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Do not include proprietary materials.*

DATE OF MEETING

6/10/2003

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Docket Number(s)

None

Plant/Facility Name

None

TAC Number(s) (if available)

None

Reference Meeting Notice

Purpose of Meeting  
(copy from meeting notice)

ACRS Plant Operations Sub Committee  
Meeting with Region I - 6/10/03

NAME OF PERSON WHO ISSUED MEETING NOTICE

Margaleen Weston

TITLE

ACRS Tech Staff Member

OFFICE

DIVISION

BRANCH

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# ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

## REGION I VISIT 475 ALLENDALE ROAD, KING OF PRUSSIA, PA

June 10, 2003  
- AGENDA -

Time	Topic	Presenter	Time Allotted
8:30 - 8:45 am	Opening Remarks	H. Miller, RI J. Sieber, ACRS	15 minutes
8:45 - 9:30	Region I Overview and Challenges	H. Miller	45 minutes
9:30 - 10:15	Region I Organization	J. Wiggins	45 minutes
10:15 - 10:30	Break	-	15 minutes
10:30 - 11:30	Plant Performance in Region I	R. Blough	1 hour
11:30 - 11:45	Indian Point Performance	B. Holian	15 minutes
11:45 - 12:45 pm	Lunch		1 hour
12:45 - 1:45	Inspection Results	W. Lanning	1 hour
1:45 - 2:15	SDP - Recent Example	E. Cobey R. Fuhrmeister	30 minutes
2:15 - 2:30	Break	-	15 minutes
2:30 - 4:15	Reactor Oversight Process Roundtable  - Regional Inspectors  - Resident Inspectors  - SRAs  - Management	J. Rogge  R. Fuhrmeister S. Pindale T. Walker  B. Welling S. Hansell  E. Cobey W. Schmidt  R. Blough R. Crlenjak J. Trapp R. Lorson J. Linville	1 hour - 45 minutes
4:15 - 4:30	Closing Remarks	H. Miller, RI M. Bonaca, ACRS	15 minutes

HQ Observers: Laura Dudes, Marvin Sykes, and John Jolicoeur

RI CONTACT: John Rogge, [jfr@nrc.gov](mailto:jfr@nrc.gov) or (610) 337-5146

ACRS CONTACT: Maggalean W. Weston, [mww@nrc.gov](mailto:mww@nrc.gov) or (301) 415-3151.

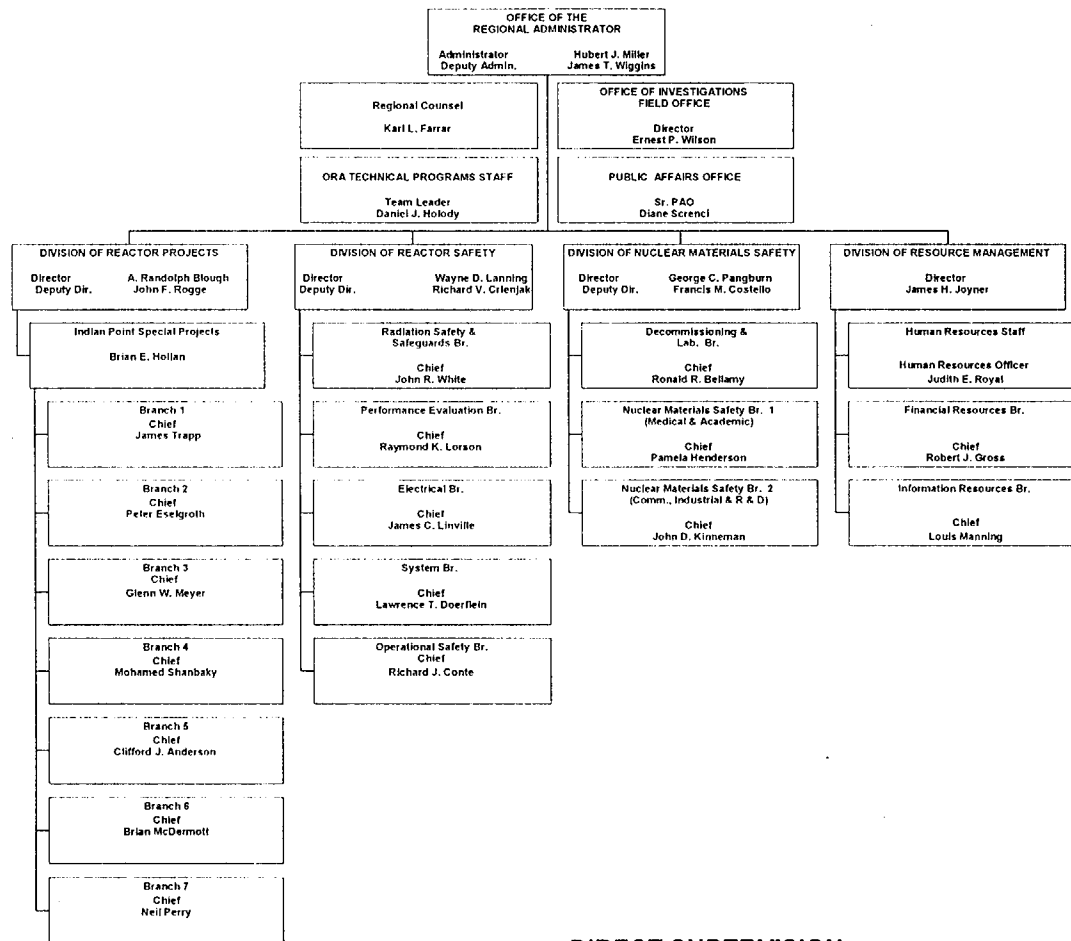
**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION I**

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**ACRS Committee on Reactor Safeguards  
June 10, 2003**

# U.S. NUCLEAR REGULATORY COMMISSION REGION I ORGANIZATION CHART

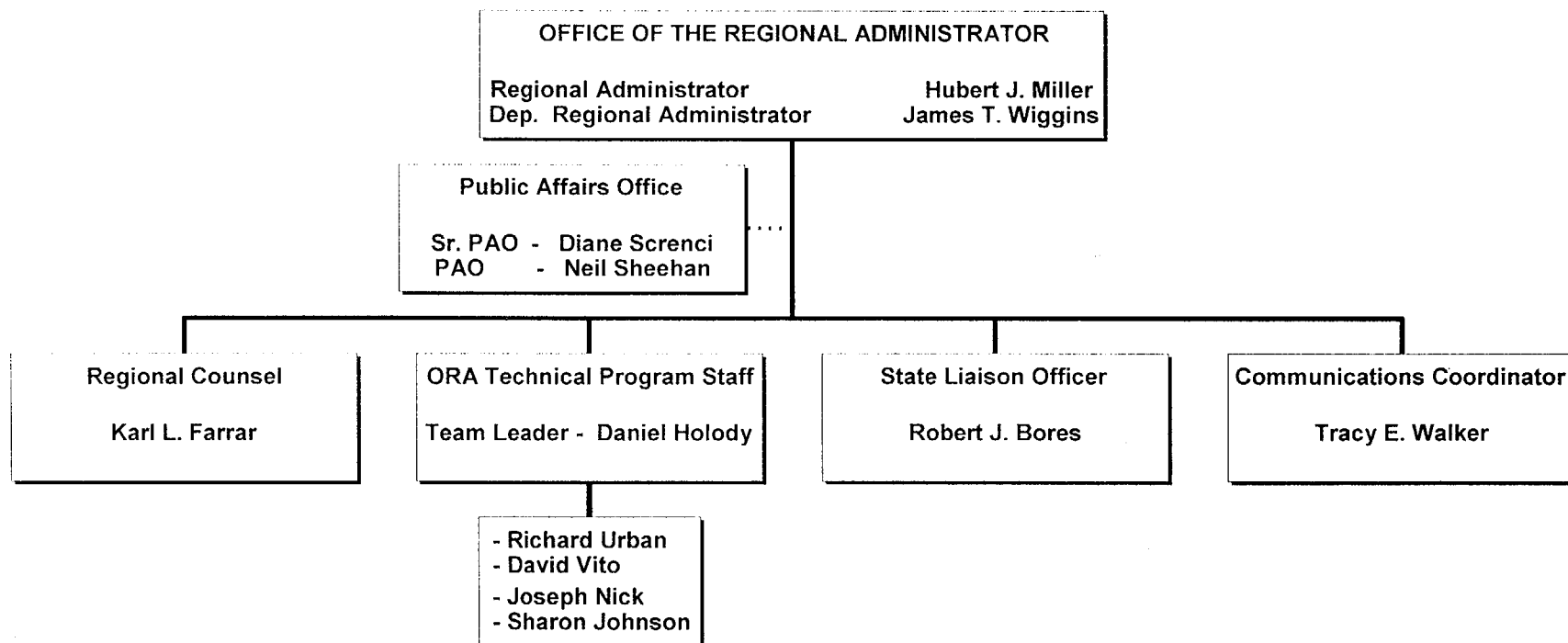


———— DIRECT SUPERVISION  
 ■ ■ ■ ■ ■ ■ ■ ■ COORDINATION

# OFFICE OF THE REGIONAL ADMINISTRATOR

## Region I Organization Chart

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—— Direct Supervision

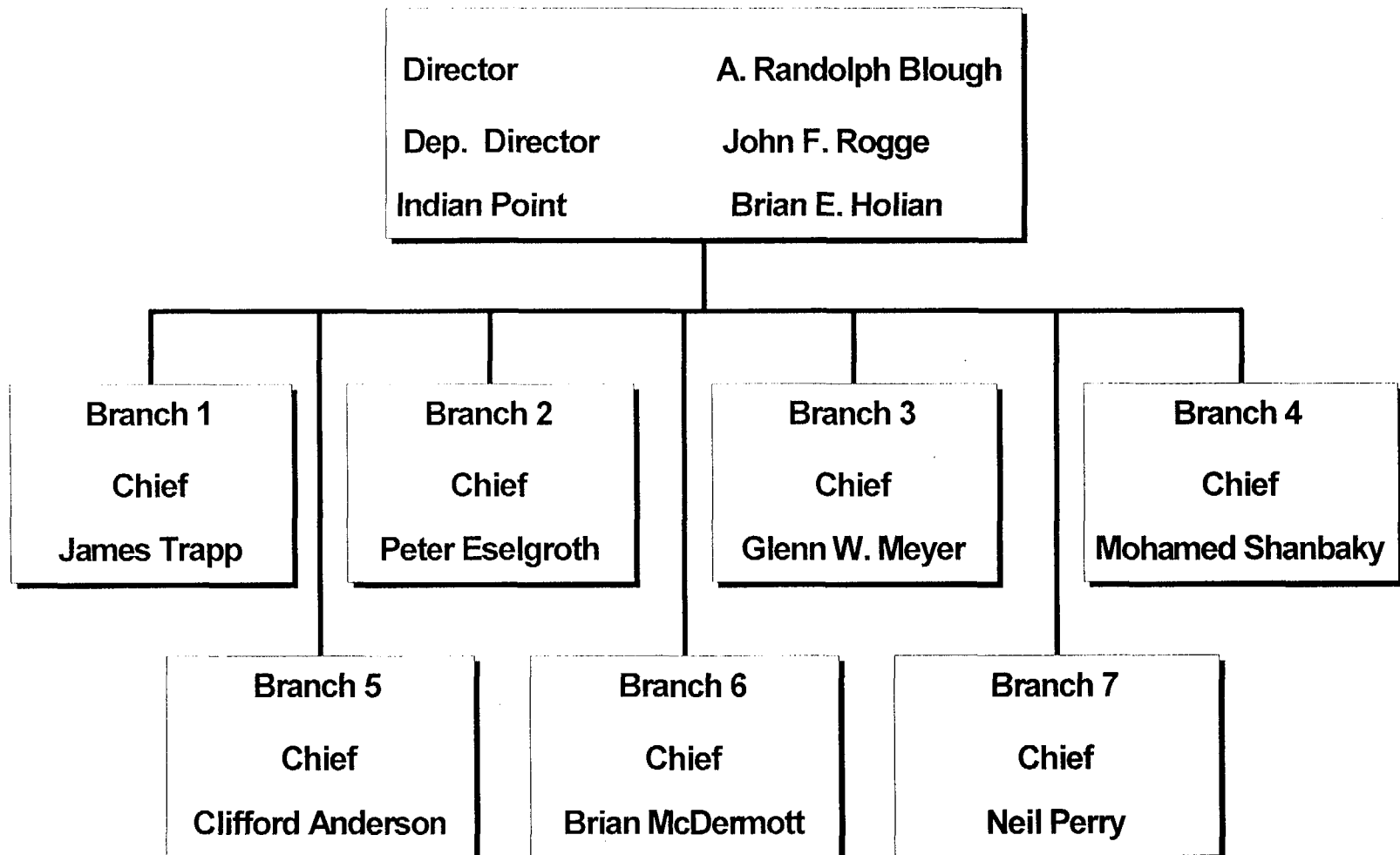
---- HQ Staff

# REGION I

## DIVISION OF REACTOR PROJECTS

### Organization Chart

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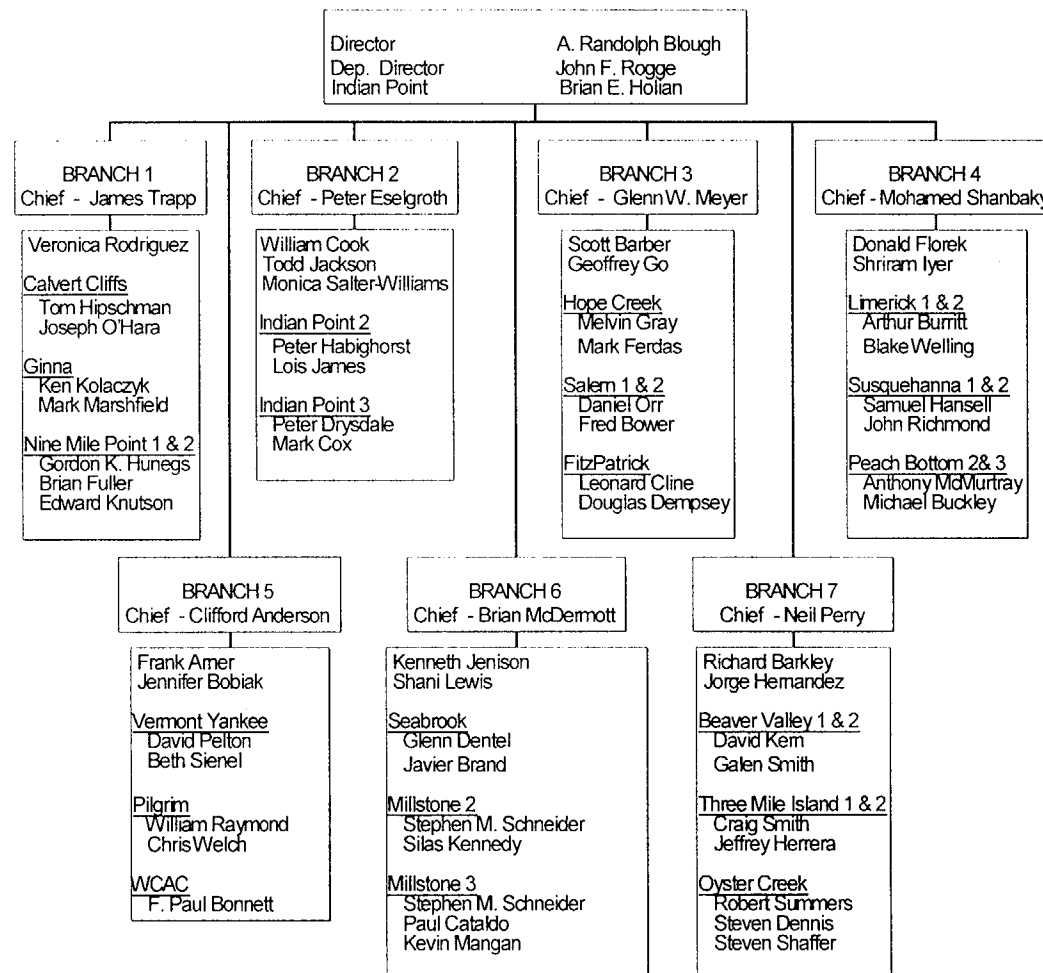


# REGION I

## DIVISION OF REACTOR PROJECTS

### Organization Chart

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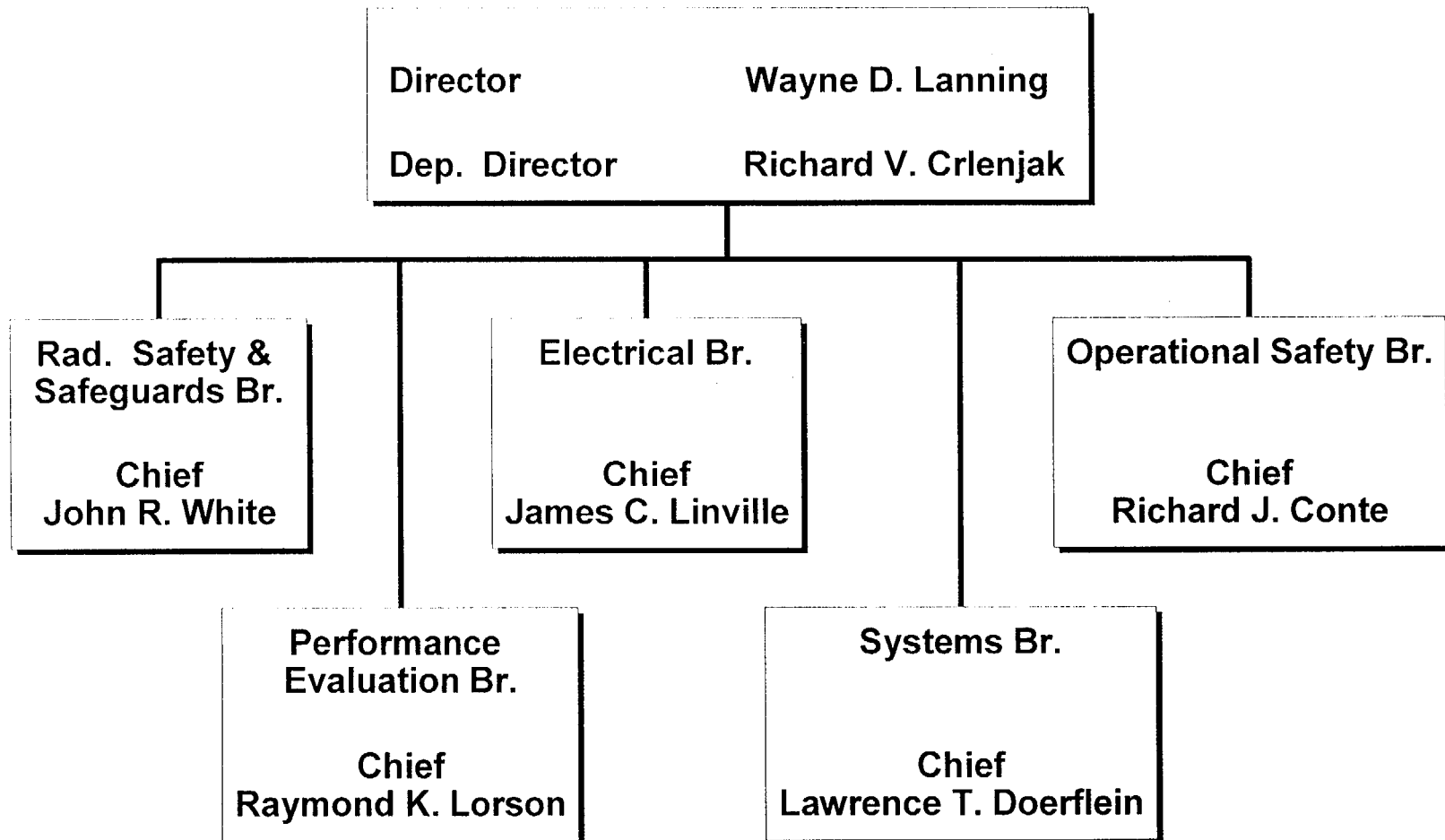


# **REGION I**

## **DIVISION OF REACTOR SAFETY**

### **Organization Chart**

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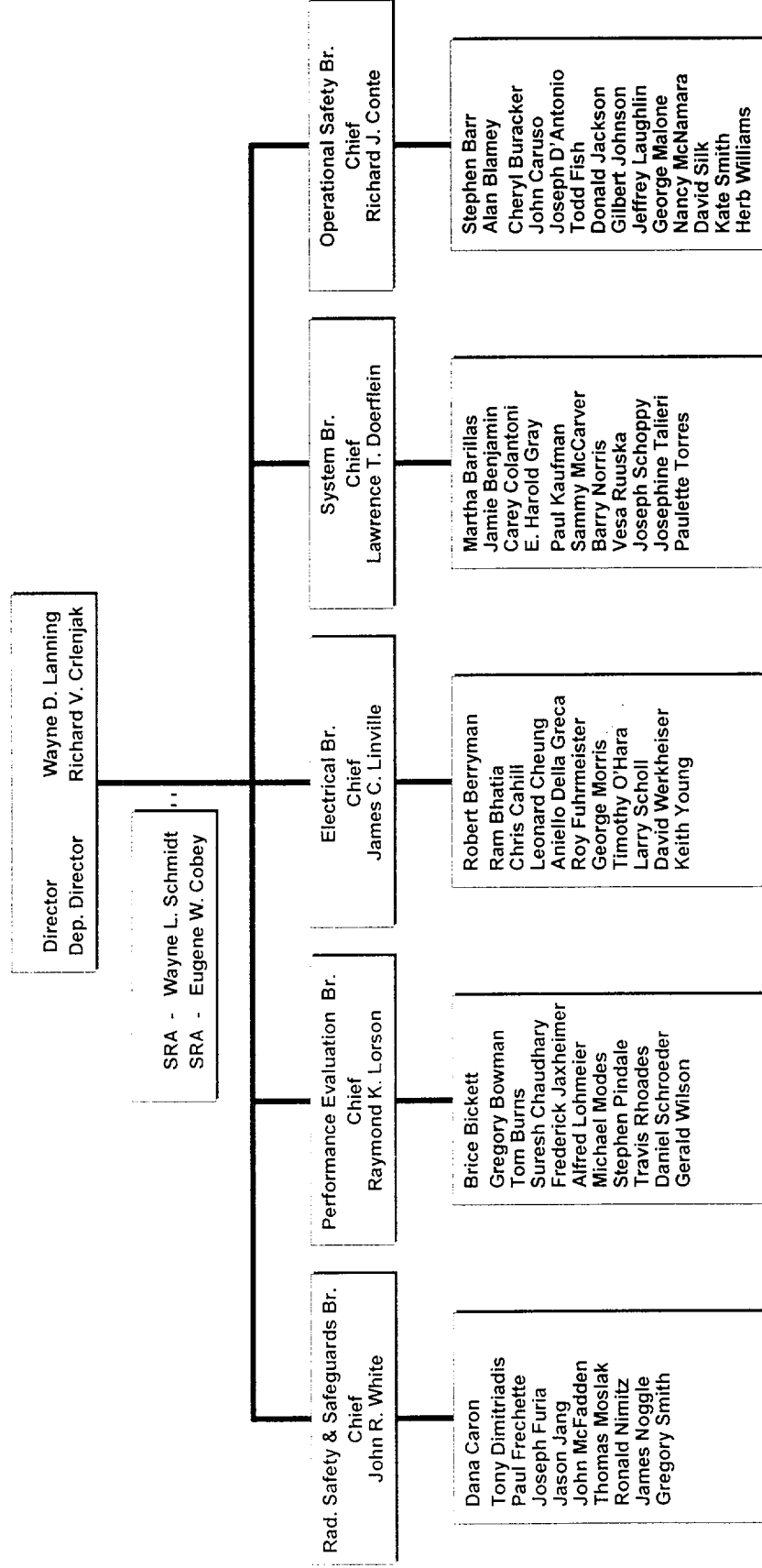




# REGION I

## DIVISION OF REACTOR SAFETY

### Organization Chart

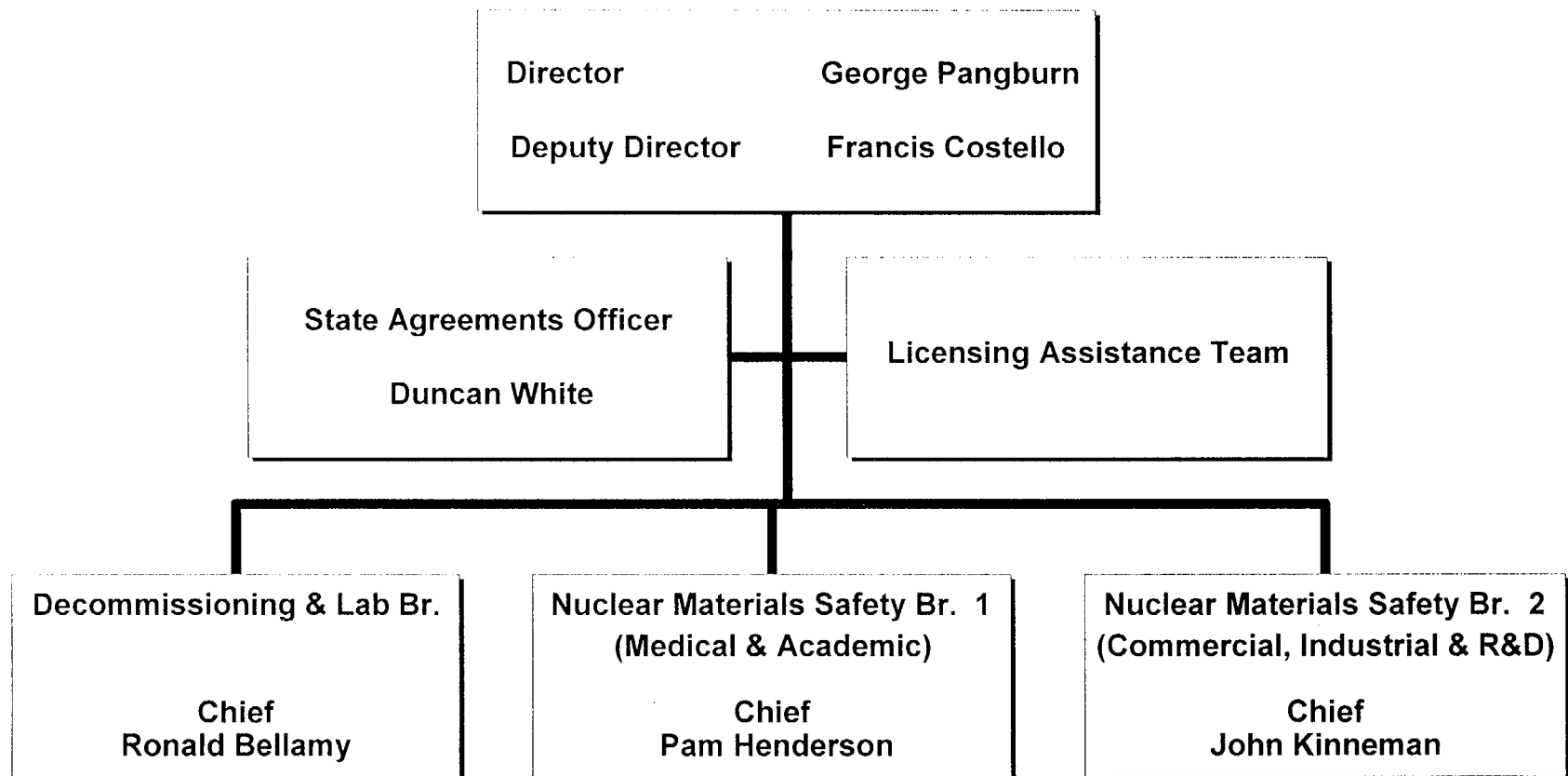


# **REGION I**

## **DIVISION OF NUCLEAR MATERIALS SAFETY**

### **Organization Chart**

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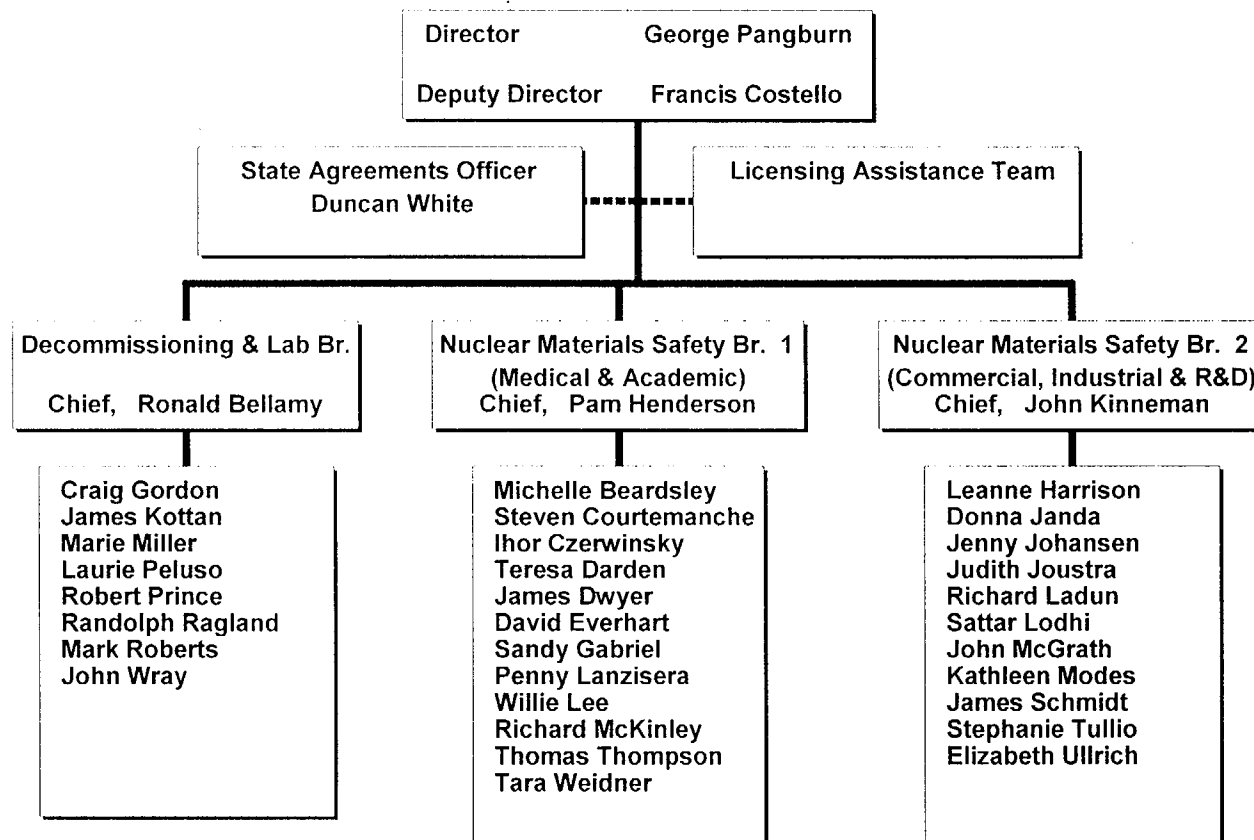


# REGION I

## DIVISION OF NUCLEAR MATERIALS SAFETY

### Organization Chart

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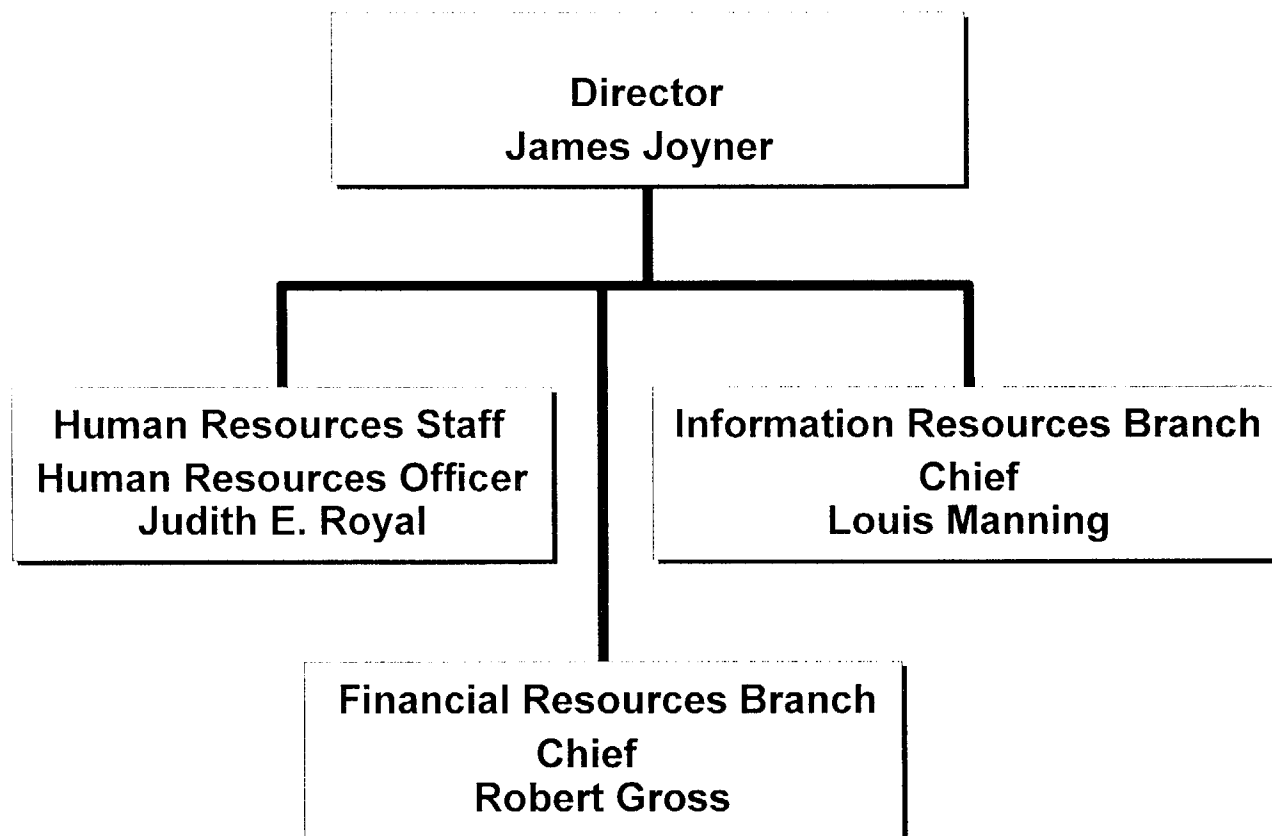


# **REGION I**

## **DIVISION OF RESOURCE MANAGEMENT**

### **Organization Chart**

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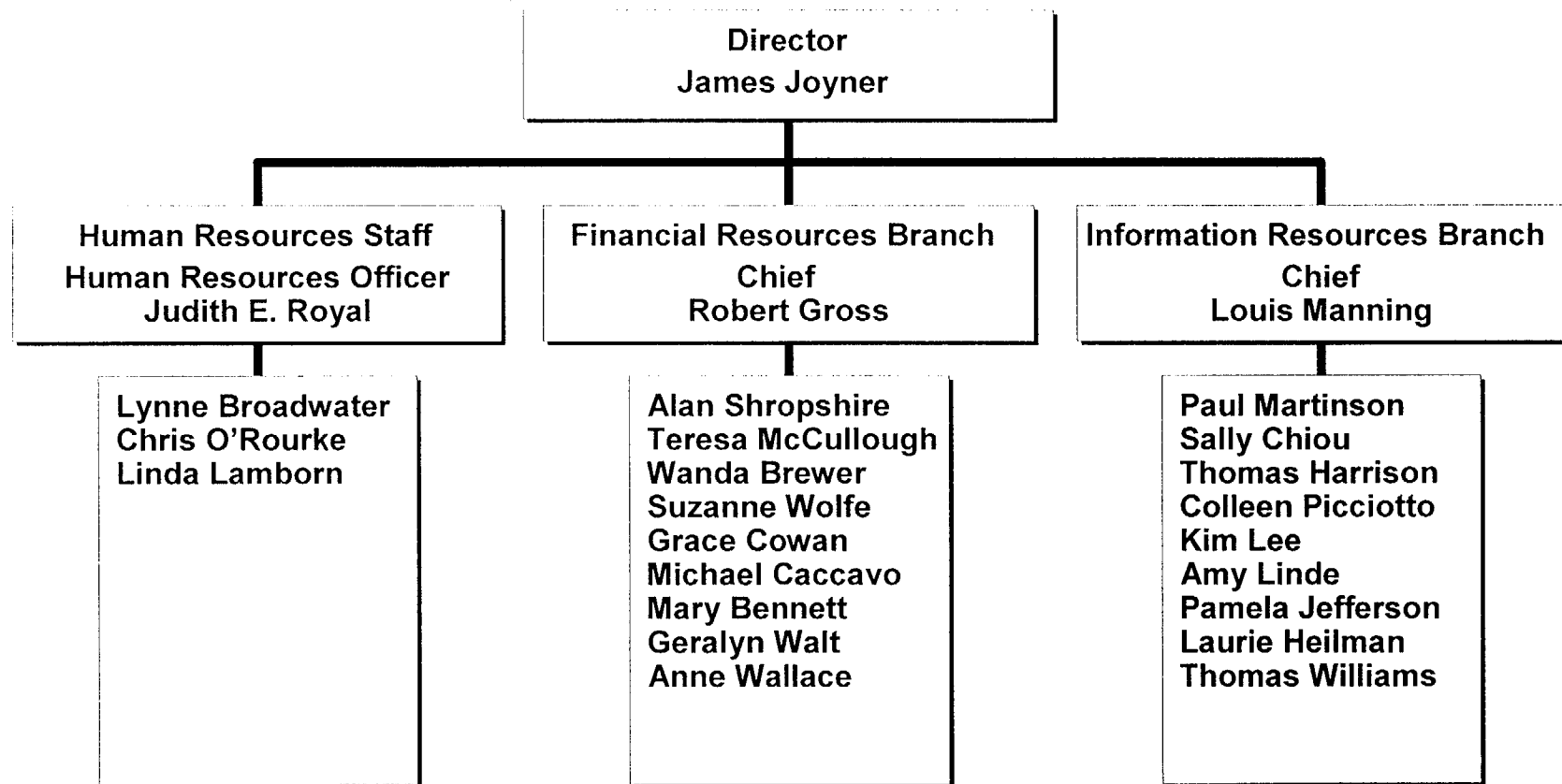


# **REGION I**

## **DIVISION OF RESOURCE MANAGEMENT**

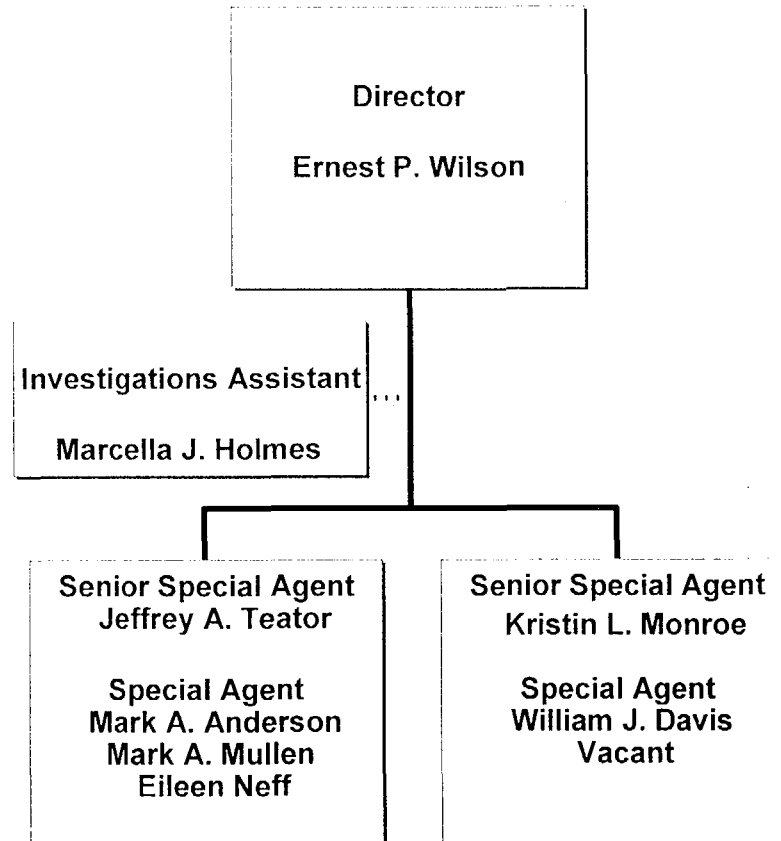
### **Organization Chart**

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# OFFICE OF INVESTIGATIONS FIELD OFFICE REGION I

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# **ADVISORY COMMITTEE ON REACTOR SAFEGUARDS BRIEFING**

**June 10, 2003**



## **Region I**

### **Overview and Challenges**

**Hubert J. Miller**

# REGION I OVERVIEW

- Historical Perspective
- Industry Change and Consolidation
- Public Interest
- Resource Challenges and Staffing
- Inspection and Oversight Philosophy –  
“Safety Culture”



# HISTORICAL PERSPECTIVE

- “Yankee” system pioneered
- Yankee Rowe – 1960 O.L.
- Large number of small, single unit sites with multiple owners
- “Governance” and remote technical support issues

# **HISTORICAL PERSPECTIVE**

## **(Cont'd)**

- Strong public interest – e.g. Shoreham, Seabrook, Millstone
- Historical plant performance problems – numerous “Watch List” plants in past
- TMI

# INDUSTRY CHANGE AND CONSOLIDATION

Year	Sites	Units	Owners
1993	21	30	17
2003	17	26	9

- 10 owner operators departed
- 4 new owners bridging other 3 regions
- Virtually all Region I plants operate as merchant plants
- Impacts of consolidation and deregulation

# PUBLIC INTEREST

- At times, massive activity with significant resource implications
  - Past “Problem Plant” activity
  - Post 9/11 concerns
  - Indian Point activities
- Multiple Stakeholders
  - Congress
  - State and Local
  - Public Interest Groups
  - Media

# INTERACTION WITH EXTERNAL STAKEHOLDERS (since 9/11/01)

	EVENTS	SUPPORTED	NOT SUPPORTED
Public Meetings	41	14	27
Congressional Site Visits	14	4	10
Congressional Briefings and Hearings	26	22	4
Support to Federal/State and other high level government officials	28	21	7
Reactor Oversight Program meetings open to public	36	36	
Other Stakeholder Interface Activities	37	25	12

# **PUBLIC INTEREST (Cont'd)**

- Region I Initiatives
  - Budget/Staffing
  - Organization/Coordination Team
  - Communications
  - Outreach
  - Training

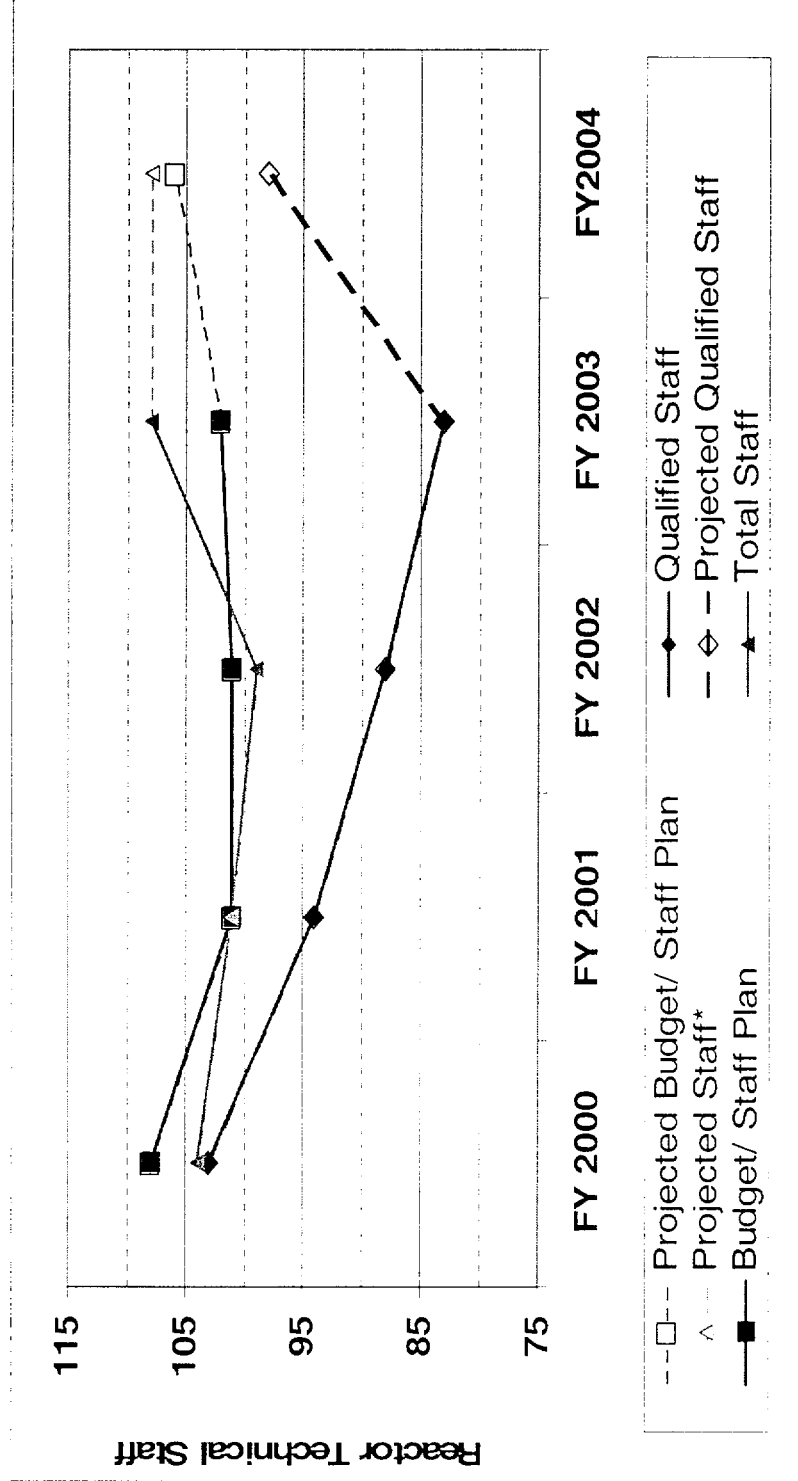
# RESOURCES AND STAFFING

- Regional staffers playing key role in HQ senior positions
- Significant turnover poses challenge to program execution
- Intense management focus on staffing and resource utilization
  - Coping measures - - some “one time”
  - Positive results – e.g. program completion, quality findings, “site coverage”

# RESOURCES AND STAFFING (Cont'd)

## DRP/DRS

April 2000 - April 2004



\* Assume 10% Attrition



# **RESOURCES AND STAFFING**

## **(Cont'd)**

- Training and development successes and challenges
  - Significant over-hiring
  - Strong development initiatives

# INSPECTION AND OVERSIGHT PHILOSOPHY

- ROP Improvements:
  - Risk focus
  - Increased Objectivity
  - Sound foundation for oversight
- As with all processes, effective implementation is the key

# INSPECTION AND OVERSIGHT PHILOSOPHY

- Aggressive mindset to inspection and oversight is vital
  - Effective communication of expectations
  - Strong management involvement and support
  - Management site visits
- Assessment of “safety culture” a byproduct of every inspection – “connecting the dots”
- ANS September 9, 1998 Workshop

**CONDUCT OF INSPECTIONS  
AND COMMUNICATION OF INSPECTION FINDINGS  
OVERVIEW**

**UTILITY/NRC INTERFACE WORKSHOP**

**SEPTEMBER 9, 1998**

**HUBERT J. MILLER**

**REGIONAL ADMINISTRATOR, REGION I**

## **EXPECTATIONS FOR NRC INSPECTION AND OVERSIGHT**

- **FOCUS ON FINDING PROBLEMS**
- **FOCUS ON IMPORTANT ISSUES -- RISK INFORMED, PERFORMANCE BASED**
- **COMMUNICATE EFFECTIVELY**

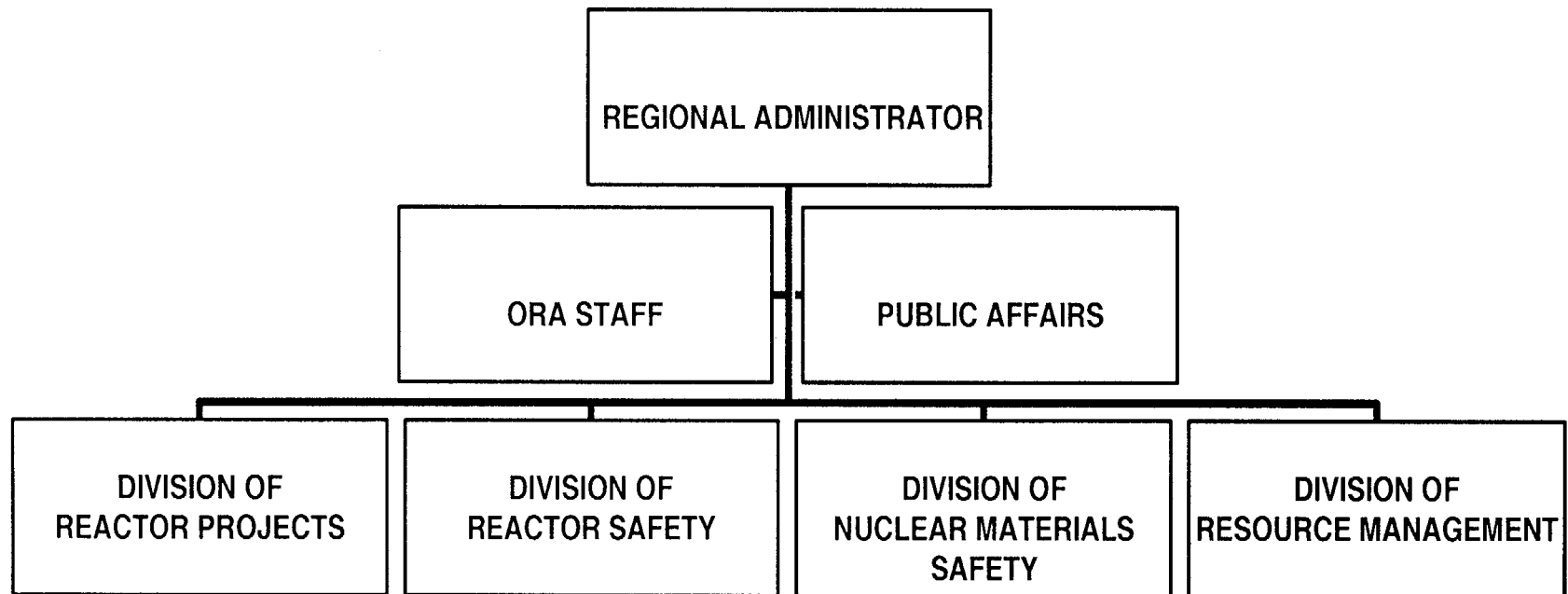
## **"FINDING PROBLEMS"**

- **BEST APPROACH NOT ONLY FOR SAFETY BUT ALSO FOR LONG TERM VIABILITY OF PLANT OPERATIONS**
- **IDENTIFICATION OF PROBLEMS EARLY -- BEFORE BECOMING SIGNIFICANT EVENTS OR REGULATORY BREAKDOWN**
- **PROVIDES LICENSEES "TIME AND SPACE" TO DEAL WITH ISSUES**
- **NRC INDEPENDENT, PERFORMANCE BASED INSPECTION VS. "MINING" LICENSEE CORRECTIVE ACTION PROGRAM**
- **VALUE ADDED BY NRC**

## **FOCUS ON IMPORTANT ISSUES**

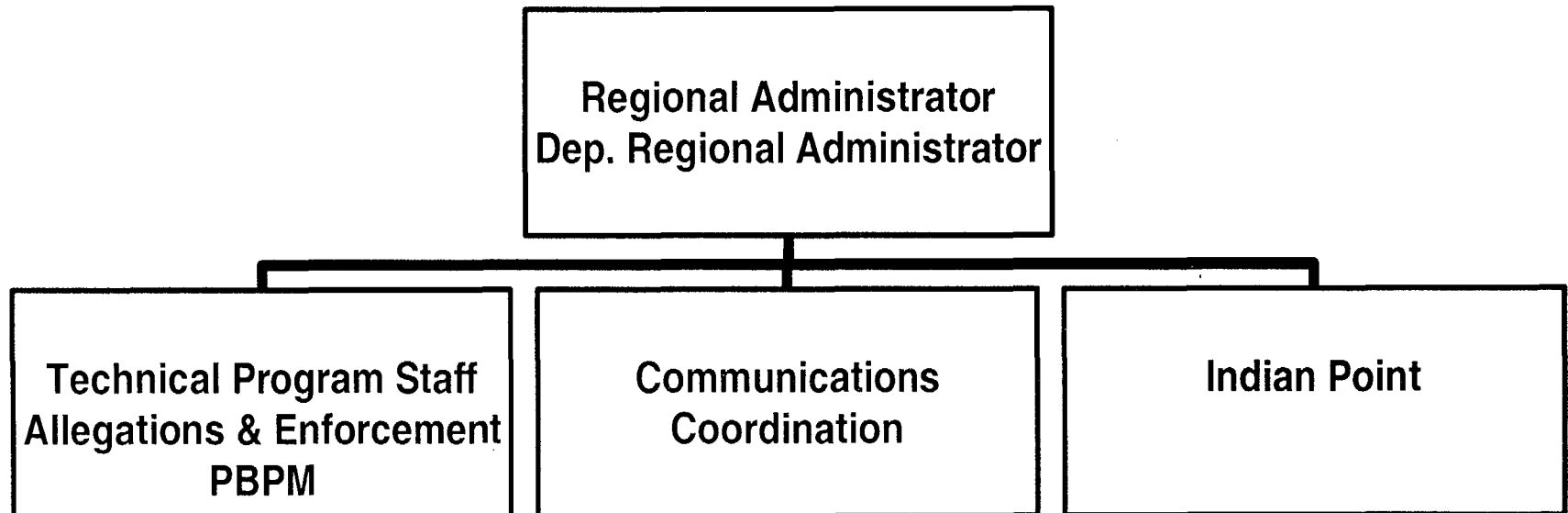
- **REQUIRED AT EACH STAGE OF INSPECTION**
  - **BEFORE -- PLANNING AND PICKING TARGETS**
  - **DURING -- ASKING FOR INFORMATION**
  - **AFTER -- ASSESSMENT, ENFORCEMENT AND DOCUMENTATION**
- **AVOID DIVERSION OF LICENSEE RESOURCES AND ATTENTION TO ISSUES WITH LOW SAFETY PAYOFF -- AWARENESS OF SUBTLE WAYS THIS CAN HAPPEN**
- **"SPLIT PERSONALITY" A VIRTUE**
  - **DIG DEEP**
  - **STAND BACK AND ASSESS THE BIG PICTURE**
- **DISTINGUISH BETWEEN ISOLATED ISSUES AND PERVASIVE PROBLEMS AND WEAKNESSES**
- **RISK INSIGHTS**
- **TAP BROADER AGENCY PERSPECTIVES IN MAKING JUDGEMENTS**
  - **REGIONAL MANAGEMENT**
  - **PEER INSPECTORS AND SENIOR RISK ANALYSTS**
  - **NRR**

# REGION I ORGANIZATION

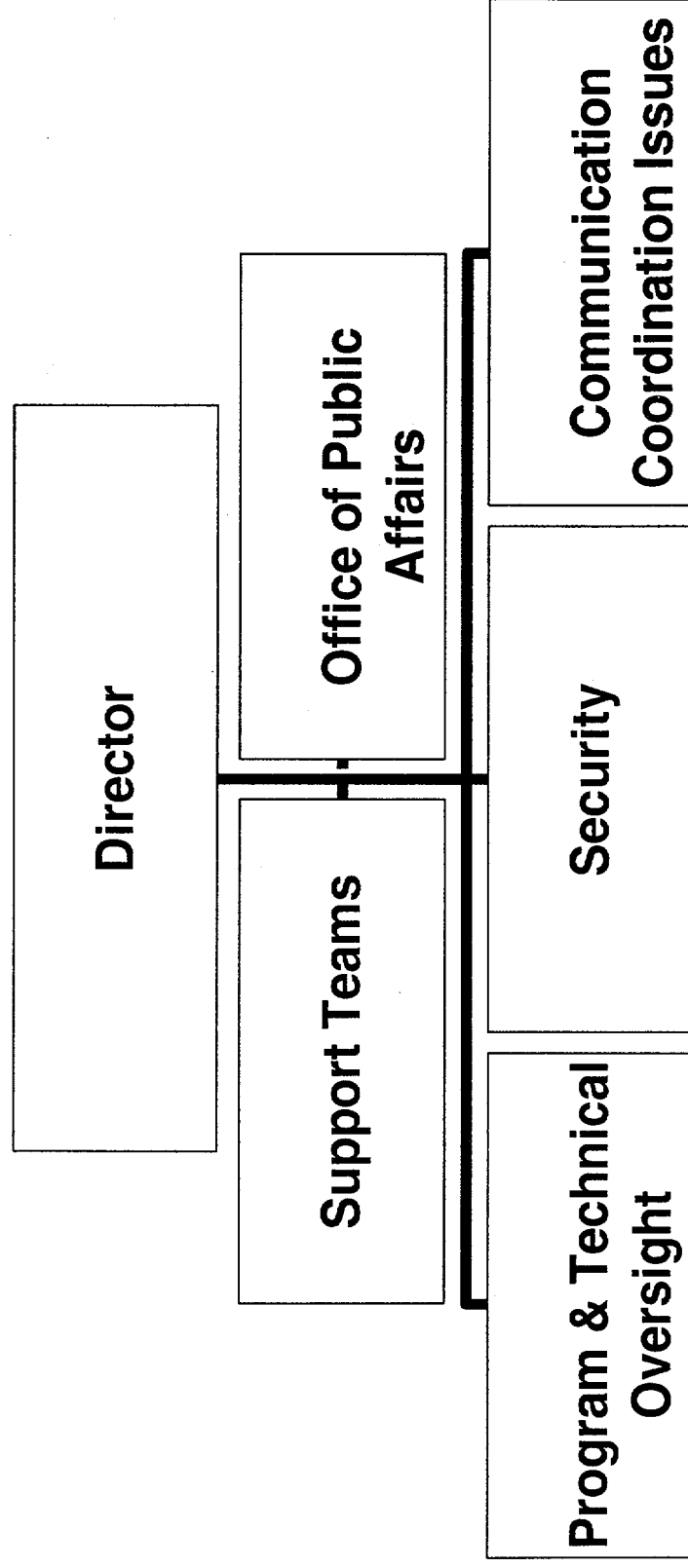




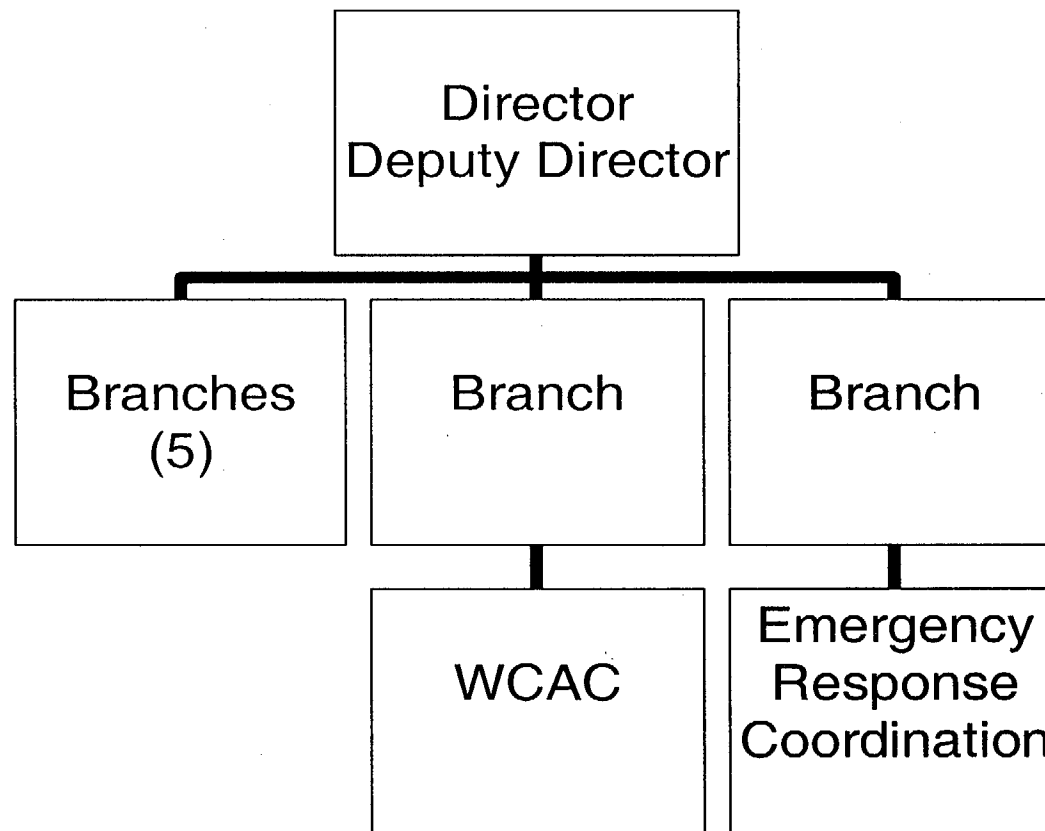
# OFFICE OF THE REGIONAL ADMINISTRATOR



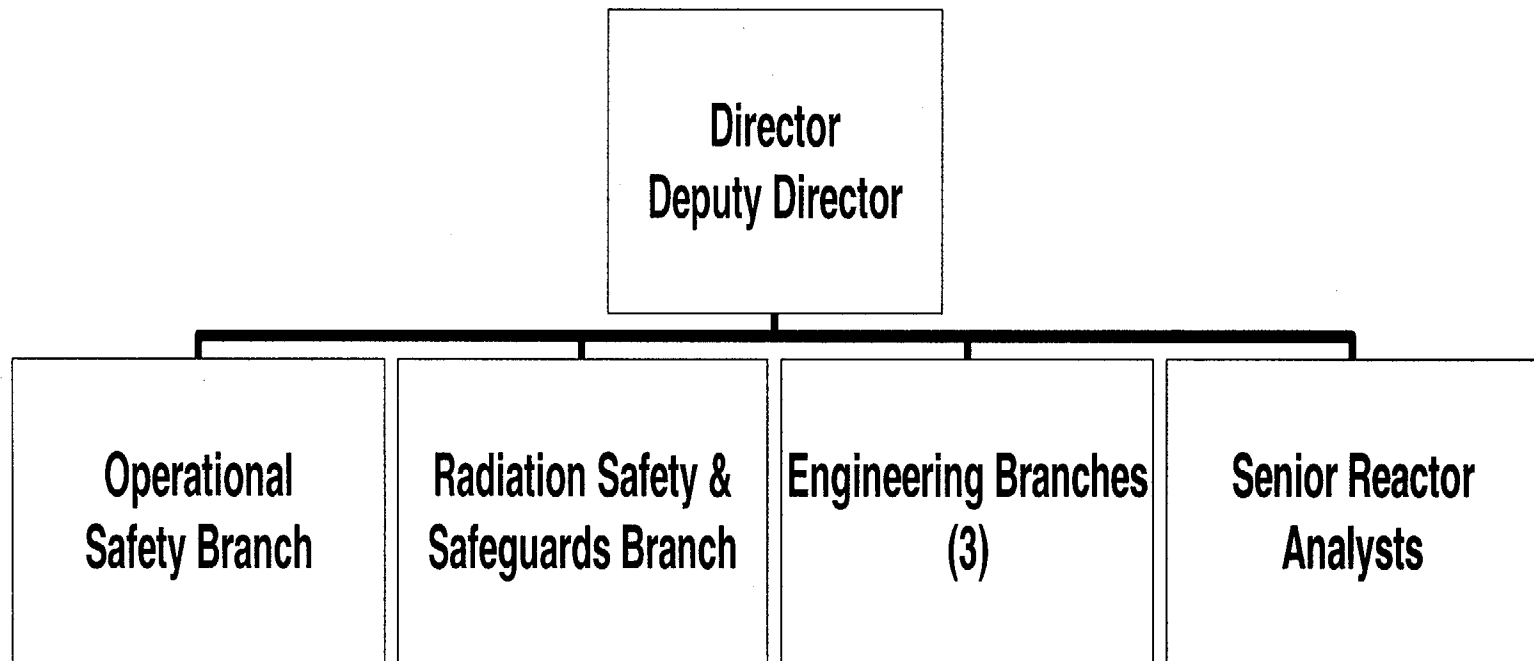
# INDIAN POINT PROJECT



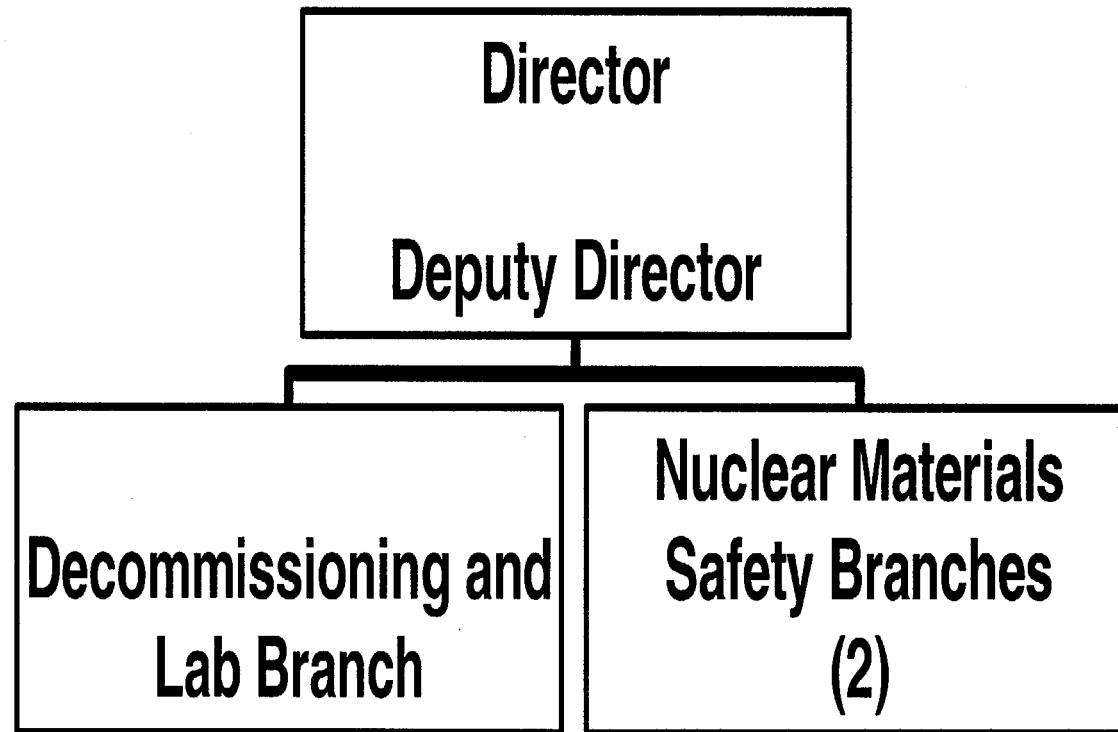
# DIVISION OF REACTOR PROJECTS



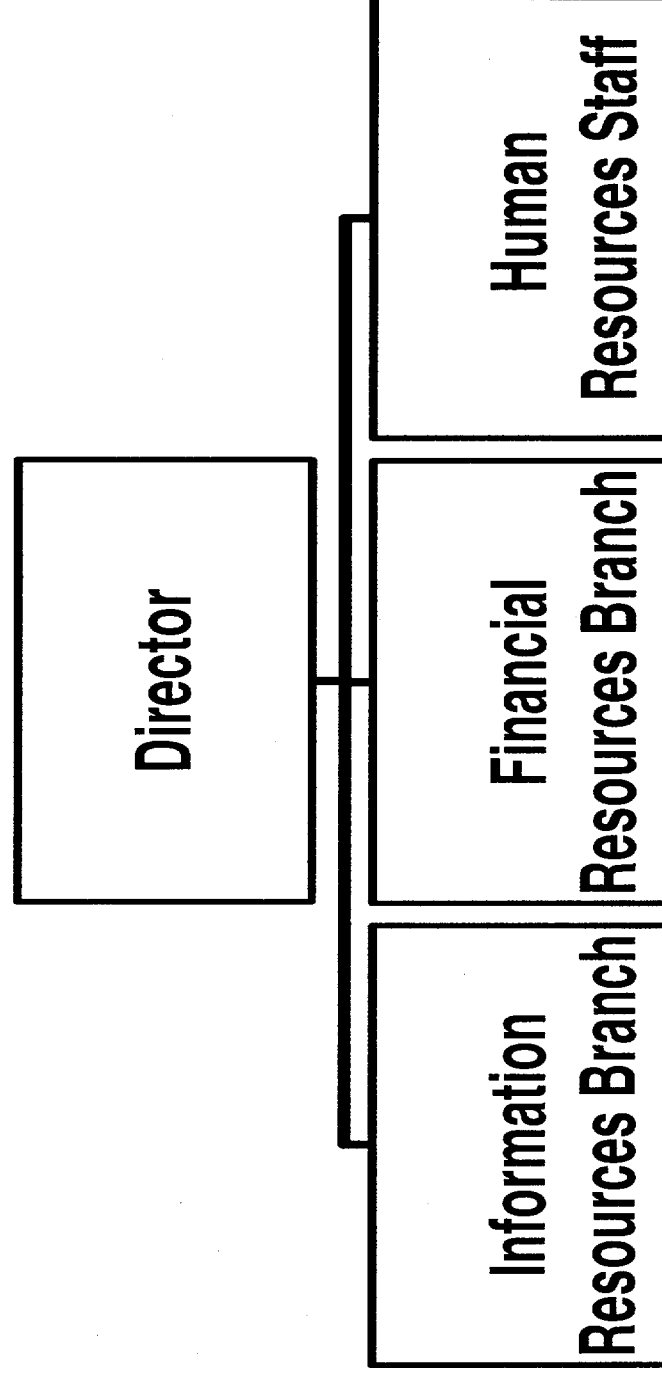
# **DIVISION OF REACTOR SAFETY**



# **DIVISION OF NUCLEAR MATERIALS SAFETY**



# **DIVISION OF RESOURCE MANAGEMENT**



# HIGHLIGHTS

- Resources and Staffing
- Planning and Budget Performance Monitoring
- External Communications
- Allegations/Enforcement
- Work Coordination Analysis Center

# RESOURCES AND STAFFING

## TECHNICAL STAFF GAINS/LOSSES

	FY00	FY01	FY02	FY03 *
<b>GAINS</b>	1	8	25	22
<b>LOSSES</b>	5	13	17	15

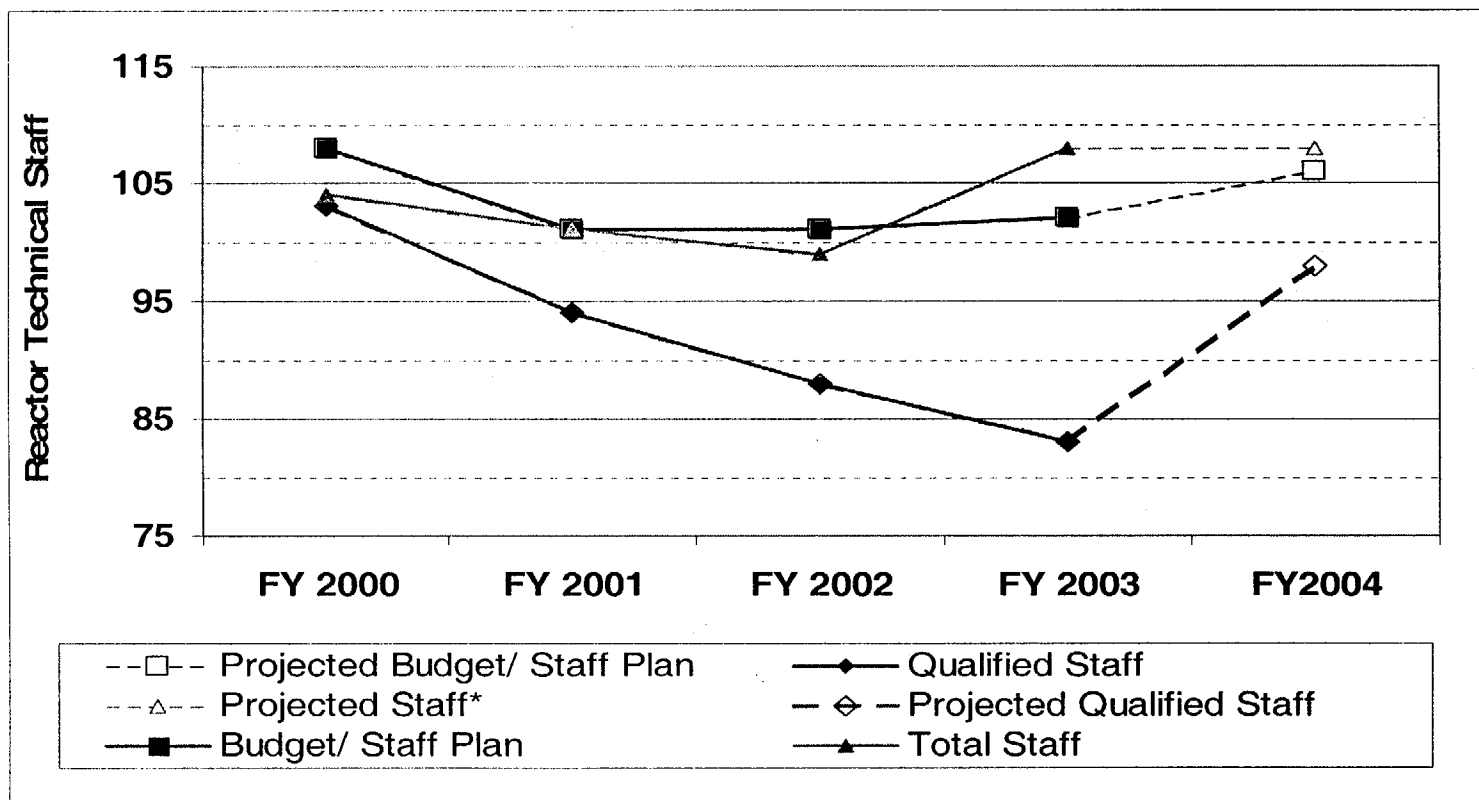
\* Includes known gains/losses for FY03.



# RESOURCES AND STAFFING (Cont'd)

## DRP/DRS

April 2000 - April 2004



\* Assume 10% Attrition

# **RESOURCES AND STAFFING**

## **(Cont'd)**

	<b>Average Years Nuclear Industry</b>	<b>Average Years NRC</b>
<b>Residents</b>	<b>8.0</b>	<b>10</b>
<b>Regional Inspectors</b>	<b>9.8</b>	<b>10</b>

# **PLANNING BUDGET PERFORMANCE MONITORING**

Process:

- Plan
- Communicate Expectations
- Monitor/Assess Results
- Adjust

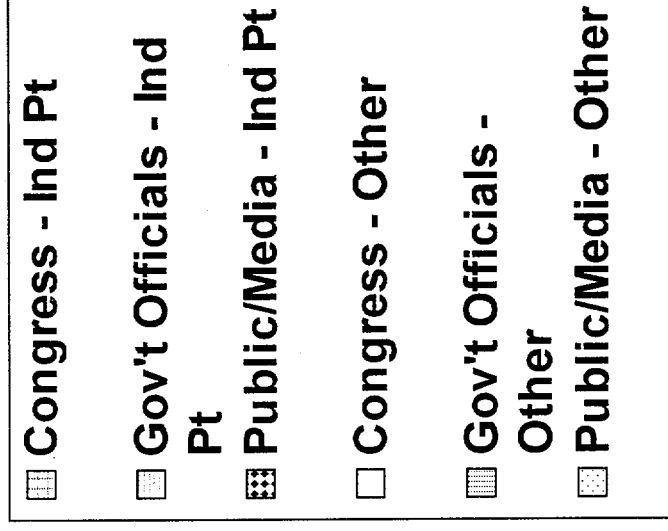
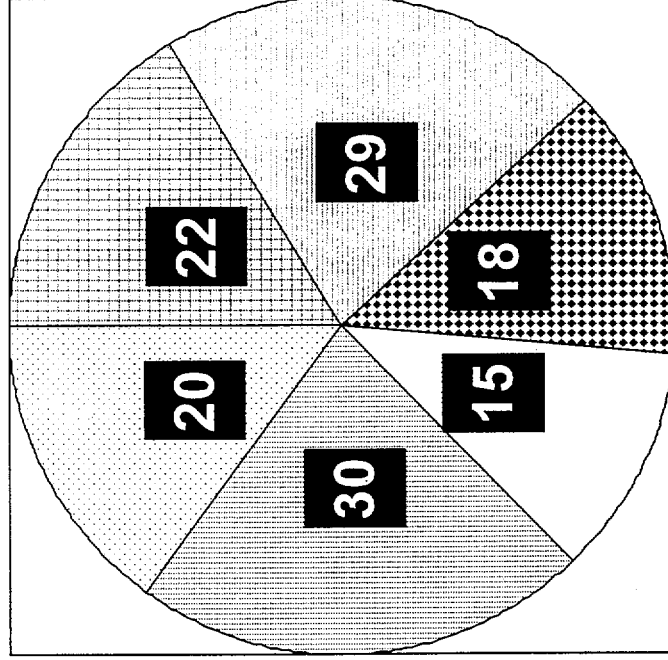
# **PLANNING BUDGET PERFORMANCE MONITORING (Cont'd)**

## **Performance Monitoring and Self Assessment:**

- Performance Metrics
  - Special Reassessment Team FY02
- "Event" Reviews and Lessons Learned
- Special Self-Assessments
- Senior Regional Management Site Visits
- Benchmarking

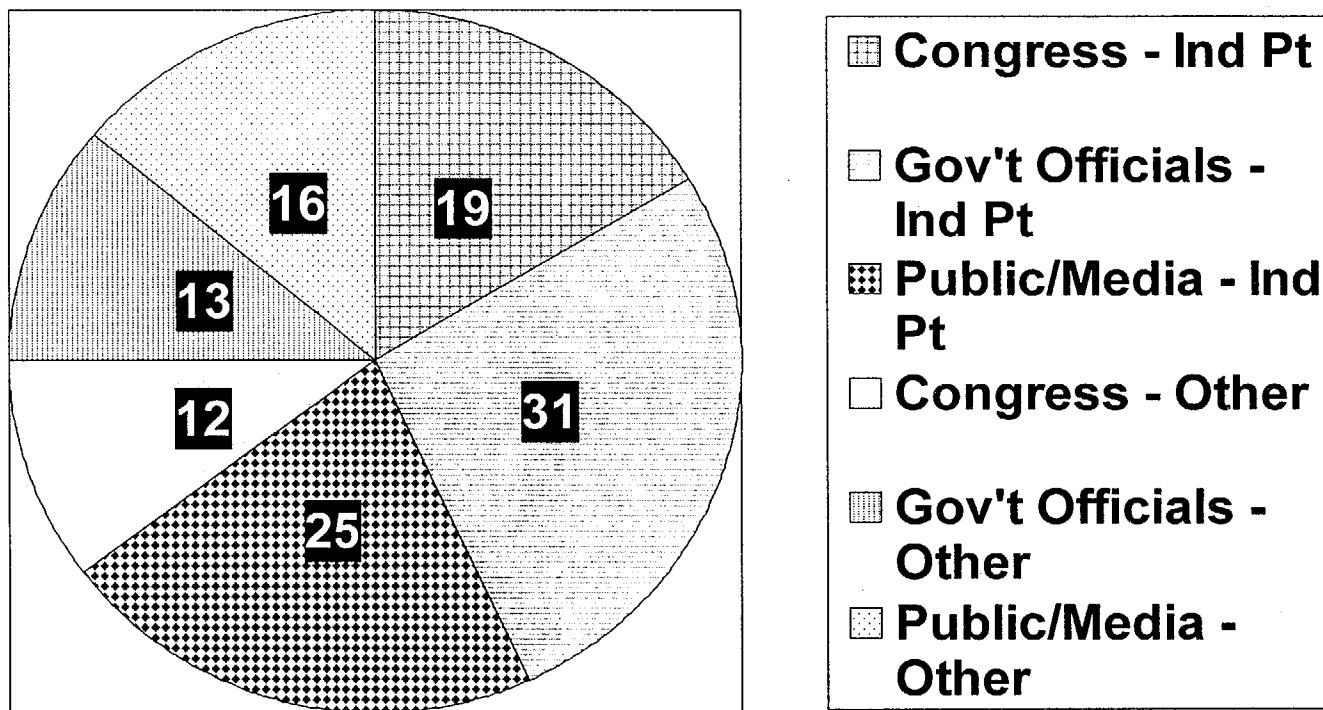
# EXTERNAL COMMUNICATIONS

## MEETING REQUESTS



# EXTERNAL COMMUNICATIONS (Cont'd)

## CORRESPONDENCE



# ALLEGATIONS/ ENFORCEMENT

	FY00	FY01	FY02	FY03 *
Allegations Received				
Materials	55	48	59	33
Reactors	91	90	114	138
TOTAL	146	138	173	171
Enforcement/SDP Cases				
Materials	8	15	12	14
Reactors	8	13	10	11
TOTAL	16	28	22	25

\* Projected based on Oct-May (8 months) data.

# **ALLEGATIONS/ ENFORCEMENT (Cont'd)**

- Significant Effort in Allegations Continues
  - 35% Involved Security
  - 25% involved H & I
- Program Audit Results Consistently Outstanding



# **ALLEGATIONS/ ENFORCEMENT (Cont'd)**

- **Enforcement Workload Steady**
  - 33% Involved Emergency Preparedness
  - 40% Involved Mitigating Systems
  - Some "Classic" Enforcement - e.g. Wrong Doing
- **Program Audit Results Consistently Outstanding**

## **ASSESSMENT OF LICENSEE SELF-ASSESSMENT AND CORRECTIVE ACTION PROGRAMS**

- **STRONG ELEMENT OF SELF-REGULATION**
- **BYPRODUCT OF ALL INSPECTIONS IS ASSESSMENT OF LICENSEE EFFORTS IN:**
  - **FINDING AND DOCUMENTING PROBLEMS**
  - **ASSESSMENT AND ROOT CAUSE**
  - **CORRECTIVE ACTIONS -- WORK CONTROL, ENGINEERING SUPPORT, ETC**
- **RECOGNIZE NEED TO PRIORITIZE**
  - **EVERY PROBLEM DOESN'T GET "FULL TREATMENT" -- GET FIXED IMMEDIATELY**
- **LINE ORGANIZATIONS FIRST FOCUS -- RECOGNIZE BEST RESULTS CAN COME FROM LINE ASSESSMENTS**
- **OVERSIGHT ORGANIZATIONS PROVIDE IMPORTANT, SECOND LINE OF DEFENSE -- E.G.:**
  - **QA AND ONSITE/OFFSITE OVERSIGHT COMMITTEES**
  - **SPECIAL THIRD PARTY REVIEWS**
- **GIVE PROPER CREDIT -- EXERCISE DISCRETION WHERE APPROPRIATE**
  - **INSPECTION FINDINGS**
  - **PERFORMANCE ASSESSMENT (E.G., SALP)**
  - **ENFORCEMENT**

## **COMMUNICATIONS**

- **NO SURPRISES OR DISCONNECTS**
  - **COMMUNICATE DURING INSPECTIONS**
  - **INSPECTION REPORTS MATCH EXIT MEETING MESSAGE**
- **BOTH FACTS AND "TONE" ARE ISSUES**
- **INTEGRATED INSPECTION REPORTS**
  - **FEEDBACK ON "NEGATIVE BIAS" IN REPORTS**
- **MANAGEMENT MEETINGS, "DROP-INS", SITE VISITS**

## **INTERNAL NRC OVERSIGHT**

- **GUIDANCE AND TRAINING**
  - **FUNDAMENTALS OF INSPECTION**
  - **INSPECTOR CERTIFICATION**
  - **INSPECTOR SEMINARS AND SPECIAL TRAINING**
  - **INSPECTION MANUAL (MC - 0610)**
  
- **OVERSIGHT**
  - **BRANCH CHIEF AND OTHER MANAGEMENT INVOLVEMENT**
  - **INSPECTION ACCOMPANIMENTS**
  - **SITE VISITS**
  
  - **FEEDBACK FROM LICENSEES AND OTHER STAKEHOLDERS**

# **ADVISORY COMMITTEE ON REACTOR SAFEGUARDS BRIEFING**

**June 10, 2003**

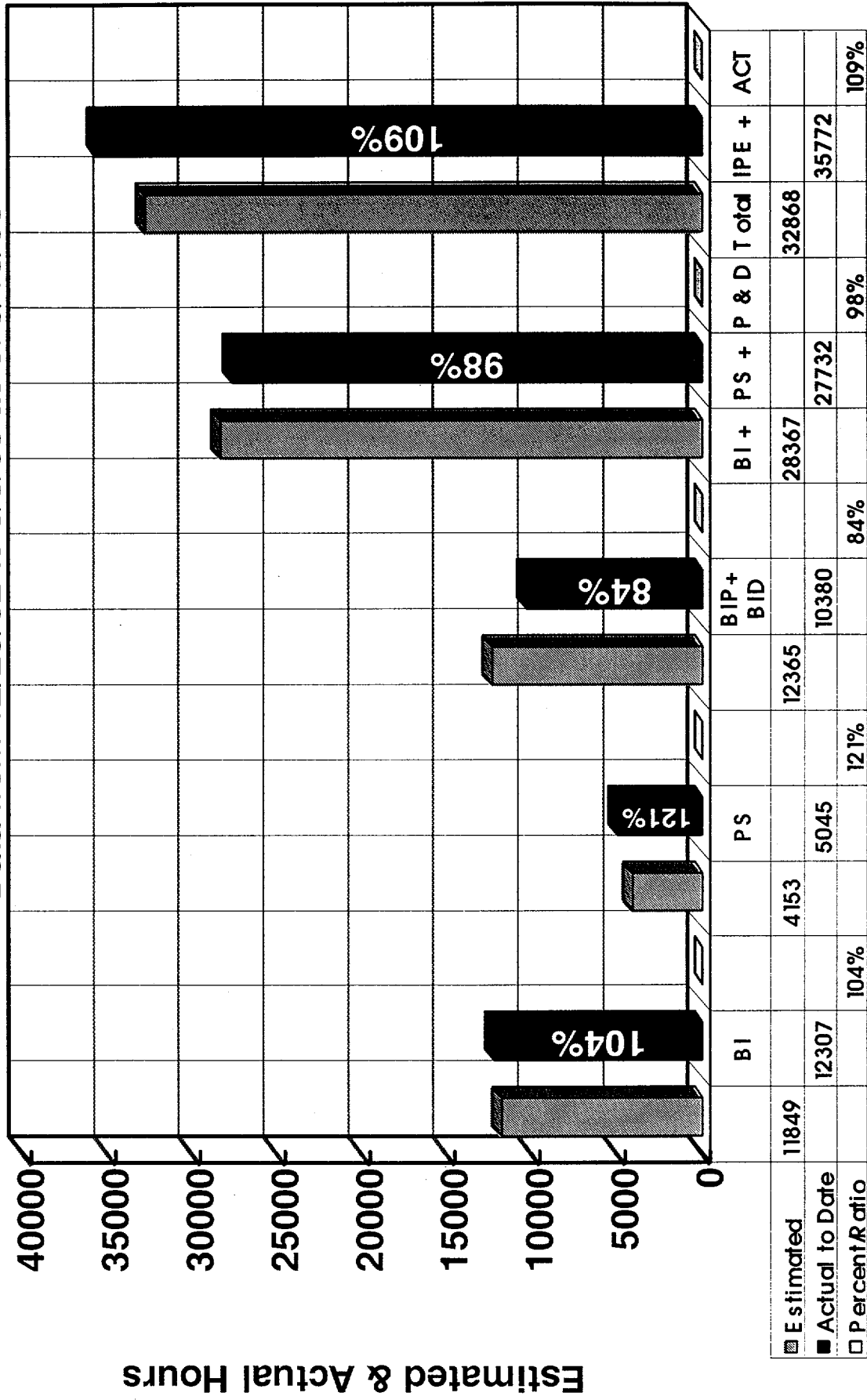


Region I  
Organization

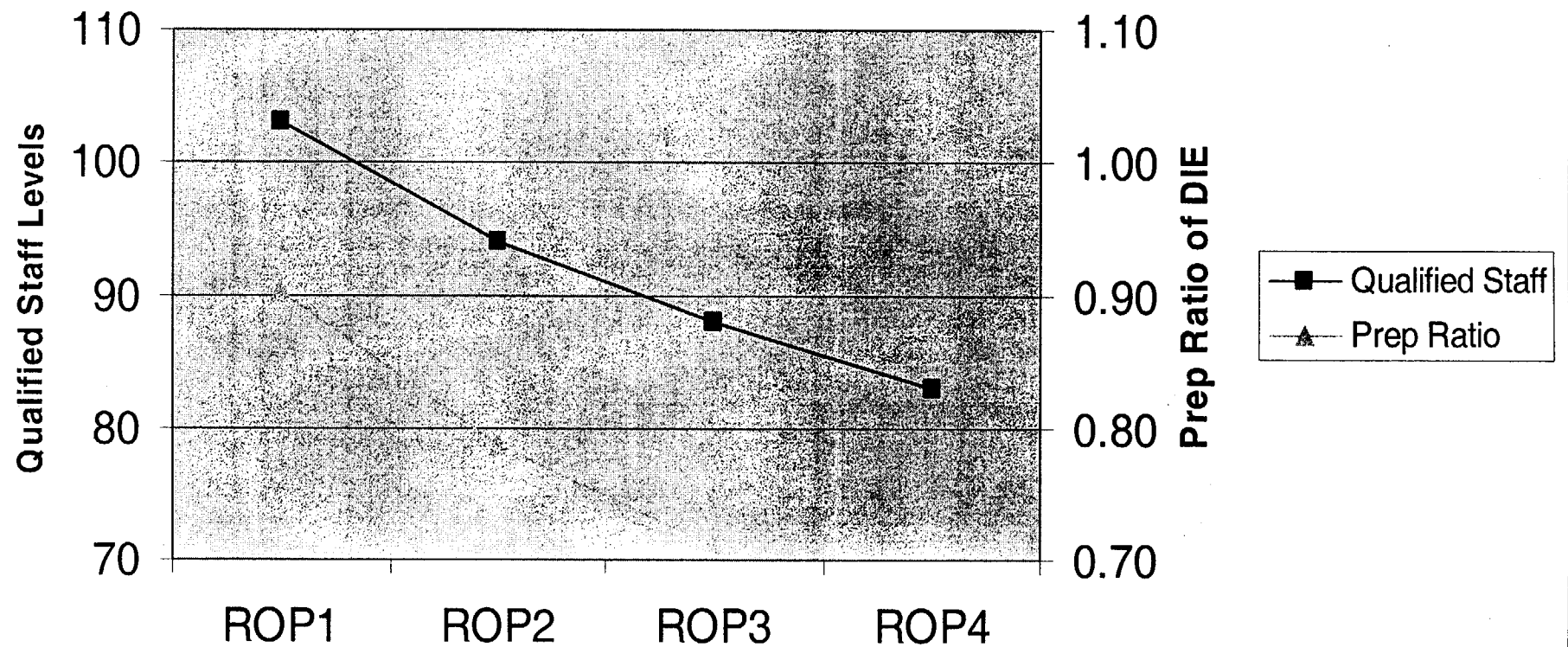
James T. Wiggins

# REGION I ROP PERFORMANCE

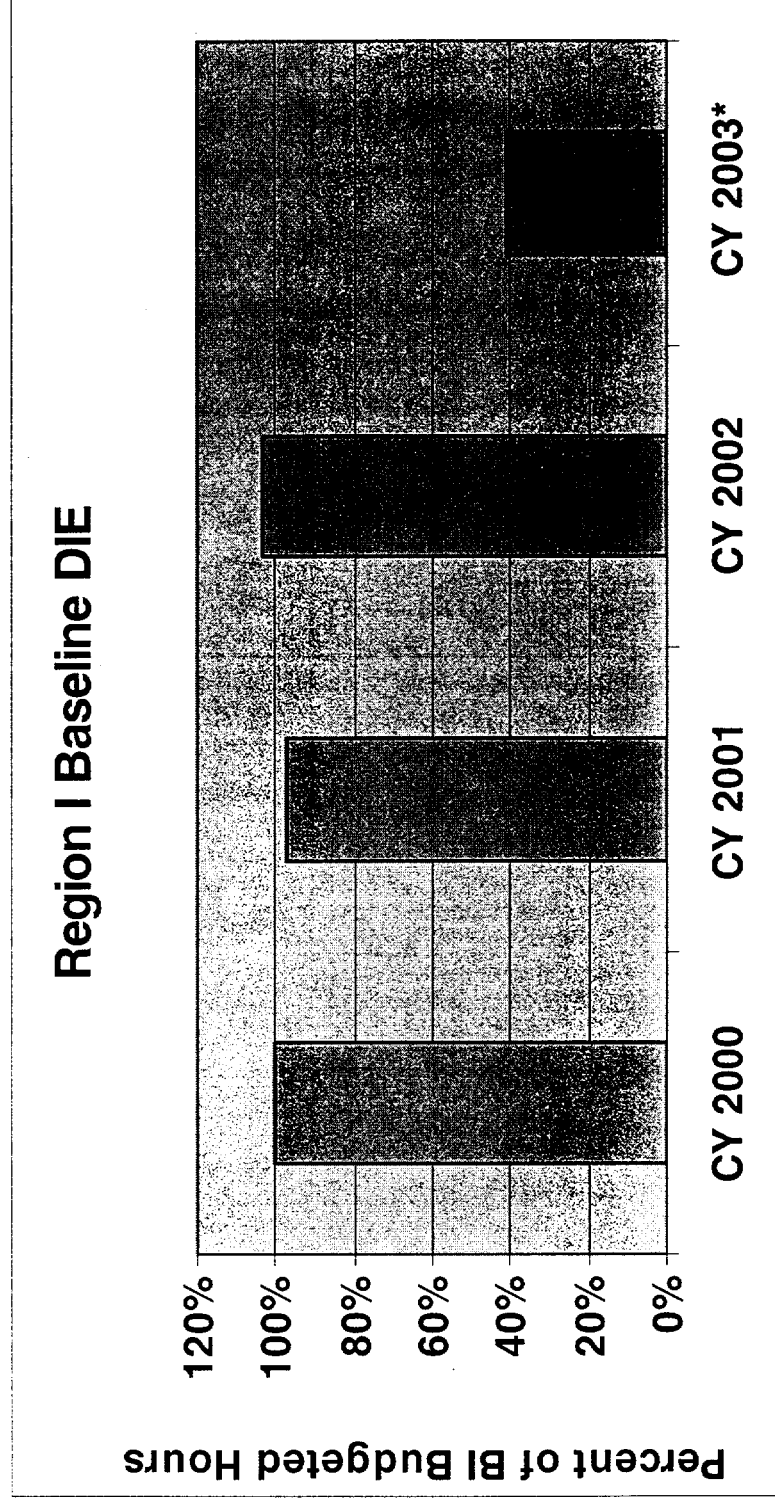
Data from 12/29/02 to 5/3/03 as of 5/13/03



## Prep Ratio vs Qualified Staff



# WORK COORDINATION ANALYSIS CENTER



\*To Date



# **ADVISORY COMMITTEE ON REACTOR SAFEGUARDS BRIEFING**

**June 10, 2003**



**Region I**  
**Plant Performance**

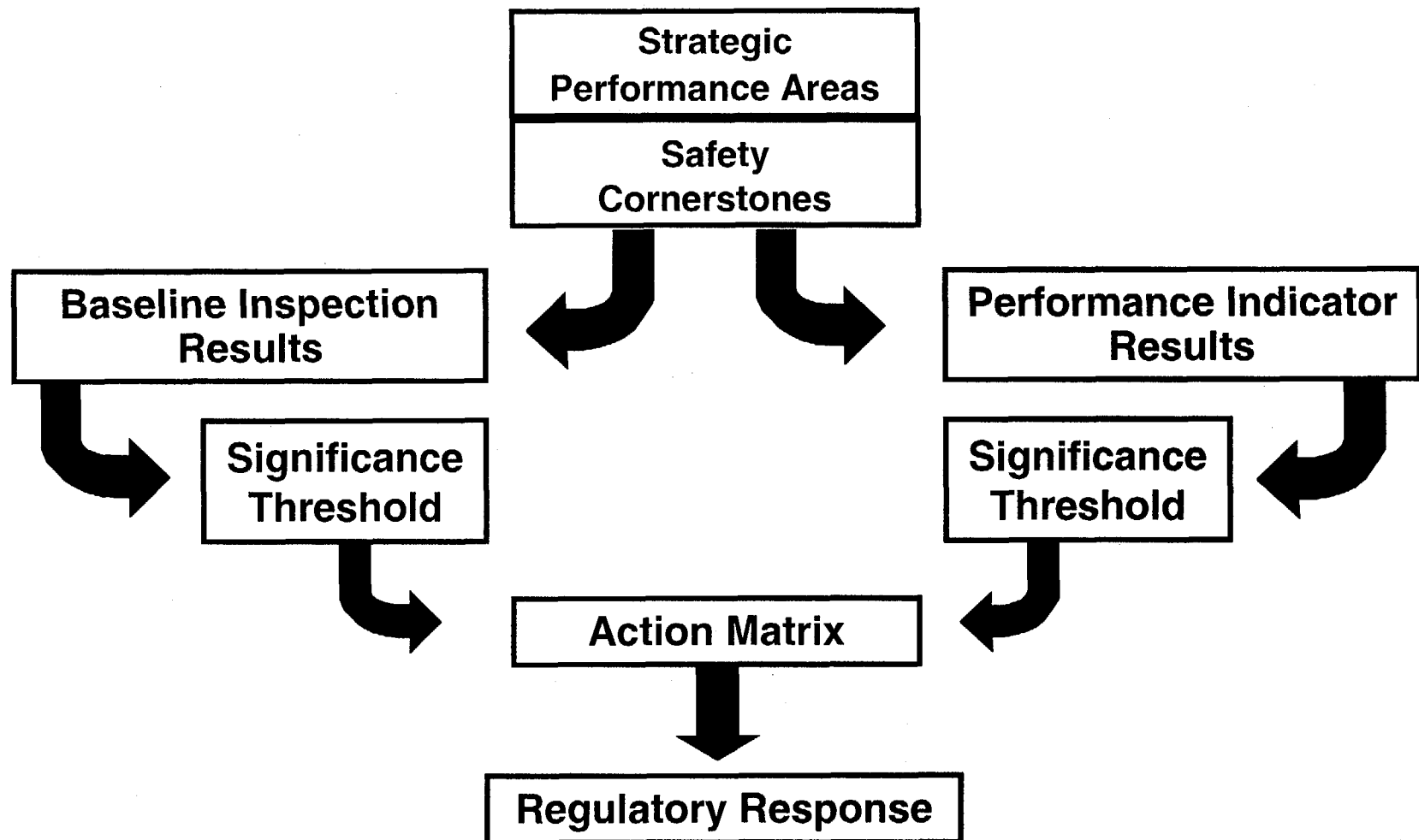
**Randy Blough**

# **PLANT PERFORMANCE**

- **ROP OVERVIEW**
- **APPROACH TO INSPECTION**
- **REGION I PLANT PERFORMANCE**

# REACTOR OVERSIGHT PROCESS

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# **APPROACH TO INSPECTIONS - - Philosophy**

We add value to nuclear safety when we:

- **Focus our inspections and reviews on areas of safety importance**
- **Find problems**
- **Put those problems into safety perspective**
- **Communicate effectively**

# **APPROACH TO INSPECTIONS - -**

## **Continually Question**

"Nuclear power is by its very nature potentially dangerous, and... one must continually question whether the safeguards already in place are sufficient to prevent major accidents."

**President's Commission on TMI-2**

## **SAFETY PHILOSOPHY**

### **Defense in depth strategy**

- ◆ **Accident Prevention**
- ◆ **Safety systems**
- ◆ **Containment (multiple barriers)**
- ◆ **Siting & emergency planning**
- ◆ **Continually question**

**From NRC course "Perspectives on Reactor Safety"**

# CONTINUOUS ASSESSMENT:

We are always assessing licensee performance and our own oversight efforts.

- **ROP assessment process is continuous**
- **PI&R inspection has to be "continuous"**
- **RI challenges ourselves to always be assessing**
  - **Common themes**
  - **Cross-cutting areas**
  - **How well are licensee's "regulating themselves?"**

# **FOSTERING A QUESTIONING APPROACH AND CONTINUOUS ASSESSMENT**

- **Recognize good findings**
- **Coordinate, communicate – e.g., DRP/DRS a.m. meeting**
- **Inspector Seminars**
- **NRC management site visits**
- **Events, "events"**
- **PI&R samples**
- **Assessment meetings**

# SITE VISIT STATISTICS

	<b>FY02</b>	<b>FY03 to date</b>
<b>RA/DRA</b>	<b>32</b>	<b>18</b>
<b>Division Management</b>	<b>49</b>	<b>36</b>
<b>Branch Chiefs</b>	<b>Numerous</b>	<b>Numerous</b>



# **FOSTERING A QUESTIONING APPROACH AND CONTINUOUS ASSESSMENT**

- **Recognize good findings**
- **Coordinate, communicate – e.g., DRP/DRS a.m. meeting**
- **Inspector Seminars**
- **NRC management site visits**
- **Events, "events"**
- **PI&R samples**
- **Assessment meetings**

# APPROACH TO INSPECTIONS

## Unique Sites

- **Nine Mile Point and Beaver Valley**
- **Salem/Hope Creek and Millstone Units 2 & 3**
- **Indian Point Units 2 & 3**

## Goal

- **Adequate indication of licensee performance;  
efficiently**

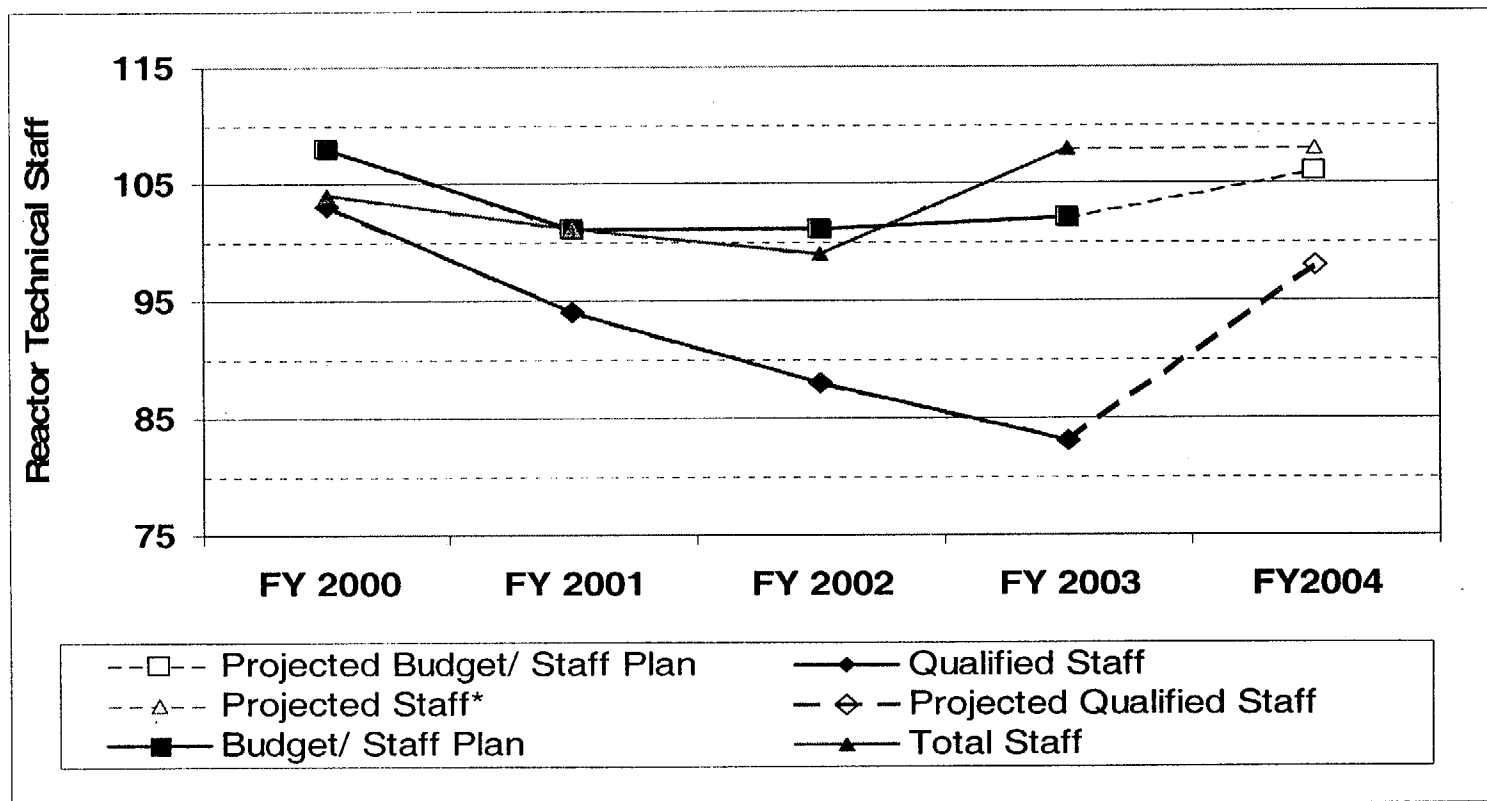
# **INSPECTION PROGRAM CHALLENGES**

- **Accelerated turnover**
  - **Virtually NO external turnover**
- **Continuity at each site**
- **Complete the program with high quality**

# RESOURCES AND STAFFING (Cont'd)

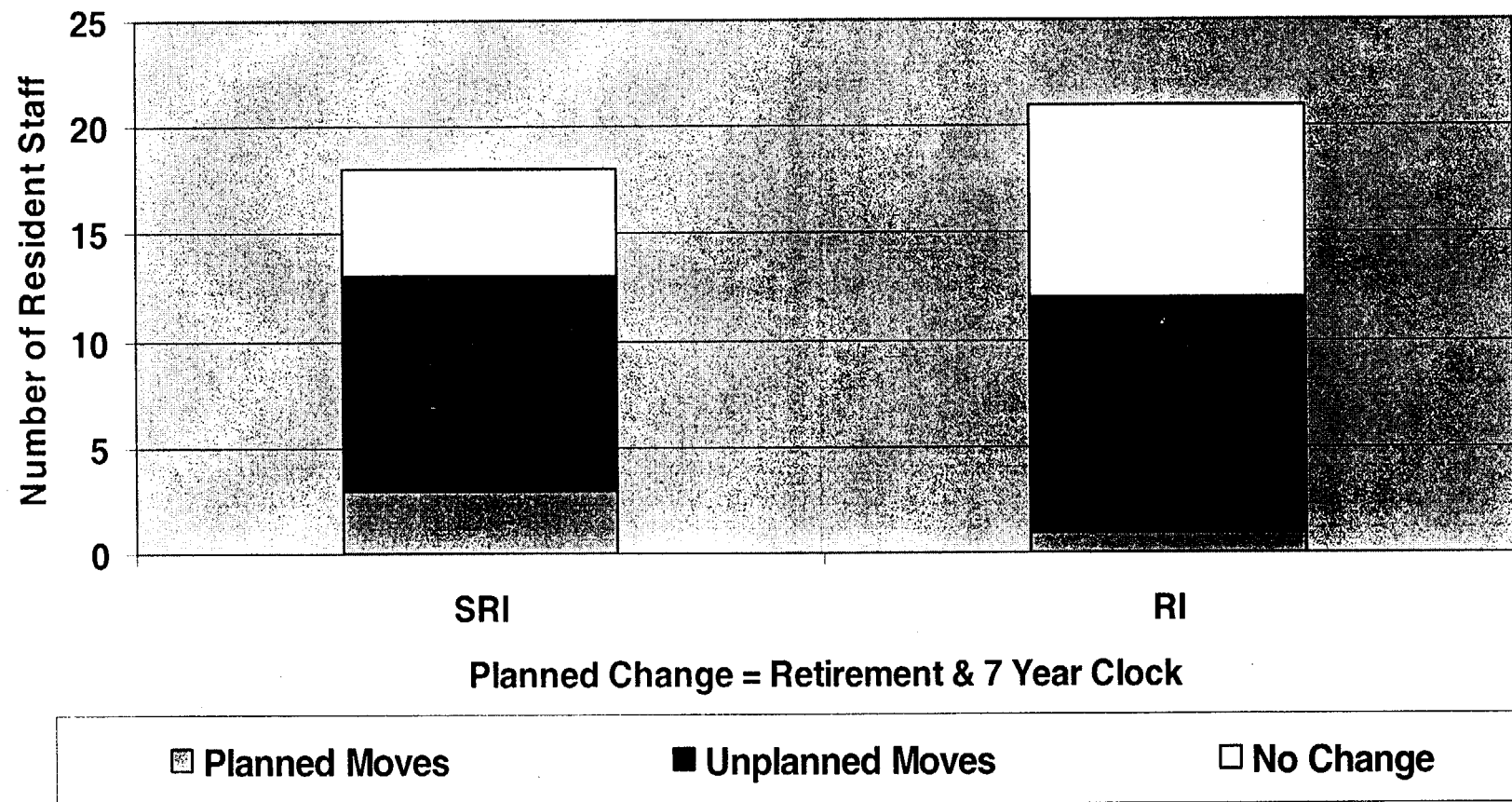
## DRP/DRS

April 2000 - April 2004



\* Assume 10% Attrition

## Region I - Resident Changes (Past Two Years)



# **RI PLANT PERFORMANCE - - Current Action Matrix Summary**

## Degraded Cornerstone: 1 unit

Indian Point 2 - Mitigating Systems (Exiting Degraded  
Cornerstone to Regulatory Response)

## Regulatory Response Plants: 7 units

Ginna -	Emergency Planning
Calvert Cliffs 1&2 -	EP and Public Radiation Safety
Peach Bottom 2&3 -	Emergency Planning
Nine Mile Point 1 -	Mitigating Systems
Salem 1 -	Mitigating Systems

## Licensee Response Column: 18 units

# CURRENT SUBSTANTIVE CROSS CUTTING ISSUES

- Defined in NRC Inspection Manual 0305, "Operating Reactor Assessment Program"

- Significant Level Of Concern in the licensee's ability or progress in addressing cross-cutting area performance deficiencies.
- Multiple Green or safety significant findings within assessment period with documented causal factors in the areas of human performance, P&R, or safety conscious work environment.
- Causal factors have a common theme. (i.e failure to follow procedures, ineffective evaluation of performance deficiencies, inadequate system engineering support of operability, etc.)
- Assessed every 6 months during Mid-Cycle and End Of Cycle Meetings

## **CURRENT OPEN SUBSTANTIVE CROSS-CUTTING ISSUES (Cont'd)**

- **Indian Point 2 (Ongoing)**
  - **Ongoing cross cutting issues identified in human performance and problem identification and resolution**  
**Untimely, Ineffective Corrective Actions (weak corrective actions associated with Firewall**  
**Skill weaknesses related to operator training issues (knowledge tech. Specs, configuration control)**
- **Salem/Hope Creek (Initiated after most recent 2003 EOC meeting)**
  - **Substantive cross cutting issue in PI&R**  
**Ineffective problem evaluation and untimely corrective actions**



# **CURRENT OPEN SUBSTANTIVE CROSS-CUTTING ISSUES**

- **Oyster Creek (Initiated after most recent 2003 EOC meeting)**
  - Substantive cross cutting issue associated with Human Performance Human Performance deficiencies focused around procedural adherence
- **Susquehanna (Initiated after most recent 2003 EOC meeting)**
  - Substantive cross cutting issue associated with Human Performance Numerous findings related to operators failure to correctly implement procedures

# **REGION I - PLANT PERFORMANCE 2000 - 2003**

Indian Point 2 - Multiple Degraded Cornerstones /  
Degraded Cornerstone

Degraded Cornerstones:

Millstone 2 -	Mitigating Systems - HPI and AFW
Calvert Cliffs -	Mitigating System - AFW
Vermont Yankee -	Security - OSRE results

Regulatory Response Column: typically 1/4 to 1/2 of  
Region I plants

# **CROSS-CUTTING ISSUES - - ROP CYCLES 1- 4**

- Have involved 1/2 of Region I sites
  - FitzPatrick
  - Seabrook
  - IP2
  - TMI
  - Millstone 2
  - Calvert Cliffs
  - Hope Creek
  - Salem
  - Oyster Creek
  - Susquehanna
- PI&R and Human Performance (60/40)
- Duration 5 months to 2+ years
- Generally helped focus company attention

# **APPROACH TO INSPECTIONS - - Philosophy**

We add value to nuclear safety when we:

- **Focus our inspections and reviews on areas of safety importance**
- **Find problems**
- **Put those problems into safety perspective**
- **Communicate effectively**

# **ADVISORY COMMITTEE ON REACTOR SAFEGUARDS BRIEFING**

**June 10, 2003**



**Indian Point Performance**

**Brian E. Holian**

# INDIAN POINT

- Challenging case where NRC oversight made a difference
- Strong NRC oversight spanned old and new processes
- Pioneering, precedent-setting case under ROP Action Matrix
  - “Escalation” and “De-escalation”
  - Tools and Flexibility
- Significant impact on regional resources and management attention

# INDIAN POINT

- Plant Data
- IP2 Performance History
- Oversight Process
- Stakeholders
- Challenges

# PLANT DATA

- Buchanan, NY: 26 miles north of NYC
- Unit 1: B&W PWR
  - Ceased operation in 1974
  - Purchased by Entergy Sept. 6, 2001
- Unit 2: 4 loop Westinghouse PWR
  - Commercial operation since 1974
  - Purchased by Entergy Sept. 6, 2001
- Unit 3: 4 loop Westinghouse PWR
  - Commercial operation since 1976
  - Purchased by Entergy Nov. 21, 2000

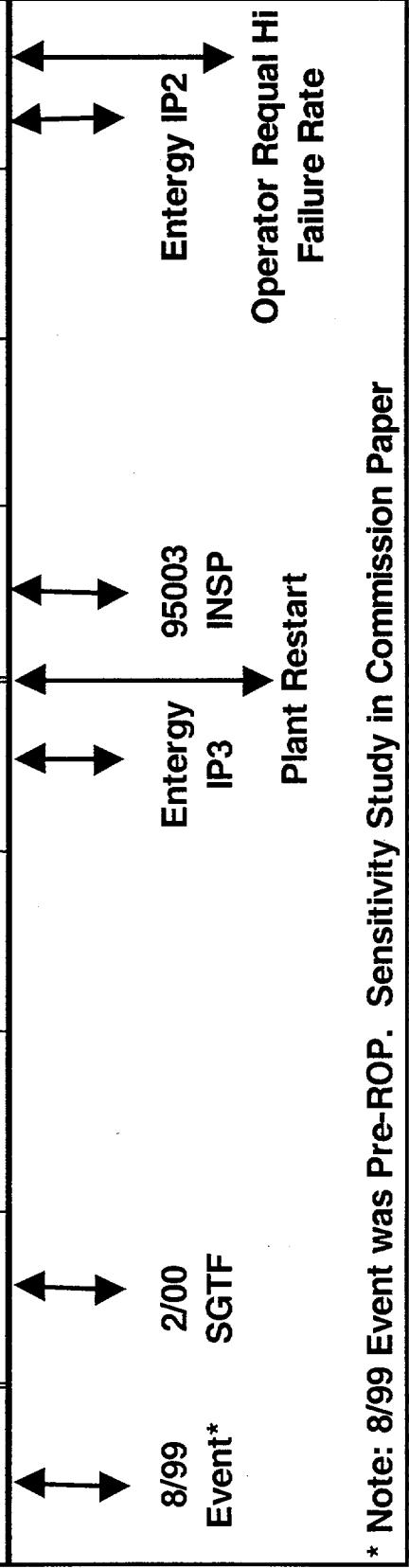


# **IP2 PERFORMANCE HISTORY PRE-ROP**

- NRC Team Inspections
- Plant Events
- Extended Shutdowns and Confirmatory Action Letters
- SALP
- Civil Penalties
- Independent Operating Assessments

**IP2 PERFORMANCE HISTORY CHART - INPUTS TO NRC ACTION MATRIX**  
**(EXPLANATORY NOTES FOLLOW) - Cont'd**

		CY 2000				CY 2001			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Corner-stone									
IE			White PI	Red	Red	Red	Red	Red	Red
MS	Yellow White PI	Yellow White PI	Yellow White PI	Yellow White PI	Yellow White PI	Yellow	Yellow	Yellow	Yellow Yellow
BI	Yellow PI								
EP	White	White	White	White	White	White	White	White	
	White	White	White	White	White	White	White	White	
	White	White	White	White	White	White	White	White	
	White	White	White	White	White	White	White	White	
Matrix Column	N/A	consider MDC	MDC	MDC	MDC	MDC	MDC	MDC	MDC



\* Note: 8/99 Event was Pre-ROP. Sensitivity Study in Commission Paper

# **IP2 PERFORMANCE HISTORY CHART- INPUTS TO NRC ACTION MATRIX** **(EXPLANATORY NOTES FOLLOW)**

	CY 2002				CY 2003			
Corner-stone	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
IE	Red	Red	Red					
MS	Yellow Yellow	Yellow Yellow	Yellow Yellow White	Yellow White	Yellow White	Yellow White	White	
BI								
EP								
Matrix Column	MDC	MDC	MDC	DC	DC			



**CR  
Firewall**



**Public  
Security  
Issues**

# IP2 OVERSIGHT

- ROP Action Matrix
- IP2 Oversight Plan
- Focus on fundamental issues
- Technical Coordination Team
- Communications Coordination Team
- Continued heightened oversight - adjustments in NRC activities

# STAKEHOLDERS

- Concerned Citizens
- Public Interest Groups  
(e.g. Riverkeeper)
- Congress
- State
- Counties
- Media

# STAKEHOLDERS (Cont'd)

- NRC Offices
  - NRR
  - Research
  - NSIR
  - OI
  - OGC
  - OCA
  - OPA
  - EDO
  - ACRS
- Federal Agencies (e.g. FEMA)
- Independent Oversight
  - GAO
  - OIG

# CHALLENGES

- Long-standing Cross Cutting Issues
  - Human Performance
  - Corrective Actions
- Site Integration
- Design Basis Initiatives
- Site Security
- Emergency Preparedness

# **ADVISORY COMMITTEE ON REACTOR SAFEGUARDS BRIEFING**

**June 10, 2003**



**Inspection Results**

**Wayne D. Lanning**



# **SIGNIFICANT CHALLENGES**

- Scheduling and Staffing Inspections
- Transition of Qualified Staff/ Coping Measures
- External Stakeholder Demands
- Plant in Multiple Degraded Cornerstones
- Post 9/11 Activities
- Evolving Significance Determination Process
- Significant Events

# STAFFING INSPECTIONS

- Impact of Staff Turnover
- Coping Measures
  - Consultants
  - Support from Headquarters and Other Regions
  - Expedited Basic Quals
  - Overtime
  - Delayed Inspections
  - Effective Use of Examiners

# **STAFFING INSPECTIONS (Cont'd)**

- Implemented Highly Successful Hiring Strategy
  - Overhires
  - Rehired Annuitants

# **SIGNIFICANCE DETERMINATION PROCESS**

- Ongoing SDP Improvement Plan
- Significant Support for EP, RP, and FP Revisions
- Complex Tool
  - Resource Intensive
  - Assumption Driven/Root Cause Dependent
  - Requires SRA Expertise for Phase 2

# **SIGNIFICANCE DETERMINATION PROCESS (Cont'd)**

- Insights into Licensees' PRAs
  - Quality
  - Models/Failure Rates

# SDP RESULTS

## SDP Results are Timely and Seldom Challenged by Licensees

FY 01	1	Red (SGTF)
	1	Yellow (TDAFWP)
	7	White (2EP, 3MS, SEC, RP)
FY02	2	Yellow (Security, Requal)
	5	White (3 EP, 2 MS)
FY03	5	White (2 EP, 3 MS)

# **SIGNIFICANCE DETERMINATION**

- Indian Point 2 Steam Generator Tube Failure Event
- Seabrook Emergency Diesel Failure
- Salem Emergency Diesel Turbocharger Failure
- Various Emergency Preparedness Issues

# STAFF MOTIVATION /SAFETY FOCUS

- Focus on Safety/Questioning Attitude
- Challenged to Find Problems
- Communicate Insights to Licensees
- ROP Challenges (threshold for documenting issues)
- Recognition for Efforts (Performance and Instant Cash Awards)
- Develop Staff...Advanced PRA Training



# INSPECTION FINDINGS

- Nine Mile Point 1 Reactor Building Closed Loop Cooling System Integrity
- Limerick Preconditioning
- Fitzpatrick Inadequate Cooler Flow
- Millstone Charging System
- Fitzpatrick Locked Valve

# **ADVISORY COMMITTEE ON REACTOR SAFEGUARDS BRIEFING**

**June 10, 2003**



**Significance Determination Process**

**Eugene Cobey**

# **Significance Determination Process**

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Salem Unit 1

Catastrophic Failure of the 1C Emergency  
Diesel Generator Turbocharger

# TIMELINE

4/2 - 9/02	Recurring fuel oil leaks on 1C EDG
9/10/02	Decision to conduct Special Inspection
9/13/02	1C EDG turbocharger failed
9/16/02	Commenced Special Inspection onsite
1/30/03	Special Inspection exit meeting
3/14/03	Inspection report issued
3/24/03	Significance/Enforcement Review Panel
3/31/03	Preliminary WHITE finding issued
5/01/03	Final WHITE finding issued

# **SPECIAL INSPECTION**

- **Four previous turbocharger failures**
- **Vibration monitoring for the EDG turbochargers ineffectively implemented following 1998 failure**
- **Initiated corrective actions following 1990 failure, but did not implement**

# **PERFORMANCE DEFICIENCY**

**Corrective actions for previous EDG turbocharger failures had not been effective in preventing recurrence of the problem**

# **SDP ASSUMPTIONS**

- **Cause of turbocharger failure - fatigue failure of inducer blade**
- **EDG not capable of fulfilling its safety function for approximately 283 hours**
- **EDG not recoverable following turbocharger failure**

# **SDP PROCESS**

- **SDP Phase 1 screened inspection finding to Phase 2**
- **SDP Phase 2 estimated risk significance as WHITE**
- **SDP benchmarking effort identified Phase 2 process underestimated risk significance of findings associated with EDGs**
- **Finding evaluated using SDP Phase 3 process**



# **SDP PHASE 3**

## **Internal Initiating Events:**

- **Used NRC SPAR model Revision 3.02**
- **Changes:**
  - **Incorporated updated LOOP initiating event frequencies and non-recovery probabilities from NUREG/CR-5496.**
  - **Incorporated Rhodes model for reactor coolant pump seal behavior**
  - **Modified emergency AC power success criteria**
- **Results:  $\Delta\text{CDF} = 8.64\text{E-}6$  per year (WHITE)**

# **SDP PHASE 3 (Cont'd)**

## **External Initiating Events:**

- **Seismic events not significant contributors - likelihood of seismic-induced LOOP several orders of magnitude less than random LOOP**
- **High winds, floods, and other external initiators not significant contributors – qualitatively determined**
- **Fire events not quantified – information needed for risk estimation (e.g., mitigating equipment cable routing, etc.) not available for review**

# **SDP PHASE 3 (Cont'd)**

## **Large Early Release Frequency (LERF):**

- **Large dry containment**
- **Events of concern**
  - **Inter-system LOCA**
  - **Steam generator tube rupture**
- **Events of concern not adversely impacted by findings associated with EDGs - no attributable increase in LERF**

# **SDP PHASE 3 (Cont'd)**

## **Conclusion:**

- **Analysis uncertainty due to not quantifying the risk contribution of fire events offset by uncertainties in assumptions**
- **Safety significance of inspection finding was WHITE**

# CHALLENGES

- **Characterization of performance deficiencies**
- **Establishing assumptions for risk analysis  
(e.g. fault exposure time)**
- **Quality of NRC and licensee PRA tools**
- **Lack of tools to evaluate risk significance of  
external initiators at most plants**
- **Treatment of uncertainty in SDP risk analysis**
- **Licensee support for SDP process**

# **SIGNIFICANCE DETERMINATION PROCESS**

**Questions ?**