

# **WOG TWG K/A Catalog Update Survey**

**October 25, 2005**

# Scope, Purpose, & Methods

- Scope - Section 2, Generic K/As
- Purpose - Determine whether Section 2 should be updated
- Method
  - Web-based survey
  - “Importance to safety” ratings for RO and SRO jobs for 129 K/As
  - Evaluation of need to retain/revise each K/A
  - Suggestions for new K/As

# Participating Sites

(PWRs only)

All WOG TWG Members Asked to Participate

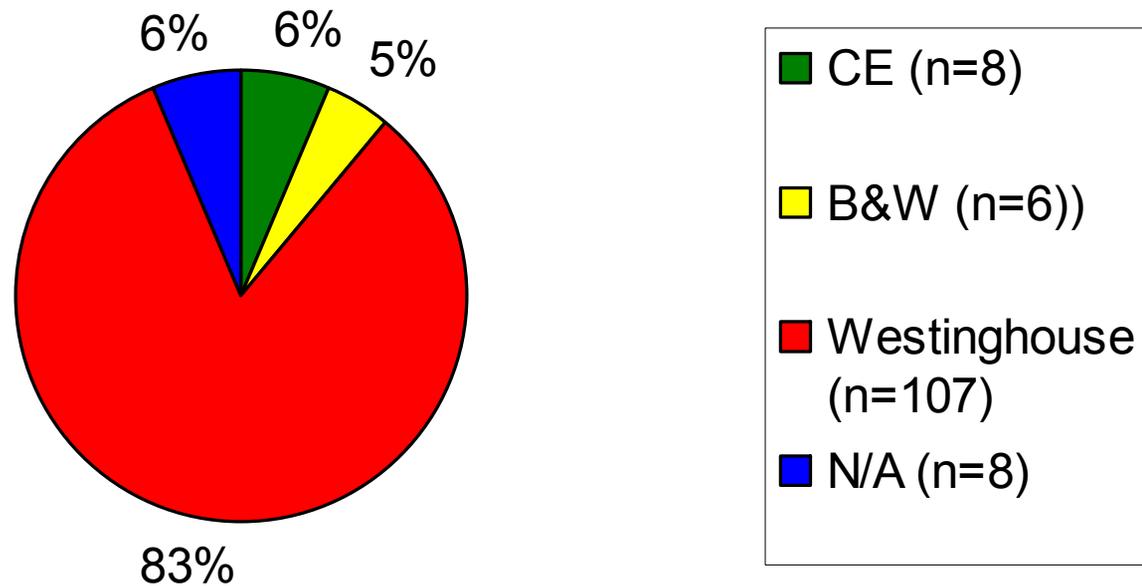
Beaver Valley (FENOC)	14	McGuire (Duke)	10
Braidwood (Exelon)	4	Oconee (Duke)	6
Callaway (Ameren)	1	Palisades (NMC)	3
Catawba (Duke)	4	Palo Verde (Pinnacle)	4
Comanche Peak (TXU)	2	Prairie Island (NMC)	2
Cook (American Electric)	1	Robinson (Progress)	1
Diablo Canyon (PG&E)	8	Salem (PSEG/Exelon)	3
Farley (Southern Nuclear)	1	South Texas (STP)	17
Ginna (Constellation)	8	VC Summer (SCANA)	4
Harris (Progress Energy)	4	Vogtle (Southern Nuclear)	3
Kewaunee (NMC)	3	Wolf Creek (Wolf Creek)	14
		NRC	11

# Participant Characteristics

- 118 participants completed all survey sections (4 sections)
- 129 participants completed at least one section
- All participants were asked to provide importance ratings for both the RO and SRO jobs for each K/A

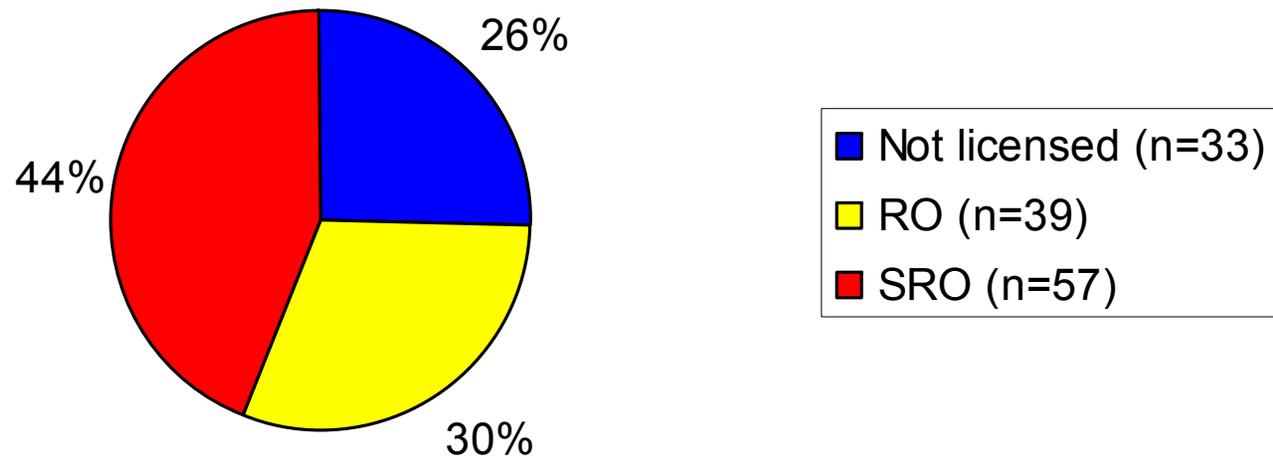
# NSSS Vendor Types

Percentage of Participants from each NSSS Vendor Type (N=129)



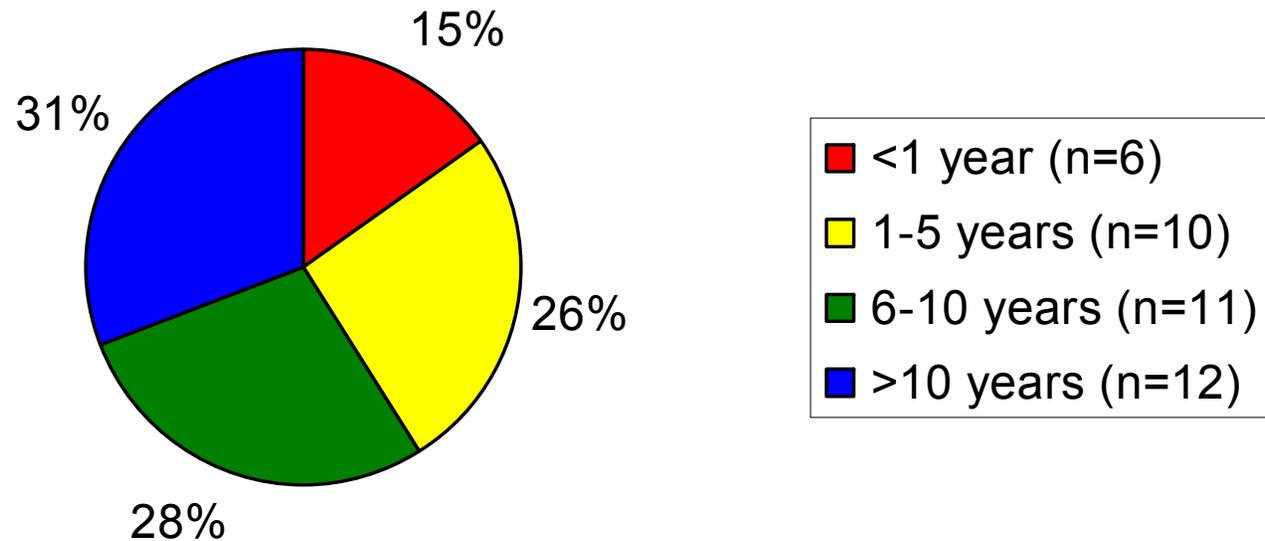
# Participants' Current License Status

Current License Status (N=129)

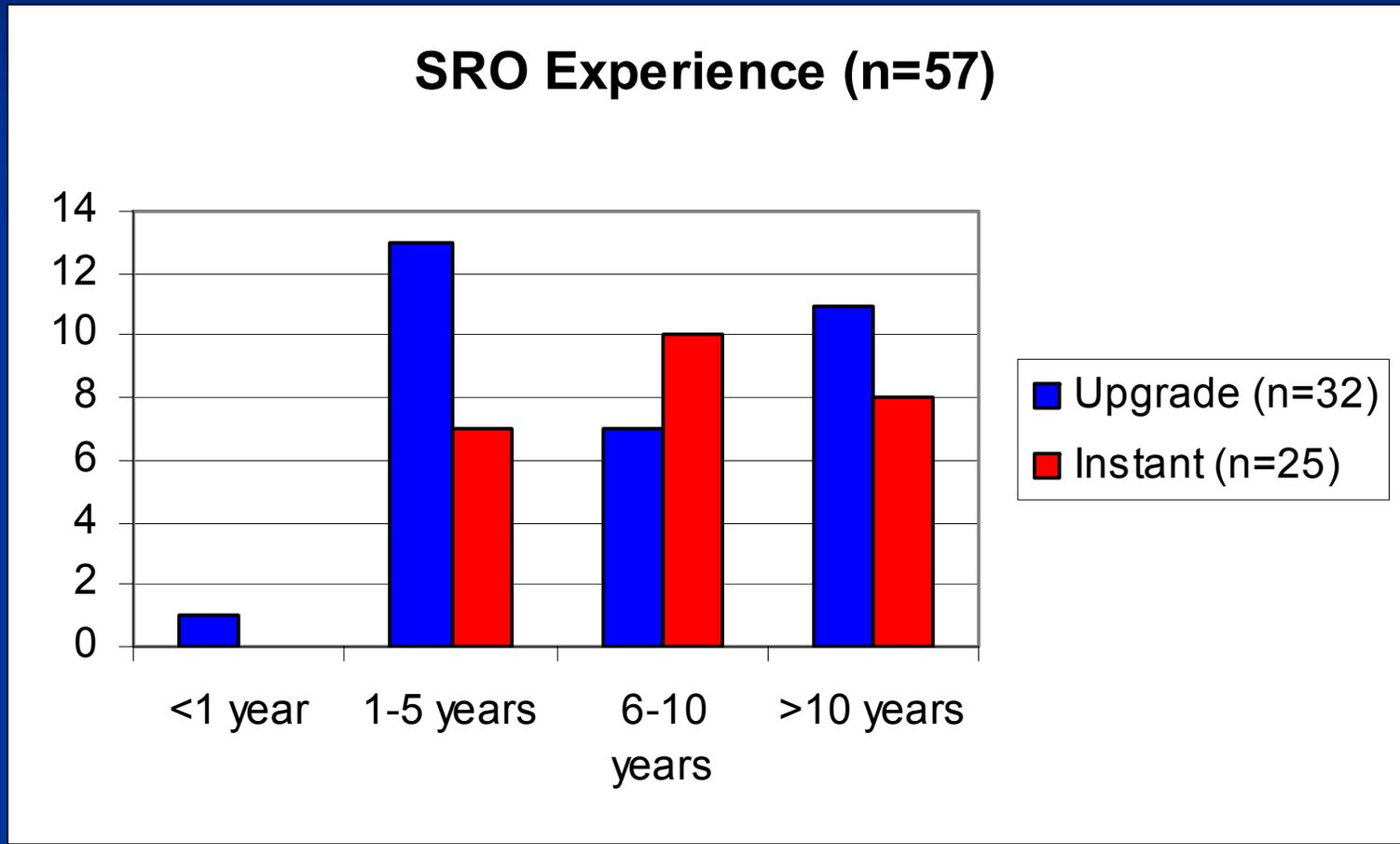


# Current ROs' Years of Experience

Years as RO (n=39)

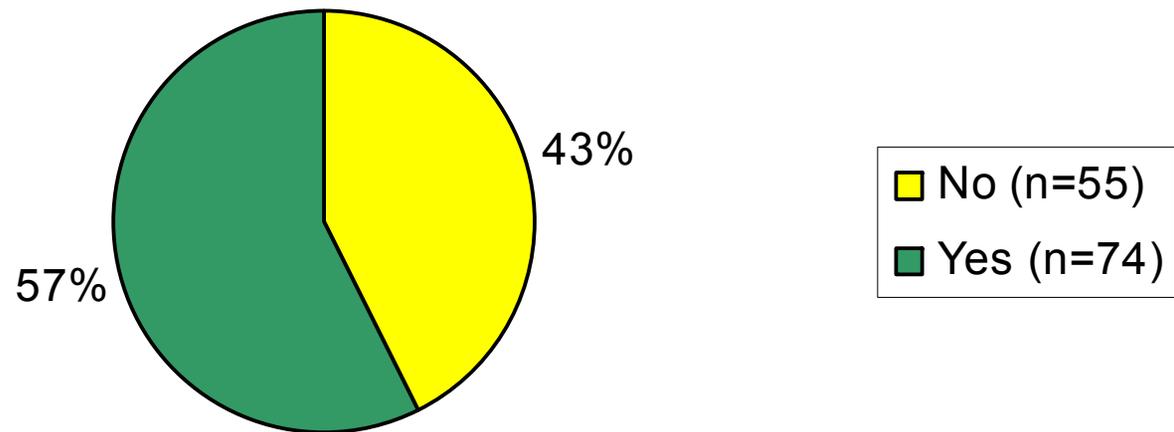


# Current SROs' Years of Experience by Type of SRO License Held

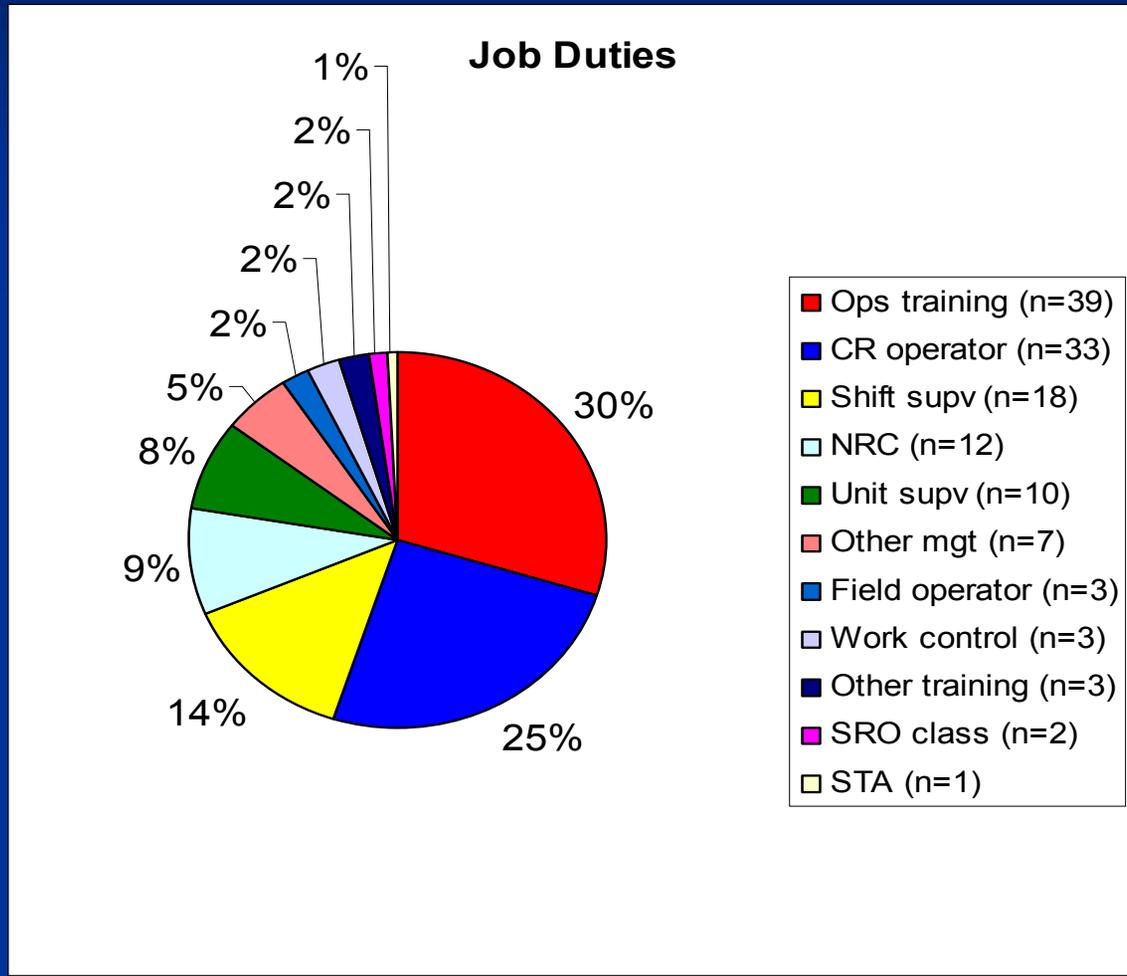


# Experience with the Exam Process

Developed or Reviewed an Exam (N=129)

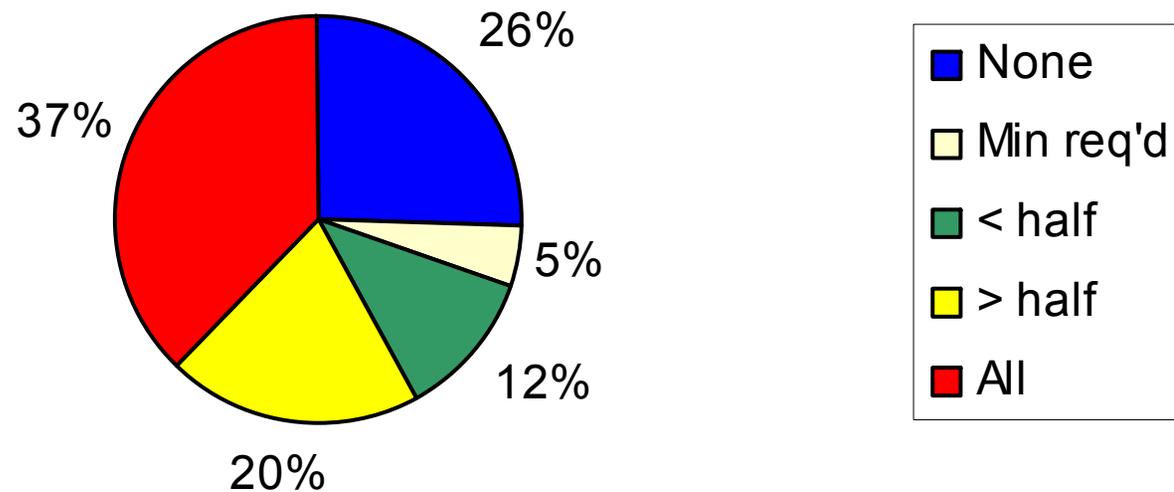


# Participants' Current Job Duties



# Amount of Time Spent “Standing Watch” in the Past 5 Years

Time on Shift (N=129)



# K/A Importance to Safety Rating Scale

- Same scale used for 2 previous surveys (Rev. 0 and Rev. 2 of the K/A Catalog)
- 5-point scale:
  1. Insignificant importance
  2. Of limited importance
  3. Fairly important
  4. Very important
  5. Essential

# Data Analyses

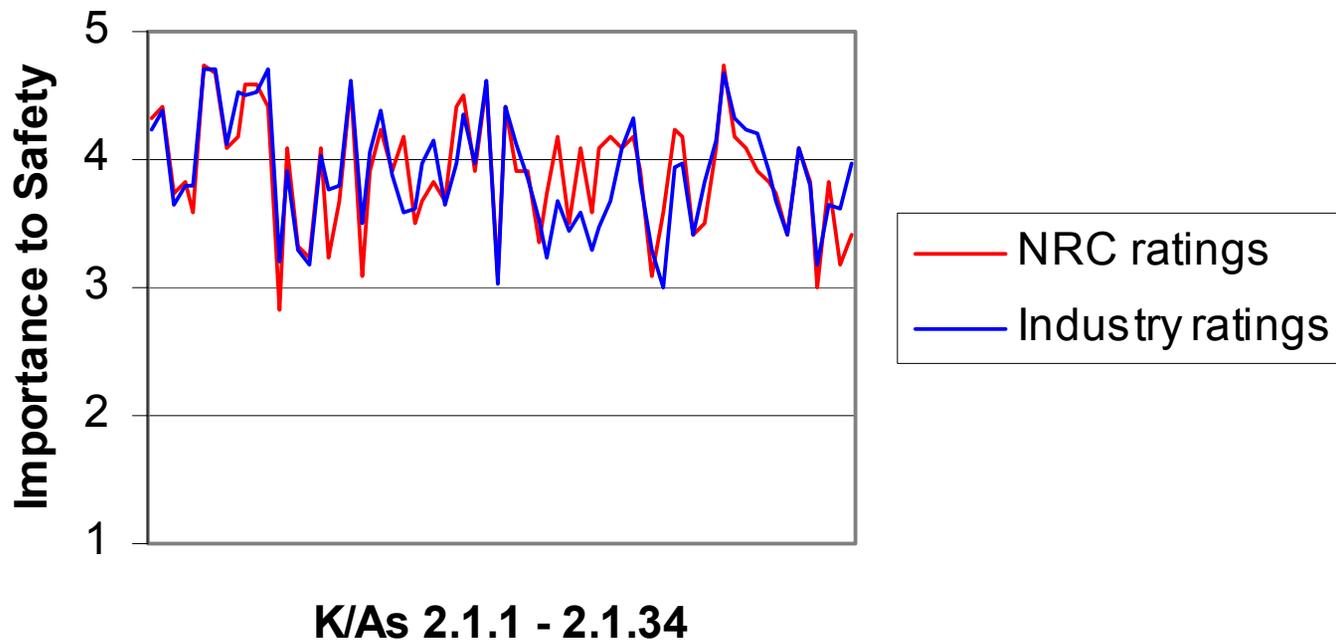
- Calculated average RO and SRO importance ratings for each K/A
- Calculated the standard deviation for each average rating (a measure of disagreement in the ratings)
- Compared the ratings from different groups of participants

# Preliminary Results

- No statistically significant differences in the ratings between groups of participants
- Pattern of “importance to safety ratings” very similar to ratings in the current K/A Catalog ( $r=.91$ )
- Survey importance ratings are statistically higher than those in the Catalog (on average, about .45 level higher)

# NRC Examiners vs. Industry Ratings on the Conduct of Ops K/As

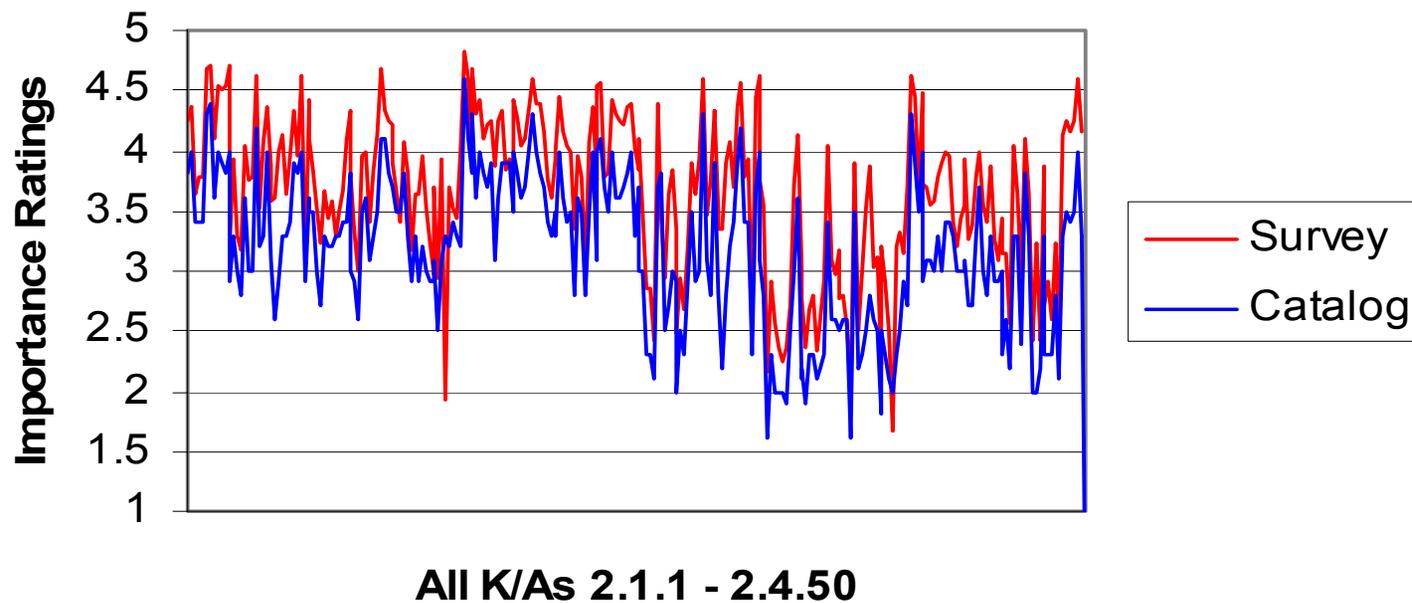
## NRC vs. Industry Importance Ratings



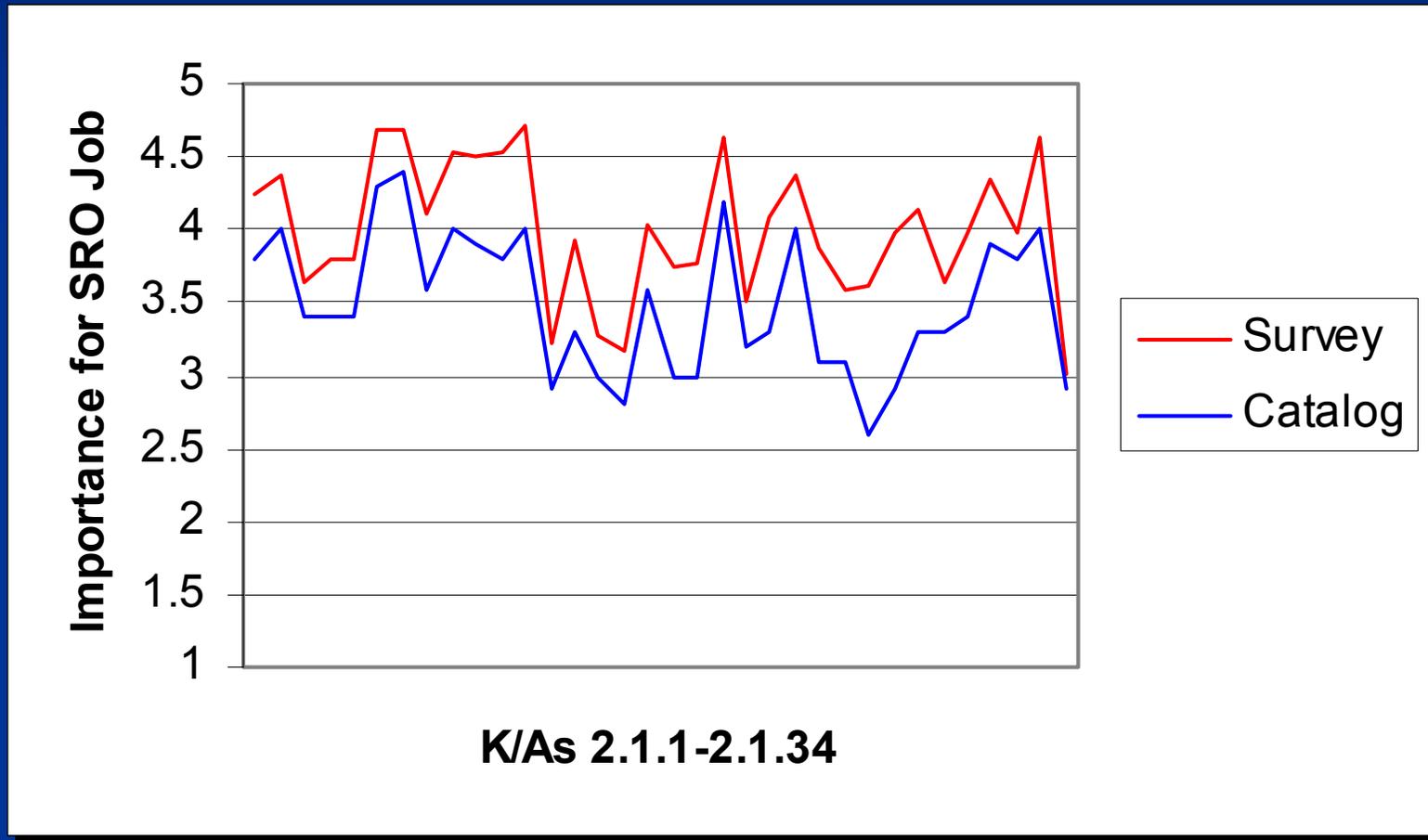
$r = .93$  over all ratings

# Correlation of Importance Ratings: Survey vs. Catalog ( $r = .91$ )

## Survey and Catalog Importance Ratings



# Comparison of Survey and Catalog Importance Ratings for SRO Job



# Summary of Findings

- The importance ratings for 22% of the current K/As are questionable (SDs > 1.0)
- There are many more K/As that are appropriate for testing in an SRO-level exam than in an RO-level exam
- The knowledge or ability required is different for ROs and SROs in 45% of the K/As
- The Radiation Protection subsection (2.3) is particularly problematic

# Recommendations for Revisions

- Evaluate the K/As with standard deviations  $>1.0$  based on the comments and revise them for clarity
- Evaluate the K/As in which the knowledge or ability is different for ROs and SROs and develop new K/As for the RO job
- Revise Radiation Protection subsection
- Add suggested new K/As

# What did we do with this information?

- Two-day meeting of a core team to review data from the survey
- Divided the problematic K/As and evaluated each for deletion or revision
- Reviewed/validated suggested changes with full WOG TWG group

# Proposed Changes

- Replace subsection 2.3 with 10 new K/As derived from 10 CFR 41
- Delete 4 K/As because they are adequately addressed in other sections of the Catalog
- Revise 37 K/As to clarify their meaning
- Move 7 K/As related to fuel handling from subsection 2.2 to 2.1 to group related content
- Move 6 K/As from subsection 2.1 to 2.2 to group related content
- Move 2 K/As from subsection 2.4 to 2.2 to group related content
- Add one new K/A to subsection 2.1 related to reactivity management

# What's Next?

- Conduct a new survey to provide importance ratings for both the RO and SRO jobs for the new and substantively revised K/As
  - Same group of respondents
  - Importance ratings only
  - Opportunity for additional comments
- Verify that the new and revised K/As are understandable and important to safety

# Discussion Items

Q1: What progress have you made, if any, in "convincing" the BWR owners group to adopt your proposed revisions?

A1: The BWROG was contacted prior to this effort and agreed in principle with the program, but declined to participate at that time. The WOG and BWROG are continuing discussion.

# Discussion Items

Q2: Are ALL PWR utilities, as well as CE and B&W, in agreement with your proposed changes?

A2: As of January 1, 2006, all domestic PWRs are WOG members.

- The CE units have been WOG members since Westinghouse acquired CE.
- The B&W units voted to participate in this program in October 2005.

# Discussion Items

Q3: All of the KA statement importance rating numbers have lines drawn through them, which is unclear. Certain others statements state "rerate." Please explain.

A3: Importance Ratings will be replaced based on survey results.

# Discussion Items

Q4: What effect will the proposed renumbering changes have on the established data bases that use the present system? What unintended cascade effects might occur to numerical changes of KA statements and their movement to other sections when developing sample plans, using test banks, etc? What additional resources might be required to make such adjustments?

# Discussion Items

A4: Estimated utility cost to implement (i.e. change database)

1 day of Instructor time = \$400

1 day of admin support = \$200

42 PWR sites \* \$600 = \$25,200

24 BWR sites \* \$600 = \$14,400

Total = \$39,600\*

\* Cost to implement changes to exam generation software is minimal when distributed among WOG members.

# Discussion Items

Q5: In light of your proposed changes, relative to the present KA Catalog, please explain what significant values your proposal yields over the present Catalog.

# Discussion Items

A5: For a typical 100 question exam, 20-35 questions will be generic. Of these, on average, five questions will be reworked. A re-written question will take ~4 hours (\$200 labor) plus NRC review time (1 hour  $\approx$  \$200).

Total rework  $\approx$  \$2,000 per exam

# Discussion Items

A5: (continued)

75 exams per year \* \$2000 = \$150,000  
savings per year

vs.

One time cost of \$39,600

# Discussion Items

A5: (continued)

Additional qualitative benefits:

- More operationally valid exam
- More relevant to current operating environment
  - Reactivity Management
  - Radiation Control
- Reduced number of appeals
  - Direct link to 10 CFR
- Reduced frustration
  - Exam writers, Trainers, NRC and Operators

# Discussion Items

Q6: The first two radiation protection KA statements address principles and procedures "pertaining to license operator duties." Is this intended to limit testing on generic radiation worker knowledges?

A6: This KA was re-written to meet the intent of 10CFR55.41 and 43, which specifically states "licensed operator duties".

# Discussion Items

Q7: Have you made the NEI Industry Focus Group members aware of your proposed changes, and if so, what response(s) have you received?

A7: Regional training groups have been updated on proposed changes. Next NEI Focus Group meeting scheduled for late November.