

ATTACHMENT C

**LIVE FIRE RANGE
BAFFLE DESIGN TESTS**

SAFEGUARDS AND SECURITY DIVISION

FEBRUARY 2002

BAFFLE DESIGN TESTS

In November 1988 several different baffle designs were tested on the firing range using the 9mm, 7.62, and .223 caliber weapons assigned to the BNL Patrol Force. The .38 caliber handguns were not used in the test, since any construction that will successfully resist penetration by the weapons tested will also handle the handgun. A minimum of 12 rounds were fired from each weapon at each of four different designs. All of the tests were witnessed by representatives of the Safety & Environmental Protection Division, Plant Engineering Division, and Safeguards & Security Division.

The first design tested was a combination of 15 cm (6") treated wood, backed by a 4 cm (1-1/2") dead space and a .64 cm (1/4") steel plate. The second design added a 2 cm (3/4") layer of plywood between the 15 cm (6") wood and the .64 cm (1/4") steel plate. The third increased the thickness of plywood to 4 cm (1-1/2").

The fourth design consists of horizontal and vertical baffles sheathed in 2 cm (3/4") plywood with a 9 cm (3-1/2") cavity filled with pea gravel (as depicted in Figure 5, detail 4). This design is based upon the standards contained in Air Force Regulation 50-36 and those followed in constructing the Argonne National Laboratory range, and is the only one of the four tested designs that precluded all penetrations from all weapons. Some of the first three designs were effective against 9mm and 7.62 weapons, but none successfully stopped all .223 rounds. Specifically, a minimum of 25 percent of the .223 rounds penetrated through each of the first three designs.