Improvement of Water Distillation Plant by Using Statistical Process Control System

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Abstract : Water supply and sanitation in Saudi Arabia is portrayed by difficulties and accomplishments. One of the fundamental difficulties is water shortage. With a specific end goal to beat water shortage, significant ventures have been attempted in sea water desalination, water circulation, sewerage, and wastewater treatment. The motivation behind Statistical Process Control (SPC) is to decide whether the execution of a procedure is keeping up an acceptable quality level [AQL]. SPC is an analytical decision-making method. A fundamental apparatus in the SPC is the Control Charts, which follow the inconstancy in the estimations of the item quality attributes. By utilizing the suitable outline, administration can decide whether changes should be made with a specific end goal to keep the procedure in charge. The two most important quality factors in the distilled water which were taken into consideration were pH (Potential of Hydrogen) and TDS (Total Dissolved Solids). There were three stages at which the quality checks were done. The stages were as follows: (1) Water at the source, (2) water after chemical treatment & (3) water which is sent for packing. The upper specification limit, central limit and lower specification limit are taken as per Saudi water standards. The procedure capacity to accomplish the particulars set for the quality attributes of Berain water Factory chose to be focused by the proposed SPC system.

Keywords : acceptable quality level, statistical quality control, control charts, process charts