E-TR-52-I

MX SITING INVESTIGATION
WATER RESOURCES PROGRAM

TECHNICAL SUMMARY REPORT

VOLUME I

Prepared for:

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Although there is some potential for using surface water to meet a portion of MX water requirements, the limited nature of the resource and water-quality constraints suggest that its use should be minimized.

4.2 GROUND WATER

In most of the siting valleys, there are sufficient supplies of ground water in the valley-fill aquifers to provide an adequate source of water for the construction and operation of the MX missile system. There are, however, valleys where development potential of the valley-fill aquifer is limited and it may be necessary to develop alternative sources of water to meet MX requirements. These include valleys where the valley-fill aquifer shows low yield potential (Pahroc, Coyote Spring, Muleshoe, Whirlwind, and Dugway valleys), fully appropriated valleys (Big Smoky, Ralston, Penoyer, Stone Cabin, Antelope, Steptoe, Lake, Escalante Desert, Sevier Desert, and Whirlwind) where further ground-water development is at the discretion of the State Engineers Office, and areas where water quality may be a constraint such as in the northern portion of the Utah deployment area.

Due to the size of the deployment area (about 10,000 mi^2 [26,000 km^2]), the development of ground-water supplies for the MX project will be widespread. However, the total amount of water required in individual deployment valleys is not excessive. The largest annual water requirement for any deployment valley is 3697 acre-feet (4.6 hm^3) in Railroad Valley in 1985. Another important aspect of the proposed MX ground-water development is

MX VALLEYS	RATING CRITERIA 1	2	3	4	5	6	RATING	WATER SHORT VALLEYS * *
1 ANTELOPE	–	–	–	–	–	+	LOW	X
2 BIG SAND SPRINGS	–	–	–	+	–	+	LOW	
3 BIG SMOKY	–	–	–	+	–	–	LOW	X
4 BUTTE	+	+	+	+	–	+	HIGH	
5 CAVE	+	+	+	–	+	+	HIGH	
6 COAL	+	+	+	+	+	+	HIGH	
7 COYOTE SPRING *	+	+	+	+	+	–	HIGH	X
8 DELAMAR	–	–	–	+	+	+	MODERATE	
9 DRY LAKE	+	+	–	+	+	+	HIGH	X
10 DUGWAY	–	–	–	+	+	?	LOW	X
11 ESCALANTE *	–	–	–	–	–	+	LOW	X
12 FISH SPRINGS FLAT	–	+	+	–	+	–	MODERATE	
13 GARDEN	+	+	+	+	+	–	HIGH	
14 HAMLIN	+	+	+	+	+	+	HIGH	
15 HOT CREEK	+	+	–	+	–	–	MODERATE	
16 JAKES	–	–	–	–	+	+	LOW	
17 KOBEH	+	+	+	+	?	+	HIGH	
18 LAKE	–	–	+	–	–	–	LOW	X
19 LITTLE SMOKY	–	–	–	+	–	+	LOW	
20 LONG	–	–	+	–	+	+	MODERATE	
21 MONITOR	–	–	–	+	–	–	LOW	
22 MULESHOE	+	+	–	+	+	+	HIGH	X
23 NEWARK	–	–	+	–	–	+	LOW	
24 PAHROC	+	+	–	+	+	+	HIGH	X
25 PENOYER	–	–	+	–	–	+	LOW	X
26 PINE	+	–	–	–	–	+	LOW	
27 RAILROAD (NORTH)	+	–	–	+	?	+	HIGH	
28 RALSTON	+	–	–	–	–	+	LOW	X
29 REVEILLE	–	–	–	–	?	–	LOW	
30 SEVIER	–	–	–	–	?	+	LOW	X
31 SNAKE	–	–	+	+	?	+	MODERATE	
32 SPRING	–	–	+	+	+	+	MODERATE	
33 STEPTOE	–	–	+	+	?	+	MODERATE	X
34 STONE CABIN	–	–	–	–	?	+	LOW	X
35 TULE	+	–	+	–	?	+	MODERATE	
36 WAH WAH	+	–	–	–	?	+	LOW	X
37 WHIRLWIND	+	+	+	–	?	–	?	X
38 WHITE RIVER	+	+	+	+	+	+	HIGH	

* Operational Base

** Defined on the basis of perennial yield, current use, designated or closed valley status, or alluvial aquifer-capability vs. projected MX water requirements.

(+) Favorable

(–) Unfavorable

(?) Uncertain

CRITERIA – LISTED IN ORDER OF SIGNIFICANCE

1. The presence of thick hydrostratigraphic units consisting of aquifers 2, 4, and 6 either exposed at the surface or at drillable depths
2. The lack of thick hydrostratigraphic units consisting of aquitards 3, 5, 7, and 9 which would be expected at drillable depths
3. The lack of, or minor occurrences of volcanic and/or intrusive rocks
4. Areas of high density faulting, especially within Devonian – middle Cambrian rocks
5. Valleys within known "Regional Flow Regimes".
6. Minimal land use restrictions on favorable drilling areas

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MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE
BMO/AFRCE-MX

ESTIMATED POTENTIAL FOR CARBONATE AQUIFER DEVELOPMENT

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TABLE 4-10