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WM Project
Docket No.

1/21/78-01

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MEMORANDUM FOR: Project No. WM-# FITE

FROM: Regis R. Boyle
High-Level and Transuranic Waste Branch

SUBJECT: SUMMARY OF MEETING ON JANUARY 25, 1978 TO DISCUSS
SEISMIC AND GEOLOGIC DESIGN CRITERIA FOR WASTE
REPOSITORY

Applicant: U.S. Department of Energy

Facility: Nevada Test Site

A meeting to discuss seismic and geologic design criteria associated with the Nevada Test Site was held in Silver Spring, Maryland on January 25, 1978, with representatives of the U.S. Department of Energy (DOE) and their consultants (Blume Associates, Rockwell Hanford and Sandia Laboratories). The purpose of the meeting was to provide DOE and their consultants with an opportunity to discuss with NRC representatives the performance criteria of a waste repository during and following ground acceleration associated with a seismic event. A list of attendees is enclosed as Enclosure 1. The meeting agenda is enclosed as Enclosure 2.

DOE indicated that its current studies concerning the Nevada Test Site are directed at determining the feasibility of utilizing the site for a waste repository. They stated that sufficient data and analyses should be available by the middle of fiscal 1979 to make such a determination.

Messrs. Blume and Yansav gave a presentation on the state of the art of seismic analysis and design of underground structures as well as a brief description of a waste repository. Mr. Blume stated that a site for a waste repository should not be ruled out because of potential earthquakes. This is partly due to the vibration effort of an earthquake being less at a point deep underground than at the surface of the earth. He did state, however, that there is no reason to locate a waste repository on a boundary plate. He indicated that transducers could be used to monitor underground activity after the repository is decommissioned but was unable to estimate the period during which the transducers would be reliable. With respect to lining the underground portion of the repository, he indicated that little or no lining would be preferred because a lining is likely to crack under a seismic event due to the differences in modulus of elasticity of the earth and ~~over~~ liner.

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A short film was shown which depicted the reaction of an underground tunnel to a simulated earthquake. The results shown in the film indicated that a major seismic event would have little effect on an underground tunnel, at least for the geologic medium in which the test was performed.

Finally, a general discussion on performance criteria took place. Since the NRC is now only in the early developmental stages of performance criteria, the assistance provided to DOE and their consultants was limited. However, the discussion did prove to be beneficial from the standpoint of exchanging views on criteria and potential problem areas, that should be covered by the criteria when it is developed.

Regis R. Boyle
High-Level and Transuranic
Waste Branch
Division of Fuel Cycle
and Material Safety

Enclosures:

1. Attendance List
2. Meeting Agenda

OFFICE	HLTW β				
SURNAME	Boyle:prh				
DATE	1/31/78				

FEB 2 1978

ATTENDEES AT NRC-DOE MEETING
ON SEISMIC EVENTS

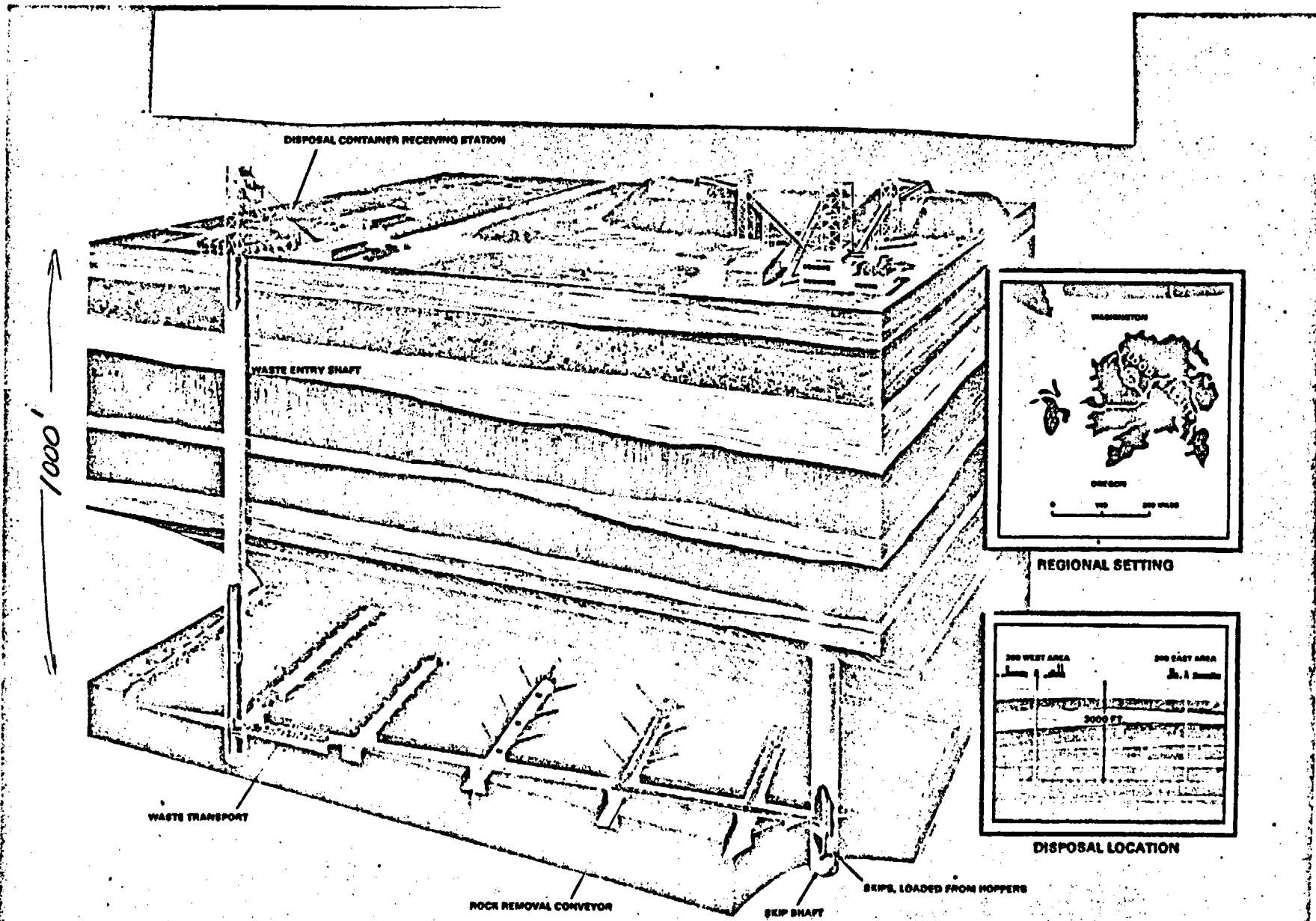
<u>Name</u>	<u>Organization</u>
1. Donald Vieth	DOE
2. Richard Wilde	Rockwell Hanford
3. Regis Boyle	NRC - Project Manager
4. Donald Caldwell	NRC
5. Wesley Kunkel	Rockwell Hanford
6. Walter Von Rieseemann	Sandia Labs
7. John A. Blume	URS/Blume, Pres.
8. Peter J. Yansev	URS/Blume, Project Manager
9. Edward Regnier	NRC
10. Bill Hewitt	NRC
11. Fred Donath	Univ. of Ill./NRC
12. Carl Newton	DOE
13. Leslie Casey	NRC
14. Sandi Fucigna	NRC
15. Bill Pearson	NRC
16. John Greeves	NRC
17. John O'Brien	NRC
18. Theron J. Bennett	NRC
19. D. M. Ellett	Sandia
20. E. F. Hawkins	NRC
21. David Pentz	Golder Assoc./NRC

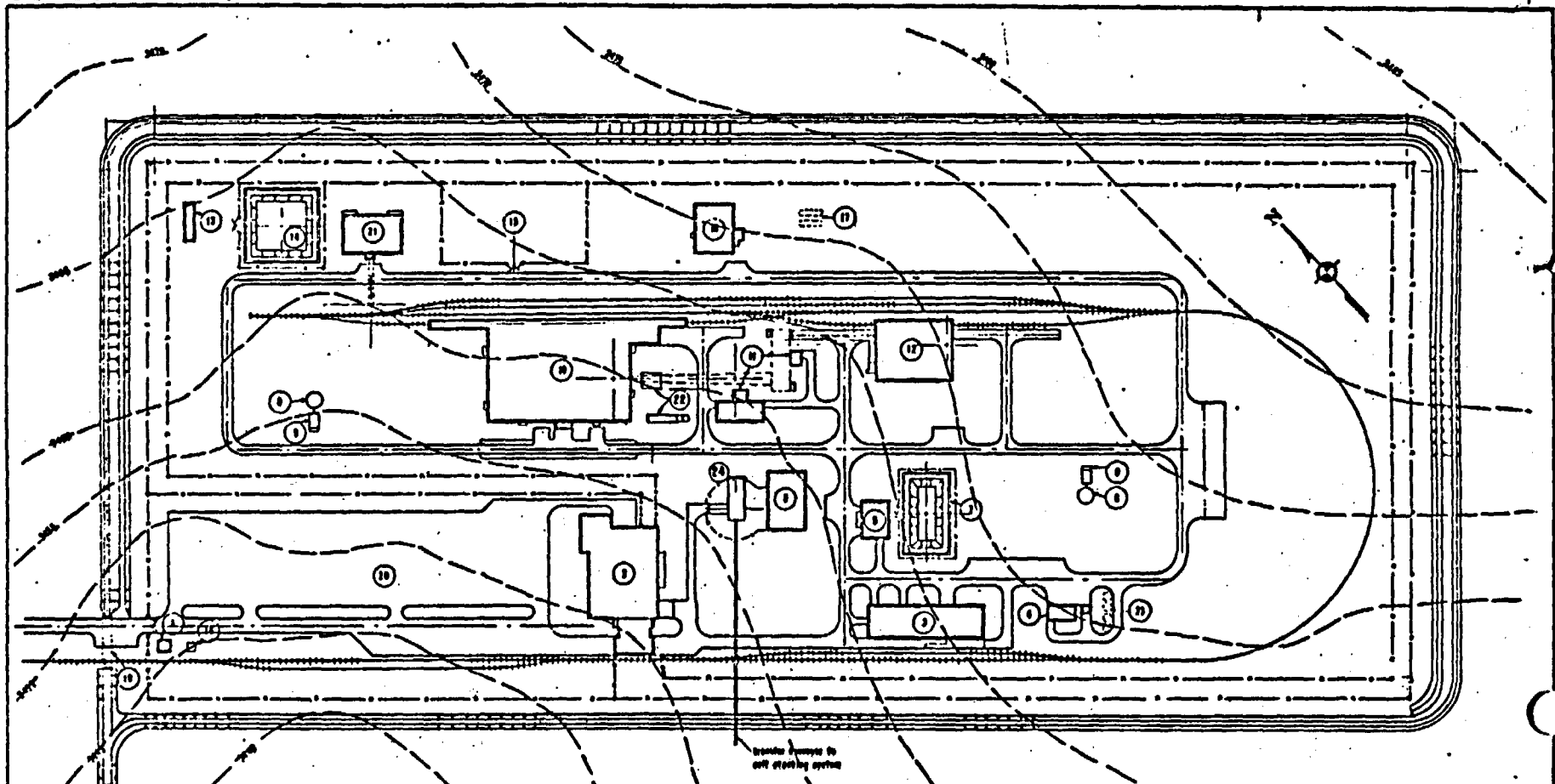
AGENDA

FEB 2 1978

Meeting of January 25, 1978
Seismic Design Criteria for Waste Repositories

9:00	Introductory Remarks	D. Vieth, DOE
9:15	" "	E. Regnier, NRC
9:30	Conceptual Facility Description	URS/Blume
	Technical Scope Description	"
	Seismic Motion Alternation with Depth	"
	State of the Art of Seismic Analysis and Design of Underground Structures.	"
10:00	Break	
10:30	Film - Simulation of Seismic Motion in Tunnels	"
10:45	Status of Standards	URS/Blume
11:30	Lunch	
12:30	Status of Standards & Discussion	"
1:30	General Discussion and Questions	All
3:00	Concluding Remarks	R. Boyle, NRC





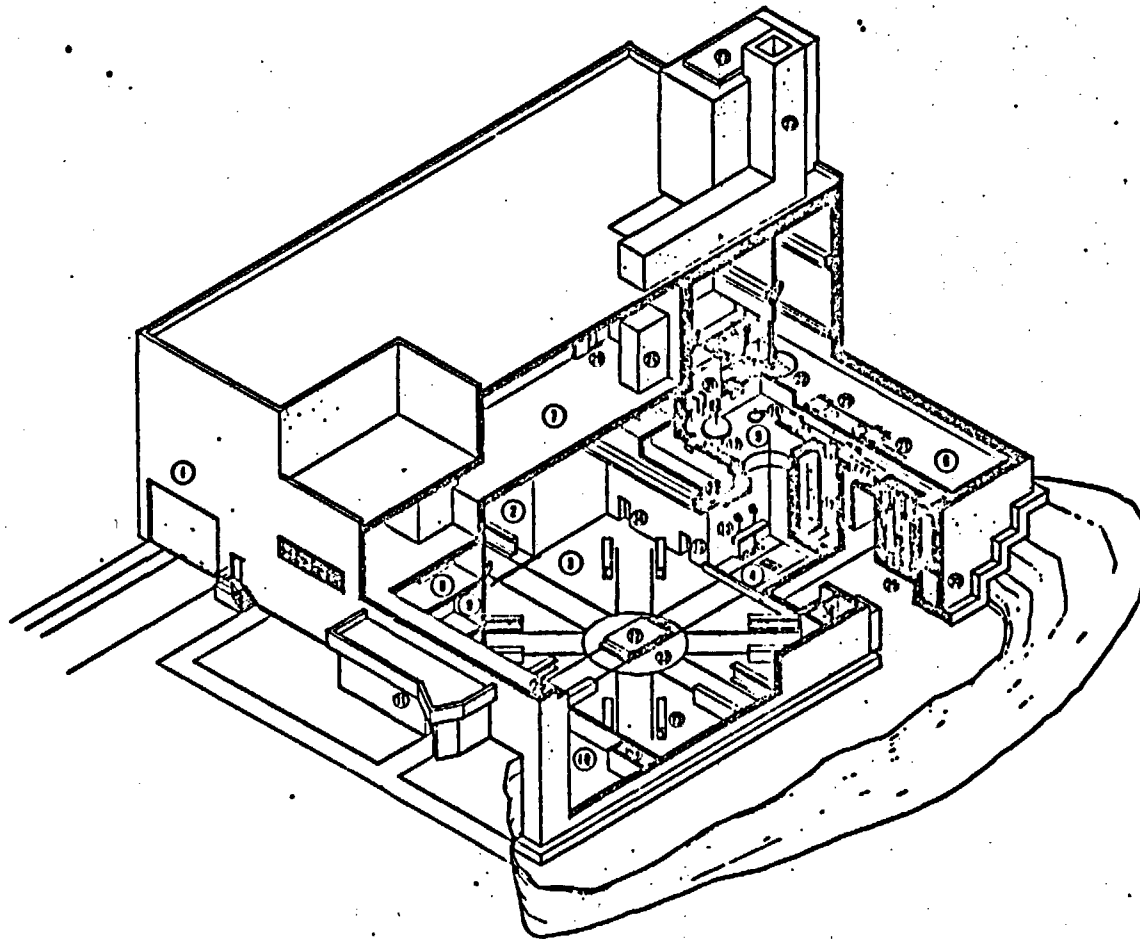
LEGEND

- | | |
|-----------------------------------|---|
| 1. SITE ENTRANCE GATE TOWER | 17. RM WASTE FACILITY |
| 2. ADMINISTRATION FACILITY | 18. SEWAGE TREATMENT PLANT |
| 3. WAREHOUSE/SHOP | 19. SEWAGE EFFLUENT TOWER |
| 4. VEHICLE MAINTENANCE FACILITY | 20. CONDENSER & COOLER TOWER |
| 5. OX/MATERIALS BUILDING | 21. CONDENSER POWER BUILDING |
| 6. SUSPECT WASTE/LAUNDRY BUILDING | 22. STANDBY GENERATOR FUEL SUPPLY |
| 7. SUSPECT WATER POND | 23. SEWAGE LIFT STATION |
| 8. 20000 GAL. WATER STORAGE TANK | 24. DOUBLE DE. 500 CONVEY BELTING |
| 9. WATER PUMP HOUSE | 25. EMPLOYEE PARKING - 600 VEHICLES |
| 10. TSP WASTE FACILITY | 26. OX/M STORAGE FILTER BUILDING |
| 11. OX/M HOUSE FACILITY | 27. WASTE CONSTRUCTION EXHAUST/EMERGENCY MOVY |
| | 28. VEHICLE FUEL STORAGE TANKS |
| | 29. MAN MATERIALS SHAFT HEAD FRAME |

GRAPHIC SCALE



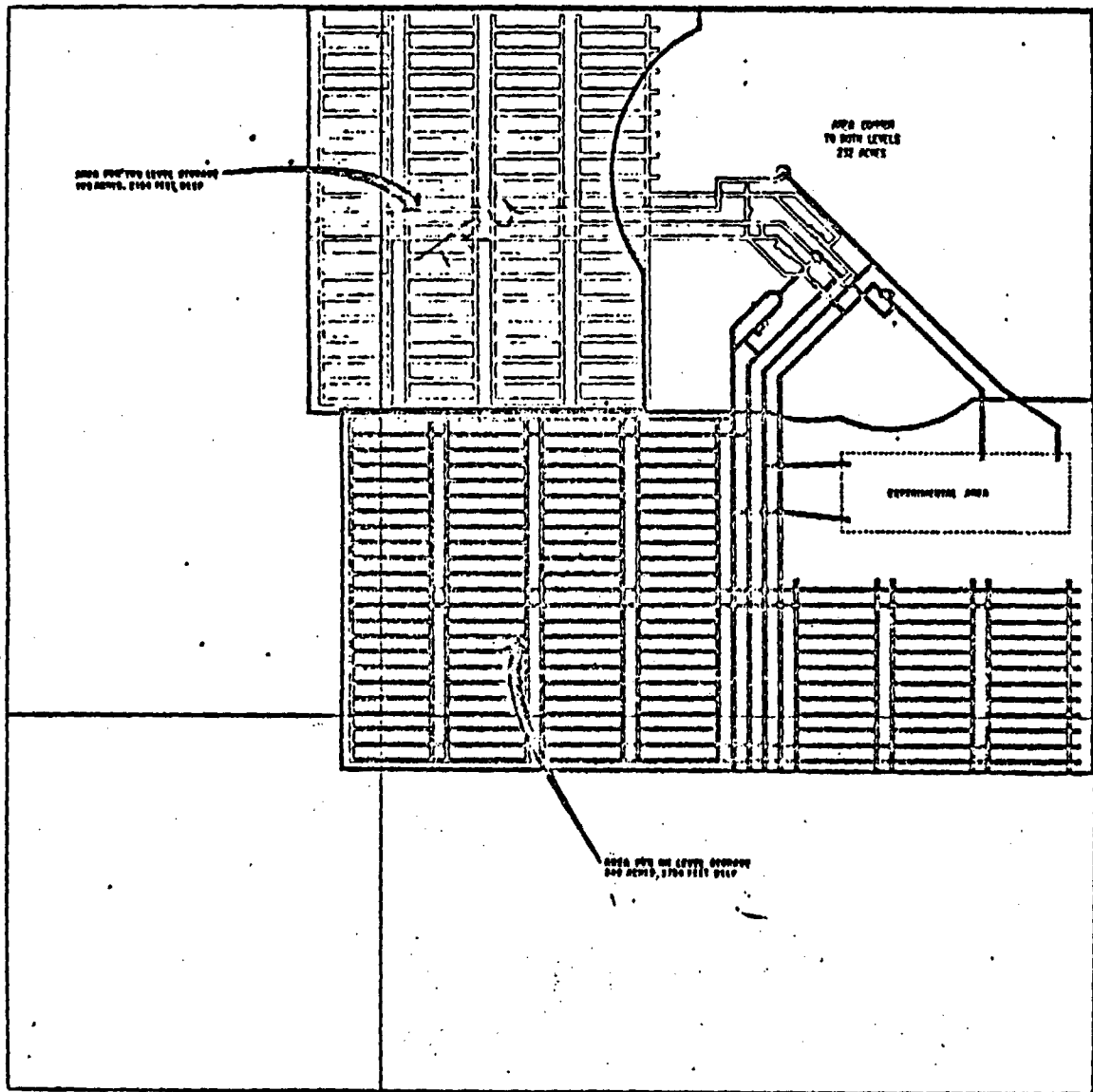
Sando Laboratories	
OVERALL SITE PLAN SANDO LABORATORIES WASTE ISOLATION PILOT PLANT	
DATE: 10/1/72	SCALE: AS SHOWN
BY: [Signature]	CHECKED: [Signature]
APPROVED: [Signature]	DATE: 10/1/72



1. SHIPPING / RECEIVING BAY EXT
2. TRANSFER GALLERY
3. PREPARATION & DECONTAMINATION
4. CASE ELEVATOR RM
5. HOT CELL
6. CLEAN CELL
7. HVAC ROOM
8. OFFICES
9. Health Physics / Lockers & Showers
10. Mechanical Equipment
11. Entrance
12. Cash Transfer Vehicle
13. Cash Countdown Station
14. Lower Storage Rm
15. Cassin Repair
16. Elevator
17. Overpack Welder
18. Overpack Lock Test
19. Cooler Decontamination
20. Cooler Transfer Ports
21. Filters
22. Wire Cage Loading Station
23. Control Rm
24. Cassin Repair Shield Doors
25. HVAC Access
26. Emergency Exit
27. Upper Storage Rm
28. Exhaust Stack
29. Cooler Storage Pits
30. Post
31. Master Slave Manipulator
32. Terra Teles

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NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6	NO. 7	NO. 8	NO. 9	NO. 10
Sando Laboratories									
WASTE FACILITY									
SANDIA LABORATORIES									
WASTE ISOLATION PILOT PLANT									
ARCHITECTURAL ISOLATION									
ARCHITECTURAL ISOLATION									
SANDIA LABORATORIES									
ALBUQUERQUE, NEW MEXICO									
85500									

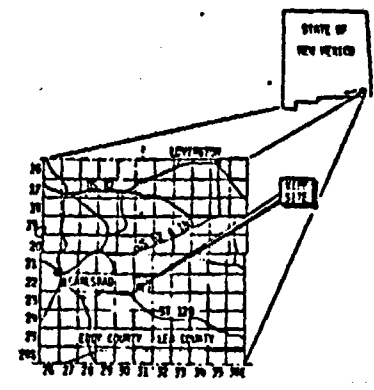


AREA COVER TO BOTH LEVELS
232 ACRES

AREA FOR TWO LEVEL STORAGE
100 ACRES, 2700 FEET DEEP

EXPERIMENTAL AREA

AREA FOR ONE LEVEL STORAGE
600 ACRES, 2700 FEET DEEP



1275 700'

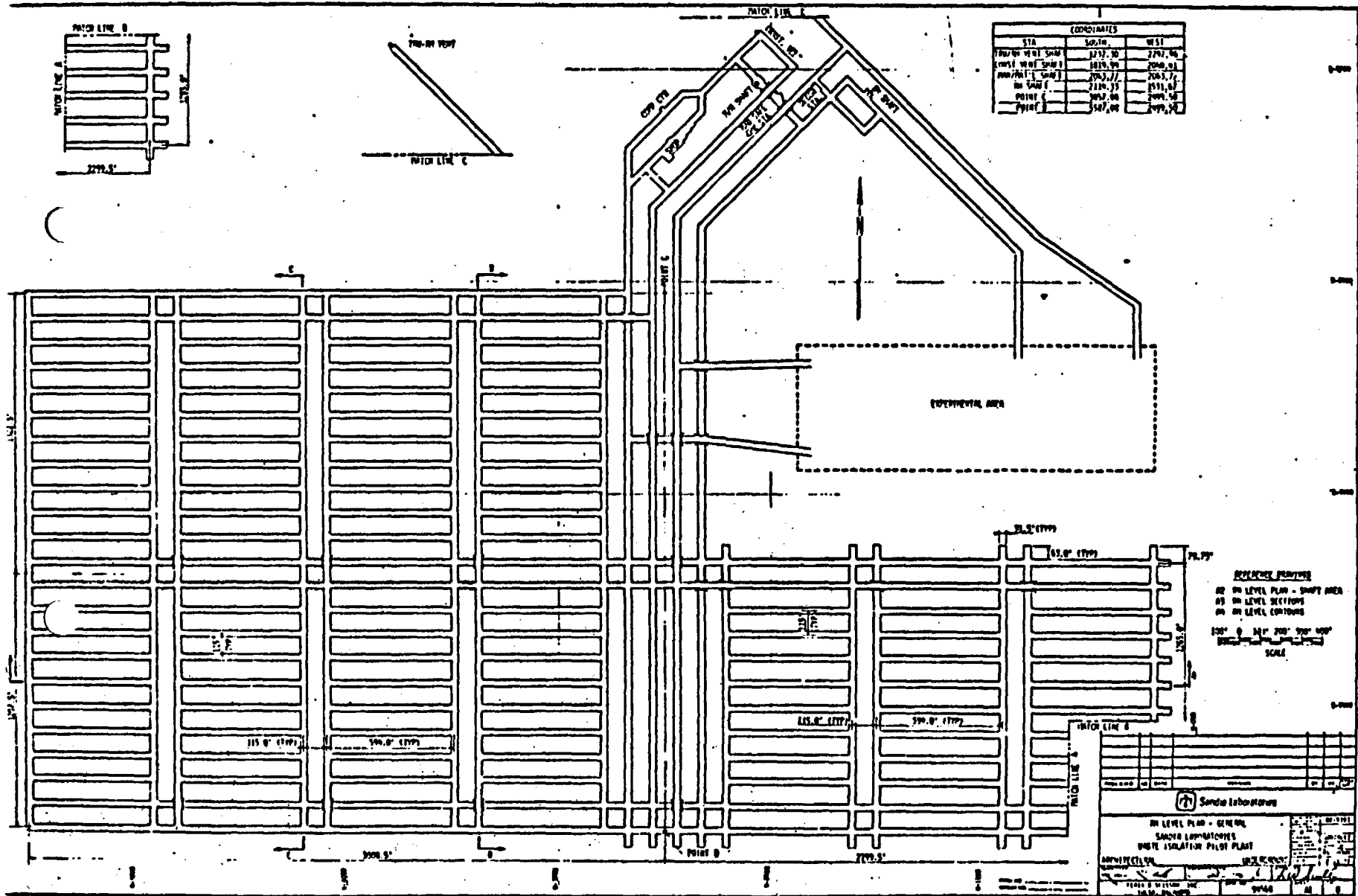
- LEGEND
- TWO LEVEL BUILDINGS
 - ONE LEVEL BUILDINGS
 - SHAFTS

NOTE: TOTAL AREA REQUIRED = 700 ACRES



TOWNSHIP 22 SOUTH RANGE 31 EAST

Sarco Laboratories	
CONTRACT PLAN AND ARCHITECTURE OF ONE BUILDING OFFICES	
SARCO LABORATORIES WASTE ISOLATION PILOT PLANT	
ARCHITECTURE	ENGINEERING
PREPARED BY: <i>[Signature]</i>	DATE: 11/1/77
PROJECT NO. 10000	SHEET NO. 1



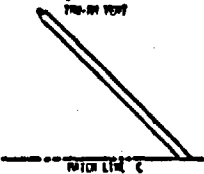
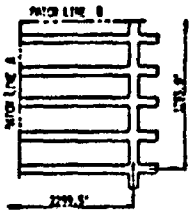
COORDINATES		
STA	SOUTH	WEST
TRUCK WHEEL SHAFT	2277.70	2297.68
CORNER WHEEL SHAFT	2279.79	2298.01
WHEEL SHAFT	2282.77	2298.71
ON SHAFT	2282.77	2298.67
POINT C	2282.00	2298.50
POINT B	2287.00	2297.50

EXPLANATION
 02 ON LEVEL PLAN - SHAFT AREA
 03 ON LEVEL SECTIONS
 04 ON LEVEL CONTIGUOUS
 120' 0" 30' 0" 60' 0" 90' 0"
 SCALE

Sandia Laboratory

ON LEVEL PLAN - GENERAL
 SANDIA LABORATORIES
 WHITE ISOLATION PILOT PLANT

ARCHITECTS: SANDIA LABORATORIES
 DATE: 1958
 SCALE: AS SHOWN



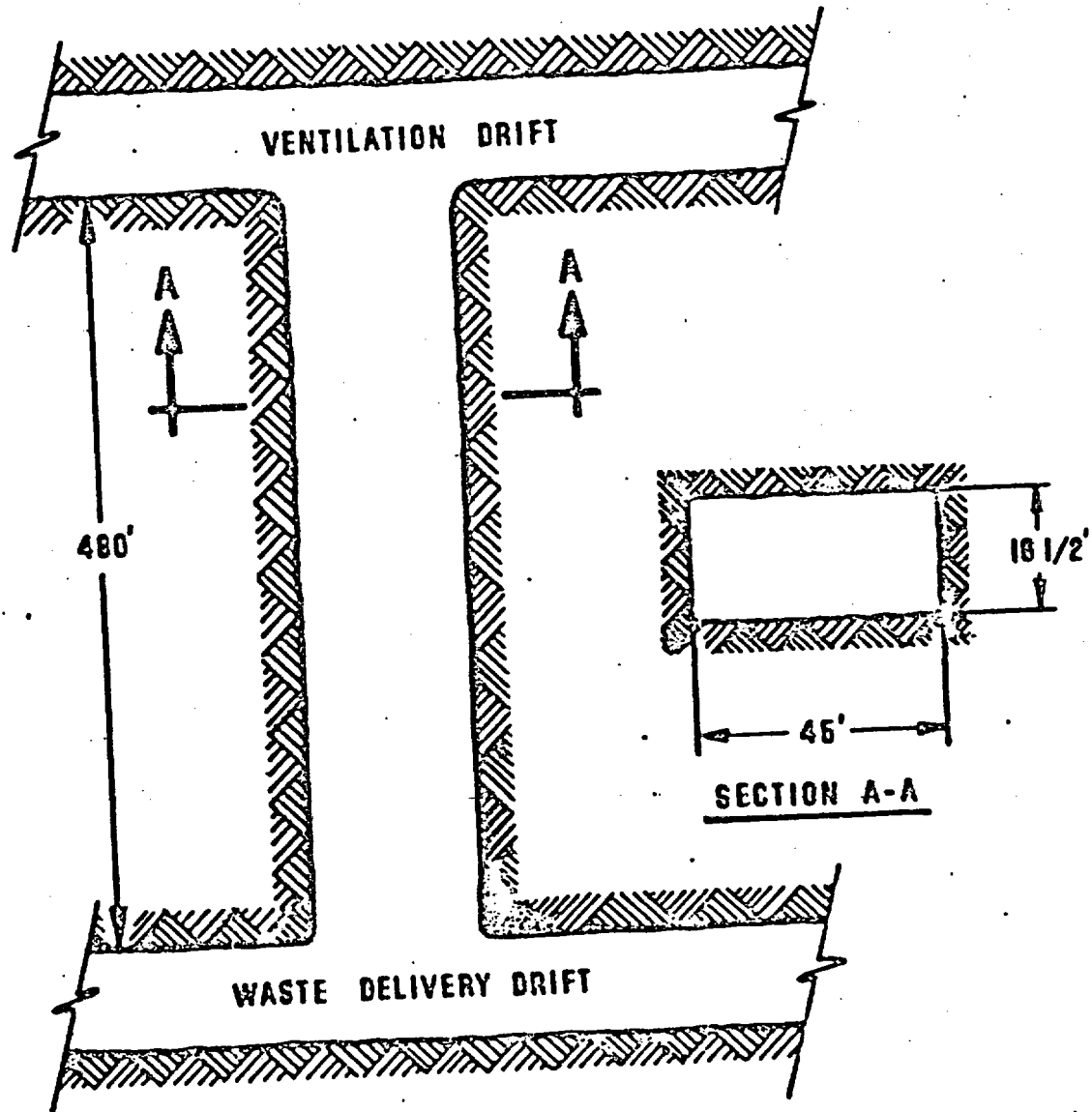


Figure II. 2-2-2-2. TRU waste storage room (typical)