



STANDARD OPERATING PROCEDURE

Department: Engineering

Title: Regeneration of Softener

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1.0 OBJECTIVE:

To lay down a procedure for regeneration of softeners.

2.0 SCOPE:

This SOP is applicable for regeneration of softener I and II in purified water generation and distribution system.

3.0 RESPONSIBILITY:

Officer / Executive – Engineering

4.0 ACCOUNTABILITY:

Head – Engineering

5.0 PROCEDURE:

5.1 Regeneration of Softener I and II shall be carried in Auto or Manual.

5.2 Output between Regeneration of each Softener is 60,000 ltrs.i.e Softer shall require to regenerate in Auto mode at every 60,000 ltrs of output.

5.3 Select the Auto Mode from Auto/ Manual switch from control panel.

5.4 Ensure the Compressed Air Pressure is NLT 6 kg/cm²

5.5 Ensure the MGF shall be in normal operational mode.

5.6 Take 230 liters of raw water in regeneration tank and add 72 kg. of Sodium Chloride (NaCl).

5.7 Dissolve the Sodium Chloride (NaCl) with Purging of the Compressed Air.

5.8 For Regeneration of Softener - I, Connect the Suction valve AV 105 of softener with generation tank having Sodium Chloride Solution.

5.9 For Regeneration of Softener - II, Connect the Suction valve AV 111 of softener with generation tank having Sodium Chloride Solution.

5.10 In Auto mode, Alarm shall pop up on the HMI screen for the regeneration of Softener once the OBR of softer shall gets laps up. After acknowledgement of alarm,

5.11 Maintain the feed water pressure between 2- 2.5 kg/cm² by manual operated ball valves of the respective pump which is presently in operational mode.



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- 5.12 Once the Regeneration of Softener gets completed, rising of softener starts, once the time of rising gets laps, Softener is ready to deliver soft water.
- 5.13 Regeneration of softener shall be done in Manual Mode also.
- 5.14 Stop the AUTO mode of Pre treatment form the Control Panel.
- 5.15 Press the Manual icon in HMI and put the system in Manual mode.
- 5.16 Select the Auto / Manual switch in Manual Mode.
- 5.17 Take 230 liters of raw water in regeneration tank and add 72 kg. of Sodium Chloride (NaCl).
- 5.18 Dissolve the Sodium Chloride (NaCl) with Purging of the Compressed Air.
- 5.19 For Regeneration of Softener - I, Connect the Suction valve AV 105 of softener with generation tank having Sodium Chloride Solution.
- 5.20 Open the pneumatic valves AV 105, AV 106 and AV 107 manually from the control panel.
- 5.21 Manually switch ON the feed pump and maintain the feed water pressure between 2- 2.5 kg/cm² by manual operated ball valves of the respective pump which is presently in operational mode.
- 5.22 Once the ejection of salt gets over close the pneumatic valve AV 105, let the system run as it is for nearly 10 minutes. This mode is of Back Wash Mode.
- 5.23 Ejection of salts gets completed in nearly 30-35 minutes.
- 5.24 Disconnect the Generation tank from Pneumatic valve AV 105.
- 5.25 After 10 Minutes of Back Wash switch OFF the feed pump and all pneumatic valves.
- 5.26 For Rising of Softener I switch ON the pneumatic valves AV 103 and AV 108 from control panel.
- 5.27 Switch ON the feed pump and Manually switch ON the feed pump and Maintain the feed water pressure between 2- 2.5 kg/cm² by manual operated ball valves of the respective pump which is presently in operational mode.
- 5.28 Rising of Softener shall be completed in nearly 15-20 minutes.
- 5.29 Once the rising completed softer is ready to deliver soft water. Put the Softener in Normal operational mode by switching on the pneumatic control valves AV 103 and AV 104 and remaining valves should be in OFF condition.



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- 5.30** For Regeneration of Softener - 2, Connect the Suction valve AV 111 of softener with generation tank having Sodium Chloride Solution.
- 5.31** Open the pneumatic valves AV 102, AV 111, AV 112 and AV 113 manually from the control panel.
- 5.32** Manually switch ON the feed pump and maintain the feed water pressure between 2- 2.5 kg/cm² by manual operated ball valves of the respective pump which is presently in operational mode.
- 5.33** Once the ejection of salt gets over close the pneumatic valve AV 105, let the system run as it is for nearly 10 minutes. This mode is of Back Wash Mode.
- 5.34** Ejection of salts gets completed in nearly 30-35 minutes.
- 5.35** Disconnect the Generation tank from Pneumatic valve AV 111
- 5.36** After 10 Minutes of Back Wash switch OFF the feed pump and all pneumatic valves.
- 5.37** For Rising of Softener II switch ON the pneumatic valves AV 102, AV 109 and AV 114 from control panel.
- 5.38** Switch ON the feed pump and Manually switch ON the feed pump and Maintain the feed water pressure between 2- 2.5 kg/cm² by manual operated ball valves of the respective pump which is presently in operational mode.
- 5.39** Rising of Softener shall be completed in nearly 15-20 minutes.
- 5.40** Once the rising completed softer is ready to deliver soft water. Put the Softener in Normal operational mode by switching on the pneumatic control valves AV 102, AV109 and AV 110 and remaining valves should be in OFF condition.
- 5.41** Send the sample of water to QC for Hardness.
- 5.42** Limit of hardness shall not more than 5 PPM.
- 5.43** Record the data as per Annexure-I.
- 6.0 REFERENCES:**
Not applicable
- 7.0 ANNEXURES:**



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ANNEXURES No.	TITLE OF ANNEXURE	FORMAT No.
Annexure-I	Regeneration of Softener Log.	

ENCLOSURES: SOP training record

8.0 DISTRIBUTION:

- Controlled Copy No. 01 Head Corporate Quality Assurance
- Controlled Copy No. 02 Head Engineering
- Master Copy Quality Assurance Department

9.0 ABBREVIATIONS:

SOP	Standard Operating Procedure
QA	Quality Assurance
QC	Quality Control
CQA	Corporate Quality Assurance
AV	Actuated Valve
NLT	Note Less Than
PPM	Parts Per Million
NaCl	Sodium Chloride
HMI	Human Machine Interface
Kg	Kilogram
Cm	Centimeter

10.0 REVISION HISTORY:

CHANGE HISTORY LOG

Revision No.	Details of Changes	Reason for Change	Effective Date	Updated By
00	New SOP	Nil	Nil	Nil

