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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

September 16, 1993

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MEMORANDUM FOR: Edward L. Jordan, Chairman  
Committee to Review Generic Requirements

FROM: Frank J. Miraglia, Deputy Director  
Office of Nuclear Reactor Regulation

SUBJECT: PROPOSED RULE FOR PROTECTION AGAINST MALEVOLENT USE OF  
VEHICLES AT NUCLEAR POWER PLANTS

Enclosed is the completed rulemaking package on the subject proposed rule. This rulemaking effort, which is on an expedited schedule, was discussed at the August 24, 1993 CRGR meeting. At that meeting CRGR generally endorsed issuance of the proposed rule subject to incorporation of minor changes to the information provided and subject to completion of the remaining parts of the rulemaking package which was to be provided to CRGR members.

At the CRGR meeting, members were particularly interested in the regulatory guide (not available at the time of the meeting) implementing the proposed regulations for protection against vehicular intrusion and a vehicle bomb. The proposed regulatory guide, which is Enclosure 8 to the enclosed rulemaking package, contains the essential framework for licensees to implement the rule. The proposed guide does not contain details on analytical methods for determining acceptable barrier designs and standoff distances for protection against a vehicle bomb. These details are contained in Army Corps of Engineers manuals that the NRC will provide to licensees. In addition, the staff is currently contracting with the Corps to develop simplified criteria that is specifically applicable to power reactor structures and equipment. These simplified criteria will not be available until the final rulemaking.

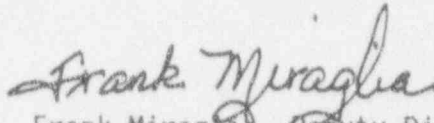
Unless CRGR members have serious reservations with the enclosed material (portions of which were not available for review at the August 24, 1993 meeting), we ask that further review by CRGR wait until after public

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comments have been received and the final rulemaking package has been developed. Please note that the wording in the Commission Paper forwarding the rulemaking package reflects this approach.

A handwritten signature in cursive script that reads "Frank Miraglia".

Frank Miraglia, Deputy Director  
Office of Nuclear Reactor Regulation

Enclosure:  
Proposed Rulemaking Package

FOR: The Commissioners

FROM: James M. Taylor  
Executive Director for Operations

SUBJECT: PROPOSED AMENDMENTS TO 10 CFR PART 73 TO PROTECT AGAINST  
MALEVOLENT USE OF VEHICLES AT NUCLEAR POWER PLANTS

PURPOSE:

To obtain Commission approval to publish a proposed regulation in the Federal Register.

BACKGROUND:

The staff previously submitted to the Commission information on the proposed modification to the design basis threat (DBT) under SECY-93-102, SECY-93-166 and SECY-93-210. A public meeting was held May 10, 1993, to solicit preliminary comments from affected licensees and other interested parties on the need to modify the DBT for radiological sabotage. In a staff requirements memorandum (SRM), of June 29, 1993, the Commission approved Option 5, as presented in SECY-93-166, as a means to implement protection against malevolent use of vehicles at nuclear power plants. The objective of Option 5 was to enhance reactor safety by requiring nuclear power plant licensees to take measures to protect the facility against vehicle intrusion, recognizing that accomplishing this objective would also provide a measure of assurance of protection against a vehicle bomb. Option 5 also outlined a process for licensees to assess the degree of protection that these measures provided

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Priscilla A. Dwyer, NMSS  
504-2478

against a vehicle bomb. Licensees who assessed the protection against a vehicle bomb and determined that it fully met specified goals would confirm this to the Commission. If the licensee determined that the protection provided did not meet the specified goals, it would have a choice of taking additional measures beyond those required to protect against vehicle intrusion or proposing to the Commission, with appropriate justification, alternative measures.

In the SRM of June 29, 1993, the Commission directed the staff to proceed with rulemaking to modify the current DBT for radiological sabotage to include use of a land vehicle by adversaries for the transport of personnel, hand-carried equipment, and/or explosives. The Commission directed the staff to modify 10 CFR 73.55 to reflect the change to the DBT and allow for alternative measures when establishing standoff distances. (Staff also proposes to amend 10 CFR 73.21 in order to protect as Safeguards Information certain documents required by the proposed amendments to 10 CFR 73.55.) The Commission directed the staff to expedite rulemaking to implement these changes, while allowing at least 30 days for public comment.

#### DISCUSSION:

The proposed rule would require each licensee authorized to operate a nuclear power plant to establish vehicle control measures to protect against the use of a design basis land vehicle as a means of transportation to gain unauthorized proximity to vital areas. The rule would also require the licensee to evaluate the effectiveness of these measures in protecting against a land vehicle bomb. The licensee would be required to confirm to the Commission that the vehicle control measures to protect against vehicle intrusion, alone or together with additional measures, meet the Commission's design goals and criteria for protecting against a vehicle bomb. If a licensee could demonstrate that the costs for additional measures required to meet the Commission's design goals and criteria for protection against a vehicle bomb are not justified by the added protection provided, the licensee would have the option to propose to the Commission less costly alternatives. The licensee would not be relieved of the requirement to protect the facility against vehicle intrusion.

In SECY-93-166, the staff presented the Commission with the proposed modifications to 10 CFR 73.1, 10 CFR 73.55(c)(7), and 10 CFR 73.55(c)(8). The text for these modifications has not been substantially changed from text presented in SECY-93-166 except for the change to 10 CFR 73.55(c)(8) that was directed by the Commission in the June 29, 1993, SRM. The enclosed proposed rule package includes the previously mentioned revision to 10 CFR 73.21 and a new provision, 10 CFR 73.55(c)(9), that provides implementation schedules for applicants for operating licenses and licensees authorized to operate nuclear power reactors. Licensees who are decommissioning and who have a possession only license would not be subject to the rule. The NRC would need to evaluate each of these licensees individually to determine if a full or partial exemption from the new rule is appropriate.

The implementation schedule for the proposed rule includes a requirement for the licensee to submit to the Commission a summary description of the barrier

system and the results of its evaluation comparing the measures to protect against unauthorized vehicle entry with the Commission's design goals and criteria for protecting against a land vehicle bomb. Only those licensees requesting NRC approval of alternative measures to those needed to fully meet established criteria for protection against a vehicle bomb would have to submit details of their analyses. All licensees would maintain the details of barrier design engineering and analysis associated with evaluation of the effectiveness of the barriers to meet the design goals and criteria for protecting against a land vehicle bomb. Changes in security plans and, if necessary, changes to other licensing documents would be made in accordance with existing regulations.

The staff wrote a draft regulatory guide (Enclosure 8) to give guidance on land vehicle barrier system designs and vehicle bomb blast effects analysis. The draft regulatory guide also informs licensees of information needed and factors to be considered when submitting, for NRC approval, proposals for alternatives to protect against a vehicle bomb. The regulatory guide includes a method for screening and analyzing the protection of the facility against a vehicle bomb. The regulatory guide references two United States Army Corps of Engineers manuals as providing vehicle barrier and explosive blast effect analytical methods acceptable to the NRC. These Corps of Engineers manuals will be available to licensees through the Commission. The regulatory guide will also include as an addendum the characteristics of the design basis vehicle and explosive size, which is Safeguards Information and was previously submitted to the Commission as Enclosure 8 to SECY-93-166.

Once implemented, the control measures required to meet these regulations supersede contingency requirements initiated in response to Generic Letter 89-07, "Power Reactor Safeguards Contingency Planning for Surface Vehicle Bombs," April 28, 1989. However, licensees whose vehicle control measures do not fully meet the NRC's design goals and measures may choose to maintain vehicle bomb contingency planning as one element of proposed alternative measures.

The documentation and recordkeeping burden for 10 CFR 50.54(p) and 10 CFR 50.59 changes applies to repetitive recordkeeping requirements. The Office of Management and Budget (OMB) has previously approved recordkeeping requirement for 10 CFR 50.54(p) and 10 CFR 50.59 under OMB approval number 3105-0011. Because the proposed rule would require submittal of information outside the scope of either §§50.54(p) and 50.59 and documentation of results of evaluations on site, OMB will be needed to review the information collection requirements in the proposed rule.

The staff will make available the draft regulatory guide (Enclosure 8) when it publishes the proposed rule. Licensees may also obtain NUREG/CR 5246, "A Methodology to Assist in Contingency Planning for Protection of Nuclear Power Plants Against Land Vehicle Bombs." The staff has also arranged for the U.S. Army Corps of Engineers to write a NUREG-series report that would be made available to licensees through the Commission in time for publication of the final rule. This NUREG report would include simple methods for licensees to select barriers and perform an analysis of existing structures and equipment to demonstrate their ability to withstand the effects of an explosive blast.

COORDINATION:

Resources to conduct the final rulemaking are included in the FY 1992-1996 Five-Year Plan.

The Office of the General Counsel reviewed this paper and has no legal objection. The Committee To Review Generic Requirements (CRGR) reviewed SECY-93-102, SECY-93-166, a June 29, 1993, staff requirements memorandum, a CRGR review package that included proposed rule language, and a backfit analysis. To meet the expedited rulemaking schedule, the remainder of the rulemaking package, including the statement of considerations and proposed regulatory guide, was not available for their review. Based on their review of the information provided for the August 24, 1993 meeting, the CRGR endorsed issuance of the proposed rule. However, the CRGR requested that they be provided a complete rulemaking package at which time they would decide if further formal review would be necessary. The CRGR has been provided with the proposed rulemaking package and, ~~if necessary, another meeting with the CRGR will be scheduled.~~ *will conduct further review after public comments are received.*

RECOMMENDATION:

That the Commission

1. Approve the notice of proposed rulemaking (Enclosure 1).
2. Certify that this rule change, if promulgated, will not have a significant economic impact on a substantial number of small entities in order to satisfy the requirements of the *Regulatory Flexibility Act* [5 U.S.C. 605(b)].
3. Note the following:
  - a. The proposed rule would be published in the *Federal Register* for a 30-day public comment period.
  - b. An environmental assessment (Enclosure 2) has been prepared, pursuant to the *National Environmental Policy Act* of 1969, as amended, (42 U.S.C. 4321 *et seq.*) and the Commission's regulations in Subpart A of 10 CFR Part 51, and has resulted in a finding of no significant environmental impact.
  - c. The Chief Counsel for Advocacy of the Small Business Administration will be informed of economic impact of the certification on small entities and the reasons for it as required by the *Regulatory Flexibility Act*.
  - d. This proposed rule amends information collection requirements that are subject to the *Paperwork Reduction Act* of 1980 (44 U.S.C. 3501 *et seq.*). The staff is submitting this rule to the Office of Management and Budget for review and approval of paperwork requirements (Enclosure 3).

- e. A public announcement will be issued (Enclosure 4).
- f. A regulatory analysis (Enclosure 5) has been prepared and will be placed in the NRC Public Document Room.
- g. As required by 10 CFR 50.109, the staff completed a backfit analysis for the proposed rule (Enclosure 6). The staff has determined, based on this analysis, that backfitting to comply with the requirements of this proposed rule will provide a substantial increase in protection to public health and safety or the common defense and security at a cost which is justified by the substantial increase. The analysis will be placed in the NRC Public Document Room.
- h. Appropriate congressional committee: will be informed (Enclosure 7).
- i. A proposed regulatory guide (Enclosure 8) will be made available when the proposed rule is published and will be placed in the NRC Public Document Room.
- j. A copy of this proposed rule will be distributed to all affected licensees and other interested persons.

James M. Taylor  
Executive Director  
for Operations

Enclosures:

1. Federal Register Notice
2. Environmental Assessment
3. OMB Supporting Statement
4. Public Announcement
5. Regulatory Analysis
6. Backfit Analysis
7. Congressional Letters
8. Regulatory Guide

ENCLOSURE 1

Federal Register Notice



NUCLEAR REGULATORY COMMISSION

10 CFR Part 73

RIN 3150-AE81

Protection Against Malevolent Use of Vehicles at Nuclear Power Plants

AGENCY: Nuclear Regulatory Commission.

ACTION: Proposed rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is proposing to amend its physical protection regulations for operating nuclear power reactors. The proposed amendment would modify the design basis threat for radiological sabotage to include use of a land vehicle by adversaries for transporting personnel, hand-carried equipment, and/or explosives. The Commission believes this action is prudent based on evaluation of an intrusion incident at the Three Mile Island nuclear power station and the bombing at the World Trade Center. The objective of the rule is to enhance reactor safety by precluding the malevolent use of a vehicle to gain unauthorized proximity to a vital area barrier. Further, the rule will enhance reactor safety by protecting vital equipment from damage by detonation of an explosive charge at the point of vehicle denial.

DATE: Comment period expires (insert 30 days after publication in the Federal Register). Comments received after this date will be considered if it is

practical to do so, but the Commission is able to assure consideration only for comments received on or before this date.

ADDRESSES: Mail written comments to: Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing and Services Branch.

Deliver comments to: 11555 Rockville Pike, Rockville, Maryland, between 7:45 am and 4:15 pm Federal workdays.

A proposed environmental assessment and finding of no significant impact on which the determination is based, proposed regulatory analysis, proposed backfit analysis, and proposed regulatory guide are available for inspection at the NRC Public Document Room, 2120 L Street NW (Lower Level), Washington, DC. Single copies of the environmental assessment and finding of no significant impact are available from Carrie Brown, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 504-2382. Single copies of the regulatory and backfit analyses are available from Robert J. Dube, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 504-2912. Single copies of the regulatory guide are available from Ann Beranik, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3519.

FOR FURTHER INFORMATION CONTACT: Priscilla A. Dwyer, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC, telephone (301) 504-2478.

## SUPPLEMENTARY INFORMATION:

### Background

In the development of its physical protection programs, NRC uses the concept of a design basis threat to assure adequate protection. The design basis threat is a hypothetical threat that is not intended to represent a real threat. The design basis threat serves three purposes:

(1) It provides a standard with which to measure changes in the real threat environment,

(2) It is used to develop regulatory requirements, and

(3) It provides a standard for evaluation of implemented safeguards programs.

The intent of the design basis threat for power reactors is to provide a physical protection system that protects against radiological sabotage.

To assure adequacy of the design basis threat, NRC continually monitors and evaluates the threat environment worldwide. The Commission is also briefed periodically by agencies such as the Central Intelligence Agency and the Federal Bureau of Investigation to keep abreast of domestic and foreign intelligence concerning threat. Although, based on current information, there is no significant change in the threat environment, the bombing at the World

Trade Center demonstrated that a large explosive device could be assembled, delivered to a public area, and detonated in the United States without advanced intelligence.

The unauthorized intrusion at the Three Mile Island nuclear power station demonstrated that a vehicle could be used to gain quick access to the protected area at a nuclear power plant. In light of these incidents, NRC held a public meeting on May 10, 1993, to obtain additional information from the public, affected licensees, and other interested parties concerning the need for any changes to the design basis threat for radiological sabotage.

#### Discussion

Findings. NRC has concluded that there is no indication of an actual vehicle threat against the domestic commercial nuclear industry. However, based on recent events, NRC believes that a vehicle intrusion or bomb threat to a nuclear power plant could develop without warning in the future. To maintain a prudent margin between the current threat estimate (low) and the design basis threat (higher) NRC is proposing to amend 10 CFR Part 73 to modify the design basis threat for radiological sabotage to include protection against the malevolent use of vehicles at nuclear power plants.

Description of Proposed Amendments. NRC proposes to amend 10 CFR 73.1 to explicitly include use of a four-wheel drive land vehicle by adversaries for the transport of personnel, hand-carried equipment, and/or explosives. Proposed criteria specifying vehicle and explosive characteristics are

protected from public disclosure as Safeguards Information and have been previously provided to affected licensees. Three provisions would be added to amend 10 CFR 73.55. The first provision, 10 CFR 73.55(c)(7), would include new regulatory requirements to establish measures to protect a reactor from use of a land vehicle to gain proximity to vital areas. The vital areas contain equipment, systems, devices, or material the failure or destruction or release of which could directly or indirectly endanger the public health and safety by exposure to radiation. The second provision, 10 CFR 73.55(c)(8), would propose a process for licensees to assess whether the protective measures established in accordance with 10 CFR 73.55 (c)(7) protect against a vehicle bomb consistent with design goals and criteria specified by the Commission. Licensees whose vehicle denial measures do not fully satisfy the design goals for protection against a vehicle bomb would have the option to establish additional measures to meet the design goals or propose other additional measures that give substantial protection against a land vehicle bomb. The third provision, §73.55(c)(9), describes proposed implementation schedules and information that would be required to be submitted to the Commission. In order to protect certain documents, required by amendments to 10 CFR 73.55, as Safeguards Information, 10 CFR 73.21 would be amended.

Regulatory Approach. The NRC proposes for licensees to establish measures to protect vital equipment within power reactor vital areas from: 1) access by persons transported by a land vehicle and 2) damage from the detonation of a vehicle bomb in the vicinity of the vital area. The NRC would emphasize the protection of vital equipment by requiring licensees to establish measures to protect against the use of a land vehicle to gain proximity to vital areas of

a facility. The NRC would require each licensee to establish a barrier system to prevent land vehicle proximity to vital areas of the plant. The NRC would allow for use of natural features such as cliffs and natural waterways or artificial features such as buildings and canals to be included as part of the barrier system. In establishing a system of physical barriers to protect against access of a land vehicle to vital areas, the licensee would also protect the facility against a vehicle transporting a bomb which could detonate at or near the point of the vehicle barrier.

The licensee would be required to determine if measures established to protect against vehicle intrusion to vital areas of the facility protect against the threat of a land vehicle bomb as defined by the design goals and criteria set by the Commission. Essentially, the licensee would need to protect vital or alternative equipment needed to shut down the reactor and maintain the reactor in a shutdown condition. In evaluating the protection of vital equipment, the licensee could consider protection provided by structures near the equipment, assigning credit for alternative equipment not damaged by the assumed explosion, and damage control measures.

Most sites would likely meet the Commission's design goals for protection against a vehicle bomb by establishing protective measures against vehicular intrusion in the vicinity of existing protected area boundaries. The licensee would have two options if its evaluation shows that these protective measures do not fully meet the design goals and criteria for protecting against a land vehicle bomb. It may implement additional measures that would fully meet the design goals and criteria such as moving vehicle barriers further away from

vital areas or equipment, installing blast shields, or modifying plant systems and equipment. Alternatively, the licensee may propose to the Commission less effective measures if they demonstrate that the costs of measures to fully meet the design goals and criteria are not justified by the resulting increase in protection.

The licensee would be required to submit to the Commission a summary description of the proposed vehicle denial measures and the results of its evaluation comparing the measures to protect against vehicle intrusion with the design goals and criteria for protecting against a land vehicle bomb. If a licensee's evaluation shows that measures to be taken to meet vehicular intrusion fully meet the design goals and criteria for protecting against a land vehicle bomb, the licensee would have to confirm this finding to the Commission. The licensee would amend affected plans under 10 CFR 10 CFR 50.54(p) or 10 CFR 50.54(p) and 10 CFR 50.59 changes. Licensees who choose not to take additional measures to fully meet the Commission's design goals and criteria may propose alternative measures provided these measures provide substantial protection against a vehicle bomb. The licensee must also demonstrate that the costs of fully meeting the design goals and criteria are not justified by the added protection that would be provided. These licensees would be required to submit their proposals and supporting bases to the Commission under 10 CFR 50.90 license amendments.

Guidance. The staff prepared a regulatory guide containing preliminary information for licensees in initial assessments of protective measures against vehicular intrusions and approaches to assess whether the Commission's

design goals and criteria are met by measures taken to protect against vehicle intrusion. The regulatory guide is titled DG-5006, "Protection Against Malevolent Use of Vehicles at Nuclear Power Plants." The regulatory guide references two United States Army Corps of Engineers manuals as providing vehicle barrier and explosive blast analysis analytical methods acceptable to the NRC. Additional guidance is available in NUREG/CR 5246, "A Methodology to Assist in Contingency Planning for Protection of Nuclear Power Plants Against Land Vehicle Bombs." NRC has also arranged for the Corps of Engineers to write a NUREG-series report that would be available to the licensees through the Commission in time for publication of the final rule. This NUREG report would include simple methods for the licensee to select barriers and perform an analysis of existing structures and equipment to demonstrate their ability to withstand the effects of an explosive blast.

Public Comment. The Commission is issuing this proposed rule with a 30-day public comment period. The Commission notes that some of the issues associated with a design basis threat modification have been previously discussed in a public meeting. Interested parties who previously submitted comments at the time of the public meeting need not resubmit their comments. Previously submitted comments will be addressed during the review of the rulemaking comments.

The Commission wishes to receive comments on the need to revise the design basis threat and on the proposed implementation schedule for the rule,



particularly on the availability of active vehicle denial systems for purchase.

Implementation. The proposed rule would likely be implemented through 10 CFR 50.54(p) (no decrease in effectiveness of security plan) or 10 CFR 50.54(p) and 10 CFR 50.59 (no change to the technical specifications incorporated in the license or an unreviewed safety issue) changes. Each licensee would be required to submit to the NRC within 90 days from the effective date of the rule a summary description of the proposed vehicle intrusion control measures and the results of its evaluation comparing the measures to protect against vehicular intrusion with the design goals and criteria for protecting against a land vehicle bomb. A licensee proposing measures, as alternatives to those needed to fully meet the Commission's criteria for protecting against a vehicle bomb, would be required to submit details of their analyses, including justification that substantial protection was provided and that the cost of measures needed to fully meet the design goals and criteria are not justified by the added protection that would be provided. Proposals by licensees to use alternative measures would be handled as 10 CFR 50.90 amendments. Licensees would be required to implement their measures within 360 days of the rule effective date.

Once implemented, the control measures required to meet these regulations supersede contingency requirements initiated in response to Generic Letter 89-07, "Power Reactor Safeguards Contingency Planning for Surface Vehicle Bombs," dated April 28, 1989. However, licensees whose vehicle control measures do not fully meet the NRC's design goals and measures may choose to

maintain vehicle bomb contingency planning as one element of proposed alternative measures.

Safeguards Information. The Commission cautions licensees not to submit any data that is protected as Safeguards Information as part of their comments on the proposed rule.

Enforcement. Violation of these proposed rules, if promulgated, may subject a person to the criminal penalties in section 223 of the *Atomic Energy Act*, of 1954, as amended.

Decommissioning Reactors. The rule would apply to licensees who are either in the process of decommissioning or plan to decommission in the near future and do not have a possession-only license. Those licensees would need to be evaluated individually to determine if full or partial exemption from the new rule is appropriate.

Electronic Submittals. Comments may be submitted, in addition to the original paper copy, by copy of the letter in electronic format on IBM personal computer MS-DOS compatible 3.5- or 5.25-inch double-side, double density (DS/DD) or high density (HD) diskettes. Data files should be submitted in WordPerfect 5.0 or 5.1, unformatted ASCII code, or if formatted text is required, IBM Revisable-Form-Text Document Context Architecture (RFT/DCA) format.

## Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commissions' regulations in Subpart A of 10 CFR Part 51, that this rule, if adopted, would not be a major Federal action significantly affecting the quality of the human environment and therefore an environmental impact statement is not required. The proposed rule involves installation of vehicle barriers at operating power reactor sites and an evaluation of these barriers by the licensee to determine whether they provide adequate protection against a land vehicle bomb under design goals and criteria established by the Commission. Implementation of these amendments would not involve release of or exposure to radioactivity from the site. The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the Public Document Room, 2120 L Street NW. (Lower level), Washington, DC. Single copies of the environmental assessment and the finding of no significant impact are available from Carrie Brown, U.S. Nuclear Regulatory Commission, Washington, , telephone (301) 504-2382.

## Paperwork Reduction Act Statement

This proposed rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.) This rule has been submitted to the Office of Management and Budget for review and approval of the information collection requirements.

The public reporting burden for this collection of information is estimated to average 421 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to the Information and Records Management Branch (MNBB-7714), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-3019, (3150-0002), Office of Management and Budget, Washington, DC 20503.

#### Regulatory Analysis

The Commission has prepared a draft regulatory analysis on this proposed regulation. The analysis examines the cost and benefits of the alternatives considered by the Commission. The draft analysis is available for inspection in the NRC Public Document Room, 2120 L Street NW, (Lower Level), Washington, DC. Single copies of the draft analysis may be obtained from Robert J. Dube, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 504-2912.

The Commission requests public comment on the draft regulatory analysis. Comments on the draft analysis may be submitted to the NRC as indicated under the ADDRESSES heading.

## Regulatory Flexibility Certification

Based on the information available at this stage of the rulemaking proceeding and in accordance with the Regulatory Flexibility Act, 5 U.S.C. 605(b), the Commission certifies that, if promulgated, this rule will not have a significant economic impact upon a substantial number of small entities. The proposed rule affects only licensees authorized to operate a nuclear power reactor. The utilities that operate these nuclear power reactors do not fall within the scope of the definition of "small entities" as given in the Regulatory Flexibility Act or the Small Business Size Standards promulgated in Regulations issued by the Small Business Administration (13 CFR Part 121).

## Backfit Analysis

As required by 10 CFR 50.109, the Commission has completed a backfit analysis for the proposed rule. The Commission has determined, based on this analysis, that backfitting to comply with the requirements of this proposed rule will provide a substantial increase in protection to public health and safety or the common defense and security at a cost which is justified by the substantial increase. The backfit analysis on which this determination is based is available for inspection at the NRC Public Document Room, 2120 L Street NW. (Lower level), Washington, DC. Single copies of the backfit analysis are available from Robert J. Dube, U.S. Nuclear Regulatory Commission, Washington, DC, telephone (301) 504-2912. It should be noted that the conclusions reached are based on best available data. The proposed rule

contains a provision for affected licensees to conduct site specific analyses if they so choose.

#### List of Subjects in 10 CFR Part 73

Criminal penalties, Hazardous materials transportation, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Security measures.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act as amended, and 5 U.S.C. 552 and 553, the NRC is proposing to adopt the following amendments to Part 73.

#### PART 73 - PHYSICAL PROTECTION OF PLANTS AND MATERIALS

1. The authority citation for Part 73 continues to read as follows:

AUTHORITY: Secs. 53, 161, 68 Stat. 930, 948, as amended, sec. 147, 94 Stat. 780 (42 U.S.C. 2073, 2167, 2201); sec. 201, as amended, 204, 88 Stat. 1242, as amended, 1245 (42 U.S.C. 5841, 5844).

Section 73.1 also issued under secs. 135, 141, Pub. L. 97-425, 96 Stat. 2232, 2241, (42 U.S.C. 10155, 10161). Section 73.37(f) also issued under sec. 301, Pub. L. 96-295, 94 Stat. 789 (42 U.S.C. 5841 note). Section 73.57 is issued under sec. 606 Pub. L. 99-399, 100 Stat. 876 (42 U.S.C. 2169).

2. In §73.1, the introductory text of (a) is revised and a new paragraph (a)(1)(i)(E) is added to read as follows:

§73.1 Purpose and scope.

(a) Purpose. This part prescribes requirements for the establishment and maintenance of a physical protection system which will have capabilities for the protection of special nuclear material at fixed sites and in transit and in plants in which special nuclear material is used. The following design basis threats, where referenced in ensuing sections of this part, shall be used to design safeguards systems to protect against acts of radiological sabotage and to prevent the theft of special nuclear material. Licensees subject to the provisions of §73.20, §73.50, or §73.60 are exempt from §73.1(a)(1)(i)(E).

(1) Radiological Sabotage \*\*\*

(i) \*\*\*

(E) A four-wheel drive land vehicle used for the transport of personnel, hand-carried equipment, and/or explosives, and

\* \* \* \* \*

3. In §73.21, a new paragraph (b)(1)(xiii) is added to read as follows:

§73.21 Requirements for the protection of safeguards information

\* \* \* \* \*

(b) Information to be protected. \*\*\*

(1)\*\*\*

(xiii) Information required by the Commission pursuant to 10 CFR 73.55 (c)(8) and (9).

4. In §73.55, new paragraphs (c)(7), (8), and (9) are added to read as follow:

§73.55 Requirements for physical protection of licensed activities in nuclear power reactors against radiological sabotage.

\* \* \* \* \*

(c) \*\*\*

(7) Vehicle control measures, including vehicle barrier systems, must be established to protect against use of a land vehicle, as specified by the Commission, as a means of transportation to gain unauthorized proximity to vital areas.

(8) Each licensee shall compare the vehicle control measures established in accordance with 10 CFR 73.55(c)(7) to the Commission's design goals and criteria for protection against a land vehicle bomb. Each licensee shall either (i) confirm to the Commission that the vehicle control measures meet



the design goals and criteria specified, or (ii) propose alternative measures, in addition to the measures established in accordance with 10 CFR 73.55(c)(7), describe the level of protection that these measures would provide against a land vehicle bomb, and compare the costs of the alternative measures with the costs of measures necessary to fully meet the design goals and criteria. The Commission will approve 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 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.

(9) Each licensee authorized to operate a nuclear power reactor shall:

(i) By (insert 90 days from effective date of rule) submit to the Commission a summary description of the proposed vehicle control measures as required by 10 CFR 73.55(c)(7) and the results of the vehicle bomb comparison as required by 10 CFR 73.55(c)(8). For licensees who choose to propose alternative measures as provided for in 10 CFR 73.55(c)(8), the submittal should include the analysis and justification for the proposed alternatives.

(ii) By (insert 360 days from final rule effective date) fully implement the required vehicle control measures, including site-specific alternative measures as approved by the Commission.

(iii) Protect as Safeguards Information, information required by the Commission pursuant to 10 CFR 73.55(c)(8) and (9).

(iv) Retain, in accordance with 10 CFR 73.70, all comparisons and analyses prepared pursuant to 10 CFR 73.55(c)(7) and (8).

(v) For each applicant for a license to operate a nuclear power reactor pursuant to 10 CFR 50.21(b) or 10 CFR 50.22 of this chapter, whose application was submitted prior to (insert effective date of rule), incorporate the required vehicle control program into the site Physical Security Plan and implement it by the date of receipt of the operating license.

Dated at Rockville, Maryland this \_\_\_\_\_ day of \_\_\_\_\_ 1993.

For the Commission.

\_\_\_\_\_  
Samuel J. Chilk,  
Secretary of the Commission.

ENCLOSURE 2  
ENVIRONMENTAL ASSESSMENT

ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT  
FOR AMENDMENTS TO 10 CFR 73

Protection Against Malevolent Use of Vehicles at Nuclear Power Plants

The Commission has determined, under the National Environmental Policy Act (NEPA) of 1969 as amended, and the Commission's regulations in 10 CFR Part 51, that promulgation of the amendments to 10 CFR Part 73 will not have a significant effect on the quality of the human environment and that, therefore, an environmental impact statement is not required.

This determination is based on an environmental assessment and finding of no significant impact performed in accordance with the procedures and criteria in Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," as published in the Federal Register, March 12, 1984.

Part 51 is NRC's regulation for assuring appropriate environmental consideration of licensing and regulatory actions. Generally, under Part 51 any licensing or regulatory action will fall within one of three classes.

The first class of actions consists of those which require an environmental impact statement. The criteria for and identification of this class of actions are given in 10 CFR 51.20. This class of actions includes matters such as issuance of a construction permit or operating license for a nuclear power plant.

The second class of licensing and regulatory actions consists of those requiring an environmental assessment. The criteria for and identification of this class of licensing and regulatory actions are given in 10 CFR 51.21. This class of actions, for purposes of environmental considerations, consists of those actions which are neither identified in 10 CFR 51.20 as requiring an environmental impact statement nor identified in 10 CFR 51.22 as qualifying for categorical exclusion from preparation of an environmental impact statement or assessment.

The third class of actions consists of those eligible for categorical exclusion following a Commission declaration that the category of actions does not individually or cumulatively have a significant effect on the human environment. The criteria for and identification of licensing and regulatory actions eligible for categorical exclusion are given in 10 CFR 51.22. Amendments to Commission regulations which are corrective, or of a minor or nonpolicy nature and do not substantially modify existing regulations, fall within this class of actions.

The proposed amendments to 10 CFR Part 73 regarding protection against malevolent use of vehicles at nuclear power reactors are subject to the requirements of 10 CFR 51.21 (the second class of actions) and, accordingly, the assessment below has been prepared.

The required contents of an environmental assessment, set out in 10 CFR 51.30, are as follows:

§51.30 Environmental assessment.

(a) An environmental assessment shall identify the proposed action and include:

- (1) A brief discussion of:
  - (i) The need for the proposed action;
  - (ii) Alternatives as required by section 102(2)(E) of NEPA;
  - (iii) The environmental impacts of the proposed action and alternatives as appropriate; and
- (2) A list of agencies and persons consulted, and identification of sources used.

The following comments respond to the specific requirements of 10 CFR 51.30.

Need for Action

The Nuclear Regulatory Commission (NRC) is proposing to amend its physical protection regulations for operating nuclear power reactors. The proposed amendments would modify the design basis threat for radiological sabotage to include use of a four-wheel drive land vehicle by adversaries for transporting personnel, hand-carried equipment and/or explosives. Implementation of the rule as proposed would require applicable licensees to design and install a vehicular barrier system to protect vital areas and equipment from access by unauthorized entry by land vehicles. Licensees would also be required to evaluate the effectiveness of these measures to protect against a vehicle bomb.

The Commission believes this action is necessary based on an evaluation of an unauthorized intrusion at the Three Mile Island nuclear power station which demonstrated that a vehicle could be used to gain quick access to the protected area at a nuclear power plant. In addition, the bombing at the World Trade Center demonstrated that a large explosive device could be assembled, delivered to a public area and detonated in the United States without advance warning. Although, the Commission has concluded that there is no indication of an actual vehicle threat against the domestic commercial nuclear industry, the Commission believes that a vehicle intrusion or bomb threat to a nuclear power reactor could develop without advance warning in the future. The proposed amendments would directly affect 67 nuclear power reactor sites.

Alternatives

Section 102(2)(E) of NEPA provides that agencies of the Federal Government shall "Study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." The objective of the rule is to enhance reactor safety by precluding the malevolent use of a vehicle to gain unauthorized proximity to a vital area barrier. Further, the rule will enhance reactor safety by protecting vital equipment from detonation

of an explosive charge at the point of vehicle denial. This objective would be accomplished through use of a vehicle barrier system and a licensee evaluation of the effectiveness of the barrier system to protect against a vehicle bomb.

It is estimated that most sites would meet the Commission design goals and criteria for protection against a vehicle bomb by providing protective measures against vehicle intrusion. Licensees that find that measures to be taken to meet the vehicle intrusion requirements do not fully meet the design goals and criteria for protection against a land vehicle bomb have two options. They may implement additional measures that would fully meet the design goals and criteria, or they may propose to the Commission additional measures other than ones needed to fully meet the design goals and criteria, provided this approach provides substantial protection against a vehicle bomb and that it can be demonstrated that the costs of measures to fully meet the design goals and criteria are not justified by the added protection that would be provided. The proposed amendments explicitly include provisions for licensees to propose, if determined necessary, alternative measures to protect against a vehicle bomb.

However, the proposed amendments would allow a licensee to take additional measures such as expansion of the barrier boundary or reconfigure vital equipment or areas to assure maintenance of vital equipment to enhance protection against a vehicle bomb. One alternative measure that was considered and immediately rejected was the deployment of security measures at the owner controlled boundary. This alternative proved to be extremely cumbersome from an operational perspective and man-power intensive. No appropriate alternatives were identified beyond placement of vehicle barriers to prevent intrusion in the proximity of vital areas of the plant.

### Environmental Impacts

Implementation of the proposed amendments involves two components, installation of physical barriers and a process for licensees to assess whether the protective measures established to protect against vehicle intrusion provide protection against a vehicle bomb. The later activity may require, for some licensees, measures in addition to those needed to protect against vehicle intrusion. Neither of these activities would involve release of or exposure to radioactivity at affected sites.

The installation of barriers to prevent vehicle intrusions to vital areas of the facility involves placement of "active" vehicle barriers, most often hydraulically operated vehicle gates, at entry/exit points and static or "passive" vehicle barriers, such as concrete bollards or secured airplane cable, about the remaining protected area perimeter. Active vehicle barriers require a power source to operate and generally some site excavation at the point of placement, although surface mounted active vehicle barrier systems are commercially available. Since most active vehicle barrier systems are hydraulically operated, there may on occasion be leakage of this fluid to the environment. This leakage would be of the order of 20 gallons or less per active barrier over the life of the system. Additionally, a non-toxic

biodegradable oil is currently being used successfully at some Federal facilities.

The strategy for protection against vehicle intrusion would also involve placement of passive vehicle barriers around vital areas, most likely close or adjacent to the protected area boundary. In addition, some licensees may need to take additional measures, such as expanding the barrier perimeter or installation of backup equipment, to provide a specified level of protection against a vehicle bomb.

Construction activities associated with passive vehicle barriers would involve some earth movement, either for excavation or development of berms, and possible destruction of trees and shrubbery. Installation of backup equipment would take place entirely within a facility's protected area and, as previously stated, would not involve release of or exposure to radioactivity from the site.

In summary, these activities are expected to be minor in nature with respect to environmental impact and, accordingly, support a finding that the amendments proposed involve no significant environmental impact.

#### Agencies and Persons Consulted

In the development of this environmental assessment, staff consulted with several Federal agencies and personnel involved with development and construction of vehicle barrier systems. The U.S. Army Corps of Engineers provided strong support for the entire project by developing measures to counter a revised design basis threat and possible environmental impacts were discussed with representatives of this group. Counsel was also received from the Treasury Department where practical experience was gained in the installation of active vehicle barrier systems. Additional practical experience on the installation of active and passive vehicle barrier systems was obtained from consultation with one class of licensees currently required to install vehicle barriers. Staff discussed environmental impacts from construction and installation of active vehicle barrier systems with commercial vendors of this equipment. Finally, the Nuclear Regulatory Commission sponsored a public forum on May 10, 1993, to obtain comment on all aspects of a revised design basis threat from public interest groups, affected licensees, and other interested parties.

#### Determination of Need for Environmental Impact Statement

Section 51.31 provides that upon completion of an environmental assessment, the appropriate NRC staff director will determine whether to prepare an environmental impact statement and finding of no significant impact on the proposed action. The Executive Director for Operations has determined that the environmental assessment adequately supports a finding that the amendments will have no significant environmental impact. Accordingly, the Commission has determined not to prepare an environmental impact statement for this rulemaking. The amendments will not significantly affect safe operation of the affected facilities nor the routine release of or exposure to radioactivity from the facilities.

ENCLOSURE 3

OMB SUPPORTING STATEMENT



SUPPORTING STATEMENT  
FOR  
AMENDMENTS TO 10 CFR PART 73

PROTECTION AGAINST MALEVOLENT USE OF VEHICLES AT  
NUCLEAR POWER PLANTS

DESCRIPTION OF THE INFORMATION COLLECTION

The Nuclear Regulatory Commission (NRC) is proposing to amend its physical protection regulations for operating nuclear power reactors. The proposed amendments would modify the design basis threat for radiological sabotage to include use of land vehicles by adversaries for transporting personnel, hand-carried equipment and/or explosives.

Implementation of the rule as proposed would require applicable licensees to design and install a vehicle barrier system to protect vital areas and equipment from unauthorized access by land vehicles (new 10 CFR 73.55(c)(7)). Licensees would also be required to evaluate the effectiveness of their measures to protect against a vehicle bomb (new 10 CFR 73.55(c)(8)). An implementation schedule and recordkeeping requirement is also proposed (new 10 CFR 73.55(c)(9)).

Documentation of facility modifications resulting from implementation of the rule would be made through 10 CFR 50.54(p) changes (no decrease in security effectiveness), 10 CFR 50.54(p) and 10 CFR 50.59 changes (no change in the technical specifications incorporated in the license or an unreviewed safety issue), or 10 CFR 50.90 (license amendment) changes. Details of barrier design engineering and analysis associated with evaluation of the effectiveness of the barriers to meet the design goals and criteria for protection against a land vehicle bomb would be maintained by the licensee.

As contained in the implementation schedule for the proposed rule, licensees would be required to submit to the Commission a letter providing a summary description of the barrier system and the results of their evaluation comparing the measures to protect against unauthorized vehicle entry with the design goals and criteria for protection against a land vehicle bomb.

Licensees whose evaluation shows that measures to be taken to meet the new requirement for a vehicle barrier system do not fully meet the design goals and criteria for protection against a land vehicle bomb have two options. They may implement additional measures that would fully meet the design goals and criteria, or they may propose to the Commission additional measures other than ones needed to fully meet the design goals and criteria, provided that this approach provides substantial protection against a vehicle bomb and that the licensee can demonstrate that the costs of measures to fully meet the design goals and criteria are not justified by the added protection that would be provided. These licensees would be required to provide their proposal and supporting bases to the Commission as a license amendment for NRC review and approval.

## A. JUSTIFICATION

### 1. Need for the Collection of Information

In the development of its physical protection programs, NRC uses the concept of a design basis threat to assure adequate protection. The design basis threat is a hypothetical threat that is not intended to represent a real threat. Notwithstanding, it serves three purposes: 1) it provides a standard with which to measure changes in the real threat environment, 2) it is used to develop regulatory requirements, and 3) it provides a standard for evaluation of implemented safeguards programs. The intent of the design basis threat for power reactors is to provide a physical protection system that protects against radiological sabotage.

To assure adequacy of the design basis threat, NRC continually monitors and evaluates the threat environment worldwide. The Commission is also briefed periodically by agencies such as the Central Intelligence Agency and the Federal Bureau of Investigation to keep abreast of domestic and foreign intelligence concerning threat. Although, based on current information, there is no significant change in the threat environment, the bombing at the World Trade Center demonstrated that a large explosive device could be assembled, delivered to a public area, and detonated in the United States without advance intelligence. In addition, an unauthorized intrusion at the Three Mile Island nuclear power station demonstrated that a vehicle could be used to gain quick access to the protected area at a nuclear power plant.

NRC has concluded that there is no indication of an actual vehicle threat against the domestic commercial nuclear industry. However, based on recent events, NRC believes that a vehicle intrusion or bomb threat to a nuclear power plant could develop without warning in the future. To maintain a prudent margin between what is the current threat estimate (low) and the design basis threat (postulated as higher for conservatism), NRC is proposing to amend 10 CFR Part 73 to modify the design basis threat for radiological sabotage to include protection against malevolent use of vehicles at nuclear power plants. The information collected as a result of these amendments is the minimum needed for NRC to make a determination that implemented programs meet the new requirements. As previously stated, the collected information consists of a letter that summarizes measures used to protect against unauthorized vehicle intrusion; the results of the site evaluation for protection against a vehicle bomb; and for a limited number of licensees (approximately 7 sites), a cost benefit analysis and information associated with 10 CFR 50.90 license amendments. The documentation and recordkeeping burden associated with 10 CFR 50.54(p) and 10 CFR 50.59 changes applies to repetitive recordkeeping requirements. OMB has previously approved recordkeeping requirements for 10 CFR 50.54(p) and 10 CFR 50.59 under approval number 3105-0011. It is expected that the records associated with this proposed rule will be maintained by the licensee for three years as currently required under 10 CFR 73.70 (OMB Approval Number 3150-0002).

## 2. Agency Use of Information

NRC will use the licensee evaluations and implementations developed from this proposed rulemaking to assure that licensees' programs adequately meet the intent of the regulations. Except for licensees whose evaluation shows they do not fully meet the Commission's design goals and criteria for protection against a vehicle bomb, licensee detailed evaluations will be maintained on site and will not be required to be submitted to NRC. Licensees would, however, be required to submit summaries of the analysis. Further, NRC will need to review and approve evaluations from those licensees that choose to use alternative measures to protect against a vehicle bomb.

## 3. Reduction of Burden Through Information Technology

There are no legal obstacles to use of information technology for reducing the burden associated with this information collection. Although this is a one time requirement, licensees are encouraged to use modern information technologies to collect, analyze, and store the information required under these provisions of 10 CFR Part 73.

## 4. Effort to Identify Duplication

The Information Requirements Control Automated System (IRCAS) was searched to identify duplication. None was found. The evaluation to determine the adequacy of protection of vital equipment from malevolent use of vehicles, including vehicle bombs, at operating nuclear power reactor sites is a new requirement. Therefore, this information does not duplicate nor overlap other information collections by NRC or other government agencies.

## 5. Effort to Use Similar Information

During the development of this rulemaking, staff conducted rudimentary analyses, on a site by site basis, similar to what will be expected from licensees in the evaluation they will be required to perform. This staff work was performed to develop costs for the regulatory analysis for the proposed rule. Data was derived from security plans, available maps, and NRC site contacts and represents best available data to NRC. This data, however, is not considered sufficient in determining precise measures that might be needed to counter a vehicle bomb, which would include precise calculations of available standoff distances or, in some instances, determination of building structures and material.

## 6. Effort to Reduce Small Business Burden

The respondents are not small businesses or small entities as that term is defined in the Regulatory Flexibility Act. The proposed amendments affect only those utilities that operate commercial nuclear power reactors; none of these organizations are considered small businesses or entities.

7. Consequences of Less Frequent Collection

The information required under the proposed amendment is a one time record that will be maintained by the licensee for a period of three years.

8. Circumstances Which Justify Variation From OMB Guidelines

The information collections in this rule contain no variation from the OMB Guidelines contained in CFR 1320.6.

9. Consultations Outside the NRC

During the development of these amendments, staff consulted with several Federal agencies and personnel involved with development and construction of vehicle barrier systems including the U.S. Army Corps of Engineers and the Treasury Department. In addition, the NRC sponsored a public forum on May 10, 1993 to obtain comment on all aspects of a revised design basis threat from public interest groups, affected licensees and other interested parties.

10. Confidentiality of Information

Confidentiality will be insured because the results of the analysis to be collected will be protected as Safeguards Information. Any information pertaining to specific physical security system details at a commercial reactor site are required to be protected as Safeguards Information under 10 CFR 73.21. Some specific details of the Design Basis Threat areas are classified and any discussions associated with this subject would have to be protected, as appropriate.

11. Justification for Sensitive Questions

There are no sensitive questions.

12. Estimated Annualized Cost to the Federal Government

Inspection of the approximately 67 total sites is estimated to be 1 FTE. Reviewing licensee proposals for alternative measures and 10 CFR 50.109-type analyses would require approximately an additional 1 FTE and \$40K for technical assistance. The total estimated cost to the government is \$589,120.

13. Estimate of Industry Burden

There are 67 commercial nuclear power reactor sites that will be affected by the proposed rule. Of these, based on staff rudimentary analyses, approximately 40 sites will be able to provide adequate protection to a vehicle bomb through placement of a vehicle barrier system protecting vital areas of the facility. NRC estimates the one time burden for these licensees to meet the new requirement to be:

<u>REPORTING REQUIREMENTS</u>	<u>HOURS</u>
a. Reviewing instructions, notices, regulatory guides and NUREGs.	80
b. Searching existing data sources, gathering information	100
c. Performing site evaluation	120
d. Coordination and documentation of site evaluation	40
e. Development and coordination of implementation letter and summary of site evaluation	20
Subtotal burden	360

<u>RECORDKEEPING REQUIREMENTS</u>	<u>HOURS</u>
a. Maintenance of summary report and full evaluation	20
Subtotal burden	20
Total subset burden	380

For this subset of licensees, the total estimated burden is 15,200 hours (380 hrs. x 40 respondents). At a rate of \$132 per hour, the total cost to licensees would be \$2,006,400 (15,200 x \$132/hr.).

An estimated 20 sites will meet the Commission's design goals and criteria through implementation of additional measures. NRC estimates the one-time burden for these licensees to meet the new requirement to be:

<u>REPORTING REQUIREMENTS</u>	<u>HOURS</u>
a. Reviewing instructions, notices, regulatory guides, and NUREGs	80
b. Searching existing data sources, gathering information	100
c. Performing site evaluations	160
d. Coordination and documentation of site evaluation	40
e. Development and coordination of implementation letter and summary of site evaluation	20
Subtotal burden	400

<u>RECORDKEEPING REQUIREMENTS</u>	<u>HOURS</u>
a. Maintenance of summary report and full evaluation	20
Subtotal burden	20
Total subset burden	420

For this subset of licensees, the total estimated burden is 8,400 hours (420 hrs. x 20 respondents). At a rate of \$132 per hour, the total cost to licensees would be \$1,108,800 (8,400 x \$132/hr.).

The estimated remaining 7 affected sites will not be able to fully meet the Commission's design goals and criteria for protection against a vehicle bomb by the measures designed to protect against vehicle intrusion. These licensees will have to assess and propose alternative measures. This approach will call for additional evaluation and documentation. NRC estimates the one time burden for these licensees to meet the new requirement to be:

<u>REPORTING REQUIREMENTS</u>	<u>HOURS</u>
a. Reviewing instructions, notices, regulatory guides and NUREGs.	80
b. Searching existing data sources, gathering information	100
c. Performing site evaluation	120
d. Coordination and documentation of site evaluation	40
e. Perform additional evaluation for alternative measures	120
f. Development and coordination of implementation letter and summary of site evaluation	20
g. Develop and coordinate licensing action	160
Subtotal burden	640

<u>RECORDKEEPING REQUIREMENTS</u>	<u>HOURS</u>
g. Maintenance of summary report, full evaluation, and cost/benefit analysis	20
Subtotal burden	20
Total subset burden	660

For this subset of licensees, the total estimated burden is 4,620 hours (660 hrs. x 7 respondents). At a rate of \$132 per hour, the total cost to licensees would be \$609,840 (4,620 hrs. x \$132/hr.).

The total estimated industry burden for all sites is 28,220 hours. The total estimated industry cost, at \$132 per hour, is \$3,725,040.

#### 14. Reasons for Change in Burden

The burden increase reflects the one-time recordkeeping requirement and the information collection for the licensees to document site specific evaluation required by 10 CFR 73.55(c)(8) and (9).

#### 15. Publication for Statistical Use

This information is not published for statistical use.

#### B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

Statistical methods are not used in the collection of information.

**ESTIMATE OF COMPLIANCE BURDEN**

**REPORTING REQUIREMENTS  
(40 Licensees)**

Section	No. of Licenses	Annual Hours Per Reporting	Total Reporting Hours	Record Retention Period (Yrs.)	Annual Cost to Respond
73.55 (c)(8)	40	360	14,400	3	\$1,900,800

**RECORDKEEPING REQUIREMENTS  
(40 Licensees)**

Section	No. of Licenses	Annual Hours Per Recordkeeping	Total Recordkeeping Hours	Record Retention Period (Yrs.)	Annual Cost to Respond
73.55 (c)(8)	40	20	800	3	\$105,600

**REPORTING REQUIREMENTS  
(20 Licensees)**

Section	No. of Licenses	Annual Hours Per Reporting	Total Reporting Hours	Record Retention Period (Yrs.)	Annual Cost to Respond
73.55 (c)(8)	20	400	8,000	3	\$1,056,000

**RECORDKEEPING REQUIREMENTS  
(20 Licensees)**

Section	No. of Licenses	Annual Hours Per Recordkeeping	Total Recordkeeping Hours	Record Retention Period (Yrs.)	Annual Cost to Respond
73.55 (c)(8)	20	20	400	3	\$52,800

REPORTING REQUIREMENTS  
(7 Licensees)

Section	No. of Licenses	Annual Hours Per Reporting	Total Reporting Hours	Record Retention Period (Yrs.)	Annual Cost to Respond
73.55 (c)(8)	7	640	4,480	3	\$591,360

RECORDKEEPING REQUIREMENTS  
(7 Licensees)

Section	No. of Licenses	Annual Hours Per Recordkeeping	Total Recordkeeping Hours	Record Retention Period (Yrs.)	Annual Cost to Respond
73.55 (c)(9)	7	20	140	3	\$18,480

TOTAL REPORTING REQUIREMENTS  
(100% of Licensees)

Section	No. of Licenses	Average Annual Hours Per Reporting	Total Reporting Hours	Record Retention Period (Yrs.)	Annual Cost to Respond
73.55 (c)(8)	67	401.2	26,880	3	\$3,548,160

TOTAL RECORDKEEPING REQUIREMENTS  
(100% of Licensees)

Section	No. of Licenses	Average Annual Hours Per Recordkeeping	Total Recordkeeping Hours	Record Retention Period (Yrs.)	Annual Cost to Respond
73.55 (c)(9)	67	20	1,340	3	\$176,880



ENCLOSURE 4

PUBLIC ANNOUNCEMENT

NRC PROPOSES AMENDMENTS TO PHYSICAL SECURITY REQUIREMENTS  
FOR NUCLEAR POWER PLANTS

The Nuclear Regulatory Commission is proposing to amend its physical protection regulations for operating nuclear power plants. The amendments would modify the design basis threat for radiological sabotage to include the use of land vehicles by adversaries for transporting personnel, hand-carried equipment and explosives.

Nuclear power plant licensees are required to implement a system that protects against acts of radiological sabotage, and specifically against the design basis threat for radiological sabotage as set out in the Commission's regulations.

Based on current information derived by continually monitoring and evaluating the worldwide threat environment and briefings by various government intelligence agencies, the NRC has concluded that there is no indication of an actual vehicle threat against the domestic commercial nuclear industry. However, based on the recent bombing of the World Trade Center and the unauthorized intrusion at the Three Mile Island nuclear power plant, the NRC believes that a vehicle intrusion or bomb threat to a nuclear power plant could develop without warning in the future.

To maintain a prudent margin between the current threat estimate (low) and the design basis threat (higher), the NRC is proposing to amend its regulations to modify the design basis threat for radiological sabotage to include protection against malevolent use of vehicles at nuclear power plants.

The proposed amendments, which are to Part 73 of the Commission's regulations, would include--within the design basis threat that licensees are required to protect against--the use of a four-wheel-drive land vehicle for the transport of personnel, hand-carried equipment or explosives. The amendments would provide a process to allow for alternative measures to protect against sabotage.

Licensees would be required to establish vehicle control measures to protect the facility from use of a land vehicle to gain unauthorized proximity to vital area barriers. They would also be required to assess whether the measures taken to protect against vehicle intrusion provide protection against a vehicle bomb consistent with design goals and criteria specified by the Commission. Licensees who could not demonstrate that they fully meet the Commission's design goal for protection against a vehicle bomb would have the option of proposing alternative measures for protection against this threat.

Programs of licensees who are in the process of decommissioning or are contemplating decommissioning in the near future would be evaluated on a case-by-case basis by the NRC to determine if full or partial exemption from the new rule is appropriate.

The rule calls for licensees authorized to operate a nuclear power plant (1) to submit (within 90 days of the effective date of the final rule) a summary description of the proposed vehicle control measures and the results of their cost-benefit analysis and (2) to fully implement the required vehicle control measures or the site-specific alternative measures as approved by the Commission within 360 days of the effective date of the final rule.

The NRC currently plans to complete this rulemaking within three and one-half months from publication of the proposed rule in the Federal Register

on \_\_\_\_\_. Interested persons are invited to submit written comments on the proposal to the Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing and Services Branch. The comments should be submitted by \_\_\_\_\_ 30 days following publication of the Federal Register notice).

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ENCLOSURE 5

REGULATORY ANALYSIS

REGULATORY ANALYSIS  
Malevolent Use of Vehicles at Nuclear Power Plants

1.0 STATEMENT OF THE ISSUE

1.1 Background

The Commission began its deliberations on the vehicle issue in 1985 and a series of Commission meetings and papers followed. These meetings and papers focused on a range of options to respond to the potential threat posed by vehicles, Nuclear Regulatory Commission and other agency assessments of the threat, and the continuing validity of the design basis threat (DBT) for radiological sabotage. Staff provided options to the Commission in SECY-86-101 and SECY-88-127. Options were included for both short-range and long-range contingency planning by licensees and NRC, and for various physical security requirements. The physical security options addressed were: 1) vehicle denial system on existing access roads to power reactor sites, 2) vehicle denial system for land portion of protected area (PA) perimeter, and 3) surface vehicle bomb protection.

The Commission also solicited the views of other agencies. A number of Commission meetings between 1985 and 1987 included threat briefings by the Central Intelligence Agency (CIA), the Federal Bureau of Investigation (FBI), and the Department of Energy. Further, guidance was sought from the National Security Council (NSC). The NSC and the FBI documented their assessments in classified correspondence to the NRC.

Although staff recommended that the Commission approve contingency plans for use by the NRC staff in the event that a vehicle bomb threat were to arise, the Commission directed in a Staff Requirements Memorandum (SRM), dated June 16, 1988, that short-range contingency planning by licensees be required that would assure that plans were in place for installation of temporary emergency measures for response to a surface vehicle bomb threat. In choosing short-range contingency planning, the Commission also chose not to modify the DBT. Contingency planning for surface vehicle bombs was addressed in Generic Letter 89-07 and developed by licensees in 1989.

1.2 Recent Events

On February 7, 1993, there was a forced vehicle entry into the PA at Three Mile Island (TMI) Unit 1. An NRC Incident Investigation Team report on the event highlighted the fact that PA barriers could be penetrated by vehicles and that assessment and response to such a penetration was difficult. On February 25, 1993, a van bomb, containing between 500 and 1500 pounds of TNT equivalent, was detonated in a public underground parking garage at the World Trade Center in New York City. In a memorandum from Samuel J. Chilk, Secretary of the Commission, to James M. Taylor, Executive Director for Operations, dated March 1, 1993, the Commissioners directed staff to reevaluate and, if necessary, update the design basis threat for vehicle intrusion and the use of vehicle bombs.

In SECY-93-102, "Review and Update of Options To Protect Against Malevolent Use of Vehicles and Related Threat Information," dated April 16, 1993, staff provided information regarding the 1985-1988 Commission deliberations on the need to require nuclear power reactors to protect against malevolent use of vehicles and provided an updated range of protection options along with current cost information. Staff and the Nuclear Control Institute, a public

interest group, briefed the Commission on April 22. Staff solicited comments on the issues at a public meeting on May 10, 1993.

Staff forwarded SECY-93-166, "Staff Recommendation for Protection Against Malevolent Use of Vehicles at Nuclear Power Plants," to the Commission on June 14, 1993. Enclosure 6 to SECY-93-166 was a regulatory analysis that included the four options discussed in SECY-92-102. To provide flexibility in implementing DBV protection at some distance from vital equipment at a reasonable cost, staff also developed and analyzed a fifth option. In a memorandum from Samuel J. Chilk, Secretary of the Commission, to James M. Taylor, Executive Director for Operations, dated June 29, 1993, the Commission directed staff to initiate expedited rulemaking to implement option 5. This regulatory analysis updates the analysis provided in Enclosure 6 of SECY-93-166.

## 2.0 OBJECTIVES OF THE RULEMAKING

To publish a proposed rule in response to direction from the Commissioners in a staff requirements memorandum dated June 29, 1993. The Commissioners' decision to proceed with expedited rulemaking was the result of two recent events. On February 7, 1993, there was a forced vehicle entry into the protected area (PA) at Three Mile Island (TMI) Unit 1. On February 25, 1993, a van bomb, containing between 500 and 1,500 pounds of TNT equivalent, was detonated at the World Trade Center in New York City.

In its subsequent review of the threat environment, staff concluded that there is no indication of an actual vehicle threat against the domestic commercial nuclear industry. Nonetheless, in light of the vehicle intrusion at TMI and the World Trade Center vehicle bombing, staff concluded that a vehicle intrusion or bomb threat to a nuclear power plant could develop without warning in the future. The objective of the proposed rulemaking is to enhance reactor safety by maintaining a prudent margin between what is the current threat estimate (low) and the design basis threat for radiological sabotage specified in 10 CFR 73.1(a) (higher).

## 3.0 ORIGINAL OPTIONS

### 3.1 Option 1

No change in current position.

### 3.2 Option 2

Roadway Protection - Require a vehicular protection system on existing roadways and some distance on either side of the vehicle control points into PAs.

This option would protect against forced vehicle entry only in the immediate area of existing vehicle gates into the PA. Because the remainder of the PA perimeter would remain vulnerable to vehicle intrusions, licensee contingency planning for land vehicle bombs would be retained.

Barriers that could be used to protect gates include permanent active barriers that can be lowered to permit passage of authorized vehicles and temporary

barriers that can be moved. Adjacent areas could be protected by passive barriers such as concrete blocks, bollards (i.e., heavy posts), or planters, all which must be properly anchored into the ground.

### 3.3 Option 3

PA Perimeter Protection - Instead of existing contingency procedures, require protection against vehicular intrusions into PAs.

This option would extend vehicle protection to the entire PA. In addition to the type of barriers discussed in Option 2, licensees could use other techniques such as trenching or reinforcing the existing perimeter with anchored cabling systems.

This option would also provide varying degrees of protection against a vehicle bomb. At facilities with an average sized PA and typical concrete structures, a vehicle bomb similar to that reportedly used at the World Trade Center may cause moderate damage to some concrete walls. However, the safety equipment located behind typical concrete walls, but not contiguous to outside walls, would likely be protected. Some facilities also have intervening structures which might absorb some of the energy from an explosive blast.

However, some PAs are smaller and have portions of the PA perimeter that are close to a vital area barrier and would likely be severely damaged. In addition, not all safety equipment is protected by reinforced concrete walls. At a few sites, significant portions of safety systems are not behind concrete walls.

### 3.4 Option 4

Protection at Standoff Distance for a DBV and Explosive Device - Instead of existing contingency procedures, require protection against a vehicle bomb of a specified size. Existing vehicle bomb contingency procedures would remain in effect until permanent measures are implemented.

At some sites, protection against vehicular intrusions into PAs may be sufficient to protect against the DBV bomb. At other sites, licensees would have to provide additional measures to protect against unauthorized vehicles approaching close enough to vital equipment to cause a significant safety risk. Staff believes that this could be done at most sites without reconfiguring existing PA perimeters, intrusion detection systems, and closed-circuit television (CCTV) or increasing the size of security forces. The extent of additional measures required for some sites would vary depending on the size of the design basis explosive used in determining appropriate stand-off distances. Implementation options would include installing permanent or moveable barriers to protect against vehicle access to portions of the PA perimeter or installing blast shields or deflectors to protect vital equipment.

## 4.0 CONSEQUENCES

### 4.1 Analytical Approach

Staff conducted a preliminary analysis of the benefits and costs of the four options in support of SECY-93-102. Because of the short time available, this



preliminary analysis was limited in scope. To assess the benefit from protection against use of a vehicle for forced entry into the PA (absent a bomb threat), staff reviewed NUREG-1485, "Unauthorized Forced Entry into the Protected Area at Three Mile Island Unit 1 on February 7, 1993." For the purposes of this analysis, staff also reviewed prior assessments of the vehicle intrusion issue. It also examined details of the times it would have taken an adversary to reach vital areas from the PA at TMI, both using a vehicle and on foot, which was outside the scope of NUREG-1485.

In analyzing the benefits of protecting against a vehicle bomb for SECY-93-102, staff reviewed drawings of all 67 power reactor sites that are currently operating or are in temporary outages, that showed the owner controlled area, the PA, and the location of buildings that contained vital equipment. For all sites, staff estimated the shortest distance between the outer edge of the owner controlled area and a vital area. For 26 sites, chosen at random, staff estimated the length of the PA perimeter, the shortest distance between the PA perimeter and a vital area, and the shortest distance between a parking area and the nearest vital area. Because of the small scales involved, many of the estimates of distances were imprecise.

To estimate the impact of a truck bomb of the size described in Enclosure 8 of SECY-93-166, staff assumed a building with concrete walls 18 inches thick and an effective density of rebar of 0.2 percent. Most vital area barriers equal or exceed this assumption, although several sites have a few pieces of vital equipment that are not within structures. Staff assumed that the ceilings or roofs of vital area structures would provide protection at least equivalent to the wall. For distances at which the closest vital area structure would provide a low level of protection, staff assumed that vital equipment within the structure would be disabled. Staff estimated the impact of an explosive blast on building structures using the United States (U.S.) Corps of Engineers Blast Analysis Manual, PDC-TR-91-6, July 1991. Staff did not assess the significance of the actual equipment in the nearest vital area structures nor did it assess whether redundant or diverse equipment would continue to function.

Since preparing SECY-93-102, staff has expanded the scope of its analysis of vehicle bomb protection. It has expanded its review of site drawings to all 67 sites. It then identified the 30 sites that its initial analysis indicated had a specified distance between the PA and the nearest vital area. (At a distance greater than the specified distance, most vital area barriers should provide at least a medium level of protection. The Corps of Engineers uses medium level of protection to describe a structure that would be damaged, but repairable. Occupants or other assets within the structure may sustain minor injuries or damage.) For these 30 sites, it determined, through information obtained by the resident inspectors, more precise estimates of the distance from the PA to all vital areas that were within 125. For these vital areas it obtained available details on the wall structures. For vital area structures that appeared to provide less than medium protection, it assumed that the vital equipment within the structure would be disabled and then determined whether redundant or diverse equipment would be available to perform the same function.

Staff has been unable to obtain data on the direct effect of an explosive blast on unprotected equipment. Its' initial assessment on equipment not in buildings focused on the availability of diverse systems, substantial intervening buildings, and stand-off distances sufficient to reduce blast

overpressures to the same range as static pressures used in design to protect against natural phenomena.

#### 4.2 Benefits

Traditionally, the staff has not attempted a quantitative evaluation of the benefits associated with safeguards requirements. In 1983 the NRC reviewed past efforts to quantify risk due to sabotage of nuclear power plants in an attempt to include consideration of that risk in the Commission's safety goal. The review led the staff to conclude that sabotage should not be included in the safety goal because no technical basis was available for quantifying the contribution of sabotage to the overall risk from nuclear power plant operations.

For the purpose of this analysis, a quantitative evaluation would require, among other things, quantification of the likelihood that someone would use a vehicle bomb in an attempt to damage a nuclear power plant, the probability that the bomb would be set off from a stationary location or that forced entry into the PA would be attempted, the probability that a bomb of a particular size would be used, and the probability that the bomb would be in a particular location. Staff is unable to quantify any of these factors.

Assuming that a knowledgeable person or persons would use a vehicle bomb in an attempt to damage a reactor, the safety enhancement from protecting against such an act would be substantial. Reactor containment would likely survive a large blast at close proximity, but most other buildings containing safety equipment would not. If a large vehicle bomb was detonated in the one of the worst locations, damage to safety equipment would likely be severe.

In analyzing protective Options 2 and 3, staff first qualitatively considered the benefits that would be gained from avoiding a TMI-type intrusion, assuming that the intruders had malevolent intent and the characteristics of the DBT specified in 10 CFR 73.1(a). Option 2 would provide little incremental benefit, since portions of the PA perimeter at most sites would still be protected by only a chain link fence. A typical unenhanced chain link fence provides little protection against a moving vehicle. For any sites where Option 2 would be effective because natural terrain or other site features prevent access to the PA perimeter away from vehicle access points, the site would effectively meet Option 3 at no additional costs beyond those to meet Option 2.

With respect to Option 3, staff identified several lessons learned from the vehicle intrusion at TMI. Although the intrusion detection system generated an alarm, the alarm station operators were not able to confirm the intrusion promptly by CCTV. A foot patrol was sent to evaluate the cause of the alarm. There was confusion and misinformation given to operations and security staff until a positive assessment of the intrusion could be made. Out of the confusion and concern for personal safety, operations staff made decisions that could have negatively affected the public health and safety. Even when an initial assessment was made, licensee staff did not know how many unauthorized individuals were inside the PA, where they were, and whether they possessed weapons or explosives. The vehicle also could have provided some protection from responder weapons fire, could have been used as a breaching device, or could have been used as a weapon against on-site personnel.

Although at many sites, vital area doors can be reached on foot within similar periods of time as with a vehicle, the incident demonstrated that a person in a vehicle could penetrate a PA barrier and quickly approach a vital area barrier. Staff estimates that at TMI an adversary in a vehicle could have reached vital areas about 50 seconds faster than on foot. At some sites, this difference could significantly affect the licensee's ability to interdict an adversary before critical safety equipment was reached.

By providing protection against vehicular intrusion into the PA, Option 3 also provides varying degrees of protection against a vehicle bomb. If a barrier stopped a vehicle at the PA perimeter with little or no further penetration, about 90 percent of the sites would provide significant protection against a vehicle bomb of the type specified in Enclosure 8 of SECY-93-166. Barriers that result in no vehicle penetration for vehicle impacts at specified kinetic energies are typically more expensive than those that allow some penetration. For less expensive barriers, a vehicle of the type specified in Enclosure 8 may penetrate as much as 30 feet into the PA. For these types of barriers, about 80 percent of the sites would provide significant protection. Staff's analysis also indicates that there is a high likelihood that all sites would be capable of achieving and maintaining safe shutdown if a vehicle bomb of the size specified in Enclosure 8 were detonated at any land accessible location of a nuclear power plant outside of the owner controlled area.

Option 4 would provide an additional benefit by assuring that the remaining 10 to 20 percent of the sites would provide significant protection against a vehicle bomb of the type specified in Enclosure 8. Enclosure 7 of SECY-91-166 provided information (Safeguards Information provided under separate cover) regarding the potential impact at certain sites that might not provide significant protection against a large vehicle bomb that was stopped at the PA perimeter.

#### 4.3 Assumptions used in Predicting Backfit Costs

##### General Assumptions

1. Based on analysis of all power reactor sites, site perimeters range between about 2,000 and 9,000 feet. Site PA perimeters that have potential for land vehicular access range from 2,000 to 7,000 feet. This range assumes some protection by natural terrain features which would preclude the need for protection of portions of the PA.
2. Site has four vehicle access points. Some sites may have up to 15 vehicle access points to protect.

##### Costs of Specific Intrusion Protection Devices Active Vehicle Access Barriers

Active barriers - Active vehicle access barriers include reinforced sliding gates and pop-up barriers. Vendor prices for materials and installation of active barriers of these types with a width of 10 - 12 feet range between \$15 - 35K. Price is dependent on several factors, most important of which is the design characteristics (size and speed) of the vehicle to be stopped. To account for licensee overhead costs (engineering, interface connections, procurement, and training) the vendor costs have been doubled. Therefore, the prices used in the cost estimates are as follows:

- a. \$30K for an active barrier to stop a passenger vehicle
- b. \$40K for an active barrier to stop a pickup truck
- c. \$70K for an active barrier to stop a large truck

Passive Barriers - Commonly used passive barriers are concrete barriers (Jersey Bounces) or cabling that can be placed at the PA fence and anchored at periodic intervals. Passive barriers to stop larger size vehicles include concrete planters and reinforced concrete walls. Price is dependent on a number of factors, most important being the size and speed of the vehicle (kinetic energy). Licensees may also choose combinations of options, such as a means to slow down a vehicle, which would justify less substantial barriers. Vendor prices for concrete barriers and cabling that can stop passenger size vehicles are estimated to be between \$16 and \$25 per foot. Vendor prices for passive barriers that can stop pickup trucks are estimated to be between \$36 and \$60 per foot, although staff did not find specific barrier test data for barriers that stop this size vehicle. Vendor prices for passive barriers that can stop large trucks are estimated to be between \$110 and \$136 per foot. To account for licensee overhead costs (engineering and procurement) the vendor costs have been tripled. Therefore, the prices used in the cost estimates are as follows:

- a. \$60/ft for a passive barrier to stop a passenger size vehicle with some penetration
- \$90/ft for a passive barrier to stop a passenger size vehicle with no penetration
- b. \$150/ft for a passive barrier to stop a pickup truck with some penetration
- \$225/ft for a passive barrier to stop a pickup truck with no penetration
- c. \$375/ft for a passive barrier to stop a large truck with some penetration
- \$550/ft for a passive barrier to stop a large truck with no penetration

Standoff Distance Analysis - If required to do a site-specific analysis, it is assumed that a licensee would need to do one similar to that described in NUREG/CR-5246, "A Methodology to Assist in Contingency Planning for Protection of Nuclear Power Plants Against Land Vehicle Bombs." This analysis would consist primarily of two major elements.

1. Blast Effect Analysis - The blast analysis would require assessment of what vital structures would be damaged and what vital equipment in that structure was damaged (assuming an explosive size). At many sites, where equipment was located inside reinforced concrete walls at sufficient standoff distances from the PA, this analysis would not need to be extensive. At other sites, with shorter distances between the PA boundary and vital area structures, this analysis could be significantly more complex. Vital equipment needed to be protected and not located in a building would also add to the complexity of the analysis.

2. Systems Analysis - Once it was determined what equipment was damaged, analysis would need to be done to determine if there was backup equipment, not damaged, that would allow the plant to maintain a safe shutdown condition.

#### 4.4 Results of Costs Analysis

Option 1 - No change in current position.

Cost Summary:

No additional costs

Option 2 - Roadway vehicle intrusion protection at PA perimeter.

Cost Summary:

Items	Passenger Vehicle	Pickup Truck	Large Truck
1. 4 Active Vehicle Access Barriers	120	160	280
2. 800' Passive Barrier	48	120	300
Total	----- \$168K	----- \$280K	----- \$580K

Option 3 - Vehicle intrusion protection at PA perimeter.

Cost Summary:

Items	Passenger Vehicle	Pickup Truck	Large Truck
1. 4 Active Vehicle Access Barriers	120/120	160/ 160	280/ 280
2. 2,000/7,000' Passive Barrier	120/420	300/1,050	750/2,625
Total	----- \$240/540K	----- \$460/1,210K	----- \$1,030/2,905K

## Option 4 - Protection at safe standoff distance for DBV and explosive device.

Cost Summary Case 1: (Assumes analysis demonstrates safe standoff distances are within present PA - About 80 percent of sites)

Items	Passenger Vehicle	Pickup Truck	Large Truck
1. 4 Active Vehicle Access Barriers	120/120	160/ 160	280/ 280
2. 2,000/7,000' Passive Barrier	120/420	300/1,050	750/2,625
3. Standoff Analysis	115/115	115/ 115	115/ 115
Total	\$355/655K	\$575/1,325K	\$1,145/3,020K

Cost Summary Case 2: (Assumes analysis demonstrates safe standoff distances go beyond PA boundary for about 1/3 of boundary and further hardening of portions of PA barrier to penetration needed)

Items	Passenger Vehicle	Pickup Truck	Large Truck
1. 4 Active Vehicle Access Barriers	120/120	160/ 160	280/ 280
2. 2000/7000' Passive Barrier	120/420	300/1,050	750/2,625
1000/2000' Passive Barrier - hardened	90/100	225/ 450	550/1,100
3. Standoff Analysis	300/300	300/ 300	300/ 300
Total	\$630/940K	\$985/1,960K	\$1,880/4,305K

Discussion of Factors Impacting Cost of Option 4:

Ranges in cost estimates for the three vehicle types illustrates the influence of site-specific characteristics on costs, including the need at some sites to extend the vehicle exclusion area beyond portions of the current PA boundary or providing a more substantial passive barrier to prevent vehicle penetration. At a few sites, extension of the vehicle exclusion area beyond the current PA boundary may result in costs that exceed the upper range of the cost estimate.

The need for a licensee to provide additional measures beyond those needed to protect against vehicle penetration into the PA (Option 3) is a factor of the structural details of buildings containing vital equipment and the distance of the buildings from the PA. In SECY-93-102, staff indicated that at facilities with an average sized PA and typical concrete structures, a vehicle bomb similar to that reportedly used at the World Trade Center may cause moderate damage to some concrete walls. However, the safety equipment located behind

typical concrete walls, but not contiguous to outside walls, would likely be protected.

## 5.0 DECISION RATIONALE

The staff continually monitors and evaluates the threat environment worldwide. In addition, the Commission was briefed by the CIA and the FBI on March 5, 1993. Neither agency provided information regarding an actual vehicle threat to domestic commercial nuclear power reactors that could serve as the basis for modifying the DBT. Further, staff reported on its analysis of more than 500 vehicle bomb attacks worldwide. Although, based on current information, there is no significant change in the threat environment, the bombing at the World Trade Center demonstrated that a large explosive device could be assembled, delivered to a public area, and detonated in the U.S. without advanced intelligence knowledge. In addition, the unauthorized intrusion at TMI demonstrated that a vehicle could be used to gain quick access to PAs of the plant. Consequently, the staff has concluded that a modification to the DBT is warranted.

The DBT is not intended to represent a real threat. It serves three purposes. It provides a standard with which to measure changes in the real threat environment. It is used to develop regulatory requirements. And it provides a standard for evaluation of implemented safeguards systems.

In assessing the impact on the DBT of the events at TMI and the World Trade Center, staff has considered the following two issues: first, whether these events establish the need for NRC to revise its regulations to redefine adequate protection of the health and safety of the public, in the sense that adequate protection is used by section 182 of the Atomic Energy Act; and second, whether these events demonstrate that amending NRC's regulations to protect against malevolent use of a vehicle at nuclear power plants would result in a substantial increase in the overall protection of the public health and safety. With respect to the first issue, the NRC cannot consider cost. With respect to the second issue, the NRC must determine that the direct and indirect costs of implementation are justified in view of the increased protection.

The staff's assessment as to whether to redefine adequate protection is as follows:

The vehicle intrusion at TMI demonstrated that a person in a vehicle could penetrate a PA barrier and quickly approach a vital area barrier. However, for the public health and safety to be actually affected (absent a vehicle bomb threat, which will be discussed with respect to World Trade Center event), the following would also have to be true. The person or persons in the vehicle would have to possess the intent, knowledge of the plant skills, and equipment necessary to create radiological sabotage. They would have to leave the vehicle and reach one or more vital areas barriers. They would have to penetrate the vital area barriers, which are typically reinforced concrete walls and locked and alarmed steel doors. They would have to create a significant loss-of-coolant accident or create a reactor transient. They would have to disable sufficient safety systems to prevent the reactor from reaching a safe condition. They would have to cause

a breach of containment. And they would have to accomplish all of this without intervention by the licensee's armed responding security officers.

The NRC interpretation of the DBT for radiological sabotage does not preclude adversaries' use of vehicles, other than vehicle bombs, for transportation and for breaching PA barriers. The vehicle should be detected by an intrusion detection system as it enters the PA. The nature of the threat should be assessed using CCTV or other means. Responding security officers should be able to neutralize the threat before sufficient damage can be done to create radiological sabotage. At many sites, vital area doors can be reached on foot within similar periods of time as with a vehicle. Therefore, staff has concluded that the TMI event has not demonstrated a need to redefine adequate protection.

In denying a 1991 petition for rulemaking to upgrade the DBT for radiological sabotage to include protection against a vehicle bomb, one factor identified by the staff was that a terrorist group would have to construct a large truck bomb undetected. The World Trade Center event demonstrated that this can happen. However, to conclude that protection of the public health and safety is not adequate, the NRC would have to conclude that the use of a vehicle bomb to create radiological sabotage is reasonably to be expected and that there would not be sufficient time to implement contingency procedures for protecting against a vehicle bomb. Based on its analysis of the current threat environment, staff has concluded that the use of a vehicle bomb to create radiological sabotage at a nuclear power plant is not currently a reasonable expectation. If a significant change in the general threat environment caused staff to change this conclusion in the future, current contingency planning, which is designed to be implemented in a timely manner, would provide staff with a rapid regulatory mechanism to implement temporary protection measures and maintain an adequate level of protection while its regulations are amended to require permanent protection. Therefore, the staff concludes that the World Trade Center event has not established a need to redefine adequate protection.

The staff assessment as to whether to amend its regulations to protect against malevolent use of a vehicle bomb against a nuclear power plant so as to provide a substantial increase in overall protection of the public health and safety is as follows:

Staff has identified several lessons learned from the vehicle intrusion at TMI. Although the intrusion detection system generated an alarm, the alarm station operators were not able to confirm the intrusion promptly by CCTV. A foot patrol was sent to evaluate the cause of the alarm. There was confusion and misinformation given to operations and security staff until a positive assessment of the intrusion could be made. Out of the confusion and concern for personal safety, operations staff made decisions that could have negatively affected the public health and safety. Even when an initial assessment was made, licensee staff did not know how many unauthorized individuals were inside



the PA, where they were, and whether they possessed weapons or explosives.

The TMI event demonstrates some aspects regarding use of a vehicle by a potential adversary that could provide advantages not previously considered. Therefore, staff considers that providing vehicular intrusion protection would provide a significant enhancement against such a threat. Enhancements to protect against the vehicular intrusion threat also provide, to varying degrees dependent on site characteristics, enhancement for protection against vehicle bombs.

The World Trade Center event has demonstrated a capability within the U.S. to construct a truck bomb undetected. This recently demonstrated capability indicates that although a vehicle bomb attack at a nuclear power plant is not reasonably to be expected, it is somewhat more likely to develop without advance indications than staff previously believed. Staff therefore considers that providing vehicle bomb protection would provide significant enhancement against such a threat.

Based on the analysis of the four options discussed in Sections 4 and 5, staff concluded that a fifth option should be proposed that would offer a more realistic and practical approach.

#### 6.0 OPTION 5

This new Option 5 incorporates the protection measures of Option 3 - hardened protected area perimeter against intrusion. However, for Option 5, staff would develop criteria that could be used by licensees to determine, through simplified site-specific analyses, that protecting against vehicle intrusion into the protected area would also provide high assurance of protection against a vehicle bomb with characteristics of the type specified in Enclosure 8 of SECY-93-166. These criteria would specify safe stand-off distances for various types of typical power reactor building constructions that protect vital equipment against explosive blasts. All licensees would be required to review their sites against these criteria, and those sites meeting these criteria would certify this to the NRC. Staff estimates that this certification process would demonstrate that about 80 to 90 percent of the sites could meet these criteria without further analysis or consideration of additional measures.

Sites not meeting these criteria would have choices that would include using more substantial (and expensive) barriers for a portion of their protected area to reduce vehicle penetration, extending vehicle barriers beyond the protected area perimeter, performing a more detailed analysis of existing structures and equipment to demonstrate their ability to protect against a vehicle bomb using barriers at the protected area, or evaluating other alternatives. Some licensees may be able to demonstrate that atypical building structures would provide adequate protection, that building damage would not disable vital equipment, or, if vital equipment were damaged, that redundant or diverse equipment could provide a backup function. If this capability could not be demonstrated, a licensee may have to establish additional security measures to assure protection from a vehicle explosive for vital equipment. Examples of these measures are extending the hardened

barrier outward from the current protected area boundary, placement of blast shielding, or providing backup systems for those assumed to be damaged.

For most sites (80 to 90 percent), the costs for Option 5 would be about \$50,000 more than Option 3. This amount assumes a confirmation analysis that vital area structures meet staff specified criteria for safe stand-off distances. Many of the remaining sites would have choices available to provide equivalent protection with additional cost. For the few sites where analysis indicated that stand-off distances may be less than those specified in staff guidance, Option 5 permits evaluation of alternative approaches.

In those cases where licensees determine additional security measures may be needed to protect safe shutdown capability, Option 5 would permit licensees to either implement the additional security measures or develop alternate protection strategies. Staff would review licensee's alternative proposals and make an acceptability determination. The staff will accept the proposed alternative measures if they provide substantial protection against a land vehicle bomb and the costs of fully meeting the design goals and criteria are not justified by the added protection which would be provided. The Commission would be notified of such staff action.

Staff has concluded that Option 5 would significantly increase protection of the public health and safety. Staff has also determined that the direct and indirect costs of implementation of Option 5 are justified in view of the increased protection. Staff also notes that the determination on costs of implementation of Option 5 is based on the premise that the only definitive requirement for all licensees is that they provide measures to protect against the use of a land vehicle as a means of transportation to gain rapid access to vital areas and that they assess any incremental measures, if necessary to meet the design goal for a land vehicle bomb. A determination of whether incremental costs were not justified by incremental benefit would be made on a site-specific basis.

A summary of cost estimates follows for two cases, one where analysis demonstrates that safe standoff distances are within the present PA and one where the standoff distances go beyond the PA boundary.

Cost Summary Case 1: (Assumes analysis demonstrates safe standoff distances are within present PA - About 80 to 90 percent of sites)

Items	Passenger Vehicle	Pickup Truck	Large Truck
1. 4 Active Vehicle Access Barriers	120/120	160/ 160	280/ 280
2. 2,000/7,000' Passive Barrier	120/420	300/1,050	750/2,625
3. Standoff Analysis	50/ 50	50 / 50	50/ 50
Total	\$290/590K	\$510/1,260K	\$1,080/2,955K

## B. DISCUSSION

### Measures To Protect Against Unauthorized Use of a Land Vehicle as a Means of Personnel Transport

Protection against use of a land vehicle as a means to gain unauthorized proximity to vital areas can be accomplished by establishment of a continuous barrier system that encompasses vital areas of the facility. The features and structures that form the barrier system would need to be sufficient to stop the forward motion of a land vehicle with the design characteristics established by the Commission. Since the protected area perimeter serves as an outer barrier to vital areas, one approach would be to establish the vehicle barrier contiguous with or in close proximity to the protected area perimeter. At many facilities, natural terrain features such as water barriers, steep cliffs, large rocks or existing structures such as buildings or cooling towers located adjacent to the protected area would be well suited and may be linked with barriers to serve as part of the continuous barrier. As a matter of economy and convenience, the barrier system would likely include the present vehicle access points to the protected area. At these locations, active barriers that would allow controlled vehicle entry would need to be installed.

Passive vehicle barriers are appropriate for those portions of the barrier system that are not needed for vehicular access. The passive barriers may make use of natural topographic features and structures, provided that these features, along with other segments of the barrier, provide for a continuous vehicle barrier for land access to the facility's vital areas. For those segments of the barrier system that may be located outside the protected area, consideration needs to be given to the susceptibility of the barrier to tampering, even though the barriers are not required to be tamper-proof nor tamper-indicating. In considering a barrier, natural features or devices that limit vehicle direction and speed also may be appropriate to simplify or reduce the performance required of the vehicle barrier system. The United States Army Corps of Engineers Draft Technical Manual - Security Engineering (Army TM5-853/Air Force AFM88-56), Volumes 1, 2, and 3, provides design guidance on the performance capabilities of barriers and specifications for measures that reduce vehicular speed. This manual is available to licensees through the Commission.

Active vehicle barriers are appropriate for those portions of the barrier system that need to provide for vehicular access. Active vehicle barriers have two positions. One position that denies passage of a vehicle and a second that allows passage. Barriers remain in the denial position to prevent entry and are moved to allow entry only after authorization for the vehicle has been confirmed. Army TM5-853/Air Force AFM88-56, Volume 2, provides design guidance on the performance capabilities of active barriers.

Access control measures for vehicles entering within the boundary of the established vehicle barrier system need to be sufficient to provide assurance that the vehicle is appropriately authorized and not transporting an explosive device. In addition to barriers, access control measures include required

Cost Summary Case 2: (Assumes analysis demonstrates standoff distances go beyond PA boundary for about 1/3 of boundary and further hardening of portions of PA barrier to penetration needed)

Items	Passenger Vehicle	Pickup Truck	Large Truck
1. 4 Active Vehicle Access Barriers	120/120	160/ 160	280/ 280
2. 2,000/7,000' Passive Barrier	120/420	300/1,050	750/2,625
3. Standoff Analysis	100/100	300/ 300	500/ 500
4. Additional Measures	100/100	150/ 150	250/ 250
	-----	-----	-----
Total	\$440/740K	\$910/1,660K	\$1,780/3,655K

Conclusion: Staff has concluded that Option 5 would significantly increase protection of the public health and safety. Staff has also determined that the direct and indirect costs of implementation of Option 5 are justified in view of the increased protection. Staff also notes that the determination on costs of implementation of Option 5 is based on the premise that the only definitive requirement for all licensees is that they provide measures to protect against the use of a land vehicle as a means of transportation to gain rapid access to vital areas and that they assess any incremental measures, if necessary to meet the design goal for a land vehicle bomb. A determination of whether incremental costs were not justified by incremental benefit would be made on a site-specific basis.

## 7.0 IMPLEMENTATION

### 7.1 Rulemaking Options

On June 29, 1993, the Commission directed staff to implement Option 5 by expedited rulemaking to implement option 5.

### 7.2 Guidance for Licensees

As indicated above, staff intends to develop criteria that could be used by licensees to determine, through simplified site-specific analyses, that protecting against vehicle intrusion into the PA would also provide substantial protection against a vehicle bomb with characteristics of the type specified in Enclosure 8 of SECY-93-166. These criteria would specify safe stand-off distances for various types of typical power reactor building constructions that protect vital equipment against explosive blasts. The safe standoff guidance would consider such variables as wall and ceiling construction material; wall height, width, and thickness; the size, spacing and depth of rebar, and boundary conditions.

Staff anticipates that most licensees could certify the adequacy of their standoff distances using staff's guidance, without the need for more detailed analysis. For those licensees that choose to perform more direct analyses,

staff could make available a four volume security engineering manual prepared by the U.S. Army Corps of Engineers. These manuals include information on vehicle barrier design and penetration tests. Additional barrier testing results are available from the Naval Civil Engineering Laboratory and Sandia National Laboratories. Staff also plans, with the help of the Army Corps of Engineers, to provide guidance on extrapolating data on penetration tests to barriers with different details of construction and for various soil conditions.

Sites not meeting the criteria would have choices that would include using more substantial and expensive barriers for a portion of their PA (to reduce vehicle penetration), extending vehicle barriers beyond the PA perimeter, performing a more detailed analysis of existing structures and equipment to demonstrate their ability to protect against a vehicle bomb using barriers at the PA, or performing a qualitative analyses of alternatives. The qualitative analysis would address the enhanced protection that would be achieved by protective measures that exceed protecting against vehicle intrusion into the PA. Some of these licensees may be able to demonstrate that atypical building structures would provide adequate protection, that building damage would not disable vital equipment, or, if vital equipment were damaged, that redundant or diverse equipment could provide a backup function. If this capability could not be demonstrated, a licensee may have to establish additional security measures to assure an acceptable level of protection from a vehicle explosive for vital equipment. Examples of these measures are extending the hardened barrier outward from the current PA boundary, placement of blast shielding, or providing backup systems for those assumed to be damaged.

In those cases where the licensee determines additional security measures are needed to protect a safe shutdown capability, this option would permit licensees to either implement the additional security measures, develop alternate protection strategies, or propose not implementing measures beyond the PA boundary, along with a complete cost analysis. Staff would have to review the licensee's alternative solution against developed criteria and make a determination on its acceptability. For those licensees proposing not to implement additional security measures (beyond hardened PA perimeter), staff would need to make a determination of whether the costs were not justified by the incremental benefit. The Commission will be informed of the staff decision.

ENCLOSURE 6

BACKFIT ANALYSIS

BACKFIT ANALYSIS  
Malevolent Use of Vehicles at Nuclear Power Plants

- I. Statement of the specific objectives that the proposed action is designated to achieve.

To publish a proposed rule in response to direction from the Commissioners in a staff requirements memorandum dated June 29, 1993. The Commissioners' decision to proceed with expedited rulemaking was the result of two recent events. On February 7, 1993, there was a forced vehicle entry into the protected area (PA) at Three Mile Island (TMI) Unit 1. On February 25, 1993, a van bomb, containing between 500 and 1,500 pounds of TNT equivalent, was detonated at the World Trade Center in New York City.

In its subsequent review of the threat environment, staff concluded that there is no indication of an actual vehicle threat against the domestic commercial nuclear industry. Nonetheless, in light of the vehicle intrusion at TMI and the World Trade Center vehicle bombing, staff concluded that a vehicle intrusion or bomb threat to a nuclear power plant could develop without warning in the future. The objective of the proposed rulemaking is to enhance reactor safety by maintaining a prudent margin between what is the current threat estimate (low) and the design basis threat for radiological sabotage specified in 10 CFR 73.1(a) (higher).

- II. General description of the activity that would be required by the licensee or applicant in order to complete the action.

The proposed rule would require each licensee authorized to operate a nuclear power plant to establish vehicle control measures to protect against the use of a design basis land vehicle (DBV) as a means of transportation to gain unauthorized proximity to vital areas. This provides two benefits. First, it enhances a licensee's ability to interdict an adversary attempting to use a vehicle as an aid to reach critical safety equipment. Second, it provides protection against a land vehicle bomb.

The rule would require licensees to evaluate the effectiveness of their vehicle control measures with respect to the protection they provide against a land vehicle bomb. Licensees would be required to confirm to the Commission that the vehicle control measures to protect against vehicle intrusion, alone or in combination with additional measures, fully meet the Commission's design goals and criteria for protection against a vehicle bomb. Licensees that can show that the additional costs for measures required to fully meet the Commission's design goals and criteria for protection against a vehicle bomb are not justified by the added protection provided would have the option to propose to the Commission alternative measures. These licensees would not be relieved of the requirement to protect the facility against vehicle intrusion.

Licensees that propose alternative measures would be required to describe the level of protection that these measures would provide

against a land vehicle bomb, and compare the costs of the alternative measures with the costs of measures necessary to fully meet the criteria. The NRC would approve the alternative measures if the measures provide substantial protection against a land vehicle bomb and if the licensee demonstrates by an analysis, using the essential elements of the criteria in 10 CFR 50.109, that the costs of fully meeting measures needed to protect against a vehicle bomb are not justified by the added protection that would be provided.

III. Potential change in the risk to the public from the accidental offsite release of radioactive material.

The potential change in the risk to the public from the accidental offsite release of radioactive material is discussed in detail in pages 3 through 8 of SECY-93-166 and in pages 4 through 6 and 10 through 15 of the regulatory analysis included as enclosure 6 to SECY-93-166. Failure to protect against attempted radiological sabotage could result in reactor core damage and large radiological releases. Based on its assessment, the staff concludes that amending NRC's regulations to protect against malevolent use of a vehicle bomb against a nuclear power plant would provide a substantial increase in overall protection of the public health and safety.

In summary, the TMI event demonstrated some aspects regarding use of a vehicle by a potential adversary that could present some challenges not previously considered by staff and licensees. Staff considers that providing vehicle intrusion protection would provide substantial enhancement against such a threat. Enhancements to protect against the vehicle intrusion threat also provide, to varying degrees dependent on site characteristics, enhancement for protection against vehicle bombs.

The World Trade Center event demonstrated a capability within the U.S. to construct a truck bomb undetected. This recently demonstrated capability indicates that although a vehicle bomb attack at a nuclear power plant is not reasonably to be expected, it is somewhat more likely to develop without advance indications than staff previously believed. Staff therefore considers that providing permanently installed vehicle bomb protection would provide substantial enhancement against such a threat.

IV. Potential impact on radiological exposure of facility employees and other onsite workers.

By enhancing protection against malevolent use of a vehicle, the proposed rule decreases the potential for radiological exposure of facility employees and other onsite workers. Although the threat of a determined, violent attack at a nuclear power plant is considered to be low, the proposed rule also decreases the risk that onsite workers could be injured by weapons fire or an explosion.

V. Installation and continuing costs associated with the action, including the cost of facility downtime or the cost of construction delay.



Estimates of installation costs are discussed in detail in pages 6 through 10 and 13 through 15 of the regulatory analysis. Ranges in cost estimates for three vehicle types illustrate the strong influence of vehicle characteristics. In addition, site-specific characteristics influence costs, including the need at some sites to extend the vehicle exclusion area beyond portions of the current PA boundary or providing a more substantial passive barrier to prevent vehicle penetration.

Staff estimates that about 80 to 90 percent of the sites could provide safe standoff distances against a vehicle bomb by providing a vehicle barrier in proximity to the present PA boundary. For these sites, costs estimates range from \$290K for protecting the smallest protected area against a passenger vehicle to \$2,955K for protecting the largest protected area against a large truck. (The characteristics of the design basis vehicle used to establish protection goals are described in a Safeguards Information document to be provided separately.) For the remaining 10 to 20 percent of the sites, costs estimates range from \$440K to \$3,655K.

An important consideration in assessing costs for the 10 to 20 percent of the sites that may have to protect beyond the existing protected areas is that the only definitive requirement for all licensees is that they provide measures to protect against the use of a land vehicle as a means of transportation to gain access to vital areas and that they assess any incremental measures, if necessary, to meet the design goal for a land vehicle bomb. The NRC will accept alternative measures if the measures provide substantial protection against a land vehicle bomb and if the licensee demonstrates by an analysis, using the essential elements of the criteria in 10 CFR 50.109, that the costs of fully meeting measures needed to protect against a vehicle bomb are not justified by the added protection that would be provided.

Continuing costs to maintain barriers should be small. Implementation of the proposed rule would not require facility downtime or construction delay.

- VI. The potential safety impact of changes in plant or operational complexity, including the relationship to proposed and existing regulatory requirements and staff positions.

There should be no adverse safety impact from the proposed rule. Construction of barriers would be near or beyond existing protected area perimeters and should not delay authorized access to the protected area.

- VII. The estimated resource burden on the NRC associated with the proposed action and the availability of such resources.

There should be no new resource burden on the NRC. There will be no staff licensing review of licensees' vehicle control measures prior to implementation. Licensees will be required to retain their analyses on site for staff review during routine inspections. Inspection of the approximately 67 total sites for explosive protection would be about 1

FTE. Reviewing licensee proposals for alternative measures and 50.109-type analyses would require approximately 1 FTE and 40K of technical assistance from the U.S. Army Corps of Engineers.

VIII. The potential impact of differences in facility type, design or age on the relevancy and practicality of the proposed action.

The proposed action is relevant for all nuclear power reactors. The proposed action should also be practical at most sites. If a barrier stopped a vehicle at the PA perimeter with little or no further penetration, about 90 percent of the sites would provide significant protection against the proposed design basis vehicle bomb.

In those cases where licensees determine additional security measures may be needed to protect safe shutdown capability, the proposed rule would permit licensees to either implement the additional security measures or develop alternate protection strategies. The licensee may propose alternative measures if the measures provide substantial protection against a land vehicle bomb and if they demonstrate by an analysis, using the essential elements of the criteria in 50.109, that the costs of fully meeting measures needed to protect against a vehicle bomb are not justified by the added protection that would be provided. Staff would review licensee's alternative proposals and make an acceptability determination. The Commission would be notified of such staff action.

Barriers that result in no vehicle penetration for vehicle impacts at specified kinetic energies are typically more expensive than those that allow some penetration. For less expensive barriers, the proposed DBV may penetrate as much as 30 feet into the PA. For these types of barriers, about 80 percent of the sites would provide significant protection. Staff's analysis also indicates that there is a high likelihood that all sites would be capable of achieving and maintaining safe shutdown if a DBV were detonated at any land accessible location of a nuclear power plant outside of the owner controlled area.

IX. Whether the proposed action is interim or final, and if interim, the justification for imposing the proposed action on an interim basis.

The proposed action is to promulgate a proposed rule. The proposed rulemaking does not involve interim actions.

ENCLOSURE 7

CCNGRESSIONAL LETTERS



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

The Honorable Richard H. Lehman, Chairman  
Subcommittee on Energy and Mineral Resources  
Committee on Natural Resources  
United States House of Representatives  
Washington, DC 20515

Dear Mr. Chairman:

The Nuclear Regulatory Commission (NRC) is sending the enclosed proposed amendments to 10 CFR Part 73 to the Office of the Federal Register for publication. NRC has concluded that there is no indication of an actual vehicle threat against the domestic commercial nuclear industry. However, based on recent events, NRC believes that a vehicle intrusion or bomb threat to a nuclear power plant could develop without warning in the future. To maintain a prudent margin between what is the current threat estimate (low) and the design basis threat (higher), NRC is proposing to amend 10 CFR Part 73 to modify the design basis threat for radiological sabotage to include protection against malevolent use of vehicles at nuclear power plants.

The proposed amendments would explicitly require measures to deny the access of a four-wheel drive land vehicle by an adversary for the transport of personnel, hand-carried equipment, and/or explosives. Specifically, the rule would require applicable licensees to establish vehicle control measures to protect against use of a land vehicle as a means of transportation to gain unauthorized proximity to vital areas. Licensees would also be required to provide substantial protection against a vehicle bomb.

Current plans are to complete this rulemaking within 3 1/2 months from proposed rule publication. The proposed amendments will be published in the Federal Register with a 30-day public comment period.

Sincerely,

Dennis K. Rathbun, Director  
Office of Congressional Affairs

Enclosure: As stated

cc: Representative Barbara Vucanovich



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

The Honorable Joseph Lieberman, Chairman  
Subcommittee on Clean Air and Nuclear Regulation  
Committee on Environment and Public Works  
United States Senate  
Washington, DC 20510

Dear Mr. Chairman:

The Nuclear Regulatory Commission (NRC) is sending the enclosed proposed amendments to 10 CFR Part 73 to the Office of the Federal Register for publication. NRC has concluded that there is no indication of an actual vehicle threat against the domestic commercial nuclear industry. However, based on recent events, NRC believes that a vehicle intrusion or bomb threat to a nuclear power plant could develop without warning in the future. To maintain a prudent margin between what is the current threat estimate (low) and the design basis threat (higher), NRC is proposing to amend 10 CFR Part 73 to modify the design basis threat for radiological sabotage to include protection against malevolent use of vehicles at nuclear power plants.

The proposed amendments would explicitly require measures to deny the access of a four-wheel drive land vehicle by an adversary for the transport of personnel, hand-carried equipment, and/or explosives. Specifically, the rule would require applicable licensees to establish vehicle control measures to protect against use of a land vehicle as a means of transportation to gain unauthorized proximity to vital areas. Licensees would also be required to provide substantial protection against a vehicle bomb.

Current plans are to complete this rulemaking within 3 1/2 months from proposed rule publication. The proposed amendments will be published in the Federal Register with a 30-day public comment period.

Sincerely,

Dennis K. Rathbun, Director  
Office of Congressional Affairs

Enclosure: As stated

cc: Senator Alan K. Simpson



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20535-0001

The Honorable Philip R. Sharp, Chairman  
Subcommittee on Energy and Power  
Committee on Energy and Commerce  
United States House of Representatives  
Washington, DC 20515

Dear Mr. Chairman:

The Nuclear Regulatory Commission (NRC) is sending the enclosed proposed amendments to 10 CFR Part 73 to the Office of the Federal Register for publication. NRC has concluded that there is no indication of an actual vehicle threat against the domestic commercial nuclear industry. However, based on recent events, NRC believes that a vehicle intrusion or bomb threat to a nuclear power plant could develop without warning in the future. To maintain a prudent margin between what is the current threat estimate (low) and the design basis threat (higher), NRC is proposing to amend 10 CFR Part 73 to modify the design basis threat for radiological sabotage to include protection against malevolent use of vehicles at nuclear power plants.

The proposed amendments would explicitly require measures to deny the access of a four-wheel drive land vehicle by an adversary for the transport of personnel, hand-carried equipment, and/or explosives. Specifically, the rule would require applicable licensees to establish vehicle control measures to protect against use of a land vehicle as a means of transportation to gain unauthorized proximity to vital areas. Licensees would also be required to provide substantial protection against a vehicle bomb.

Current plans are to complete this rulemaking within 3 1/2 months from proposed rule publication. The proposed amendments will be published in the Federal Register with a 30-day public comment period.

Sincerely,

Dennis K. Rathbun, Director  
Office of Congressional Affairs

Enclosure: As stated

cc: Representative Michael Bilirakis

ENCLOSURE 8

REGULATORY GUIDE

## REGULATORY GUIDE DG-5006

### PROTECTION AGAINST MALEVOLENT USE OF VEHICLES AT NUCLEAR POWER PLANTS

#### A. INTRODUCTION

In 10 CFR Part 73, "Physical Protection of Plants and Materials," Section 73.1(a)(2)(i)(E) requires a licensee to protect against a determined violent external assault, attack by stealth, or deceptive actions, by several persons using a four-wheel drive land vehicle for the transport of personnel, hand-carried equipment or explosives. In 10 CFR Part 73.55, "Requirement for Physical Protection of Licensed Activities in Nuclear Power Reactors Against Radiological Sabotage," Section 73.55(c)(7) requires a licensee to establish vehicle control measures, including vehicle barriers, to protect against the use of a land vehicle, as specified by the Commission, as a means of transportation to gain unauthorized proximity to vital areas. Section 73.55(c)(8) requires a licensee to compare the vehicle control measures established in accordance with 10 CFR 73.55(c)(7) with the Commission's design goals and criteria for protection against a land vehicle bomb. Section 73.55(c)(8) also provides for those licensees with a particularly difficult site configuration, a process to use alternative measures for protection against a land vehicle bomb. These alternative measures must provide substantial protection against a land vehicle bomb and must be supported by a licensee analysis, using the essential elements of the criteria in 10 CFR 50.109 determining that the costs of fully meeting the design goals and criteria are not justified by the added protection that would be provided. The alternative measures must be submitted to the Commission for approval.

Section 73.55(c)(9) requires a licensee to submit to the Commission a summary description of their proposed control measures as required by Section 73.55(c)(7) and the results of their vehicle bomb comparative analysis. Those licensees whose evaluation finds that the design does not fully meet the design goals and criteria for protection against a vehicle bomb and propose not to take additional measures to fully meet the criteria are required by Section 73.55(c)(9) to include in their submittal proposed alternative measures and justification that these measures provide substantial protection.

This regulatory guide provides guidance acceptable to the NRC staff by which the licensee can meet the requirements of 10 CFR 73.1(a)(2)(i)(E), 73.55(c)(7), 73.55(c)(8), and 73.55(c)(9).

Any information collection activities mentioned in this regulatory guide are contained as requirements in 10 CFR Part 73, which provides the regulatory basis for this guide. The information collection requirements in 10 CFR Part 73 have been approved by the Office of Management and Budget, Approval No. 3150-0002.



## B. DISCUSSION

### Measures To Protect Against Unauthorized Use of a Land Vehicle as a Means of Personnel Transport

Protection against use of a land vehicle as a means to gain unauthorized proximity to vital areas can be accomplished by establishment of a continuous barrier system that encompasses vital areas of the facility. The features and structures that form the barrier system would need to be sufficient to stop the forward motion of a land vehicle with the design characteristics established by the Commission. Since the protected area perimeter serves as an outer barrier to vital areas, one approach would be to establish the vehicle barrier contiguous with or in close proximity to the protected area perimeter. At many facilities, natural terrain features such as water barriers, steep cliffs, large rocks or existing structures such as buildings or cooling towers located adjacent to the protected area would be well suited and may be linked with barriers to serve as part of the continuous barrier. As a matter of economy and convenience, the barrier system would likely include the present vehicle access points to the protected area. At these locations, active barriers that would allow controlled vehicle entry would need to be installed.

Passive vehicle barriers are appropriate for those portions of the barrier system that are not needed for vehicular access. The passive barriers may make use of natural topographic features and structures, provided that these features, along with other segments of the barrier, provide for a continuous vehicle barrier for land access to the facility's vital areas. For those segments of the barrier system that may be located outside the protected area, consideration needs to be given to the susceptibility of the barrier to tampering, even though the barriers are not required to be tamper-proof nor tamper-indicating. In considering a barrier, natural features or devices that limit vehicle direction and speed also may be appropriate to simplify or reduce the performance required of the vehicle barrier system. The United States Army Corps of Engineers Draft Technical Manual - Security Engineering (Army TM5-853/Air Force AFM88-56), Volumes 1, 2, and 3, provides design guidance on the performance capabilities of barriers and specifications for measures that reduce vehicular speed. This manual is available to licensees through the Commission.

Active vehicle barriers are appropriate for those portions of the barrier system that need to provide for vehicular access. Active vehicle barriers have two positions. One position that denies passage of a vehicle and a second that allows passage. Barriers remain in the denial position to prevent entry and are moved to allow entry only after authorization for the vehicle has been confirmed. Army TM5-853/Air Force AFM88-56, Volume 2, provides design guidance on the performance capabilities of active barriers.

Access control measures for vehicles entering within the boundary of the established vehicle barrier system need to be sufficient to provide assurance that the vehicle is appropriately authorized and not transporting an explosive device. In addition to barriers, access control measures include required

vehicle search, personnel search, escort (if necessary). It would be expected that at most facilities, active vehicle barriers would be established at the present protected area vehicle access points. Searches of vehicles for explosives and other personnel access control measures, which remain in effect for protected area entry, are rigorous and provide assurance against unauthorized vehicle entries. For barrier system layouts where vehicle denial barriers are located outside the protected area boundary, vehicle access control measures, including explosive searching, would have to be relocated or additional measures would need to be provided for vehicles permitted access inside the barrier, even if the vehicle did not enter the protected area.

#### Measures To Protect Against Use of a Vehicle as a Means of Transport of an Explosive Device

The design goal for protection against explosive devices transported by a vehicle is to protect equipment, systems, devices, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation. Such equipment, systems, devices or material are designated by licensees as vital equipment and are required by 10 CFR 73.55(c(1)) to be located within vital areas. Vital areas in turn are required to be located inside protected areas. At many facilities the vital area barrier, which separates vital equipment from the protected area, is located at a considerable distance from the protected area barrier. Further, vital area barriers generally are quite substantial. These features, assuming the vehicle barrier system is located along or adjacent to the protected area barrier, provide substantial protection for vital equipment from an explosive blast. Many of the issues discussed in the previous section related to active and passive barriers apply to the protection against explosives.

The effects of an explosive device diminish rapidly with distance. The distance of the structure or equipment from the explosive blast is referred to as "standoff distance." If the vehicle is transporting an explosive device and the device is detonated at the vehicle barrier or at the distance of barrier penetration, the standoff distance would be that distance from the blast detonation to a vital area barrier. Different vital areas have different standoff distances depending on the postulated locations of the vehicles.

Penetration of a barrier by the vehicle before it comes to rest needs to be considered in determining standoff distances. The distance the vehicle penetrates beyond the barrier would result in the standoff distance between the explosive blast and the vital area barrier being shortened by that distance. Considering typical plant layouts and the placement of vehicle barriers at or adjacent to the protected area, vital area barriers at many facilities would be afforded sufficient protection against a relatively large explosive device.

In addition to the protection afforded by distance from the blast, vital equipment at most sites is provided substantial protection by structures containing the equipment. Vital equipment is frequently located within seismic structures (often reinforced concrete walls).

"Safe standoff" distance is the distance (from the blast to the structure) at which the structure protects equipment within the structure from being disabled. Safe standoff distances can be determined by blast effect analyses that take into account the size of the explosive, distance between the explosive and the affected structure, and characteristics of the structure. These analysis techniques are described in the United States Army Corps of Engineers Blast Analysis Manual, PDC-TR-91-6, July 1991. This manual is available to licensees through the Commission. Army TM5-853/Air Force AFM88-56, Volume 2, describes design approaches for determining safe standoff distances.

For those cases where blast analysis shows that a vital area barrier structure would be damaged, further analysis may be able to demonstrate that vital equipment within the structure is not damaged. For example, the vital equipment may be located in a separate cubical within the main structure that is unaffected by the analyzed blast damage to an outer wall or a roof. If the blast effect analysis indicates that the explosion could damage vital equipment, the ability to shut down and maintain the facility in a safe shutdown condition may be demonstrated by identification of alternate plant equipment that could serve the same safety function as the equipment analyzed as being damaged by the explosion. Also, it may be demonstrated that damage control measures can be taken that could support plant shutdown and maintenance of the plant in a safe shutdown condition.

If the blast effects analysis demonstrates that vital equipment is damaged, that alternate equipment is not available, and that damage control measures can not adequately support plant shutdown and maintenance of shutdown, other measures (in addition to those required to protect against the use of a land vehicle as a means of transportation to gain access to vital areas) may be needed. To fully meet the Commission's design goals and criteria for protection against a land vehicle bomb, additional measures that can be taken include: (1) extending the vehicle barrier location out from those positions where analysis show that the barrier does not provide sufficient safe standoff distance for vital area structures from the explosive, (2) construction of structures that shield the vital area barrier from blast effects, or (3) installation of equipment to back up that equipment assumed to be damaged, or (4) inter-connecting systems to the damaged equipment.

The Commission recognizes that Part 73 requires certain security-related electric power supplies and the Central Alarm Station to be protected within vital areas; however, in the absence of safety-related equipment necessary for plant shutdown, these vital areas need not be considered as areas needing protection in the licensee's analysis.

#### **Alternative Measures to Protect Against a Vehicle Bomb**

As provided in 10 CFR 73.55(c)(8), under certain circumstances a licensee may propose measures other than those needed to meet the design goals and criteria specified by the Commission for protection against a land vehicle bomb. This

does not relieve the licensee of the requirement to protect against use of a vehicle to gain proximity to vital areas. Alternative measures developed by a licensee will be acceptable to the Commission if it can be demonstrated that they, along with measures that protect against vehicle intrusions, provide substantial protection against a land vehicle bomb and if the licensee demonstrates by an analysis, using the essential elements of 10 CFR 50.109, that the costs of fully meeting the design goals and criteria are not justified by the added protection by these additional measures. These alternative measures must be approved by the Commission.

For most licensees, analysis of measures to protect against vehicle intrusion will likely show that these measures provide protection sufficient to fully meet the design goals and criteria for protection against a vehicle bomb. Those licensee whose analysis shows that measures satisfying requirements for protection against vehicle intrusion do not meet design goals and criteria for protection against a vehicle bomb may include additional measures in their design. In many cases, adjustments to barrier placement which could provide additional standoff distance. However, at a few sites there may be unique site configurations where additional measures needed to fully meet design goals and criteria are found to be costly relative to the added protection provided. These sites may want to pursue consideration of measures that can be taken, alternative to additional measures needed to fully meet the criteria for protection against a vehicle bomb.

Factors that can be considered in assessing proposed alternative measures to protect against a vehicle bomb include:

- o The characteristics (e.g., size, location, and mobility) of the vehicle bomb that the alternative measure would protect against.
- o The percent of the perimeter that would be vulnerable to a design basis vehicle explosion.
- o The amount of time that the reactor could be maintained in a safe condition if subjected to a design basis vehicle explosion at the most vulnerable portion of the barrier system.
- o The licensee's severe accident management program.
- o The off-site consequences of a design basis vehicle explosion at the most vulnerable portion of the barrier system.
- o The cost difference between the proposed alternative measures and measures that would fully meet the design goals and criteria for protection against a vehicle bomb.

Approval by the NRC of the licensee's proposal for alternative measures will be based on the extent that vehicle barrier system, including alternative measures added to enhance protection against vehicle bomb, provides protection against a vehicle transporting an explosive device.

## Definitions

The following are definitions of terms used in the guide.

Design Basis Threat Bomb: An explosive device with the TNT equivalent force as previously provided to licensees as Safeguards Information and as described in a separate Safeguards Information addendum to this Guide.

Design Basis Threat Land Vehicle: A vehicle with design characteristics as previously provided to the licensees as Safeguards Information and as described in a separate Safeguards Information addendum to this Guide.

Design Goals and Criteria for Protection Against a Land Vehicle Bomb: The design goal is to protect equipment, systems, devices, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation. The criteria is that protection needed to protect against the design basis threat land vehicle and the design basis threat bomb.

Level of Protection: The degree of protection from a bomb blast that a structure provides to equipment housed inside the structure. Three levels of protection (low, medium, and high) are defined in Army TM5-853/Air Force AFM88-56.

Safe Standoff Distance: The distance between vital equipment or structure housing vital equipment and the point of detonation of the design basis threat bomb that would protect the equipment or equipment within the structure to a medium level of protection. A medium level of protection is afforded vital equipment such that there is a low probability of damage to the equipment from an explosion occurring at the vehicle barrier or a point of penetration of the vehicle barrier.

Standoff Distance: The distance between vital equipment or structure housing vital equipment and the point of detonation of the design basis threat bomb. This distance should account for penetration of the barrier by the design basis threat land vehicle.

Vehicle Barrier System (VBS): A continuous barrier, which may include buildings, natural barriers, commercially available barriers and any combination of these items, utilized to stop a land vehicle used as transportation to gain access to vital areas and/or used to transport a bomb.

## C. REGULATORY POSITION

1. Measures to Protect Against Unauthorized Vehicle Intrusion. A vehicle barrier system (VBS) that is capable of preventing forced access of a land vehicle to vital areas should be established at each nuclear power reactor site. The VBS should provide a perimeter around vital areas of the facility such that no location along the perimeter would permit forced land vehicle

entry. The VBS, regardless of type of barriers used, should be of a design capable of stopping the forward motion of the design basis land vehicle (DBV). The VBS may be incorporated as part of the protected area perimeter system but should not diminish or remove any requirements established for the protected area.

1.1. Passive Barriers. The passive barrier portion of the VBS may include natural terrain features such as steep cliffs and large rocks, alone or in combination with man-made structures or barriers, provided that the overall effectiveness of the barrier at any point is capable of stopping the forward motion of the DBV. Man made or natural features that limit the direction and speed of the DBV may be used in conjunction with a barrier design. Measures should be established to periodically verify the integrity of these portions of the barrier that are located outside the protected area. Army TM5-853/Air Force AFM88-56 provides design guidance that is acceptable to the NRC on the performance capabilities of barriers and specifications for measures that reduce vehicular speed.

1.2. Active Barriers. Access by vehicles to locations inside the VBS should be through active vehicle denial barriers that, in the denial position, are capable of stopping the forward motion of the DBV. Operational design features of the active barrier or barrier system should be capable of allowing access for authorized vehicles while preventing access of unauthorized vehicles.

1.3. Vehicle and Personnel Access Authorization Measures. Vehicles and their operators should be authorized for entry prior to being permitted access inside the VBS. Vehicle authorization should include a vehicular search for explosives of a quantity equivalent to the design basis threat bomb. Vehicle authorization should also include confirmation that the vehicle has a legitimate purpose for entering the VBS. Authorization for the vehicle operator should include confirmation that the individual has a legitimate purpose for operating the vehicle inside the VBS. For VBS designs that are adjacent to the protected area boundary and whose active vehicle barrier access points are the same as the protected area vehicle access points, vehicle and personnel authorization measures for entering the protected area provide adequate authorization controls.

1.4. VBS Description. The security plan should contain an attachment that describes the VBS. The description should include site drawings that identify the VBS, the various components and combination of components that compose the VBS, and access authorization measures for vehicle and personnel within the VBS.

2. Measures To Protect Vital Areas Against a Land Vehicle Bomb. 10 CFR 73.55(c)(8) requires a licensee to compare the vehicle control measures established in accordance with 10 CFR 73.55(c)(7) with the design goals and criteria for protection against a land vehicle bomb specified by the

Commission. The design basis bomb size is specified in an addendum to this Regulatory Guide.

2.1. Blast Effect Analysis. The comparison of vehicle control measures with the design goals and criteria for protection against a land vehicle bomb should consist of an analysis which establishes that the capability of vital equipment to maintain the plant in a safe condition is not lost as a result of the detonation of a design basis bomb at the VBS boundary. Depending on the VBS design and site specific considerations, this comparison could result in a determination that the design goals and criteria for protection against a land vehicle bomb are satisfied at the conclusion of any one of the following.

2.1.1. Screening Analysis.

This evaluation involves a screening process to determine if further, more detailed analysis of the effects of an explosive blast of the size of the design basis bomb are required.

For each location along the VBS perimeter the standoff distance (distance between vital equipment or structure housing vital equipment and the point of detonation of the design basis bomb) should be determined. Standoff distance should take into account the distance of barrier penetration by the DBV.

Licensees should determine if the standoff distances for each location along the VBS provide a safe standoff distance. This determination should be made by an analysis that takes into account the size of the explosive; both reflective and side-on blast loads on walls, roofs and supporting members; the distance between the explosive and the affected structure; and characteristics of the structure. Vital equipment can be assumed to remain operational if the structure containing the equipment provides at least a medium level of protection, as defined in United States Army Corps of Engineers Blast Analysis Manual, PDC-TR-91-6, July 1991. Analysis techniques to make this determination are available in PDC-TR-91-6. Army TM5-853-2/Air Force AFM88-56, Volume 2, also describes design approaches for determining safe standoff distances. The damage analysis in these manuals, which was done for typical industrial and military style buildings, may be used to determine the level of protection provided by similar type structures at nuclear facilities. The manual should not be used for structures that are not within the envelope of this engineering calculation. Alternative engineering analysis may be used by a licensee if necessary where the U.S. Army Corps of Engineers Blast Analysis Manual does not address the plant design.

If vital area structures and equipment are found to be located at distances equal to or greater than the safe standoff distance, the design goals and criteria for protection against a land vehicle bomb are considered fully met and no further analysis is necessary.

### 2.1.2. Detailed Analysis.

If the screening analysis (Section 2.1.1) determines that vital equipment would be damaged by detonation of the design basis bomb at any location along the VBS boundary, the analysis could then consider:

(1) Whether any obstructions in the blast path would affect the level of protection provided to vital equipment. The analysis may incorporate the effects of natural topography that diminish the effects of the bomb blast effect. The analysis may also include assessment of interior building designs (e.g., interior walls, supports, etc.) that may protect vital equipment even if the outer wall or structure is significantly damaged. The analysis should show whether or not the blast damage impacts the functional operability of the vital equipment.

(2) Whether the plant can be shut down and maintained shut down with equipment not damaged by the explosion. The evaluation may allow for damage control actions to mitigate the consequences of the explosion. These damage control actions should be included in applicable station operating procedures and referenced in the safeguards contingency procedures.

If the above analysis determines that vital equipment remains functional or that the ability to shut down the facility and maintain shutdown can be provided with the assumed loss of certain vital equipment, the design goals and criteria for protection against a land vehicle bomb are considered fully met and no further analysis is necessary.

### 2.1.3 Additional Protection Measures.

If the screening and detailed analysis determine that the design goals and criteria for protection against a land vehicle bomb cannot be fully met, a determination should be made concerning additional measures needed to fully achieve the design goals and criteria. Measures needed may include installation of blast shields, moving planned vehicle barriers to extend standoff distances, strengthening current structures, or installation or relocation of plant equipment or systems.

If analysis of the effects of additional measures finds that vital equipment remains functional or that the ability to shut down the facility and maintain shutdown can be provided, the design goals and criteria for protection against a land vehicle bomb are considered fully met and no further analysis is necessary.

As provided in 10 CFR Section 73.55(c)(8), the licensee may elect not to take the additional protection measures needed to fully meet the design goals and criteria and may propose protection measures, alternative to the additional measures. If so, the actions in Regulatory Position C.2.2 should be taken.



## 2.2. Alternative Measures to Protect Against Explosive.

As provided in 10 CFR 73.55(c)(8), a licensee may submit to the Commission for approval a proposal for measures other than those needed to meet the design goals and criteria for protection against a land vehicle bomb (i.e., the additional measures as determined in Paragraph 2.1.3). This submittal should include:

(1) The findings regarding the extent of the protection against a vehicle bomb provided by the vehicle control measures designed to meet the requirements of Section 73.55(c)(7). These findings should be expressed in explicit terms such as the size of explosive for which the measures provide protection and locations along the barrier system perimeter where the design goals for protection against a vehicle bomb cannot be fully met.

(2) A description and analysis of additional measures needed to fully meet the design goals and criteria for protection against a vehicle bomb. The description should include an estimation of the cost of the measures.

(3) A description and analysis of additional measures, alternative to those needed to fully meet the design goals and criteria, that are proposed to be taken. The analysis should address the enhanced protection provided by the additional measures. The description should include an estimation of the costs for the measures.

(4) A comparison of the costs of the measures described in (2) and (3) and assessment supporting a finding that additional costs of fully meeting the design goals and criteria are not justified by the added protection that would be provided. The assessment should describe the extent that alternative measure provide equivalent protection against a vehicle bomb and unique plant characteristics relevant to potential consequences of a vehicle bomb.

## 3. Documentation

In accordance with 10 CFR 73.55(c)(9), each licensee authorized to operate a nuclear power reactor is required to submit to the Commission a summary description of the proposed vehicle control measures and the results of the vehicle bomb comparative analysis. The summary description should include identification of active/passive components of the VBS and any natural terrain features or man-made obstructions that complete the VBS. A site drawing or diagram that outlines the VBS should be included with the description. The results of the vehicle bomb comparative analysis should identify the basis for determination that the Commission's design goals and criteria for protection against a land vehicle bomb are fully met. When applicable, the results of the comparison should include damage control actions that must be taken and additional security measures taken to protect against the design basis bomb.

Licensees whose comparative analysis determines that they do not fully meet the design goals and criteria for protection against a vehicle bomb and who

propose alternative measures should submit the analysis and justification for the alternatives as specified in Regulatory Position C.2.2.

Details of the "as built" VBS and of the land vehicle bomb analysis should be maintained on site.

All licensees shall fully implement their vehicle control measures within 360 days of the effective date of the rule.

#### REGULATORY ANALYSIS

A separate regulatory analysis has not been provided for this draft regulatory guide. The regulatory analysis that was prepared for the rule provides the basis for this regulatory guide and examines the costs and benefits of the rule as implemented by this guide. A copy of "Regulatory Analysis for Malevolent Use of Vehicles at Nuclear Power Plants" is available for inspection and copying for a fee at the Commission's Public Document Room, 2120 L Street NW., Washington, DC, under Draft Regulatory Guide DG-5006.