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POGO's Comments on Draft Criteria for Determining Feasibility of Manual Actions To Achieve Post-Fire Safe Shutdown.

See Attachment.

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Via E-Mail: nrcprep@nrc.gov

Chief, Rules and Directives Branch  
Division of Administrative Services  
Office of Administration, Mail Stop T6-D59  
U.S. Nuclear Regulatory Commission,  
Washington, D.C. 20555-0001

**Re: Comments on Draft Criteria for Determining Feasibility of Manual Actions To Achieve Post-Fire Safe Shutdown**

Dear Sir or Madam:

This comment is in response to the Nuclear Regulatory Commission's (NRC's) "Draft Criteria for Determining Feasibility of Manual Actions To Achieve Post-Fire Safe Shutdown" that was published in 68 Federal Register 66501 (November 26, 2003). Subsequently, the NRC extended the comment period to January 26, 2004.<sup>1</sup>

The Project On Government Oversight (POGO), which has investigated safety and security issues at nuclear power plants since the mid-1990's, opposes the NRC's draft revision to the fire protection regulations in 10 C.F.R. 50, Appendix R, III.G.2. In fact, the NRC's acquiescence to the nuclear power industry is extremely distressing. According to the General Accounting Office (GAO), the NRC has shifted to a "risk-informed approach" concerning fire protection at nuclear power plants.<sup>2</sup> "NRC believes that [the risk-informed] approach will reduce unnecessary regulatory burden on licensees and reduce their costs without reducing safety while increasing the agency's effectiveness and efficiency."<sup>3</sup> That low level of oversight has allowed nuclear plants to "assume greater responsibilities for ensuring compliance with NRC's regulations."<sup>4</sup> In so doing, POGO is compelled to ask who is regulating whom?

The current shift to water-down fire protection regulations comes because power plants have implemented, without NRC approval, operator manual actions. It was their belief that such actions did not require NRC approval and, even if approval was required, the NRC would process an approval as "an exemption or deviation request." The NRC, however, stated:

Currently, licensees who rely on operator manual actions which have not been reviewed and approved by the NRC are generally considered to be in **non-compliance** with NRC regulations.

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<sup>1</sup> 68 Fed. Reg. 69730 (Dec. 15, 2003).

<sup>2</sup> *Fire Protection: Barriers to Effective Implementation of NRC's Safety Oversight Process*, GAO/RCED-00-39, p. 4 (April 22, 2000).

<sup>3</sup> *Id.*

<sup>4</sup> *Id.* at 7.

However, the NRC believes that manual actions relied upon by licensees are safe and effective when performed under appropriate conditions. Accordingly, until the fire protection regulations are revised, the NRC is planning to issue an interim enforcement policy to exercise enforcement discretion if licensees' manual actions meet the NRC's interim acceptance criteria.<sup>15]</sup> [Emphasis added.]

If the NRC implements the proposed regulation, it would "allow the use of manual actions by nuclear power plant operators to achieve hot shutdown conditions in the event of fires in certain areas provided the actions are evaluated against specific criteria and determined to be acceptable."<sup>6</sup> In other words, plant workers would be sent into the reactor building during a fire to "manually operate" reactor shutdown equipment, thereby abrogating industry-wide fire protection regulations for cables and equipment that are "necessary to achieve and maintain hot safe shutdown conditions."<sup>7</sup> Instead, plants would continue to be in violation of current regulations because they have ineffective fire barriers (Thermo-Lag 330) and they often missed fire watches. In effect, the NRC would permit power plants to sacrifice automated electrical circuits to fire and allow a manual operator action that may occur in formidable and unpredictable conditions.

POGO avers that the draft criteria offer few guarantees of safety and therefore its proposal undermines public confidence in the event of a fire at a nuclear power plant. The risks associated with relying on a plant designated technician to run through the plant during potentially extreme conditions (including a blackout, intense heat, and the release of smoke, radiation, toxic gases, and steam) to operate equipment by hand should not be permitted to abrogate the regulations that require operable fire suppression systems and physical separation of redundant safe shutdown systems. Moreover, sending an employee into harms ways is nothing more than a suicide mission that is doomed to fail.

Specifically, the draft criteria merely mention general requirements that should not provide the NRC and the public with an adequate level of assurance that manual operator action will be effective. For example, criterion 3 (Staffing and Training) specifies neither the exact number of plant operators that will be required to perform the manual actions nor the training they will encounter. Additionally, criterion 8 does not adequately address a successful demonstration of the proposed regulation, i.e., NRC approval should not be granted until all plant operators successfully accomplish the required operator manual actions within a NRC-established time frame. Although emergency conditions cannot be easily simulated, the proposed regulation provides no guidance regarding training and demonstration conditions. Therefore, there is no benchmark of which a plant's compliance with the training and demonstration criteria can be measured.

POGO's concern is warranted and not overstated. In fact, NRC's own assessments

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<sup>5</sup> 68 Fed. Reg. 66501.

<sup>6</sup> *Id.*

<sup>7</sup> 10 C.F.R. 50, App. R, III.G.2.

conclude that nuclear power plants will encounter "three or four significant fires over their operating lifetime."<sup>8</sup> [Emphasis added.] The proposed relaxation of enforcement of current preventive fire regulations would allow noncompliant plants to sacrifice automated reactor shutdown electrical systems and instead substitute invalidated manual actions, which increase unacceptable and undue risks to public health and safety and the environment in the event of a reactor fire.

### History

On March 22, 1975, a fire at the Browns Ferry Nuclear Power Plant burned uncontrolled for nearly eight hours and damaged electrical cables (many of which related to plant safety systems). The fire was able to render a high number of circuit failures within its initial 15 minutes of burning. In its report *Browns Ferry: The Regulatory Failure*, the Union of Concerned Scientists asserted:

The cables were, in effect, the central nervous system of the plant and controlled all of its vital equipment, including a substantial array of safety systems. In burning through the cables the fire crippled the plant and its safety systems as swiftly as a broken spinal column might paralyze a man. Plant operators, hindered by loss of controls and instrumentation, by lack of coordination and direction, and at times by dense smoke and inadequate breathing apparatus, tried to set up makeshift arrangements to bring Unit 1 under control. Unit One's sophisticated emergency safety devices failed totally; all of the safety equipment installed on Browns Ferry to provide essential cooling water to the unit was rendered inoperative as a result of the fire. Unit 1 was ultimately kept under control by a few pieces of available equipment that were not even part of Browns Ferry's elaborate safety apparatus. The fact that this equipment emerged from the fire undamaged was a matter of random chance.

TVA nuclear engineers stated privately to the authors that a potentially catastrophic radiation release from Brown's Ferry was avoided "by sheer luck."

In 1981, the NRC issued regulations (10 C.F.R. 50.48 and 50, App. R) on nuclear plant fire protection, which prescribed shutdown circuitry to be protected by either qualified fire barriers or a 20-foot separation between electric cable trays.<sup>9</sup>

In the early 1990's, the NRC concluded that its prescribed fire barrier, Thermo-Lag 330,

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<sup>8</sup> NRC, NUREG-1150, Vol. 2, "Severe Accident Risks; An Assessment for Five U.S. Nuclear Power Plants," Appendices A, B, and C, Final Report, October 1999, p. C-12.

<sup>9</sup> 10 C.F.R. 50, App. R III.G.2.a-c.

failed fire endurance tests and the agency ruled it "inoperable." Stated simply, Thermo-Lag 330 burned like "treated plywood" and therefore failed to prevent fire damage to shutdown cables. Consequently, the NRC requested that plants implement "compensatory measures, such as fire watches."<sup>10</sup> Additionally, the NRC granted exemptions to fire protection regulations because few, if any, power plants were in compliance with them. In fact, the Nuclear Energy Institute (NEI) asserts that "[t]he NRC has granted more than 1,200 exemptions to specific requirements of the fire protection rule since it was issued in 1981."<sup>11</sup>

Fire watches, however, are ineffective interim measures.<sup>12</sup> Specifically, fire watches only identify a fire after it occurs and they cannot suppress, retard, and protect the vital safety equipment from fire damage.<sup>13</sup> Senator Ed Markey also expressed his concern with fire watches, stating: [F]ire watches have been missed due to sleeping, a stuck elevator, heroin overdose, other duties, management deficiencies, poor coordination between supervisors, failure to follow instructions, and for no stated cause. In some cases fire watch logs used to certify completion of the fire watches were falsified."<sup>14</sup>

### Conclusion

Therefore, based on the fact that many nuclear power plants are in "noncompliance with NRC regulations" and that the proposed criteria lack adequate assurances that they will be effective, POGO respectfully requests the rejection of the "Draft Criteria for Determining Feasibility of Manual Actions to Achieve Post-Fire Safe Shutdown." Rather, POGO recommends that the NRC enforce its current fire protection regulations, including but not limited to its long-held mandate to upgrade fire suppression systems.<sup>15</sup>

Sincerely,

<Original signed by>

Scott H. Amey, Esq.

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<sup>10</sup> NRC Bulletin No. 92-01 (June 24, 1992).

<sup>11</sup> NEI, "Nuclear Power Plant Fire Protection (July 2003), <http://www.nei.org/doc.asp?docid=63>.

<sup>12</sup> POGO Report, "Who the Hell is Regulating Whom?", p. 23 (September 1996).

<sup>13</sup> *Id.*

<sup>14</sup> Sen. Markey letter requesting a GAO study, p. 1 (December 9, 1998).

<sup>15</sup> Comment of Commissioner Ivan Selin, "Fire Safety At Nuclear Power Stations," Hearing Before the Subcommittee on Oversight and Investigations of the Committee On Energy and Commerce, House of Representatives, 103rd Congress, March 3, 1993.