



**Title:** Preventive Maintenance of Distilled Water Plant (WFI- Plant)

<b>SOP No.:</b>		<b>Revision No.:</b>	00
<b>Effective Date:</b>		<b>Supersedes No.</b>	Nil
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## 1.0 Objective

- 1.1 The Objective of this SOP is to describe the procedure for preventive maintenance of preventive maintenance of Distilled Water Plant (WFI- Plant).

## 2.0 Scope

- 2.1 This SOP is applicable for the preventive maintenance of Distilled Water Plant (WFI- Plant).  
Installed in Utility block of .....

## 3.0 RESPONSIBILITY:

- 3.1 The Maintenance Operator shall be responsible:
- 3.1.1 To carry out preventive maintenance of equipment.
  - 3.1.2 To report any deviation and/or deficiency observed during preventive maintenance.
  - 3.1.3 To maintain the record of all checks.
- 3.2 The Maintenance Engineer shall be responsible:
- 3.2.1 To get the preventive maintenance done as per annual maintenance planner.
  - 3.2.2 To check the preventive maintenance activity is carried out and deviations and/or Deficiencies are complied as per requirement.

## 4.0 ACCOUNTABILITY:

Head –Engineering Services

## 5.0 PROCEDURE:

### 5.1 CAUTION:

- I) Before carrying out preventive maintenance, switch 'off' the mains, remove Fuses and display the 'Under Maintenance' board.



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## 5.2 MONTHLY PREVENTIVE MAINTENANCE ACTIVITIES:

- I) Check the operation of feed water pump for leakage, abnormal noise and vibrations. Rectify it, if required.
- II) Check the operation of cooling water pump for leakage, abnormal noise and vibrations. Rectify it, if required.
- III) Check the operation of steam inlet valve for any leakage. Rectify it, if required.
- IV) Check all the pneumatic actuator for operation and air leakage. Rectify it, if required.
- V) Check all the sight glass for any leakage. Rectify it, if required.
- VI) Check the operation of data logger, if applicable. Rectify it, if required.
- VII) Check all the electrical connections for tightness and damage. Rectify it, if required.
- VIII) Take a running trial and check for any abnormal noise and vibrations. Rectify it, if required.
- IX) Maintain the record of all checks in checklist. (Annexure-1)

## 5.3 QUARTERLY PREVENTIVE MAINTENANCE ACTIVITIES:

- I) Check the connections of conductivity meter. Rectify it, if required.
- II) Check the connections of pressure switch. Rectify it, if required.
- III) Check the connections of flow meter. Rectify it, if required.
- IV) Check the connections of temperature indicator. Rectify it, if required.
- V) Check the connections of level controller. Rectify it, if required.
- VI) Check all the electrical connections of water pumps for tightness and damage. Rectify it, if required.
- VII) Take a running trial and check for any abnormal noise and vibrations. Rectify it, if required.



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**VIII)** Maintain the record of all checks in checklist. (Annexure-2)

#### **5.4 SIX MONTHLY PREVENTIVE MAINTENANCE ACTIVITIES:**

**I)** Check all the utility line connection for any leakage. Rectify it, if required.

**II)** Check the water distribution loop for any gasket damage and leakage. Rectify it, if required.

**III)** Check the heat exchanger and column for formation of scale. De-scale it, using Sulfuric acid if required.

**IV)** Check the operation of online printer. Rectify it, if required.

**V)** Take a running trial and check for any abnormal noise and vibrations. Rectify it, if required.

**VI)** Maintain the record of all checks in checklist. (Annexure-3)

#### **5.5 YEARLY PREVENTIVE MAINTENANCE ACTIVITIES:**

**I)** Check the storage tanks for proper mechanical condition. Rectify it, if required.

**II)** Check all air vent filter of water storage tank for integrity. Replace it, if required.

**III)** Maintain the record of all checks in checklist. (Annexure-4)

#### **6.0 ANNEXURES:**

Annexure-1 : Monthly Preventive Maintenance Checklist for WFI- Plant.

Annexure-2 : Quarterly Preventive Maintenance Checklist for WFI- Plant.

Annexure-3 : Six Monthly Preventive Maintenance Checklist for WFI- Plant.

Annexure-4 : Yearly Preventive Maintenance Checklist for WFI- Plant.

#### **7.0 References (S)**

Nil



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## 8.0 Glossary

SOP : Standard Operating procedure

No : Number



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**ANNEXURE-01**

<b>EQUIPMENT CODE:</b>	<b>LOCATION:</b>	<b>MONTH:</b>
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S.No.	DESCRIPTION	OBSERVATIONS/ REMARKS
1.	Check the operation of feed water pump for leakage, abnormal noise and vibrations. Rectify it, if required.	
2.	Check the operation of cooling water pump for leakage, abnormal noise and vibrations. Rectify it, if required.	
3.	Check the operation of steam inlet valve for any leakage. Rectify it, if required.	
4.	Check all the pneumatic actuator for operation and air leakage. Rectify it, if required.	
5.	Check all the sight glass for any leakage. Rectify it, if required.	
6.	Check the operation of data logger, if applicable. Rectify it, if required.	
7.	Check all the electrical connections for tightness and damage. Rectify it, if required.	
8.	Take a running trial and check for any abnormal noise and vibrations. Rectify it, if required.	

<b>Done by:</b> <b>(Operator)</b>		<b>Done on:</b>	
<b>Checked by:</b> <b>(Engineer)</b>		<b>Next due on:</b>	
<b>Verified by:</b> <b>(Concerned Department)</b>			

**FREQUENCY:** Monthly Preventive Maintenance

**CAUTION:** Before Carrying Out Preventive Maintenance, Switch Off The Mains, Remove Fuse And Display The Under Maintenance Board.



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**ANNEXURE-02**

<b>EQUIPMENT CODE:</b>	<b>LOCATION:</b>	<b>MONTH:</b>
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<b>S.No.</b>	<b>DESCRIPTION</b>	<b>OBSERVATIONS/ REMARKS</b>
01.	Check the operation and connections of conductivity meter. Rectify it, if required.	
02.	Check the operation and connections of pressure switch. Rectify it, if required.	
03.	Check the operation and connections of flow meter. Rectify it, if required.	
04.	Check the operation and connections of temperature indicator. Rectify it, if required.	
05.	Check the operation and connections of level controller. Rectify it, if required.	
06.	Check all the electrical connections of water pumps for tightness and damage. Rectify it, if required.	
07.	Take a running trial and check for any abnormal noise and vibrations. Rectify it, if required.	

<b>Done by:</b> <b>(Operator)</b>		<b>Done on:</b>	
<b>Checked by:</b> <b>(Engineer)</b>		<b>Next due on:</b>	
<b>Verified by:</b> <b>(Concerned Department)</b>			

**FREQUENCY:** Quarterly Preventive Maintenance

**CAUTION:** Before Carrying Out Preventive Maintenance, Switch Off The Mains, Remove Fuse And Display The Under Maintenance Board.



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### ANNEXURE-03

<b>EQUIPMENT CODE:</b>	<b>LOCATION:</b>	<b>MONTH:</b>
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S.No.	DESCRIPTION	OBSERVATIONS/ REMARKS
1.	Check all the utility line connection for any leakage. Rectify it, if required.	
2.	Check the water distribution loop for any gasket damage and leakage.. Rectify it, if required.	
3.	Check the heat exchanger and column for formation of scale. De-scale it, using Sulfuric acid, if required.	
4.	Check the operation of online printer. Rectify it, if required.	
5.	Take a running trial and check for any abnormal noise and vibrations. Rectify it, if required.	

<b>Done by:</b> <b>(Operator)</b>		<b>Done on:</b>	
<b>Checked by:</b> <b>(Engineer)</b>		<b>Next due on:</b>	
<b>Verified by:</b> <b>(Concerned Department)</b>			

**FREQUENCY:** Six Monthly Preventive Maintenance

**CAUTION:** Before Carrying Out Preventive Maintenance, Switch Off The Mains, Remove Fuse And Display The Under Maintenance Board.



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**ANNEXURE-04**

<b>EQUIPMENT CODE:</b>	<b>LOCATION:</b>	<b>MONTH:</b>
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S.No.	DESCRIPTION	OBSERVATIONS/ REMARKS
01.	Check the storage tanks for proper mechanical condition. Rectify it, if required.	
02.	Check all air vent filter of water storage tank for integrity. Replace it, if required.	

<b>Done by:</b> (Operator)		<b>Done on:</b>	
<b>Checked by:</b> (Engineer)		<b>Next due on:</b>	
<b>Verified by:</b> (Concerned Department)			

**FREQUENCY:** Yearly Preventive Maintenance

**CAUTION:** Before Carrying Out Preventive Maintenance, Switch Off The Mains, Remove Fuse And Display The Under Maintenance Board.