5.10 SWMU 15: OLD DEMOLITION PIT (UNDER BUILDING C-4002)

5.10.1 Site Description and Waste Generation

The disposition form that identified waste disposal in SWMUs 1 and 2 also included information that a pit used for demilitarization formerly existed below Warehouse C-4002 (Figure 5.10-1). A large explosion of 4.2-inch high explosive shells occurred there in the late 1940s. The shells were assumed to be demilitarized by the explosion and the crater was filled. A former, long-time TEAD-S employee described this site as a munitions storage area rather than a demilitarization area. The employee also remembered an accidental 4.2-inch mortar round explosion in the late 1940s. Ertec (1982) listed Napalm as a compound used and stored at this site; however, the source of this information is unclear.

5.10.2 Site Hydrogeology

SWMU 15 is located on gentle southwest-sloping topography. No significant surface water drainage passes near this SWMU. The site is underlain by a Quaternary pediment capped with alluvium. Details regarding the subsurface lithology are drawn from field boring logs (Appendix A) and sieve analyses of cores taken during drilling of monitoring wells at SWMU 15.

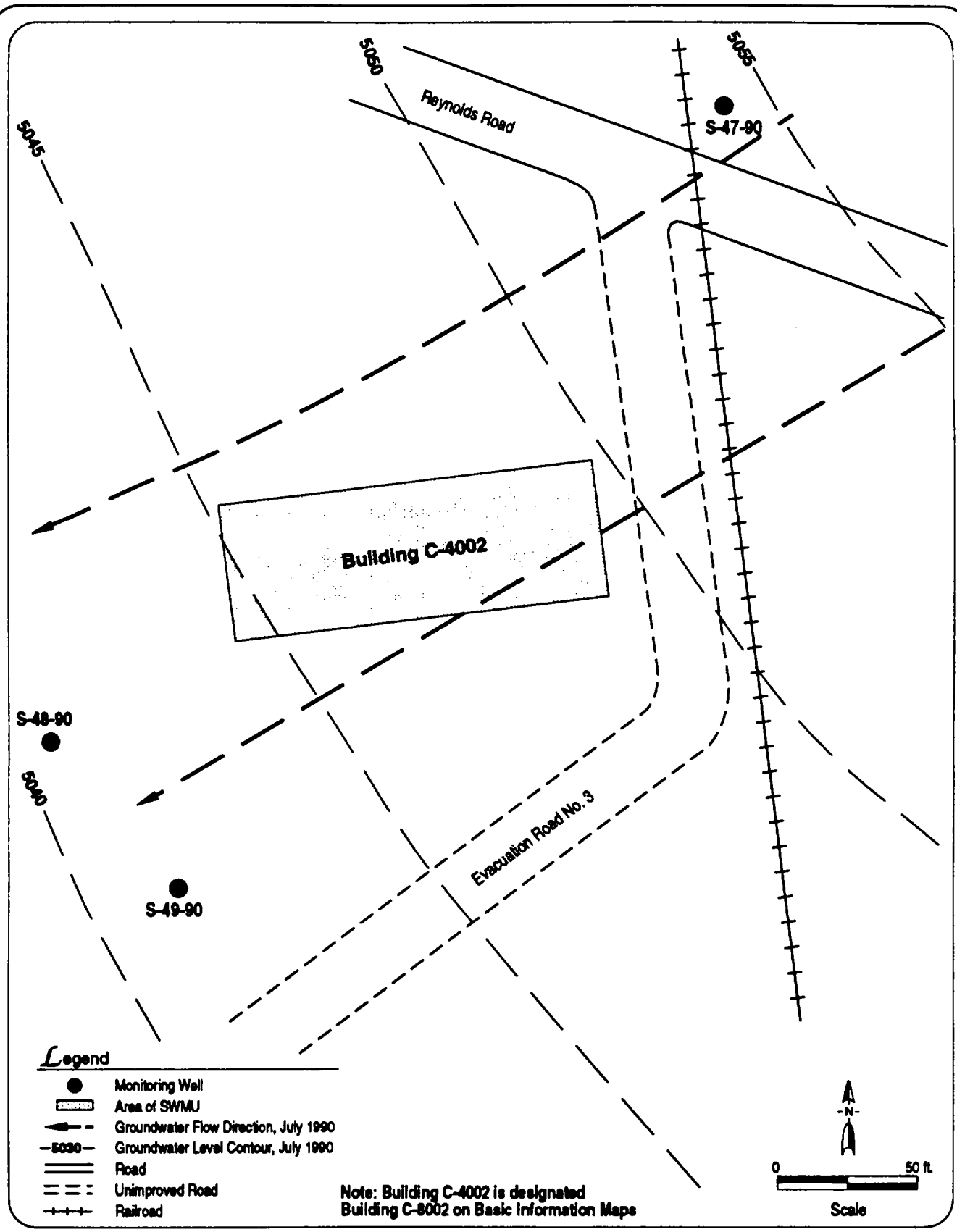
Surficial soil at this SWMU is composed of loose, light yellowish brown sand with a trace of silt and clay (SP). The unsaturated zone is composed of approximately 10 to 20 ft of loose to dense, light gray to pale brown, fine-grained, silty sand and silty gravel (SP, GW, GP). Silt and clay content increase with depth at the expense of the sand. From approximately 20 ft to the water table at 95 ft, the alluvium is composed of stiff to hard, light brownish gray to brown, clayey silt and silty clay (ML, CL). Some clayey gravel (GW) occurs in well S-48-90. Beds of silty and clayey sand (SW, SM, SC) are also common, as shown in the sieve analysis.

The saturated zone from 100 to 114 ft is composed of light brownish gray to gray, silty sand and silty clay (SM, CL). The screened interval is 10 ft in each of the wells, from 104 to 114 ft in well S-47-90, 100 to 110 ft in well S-48-90, and 99 to 109 ft in well S-49-90. Three monitoring wells were installed at SWMU 15 during the RFI-Phase I; one upgradient on the northeast side of the warehouse (S-47-90), and two downgradient on the southwest side of the warehouse S-48-90, S-49-90).

The depth to groundwater in July 1990 at Wells S-47-90, S-48-90, and S-49-90 was 98, 95, and 96 ft below ground surface, at elevations of 5,047, 5,042, and 5,042 ft msl, respectively. Groundwater at this site flows southwest (Plate 3).

5.10.3 Previous Sampling and RFI-Phase I Sampling Results

There was no sampling of soil or groundwater at SWMU 15 prior to the RFI-Phase I. During the RFI-Phase I, the newly installed monitoring wells were analyzed using the full suite of methods listed in Table 3.10-3, Section 3.10.10. Additional groundwater samples were collected from these wells and analyzed for volatile organics in the June 1992 interim sampling program.



Source:

EBASCO Field Measurement
Basic Information Maps 1985

Figure 5.10-1

Site Map
SWMU 15 - Old Demolition Pit (under Building C-4002)

Tooele Army Depot - South Area
Prepared by: Ebasco Services Incorporated

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The results of these analyses are reported in Table 5.10-1 and groundwater sampling locations, detected compounds, and their concentrations are presented in Figures 5.10-2 through 5.10-5.

5.10.4 Contamination Assessment

Methylene chloride was the only organic compound detected. It was detected in samples from all three monitoring wells, including the upgradient well. The methylene chloride detections may be a result of laboratory contamination because it was the only volatile organic detected in groundwater. However, the concentration of 72 µg/l in well S-48-90 is higher than the level commonly attributed to laboratory contamination of the samples. These detections may also indicate a source of the solvent, perhaps in the area directly east and northeast of SWMU 15, where storage buildings were once located.

Methylene chloride was also detected in samples from all three wells in June 1992. However, methylene chloride was also detected in the method blank for these samples at approximately the same relatively low concentration and, therefore, can probably be attributed to laboratory contamination (EPA 1990). Additional groundwater samples were collected by the Installation in March 1992 from wells S-47-90 and S-48-90 and are presented as Appendix G. Although these water quality analyses were not conducted by a USATHAMA-certified laboratory and the nature of the quality assurance/quality control protocol is not known, it should be noted that methylene chloride (dichloromethane) was not detected in these samples supporting the conclusion that the RFI-Phase I detections were related to laboratory contamination.

All wells at SWMU 15 are included in water quality zone I. Inorganic groundwater quality data from each well was compared to concentrations typical of this zone to determine whether any analytes occurred at elevated concentrations. Selenium, uranium, and gross alpha were detected at elevated levels in upgradient well S-47-90. These concentrations may represent natural levels since upgradient concentrations were similar to downgradient concentrations, and since no source of these compounds is known in this part of TEAD-S. Selenium was detected in downgradient well S-48-90 at a concentration similar to the concentration in upgradient well S-47-90. Chloride was also detected at an elevated concentration in well S-48-90; however, its concentration varied in the three wells over a range of two orders of magnitude, with the lowest concentration in the other downgradient well. Therefore, the high chloride concentrations are expected to relate to passage of groundwater through evaporite minerals that may occur in this part of the aquifer.

5.10.5 Recommendations

Additional groundwater samples collected in June 1992 confirmed that methylene chloride detected in samples from the original Phase I program was a laboratory contaminant. No further action is recommended at SWMU 15.

GROUNDWATER (µg/l)

Analytical Groups and Analytes Detected	S-47-90 Phase I	S-47-90 June 1992	S-48-90 Phase I	S-48-90 June 1992	S-49-90 Phase I	S-49-90 June 1992
Volatile Organics:						
Methylene chloride(CH2CL2)	27	11*	72	8.3*	15	8.7*
Semivolatile Organics:		NA		NA		NA
Unknowns	110		NA		NA	
Metals:		NA		NA		NA
Arsenic (As)	26		13		28	
Lead (Pb)	LT 1.3		2.5		LT 1.3	
Selenium (Se)	39		41		4.1	
Sodium (NA)	75,000		59,000		37,000	
Anions:		NA		NA		NA
Bromide (Br)	87		86		LT 50	
Chloride (Cl)	130,000		2,300,000		43,000	
Fluoride (F)	1400		750		670	
Radionuclides (pCi/l):		NA		NA		NA
Gross alpha (ALPHAG)	210		36		15	
Gross beta (BETAG)	61		20		LT 0.30	
Uranium (U)	120		13		53	

* Detected in associated method blank
NA Not analyzed
LT Less than
pCi/l Picocurie per liter
µg/l Microgram per liter

TOOELE/SWMU 15 GW Table 5.10-1
10/1/92 12:20 PM skm

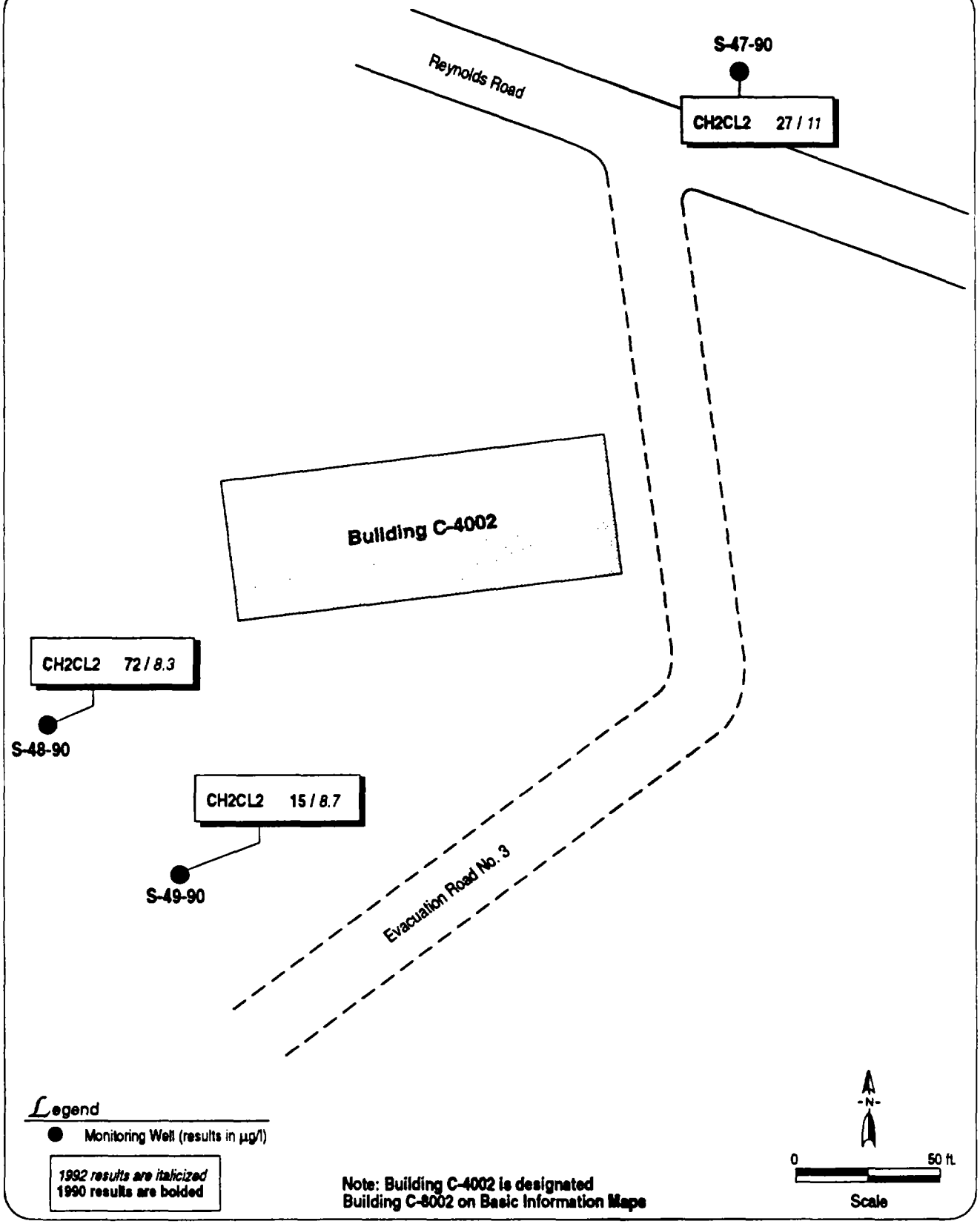

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Figure 5.10-2
SWMU 15 - Old Demolition Pit (under Building C-4002)
Organics

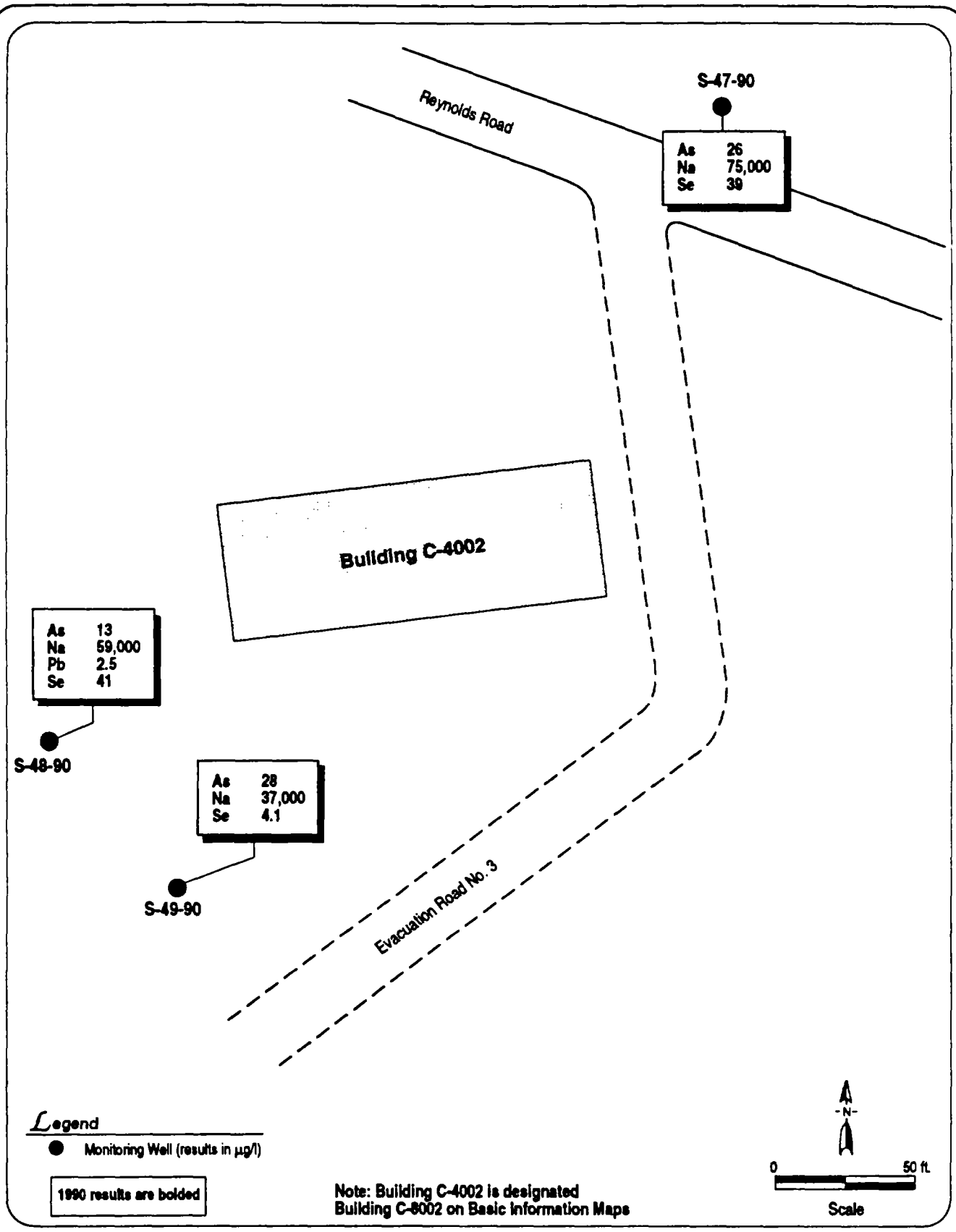

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Figure 5.10-3
SWMU 15 - Old Demolition Pit (under Building C-4002)
Metals

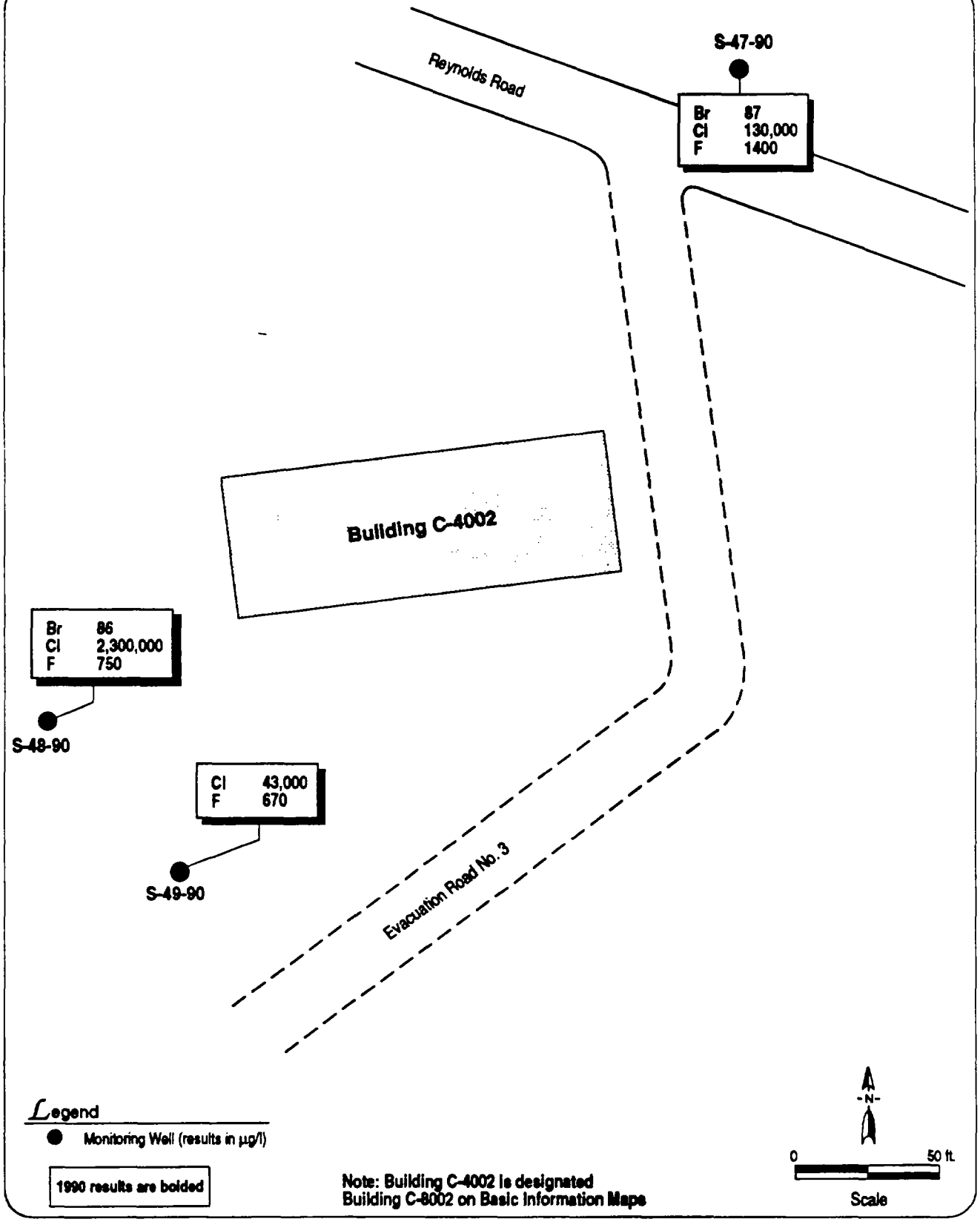

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Figure 5.10-4
SWMU 15 - Old Demolition Pit (under Building C-4002)
Anions

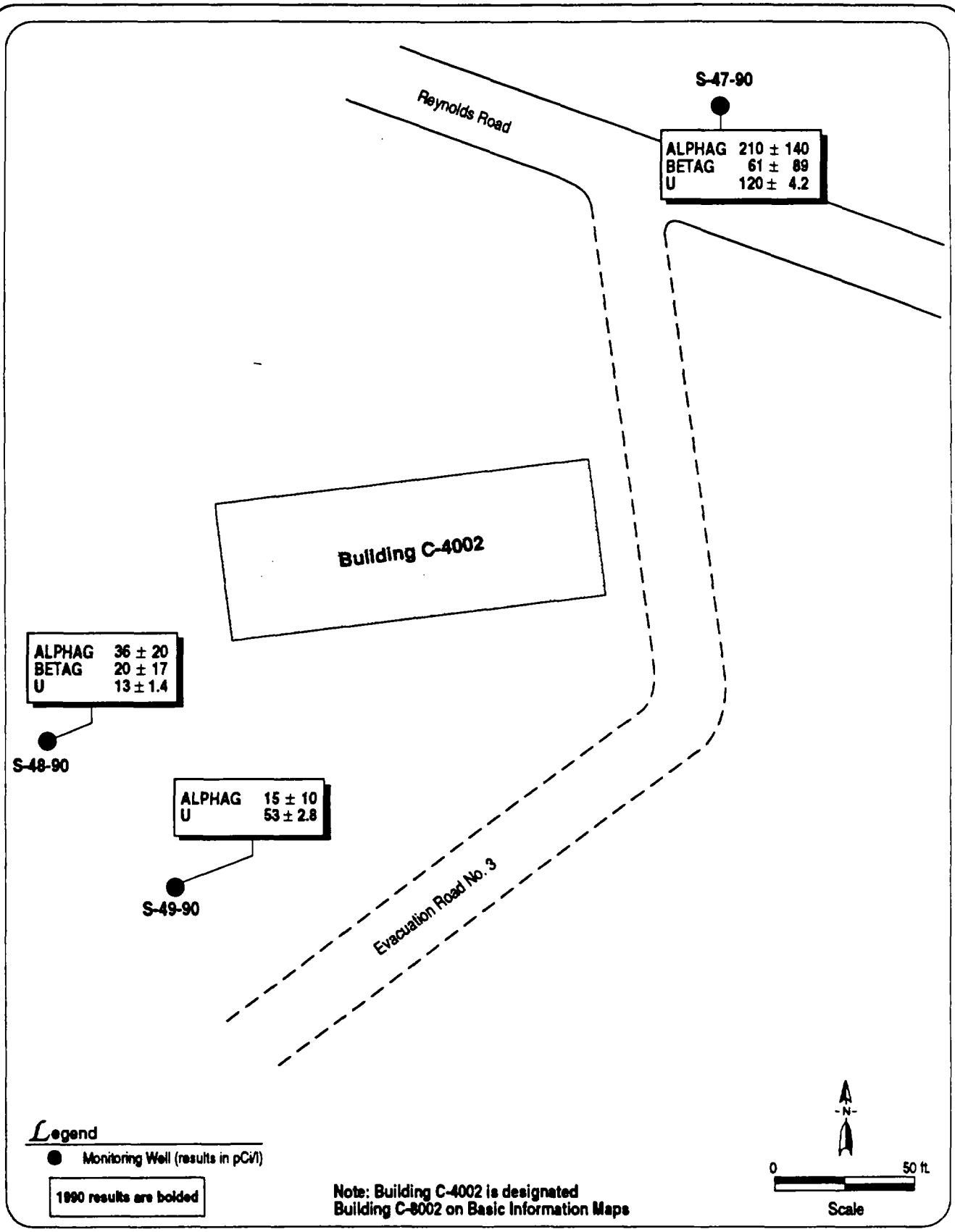

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Figure 5.10-5
SWMU 15 - Old Demolition Pit (under Building C-4002)
Radionuclides

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