

SUPPLEMENTAL TECHNICAL INFORMATION  
IN SUPPORT OF Y/OWI/TM-44\*

*file*

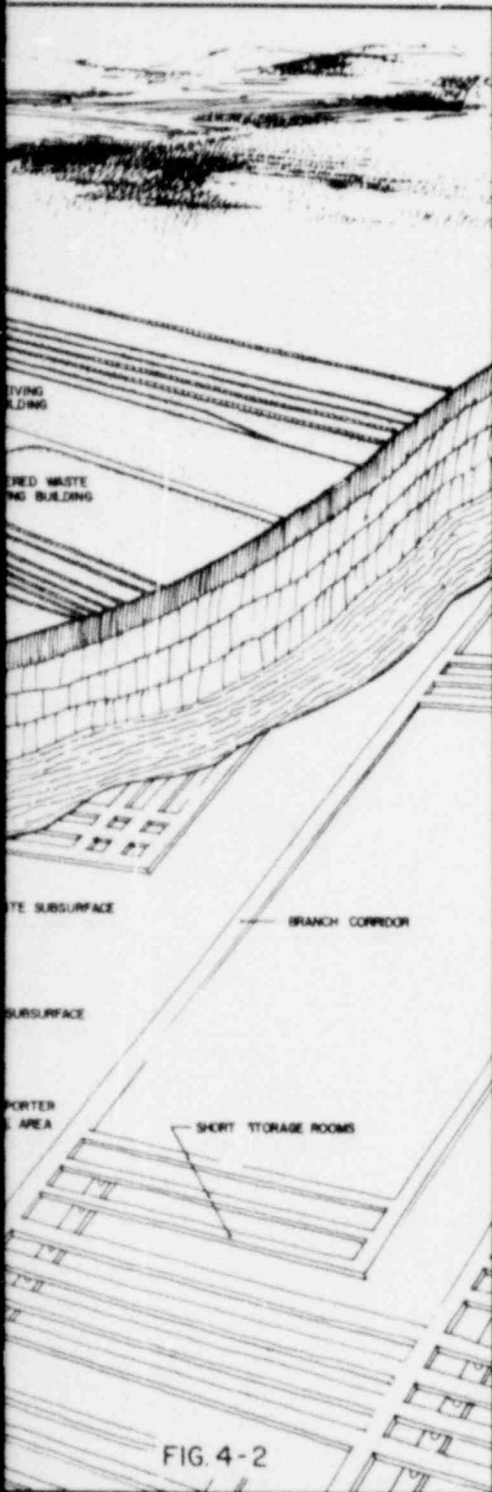
Volume 17

DRAWINGS FOR REPOSITORY PRECONCEPTUAL  
DESIGN STUDIES: BPNL WASTE FORMS IN SALT

April 1978

Prepared By

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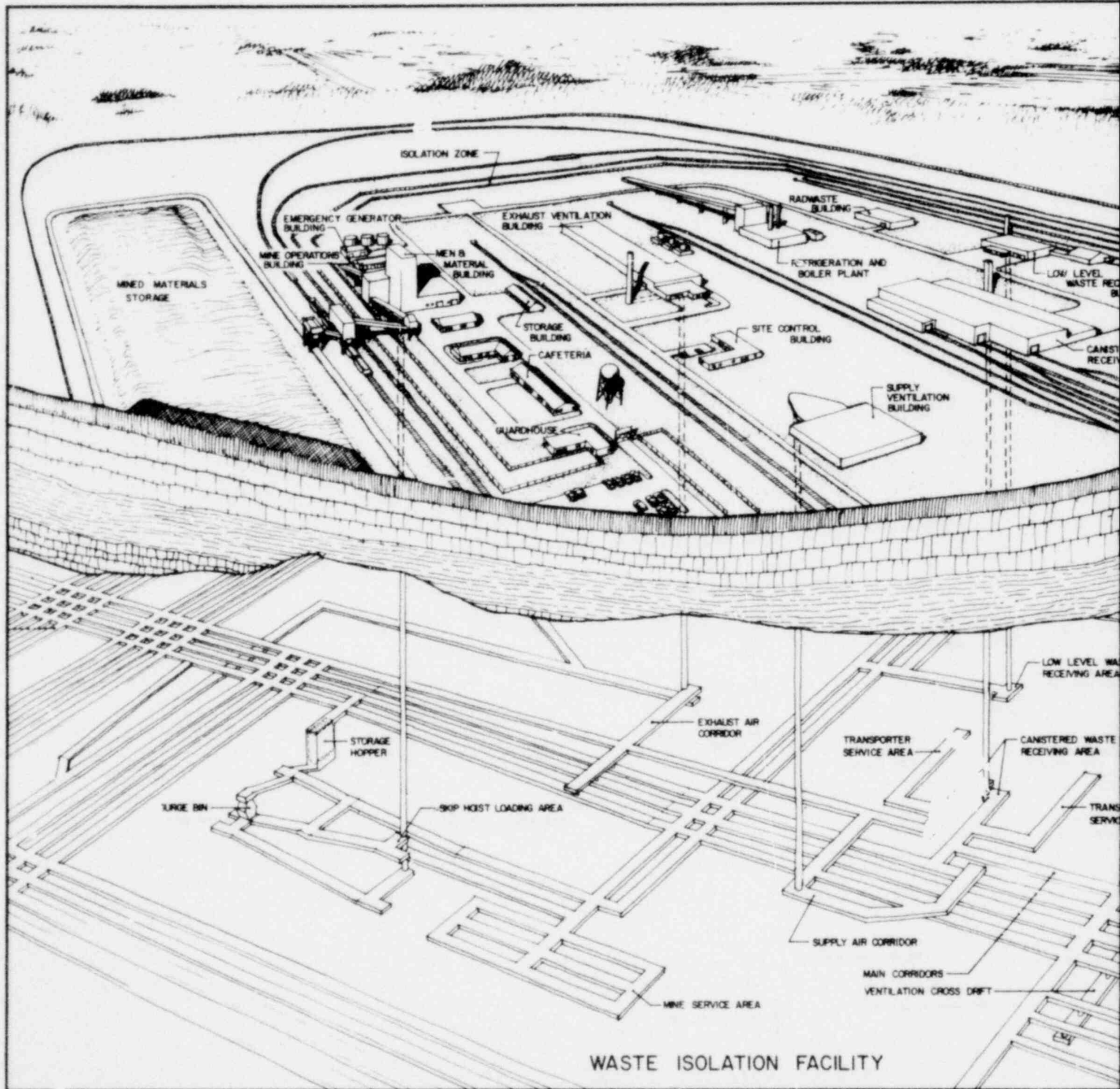


OFFICE OF WASTE ISOLATION  
OAK RIDGE TENNESSEE

prepared for the U.S. DEPARTMENT OF ENERGY under  
U.S. GOVERNMENT Contract W-7405 eng 26

*This report was prepared by Parsons Brinckerhoff Quade & Douglas, Inc. under subcontract 62Y-45702C with Union Carbide Corporation, Nuclear Division. The subcontract was administered by the Office of Waste Isolation.*

*\*Y/OWI/TM-44 is entitled, "Contribution To Draft Generic Environmental Impact Statement on Commercial Waste Management: Radioactive Waste Isolation in Geologic Formations".*



8φφ131φφ18

# BPNL ALTERNATE

DRAWING

## TITLE

SITE AND PLOT PLAN  
CANISTERED WASTE RECYG. BLDG.  
GROUND FLOOR PLAN  
BASEMENT PLAN  
SECTION - DRUM HANDLING UNIT  
SECTION - CANISTER HANDLING UNIT  
SCHEMATIC FLOW DIAGRAM  
VENTILATION FLOW DIAGRAM  
LOW LEVEL WASTE RECYG. BLDG.  
PLAN AND SECTION  
SCHEMATIC FLOW DIAGRAM  
VENTILATION FLOW DIAGRAM  
EXHAUST VENTILATION BLDG.  
MINE VENTILATION FLOW DIAGRAM  
SUBTERRANEAN VENTILATION SYSTEM  
ELECTRICAL ONE LINE DIAGRAM  
MINING AND PLACEMENT SCHEDULE (HLM OR PWR)  
MINING AND PLACEMENT SCHEDULE (ILM & CM OR BWR)  
MINE MASTER PLAN  
MINE PARTIAL PLAN  
SECTIONS  
ROOM AND CORRIDOR LAYOUT  
INVERT STORAGE DETAILS  
LOW LEVEL WASTE STORAGE - DETAILS  
LOW LEVEL WASTE SUBSURFACE RECYG. STATION

## NOTE:

THIS SET OF DRAWINGS IS PREPARED AS  
THE TM-36/7, 36/8 AND 36/16 DOCUMENT

# IMPACT STUDY

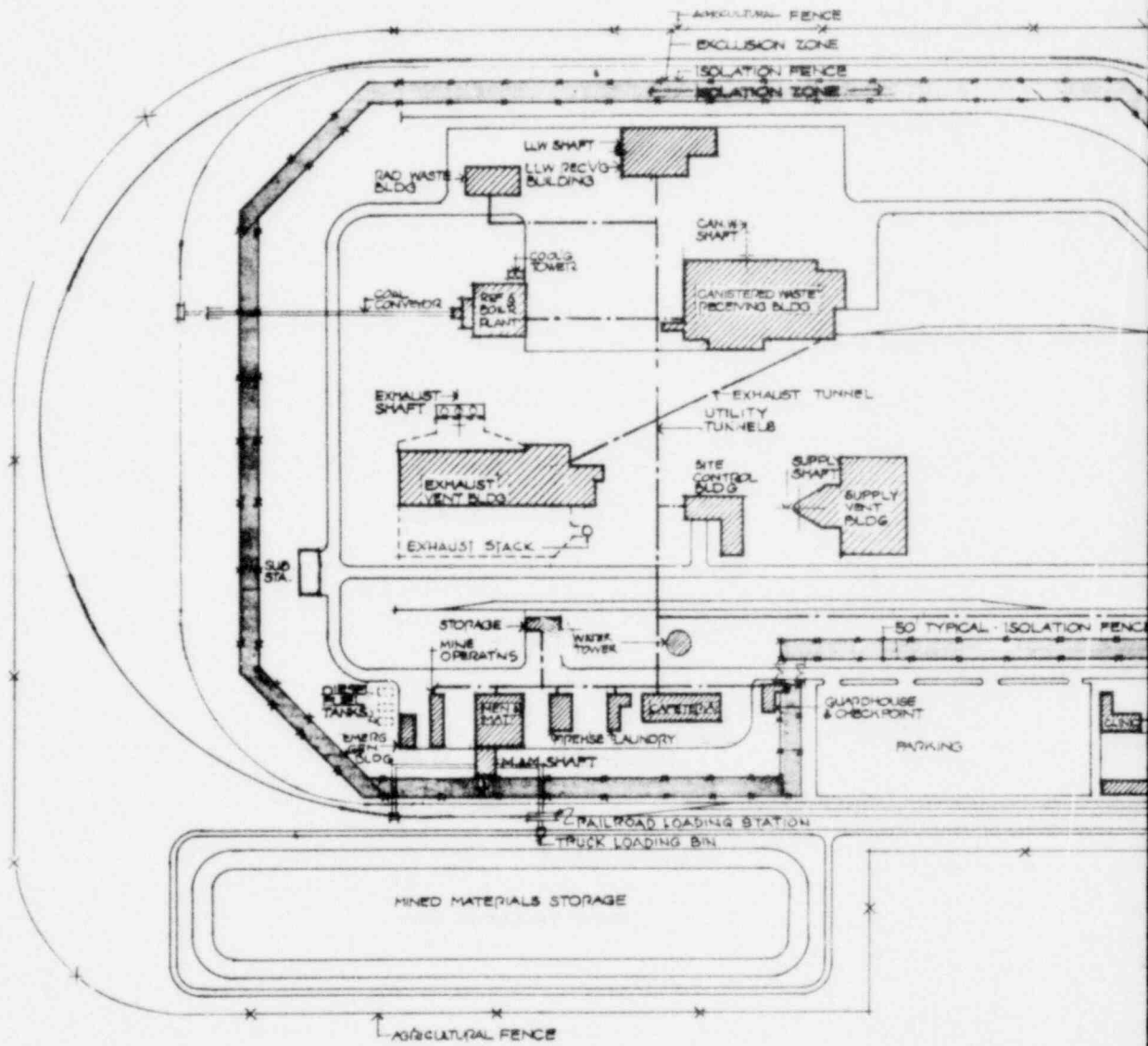
LIST

## 5-YR. RETRIEVABLE

CYCLE NO.	I	II	III
100	200	300	
101	201	101	
102	202	102	
103	-	103	
104	204	104	
105	205	105	
106	206	106	
107	107	107	
108	108	108	
109	109	109	
110	110	110	
111	211	111	
112	212	312	
113	213	313	
114	214	314	
115	215	315	
116	216	316	
117	-	317	
118	218	118	
119	219	119	
120	-	120	
121	-	121	

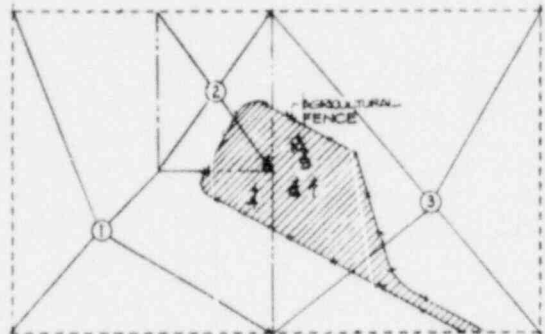
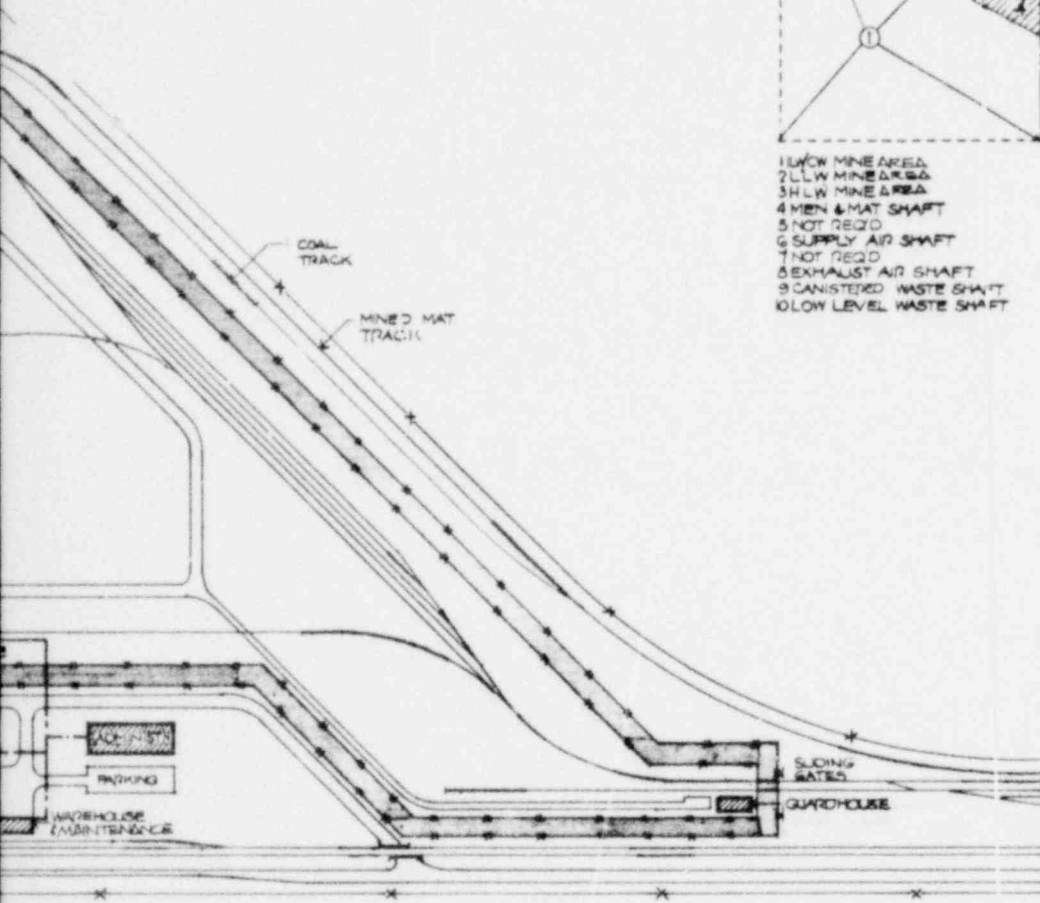
A SUPPLEMENT TO  
S.

OFFICE OF WASTE ISOLATION UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS NEW YORK, N.Y.		
WASTE ISOLATION FACILITY INDEX OF DRAWINGS SALT-BPM. WASTE PACKAGES		
SCALE: —	CONTRACT NO. 62Y-45702C	
DATE: FEBRUARY, 1978	DWG. NO. —	REV.



**Site Plan**





- 1 U/W MINE AREA
- 2 LLW MINE AREA
- 3 HLW MINE AREA
- 4 MEN & MAT SHAFT
- 5 NOT REQ'D
- 6 SUPPLY AIR SHAFT
- 7 NOT REQ'D
- 8 EXHAUST AIR SHAFT
- 9 CANISTERED WASTE SHAFT
- 10 LOW LEVEL WASTE SHAFT

PLOT PLAN



OFFICE OF WASTE ISOLATION  
 UNION CARBIDE CORPORATION  
 NUCLEAR DIVISION  
 OAK RIDGE, TENNESSEE

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC.  
 ENGINEERS NEW YORK, N.Y.

WASTE ISOLATION FACILITY  
 REPOSITORY-SITE AND PLOT PLAN

SALT-BPNL WASTE PACKAGES

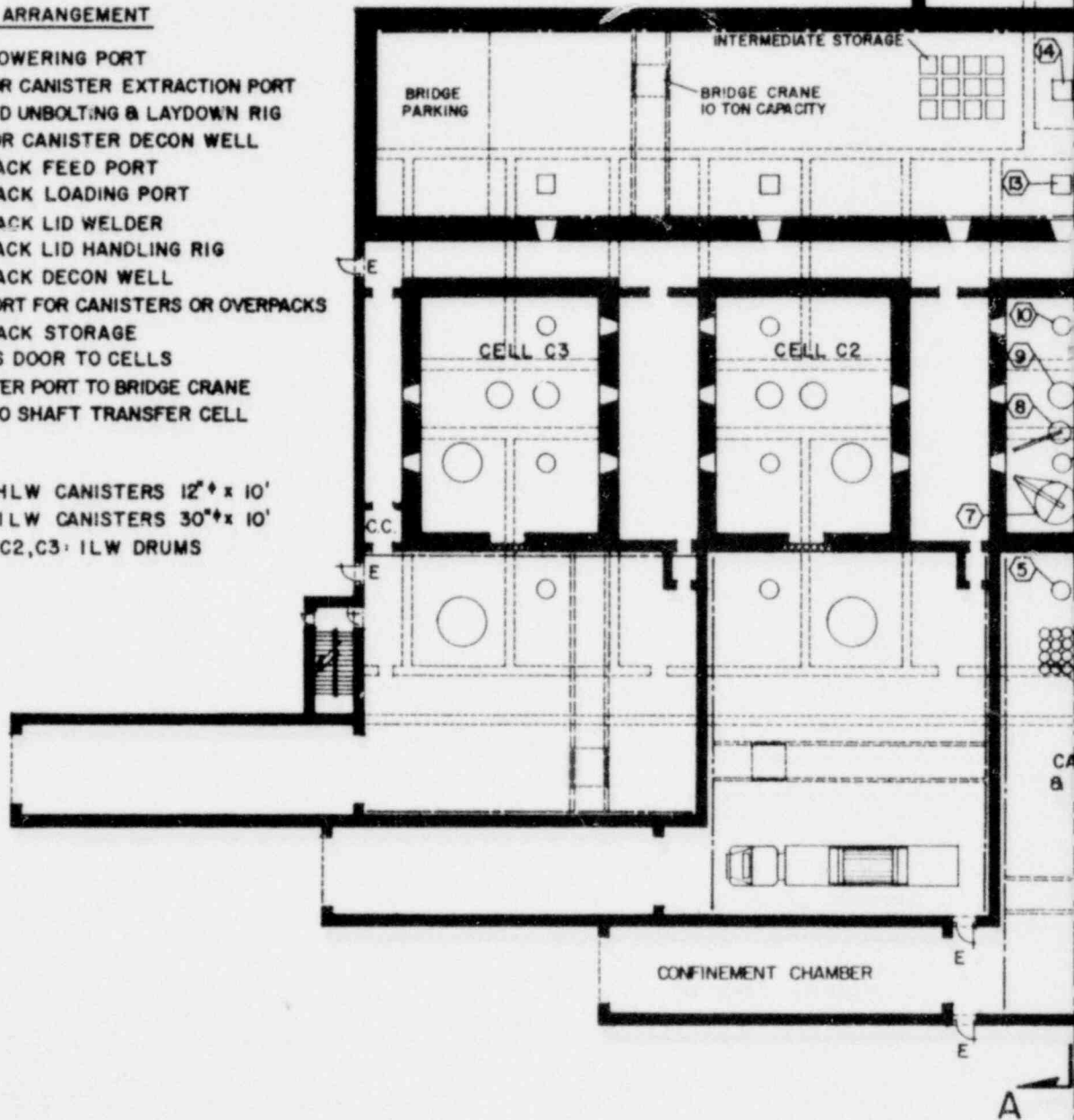
SCALE: AS NOTED	CONTRACT NO. 62Y-45702C
DATE: FEBRUARY, 1978	DWG. NO. 100
	REV.

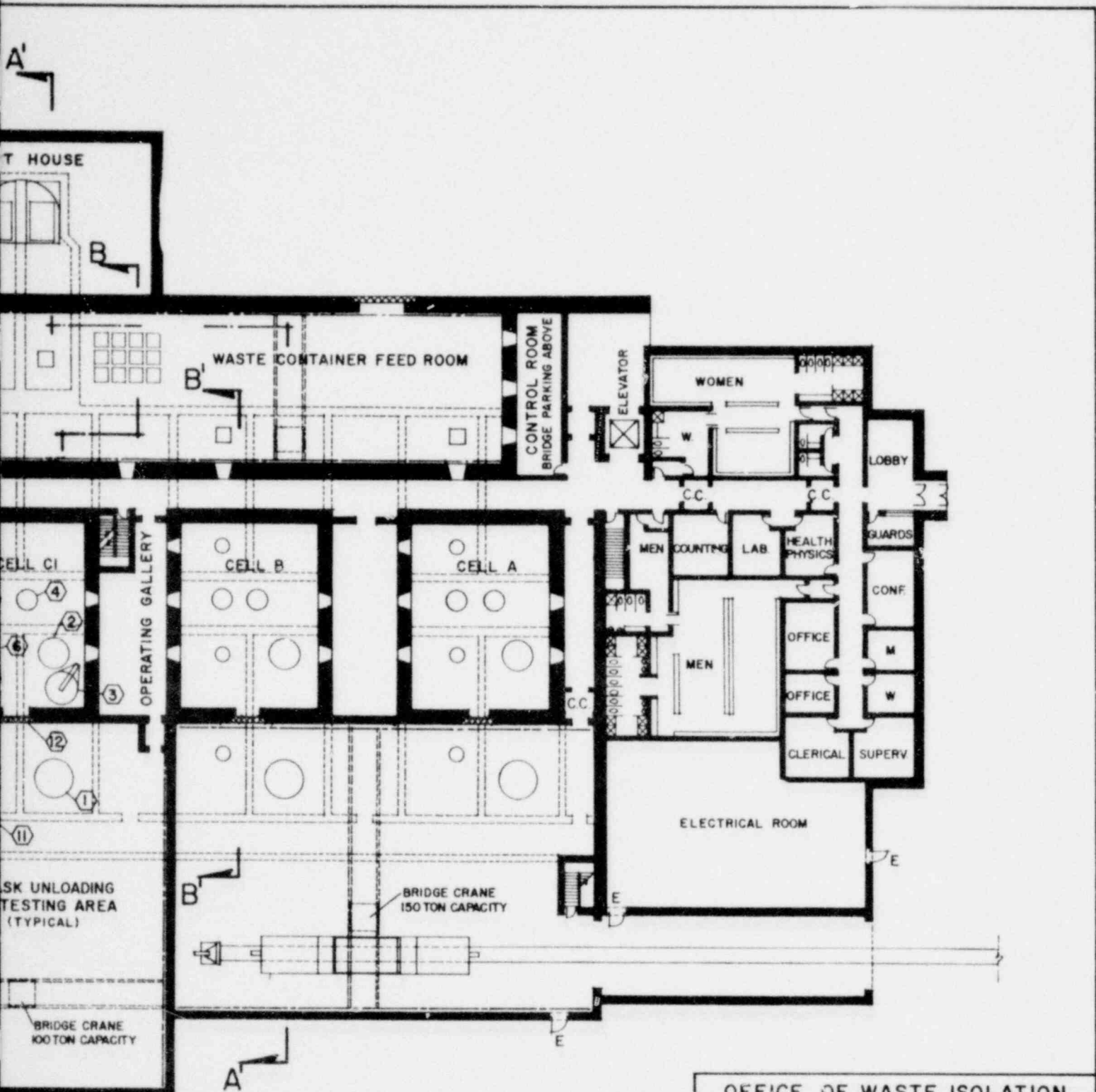
CYCLE I: FULL RECYCLE

TYPICAL ARRANGEMENT

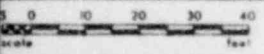
- 1 CASK LOWERING PORT
- 2 DRUM OR CANISTER EXTRACTION PORT
- 3 CASK LID UNBOLTING & LAYDOWN RIG
- 4 DRUM OR CANISTER DECON WELL
- 5 OVERPACK FEED PORT
- 6 OVERPACK LOADING PORT
- 7 OVERPACK LID WELDER
- 8 OVERPACK LID HANDLING RIG
- 9 OVERPACK DECON WELL
- 10 EXIT PORT FOR CANISTERS OR OVERPACKS
- 11 OVERPACK STORAGE
- 12 ACCESS DOOR TO CELLS
- 13 TRANSFER PORT TO BRIDGE CRANE
- 14 PORT TO SHAFT TRANSFER CELL

CELL A: HLW CANISTERS 12' x 10'  
 CELL B: ILW CANISTERS 30' x 10'  
 CELLS C1, C2, C3: ILW DRUMS





**GROUND FLOOR PLAN**



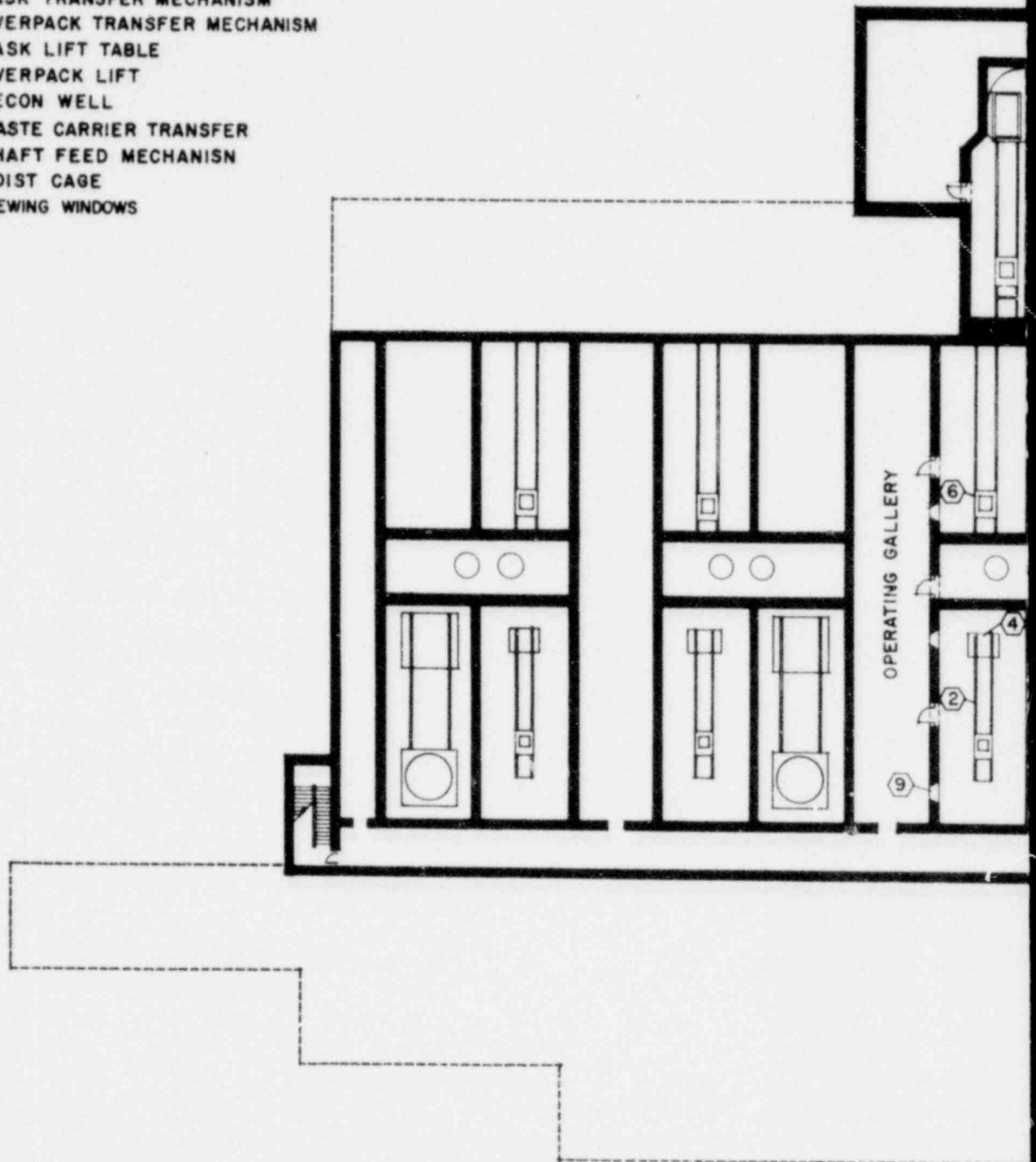
CYCLE I: FULL RECYCLE  
 OR  
 CYCLE III: URANIUM RECYCLE WITH PU IN HLW

<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. <small>ENGINEERS NEW YORK, N.Y.</small>		
<b>WASTE ISOLATION FACILITY</b> <b>CANISTERED WASTE RECEIVING BUILDING</b> SALT - BPNL WASTE PACKAGES		
SCALE: 1/16" = 1'-0"	CONTRACT NO. 62Y-45702C	
DATE: FEBRUARY, 1978	DWG. NO. 101	REV.

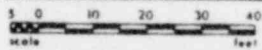


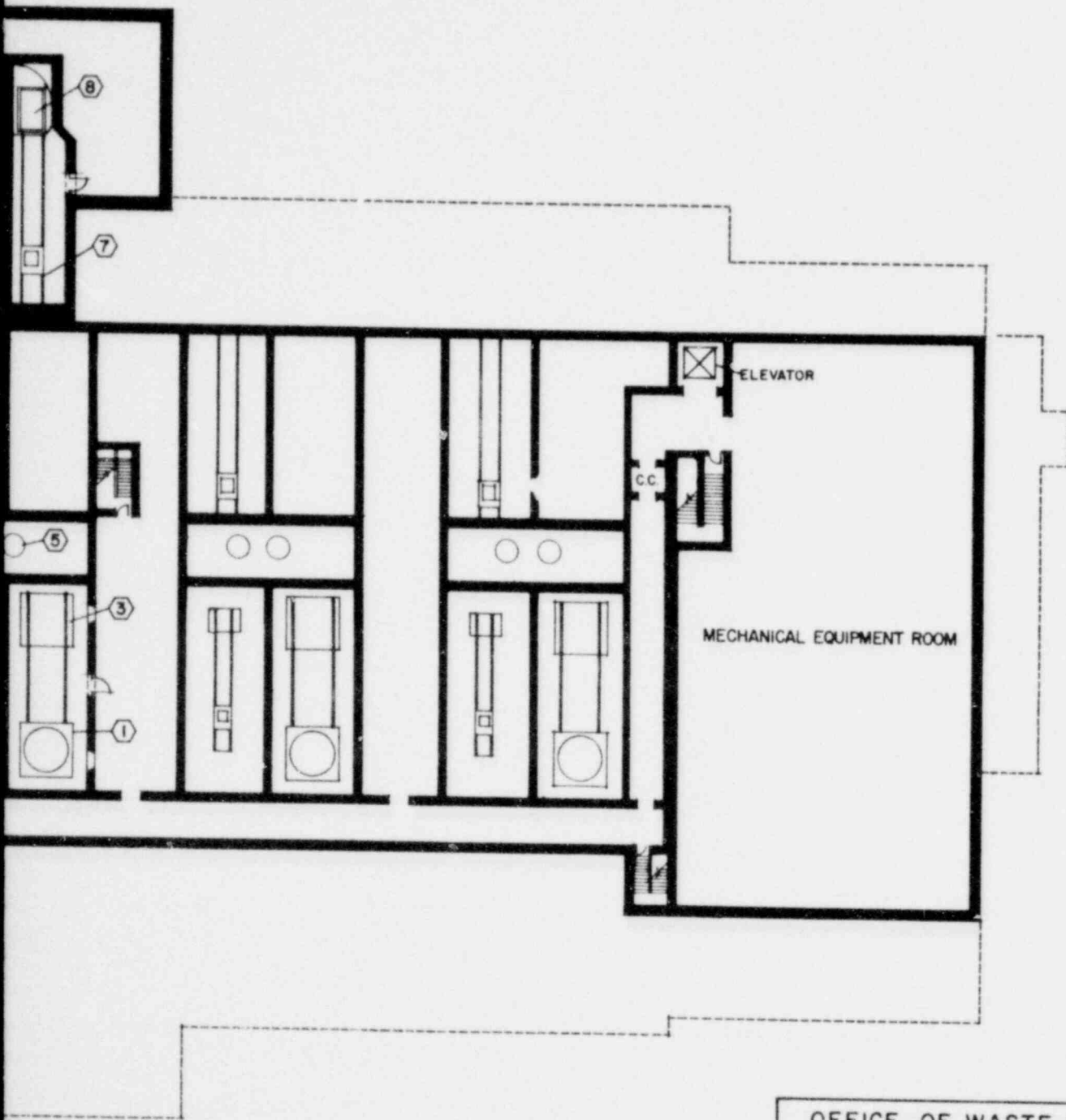
TYPICAL ARRANGEMENT

- 1 CASK TRANSFER MECHANISM
- 2 OVERPACK TRANSFER MECHANISM
- 3 CASK LIFT TABLE
- 4 OVERPACK LIFT
- 5 DECON WELL
- 6 WASTE CARRIER TRANSFER
- 7 SHAFT FEED MECHANISM
- 8 HOIST CAGE
- 9 VIEWING WINDOWS



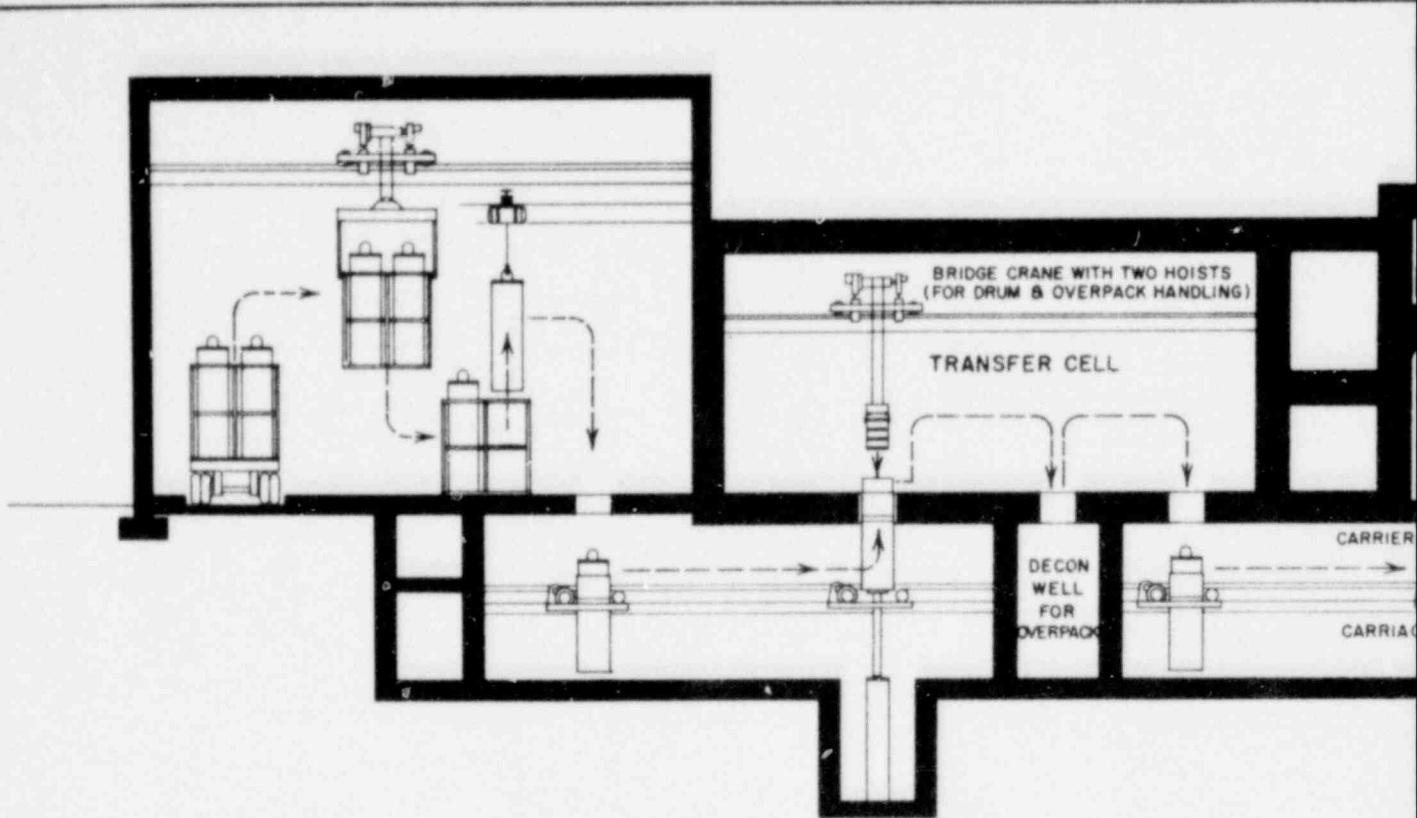
BASEMENT PLAN



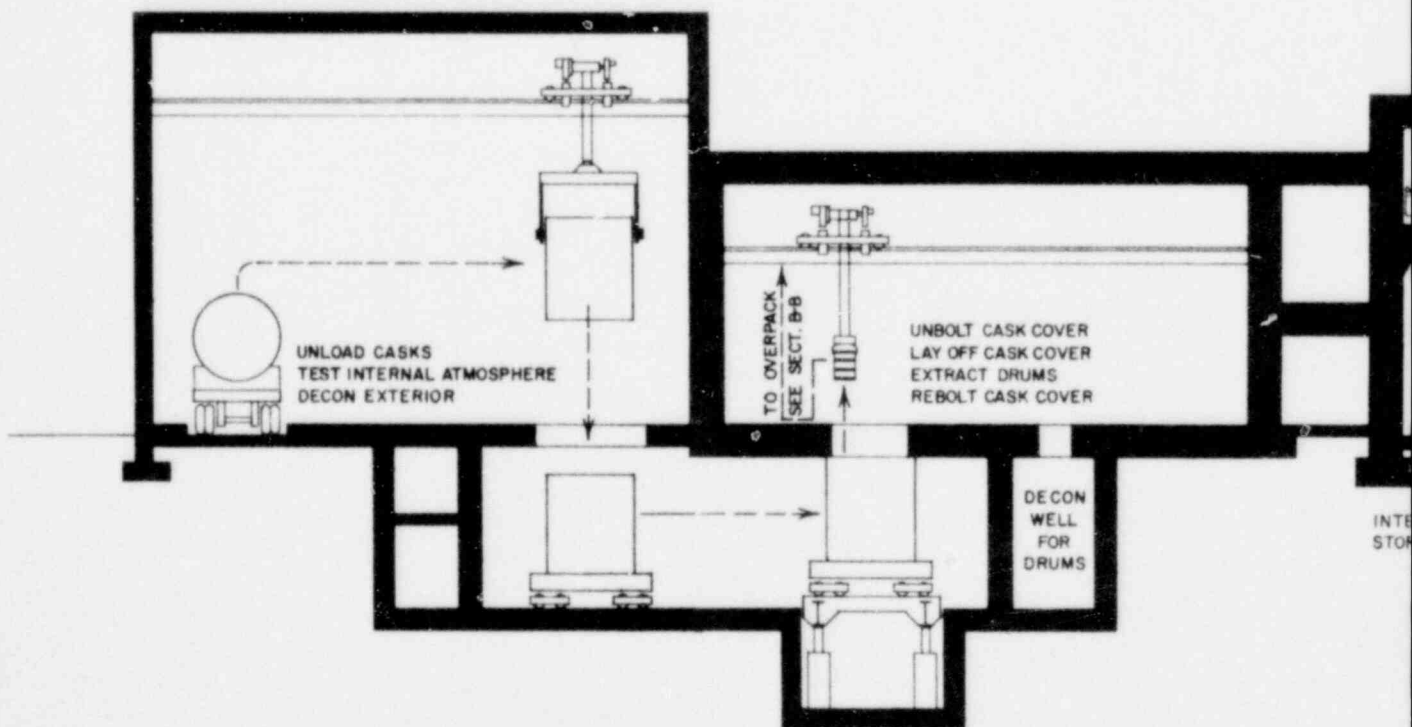


CYCLE I: FULL RECYCLE  
 OR  
 CYCLE III: URANIUM RECYCLE WITH PU IN HLW

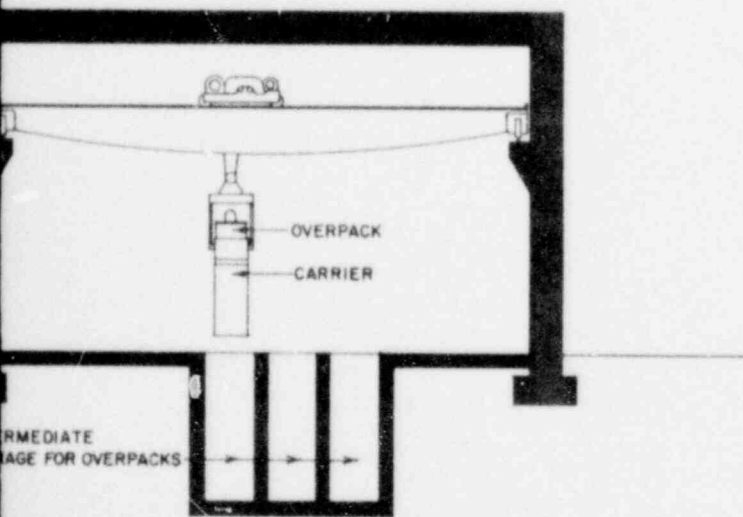
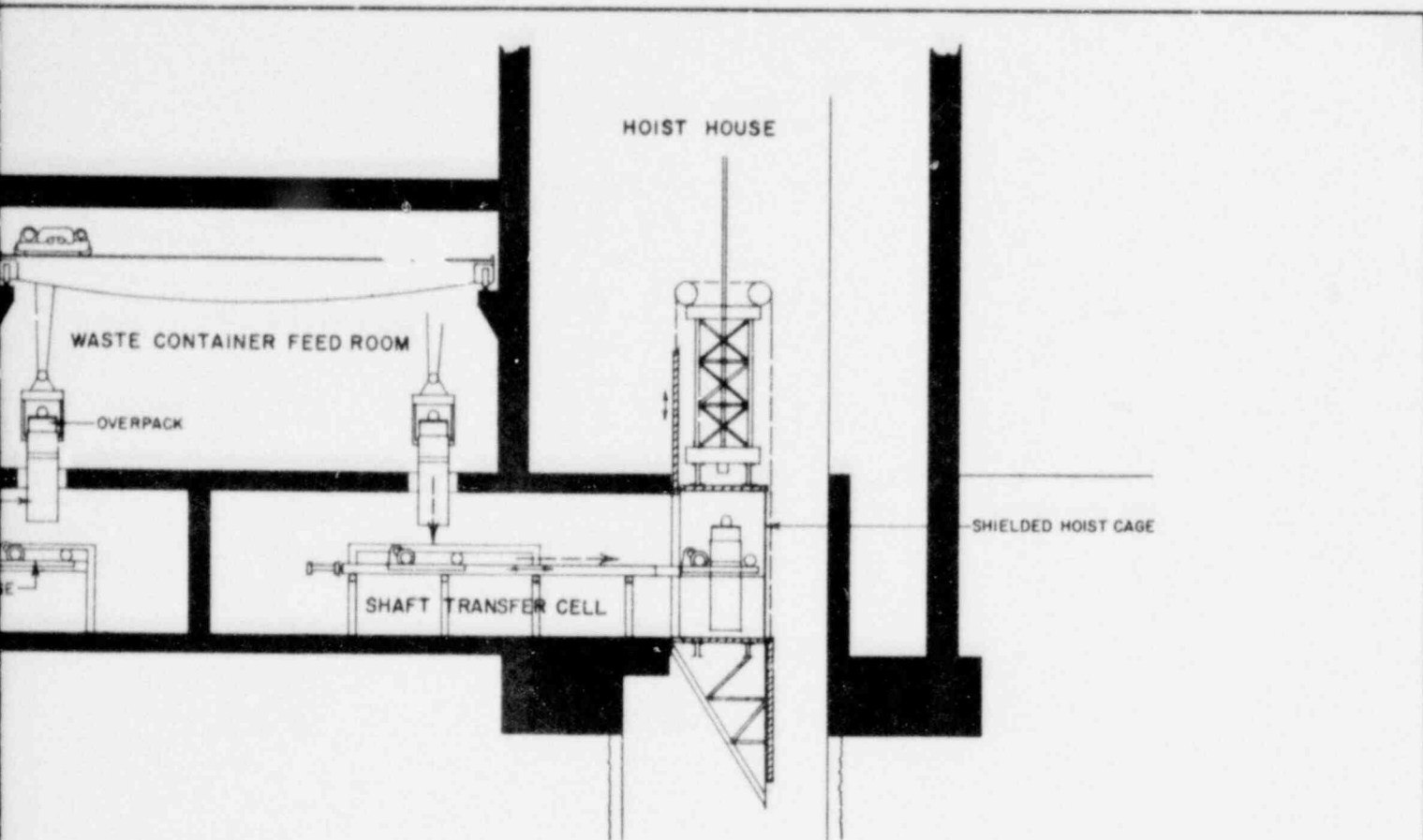
OFFICE OF WASTE ISOLATION UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS NEW YORK, N.Y.		
WASTE ISOLATION FACILITY CANISTERED WASTE RECEIVING BUILDING SALT - BPNL WASTE PACKAGES		
SCALE: 1/16" = 1'-0"	CONTRACT NO. 62Y-45702C	
DATE: FEBRUARY, 1978	DWG. NO. 102	REV.



SECTION A-A (OVERPACK HANDLING)

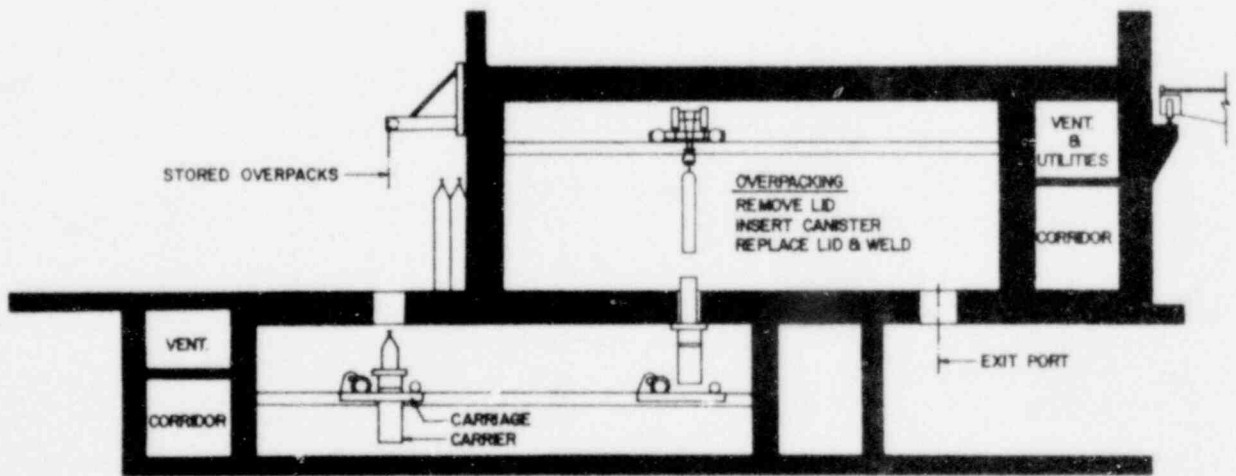
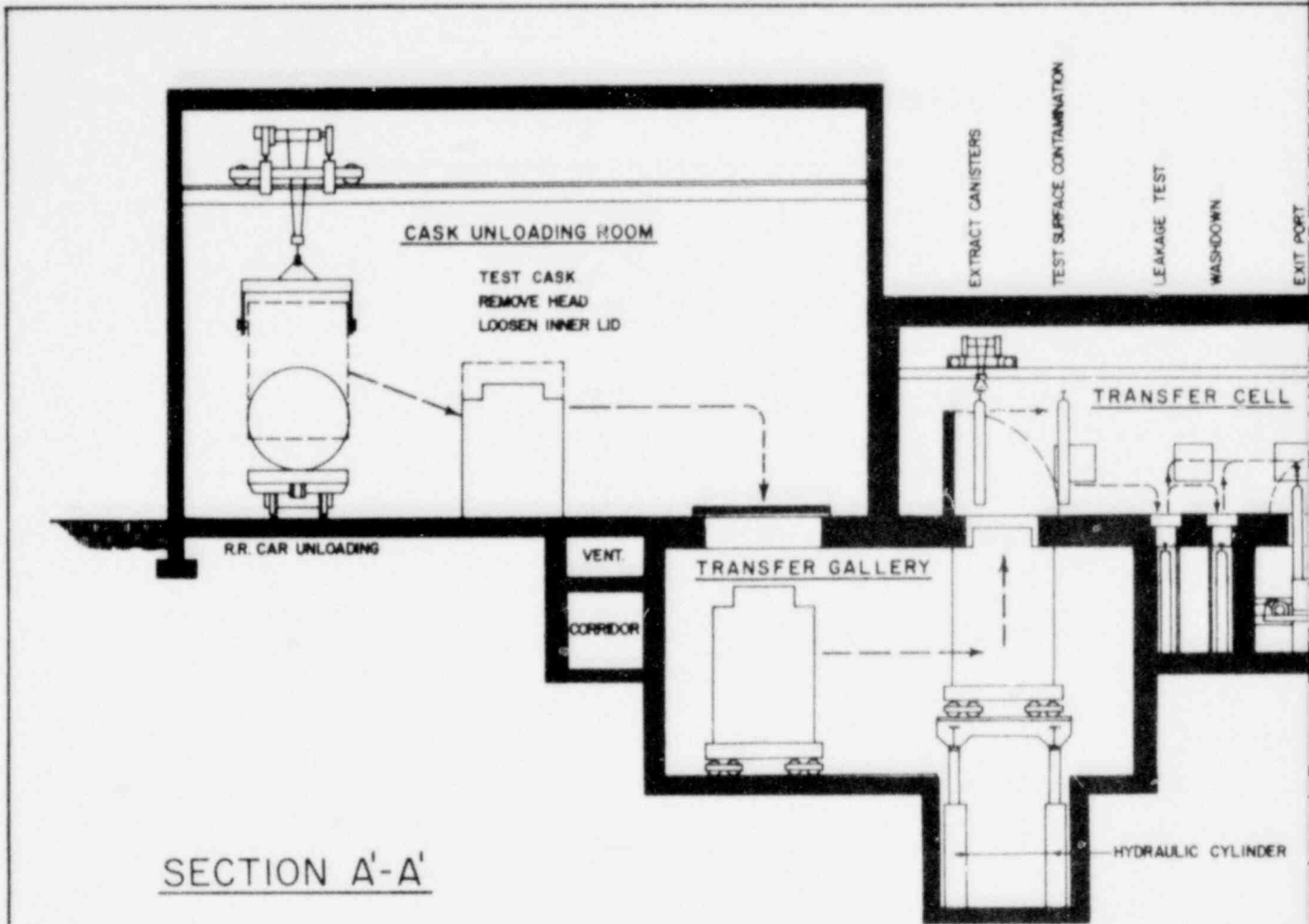


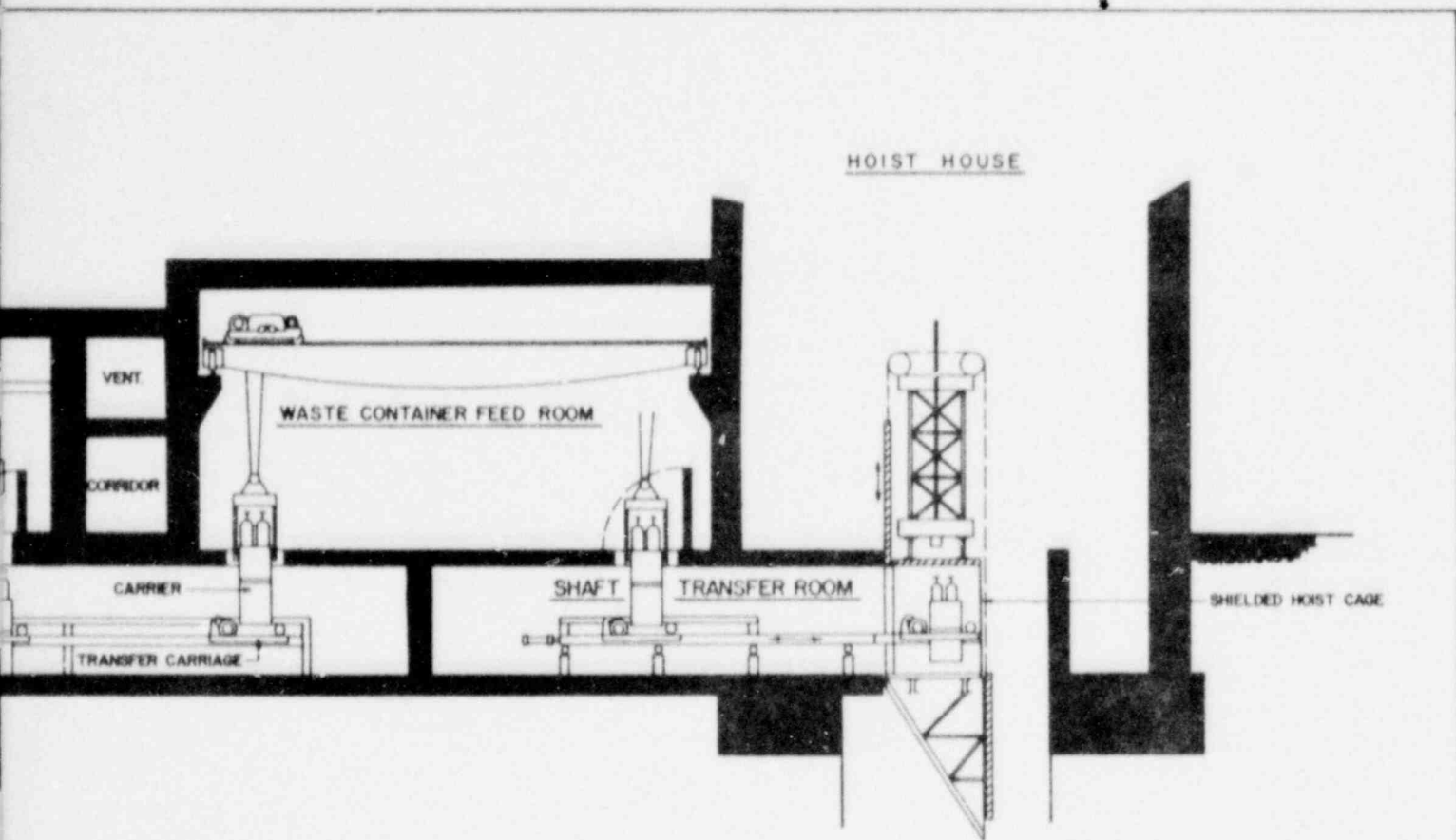
SECTION B-B (CASK HANDLING)



CYCLE I: FULL RECYCLE  
 OR  
 CYCLE III: URANIUM RECYCLE WITH PU IN HLW

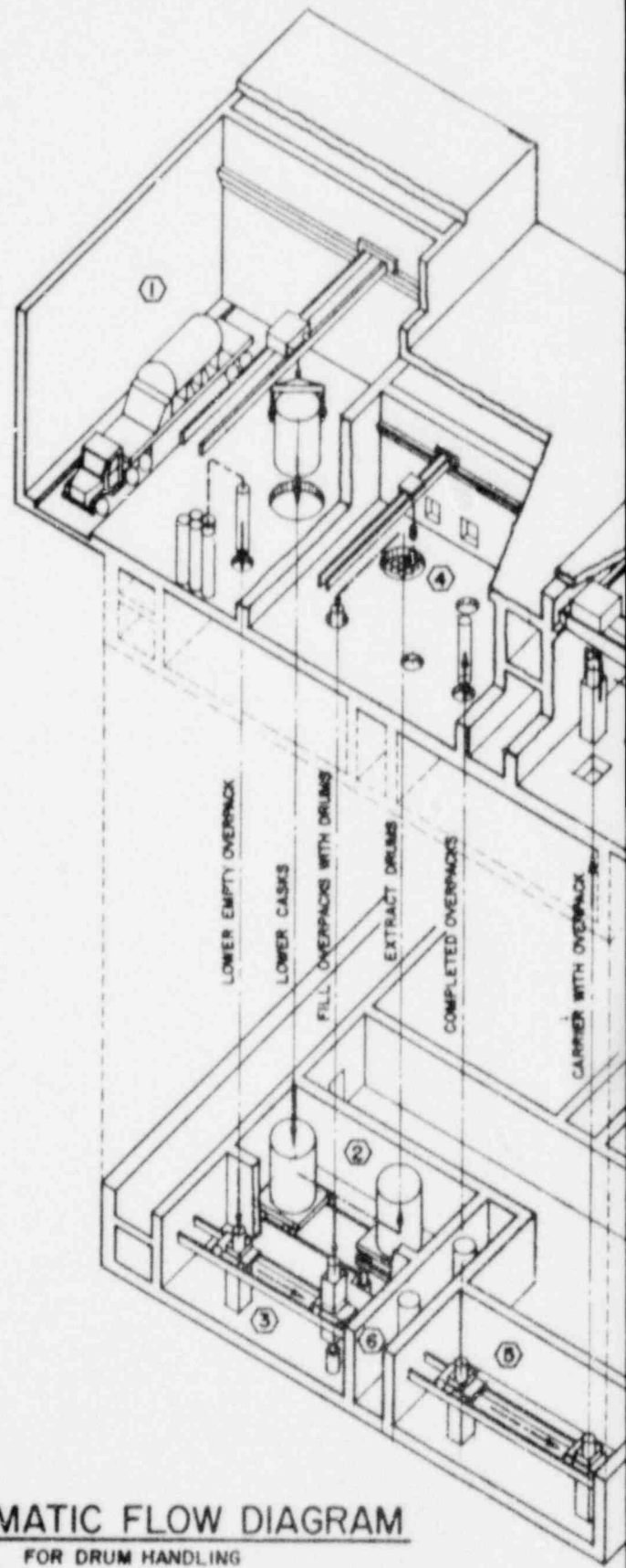
<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. <small>ENGINEERS</small> <span style="float: right;"><small>NEW YORK, N.Y.</small></span>		
<b>WASTE ISOLATION FACILITY</b> <b>CANISTERED WASTE RECEIVING BUILDING</b> SALT - BPNL WASTE PACKAGES		
SCALE: 1/8" = 1'-0"	CONTRACT NO. 62Y-45702C	
DATE: FEBRUARY, 1978	DWG. NO. 103	REV.



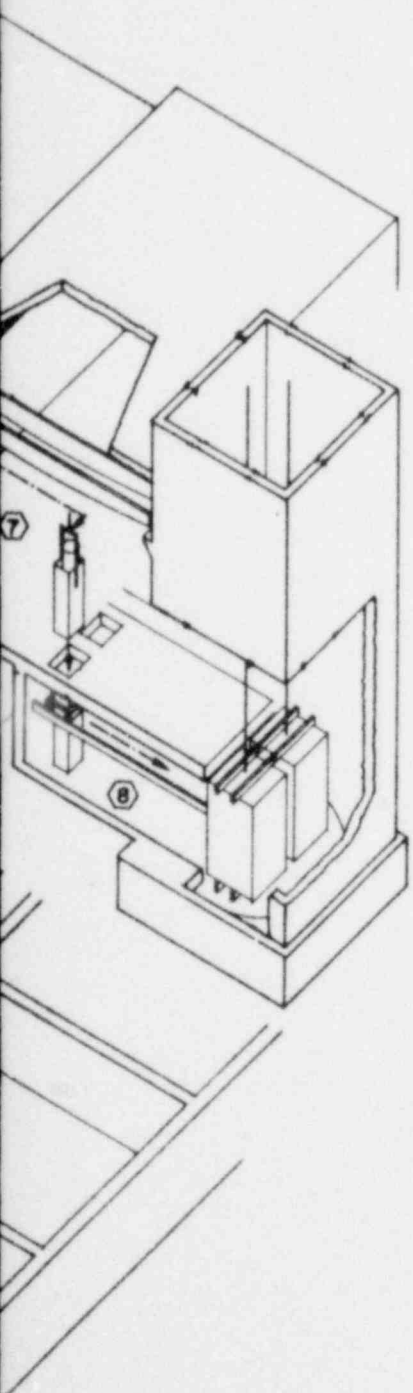


CYCLE I: FULL RECYCLE  
 OR  
 CYCLE III: URANIUM RECYCLE WITH PU IN HLW

OFFICE OF WASTE ISOLATION UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS <span style="float: right;">NEW YORK, N.Y.</span>		
WASTE ISOLATION FACILITY CANISTERED WASTE RECEIVING BUILDING SALT-BPNL WASTE PACKAGES		
SCALE: $\frac{1}{8}'' = 1'-0''$	CONTRACT NO. 62Y-45702C	
DATE: FEBRUARY, 1978	DWG NO. 104	REV



SCHEMATIC FLOW DIAGRAM  
FOR DRUM HANDLING



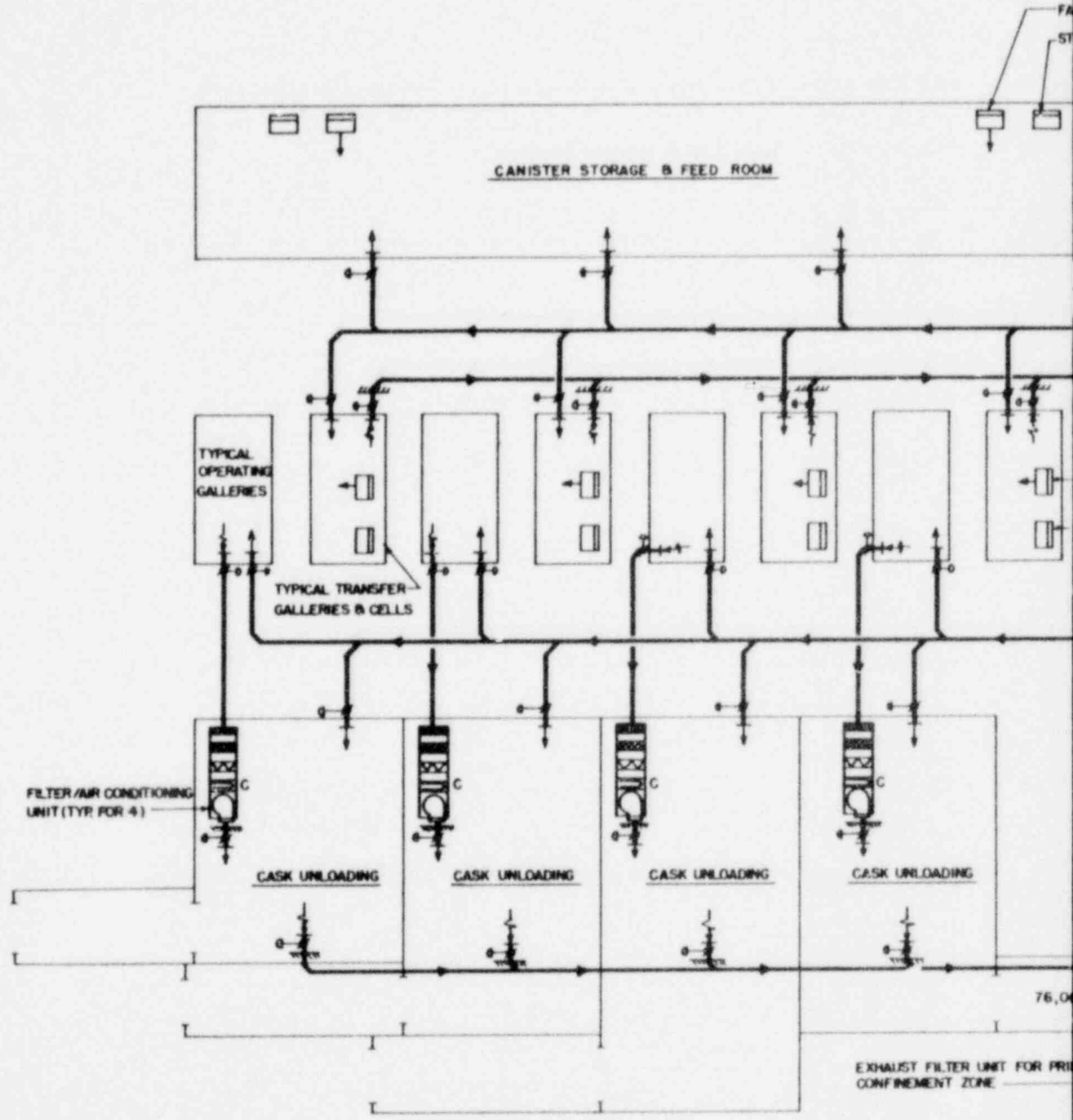
TYPICAL ARRANGEMENT

- 1 CASK UNLOADING AND TESTING AREA
- 2 CASK TRANSFER GALLERY
- 3 OVERPACK TRANSFER GALLERY
- 4 TEST CELL
- 5 OVERPACK TRANSFER ROOM
- 6 DECON WELLS
- 7 WASTE CONTAINER FEED ROOM
- 8 SHAFT FEED ROOM

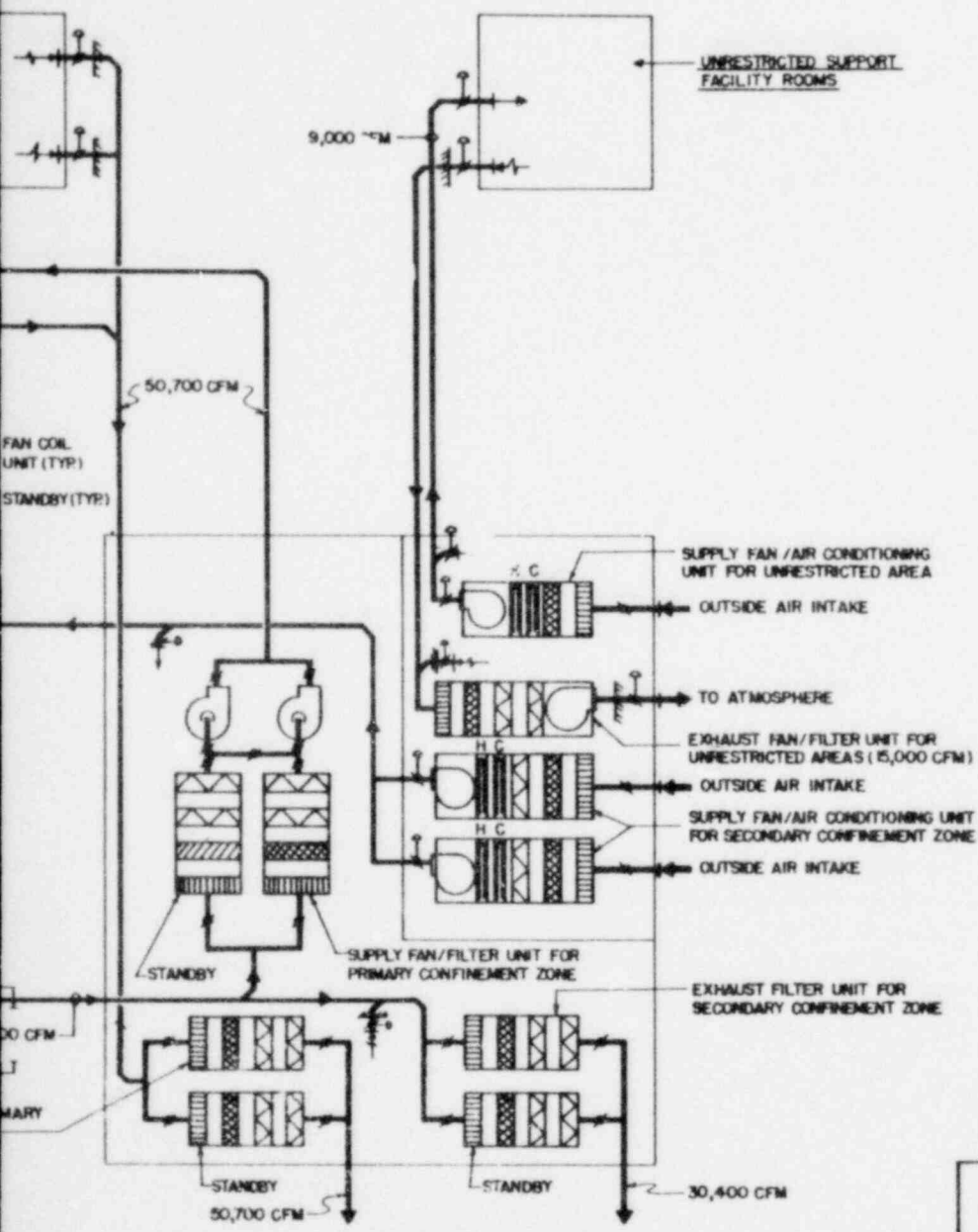
CYCLE I: FULL RECYCLE  
 OR  
 CYCLE III: URANIUM RECYCLE WITH PU IN HLW

OFFICE OF WASTE ISOLATION UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS NEW YORK, N.Y.		
WASTE ISOLATION FACILITY CANISTERED WASTE RECEIVING BUILDING SALT - BPNL WASTE PACKAGES		
SCALE: NO SCALE	CONTRACT NO. 62Y-46702C	
DATE: FEBRUARY, 1978	DWG. NO. 105	REV.





N COIL UNIT (TYP)  
 STANDBY FAN COIL UNIT (TYP)



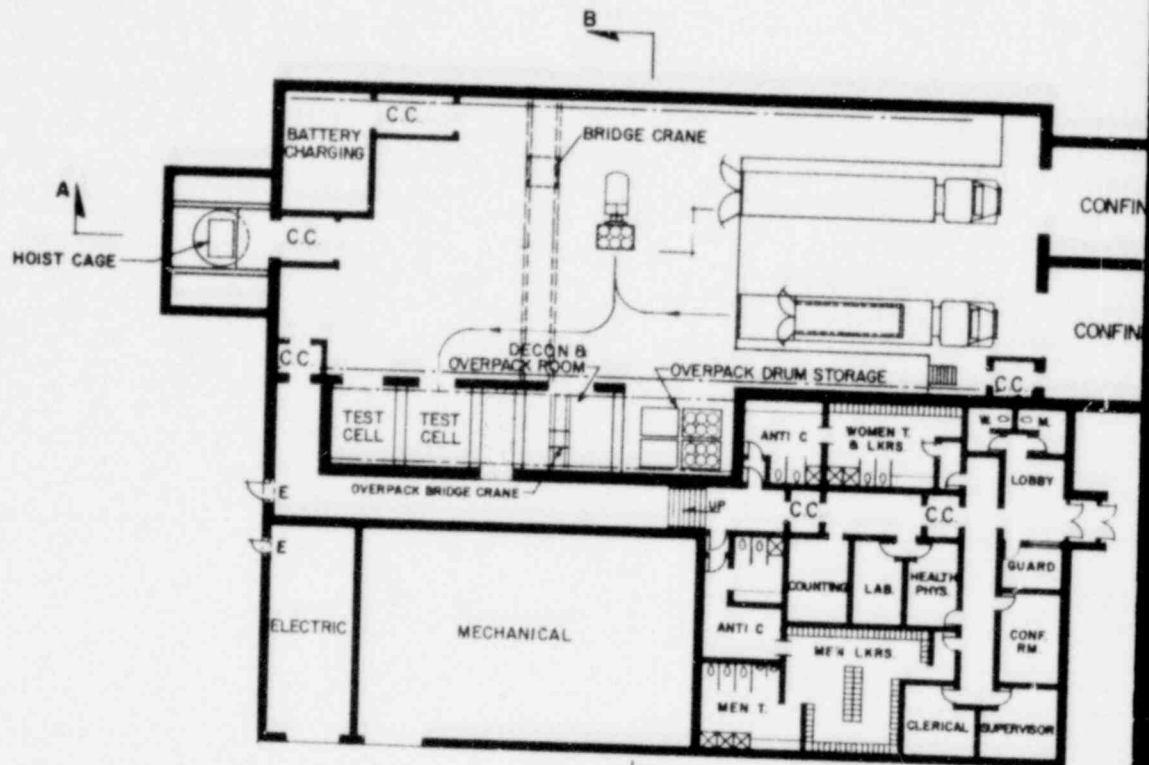
**LEGEND**

- HEPA FILTER
- 90% NBS FILTER
- 30% NBS FILTER
- H C  
COOLING COIL  
HEATING COIL
- DIRECTION OF FLOW
- FAN
- FAN/COIL UNIT
- DAMPER
- CONTROL DAMPER
- BACK FLOW PREVENTER
- REGISTER

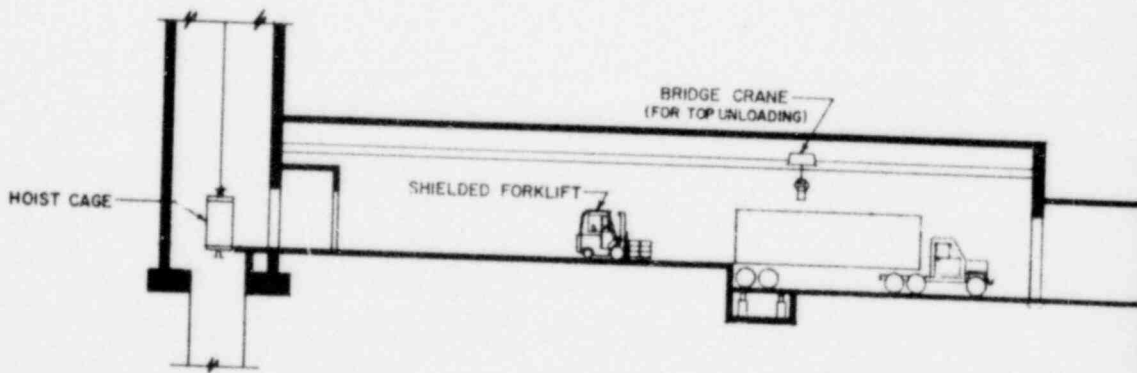
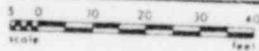
UNDERGROUND DUCTS TO EXHAUST  
 FANS LOCATED IN EXHAUST VENT  
 BUILDING (TOTAL EXHAUST 81,000 CFM)

CYCLE I: FULL RECYCLE  
 OR  
 CYCLE III: URANIUM RECYCLE WITH PU IN HLW

<b>OFFICE OF WASTE ISOLATION</b>		
UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS NEW YORK, N.Y.		
<b>WASTE ISOLATION FACILITY</b> CANISTERED WASTE RECEIVING BUILDING VENTILATION FLOW DIAGRAM SALT-BFNL WASTE PACKAGES		
SCALE: NO SCALE	CONTRACT NO. 62Y-45702 C	
DATE: FEBRUARY, 1978	DWG. NO. 106	REV.

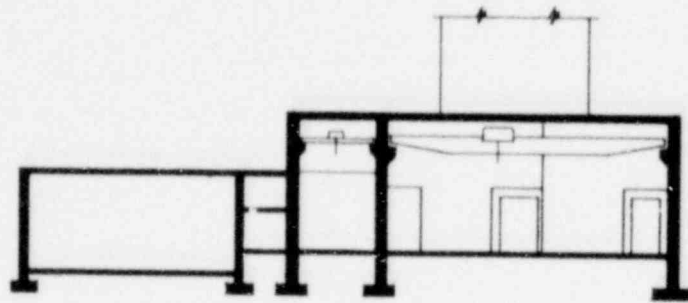


**FLOOR PLAN**



**SECTION A-A**

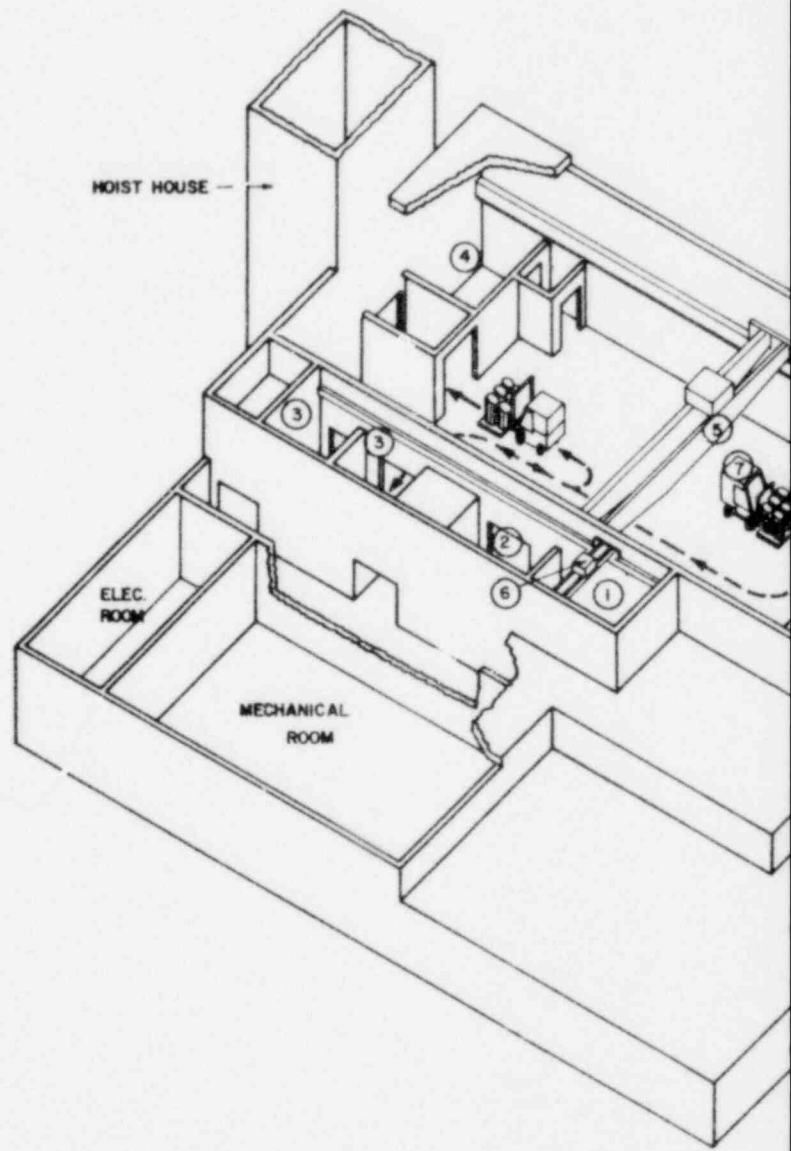
EMENT CHAMBER  
 EMENT CHAMBER



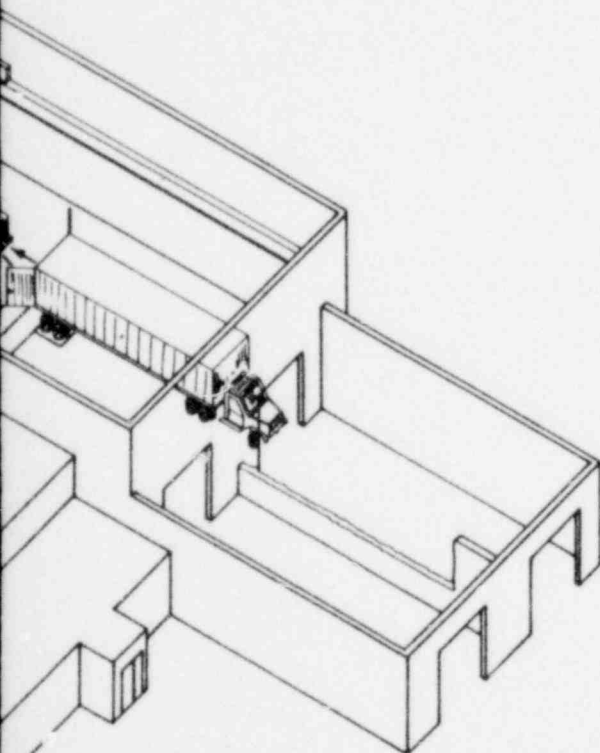
SECTION B-B

CYCLE I: FULL RECYCLE  
 OR  
 CYCLE II: THROWAWAY FUEL CYCLE  
 OR  
 CYCLE III: URANIUM RECYCLE WITH PU IN HLW

OFFICE OF WASTE ISOLATION UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS <small>NEW YORK, N.Y.</small>		
WASTE ISOLATION FACILITY LOW LEVEL WASTE RECEIVING BUILDING SALT - BPNL WASTE PACKAGES		
SCALE: 1/16" = 1'-0"	CONTRACT NO. 62Y-45702C	
DATE: FEBRUARY, 1978	DWG. NO. 107	REV.



LOW LEVEL WASTE FLOW DIAGRAM

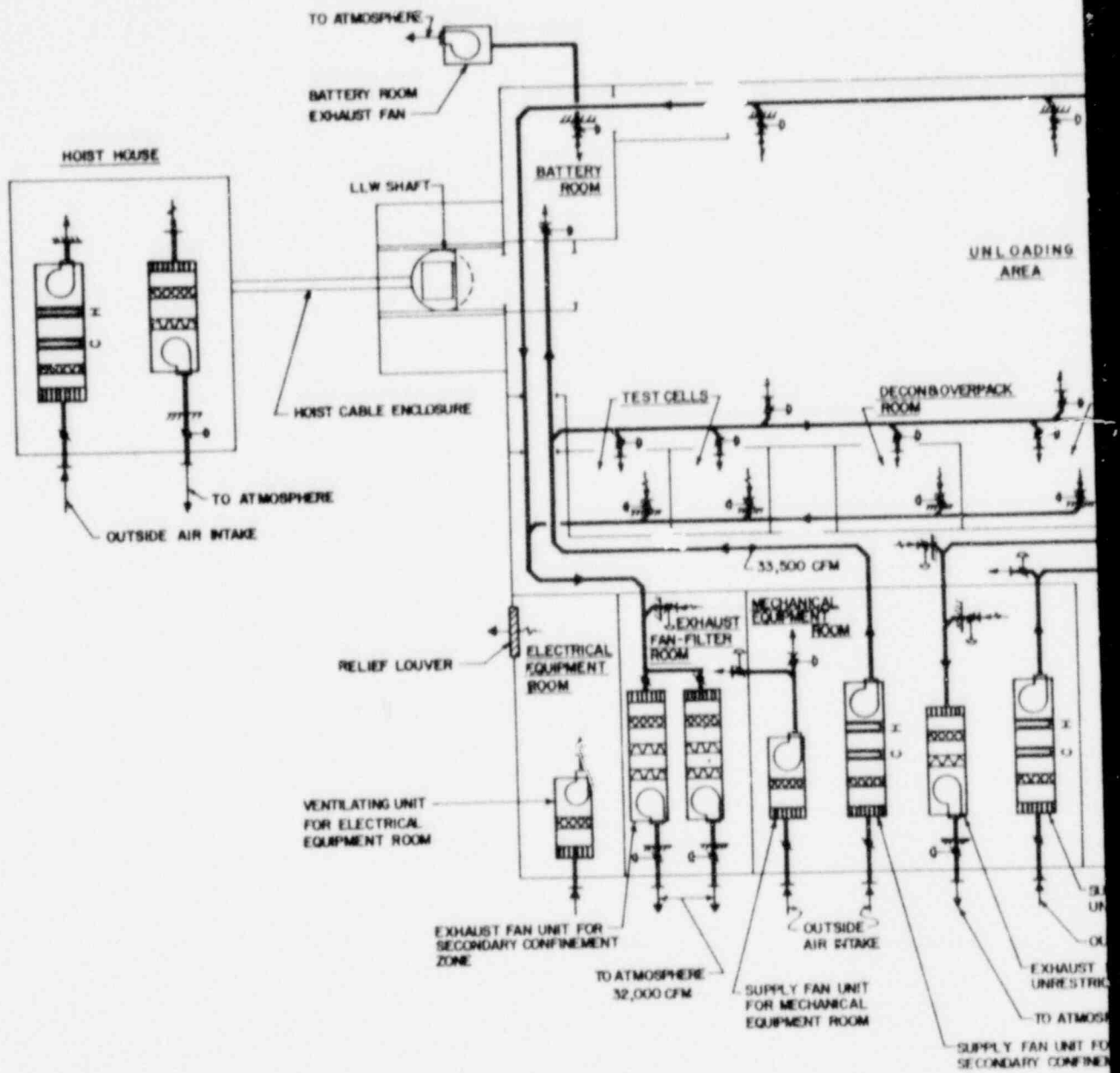


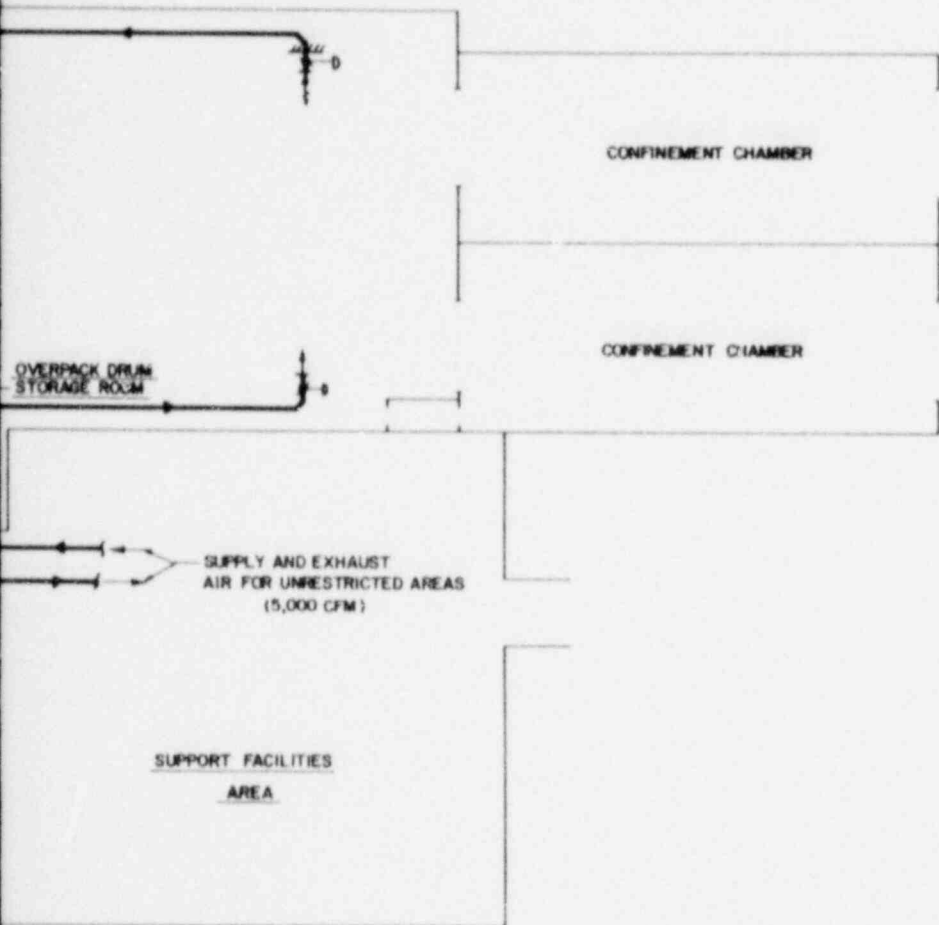
LEGEND

- ① OVERPACK STORAGE
- ② DECON AND OVERPACK ROOM
- ③ TEST ROOMS
- ④ BATTERY CHARGING ROOM
- ⑤ BRIDGE CRANE FOR TOP UNLOADING
- ⑥ BRIDGE CRANE FOR OVERPACK HANDLING
- ⑦ FORKLIFT TRUCK (SHIELDED FOR CYCLE I & III)

CYCLE I: FULL RECYCLE  
 OR  
 CYCLE II: THROWAWAY FUEL CYCLE  
 OR  
 CYCLE III: URANIUM RECYCLE WITH PU IN HLW

<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. <small>ENGINEERS</small> <span style="float: right;"><small>NEW YORK, N.Y.</small></span>		
<b>WASTE ISOLATION FACILITY</b> LOW LEVEL WASTE RECEIVING BUILDING SALT - BPNL WASTE PACKAGES		
SCALE: NONE	CONTRACT NO. 62Y - 45702 C	
DATE: FEBRUARY 1976	OWR NO. 108	REV.





PLY FAN UNIT FOR RESTRICTED ZONE

TSIDE AIR INTAKE

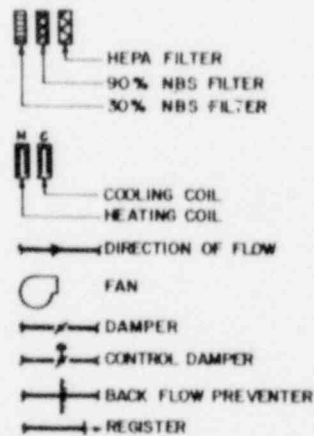
FAN UNIT FOR TED ZONE

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ENT ZONE

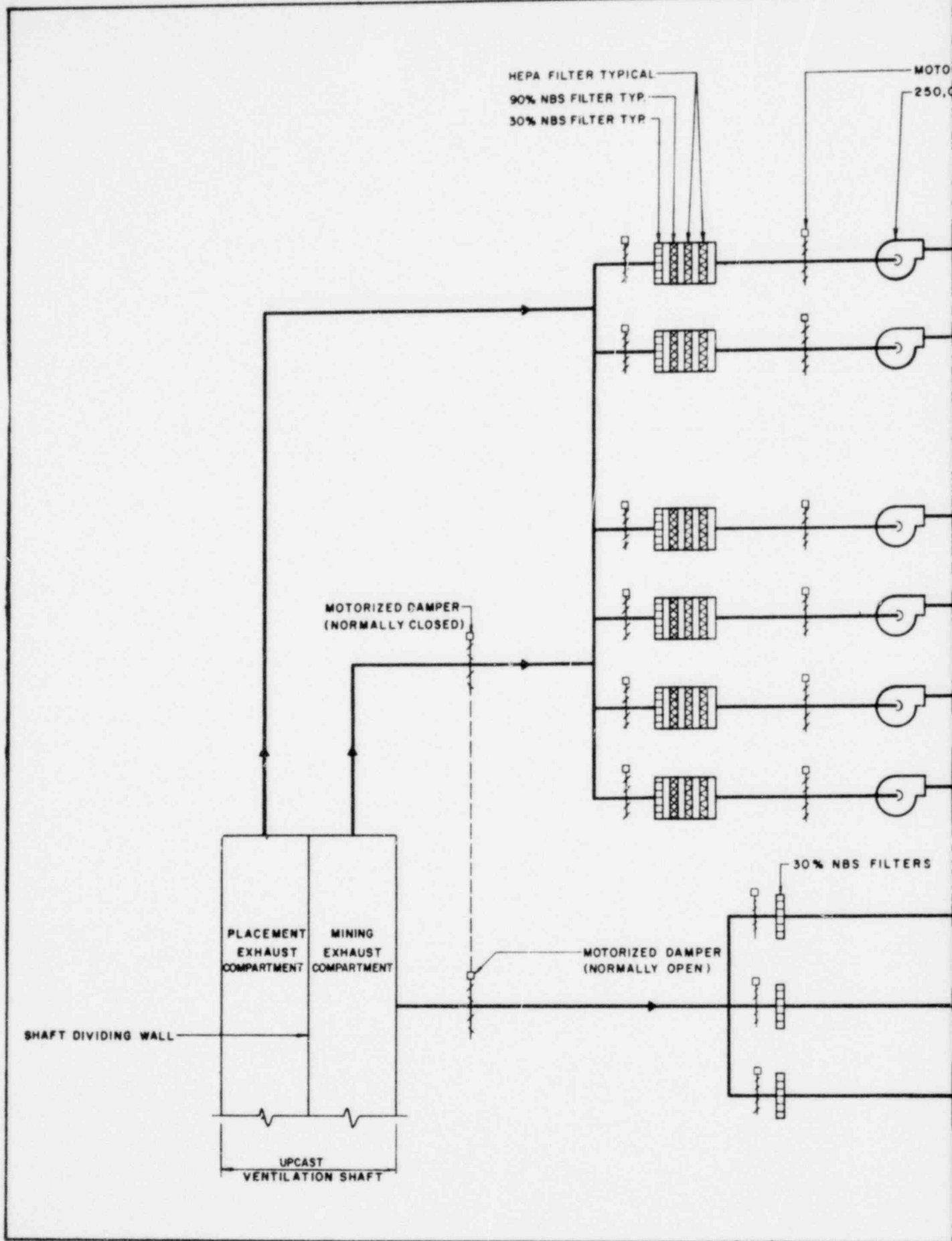
LEGEND



CYCLE I: FULL RECYCLE  
 OR  
 CYCLE II: THROWAWAY FUEL CYCLE  
 OR  
 CYCLE III: URANIUM RECYCLE WITH PU IN NLW

<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. <small>ENGINEERS NEW YORK, N.Y.</small>		
<b>WASTE ISOLATION FACILITY</b> LOW LEVEL WASTE RECEIVING BUILDING VENTILATION FLOW DIAGRAM SALT-BPHL WASTE PACKAGES		
SCALE: NO SCALE	CONTRACT NO. 62Y-45702 C	
DATE: FEBRUARY, 1978	DWG NO. 109	REV.





RIZED ISOLATING DAMPER (TYPICAL)  
 00 CFM (TYPICAL)

FILTERED EXHAUST AIR FROM CANISTERED WASTE BUILDING  
 CANISTERED WASTE BUILDING EXHAUST FANS

PLACEMENT EXHAUST FAN (NORMAL OPERATION)

SPARE FAN

EXHAUST STACK

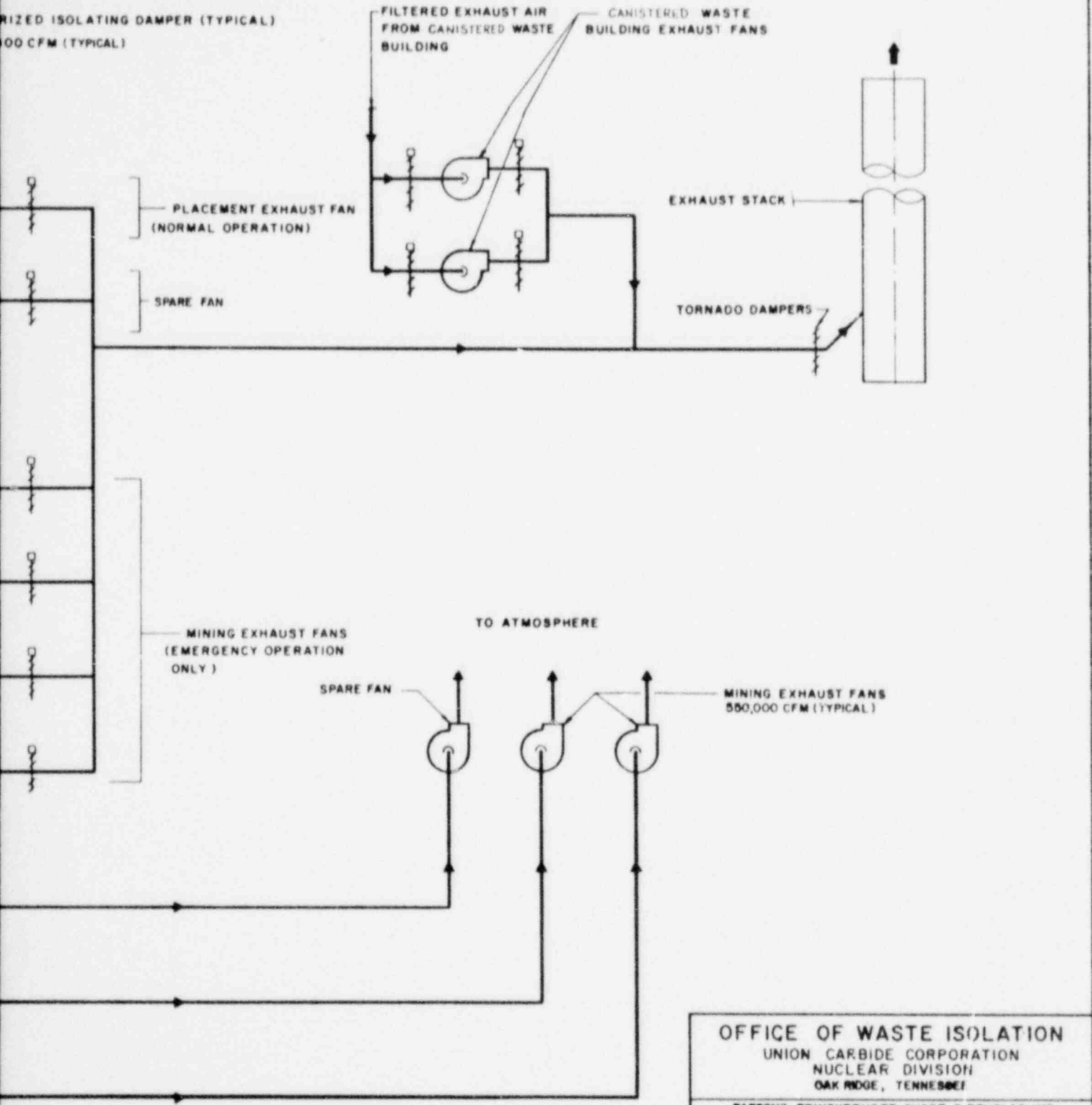
TORNADO DAMPERS

MINING EXHAUST FANS (EMERGENCY OPERATION ONLY)

TO ATMOSPHERE

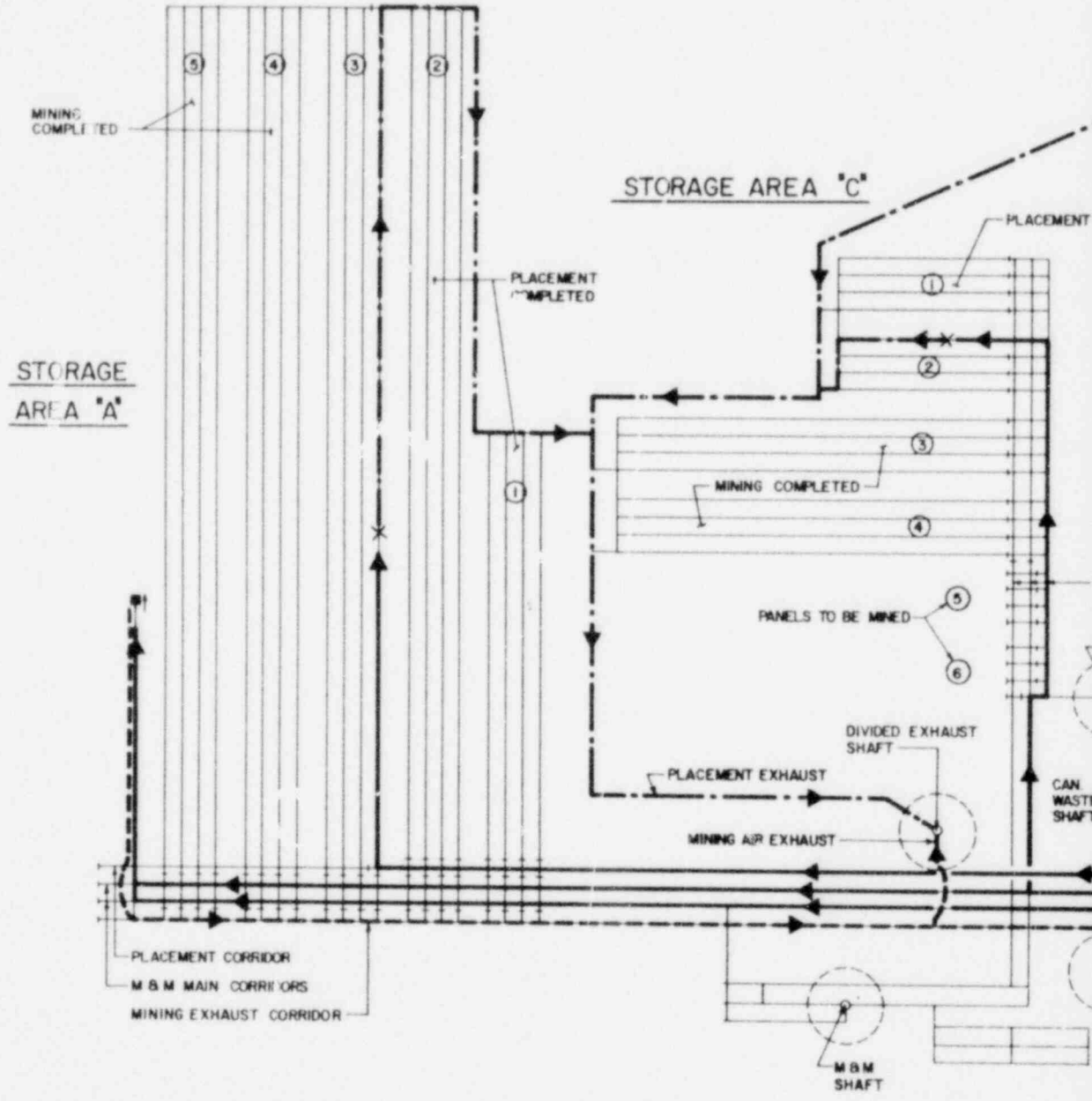
SPARE FAN

MINING EXHAUST FANS 550,000 CFM (TYPICAL)

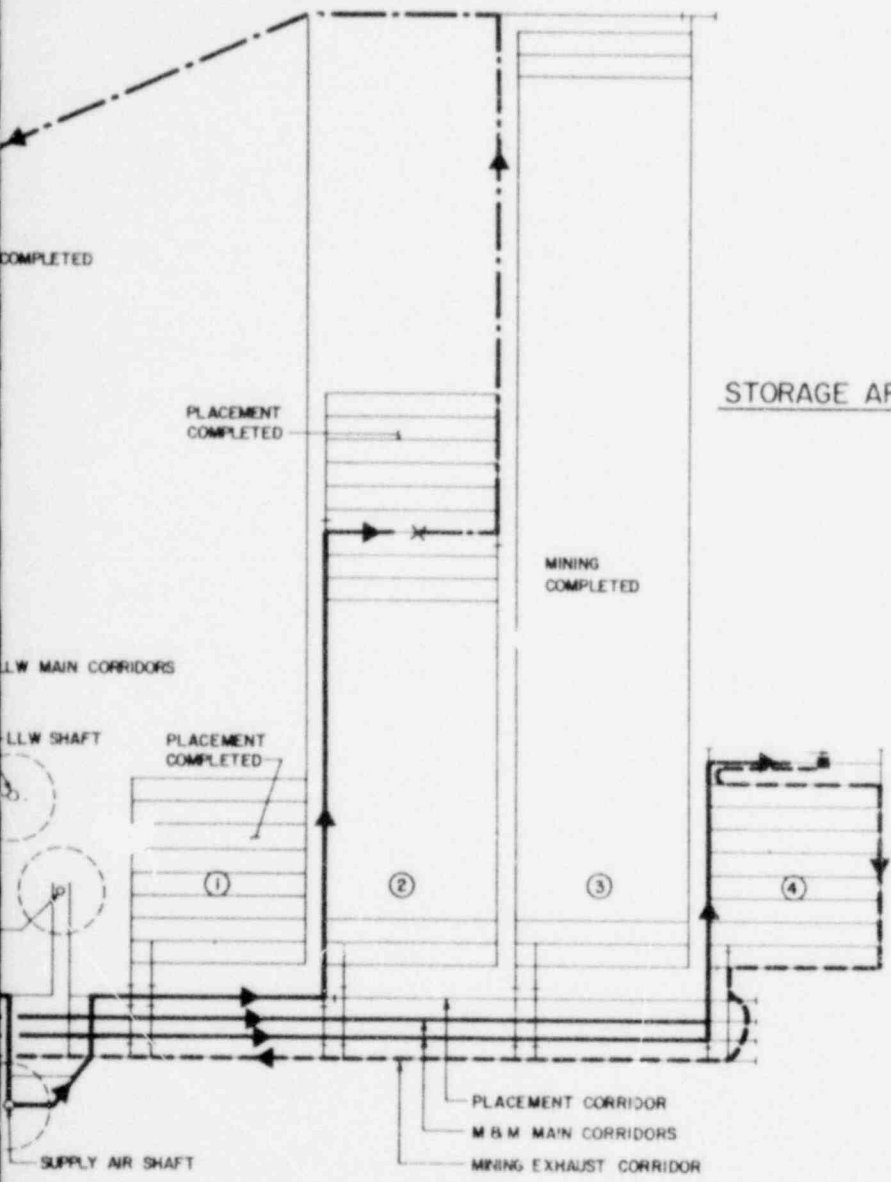


CYCLE I: FULL RECYCLE  
 OR  
 CYCLE II: THROWAWAY FUEL CYCLE  
 OR  
 CYCLE III: URANIUM RECYCLE WITH PU IN HLW

<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. <small>ENGINEERS NEW YORK, N.Y.</small>		
<b>WASTE ISOLATION FACILITY</b> MINE VENTILATION FLOW DIAGRAM SALT-BPNL WASTE PACKAGES		
SCALE: NO SCALE	CONTRACT NO. 62Y-48702C	
DATE: FEBRUARY, 1978	DWG NO. 110	REV.



PARTIAL PLAN  
MINING AND PLACEMENT VENTILATION



STORAGE AREA "B"

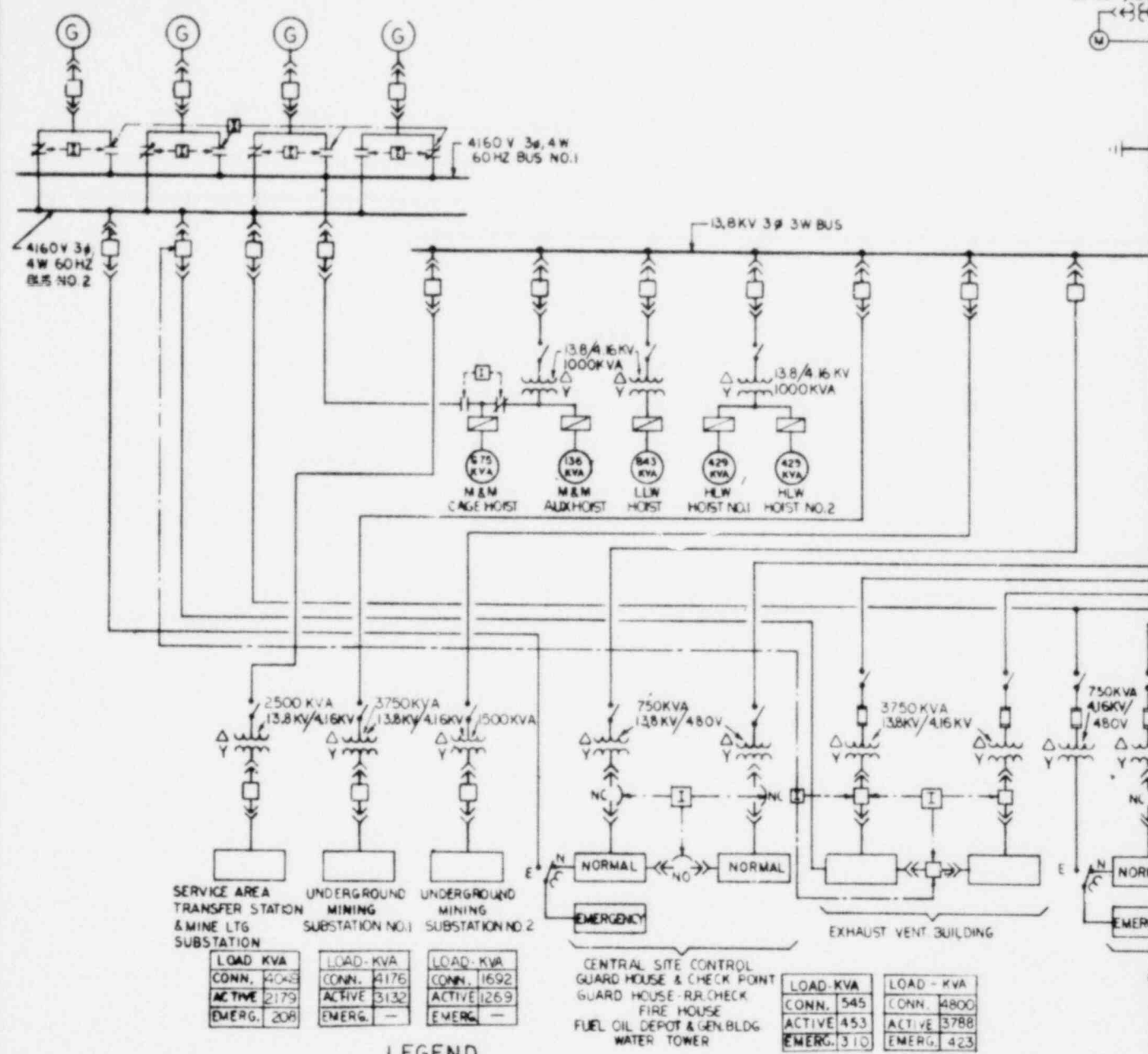
LEGEND

- PLACEMENT EXHAUST AIR
- MINING EXHAUST AIR
- PLACEMENT & MINING SUPPLY AIR
- x --- PLACEMENT IN PROGRESS
- --- MINING IN PROGRESS
- + --- ROOM OR CORRIDOR SEALED
- ① --- PANEL NUMBER

CYCLE I: FULL RECYCLE  
 OR  
 CYCLE III: URANIUM RECYCLE WITH PU IN HLW

<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. <small>ENGINEERS NEW YORK, N.Y.</small>		
<b>WASTE ISOLATION FACILITY</b> <b>MINE VENTILATION PLAN</b> SALT-BPNL WASTE PACKAGES		
SCALE: 1" = 300'	CONTRACT NO. 62Y-45702 C	
DATE: FEBRUARY, 1978	DWG. NO. III	REV.

2 PTS  
23 69KV/20

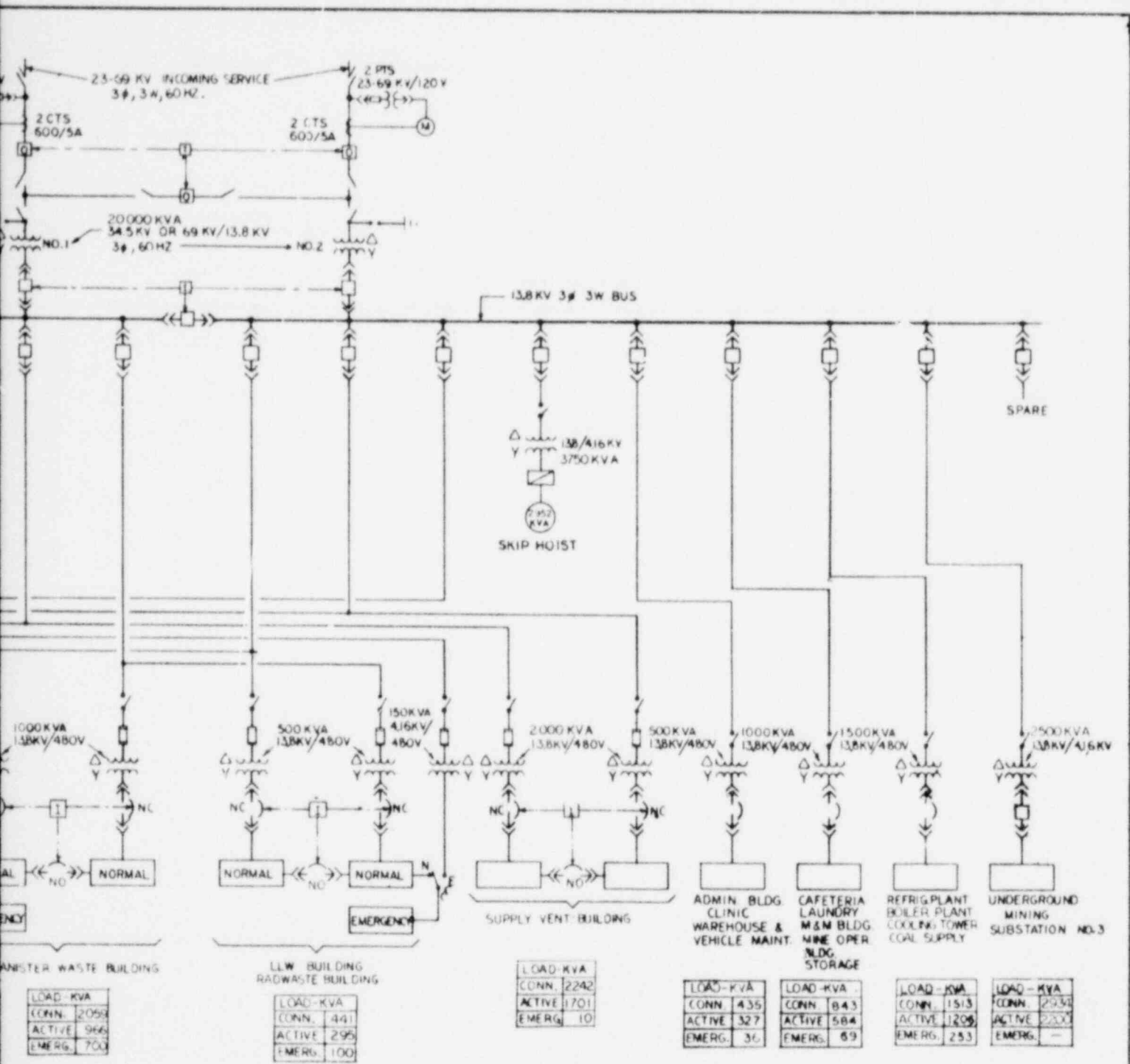


LOAD - KVA	LOAD - KVA	LOAD - KVA
CONN. 4048	CONN. 4176	CONN. 1692
ACTIVE 2179	ACTIVE 3132	ACTIVE 1269
EMERG. 208	EMERG. —	EMERG. —

LOAD - KVA	LOAD - KVA
CONN. 545	CONN. 4800
ACTIVE 453	ACTIVE 3788
EMERG. 310	EMERG. 423

**LEGEND**

- 34.5KV. OR 69KV AIR BREAK SWITCH WITH HORN GAP
- 34.5KV OR 69KV OUTDOOR ISOLATING SWITCH
- 34.5KV OR 69KV. OUTDOOR OIL CIRCUIT BREAKER
- LIGHTNING ARRESTER
- TRANSFORMER
- 5KV. OR 15KV. POWER CIRCUIT BREAKER, INDOOR
- 5KV. OR 15KV DISCONNECT SWITCH, INDOOR
- 5KV. OR 15KV FUSE
- 600V POWER CIRCUIT BREAKER
- AUTOMATIC TRANSFER SWITCH
- METER
- GENERATOR
- HOIST CONTROLLER
- ELECTRICAL INTERLOCK
- N.C. NORMALLY CLOSED
- N.O. NORMALLY OPEN
- CURRENT TRANSFORMER
- POTENTIAL TRANSFORMER



TOTAL FACILITY LOAD

LOAD - KVA		
CONN.	5193	
ACTIVE	23564	
EMERG.	2784	

**OFFICE OF WASTE ISOLATION**  
 UNION CARBIDE CORPORATION  
 NUCLEAR DIVISION  
 OAK RIDGE, TENNESSEE

PARSONS, BRINCKERHOFF, QUADE & DOUBLAS, INC.  
 ENGINEERS

**WASTE ISOLATION FACILITY**  
 ELECTRICAL-ONE LINE DIAGRAM  
 SALT - BPNL WASTE PACKAGES

SCALE: NONE

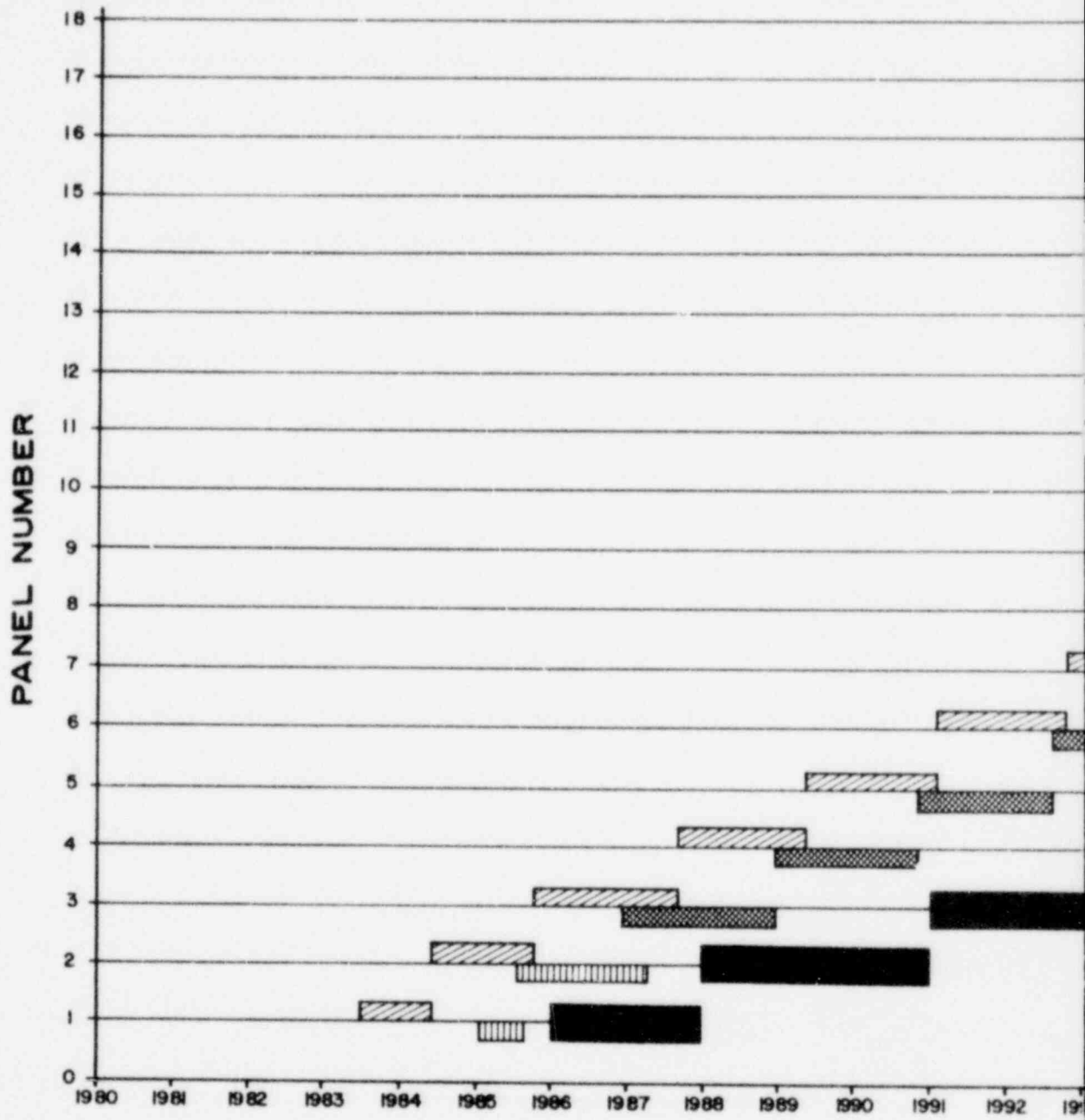
DATE: FEBRUARY, 1978

DESIGN NO. 62Y-457020P

DWG NO. 112

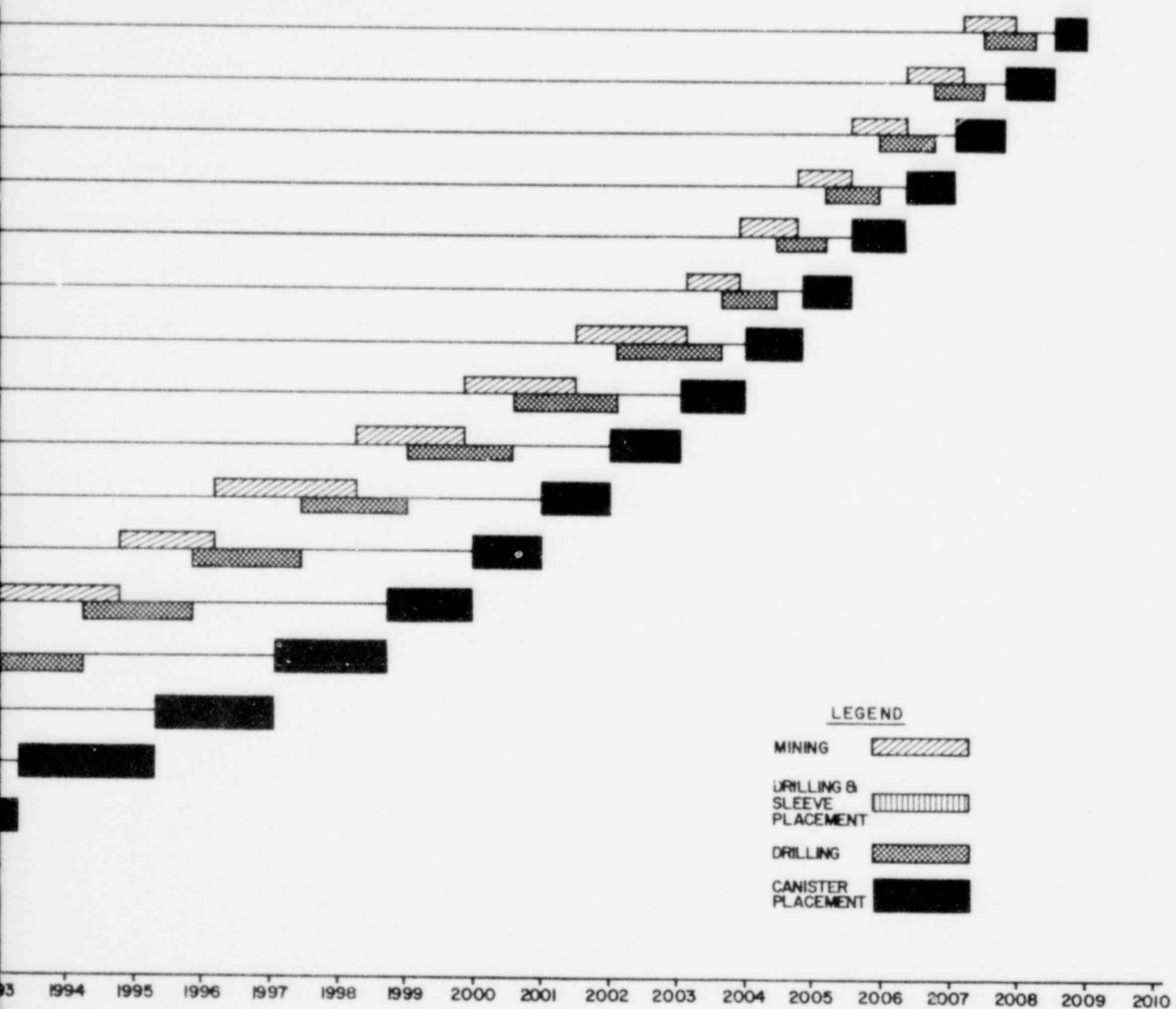
CYCLE I: FULL RECYCLE

# MINING AND PL SALT - BPNL



STORA

# PLACEMENT SCHEDULE WASTE PACKAGES



### LEGEND

- Mining
- Drilling & Sleeve Placement
- Drilling
- Canister Placement

YEAR  
STORAGE AREA "A"  
(HLW)

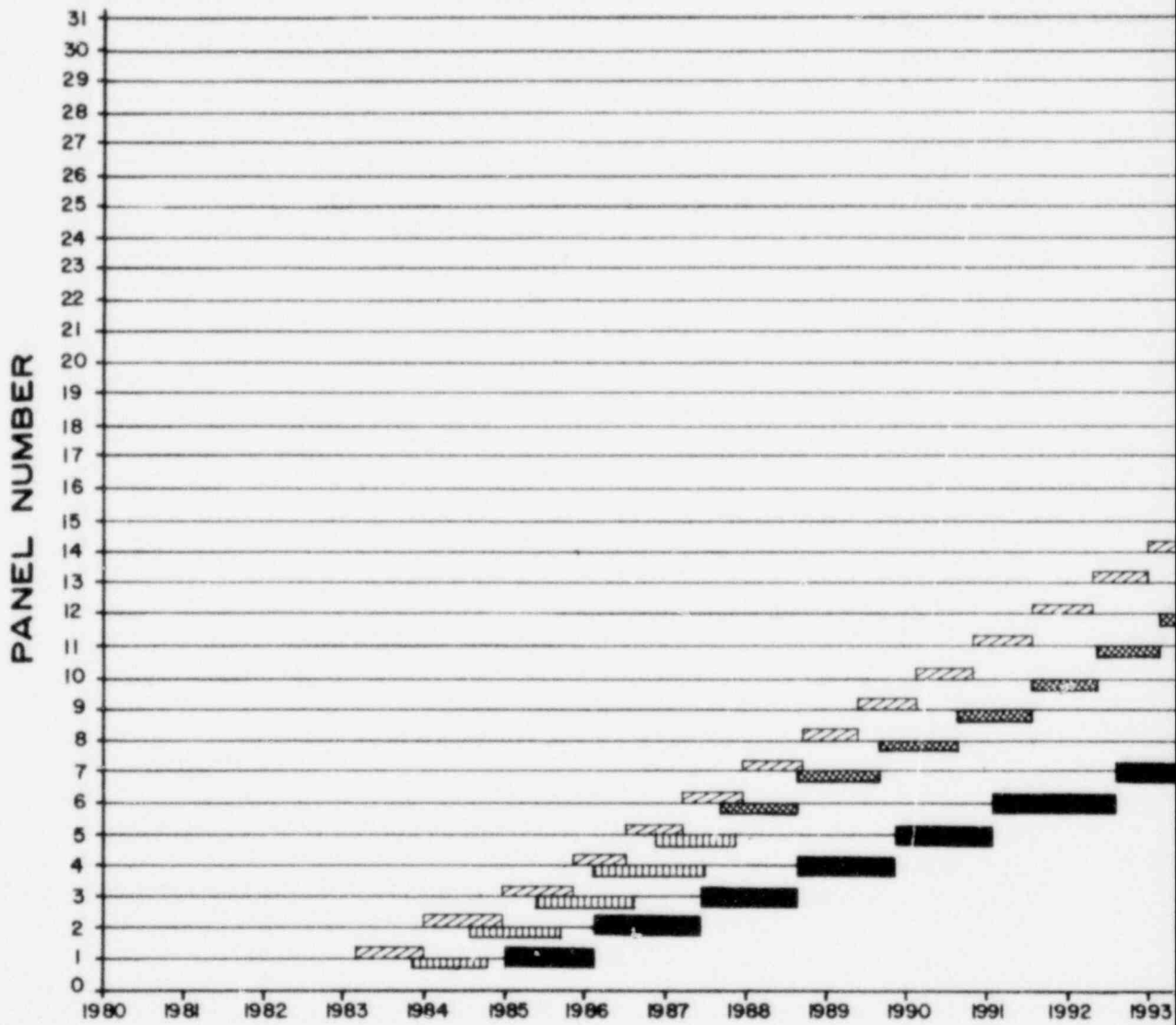
CYCLE I: FULL RECYCLE

OFFICE OF WASTE ISOLATION UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS NEW YORK, N.Y.		
WASTE ISOLATION FACILITY MINING AND PLACEMENT SCHEDULE STORAGE AREA "A" SALT-BPNL WASTE PACKAGES		
SCALE:	CONTRACT NO. 62Y-45702C	REV.
DATE: FEBRUARY, 1978	OWN. NO. 113	



# MINING AND PL

SALT - BPNL W

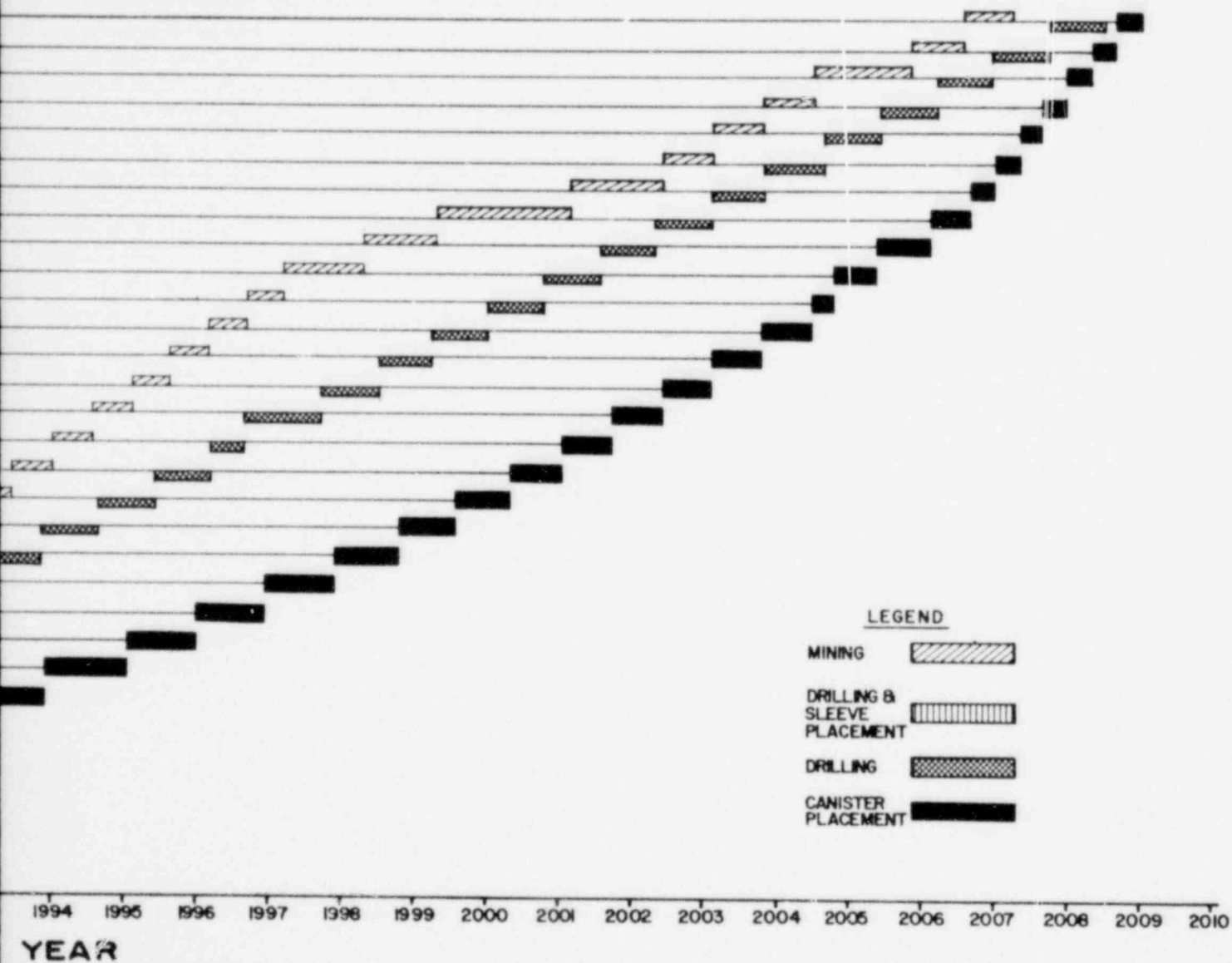


STORAC

(CW, IL I)

# PLACEMENT SCHEDULE

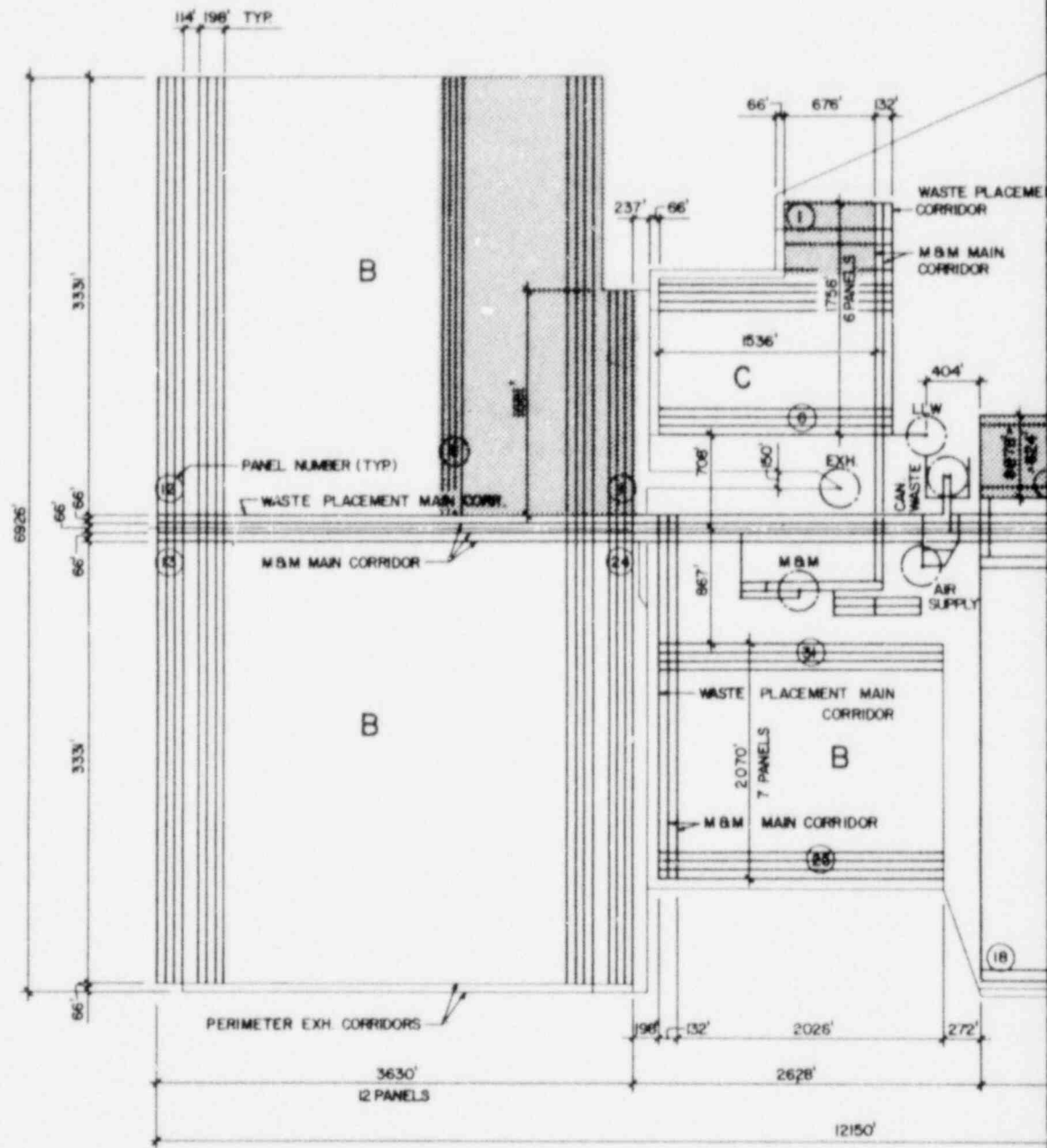
## WASTE PACKAGES



**GE AREA "B"**  
(IL2, IL3 & IL4)

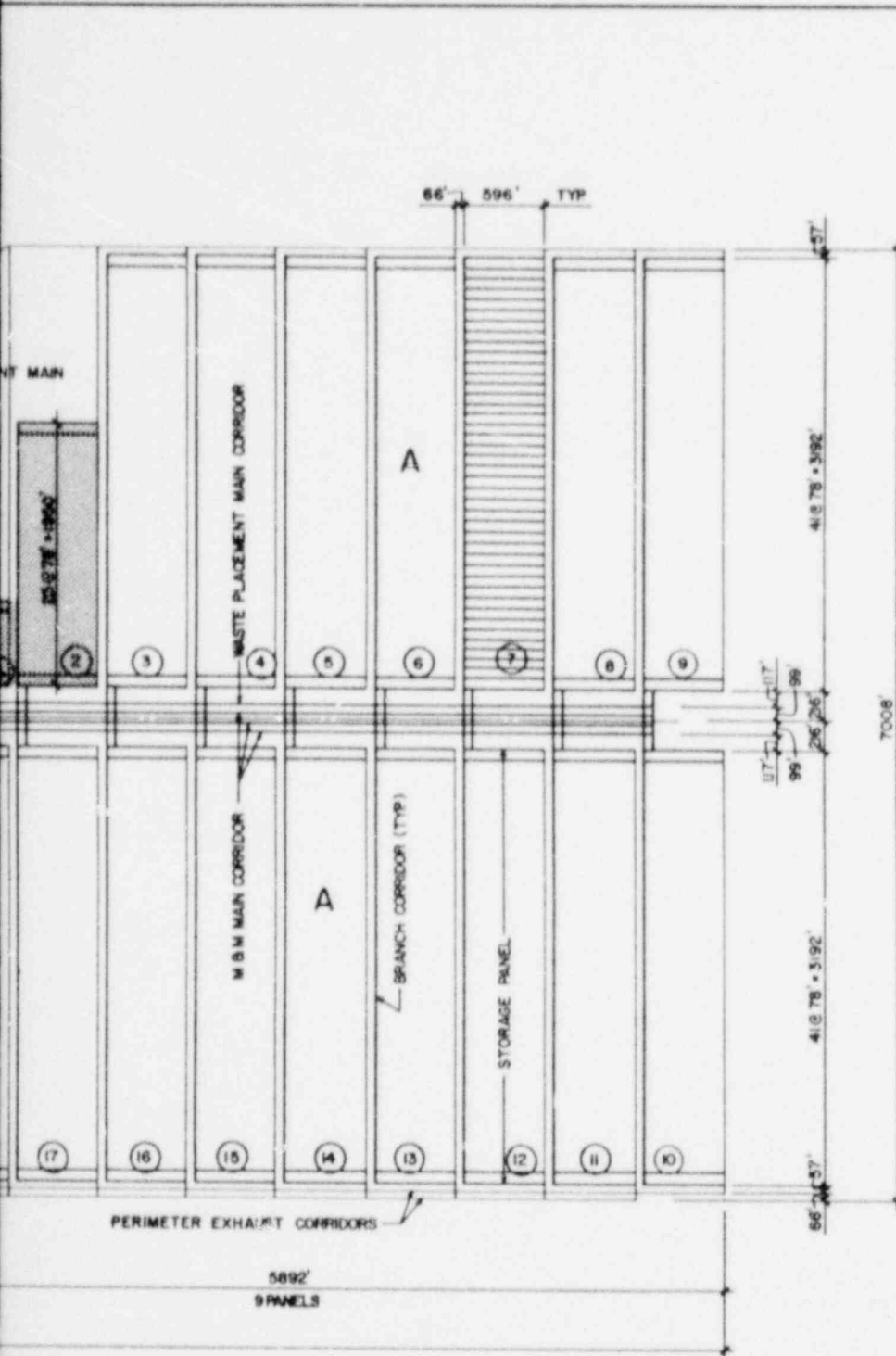
CYCLE I: FULL RECYCLE

OFFICE OF WASTE ISOLATION UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS <span style="float: right;">NEW YORK, N.Y.</span>		
WASTE ISOLATION FACILITY MINING AND PLACEMENT SCHEDULE STORAGE AREA "B" SALT - BNPL WASTE PACKAGES		
SCALE:	CONTRACT NO. 62Y-45702C	REV.
DATE: FEB. 1978	DWG. NO. 114	



STORAGE AREA	ROOM OPENING	ELEVATION*	WASTE TYPES	EXTRACTION RATIO	MINE MASTER
A	18' x 20'	-1850'	HLW	23 %	
B	36' x 20'	-1775'	CW, IL-1, IL-2, IL-3 & IL-4	46 %	
C	36' x 20'	-1850	IL-5, LL-1 & LL-2	46 %	

\* ELEVATIONS BASED ON GROUND LINE 0.00'



**NOTES:**

1. ALL LINES REPRESENT THE CENTER LINES OF ROOMS AND CORRIDORS.
2. FOR SHAFT AREA DETAILS, SEE DWG NO 116
3. FOR ROOM CROSS SECTIONS, SEE DWG NO 118
4. MAIN AND BRANCH CORRIDORS ARE 36' WIDE x 20' HIGH.
5. PERIMETER EXHAUST CORRIDORS ARE 36' WIDE x 11' HIGH.

**LEGEND:**

PORTION OF REPOSITORY STORAGE AREA THAT IS UTILIZED DURING FIRST FIVE YEARS OF PLACEMENT OPERATIONS.

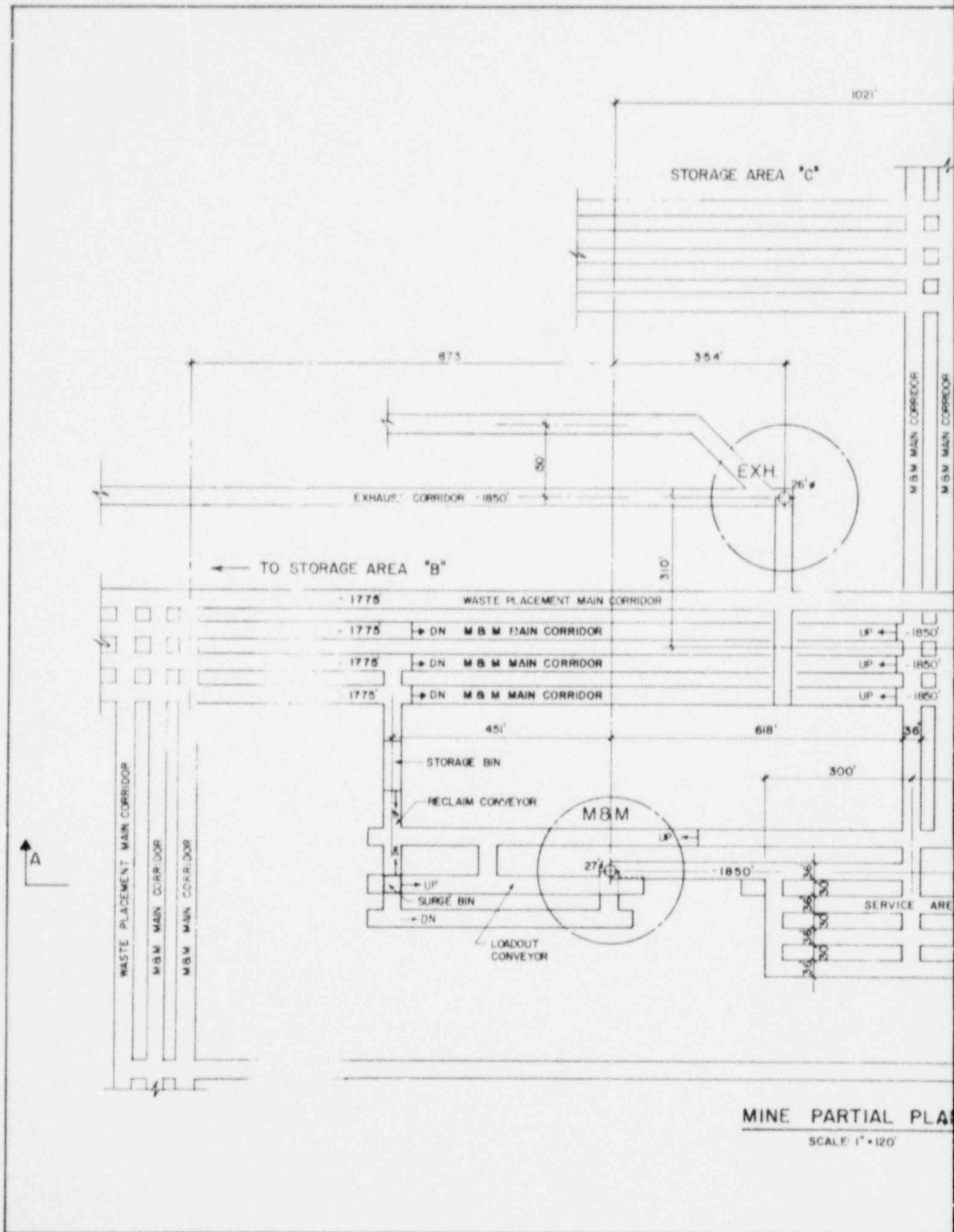
PLAN

**STORAGE CAPACITY (YEAR 2008)**

HLW = 33,240 CANISTERS  
 CW = 36,182 CANISTERS  
 E-1 = 312,990 DRUMS  
 E-2 = 144,111 DRUMS  
 E-3 = 294 CANISTERS  
 E-4 = 4,909 CANISTERS  
 E-5 = 143,665 DRUMS  
 LL-1 = 417,486 DRUMS  
 LL-2 = 6,357 BOXES

CYCLE I: FULL RECYCLE

<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. <small>ENGINEERS</small> <span style="float: right;"><small>NEW YORK, N.Y.</small></span>		
<b>WASTE ISOLATION FACILITY</b> <b>MINE MASTER PLAN</b> SALT-BPNL WASTE PACKAGES		
SCALE: 1" = 600'	CONTRACT NO. 62Y-45702C	
DATE: FEBRUARY, 1978	DWG NO. 115	REV.



STORAGE AREA "C"

EXHAUST CORRIDOR - 1850'

← TO STORAGE AREA "B"

- 1775 WASTE PLACEMENT MAIN CORRIDOR

- 1775 → DN M&M MAIN CORRIDOR

- 1775 → DN M&M MAIN CORRIDOR

- 1775 → DN M&M MAIN CORRIDOR

- 1775

451'

618'

300'

STORAGE BIN

RECLAIM CONVEYOR

M&M

27'

→ UP

→ DN

→ DN

LOADOUT CONVEYOR

SERVICE AREA

30'

30'

30'

30'

30'

30'

30'

30'

30'

30'

30'

30'

30'

30'

30'

30'

30'

30'

30'

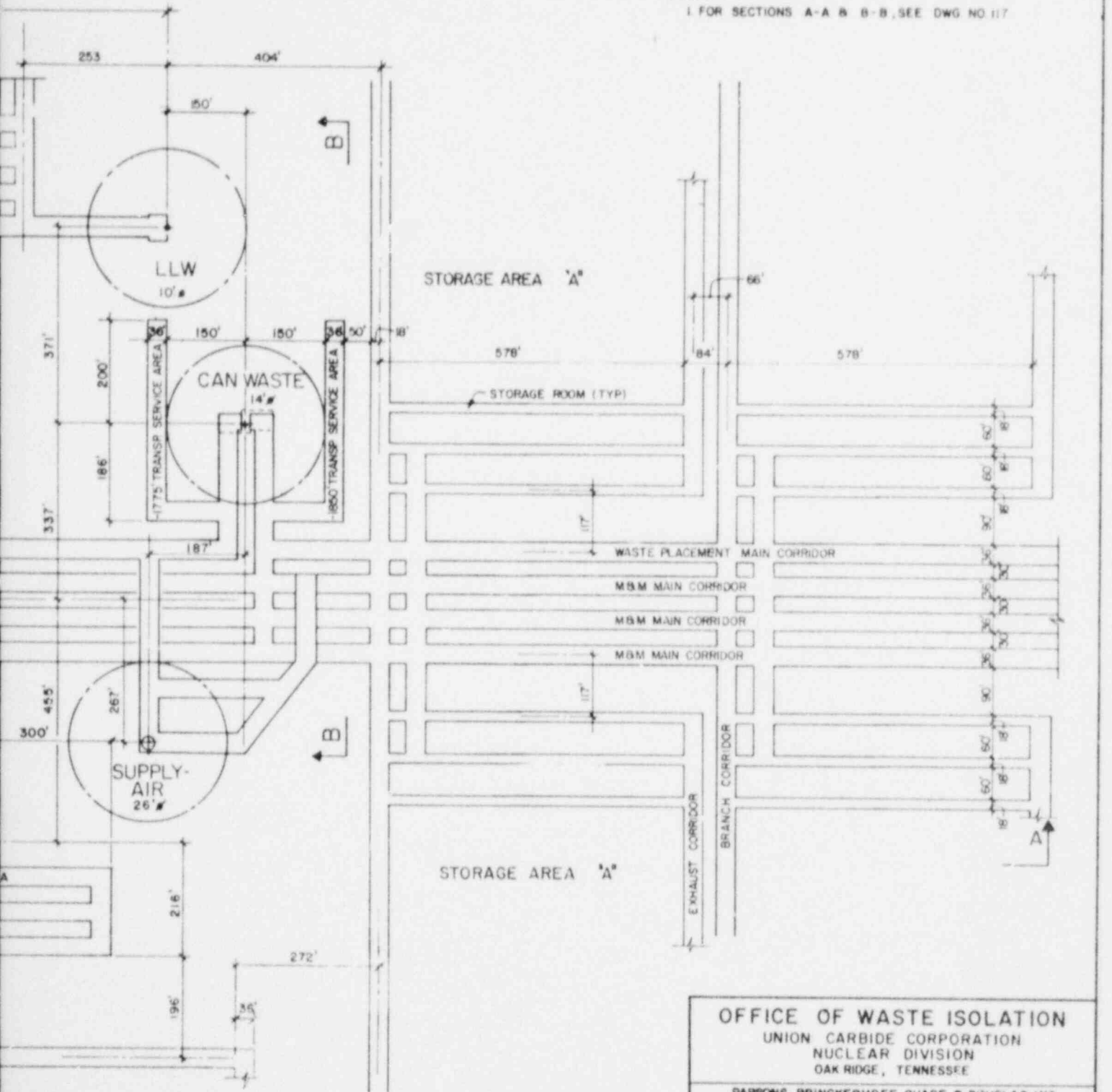
30'

MINE PARTIAL PLAN

SCALE 1" = 120'

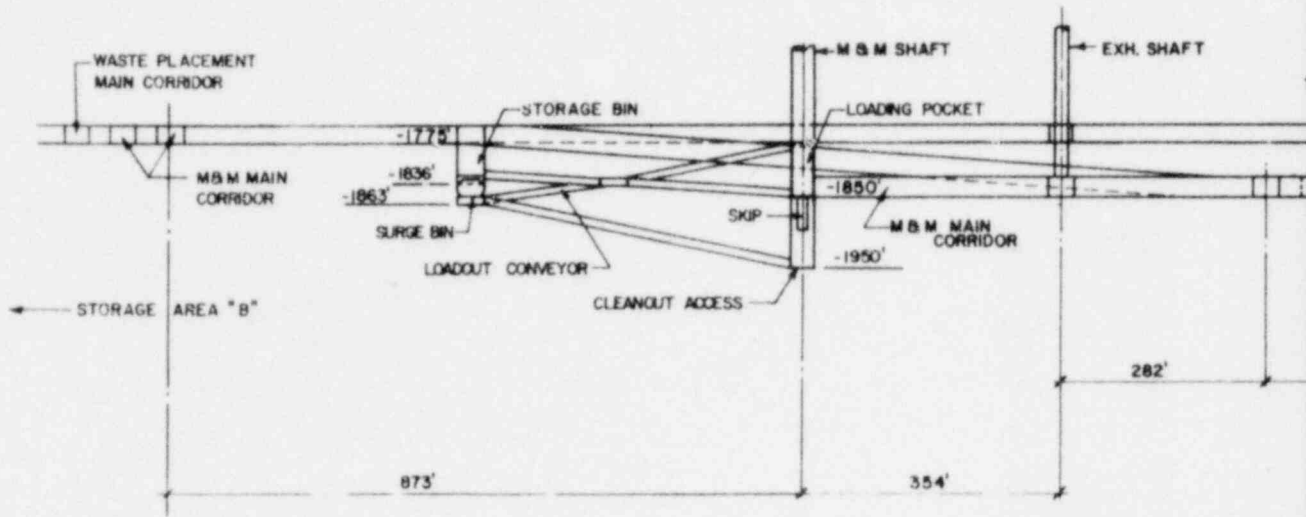
**NOTE**

1. FOR SECTIONS A-A & B-B, SEE DWG NO 117



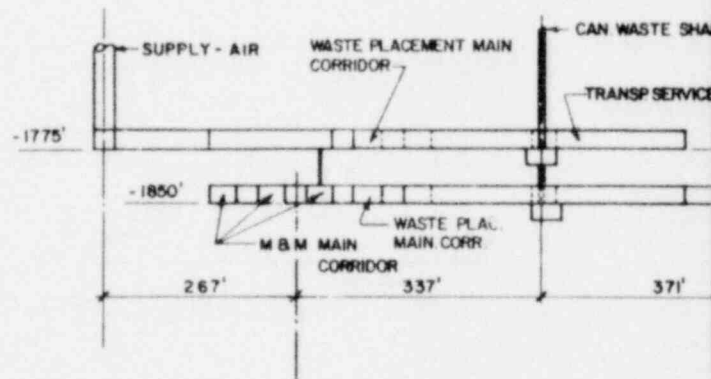
<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC <small>ENGINEERS</small> <span style="float: right;"><small>NEW YORK, N.Y.</small></span>		
<b>WASTE ISOLATION FACILITY</b> <b>MINE PARTIAL PLAN</b> SALT-BPNL WASTE PACKAGES		
SCALE: 1" = 120'	CONTRACT NO. 62Y-45702C	
DATE: FEBRUARY, 1978	DWG NO. 116	REV

CYCLE 1: FULL RECYCLE



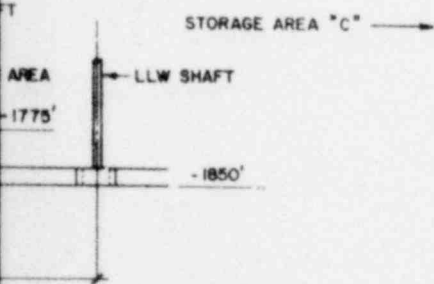
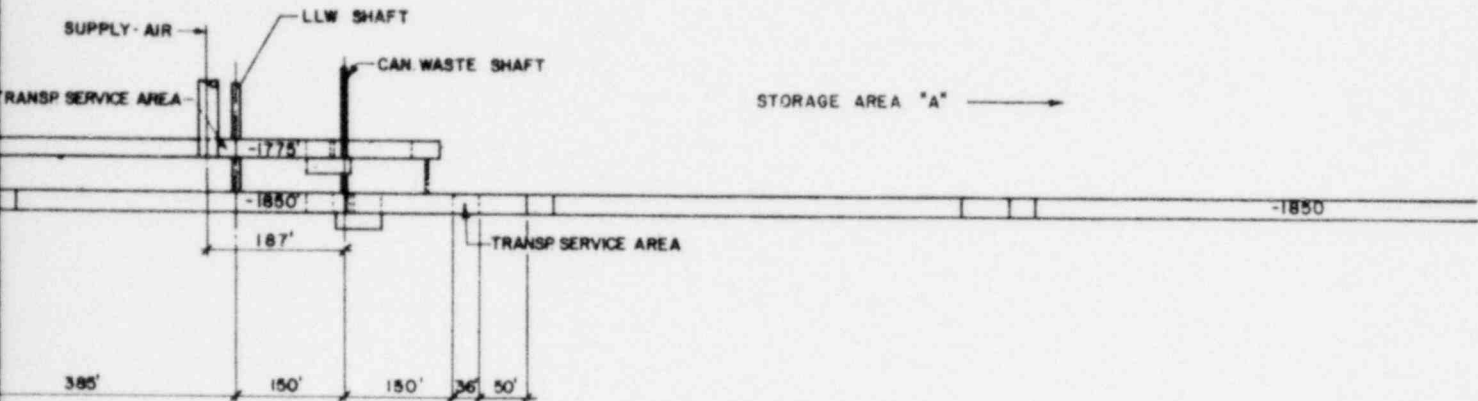
**SECTION A-A**

SCALE 1" = 120'



**SECTION B-B**

SCALE 1" = 120'

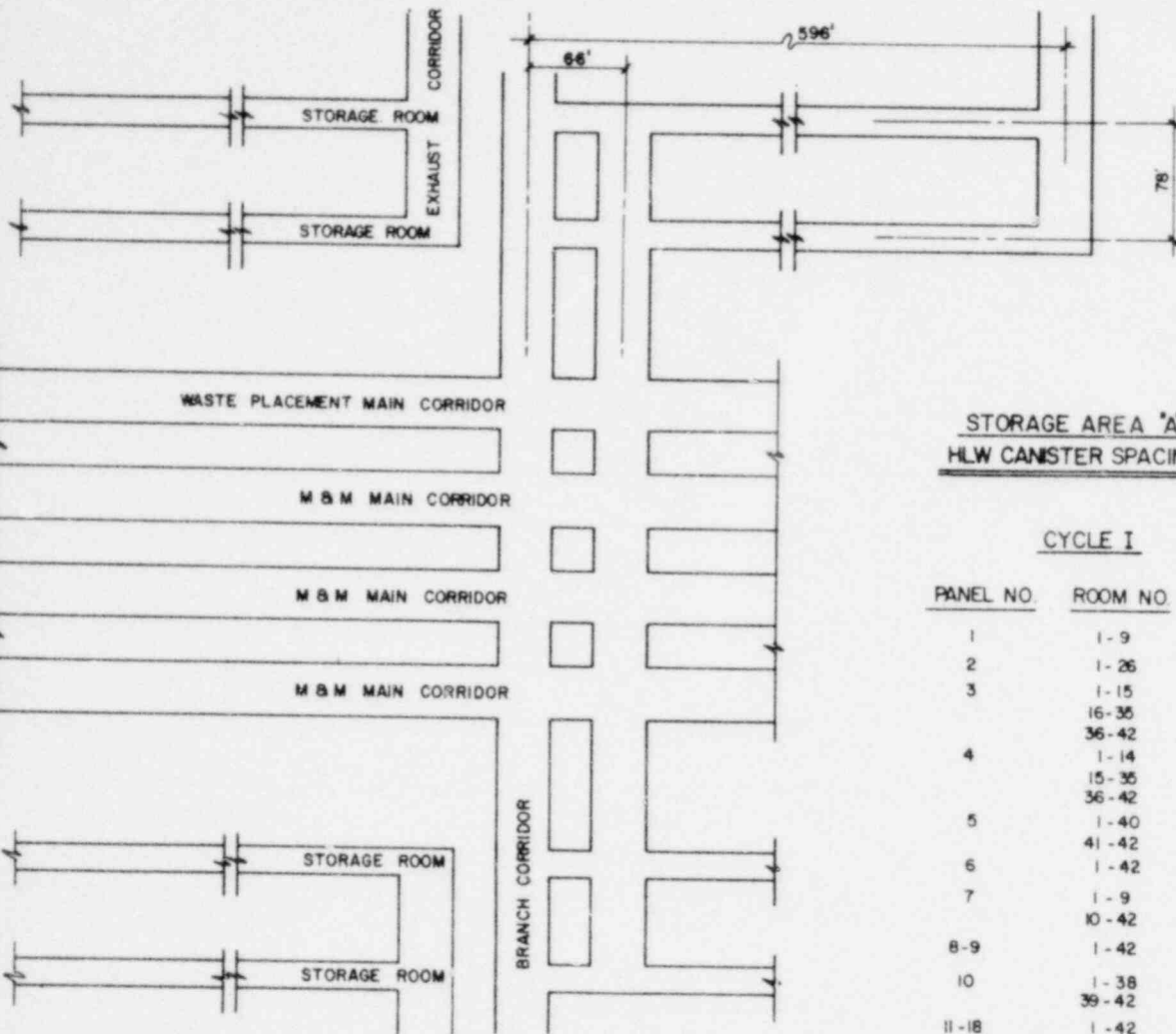


CYCLE I: FULL RECYCLE

<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. <small>ENGINEERS</small> <span style="float: right;"><small>NEW YORK, N.Y.</small></span>		
<b>WASTE ISOLATION FACILITY</b> CROSS SECTIONS A-A & B-B SALT - BPNL WASTE PACKAGES		
SCALE: 1" = 120'	CONTRACT NO. 62Y-45702C	
DATE: FEBRUARY, 1978	INS. NO. 117	REV.







**STORAGE AREA "A"**  
**HLW CANISTER SPACING**

**CYCLE I**

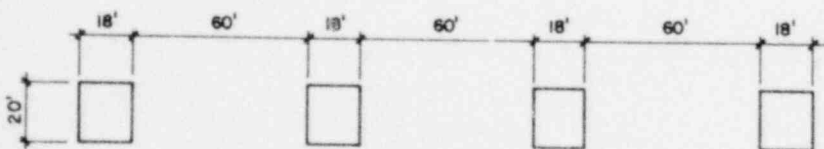
PANEL NO.	ROOM NO.	SPACING FT.
1	1-9	8.0
2	1-26	8.0
3	1-15	8.5
	16-35	9.0
	36-42	9.5
4	1-14	9.5
	15-35	10.0
	36-42	10.5
5	1-40	10.5
	41-42	11.0
6	1-42	11.0
7	1-9	11.0
	10-42	11.5
8-9	1-42	11.5
10	1-38	11.5
	39-42	12.0
11-18	1-42	12.0

**CYCLE III**

1	1-18	9.0
2	1-20	9.0
	21	9.5
3	1-16	9.5
	17-43	10.0
4	1-17	10.0
	18-41	10.5
	42-43	11.0
5	1-43	11.0
6	1-4	11.0
	5-43	11.5
7	1-43	11.5
8	1-8	11.5
	9-43	12.0
9-18	1-43	12.0

**CORRIDOR & ROOM LAYOUT - STORAGE AREA "A"**

SCALE: 1" = 60'



**TYPICAL ROOM CROSS SECTION**

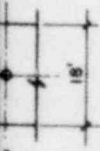
**STORAGE AREA "A"**

SCALE: 1" = 30'

**NOTE:**

FOR STORAGE AREA "C" ROOM PLAN SEE DWG. NO. 120

VARIES - SEE TABLE AT RIGHT THIS SHEET



CYCLE I: FULL RECYCLE  
OR

CYCLE III: URANIUM RECYCLE WITH PU IN HLW

**OFFICE OF WASTE ISOLATION**  
UNION CARBIDE CORPORATION  
NUCLEAR DIVISION  
OAK RIDGE, TENNESSEE

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC.  
ENGINEERS NEW YORK, N.Y.

**WASTE ISOLATION FACILITY**

ROOM & CORRIDOR LAYOUT

SALT - BPNL WASTE PACKAGES

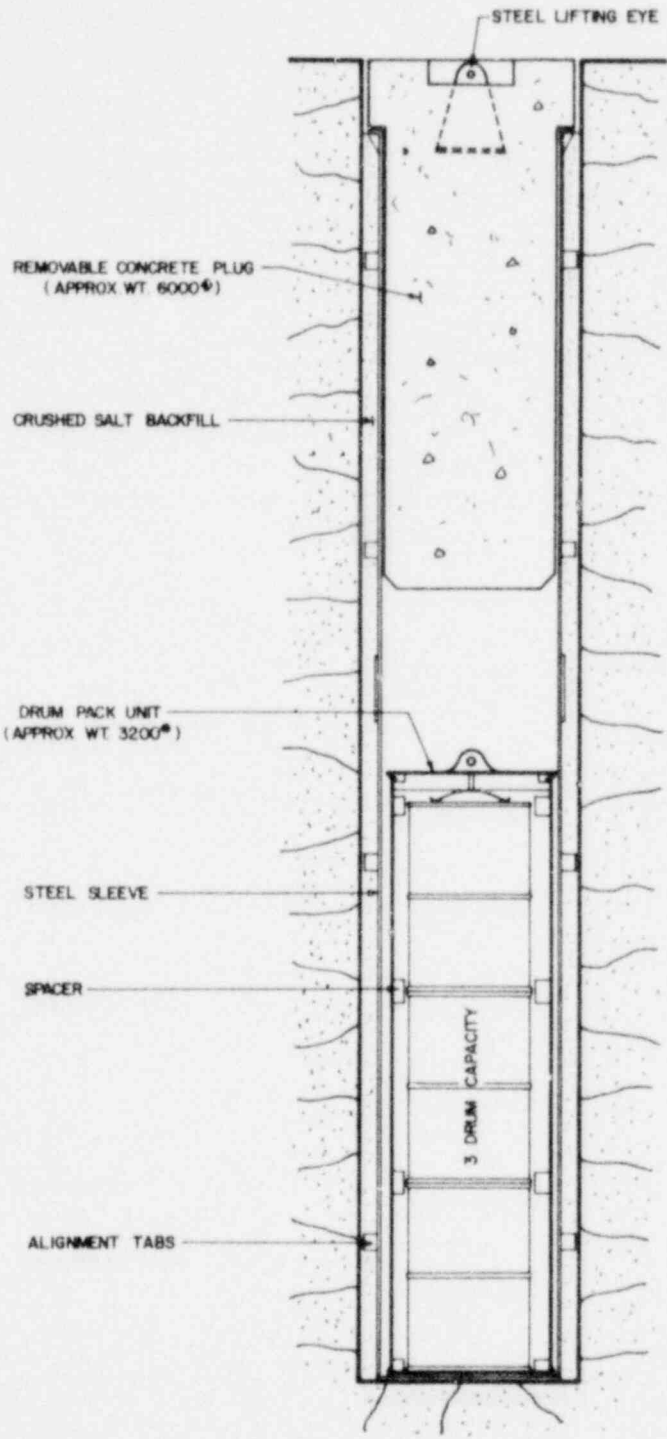
SCALE: AS NOTED

CONTRACT NO. 62Y - 45702C

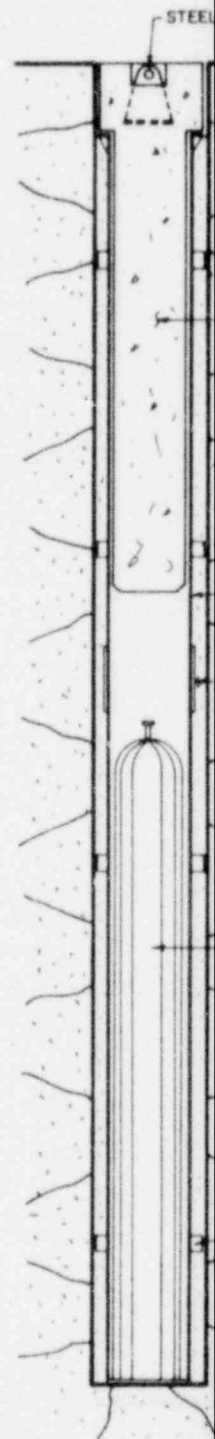
DATE: FEBRUARY, 1978

DWG. NO. 118

REV.



DRUMMED WASTE  
INTERMEDIATE LEVEL WASTE  
 ( IL 1, IL 2 )



12" DIA WASTE CA  
HIGH LEVEL WA  
 (HLW)

LIFTING EYE

STEEL LIFTING EYE

REMOVABLE  
CONCRETE PLUG  
(APPROX. WT. 1300\*)

REMOVABLE  
CONCRETE PLUG  
(APPROX. WT. 6000\*)

STEEL SLEEVE

STEEL SLEEVE

CRUSHED SALT  
BACKFILL

CRUSHED SALT  
BACKFILL

STEEL CANISTER  
(APPROX. WT. 1000\*)

STEEL CANISTER  
(APPROX. WT. 7000\*)

ALIGNMENT TABS

ALIGNMENT TABS

NOTES:

1. FOR WASTE NOMENCLATURE DEFINITIONS, SEE  
MINE MASTER PLAN GENERAL NOTES.

30" DIA WASTE CANISTER  
INTERMEDIATE LEVEL & CLADDING WASTE  
(CW, IL 3, IL 4)

CYCLE I: FULL RECYCLE  
OR

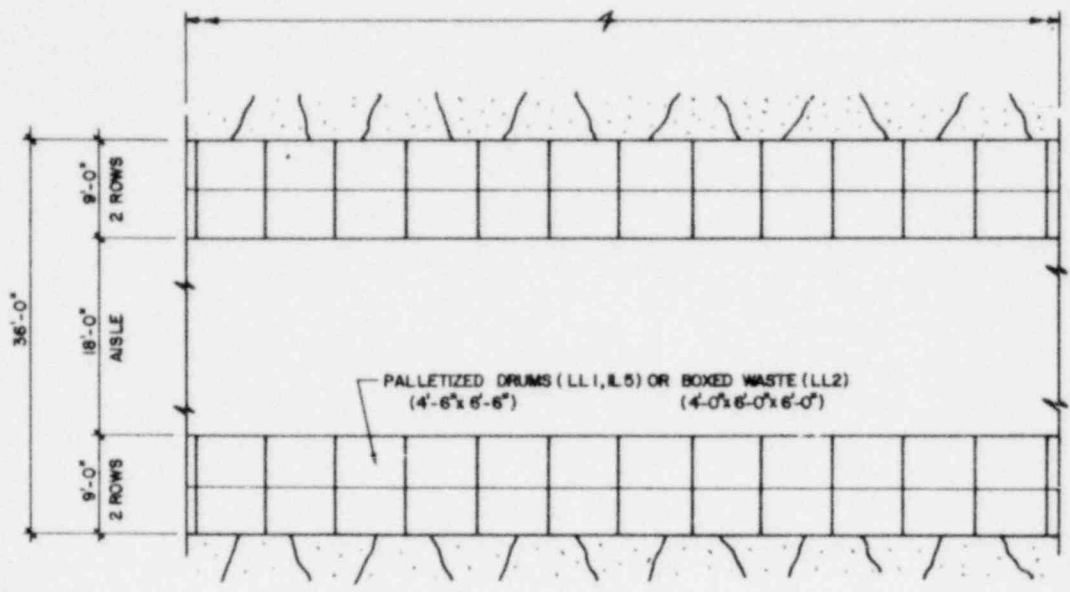
CYCLE III: URANIUM RECYCLE WITH PU IN HLW

OFFICE OF WASTE ISOLATION  
UNION CARBIDE CORPORATION  
NUCLEAR DIVISION  
OAK RIDGE, TENNESSEE

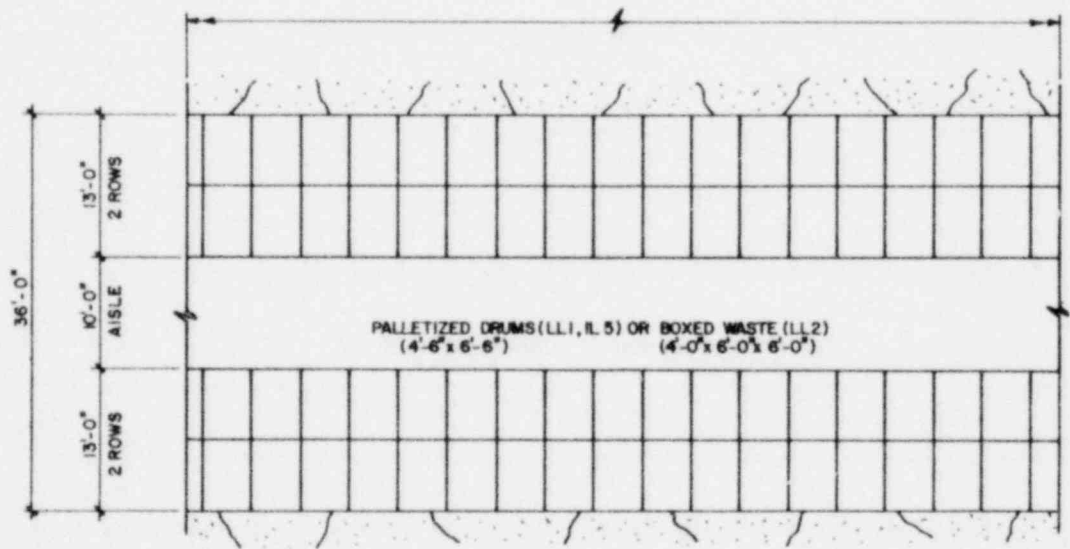
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC.  
ENGINEERS  
NEW YORK, N.Y.

WASTE ISOLATION FACILITY  
INVERT STORAGE DETAILS  
SALT - BPNL WASTE PACKAGES

SCALE: NO SCALE	CONTRACT NO. 62Y - 45702C
DATE: FEBRUARY, 1978	DWG. NO. 119
	REV.



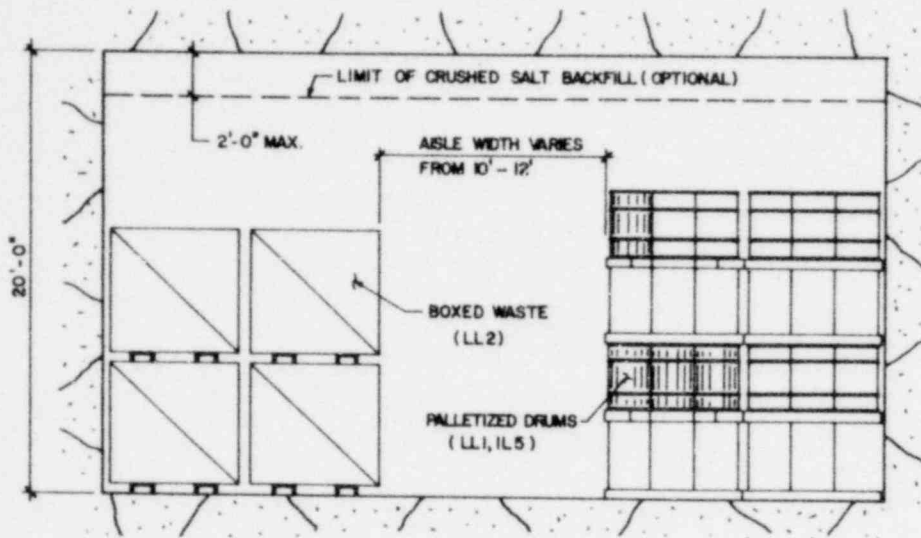
RETRIEVABLE STORAGE



NON-RETRIEVABLE STORAGE

LOW LEVEL WASTE STORAGE PATTERNS

SCALE: 1/8" = 1'-0"



TYPICAL CROSS SECTION

LOW LEVEL STORAGE ROOM

SCALE: 1/4"=1'-0"

NOTE:

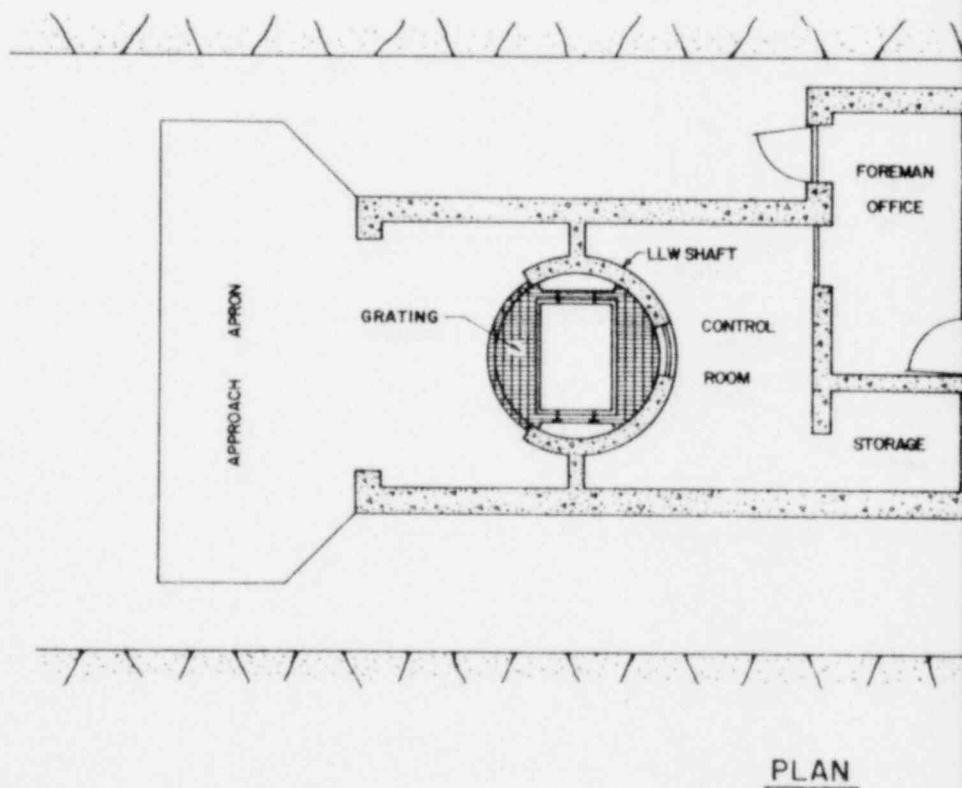
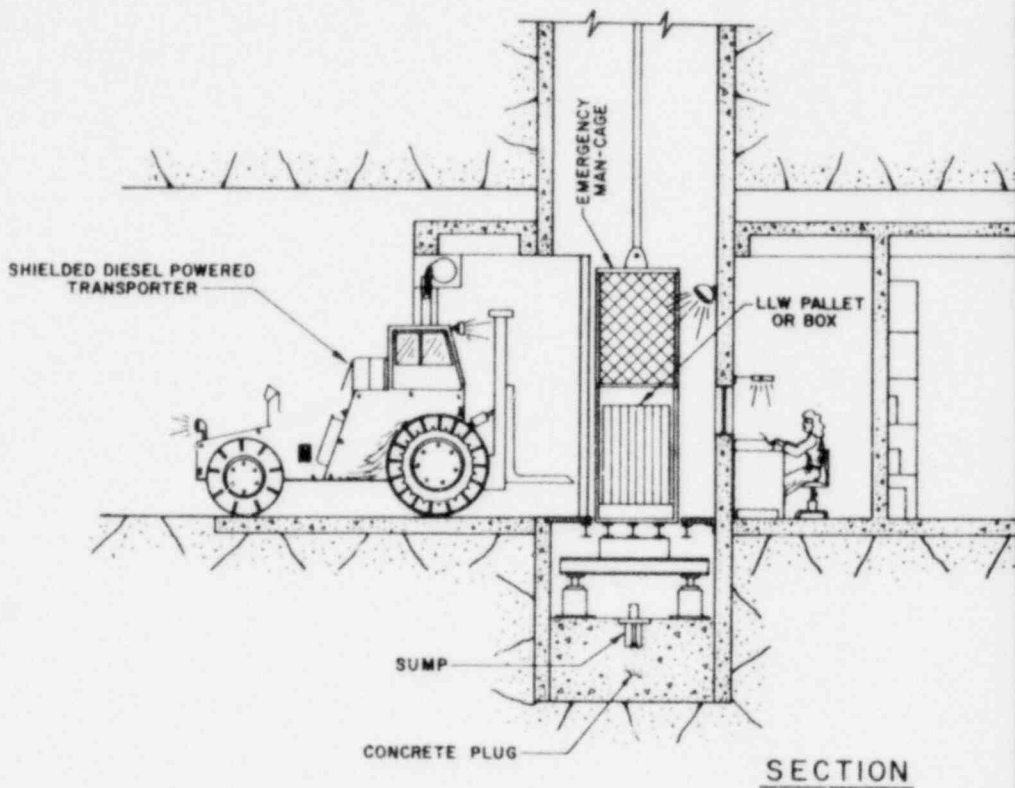
1. FOR WASTE NOMENCLATURE DEFINITIONS, SEE MINE MASTER PLAN GENERAL NOTES.

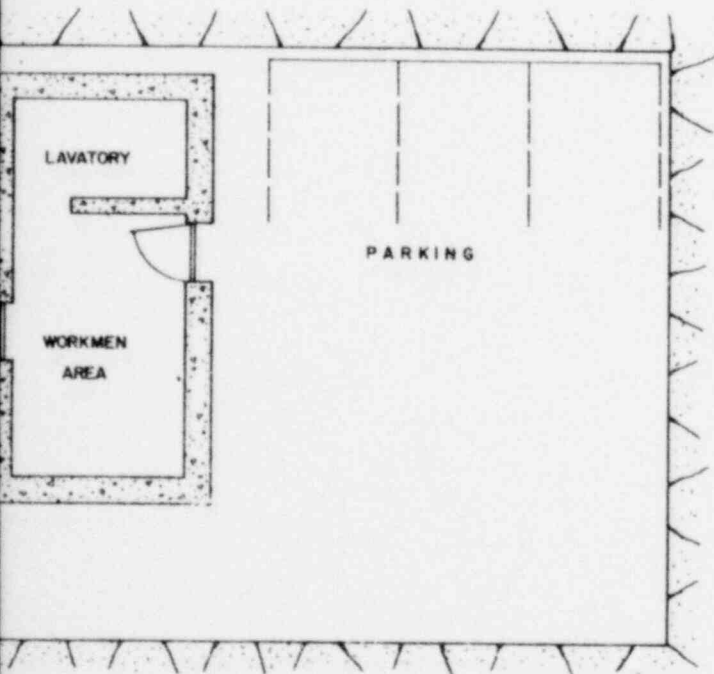
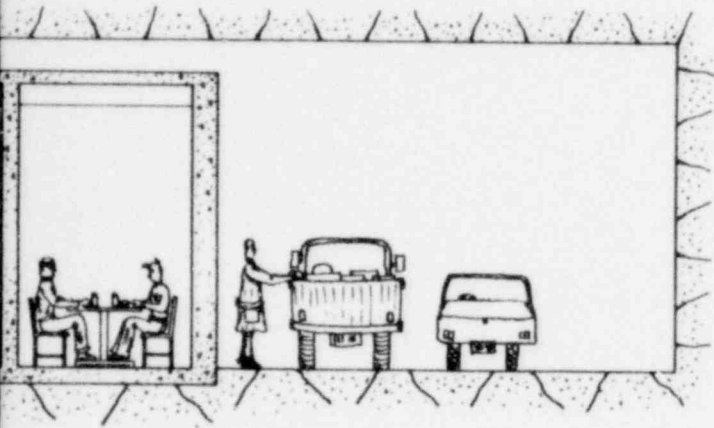
CYCLE I: FULL RECYCLE

OR

CYCLE III: URANIUM RECYCLE WITH PU IN HLW

<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. <small>ENGINEERS</small> <span style="float: right;"><small>NEW YORK, N.Y.</small></span>		
<b>WASTE ISOLATION FACILITY</b> LOW LEVEL WASTE STORAGE - DETAILS SALT - BNPL WASTE PACKAGES		
SCALE:	CONTRACT NO. 62Y-45702C	
DATE: FEBRUARY, 1978	DWG. NO. 120	REV.





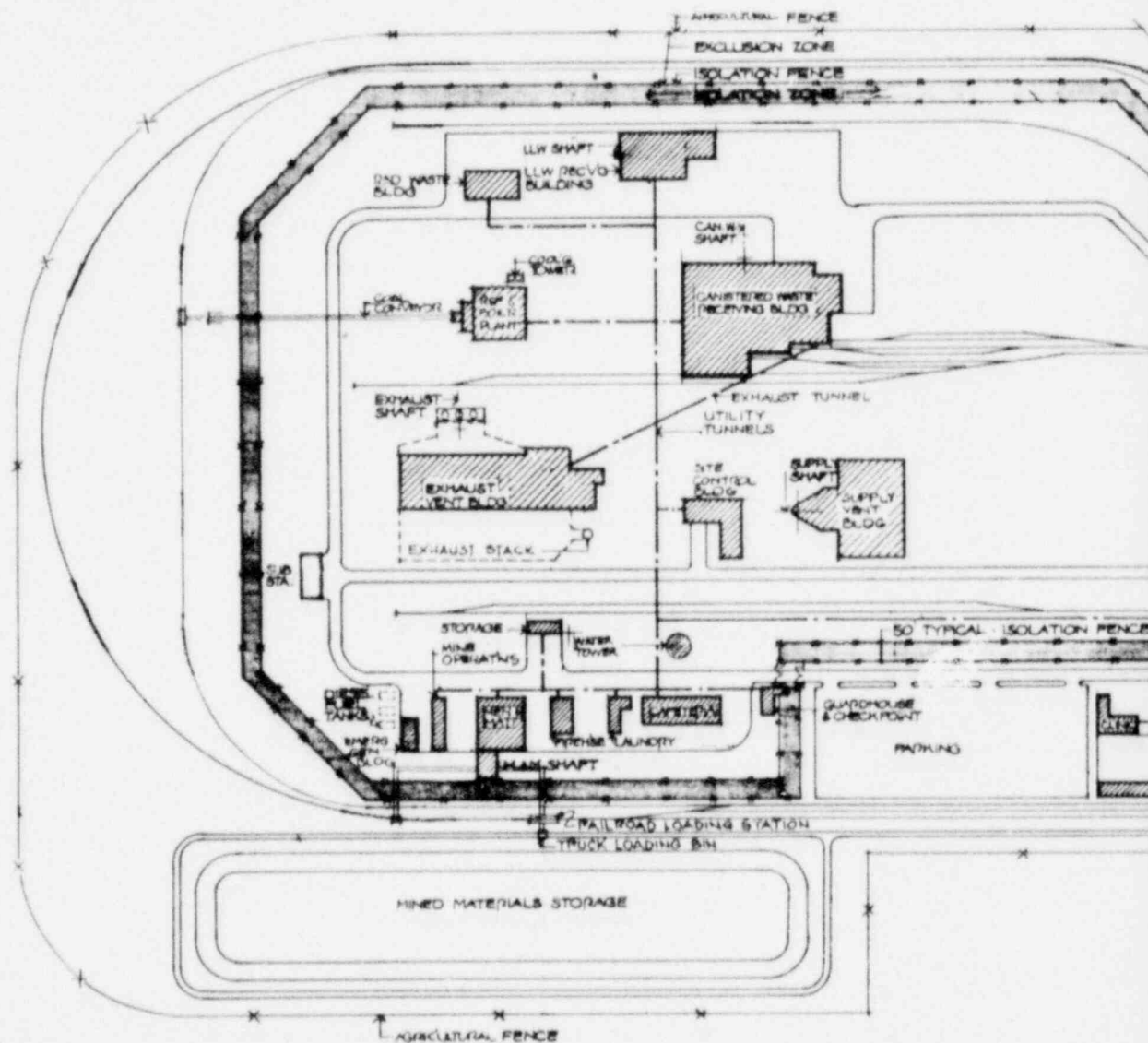
CYCLE I: FULL RECYCLE

OR

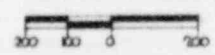
CYCLE III: URANIUM RECYCLE WITH PU IN HLW

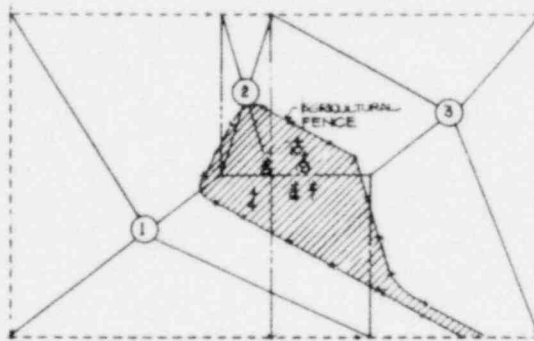
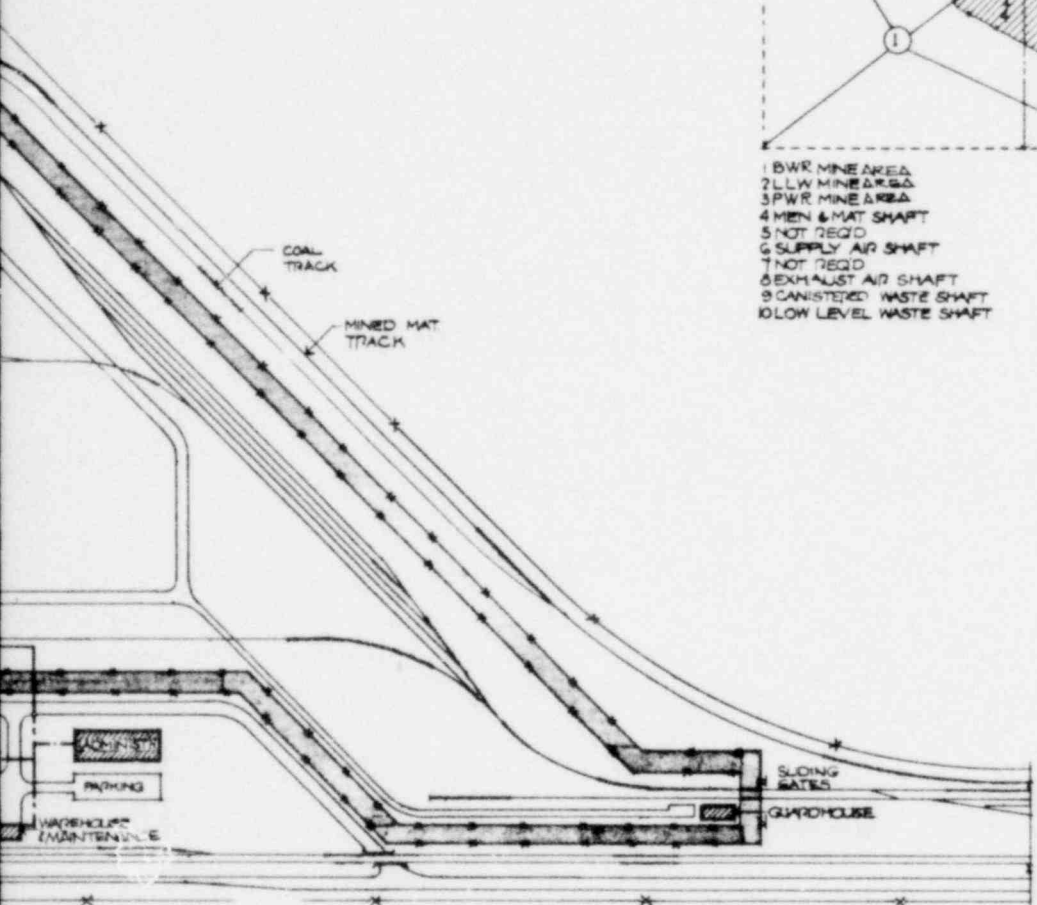
<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. <small>ENGINEERS</small> <span style="float: right;"><small>NEW YORK, N.Y.</small></span>		
<b>WASTE ISOLATION FACILITY</b> LOW LEVEL WASTE SUBSURFACE RECEIVING STATION SALT-BPML WASTE PACKAGES		
SCALE: $\frac{3}{16}'' = 1'-0''$	CONTRACT NO. 62Y-45702C	
DATE: FEBRUARY, 1978	DWG. NO. 121	REV.





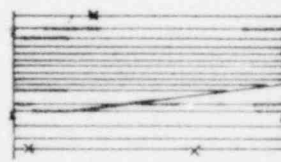
**Site Plan**





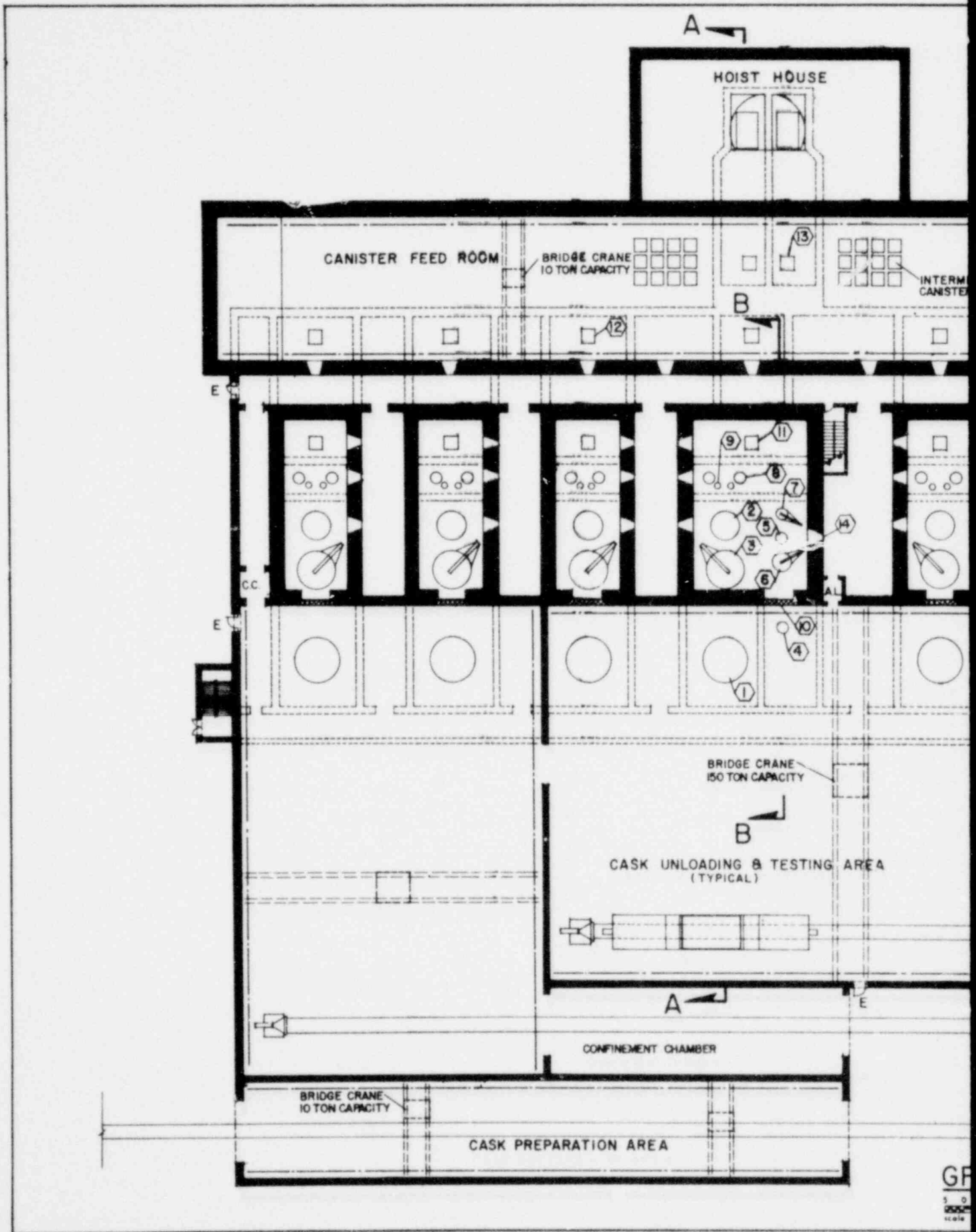
- 1 BWR MINE AREA
- 2 LLW MINE AREA
- 3 PWR MINE AREA
- 4 MEN & MAT SHAFT
- 5 NOT REQ'D
- 6 SUPPLY AIR SHAFT
- 7 NOT REQ'D
- 8 EXHAUST AIR SHAFT
- 9 CANISTERED WASTE SHAFT
- 10 LOW LEVEL WASTE SHAFT

PLOT PLAN



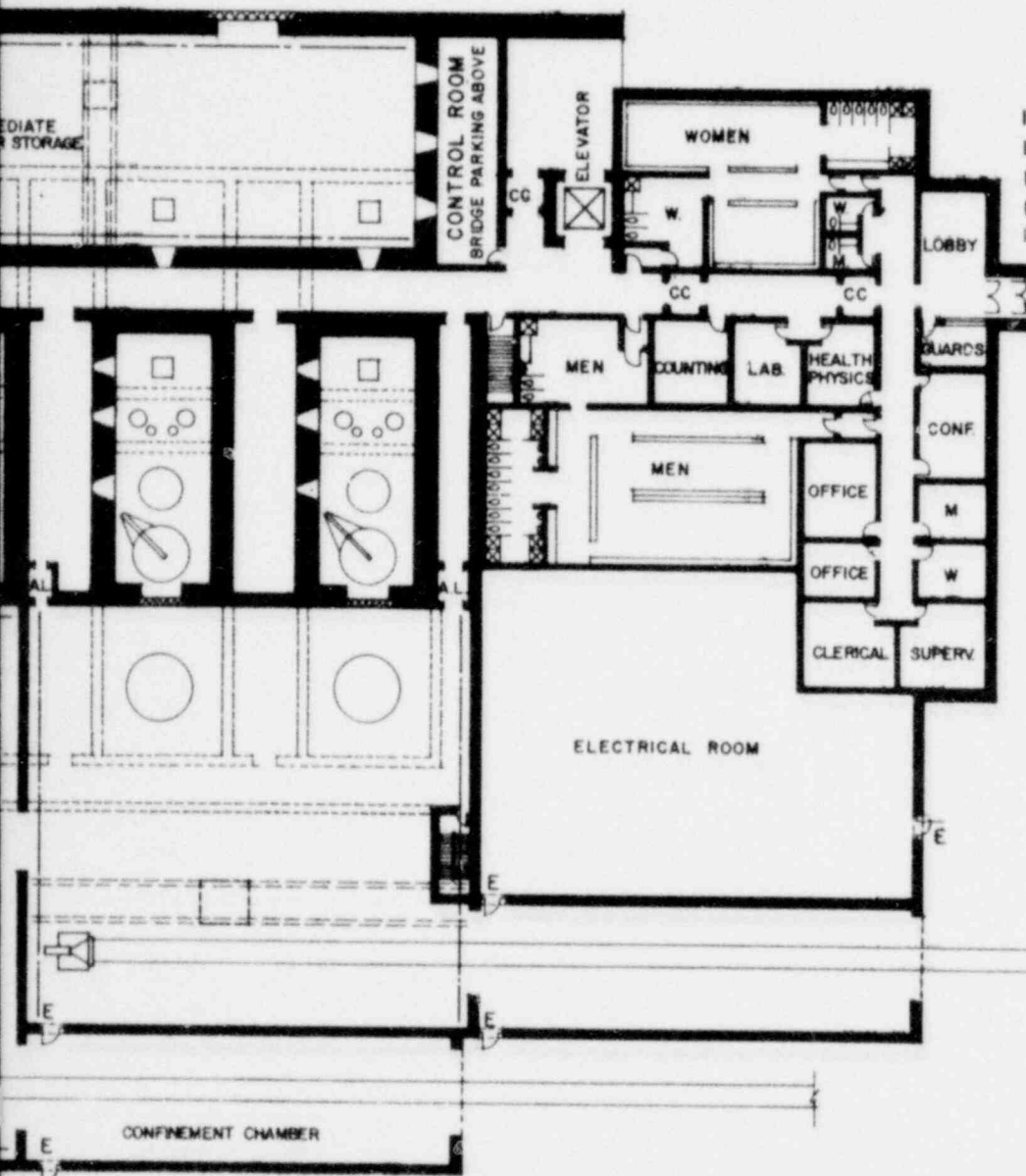
CYCLE II: THROWAWAY FUEL CYCLE

<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. <small>ENGINEERS NEW YORK, N.Y.</small>		
<b>WASTE ISOLATION FACILITY</b> <b>REPOSITORY-SITE AND PLOT PLAN</b> SALT-BPNL WASTE PACKAGES		
SCALE: AS NOTED	CONTRACT NO. 62Y-45702C	
DATE: FEBRUARY, 1978	DWG. NO. 200	REV.

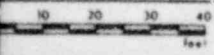


**TYPICAL ARRANGEMENT**

- 1 CASK LOWERING PORT
- 2 CANISTER EXTRACTION PORT
- 3 CASK LID UNBOLTING RIG
- 4 OVERPACK FEED PORT
- 5 OVERPACK LOADING PORT
- 6 OVERPACK LID WELDER
- 7 OVERPACK LID HANDLING RIG
- 8 CANISTER DECON WELL
- 9 CANISTER LEAK TEST WELL
- 10 TEST CELL ACCESS DOOR
- 11 CANISTER EXIT PORT
- 12 TRANSFER PORT TO BRIDGE CRANE
- 13 PORT TO SHAFT TRANSFER ROOM
- 14 VIEWING WINDOWS
- E EMERGENCY DOORS

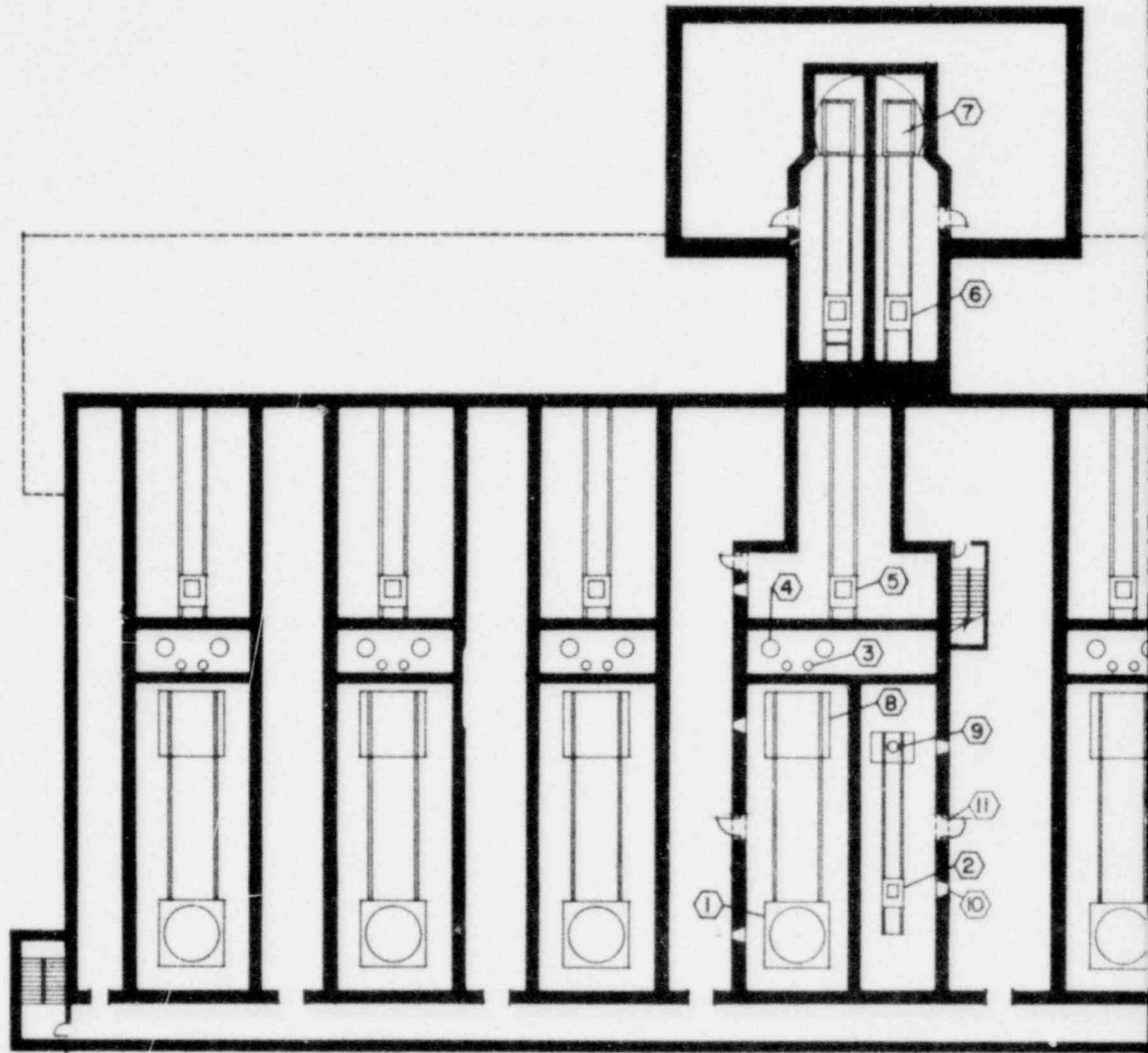


**GROUND FLOOR PLAN**



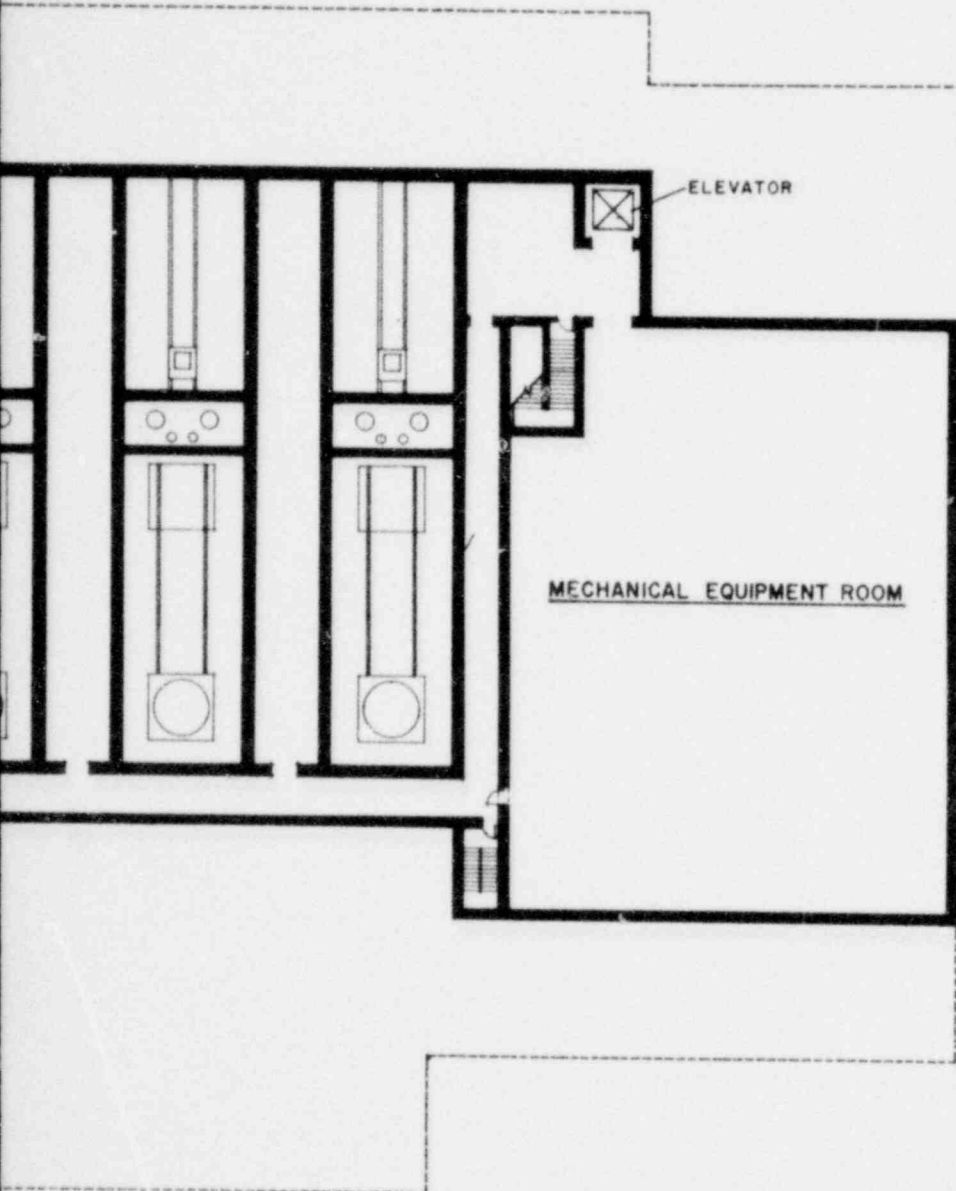
CYCLE II: THROWAWAY FUEL CYCLE

<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE	
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS NEW YORK, N.Y.	
<b>WASTE ISOLATION FACILITY</b> <b>CANISTERED WASTE RECEIVING BUILDING</b> SALT- BPNL WASTE PACKAGES	
SCALE: 1/8" = 1'-0"	CONTRACT NO. 62Y-45702C
DATE: FEBRUARY, 1978	DWG NO. 201
	REV.

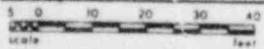


TYPICAL ARRANGEMENT

- 1 CASK TRANSFER CARRIER
- 2 OVERPACK TRANSFER CARRIER
- 3 CANISTER LEAK TEST WELLS
- 4 CANISTER DECON. WELLS
- 5 CANISTER TRANSFER CARRIER
- 6 CANISTER TRANSFER CARRIER
- 7 HOIST CAGE
- 8 CASK LIFT
- 9 OVERPACK LIFT
- 10 VIEWING WINDOWS
- 11 ACCESS DOORS



BASEMENT PLAN



CYCLE II: THROWAWAY FUEL CYCLE

OFFICE OF WASTE ISOLATION  
 UNION CARBIDE CORPORATION  
 NUCLEAR DIVISION  
 OAK RIDGE, TENNESSEE

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC.  
 ENGINEERS  
 NEW YORK, N.Y.

WASTE ISOLATION FACILITY  
 CANISTERED WASTE RECEIVING BUILDING  
 SALT- BPNL WASTE PACKAGES

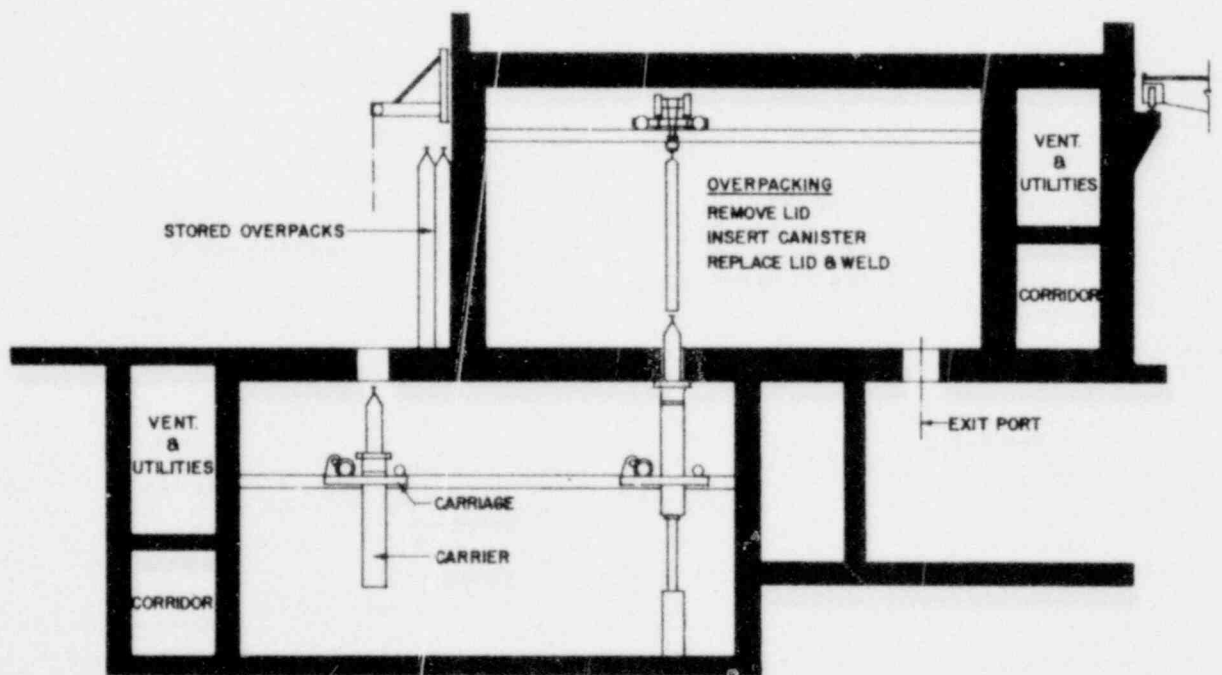
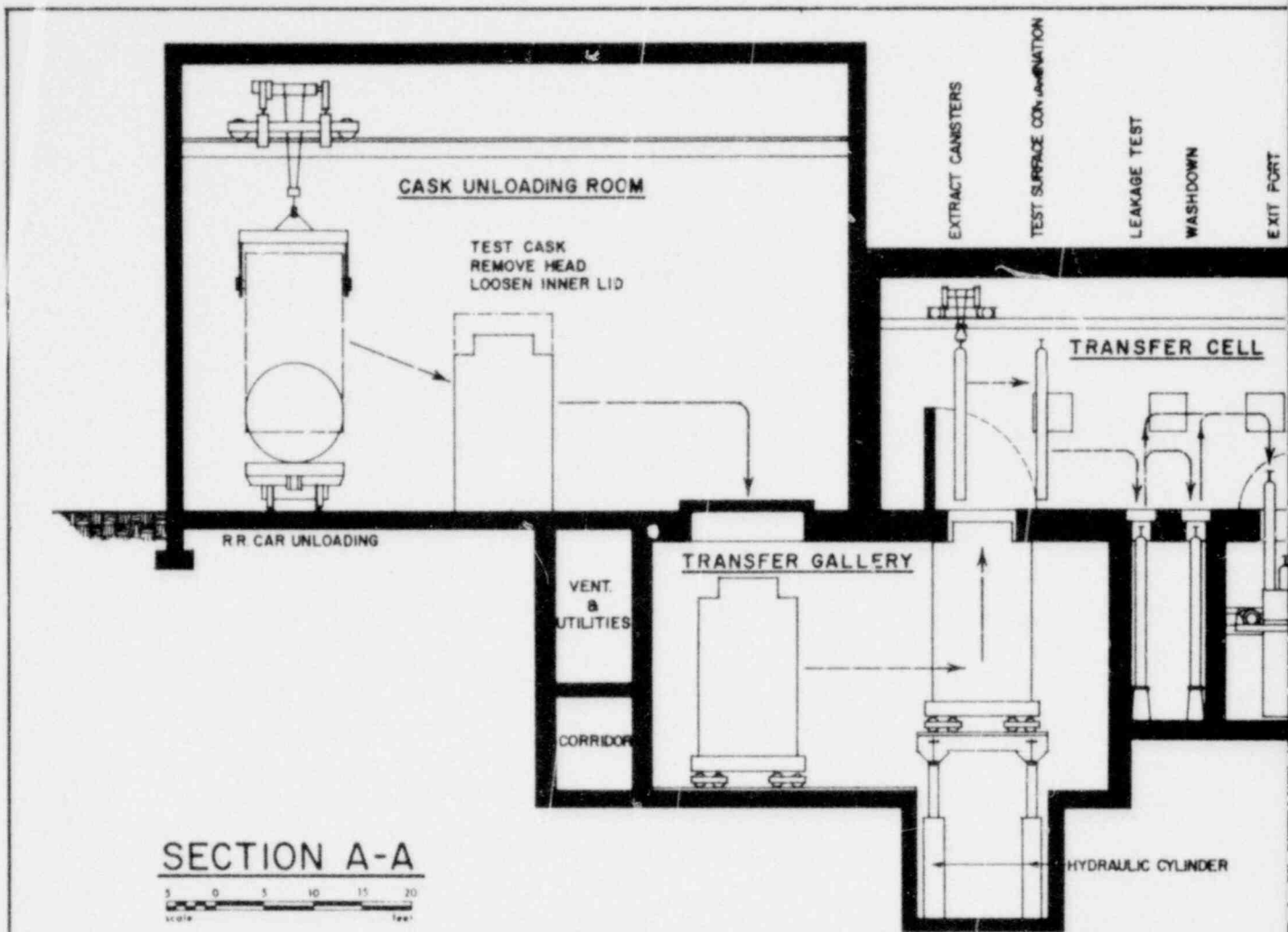
SCALE: 1/4" = 1'-0"

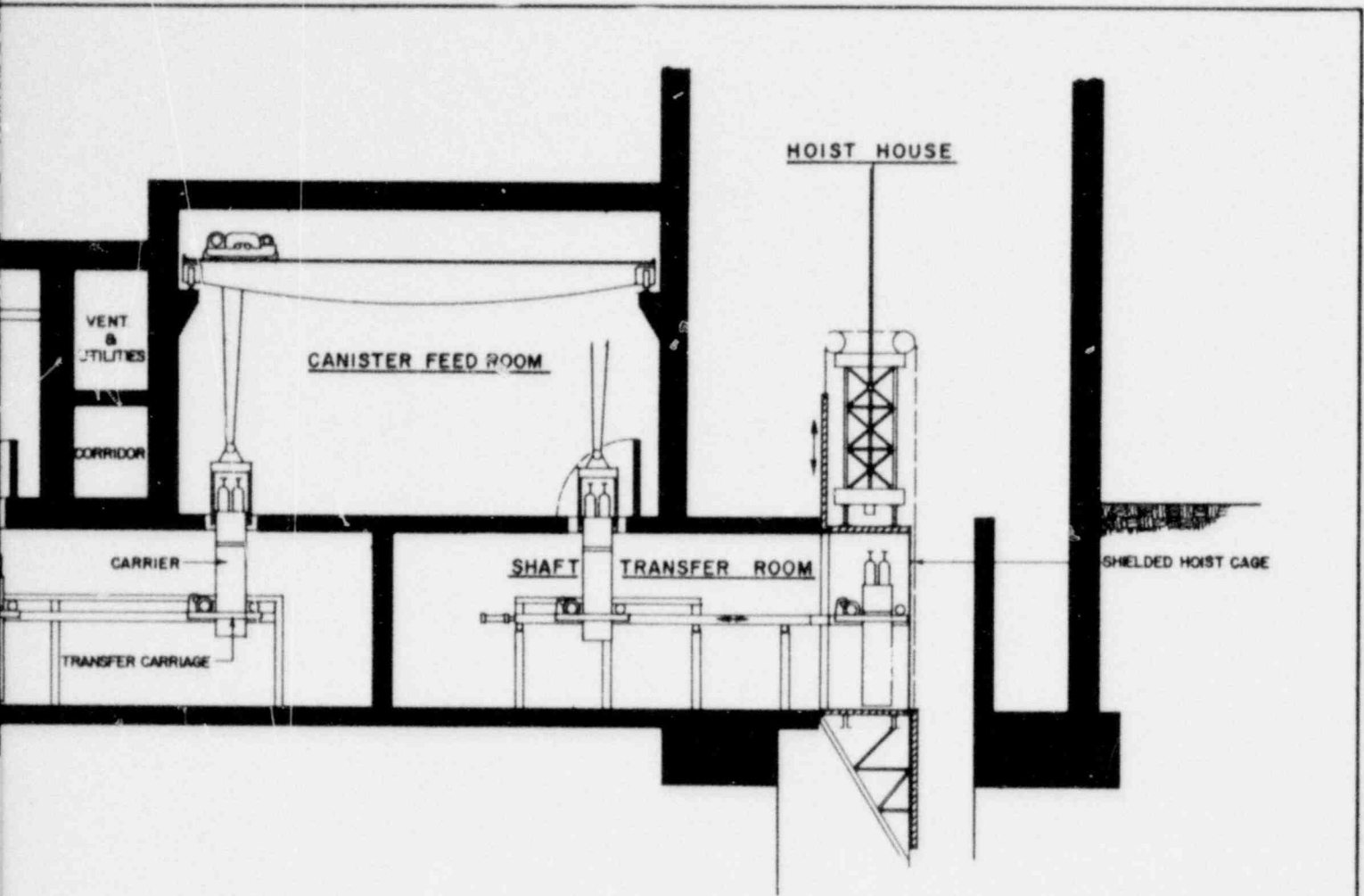
CONTRACT NO. 62Y-45702C

DATE: FEBRUARY, 1978

DWG NO. 202

REV.

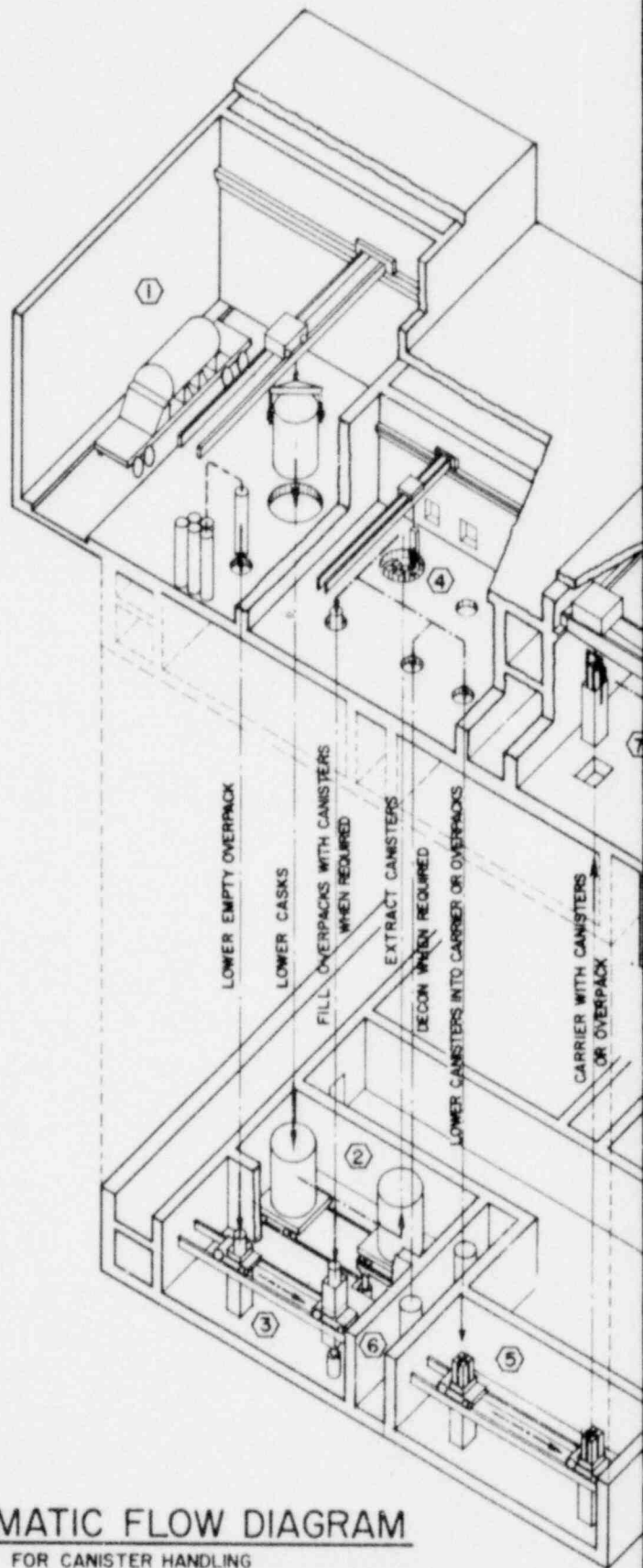




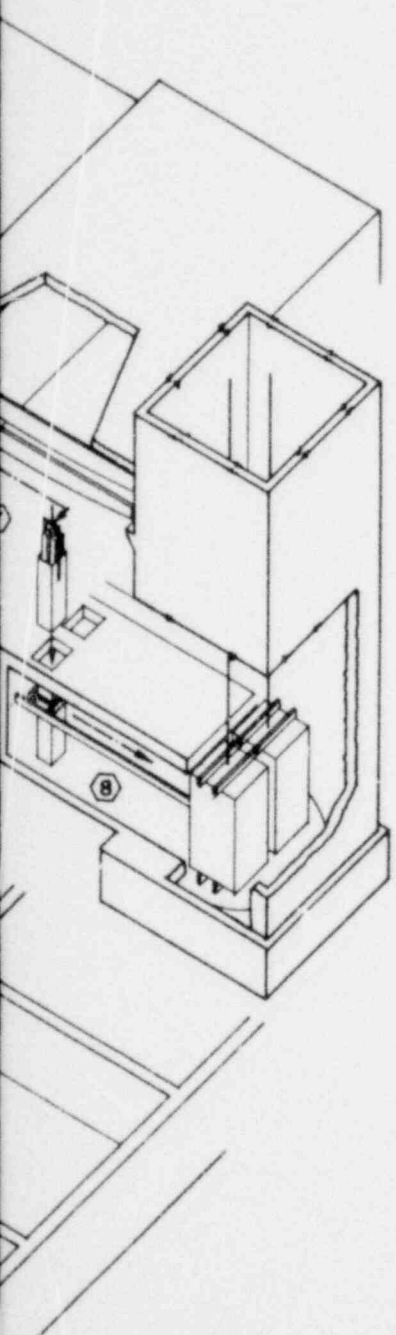
<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. <small>ENGINEERS</small> <span style="float: right;"><small>NEW YORK, N.Y.</small></span>		
<b>WASTE ISOLATION FACILITY</b> <b>CANISTERED WASTE RECEIVING BUILDING</b> SALT- BPNL WASTE PACKAGES		
SCALE:	$\frac{1}{8}'' = 1'0''$	CONTRACT NO. 62Y-45702C
DATE:	FEBRUARY, 1978	DWG. NO. 204 <span style="float: right;">REV.</span>

CYCLE II: THROWAWAY FUEL CYCLE





SCHEMATIC FLOW DIAGRAM  
FOR CANISTER HANDLING

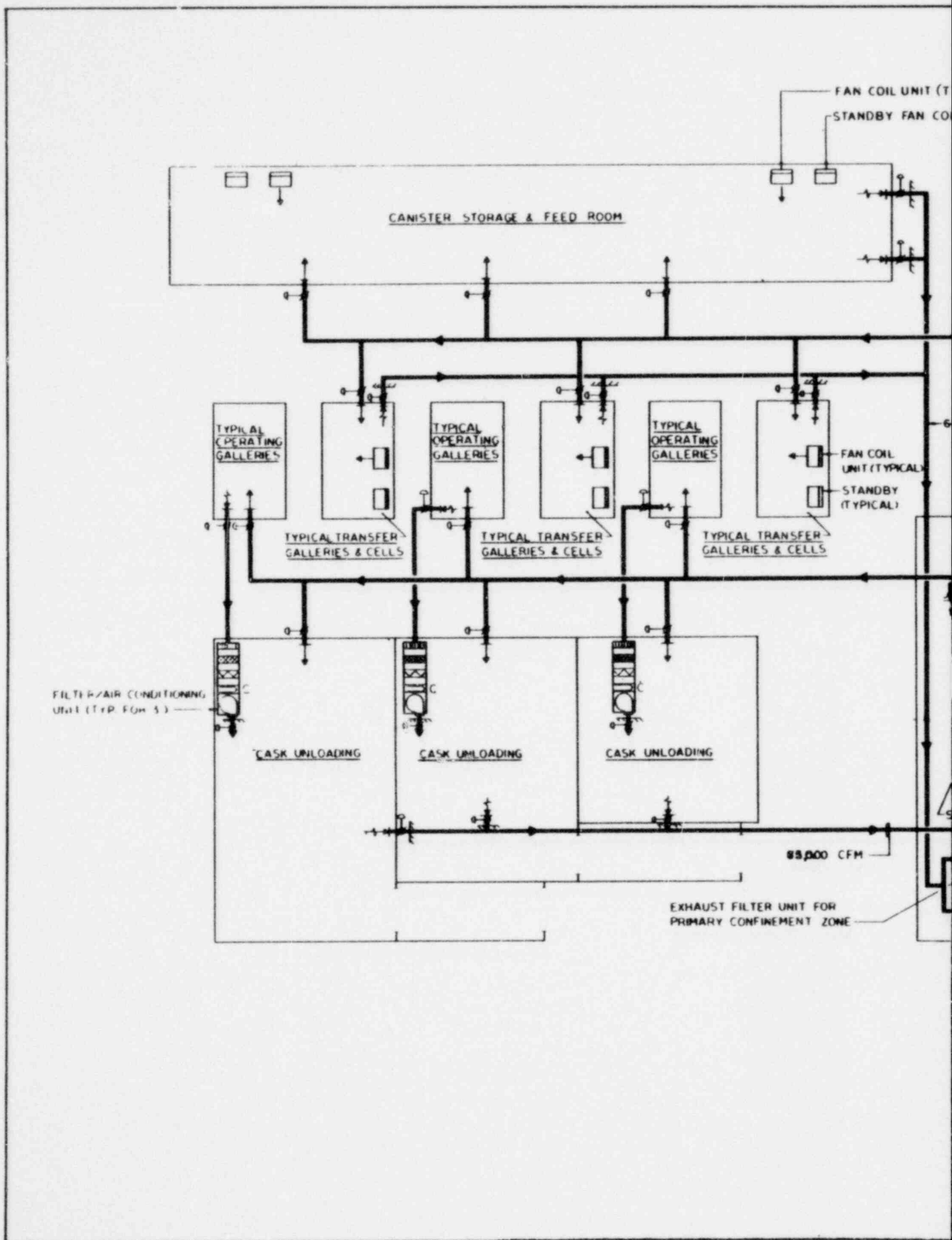


TYPICAL ARRANGEMENT

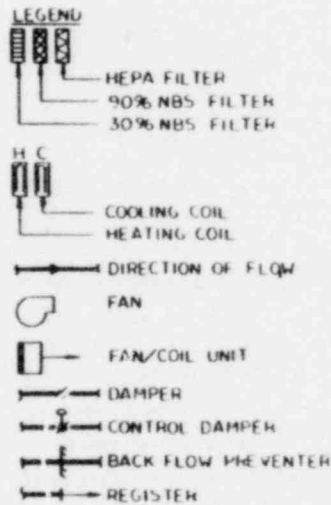
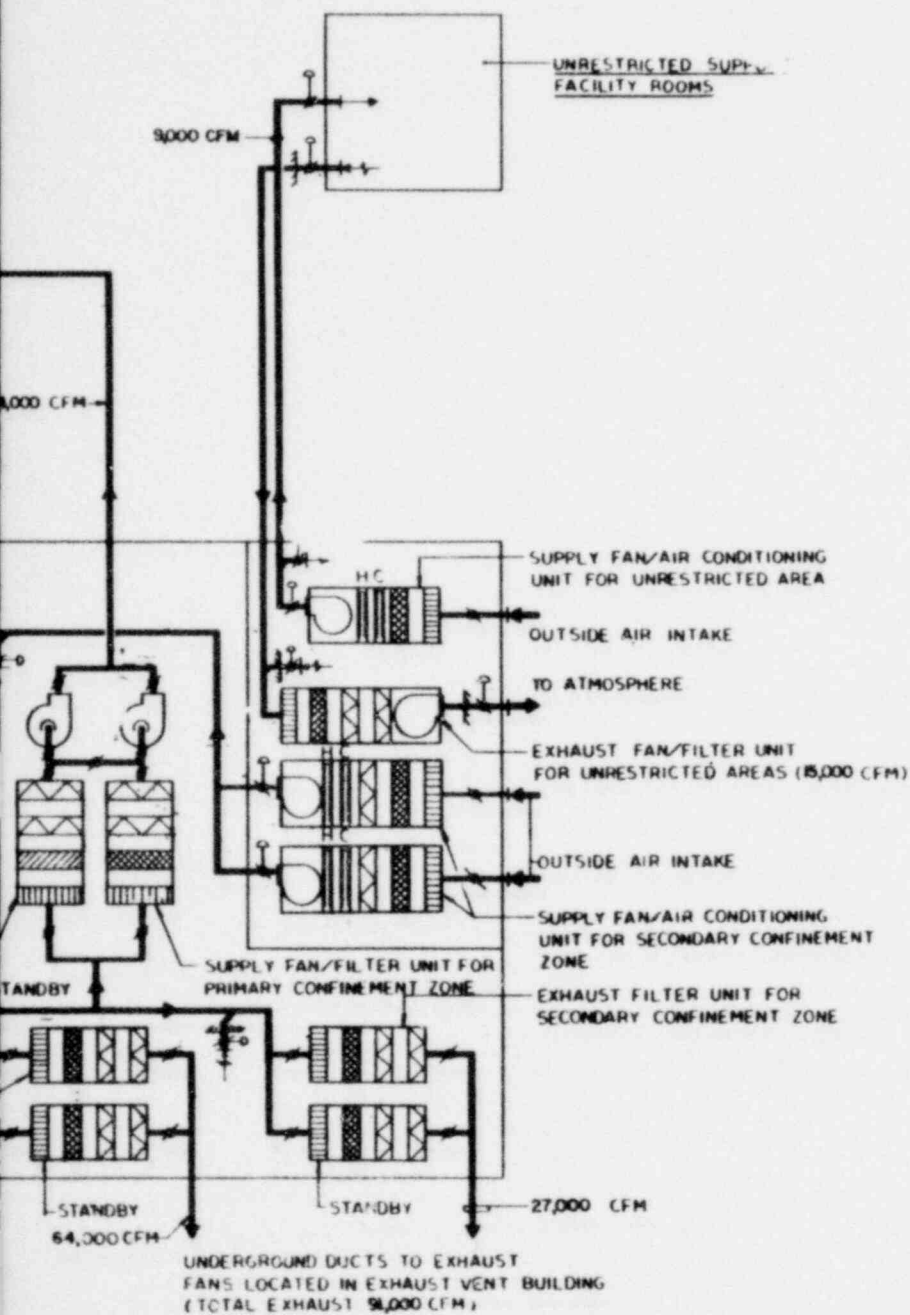
- 1 CASK UNLOADING AND TESTING AREA
- 2 CASK TRANSFER GALLERY
- 3 OVERPACK TRANSFER GALLERY
- 4 TEST CELL
- 5 OVERPACK TRANSFER ROOM
- 6 DECON WELLS
- 7 WASTE CONTAINER FEED ROOM
- 8 SHAFT FEED ROOM

CYCLE II: THROWAWAY FUEL CYCLE

<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. <small>ENGINEERS</small> <span style="float: right;"><small>NEW YORK, N.Y.</small></span>		
<b>WASTE ISOLATION FACILITY</b> <b>CANISTERED WASTE RECEIVING BUILDING</b> SALT - BPNL WASTE PACKAGES		
SCALE: NO SCALE	CONTRACT NO. 62Y-45702C	
DATE: FEBRUARY, 1978	DWG. NO. 205	REV.

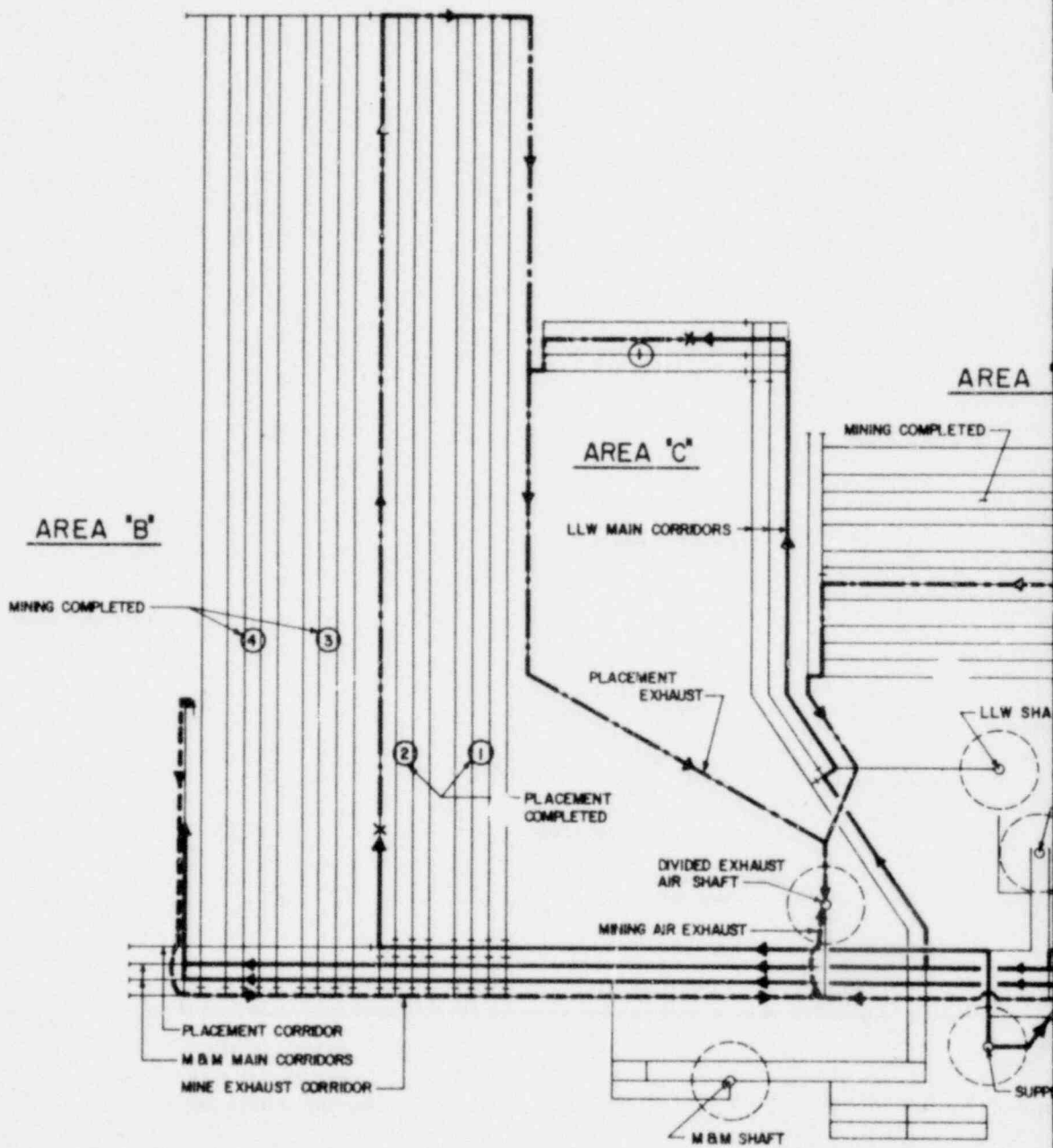


(TYPICAL)  
UNIT (TYPICAL)

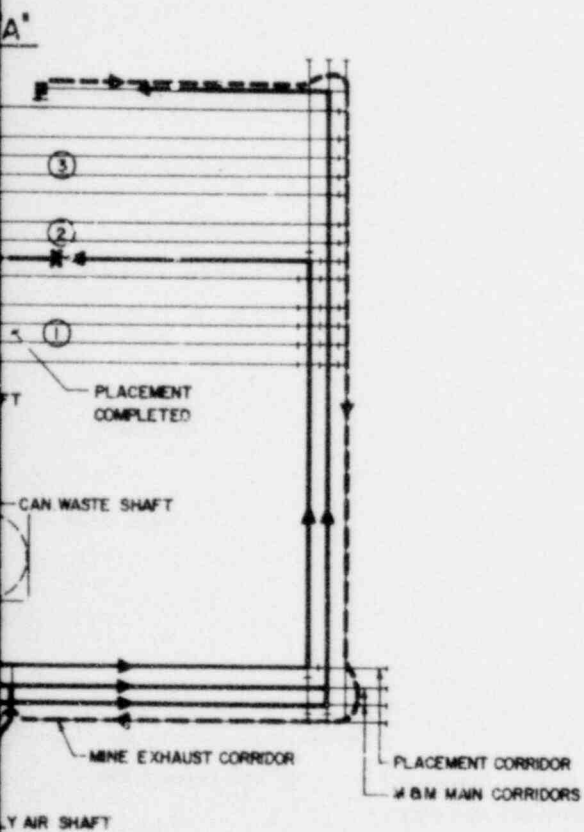


<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. <small>ENGINEERS NEW YORK, N.Y.</small>		
<b>WASTE ISOLATION FACILITY</b> CANISTERED WASTE RECEIVING BUILDING VENTILATION FLOW DIAGRAM SALT-BPNL WASTE PACKAGES		
SCALE: NO SCALE	CONTRACT NO. 62Y-48702C	
DATE: FEBRUARY, 1978	DSR NO. 206	REV.

CYCLE II: THROWAWAY FUEL CYCLE



PARTIAL PLAN  
MINING AND PLACEMENT VENTILATION

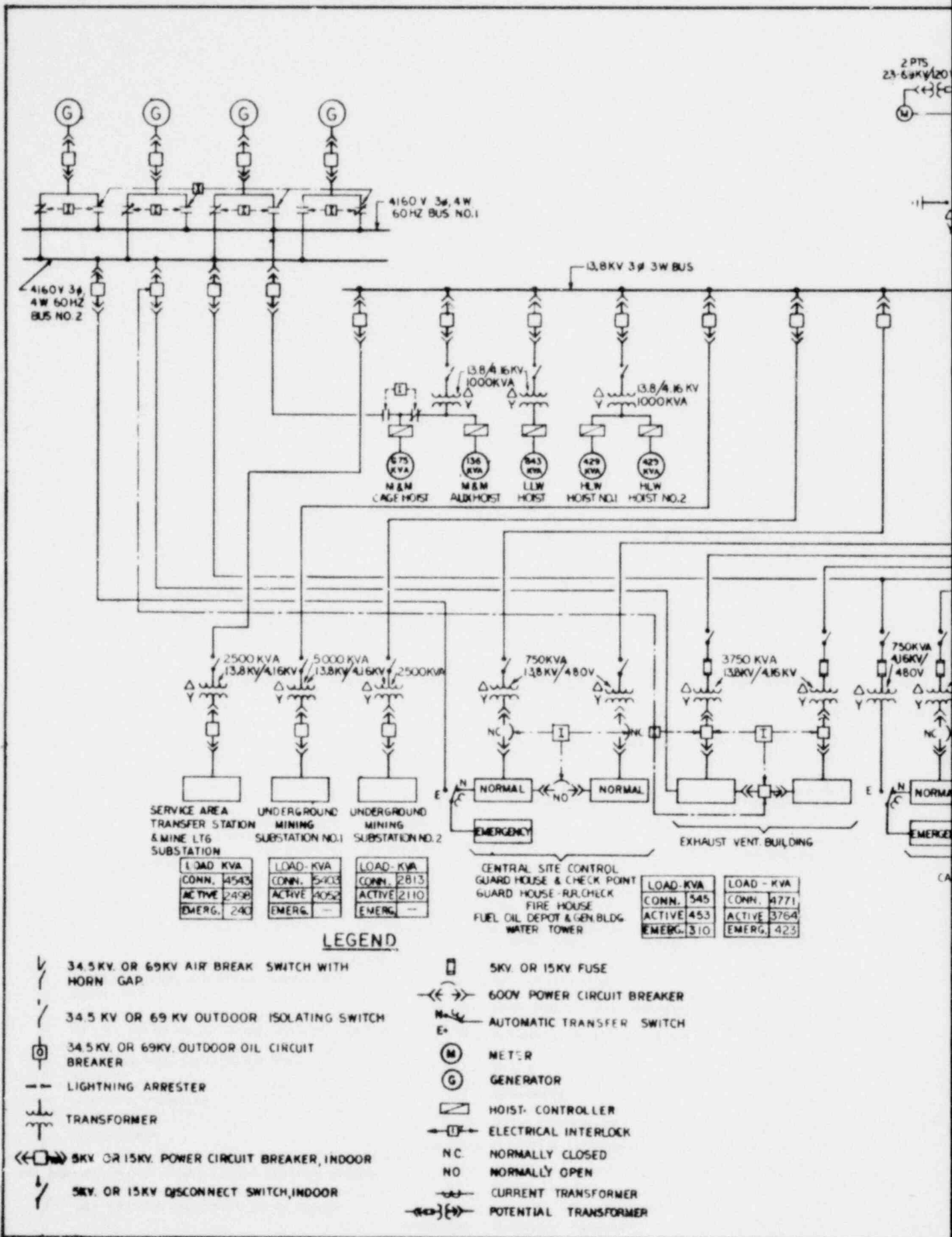


**LEGEND**

- PLACEMENT EXHAUST AIR
- MINING EXHAUST AIR
- PLACEMENT & MINING SUPPLY AIR
- X ——— PLACEMENT IN PROGRESS
- ——— MINING IN PROGRESS
- + ——— ROOM OR CORRIDOR SEALED
- ① ——— PANEL NUMBER

CYCLE III: THROWAWAY FUEL CYCLE

<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. <small>ENGINEERS</small> <span style="float: right;"><small>NEW YORK, N.Y.</small></span>		
<b>WASTE ISOLATION FACILITY</b> <b>MINE VENTILATION PLAN</b> SALT-BPNL WASTE PACKAGES		
SCALE: 1" = 300'	CONTRACT NO. 62Y-45702C	
DATE: FEBRUARY, 1978	DWG. NO. 211	REV.



2 PTS  
23-69KV/20

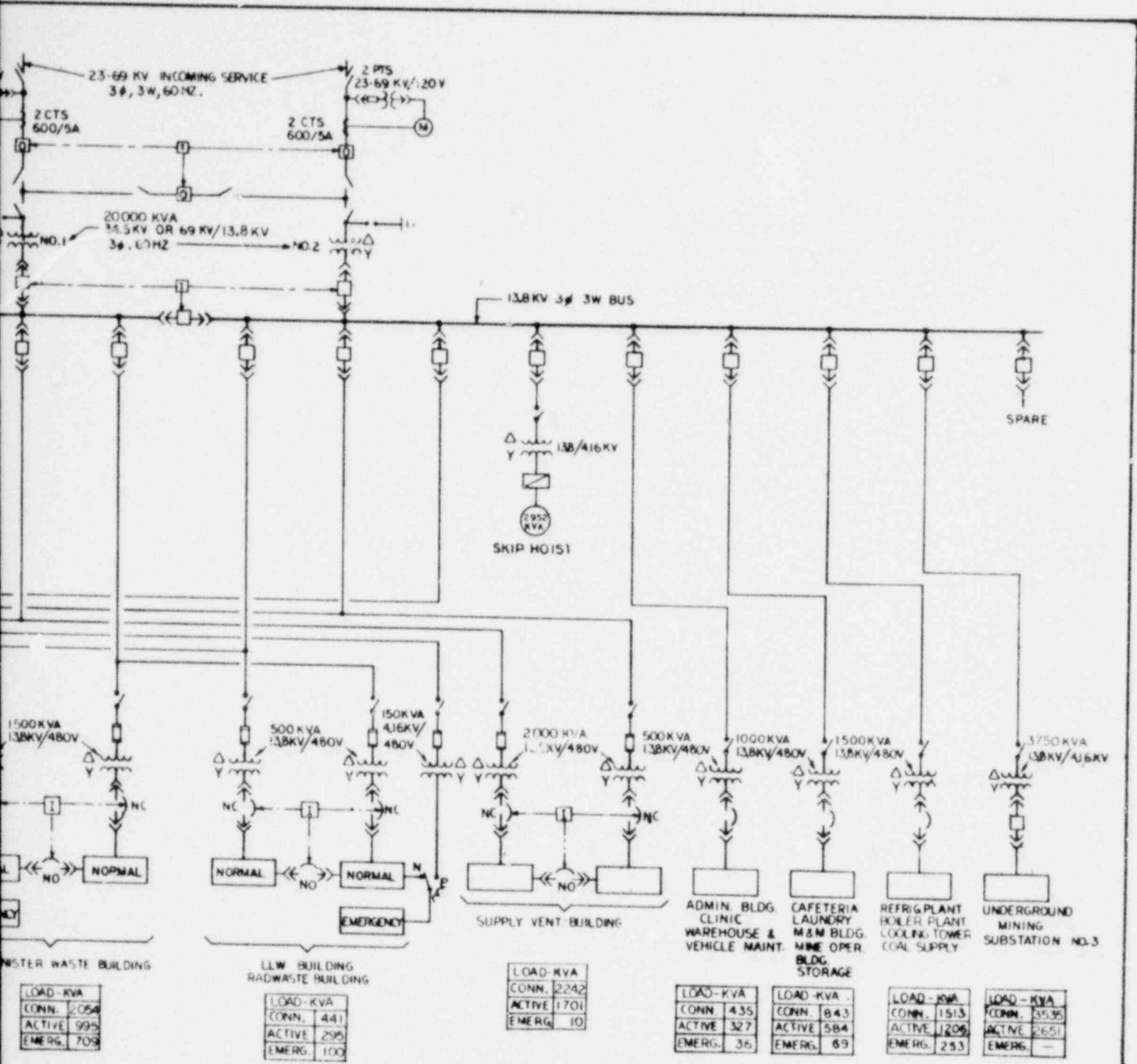
SERVICE AREA TRANSFER STATION & MINE LTG SUBSTATION		UNDERGROUND MINING SUBSTATION NO.1		UNDERGROUND MINING SUBSTATION NO.2	
LOAD KVA	CONN. 4543	LOAD KVA	CONN. 5403	LOAD KVA	CONN. 2813
ACTIVE	2408	ACTIVE	4052	ACTIVE	2110
EMERG.	240	EMERG.	—	EMERG.	—

CENTRAL SITE CONTROL  
GUARD HOUSE & CHECK POINT  
GUARD HOUSE - R/L CHECK  
FIRE HOUSE  
FUEL OIL DEPOT & GEN BLDG  
WATER TOWER

LOAD - KVA		LOAD - KVA	
CONN.	545	CONN.	4771
ACTIVE	453	ACTIVE	3764
EMERG.	310	EMERG.	423

**LEGEND**

- 34.5KV OR 69KV AIR BREAK SWITCH WITH HORN GAP.
- 34.5KV OR 69KV OUTDOOR ISOLATING SWITCH
- 34.5KV OR 69KV OUTDOOR OIL CIRCUIT BREAKER
- LIGHTNING ARRESTER
- TRANSFORMER
- 5KV OR 15KV POWER CIRCUIT BREAKER, INDOOR
- 5KV OR 15KV DISCONNECT SWITCH, INDOOR
- 5KV OR 15KV FUSE
- 600V POWER CIRCUIT BREAKER
- AUTOMATIC TRANSFER SWITCH
- METER
- GENERATOR
- HOIST CONTROLLER
- ELECTRICAL INTERLOCK
- NC NORMALLY CLOSED
- NO NORMALLY OPEN
- CURRENT TRANSFORMER
- POTENTIAL TRANSFORMER



LOAD - KVA
CONN. 2054
ACTIVE 995
EMERG. 709

LOAD - KVA
CONN. 441
ACTIVE 295
EMERG. 100

LOAD - KVA
CONN. 2242
ACTIVE 1701
EMERG. 10

LOAD - KVA
CONN. 435
ACTIVE 327
EMERG. 36

LOAD - KVA
CONN. 843
ACTIVE 584
EMERG. 69

LOAD - KVA
CONN. 1513
ACTIVE 1206
EMERG. 253

LOAD - KVA
CONN. 3536
ACTIVE 2651
EMERG. -

TOTAL FACILITY LOAD

LOAD - KVA
CONN. 34602
ACTIVE 26100
EMERG. 2825

**OFFICE OF WASTE ISOLATION**  
 UNION CARBIDE CORPORATION  
 NUCLEAR DIVISION  
 OAK RIDGE, TENNESSEE

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC.  
 ENGINEERS  
 NEW YORK, N.Y.

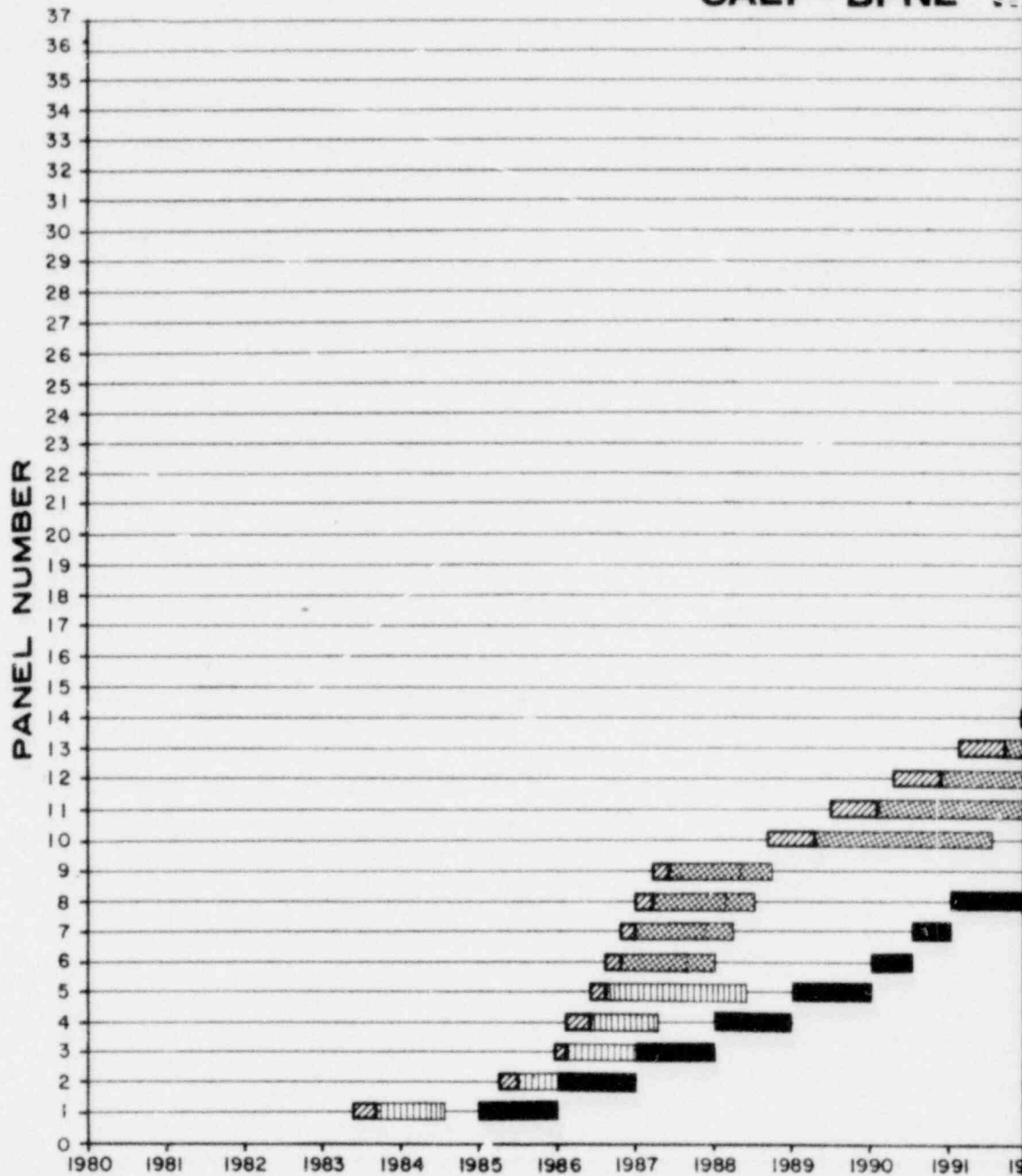
**WASTE ISOLATION FACILITY**  
 ELECTRICAL - ONE LINE DIAGRAM  
 SALT - BPNL WASTE PACKAGES

SCALE: NONE  
 CONTRACT NO. 62Y - 45702 C  
 DATE: FEBRUARY, 1978  
 DWP NO. 212

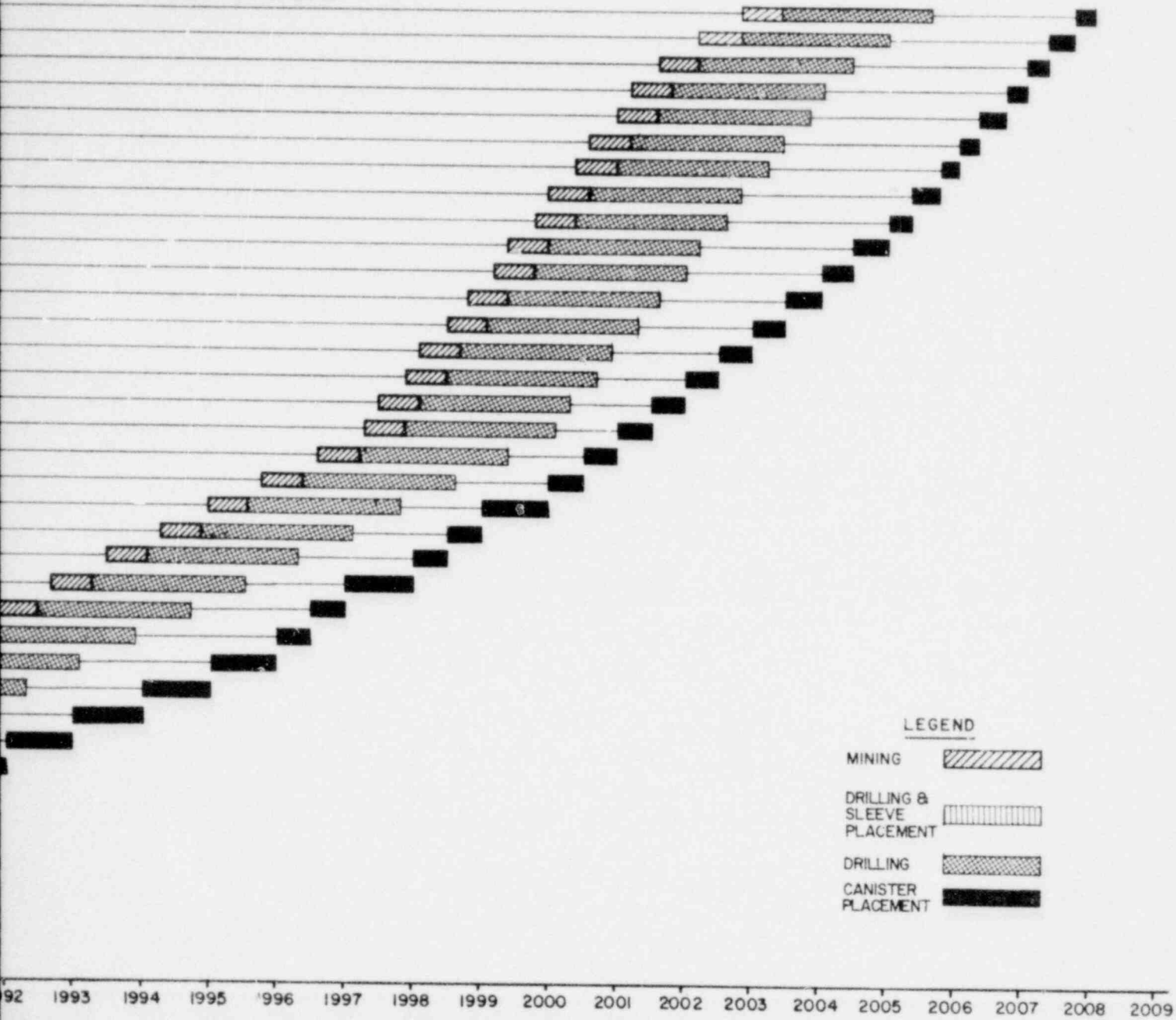
CYCLE II: THROWAWAY FUEL CYCLE



# MINING AND PLANNING SALT - BPNL W



# WASTE ISOLATION SCHEDULE MINING AND PLACEMENT



### LEGEND

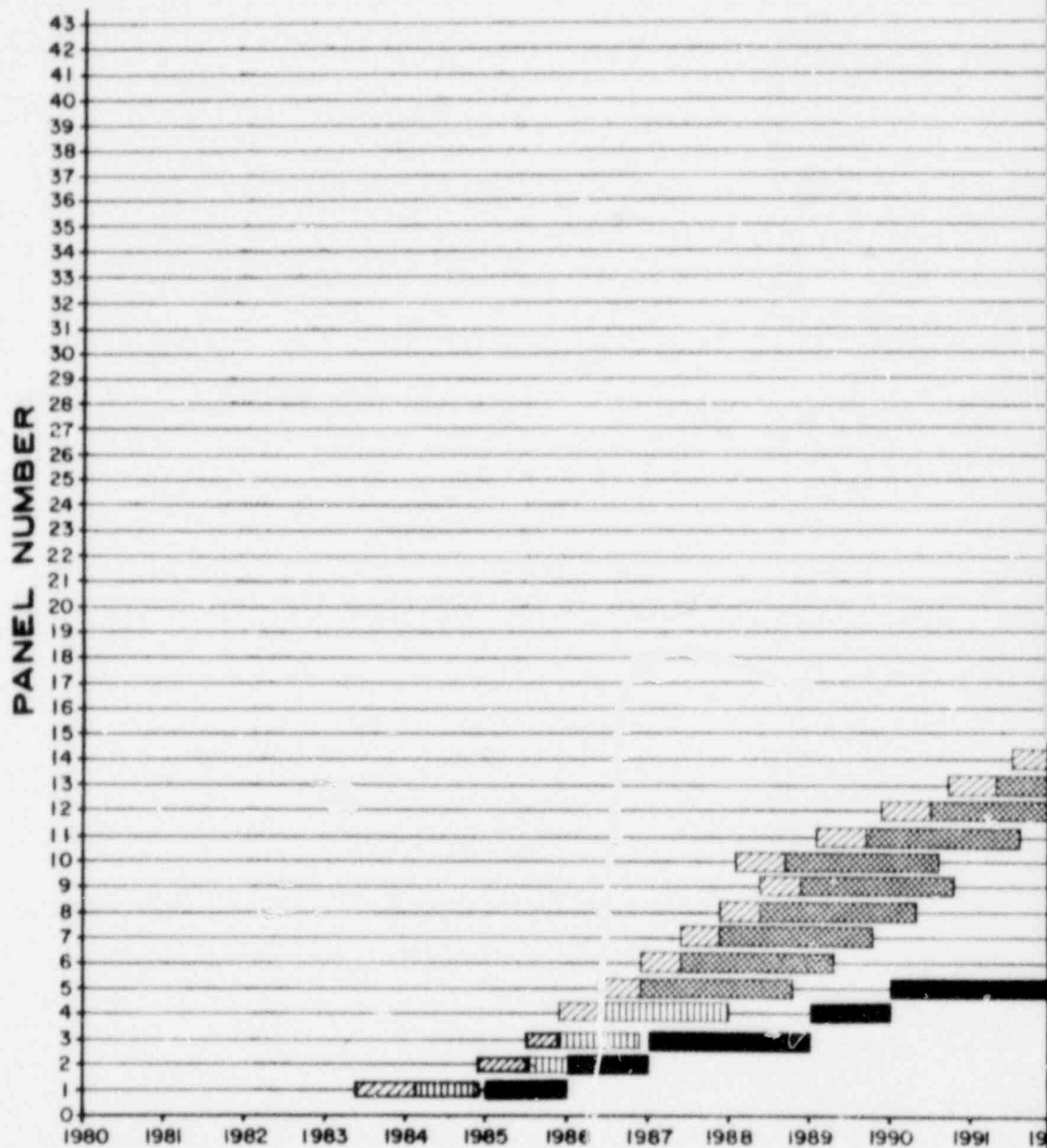
- Mining
- Drilling & Sleeve Placement
- Drilling
- Canister Placement

YEAR  
PWR

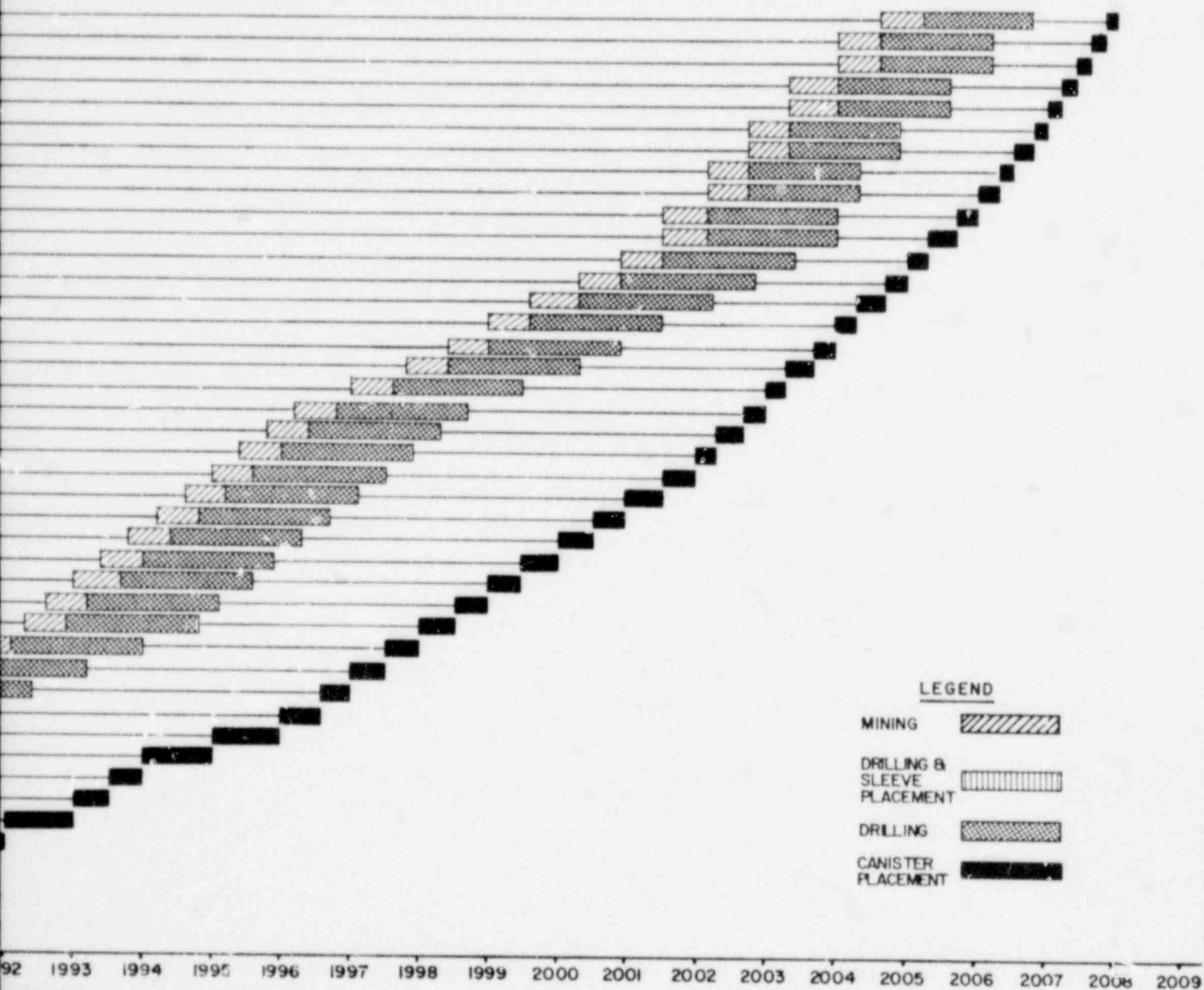
<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, ENGINEERS & ARCHITECTS, INC. INCKERHOFF, QUADE & DOUGLAS, INC. NEW YORK, N.Y.		
<b>WASTE ISOLATION FACILITY</b> PWR MINING AND PLACEMENT SCHEDULE SALT-DOMINANT WASTE PACKAGES		
SCALE:	CONTRACT NO. 62Y-45702C	
DATE: FEBRUARY, 1978	DWG. NO. 213	REV.

CYCLE II: THROWAWAY FUEL CYCLE

# MINING AND PLANNING SALT - BPNL WORK



# PLACEMENT SCHEDULE WASTE PACKAGES



### LEGEND

- MINING
- DRILLING & SLEEVE PLACEMENT
- DRILLING
- CANISTER PLACEMENT

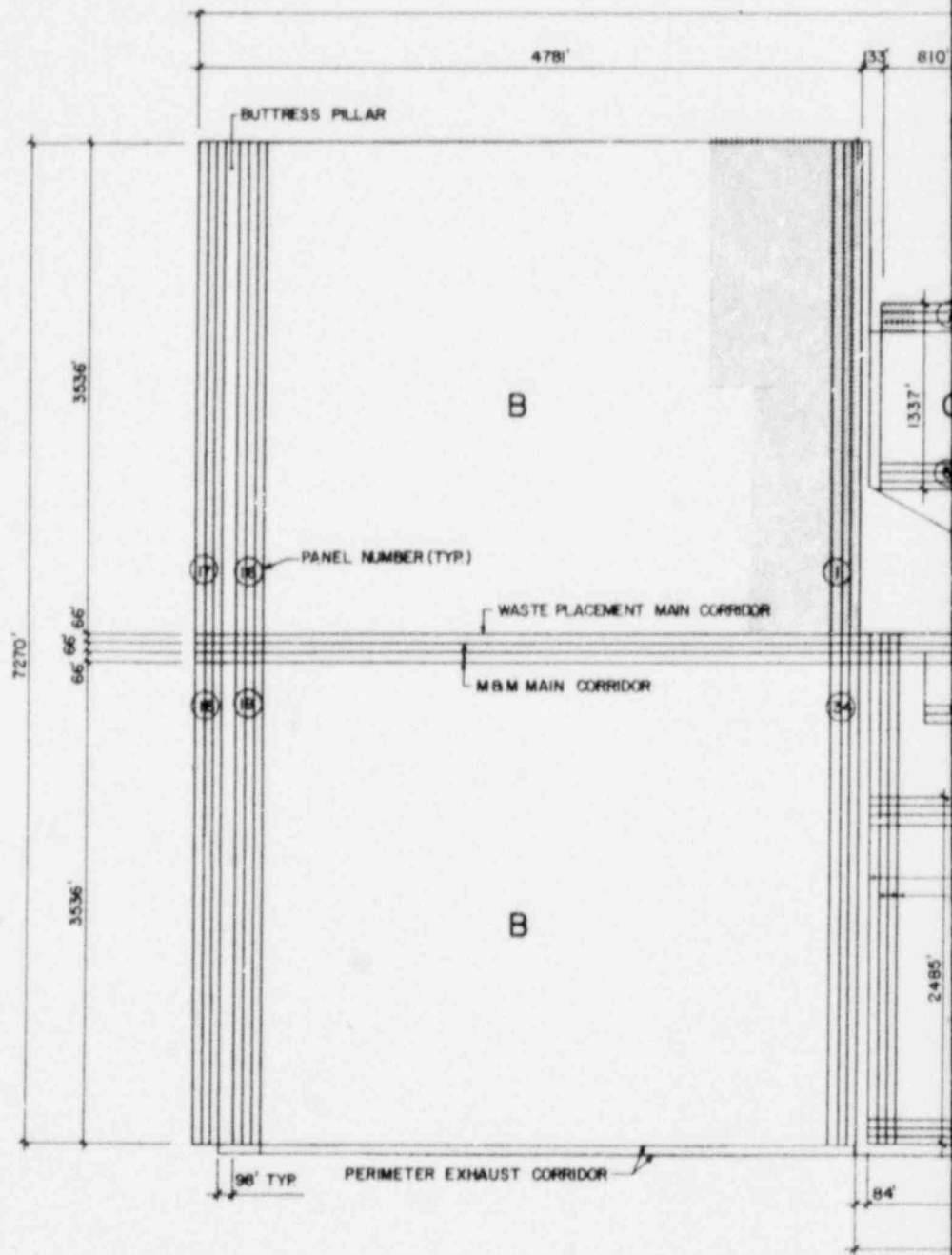
1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009

YEAR

BWR

OFFICE OF WASTE ISOLATION UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. <small>ENGINEERS</small> <span style="float: right;"><small>NEW YORK, N.Y.</small></span>		
WASTE ISOLATION FACILITY BWR MINING AND PLACEMENT SCHEDULE SALT - BPNL WASTE PACKAGES		
SCALE:	CONTRACT NO. 62Y - 45702C	
DATE: FEBRUARY, 1978	DWG. NO. 214	REV.

CYCLE II: THROWAWAY FUEL CYCLE

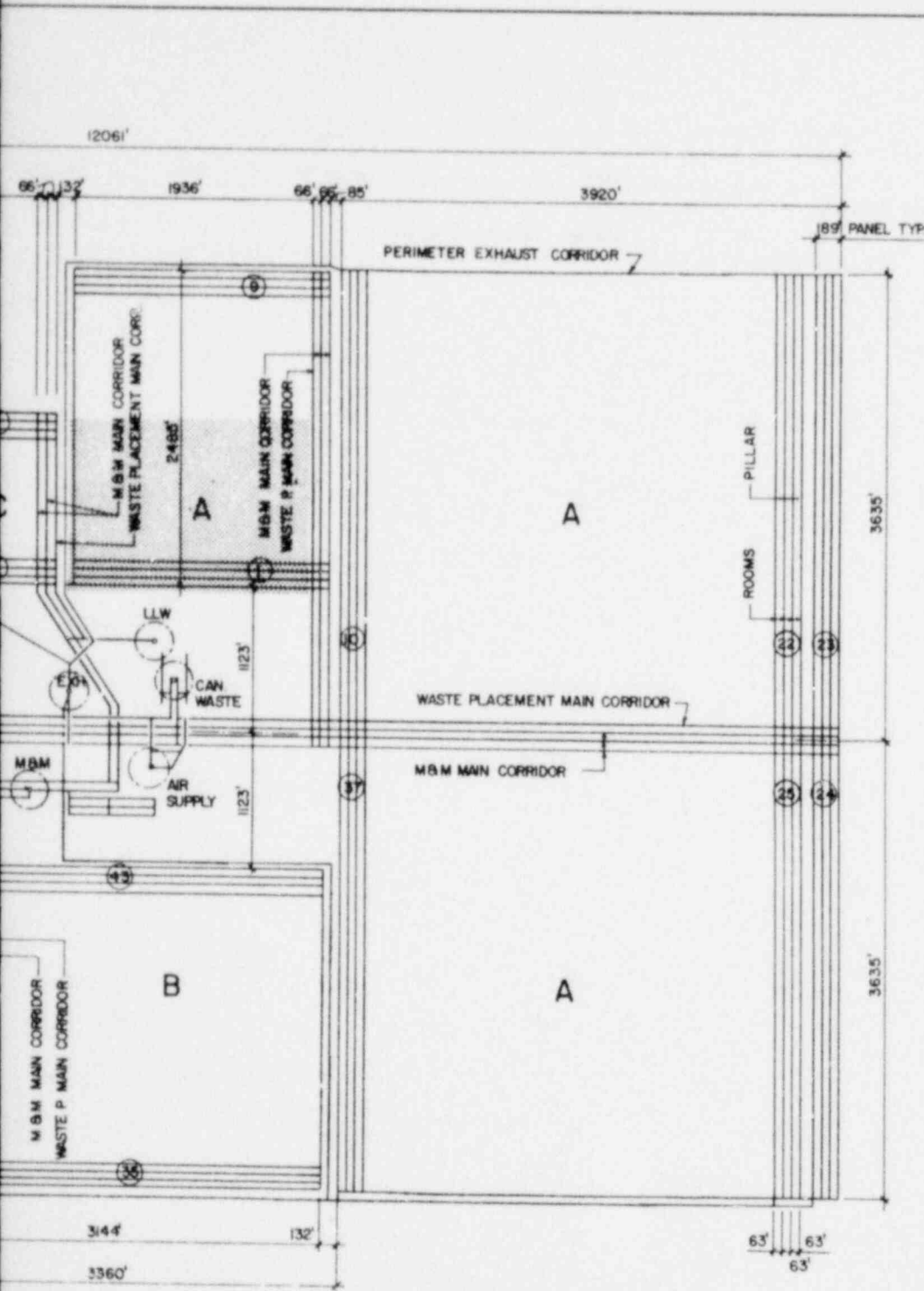


<u>STORAGE AREA</u>	<u>ROOM OPENING</u>	<u>ELEVATION*</u>	<u>WASTE TYPES</u>	<u>EXTRACTION RATIO</u>
A	18' x 22'	- 1850	PWR SPENT FUEL	25%
B	18' x 22'	- 1775	BWR SPENT FUEL	25%
C	18' x 22'	- 1850	LOW LEVEL WASTE (LLW)	25%

**MINE MASTER PL**

SCALE: 1" = 600'

\* ELEVATIONS BASED ON GROUND LINE 0.00'



**NOTES:**

1. ALL LINES SHOWN REPRESENT THE CENTER LINES OF ROOMS AND CORRIDORS.
2. FOR SHAFT AREA DETAIL, SEE DWG NO 216
3. FOR ROOM CROSS-SECTIONS, SEE DWG NO 218
4. MAIN CORRIDORS ARE 36' WIDE x 22' HIGH.
5. PERIMETER EXHAUST CORRIDORS ARE 36' WIDE x 11' HIGH.

**LEGEND:**

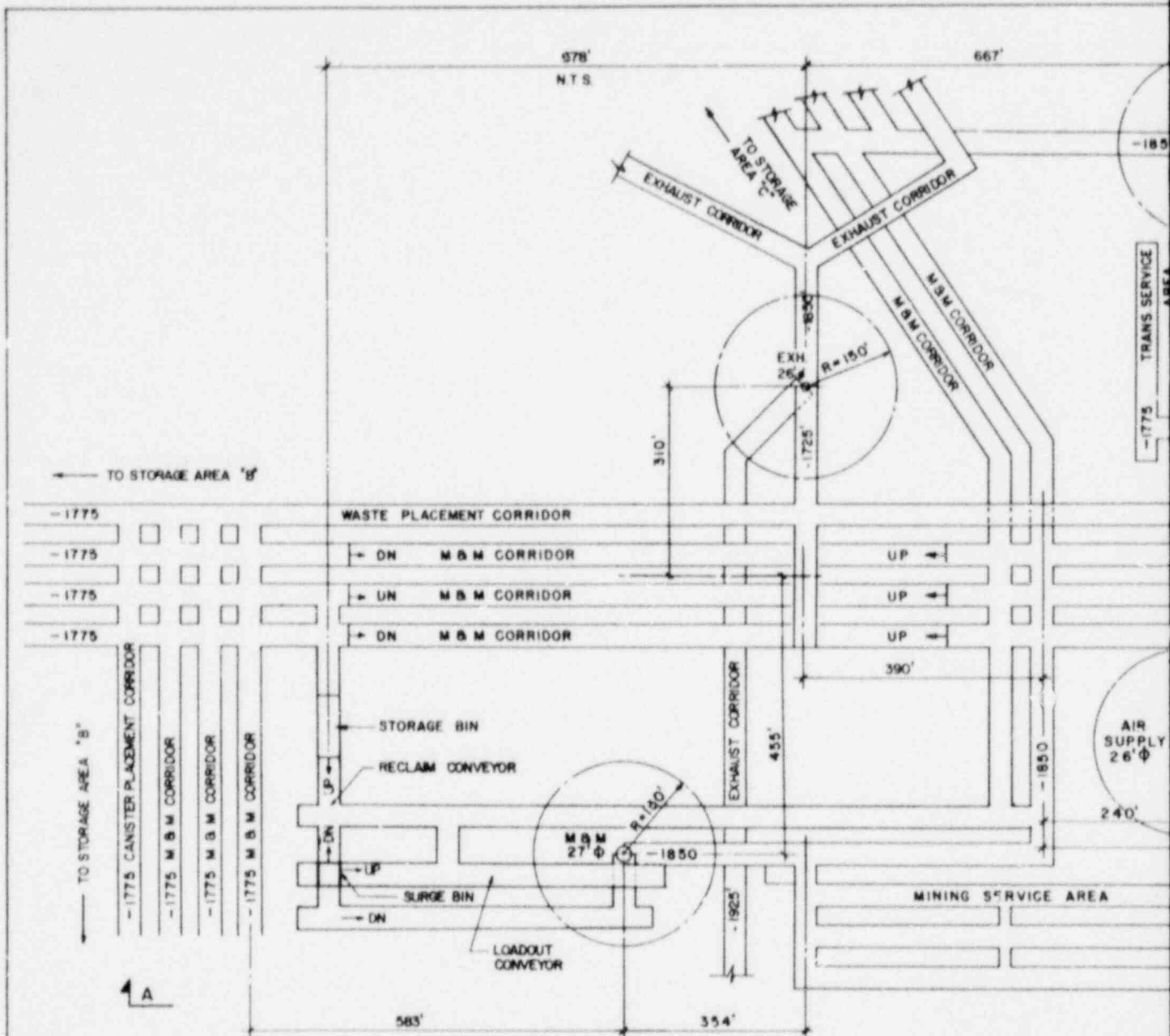
PORTION OF REPOSITORY STORAGE AREA THAT IS UTILIZED DURING FIRST FIVE YEARS OF PLACEMENT OPERATIONS.

**STORAGE CAPACITY (YEAR 2007)**

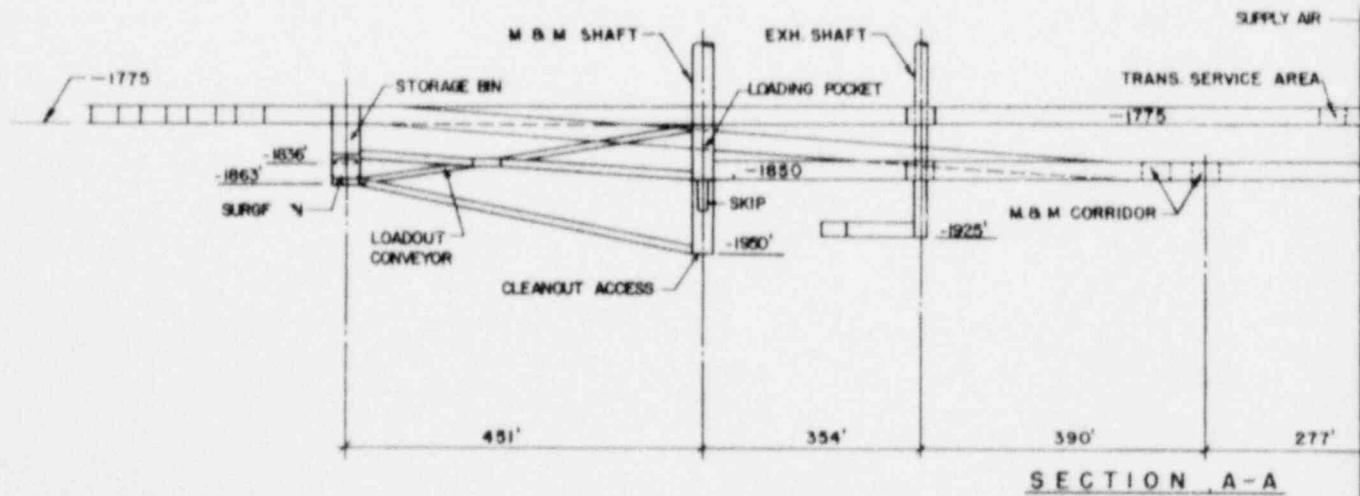
PWR = 129,736 CANISTERS  
 BWR = 190,816 CANISTERS  
 LLW = 56,000 DRUMS

<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS NEW YORK, N.Y.		
<b>WASTE ISOLATION FACILITY</b> <b>MINE MASTER PLAN</b> SALT-BPNE WASTE PACKAGES		
SCALE: 1" = 600'	CONTRACT NO. 67Y-45702C	
DATE: FEBRUARY, 1978	DWG. NO. 215	REV.

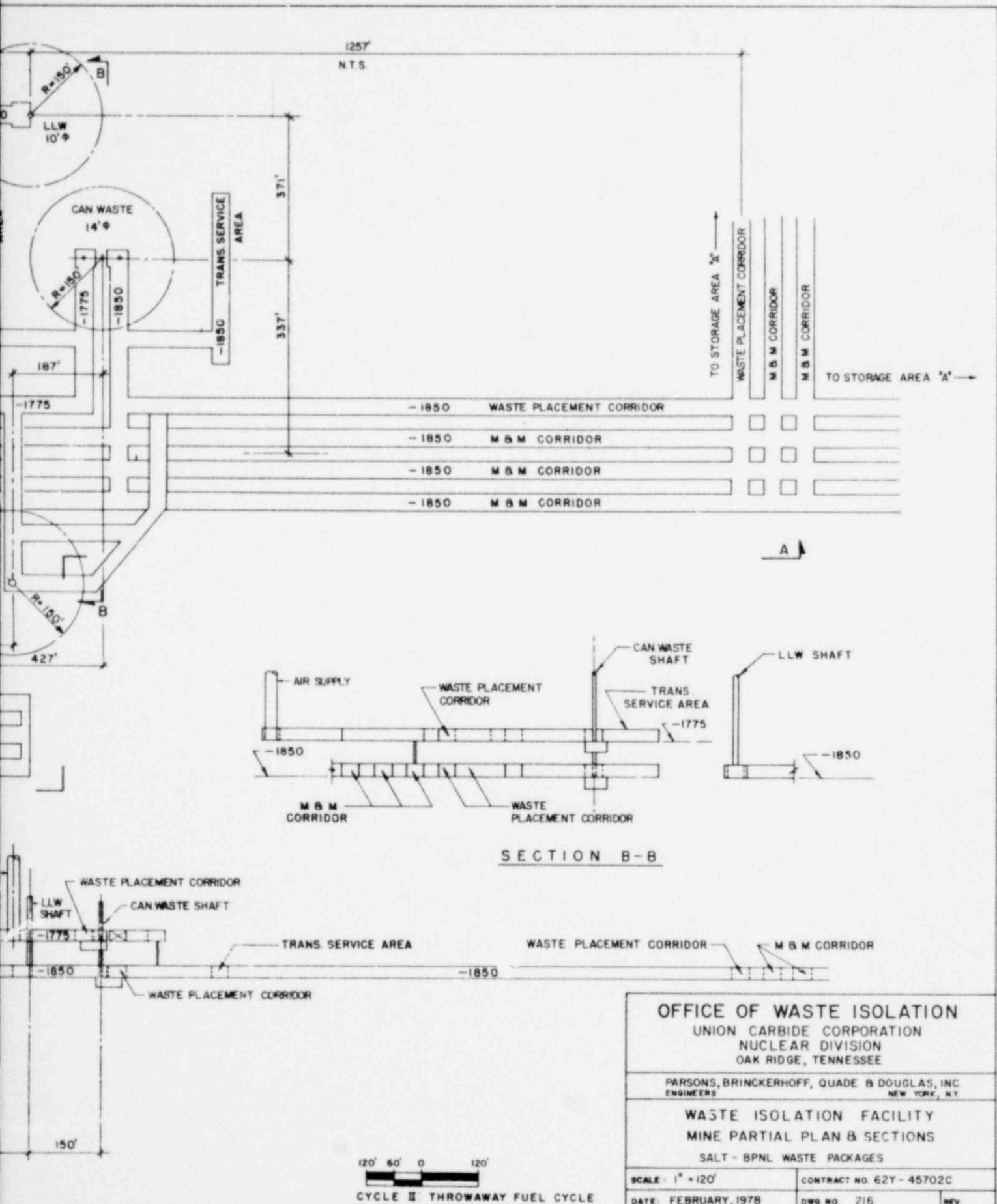
CYCLE II: THROWAWAY FUEL CYCLE



PLAN



SECTION A-A

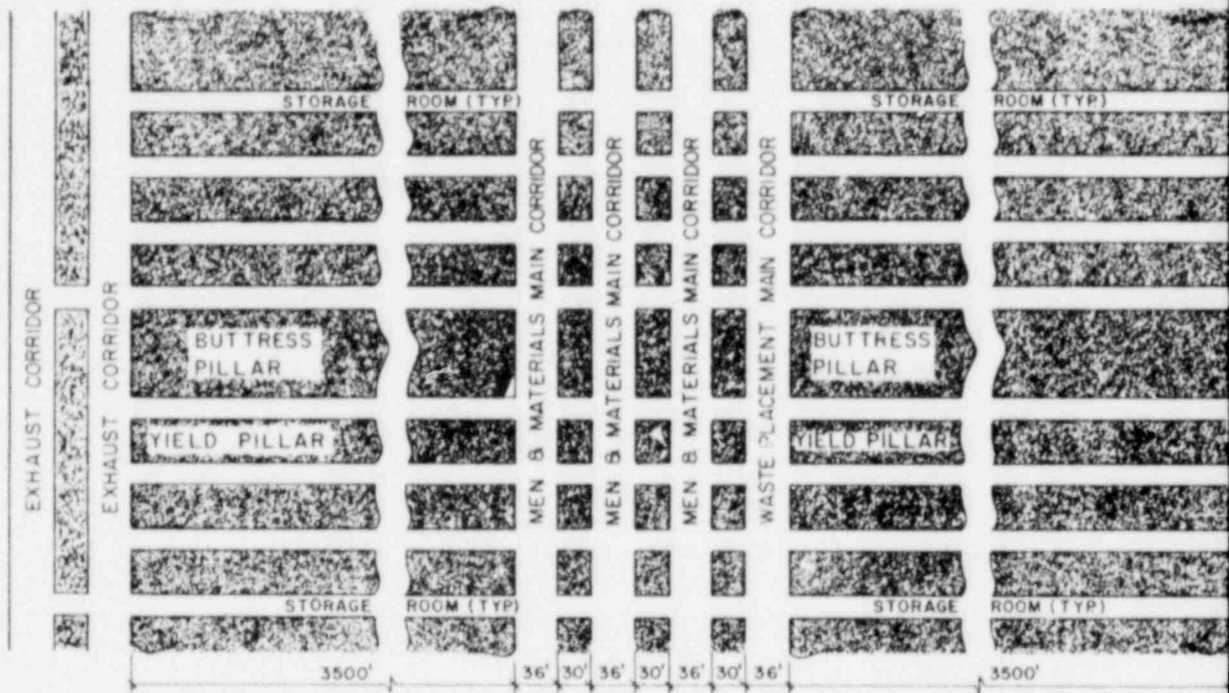


SECTION B-B

<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. <small>ENGINEERS NEW YORK, N.Y.</small>		
<b>WASTE ISOLATION FACILITY</b> <b>MINE PARTIAL PLAN &amp; SECTIONS</b> SALT - BPNL WASTE PACKAGES		
SCALE: 1" = 120'	CONTRACT NO. 62Y - 45702C	
DATE: FEBRUARY, 1978	DWG NO. 216	REV.

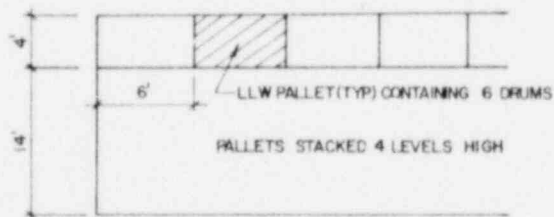
120' 60' 0 120'  
  
 CYCLE II THROWAWAY FUEL CYCLE



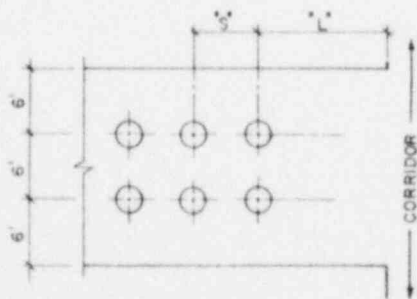


**CORRIDOR & ROOM LAYOUT**

**STORAGE AREAS "A" & "B"**



**STORAGE AREA "C"**



**STORAGE AREAS "A" & "B"**  
SEE TABLE AT RIGHT FOR DIMENSIONS "S" & "L"

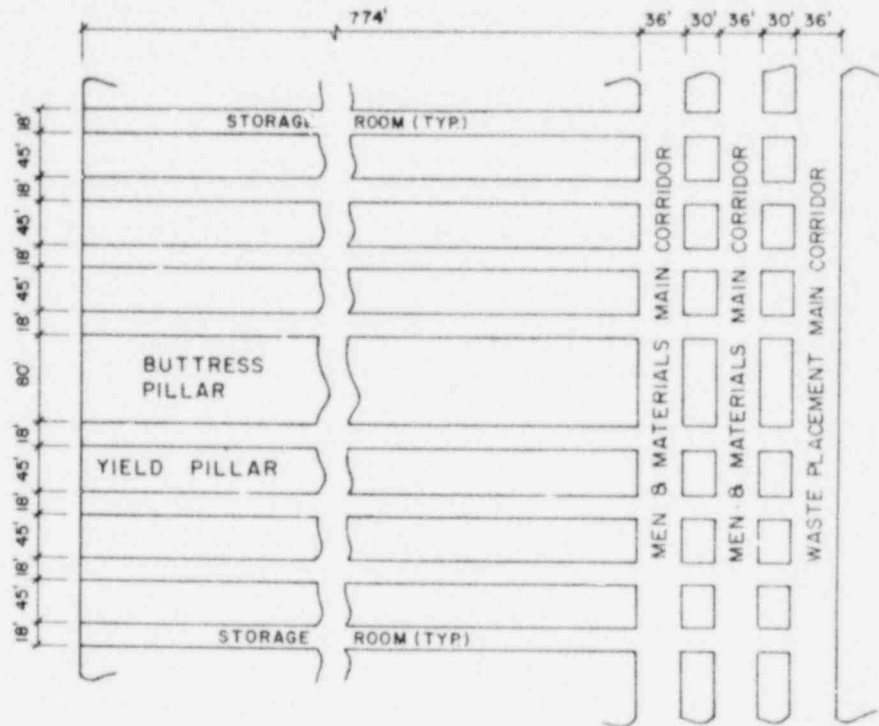
WASTE TYPE	ROOM LENGTH	PANEL NOS	DIMENSION	
			"S"	"L"
PWR	1900'	1 - 9	7'	26'
( STORAGE AREA "A" )	3500'	10 - 37	7'	24'
BWR	3500'	1 - 34	6'	28'
( STORAGE AREA "B" )	2910'	35 - 42	6'	24'

**STORAGE ROOM PLAN**

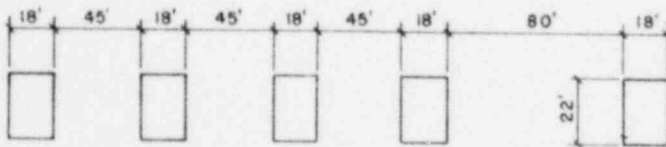
N.T.S.

NOTE 2% OF STORAGE FOR OVERPACK

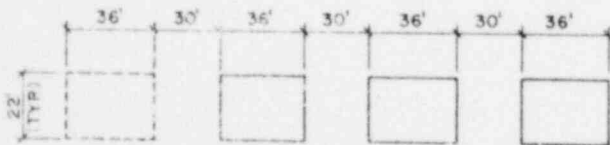
EXHAUST CORRIDOR



CORRIDOR & ROOM LAYOUT  
STORAGE AREA 'C'



ROOM ELEVATION  
N.T.S.

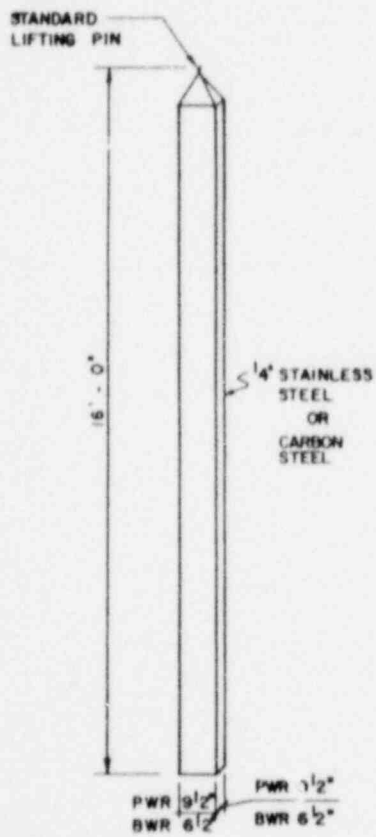


CORRIDOR ELEVATION (3 or 4)  
N.T.S.

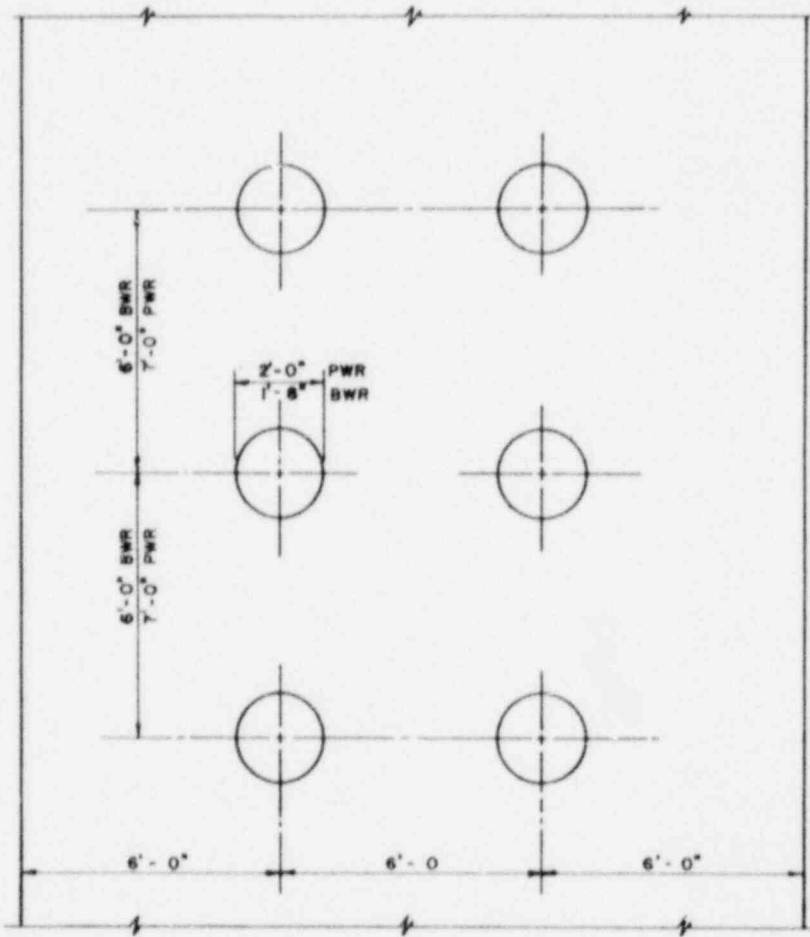
HOLES ARE RESERVED  
FOR CANISTERS

CYCLE II: THROWAWAY FUEL CYCLE

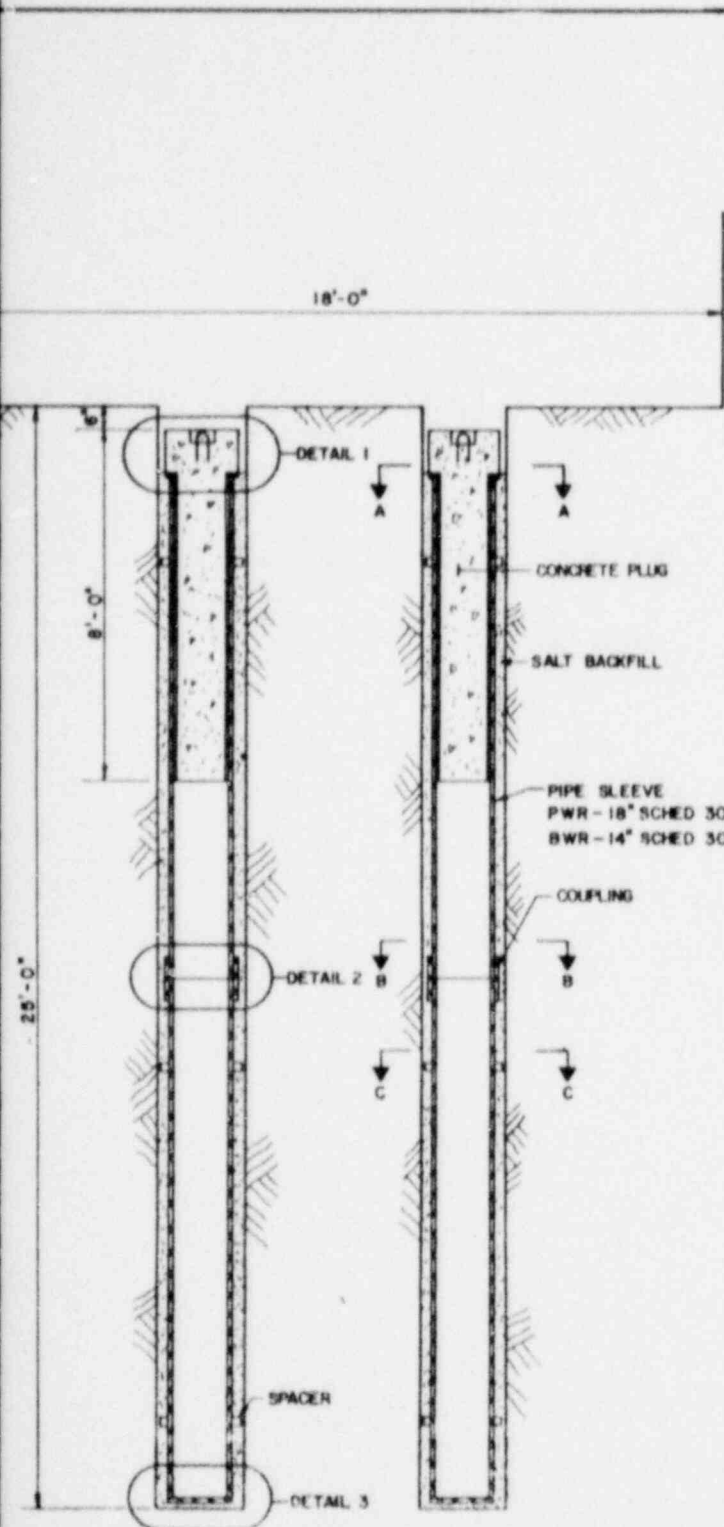
OFFICE OF WASTE ISOLATION UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE	
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS NEW YORK, N.Y.	
WASTE ISOLATION FACILITY ROOM AND CORRIDOR LAYOUT SALT-BPNL WASTE PACKAGES	
SCALE: NO SCALE	CONTRACT NO. 62Y-45702C
DATE: FEBRUARY, 1978	DWG NO. 21B REV.



CANISTER DETAIL  
N.T.S.

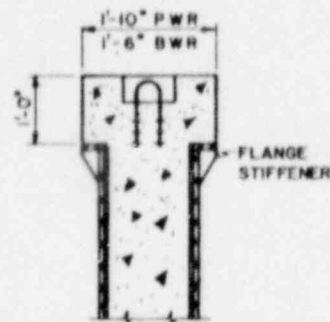


CANISTER PLACEMENT PLAN  
N.T.S.



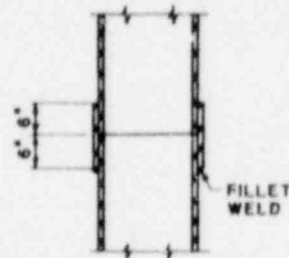
**CANISTER PLACEMENT ELEVATION**

SCALE:  $\frac{1}{2}'' = 1'-0''$



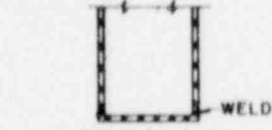
**DETAIL 1**

SCALE:  $\frac{3}{4}'' = 1'-0''$



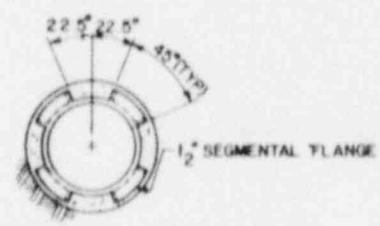
**DETAIL 2**

SCALE:  $\frac{3}{4}'' = 1'-0''$



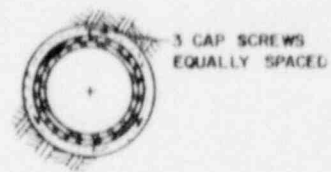
**DETAIL 3**

SCALE:  $\frac{3}{4}'' = 1'-0''$



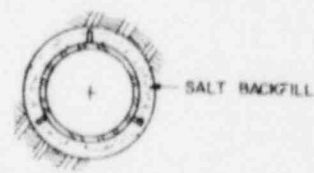
**SECTION A-A**

SCALE:  $\frac{3}{4}'' = 1'-0''$



**SECTION B-B**

SCALE:  $\frac{3}{4}'' = 1'-0''$



**SECTION C-C**

SCALE:  $\frac{3}{4}'' = 1'-0''$

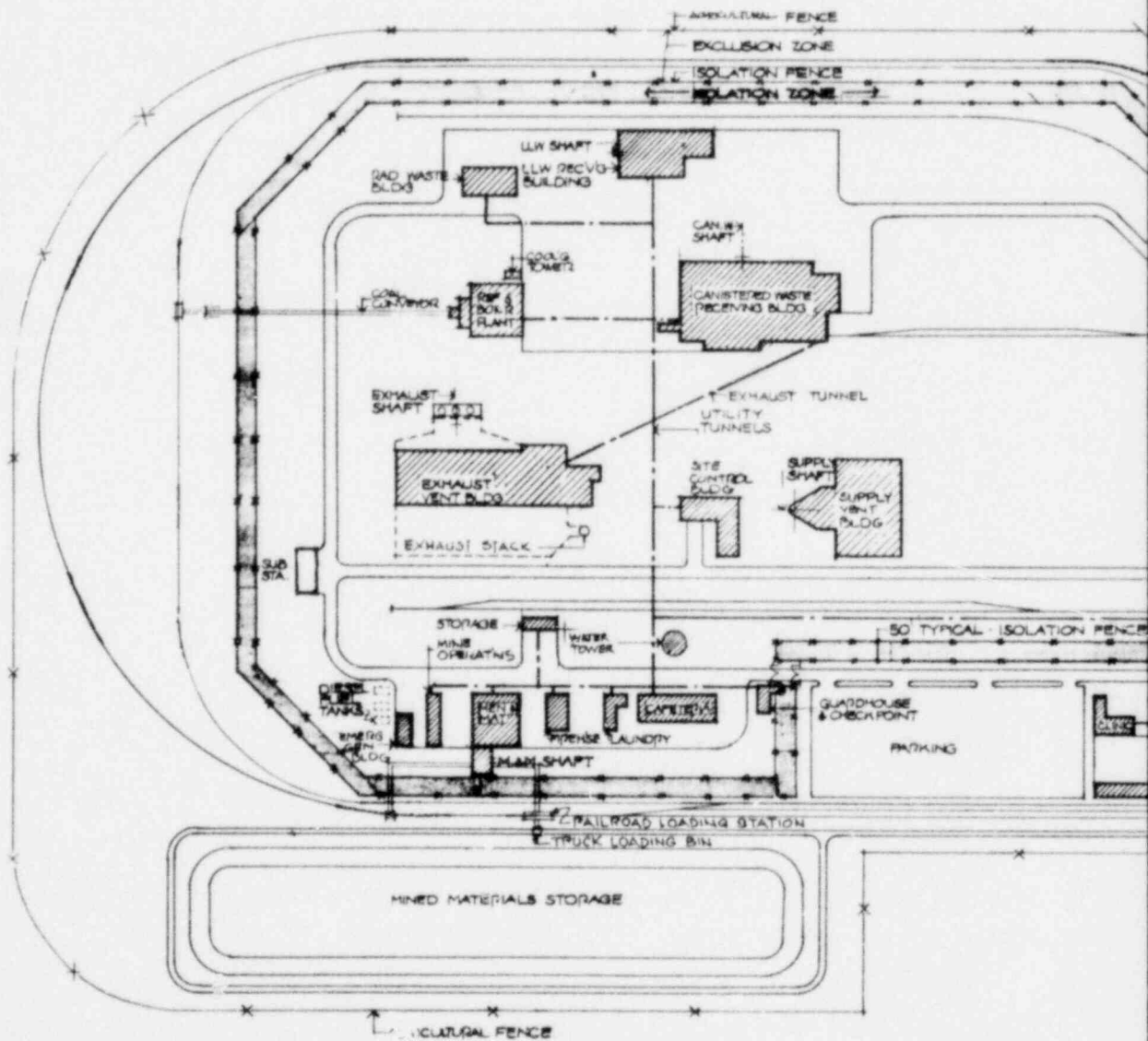
OFFICE OF WASTE ISOLATION  
 UNION CARBIDE CORPORATION  
 NUCLEAR DIVISION  
 OAK RIDGE, TENNESSEE

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC.  
 ENGINEERS  
 NEW YORK, N.Y.

WASTE ISOLATION FACILITY  
 INVERT STORAGE DETAILS  
 SALT-BPNL WASTE PACKAGES

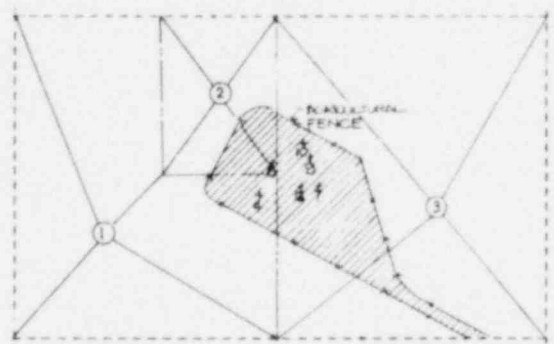
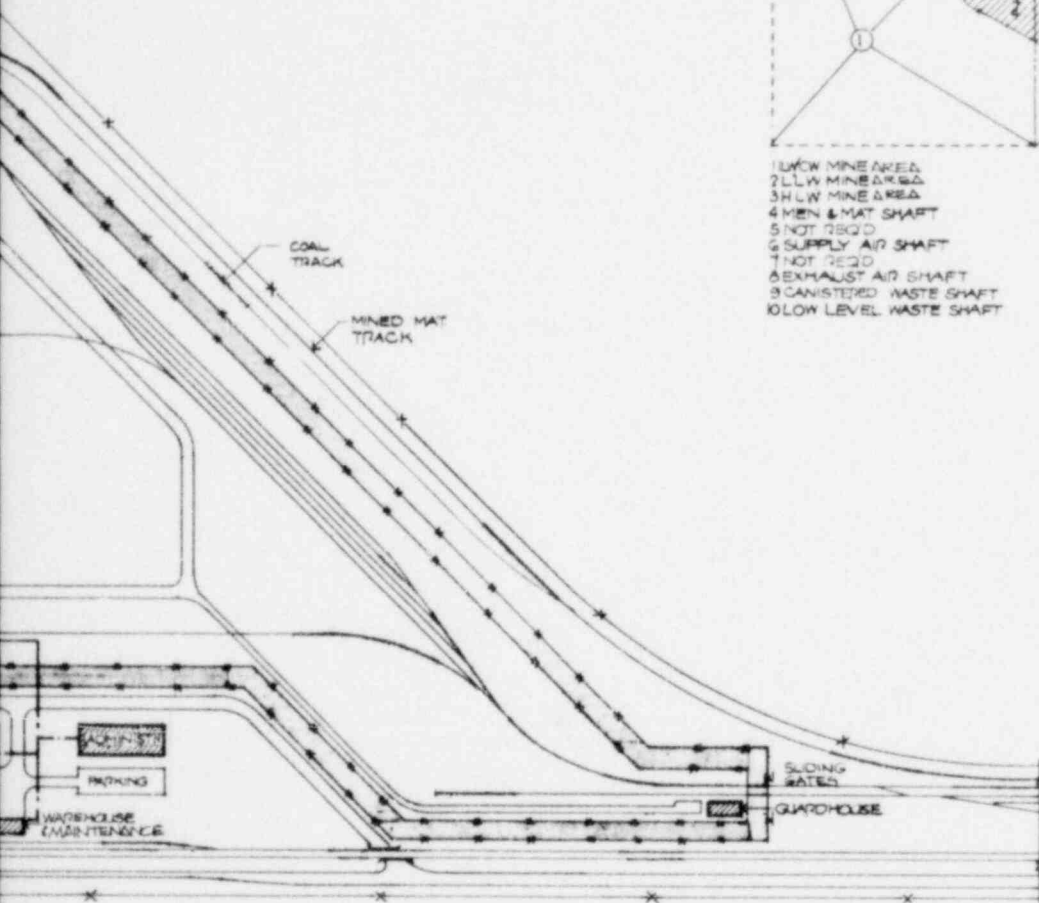
SCALE: AS SHOWN	CONTRACT NO. 62Y-45702C
DATE: FEBRUARY, 1978	DWG. NO. 219 REV.

CYCLE II: THROWAWAY FUEL CYCLE



**Site Plan**





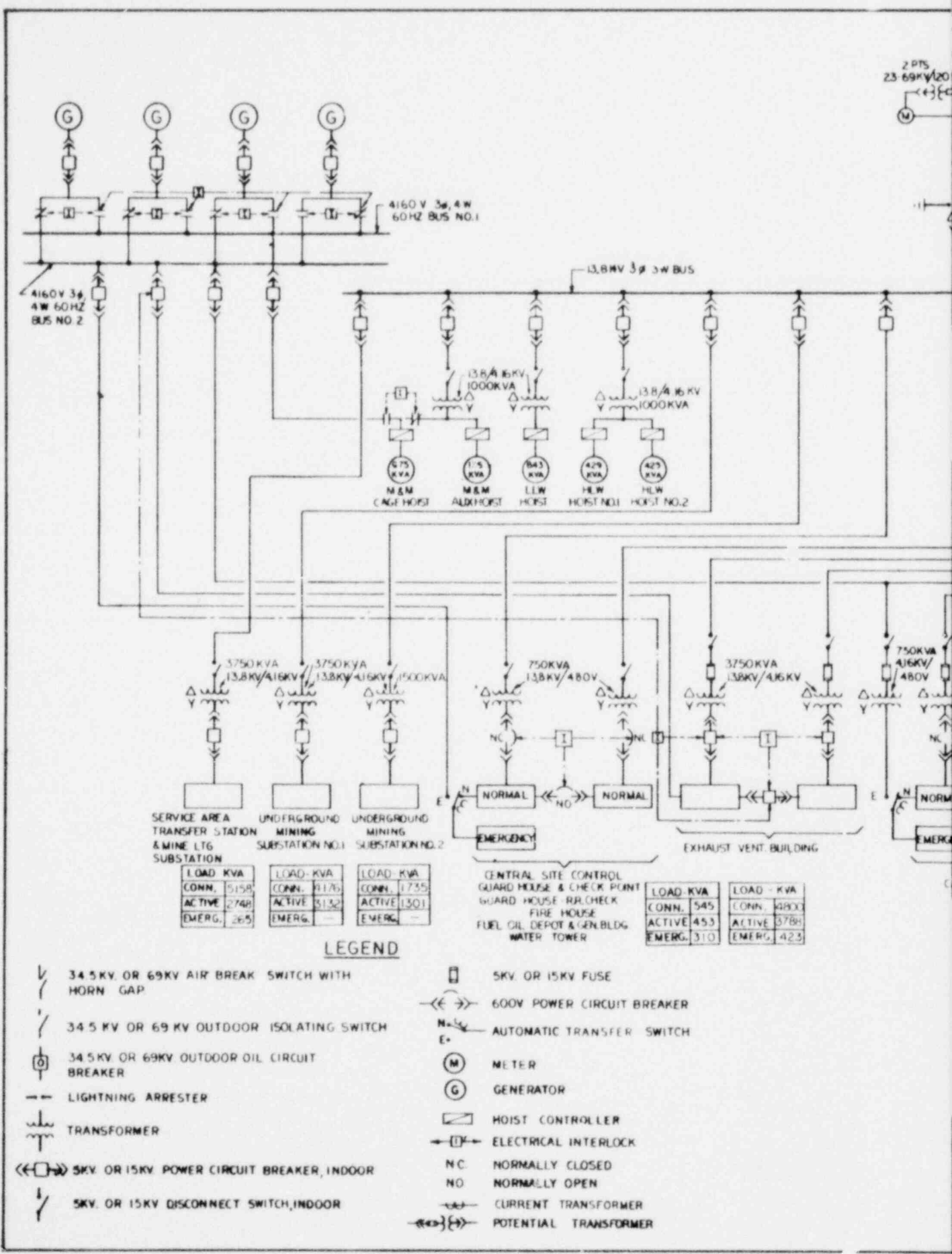
**PLOT PLAN**

2000 1000 0 2000

<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS NEW YORK, N.Y.		
<b>WASTE ISOLATION FACILITY</b> <b>REPOSITORY-SITE AND PLOT PLAN</b> SALT-BPNL WASTE PACKAGES		
SCALE: AS NOTED	CONTRACT NO. 62Y-45702C	
DATE: FEBRUARY, 1978	DWG. NO. 300	REV.

CYCLE III: URANIUM RECYCLE WITH PU IN HLW

2 PTS  
23 69KV/20  
M

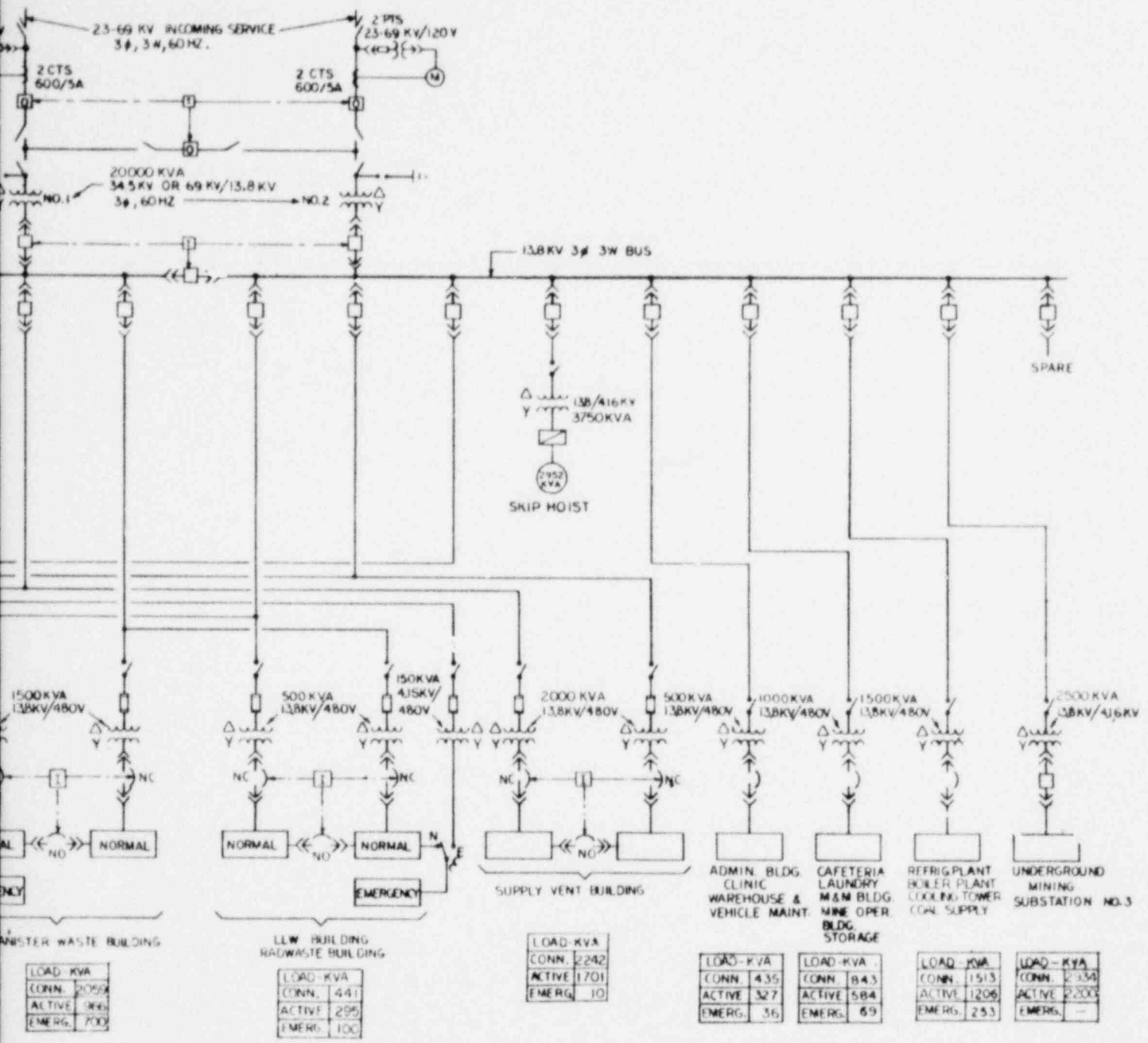


SERVICE AREA TRANSFER STATION & MINE LTG SUBSTATION		UNDERGROUND MINING SUBSTATION NO.1		UNDERGROUND MINING SUBSTATION NO.2	
LOAD KVA	CONN. 5158	LOAD - KVA	CONN. 9175	LOAD - KVA	CONN. 1735
ACTIVE	2748	ACTIVE	5132	ACTIVE	1301
EMERG.	265	EMERG.	—	EMERG.	—

CENTRAL SITE CONTROL GUARD HOUSE & CHECK POINT GUARD HOUSE R/R CHECK FIRE HOUSE FUEL OIL DEPOT & GEN.BLDG WATER TOWER		EXHAUST VENT. BUILDING	
LOAD - KVA	CONN. 545	LOAD - KVA	CONN. 4200
ACTIVE	453	ACTIVE	3788
EMERG.	310	EMERG.	423

**LEGEND**

- ⤴ 34.5KV. OR 69KV AIR BREAK SWITCH WITH HORN GAP
- ⤴ 34.5KV OR 69KV OUTDOOR ISOLATING SWITCH
- ⊙ 34.5KV OR 69KV OUTDOOR OIL CIRCUIT BREAKER
- ⚡ LIGHTNING ARRESTER
- ⚡ TRANSFORMER
- ⤴ 5KV. OR 15KV POWER CIRCUIT BREAKER, INDOOR
- ⤴ 5KV. OR 15KV DISCONNECT SWITCH, INDOOR
- ⊞ 5KV. OR 15KV FUSE
- ⤴ 600V POWER CIRCUIT BREAKER
- ⤴ AUTOMATIC TRANSFER SWITCH
- ⊙ METER
- ⊙ GENERATOR
- ⊞ HOIST CONTROLLER
- ⤴ ELECTRICAL INTERLOCK
- NC NORMALLY CLOSED
- NO NORMALLY OPEN
- ⚡ CURRENT TRANSFORMER
- ⤴ POTENTIAL TRANSFORMER



LOAD - KVA
CONN. 2059
ACTIVE 946
EMERG. 700

LOAD - KVA
CONN. 441
ACTIVE 295
EMERG. 100

LOAD - KVA
CONN. 2242
ACTIVE 1701
EMERG. 10

LOAD - KVA
CONN. 435
ACTIVE 327
EMERG. 36

LOAD - KVA
CONN. 843
ACTIVE 584
EMERG. 69

LOAD - KVA
CONN. 1513
ACTIVE 1206
EMERG. 253

LOAD - KVA
CONN. 2330
ACTIVE 2200
EMERG. -

**TOTAL FACILITY LOAD**

LOAD - KVA
CONN. 32345
ACTIVE 24165
EMERG. 284

**OFFICE OF WASTE ISOLATION**  
 UNION CARBIDE CORPORATION  
 NUCLEAR DIVISION  
 OAK RIDGE, TENNESSEE

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PARSONS, BRINCKERHOFF, QUADÉ & DOUBLAS, INC.  
 ENGINEERS  
 NEW YORK, N.Y.

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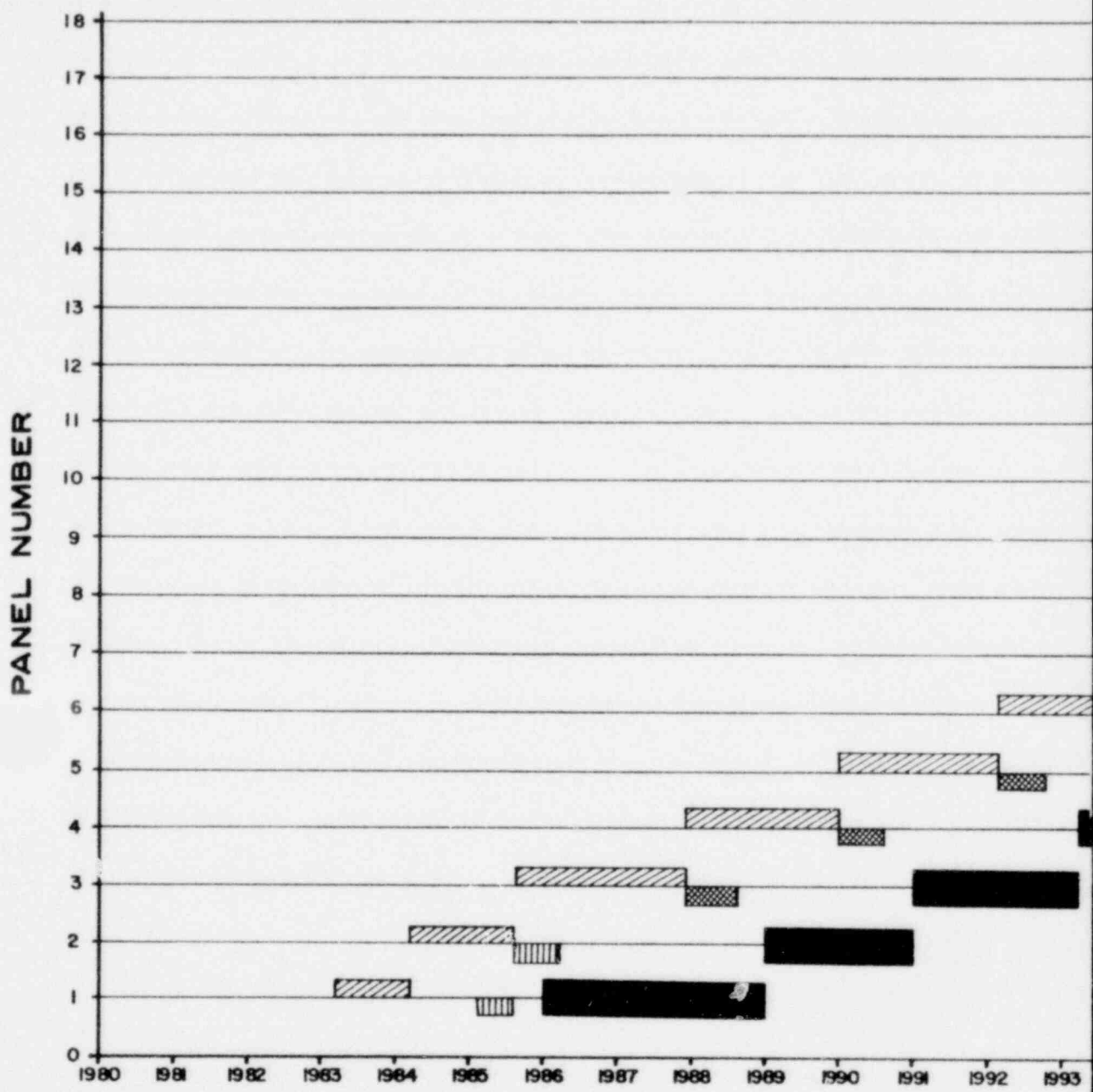
**WASTE ISOLATION FACILITY**  
 ELECTRICAL - ONE LINE DIAGRAM  
 SALT - BPNL WASTE PACKAGES

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SCALE: NONE	CONTRACT NO. 62Y-45702c
DATE: FEBRUARY, 1978	DWG NO. 312

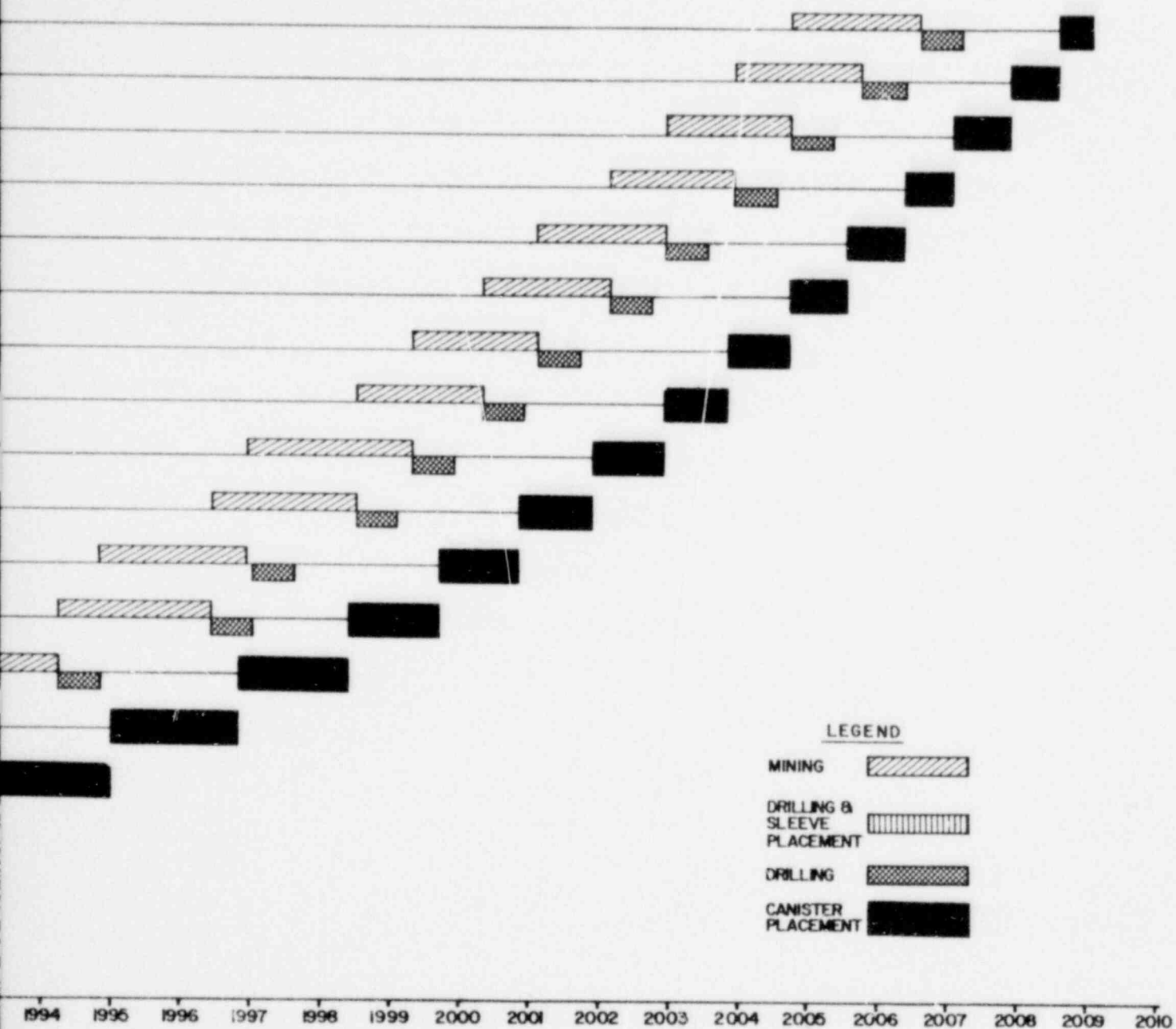


# MINING AND PLANNING SALT - BPNL WORK



STORAC

# MINING AND PLACEMENT SCHEDULE SALT-BIPNL WASTE PACKAGES



### LEGEND

- MINING
- DRILLING & SLEEVE PLACEMENT
- DRILLING
- CANISTER PLACEMENT

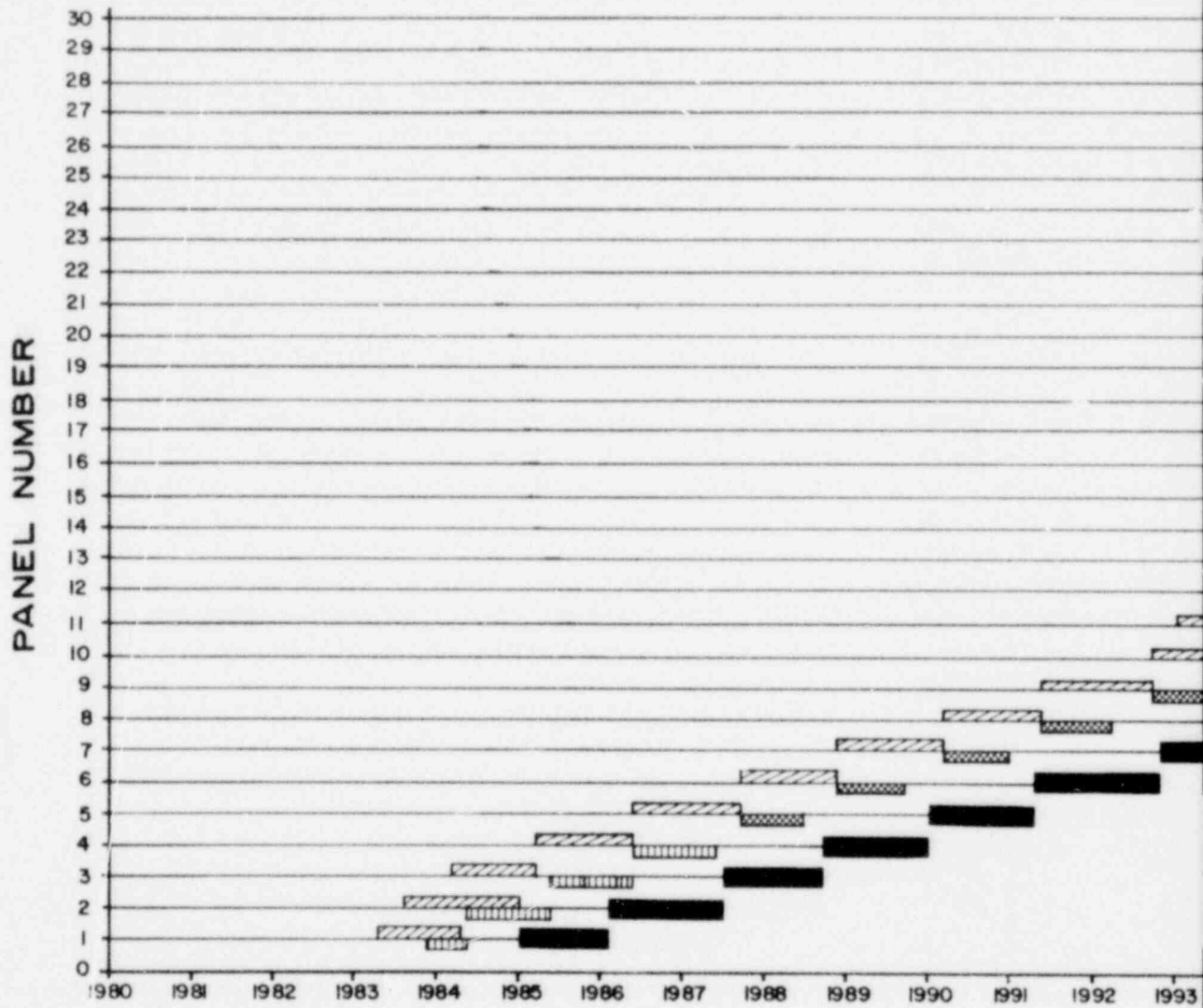
STORAGE AREA "A"  
(HLW)

OFFICE OF WASTE ISOLATION UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS NEW YORK, N.Y.		
WASTE ISOLATION FACILITY MINING AND PLACEMENT SCHEDULE STORAGE AREA "A" SALT-BIPNL WASTE PACKAGES		
SCALE:	CONTRACT NO. 62Y-45702C	
DATE: FEBRUARY, 1978	DWG. NO. 313	REV.

CYCLE III: URANIUM RECYCLE WITH PU IN HLW

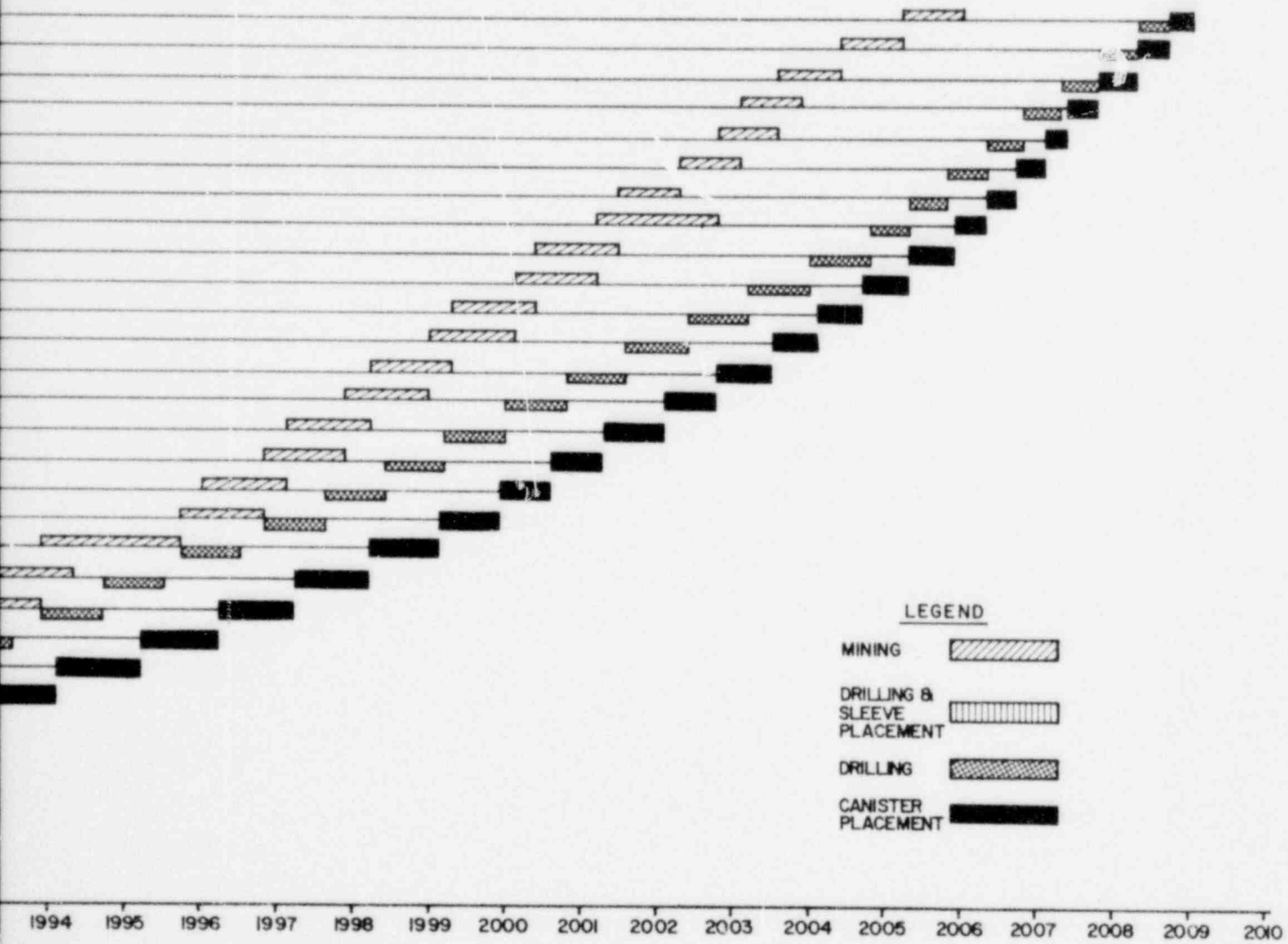
# MINING AND PL

SALT - BPNL W



STORAC  
(CW, ILI)

# PLACEMENT SCHEDULE WASTE PACKAGES



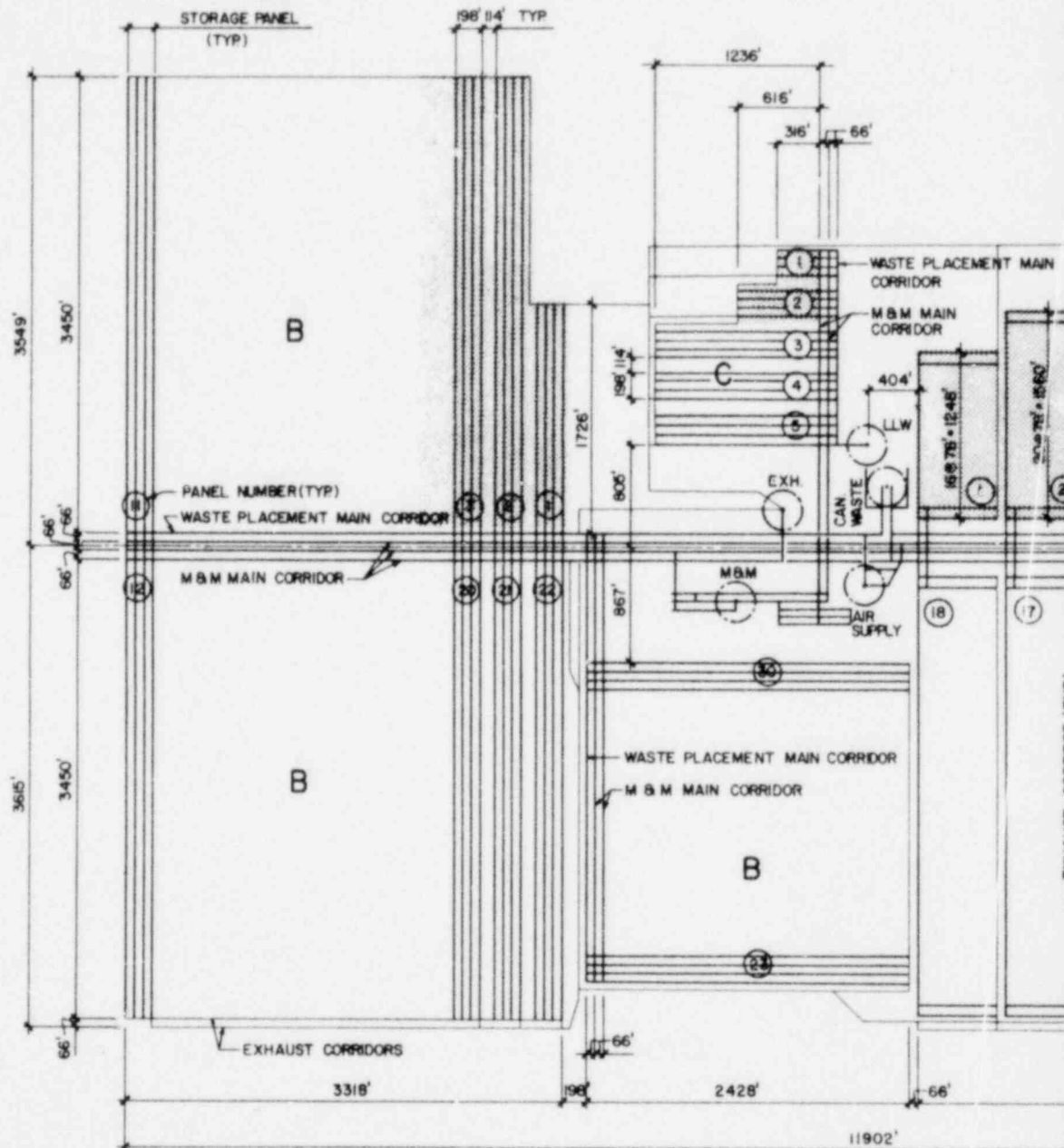
### LEGEND

- MINING
- DRILLING & SLEEVE PLACEMENT
- DRILLING
- CANISTER PLACEMENT

YEAR  
STORAGE AREA "B"  
(IL2, IL3 & IL4)

OFFICE OF WASTE ISOLATION UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE	
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS NEW YORK, N.Y.	
WASTE ISOLATION FACILITY MINING AND PLACEMENT SCHEDULE STORAGE AREA "B" SALT-BPNL WASTE PACKAGES	
SCALE:	CONTRACT NO. 62Y-45702C
DATE: FEBRUARY, 1978	DWG. NO. 314
	REV.

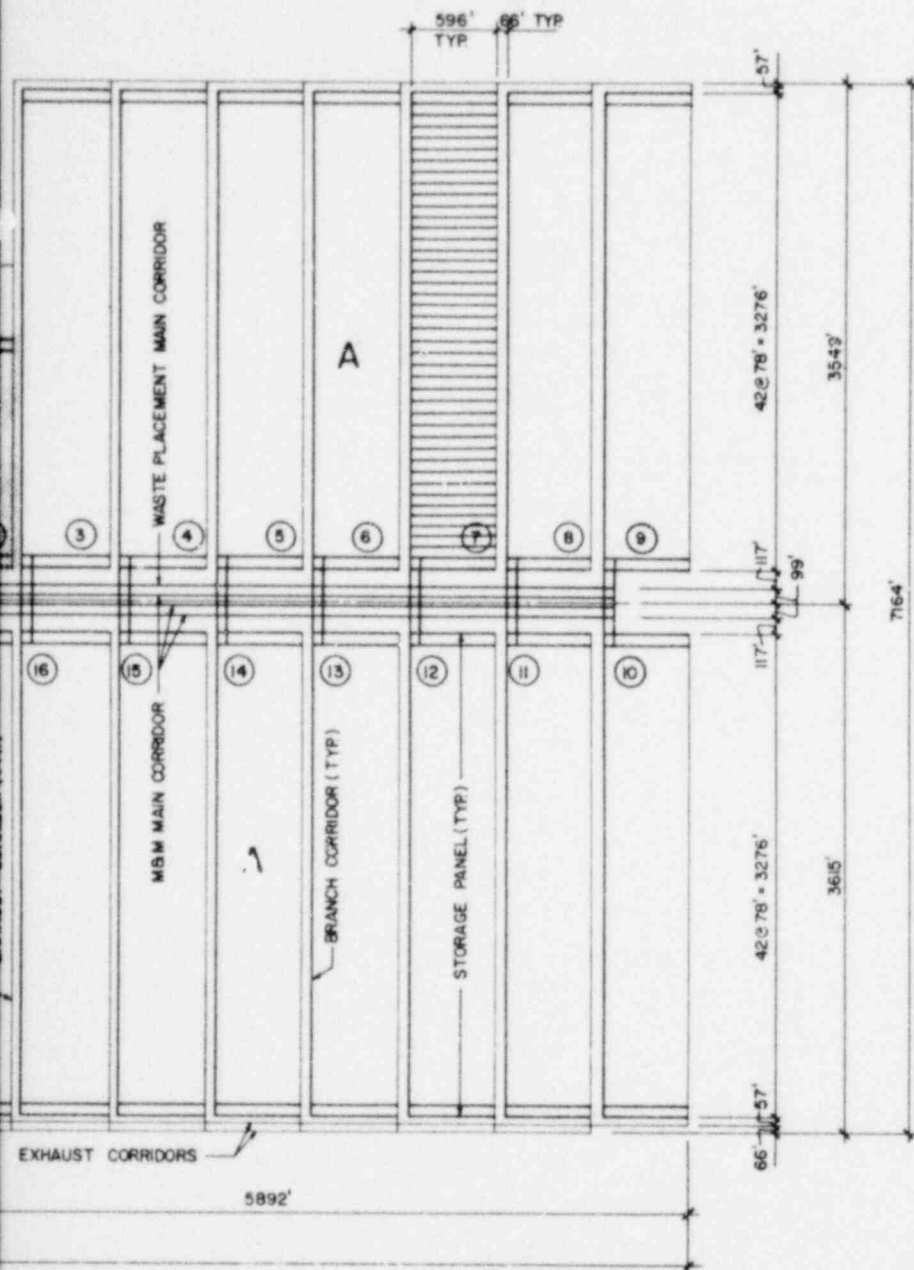
CYCLE III: URANIUM RECYCLE WITH PU IN HLW



MINE MASTER PLAN

STORAGE AREA	ROOM OPENING	ELEVATION*	WASTE TYPES	EXTRACTION RATIO
A	18' x 20'	- 1850	HL	23%
B	36' x 20'	- 1775	CW, IL-1, IL-2 IL-3 & IL-4	46%
C	36' x 20'	- 1850	IL-5, LL-1 & LL-2	46%

\* ELEVATIONS BASED ON GROUND LINE 0.00'



**NOTES:**

1. ALL LINES REPRESENT THE CENTER LINES OF ROOMS AND CORRIDORS.
2. FOR SHAFT AREA DETAILS, SEE DWG NO. 316
3. FOR ROOM CROSS-SECTIONS, SEE DWG NO. 118
4. MAIN AND BRANCH CORRIDORS ARE 36' WIDE x 20' HIGH
5. EXHAUST CORRIDORS ARE 36' WIDE x 11' HIGH.

**LEGEND:**

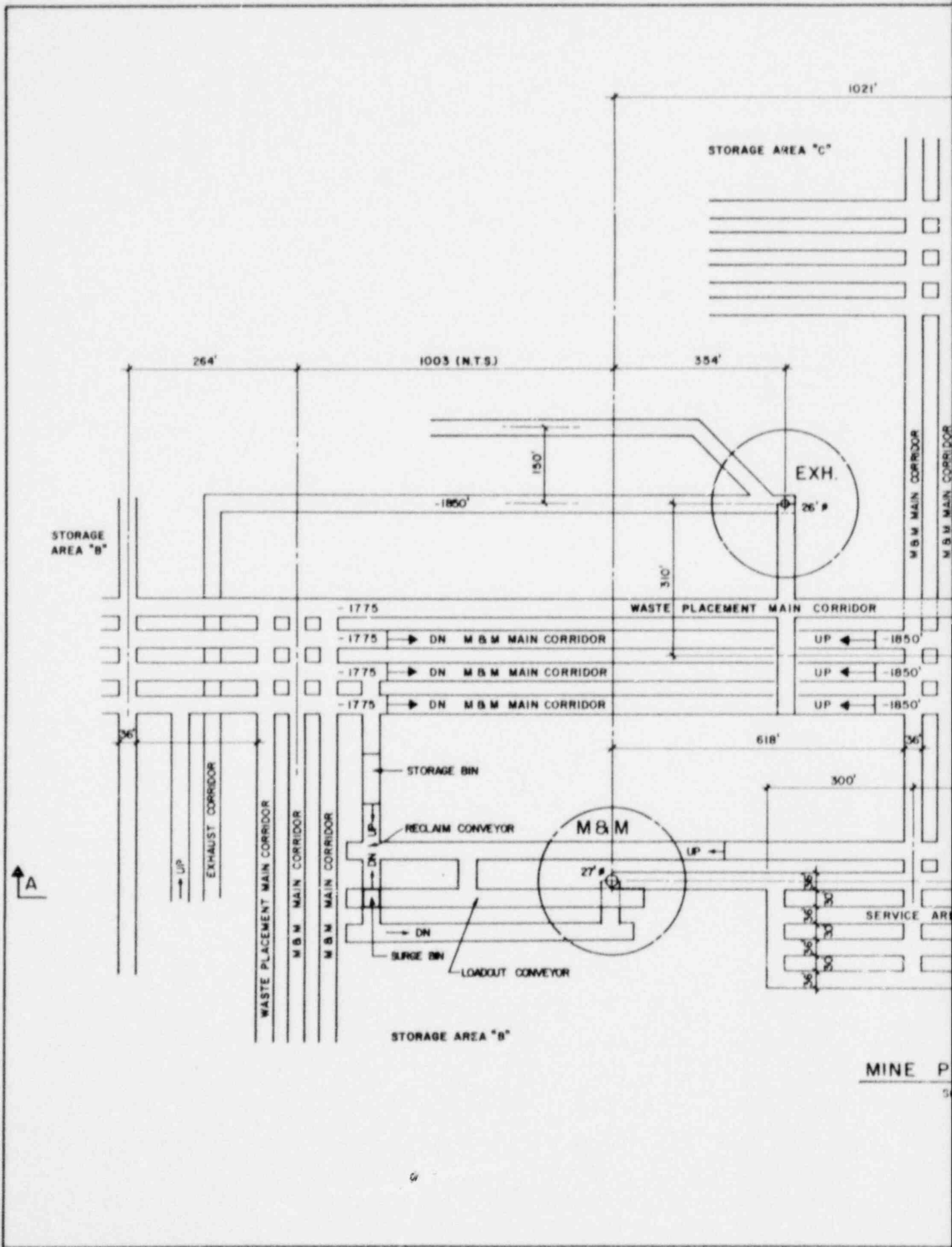
PORTION OF REPOSITORY STORAGE AREA THAT IS UTILIZED DURING FIRST FIVE YEARS OF PLACEMENT OPERATIONS.

**STORAGE CAPACITY (YEAR 2008)**

- HL = 33,299 CANISTERS
- CW = 35,180 CANISTERS
- IL-1 = 312,966 DRUMS
- IL-2 = 144,093 DRUMS
- IL-3 = 293 CANISTERS
- IL-4 = 4,908 CANISTERS
- IL-5 = 142,914 DRUMS
- LL-1 = 194,922 DRUMS
- LL-2 = 3,671 BOXES

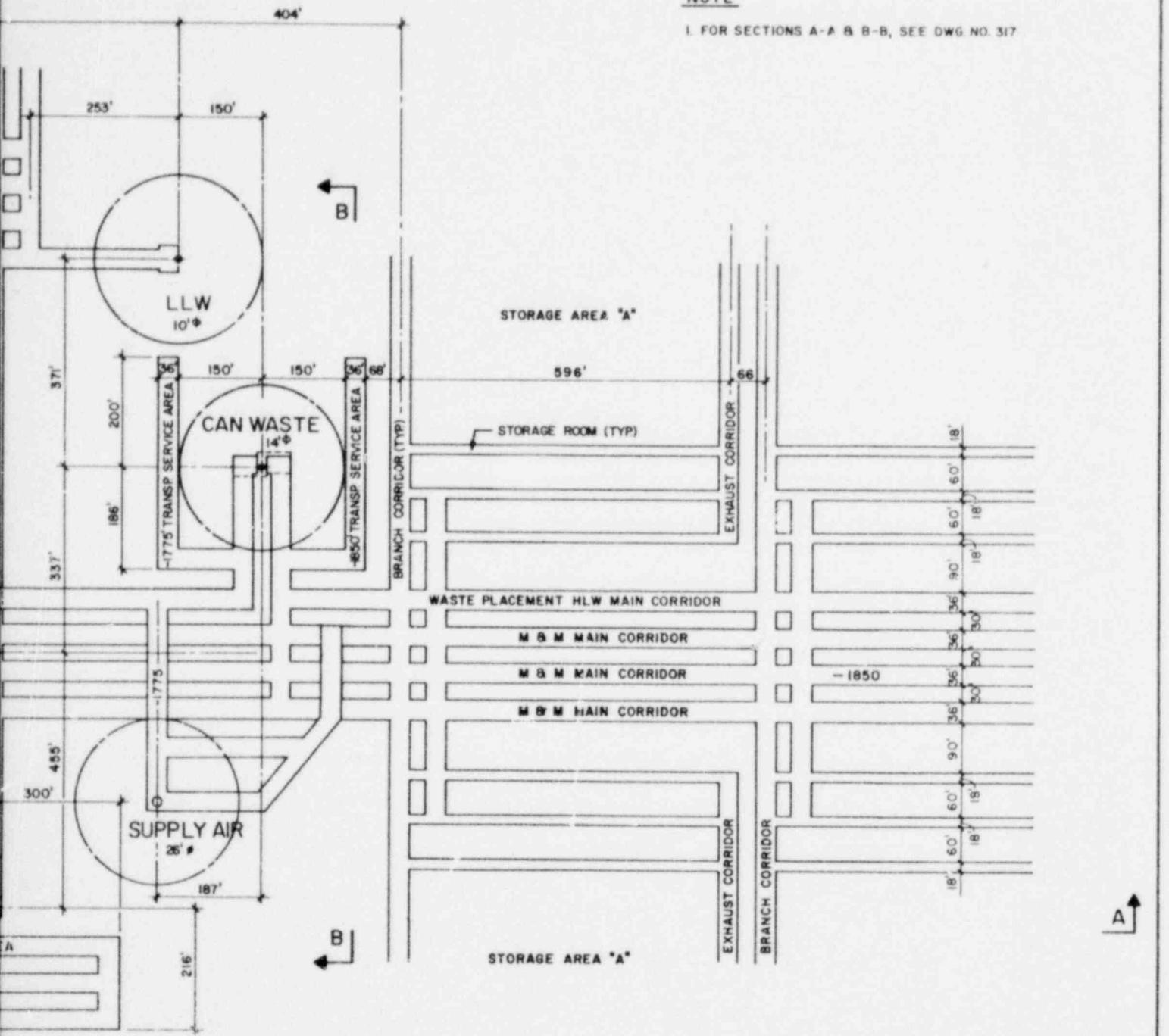
CYCLE III: URANIUM RECYCLE WITH PU IN HLW

<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. <small>ENGINEERS</small> <span style="float: right;"><small>NEW YORK, N.Y.</small></span>		
<b>WASTE ISOLATION FACILITY</b> MINE MASTER PLAN SALT - BPNL WASTE PACKAGES		
<b>SCALE:</b> 1" = 600'	<b>CONTRACT NO.:</b> 62Y-45702C	
<b>DATE:</b> FEBRUARY, 1978	<b>DWG. NO.:</b> 315	<b>REV.:</b>



**NOTE**

1. FOR SECTIONS A-A & B-B, SEE DWG. NO. 317



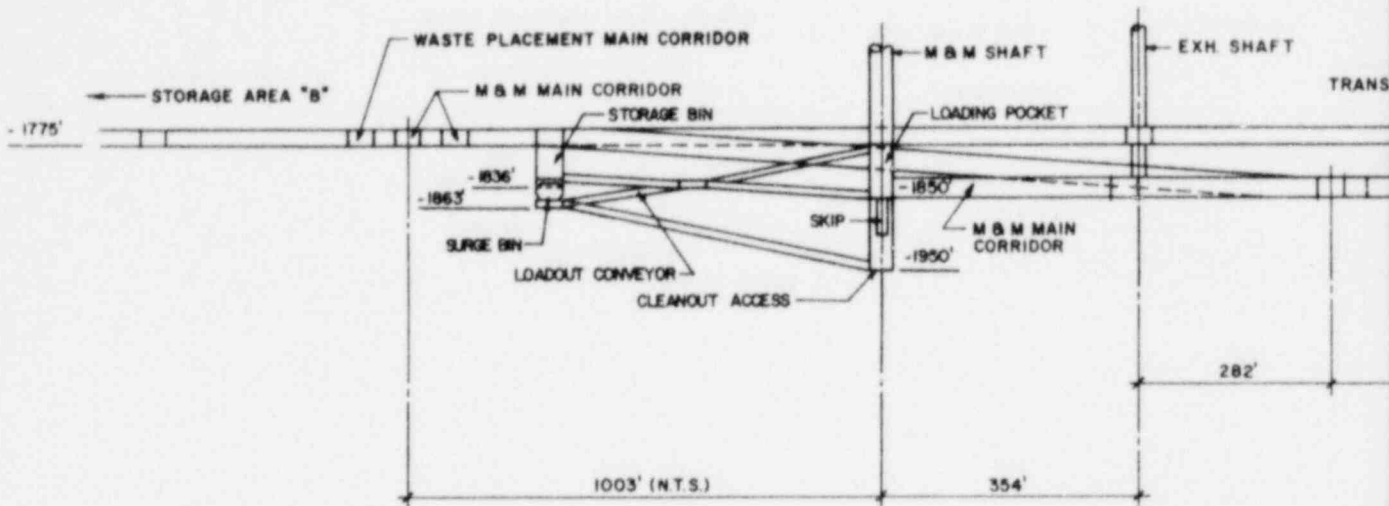
**PARTIAL PLAN**

SCALE: 1" = 120'

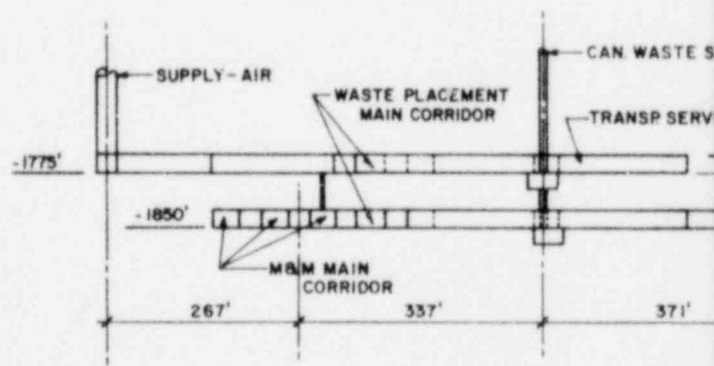
CYCLE III: URANIUM RECYCLE WITH PU IN HLW

<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. <small>ENGINEERS</small> <span style="float: right;"><small>NEW YORK, N.Y.</small></span>		
<b>WASTE ISOLATION FACILITY</b> <b>MINE PARTIAL PLAN</b> <b>SALT - BNPL WASTE PACKAGES</b>		
SCALE: 1" = 120'	CONTRACT NO. 62Y-45702C	
DATE: FEBRUARY, 1978	DWG. NO. 316	REV.

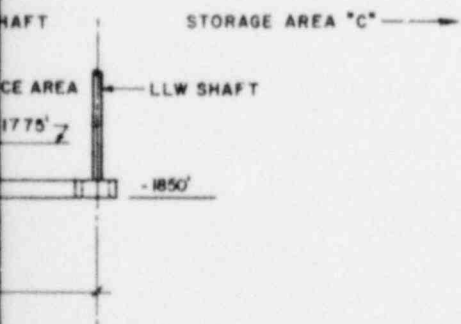
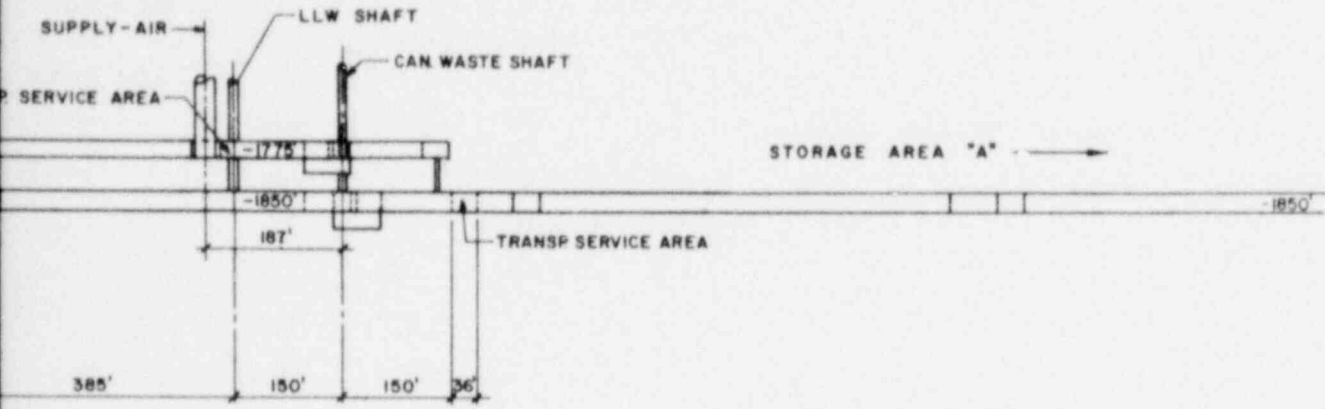




**SECTION A-A**  
SCALE: 1" = 120'



**SECTION B-B**  
SCALE: 1" = 120'



CYCLE III: URANIUM RECYCLE WITH PU IN HLW

<b>OFFICE OF WASTE ISOLATION</b> UNION CARBIDE CORPORATION NUCLEAR DIVISION OAK RIDGE, TENNESSEE		
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. <small>ENGINEERS</small> <span style="float: right;"><small>NEW YORK, N.Y.</small></span>		
<b>WASTE ISOLATION FACILITY</b> CROSS SECTIONS A-A & B-B SALT-BPNL WASTE PACKAGES		
SCALE: 1" = 120'	CONTRACT NO. 62Y-45702C	
DATE: FEBRUARY, 1978	DWG. NO. 317	REV.