



AE-81-1
PDR 008

NUCLEAR MANAGEMENT AND RESOURCES COUNCIL

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May 27, 1993

Mr. Frank J. Congel
Director
Division of Radiation Safety and Safeguards
Office of Nuclear Reactor Regulation
11555 Rockville Pike
Rockville, MD 20852

Dear Mr. Congel:

This letter responds to your request of May 9, 1993, for industry cost estimates to implement vehicle protection options at nuclear power plants (SECY-93-102) and for utility costs for security at these plants.

The NUMARC Security Working Group has begun a review of the need for vehicle protection requirements at plant sites and will develop recommendations for industry consideration. We recommend that the NRC delay action on proposing new vehicle protection requirements until that time.

In the 2-1/2 weeks we have had to prepare a response to your request, there was not sufficient time to perform engineering analyses and cost estimates at the plant sites. We have been able to gather data indicating the anticipated range of implementation costs. These estimates assume the purchase and installation of materials typical of highway construction, but the effect of local soil conditions has not been included. If performance testing and quality assurance requirements typical of nuclear safety related equipment installation are required, these estimates should be increased by a factor of 3 to 10. Further, no estimates has been made of the costs for long term maintenance of equipment exposed to weather. The NUMARC Security Working Group has established an advisory committee to pursue these questions in more detail. This group consists of individuals responsible for or familiar with plant operations, plant security, security facilities engineering, and emergency preparedness.

Option 1 -- No changes required.

Option 2

A small number of sites have installed "hardened" vehicle gates. A number of different designs are available in the marketplace. We understand that limited testing of some gates has been performed and documented, but we do not yet have specific information in hand. We also do not yet know what installation specifications must be followed to obtain a high level of confidence that a gate will stop a vehicle of a particular size.

The number of vehicle gates in protected area (PA) fences at the 69 sites ranges from 2 to 16. The average is 5 gates. Estimates of gate purchase and installation range from \$10,000 to \$60,000. Using the upper end of this range, the cost to implement Option 2 would be approximately \$300,000 per site. These figures do not include an allowance to harden the fence for "some distance on either side of the vehicle control points."

Option 3

Option 3 involves hardening the gates (Option 2) and installing various barrier devices in front of, in or behind the segments of the PA fence not already protected by natural terrain features. Possible vehicle protection devices for the PA boundary include installation of highway-style guard rails, concrete deflectors (Jersey barriers), aircraft arresting cable, bollards, concrete blocks, and concrete flower pots. Again, some performance data exist which cover a range of vehicle kinetic energies, but this information has not been analyzed.

The "vulnerable" portion of PA perimeter ranges from 1200 ft. to 11,000 ft. The average is 2,600 ft. Cost estimates range from \$20 to \$120 per foot of protected area perimeter. Assuming that installations at \$120 per foot and gate installation costs of \$300,000 per site will provide the protection sought by Option 3, the cost to implement Option 3 is approximately \$612,000 per site.

Option 4

We are not now able to provide information on this option. All of the discussion for option 3 above applies here as well. The design basis explosive (DBE) must first be established. In general, costs will be higher for a given DBE since the perimeter of the standoff area is greater than the perimeter of the protected area. Then, site specific

analyses would have to be conducted to establish an explosive protection strategy for that site. Not all systems and equipment normally used to achieve safe shutdown are required. Engineering analyses would indicate which components, especially those not currently contained within or shielded by reinforced concrete, could be damaged by the DBE without loss of safe shutdown capability.

At some sites the use of natural features would permit lower barrier installation costs because the natural features - swamp, woods, body of water, etc.-would provide a barrier to a land-based vehicle. On the other hand, moving the vehicle control point(s) out beyond the protected area fence could involve:

1. Relocation of parking lots,
2. Relocation of warehouses,
3. Realignment of site roads,
4. Vehicle searches at site entrance, as opposed to protected area entrance,
5. Interference with the response of off-site emergency equipment, e.g., fire trucks, and
6. Purchase of additional property

For example, at one site use of the nominal safe standoff distance would reach across a state highway.

All of this is a function of the design basis explosive (DBE) and the results of each site's analysis of the plant's ability to achieve safe shutdown after loss of equipment which could reasonably be expected to be disabled by the DBE exploding at the protected area fence.

Nuclear Plant Security Costs

Based on information from an industry survey, capital cost expenditures for security for the 5 year period from 1988 through 1992, inclusive, average \$8.2 million per site. The average cost per site for security operations and maintenance was \$5.5 million in calendar year 1992.

Based on discussions with individuals in the industry, the major new costs in recent years have been to continually upgrade hardware (a capital expenditure) with the latest technology. Furthermore, some costs associated with security enhancements are accounted for in other categories such as maintenance.

Summary

These cost estimates are based on a number of assumptions and are subject to the several qualifications described above. These figures should be viewed as a "first cut" at estimating the costs requested in the Commission's Staff Requirements Memorandum of May 5, 1993.

<u>Vehicle Protection Option</u>	<u>Average Cost Per Site</u>
1	No change
2	\$300,000+*
3	\$612,000
4	Unknown

* Estimate does not include cost of hardening the fence on each side of the gate.

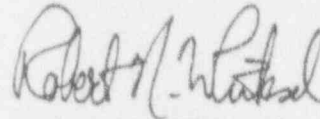
Conclusion

Additional work would be required to develop high confidence cost estimates for these 3 options. Site specific engineering analyses can proceed only after decisions are made about the size of the explosive. Establishing vehicle denial at a safe standoff perimeter (Generic Letter 89-07) may result in major disruption of routine site activities, interference with the response of off-site fire equipment, land acquisition requirements and other significant impacts.

Mr. Frank J. Congel
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As we acquire additional data on the cost of these options, we will provide it. If you have any questions, please call Rich Enkeboll or me.

Sincerely,



Robert N. Whitesel
Manager
Operations, Management and
Support Services Division

RNW:ldl



OFFICE OF THE
SECRETARY

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

AE81-1
PDR 009

June 29, 1993

MEMORANDUM TO: James M. Taylor
Executive Director for Operations

FROM: Samuel J. Chilk, Secretary *[Signature]*

SUBJECT: SECY-93-166 - STAFF RECOMMENDATION FOR
PROTECTION AGAINST MALEVOLENT USE OF VEHICLES
AT NUCLEAR POWER PLANTS

The Commission (with all Commissioners agreeing) has approved Option 5, as presented in the subject paper, to include:

- 1) modification of the design basis threat (DBT) for radiological sabotage to include a land vehicle for the transport of personnel, hand-carried equipment and/or explosives;
- 2) modification of 10 CFR 73.55 to reflect the change to the DBT and allow for alternative measures when establishing standoff distances; and
- 3) expedited rulemaking to implement these changes allowing at least 30 days for public comment.

To allow for meaningful public comment, the screening criteria (for safe standoff distances for various types of structures), should be available during the public comment period.

With regard to the standard to be applied in determining when alternative measures would be accepted, the Commission does not support use of the staff's proposed "disproportionate cost" test. The staff should rely on the normal backfit analysis required by 10 CFR 50.109 to determine whether the "costs of fully meeting the design goals and criteria" are justified. The last sentence of the proposed subsection 73.55(c)(8) should be modified to remove the "disproportionate cost" concept and refer to the

SECY NOTE: SECY-93-166 WAS RELEASED TO THE PUBLIC ON JUNE 24, 1993. THIS SRM AND THE VOTE SHEETS OF ALL COMMISSIONERS WILL BE MADE PUBLICLY AVAILABLE 10 WORKING DAYS FROM THE DATE OF THIS SRM

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normal backfit analysis as follows --

The Commission will accept the proposed alternative measures if they provide substantial protection against a land vehicle bomb, and it is determined by an analysis, using the essential elements of the criteria in 10 CFR 50.109, that the costs of fully meeting the design goals and criteria are not justified by the added protection that would be provided.

(EDO)

(SECY Suspense:

8/19/93)

cc: The Chairman
Commissioner Rogers
Commissioner Curtiss
Commissioner Remick
Commissioner de Planque
OGC
OIG
Office Directors, Regions, ACRS, ACNW (via E-Mail)
ASLBP (via FAX)