

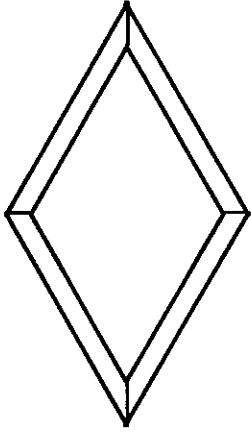
DEPT. OF **NUCLEAR TECHNOLOGY**  
**CHULALONGKORN UNIVERSITY**

**Presentation - 2**

**“ ESTABLISHING QUALITY**  
**MANAGEMENT (QM) “**

**George Wieckowski**  
**Operations Quality**  
**Corp.**

**Nov. 1996**

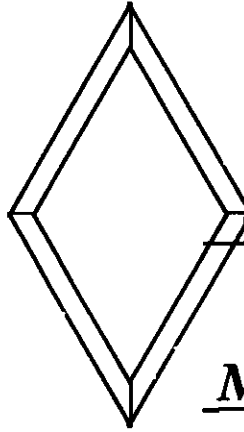


## ***ESTABLISHING QM***

### **OBJECTIVES :**

**To review:**

- ◆ **Structure and contents of QA program**
- ◆ **Requirements for procedures**
- ◆ **QM program implementation**



## QUALITY MANAGEMENT PROGRAM

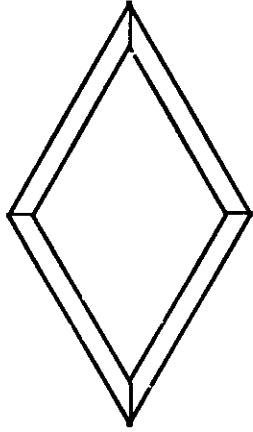
### MAIN OBJECTIVES :

- ❖ Prevention of errors and defects (QA)
- ❖ Continuous, incremental improvement Involving people



Champion :

PLANT MANAGER



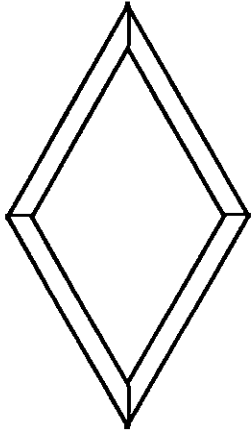
## CONTENTS OF QA PROGRAM

### ORGANIZATION

Plant organization must be defined and must

Clearly specify:

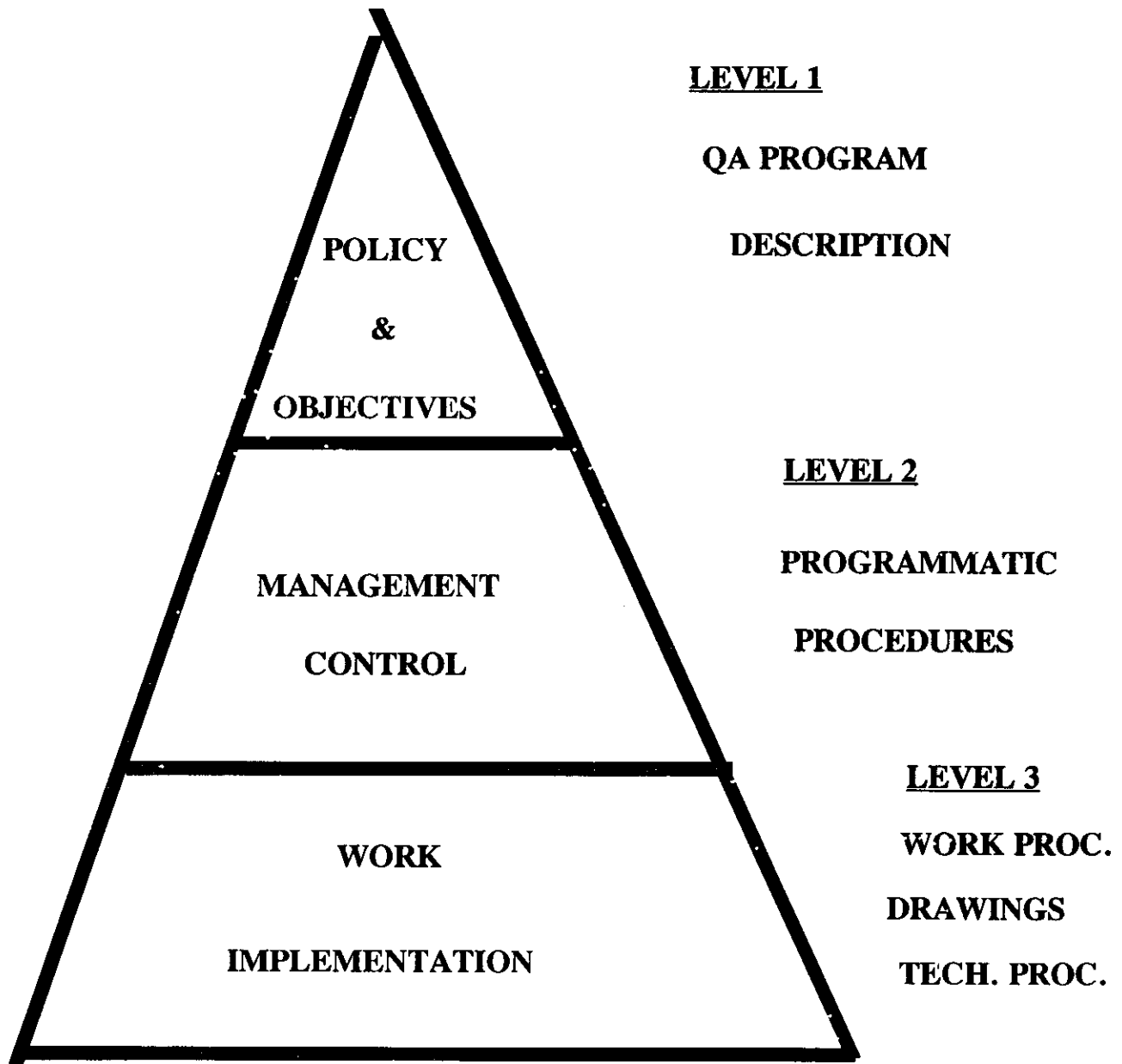
- ❖ Responsibilities and corresponding authority
- ❖ Quality requirements ( criteria )
- ❖ Quality measures
- ❖ Coordination responsibilities ( interfaces )

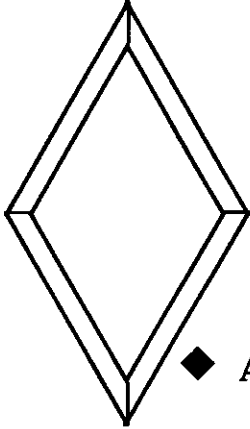


# STRUCTURE OF QA PROGRAM

## DOCUMENTATION

### TYPICAL DOCUMENTS



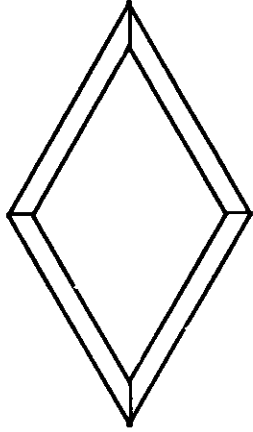


## **GENERIC, PROGRAMMATIC PROCEDURES**

- ◆ **ADDRESS KEY ELEMENTS OF QA PROGRAM.**
- ◆ **STANDARDIZE PROCESSES IN OPERATIONS  
WHERE STANDARDIZATION ADDS VALUE**
- ◆ **DEFINE PROCESS TO BE FOLLOWED**

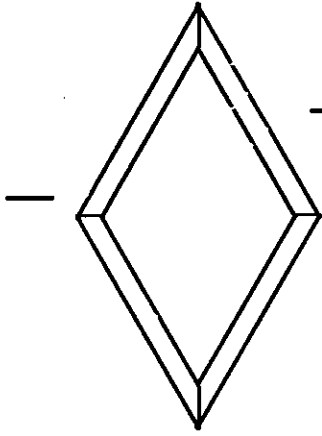
### **EXAMPLES:**

- ❏ **PREPARATION OF PROCEDURES**
- ❏ **INTERFACE CONTROL**
- ❏ **CORRECTIVE ACTION**
- ❏ **WORK PLANNING AND CONTROL**
- ❏ **DOCUMENT CONTROL**
- ❏ **VERIFICATION**
- ❏ **PROGRAM SURVEILLANCE**



## **CONTENTS OF A GOOD PROCEDURE:**

- ◆ **STATEMENT OF POLICY**
- ◆ **ADDRESSES ONE MAJOR PROCESS ONLY**
- ◆ **DEFINES RESPONSIBILITY FOR  
PROCESS AND INTERFACES**
- ◆ **DEFINES REPORTING REQUIREMENTS &  
RECORDS**
- ◆ **DEFINES VERIFICATION REQUIRED**
- ◆ **STATES HAZARDS, CONSTRAINTS**
- ◆ **HAS FLOW SHEET TO ILLUSTRATE STEPS**
- ◆ **IS PROPERLY REVIEWED, VERIFIED AND  
APPROVED**

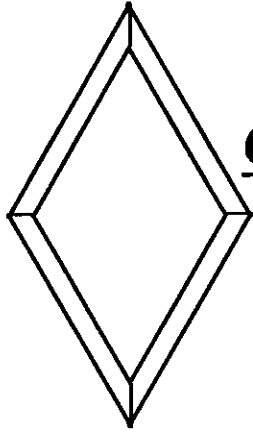


## CONTENTS OF QA PROGRAM VERIFICATION

*Acceptable methods of verification are :*

- ❖ **Self-verification for simple tasks**
- ❖ **Review of the work before and after execution**
- ❖ **Inspection**
- ❖ **Witnessing an activity**
- ❖ **Functional testing to confirm satisfactory operation**
- ❖ **"Hold point " as specified in the procedure**
- ❖ **Special verification - to be specified**





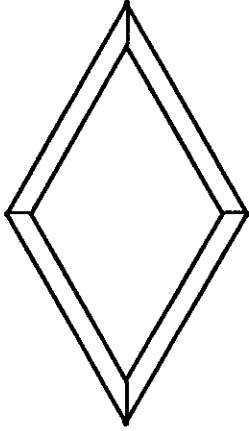
# **CONTENTS OF QA PROGRAM**

## **GRADING**

**Grading should be applied to  
following**

**Items and services :**

- ❖ **In-process controls, reviews  
and verification**
- ❖ **Review and stringency of  
approval of instructions**
- ❖ **Training and qualifications**
- ❖ **Material and equipment  
traceability**
- ❖ **Documentation and records**
- ❖ **Assessment of performance**



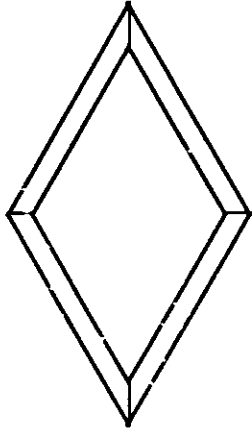
## CONTENTS OF QA PROGRAM

## COMPETENCE OF PERSONNEL

Quality of training should be *independently assessed.*

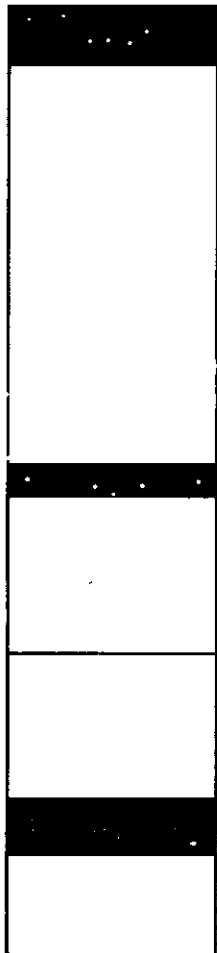
### Typical performance measures :

- ❖ Examination results (knowledge)
- ❖ Quality of training methods
- ❖ Feedback from the plant re skills and knowledge of workers
- ❖ Feedback from students
- ❖ Feedback from observations and audits



## WHAT IS EXCELLENCE

## IN NUCLEAR OPERATIONS ?



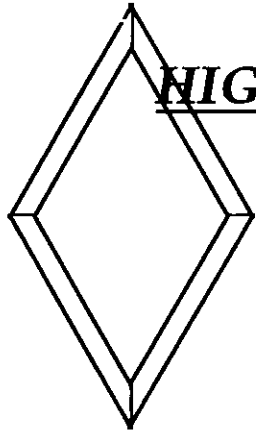
**INPO BEST PRACTICES**

**OUR TARGETS AND OBJECTIVES**

**MEETING REGULATIONS AND STANDARDS**

**ASSESSED BY :**  
**- BENCHMARKING**  
**- PEER EVALUATIONS**

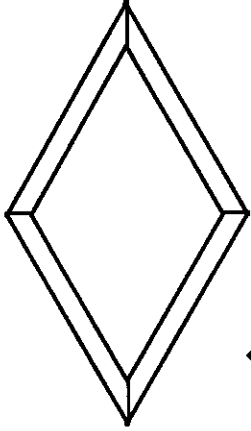




## HIGHLIGHTS OF TYPICAL PLANT QI PLAN

- ❖ CONDUCT MANAGERS SEMINAR TO:
  - ESTABLISH A COMMON PURPOSE
  - DEVELOP TEAM BUILDING SKILLS
- ❖ CONDUCT SELF- ASSESSMENTS
- ❖ IDENTIFY PRIORITY ISSUES FOR THE PLANT
- ❖ CONDUCT ORIENTATION SEMINARS FOR STAFF
- ❖ PUBLISH PLANT CORE VALUES AND VISION
  - HIGHLIGHT " CUSTOMER ORIENTATION
- ❖ FORM TEAMS :
  - ENSURE EACH TEAM HAS AN OBJECTIVE AND A SPONSOR
  - TRAIN TEAM MEMBERS
- ❖ IMPLEMENT RECOMMENDED IMPROVEMENTS
- ❖ TAKE CORRECTIVE ACTION
- ❖ PERIODICALLY REVIEW TEAMS PROGRESS
- ❖ CELEBRATE SUCCESSES
  - CATCH PEOPLE DOING THINGS RIGHT
  - ORGANIZE A " QUALITY DAY"

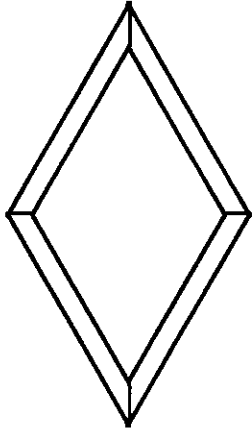
IMPROVEMENT IS A LONG TERM PROCESS



## **MANAGEMENT COMMITMENT**

### **MEANS:**

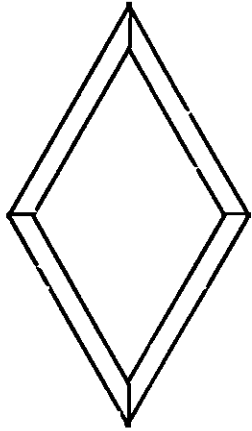
- ❖ **PROVIDE RESOURCES**
- ❖ **DISCUSS QUALITY AT EVERY OPPORTUNITY**
  - IN THE FIELD
  - IN THE OFFICE
  - AT MEETINGS
- ❖ **BE PERSONALLY INVOLVED IN REVIEWING KEY RESULTS:**
  - PERF. MEASURES
  - CORRECTIVE ACTIONS
  - OTHERS
- ❖ **VISIBLY SUPPORT QUALITY EDUCATION AND TRAINING PROGRAM**
- ❖ **LEAD BY EXAMPLE- DO NOT SACRIFICE QUALITY FOR ANY REASON**



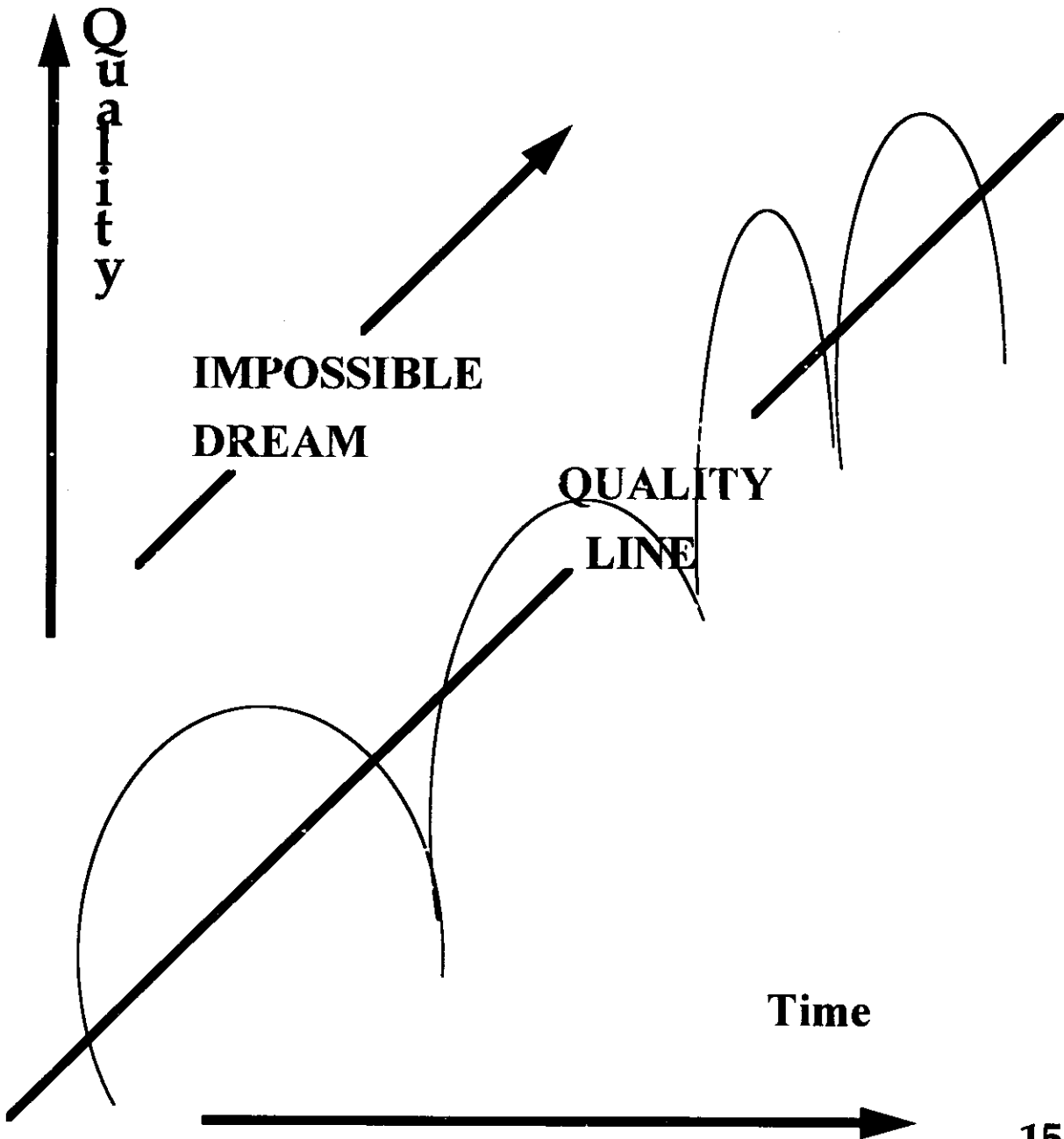
## COMMUNICATION

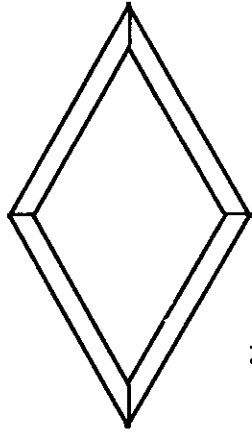


- ❖ **COMMUNICATE:**
  - ◆ COMMITMENT TO PEOPLE
  - ◆ COMMITMENT TO HIGHEST STANDARDS
  
- ❖ **THROUGH:**
  - ◆ SPEECHES AND PRESENTATIONS
  - ◆ ANNOUNCEMENTS, POSTERS
  - ◆ BEING VISIBLE IN THE PLANT
  - ◆ TALKING AND LISTENING TO PEOPLE
  
- ❖ **PROMOTE THE CONCEPTS OF EXCELLENCE AND CONTINUOUS IMPROVEMENT**
  
- ❖ **UNDER-SELL AND OVER-DELIVER**



# THE QUALITY JOURNEY

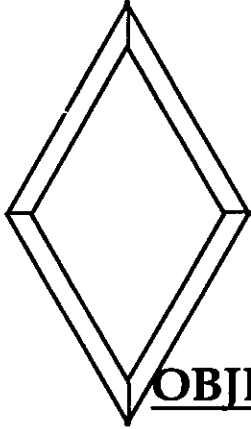




## **RESULTS ACHIEVED**

- ❖ **New organization**
- ❖ **Business relationships**
- ❖ **Improved working relationships**
- ❖ **Improvement in performance**
- ❖ **Acceptance of QM**
- ❖ **Improvement in corrective actions**
- ❖ **Improvement in documentation**





## QA PROGRAM

### EXERCISE

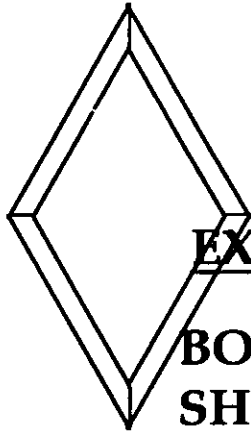
#### OBJECTIVE :

**TO ILLUSTRATE THE ROLE QA PROGRAM CAN PLAY IN PREVENTION OF ERRORS.**

#### ACTIVITY :

**USE THE EXAMPLE OF A POORLY DONE JOB, SHOWN ON CHART 11 TO RECOMMEND:**

- A) HOW PROPER APPLICATION OF QA PRINCIPLES WOULD HAVE AVOIDED THE PROBLEM ?**
- B) WHO AND HOW SHOULD BE INVOLVED IN RESOLVING THE PROBLEM ?**
- C) WHO IS RESPONSIBLE FOR RESOLVING IT ?**
- D) PREPARE A SHORT SUMMARY OF YOUR RECOMMENDATIONS.**



MAINTENANCE JOB

POORLY DONE

EXAMPLE :

**BOILER FEED PUMP HAS FAILED 3 TIMES SHORTLY AFTER MAINTENANCE DUE TO INCORRECT ALIGNMENT.**

INVESTIGATION DETERMINED THAT :

- ❖ **INCORRECT ALIGNMENT FIGURES WERE GIVEN IN ALIGNMENT PROCEDURE**
- ❖ **MECHANICS WERE NOT BRIEFED BEFORE WORK STARTED**
- ❖ **SKILLED MECHANICS ASSIGNED TO THIS WORK HAVE NOT ALIGNED THIS PARTICULAR PUMP BEFORE**
- ❖ **WORK WAS NOT PROPERLY VERIFIED WHILE IN PROGRESS OR AT COMPLETION**
- ❖ **PREVIOUS SUCCESSFUL ALIGNMENTS WERE ALWAYS DONE BY ANOTHER GROUP**

**THIS PROBLEM RESULTED IN DELAYING UNIT START-UP BY SEVERAL DAYS.**



**PROCEDURE PREPARATION - EXERCISE**

**OBJECTIVE :**

**TO ILLUSTRATE THE BASIC STEPS OF  
PROCEDURE PREPARATION AND REVIEW  
ACTIVITY :**

**PREPARE A POINT-FORM OUTLINE  
FOR A PROGRAMMATIC PROCEDURE FOR  
AN ELEMENT OF QA PROGRAM,**

**SUCH AS : - CORRECTIVE ACTION  
- VERIFICATION  
- QA SURVEILLANCE  
- INTERFACE CONTROL**

**USE YOUR KNOWLEDGE OF THE PROCESS  
TO DEVELOP THIS OUTLINE**

**CONSIDER ALL ASPECTS OF "GOOD  
PROCEDURE " AS SHOWN ON CHART**