

Using Sampling Techniques and CGI Surveys

**NRC Workshop – Vendor
Oversight for New Reactor
Construction**

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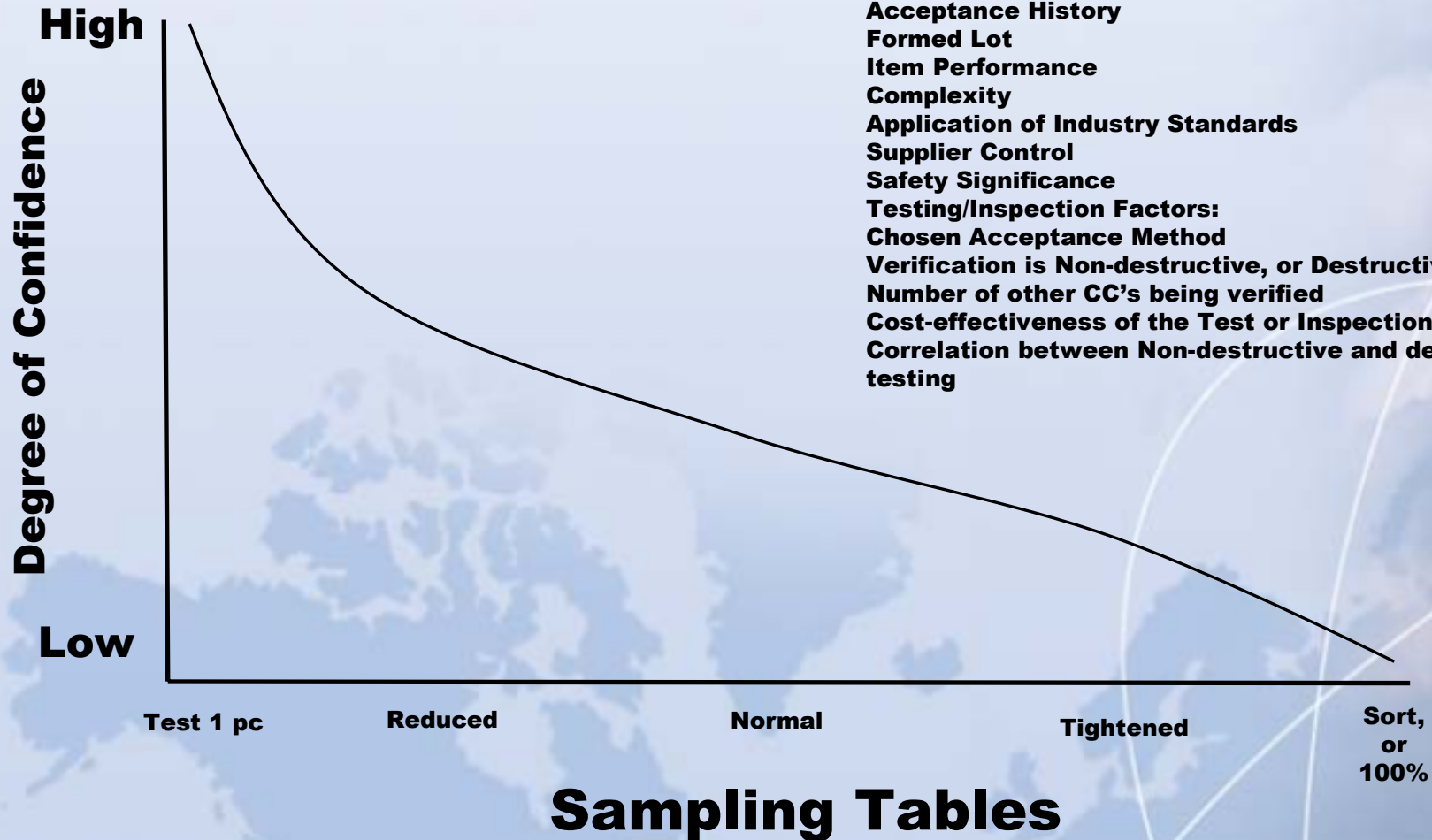
Basis for Enertech's Sampling Program

- EPRI 017218-R1, Guideline for Sampling in the Commercial Grade Item Acceptance Process
- EPRI NP-5652, Guideline for Utilization of Commercial Grade Items in Nuclear Safety Related Applications
- EPRI TR 102260, Supplemental Guidance for the Application of EPRI NP-5652
- USNRC GL 89-02, Actions to Improve the Detection of Counterfeit and Fraudulently Marketed Products

SAMPLING

- Engineering Evaluation documents the logic used for Sample Plan Size based on Confidence Level of the Lot
- Lot confidence is established by evaluating the applicable Selection Plan factors and the type of test, Non-destructive verses Destructive

Lot Homogeneity



Sampling Plan Selection Factors

Product/Supplier Factors:

- Acceptance History
- Formed Lot
- Item Performance
- Complexity
- Application of Industry Standards
- Supplier Control
- Safety Significance

Testing/Inspection Factors:

- Chosen Acceptance Method
- Verification is Non-destructive, or Destructive
- Number of other CC's being verified
- Cost-effectiveness of the Test or Inspection
- Correlation between Non-destructive and destructive testing

Implementation

Sample – Cartridge Valve

- Listed CC for Sampling Inspection
 - Material Positive Material Identification (PMI):
Disassemble 1 pc and X-Ray Fluorescence test (XRF)
 - Dimensions: Normal Table
 - Weight: Reduced Table
- Listed CC for 100% Inspection
 - Part Number
 - Configuration
 - Damage
 - Functional Test

Implementation

Sample – Pump wear ring

- Listed CC for Sampling Inspection
 - Material Positive Material Identification (PMI)
 - CGD Survey: CC is Material Control (marking & Traceability)
 - Supplier provides a Mill Test Report (Homogeneous lot)
 - Dimensions: Normal Table
 - Lot is the same Production run, same PO Line item, simple part
 - CGD Survey: CC Machining Services
- Listed CC for 100% Inspection
 - Part Number
 - Configuration (Threads, undercuts, keyways)
 - Damage

Re-Train Your Brain

- A CGD Survey is not an Audit !
 - A CGD Survey focuses **WHAT** the suppliers does to control a critical characteristic under consideration for EPRI Method 2 Acceptance Credit, and assure those controls are satisfactorily implemented. Engineering, if not part of the CGD Survey Team, perform an Evaluation of the survey results for acceptability.
 - The goal of the CGD Survey is to support the Engineering Dedication Plan

Enertech Dedication Plan using Method 2

Item : Pump Shaft

Selected CC: Material is 300 Series Stainless
Sample Plan is (test 1) by XRF, CG Survey for
Material Control, verify heat numbers on all other
shafts (Full Confidence Homogeneous lot), Review
provided CMTR.

Item: Pump Bowl Assembly

Selected CC: Test Control of the Performance test
Acceptance Method is: CG Survey and review of
provided test records

Supplier CGD Survey Process

- Develop a CGD Survey Plan, obtain Engineering approval
- Develop a worksheet
- Perform the Survey and complete the Checklist questions
- Perform adequacy Technical Evaluation by Engineering

CGD Survey Worksheet

- Reference to Technical Evaluation and states the Scope of the Commodity / Service
- Defines the Critical Characteristic listed on the Dedication Plan to be evaluated.
- Defines the Acceptance Criteria of the CC
- Reference to the applicable supporting question in the checklist.

Technical Evaluation of the Survey

- Three questions to establish CC Adequacy
 - Evaluate applicable design controls
 - Evaluate applicable manufacturing controls
 - Evaluate applicable quality system controls
- If Adequacy is established, the supplier is added to our ASL.

Lessons Learned

- Engineering must document justifications and rationale for selecting Sampling Plan.
- Train to both Industry guidelines and Procedures for implementing Sampling & CGD Surveys.
- Method 2 Surveys need to link to the Dedication Plan Critical Characteristic