



# Union of Concerned Scientists

March 29, 2001

Mr. David Meyer, Chief  
Rules and Directives Branch  
Office of Administration, Mail Stop T6-D59  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

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**SUBJECT: COMMENTS IN THE FIRST YEAR OF THE INITIAL  
IMPLEMENTATION OF THE REACTOR OVERSIGHT  
PROCESS**

Dear Mr. Meyer:

On behalf of the Union of Concerned Scientists, I respectfully submit the attached comments regarding the first year of initial implementation of the reactor oversight process.

Sincerely,

David Lochbaum  
Nuclear Safety Engineer  
Washington Office

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Union of  
Concerned  
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## COMMENTS ON ROP's FIRST YEAR

As stated during both the opening session and Public Communications session of the recent Reactor Oversight Process workshop, the Union of Concerned Scientists believes that the ROP is much better than its predecessor in monitoring plant safety levels and communicating to various stakeholders about the safety levels. Addressing the following comments would enhance the monitoring and communications capabilities of the ROP.

Answers to specific questions from the NRC's *Federal Register* notice:

**I. Questions related to the efficacy of the overall process (as appropriate, please provide specific examples and suggestions for improvement.):**

**1. Does the ROP provide adequate assurance that plants are being operated safely?**

NO.

The interim physical protection significance determination process (PPSDP) is a sham. In its present incarnation, an Operational Safeguards Readiness Evaluation (OSRE) drill can result in the simulated destruction of every single item on a target set with a resulting WHITE finding if the cause of the complete failure is subjectively determined not to be a broad programmatic problem. The failure of one steam generator tube at Indian Point 2 on February 15, 2000, warranted a RED finding. How can that finding be reconciled with a WHITE finding for the total destruction of every target set item? What if the simulated intruders pretended to cause the failure of one steam generator tube? Under the interim PPSDP, that would in at most a GREEN finding since the target set remained intact.

In addition, the interim PPSDP is intended to apply to findings from security tests and to results from actual events. That fact is explicitly contained in the flow chart for the interim PPSDP distributed by the NRC staff at the reactor oversight program workshop on March 27, 2001. One of the decision diamonds is labeled "Malevolent Act." This decision diamond would always be NO unless actual events were explicitly covered. The flow chart also contains a decision diamond labeled "Evaluated Exercise." One outcome for that decision diamond is labeled "No (Actual Event)." Clearly, the interim PPSDP is intended to apply to actual events. But the logic for actual events is nonsensical. If a plant's security forces failed to successfully interdict intruders during an actual event and the intruders were able to cause the destruction of every single item on a target set, the finding according to the interim PPSDP would be WHITE. That's outrageous since this condition would probably lead to core damage.

Thus, the interim PPSDP does not much assurance, yet alone adequate assurance, that plants are being operated safely.

Nevertheless, the ROP provides better assurance that plants are operating safely than its predecessor.



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**2. Does the ROP provide sufficient regulatory attention to utilities with performance problems?**

NO.

Consider for example the very first RED finding given by the NRC to any nuclear plant owner under the reactor oversight process. By letter dated November 20, 2000, the NRC sent Consolidated Edison a RED finding for steam generator tube integrity issues at Indian Point Unit 2 and gave Con Ed thirty days to respond to the associated violation. According to the NRC, a RED finding "indicates a significant reduction in safety margin in the area."<sup>1</sup>

However, by letter dated December 20, 2000, the NRC waived the 30-day deadline and gave Con Ed more time to respond. The justification cited by the NRC for their waiver: "That December 18 letter [submitted by Con Ed requesting more time to respond] indicated that your current engagement in unit restart and power ascension activities was the basis for the extension request." In other words, the NRC was a willing participant in Con Ed placing schedule ahead of safety. A responsible company, and a responsible regulator, would have ensured that the "significant reduction in safety margin" was adequately addressed before restarting Indian Point Unit 2. Unfortunately, the public did not have that assurance. Thus, the reactor oversight process failed to provide sufficient regulatory attention to the utility with the worst performance problem on record.

**3. Does the ROP reduce unnecessary regulatory burden on licensees?**

YES, and then some.

**4. Does the ROP improve the efficiency, effectiveness, and realism of the regulatory process, focusing NRC resources on those issues with the most safety significance?**

NO.

There has been considerable discussion about the applicability of 10 CFR 50.9 to errors in performance indicator (PI) data voluntarily submitted by plant owners. The NRC's position, as we understand it, is that any PI data errors must be corrected, but won't involve 50.9 considerations unless the error prevented a PI from crossing a higher threshold (e.g., GREEN to WHITE). The justification for this position was that errors resulting in PIs staying in the same color band did not affect NRC response and are less of a concern than errors that pre-empted regulatory responses.

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<sup>1</sup> <http://www.nrc.gov/OPA/primer.htm#response>



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There has been no discussion about the applicability of 10 CFR 50.59 to errors in information voluntarily submitted by plant owners to the NRC regarding inspection findings. NRC inspection findings are classified using the significance determination process (SDP). For example, following last year's accident at Indian Point 2, the NRC determined that the event warranted a RED coloration. But the plant owner determined that the event should be WHITE or YELLOW at worst. The information voluntarily provided by plant owners to the NRC during SDP negotiations can clearly pre-empt regulatory responses if the staff accepts the rationale for lower grade colors. Why is the 50.9 concern limited to PI data submission? The information voluntarily submitted by plant owners during SDP negotiations comes from plant-specific risk assessments that are not publicly available, not docketed (i.e., not available to the NRC staff except by trip to the plant sites), and not reviewed by the NRC staff against minimum regulatory standards. Why then is that information considered by the NRC staff to be invulnerable to the same kinds of errors that afflict PI data? What about the information voluntarily submitted by the plant owners to the NRC for inclusion and incorporation into the Phase 2 SDP worksheets? This information also comes from unverified sources that are as likely, if not even more likely, to contain errors as from the verified sources used to compile PI data. The ROP includes inspection provisions to verify PI data, but it contains no such provisions to verify plant-specific risk assessment information. It is unrealistic for the NRC staff to presume the accuracy of information from plant-specific risk assessments.

MAYBE NOT.

During the opening session of the reactor oversight program workshop on March 26, 2001, Mr. William Dean of the NRC staff provided overall results from the first nine months. Combining the data he presented on slides 6 and 8 yields this table:

Cornerstone	Percentage of Direct Inspection Hours	White Findings	Yellow Findings	Red Findings
Reactor Safety	68.2	5	0	1
Emergency Preparedness	3.7	4	1	0
Occupational Radiation Safety	6.6	4	0	0
Public Radiation Safety	2.1	1	0	0
Physical Protection	4.1	1	0	0



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Thus, 68.2% of the NRC's inspection activities produced 6 non-GREEN findings against the reactor safety cornerstone while a mere 3.7% of the inspection effort produced 5 non-GREEN findings against the emergency preparedness cornerstone. While we are not suggesting that a linear correlation exists between inspection hours and inspection findings, we find it hard to believe that increased inspection attention to the emergency planning, occupational radiation safety, public radiation safety, and physical protection cornerstones would not have produced additional safety significant (i.e., non-GREEN) findings. Thus, the data provided by Mr. Dean does not permit us to conclude that the revised reactor oversight program is properly focusing regulatory attention. The data may suggest that the NRC focuses too much attention on the reactor safety cornerstone.

5. **Has the public information associated with the ROP been appropriate to keep the public informed, in a timely and understandable fashion, of NRC activities related to plant safety? (Examples: NRC plant performance web page, Plant Performance Indicators, NRC Inspection Reports, Assessment Letters, ROP guidance documents and implementation procedures, the NRC ROP website, press releases)**

NOT CONSISTENTLY.

UCS reviewed a large sample of inspection findings posted on the NRC website. This review concluded that only about one-third of the findings was described in sufficient detail to allow a knowledgeable person to reconstruct the logic path that culminated in the findings' colors. UCS was unable to reconstruct the logic path for the remaining findings, even though we also went back to the actual inspection report for additional information. Thus, the NRC is not providing the public with understandable bases for the safety significance of inspection findings. Examples are provided below:<sup>2</sup>

### Beaver Valley Unit 1

A GREEN finding under the Mitigating Systems cornerstone on the NRC's website read:

**FAILURE TO IMPLEMENT TIMELY AND EFFECTIVE CORRECTIVE ACTIONS FOR DEGRADED COMPONENTS (RWST LEVEL TRANSMITTERS) WHICH HAD SAFETY SIGNIFICANCE.**

A Non-cited Violation of 10 CFR 50, Appendix B, Criterion XVI, was identified associated with the failure to implement timely and effective corrective actions for degraded components which had safety significance. Specifically, FENOC had not determined the cause of three Unit 1 level transmitter failures that occurred after the transmitters were replaced in 1998. A Part 21 notification

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<sup>2</sup> Our original intent was to include every example of an inspection finding determination that we could not reconstruct. But our nuclear safety engineer does not type fast enough to incorporate all of the many examples in time to meet the April 13<sup>th</sup> submission deadline.



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associated with the same model series transmitters had not been recognized or evaluated prior to the actual installation of the components, and an evaluation of extent of condition and potential generic failure modes had not been performed. The team determined that this represented inadequate corrective actions. The risk associated with the failure of the refueling water storage tank (RWST) level transmitters had been determined to be very low safety significance, based on the results of the phase 3 analyses. Inspection Report# : 2000009(pdf)

The NRC's justification for the GREEN finding in this matter was described—in toto—by the last sentence. But that last sentence said nothing. It basically stated that the finding was GREEN because the Significance Determination Process said it was GREEN. That's brief but not believable. The NRC did not provide sufficient information in the inspection report and on the website for UCS to understand why this finding was GREEN.

### Calvert Cliffs

A GREEN finding by the NRC under the Emergency Preparedness cornerstone at the Calvert Cliffs plant read as follows on the NRC website:

#### NON-CITED VIOLATION OF OFFSITE SIREN NOTIFICATION SYSTEM SURVEILLANCE TESTING REQUIREMENTS.

Green. The NRC identified that a violation of NRC requirements occurred in the area of offsite siren testing in that the quarterly offsite siren growl tests for identifying mechanical problems were inadequately conducted. This violation is being treated as a non-cited violation and was entered into the licensee's corrective action system (Section 1EP2). Inspection Report# : 2000007(pdf)

The cited inspection report contains additional information on the violation, but no additional information on why the finding is GREEN. The NRC did not provide sufficient information in the inspection report and on the website for UCS to understand why this finding was GREEN.

### FitzPatrick

For example, a finding by the NRC at the FitzPatrick plant read as follows on the NRC's website:

#### FAILURE TO IMPLEMENT PROCEDURAL REQUIREMENTS GOVERNING THERMAL PERFORMANCE TESTING FOR A UNIT COOLER

When as-found flowrates were less than the required minimum design flowrates for the 67UC-16A unit cooler, the procedure required a thermal performance test or an engineering evaluation to be performed for the time period since the last test performance. When as-left flowrates are below minimum design, a thermal



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performance test and an engineering evaluation were required. There was no indication that these procedural requirements were satisfied during a review of the September 1999 test results. The failure to follow requirements within the quarterly ESW flow test was the third example of a Non-Cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." (See NCV 2000007-01) Inspection Report# : 2000007(pdf)

There was zero discussion of why this finding warranted a GREEN coloration instead of a more severe color. From the information presented, it might be reasonable to conclude that this finding could easily have been WHITE, YELLOW, or even RED. After all, an inoperable unit cooler at FitzPatrick could adversely affect the proper functioning of multiple safety related components.

The finding was discussed in the cited inspection report. The report read:

The issue was considered to have low risk significance (GREEN) using the Significance Determination Process (SDP) phase 1 evaluation, because with four coolers still operable in the area there was no impact on the operability of the ECCS components served by the 'F' cooler. Additionally, the cooler has been mechanically cleaned and performance tested since the December 1999 test failure.

Thus, anyone reading about this finding on the NRC's website would see it classified GREEN with absolutely no justification whatsoever. The NRC's rationale for the finding's color is as important as, if not more important than, the fact that the failure was a non-cited violated of 10 CFR, Appendix B, Criterion V. The NRC did not provide sufficient information on the website for UCS to understand why this finding was GREEN, although a review of the inspection report did provide that understanding.

**6. Does the ROP increase the predictability, consistency, clarity and objectivity of the NRC's oversight activities?**

YES.

**7. Has the public been afforded adequate opportunity to provide input/comments and involvement in the ROP development process?**

YES.

**8. Has NRC been responsive to input/comments provided by the public regarding the ROP development process?**

NOT ALWAYS.



## COMMENTS ON ROP's FIRST YEAR

**9. Please provide any additional (brief) information or issues related to the reactor oversight process.**

Why are the non-color inspection findings colored BLUE on the NRC's website?

**II. Questions related to specific ROP program areas (as appropriate, please provide specific examples and suggestions for improvement.):**

**1. Do the performance indicators or other aspects of the ROP create unintended consequences? (Please comment on the potential of unintended consequences associated with the counting of manual scrams in the Initiating Event Cornerstone Performance Indicators.)**

YES.

According to slide 2 of the Session Overview provided by the NRC staff during the ROP workshop on March 26, 2001, the safety system unavailability performance indicator (PI) "excludes design deficiencies." This exclusion yields the unintended consequence of non-conservatively inflating safety system availability numbers. Unless, of course, that was the NRC's intent behind excluding design deficiencies from this vital indicator.

On its own merits, the exclusion of design deficiencies from this indicator is indefensible. The threat to public health and safety is exactly the same—repeat, exactly the same—whether a safety system fails due to a random fault, a design deficiency, or an operator error. To arbitrarily dismiss design deficiencies from the hazard evaluation is inexcusable.

The exclusion of design deficiencies combined with the NRC decision to forego enforcement action on "historical performance issues" (i.e., design deficiencies that have been around for a long time) creates an unintended consequence of major proportion. Consider two nuclear plants that have the same number of undetected design deficiencies affecting safety systems. These plants are owned by different companies in the same deregulated electricity marketplace. If the owner of plant X undertakes an aggressive program to seek out and fix design deficiencies but the owner of plant Y opts not to do so, plant X's owner will be at an economic disadvantage. If the NRC allows the owner of plant Y to operate until the design deficiencies manifest themselves without ANY regulatory repercussions (e.g., no drop in safety system unavailability PI and no enforcement sanctions), it will be rubbing salt in the economic wounds of plant X's owner. More importantly, the NRC will not be fulfilling its fiduciary responsibilities to the people living around plant Y.

Therefore, to avoid the mother of all unintended consequences, the NRC cannot exclude design deficiencies from the safety system unavailability PI and cannot overlook "historical performance issues."





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2. **Do any aspects of the ROP inappropriately increase regulatory burden? (Please comment on any unnecessary overlap between ROP reporting requirements with those associated with INPO, WANO, or the Maintenance Rule.)**

NO, based on our reasonable definition of "inappropriately." If there's a difference between reporting requirements for NRC and for INPO/WINO, why doesn't INPO/WINO change their reporting basis to match NRC instead of the other way around?

3. **Is the Significance Determination Process (SDP) usable and does it produce consistent and accurate results?**

YES, it is usable. NO, it does not provide consistent and accurate results.

### Beaver Valley Unit 1

For example, a GREEN finding under the Initiating Events cornerstone by the NRC at the Beaver Valley plant read as follows on the NRC's website:

#### INADEQUATE MAINTENANCE ON AN AUXILIARY STEAM PRESSURE CONTROL VALVE.

Inadequate maintenance on an auxiliary steam pressure control valve resulted in failure of the valve and a subsequent Unit 1 manual reactor trip due to degraded condenser vacuum. The finding was determined to have very low safety significance because mitigating equipment was not affected by the event and condenser vacuum was restored shortly after the reactor trip. Inspection Report# : 2000004.

The cited inspection report provided little additional justification for the GREEN finding. Therefore, the NRC's documented basis for this GREEN finding in the Initiating Events cornerstone is that it did not adversely affect components under the Mitigating Systems cornerstone. That logic is ludicrous. By extension, the finding that every single component for every single Mitigating System at the plant was broken would also be GREEN as long as the failures did not increase the frequency of Initiating Events.

The Significance Determination Process is fundamentally flawed if it permits such absurd justifications. The Significance Determination Process in this case should have looked at the maintenance-induced reactor scram in context of initiating event frequencies. This finding might have been GREEN if that evaluation showed the rate of reactor scrams caused by equipment failures and personnel errors was declining for Beaver Valley Unit 1.

### Beaver Valley Unit 1

A GREEN finding under the Emergency Preparedness cornerstone by the NRC at the Beaver Valley plant read as follows on the NRC's website:



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### EMERGENCY RESPONSE ORGANIZATION DID NOT SUCCESSFULLY IMPLEMENT RISK SIGNIFICANT PLANNING STANDARD 10 CFR50/47(B)(9) FOR RADIOLOGICAL ASSESSMENT.

During the June 27, 2000, exercise, the emergency response organization did not successfully implement risk significant planning standard 10 CFR 50.47(b)(9) for radiological assessment. That resulted in delaying the protective action recommendation upgrade when the simulated radiological release began. Specifically, dose assessment personnel were using data from an incorrect radiation monitor channel and incorrect units of measurement. A controller had to provide the dose assessment staff with the correct data. Dose assessment staff incorrectly used that data also, and controllers had to provide correct dose projections in order to preserve the scenario timeline. With the correct projections, the correct PAR upgrade was made. The licensee identified and addressed this issue during the June 29, 2000, critique and entered it into their corrective action program. This failure to implement a planning standard was during an exercise, not an actual event, and, therefore, it is not a violation of NRC requirements. Also, **this issue was evaluated by the NRC using the Emergency SPD. It was determined to be a safety issue of very low significance because the licensee identified the failure during an exercise.** [emphasis added] Inspection Report# 2000007(pdf)

The Significance Determination Process is fundamentally flawed when it downplays any problem simply because it was revealed during an exercise. It is too late to learn during an accident that emergency preparedness or mitigating systems or barriers are inadequate. The significance of such inadequacies cannot be GREEN during drills but RED during accidents. That's preposterous. The safety cornerstones are essential elements of the reactor oversight program intended to protect the public. Degraded cornerstones must not be written off with such lame excuses. This finding might have been GREEN had a real Significance Determination Process evaluation concluded that the problems would not have prevented the plant owner from making the proper protection action recommendation in a timely manner had it been an actual emergency.

**4. Are there areas of unnecessary overlap between the inspection program and the performance indicators?**

NO.

**5. Does the ROP assessment program provide timely, consistent, and relevant assessment information?**

NO.



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The significance determination process (SDP) is just too slow. The color wheel for the Indian Point 2 steam generator tube rupture spun for nearly 8 months before finally settling on RED. The color wheel for the Quad Cities security issue spun for nearly 10 months before settling on WHITE. The PI and NRC inspection findings are posted on the NRC website every 3 months. SDP colors that settle out 9 months after the fact are out-of-phase with the PI and other NRC inspection findings for that quarter. Thus, they are less relevant than if they were colorized quicker.

**6. Has the NRC implemented the ROP as defined by program documents?**

n/a - no comprehensive audit was performed by UCS.

**7. Please provide any additional (brief) information or comments on other program areas related to the reactor oversight process. Other areas of interest may be: the treatment of cross-cutting issues in the ROP, the risk-based evaluation process associated with determining event response, and the reduced subjectivity and elevated threshold for documenting issues in inspection reports.**

There was a good discussion during the Public Communications session at the ROP Workshop on March 28, 2001, about the proper threshold for documenting issues in NRC inspection reports. From the public access perspective, UCS believes that the threshold should be the same as the reportability threshold for issues identified by plant owners. The plant owners identify plenty of problems that are entered into their corrective action programs. A smaller subset of these problems are also reported to the NRC in accordance with 10 CFR 50.72/50.73 and 10 CFR 50.59. The NRC's threshold should be no higher and no lower than that threshold.

UCS agrees with the point raised by Mr. Ray Shadis during the Public Communications session at the ROP Workshop on March 28, 2001. Mr. Shadis observed that NRC procedures state that minor violations are not to be documented in inspection reports, but that the NRC staff often responds to inquiries about GREEN findings during public meeting by characterizing them as being minor or having very low safety significance. If NRC procedures prevent minor violations from being documented in inspection reports, it clearly means that all GREEN, WHITE, YELLOW and RED findings represent **major** violations.