



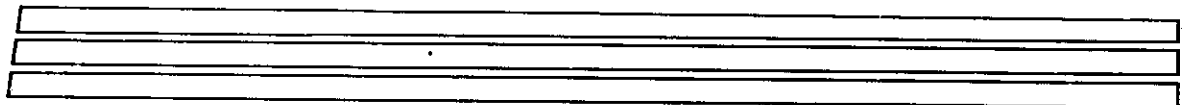
DEPT. OF NUCLEAR TECHNOLOGY
CHULALONGKORN UNIVERSITY

Presentation - 6

“ QUALITY in PROCUREMENT “

George Wieckowski
Operations Quality Corp.

Nov. 1996





OBJECTIVES of PRESENTATION

In this presentation, the following topics will be discussed :

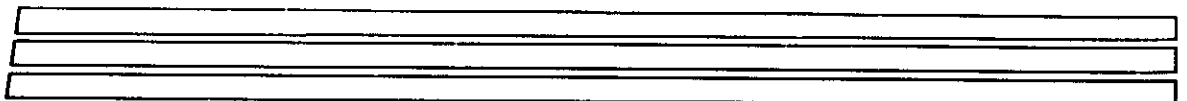
- ◆ **Planning for quality**
 - **organizing for supplier relations**
 - **supplier relations**
 - **quality planning**

- ◆ **Achieving quality**
 - **joint quality planning**
 - **supplier selection and certification**
 - **improvement of supplier quality**

- ◆ **Controlling quality**
 - **evaluation of performance**
 - **supplier quality rating**

- ◆ **Material management considerations**

- ◆ **Quality Program**





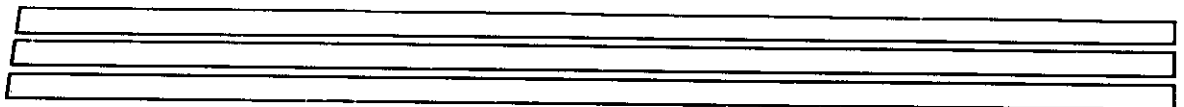
CHARACTERISTICS of
MASS and LEAN PRODUCTION

Mass production :

- vertically integrated, centrally controlled
- components purchased on price, short term contracts
- large inventory of parts
- adversarial relationship with suppliers

Lean production :

- cooperative, long-term relationship with suppliers
- sharing of information and personnel
- long-term contracts, based on quality, delivery, cost, service
- suppliers involved in product planning and development
- suppliers organized into functional tiers
- no inventory - “just in time” delivery



SUPPLIER RELATIONS QUALITY POLICY -

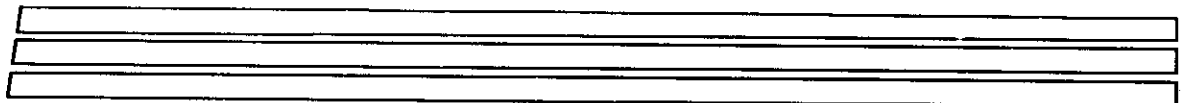
KEY MANAGEMENT DECISIONS

- ◆ **Basic relationship - adversarial or cooperative**
- ◆ **Relative emphasis of quality**
- ◆ **Multiple suppliers vs single source**
- ◆ **Internal vs external suppliers**
- ◆ **Long-term relationship or not**
- ◆ **Provision of technical assistance**
- ◆ **Published quality policy**



JUSE PRINCIPLES of RELATIONSHIP

- ◆ **Mutual respect and cooperation**
- ◆ **Prior contractual understanding**
- ◆ **Agreed methods of evaluation**
- ◆ **Agreed plans for settling disputes**
- ◆ **Exchange of essential information**
- ◆ **Adequate performance in related functions**
- ◆ **Supplier responsible to deliver good product and supporting data**
- ◆ **Customer's interest pre-eminent**





POLICIES for COOPERATIVE

RELATIONSHIP

BENEFITS :

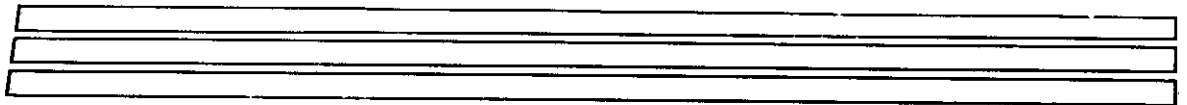
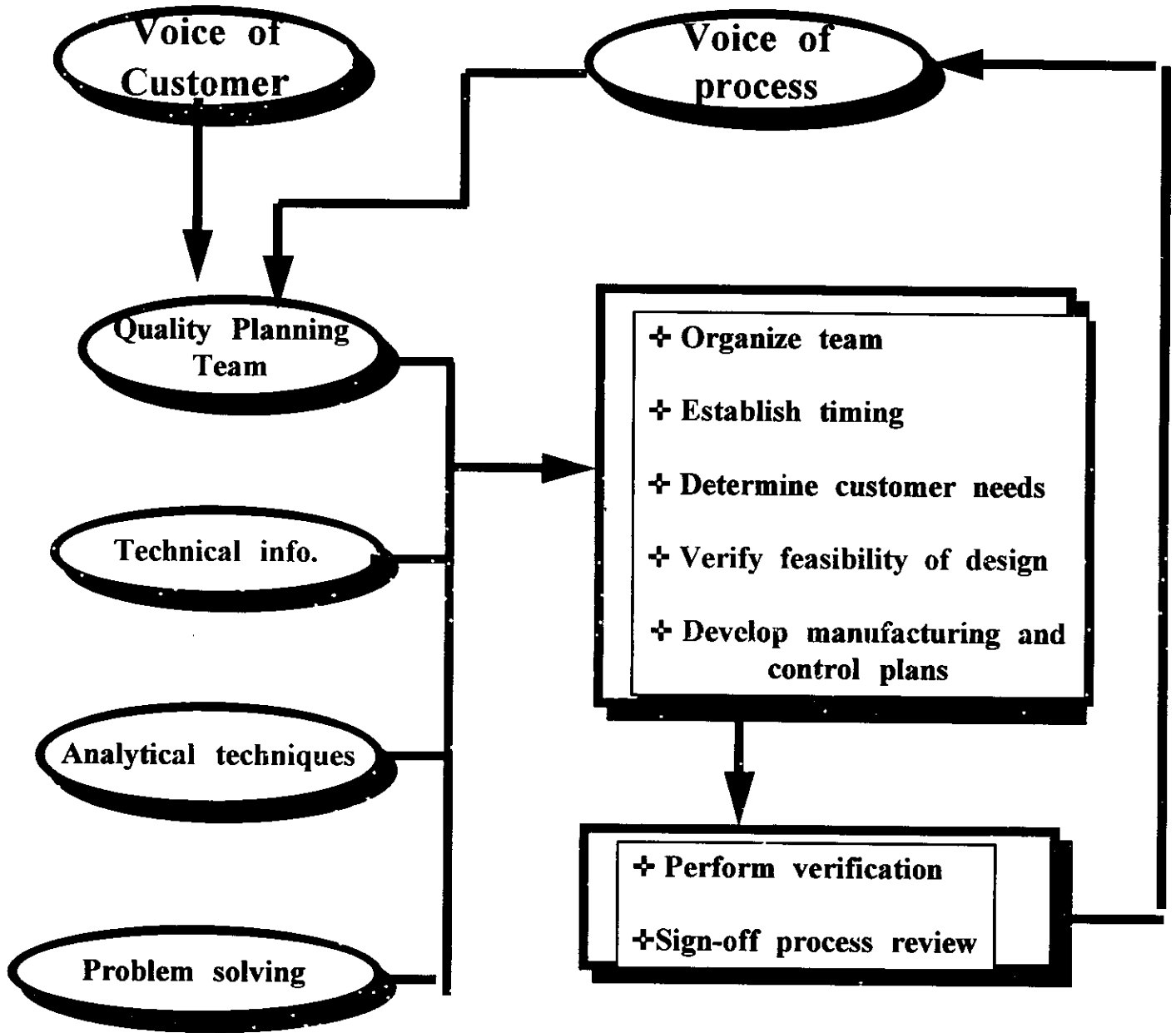
for suppliers :

- ◆ Long-term contracts rather than year to year or batch to batch
- ◆ Fewer suppliers
- ◆ Training in quality methods

for buyers :

- ◆ Full service
 - design
 - process development
 - investment in technology
 - cost reduction
- ◆ Program for quality improvement

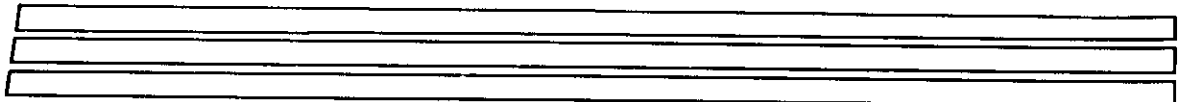
QUALITY PLANNING PROCESS





TYPICAL “S UPPLIER RELATIONS “
ACTIVITIES

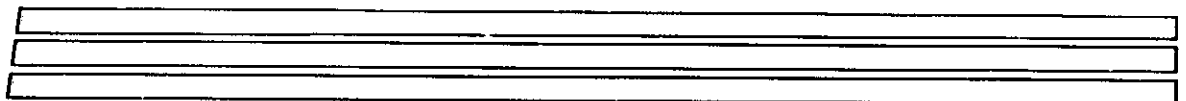
- ◆ **Definition of requirements**
- ◆ **Supplier evaluation**
- ◆ **Supplier selection**
- ◆ **Joint planning**
 - **managerial**
 - **technological**
 - **economic**
- ◆ **Cooperation during contract**
- ◆ **Proof of conformance**
- ◆ **Supplier certification**
- ◆ **Quality improvement**
- ◆ **Supplier rating**





ESSENTIAL ELEMENTS of
PROCESS CONTROL PLANS

- ◆ **Brief description of each process step**
- ◆ **Identification of equipment and tools used at each step**
- ◆ **Process step parameter requirements**
- ◆ **Classification of process step (critical etc.)**
- ◆ **Process monitoring methods :**
 - **value added**
 - **product specification**
 - **evaluation**
 - **sample size and frequency**
- ◆ **Method of analysis - statistical or other**
- ◆ **Reaction to out-of-control condition**





CONTENTS of TYPICAL

SUPPLIER RELATIONS MANUAL

- ◆ **Statement of company policy and supplier relations**

- ◆ **Importance of product quality**

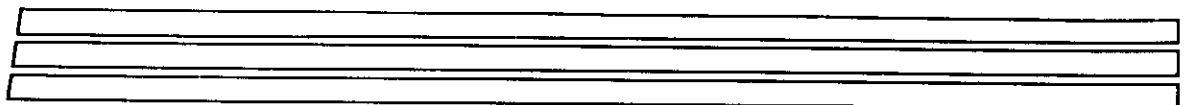
- ◆ **Organization with respect to product quality and role of Purchasing and Quality Depts.**

- ◆ **Method used to evaluate products and standard forms used**

- ◆ **Plan of supplier surveys**

- ◆ **Planning expected of suppliers**
 - **quality plans , including :**
 - **inspection and test**
 - **corrective action**
 - **change control**
 - **fitness for use**

- ◆ **Glossary of terms used**





CERTIFICATION of SUPPLIERS

Objective :

- authorize supplier to self-certify shipments
- eliminate buyer inspection

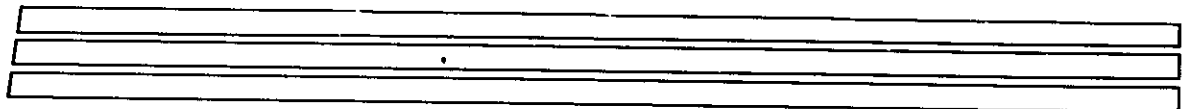
Process :

the supplier :

- submits failure prevention analysis and quality plan
- submits sample shipment of product

the buyer :

- evaluates information submitted
- visits supplier's plant
- evaluates sample shipment
- assesses "product conformance decisions"
- authorizes production
- certifies the supplier for the product





SUPPLIER QUALITY SURVEY PROCESS

◆ Pre-survey questionnaire

At the supplier's plant, assessment of:

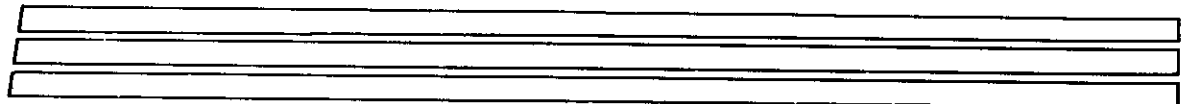
◆ Management capabilities and organization

◆ Technological capabilities

- facilities and equipment
- process capability to meet requirements
- adequacy of measuring equipment
- understanding - relationship of process variability and results

◆ Quality discipline capabilities

- quality and completeness of documentation
- familiarity with Q tools
- process control, product inspections and tests





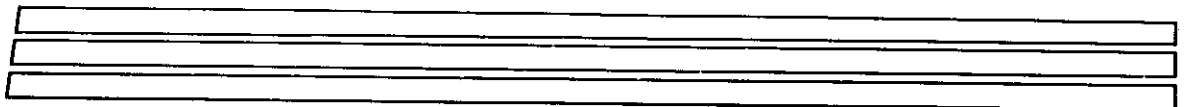
PITFALLS of
SUPPLIER QUALITY SURVEYS:

Emphasis on :

- ◆ **conformance to procedural specifications**
rather than
product fitness for use

- ◆ **specific products or processes**
rather than
supplier's general approach to product quality

- ◆ **organization, procedures, documentation**
rather than
capability of the process, adequacy of
process controls and training and
skills of the workforce

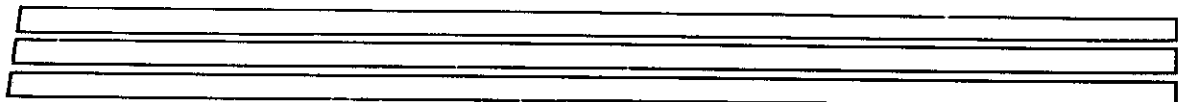




IMPROVEMENT of SUPPLIER QUALITY

Steps to be taken by the buyer :

- ◆ **Motivate supplier for continuous improvement**
- ◆ **Assist supplier to address the “vital few problems” using Pareto analysis or other techniques**
- ◆ **Offer technical expertise, if necessary**
- ◆ **Offer managerial expertise in problem solving**
- ◆ **Institute joint quality improvement teams**
- ◆ **Assist with appropriate training**





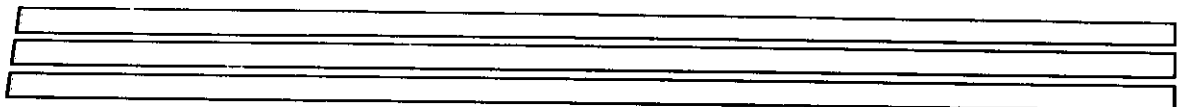
SUPPLIER QUALITY RATING -
MEASURES USED

- ◆ **Product percent non-conforming :**
 - can be adjusted for different types of defects

- ◆ **Disposition of lots :**
 - weighted analysis of action on non-conforming lots

- ◆ **Economic analysis :**
 - compares suppliers on the total cost.
The cost includes quality-related costs

- ◆ **Composite plan :**
 - total supplier performance judged
- quality, delivery, price, service

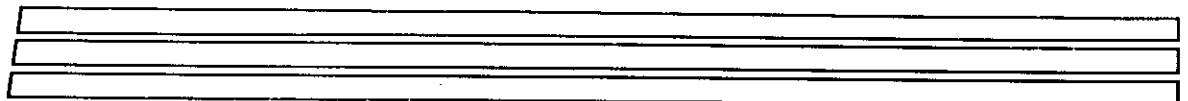




QUALITY SYSTEM SURVEY REPORT-
FORD MOTOR CO.

Suppliers are rated on the following :

- ◆ **Planning for quality**
- ◆ **Use of statistical methods**
- ◆ **Team approach to improvements**
- ◆ **Control of incoming products or services**
- ◆ **Quality of procedures**
- ◆ **Team oriented problem solving**
- ◆ **In-process and outgoing controls**
- ◆ **General**
 - **inventory control**
 - **repair and scrap control**
 - **customer relations**





IN-PLANT MATERIAL MANAGEMENT

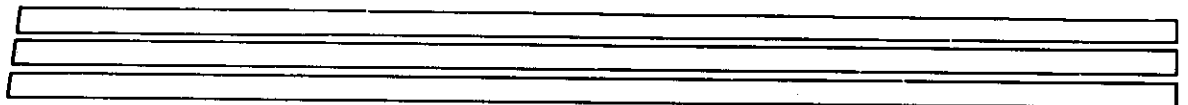
- ◆ **Receiving :**
 - inspection
 - documentation

- ◆ **Storage (warehousing)**
 - identification and traceability of items
 - protection from elements
 - special storage requirements
 - control of shelf life

- ◆ **Issue of material**
 - assuring correctness
 - traceability

- ◆ **Quarantine of non-conforming materials**

- ◆ **Repair and refurbishment**

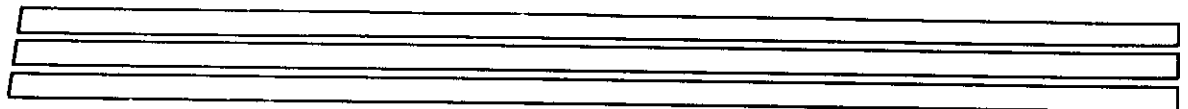




KEY CONSIDERATIONS for
PROCUREMENT QA PROGRAM

Special considerations of this program are :

- ◆ **Organization and responsibilities**
- ◆ **Interfaces : buyer - supplier**
- ◆ **Specialized procurement procedures,
National Quality Standards**
- ◆ **Grading of quality requirements**
- ◆ **Verification of supplier quality
program and performance**
- ◆ **Surveillance and audits of suppliers**
- ◆ **Deviations, concessions and corrective
actions**
- ◆ **Records of procurement activities**





PROCUREMENT QUALITY PROGRAM -
TYPICAL PROCEDURES

- ◆ **Preparation of procurement documents**
- ◆ **Selection of and relationship with suppliers**
- ◆ **Bid evaluation and award of contract**
- ◆ **Evaluation of supplier performance**
- ◆ **Buyer's verification activities**
- ◆ **Control of defects and corrective actions**
- ◆ **Acceptance of items and services**
- ◆ **Quality Assurance records**
- ◆ **Audit of procurement program**





NATIONAL QUALITY STANDARDS

Canada : Canadian Standards Association

- **CAN3-Z299.0 Guide for selection and implementation of Z299 QA Standards**
- **Q396.1 Software QA program**

France : Association française de normalisation (AFNOR)

- **NFX 50-111 Guide for selection of QA measures**

Germany : Deutsches Institut für Normung (DIN)

- **DIN 55 355 Basic elements for QA systems**

United Kingdom : British Standards Institution (BSI)

- **BS 5750 Quality System, Specification for design, manufacture and installation**

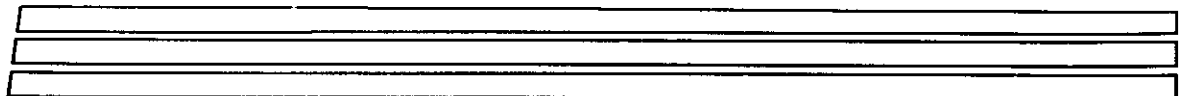
United States of America :

American National Standards Institute (ANSI)

- **ANSI/ASQC Z1.15 Guidelines for Quality Systems**
- **ANSI/ASQC Q94 QM and Q System elements**

US Dept. of Defense

- **MIL-Q-9858A Quality program requirements**



MODEL of CONTINUOUS IMPROVEMENT PROCESS

