



U.S. Department of Energy
Office of Civilian Radioactive Waste Management



DOE/NRC Quarterly Management Meeting

Las Vegas, Nevada

May 11, 2004



U.S. Department of Energy
Office of Civilian Radioactive Waste Management

www.ocrwm.doe.gov

Project Update Exhibits

Presented to:
DOE/NRC Quarterly Management Meeting

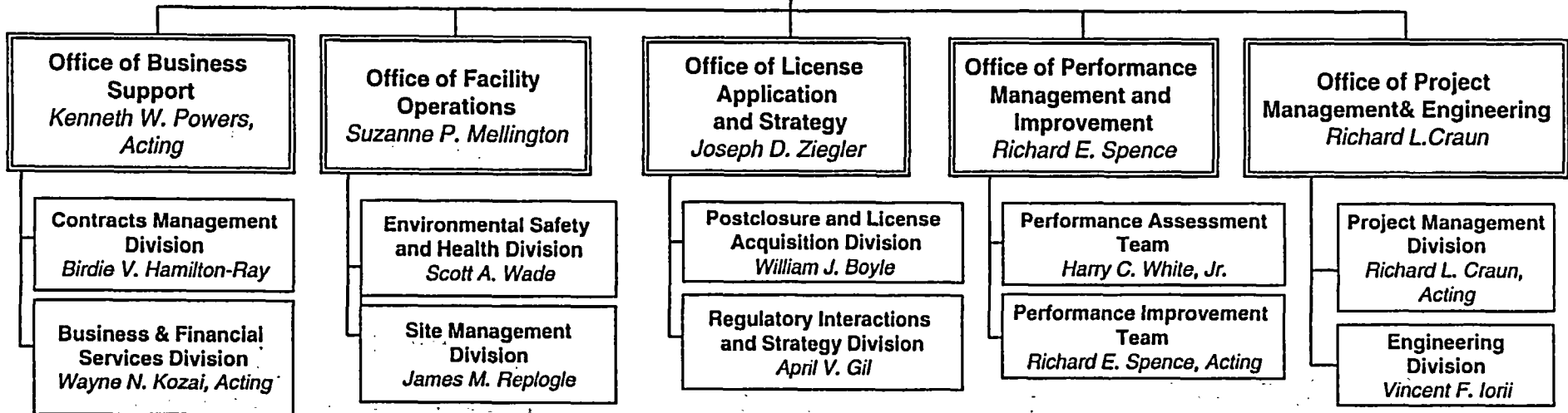
Presented by:
W. John Arthur, III
Deputy Director, Office of Repository Development
U.S. Department of Energy

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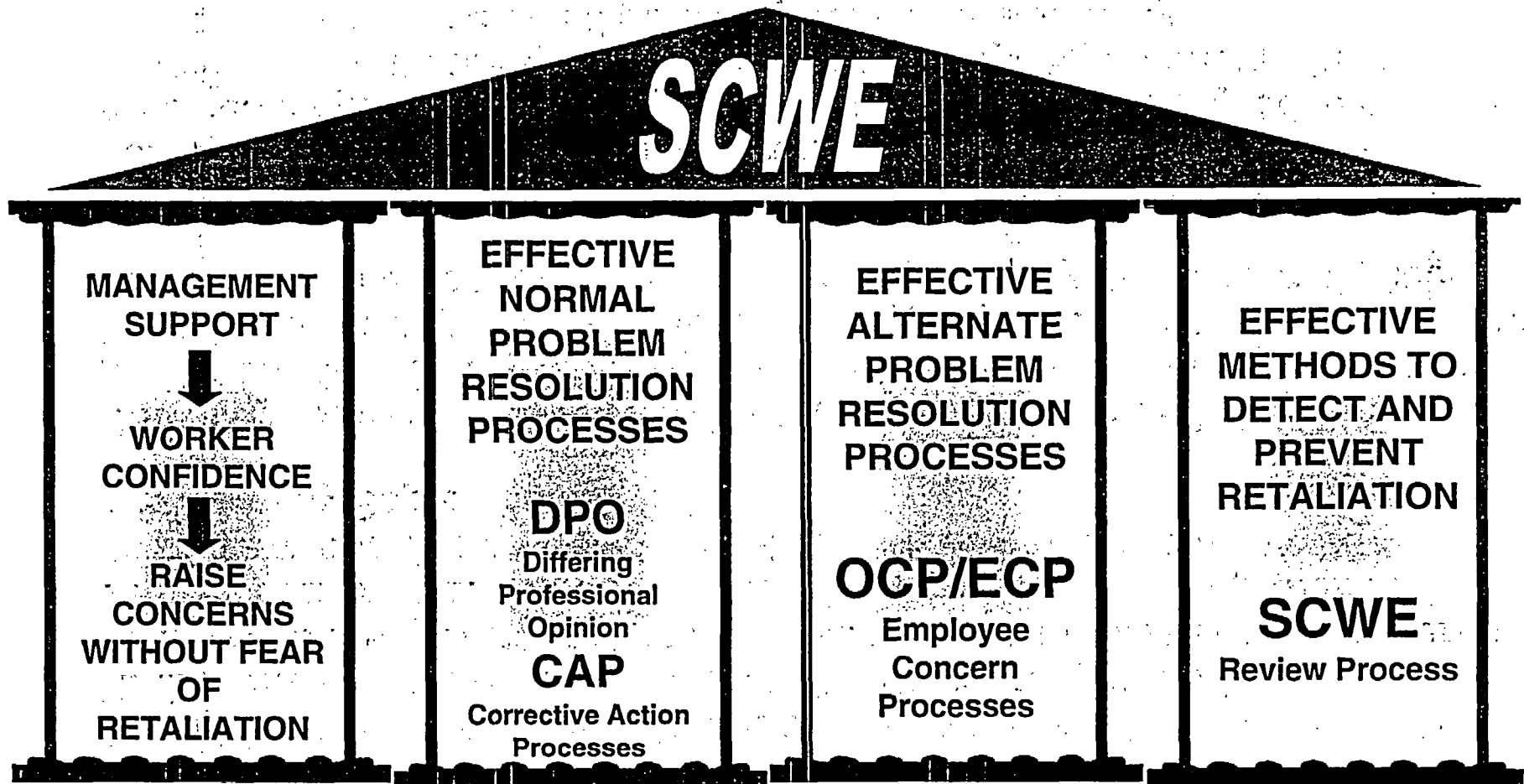
Office of Repository Development

Office of Repository Development
W. John Arthur, III, Deputy Director
Kenneth W. Powers, Associate Deputy Director
J. Russell Dyer, Assistant to Deputy Director

- *Susan L. Rives, Chief Counsel*
- *Allen B. Benson, Communications*
- *(Vacant), OCRWM Concerns Program*
- *Mark E. Van Der Puy, Safety Conscious Work Environment*
- *(Vacant), Inter-Governmental Relations*



Safety Conscious Work Environment



BASIC PRINCIPLES

- Treat everyone with respect
 - Seek first to understand
- Focus on the situation, not the person
- Take initiative to make things better
 - Lead by example

**YUCCA
MOUNTAIN**



Outcome Measures: Safety Conscious Work Environment, Corrective Action Program, Employee Concerns Program

- **Safety Conscious Work Environment - Improvement in Office of Civilian Radioactive Waste Management (OCRWM) worker perception that management supports and encourages workers to raise safety concerns without fear of retaliation from current survey results of approximately 76 percent positive response to better than 85 percent positive survey response by September 30, 2004**
- **Corrective Action Program (CAP) - Improvement in OCRWM worker perception that CAP effectively resolves issues in a timely manner from the current survey result of approximately 58 percent positive response to better than 70 percent positive survey response by September 30, 2004**
- **Employee Concerns Program (ECP) - Improvement in OCWRM worker perception that ECP/OCRWM Concerns Program (OCP) effectively resolves employee concerns in a timely, thorough, and objective manner from the current survey result of approximately 76 percent positive response to better than 85 percent positive response by September 30, 2004**



Status of U.S. Nuclear Regulatory Commission 30-Day Letter Actions

1. (Ziegler): Submit LA that complies with 10 CFR Part 63 in which data, software, and models meet or exceed applicable quality assurance requirements - December 2004
- √ 2. (Ziegler): Present KTI approach to NRC - June 30, 2003 (closed on time)
- ➔ √ 3. (Brown): Create an effective trend report to monitor procedural compliance, identify causes of non-compliance, and take corrective action as necessary - Sep 30, 2003 (closed March 30, 2004)
- √ 4. (Van der Puy): Update AP5.1Q to streamline the review and revision process for procedures - July 30, 2003 (closed on time)
- √ 5. (Van der Puy): Screen procedures for needed improvement - July 30, 2003 (closed December 31, 2003)
- √ 6. (Brown): Single improved Corrective Action Plan implemented - September 30, 2003 (closed on time)
7. (Brown): Goal: Approve 90 percent of corrective actions within 30 days of initiation of DRs and CARs; complete the corrective action for DRs in fewer than 60 days on average; complete corrective action for CARs in fewer than 100 days on average - TBD
- √ 8. (Van Der Puy): SCWE surveys will be performed quarterly with results provided to NRC - July 17, 2003 (closed on time)
9. (Van Der Puy): Additional SCWE training to managers for increased effectiveness - TBD
- √ 10. (Van Der Puy): Conduct external expert annual SCWE surveys - September 19, 2003 (closed on time)
- √ 11. (Mellington): Performance criteria for quality, timeliness, procedural compliance, and safety built into the appraisals and evaluations - September 1 2003 (closed September 30, 2003)
- √ 12. (Mellington): Demonstrated actions that exceed these expectations will be recognized and failure to meet them will be addressed appropriately - October 1, 2003 (closed on time)
- ➔ √ 13. (Mellington): Semiannual report to employees to highlight successes, communicate lessons learned, and underscore our commitment to accountability - October 1, 2003 (1st report issued October 15, 2003)

➔ = Recent closures



Management Assessment of Progress Towards License Application

COMPONENT	PERCENT COMPLETE (January 2004)	PERCENT COMPLETE (April 2004)
KTI Agreement Addressed*	70%	70%
LA Document	14%	33%
Preclosure Safety Assessment	45%	62%
TSPA-LA	76%	81%
Design	<u>56%</u>	<u>79%</u>
TOTAL WEIGHTED PERCENT COMPLETE	54%	68%

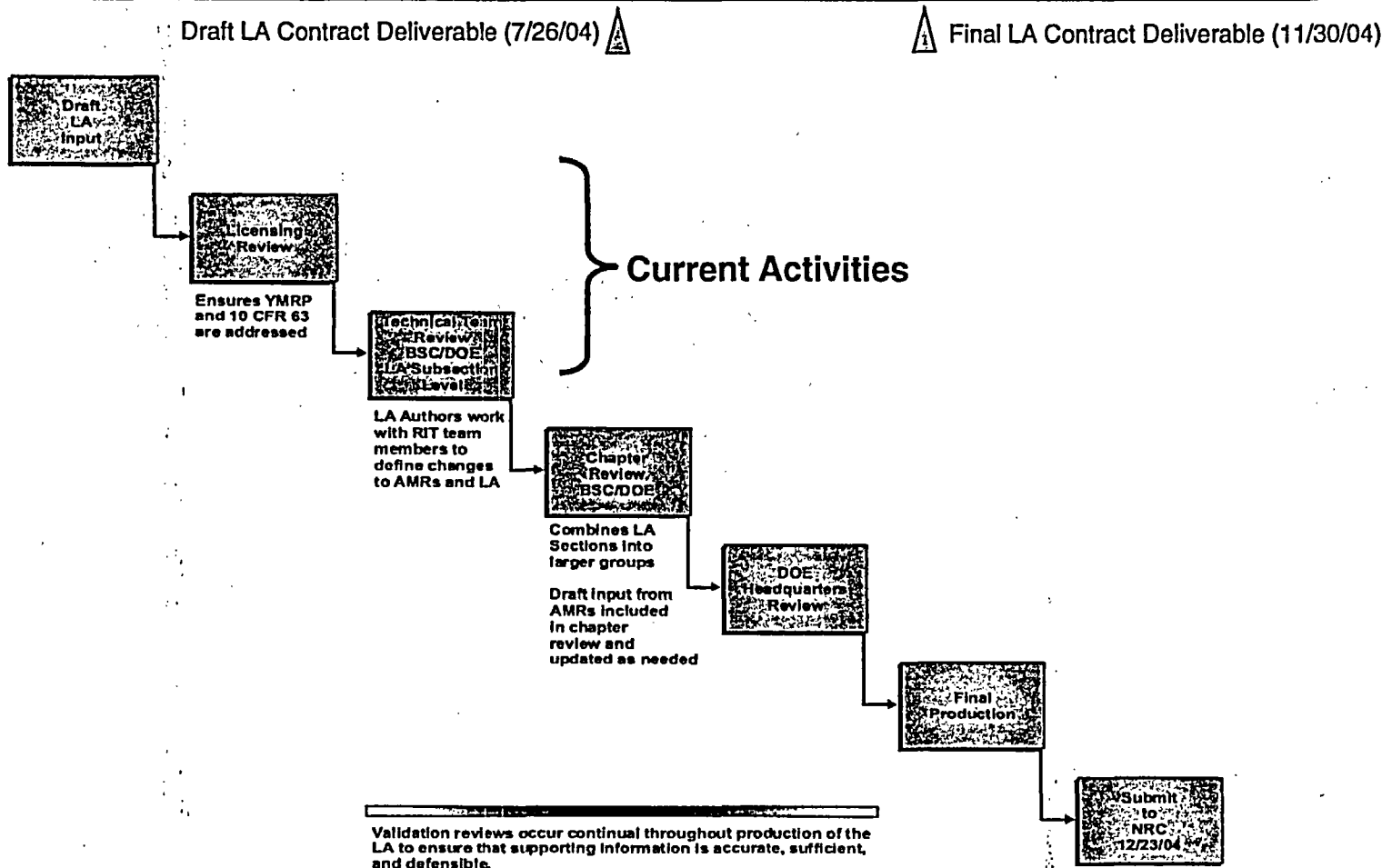
100 percent of Key Technical Issue (KTI) Agreements will be addressed prior to submission of the LA

* Status reflected as percent of 293 agreements with complete DOE submittals



License Application Development and Review Process

Approximate Schedule



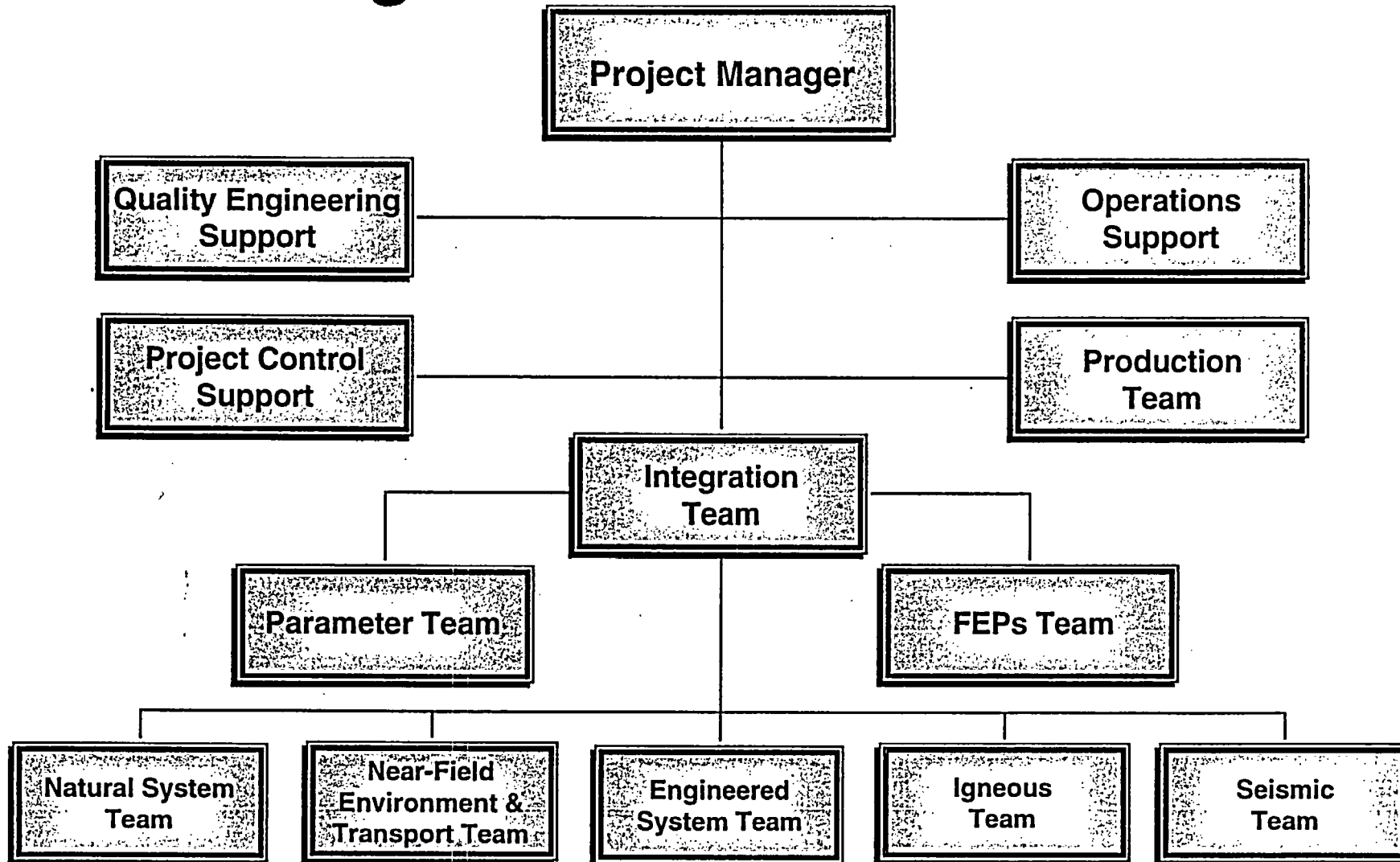
Total System Performance Assessment Component Models and Analysis Model Reports

Unsaturated Zone Flow			Engineered Barrier System Environment		Waste Package Degradation	Waste Form Degradation & Mobilization		Engineered Barrier Flow & Transport	Unsaturated Zone Transport	Saturated Zone Flow & Transport	Biosphere	Disruptive Events Ignorance Scenario Class	Disruptive Events Seismic Scenario Class
Flow & Transport	Flow & Transport	Flow & Transport	Flow & Transport	Flow & Transport	Flow & Transport	Flow & Transport	Flow & Transport	Flow & Transport	Flow & Transport	Flow & Transport	Flow & Transport	Flow & Transport	Flow & Transport

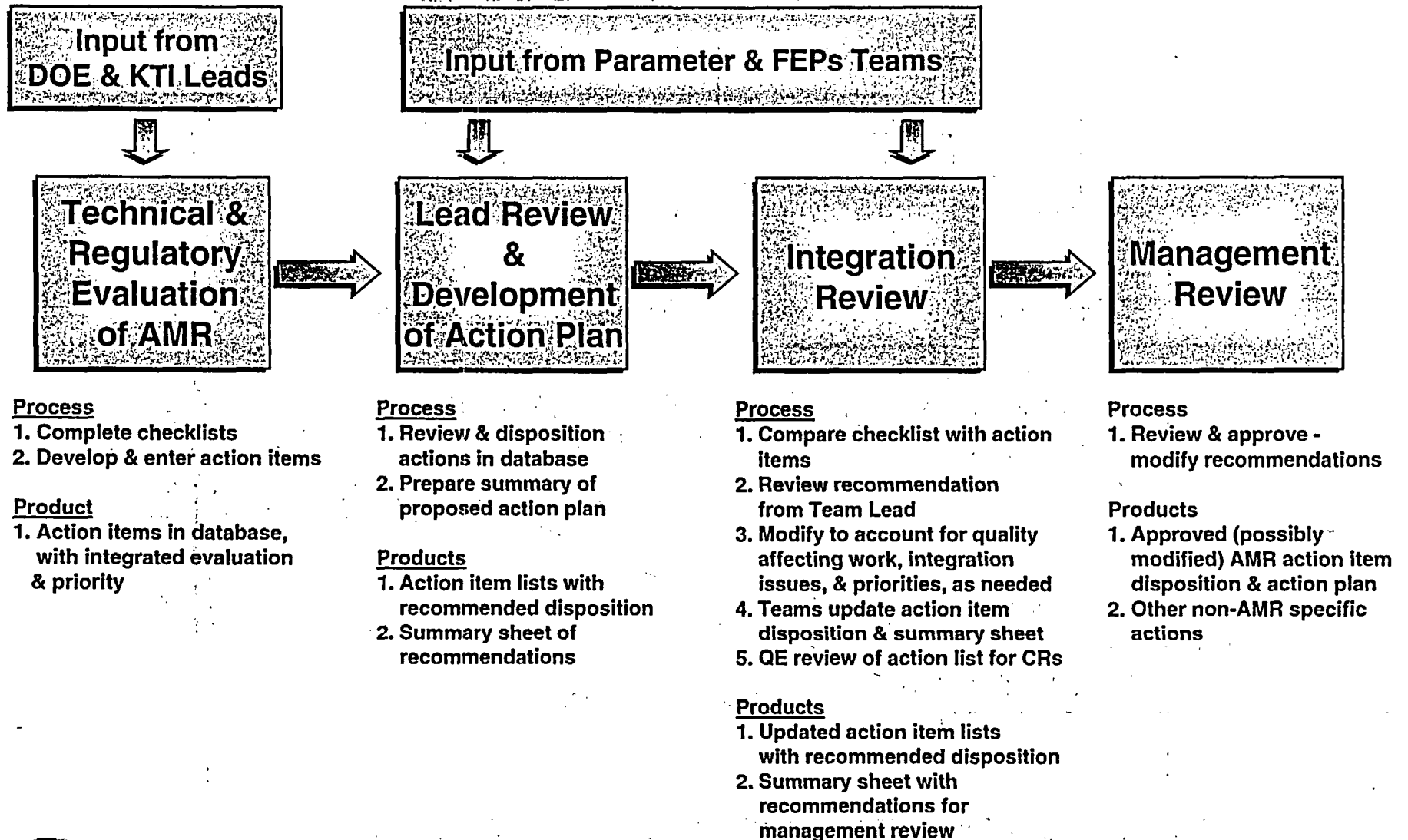
LEGEND	
Sandia National Laboratories	
Lawrence Berkeley National Laboratory	
Lawrence Livermore National Laboratory	
Los Alamos National Laboratory	
Bechtel SAIC	



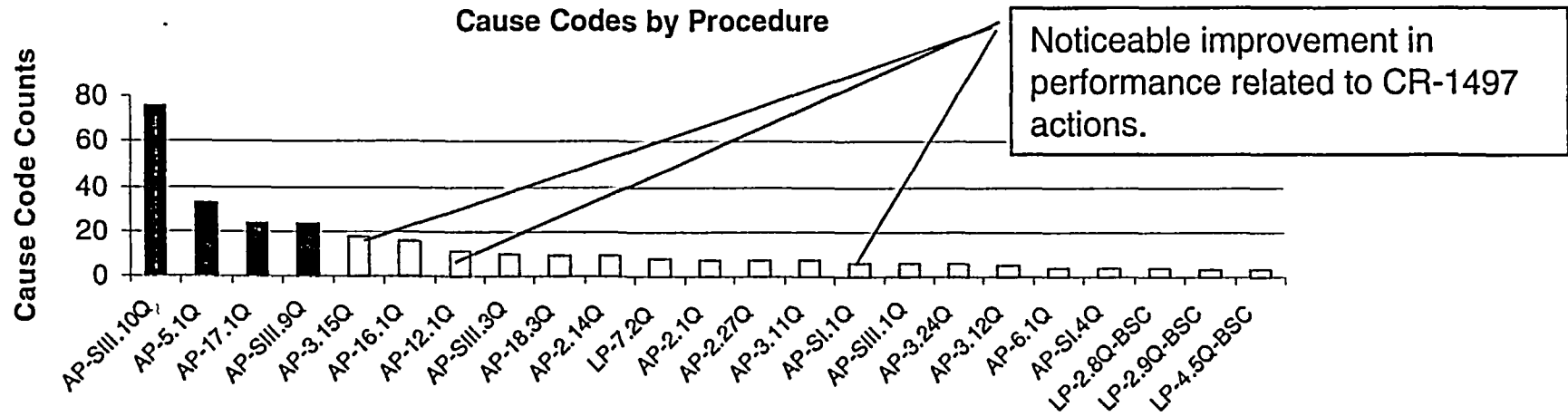
Regulatory Integration Team Organizational Structure



Regulatory Integration Team Evaluation Process Steps



Trends and Patterns Analysis



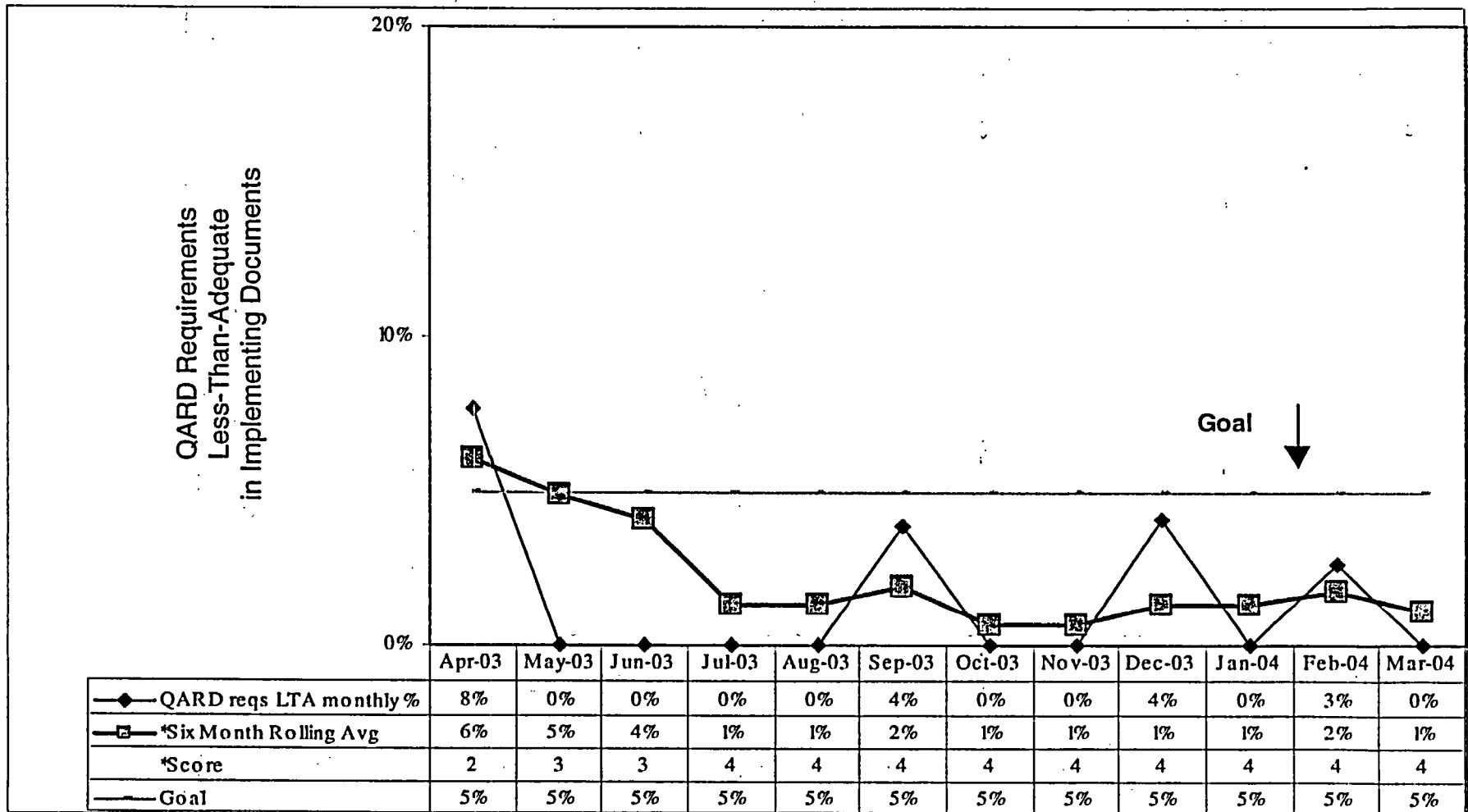
Distribution of principal causal factors for each of the selected procedures.

Procedure	Principal Cause Category					
	A1 Design Engineering	A2 Equipment/Material	A3 Human Performance	A4 Management	A5 Communications	A6 Training
AP-SIII.10Q Models	0	0	48	18	10	0
AP-5.1Q Procedure Preparation, Review, and Approval	0	0	27	2	4	0
AP-17.1Q Records Management	0	0	17	1	6	0
AP-SIII.9Q Scientific Analysis	0	0	17	2	5	0



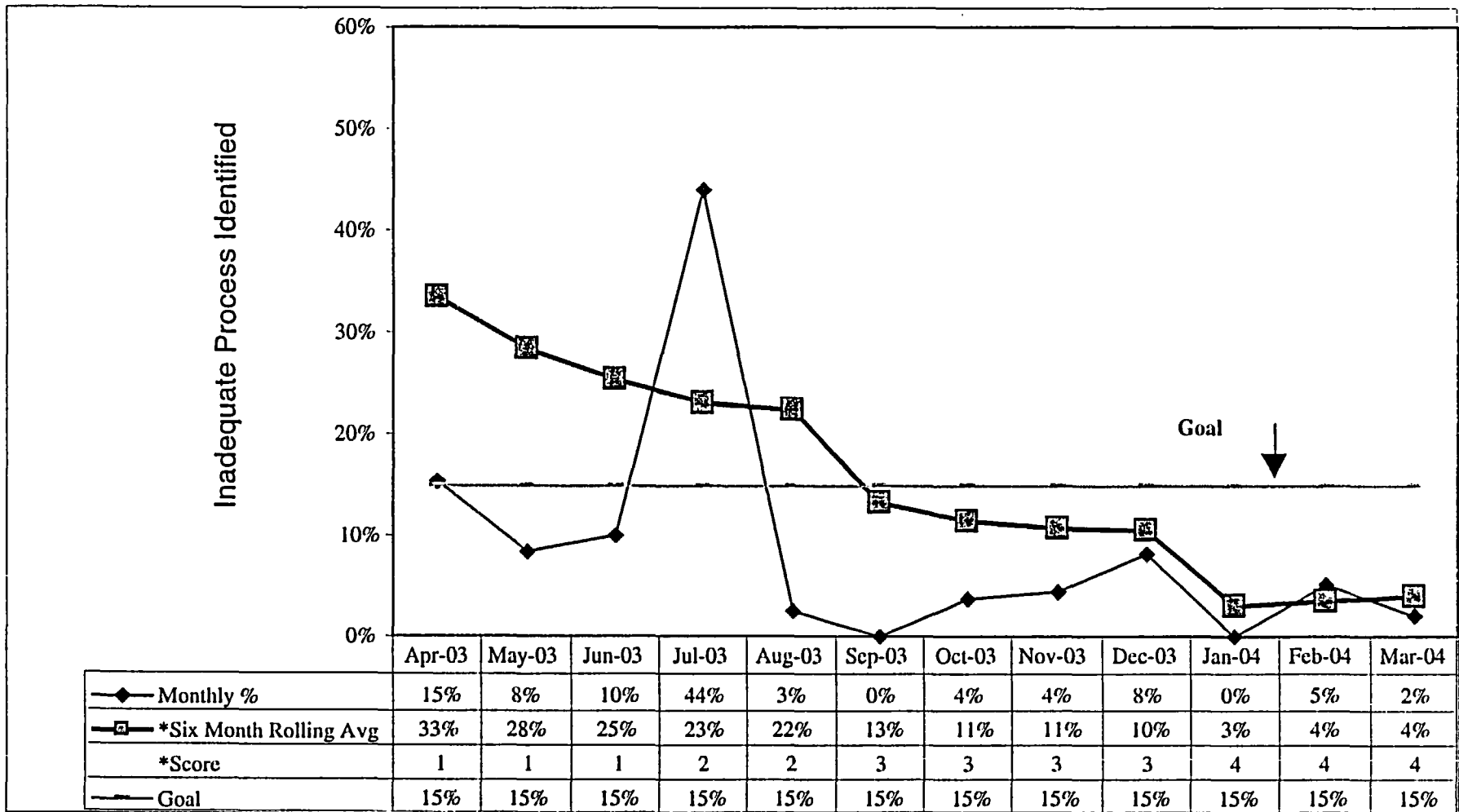
Adequacy of Quality Assurance Requirements and Description Requirements in Implementing Documents (2.3.2.1.1)

2.3.2.1.1 Adequacy of QARD Requirements In Implementing Documents



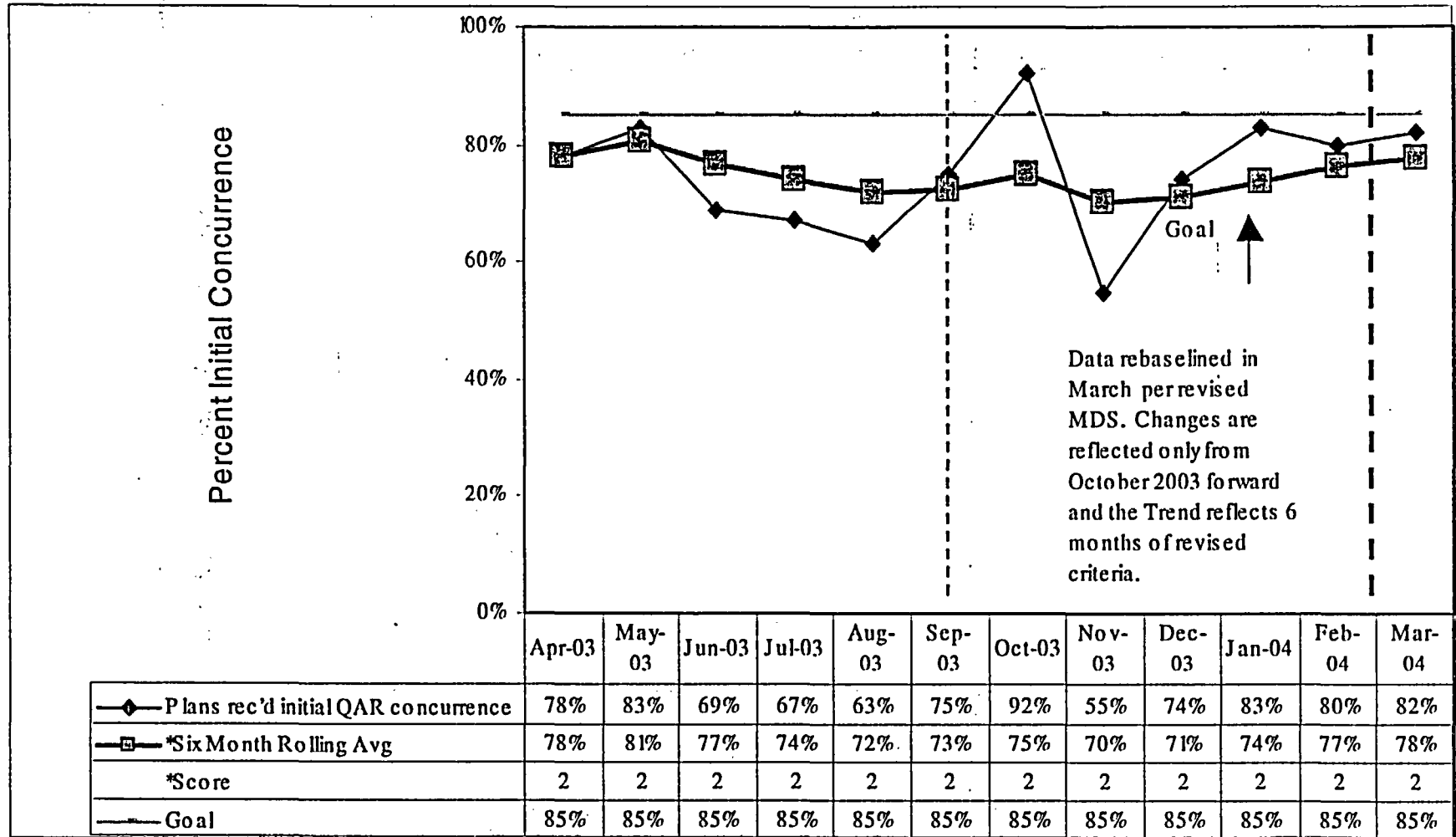
Adequacy of Process in Quality Assurance Procedure (2.3.2.1.2)

2.3.2.1.2 Adequacy of Process in QA Procedures



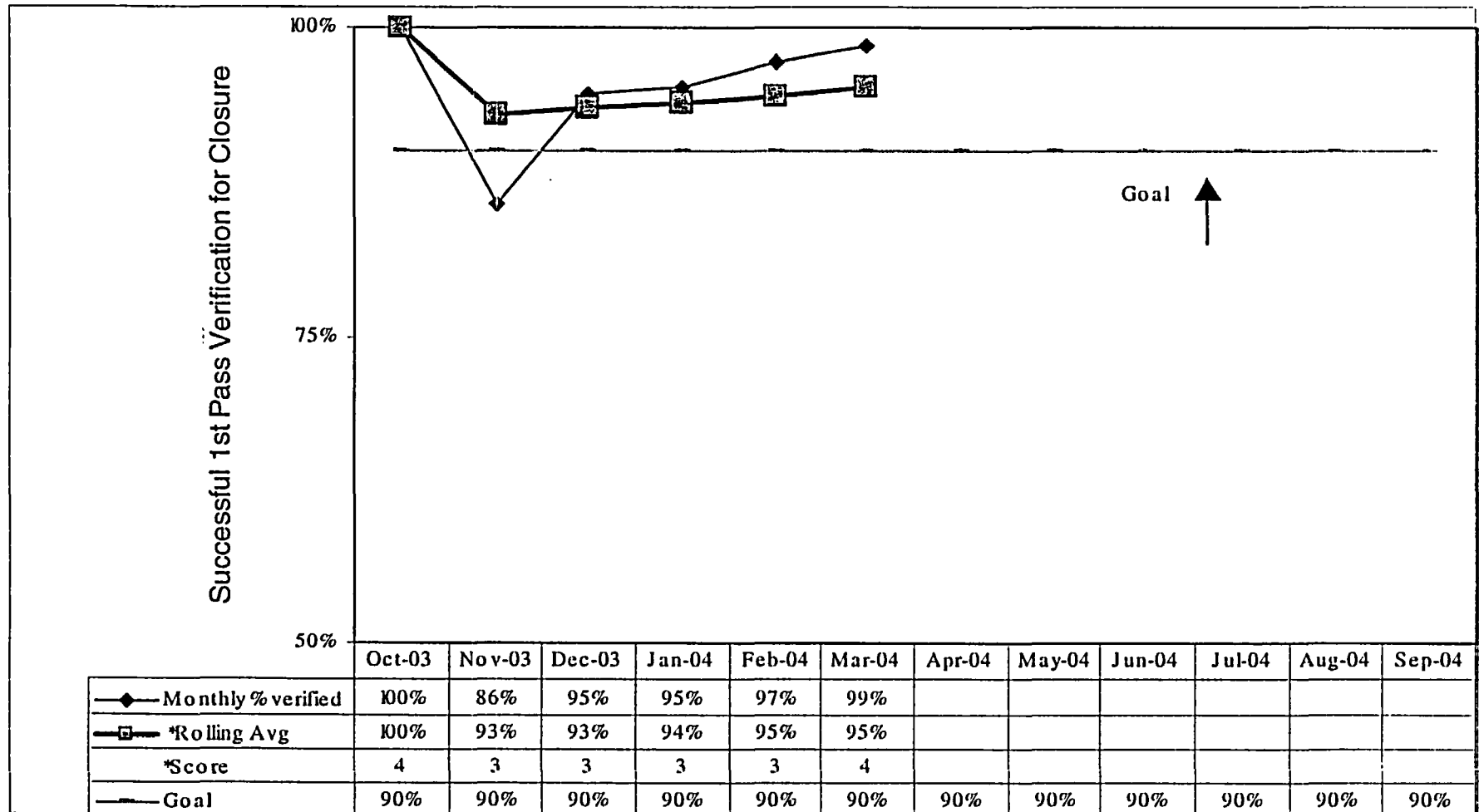
Adequate Corrective Action Plans (2.3.4.1.2)

2.3.4.1.2 Adequate Corrective Action Plans

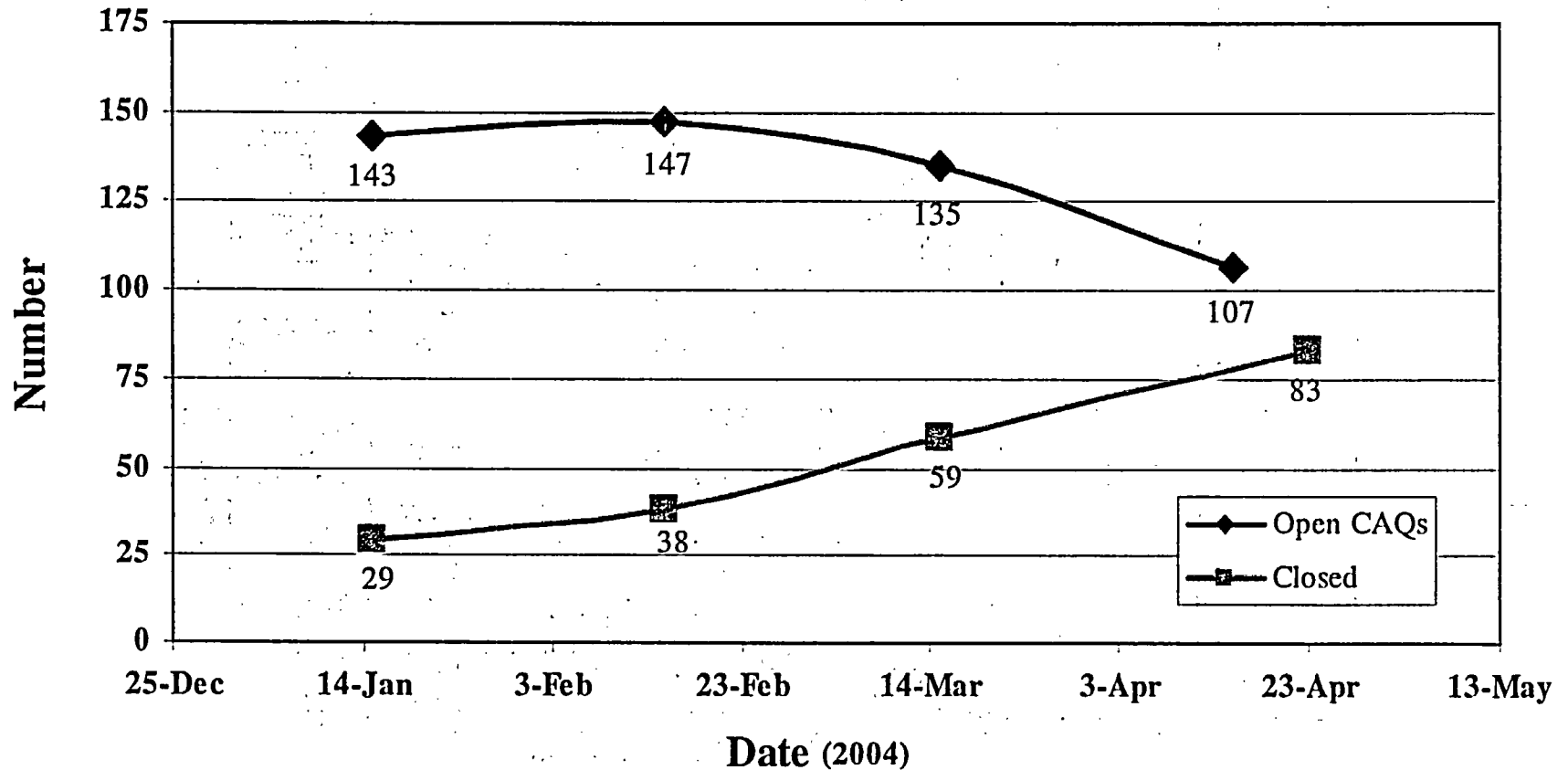


Successful Verification of Condition Report Closure (2.3.4.1.3)

2.3.4.1.3 Successful Verification for CR Closure



Open/Closed Condition Reports (Level A & B, including Nonconformance Reports)



April 2004 Monthly Operating Report Annunciator Panel

Yucca Mountain Project Annunciator Panel
Performance Indicators based on data for: March 2004

	Primary		Secondary				Focus Areas
	Y V G B	Y V G B	Y V G B	Y V G B	Y V G B	Y V G B	
W O R K E X E C U T I O N	1.1 Licensing	1.1.1 License Application Development	1.1.2 NRC Interactions	1.1.3 License Support Network Input	1.1.4 NRC Comments	1.1.5 Key Technical Issues	Focus Areas PA1 Safeguards B > G
	1.2 Engineering/Design	1.2.1 Surface Facilities	1.2.2 Subsurface Facilities	1.2.3 Engineered Barriers	1.2.4 Rocks & Integration Management	1.2.5 AAR Production	
	1.3 Safety Analysis	1.3.1 TSPA	1.3.2 Performance Confirmation	1.3.3 Pressure Safety Analysis	1.3.4 Software Qualification	1.3.5 SRS Critical Systems	
	1.4 SRS Operations	1.4.1 SRS Engineering	1.4.2 SRS Construction	1.4.3 SRS Operations	1.4.4 SRS Operations	1.4.5 SRS Operations	
M A N A G E M E N T	2.1 Project Support	2.2 Safety, Health, and the Environment	2.3 Quality Assurance	2.4 Corrective Action Mgmt System	2.5 Management Framework	2.6 Project Management	Focus Areas (Empty)
	2.1	2.2.1 Incidents	2.2.2 ES&H Program Awareness	2.2.3 ES&H Reporting	2.2.4 Corrective Action Program Quality	2.2.5 Quality Assurance	
	2.3	2.3.1 Product Quality	2.3.2 Process Quality	2.3.3 Vendor Quality	2.3.4 Corrective Action Program Quality	2.3.5 Quality Assurance	
	2.4	2.4.1 Effectiveness	2.4.2 CAP Reporting Culture	2.4.3 Cause Analysis & CAP Development	2.4.4 Corrective Action Program Quality	2.4.5 Quality Assurance	
	2.5	2.5.1 Procedures	2.5.2 Management Framework	2.5.3 Management Framework	2.5.4 Corrective Action Program Quality	2.5.5 Quality Assurance	
	2.6	2.6.1 Cost Performance (Overall CPI)	2.6.2 Schedule Performance (Overall SPI)	2.6.3 Scope Baseline	2.6.4 Risk & Contingency	2.6.5 Key Deliverable Critical Path	
	2.7	2.7.1 Cost Performance (Overall CPI)	2.7.2 Schedule Performance (Overall SPI)	2.7.3 Scope Baseline	2.7.4 Risk & Contingency	2.7.5 Key Deliverable Critical Path	
3.1 External	3.1.2 External Communication	3.1.5 Funding	4.1 Human Performance	4.1.1 Error Prevention	4.1.2 Human Performance Awareness	4.1.3 Backup Management	4.1.4 Learning Culture

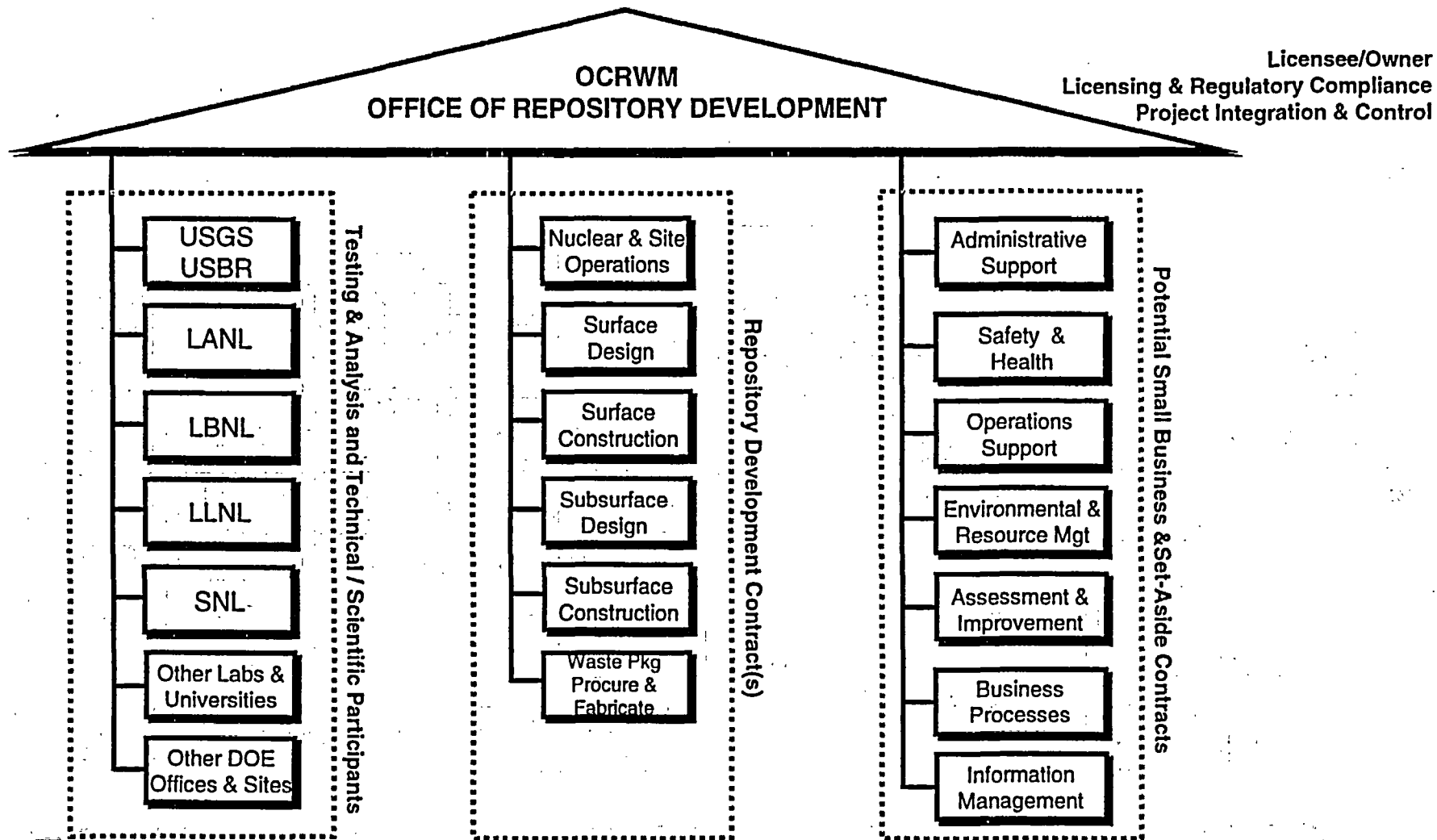
Key

Y Exceptional performance that exceeds all requirements and expectations for the desired outcome, sustained for more than six months.
V Good performance which meets or exceeds requirements and expectations. The color code "Y" or "G" indicates that the score would be Blue, but has not demonstrated sustained performance.
G Good performance which meets or exceeds requirements and expectations. The color code "Y" or "G" indicates that the score would be Blue, but has not demonstrated sustained performance.
B Acceptable performance that falls on a set of conditions which could change and could performance has the "Red" category.
R Degraded or adverse performance involving significant level of management attention, resources, and concern.
L Gray for Late - Updated metrics not provided by the date.
U Approved metrics not yet reporting data.
M Insufficient data or metric definition is not yet approved.

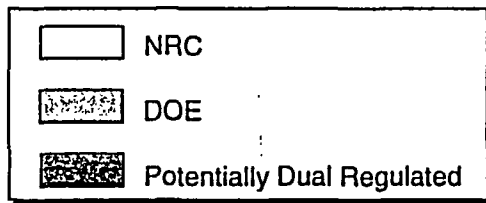
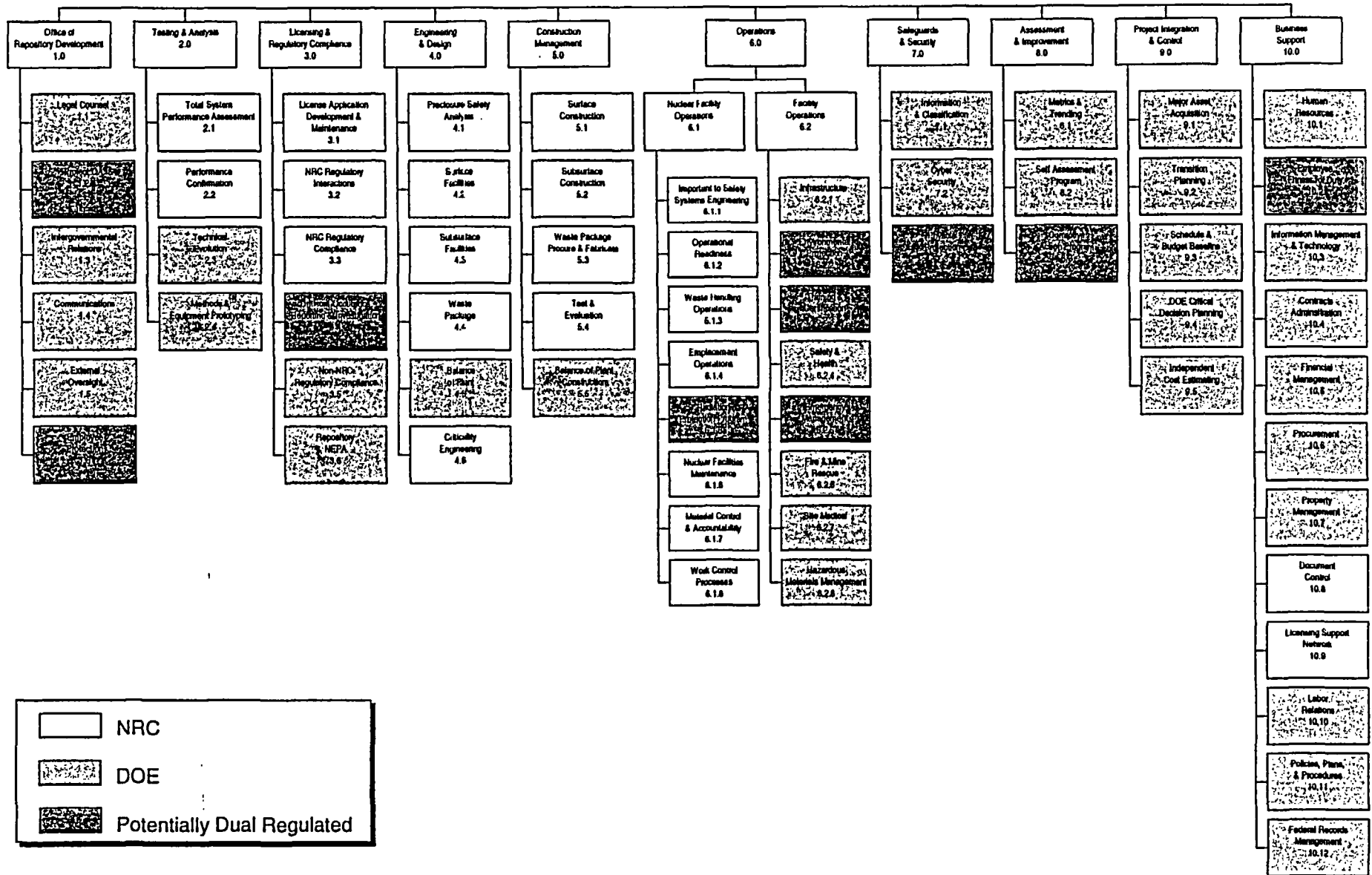
MAY13 A hatched history cell with a white background indicates the point at which a change occurred in the underlying metric. The performance reported in the history cell to the left of the point of change should be read with caution. A change is defined as a change in the metric definition, threshold, weighting, calculation, data source(s) used in the calculation, or the determination of a sub-metric.
 Trend indicators are based on a 12-month history of six months of data. If there are not six data points because the metric is new or has been changed, then the trend is based upon the data available or is indicated as new.

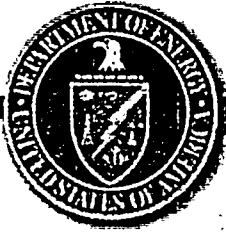


Management Model to License, Construct, and Operate



Example of Functions and Governing Requirements





U.S. Department of Energy
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License Application Status

Presented to:

DOE/NRC Quarterly Management Meeting

Presented by:

Joseph D. Ziegler

Director, Office of License Application and Strategy

Office of Repository Development

U.S. Department of Energy

May 11, 2004

Las Vegas, Nevada

Topics for Discussion

- **License Application (LA) Schedule Status**
- **LA Content and Level of Detail**
- **Key Technical Issues (KTIs) Agreement Status**
- **Recent and Near-Term Interactions**
- **Summary**



License Application Schedule Status

<u>COMPONENT</u>	<u>PERCENT COMPLETE JANUARY 2004</u>	<u>PERCENT COMPLETE APRIL 2004</u>
KTI Agreement Addressed*	70%	70%
LA Document	14%	33%
Preclosure Safety Assessment	45%	62%
Total System Performance Assessment (TSPA)-LA	76%	81%
Design	<u>56%</u>	<u>79%</u>
TOTAL WEIGHTED % COMPLETE	54%	68%

100 percent of Key Technical Issue (KTI) Agreements will be addressed prior to submission of the LA

* Status reflected as percent of 293 agreements with DOE submittals (complete + 1/2 credit for partial)



License Application Schedule Status

(Continued)

February 19, 2004 Management Meeting

<u>Total Datasets:</u>	1,387*
• Qualified:	721 (52%)
• Being verified:	456 (33%)
• Being developed:	210 (15%)*

<u>Total Codes:</u>	423*
• Qualified and verified:	67 (16%)
• Qualified: (Legacy/re-testing)	344 (81%)
• Developing/verifying:	12 (3%)

Model Reports Directly Supporting LA: 65

- Model Reports completed: 51 (78%)

*Estimated

May 11, 2004 Management Meeting

<u>Total Datasets:</u>	1,251*
• Qualified:	733 (59%)
• Being verified:	413 (33%)
• Being developed:	105 (8%)*

<u>Total Codes:</u>	427*
• Qualified and verified:	165 (39%)
• Qualified: (Legacy/re-testing)	240 (56%)
• Developing/verifying:	22 (5%)

Model Reports Directly Supporting LA: 65

- Model Reports completed: 60 (92%)



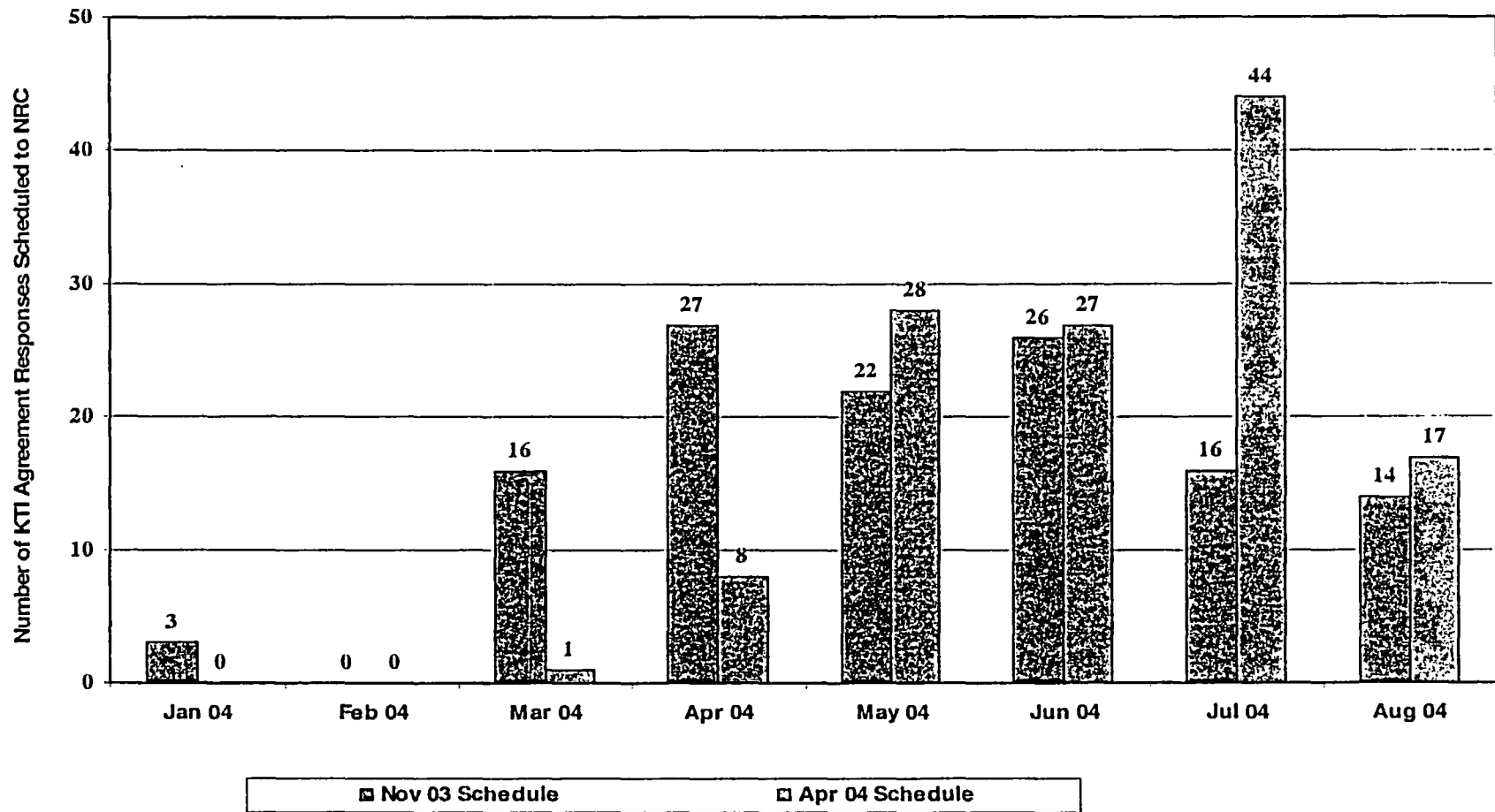
License Application Content and Level of Detail

- **Level of detail will be that which is necessary and sufficient to support a risk-informed review of preclosure safety and postclosure performance by the NRC and the determinations required for granting the construction authorization**
 - **The intent is to have the LA as stand-alone as possible and to give specific reference citations when needed**
 - **The NRC report of April 10, 2004 on the Technical Evaluations confirmed our understanding of the need for transparency and traceability in the LA**



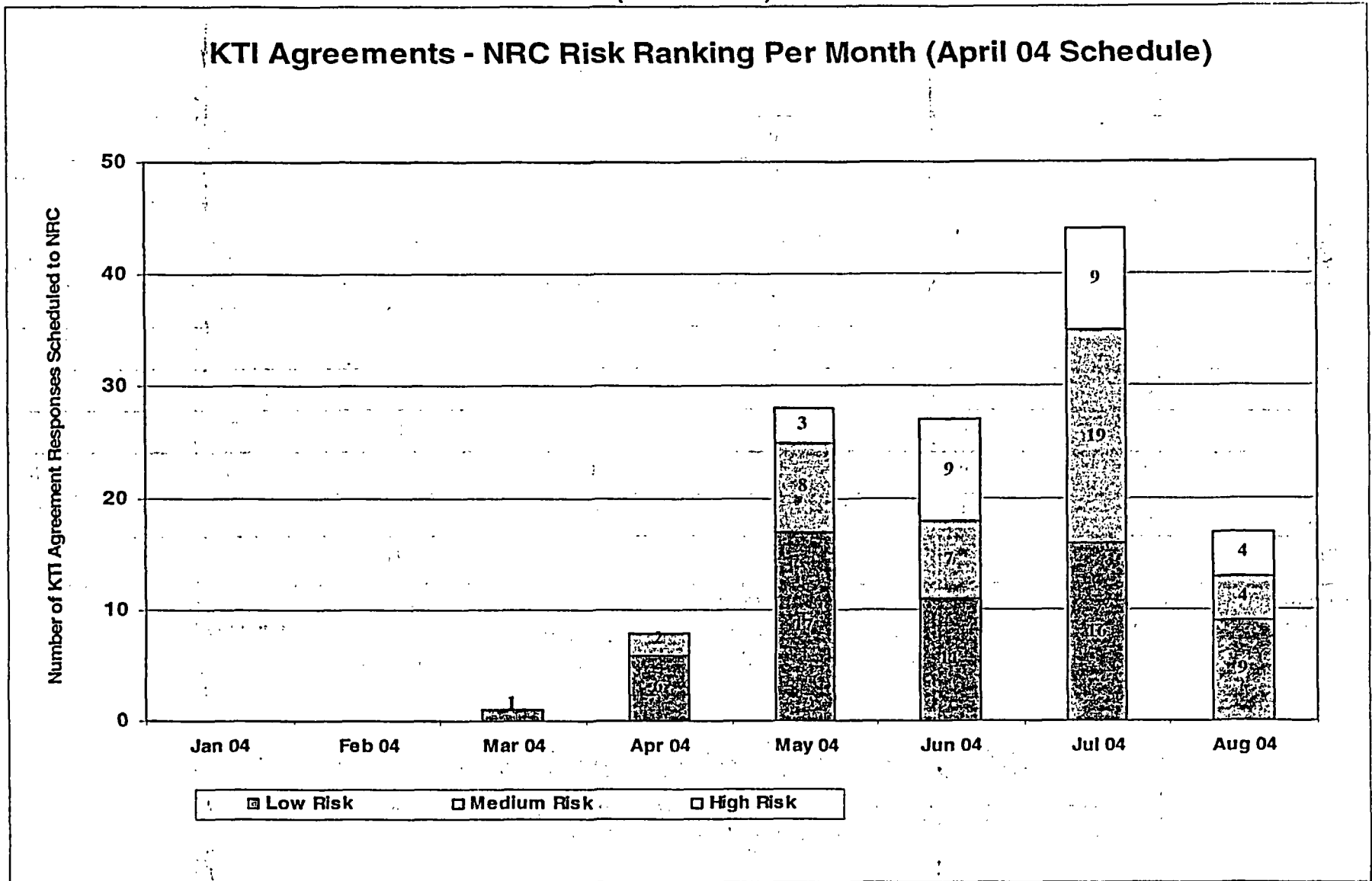
Key Technical Issue Agreements

KTI Agreements - November 03 Schedule and April 04 Schedule Comparison



Key Technical Issue Agreements

(Continued)



Key Technical Issues Agreements Status Summary

Reflects Activity through April 28, 2004

KTI ID	Agreements Reached	Agreements Submitted to NRC	Responses Submitted In NRC Review	Partial Responses Submitted	NRC Needs Additional Information	Responses Remaining to be Submitted	Agreements Complete
CLST	58	41	10	3	8	17	20
ENFE	41	37	18	5	1	4	13
GEN	1	1	0	1	0	0	0
IA	22	20	7	0	0	2	13
PRE	9	6	1	0	3	3	2
RDTME	23	4	2	1	0	19	1
RT	29	22	15	1	0	7	6
SDS	10	10	0	3	2	0	5
TEF	15	13	3	1	2	2	7
TSPAI	58	35	10	2	9	23	14
USFIC	27	25	4	0	3	2	18
Total =	293	214	70	17	28	79	99

Total responses to be submitted to NRC for closure (remaining responses, partial responses, and AIN's) = 124



Recent and Near-Term Interactions

- **May 3: Technical Exchange - Performance Indicators**
- **May 4: Quarterly Quality Assurance Meeting**
- **May 5: Technical Exchange - NRC's Technical Evaluation**
- **May 12: Technical Exchange - Items Important to Safety**
- **To be scheduled:**
 - High-level Decision Plan
 - Criticality
 - Igneous Survey
 - Aircraft Hazards
 - Repository Design and Thermal Mechanical Environment KTI Agreements
 - Preclosure Seismic
 - Preclosure Safety Assessment
 - TSPA-LA



Summary

- **On target to submit the LA in December 2004**
- **NRC Technical Evaluation**
- **KTI Agreement response schedule is a challenge**
 - **Analysis and model reports**
 - **All agreements are scheduled to be addressed by August 2004**

