

PROTECTION AGAINST MALEVOLENT USE OF VEHICLES AT NUCLEAR  
POWER PLANTS

SUMMARY DESCRIPTION  
OF  
VEHICLE CONTROL MEASURES  
AND  
RESULTS OF THE VEHICLE BOMB COMPARISON

BEAVER VALLEY POWER STATION

UNIT 1 (DOCKET NO. 50-334)

UNIT 2 (DOCKET NO. 50-412)

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ATTACHMENT "A"

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## 1.0 GENERAL DESCRIPTION

The proposed Vehicle Barrier System (VBS) at Beaver Valley Power Station (BVPS) will consist of three (3) active barriers and approximately 4615 linear feet of passive barriers. The VBS will be continuous around and outside the protected area (PA) of BVPS, except for a portion located inside the PA at the sally port. It will be in close proximity to the PA just beyond the isolation zone at most locations, with some portions located up to about 155 feet from the PA. The VBS location will provide at least the minimum safe standoff distance, as determined by the blast effects analysis, to satisfy the Commission's design goals and criteria.

## 2.0 VEHICLE BARRIER SYSTEM

The VBS will consist of active barriers and passive barriers described below. The VBS provides a continuous perimeter around the PA, except at the intake structure. The intake structure does not require protection against forced access by a land vehicle. The controlled personnel access points for the intake structure are located approximately thirty (30) feet above the grade that is accessible by a land vehicle. Thus, the use of a land vehicle does not provide advantage in gaining unauthorized proximity to vital areas within the intake structure and is not a credible threat.

### 2.1 ACTIVE BARRIERS

Active barriers will be provided at the normal PA entrance at the sally port, adjacent to the Primary Access Facility (PAF), and at two other occasionally used access gates to the PA. These gates will supplement the existing chain link fence gates, as they are vehicle barrier gates only, not personnel gates. All vehicle inspections required by the Security Plan will be conducted outside the VBS prior to access authorization to the PA. The gates will be certified by the manufacturer as crash rated for the design basis vehicle.

### 2.2 PASSIVE BARRIERS

The passive barriers consist of approximately 3120 linear feet of Jersey barrier protection, approximately 480 linear feet of protection afforded by natural terrain features and approximately 1015 linear feet of protection afforded by man-made structures (i.e., buildings). Some Jersey barriers will be removable to permit access to seldom used PA access gates. These barriers are described in further detail below and are shown on Attachment "A."

### 2.2.1 JERSEY BARRIERS

Jersey barriers to be utilized in the VBS will consist of precast units and an approximately 120 foot section of cast-in-place barrier meeting the dimensional and anchorage requirements of NUREG/CR-6190 Vol. 2.

### 2.2.2 NATURAL BARRIERS

A section of the VBS will utilize the existing steep embankment adjacent to and outside the PA fence. The embankment is primarily vegetation covered and under maintenance supervision of BVPS. The acceptability of this embankment for use in the VBS was determined using NUREG/CR-4250.

### 2.2.3 MAN MADE BARRIERS

Various BVPS and the former Shippingport Atomic Power Station (SAPS) buildings will comprise the man-made portion of the VBS. The parts of each of these buildings that will be utilized in the VBS are engineered structures, which are acceptable for use in the VBS without further analysis, as indicated in the response to question number 20 from the NRC's Summary of Regional Workshops document dated October 14, 1994. See Attachment "A" for the locations of these structures in the VBS.

## 3.0 VEHICLE BOMB COMPARISON

The blast effects analysis methods used to determine safe standoff distances include those presented in sections 4 and 5 of NUREG/CR-6190 Vol. 1 and the use of the Safeguards Information (FACEDAP) provided to licensees for this purpose. The analyses were performed assuming that the point of detonation is at the PA boundary, except for the active barrier at the sally port where it was assumed that the point of detonation is 25 feet inside the PA. The VBS will actually be located beyond the PA isolation zone in most areas, at the PA boundary itself for some portions of the VBS that utilizes buildings that comprise part of the PA, or up to 25 feet inside the PA boundary at the sally port active gate. A safe standoff distance is achieved for all vital areas necessary to achieve and maintain safe shutdown except for the intake structure.

As discussed in section 2.0, the intake structure is located outside the main plant area PA. A land vehicle bomb could deliver a design basis explosive to the intake structure without intervention and could detonate it upon impact with the intake structure or in close proximity. For this reason we have assumed that the vital

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equipment located in the intake structure will be disabled as a result of such an explosion. However, both units would still be able to be shutdown and maintained in a safe shutdown condition by use of available backup equipment, as is currently addressed in various station procedures.

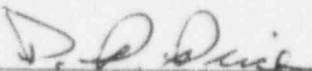
#### 4.0 COMPARISON TO DESIGN GOALS AND CRITERIA

The vehicle control measures, including the VBS, to be established at BVPS will meet the design goals and criteria specified by the Commission for protection against malevolent use of vehicles at nuclear power plants.

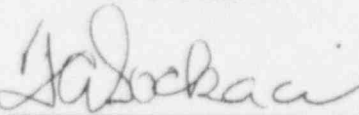
The VBS will be located outside the PA boundary, except for the portion at the sally port that is inside the PA boundary and the man-made structures that comprise part of the PA boundary, and will therefore meet the Commission's design goals with respect to use of a land vehicle as a means of transportation to gain unauthorized proximity to vital areas.

The blast effects analysis demonstrates that the location of the proposed VBS will provide a safe standoff distance for all vital areas except those in the intake structure. Backup equipment is available to mitigate the loss of vital equipment in the intake structure. Thus, the Commission's criteria for protection against a land vehicle bomb will be met.

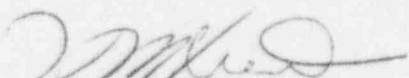
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## **SAFEGUARDS INFORMATION**

Attachment "A"  
to summary description  
of vehicle control measures and  
results of the vehicle bomb comparison  
(vehicle barrier system drawing)

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**SAFEGUARDS INFORMATION**