Can Peacekeeper survive?
B

uilding a missile accurate enough to
destroy Soviet ICBM silos seems a
relatively easy task. Finding a home
for the missile that is both militarily and
politically acceptable appears inordinately difficult.

When President Reagan was elected he was violently opposed to his predecessor's chosen home for MX, the massively ex-pensive racetrack concept. But finding an alternative was not to prove easy. When, in apparent desperation, he proposed putting MX in existing silos, just to get the weapon into service, he was forced to back down by an angry Congress. Months of effort resulted in Dense Pack, But the apparent move to place all 100 missiles in one 20-mile2

basket, and
the baffling uncertainties of the phenom-enon on which Dense Pack was to rely for its survival, led Congress to cut all funds for MX until a thorough investigation was completed.
That examination by a panel of experts is to be completed by February 18, allow-ing Reagan to report to Congress by March 1. The panel's brief is to examine all options. In the past some 30 MX basing modes have been examined and rejected. Here are just some.
Multiple protective shelters President Carter's ambitious plan to ensure the sur-vival of MX was to place each missile in a network of 23 horizontal shelters and to shuttle the missile between the shelters to confuse Soviet targeting.

Can MX be found a home that will survive both Soviet ICBMs and

US Congressmen? Graham Warwick looks at some of the options, and, with Brian Beckett, assesses Dense Pack.

Racetrack, as it became known, was to
be a massive construction project, with
200 MX missiles hidden among 4,600
steel-reinforced concrete shelters in the
states of Nevada and Utah.

Each missile was carried by a 300-ton transporter around a 19-mile dirt-track ring road connecting 23 horizontal shelters. The transporter reversed up to a shelter and unloaded the missile and its launch tube. The vehicle then visited every shelter in the complex, repeating the operation.
Sometimes a decoy exactly simulating MX was carried, at other times the actual missile was transferred. If adequate warn-ing of attack was available the transporter and its missile could dash to another hard-ened shelter. After the attack was over, surviving missiles would be launched from their shelters.

Because the Soviet Union could not pre-dict which shelter would hold the MX at the time of its attack, at least one warhead had to be assigned to each of the 4,600 shelters, and all to destroy 2,000 warheads on 200 MX—an unfavourable exchange ratio.

MX was designed to fit within future arms limitation agreements, and racetrack had several features to ease verification. Shipment of the booster stages, assembly

of the missile and its launcher, and move-ment of the completed MX to its deploy-ment area was to be visible to Soviet sat-ellites at all times, ensuring that no more than 200 missiles were deployed. Moreover, once the MX and its trans-porter were on the racetrack, entry by an-other missile was to be prevented by a huge earth barrier across the access road. As a final precaution, ports in the shelters and transporters would be opened at periodic intervals to reveal only one MX within each shelter network.

President Reagan inherited racetrack, and was opposed to it. Initially, the con-cept was refined to reduce its cost and en-vironmental impact. The ring road ws re-placed by a "drag strip" with 23 shelters some 5,200ft apart. Then several networks were grouped to produce valley clusters which required fewer transporters—only one for every five or so missiles.
Then the Salt verification features were deleted, and finally the system was scaled down, first to 100 missiles in 2,300 shel-ters, and then to 100 missiles in 1,000 shel-ters.

Eventually the immense cost, environ-mental impact, and political sensitivity of racetrack killed it.

Air mobile Air launch of MX is reported to have been a favourite option of US

Opening the "window of vulnerability'
The "window of vulnerability" that the
USA is so keen to close is-tfas? ability of
the Soviet Union, with less than half its
available missiles, to destroy most of
• ffaeUS ICBMsas they sit in their silos.
The Soviet Union has. some 1,400 ICBM launchers, According to US esti-mates 308 of these contain the massive SS-18s, while another 300 or so house the smaller.. SS-1 9B. It is these multiple-warhead' weapons. that have the accuracy to destroy US ICBMs in a

GS-1 £ is about twice the size of MX, and is a iiquid-propellant. two-stage missile. Four '' versions have been identified, two carrying single high-yield warheads, and two with multiple independently - • targeted re-entry vehicles (Mirvs).
The
racy-and power to destroy any US hard-ened target. SS-1S Mod 1 carries a single 27R4T' warhead over 12,000km with, a circular error probable (CEP) of I'iOtn. while Med 3 carries a smaller
' 20MT war-head . over I6,000km - with ' similar accuracy.
SS-18 Mod 2 carries eight'RVs over !1,000km. with, a CEP of 400m,_ while Mod 4. first te.-tK! in 1977, carries trn

SOOkT warheads over 10 OCOkro, and with a CEP of 260IH is regarded as the •greatest single threat to US ICBMs. According to the US Defence

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Department publicationSowef Military
. Power each of the ten SS-18 warheads liana 50 per cent chance of destroying a Minuternarj silo. If more than one RV is aimed at each launcher, Minute-man's chanc es of survival diminish siili ntl :

Deployment of SS-18 is frozen under Salt II at 308 missiles,, each with a maximum of ten warheads. Tins does i im-
proving the missile's accuracy, how-
• - . •• amon-

strated a CEP of less than 2<M)m A warhead with this accuracy has not yet >ee n < ! •- • ,
. The other major threat to US ICBMs is the two-stage, BOIid-propeHant SS-19. similar in size to MX. At least 300 SS-19s are deployed, and more may he occupying silos built for the older SS-11, some 580- of which are said to remain in service.
TVo versions of SS-19 have been identified, and a third may exist. SS-19 Mod 1 carries six SOOkT warheads over 9.500km with a CEP of between '300m

aaddSOrn. Mod:

§ carries a single high-
yield RV over 10,000km. A. third variant, tested in late 1977, carries.an undefined Mirv payload with a silu-'killing accuracy of 260ni CEP. Mirved versions make up the bulk of the

C.S-! 11
force
The rest of. the Soviet ICBM force: comprises the SS-lla, 60 SS- >'T, ,mi loO four-warhead SS-17s, but these lack" the accuracy to destroy US silos. . •While the SS-lla, SS-13s, and' SS-19s are hot launched, preventing re-: use of tl-,eir silos for several davs. the SS-17 and SS-18 are. like M>i. cold launched The Soviet I 'nion could therefore expend its SS-18' force i n a' pre-emptive attack then • reload the silos for a second strike.

The Soviet Union, began' devel-opment of the 'SS-16 mobile ICBM, but this was forbidden .by Salt -II.-,As the first-two stages of this missile 'were used in the intermediate -range S5-.20, the Soviet Union agreed riot to produce. the third -stage and Mirv bus required'
to build an SS-lfi. According to US
reports, the miasile had not proved-very
accurate in tests.

The predicted . Soviet, response tc
President Carter's multiple protective

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