

STATISTICAL PROCESS CONTROL (SPC)

Guidance: A applies when SQ65 is required on the Customer PO.

- A. The use of Statistical Process Control (SPC) is a requirement of this order. The supplier **shall** submit a Statistical Process Control plan containing the following elements/sections:
1. Policy – Description of supplier’s SPC policy for SPC and SPC goals.
 2. Applicable Documents – Reference documents used to create the supplier’s SPC program.
 3. SPC Management Structure – Identity and relationships of departments involved in the SPC program.
 4. SPC Personnel – Listing of job titles/key personnel responsible for the specific SPC activities (application, inspection, audit, corrective action, etc.).
 5. SPC Training – Listing of: positions requiring training, position performing training, type of training required and necessary qualifications.
 6. Manufacturing Controls – SPC capability study requirements. Applicable gage repeatability and reproducibility studies. Rules for when these studies are required.
 7. Determination of SPC Use – How appropriate SPC controls are determined and controls for key or critical processes that are deemed not appropriate for SPC control.
 8. Locating Strategy – Identify how product locating is consistently used throughout production and product validation.
 9. Process Stability and Capability Criteria – Process capability studies and when applied. How capability index is calculated and frequency.
 10. Process Stability and Capability Action and Analysis – Actions taken as result of capability studies and if sub-optimal or marginal process are identified. Northrop Grumman requires minimum capability ratio (Cpk) of 1.33 for major and special characteristics and 2.0 for critical characteristics.
 11. Control Chart Policy – Types of charts, criteria for sampling, procedures for control limits.
 12. Vendor/Subcontractor Purchase Controls – Supplier requirements for SPC.
 13. Determination of Adequacy of Supplier Controls – methods utilized to determine that suppliers have adequate controls.
 14. SPC Audit System – Description of the supplier’s SPC Audit System.

15. SPC Records – Identify various records to be used in support of SPC and describe their use.
16. SPC Detailed Plans – Describe control of specific manufacturing process/operation parameters or characteristics. Northrop Grumman form QA-F052 may be used to facilitate this planning.

If SPC is not used for required critical, major, or special characteristics, the supplier **shall** identify those characteristics and the alternate method of control in the Process Control Document (PCD) and detail plan.

The supplier **shall** not submit SPC data with this order unless specifically requested to do so in the PO or agreed upon SPC Plan.

NGDS reserves the right to monitor the supplier's SPC program/performance at the supplier's facility via surveillance or audit for those processes or characteristics controlled by SPC.