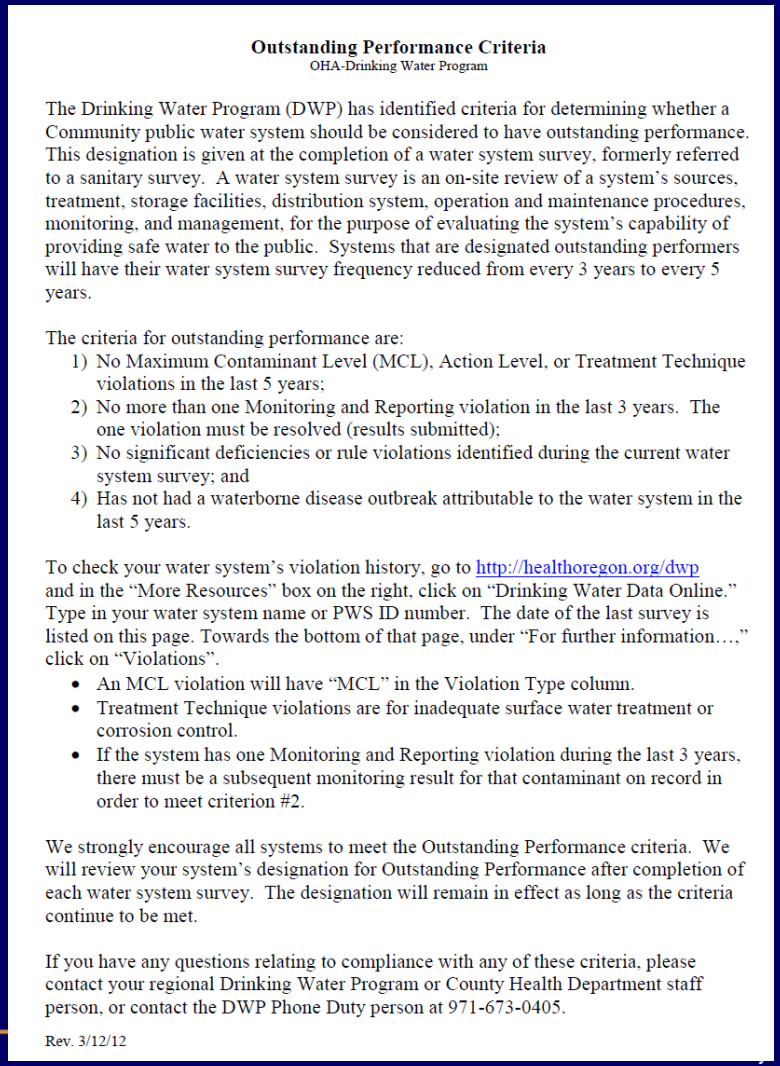
Outstanding Performer

CWS only

- Reduce WSS from 3 to 5 years

All criteria must be met:

- No MCL, AL, or TT violations in last 5 years
- No more than 1 M&R violation in last 3 years & must be resolved.
- No deficiencies or rule violations found during current WSS
- No waterborne disease outbreak attributable to WS in last 5 years



Outstanding Performance Criteria
OHA-Drinking Water Program

The Drinking Water Program (DWP) has identified criteria for determining whether a Community public water system should be considered to have outstanding performance. This designation is given at the completion of a water system survey, formerly referred to a sanitary survey. A water system survey is an on-site review of a system's sources, treatment, storage facilities, distribution system, operation and maintenance procedures, monitoring, and management, for the purpose of evaluating the system's capability of providing safe water to the public. Systems that are designated outstanding performers will have their water system survey frequency reduced from every 3 years to every 5 years.

The criteria for outstanding performance are:

1) No Maximum Contaminant Level (MCL), Action Level, or Treatment Technique violations in the last 5 years;
2) No more than one Monitoring and Reporting violation in the last 3 years. The one violation must be resolved (results submitted);
3) No significant deficiencies or rule violations identified during the current water system survey; and
4) Has not had a waterborne disease outbreak attributable to the water system in the last 5 years.

To check your water system's violation history, go to http://healthoregon.org/dwp and in the "More Resources" box on the right, click on "Drinking Water Data Online." Type in your water system name or PWS ID number. The date of the last survey is listed on this page. Towards the bottom of that page, under "For further information…," click on "Violations".

- An MCL violation will have "MCL" in the Violation Type column.
- Treatment Technique violations are for inadequate surface water treatment or corrosion control.
- If the system has one Monitoring and Reporting violation during the last 3 years, there must be a subsequent monitoring result for that contaminant on record in order to meet criterion #2.

We strongly encourage all systems to meet the Outstanding Performance criteria. We will review your system's designation for Outstanding Performance after completion of each water system survey. The designation will remain in effect as long as the criteria continue to be met.

If you have any questions relating to compliance with any of these criteria, please contact your regional Drinking Water Program or County Health Department staff person, or contact the DWP Phone Duty person at 971-673-0405.

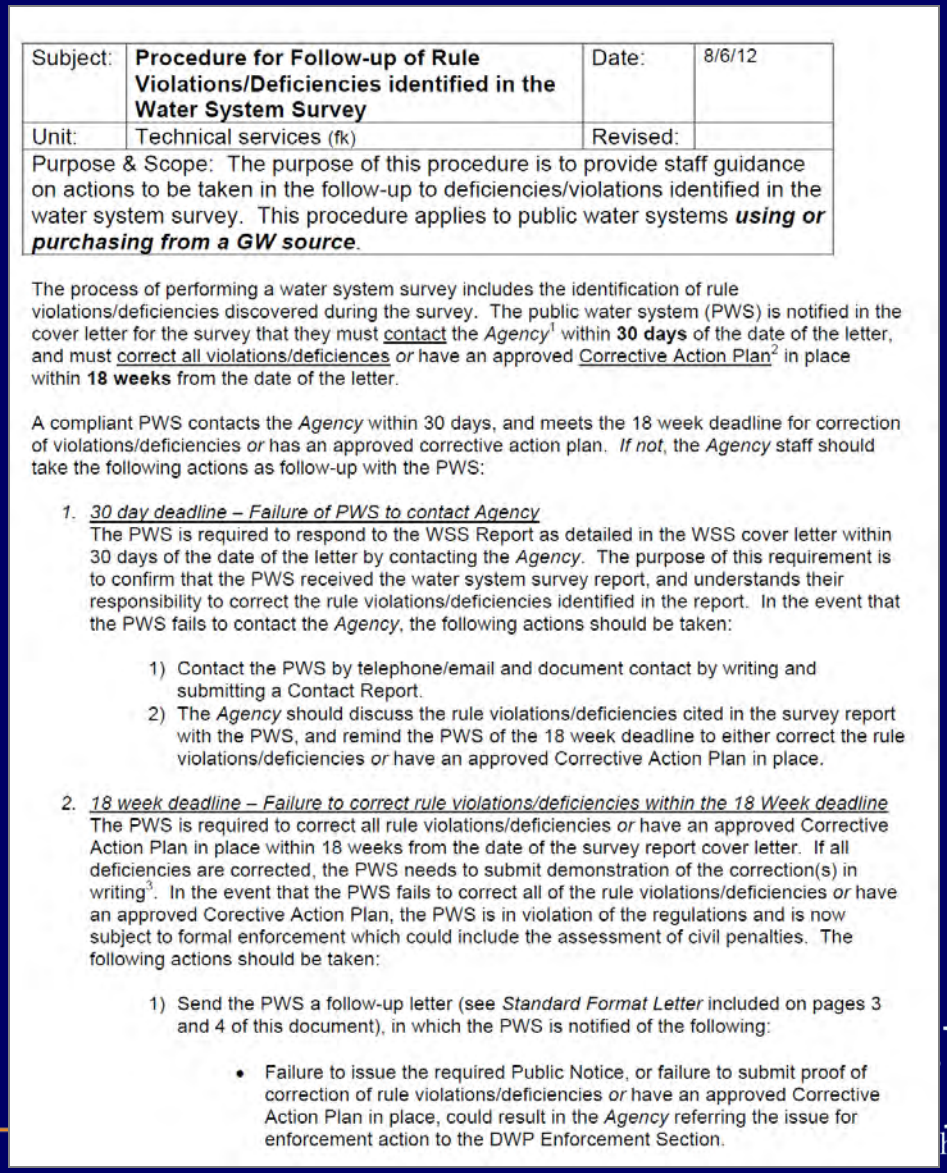
Rev. 3/12/12

Survey Follow-Up

- Follow-up actions determine if deficiencies have been corrected
- Recommend contacting WS shortly after survey is mailed to:
  - Ensure it was received & ask if WS has questions
  - Review letter with WS & discuss options to:
    - Correct deficiencies, &
    - How to meet corrective action deadline

Survey Follow-Up

Deficiency follow-up procedures found on *Water System Surveys* page on partners website



Subject:	**Procedure for Follow-up of Rule Violations/Deficiencies identified in the Water System Survey**	Date:	8/6/12
Unit:	Technical services (fk)	Revised:	

Purpose & Scope: The purpose of this procedure is to provide staff guidance on actions to be taken in the follow-up to deficiencies/violations identified in the water system survey. This procedure applies to public water systems ***using or purchasing from a GW source***.

The process of performing a water system survey includes the identification of rule violations/deficiencies discovered during the survey. The public water system (PWS) is notified in the cover letter for the survey that they must contact the *Agency*[1] within **30 days** of the date of the letter, and must correct all violations/deficiences *or* have an approved Corrective Action Plan[2] in place within **18 weeks** from the date of the letter.

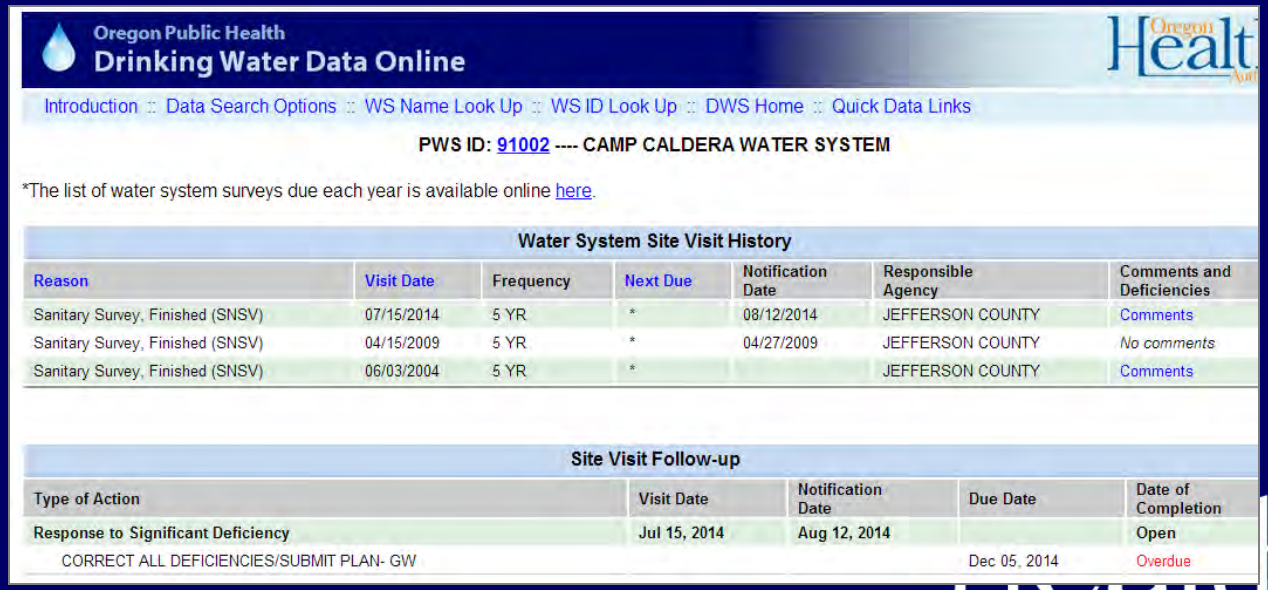
A compliant PWS contacts the *Agency* within 30 days, and meets the 18 week deadline for correction of violations/deficiencies *or* has an approved corrective action plan. *If not*, the *Agency* staff should take the following actions as follow-up with the PWS:

1. *30 day deadline – Failure of PWS to contact Agency*
   The PWS is required to respond to the WSS Report as detailed in the WSS cover letter within 30 days of the date of the letter by contacting the *Agency*. The purpose of this requirement is to confirm that the PWS received the water system survey report, and understands their responsibility to correct the rule violations/deficiencies identified in the report. In the event that the PWS fails to contact the *Agency*, the following actions should be taken:
   1) Contact the PWS by telephone/email and document contact by writing and submitting a Contact Report.
   2) The *Agency* should discuss the rule violations/deficiencies cited in the survey report with the PWS, and remind the PWS of the 18 week deadline to either correct the rule violations/deficiencies *or* have an approved Corrective Action Plan in place.

2. *18 week deadline – Failure to correct rule violations/deficiencies within the 18 Week deadline*
   The PWS is required to correct all rule violations/deficiencies *or* have an approved Corrective Action Plan in place within 18 weeks from the date of the survey report cover letter. If all deficiencies are corrected, the PWS needs to submit demonstration of the correction(s) in writing[3]. In the event that the PWS fails to correct all of the rule violations/deficiencies *or* have an approved Corective Action Plan, the PWS is in violation of the regulations and is now subject to formal enforcement which could include the assessment of civil penalties. The following actions should be taken:
   1) Send the PWS a follow-up letter (see *Standard Format Letter* included on pages 3 and 4 of this document), in which the PWS is notified of the following:
      - Failure to issue the required Public Notice, or failure to submit proof of correction of rule violations/deficiencies *or* have an approved Corrective Action Plan in place, could result in the *Agency* referring the issue for enforcement action to the DWP Enforcement Section.

Data Online – Site Visit Page

- Deficiencies & corrective action dates tracked in Data Online
- Alerts emailed to regulator to review corrective action & timeline with WS
- If no action is taken, violations are generated
- 30-day PN is required if failure to correct deficiencies by deadline.



Oregon Public Health
Drinking Water Data Online

Introduction :: Data Search Options :: WS Name Look Up :: WS ID Look Up :: DWS Home :: Quick Data Links

PWS ID: 91002 ---- CAMP CALDERA WATER SYSTEM

*The list of water system surveys due each year is available online here.

Water System Site Visit History

Reason	Visit Date	Frequency	Next Due	Notification Date	Responsible Agency	Comments and Deficiencies
Sanitary Survey, Finished (SNSV)	07/15/2014	5 YR	*	08/12/2014	JEFFERSON COUNTY	Comments
Sanitary Survey, Finished (SNSV)	04/15/2009	5 YR	*	04/27/2009	JEFFERSON COUNTY	*No comments*
Sanitary Survey, Finished (SNSV)	06/03/2004	5 YR	*		JEFFERSON COUNTY	Comments

Site Visit Follow-up

Type of Action	Visit Date	Notification Date	Due Date	Date of Completion
Response to Significant Deficiency	**Jul 15, 2014**	**Aug 12, 2014**		**Open**
CORRECT ALL DEFICIENCIES/SUBMIT PLAN- GW			Dec 05, 2014	Overdue

Summary

- Surveys evaluate changes since the last survey
- Preparation & organization is key in an effective survey
- Ask operator to walk you through process even if it seems straight forward
- Focus on significant deficiencies (bulleted items) & fill in as much info as possible
- Review all survey forms before ending site visit
- Follow-up actions verify deficiencies have been corrected by WS to ensure compliance

Have questions? Talk with your DWS contact.

We are here to help!

Oregon Health Authority

DW Partners Online Info & Resources

- Survey manual & forms – DWS Partners Page

  https://partners.health.oregon.gov/Partners/DrinkingWater/
- Preparing for WS survey handout

  http://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/Operations/Pages/management.aspx
- How to Conduct a Sanitary Survey of Small Water Systems – A Learner's Guide (EPA 816-R-03-012)

  http://nepis.epa.gov
- Sanitary Survey Manual for GW Systems

  (EPA 815-R-08-015)

  http://www.epa.gov/ogwdw/disinfection/gwr/pdfs/guide_gwr_sanitarysurvey.pdf

Oregon Health Authority

Questions & comments

Michelle Byrd
OHA-Drinking Water Services
971-673-0425
Michelle.P.Byrd@state.or.us

OHA-Drinking Water Services
Phone Duty
971-673-0405

Oregon Health Authority