Table 3-1. DO UNTIL Termination Condition Logic (Cont'd)

Syntax	Status Condition	True If:
NEG	X Input Sign Negative	AS = 1
POS	X Input Sign Positive	AS = 0
CE	Counter Expired	
FOREVER	Always	

When a `DO UNTIL` instruction is executed, the 14-bit address of the last instruction and a 4-bit termination condition (both contained in the `DO UNTIL` instruction) are pushed onto the 18-bit by 4-word loop stack. Simultaneously, the `PC` incrementer output is pushed onto the PC stack. Since the `DO UNTIL` instruction is located just before the first instruction of the loop, the PC stack then contains the first loop instruction address, and the loop stack contains the last loop instruction address and termination condition. The non-empty state of the loop stack activates the loop comparator which compares the address on top of the loop stack with the address of the next instruction. When these two addresses are equal, the loop comparator notifies the next address source selector that the last instruction in the loop will be executed on the next cycle.

At this point, there are three possible results depending on the type of instruction at the end of the loop. Case 1 illustrates the most typical situation. Cases 2 and 3 are also allowed but involve greater program complexity for proper execution.