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5.2 Drawings

5.2.1 A and AX Tank Farm

Drawing No.	Rev.	Title
H-2-33295	3	216-A-39 Crib for Inst Enclosure 241-AX 801-B Plot Plan & Details
H-2-33981	5	Emergency Sluicing in TK-105-A - General Piping Arrangement
H-2-36645	4	Civil - Plan and Profile - Waste Transfer Lines

APPENDIX A

TABLES

Table 1. Intentional Release Quantities

Table 2. Unintentional Release Quantities

Table 1. Intentional Release Quantities

Crib	Location	Source	Waste Type	Date	Quantity (L)	Comments
216-A-1	Crib E of 241A	202A	Cold startup	11/55-12/55	98400	Capacity reached
216-A-7	Crib E of 241A	241-A-152	Overflow	1/56-11/66	3.26E+05	
216-A-8	Crib E of 241AX	SSTs	SST condensate	11/55-4/95	1.15E+09	
216-A-9	Crib W of 241A	202A	Condensate	3/56-2/58	9.81E+08	
		105N	Decon	4/66-10/66		
		202A	Acid fract con	8/69		
216-A-16	F. drain in 241A	241-A-431	Stack drainage	1/56-3/69	1.22E+05	
216-A-17	F. drain in 241A	241-A-431	Stack drainage	1/56-3/69	6E+05	
216-A-18	Pit E of 241AX	202A	Cold startup	11/55-12/55	4.88E+05	
216-A-19	Pit E of 241AX	202A	Cold startup	11/55-1/56	1.1E+06	
216-A-20	Pit E of 241AX	202A	Cold startup	11/55-1/56	9.6E+05	
216-A-23	2 F. drains in 241A	241-A-431	Deentrainer drainage	9/57-3/69	6000	
216-A-24	Crib NE of 241AX	SSTs	SST condensate	5/58-1/66	8.20E+08	Capacity reached
216-A-25	Gable Mt Pond	202A, 244AR	Cooling water	1957-1987	3E+12	Outside scope
216-A-29	Ditch to B pond	202A	Chem sewer, cond. Clg.wtr. Acid fract con	11/55-9/91		Outside scope
216-A-34	Ditch E of 241AX	202A	Cold startup	11/55-1/56	Unknown	
216-A-39	Pit in 241AX	AX-801B	Spill	6/66	20	
216-A-40	Retention basin W of 241AX	244-AR	Cooling water	1/68-1979	9.46E+05	Not used for disposal
216-A-41	Crib W of 241A	244-AR	Stack drainage	1/68-1974	1E+04	
216-C-8	Fr drain S of 241C	271-CR	IX regen	6/62-6/65	Unknown	

Table 2. Unintentional Release Quantities

UPR Number	Location	Date	Leak Type	Waste Type	Quantity (L)	Comments
UPR-200-E-16	C Farm	Unknown	Overground pipe break	CWP	190	
UPR-200-E-18	241-A-08	1959	Dripping vent	Condensate		
UPR-200-E-27	C Farm	11/1/60	Windblown contamination			
UPR-200-E-42	241-AX-151	11/6/72	Surface contamination			
UPR-200-E-68	241-C-151	1/11/85	Windblown contamination			
UPR-200-E-72	South of C Farm	4/20/85	Buried contamination			
UPR-200-E-81	241-CR-151	10/15/69	Line leak	CWP	136 000	
UPR-200-E-82	241-C-152	12/19/69	Line leak	PSN	10 000	
UPR-200-E-86	C Farm	1971	Line leak	PSN		25,000 Ci Cs
UPR-200-E-107	244-CR	11/26/52	Spill	TBP	18.90	
UPR-200-E-115	241-AX-103	2/12/74	Spray			
UPR-200-E-118	C Farm	4/20/57	Airborne contamination			
UPR-200-E-119	241-AX-104	12/22/69	Surface contamination		Negligible	
UPR-200-E-125	241-A-104	May 1975	Tank leak		9500	Pumped to heel
UPR-200-E-126	241-A-105	Jan 1965	Tank leak		1 049 000	Tank damage
UPR-200-E-136	241-C-101	1970	Tank leak		91000	
UPR-200-E-137	241-C-203	1976	Tank leak	PAW	1500	
UPR-200-E-145	A Farm	1993	Excavation	Uranium oxide		
None	241-A-103	1987	Tank leak		21000	Estimated
None	241-AX-102	1988	Tank leak		11000	Estimated
None	241-AX-104	1977	Tank leak		30000	Estimated
None	241-C-110	1984	Tank leak		7600	Estimated
None	241-C-111	1968	Tank leak		19000	Estimated
None	241-C-201	1988	Tank leak		2100	Estimated
None	241-C-202	1988	Tank leak		1700	Estimated
None	241-C-204	1988	Tank leak		1300	Estimated
None	241-AX-151	3/23/01	Catch tank leak		Unknown	

APPENDIX B

TIMELINE OF EVENTS

1943-44	Hanford construction. C Plant foundation excavated, but plant not built. C Farm constructed.
4/23/45	B Plant begins operations. 5-6 and 224 waste to 216-B-5 crib
8/14/45	World War II ends
3/46	B Plant MW sent to 241-C-101/2/3 tank cascade
4/46	B Plant 1C sent to 241-C-107/8/9 tank cascade
5/46	B Plant 1C sent to 241-C-110/1/2 tank cascade
10/46	B Plant MW sent to C-104/5/6 cascade
1/1/47	GE replaces DuPont as Hanford prime contractor
1/52	1C from C Farm sent to tank 241-B-106 (evaporator feed) via 241-C-152, 241-B-154 diversion boxes
10/52	MW from C Farm sent to U Plant via cross-site transfer line
11/26/52	UPR-200-E-107 (spill at 244-CR vault)
1954	241-CR steam cleaning pit
1955	PUREX and A Farm constructed
1955	244-CR vault modified for in-farm scavenging
11/55	In-farm scavenging begins
11/55	PUREX cold startup waste to cribs 216-A-1, 216-A-18, 216-A-19, 216-A-20 via 216-A-34 ditch
1/56	PUREX begins operations. PAW, OWW to A Farm; CWP to C Farm
1/56	A Farm tank condenser waste to 216-A-8 crib
1/56	Tank Farm stack drainage (241-A-431 to 216-A-16/17 wells)
3/56	PUREX acid fractionator condensate to 216-A-9 crib
12/56	216-A-8 crib waste hits groundwater
1957	244-CR vault scavenging completed
1957	PUREX cooling water to Gable Mountain pond
4/20/57	UPR-200-E-118 (C Farm airborne contamination)
9/57	241-A-431 deentrainer drainage to 216-A-23 drywells
12/57	Gable Mountain pond and 216-A-29 ditch built
1/58	Stop discharges to 216-A-9 crib
5/58	216-A-8 crib (tank condenser waste) replaced by 216-A-24 crib
1959	UPR-200-E-18 (drip at 241-A-08 valve pit)
7/59	241-A-302B catch tank replaces 216-A-7 crib
10/59	Surface condensers installed in A Farm; reduce 216-A-24 crib discharge by 95%
7/59	UPR-200-E-16 (overground CWP line break in C Farm)
11/1/60	UPR-200-E-27 (C Farm airborne contamination)
7/61	Hot Semiworks restarted as Strontium Semiworks
1962	271-CRL and 241-C-801 Cs loadout facility built in C Farm
6/62	271-CRL lab ion exchange regeneration waste to 216-C-8 French drain
1963	PUREX modified to process N Reactor fuel
1963	AX Farm built
1963	Cs recovery begins in 241-C-801
8/63	Sr recovery begins in B Plant
1965	241-AX-151 diverter station constructed
1/65	UPR-200-E-126 (damage to 241-A-105)
6/65	216-C-8 drain out of service

1966	244-AR vault constructed
4/66-10/66	N Reactor decon waste to 216-A-9
7/66	216-A-24 crib hits groundwater; waste diverted to 216-A-8
6/66	Spill in 241-AX-801B flushed to 216-A-39 crib (no UPR)
1967	Third leak detection caisson built in A Farm, near tank 241-A-105
1967	B Plant begins full operations. Strontium Semiworks shut down
1968	241-C-111 tank leak (no UPR)
1/68	244-AR vault stack drainage to 216-A-41 crib
2/22/69	UPR-200-E-119 (surface contamination in AX Farm)
3/69	216-A-23 drains (241-A-431 condensate) out of service
4Q/69	OWW from PUREX segregated from PAW, sent to tank 241-C-104
10/15/69	UPR-200-E-81 (underground CWP line leak near 241-C-151 diversion box)
12/19/69	UPR-200-E-82 (underground line leak near 241-C-152 diversion box)
1970	UPR-200-E-136 (241-C-101 tank leak)
11/70	Final heel removal from 241-A-105 tank; water additions begin
1970-71	REDOX supernate sent to B Plant for Cs recovery
1971	241-C-106 tank temperature reaches 100°C, put on forced ventilation
1971	UPR-200-E-86 (underground PSN line leak in C Farm)
1972	PUREX standby to allow for N Reactor spent fuel accumulation and A/AX Farm sluicing. 244-AR vault modified for full time sludge recovery
11/6/72	UPR-200-E-42 (contamination discovered at 241-AX-151 diverter station)
1973	PUREX restart delayed due to 241-T-106 tank leak
1975	241-ER-152, 241-ER-153 diversion boxes, 244-A lift station constructed
1975	Gable Mountain pond out of service
5/75	UPR-200-E-125 (241-A-104 tank leaks)
1976	UPR-200-E-137 (241-C-203 tank leaks)
1976	241-A-350 lift station built
4/76	Stop discharges to 216-A-8 crib
1977	241-AX-104 tank leaks (no UPR)
3/18/77	242-A Evaporator startup
1978	Sludge recovery complete
1/78-5/78	Resume discharges to 216-A-8 crib
12/78	241-A-105 tank water additions stop; 296-P-17 exhauster installed
1983	PUREX restart
1983-1987	Strontium Semiworks torn down
1984	241-C-110 tank leaks (no UPR)
1985	216-A-8 crib out of service
1/11/85	UPR-200-E-68 (airborne contamination in C Farm)
4/20/85	UPR-200-E-72 (buried contamination south of C Farm)
1987	Gable Mountain pond decommissioned
1987	241-A-103 tank leaks (no UPR)
1988	PUREX shutdown
1988	241-C-201, 202, and 204 tanks leak (no UPR)
1988	241-AX-102 tank leaks (no UPR)
4/12/89	242A shutdown
10/91	296-P-17 exhauster removed from 241-A-105

1992	PUREX closed
12/13/93	UPR-200-E-145 (buried contamination in A Farm)
4/15/94	242A Evaporator restart
1995	All liquid low-level waste discharges to 200 Area TEDF
1999	Tank 241-C-106 sluiced to tank 241-AY-102
3/23/01	241-AX-152 catch tank leak

APPENDIX D

FIGURES

Figure 1: A, AX, and C Tank Farms, 200 East Area (present)

Figure 2: Facilities Constructed for the Manhattan Project (1943-1945)

Figure 3: Facilities Constructed for Postwar Bismuth Phosphate and Uranium Recovery Operations (1946-1957)

Figure 4: Facilities Constructed for PUREX Operations (1956-1964)

Figure 4a: Test Wells Constructed for PUREX Operations (1956-1964)

Figure 5: Facilities Constructed in C Farm for Waste Fractionization Operations (1961-1978)

Figure 6: Facilities Constructed in A/AX Farms for Waste Fractionization Operations (1965-1978)

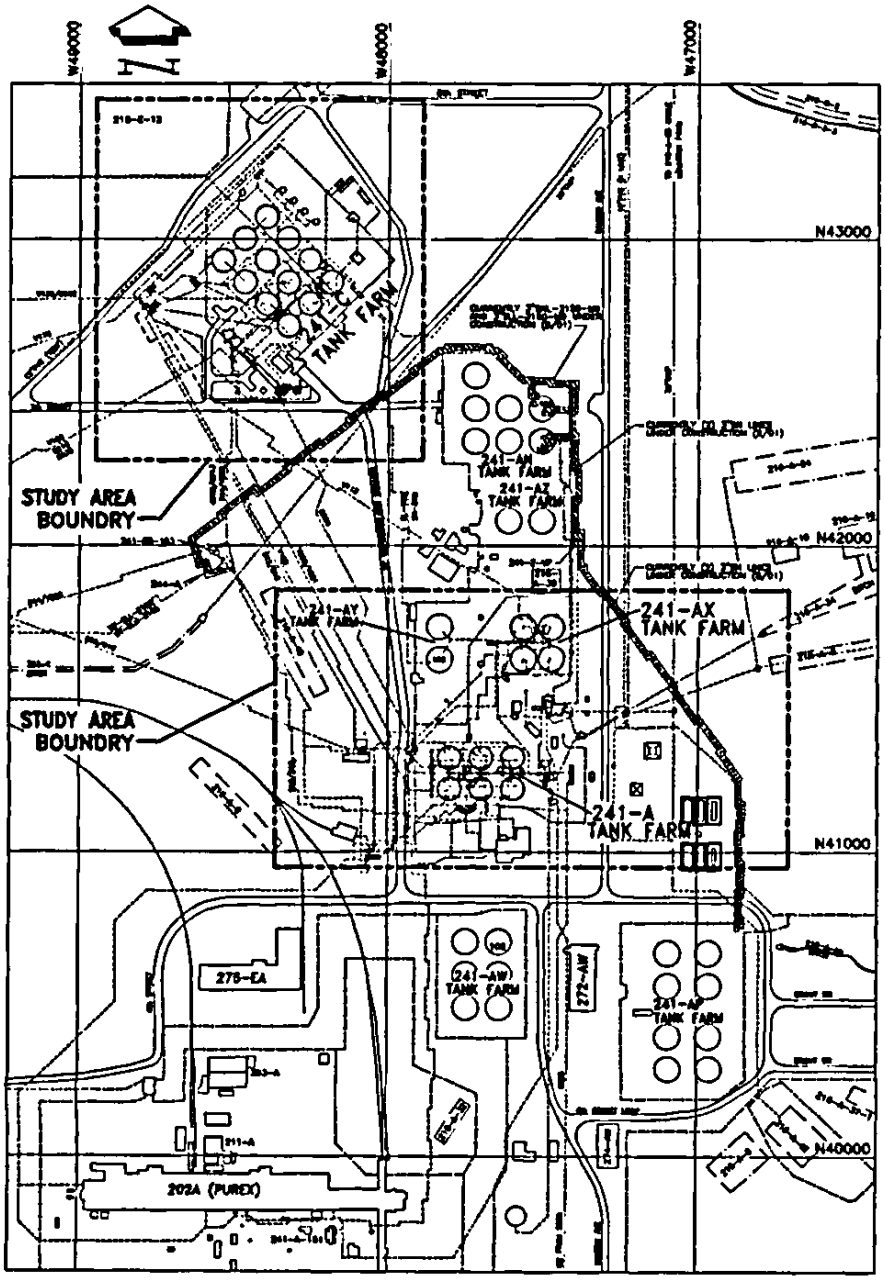
Figure 6a: Test Wells Constructed in A/AX Farms for Waste Fractionization Operations (1965-1978)

Figure 7: Facilities Constructed in C Farm for Interim Stabilization and Isolation (1975-2001)

Figure 7a: Test Wells Constructed in C Farm for Interim Stabilization and Isolation, (1975-2001)

Figure 8: Facilities Constructed in A/AX Farms for Interim Stabilization and Isolation (1975-2001)

Figure 8a: Test Wells Constructed in A/AX Farms for Interim Stabilization and Isolation (1975-2001)



A, AX, AND C TANK FARMS
200 EAST AREA
(PRESENT)
FIGURE 1

LEGEND

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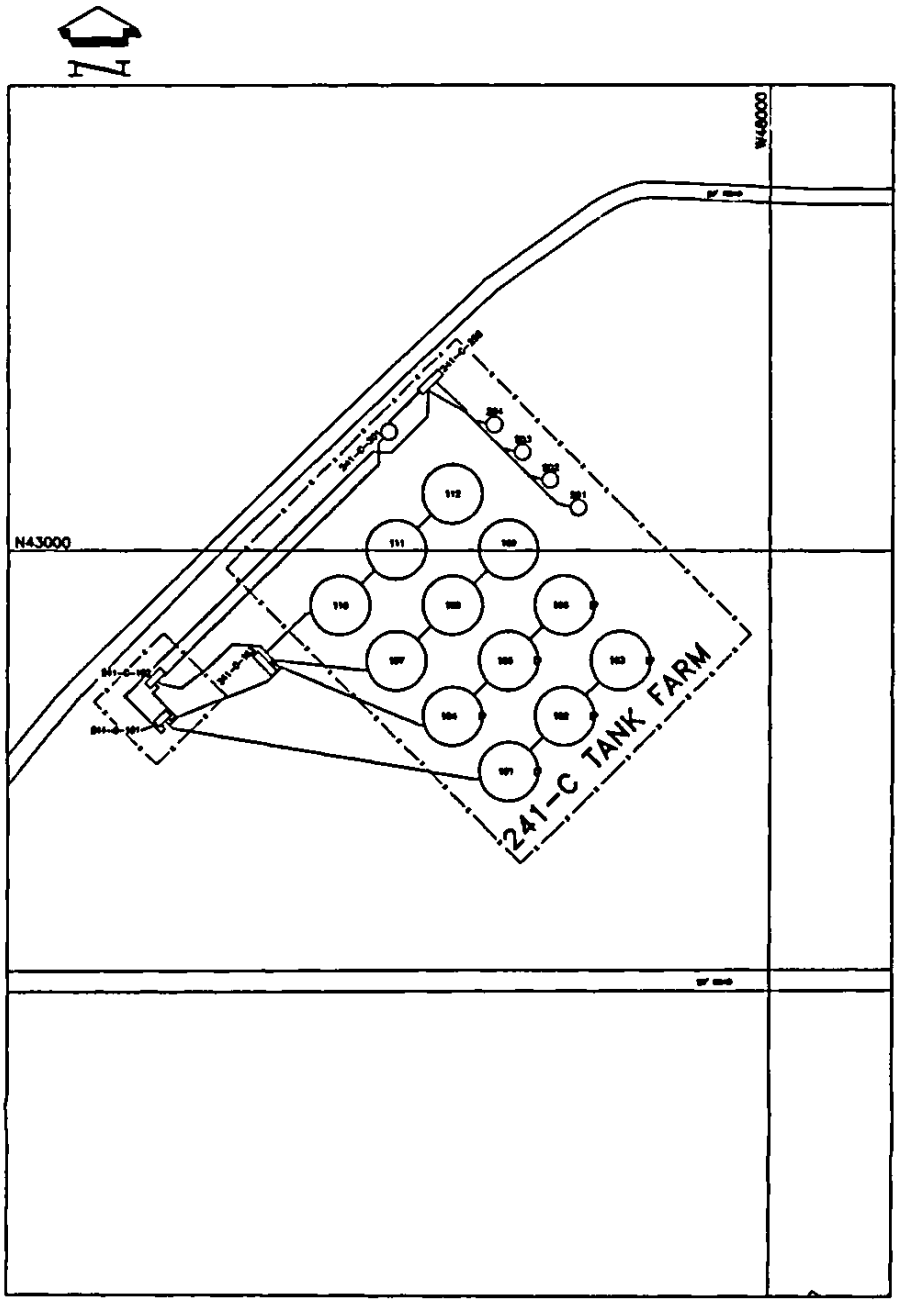
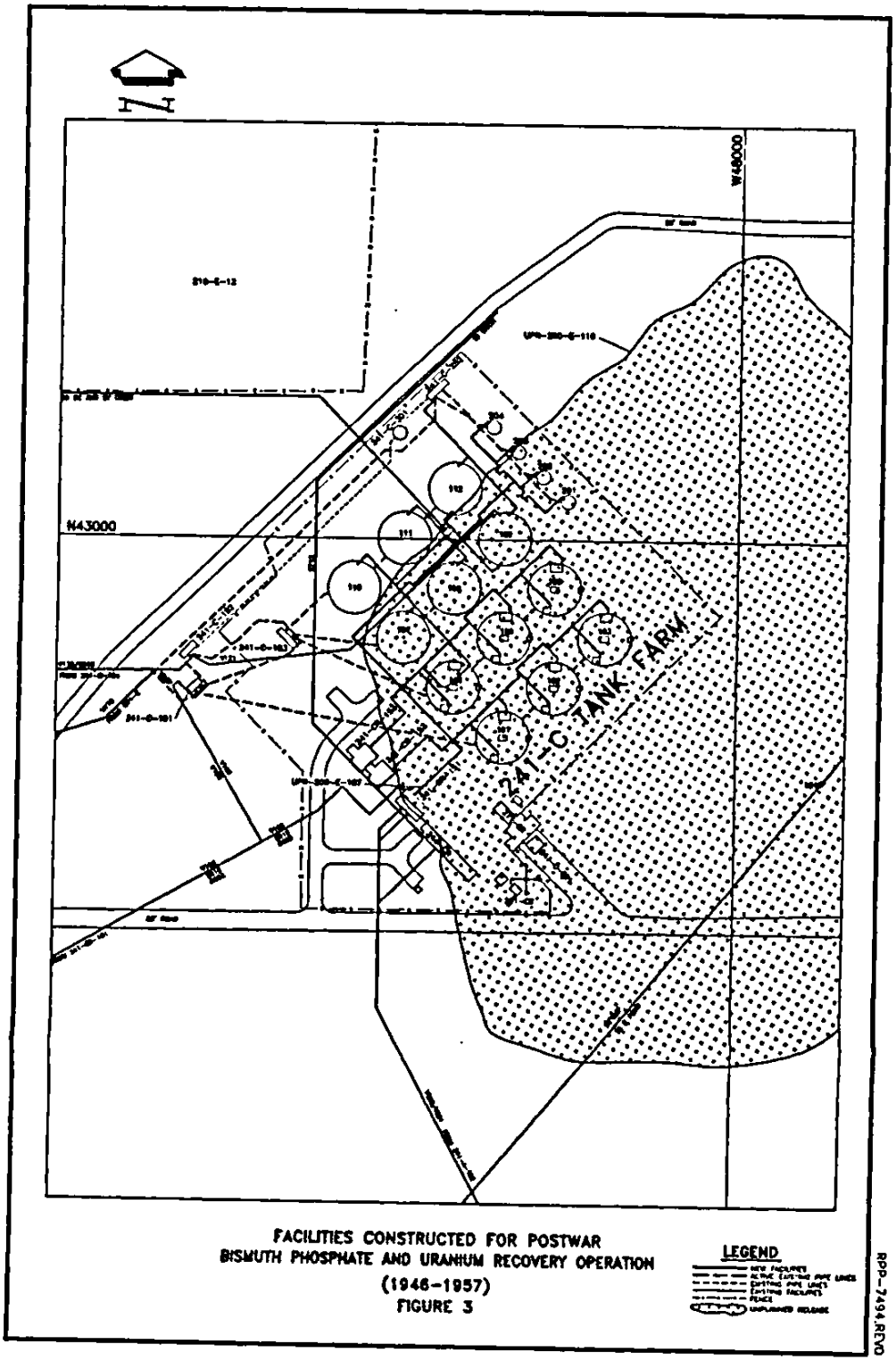


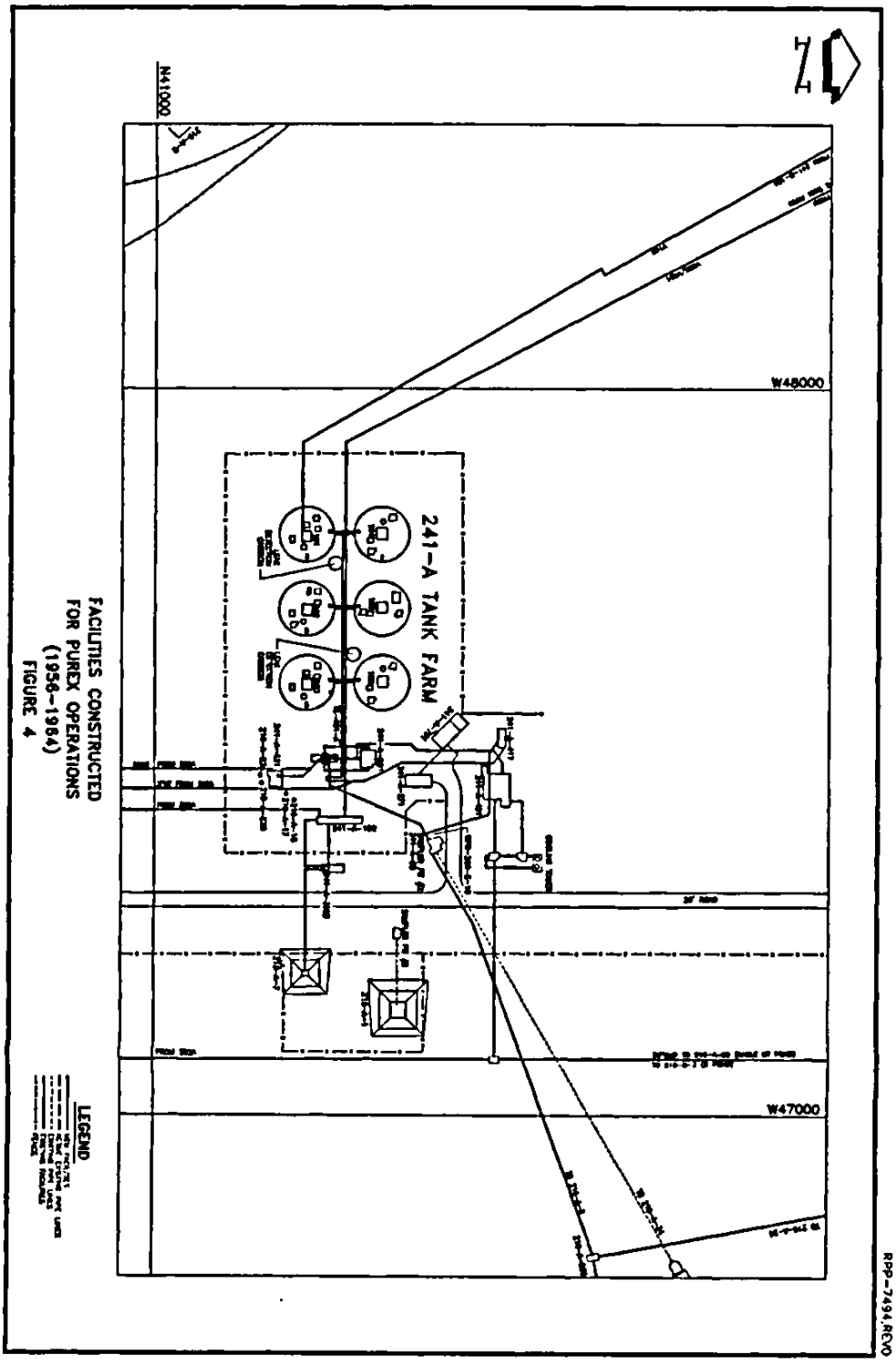
FACILITIES CONSTRUCTED FOR
THE MANHATTAN PROJECT
(1943-1945)
FIGURE 2

LEGEND

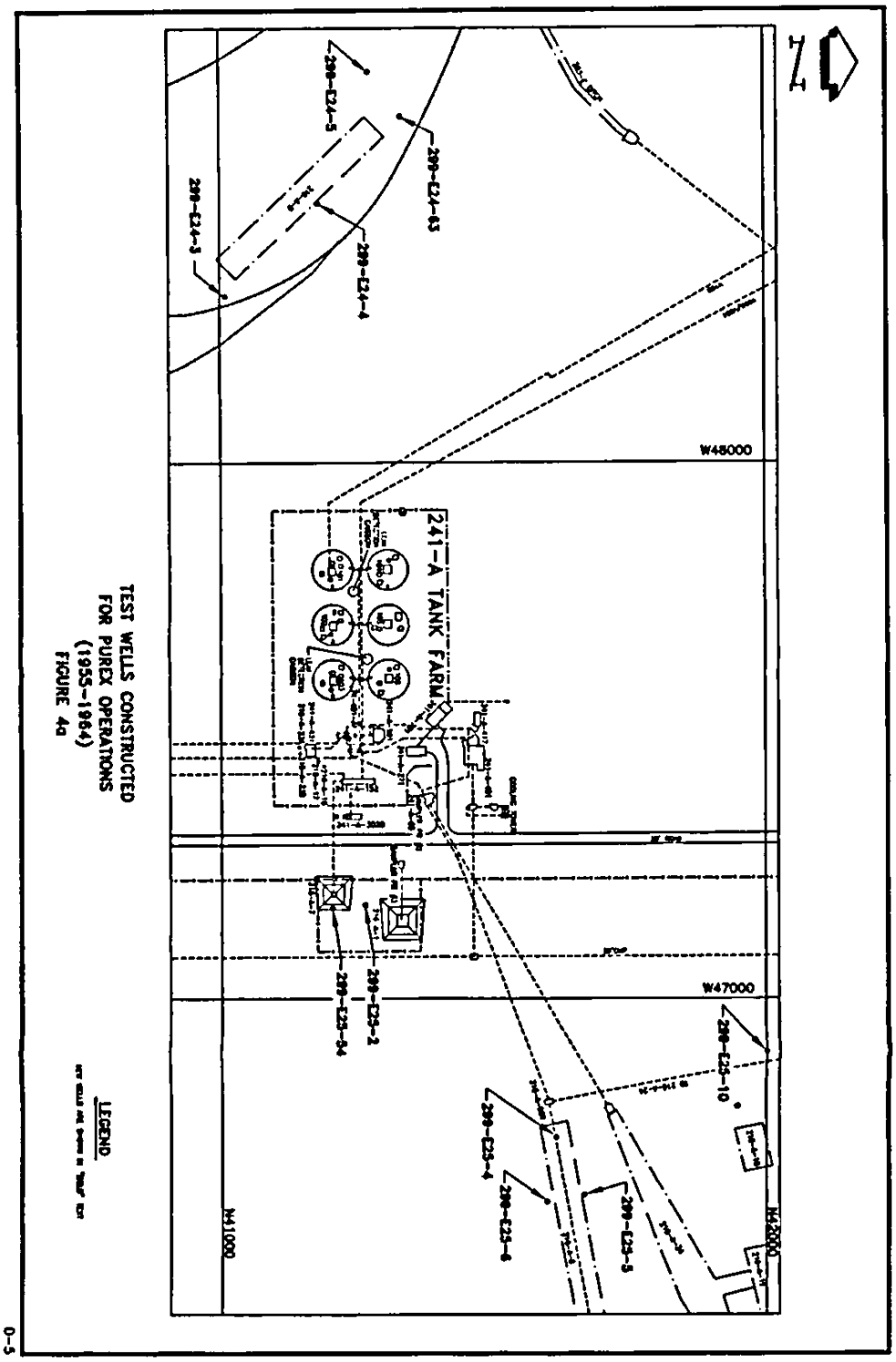
RPP-7494.REV0



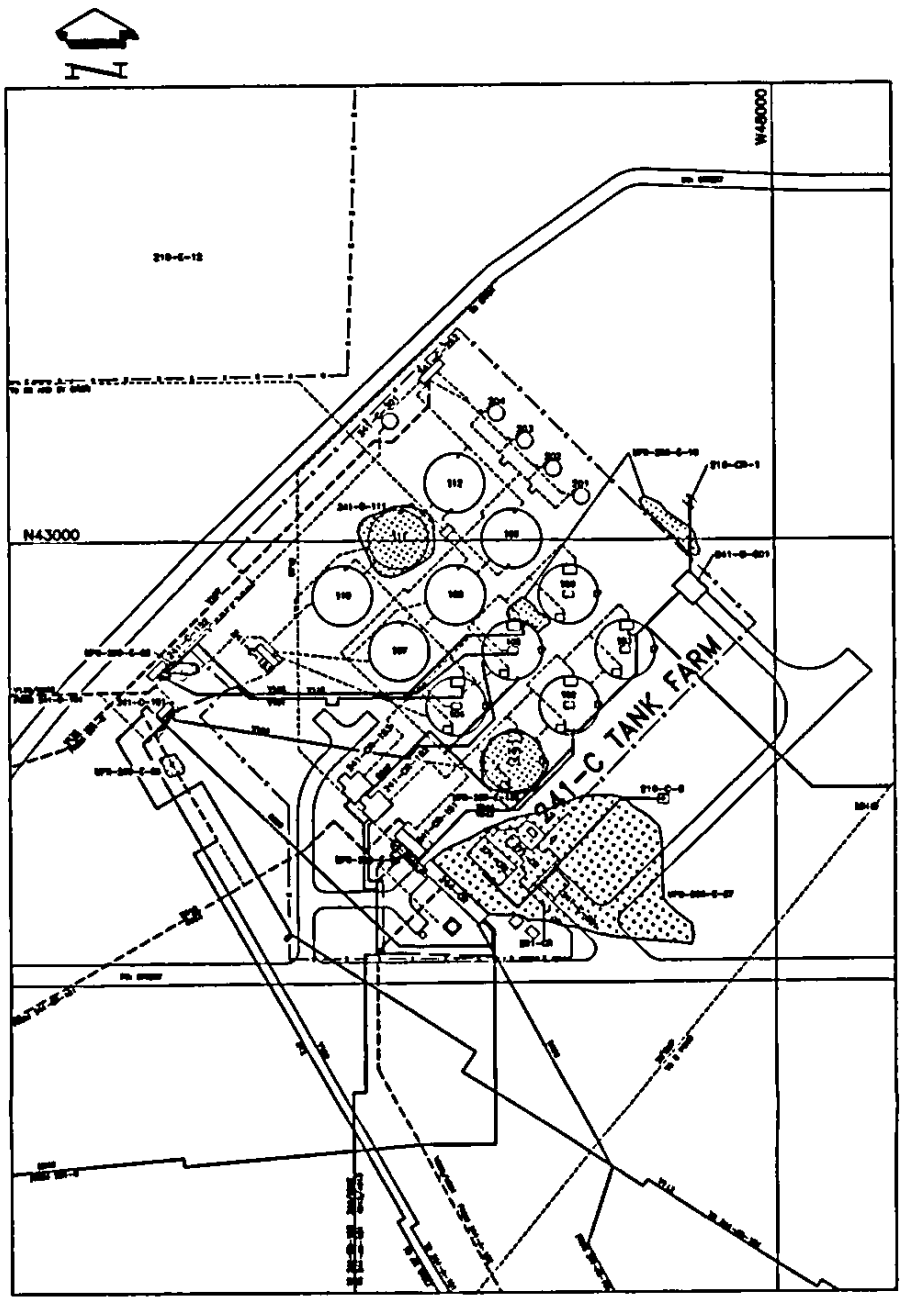
FACILITIES CONSTRUCTED FOR POSTWAR
BISMUTH PHOSPHATE AND URANIUM RECOVERY OPERATION
(1946-1957)
FIGURE 3



FACILITIES CONSTRUCTED
FOR PUREX OPERATIONS
(1956-1964)
FIGURE 4

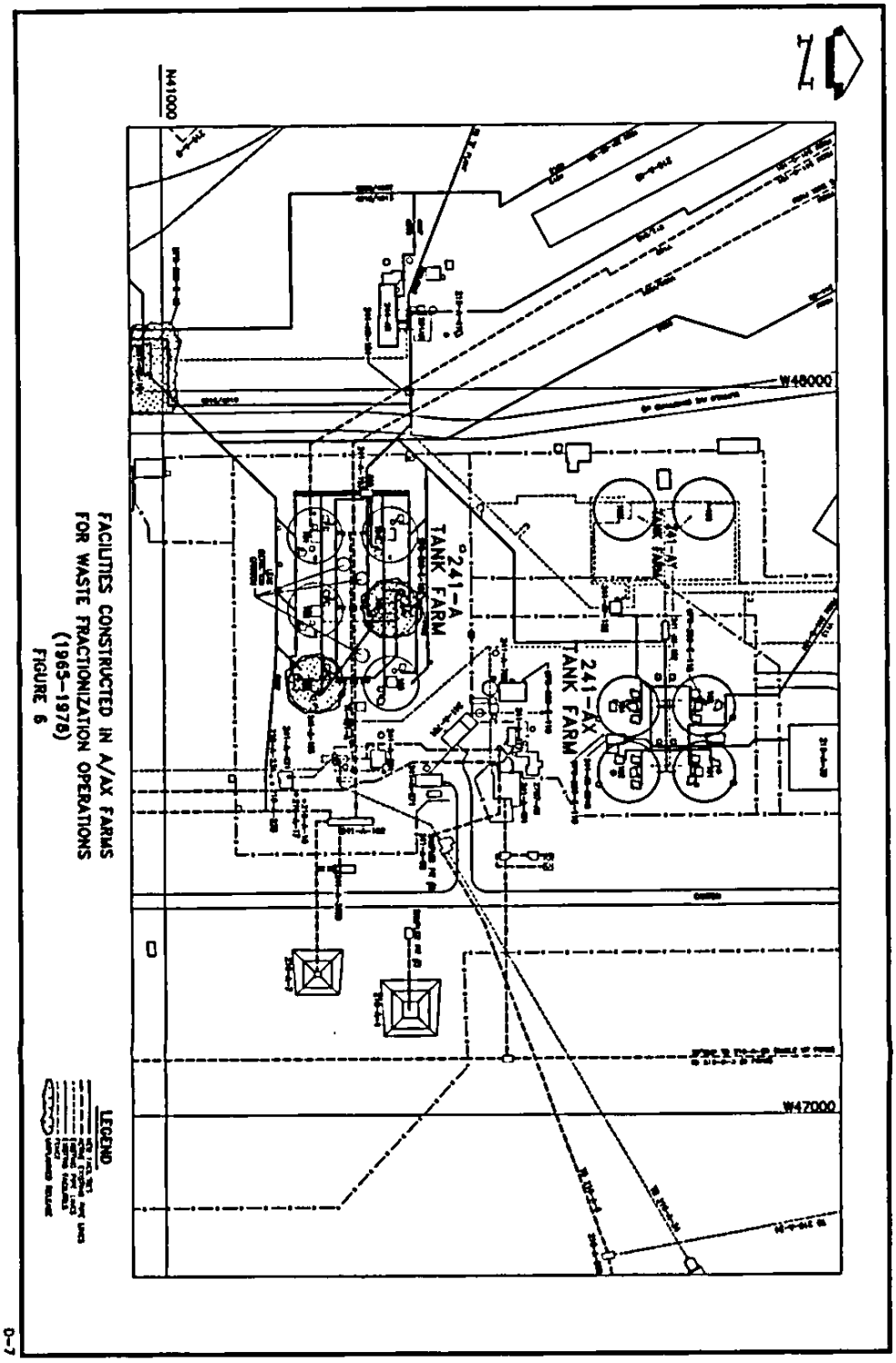


TEST WELLS CONSTRUCTED
FOR PUREX OPERATIONS
(1955-1964)
FIGURE 4a

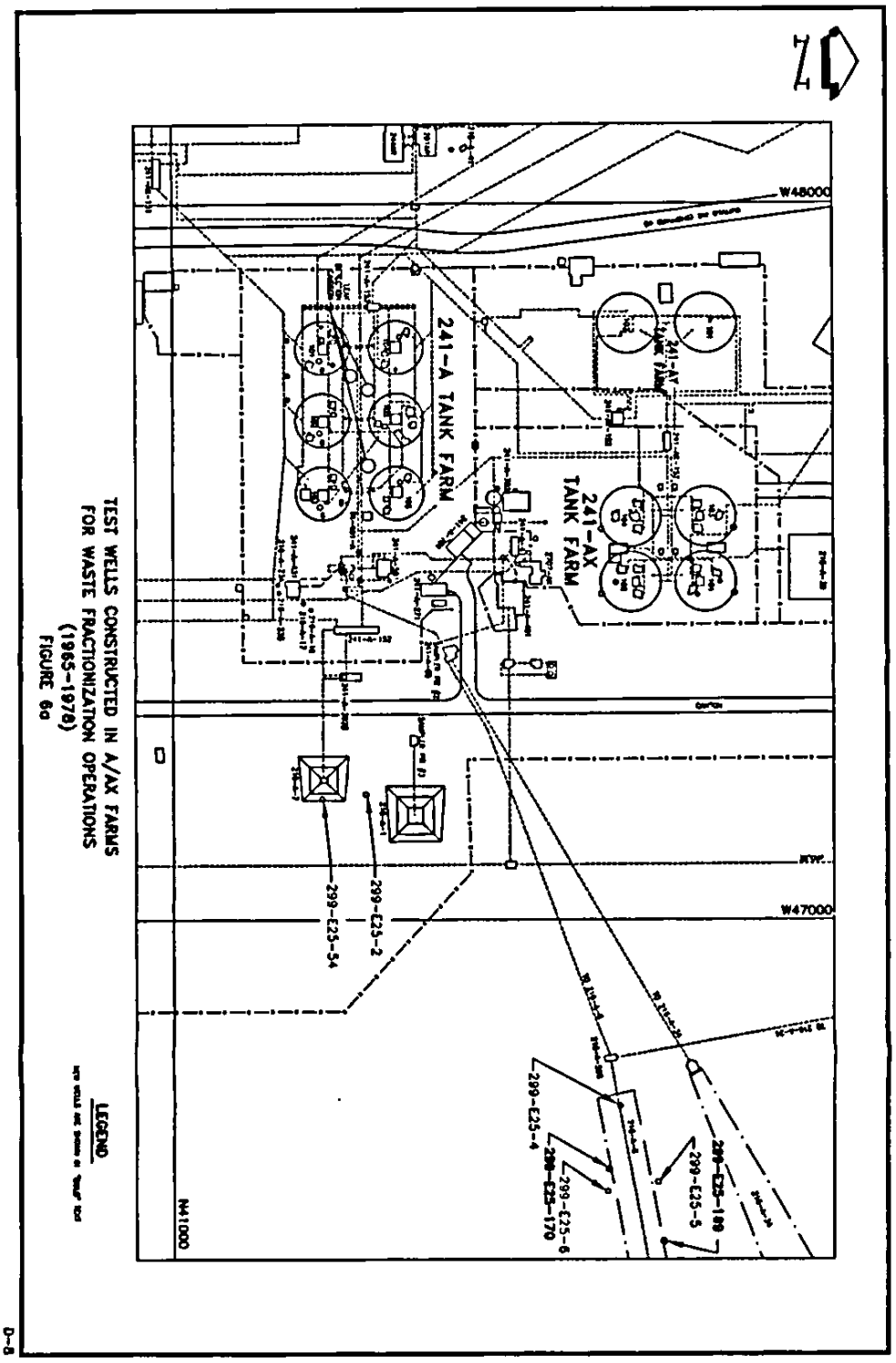


FACILITIES CONSTRUCTED IN C FARM
FOR WASTE FRACTIONIZATION OPERATIONS
(1961–1978)
FIGURE 5

RPP-7494,REV0

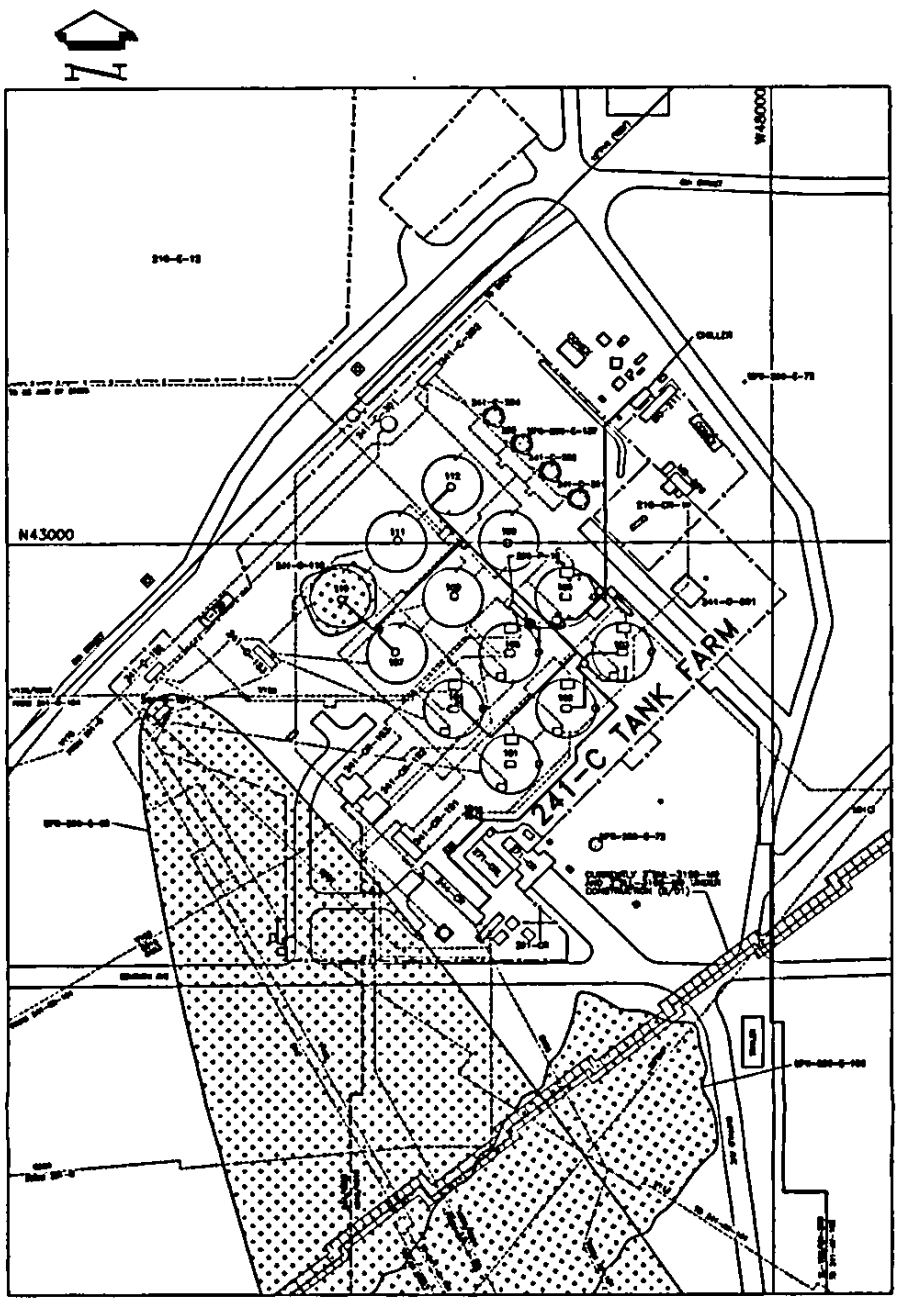


FACILITIES CONSTRUCTED IN A/AX FARMS
FOR WASTE FRACTIONIZATION OPERATIONS
(1965-1976)
FIGURE 6



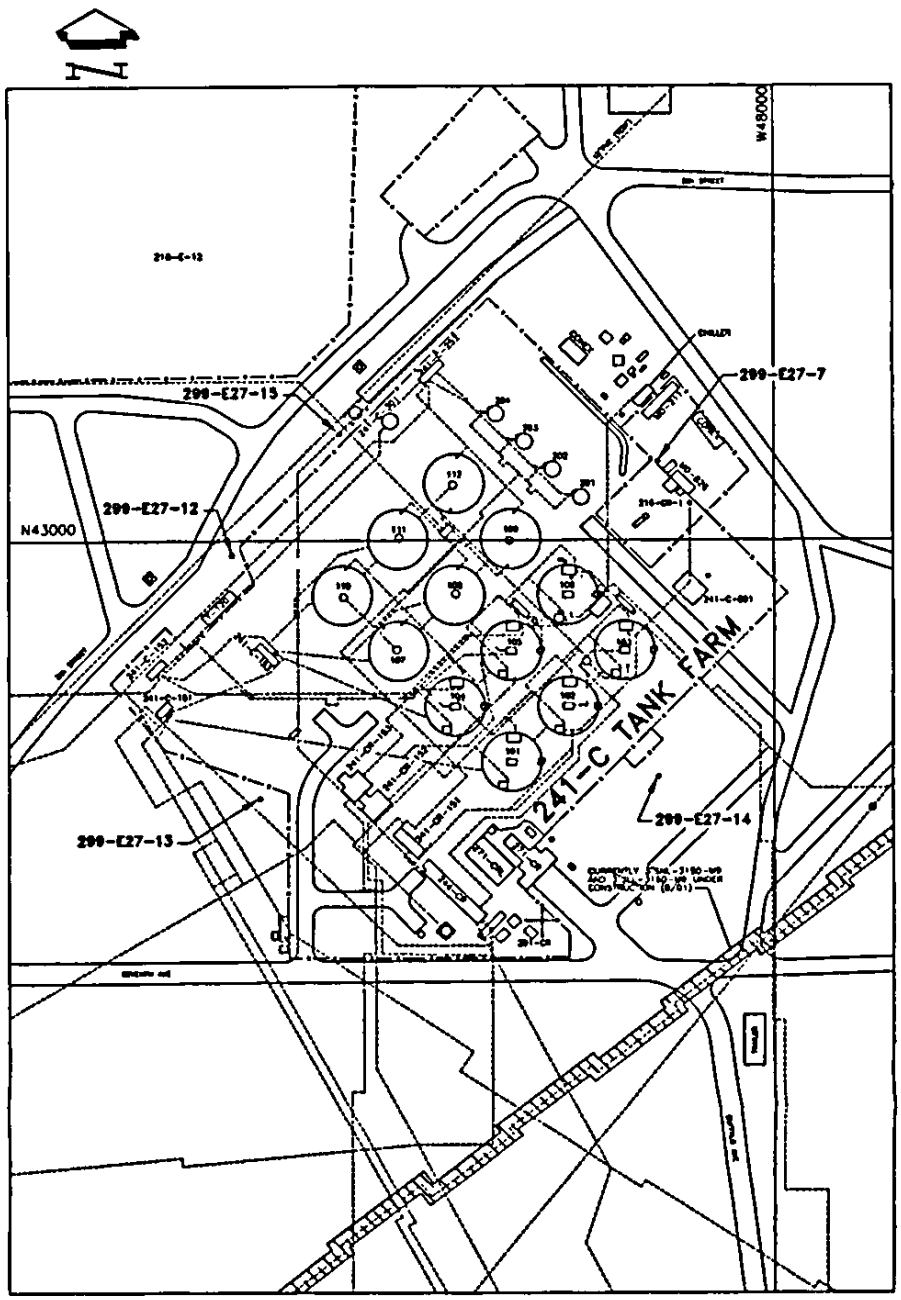
TEST WELLS CONSTRUCTED IN A/AX FARMS
FOR WASTE FRACTIONIZATION OPERATIONS
(1965-1976)
FIGURE 6a

RPP-7494.REV0



FACILITIES CONSTRUCTED IN C FARM
FOR INTERIM STABILIZATION AND ISOLATION
(1975-2001)
FIGURE 7

RPP-7496.REV0

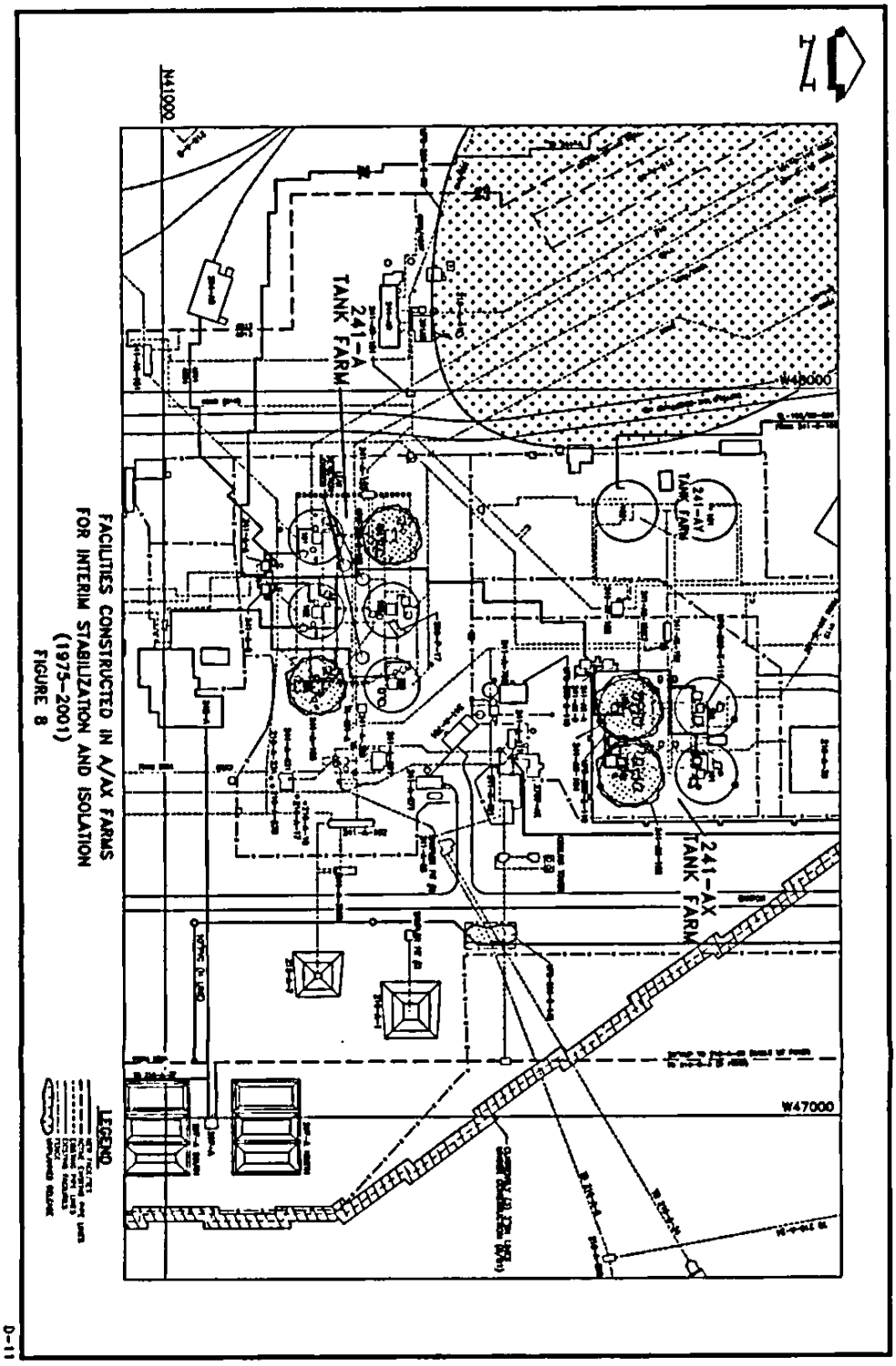


TEST WELLS CONSTRUCTED IN C FARM
FOR INTERIM STABILIZATION AND ISOLATION
(1975-2001)
FIGURE 7a

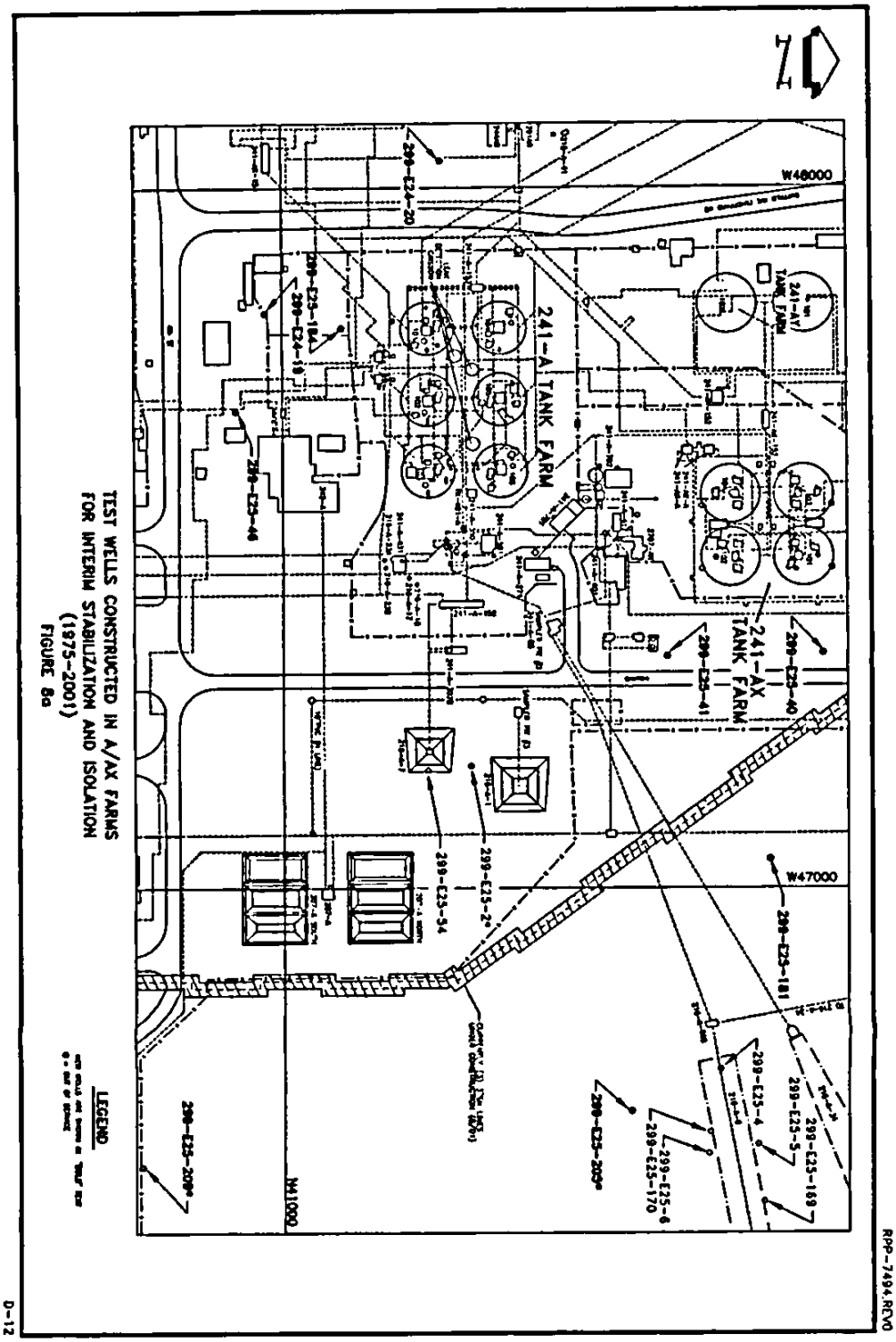
LEGEND

RPP-7494, REV0

D-10



FACILITIES CONSTRUCTED IN A/AX FARMS FOR INTERIM STABILIZATION AND ISOLATION (1975–2001)
FIGURE 8



TEST WELLS CONSTRUCTED IN A/AX FARMS
FOR INTERIM STABILIZATION AND ISOLATION
(1975-2001)
FIGURE 8a

RPP-7494.REV0

D-12