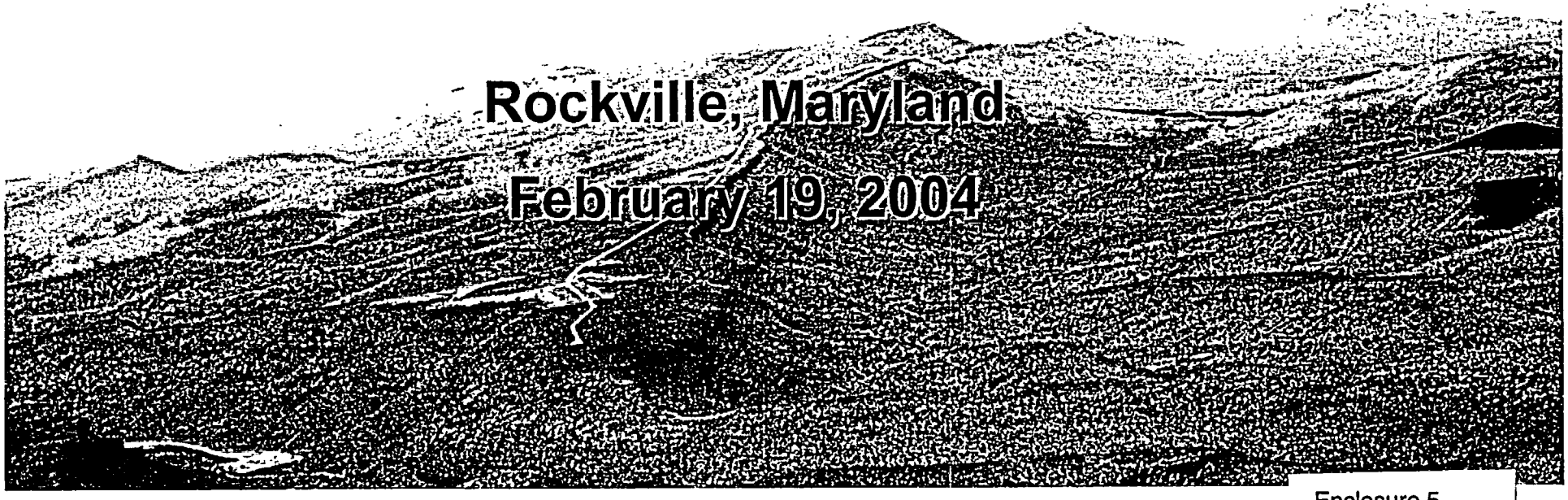
U.S. Department of Energy
Office of Civilian Radioactive Waste Management

YUCCA MOUNTAIN PROJECT

DOE/NRC Quarterly Management Meeting



Enclosure 5

Agenda
DOE/NRC Quarterly Management Meeting
February 19, 2004
11:00 AM – 5:00 PM (ET)
8:00 AM – 2:00 PM (PT)

U. S. Nuclear Regulatory Commission
One White Flint North, Auditorium
11545 Rockville Pike
Rockville, MD

And via Videoconference to:

BSC	CNWRA
Room 915	Bldg. 189, Conference Room B232
9960 Covington Cross	6220 Culebra Road
Las Vegas, Nevada	San Antonio, TX

INTERESTED PARTIES MAY PARTICIPATE VIA TELECON BY CALLING 1-800-638-8081 or 301-231-5539, Passcode 5411#

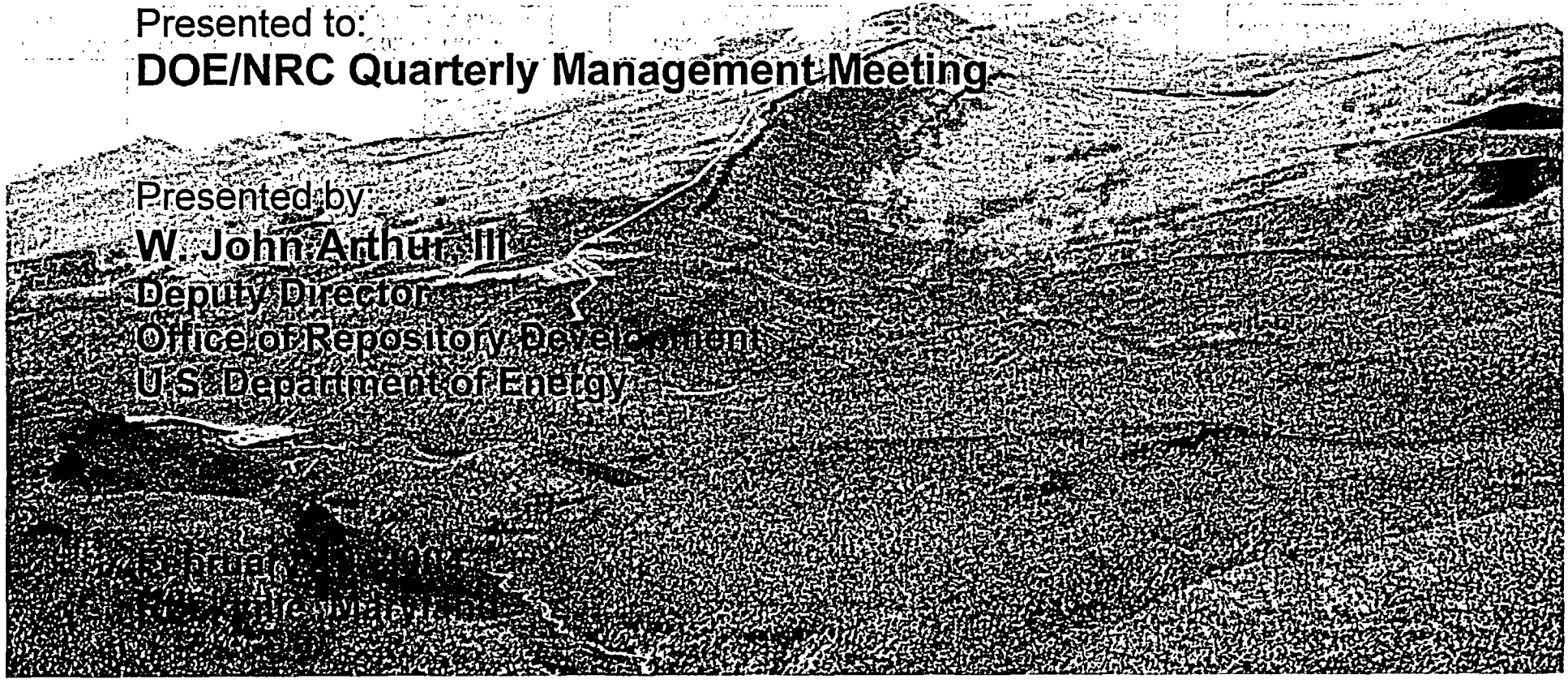
11:00 AM	**Opening Remarks**	**All**
11:20 AM	**NRC Program Update**	**NRC**
11:40 AM	**DOE Program Update**	**Chu**
12:00 Noon	**Yucca Mountain Project Update**	**Arthur/Mitchell**
12:45 PM	**Lunch**	**All**
1:45 PM	**Yucca Mountain Project Update (Continued)**	**Arthur/Mitchell**
2:30 PM	**License Application Status**	**Ziegler**
3:30 PM	**QA Program Update** • **QA Meeting Highlights** • **Corrective Action Program** • **Trending**	**Brown**
4:15 PM	**Break/Caucus**	**All**
4:45 PM	**Action Item Status**	**Gunter**
5:00 PM	**Closing Remarks**	**All**
5:15 PM	**Adjourn**	

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

YUCCA MOUNTAIN PROJECT

Project Update Exhibits

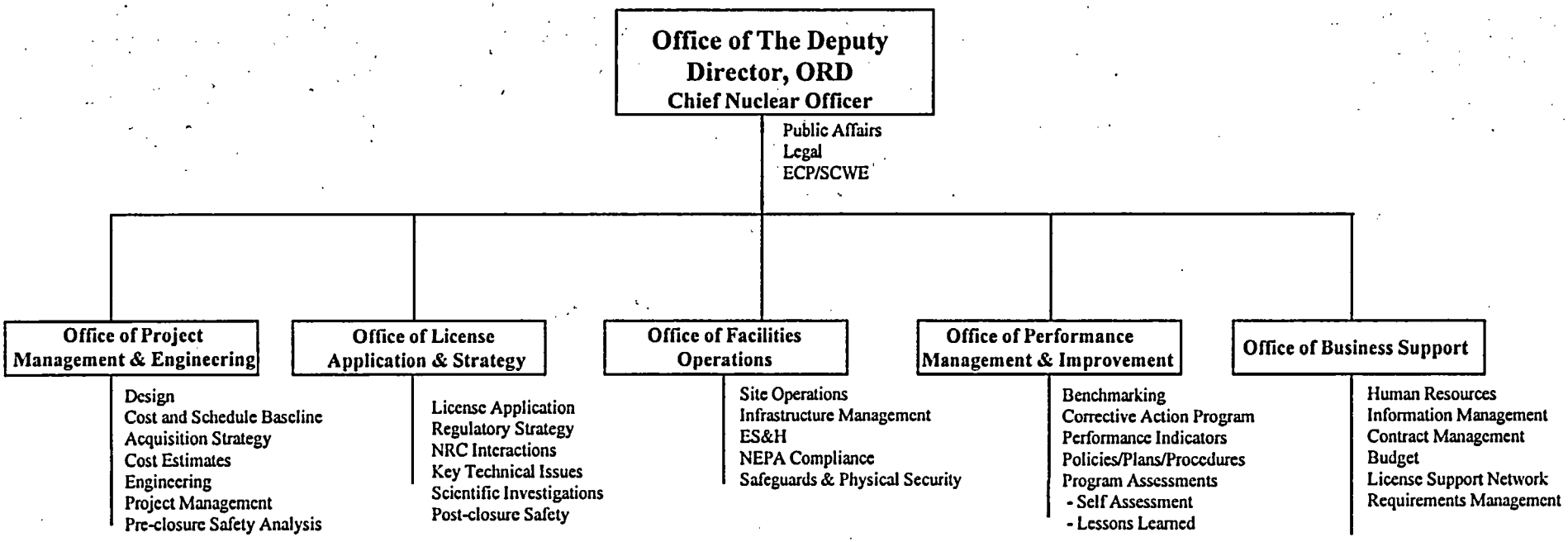
Presented to:
DOE/NRC Quarterly Management Meeting



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

February [illegible]
Las Vegas, Nevada

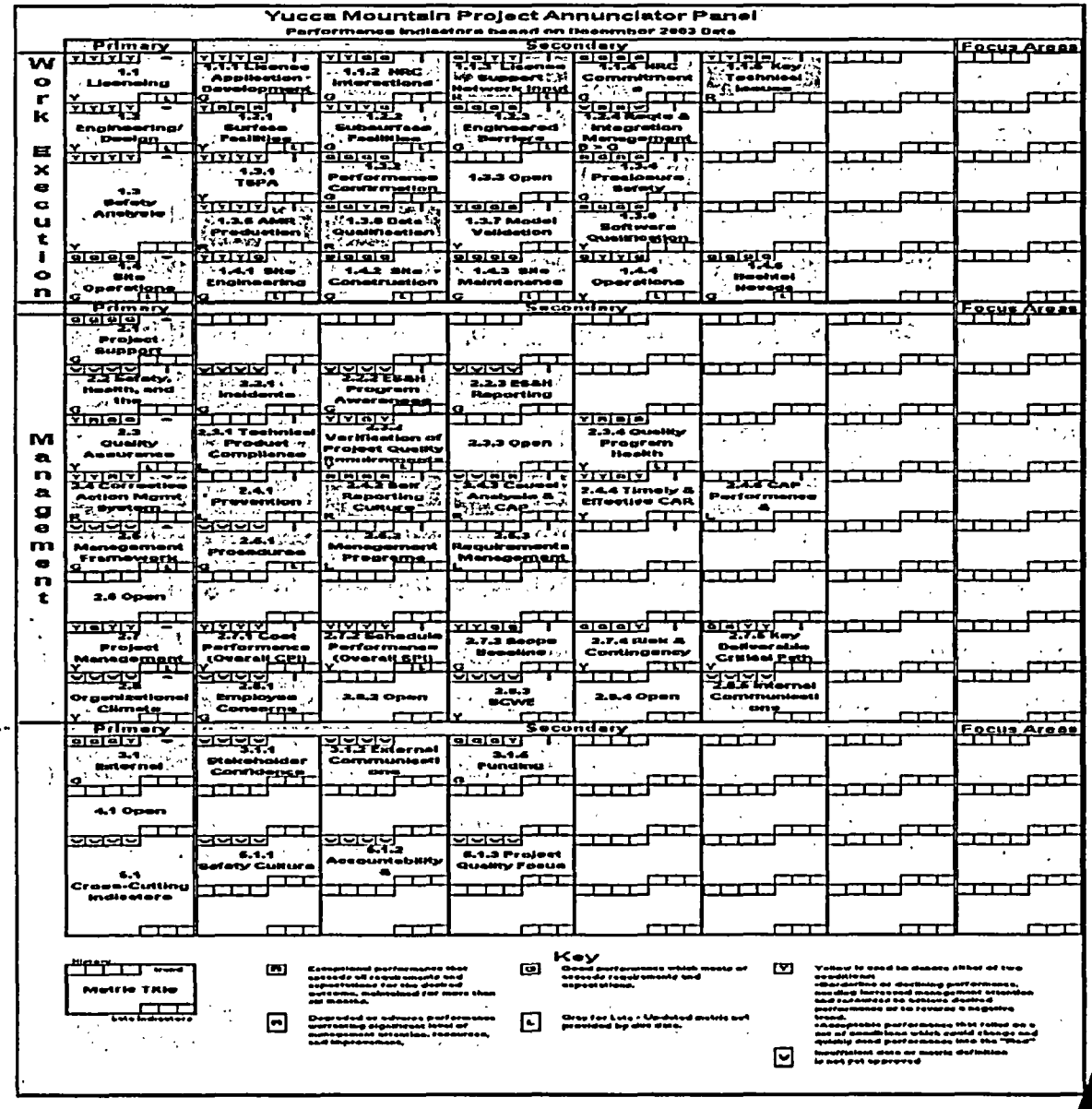
Office of Repository Development Functional Organization Chart



NRC 30-Day Letter Actions

- 1. (Ziegler): Submit License Application (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 Key Technical Issue (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 - September 30, 2003
- √ 4. (Van der Puy): Update AP-5.1Q 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
- √ 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 Defiency Reports (DRs) and Corrective Action Reports (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): Safety Concious Work Envirnment (SWCE) 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 - January 15, 2004
- √ 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 (September 30, 2003) (closed)
- √ 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)

Yucca Mountain Project Annunciator Panel
Performance Indicators based on December 2003 Data



Performance Indicator Color Scale

Based on a 4 point scale (primary and secondary metrics)

Blue Rating - 3.50-4.00 score; exceptional performance that exceeds all requirements and expectations for the desired outcome, maintained for more than six months

Green Rating - 2.50-3.49 score; effective performance that meets or exceeds requirements or expectations

Yellow Rating - 1.50-2.49 score; borderline of declining performance requiring increased management attention and resources to achieve desired performance or to reverse a negative trend

Red Rating - 0.00-1.49 score; degraded or adverse performance warranting significant level of management attention, resources, and improvement

White Rating - no score; insufficient data or not applicable

Gray Rating - no score; data submitted late

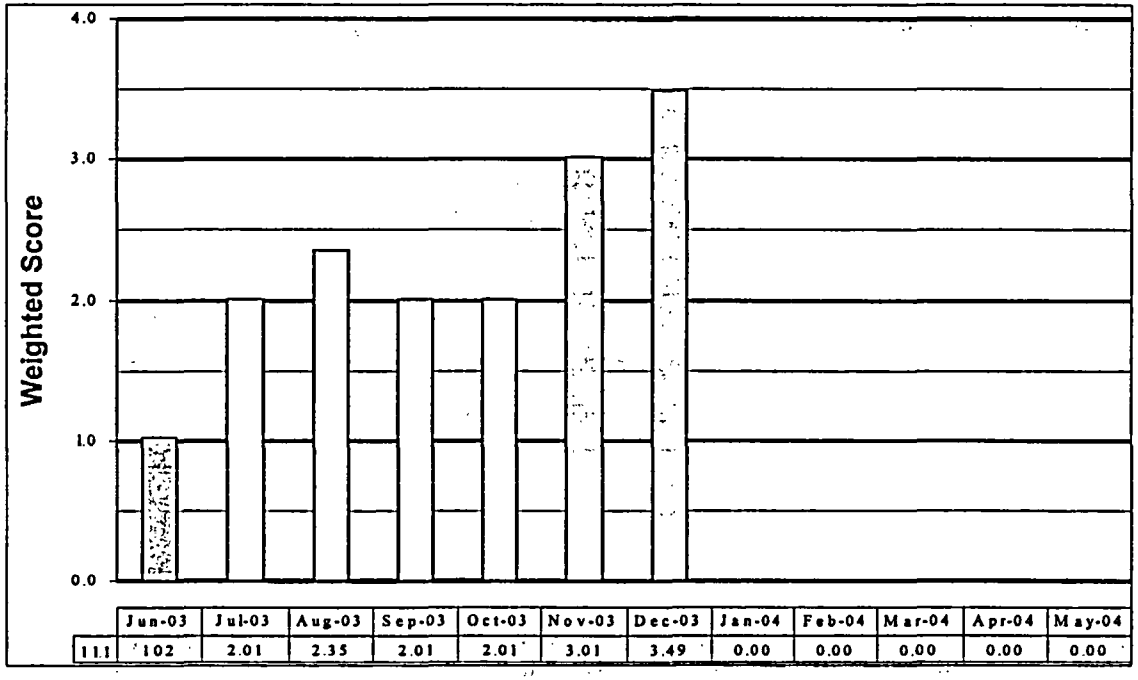
Example of Monthly Operating Review Metrics Analysis-Licensing Preparation Activities

1.1.1 License Application Development: Measurement of progress against schedule and in-process measurement of quality of License Application sections; emphasis on ability to meet schedule.

Score: 3.49

Contributing Subareas Input

Input	Weight	Value	
1.1.1.1	34	4.00	B
1.1.1.2	33	3.00	G
1.1.1.3	33	4.00	B



	Jun-03	Jul-03	Aug-03	Sep-03	Oct-03	Nov-03	Dec-03	Jan-04	Feb-04	Mar-04	Apr-04	May-04
1.1.1	1.02	2.01	2.35	2.01	2.01	3.01	3.49	0.00	0.00	0.00	0.00	0.00

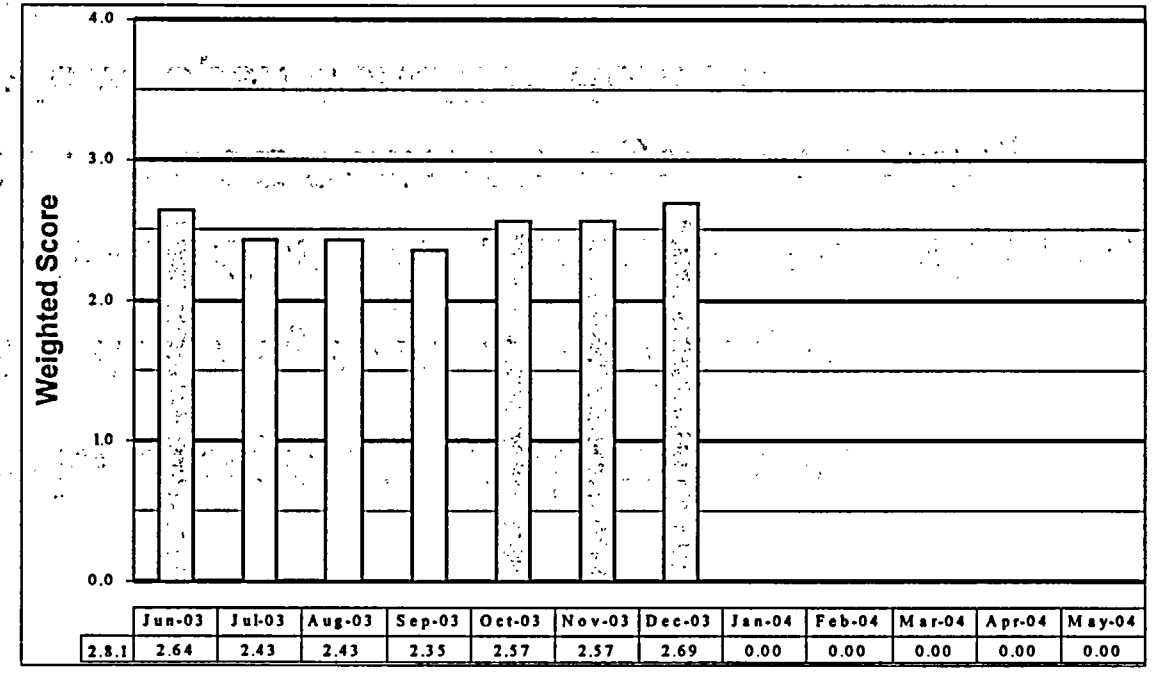
Example of Monthly Operating Review Metrics Analysis-Business Processes Activities

2.8.1 Employee Concerns: A measurement of Employee Concern Program's (ECPs) ability to respond to short-term (30 day) and long-term (90 day) concerns in a timely and effective manner. A measurement of effectiveness of the ECP.

Score: 2.69

Contributing Subareas Input

Input	Weight	Value	
2.8.1.1	43	2.29	Y
2.8.1.2	57	3.00	G

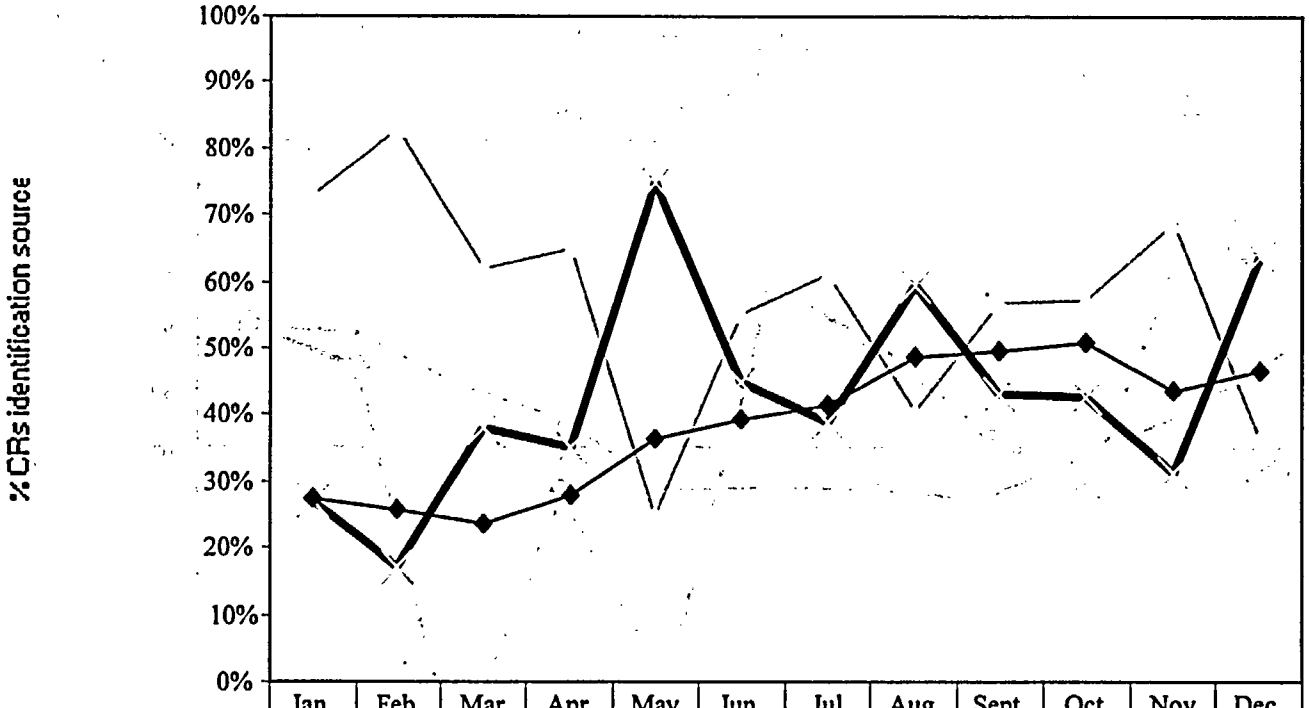


	Jun-03	Jul-03	Aug-03	Sep-03	Oct-03	Nov-03	Dec-03	Jan-04	Feb-04	Mar-04	Apr-04	May-04
2.8.1	2.64	2.43	2.43	2.35	2.57	2.57	2.69	0.00	0.00	0.00	0.00	0.00

Corrective Action Program Status

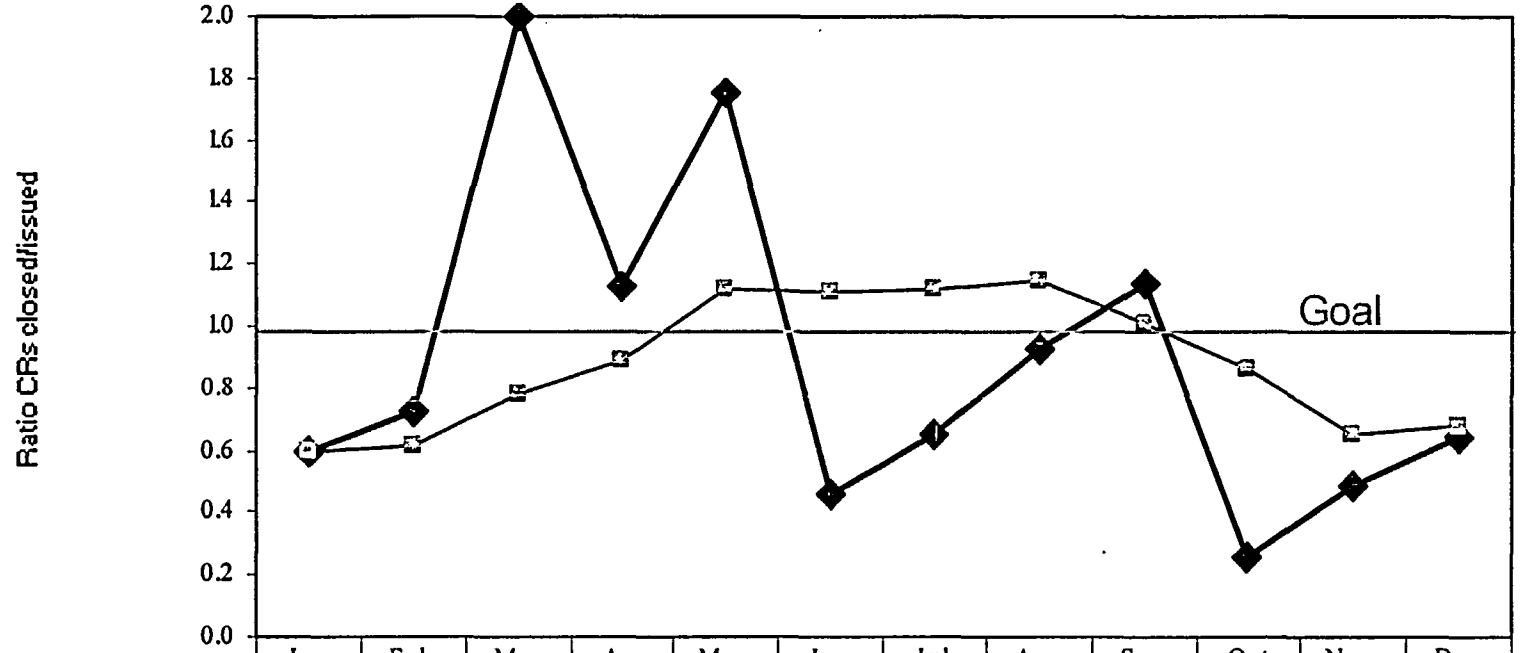
- New single program implemented
- Increased management oversight
  - Corrective Action Program (CAP) Oversight Committee
    - BSC and DOE Senior Management meeting
    - Reviews open Condition Reports
    - Facilitates processing of Condition Reports
    - Holds owners accountable
- Monitoring effectiveness and performance
- Improved trend evaluation and analysis

2.4.2.1 Corrective Action Program Self-Identification



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
— —% BSC/QA + OQA identified	0.73	0.83	0.62	0.65	0.25	0.55	0.61	0.4063	0.5667	0.5741	0.6889	0.3617
▬▬% Line identified	0.27	0.17	0.38	0.35	0.75	0.45	0.39	0.5938	0.4333	0.4259	0.311	0.6383
—◆—6-Mo Rolling Avg Line Id	0.272	0.255	0.235	0.2767	0.3617	0.395	0.415	0.4856	0.4945	0.5072	0.434	0.4654
Score	1	1	1	1	1	1	1	1	1	1	1	1

2.4.4.4 Corrective Action Program Activity Ratio



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ratio closed versus open	0.6	0.7	2.0	1.1	1.8	0.5	0.7	0.9	1.1	0.3	0.5	0.6
Six Month Rolling Avg	0.6	0.6	0.8	0.9	1.1	1.1	1.1	1.2	1.0	0.9	0.7	0.7
# Issues closed	9	13	16	18	21	5	13	24	34	14	22	30
# Issues opened	15	18	8	16	12	11	20	26	30	54	45	47
Score	1	1	2	2	3	3	3	3	3	2	2	2

Trend Evaluation Results/Findings

- Issued Fourth Quarter FY03 Trend Evaluation report using the new process and techniques
- Able to identify the process that is experiencing the most errors in implementation
  - Able to identify why those processes have errors
  - Able to take focused corrective action based on the error likely situations and the associated causes
  - Able to focus on the specifics
- Recent Results for First Quarter FY04
  - Six procedures account for over half of our problems
  - The most common cause is human performance in implementation
  - Content (requirements) of the procedures is not a problem. How they are implemented is
  - Problems primarily related to documentation

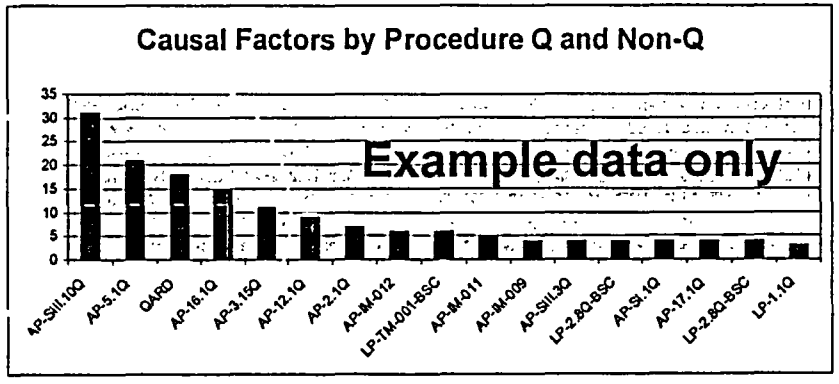
Example Trends and Patterns Analysis

Example data only

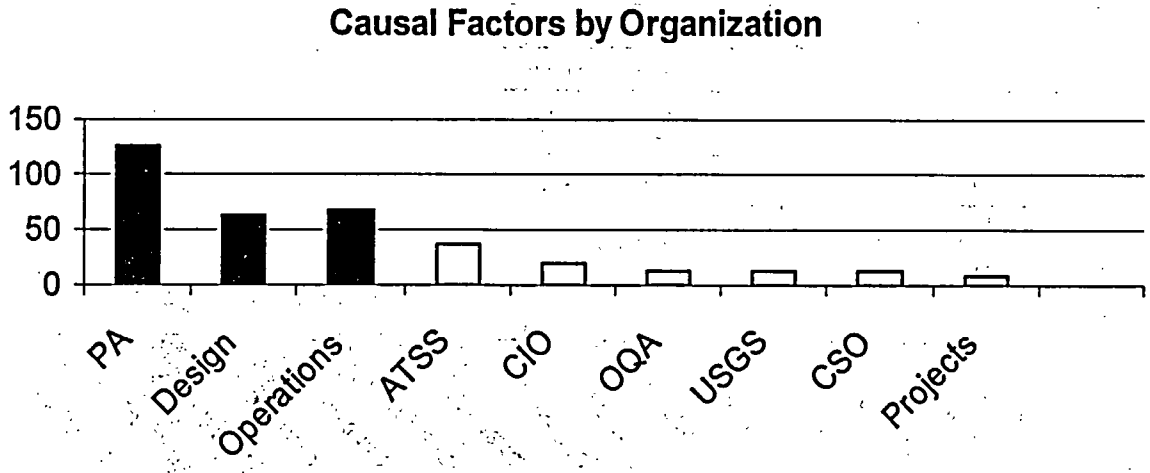
Category	Procedure or Process				
Causal Factor	AP-1.XX	AP-2.XX	AP-3.XX	AP-4.XX	**Total**
Design/Engineering	2	3	2	4	**11**
Equipment/Material	1	0	0	1	**2**
Human Performance	10	15	13	10	**48**
Management	2	1	8	1	**12**
Communications	5	15	12	15	**47**
Training	1	2	5	2	**10**
Total	**21**	**36**	**40**	**33**	

Common Cause Analysis

Recurrence/ Repetitive Problems



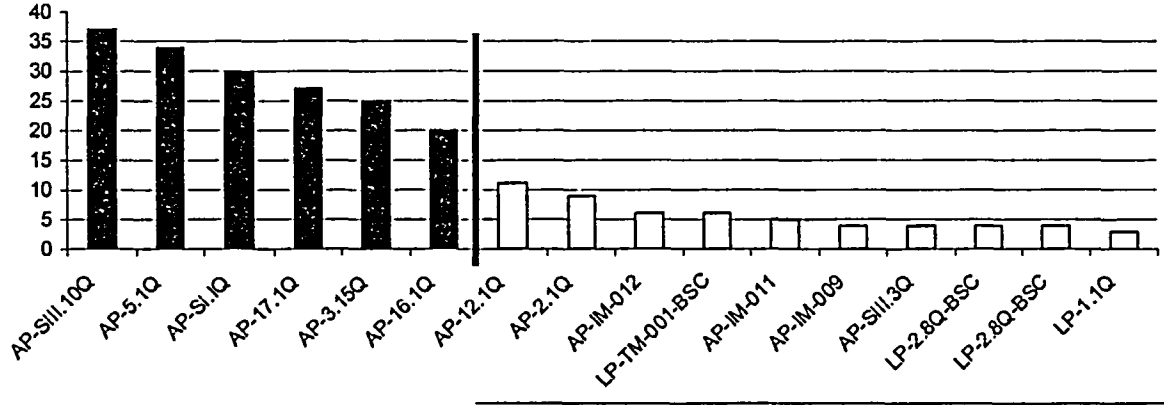
Trend Results by Organization



Organization	Principal Cause Category					
	A1 Design Engineering	A2 Equipment/ Material	A3 Human Performance	A4 Management	A5 Communications	A6 Training
Performance Assessment (PA)	0	5	58	25	31	0
Repository Design (Design)	4	1	10	4	8	0
Site Operations (Operations)	2	3	10	7	9	1

Trend Results by Process

Causal Factors by Procedure Q and Non-Q



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	17	7	13	0
AP-5.1Q Procedure Preparation, Review, and Approval	0	0	23	2	6	1
AP-SI.1Q Software Management	0	0	10	5	14	1
AP-17.1Q Records Management	0	0	13	9	5	0
AP-3.15Q Managing Technical Product Inputs	0	0	13	5	7	0
AP-16.1Q Condition Reporting and Resolution	0	0	16	0	4	1

Summary of Results from Late-2003 Independent Assessments

- **Performance Management Assessment**
  - Booz Allen Hamilton - 18 recommendations
- **Safety Conscious Work Environment External Survey**
  - International Survey Research - 4 recommendations
- **Quality Assurance Management Assessment**
  - D.L. English Consulting - 9 recommendations
- **Office of Repository Development (ORD) Management Assessment**
  - DOE Office of Independent Oversight and Performance Assurance - 19 recommendations

Five-Phase Approach Based on Key Evaluation Criteria

1 DEVELOP EVALUATION CRITERIA

Identify and weigh criteria critical to organizational success

CRITERIA

- **Benefits**
  - Quality
  - Efficiency
  - Schedule
  - Stakeholder Satisfaction
  - Employee Effectiveness
- **Implementation Complexity**
  - Implementation Schedule
  - Implementation Cost

2 IDENTIFY DISCRETE RECOMMENDATIONS

Identify and document discrete recommendations within each report

OA
OA – 1
OA – 2
OA – 3
OA – etc.

QAMA
QAMA – 1
QAMA – 2
QAMA – 3
QAMA – etc.

SCWE
SCWE – 1
SCWE – 2
SCWE – 3
SCWE – etc

PMA
PMA – 1
PMA – 2
PMA – 3
PMA – etc.

3 CATEGORIZE LIKE RECOMMENDATIONS

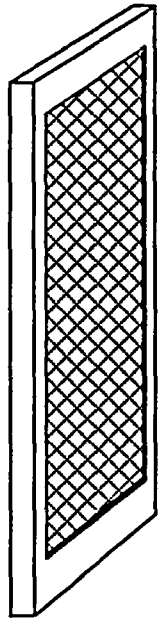
Group recommendations addressing similar issues to enable balanced comparison

CATEGORIES

- **Org. Effectiveness**
  - OA – 3
  - OA – 5
  - OA – 14
  - PMA – 1
  - PMA – 2
  - SCWE – 1
- **Metrics**
  - OA – 11
  - OA – 18
  - PMA – 3
  - PMA – 4
- **SCWE**
  - SCWE – 5
  - SCWE –6
- **Procedures**
  - QAMA – 11
  - QAMA – 14
- Etc...

4 APPLY CRITERIA TO EACH RECOMMENDATION

Evaluate each recommendation against criteria and provide rationale for scores



5 PRIORITIZE AND SEQUENCE BASED ON CRITERIA

Develop integrated set of recommendations based on benefits and implementation complexity scores

RECOMMENDATIONS

- **Org. Effectiveness**
  - **First Quadrant:**
    - OA – 5
    - SCWE –1
    - PMA – 1
  - **Second Quadrant:**
    - OA – 3
  - **Third Quadrant**
    - PMA – 2
  - **Fourth Quadrant**
    - OA – 14

...repeat for all categories

Grouping of Recommendations by Category

We identified ten categories of recommendations, then grouped similar recommendations into "theme" areas to avoid duplication.

ALL RECOMMENDATIONS BY CATEGORY AND SOURCE

CATEGORY	TOTAL REC'S	THEMES	BREAKDOWN BY SOURCE			
			OA	QAMA	SCWE	PMA
Assessment Effectiveness	3	2	2	1		
Corrective Action Program	4	3	2	1	1	
Metrics	4	2	2			2
Organizational Effectiveness	7	5	2	1		4
Procedures	7	3	3	4		
Quality Assurance Program	14	5	2	12		
R2A2	4	2	2			2
Requirements Management	1	1	1			
SCWE	4	2	1		3	
Strategic Planning	2	2	1			1
TOTAL:	50	27	18	19	4	9

Leadership Council Priorities

- **Corrective Action Program**
  - Revise significance level criteria based on impact to safety – June 30, 2004
  - Develop and employ methodology for monitoring quality of reports – June 30, 2004

  Outcome: CAP system is used to resolve quality problems in a timely and efficient manner.

- **Safety Conscious Work Environment**
  - Implement enhancements to ensure effective normal problem resolution processes – September 30, 2004
  - Implement enhancements to ensure effective alternate problem resolution processes – September 30, 2004
  - Promote an environment for workers to raise concerns without fear of retaliation – September 30, 2004

  Goal: Improvements in 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 to better than 85 percent positive survey responses.

  Outcome: Create an environment where workers feel free to raise concerns without fear of retaliation, and with confidence that issues will be promptly and effectively addressed, consistent with their safety significance.

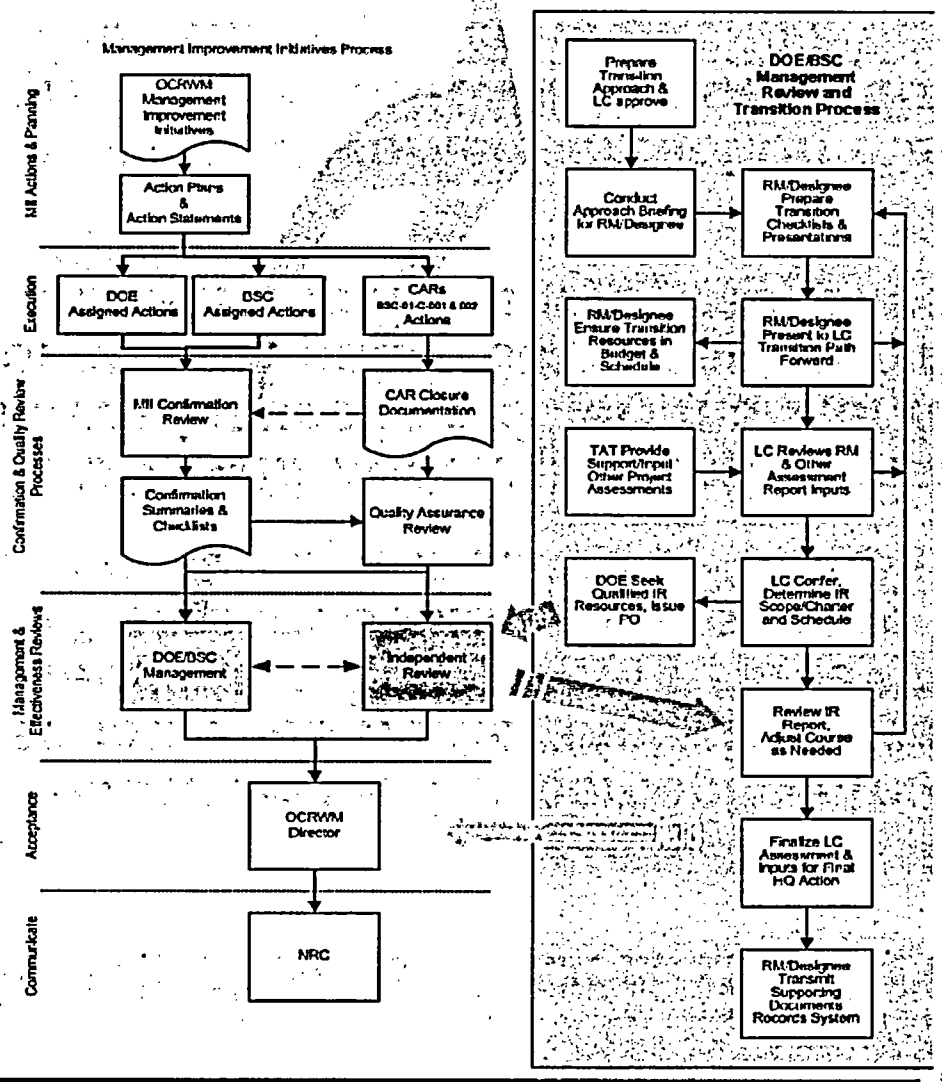
- **Procedures**
  - Issue a document hierarchy for use when preparing documents which defines what type of document should be used: policy, procedure, guidance, plans, directive, instruction, letter, etc., along with user friendly references.

  Goal: A comprehensive document management system which integrates with requirements management and defines line management accountability.

  Outcome: Continued improvement in procedure management.

- **Quality Assurance**
  - QA assessment schedules revised to coordinate with project needs – June 30, 2004
  - Procedures revised/documents issued that clearly define organizational responsibilities, interfaces and deployment between the line and OA/QE – June 30, 2004

Revised Management Improvement Initiative Approach



Safety Conscious Work Environment

- Improvement in OCRWM worker perception that management supports and encourages workers to raise safety concerns without fear of retaliation from current survey result of approximately 76 percent positive response to better than 85 percent positive survey response by September 30, 2004
- 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
- Improvement in OCRWM worker perception that Employee Concerns Program (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

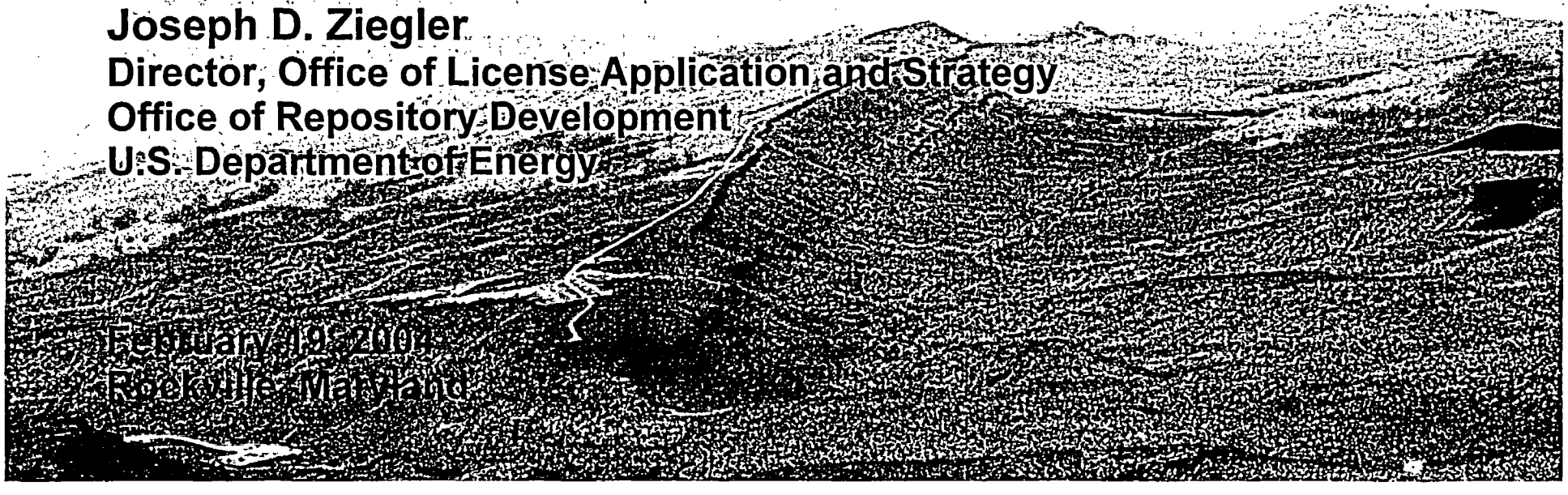
U.S. Department of Energy
Office of Civilian Radioactive Waste Management

YUCCA MOUNTAIN PROJECT

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



February 19, 2004
Rockville, Maryland

Topics for Discussion

- License Application (LA) Schedule Status
- DOE Comments on NRC Risk-Ranking of Key Technical Issue Agreements
- LA Content and Level of Design Detail
- Key Technical Issue (KTI) Agreement Status
  - Handling of References
- Summary

License Application Status

- Work on the Safety Analysis Report is proceeding on a schedule to support submittal of the complete LA in December 2004
- Design work is proceeding on a schedule to support completion of the safety analysis in Summer 2004
- A more focused revision of the Performance Confirmation Plan is under development

Management Assessment of Progress Towards License Application

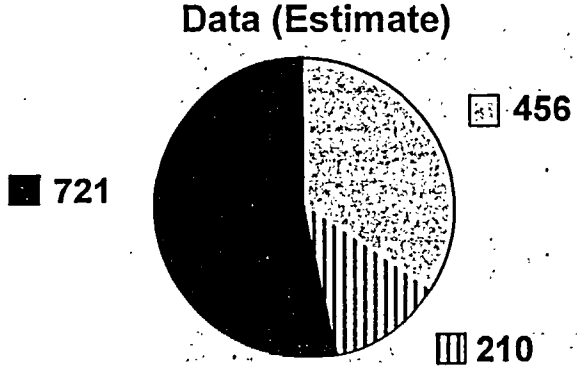
COMPONENT	% COMPLETE (11/03)	%COMPLETE (01/04)
• KTI Agreement Addressed	42%	70% *
• LA Document	7%	14%
• Preclosure Safety Assessment	51%	45% **
• TSPA-LA	63%	76%
• Design	40%	56%
• TOTAL WEIGHTED % COMPLETE	42%	54%

- 100% of KTI Agreements will be addressed prior to submission of the LA

* Formula revised to reflect status as % of 293 agreements with complete DOE submittals

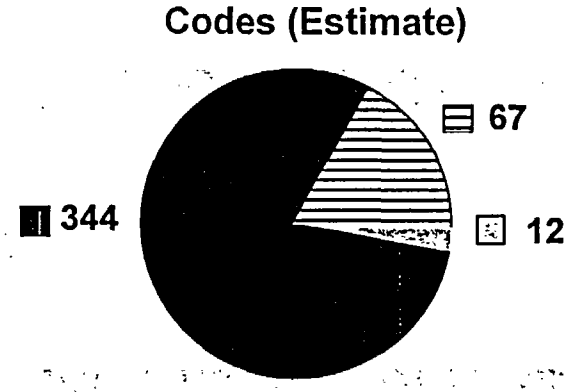
** Decline due to increased work scope since 11/03 reporting

Status of License Application Data, Codes, and Models

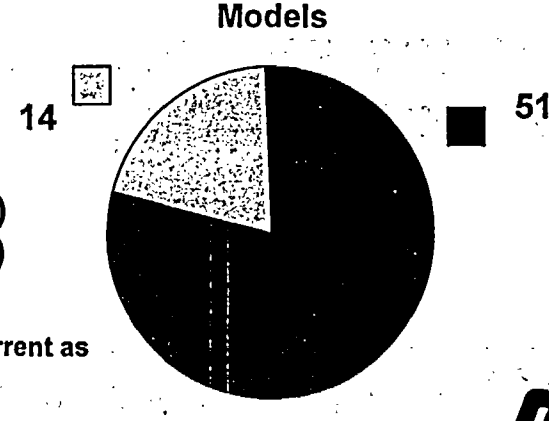


Total Datasets: 1,387
- Qualified: 721 (52%)
- Being Verified: 456 (33%)
- Being Developed: 210 (15%)*

*Estimated number of additional datasets that will be developed as models approach completion



Total Codes: 423
- Qualified & Verified: 67 (16%)
- Qualified (Legacy/re-testing): 344 (81%)
- Developing/verifying: 12 (3%)



Total Model Reports Directly Supporting LA: 65
- Model Reports Completed: 51 (78%)
- In Process: 14 (22%)

[1]Status of qualification activities for LA and completion of reports (current as of 12/31/03)
[2]Model Reports may contain multiple models

DOE Comments on NRC Risk Ranking

- Risk associated with geologic disposal at Yucca Mountain is not high in an absolute sense
- DOE agrees that on a relative basis, some issues would be ranked higher on a total risk scale
  - NRC has 19 categories of model abstractions in the June 5, 2003 memorandum to the Commissioners, 22 separate issues
  - DOE view the same on 8 of the 9 issues ranked as "none" by NRC
  - DOE view the same on 9 of the 14 issues with NRC relative risk ranking as high

DOE Comments on NRC Risk Ranking

(Continued)

- DOE comments on risk are based on sensitivity studies in *Risk Information to Support Prioritization of Performance Assessment Models, TDR-WIS-PA-000009, Rev 01, ICN 01* (transmitted to NRC via letter from J.D. Ziegler to J.R. Schlueter dated September 13, 2002)
- Sensitivity studies used Total System Performance Assessment (TSPA)-Final Environmental Impact Study (FEIS)/Site Recommendation (SR)
- Regardless of relative risk rank, all KTI Agreements will be addressed prior to LA

DOE Comments on NRC Risk Ranking

(Continued)

	NRC Model Abstraction	NRC High Risk-Ranking	DOE Comment
1	Climate and Infiltration	None	Agree
2	Flow Paths in UZ (Seepage)	None	Agree
3	Quantity and Chemistry of Water Contacting Waste Packages and Waste Form	• Evolution of chemistry of water contacting Drip Shield and Waste Package, including evaporation producing corrosive salt deposits on surfaces • Temperatures at which specific brine chemistries can develop on the Drip Shield and Waste Package	Agree with relative risk ranking. Water chemistry and temperature are higher risk factors DOE View Water chemistry and temperature are low risk factors for the drip shield for all scenarios because they do not have a significant effect on general corrosion and localized corrosion is not viable for the titanium drip shield.

DOE Comments on NRC Risk Ranking

(Continued)

	NRC Model Abstraction	NRC High Risk-Ranking	DOE Comment
4	Degradation of the Engineered Barrier System	Persistence of a passive film on the Waste Package. High temperatures and aggressive water chemistry have a potentially detrimental effect on stability of the passive film and may accelerate corrosion.	Agree with relative risk ranking
5	Mechanical Disruption of Engineered Barriers	Timing and extent of drift degradation that could damage engineered barriers or increase Waste Package temperatures	DOE View Drift degradation is not a higher risk factor. DOE believes NRC's drift degradation model is overly conservative.
6	Radionuclide Release Rates and Solubility Limits	Dissolution rate of the waste form	DOE View DOE model is consistent with available data and indicates sufficiently high dissolution rates for spent nuclear fuel that this factor does not affect risk estimates significantly.

DOE Comments on NRC Risk Ranking

(Continued)

	NRC Model Abstraction	NRC High Risk-Ranking	DOE Comment
7	Flow Paths in the UZ Below the Repository	None	Agree. The representation of the flow in the fracture and matrix continua is important to the model. However, the flow systems themselves are not important to the risk estimate.
8	Radionuclide Transport in the UZ	None	DOE View. DOE model includes partitioning of radionuclide release from the EBS between the fracture and matrix continua of the UZ. This partitioning affects mean transport times for radionuclides, including colloid-associated radionuclides, and therefore affects the risk estimates. This model has higher relative risk significance.
9	Flow Paths in the SZ	None	Agree.

DOE Comments on NRC Risk Ranking

(Continued)

	NRC Model Abstraction	NRC High Risk-Ranking	DOE Comment
10	Radionuclide Transport in the SZ	Retardation in the alluvium of Np-237, Am-241, and Pu-240.	DOE View. This is a low risk factor because the UZ and SZ are both effective in limiting discharge of radionuclides (including Np-237, Am-241, and Pu-240) to the accessible environment. Significant retardation of these radionuclides occurs in the SZ volcanics as well as the alluvium. As a result , The DOE model does not take significant credit for the SZ alluvium alone because the UZ and SZ volcanics can be relied upon to limit risk.
11	Concentration of Radionuclides in Groundwater	None	Agree.
12	Redistribution of Radionuclides in Soil .	None	Agree.
13	Biosphere Characteristics	None	Agree.
14	Volcanic Disruption of Waste Packages	Probability of igneous activity	Agree with relative risk ranking

DOE Comments on NRC Risk Ranking

(Continued)

	NRC Model Abstraction	NRC High Risk-Ranking	DOE Comment
15	Airborne Transport of Radionuclides (Igneous)	• The concentration of radionuclides will be larger and the dose will be higher if the volume of ash released is smaller. • Assumptions regarding the amount of fine ash resuspended in the air signficantly influence the dose.	Agree with relative risk ranking.
16	System Description and Demonstration of Multiple Barriers	None	Agree.
17	Scenario Analysis and Event Probability	Additional technical bases are needed for some FEPs and processes that may be risk significant but not included in the TSPA-FEIS/Site Recommendation.	Agree with relative risk ranking.

DOE Comments on NRC Risk Ranking

(Continued)

	NRC Model Abstraction	NRC High Risk-Ranking	DOE Comment
18	Model Abstraction	• Systematic processes are required for model abstraction, conservatism, and representation of uncertainty. • Technical bases are needed for the representation of uncertainty.	Agree with relative risk ranking.
19	Demonstration of Compliance with Postclosure Public Health and Environmental Standards	Development and implementation of process for model confidence building and demonstrating compliance with model confidence criteria is needed.	Agree with relative risk ranking.

License Application Content and Level of Design Detail

- A complete LA for a 70,000 metric tons of heavy metal (MTHM) repository, including designs for all planned facilities and drift panels, will be submitted in December 2004
- 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
  - We recognize the need for additional interaction regarding the structure, system, or component (SSC) classification methodology for items Important To Safety
  - There is no "fixed" percent complete for the overall design at the LA submittal stage - e.g., the level of design detail for the waste package is greater than the surface structures - the level of design detail will support the conclusions in the safety analyses

License Application Content and Level of Design Detail

(Continued)

- Tens of thousands of pages of technical documents and supporting information (e.g., drawings, calculations) will be summarized into around 6,000-10,000 pages in a stand-alone LA
- Focused NRC requests for supporting information will receive a timely response

License Application Content and Level of Design Detail

(Continued)

- The LA Update for a license to Receive and Possess is not expected to significantly change either the bases reviewed for CA or the content of the LA, but the amount of technical supporting information available at that stage will be larger
  - The content changes in the Update will reflect how the commitments (e.g., to specific codes and standards) have been met
- Construction of both the surface and subsurface will be phased to correspond to an operating schedule that will be described in the LA
  - All phases of operations will include packaging and disposal of waste
  - Waste receipt is planned to begin in 2010

KTI Agreements Status Summary

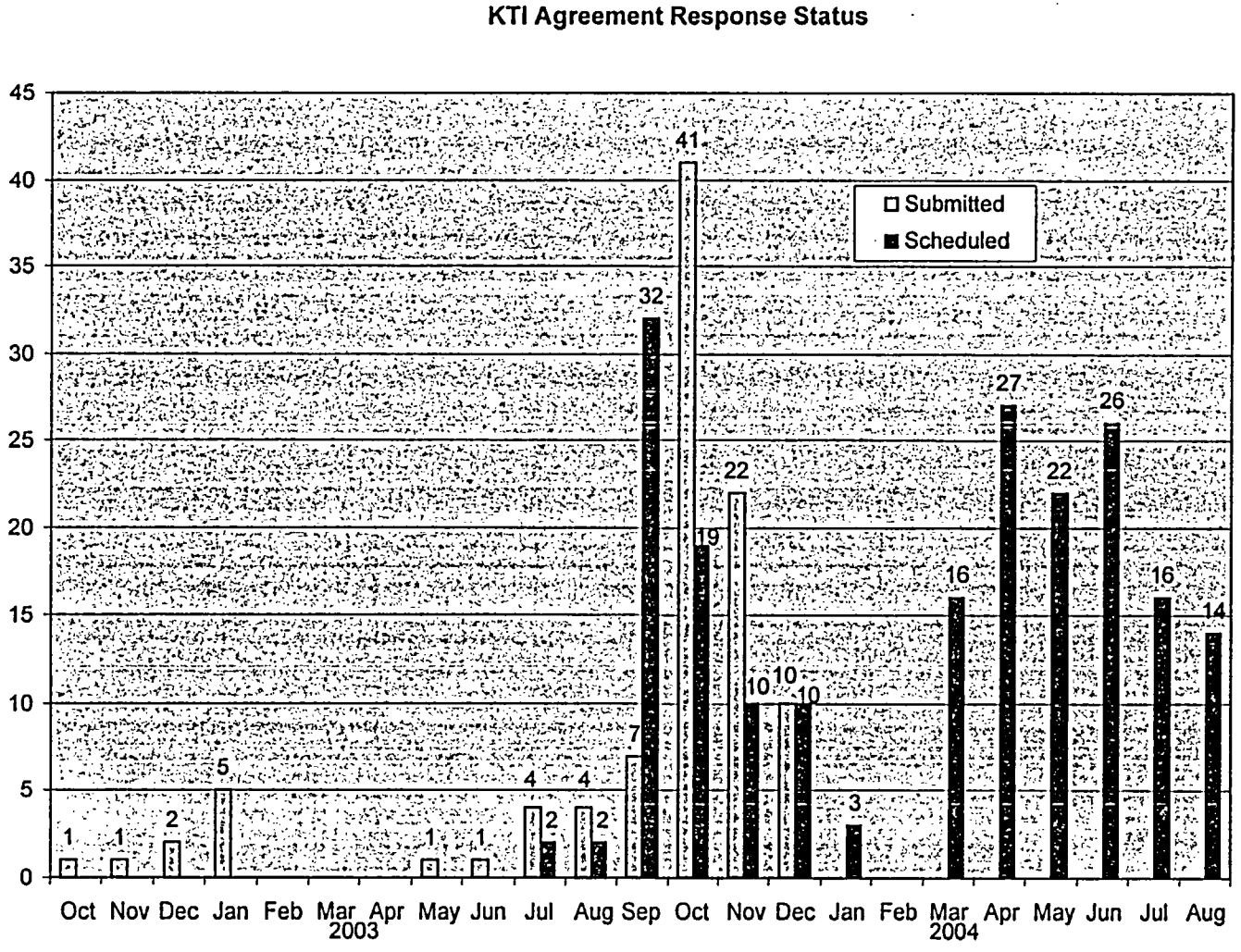
Reflects activity through February 11, 2004

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	2	0	2	3	2
RDTME	23	4	2	1	0	19	1
RT	29	22	16	1	0	7	5
SDS	10	10	2	3	1	0	4
TEF	15	13	2	3	1	2	7
TSPAI	58	35	10	3	9	23	13
USFIC	27	24	10	0	2	3	12
Total =	293	213	79	20	24	80	90

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

Wed, Feb 11, 2004 5:14 pm

Scheduled Agreements and Additional Information Needed Submittals



January agreement responses are currently under review in DOE

Handling of References

- In response the NRC letter requesting references and supporting information:
  - 23 of the 50 specific references are available on OCRWM or U.S. Geological Survey (USGS) websites, remainder will be transmitted and posted as approved - current schedule for completion is March 2004
  - As of February 11, 2004, an additional 44 Analysis Model Reports (AMRs) have been posted to the website (in the order needed to support TBDs under NRC review)
  - General plan is to post primary references, e.g., AMRs, as they are approved
  - For future submittals, efforts will be made to develop stand-alone documents
    - Current plan is to issue documents that minimize reliance on draft references
    - Citations, where required, will be more specific

Summary

- We are on track to submit the LA in December 2004
- We believe we have a common understanding of the level of detail for the content of the LA
- We have made good progress on the KTI Agreement responses
- We responded to the request to comment on the NRC's risk-ranking of KTI Agreements
  - All KTI Agreements will be addressed prior to LA submittal
- We have reached a reasonable resolution for handling references and supporting information

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

YUCCA MOUNTAIN PROJECT

Corrective Action Program

Presented to:
DOE/NRC Quarterly Management Meeting

Presented by:
R. Dennis Brown
Director, Office of Quality Assurance
Office of Civilian Radioactive Waste Management
U.S. Department of Energy

February [illegible] 2004
[illegible]

Corrective Action Program

- **Current Status**
  - New single program implemented
  - Increased management oversight
    - Corrective Action Program (CAP) Oversight Committee
      - » BSC senior management meeting
      - » Reviews open condition reports (CRs)
      - » Facilitates processing of CR
      - » Holds owners accountable
  - Improved causal analysis process
  - Monitoring effectiveness and performance

Corrective Action Program
(Continued)

- **Quality Assurance Surveillances**
  - Condition report screening
    - One condition adverse to quality (CAQ) identified - issue was the cause codes assigned to CRs
  - CAP evaluation process
    - In progress
- **Quality Assurance Audit**
  - Scheduled for July 2004

Corrective Action Program
(Continued)

- **Enhancements under review**
  - Revised significance levels
  - Simplified process
  - Improvements to the tool

Corrective Action Program
(Continued)

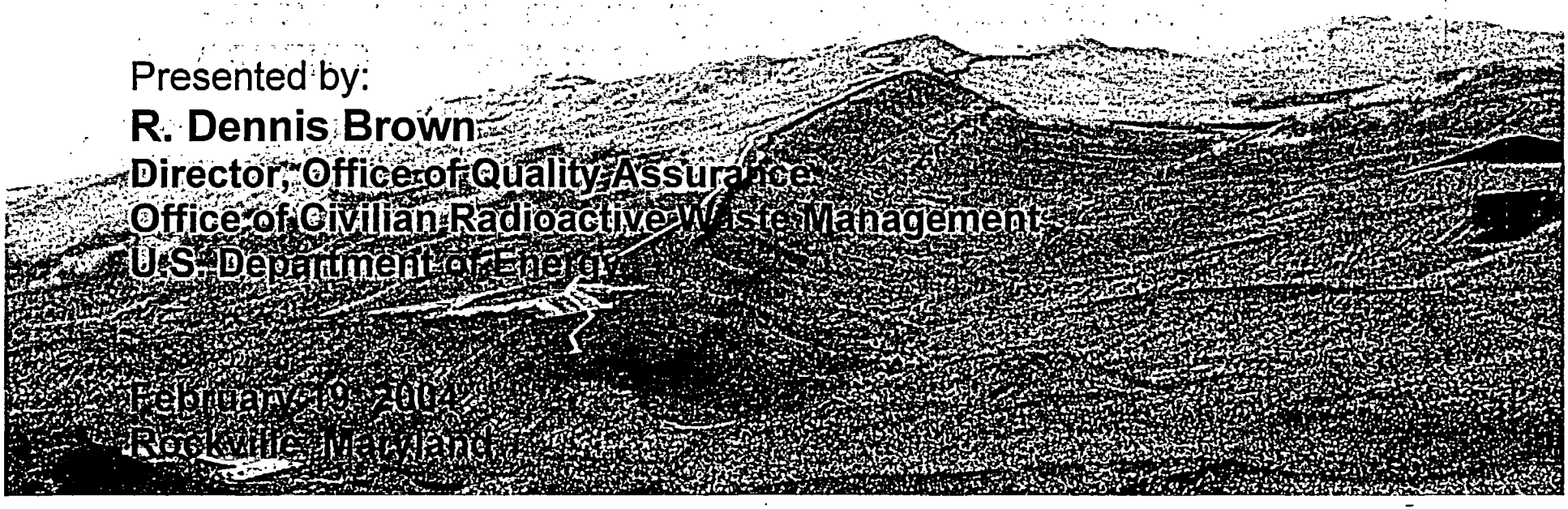
- **Path Forward**
  - Continue to monitor effectiveness and performance
  - Implement enhancements
  - Continued management involvement
  - Moving more accountability to the line organizations

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

YUCCA MOUNTAIN PROJECT

Trending Program Improvements

Presented to:
DOE/NRC Quarterly Management Meeting



Presented by:
R. Dennis Brown
Director, Office of Quality Assurance
Office of Civilian Radioactive Waste Management
U.S. Department of Energy

February 19, 2004
Rockville, Maryland

Requirements and Industry Best Practices

- **Quality Assurance Requirements Description (QARD) Requirements**
  - Conditions adverse to quality shall be evaluated to identify adverse quality trends and help identify root causes
  - Performed in a manner and at a frequency that provides for prompt identification of adverse quality trends
- **Industry best practices**
  - Institute of Nuclear Power Operations (INPO) - information in performance reporting/corrective action systems is periodically assessed for trends
- **Performance objective**
  - Provide line management with information relative to potentially identifying recurring problems and systemic or programmatic causes (common causes)

Trending Process Improvements

- AP-16.3Q, *Trend Evaluation and Reporting* revised, effective September 30, 2003
- Process changed to focus on trend evaluation and analysis through resolution
  - Uniform cause codes and training on cause analysis implemented
  - Reporting frequency increased to quarterly
  - New criteria and process for identifying repetitive problems and trends
    - Statistical and qualitative criteria
    - Common cause analysis
  - Adverse and emerging trends documented in corrective action system to track associated actions

Trending Process Improvements

(Continued)

- **AP-16.4Q, *Causal Analysis and Corrective Action Plan Development* revised, effective September 29, 2003**
  - Process changed to reflect industry best practice (Root Cause Analysis INPO-OE-907)
  - Integrates the causal analysis and corrective action development activities into one process
  - Validation criteria on causal factors and corrective actions
  - Human performance and error precursor concepts from INPO integrated into the process
    - Skill, rule, and knowledge based errors
  - New training for evaluators and root cause analysts developed and provided

Trending Process

- Data collection and analysis
  - Condition reports are identified and data extracted
    - Process/Procedure
    - Owner/Organization
    - Cause(s)
    - Corrective actions
  - Data is reviewed for completeness and accuracy
  - Data is then sorted and evaluated for trends and patterns by a team
    - Trends and Patterns Analysis helps to identify likely areas (outliers) to focus on identification of common causes and ineffective corrective action
    - Pareto charts and statistical techniques used to identify outliers

Trending Process
(Continued)

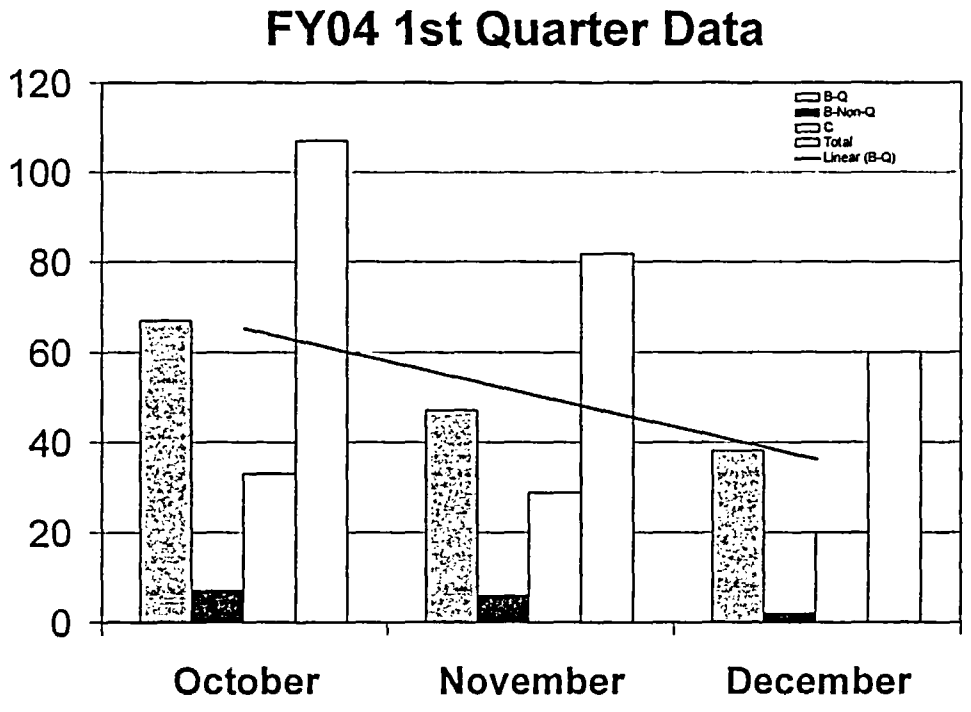
- Once a trend or pattern is observed, the Condition Reports (CRs) that contributed to the trend or pattern are read and evaluated for:
  - Risk significance or impact
  - Error-prone process or single failure points
  - Recurring problems

Trend Evaluation Results/Findings

- **Issued 4th Quarter FY03 Trend Evaluation Report using the new process and techniques**
  - **Able to identify the processes that are experiencing the most errors in implementation**
  - **Able to identify why those processes have errors**
  - **Able to take focused corrective action based on the error likely situations and the associated causes**
  - **Able to focus on the specifics**

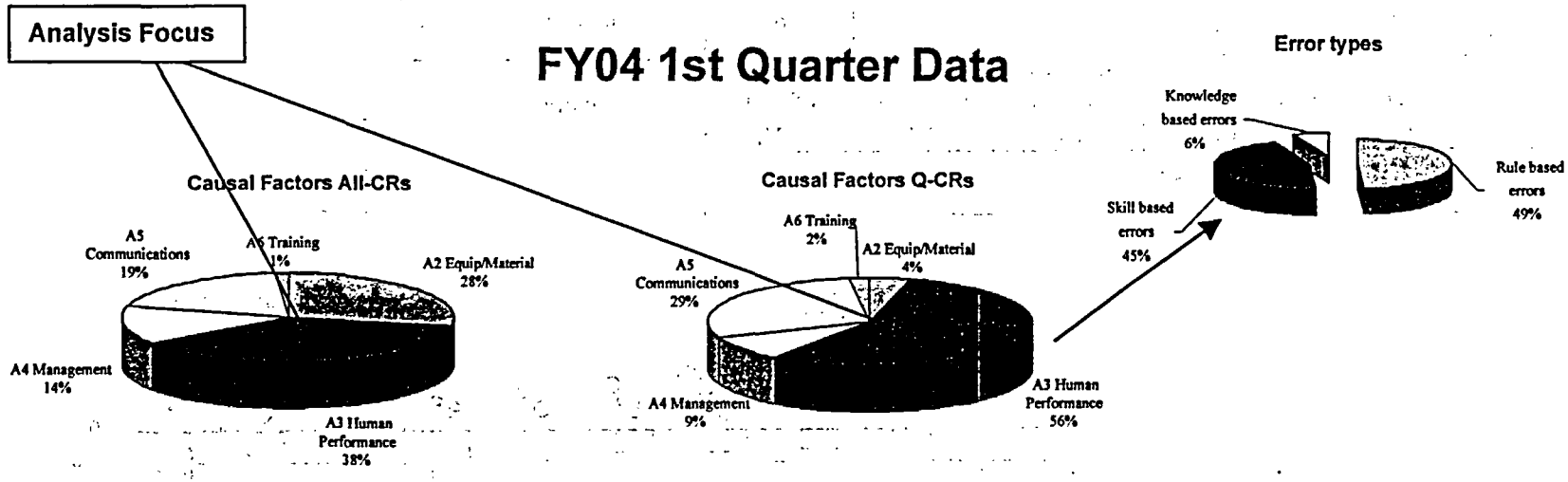
Trend Results Overall

- **Analysis results**
  - **Statistically significant trend is the result of process variation (influence of holiday periods)**
  - **A review over the previous 12 months indicates peaks occur relative to audit activity**



Trend Results Overall

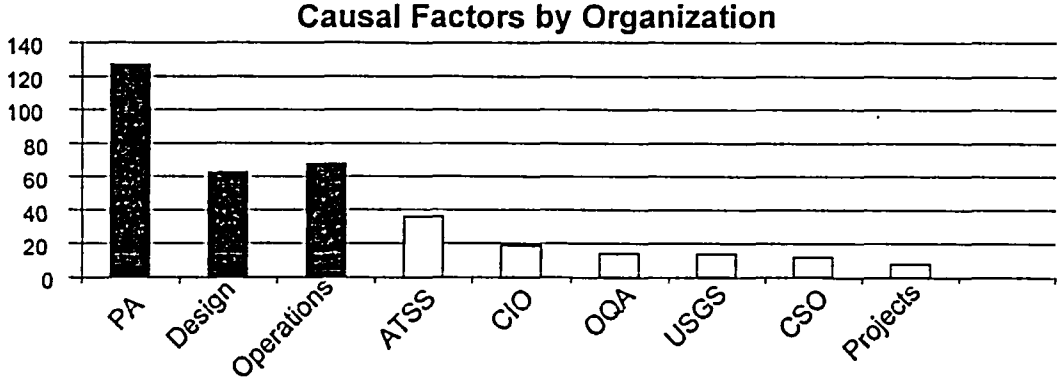
(Continued)



- **Analysis results**
  - Equipment causal factors are influenced by Non-Q NCR activity
  - Human performance causal factors are influenced by skill and rule based errors

Trend Results by Organization

Calendar 03 Data

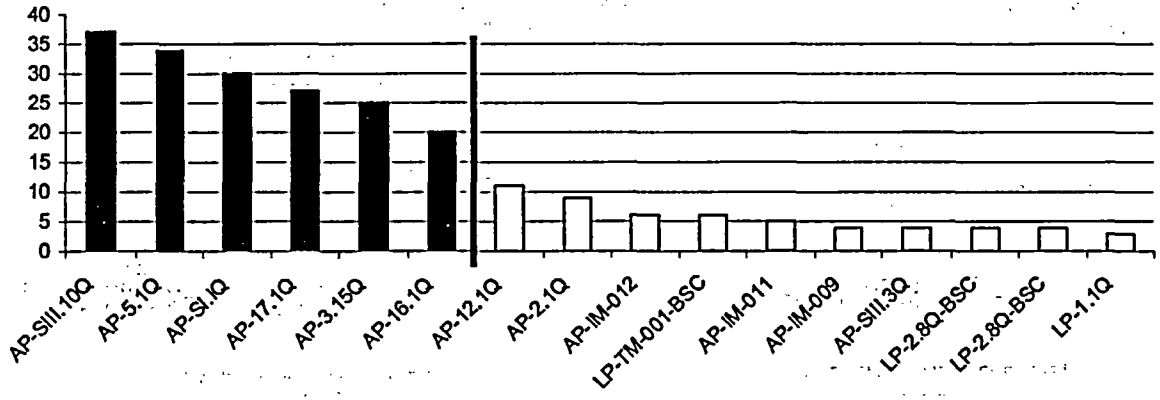


Organization	Principal Cause Category					
	A1 Design Engineering	A2 Equipment/ Material	A3 Human Performance	A4 Management	A5 Communications	A6 Training
Performance Assessment (PA)	0	5	58	25	31	0
Repository Design (Design)	4	1	10	4	8	0
Site Operations (Operations)	2	3	10	7	9	1

Trend Results by Process

Calendar 03 Data

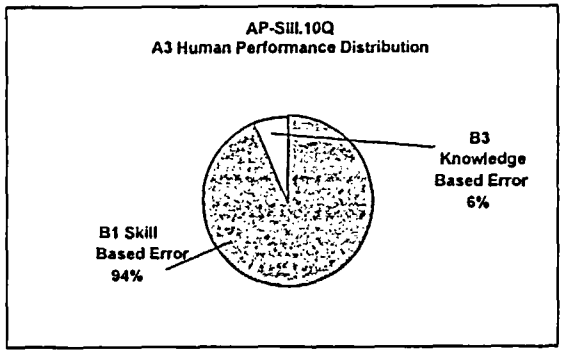
Causal Factors by Procedure Q and Non-Q

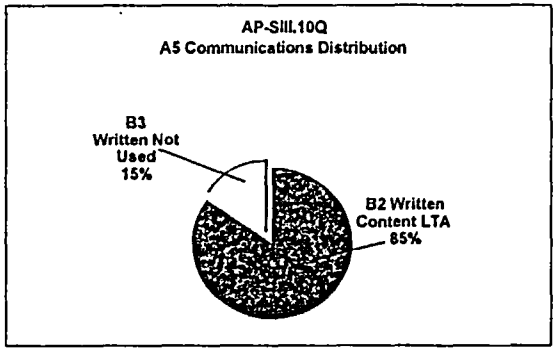


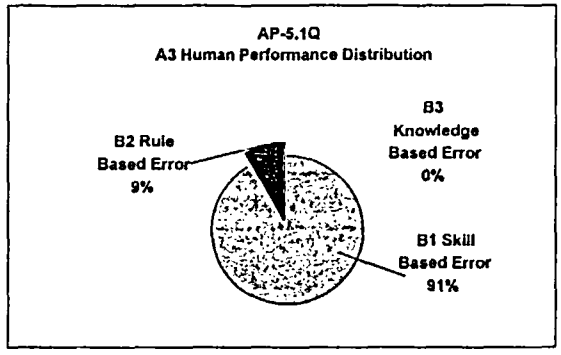
Procedure	Principal Cause Category					
	A1 Design Engineering	A2 Equipment/ Material	A3 Human Performance	A4 Management	A5 Communications	A6 Training
AP-SIII.10Q Models	0	0	17	7	13	0
AP-5.1Q Procedure Preparation, Review, and Approval	0	0	23	2	6	1
AP-SI.1Q Software Management	0	0	10	5	14	1
AP-17.1Q Records Management	0	0	13	9	5	0
AP-3.15Q Managing Technical Product Inputs	0	0	13	5	7	0
AP-16.1Q Condition Reporting and Resolution	0	0	16	0	4	1

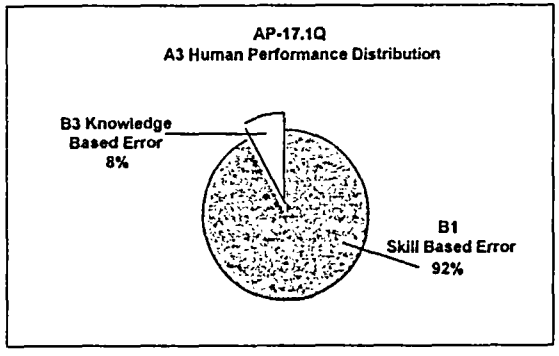
Trend Results by Process

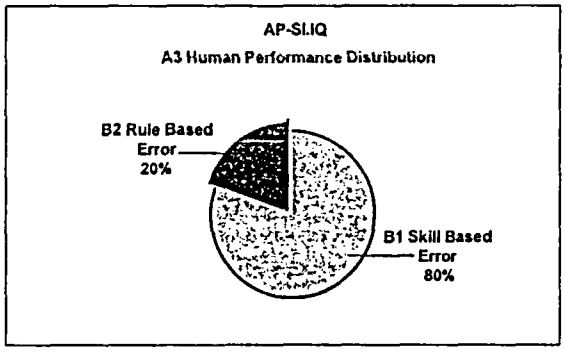
(Continued)

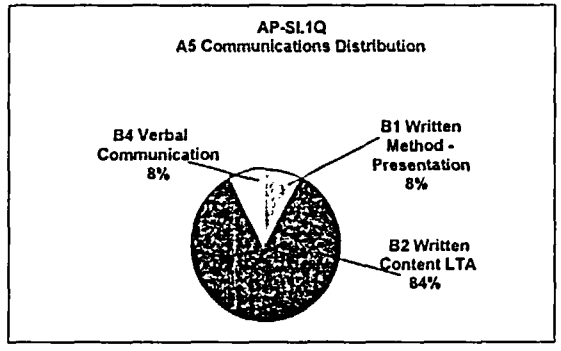


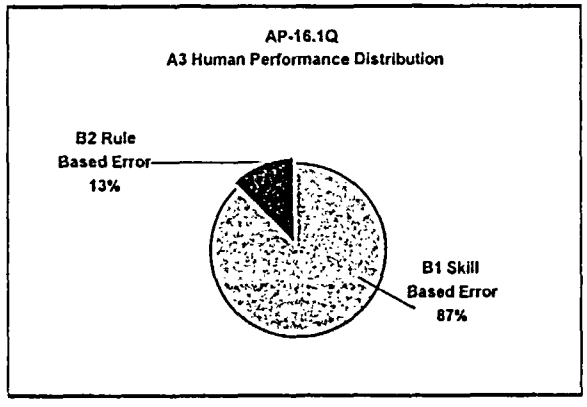


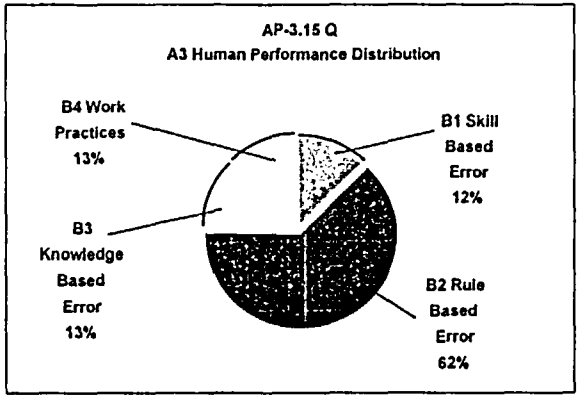












Trend Results Summary

- As a result of audit activities, different procedures account for our problems quarter-to-quarter
- Problem areas were expected and management is proactively addressing the identified issues
- Processes are in control given the amount of data and work being conducted throughout the year
- We now understand the nature and causes of problems with these processes

Consolidated Action Items
from the
NRC/DOE Quarterly Management Meetings
(February 19, 2004)

Item No.	Description	Status
MM 0304-07	DOE will provide the high-level decision schedule to the NRC OR in July 2003 and discuss it at the next Management Meeting	Open. This action remains open pending DOE completion of necessary internal reviews and any needed revisions. This topic will be discussed in the next quarterly management meeting.
MM 0307-03	DOE will evaluate the NRC risk-ranking of KTI agreements, and provide feedback to NRC. As part of this evaluation, DOE will consider if those medium and high-risk agreements that are scheduled for completion close to or after the planned LA submittal could be accelerated.	Proposed Complete. General feedback was provided by DOE on the NRC risk-rankings at the November 13, 2003 Quarterly Management Meeting. DOE will explore the differences it has with the NRC risk-rankings with the NRC staff.
MM 0311-01	DOE will provide an update of its evaluation of the SCWE survey data at the next quarterly Management Meeting.	Proposed Complete. An update is scheduled as a part of the discussion during the February 2004 Management Meeting.
MM 0311-02	DOE will provide NRC a revised schedule for submittal of responses to KTI agreements and Additional Information Needs by the end of calendar year 2003.	Proposed Complete. The revised schedule was submitted to the NRC on November 28, 2003 by letter from Joseph Ziegler.
MM 0311-03	DOE will provide the NRC OR details of the data that makes up the performance indicators, including definitions of the metrics.	Proposed Complete. The NRC OR was provided on the feeds and make-up of QA performance indicators on February 4, 2004.
MM 0311-04	DOE and NRC will arrange a Technical Exchange in January 2004 to discuss examples of the level of detail to be presented in the LA.	Proposed Complete. The Level of Detail Technical Exchange was conducted on February 3 and 4, 2004.

Note: The Quarterly Management Meeting action items are designated as "MM yymm-nn" where yy is a two digit year, mm is a two digit month and nn is a two digit action item number from that meeting.