

APPENDIX M

*INITIAL DISTRIBUTION SYSTEM
EVALUATION*

Form 6: Standard Monitoring Plan

I. GENERAL INFORMATION

A. PWS Information*

B. Date Submitted*

PWSID: 72250W

PWS Name: CITY OF RICHLAND

PWS Address: P.O.BOX 190 MS-15

City: RICHLAND

State: WA

ZIP: 99352

Population Served: 44,700

System Type:	Source Water Type:	Buying / Selling Relationships:
CWS	Subpart H	Wholesale System

C. PWS Operations

Residual Disinfectant Type: Chlorine

Number of Disinfectant Sources: 1 - Surface, 1 - GWUD, 1 - Ground

D. Contact Person*

Name: Kim Duncan

Title: Water Quality Specialist

Phone #: (509)942-7474

Fax #: (509)942-5660

E-mail: kduncan@ci.richland.wa.us

II. IDSE REQUIREMENTS*

A. Number of Sites

B. Schedule

C. Standard Monitoring Frequency

Total:	<u>8</u>	Schedule 3	Every 60 days (6 monitoring periods)
Near Entry Point:	<u>1</u>		
Avg Residence Time:	<u>2</u>		
High TTHM:	<u>3</u>		
High HAA5:	<u>2</u>		

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III. SELECTING STANDARD MONITORING SITES

A. Data Evaluated Put a " X " in each box corresponding to the data that you used to select each type of standard monitoring site. Check all that apply.

Data Type	Type of Site			
	Near Entry Pt	Avg. Residence Time	High TTHM	High HAA5
System Configuration				
Pipe layout, locations of storage facilities	X	X	X	X
Locations of sources and consecutive system entry points	X	X	X	X
Pressure zones	X	X	X	X
Information on population density	X	X	X	X
Locations of large customers	X	X	X	X
Water Quality and Operational Data				
Disinfectant residual data	X	X	X	X
Stage 1 DBP	X	X	X	X
Other DBP data				
Microbiological monitoring data (e.g., HPC)				
Tank level data, pump run times	X	X	X	X
Customer billing records	X	X	X	X
Advanced Tools				
Water distribution system model				
Tracer study				

B. Summary of Data* Provide a summary of data you relied on to justify standard monitoring site selection. (attach additional sheets if needed)

Please See Attachment

B. Summary of data

We looked at several areas to help us determine where to sample for TTHM's, HAA5's and average residence time.

- (1) Customer billing: Considered areas that have low consumption where there will be an increase in detention times (longer contact between chlorine and organics).
- (2) Reservoirs and Pump Stations: Looked at reservoir levels, pump run times, and GPM to determine how long it took to turn over the volume in that reservoir.
- (3) Pipe layout, mains, service lines etc.: Looked at maps to determine dead ends, pipe bends, PRV's, etc. that would restrict flow.
- (4) Stage 1 DBP data: Reviewed out data gathered from Stage 1 sampling sites. Determined the areas where higher TTHM's and HAA5's exist and used that data to help determine areas of potential high formations. Collected preliminary standard monitoring samples. Results confirmed our selection of these sites.
- (5) Disinfectant residual: We researched averages of CL2 residuals throughout the system to determine the areas of consistently high and low Cl2 residuals.
- (6) Chlorine Booster Pump Stations: We considered areas where additional chlorine was added in the distribution system.

We looked at all available information on our distribution system. Choosing our additional standard monitoring sites based on this information. We choose sites on mains with low turn over rates. We looked at historical data and found August as the month with the highest water temperature, highest TTHM's and highest HAA5's. Therefore, we determined that if we began our standard monitoring testing cycle in February 2008 then in August 2008 we would be collection both Stage 1 and standard monitoring samples.

IV. JUSTIFICATION OF STANDARD MONITORING SITES*

Standard Monitoring Site ID (from map)❶	Site Type	Justification
RC-10	Avg. Res. Time	This sample site is between water treatment plant and 5 & 10 mg reservoirs we pulled Cl2 samples at wtp , distribution system and the 5 &10 mg reservoirs. We used these numbers to determine the area of average Cl2 residual.
RC-24	High HAA5	This sample site is close to a dead end main. The flow rates are low. We looked at average Cl2 residuals in this area and this site is low on average.
RC-22	Avg.Res.Time	This sample site is between water treatment plant and 5 & 10 mg reservoirs we pulled Cl2 samples at wtp , distribution system and the 5 &10 mg reservoirs. We used these numbers to determine the area of average Cl2 residual.
RC-9	High TTHM'S	This sample site is on a large main that feeds industrial use. The flow in this main varies but on average is low. This main tee's close to sample site. This sample site has a average Cl2 residual of approx 0.1 mg/l.
RC-23	High TTHM'S	This sample site is in an Area of low consumption. It has a separate irrigation source. This water comes from a 2 mg clearwell at the water treatment plant. Chlorine ave residual is between .9 and 1.2 mg/l.
RC-25	Near Entry Point	This is located on the effluent of the water treatment plant.
T1-11	High HAA5	Area of low consumption. Area has its own irrigation source in newer subdivision. On average this site also has a low Cl2 residual. Through billing , through Cl2 residuals in the area we believe the age of water in this main is above the system average.
T2-8	High TTHM	This site is near the bottom of a reservoir that has a low turn over rate. Supply to this reservoir has chlorine add by a chlorine booster pump. This is near a intertie valve that is normally closed this is a dead end main unless the intertie is open.

❶ Verify that site IDs match IDs in Section IV and on your distribution system schematic (See Section VII of this form). Attach additional copies if you are required to select more than 8 standard monitoring locations or need more room.

V. PEAK HISTORICAL MONTH AND PROPOSED STANDARD MONITORING SCHEDULE

- A. Peak Historical Month* August
- B. If Multiple Sources, Source Used to Determine Peak Historical Month
(write "N/A" if only one source in your system)
Columbia River
- C. Peak Historical Month Based On* (check all that apply)
 High TTHM Warmest water temperature
 High HAA5

If you used other information to select your peak historical month, explain here (*attach additional sheets if needed*)

D. Proposed Standard Monitoring Schedule*

Standard Monitoring Site ID (from map)❶	Projected Sampling Date (date of week)❷					
	Period 1	Period 2	Period 3	Period 4*	Period 5	Period 6
RC-9	2/13/08	4/9/08	6/11/08	8/13/08	10/8/08	12/10/08
RC-10	2/13/08	4/9/08	6/11/08	8/13/08	10/8/08	12/10/08
RC-22	2/13/08	4/9/08	6/11/08	8/13/08	10/8/08	12/10/08
RC-23	2/13/08	4/9/08	6/11/08	8/13/08	10/8/08	12/10/08
RC-24	2/13/08	4/9/08	6/11/08	8/13/08	10/8/08	12/10/08
RC-25	2/13/08	4/9/08	6/11/08	8/13/08	10/8/08	12/10/08
T2-8	2/13/08	4/9/08	6/11/08	8/13/08	10/8/08	12/10/08
T1-11	2/13/08	4/9/08	6/11/08	8/13/08	10/8/08	12/10/08

* Denotes peak historical month

❶ Verify that site IDs match IDs in Section IV and on your distribution system schematic (See Section VII of this form). Attach additional copies if you are required to select more than 8 standard monitoring locations.

❷ period = monitoring period. Complete for the number of periods from Section II.C. Can list exact date or week (e.g., week of 7/9/07)

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VI. PLANNED STAGE 1 DBPR COMPLIANCE MONITORING SCHEDULE*

Stage 1 DBPR Monitoring Site ID (from map) ❶	Projected Sampling Date (date or week) ❷			
	Period 1	Period 2	* Period 3	Period 4
RC-3	02/13/08	05/14/08	08/13/08	11/12/08
RC-4	02/13/08	05/14/08	08/13/08	11/12/08
RC-13	02/13/08	05/14/08	08/13/08	11/12/08
RC-15	02/13/08	05/14/08	08/13/08	11/12/08
RC-19	02/13/08	05/14/08	08/13/08	11/12/08
RC-20	02/13/08	05/14/08	08/13/08	11/12/08
T1-4	02/13/08	05/14/08	08/13/08	11/12/08
T1-5	02/13/08	05/14/08	08/13/08	11/12/08

* Denotes peak historical month

❶ Verify that site IDs match IDs in Section IV and on your distribution system schematic (See Section VII of this form). Attach additional copies if you are required to monitor more than 8 stage 1 DBPR sites.

❷ period = monitoring period. Complete for the number of periods in which you must conduct Stage 1 DBPR monitoring during IDSE monitoring. Can list exact date of week (e.g., week of 7/9/07)

• Additional planned stage 1 monitoring schedule attached.

VII. DISTRIBUTION SYSTEM SCHEMATIC*

ATTACH a schematic of your distribution system.

Distribution System schematics are not confidential and should not contain information that poses a **security risk** to your system. EPA recommends that you use one of two options:

Option 1: Distribution system schematic with no landmarks or addresses indicated.

Show locations of sources, entry points, storage facilities, standard monitoring locations, and Stage 1 compliance monitoring locations (required). Also include pressure zone boundaries and locations of pump stations. Provide map scale.

Option 2: City map without locations of pipes indicated. Show locations of sources, entry points, storage facilities, standard monitoring locations, and Stage 1 compliance monitoring locations (required). Also include pressure zone boundaries and locations of pump stations.

Provide map scale.

Additional Planned Stage 1 DBPR Compliance Monitoring Schedule

Stage 1 DBPR Monitoring Site ID (from map)①	Projected Sampling Date (date or week)②			
	Period 1	Period 2	* Period 3	Period 4
T1-7	02/13/08	05/14/08	08/13/08	11/12/08
T2-3	02/13/08	05/14/08	08/13/08	11/12/08
T2-4	02/13/08	05/14/08	08/13/08	11/12/08
T5-2	02/13/08	05/14/08	08/13/08	11/12/08

* Denotes peak historic month

VIII. ATTACHMENTS

- Distribution System Schematic* (Section VII)
- Additional Sheets for the summary of data or site justifications (Sections III and IV).
- Additional copies of Page 3 for justification of Standard Monitoring Sites (Section IV). **Required if you are a subpart H system service more than 49,999 people or a ground water system service more than 499,999 people.**
- Additional sheets for explaining how you used data other than TTHM, HAA5, and temperature data to select your peak historical month (Section V)
- Additional copies of Page 4 for proposed Monitoring schedule (Section V). **Required if you are a subpart H system service more than 49,999 people or a ground water system service more than 499,999 people.**
- Additional Sheets for planned Stage 1 DBPR compliance monitoring schedule (Section VI).

Total Number of Pages in Your plan - 12

2008

Notes:

Standard Monitoring

Stage 1

JANUARY

S	M	T	W	T	F	S
	1	2	3	4	5	
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

FEBRUARY

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	

MARCH

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

APRIL

S	M	T	W	T	F	S
	1	2	3	4	5	
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

MAY

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

JUNE

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

JULY

S	M	T	W	T	F	S
	1	2	3	4	5	
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

AUGUST

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

SEPTEMBER

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

OCTOBER

S	M	T	W	T	F	S
		1	2	3	4	
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

NOVEMBER

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

DECEMBER

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			