

Preventive Maintenance Tasks for Tribal Drinking Water Systems

Log Cards



EPA 816-F-01-017
Office of Water (4604)
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Tools For Preventative Maintenance

These log cards, along with the accompanying guidance notes booklet, provide a schedule of routine operation and maintenance tasks for small groundwater systems. They will help you develop a preventative maintenance program for your system.

The cards are divided into sections that list daily, weekly, and monthly tasks, with individual sections that outline specific tasks for each month of the year. They correspond to the guidance notes in the booklet. Each section of cards contains a list of suggested tasks to be carried out for that time period and log cards to record information. We have not included log cards for every task because some tasks can be completed without recording anything. Tasks that do not have log cards are in *italicized* print.

You should copy all of the blank log cards for future use. Each log card has space for additional comments. A follow-up log card, included at the end of this card set, can be used to record any problems you encounter and to help you keep a schedule for any needed repairs or replacements. Please review the guidance notes in the accompanying booklet, which provide additional information on some tasks. Note that we have not defined all tasks because some are self explanatory. A contact list is provided in the accompanying guidance notes booklet if you need additional information.

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Daily

Daily

Recommended Daily Operational Duties

- ' Check water meter readings and record water production.
- ' Check chemical solution tanks and record amounts used.
- ' Check and record water levels in storage tanks.
- ' Check and record chlorine residual at the point of application.
- ' Check and record chlorine residual in the distribution system.
- ' Inspect chemical feed pumps.
- ' Inspect booster pump stations.
- ' Check and record fluoride concentration in the distribution system.

(Continued on other side of card.)

Daily

**Recommended Daily Operational Duties
(Cont.)**

Daily

- ' **Record well pump running times and pump cycle starts.**
- ' **Investigate customer complaints.**
- ' ***Inspect heater operation during winter months***
- ' ***Inspect well pumps, motors, and controls.***

(Reminder: italicized tasks do not have log cards)

Daily

Daily

Daily Water Production Log Card*
Month of _____

Date	Meter Reading	Amount of Water Used	Notes or Comments
31 st			
30 th			
29 th			
28 th			
27 th			
26 th			
25 th			
24 th			
23 rd			
22 nd			
21 st			
20 th			
19 th			
18 th			
17 th			

Daily

Daily

Date	Meter Reading	Amount of Water Used	Notes or Comments
16 th			
15 th			
14 th			
13 th			
12 th			
11 th			
10 th			
9 th			
8 th			
7 th			
6 th			
5 th			
4 th			
3 rd			
2 nd			
1 st			

*Remember to photocopy the log card for future use before filling it out.

Daily

Daily

Daily Chemical Solution Usage Log Card* Month of _____

Date	Water Prod.	Chlorine Solution Used	Chlorine Used per _____ gal water produced	Fluoride Solution Used	Fluoride Used per _____ gal water produced
31 st					
30 th					
29 th					
28 th					
27 th					
26 th					
25 th					
24 th					
23 rd					
22 nd					
21 st					
20 th					
19 th					
18 th					
17 th					

Daily

Daily

Date	Water Prod.	Chlorine Solution Used	Chlorine Used per _____ gal water produced	Fluoride Solution Used	Fluoride Used per _____ gal water produced
16 th					
15 th					
14 th					
13 th					
12 th					
11 th					
10 th					
9 th					
8 th					
7 th					
6 th					
5 th					
4 th					
3 rd					
2 nd					
1 st					

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Daily

Daily

Daily Storage Tank Water Level Log Card

Month of _____ Tank No. _____

Date	Water Level (check one)			Action Taken (if not within normal operating range)
	Normal	Overflow	Too Low	
1 st				
2 nd				
3 rd				
4 th				
5 th				
6 th				
7 th				
8 th				
9 th				
10 th				
11 th				
12 th				
13 th				
14 th				
15 th				

Daily

Daily

Date	Water Level (check one)			Action Taken (if not within normal operating range)
	Normal	Overflow	Too Low	
16 th				
17 th				
18 th				
19 th				
20 th				
21 st				
22 nd				
23 rd				
24 th				
25 th				
26 th				
27 th				
28 th				
29 th				
30 th				
31 st				

Daily

Daily

Daily Chlorine Residual Log Card*
Month of _____

Day	Chlorine Residual (in mg/L) at Point of Application	Chlorine Residual (in mg/L) in Distribution System	Notes or Comments
1 st			
2 nd			
3 rd			
4 th			
5 th			
6 th			
7 th			
8 th			
9 th			
10 th			
11 th			
12 th			
13 th			
14 th			
15 th			

Daily

Daily

Day	Chlorine Residual (in mg/L) at Point of Application	Chlorine Residual (in mg/L) in Distribution System	Notes or Comments
16 th			
17 th			
18 th			
19 th			
20 th			
21 st			
22 nd			
23 rd			
24 th			
25 th			
26 th			
27 th			
28 th			
29 th			
30 th			
31 st			

*Remember to photocopy the log card for future use before filling it out.

Daily

Daily

Daily Chemical Feed Pump Log Card*

Month of _____

Day	Concentration of Chemical Solution	Volume of Solution Pumped	Volume of Water Treated	Calculated Dosage (mg/L)
31 st				
30 th				
29 th				
28 th				
27 th				
26 th				
25 th				
24 th				
23 rd				
22 nd				
21 st				
20 th				
19 th				
18 th				
17 th				

Daily

Daily

Day	Concentration of Chemical Solution	Volume of Solution Pumped	Volume of Water Treated	Calculated Dosage (mg/L)
16 th				
15 th				
14 th				
13 th				
12 th				
11 th				
10 th				
9 th				
8 th				
7 th				
6 th				
5 th				
4 th				
3 rd				
2 nd				
1 st				

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Daily

Daily

Daily Booster Pump Log Card*

Month of _____

Day	Are Pump Operating Times Equalized?	Meter Readings	Pressure Gauge Readings	
			Suction Side	Discharge Side
1 st	Yes/No			
2 nd	Yes/No			
3 rd	Yes/No			
4 th	Yes/No			
5 th	Yes/No			
6 th	Yes/No			
7 th	Yes/No			
8 th	Yes/No			
9 th	Yes/No			
10 th	Yes/No			
11 th	Yes/No			
12 th	Yes/No			
13 th	Yes/No			
14 th	Yes/No			
15 th	Yes/No			

Daily

Daily

Day	Are Pump Operating Times Equalized?	Meter Readings	Pressure Gauge Readings	
			Suction Side	Discharge Side
16 th	Yes/No			
17 th	Yes/No			
18 th	Yes/No			
19 th	Yes/No			
20 th	Yes/No			
21 st	Yes/No			
22 nd	Yes/No			
23 rd	Yes/No			
24 th	Yes/No			
25 th	Yes/No			
26 th	Yes/No			
27 th	Yes/No			
28 th	Yes/No			
29 th	Yes/No			
30 th	Yes/No			
31 st	Yes/No			

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Daily

Daily

Daily Fluoride Concentration Log Card*

Month of _____

Predetermined Concentration _____

Day	Fluoride Concentration in Distribution System	Adjustment Needed +/-	Notes or Comments
1 st			
2 nd			
3 rd			
4 th			
5 th			
6 th			
7 th			
8 th			
9 th			
10 th			
11 th			
12 th			
13 th			
14 th			
15 th			

Daily

Daily

Day	Fluoride Concentration in Distribution System	Adjustment Needed +/-	Notes or Comments
16 th			
17 th			
18 th			
19 th			
20 th			
21 st			
22 nd			
23 rd			
24 th			
25 th			
26 th			
27 th			
28 th			
29 th			
30 th			
31 st			

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Daily

Daily

Daily Well Pump Log Card*
Month of _____

Date	Running Time (in Hrs.)	Number of Cycle Starts	Notes or Comments
1 st			
2 nd			
3 rd			
4 th			
5 th			
6 th			
7 th			
8 th			
9 th			
10 th			
11 th			
12 th			
13 th			
14 th			
15 th			

Daily

Daily

Date	Running Time (in Hrs.)	Number of Cycle Starts	Notes or Comments
16 th			
17 th			
18 th			
19 th			
20 th			
21 st			
22 nd			
23 rd			
24 th			
25 th			
26 th			
27 th			
28 th			
29 th			
30 th			
31 st			

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Daily

Daily

Customer Complaint Log Card*

Date	Questions, Concerns, or Potential Problems	Customer Name and Information	Action Taken
	1.		
	2.		

Daily

Daily

Date	Questions, Concerns, or Potential Problems	Customer Name and Information	Action Taken
	3.		
	4.		

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Daily

Other Notes and Comments

Daily

Daily

Other Notes and Comments

Daily

Weekly

Weekly

Recommended Weekly Operational Duties

- ' **Inspect chlorine and fluoride testing equipment.**
- ' **Clean pump house and grounds.**
- ' **Make sure fire hydrants are accessible.**
- ' **Record pumping rate for each well or source water pump.**
- ' ***Inspect all pump house plumbing for leaks.***

Weekly

Weekly

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Weekly

Weekly

Weekly Chemical Equipment Testing Log Card
Month of _____

Week (Date)	Is Equipment Calibrated Properly?	Are Reagents Clearly Marked and Safely Stored?	Are Reagents Expired?	Notes or Comments
1st	Yes/No	Yes/No	Yes/No	
2nd	Yes/No	Yes/No	Yes/No	
3rd	Yes/No	Yes/No	Yes/No	
4th	Yes/No	Yes/No	Yes/No	
5th	Yes/No	Yes/No	Yes/No	

Weekly

Weekly

Weekly Chemical Equipment Testing Log Card*

Month of _____

Week (Date)	Is Equipment Calibrated Properly?	Are Reagents Clearly Marked and Safely Stored?	Are Reagents Expired?	Notes or Comments
1 st	Yes/No	Yes/No	Yes/No	
2 nd	Yes/No	Yes/No	Yes/No	
3 rd	Yes/No	Yes/No	Yes/No	
4 th	Yes/No	Yes/No	Yes/No	
5 th	Yes/No	Yes/No	Yes/No	

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Weekly

Weekly

Weekly Cleanliness Log Card
Month _____

Week (Date)	Are Pump house and Grounds Clean?	Are Fire Hydrants Accessible?	Notes or Comments
1st _____	Yes/No	Yes/No	
2nd	Yes/No	Yes/No	
3rd	Yes/No	Yes/No	
4th	Yes/No	Yes/No	
5th	Yes/No	Yes/No	

Weekly

Weekly

Weekly Cleanliness Log Card*

Month _____

Week (Date)	Are Pump house and Grounds Clean?	Are Fire Hydrants Accessible?	
1 st _____	Yes/No	Yes/No	
2 nd	Yes/No	Yes/No	
3 rd	Yes/No	Yes/No	
4 th	Yes/No	Yes/No	
5 th	Yes/No	Yes/No	

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Weekly

Weekly

Weekly Pumping Rate Log Card
Month _____

Week (Date)	Pumping Rate/Flow	Notes or Comments
1 st _____		
2 nd		
3 rd		
4 th		
5 th		

Weekly

Weekly

Weekly Pumping Rate Log Card*
Month _____

Week (Date)	Pumping Rate/Flow	Notes or Comments
1 st _____		
2 nd		
3 rd		
4 th		
5 th		

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Weekly

Other Notes and Comments

Weekly

Weekly

Other Notes and Comments

Weekly

Monthly

Monthly

Recommended Monthly Operational Duties

- ' **Read electric meter at pump house and record.**
- ' **Take appropriate monthly water quality samples.**
- ' **Check and record static and pumping levels of each well.**
- ' ***Inspect well heads.***
- ' ***Inspect and lubricate locks.***
- ' ***Check on-site readings against lab results.***

Monthly

Monthly

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Monthly

Monthly

Monthly Electric Meter Log Card*

Month (Date)	Electric Meter Reading	Monthly Water Production (if pumping is major use of energy)	Notes or Comments
Jan. _____			
Feb. _____			
March _____			
April _____			
May _____			
June _____			

Monthly

Monthly

Month (Date)	Electric Meter Reading	Monthly Water Production (if pumping is major use of energy)	Notes or Comments
July _____			
Aug. _____			
Sept. _____			
Oct. _____			
Nov. _____			
Dec. _____			

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Monthly

Monthly

Monthly Sampling Log Card*

Month	Take Coliform Sample (U)	Take Other Samples (U)	Notes or Comments
Jan.			
Feb.			
March			
April			
May			
June			
July			
Aug.			
Sept.			
Oct.			
Nov.			
Dec.			

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Monthly

Monthly

Month	Take Coliform Sample (U)	Take Other Samples (U)	Notes or Comments
Jan.			
Feb.			
March			
April			
May			
June			
July			
Aug.			
Sept.			
Oct.			
Nov.			
Dec.			

Monthly

Monthly

Monthly Static (S) and Pumping (P) Level Log Card*

Month (Date)	S & P Level (in ft) Well # ____	S & P Level (in ft) Well # ____	Notes or Comments
Jan. _____	S:	S:	
Feb. _____	P:	P:	
March _____	S:	S:	
April _____	P:	P:	
May _____	S:	S:	
June _____	P:	P:	

Monthly

Monthly

Month (Date)	S & P Level (in ft) Well #_____	S & P Level (in ft) Well #_____	Notes or Comments
July _____	S:	S:	
Aug. _____	P:	P:	
Sept. _____	S:	S:	
Oct. _____	P:	P:	
Nov. _____	S:	S:	
Dec. _____	P:	P:	

*Remember to photocopy the log card for future use, and if you have more than two wells, before filling it out.

Monthly

Other Notes and Comments

Monthly

Monthly

Other Notes and Comments

Monthly

Recommended January Operational Duties

- ' **Overhaul chemical feed pumps (O rings, check valves, and diaphragm).**
- ' **Inspect and clean chemical feed lines and solution tanks.**
- ' **Calibrate chemical feed pumps after overhaul.**

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January Task Log Card*

Task	Date Completed	Notes or Comments
Overhaul chemical feed pumps:		
Feeder head cleaned.		
O rings and valves checked for wear.		
Worn out parts replaced.		
Inspect and clean:		
Chemical feed lines.		
Solution tanks.		
Calibrate chemical feed pumps after overhaul.		

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Other Notes or Comments

Recommended February Operational Duties

- ' Inspect chemical safety equipment and repair or replace as needed.**
- ' Operate all gate valves inside the treatment plant and pump house.**

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February Task Log Card*

Task	Date Completed	Number & Direction of Turns	Notes or Comments
Check chemical safety equipment and repair or replace as needed.		Not Applicable	
Operate all gate valves inside the treatment plant and pump house.			

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Other Notes or Comments

Recommended March Operational Duties

- ' **Inspect, clean, and repair control panel in pump house and treatment plant.**
- ' **Exercise half of all mainline gate valves.**

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March Task Log Card*

Task	Date Completed	Valves Exercised	Number of Failures	Date Scheduled for Repair	Number and Direction of Turns to Close
Inspect, clean, and repair control panel in pump house and treatment plant.		Not Applicable	Not Applicable		Not Applicable
Exercise half of all mainline gate valves.					

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Other Notes or Comments

Recommended April Operational Duties

- ' Flush the distribution system and exercise/check all fire hydrant gate valves.**
- ' Inspect and clean chemical feed lines and solution tanks.**
- ' Calibrate chemical feed pumps.**
- ' Inspect fencing and gates.**

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April Task Log Card*

Task	Date Completed	Notes or Comments
Flush the distribution system.		
Exercise/check all fire hydrant gate valves.		
Inspect and clean:		
Chemical feed lines.		
Solution tanks.		
Calibrate chemical feed pumps.		
Inspect fencing and gates.		

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Other Notes or Comments

Recommended May Operational Duties

- ' **Inspect storage tanks for defects and sanitary deficiencies.**
- ' **Clean storage tanks if necessary.**

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May Task Log*

Task	Date Completed	Notes or Comments
Inspect Storage Tank # _____		
Check vents and screens.		
Check for overflows.		
Check water level measuring devices.		
Check hatch seals/locks.		
Check for deterioration.		
Inspect Storage Tank # _____		
Check vents and screens.		
Check for overflows.		
Check water level measuring devices.		
Check hatch seals/locks.		
Check for deterioration.		
Clean Storage Tanks.		

*Remember to photocopy the log card for future use, and if you have more than two tanks, before filling it out.

Other Notes or Comments

Recommended June Operational Duties

- ' **Perform preventative maintenance on treatment plant and pump house buildings.**

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June Task Log Card*

Task	Date Completed	Notes or Comments
Paint the:		
Plant piping.		
Buildings.		
Tanks.		
Safely store the:		
Pipes.		
Plumbing fittings.		
Tools.		
Unblock pump house ventilation.		
Check fan operation.		

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Other Notes or Comments

Recommended July Operational Duties

- ' **Inspect and clean chemical feed lines and solution tanks.**
- ' **Calibrate chemical feed pumps.**

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July Task Log Card*

Task	Date Completed	Notes or Comments
Inspect and clean:		
Chemical feed lines.		
Solution tanks.		
Calibrate chemical feed pumps.		

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Other Notes or Comments

Recommended August Operational Duties

- ' **Operate all gate valves inside the treatment plant and pump house.**

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August Task Log Card*

Task	Date Completed	Number & Direction of Turns	Notes or Comments
Operate all gate valves inside the treatment plant and pump house.			

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Other Notes or Comments

Recommended September Operational Tasks

- ' **Exercise mainline gate valves that were not exercised in March.**
- ' **Prepare system for winter operation.**
This task may be postponed until October or November, based on local conditions.

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September Task Log Card*

Task	Date Completed	Valves Exercised	Number of Failures	Date Scheduled for Repair	Direction and Number of Turns to Close
Exercise mainline gate valves that were not exercised in March.					
Prepare System for Winter Operation					
Task	Date Completed	Notes or Comments			
Check that all exposed facilities are properly insulated.					
Check that all heaters are operable.					
Check that all vents are closed.					

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Other Notes or Comments

Recommended October Operational Tasks

- ' Inspect and clean chemical feed lines and solution tanks.**
- ' Calibrate chemical feed pumps.**
- ' Inspect fencing and gates.**

This side left intentionally blank.

October Task Log Card*

Task	Date Completed	Notes or Comments
Inspect and clean:		
Chemical feed lines.		
Solution tanks.		
Calibrate chemical feed pumps.		
Inspect fencing and gates.		

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Other Notes or Comments

Recommended November Operational Tasks

- ' **Prepare system for winter operation if not completed in September or October.**

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November Task Log Card*

Prepare System for Winter Operation		
Task	Date Completed	Notes or Comments
Check that all exposed facilities are properly insulated.		
Check that all heaters are operable.		
Check that all vents are closed.		

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Other Notes or Comments

Recommended December Operational Tasks

- ' Contact an electrician to check running amps on well pumps.**

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December Task Log Card*

Task	Date Completed	Notes or Comments
Contact an electrician to check running amps on well pumps.		

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Other Notes or Comments

Follow-Up Log Card*

Questions, Concerns, or Potential Problems	Date	Action Plan

Questions, Concerns, or Potential Problems	Date	Action Plan

***Remember to photocopy the log card for future use before filling it out.**