UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

OCT 19 1998

S. K. Gambhir, Division Manager
Production Engineering
Omaha Public Power District
Fort Calhoun Station FC-2-4 Adm.
P.O. Box 399
Hwy. 75 - North of Fort Calhoun
Fort Calhoun, Nebraska 68023-0399

SUBJECT: PUBLIC MEETING REGARDING RESULTS OF COMMON CAUSE ANALYSIS CONDUCTED AT FORT CALHOUN STATION

Dear Mr. Gambhir:

This refers to the meeting conducted at the Fort Calhoun Station on October 6, 1998. This meeting was held to discuss the results of a common cause analysis that was conducted by your staff.

The meeting was beneficial in allowing us the opportunity to discuss the results of your analysis, including your proposed corrective actions to improve performance at Fort Calhoun Station and to compare your results with those obtained by our own efforts.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter will be placed in the NRC's Public Document Room.

Should you have any questions concerning this matter, we will be pleased to discuss them with you.

Sincerely,

Thomas P. Gwynn, Director
Division of Reactor Projects

Docket No.: 50-285
License No.: DPR-40

Enclosures:
1. Attendance List
2. Licensee Presentation

cc w/enclosures:
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Nuclear Licensing
Omaha Public Power District
Fort Calhoun Station FC-2-4 Adm.
P.O. Box 399
Hwy. 75 - North of Fort Calhoun
Fort Calhoun, Nebraska 68023-0399

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Fort Calhoun Station
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Fort Calhoun, Nebraska 68023

J. M. Solymossy, Manager - Fort Calhoun Station
Omaha Public Power District
Fort Calhoun Station FC-1-1 Plant
P.O. Box 399
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Chairman
Washington County Board of Supervisors
Blair, Nebraska 68008

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bcc to DCD (IE45)

bcc distrib. by RIV:

Regional Administrator	DRS-PSB
DRP Director	MIS System
Branch Chief (DRP/B)	RIV File
Project Engineer (DRP/B)	Branch Chief (DRP/TSS)
Resident Inspector	K. Perkins, Director, WCFO
B. Henderson, PAO	C. Hackney, RSLO

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10/ /98		10/ /98		10/ /98			

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OMAHA PUBLIC POWER DISTRICT
FORT CALHOUN STATION
MEETING ATTENDANCE LIST

ENCLOSURE 1

SUBJECT: NRC Public Meeting (Common Cause)
Date: 10/06/98

Name (Please Print)	Title/ Organization	Telephone Extension
R.L Jaworski	Mgr - Design Engineering - OPPD	6833
Damian Gomez	Supv. Planning	6906
Rich Clemens	Manager - Maintenance	6823
Ruben Hamilton	Manager - Chemistry	7381
John Kellams	Supervisor - RCA/HPGS/NAD	6640
Tim Dukarski	Supervisor system Chem	7126
Ross Ridenour	MANAGER - OPS	7426
Ron Short	Assistant Plant Manager	6893
Sudesh K. Gambhir	Division Manager - Nuclear operation	6647

OMAHA PUBLIC POWER DISTRICT
FORT CALHOUN STATION
MEETING ATTENDANCE LIST

SUBJECT: NRC Public Meeting (Common Cause)
Date: 10/06/98

Name (Please Print)	Title/ Organization	Telephone Extension
H. JOHN SEFICK	MGR - SECURITY SERVICES	6624
Raynard Wharton	NRC/NRR/PD IV-2	(301) 415-1396
ALAN ZAGURSKI	OPPD/TRNG	#6142
JOHN HERMAN	OPPD/MGR P&S	6905
John MacKinnon	COPD / SORC chairman	7222
Bill Power	OPPD / MGR Domin	#6418
Carl K. Eckhardt III	OPPD/QC	#6973
JOSEPH L. DYER	SUPERVISOR MAT'L CONTROL	6741
David Spires	Mgr - Quality	6721
CHUCK ANDERSON	NUCLEAR COMPUTING COORD	6768
JOHN NEJAD	RAD ENGINEER / CHP	7234
Anne Vieland	Health Physicist / RP	7161
Joe L. McManis	DEN - Mechanical RLS - guest	6748
Ken Paul	Ken Paul	7428
T. P. Gwynn	Director, DRP NRC RIV	(817) 860-8248
J. Michael Uhland Jr	DEV. SPEC. / OPPD	6136
Merl Core	MGR - System Engineering	6519
Rick Westcott	MGR - Training	6010

OMAHA PUBLIC POWER DISTRICT
FORT CALHOUN STATION
MEETING ATTENDANCE LIST

SUBJECT: NRC Public Meeting (Common Cause)
Date: 10/06/98

Name (Please Print)	Title/ Organization	Telephone Extension
Mark Puckett	Rad Prot. Manager	7248

OMAHA PUBLIC POWER DISTRICT
FORT CALHOUN STATION
MEETING ATTENDANCE LIST

SUBJECT: NRC Public Meeting (Common Cause)
Date: 10/06/98

Name (Please Print)	Title/ Organization	Telephone Extension
MARK T. FRANS	MGR - NUCLEAR LICENSING	6537
Mike Sweigart	Nuclear Safety Group	6487
WAYNE C WALKER	SRI - RIV US NRC	6613
David Graves	NRC-RIV-Sr Proj. Eng	
Harry Faulhaber	OPPD - Training	6016
OWEN J. CLAYTON	Work Week Manager	7309
Russ Cusick	ENG NCM	6531
Rick Wyl[illegible]	NCM	6771
DELVIN R TRAUSCH	MGR NSRG / Acting DM-WRD	6669
J.E. Whittemore	USNRC RIV	817 860 8296
G.R. Cavanaugh	OPPD - Licensing	402-533-6913
Judy Gloth	OPPD - Admin Svcs	402-533-7370
K.J. McConnell	OPPD - Manager Nuclear Regulatory	402-533-6996
Jon A. Gayer	OPPD - Manager Planning & Costs	402-533-7882
Richard Haug	Corp. Health Physicist	533-7156
Ralph Phelps	Dir Mgr Nucl Engineering	533 7210
Jim Allen	Work Week Manager	6898
Jack C. Skiles	Manager-Station Eng.	7332
Joe Solymossy	Manager - FCS	
Bill Johnson	NRC Reg III Branch Chief	
Jeff Spilker	Asst Mgr - CAG	6667
Chuck LINDEN	AGV Eng - Comp Testing	6730

ENCLOSURE 2

Agenda

Introductions	- Pat Gwynn / - Gary Gates
Process	- Joe Gasper
Corrective Actions	- Sudesh Gambhir
Summary	- Gary Gates
Open Discussion	

Human Error Analysis

- Phase 1
  - Common Cause Analysis
- Phase 2
  - Underlying or Root Cause Analysis

Phase 1

Common Cause Analysis of Fort Calhoun events

Phase 1 Analysis

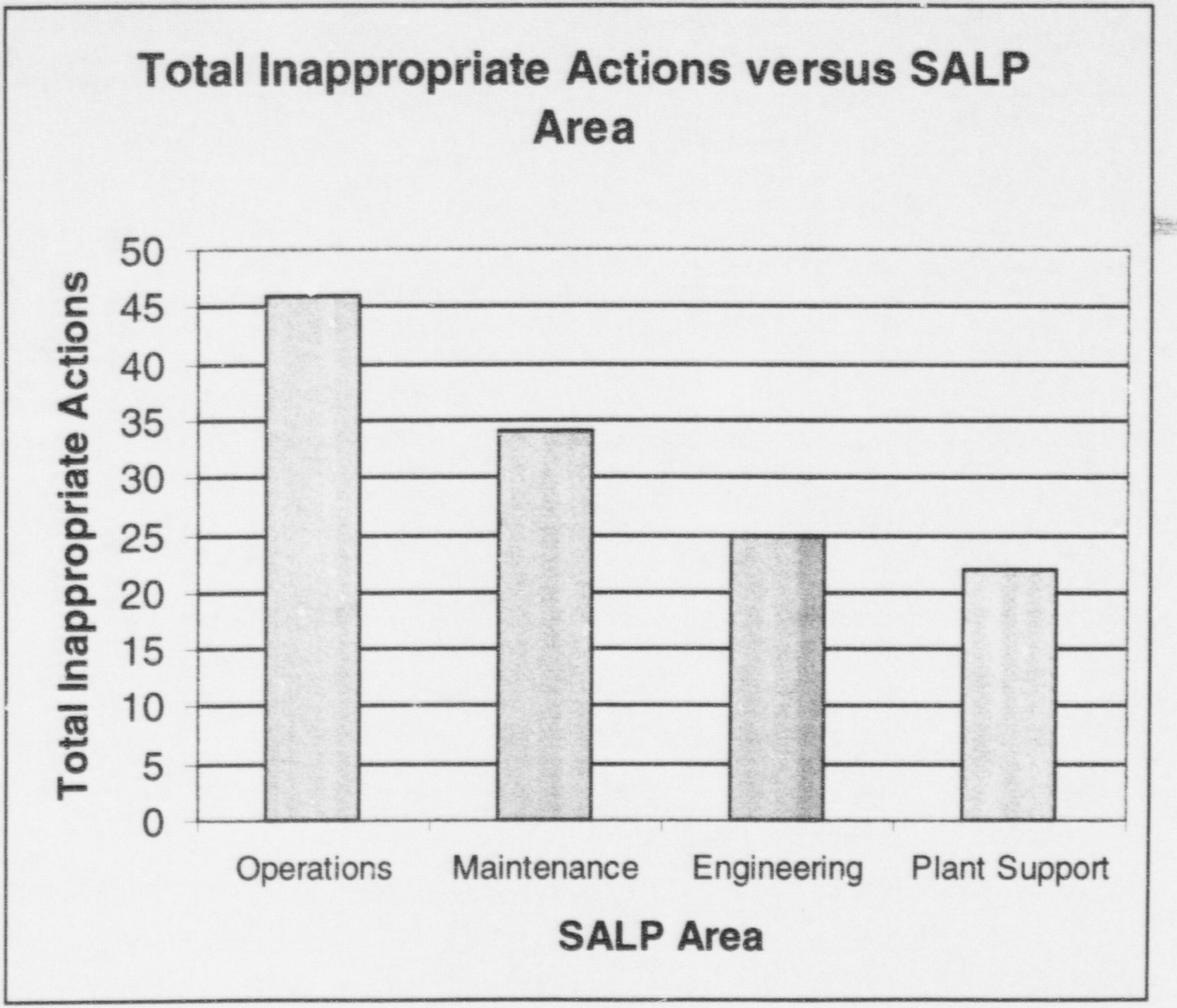
- Purpose:
  - Identify underlying organizational and programmatic issues
  - Identify focus areas for further investigation
- Completed July 1998
- Used Condition Reports Beginning 1/1/97
  - Levels 1, 2, 3 and selected Level 4

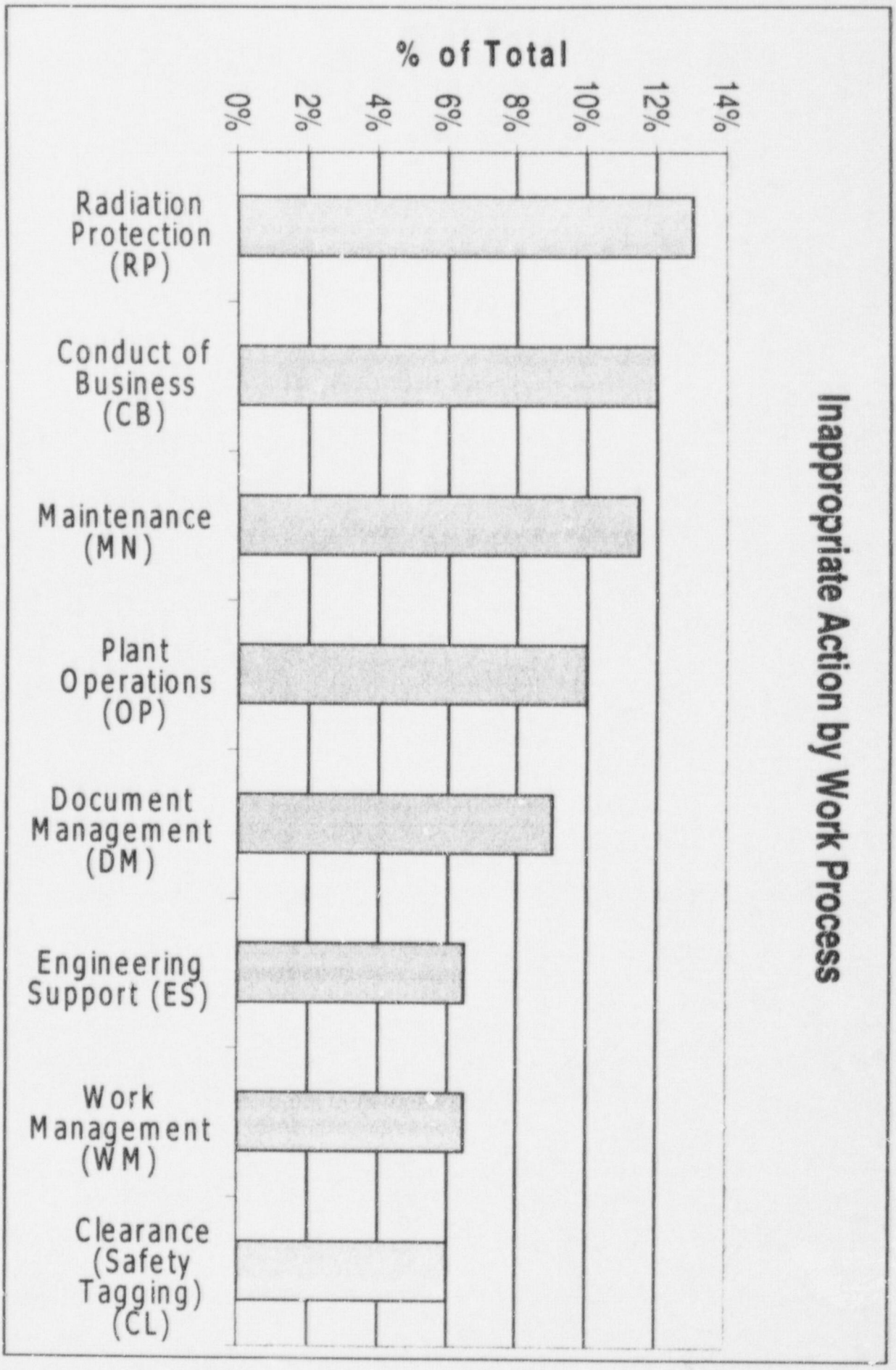
Phase 1 Analysis

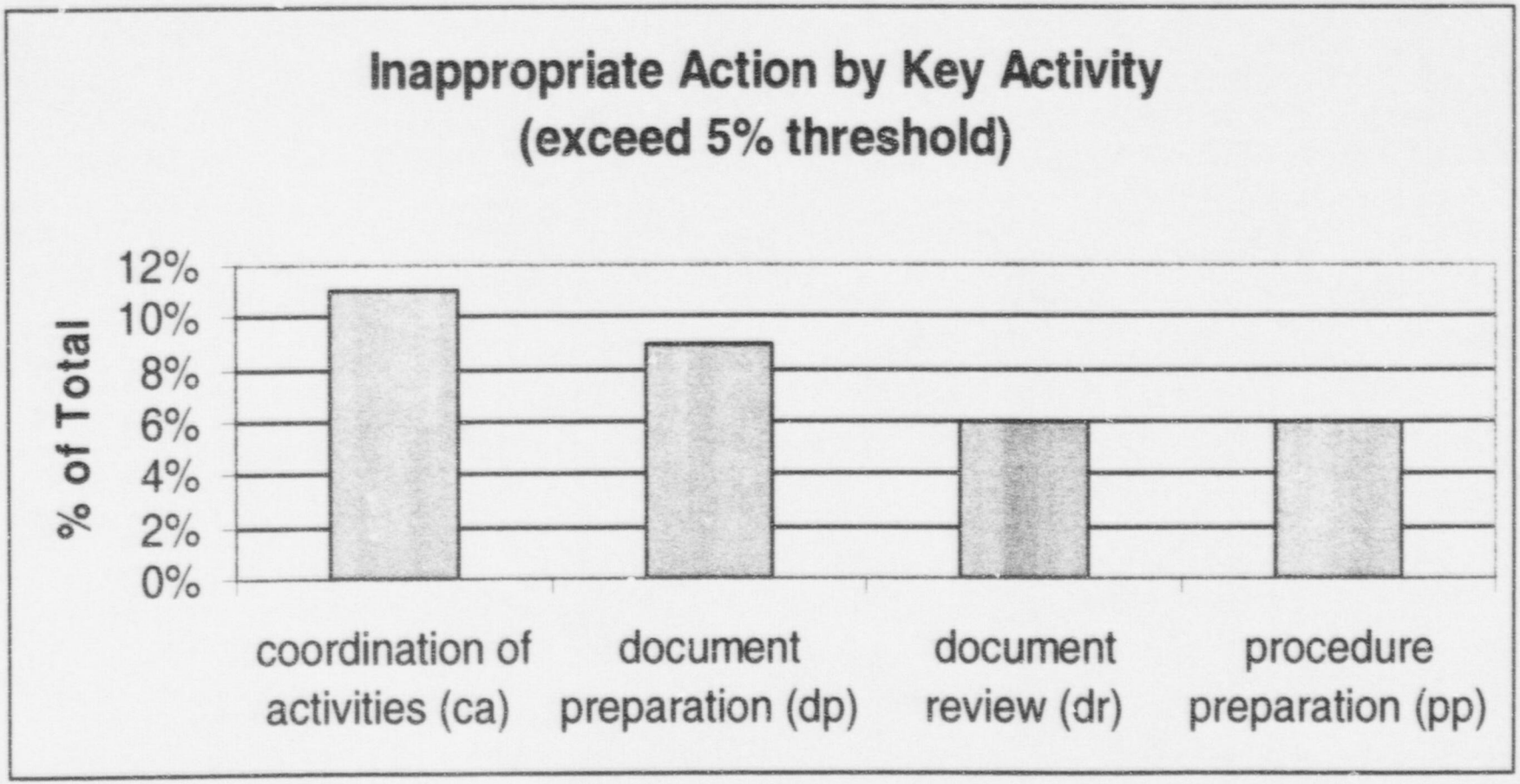
- Selected events involving human errors occurring since 1/1/97
  - Excluded
    - Errors occurring before 1/1/97
    - Equipment failures
- Data base of 140 inappropriate actions
  - 80% confidence level
  - 5% expected random error

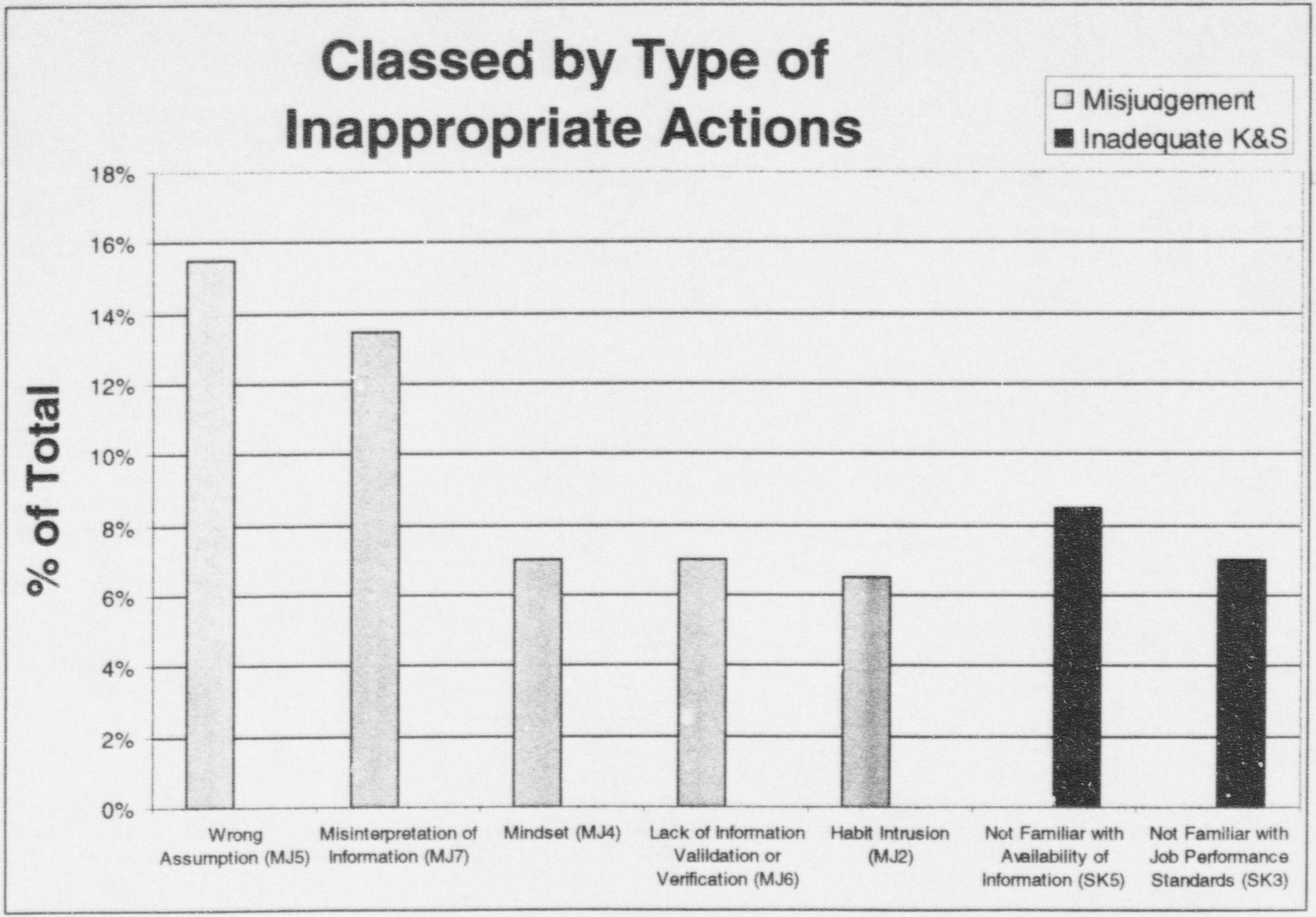
Phase 1 Analysis Process

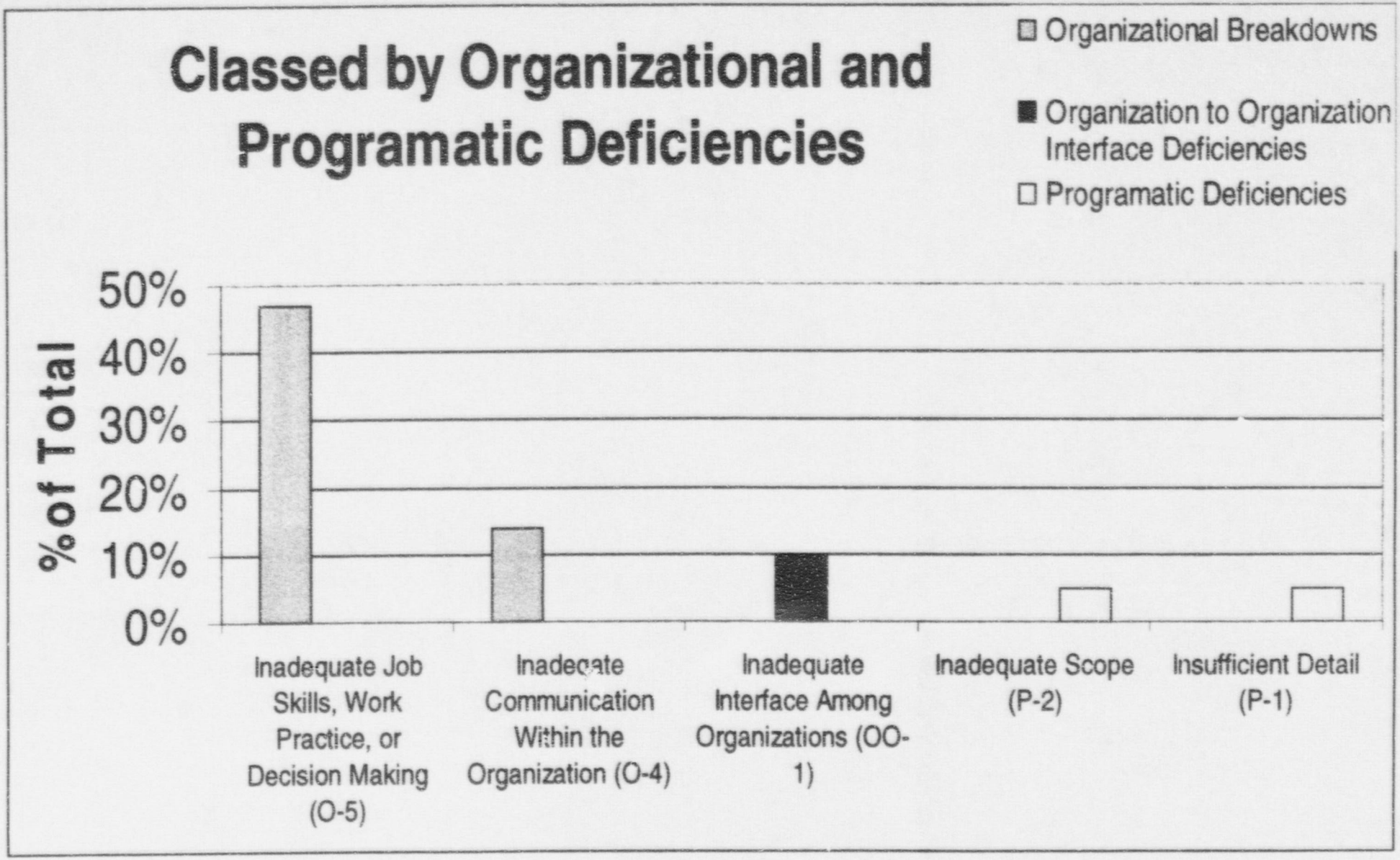
- Review Condition Reports, Root Cause Analyses and HPES investigations
- Identify "Inappropriate Actions"
- Categorize "Inappropriate Actions"


Total Inappropriate Actions versus SALP Area
Total Inappropriate Actions
50
45
40
35
30
25
20
15
10
5
0
Operations
Maintenance
Engineering
Plant Support
SALP Area


% of Total
0%
2%
4%
6%
8%
10%
12%
14%
Radiation Protection (RP)
Conduct of Business (CB)
Maintenance (MN)
Plant Operations (OP)
Document Management (DM)
Engineering Support (ES)
Work Management (WM)
Clearance (Safety Tagging) (CL)
Inappropriate Action by Work Process


Inappropriate Action by Key Activity
(exceed 5% threshold)
% of Total
12%
10%
8%
6%
4%
2%
0%
coordination of activities (ca)
document preparation (dp)
document review (dr)
procedure preparation (pp)


Classed by Type of Inappropriate Actions
Misjudgement
Inadequate K&S
% of Total
18%
16%
14%
12%
10%
8%
6%
4%
2%
0%
Wrong Assumption (MJ5)
Misinterpretation of Information (MJ7)
Mindset (MJ4)
Lack of Information Validation or Verification (MJ6)
Habit Intrusion (MJ2)
Not Familiar with Availability of Information (SK5)
Not Familiar with Job Performance Standards (SK3)


Classed by Organizational and Programatic Deficiencies
Organizational Breakdowns
Organization to Organization Interface Deficiencies
Programatic Deficiencies
% of Total
50%
40%
30%
20%
10%
0%
Inadequate Job Skills, Work Practice, or Decision Making (O-5)
Inadequate Communication Within the Organization (O-4)
Inadequate Interface Among Organizations (OO-1)
Inadequate Scope (P-2)
Insufficient Detail (P-1)

Phase 1 Conclusions

- Inappropriate actions causing FCS events *are organizational in nature vice being associated with particular processes or activities*
- No difference in characteristics of inappropriate actions between 1997, 1998, and the '98' refueling outage

Phase 1 Conclusions

- 83% Decision-making (Rule and Knowledge-based) Errors
- Predominant Internal Failure Mode Category Was "Misjudgment"
  - errors were *application of incorrect rules* or *the misapplication of rules*.
- 80% "Administrative", Vice "Technical", Tasks or Expectations
  - performance of simple activities

Focus of further investigation

- Communication within departments
- Lateral integration between departments
- Supervisory effectiveness and culture.

Phase 2

Determination of Underlying Causes

Phase 2 Methodology

- Site Wide Surveys (322 Responses)
  - Administrative Procedural Compliance
  - Accountability and Self-Motivation
  - Supervisory Effectiveness
- Formal interviews and informal discussions

Administrative Procedure Compliance Survey Results

- High perceived mental burden associated with administrative procedure compliance
- Low probability of receiving consequences when not complying with an administrative requirement
- Low probability of receiving positive feedback when observed complying with management expectations/administrative requirements

Accountability System Survey Results

The current accountability system does not have a positive impact on human performance, especially in the area of administrative procedure compliance.

Survey Results for Supervisory Error Reduction Effectiveness

- Not helping to reduce, or induce, human errors

- Supervisory Skill Weaknesses
  - communication & coordination
  - field surveillance
  - standards reinforcement

Conclusions of Lateral Integration and Communication Analysis

- Breakdowns are occurring in the lateral integration and vertical communication at FCS
  - The lateral communication mechanisms are in place
  - The breakdowns are occurring due to a lack of teamwork

Underlying Causes

- Most fundamental are cultural issues
  - Poor and Inconsistent Teamwork
  - Ineffective vertical communication
- The existing accountability system does not have a significant, positive effect on human performance

Underlying Causes

- A higher than desired potential non-compliance error rate for noncompliance with administrative requirements exists.

Contributing Cause

- Supervisors not effective in applying human error reduction skills

Corrective Actions

- Based on review of CCA completed by NRC and Performance Improvement International
- Review of initiatives in progress

Corrective Actions

- Initiatives in progress
  - "CHOICE" Program
  - Organization Changes
  - Alignment Initiative
  - Leadership Development Training
  - Resolution of INPO Findings
  - Development of Business Plans

Corrective Actions

- Additional/continued emphasis is needed in the following areas:
  - Improving Lateral and Vertical Integration/ Communications
  - Implementation of an Effective Accountability System and Follow-up

Corrective Actions

- Areas for Additional/Continued Emphasis (Cont.):
  - Administrative Burden Reduction
  - Procedure/Program Quality Improvement
  - Human Error Reduction Tools and Training
  - Supervisory Effectiveness in Human Error Reduction Skills

Corrective Actions Improve Lateral Integration

- Integrated Business Planning Process
  - 1999 Resource Loaded Business Plan
    - Departmental Business Plans Completed
    - Division Manager review to assure integration and consistency with "CHOICE" Program Initiatives (in progress)
    - Review by Division Managers on at least a quarterly basis in 1999

Corrective Actions Improve Lateral Integration

- Site-wide work prioritization system (in progress)
- Behavior-Based Performance Expectations
  - FCS Values identified by Management (complete)
    - Safety Conscious, Individual Respect
    - Integrity, Accountability, Teamwork
    - Simplicity

Corrective Actions Improve Lateral Integration

- Behavior-Based Performance Expectations
  - Behaviors to support values developed by management team (complete)
  - Sought additional input during Nuclear Performance Meeting
  - Behaviors being communicated (in progress)
  - Using Multi-discipline teams to resolve problems and improve buy-in (e.g. CHOICE teams)
- Next Step Is Adoption of These Behaviors at the Work Group Level

Corrective Actions
Vertical Communication Loop

- Started with "Team Building" Meetings at the top
- Several Process Team Building Sessions scheduled over next three months
- Additional New Leadership Training for Managers will focus on:
  - Alignment - Creating a Common Reality
  - Integration - Helping people connect
  - Commitment - Franchising high performance
  - Culture - Passenger, Navigator, or Architect

Corrective Actions
Vertical Communication Loop

- FCS Leadership Meetings to Go Over Training & Leadership Issues - scheduled for Mondays
- Expectations for Face-to-Face Communication Up & Down the Chain
- More Frequent use of FCS On-Line
- Better Use of 3N
- Nuclear Performance Meetings

Corrective Actions Accountability System

- Management Changes/Reorganization
  - Four Division Managers
  - Plant Manager from INPO
  - New Training Manager
  - Two Assistant Plant Managers
  - Two Operations Supervisors

Corrective Actions Accountability System

- Holding People Accountable for Management's Expectations
- Motivating Work Force to Maintain Desired Behavior
- Coaching & Counseling Process
- Developed a New Disciplinary Policy
  - Requires peer review

Corrective Action

Implement a Burden Reduction Strategy

- Focus on Most Burdensome Procedures/ Processes

Corrective Action
Improve Procedure Quality

- SO-G-30 revised to implement procedure "owner" concept and facilitate procedure revision process (complete)
- Evaluate further improvement to procedure revision process
- Eliminate, downgrade and simplify current administrative procedures and policies
  - Operations Standards Handbook

Corrective Actions Improve Procedure Quality

- Address Procedure/Program Quality Issue
  - Line Management Oversight
  - Functional Group Ownership
  - Production Quality (I.E. Writer Training)
  - Process Simplification

Corrective Actions Improve Procedure Quality

- Operations Procedures
  - Emphasize Operating crew procedure ownership
  - Operator training on the Writer's Guide
  - All operating procedures will be reviewed to meet the Writer's Guide

Corrective Actions

Provide Personnel at All Levels With Human Error Reduction Tools

- Exemplary Human Performance (CHOICE)
- C - Critical Self Assessments
- H - Human Performance is Exemplary
- O - Operations are Event Free
- I - Initiatives in High Visibility Areas Have Strong Performance
- C - Corrective Actions are Broad & Lasting
- E - Excellence in Materiel Condition

Corrective Actions

Provide Personnel at All Levels With Human Error Reduction Tools

- INPO Human Performance Assist Visit
- Developed Human Performance Plan
- Training is Being Provided to Improve Human Error Reduction
  - Human Performance Fundamentals Course
  - "Titanic" Training

Corrective Actions

Supervisory Effectiveness in Reducing Human Error

- Improving Supervisory Effectiveness in Reducing Human Errors
  - Organizational Changes in the Operations Area
    - Additional Supervisor in Operations Group
    - Additional Assistant Plant Manager
    - Plant Manager focused on day-to-day operation, leadership skills improvement and communication of management expectations

Corrective Actions

Supervisory Effectiveness in Reducing Human Error

- Improving Supervisory Effectiveness in Reducing Human Errors
  - Supervisors will receive human performance training
  - Pre-job briefings have improved
  - Scorecard concept introduced
  - Improvements discussed previously will have major impact
  - Additional training needs are being evaluated

Summary

- The Majority of the Issues Identified Through the CCA Are Being Addressed Through Initiatives Started Prior to the Last Refueling Outage
- Additional Corrective Actions Are Being Identified to Address Some of the Newer Insights

Summary
Next Steps

- Build on Successes to Date in Operations Area
- Factor Corrective Actions Into Business Plan
- Repeat CCA