DCS NOTE

October 3, 1988

NOTE TO: Document Control Desk

FROM: King Stablein, NMSS/DHLWM/OB

SUBJECT: Request to Put Materials Brought Back by NRC Staff from the Exploratory Shaft Facility (ESF) 50 Percent Title I Design Review into the Document Control System

Attached are materials provided to participants and observers at the 50 percent Title I Design Review for the Exploratory Shaft Facility at Yucca Mountain. The Review was held in Henderson, Nevada May 9-17, 1988. I hereby request that these materials be placed in the Document Control System. In particular, I wish to ensure that they go into the PDR. It is not necessary to do any internal distribution, however, inasmuch as staff and management who need these documents already have them.

Thank you for your attention to this matter.

cc: HLOB r/f

8810040359 88/10/03

102
NMSS

EXPLORATORY SHAFT FACILITY (ESF)

50 PERCENT TITLE I

DESIGN REVIEW

MAY 9, 1988

File 102

NNWSI-ESF
50% DESIGN REVIEW
PRESENTATION OUTLINE - 90 MIN.
MAY 9, 1988

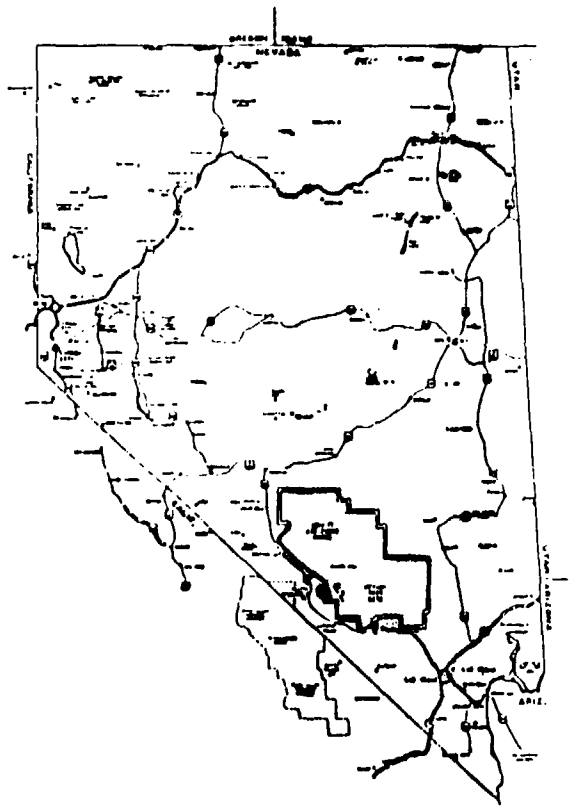
I.	Project Overview	J. C. Calovini	30 min.
II.	Project Criteria Evaluation and Review		
III.	Technical Aspect	R. L. Schreiner	15 min.
IV.	Civil: 1. Design Basis and Criteria 2. Applicable Codes 3. Description of Salient Design Features 4. Remaining Work	R. G. Musick	10 min.
V.	Architectural/Structural: 1. Design Basis and Criteria 2. Applicable Codes 3. Description of Salient Design Features 4. Remaining Work	R. C. Greenwold	10 min.
VI.	Mechanical/Fire Protection: 1. Design Basis and Criteria 2. Applicable Codes 3. Description of Salient Design Features 4. Remaining Work	B. H. Anzai	10 min.
VII.	Electrical: 1. Design Basis and Criteria 2. Applicable Codes 3. Description of Salient Design Features 4. Remaining Work	J. A. Dumas	10 min.
VIII.	Wrap-up	J. C. Calovini	5 min.

UNITED STATES DEPARTMENT OF ENERGY

NEVADA NUCLEAR WASTE STORAGE INVESTIGATION

EXPLORATORY SHAFT FACILITY

LAS VEGAS, NEVADA

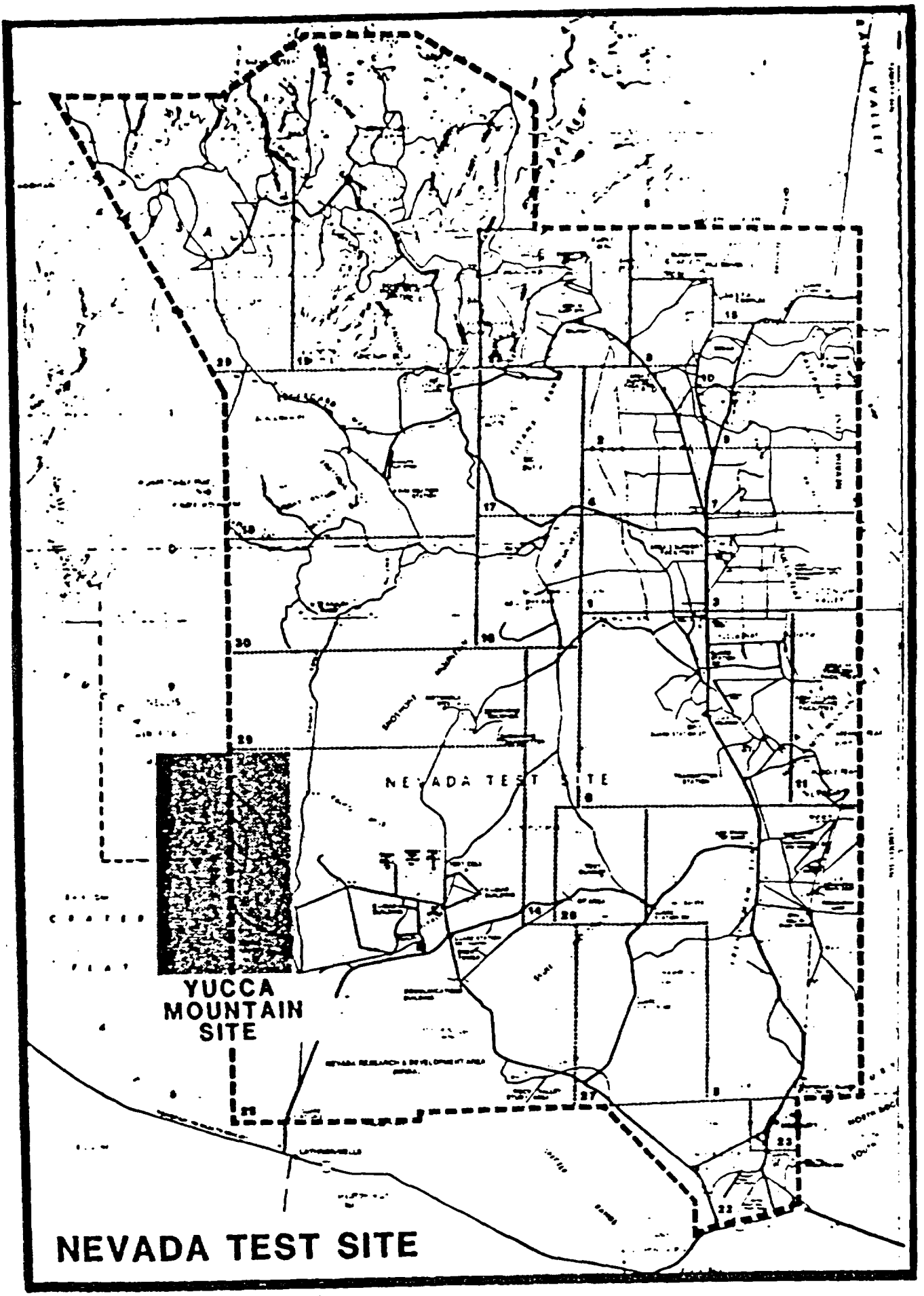


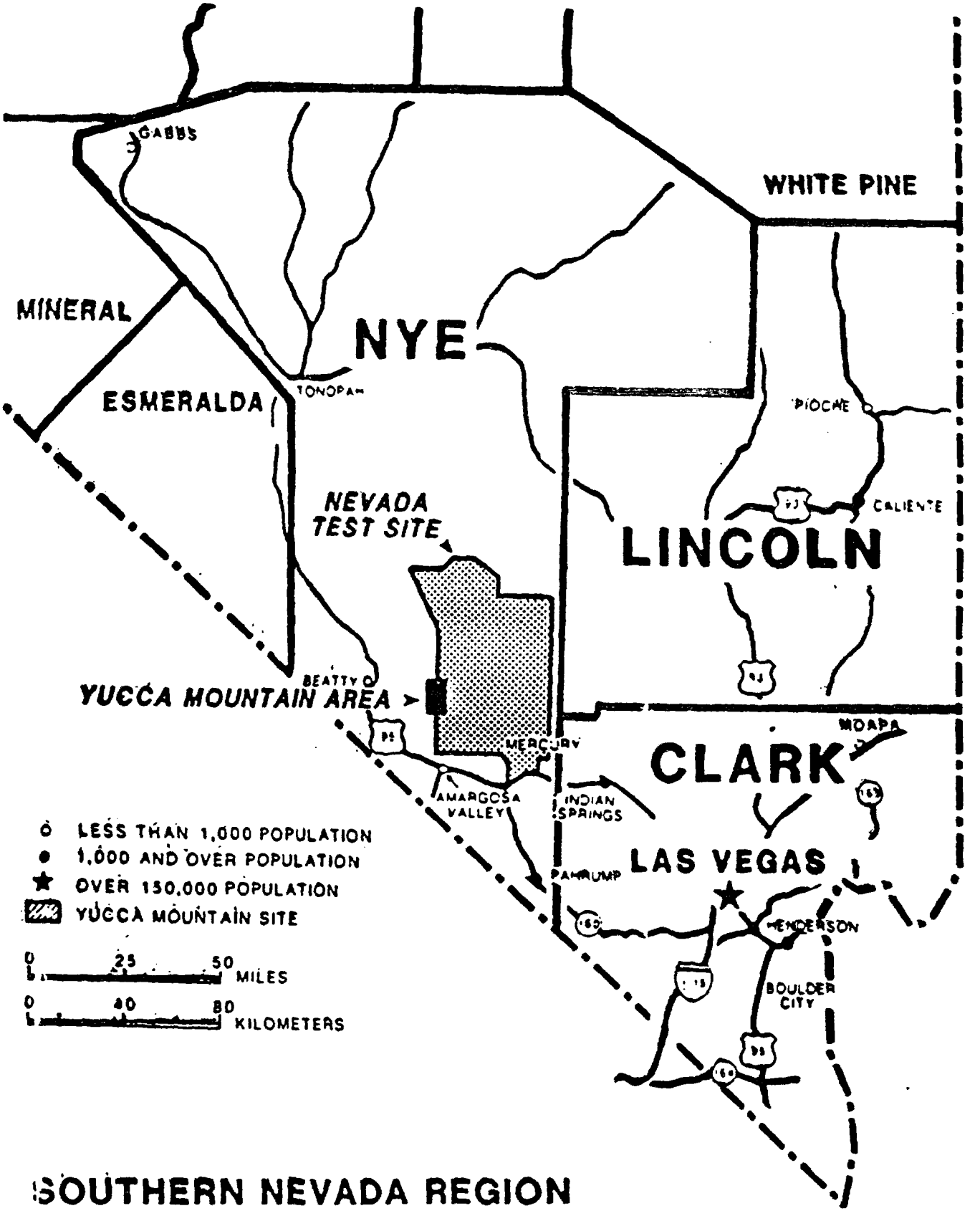
TITLE I
50% SUBMITTAL

Prepared By

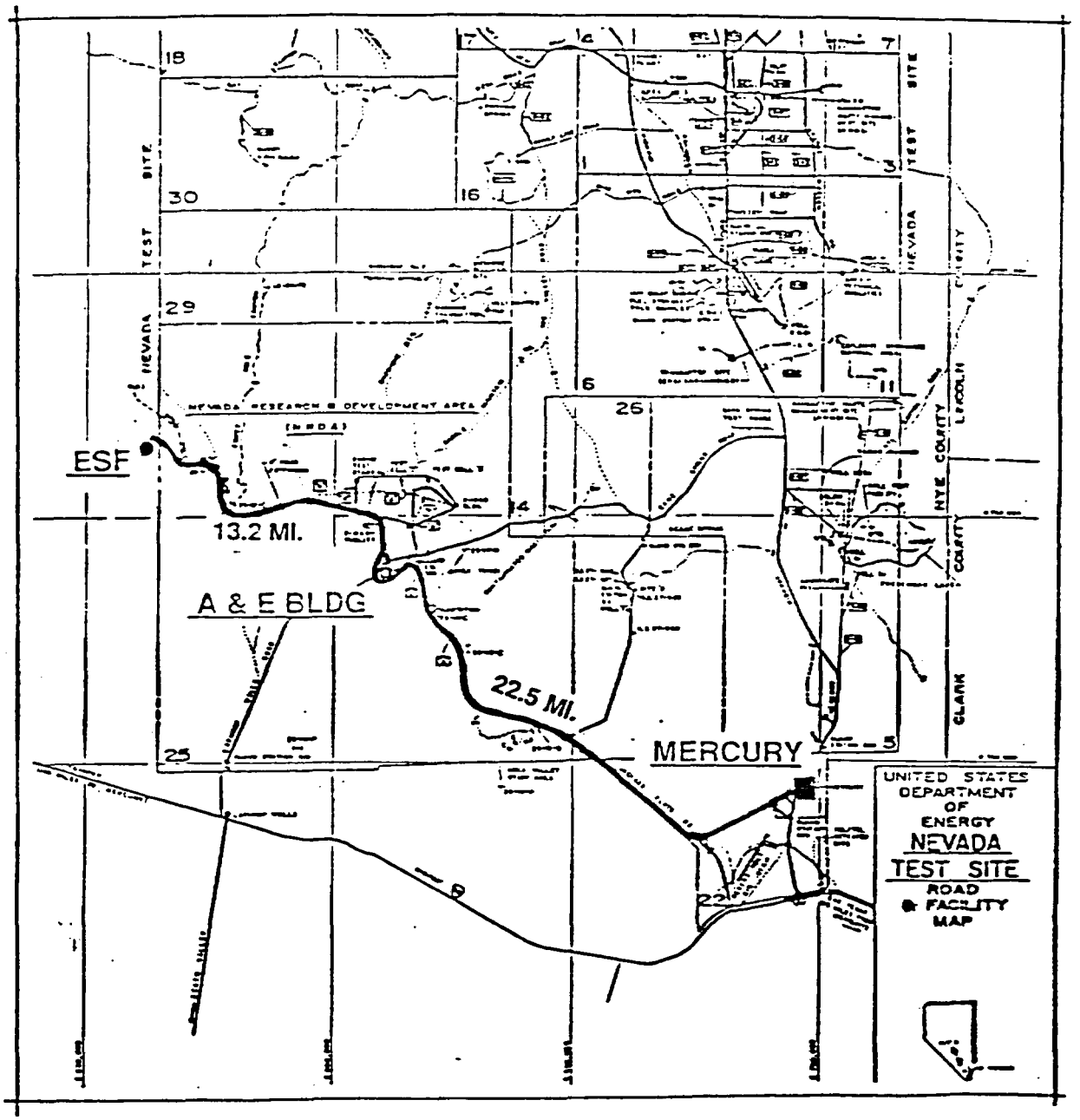
HOLMES & NARVER, INC.
ENERGY SUPPORT DIVISION

Commercial Tape Division/3M
Scotch
Transparency Mounting Frame


YUCCA
MOUNTAIN
SITE
NEVADA TEST SITE



SOUTHERN NEVADA REGION



SITE VICINITY MAP

NNWSI - ESF
50% DESIGN REVIEW
PRESENTATION OUTLINE
MAY 9, 1988

PROJECT OVERVIEW	J.C. CALOVINI
PROJECT CRITERIA EVALUATION AND REVIEW	
TECHNICAL ASPECT	R.L. SCHREINER
CIVIL	R.G. MUSICK
ARCHITECTURAL/STRUCTURAL	R.C. GREENWOLD
MECHANICAL/FIRE PROTECTION	B.H. ANZAI
ELECTRICAL	J.A. DUMAS
WRAP-UP	J.C. CALOVINI

Scotch no.
Commercial Tape Division 3M

QUALITY ASSURANCE

H&N HAS A FULL QUALITY ASSURANCE PROGRAM EFFECTIVELY ADMINISTERED.

DOCUMENTATION

- CONTROLLING DOCUMENT - NVO 196-17 (NNWSI 88-9)
- H&N QUALITY ASSURANCE PROGRAM PLAN
- APPROVED PROCEDURES

QUALITY ASSURANCE PROGRAM

- ALL H&N PERSONNEL WORK TO APPROVED PROCEDURES.
- H&N PERSONNEL HAVE HAD THEIR QUALIFICATIONS VERIFIED.
- H&N PERSONNEL HAVE RECEIVED INDOCTRINATION AND TRAINING.
- A FORMAL IN-HOUSE REVIEW PROCESS HAS BEEN ESTABLISHED.

DEFINITION OF TITLE I

SUFFICIENT DESIGN NEEDS TO BE PERFORMED IN TITLE I TO FIRMLY FIX THE PROJECT SCOPE AND FEATURES UTILIZING THE DESIGN CONCEPTS OR CRITERIA THAT HAVE BEEN PREPARED IN THE CONCEPTUAL DESIGN PHASE.

50% REVIEW POINT

THE 50% REVIEW POINT IS DEFINED AS THE STATUS OF THE DESIGN WHEN 50% OF THE TIME HAS ELAPSED FOR COMPLETION OF TITLE I.

H&N ENGINEERING RESPONSIBILITIES

- SURFACE FACILITIES
- SUBSURFACE UTILITIES AS RELATED TO TESTING
- AREA 25 FACILITIES
- COMMUNICATION, DATA FACILITIES AND LIFE SAFETY SYSTEMS
- INTERFACE CONTROL

- THE H&N TITLE I WORK IS BROKEN DOWN INTO WORK PACKAGES BY WORK BREAKDOWN STRUCTURE NUMBER.
- W.B.S. NUMBERS RELATE TO THE DESIGN BASIS DOCUMENT.
- THE DESIGN BASIS DOCUMENT CONTAINS REFERENCES TO THE SUBSYSTEM DESIGN REQUIREMENTS DOCUMENTS.

DESIGNS INCLUDED IN THIS REVIEW

CIVIL DESIGN

WATER & SEWAGE DESIGN

ELECTRICAL DESIGN

SHOP BUILDING DESIGN

WAREHOUSE BUILDING DESIGN

TRAILER DESIGN

DESIGN INPUTS

SUBSYSTEM DESIGN REQUIREMENTS DOCUMENT (S.D.R.D.) IS THE DESIGN BASELINE DOCUMENT.

H&N THEN GENERATED THE DESIGN BASIS DOCUMENT TO EXPAND ON THE PARAMETERS OF THE S.D.R.D. AND PROVIDE A CONCEPTUAL DESIGN. THIS WAS REVIEWED AND APPROVED BY DOE/WMPO.

H&N GENERATED THE SCOPE AND PLANNING DOCUMENT TO GIVE DELIVERABLES AND A TENATIVE SCHEDULE. AGAIN, THIS WAS REVIEWED AND APPROVED BY DOE/WMPO.

DATA WAS OBTAINED FROM APPLICABLE CODES, THE REFERENCE INFORMATION BASE, STUDIES AND REPORTS, AND THE EXPERIENCE OF THE DESIGN PERSONNEL.

NNWSI/ESF TITLE I 50% REVIEW

MAY 9, 1988

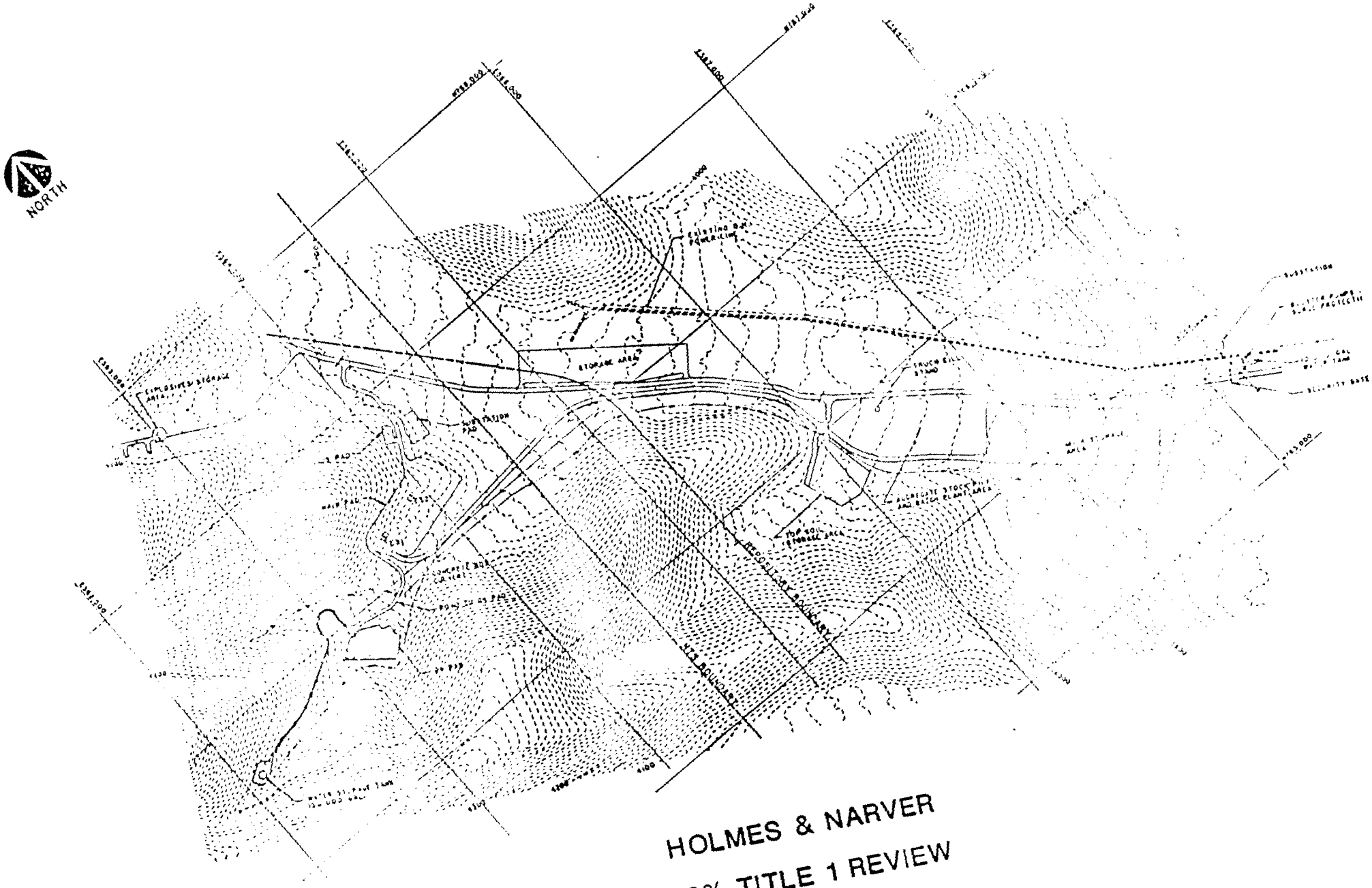
R.L. SCHREINER

DESIGN SECTION CHIEF

TECHNICAL ASPECTS OF THE DESIGN

BASIC DESIGN PHILOSOPHY

- SUPPORT SITE CHARACTERIZATION
- TO PROVIDE MAXIMUM USEAGE OF LIMITED RESOURCE WITH MAXIMUM FLEXIBILTY.
- PROVIDE A SAFE, HEALTHFUL AND PRODUCTIVE WORKING ENVIRONMENT
- DESIGN LIFE - 5 YEARS
- GENERAL NEEDS OF THE USERS
- DESIGN BASED ON SDRD
  - ENGINEERING CHANGE REQUEST (ECR) TO REVISE SDRD
  - LETTER TO DOE/WMPO ON VARIANCES TO SDRD



HOLMES & NARVER

50% TITLE 1 REVIEW

BASIS FOR DESIGN

- GENERIC REQUIREMENTS FOR A MINED GEOLGIC DISPOSAL SYSTEM
- SITE CHARACTERIZATION PLAN (SCP)
- SUBSYSTEM DESIGN REQUIREMENTS DOCUMENT (SDRD)
- REFERENCE INFORMATION BASE (RIB)
- H&N DESIGN BASIS DOCUMENT (DBD)
- H&N SCOPE AND PLANNING BASIS DOCUMENT (SPBD)

- H&N SPECIAL STUDIES
- REFERENCE CONFIGURATION SKETCHES
  FROM JAN.13, 1988 TITLE I KICKOFF MEETING

DESIGN CONTROL

- INTERDISCIPLINE REVIEW
- INTERNAL REVIEW
  - TECHNICAL PROJECT OFFICER (TPO)
  - PROJECT ENGINEERING
  - QUALITY ASSURANCE
  - SAFETY
- DESIGN REVIEW PRIOR TO COMPLETION OF TITLE I
  - INDEPENDENT 3RD PARTY
- DESIGN VERIFICATION PRIOR TO CONSTRUCTION
  - INDEPENDENT 3RD PARTY

H&N SCOPE OF WORK

22 WORK PACKAGES

- MAIN PAD
- AUXILIARY PADS
- ROADS
- SITE DRAINAGE
- POWER SYSTEM
- WATER SYSTEM
- SEWAGE SYSTEM
- MINE WASTEWATER SYSTEM
- SURFACE COMMUNICATIONS
- A&E BUILDING
- HOIST HOUSE
- SHOP
- WAREHOUSE
- BOOSTER STATION
- TRAILERS
- SURFACE DATA BUILDING
- SUBSURFACE DATA BUILDING
- SUBSURFACE POWER SYSTEM
- LIFE SAFETY SYSTEM
- SUBSURFACE LIGHTING SYSTEM
- SUBSURFACE COMMUNICATIONS
- INTEGRATED DATA SYSTEMS

PACKAGES SUBMITTED FOR 50% TITLE I REVIEW

- MAIN PAD
- AUXILIARY PADS
- ROADS
- SITE DRAINAGE
- POWER SYSTEM
- WATER SYSTEM
- SEWAGE SYSTEM
- MINE WASTEWATER SYSTEM
- SHOP FACILITY
- WAREHOUSE FACILITY
- PI OFFICE TRAILERS
- GENERAL OFFICE TRAILERS
- CHANGE HOUSE TRAILERS

50% REVIEW PACKAGE

- TOTAL 68 DRAWINGS
- CALCULATION PACKAGES AVAILABLE
- THERE ARE NO OUTLINE SPECS FOR THIS REVIEW

DRAWINGS FOR REVIEW

	50% TITLE I	TITLE I
CIVIL	29	37
ARCHITECTURAL	7	18
MECHANICAL	10	22
FIRE PROTECTION	8	22
ELECTRICAL	11	26
COMMUNICATIONS	NONE	32
GENERAL	3	3
TOTAL	68	160

subject

no.

EXPLORATORY SHAFT FACILITY

CIVIL	DRAWING NO
TITLE SHEET	[illegible]
DRAWING INDEX	[illegible]
VICINITY AND LOCATION MAP	[illegible]
ESF OVERALL SITE PLAN	[illegible]
MAIN PAD LAYOUT AND SITE PLAN	[illegible]
UG & SUBSTATION PAD LAYOUT AND SITE PLAN	[illegible]
MAIN PAD GRADING PLAN	[illegible]
UG & SUBSTATION PAD GRADING PLAN	[illegible]
LOWER PAD SITE AND GRADING PLAN	[illegible]
LAYDOWN YARD SITE AND GRADING PLAN	[illegible]
250 GAL. WATER TANK PAD SITE & GRADING PLAN	[illegible]
10 000 GAL. WATER TANK PAD SITE & GRADING PLAN	[illegible]
ESF DRIVE STORAGE SITE AND GRADING PLAN	[illegible]
SALT STORAGE PAD SITE AND GRADING PLAN	[illegible]
TOP SOIL BATCH PLANT FILL TANK PAD SITE & GRADING PLAN	[illegible]
ROAD & EXPLOSIVE STORAGE PU GRADING & DRAINAGE PLAN	[illegible]
ROAD & SCIENCE RD SHT 1 GRADING & DRAINAGE PLAN	[illegible]
ROAD & SCIENCE RD SHT 2 GRADING & DRAINAGE PLAN	[illegible]
ROAD & SCIENCE RD SHT 3 GRADING & DRAINAGE PLAN	[illegible]
ROAD & SCIENCE RD SHT 4 GRADING & DRAINAGE PLAN	[illegible]
ROAD & SCIENCE RD SHT 5 GRADING & DRAINAGE PLAN	[illegible]
ROAD SHT 6 GRADING & DRAINAGE PLAN	[illegible]
EXPLOSIVE STORAGE RD & SCIENCE RD PROFILE	[illegible]
ROAD 0+00 TO 8+00 RAMP PROFILE	[illegible]
WATER SYSTEM OVERALL UTILITY PLAN	[illegible]
WATER SYSTEM MAIN PAD UTILITY PLAN	[illegible]
BOOSTER PUMP STATION LAYOUT PLAN	[illegible]
SEWAGE SYSTEM OVERALL UTILITY PLAN	[illegible]
SEWAGE SYSTEM MAIN PAD UTILITY PLAN	[illegible]
MINE WASTEWATER SYSTEM OVERALL UTILITY PLAN	[illegible]
MINE WASTEWATER MAIN PAD UTILITY PLAN	[illegible]
ARCHITECTURAL	
TRAILER COMPLEX - PLAN AND GENERAL NOTES	[illegible]
ELECTRICAL	
ESF ELECTRICAL SITE PLAN	[illegible]
MAIN SHOP - ONE LINE DIAGRAM	[illegible]
MAIN - ESSENTIAL - ONE LINE DIAGRAM	[illegible]
ESSENTIAL - ONE LINE DIAGRAM	[illegible]
MAIN PAD POWER & LIGHTING PLAN	[illegible]

WAREHOUSE BUILDING 6001

ARCHITECTURAL	DRAWING NO
WAREHOUSE BUILDING 6001 - PLAN SECTION & ELEVATIONS	JS-025-6001-AI
MECHANICAL	
WAREHOUSE BUILDING 6001 - HVAC PLAN & EQUIP LIST	JS-025-6001-MI
WAREHOUSE BUILDING 6001 - PLUMBING PLAN & EQUIP LIST	JS-025-6001-MI
WAREHOUSE BUILDING 6001 - FIRE PROTECTION PLAN & SECTION	JS-025-6001-FPI
WAREHOUSE BUILDING 6001 - FIRE ALARM PLAN & SCHEMATIC	JS-025-6001-FPI
ELECTRICAL	
WAREHOUSE BUILDING 6001 - LIGHTING & POWER PLAN	JS-025-6001-EI

CHANGE HOUSE TRAILER TYPE B

ARCHITECTURAL	DRAWING NO
CHANGE HOUSE TRAILER TYPE B - FLOOR PLAN	JS-025-050-1-AI
MECHANICAL	
CHANGE HOUSE TRAILER TYPE B - HVAC PLAN	JS-025-050-1-MI
CHANGE HOUSE TRAILER TYPE B - PLUMBING PLAN	JS-025-050-1-MI
CHANGE HOUSE TRAILER TYPE B - FIRE PROT & FIRE ALARM PLAN	JS-025-050-1-FPI
ELECTRICAL	
CHANGE HOUSE TRAILER TYPE B - LIGHTING AND POWER PLAN	JS-025-050-1-EI

OFFICE TRAILER TYPE A

ARCHITECTURAL	DRAWING NO
OFFICE TRAILER TYPE A - FLOOR PLAN & SECTION	JS-025-050-11-AI
MECHANICAL	
OFFICE TRAILER TYPE A - HVAC & PLUMBING PLAN	JS-025-050-11-MI
OFFICE TRAILER TYPE A - FIRE PROT & FIRE ALARM PLAN	JS-025-050-11-FPI
ELECTRICAL	
OFFICE TRAILER TYPE A - LIGHTING & POWER PLAN	JS-025-050-11-EI

OFFICE TRAILER TYPE B

ARCHITECTURAL	DRAWING NO
OFFICE TRAILER TYPE B - FLOOR PLAN & SECTION	JS-025-050-2-AI
MECHANICAL	
OFFICE TRAILER TYPE B - HVAC & PLUMBING PLAN	JS-025-050-2-MI
OFFICE TRAILER TYPE B - FIRE PROT & FIRE ALARM PLAN	JS-025-050-2-FPI
ELECTRICAL	
OFFICE TRAILER TYPE B - LIGHTING & POWER PLAN	JS-025-050-2-EI

SHOP BUILDING 6000

ARCHITECTURAL	DRAWING NO
SHOP BUILDING 6000 PLAN SECTION & ELEVATIONS	JS-025-6000-AI
MECHANICAL	
SHOP BUILDING 6000 - HVAC PLAN & EQUIP LIST	JS-025-6000-MI
SHOP BUILDING 6000 - PLUMBING PLAN & EQUIP LIST	JS-025-6000-MI
SHOP BUILDING 6000 - FIRE PROTECTION PLAN & SECTION	JS-025-6000-FPI
SHOP BUILDING 6000 - FIRE ALARM PLAN & SCHEMATIC	JS-025-6000-FPI
ELECTRICAL	
SHOP BUILDING 6000 - LIGHTING AND POWER PLAN	JS-025-6000-EI

CHANGE HOUSE TRAILER TYPE A

ARCHITECTURAL	DRAWING NO
CHANGE HOUSE TRAILER TYPE A - FLOOR PLAN & SECTION	JS-025-050-3-AI
MECHANICAL	
CHANGE HOUSE TRAILER TYPE A - HVAC PLAN	JS-025-050-3-MI
CHANGE HOUSE TRAILER TYPE A - PLUMBING PLAN	JS-025-050-3-MI
CHANGE HOUSE TRAILER TYPE A - FIRE PROT & FIRE ALARM PLAN	JS-025-050-3-FPI
ELECTRICAL	
CHANGE HOUSE TRAILER TYPE A - LIGHTING & POWER PLAN	JS-025-050-3-EI

TITLE I

50% SUBMITTAL

NNWSI/ESF TITLE I 50% REVIEW

MAY 9, 1988

RALPH MUSICK

CIVIL DESIGN

DISCIPLINARY PRESENTATIONS

- DESIGN BASIS AND CRITERIA
- APPLICABLE CODES, STANDARDS AND REGULATIONS
- DESCRIPTION OF DESIGN FEATURES
- REMAINING WORK

DESIGN BASIS AND CRITERIA

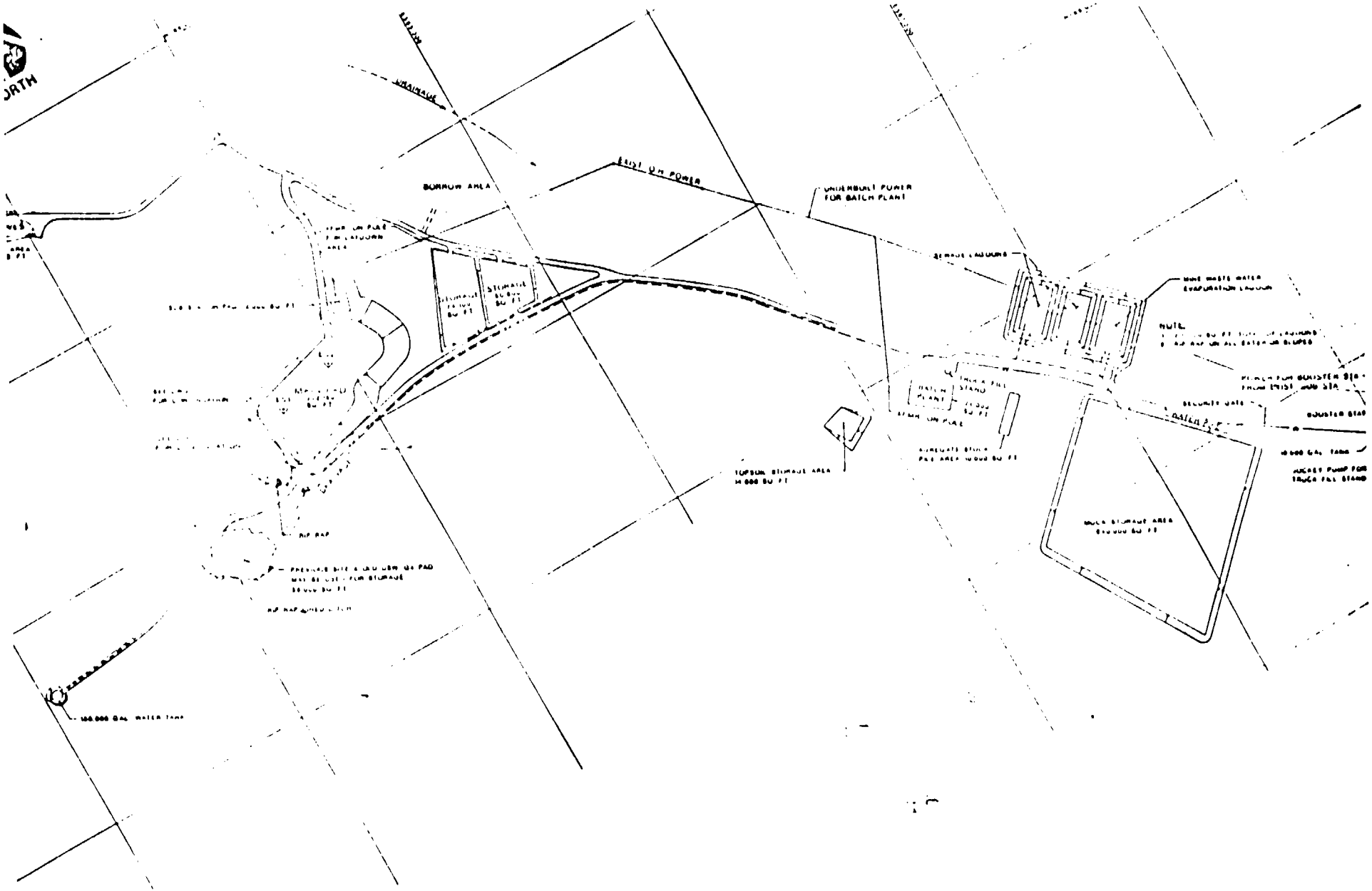
- BASELINE DOCUMENTS
  - SUBSYSTEM DESIGN REQUIREMENTS DOCUMENT, SDRD
  - REFERENCE INFORMATION BASE, RIB
  - W.B.S. DICTIONARY

- H&N DOCUMENTS
  - DESIGN BASIS DOCUMENT, DBD
  - SCOPE AND PLANNING BASIS DOCUMENT, SPBD

- H&N CONCEPTUAL STUDIES

  #1 SURFACE SITE LAYOUT
  #2 ENVIRONMENTAL PERMITTING REQUIREMENTS
  #3 UTILIZATION OF THE OFF-SITE A/E BUILDING
  #5 SANITARY WASTE TREATMENT

- REFERENCE CONFIGURATION DRAWINGS



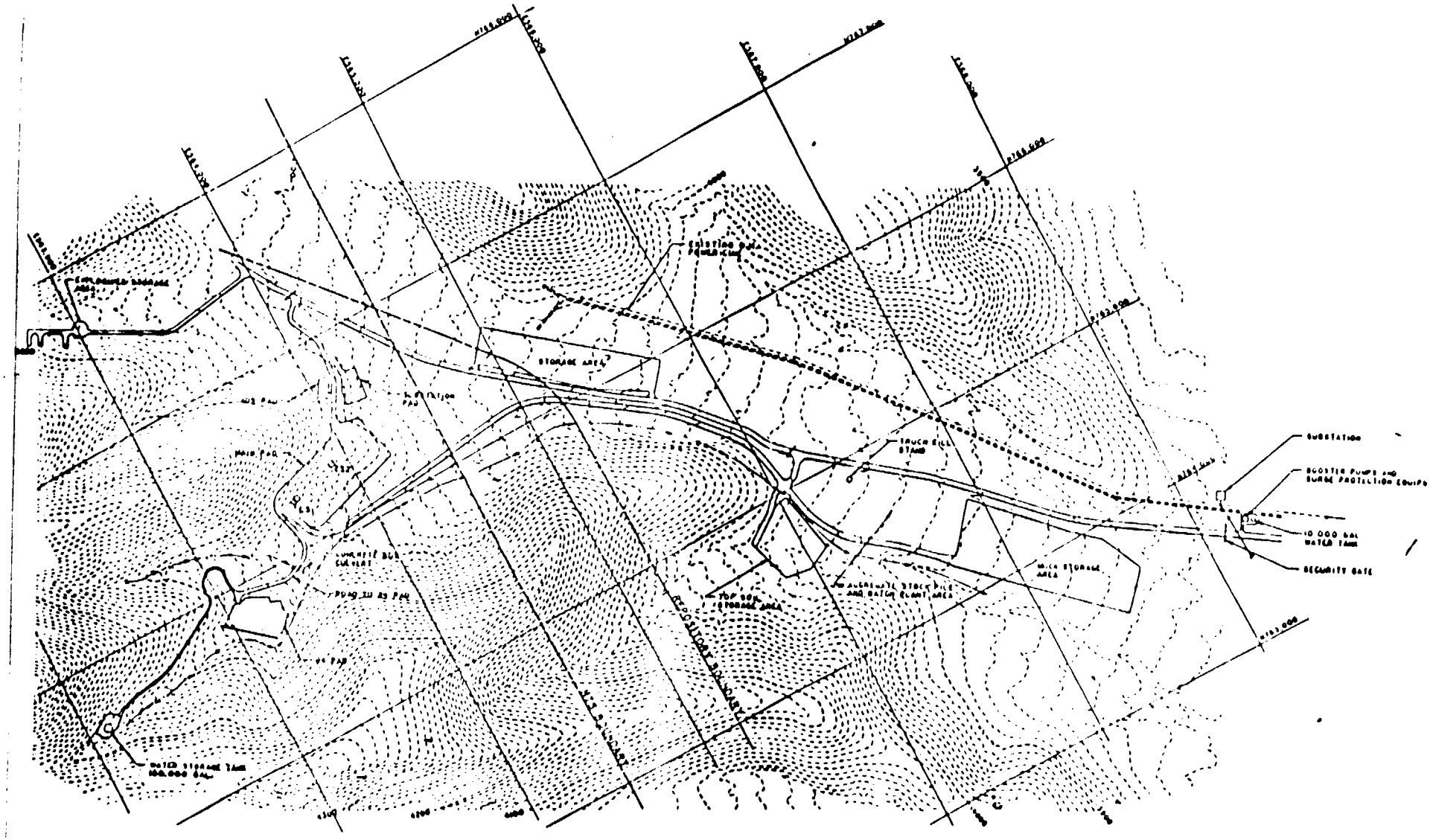
REFER ICE CONFIGURATION

APPLICABLE CODES, STANDARDS AND REGULATIONS

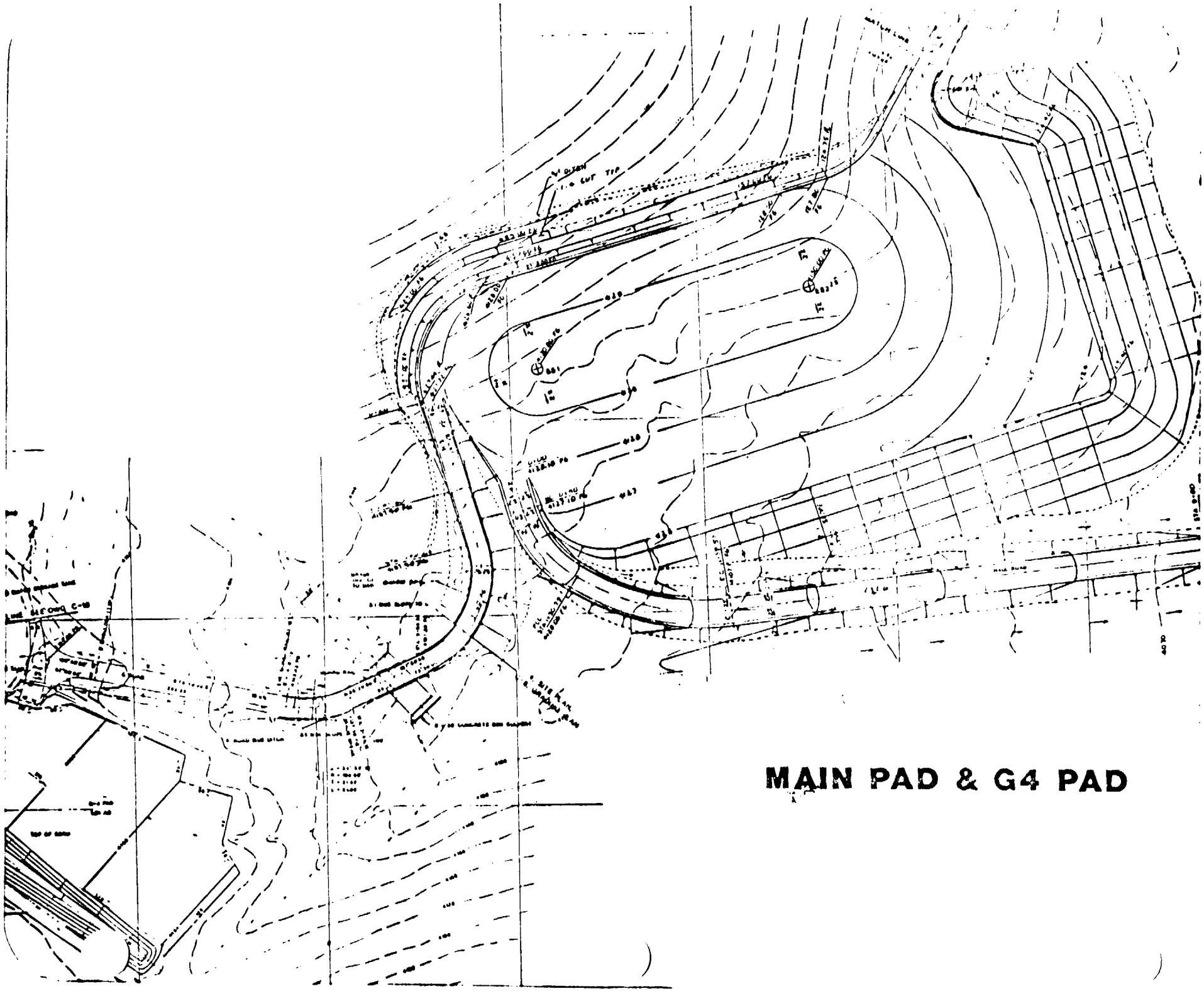
- TITLE 30 CFR PART 57, MSHA
- DOE ORDERS 6430
  5480
- STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION
- TEN STATES STANDARDS
- UNIFORM PLUMBING CODE, UPC
- AMERICAN SOCIETY OF TESTING MATERIALS, ASTM
- AMERICAN WATER WORKS ASSOCIATION, AWWA
- BUREAU OF ALCOHOL, TOBACCO AND FIREARMS, ATF
- NEVADA REVISED STATUTES
- TEN STATES STANDARDS

CIVIL DESIGN FEATURES

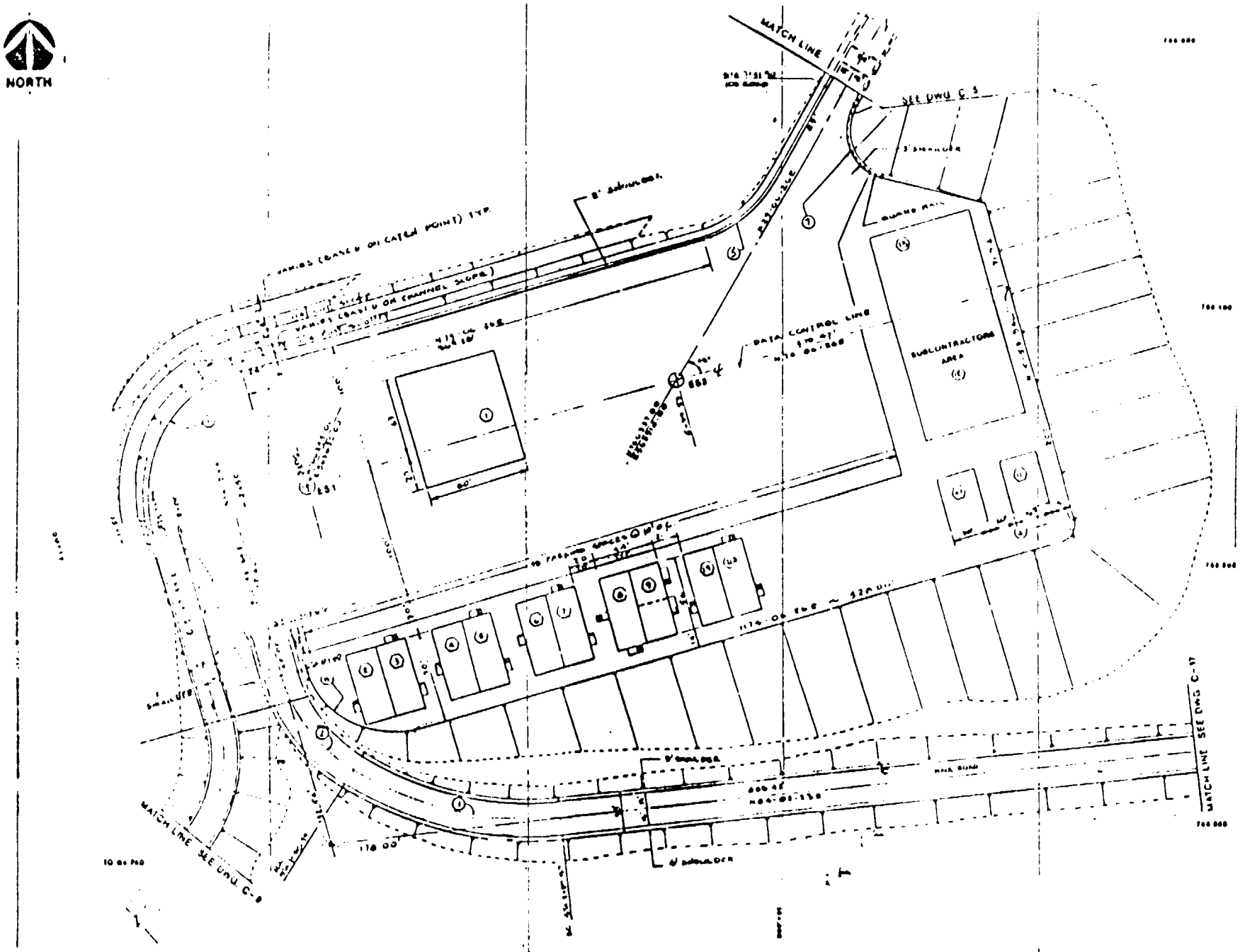
- SITE DRAINAGE
- MAIN AND AUXILIARY PADS
- ROADS
- UTILITIES
  - WATER
  - SEWER
  - MINE WASTE WATER



ESF OVERALL SITE PLAN



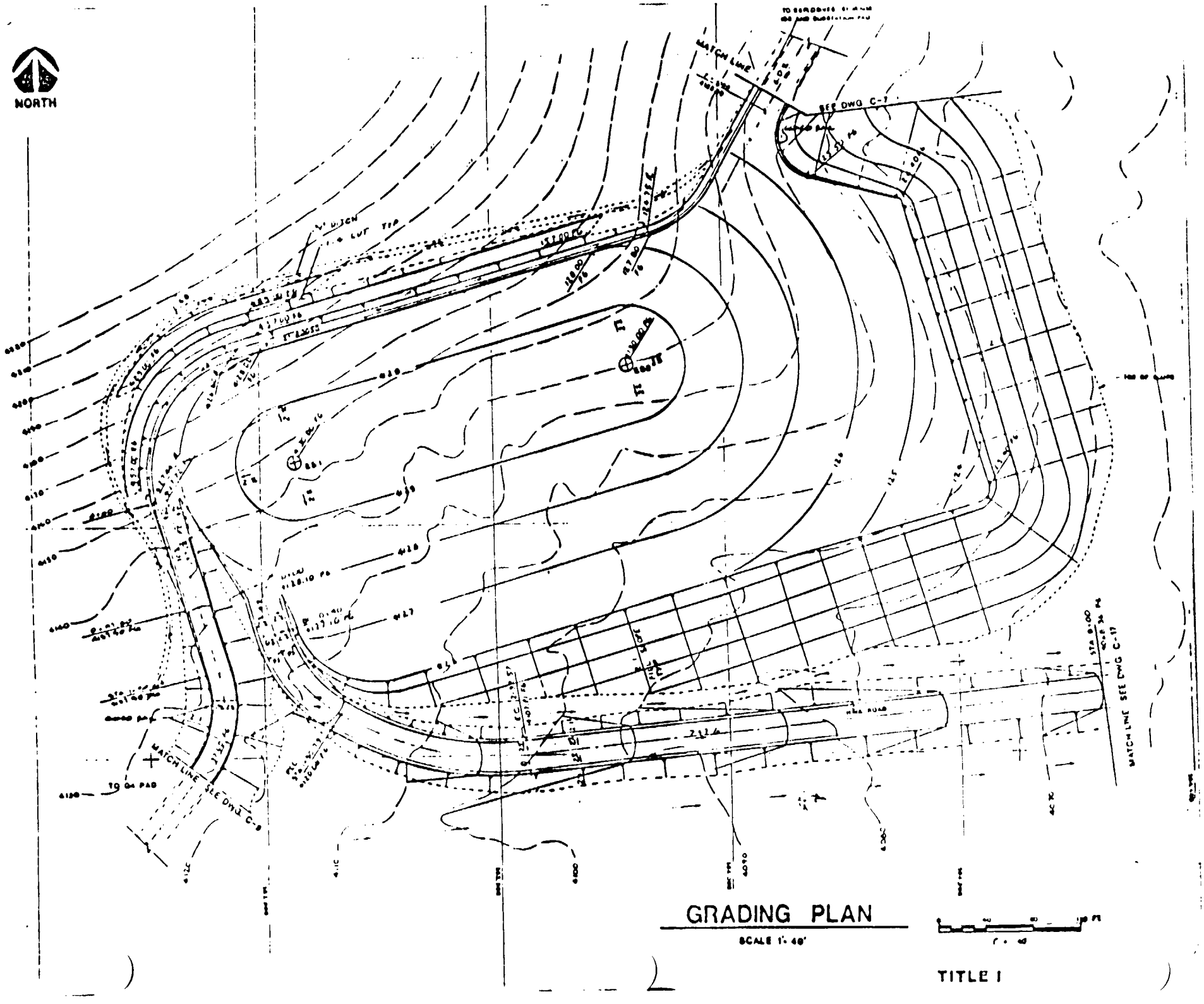
MAIN PAD & G4 PAD



SITE PLAN

SCALE 1"=40'

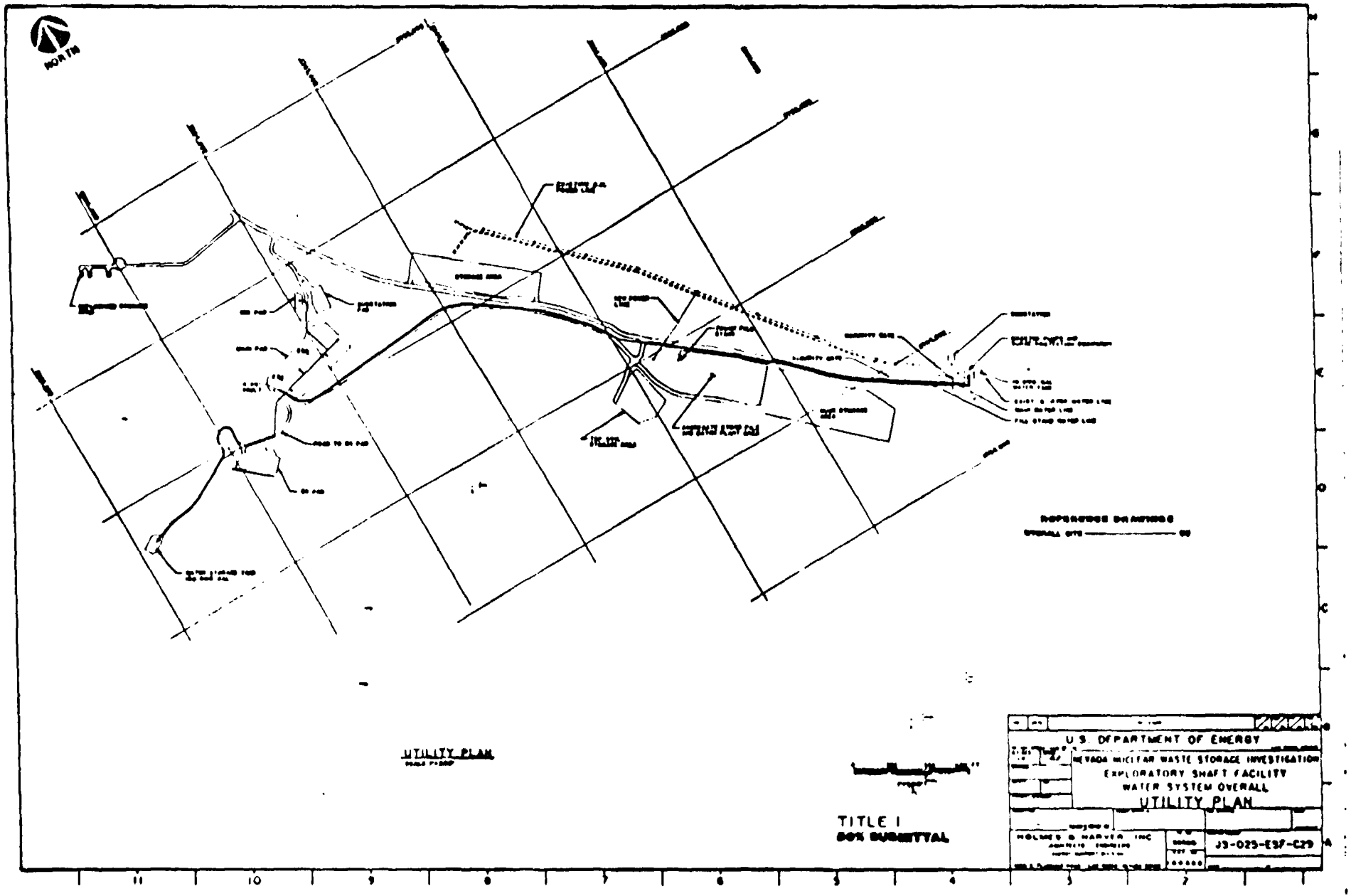
TITLE I

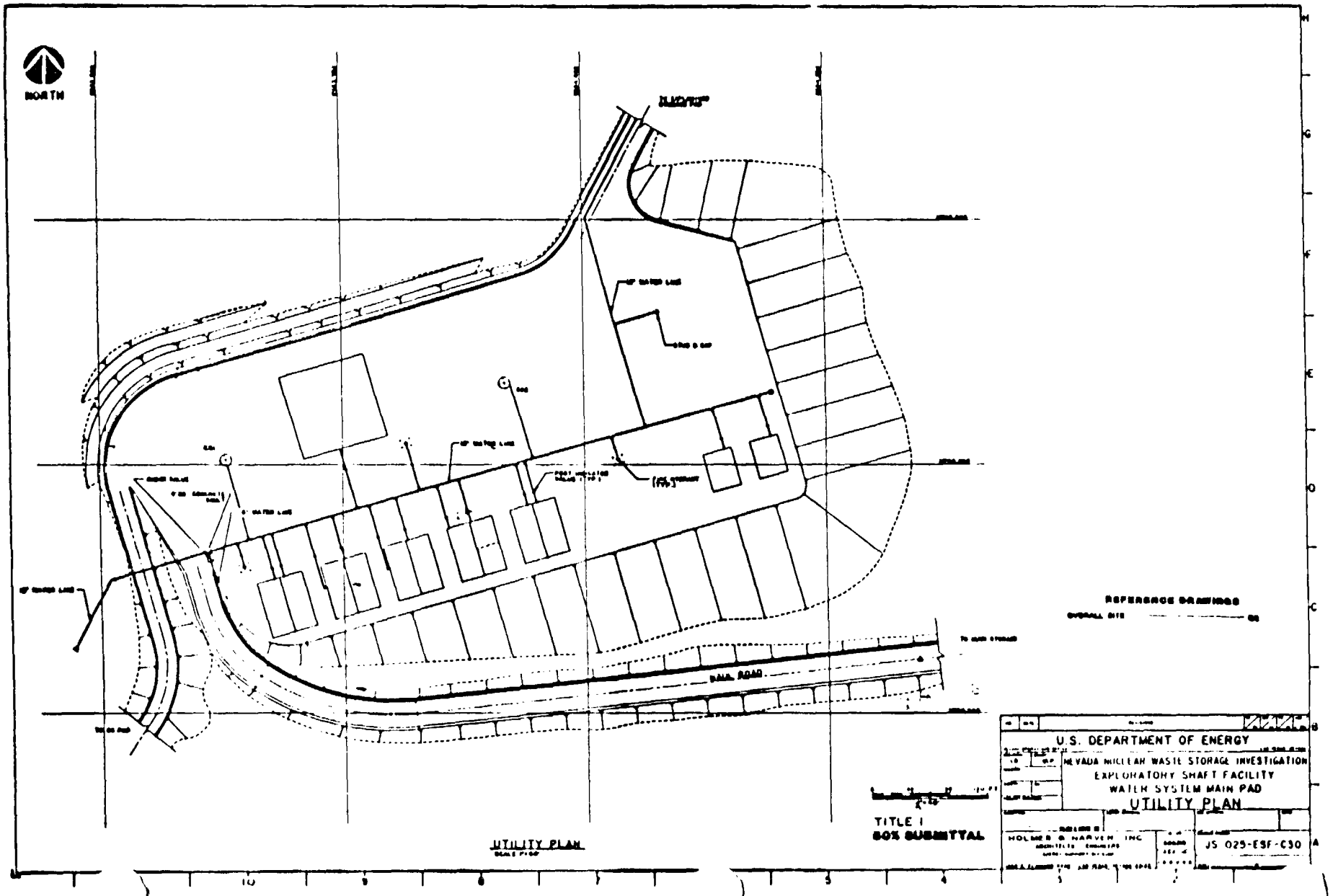

NORTH
MATCH LINE
SEE DWG C-7
MATCH LINE SEE DWG C-8
MATCH LINE SEE DWG C-17
TO OIL PAD
GRADING PLAN
SCALE 1" = 40'
TITLE I

CIVIL UTILITIES

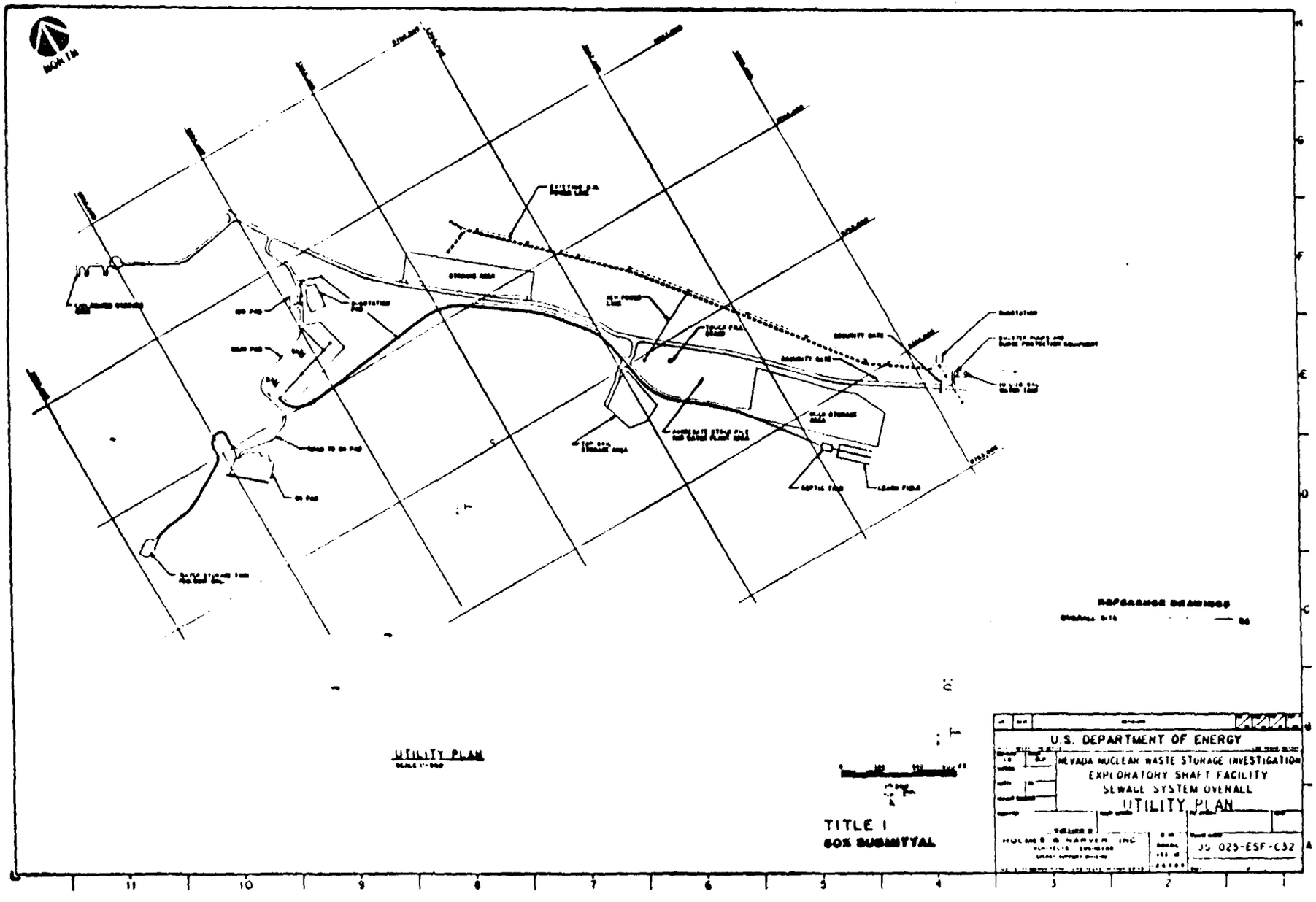
ONE LINE DRAWINGS

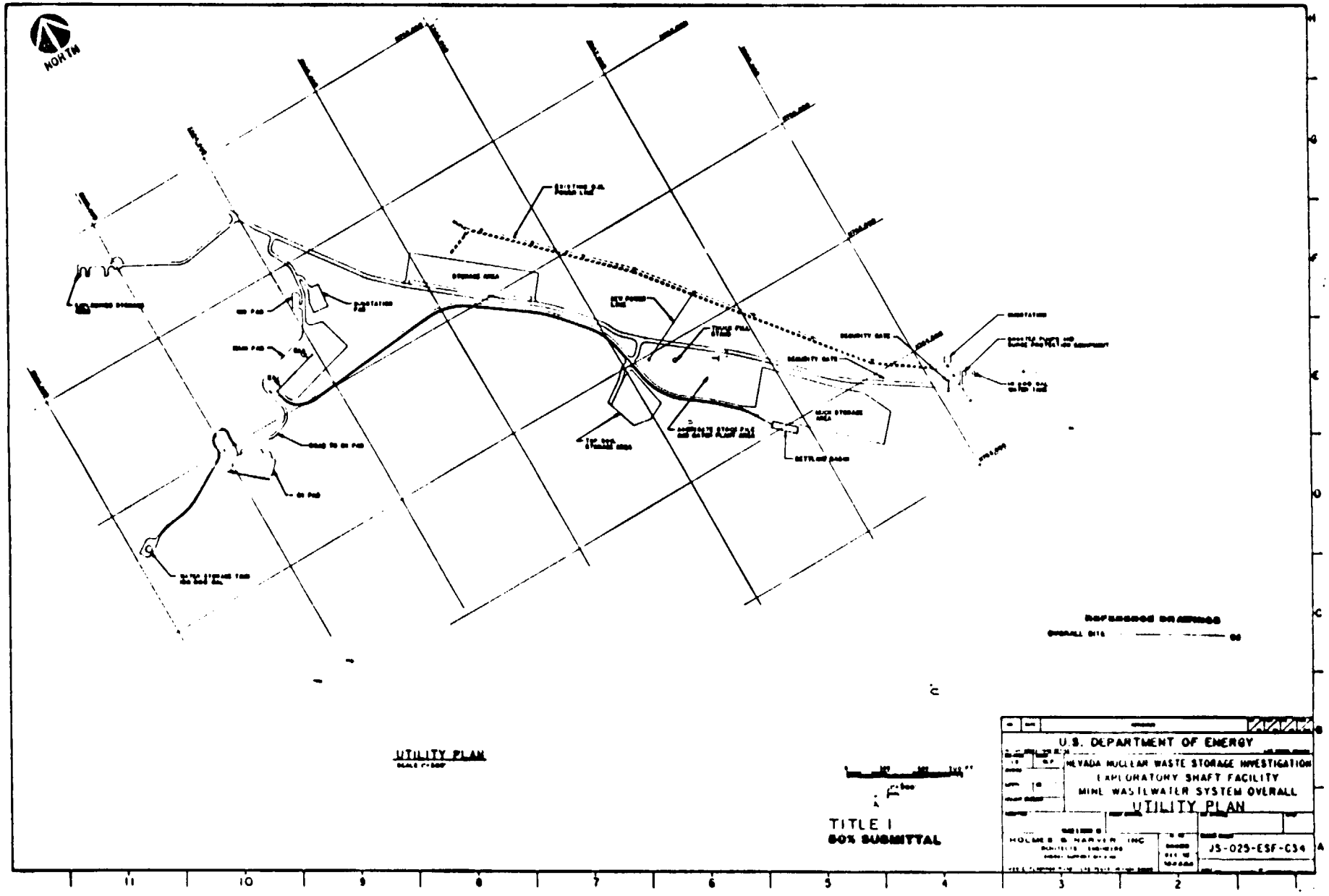
- WATER
- SEWER
- MINE WASTEWATER


NORTH
UTILITY PLAN
TITLE I
50% SUBMITTAL
U.S. DEPARTMENT OF ENERGY
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
WATER SYSTEM OVERALL
UTILITY PLAN
HOLMES & NARVER, INC
J3-025-ESF-C29



UTILITY PLAN


NORTH
UTILITY PLAN
TITLE I
50% SUBMITTAL
U.S. DEPARTMENT OF ENERGY
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
SEWAGE SYSTEM OVERALL
UTILITY PLAN
HOLMES & NARVER, INC.
JS 025-ESF-C32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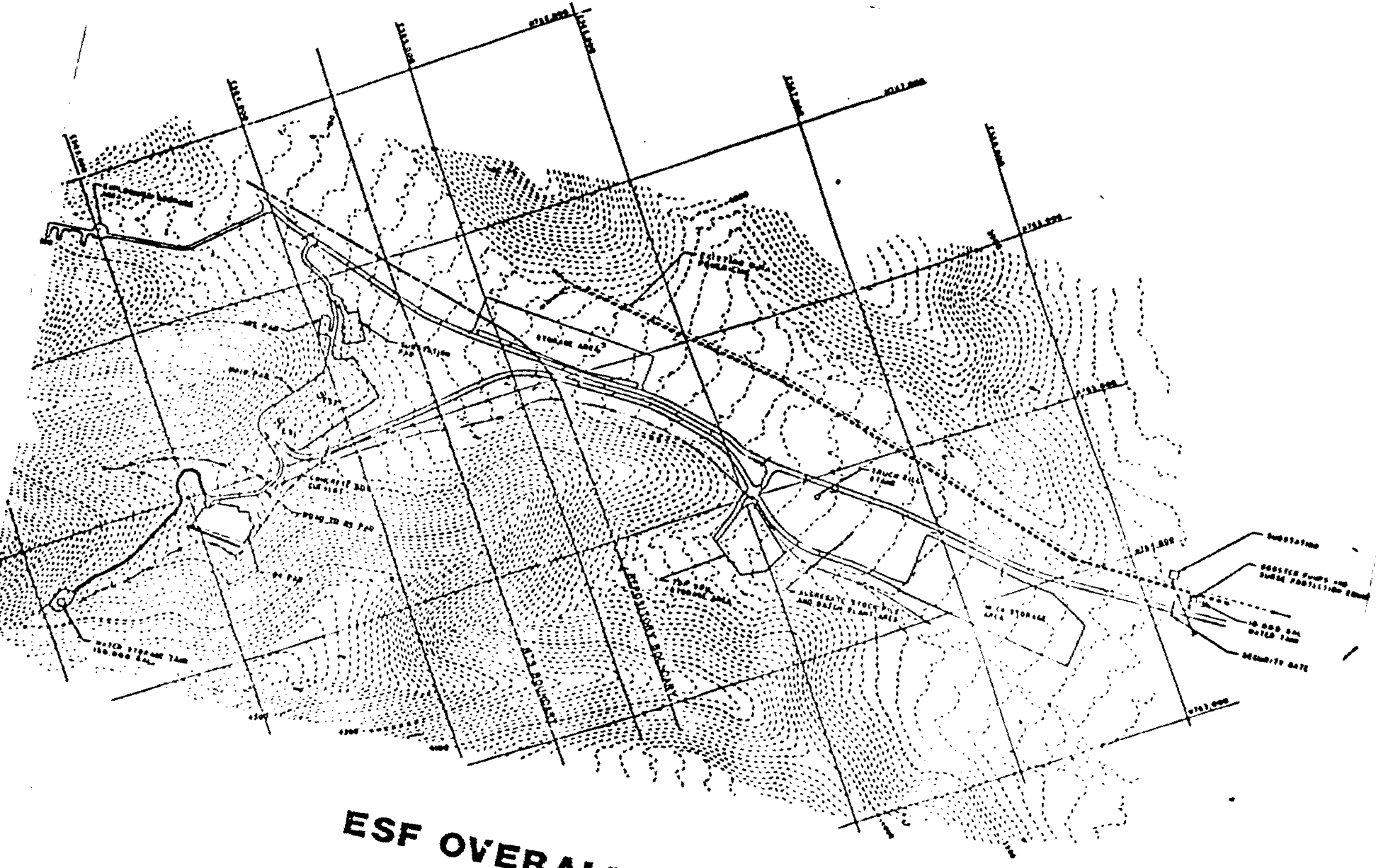
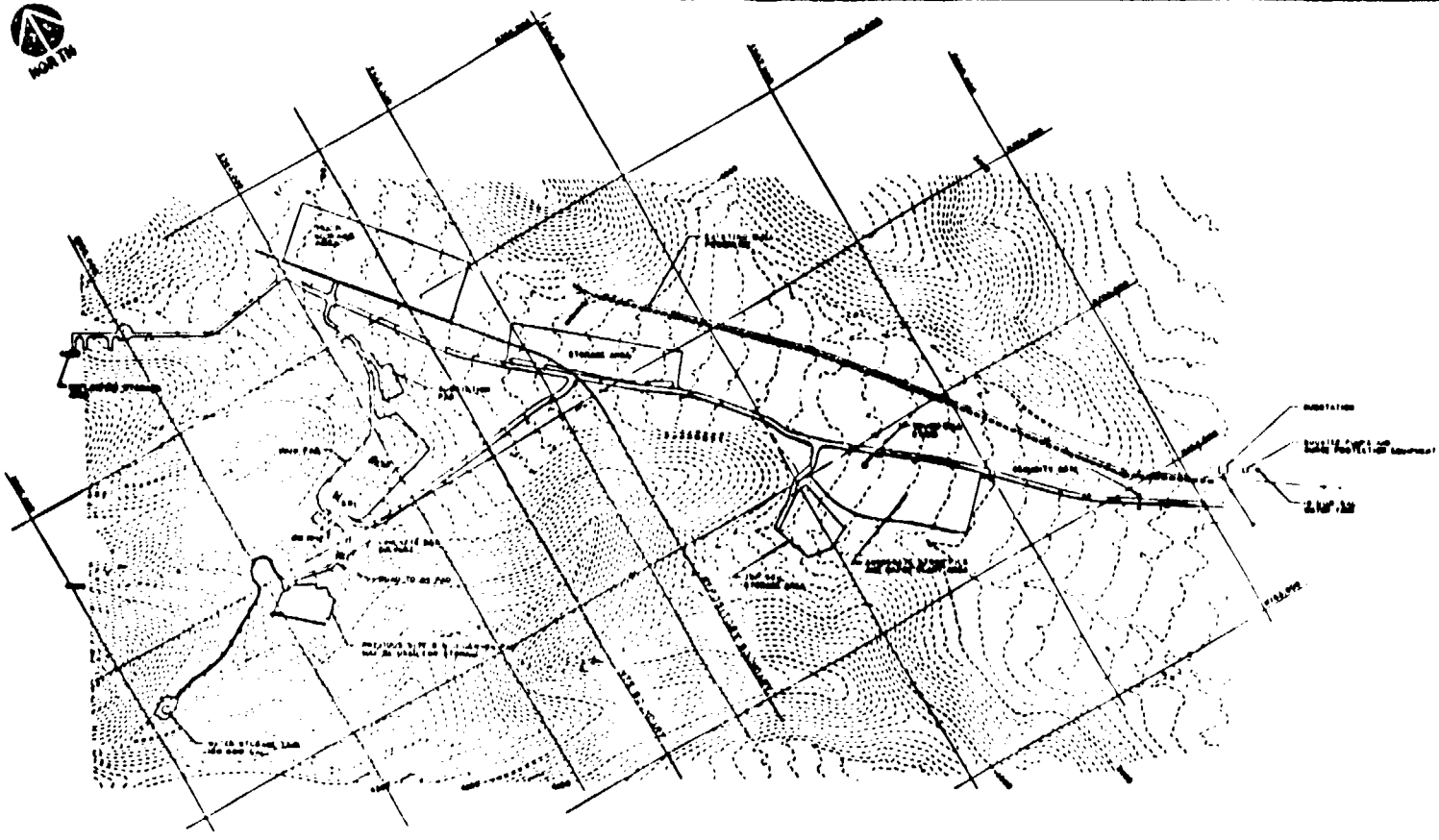
UTILITY PLAN
TITLE I
50% SUBMITTAL
U.S. DEPARTMENT OF ENERGY
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
MINE WASTEWATER SYSTEM OVERALL
UTILITY PLAN
HOLMES & NARVER, INC
JS-025-ESF-C34



ESF OVERALL SITE PLAN



MUCK STORAGE, IUS CONCEPTUAL PLAN

U.S. DEPARTMENT OF ENERGY

NEVADA NUCLEAR WASTE STORAGE INVESTIGATION

EXPLORATORY SHAFT FACILITY

MUCK STORAGE, IUS

CONCEPTUAL PLAN

HOLMES & NARVER, INC

CONCEPTUAL

NNWSI/ESF TITLE I 50% REVIEW

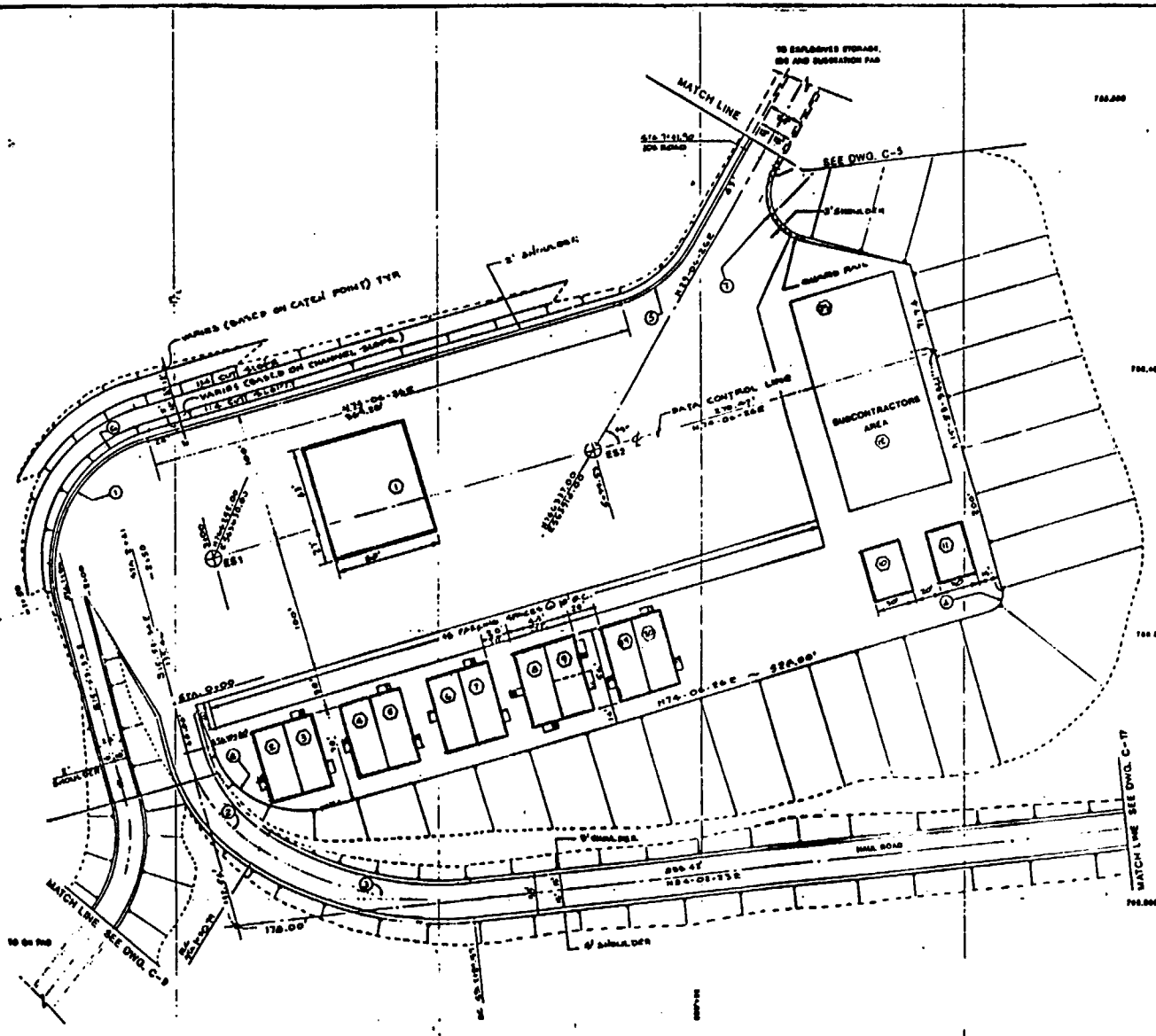
MAY 9, 1988

RICHARD GREENWOLD

ARCHITECTURAL DESIGN

CODES AND STANDARDS

- DOE 6430 "GENERAL DESIGN CRITERIA MANUAL"
- DOE/EV-0043 "STANDARD ON FIRE PROTECTION FOR PORTABLE STRUCTURES"
- NFPA 101 "LIFE SAFETY CODE"
- UNIFORM BUILDING CODE - 1985



LEGEND:

1. HOIST HOUSE
2. LANL OFFICE
3. LLNL OFFICE
4. SNL/DOE OFFICE
5. SAIC OFFICE
6. H(N/F)S OFFICE
7. DOE/NRC/STATE OF NEVADA
8. MENS CHANGE HOUSE
9. WOMENS CHANGE HOUSE/REECO SAFETY
10. SHOP
11. WAREHOUSE
12. SUBCONTRACTORS AREA
13. LAYDOWNS PAD
14. MOBILE TRAILER
15. MOBILE TRAILER

CURVE DATA

CURVE NO.	DELTA	RADIUS	TANGENT	LENGTH
1	90° 00' 00"	100.00'	100.00	157.08
2	61° 36' 52"	115.00'	67.50	123.19
3	38° 27' 11"	250.00'	83.19	167.78
4	90° 00' 00"	15.00'	15.00	23.56
5	45° 00' 00"	90.00'	37.28	70.68
6	90° 00' 00"	103.00'	103.00	162.42
7	100° 00' 00"	60.00'	93.04	104.72
8	90° 00' 00"	66.00'	66.00	103.67

REFERENCE DRAWING

OVERALL SITE ———— C3

SITE PLAN

SCALE 1" = 40'

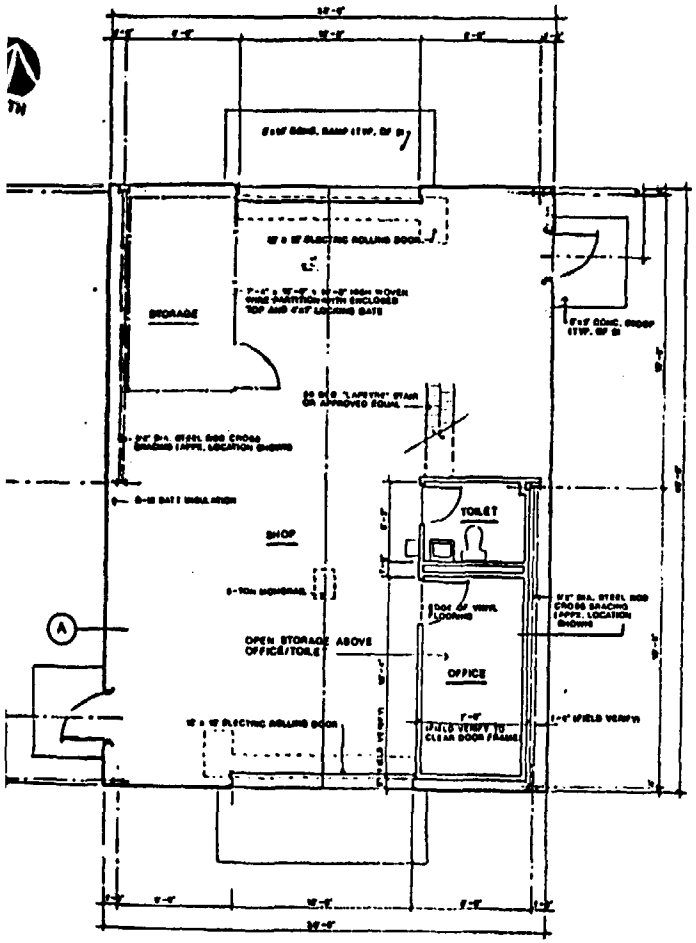
TITLE I

U. S. DEPARTMENT OF ENERGY

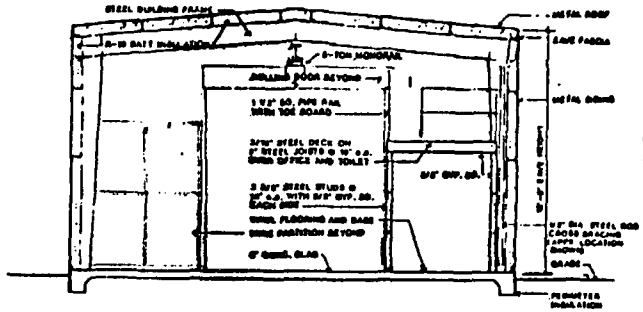
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
MAIN PAD
LAYOUT AND SITE PLAN

HOWARD & HARVEY INC.
ARCHITECTS-ENGINEERS

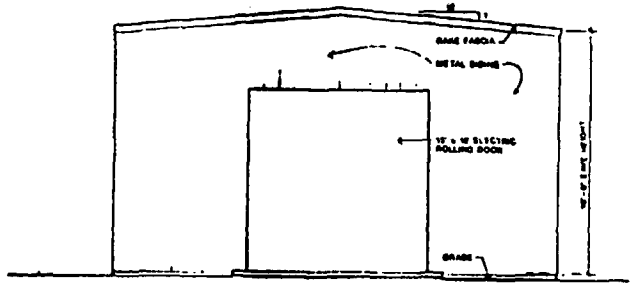
US-025-ESF-C4-1



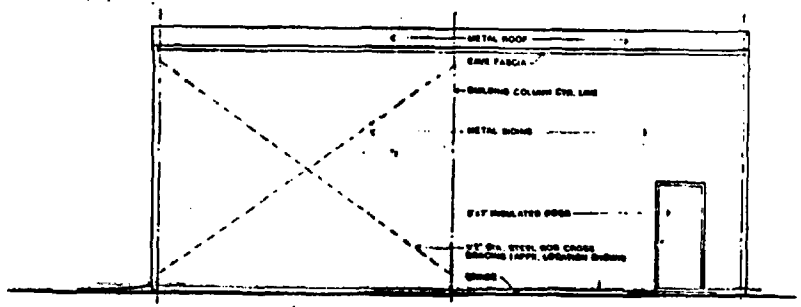
FLOOR PLAN
SCALE: 1/4"=1'-0"



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



END ELEVATION (TYP.)
SCALE: 1/4"=1'-0"



SIDE ELEVATION (TYP.)
SCALE: 1/4"=1'-0"

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

GENERAL NOTES

1. THIS TITLE I DRAWING DEPICTS ONLY THE MAJOR DESIGN FEATURES OF THE PROJECT. ALL DETAILS, EQUIPMENT DESCRIPTIONS, AND SPECIAL INSTRUCTIONS SHALL BE DEVELOPED DURING THE TITLE II EFFORT.
2. THE PRE-ENGINEERED BLDG. SHOWN HAS BEEN PURCHASED, INCL. EXT. DOORS AND INSULATION, AND IS AVAILABLE AT RTS. AND A 3A.
3. ALL JOINTS IN WALL AND ROOF INSULATION SHALL BE SEALED WITH 6" WIDE TAPE TO PROVIDE A CONTINUOUS VAPOR BARRIER.
4. INTERIOR DOORS SHALL BE HOLLOW METAL COMPLETE WITH FRAMES, MOUNTING HARDWARE, LOCKS AND LOCKSETS AND THRESHOLDS.
5. TOILET SHALL HAVE ONE EACH SOAP DISPENSER, TOWEL DISPENSER, AND MIRROR.
6. MINIMUM DESIGN SOIL BEARING PRESSURE IS 3000 PSF.
7. SEE ELECTRICAL AND MECHANICAL DRAWINGS FOR EMBEDDED ITEMS IN CONCRETE PRIOR TO FOUNDATION PLACEMENT.
8. EXCAVATION SHALL BE CLEANED OF ALL LOOSE ROCK AND DEBRIS. SURFACES TO BE IN DIRECT CONTACT WITH FRESH CONCRETE SHALL BE THOROUGHLY MOISTENED BUT NOT SHOWN OR FROZEN AT THE TIME OF CONCRETE PLACEMENT. ALL OVEREXCAVATION SHALL BE EITHER FILLED WITH CONCRETE OR BACKFILL COMPACTED TO 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE.
9. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI IN 28 DAYS AND SHALL CONFORM TO ACI 318-77.
10. REINFORCING BARS SHALL CONFORM TO ASTM A 615 GRADE 60 FOR NO. 3 BARS OR SMALLER. GRADE 60 FOR ALL OTHER REINFORCING SHALL BE INSTALLED TO CONFORM TO CRSI MANUAL OF STANDARD PRACTICE.
11. WELDED WIRE FABRIC FOR WALLS SHALL CONFORM TO ASTM A 185
12. TOP OF CONCRETE FOOTINGS SHALL BE LEVEL WITH ADJACENT TO EACH OTHER WITHIN 1/2 INCH.
13. STRUCTURAL DESIGN OF CONCRETE SLAB AND FOOTINGS SHALL BE INCLUDED IN TITLE II.

REFERENCE DRAWINGS

CIVIL	JS-025-ESF-C4
STRUCTURAL	NOT USED IN TITLE I
MECHANICAL	JS-025 6000-M4
FIRE PROTECTION	JS-025-6000-FP1
ELECTRICAL	JS-025-6000-E2
COMMUNICATION	T.B.D.

U. S. DEPARTMENT OF ENERGY

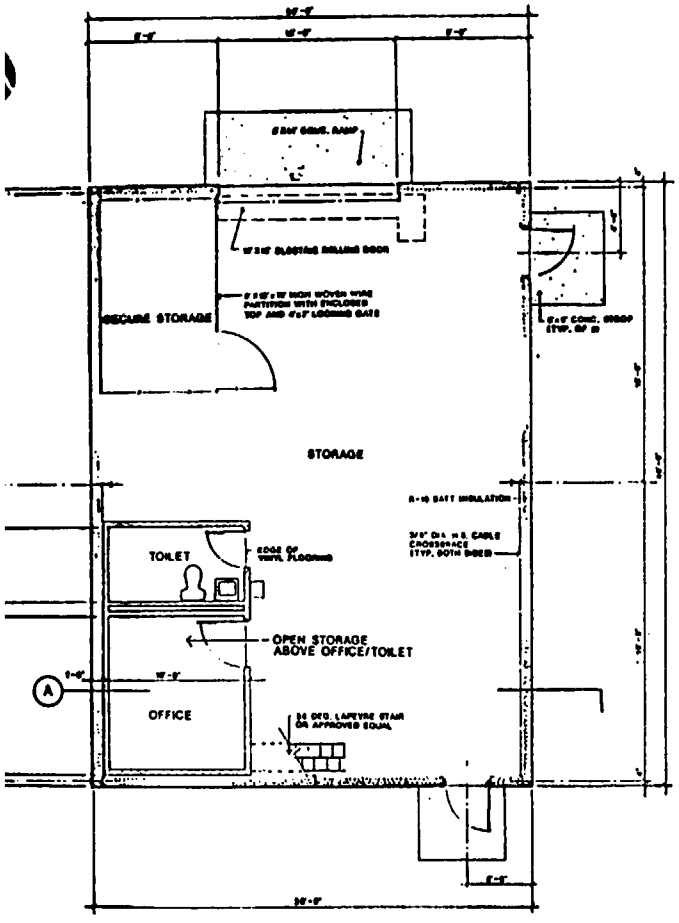
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
SHOP BUILDING 6000

PLAN, SECTION, & ELEVATIONS

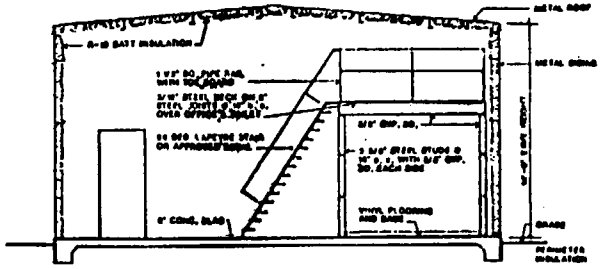
HOLMES & NARVER INC.
ARCHITECTS-ENGINEERS

JS-025-6000-A1

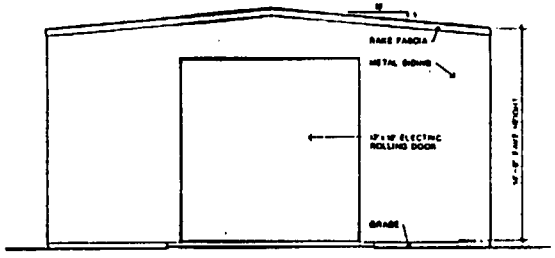
TITLE I
50% SUBMITTAL



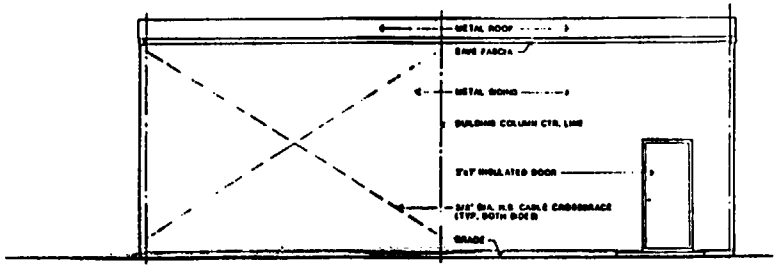
FLOOR PLAN
SCALE: 1/4"=1'-0"



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



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



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

GRAPHIC SCALE

TITLE I
50% SUBMITTAL

GENERAL NOTES

1. THIS TITLE I DRAWING DEPICTS ONLY THE DESIGN FEATURES OF THIS PROJECT. ALL DETAILS, EQUIPMENT DESCRIPTIONS, AND SPECIAL CONSTRUCTIONS SHALL BE DEVELOPED DURING THE TITLE II EFFORT.
2. THE PRE-ENGINEERED BLDG. SHOWN HAS BEEN PURCHASED, INCL. EXT. DOORS AND INSULATION AND IS AVAILABLE AT N.T.S. AREA 25.
3. ALL JOINTS IN WALL AND ROOF INSULATION SHALL BE SEALED WITH 2" WIDE TAPE, SUCH TO PROVIDE A CONTINUOUS VAPOR BARRIER.
4. INTERIOR DOORS SHALL BE HOLLOW METAL COMPLETE WITH FRAMES, MOUNTING HARDWARE, LOCKS AND LOCKSETS, AND THRESHOLDS.
5. TOILET SHALL HAVE ONE EACH SOAP DISPENSER, TOWEL DISPENSER, AND MIRROR.
6. MINIMUM DESIGN DEAD BEARING PRESSURE IS 2000 PSF.
7. SEE ELECTRICAL AND MECHANICAL DRAWINGS FOR EMBEDDED ITEMS IN CONCRETE PRIOR TO FOUNDATION PLACEMENT.
8. EXCAVATION SHALL BE CLEANED OF ALL LOOSE ROCK AND DIRTY SURFACES TO BE IN DIRECT CONTACT WITH FRESH CONCRETE SHALL BE THOROUGHLY WETTED BUT NOT MUDDY TO PROTECT AT THE TIME OF CONCRETE PLACEMENT. ALL OVEREXCAVATION SHALL BE OTHER FILLED WITH CONCRETE OR MATRIX FILL COMPACTED TO 90% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE.
9. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI IN 28 DAYS AND SHALL CONFORM TO ACI 318-77.
10. REINFORCING BARS SHALL CONFORM TO ASTM A 615 GRADE 60 FOR NO. 4 BARS OR SMALLER, GRADE 40 FOR ALL OTHERS. REINFORCING SHALL BE INSTALLED TO COMPLY TO CRSI MANUAL OF STANDARD PRACTICE.
11. WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A 185.
12. TOP OF CONCRETE FOOTINGS SHALL BE LEVEL WITH RESPECT TO EACH OTHER WITHIN 1/2 INCH.
13. STRUCTURAL DESIGN OF CONCRETE SLAB AND FOOTINGS SHALL BE INCLUDED IN TITLE II.

REFERENCE DRAWINGS

CIVIL	JS-025-ESF-C4
STRUCTURAL	NOT USED IN TITLE I
MECHANICAL	JS-025-6001-M1
FIRE PROTECTION	JS-025-6001-FP1
ELECTRICAL	JS-025-6001-E1
COMMUNICATION	T.B.D.

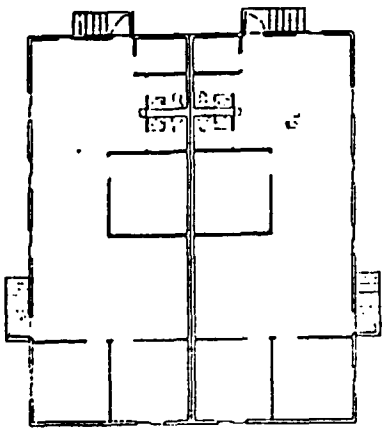
U. S. DEPARTMENT OF ENERGY
NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA

NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
WAREHOUSE BUILDING 6001

PLAN, SECTION, & ELEVATIONS

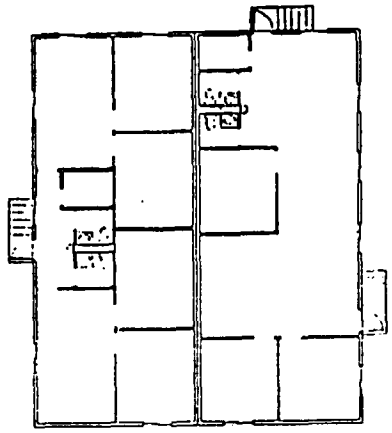
ROLLINS & NARVER, INC.
ARCHITECTS-ENGINEERS
1010 FLAMINGO ROAD LAS VEGAS, NEVADA 89109

JS-025-6001-A1



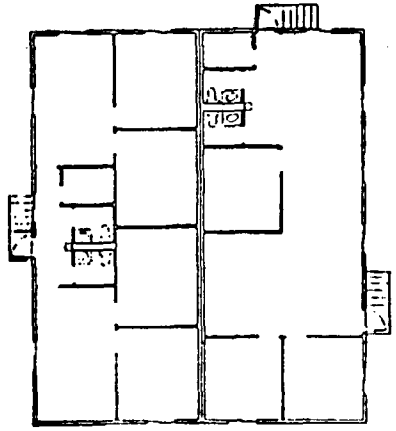
(2) OFFICE TRL. TYPE A (REVERSED)

(3) OFFICE TRL. TYPE A



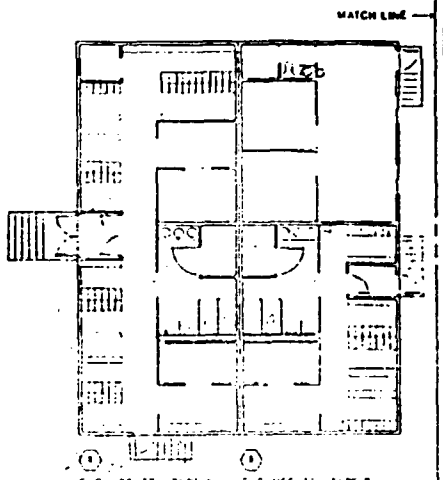
(4) OFFICE TRL. TYPE B

(5) OFFICE TRL. TYPE A



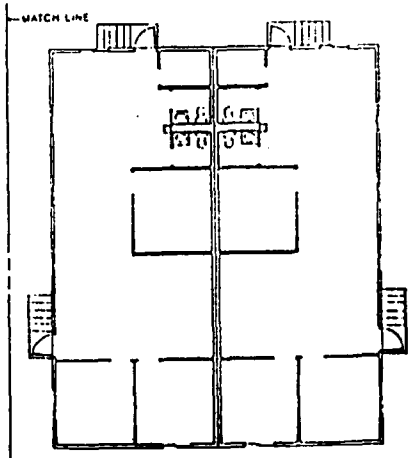
(6) OFFICE TRL. TYPE B

(7) OFFICE TRL. TYPE A



(8) CHG. HSE. TRL. TYPE A

(9) CHG. HSE. TRL. TYPE B



(10) OFFICE TRL. TYPE A (REVERSED)

(20) OFFICE TRL. TYPE A

GENERAL NOTES

THIS INFO DRAWING DEPICTS ONLY THE MAJOR DESIGN FEATURES OF THIS PROJECT. ALL DETAILS, EQUIPMENT DESCRIPTIONS, AND SPECIAL INSTRUCTIONS SHALL BE DEVELOPED DURING THE TITLE I EFFORT.

THE TRAILER MANUFACTURER SHALL FURNISH ALL STRUCTURAL CALCULATIONS AND DRAWINGS FOR THE ERECTION, INSTALLATION, AND SET-UP AS REQUIRED TO ASSEMBLE ALL COMPONENTS FURNISHED BY THE MANUFACTURER.

FABRICATION AND ERECTION OF STRUCTURAL STEEL FRAMING MEMBERS SHALL CONFORM TO THE LATEST EDITION OF THE AISC SPECIFICATIONS. ALL WELDING TO STRUCTURAL STEEL SHALL CONFORM TO THE AWS STRUCTURAL WELDING CODE D1.1 AND BE PERFORMED BY CERTIFIED WELDERS. DESIGN LOADS SHALL CONFORM TO THE MINIMUM REQUIREMENTS OF THE LATEST EDITION OF THE U.B.C. WITH THE FOLLOWING:

WIND LOAD ——— 30 PSF

SNOW LOAD ——— 30 PSF

SEISMIC ZONE ——— 3

SUPERIMPOSED DEAD LOAD ——— 10 PSF

IMPORTANCE FACTOR ——— 1.0

EXTERIOR DOORS SHALL BE HOLLOW METAL CORE, COMPLETE WITH FRAMES, MOUNTING HARDWARE, LOCKS AND LOCKSETS, AND THRESHOLDS AS REQUIRED.

INTERIOR DOORS SHALL BE HOLLOW METAL OR PARTICLE CORE, COMPLETE WITH FRAMES, MOUNTING HARDWARE, LOCKS AND LOCKSETS, THRESHOLDS, AND FULL WEATHERSTRIPPING.

WINDOWS SHALL BE ALUMINUM FRAME WINDOWS WITH DOUBLE PANE INSULATED GLASS.

[illegible]

[illegible]

THE REFERENCE DRAWING [illegible] FOR TRAILER OCCUPANCY.

[illegible]

[illegible] ○ NOTES TO [illegible] ON DRAWING NO. [illegible]

TRAILER COMPLEX PLAN

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

DRAWING SCALE

TITLE I

50% SUBMITTAL

FOR REFERENCE DRAWINGS, SEE DRAWING T2

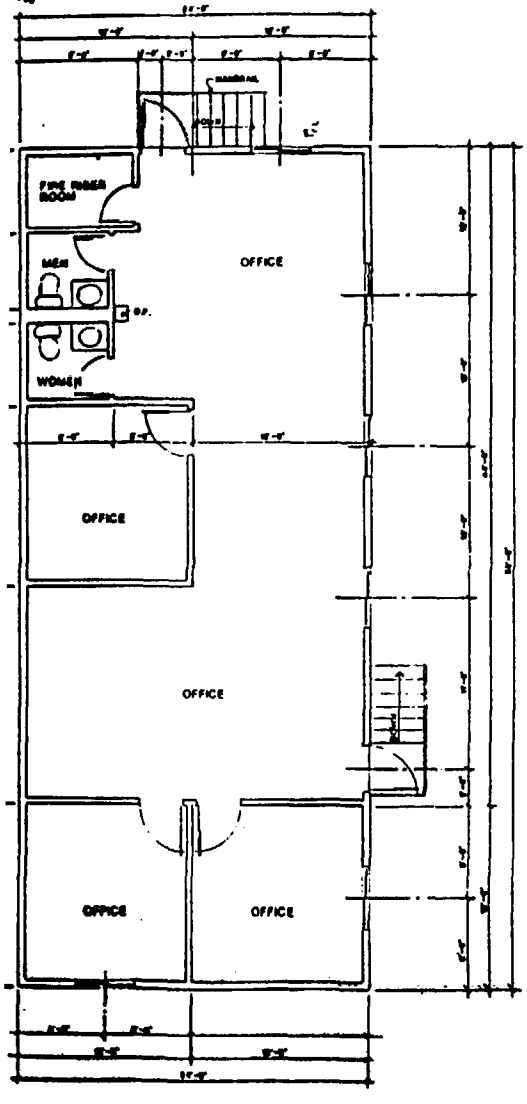
U. S. DEPARTMENT OF ENERGY

NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
TRAILER COMPLEX

PLAN AND GENERAL NOTES

HERMES NAMER INC
ARCHITECTS-ENGINEERS

JS-025-ESF-A1



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

SHAPING SCALE

TITLE I
50% SUBMITTAL

REFERENCE DRAWINGS

CIVIL	JS-025-ESF-C4
STRUCTURAL	NOT USED IN TITLE I
ARCHITECTURAL	JS-025-ESF-A1
MECHANICAL	JS-025-058-1-M1
FIRE PROTECTION	JS-025-058-1-FP1
ELECTRICAL	JS-025-058-1-E1
COMMUNICATION	T.B.D.

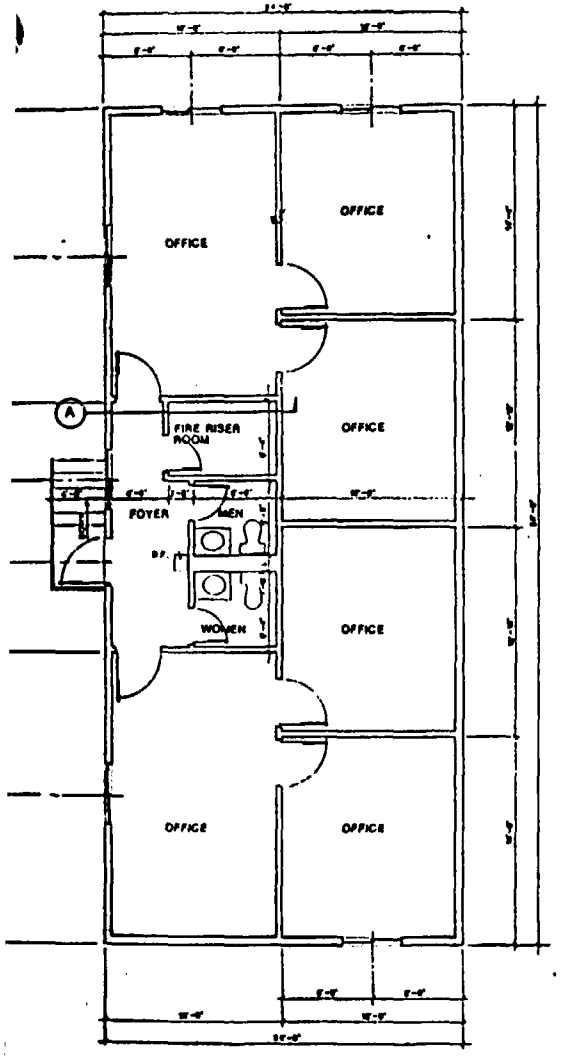
U. S. DEPARTMENT OF ENERGY

NEVADA NUCLEAR WASTE STORAGE INVESTIGATI
EXPLORATORY SHAFT FACILITY
OFFICE TRAILER – TYPE A

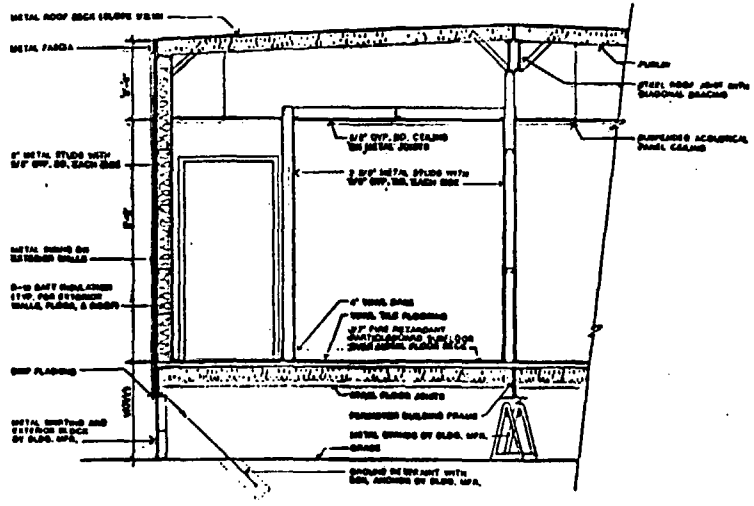
FLOOR PLAN

HOLMES & NARVER INC.
ARCHITECTS-ENGINEERS

JS-025-058-1-A1



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



SECTION
SCALE: 1/2" = 1'-0"

A

REFERENCE DRAWINGS

CIVIL	[illegible] ESF-C4
STRUCTURAL	NOT USED IN TITLE I
ARCHITECTURAL	JS-025-ESF-A1
MECHANICAL	JS-025-058-2-M1
FIRE PROTECTION	JS-025-058-2-FP1
ELECTRICAL	JS-025-058-2-E1
COMMUNICATION	T.B.D.

U. S. DEPARTMENT OF ENERGY

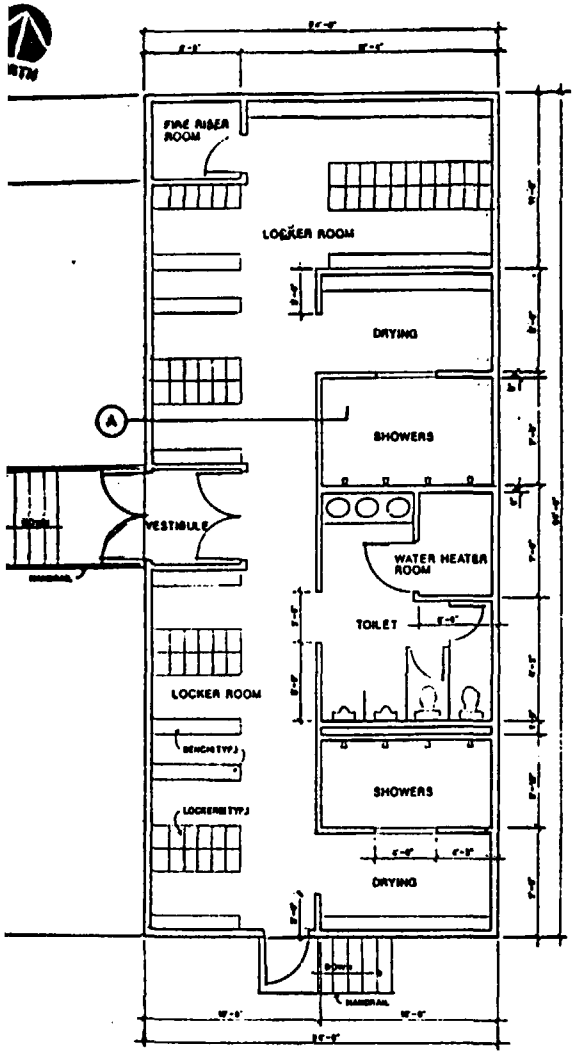
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
OFFICE TRAILER – TYPE B

FLOOR PLAN & SECTION

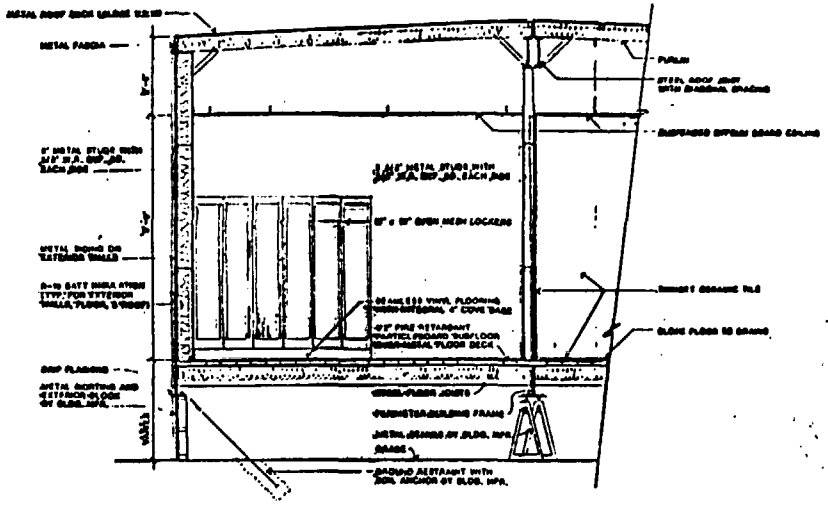
HOLMES & NARVER INC.
ARCHITECTS-ENGINEERS

JS-025-058-2-A1

TITLE I
60% SUBMITTAL



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



SECTION
SCALE: 1/2" = 1'-0"
A

REFERENCE DRAWINGS

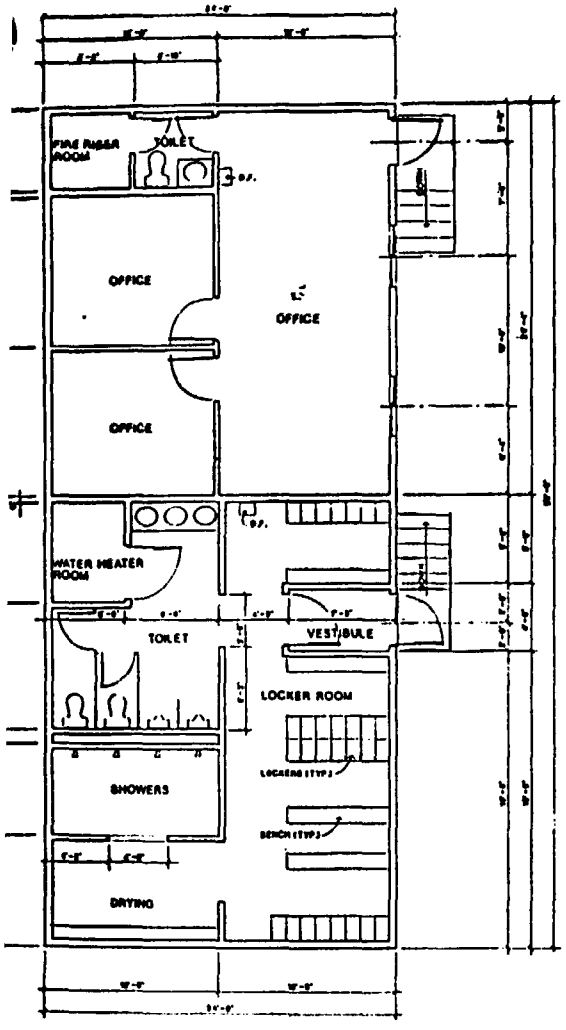
CIVIL	JS-025-ESF-C4
STRUCTURAL	NOT USED IN TITLE I
ARCHITECTURAL	JS-025-ESF-A1
MECHANICAL	JS-025-058-3-M1
FIRE PROTECTION	JS-025-058-3-FP1
ELECTRICAL	JS-025-058-3-E1
COMMUNICATION	TBD

TITLE I
50% SUBMITTAL

U. S. DEPARTMENT OF ENERGY
NEVADA NUCLEAR WASTE STORAGE INVESTIGATIONS
EXPLORATORY SHAFT FACILITY
CHANGE HOUSE TRAILER - TYPE A
FLOOR PLAN & SECTION

HOWELL BAKER INC.
ARCHITECTS-ENGINEERS

JS-025-058-3-A1



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

REFERENCE DRAWINGS

CIVIL	JS-025-ESF-C4
STRUCTURAL	NOT USED IN TITLE I
ARCHITECTURAL	JS-025-ESF-A1
MECHANICAL	JS-025-058-4-M1
FIRE PROTECTION	JS-025-058-4-FP1
ELECTRICAL	JS-025-058-4-E1
COMMUNICATION	T.B.D.

TITLE I
50% SUBMITTAL

U. S. DEPARTMENT OF ENERGY
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
CHANGE HOUSE TRAILER - TYPE B
FLOOR PLAN

HOLMES & NARVER INC.
ARCHITECTS-ENGINEERS

JS-025-058-4-A1

REMAINING WORK

- HOIST HOUSE
- SURFACE DATA BUILDING
- SUBSURFACE DATA BUILDING
- A&E BUILDING

NNWSI/ESF TITLE I 50% REVIEW

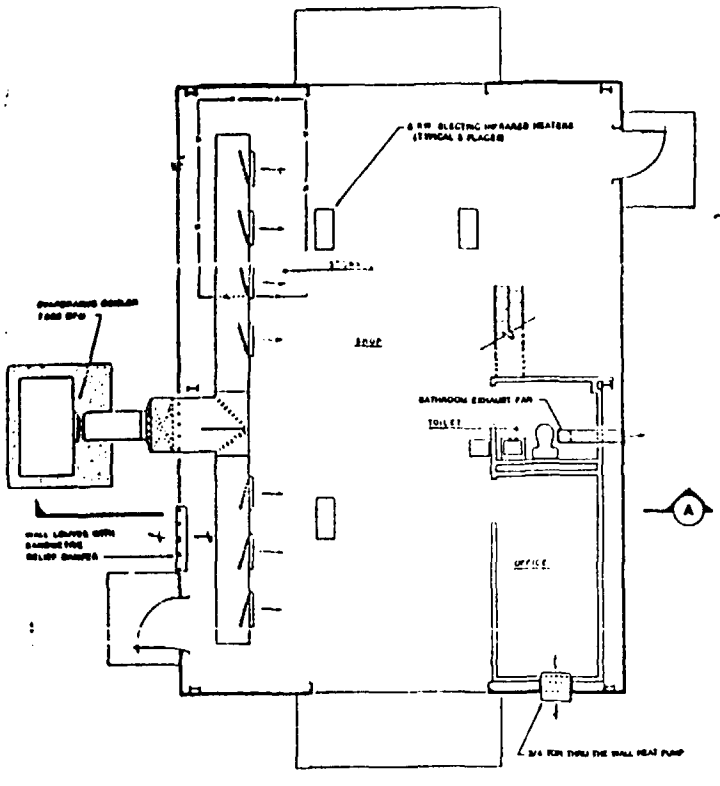
MAY 9, 1988

BERT ANZAI

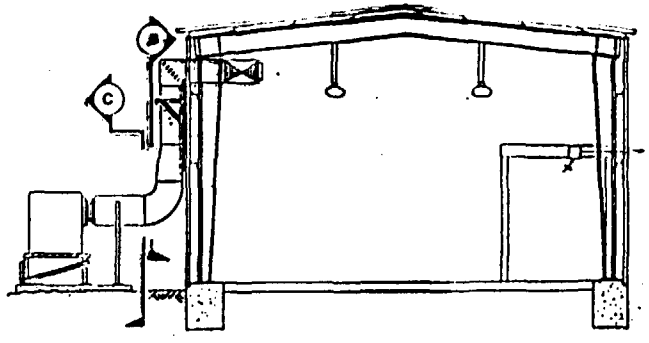
MECHANICAL DESIGN

CODES AND STANDARDS

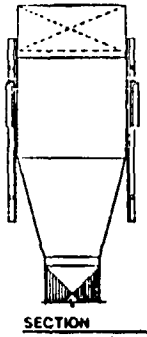
- DOE 6430 "GENERAL DESIGN CRITERIA MANUAL"
- DOE/EV-0043 "STANDARD ON FIRE PROTECTION FOR PORTABLE STRUCTURES"
- AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR-CONDITIONING ENGINEERS, INC. (ASHRAE) STANDARDS
- SHEET METAL AND AIR-CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA) STANDARDS
- UNIFORM PLUMBING CODE - 1985
- NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) STANDARDS



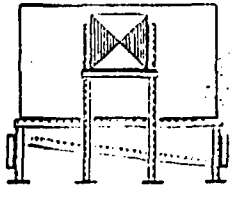
HVAC PLAN
SCALE: 1/4" = 1'-0"



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



SECTION B
SCALE: 1/2" = 1'-0"



SECTION C
SCALE: 1/2" = 1'-0"

EQUIPMENT LIST

ITEM No.	QUAN. REQ'D	DESCRIPTION

GENERAL NOTES

THIS TITLE I DRAWING DEPICTS ONLY THE MAJOR DESIGN FEATURES OF THIS PROJECT. EQUIPMENT DESCRIPTIONS AND SPECIAL INSTRUCTIONS SHALL BE DEVELOPED DURING THE TITLE II EFFORT.

REFERENCE DRAWINGS

CIVIL	JS-02
STRUCTURAL	NOT USED
ARCHITECTURAL	JS-02
MECHANICAL	
PLUMBING PLAN AND EQUIPMENT LIST	JS-02
FIRE PROTECTION	JS-02
ELECTRICAL	JS-02
COMMUNICATION	T.B.D.

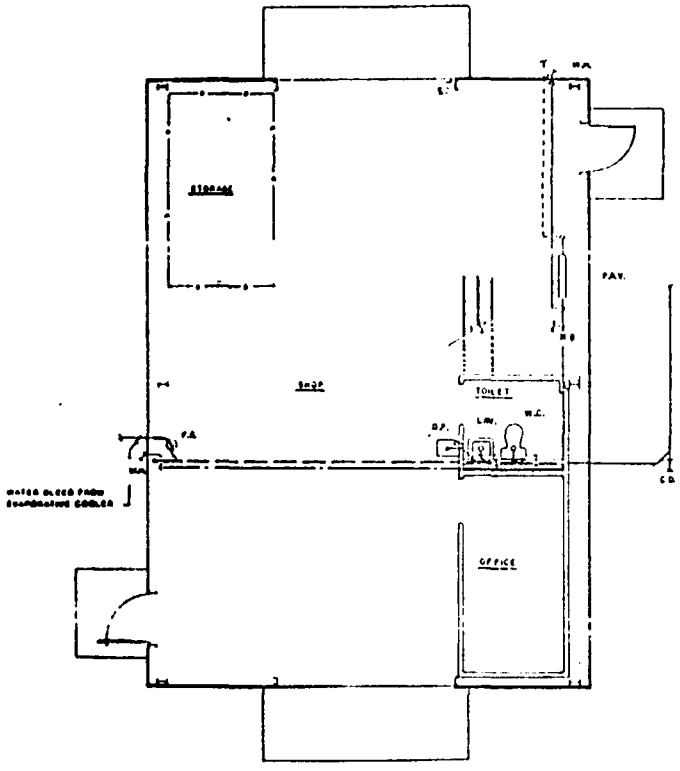
GRAPHIC SCALE
1/4" = 1'-0"

TITLE I
50% SUBMITTAL

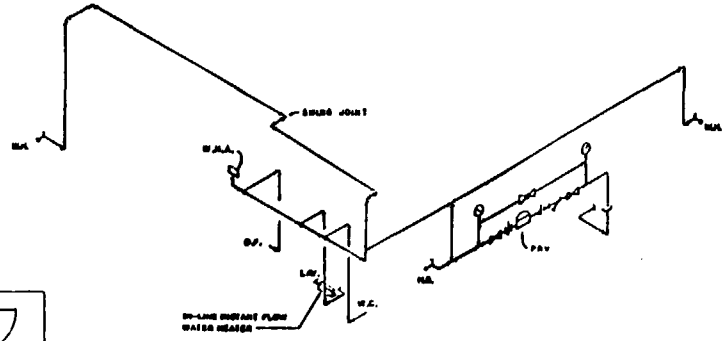
U. S. DEPARTMENT OF ENERGY
NEVADA OPERATIONS OFFICE

NEVADA NUCLEAR WASTE STORAGE INV
EXPLORATORY SHAFT FACIL
SHOP BUILDING 6000
HVAC PLAN & EQUIP.

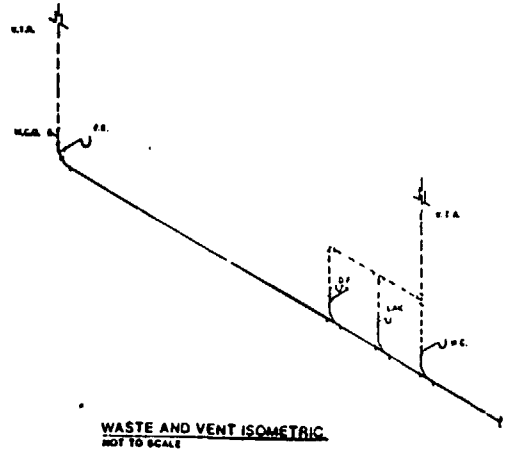
HOLMES & NARVER INC.
ARCHITECTS-ENGINEERS
JS-02



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



DOMESTIC WATER ISOMETRIC
NOT TO SCALE



WASTE AND VENT ISOMETRIC
NOT TO SCALE

EQUIPMENT LIST

REV. No.	DATE	DESCRIPTION	HOLMES & NARVER OK APPROVED

GENERAL NOTES

THIS TITLE I DRAWING DEPICTS ONLY THE MAJOR DESIGN FEATURES OF THE PROJECT. ALL DETAILS, EQUIPMENT DESCRIPTIONS AND SPECIAL INSTRUCTIONS SHALL BE DEVELOPED DURING THE TITLE II EFFORT.

FOR REFERENCE DRAWINGS, SEE DRAWING M4

U.S. DEPARTMENT OF ENERGY
LAS VEGAS, NEVADA

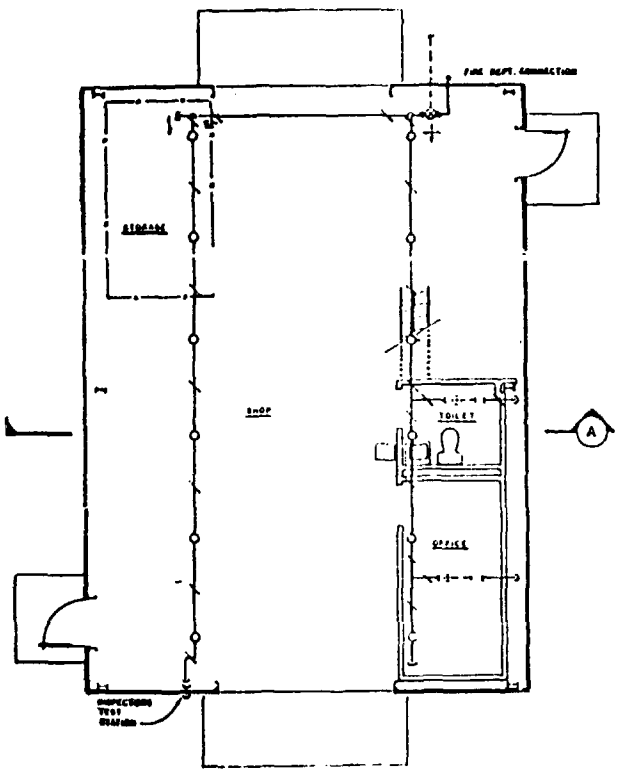
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
SHOP BUILDING 6000
PLUMBING PLAN & EQUIP. LIST

HOLMES & NARVER, INC.
ARCHITECTS-ENGINEERS
LAS VEGAS, NEVADA

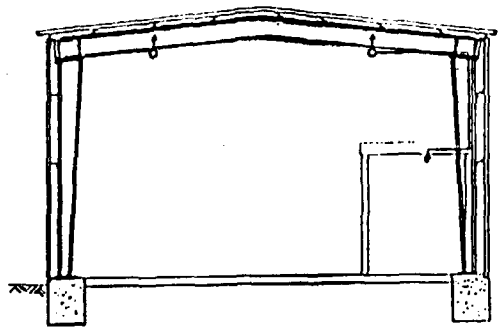
JS-025-6000-M

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

TITLE I
50% SUBMITTAL



FIRE PROTECTION PLAN
SCALE : 1/4" = 1'-0"



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

GENERAL NOTES

THE TITLE I DRAWING DEPICTS ONLY THE MAJOR DESIGN FEATURES OF THE PROJECT. ALL DETAILS, EQUIPMENT DESCRIPTIONS AND SPECIAL INSTRUCTIONS SHALL BE DEVELOPED DURING THE TITLE II EFFORT.

AN ORDINARY HAZARD GROUP 2 WET PIPE SPRINKLER SYSTEM WILL BE PROVIDED.

REFERENCE DRAWINGS

CIVIL	JS-025-ESF-C4
STRUCTURAL	NOT USED IN TITLE I
ARCHITECTURAL	JS-025-6000-A1
MECHANICAL	JS-025-6000-M4
FIRE PROTECTION	
FIRE ALARM PLAN AND SCHEMATIC	JS-025-6000-FP2
ELECTRICAL	JS-025-6000-E2
COMMUNICATION	T.B.D.

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

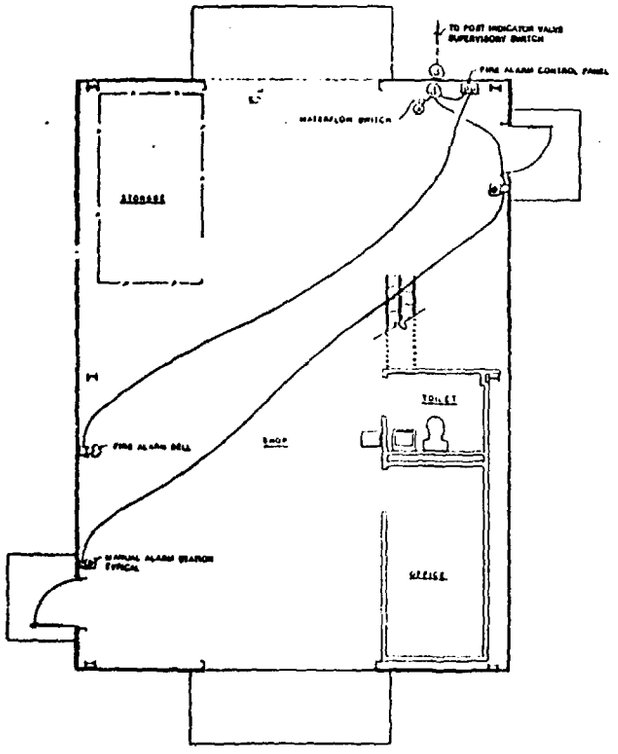
TITLE I
50% SUBMITTAL

U. S. DEPARTMENT OF ENERGY
LAS VEGAS, NEVADA

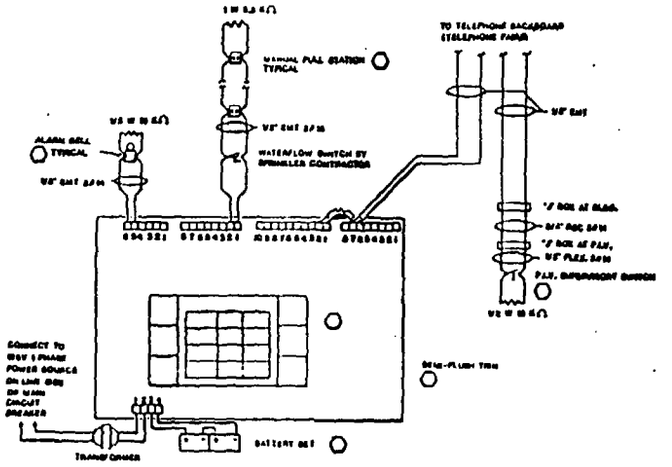
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
SHOP BUILDING 6000
FIRE PROTECTION PLAN & SECTION

HERMES RAMER INC.
ARCHITECTS-ENGINEERS

JS-025-6000-FP1



FIRE ALARM PLAN
SCALE: 1/4" = 1'-0"



FIRE ALARM SYSTEM SCHEMATIC
NOT TO SCALE

EQUIPMENT LIST

ITEM No.	QTY	DESCRIPTION	MANUFACTURER OR APPROVED EQ

GENERAL NOTES

THE TITLE I DRAWING DEPICTS ONLY THE MAJOR DESIGN FEATURES OF THE PROJECT. ALL DETAILS, EQUIPMENT DESCRIPTIONS AND SPECIAL INSTRUCTIONS SHALL BE DEVELOPED DURING THE TITLE II EFFORT.

FOR REFERENCE DRAWINGS, SEE DRAWING FP1

U. S. DEPARTMENT OF ENERGY
NEVADA OPERATIONS OFFICE
LAS VEGAS, NEVADA

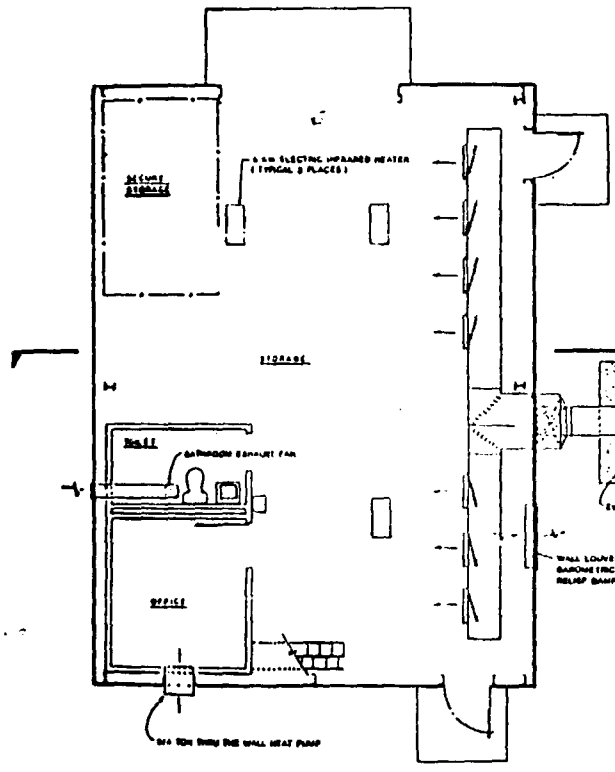
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
SHOP BUILDING 6000
FIRE ALARM PLAN & SCHEMATIC

HOLMES & NARVER, INC.
ARCHITECTS-ENGINEERS
LAS VEGAS, NEVADA

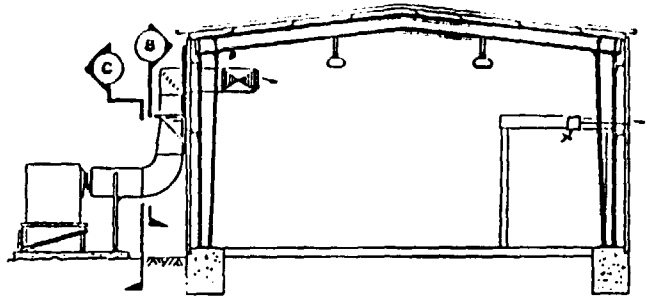
JS-025-6000-F

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

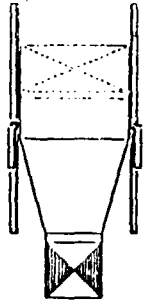
TITLE I
50% SUBMITTAL



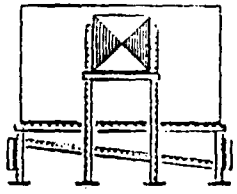
HVAC PLAN
SCALE: 1/8"=1'-0"



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



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



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

EQUIPMENT LIST

ITEM NO.	QTY	DESCRIPTION	MANUFACTURER'S CAT. NO. OR APPROVED EQUAL

GENERAL NOTES

THIS TITLE I DRAWING DEPICTS ONLY THE MAJOR DESIGN FEATURES OF THE PROJECT. ALL DETAILS, EQUIPMENT DESCRIPTIONS AND SPECIAL INSTRUCTIONS SHALL BE DEVELOPED DURING THE TITLE II EFFORT.

REFERENCE DRAWINGS

CIVIL	JS-025-ESF-C1
STRUCTURAL	NOT USED IN TITLE I
ARCHITECTURAL	JS-025-6001-A1
MECHANICAL	
PLUMBING PLAN AND EQUIPMENT LIST	JS-025-6001-M2
FIRE PROTECTION	JS-025-6001-FP1
ELECTRICAL	JS-025-6001-E1
COMMUNICATION	T.B.D.

U. S. DEPARTMENT OF ENERGY
LAS VEGAS, NEVADA

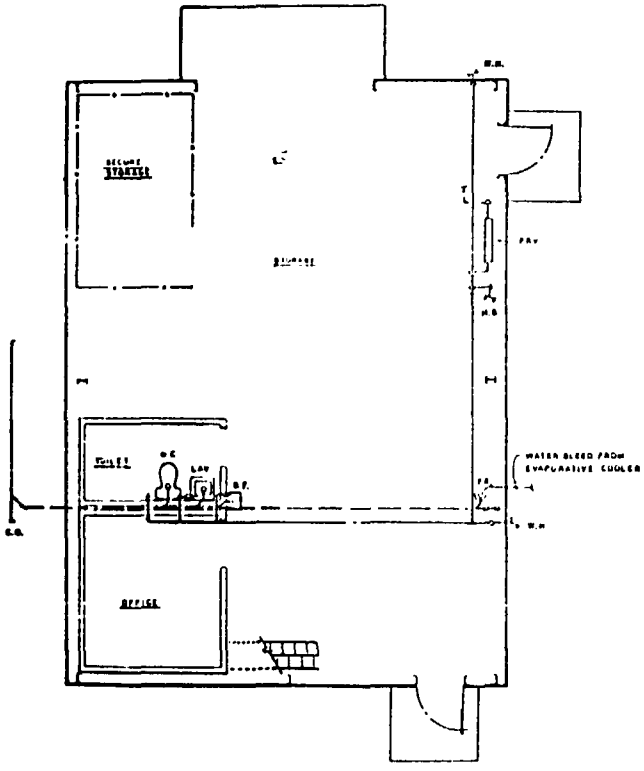
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
WAREHOUSE BUILDING 6001
HVAC PLAN & EQUIP. LIST

HOLMES & NARVER, INC.
ARCHITECTS-ENGINEERS

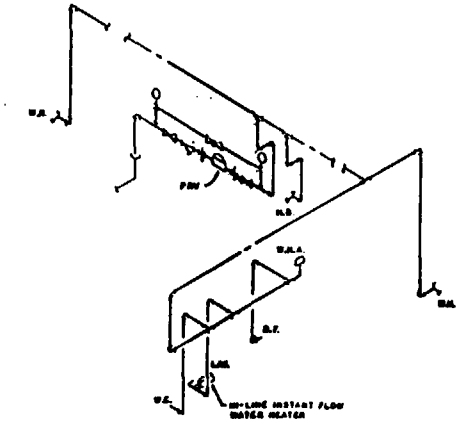
JS-025-6001-M1

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

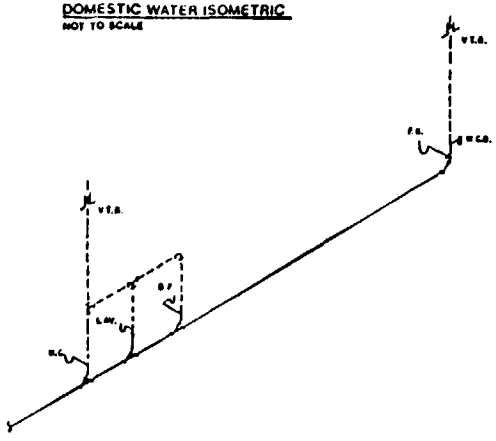
TITLE I
50% SUBMITTAL



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



DOMESTIC WATER ISOMETRIC
NOT TO SCALE



WASTE AND VENT ISOMETRIC
NOT TO SCALE

EQUIPMENT LIST

ITEM No	No REQ'D	DESCRIPTION	MANUFACTURER AND APPROVED EQUAL

GENERAL NOTES

THIS TITLE I DRAWING DEPICTS ONLY THE MAJOR DESIGN FEATURES OF THE PROJECT AND DETAILS, EQUIPMENT DESCRIPTIONS AND SPECIAL INSTRUCTIONS SHALL BE DEVELOPED DURING THE TITLE II EFFORT.

FOR REFERENCE DRAWINGS, SEE DRAWING M1

U. S. DEPARTMENT OF ENERGY
NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA

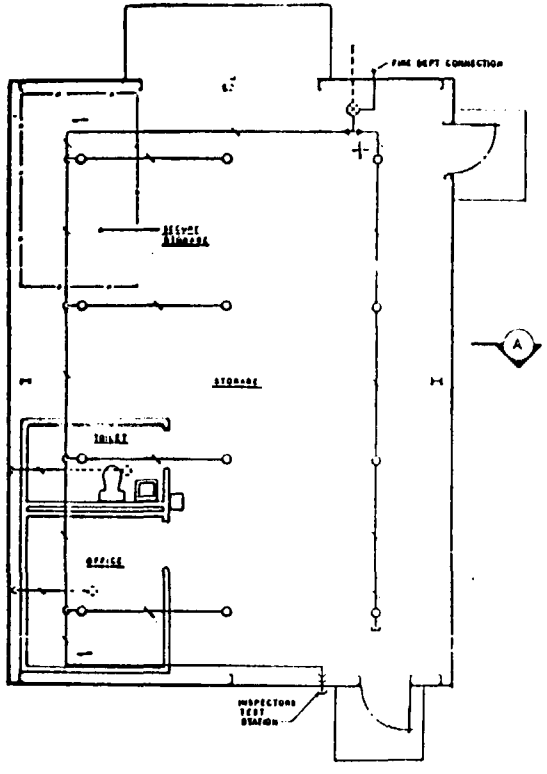
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
WAREHOUSE BUILDING 6001
PLUMBING PLAN & EQUIP. LIST

HERMES L. BARNER, INC.
ARCHITECTS-ENGINEERS
6000 E. PLANNED ROAD LAS VEGAS, NEVADA 89115

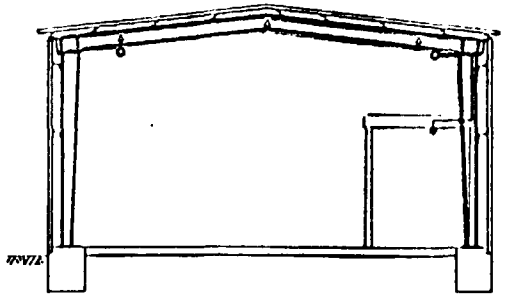
JS-025-6001-M2

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

TITLE I
50% SUBMITTAL



FIRE PROTECTION PLAN
SCALE : 1/4" = 1'-0"



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

GENERAL NOTES

THE TITLE I DRAWING DEPICTS ONLY THE MAJOR DESIGN FEATURES OF THE PROJECT. ALL DETAILS, EQUIPMENT DESCRIPTIONS AND SPECIAL INSTRUCTIONS SHALL BE DEVELOPED DURING THE TITLE II EFFORT.

AN ORDINARY HAZARD GROUP II WET PIPE SPRINKLER SYSTEM WILL BE PROVIDED.

REFERENCE DRAWINGS

CIVIL	JS-025-ESF-C4
STRUCTURAL	NOT USED IN TITLE I
ARCHITECTURAL	JS-025-6001-A1
MECHANICAL	JS-025-6001-M1
FIRE PROTECTION FIRE ALARM PLAN AND SCHEMATIC	JS-025-6001-FP2
ELECTRICAL	JS-025-6001-E1
COMMUNICATION	T.B.D.

GRAPHIC SCALE
0 4 8 16 FT
1/4" = 1'-0"

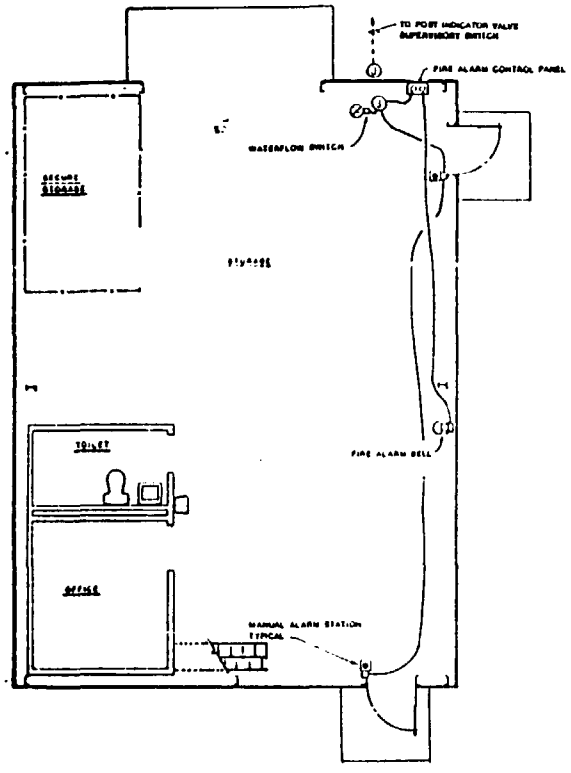
TITLE I
50% SUBMITTAL

U. S. DEPARTMENT OF ENERGY
LAS VEGAS, NEVADA

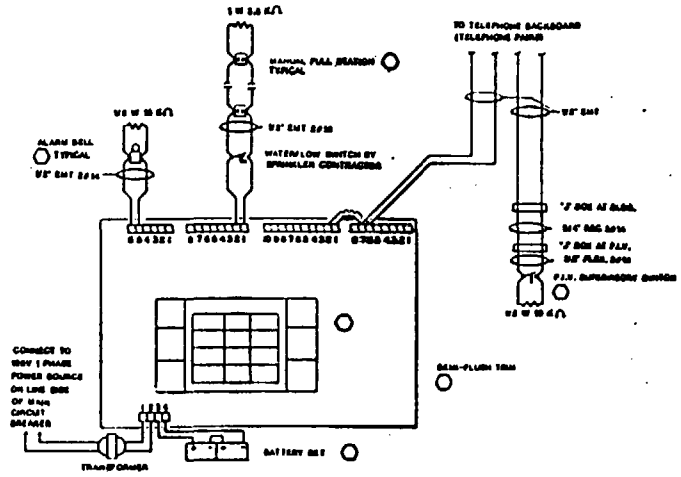
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
WAREHOUSE BUILDING 6001
FIRE PROTECTION PLAN & SECTION

HOLMES & NARVER, INC.
ARCHITECTS-ENGINEERS
LAS VEGAS, NEVADA

JS-025-6001-FP1



FIRE ALARM PLAN
SCALE : 1/4" = 1'-0"



FIRE ALARM SYSTEM SCHEMATIC
NOT TO SCALE

EQUIPMENT LIST

ITEM No.	No. REQ'D	DESCRIPTION	VENDOR'S CAT. No. OR APPROVED EQUAL

GENERAL NOTES

THIS TITLE I DRAWING DEPICTS ONLY THE MAJOR DESIGN FEATURES OF THE PROJECT. ALL OF THE EQUIPMENT DESCRIPTIONS AND SPECIAL INSTRUCTIONS SHALL BE DEVELOPED DURING THE TITLE II EFFORT.

FOR REFERENCE DRAWINGS , SEE DRAWING FP1

GRAPHIC SCALE
0 4 8 12
1/4" = 1'-0"

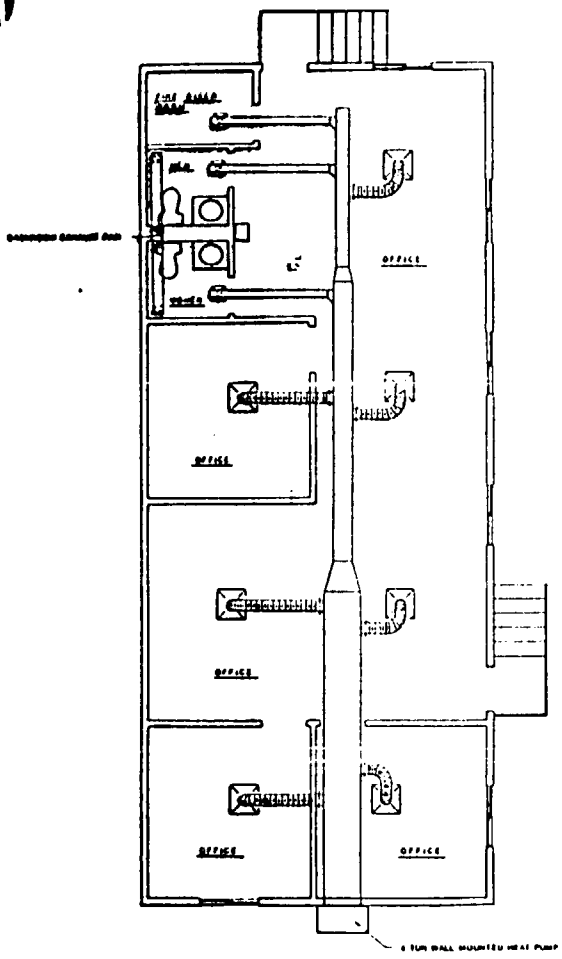
TITLE I
50% SUBMITTAL

U. S. DEPARTMENT OF ENERGY
LAS VEGAS, NEVADA

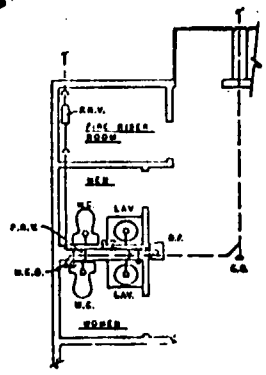
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
WAREHOUSE BUILDING 6001
FIRE ALARM PLAN & SCHEMATIC

HOLMES & NARVER, INC.
ARCHITECTS-ENGINEERS
LAS VEGAS, NEVADA

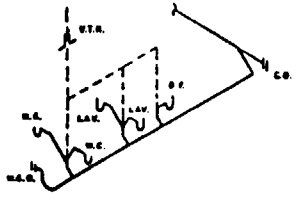
JS-025-6001-FP2



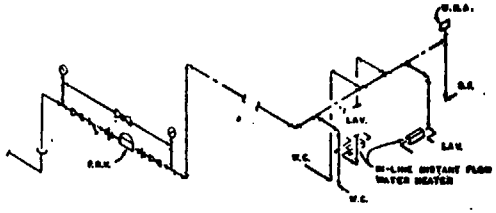
HVAC AND PLUMBING PLAN
SCALE : 1/4" = 1' - 0"



PARTIAL FLOOR PLAN - PLUMBING
SCALE : 1/4" = 1'-0"



WASTE AND VENT ISOMETRIC
NOT TO SCALE



DOMESTIC WATER ISOMETRIC
NOT TO SCALE

GRAPHIC SCALE

TITLE I
50% SUBMITTAL

EQUIPMENT LIST

MEM No.	QTY. REQ'D	DESCRIPTION	VENDOR'S CAT. OR APPROVED EQ.

GENERAL NOTES

1. THIS TITLE I DRAWING DEPICTS ONLY THE MAJOR DESIGN FEATURES OF THE PROJECT. ALL DETAILS & EQUIPMENT DESCRIPTIONS AND SPECIAL INSTRUCTIONS SHALL BE DEVELOPED DURING THE TITLE II EFFORT.
2. THIS DRAWING APPLIES TO TRAILERS (8), (9), (7) AND (25), (SEE DRAWING JS-025-ESF-C4)
3. TRAILERS (8) AND (10) ARE THE MIRROR IMAGES OF THE TRAILER (SEE DRAWING JS-025-ESF-C4)

REFERENCE DRAWINGS

CIVIL	JS-025-ESF-C4
STRUCTURAL	NOT USED IN TITLE I
ARCHITECTURAL	JS-025-058-1-A1
FIRE PROTECTION	JS-025-058-1-FP1
ELECTRICAL	JS-025-058-1-E1
COMMUNICATION	T.B.D

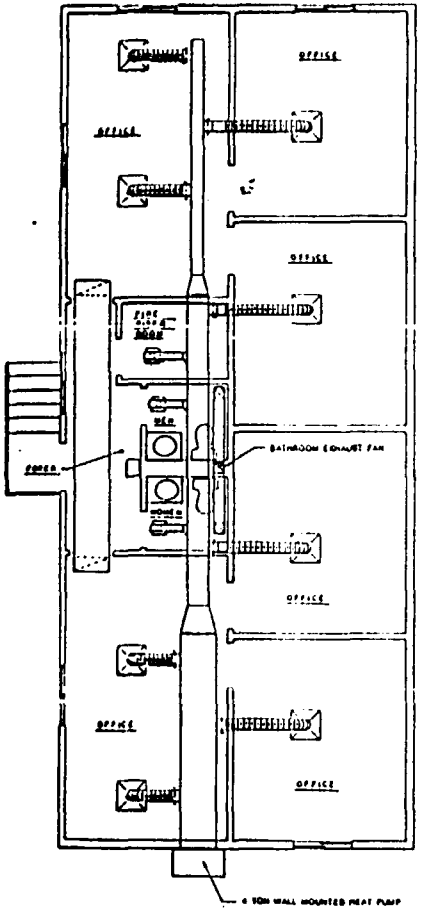
NO.	DATE	REVISIONS

U. S. DEPARTMENT OF ENERGY
NEVADA OPERATIONS OFFICE

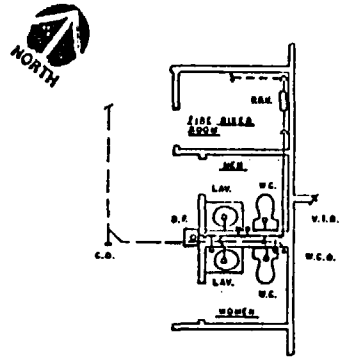
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
OFFICE TRAILER TYPE A
HVAC & PLUMBING PLAN

HOLMES & NARVER INC.
ARCHITECTS-ENGINEERS
LAS VEGAS, NEVADA

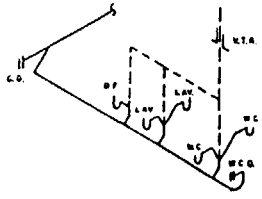
JS-025-058-1-M1



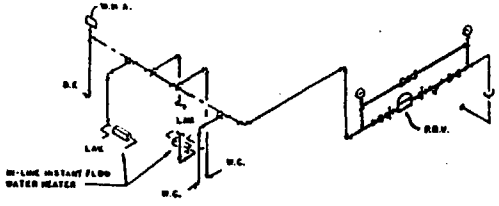
HVAC AND PLUMBING PLAN
SCALE : 1/4" = 1'-0"



PARTIAL FLOOR PLAN - PLUMBING
SCALE : 1/4" = 1'-0"



WASTE AND VENT ISOMETRIC
NOT TO SCALE



DOMESTIC WATER ISOMETRIC
NOT TO SCALE

DRAWING SCALE
0 1 2 3 4 5 6 7 8 9 10 FT.
1/4" = 1'-0"

TITLE I
50% SUBMITTAL

EQUIPMENT LIST

DRAW. No.	REQ'D	DESCRIPTION	VENDOR & EQ. OR APPROVED EQ.

GENERAL NOTES

1. THIS TITLE I DRAWING DEPICTS ONLY THE MAJOR DESIGN FEATURES OF THE PROJECT. ALL DETAILS, EQUIPMENT DESCRIPTIONS AND SPECIAL INSTRUCTIONS SHALL BE DEVELOPED DURING THE TITLE II EFFORT.
2. THIS DRAWING APPLIES TO TRAILERS (A) AND (B) ON DRAWING JS-025-ESF-C4

REFERENCE DRAWINGS

CIVIL	JS-025-ESF-C4
STRUCTURAL	NOT USED IN TITLE I
ARCHITECTURAL	JS-025-058-2-A1
FIRE PROTECTION	JS-025-058-2-FP1
ELECTRICAL	JS-025-058-2-E1
COMMUNICATION	T.B.D.

NO	DATE	REVISIONS				

U. S. DEPARTMENT OF ENERGY
NEVADA OPERATIONS OFFICE — LAS VEGAS, NEVADA

DESIGNED	DRAWN	NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
C.E.A.	J.P.C.	EXPLORATORY SHAFT FACILITY
CHECKED		OFFICE TRAILER TYPE B
DATE	No.	HVAC & PLUMBING PLAN
PROJECT ENGINEER		

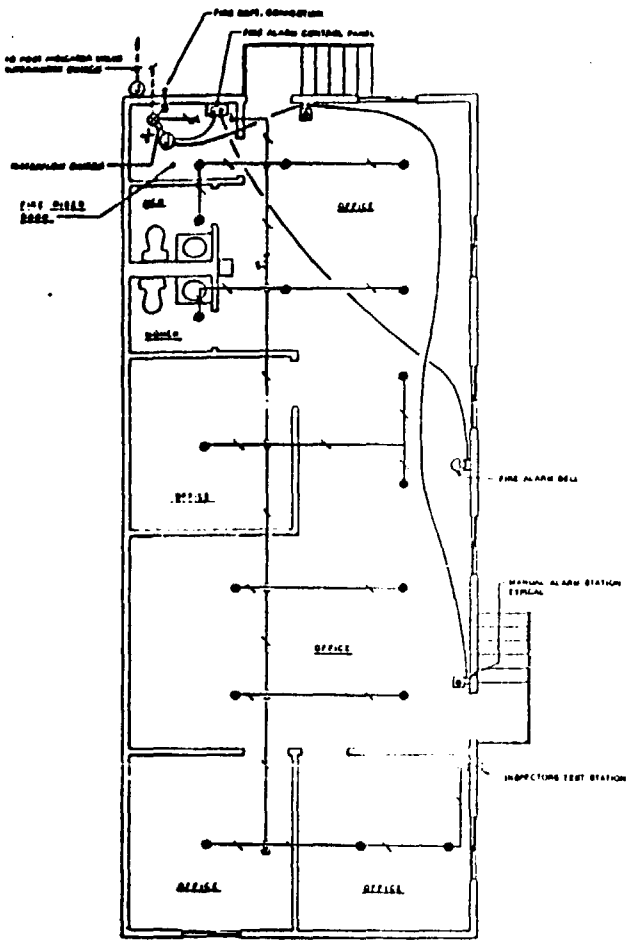
SUBMITTED — PROJECT APPROVED — DATE

HOBBS, HAMER INC.
ARCHITECTS-ENGINEERS
PROFESSIONAL CORPORATION
4000 E. FLAMINGO ROAD LAS VEGAS, NEVADA 89121

A.E. JOB NUMBER — PROJECT No. 1205.10

DRAWING NUMBER: JS-025-058-2-M1

SHEET ___ OF ___



FIRE PROTECTION AND FIRE ALARM PLAN

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

EQUIPMENT LIST

ITEM NO.	NO. REQ'D	DESCRIPTION	VENDOR'S CAT. NO. OR APPROVED EQUAL

GENERAL NOTES

1. THIS TITLE I DRAWING DEPICTS ONLY THE MAJOR DESIGN FEATURES OF THIS PROJECT. ALL DETAILS, EQUIPMENT DESCRIPTIONS AND SPECIAL INSTRUCTIONS SHALL BE DEVELOPED DURING THE TITLE II EFFORT.
2. AN ORDINARY HAZARD GROUP II WET FIRE SPRINKLER SYSTEM WILL BE PROVIDED.
3. THIS DRAWING APPLIES TO TRAILERS (1)(2)(7) AND (10). ON DRAWING JS-000-ESF-C4
4. TRAILERS (1) AND (10) ARE THE MIRROR IMAGES OF THIS TRAILER ON DRAWING JS-000-ESF-C4

REFERENCE DRAWINGS

CIVIL	JS-025-ESF-C4
STRUCTURAL	NOT USED IN TITLE I
ARCHITECTURAL	JS-025-058-1-A1
MECHANICAL	JS-025-058-1-M1
ELECTRICAL	JS-025-058-1-E1
COMMUNICATION	T.B.D.

DRAWING SCALE

0 2 4 6 8 FT

1/4"=1'-0"

TITLE I
50% SUBMITTAL

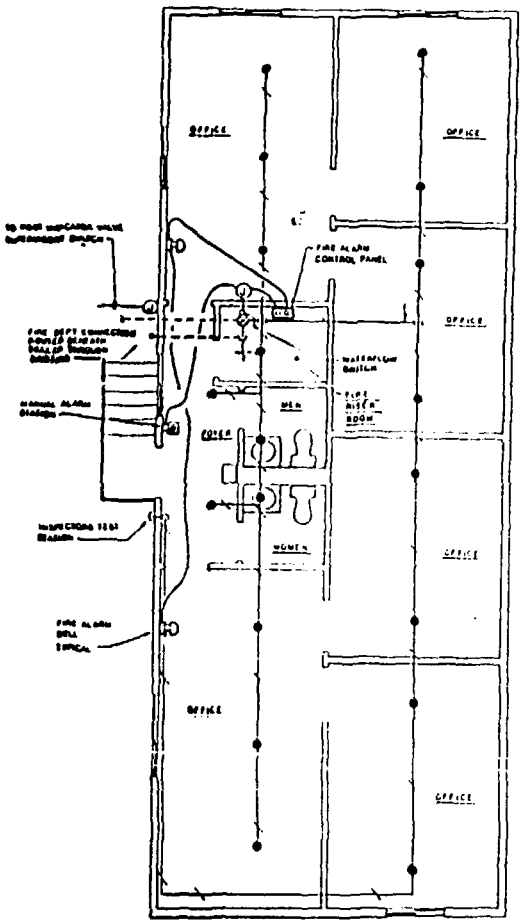
U. S. DEPARTMENT OF ENERGY

NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
OFFICE TRAILER TYPE A
FIRE PROT. & FIRE ALARM PLAN

HOLMES & NARVER, INC.
ARCHITECTS-ENGINEERS

JS-025-058-1-FP1

NORTH



FIRE PROTECTION AND FIRE ALARM PLAN

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

EQUIPMENT LIST

ITEM NO.	QTY. REQ'D	DESCRIPTION	REF. DWG.

GENERAL NOTES

1. THIS TITLE I DRAWING DEPICTS ONLY THE MAJOR DESIGN FEATURES OF THIS PROJECT. DETAILS, EQUIPMENT DESCRIPTIONS AND SPECIAL INSTRUCTIONS SHALL BE DEVELOPED DURING THE TITLE II EFFORT.
2. AN ORDINARY HAZARD GROUP 2 WET FIRE SPRINKLER SYSTEM WILL BE PROVIDED.
3. THIS DRAWING APPLIES TO TRAILERS (5) AND (6) ON DRAWING JS-025-EM-C4

REFERENCE DRAWINGS

CIVIL	JS-025-ES4
STRUCTURAL	NOT USED IN TI
ARCHITECTURAL	JS-025-05
MECHANICAL	JS-025-05
ELECTRICAL	JS-025-05
COMMUNICATION	T.B.D.

GRAPHIC SCALE

1/4" = 1'-0"

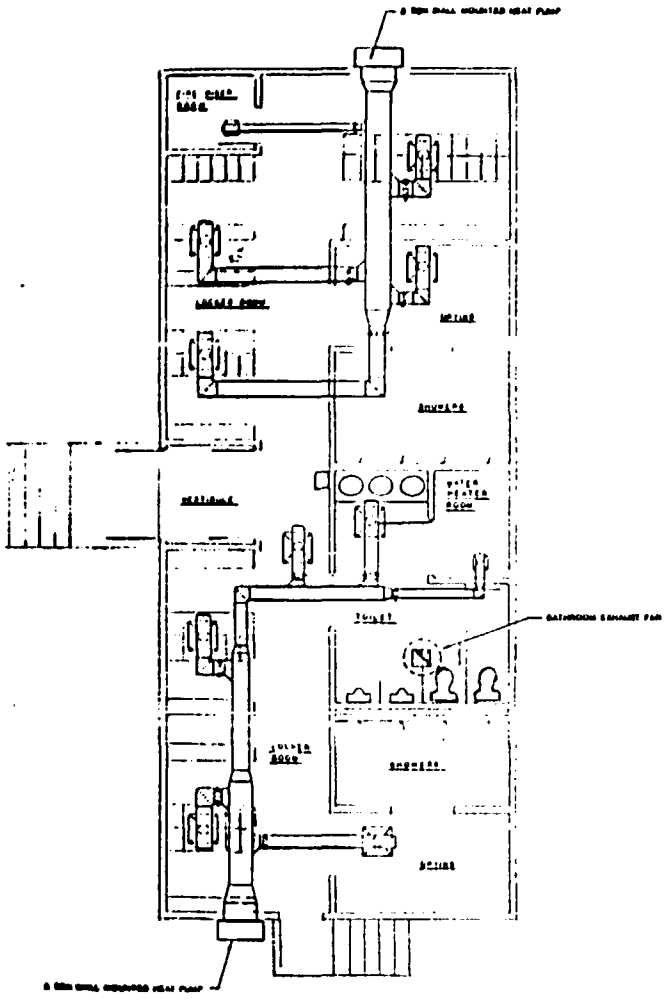
TITLE I
50% SUBMITTAL

U. S. DEPARTMENT OF ENERGY

NEVADA NUCLEAR WASTE STORAGE INVESTI
EXPLORATORY SHAFT FACILITY
OFFICE TRAILER TYPE B
FIRE PROT. & FIRE ALARM P

HOLMES & NARVER, INC.
ARCHITECTS-ENGINEERS

JS-025-058-



HVAC PLAN

SCALE: 1/4" = 1' - 0

GENERAL NOTES

1. THIS TITLE I DRAWING DEPICTS ONLY THE GENERAL DESIGN FEATURES OF THE PROJECT. ALL DETAILED COMPONENT DESCRIPTIONS AND SPECIAL INSTRUCTIONS SHALL BE DEVELOPED DURING THE TITLE II EFFORT.
2. THIS DRAWING APPLIES TO TRAILER (A) ON DRAWING JS-025-ESF-C4

REFERENCE DRAWINGS

CIVIL	JS-025-ESF-C4
STRUCTURAL	NOT USED IN TITLE I
ARCHITECTURAL	JS-025-058-3-A1
MECHANICAL	
PLUMBING PLAN	JS-025-058-3-M2
FIRE PROTECTION	JS-025-058-3-FP1
ELECTRICAL	JS-025-058-3-E1
COMMUNICATION	T.B.D.

GRAPHIC SCALE

0 4 8 16 FT

1/4"=1'-0"

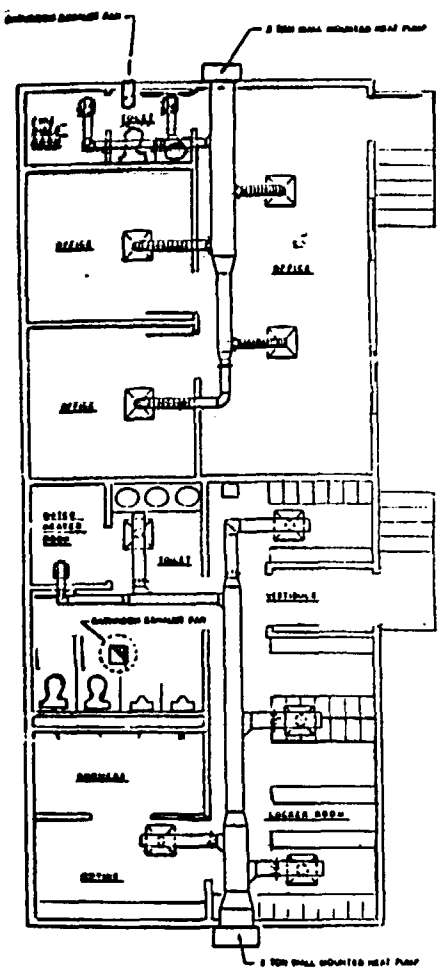
TITLE I
50% SUBMITTAL

U. S. DEPARTMENT OF ENERGY

NEVADA NUCLEAR WASTE STORAGE INVESTIGATIO
EXPLORATORY SHAFT FACILITY
CHANGE HOUSE TRAILER TYPE A
HVAC PLAN

NORMAN L. NAMER INC.
ARCHITECTS-ENGINEERS

JS-025-058-3-M1



HVAC PLAN

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

GENERAL NOTES

1. THIS TITLE I DRAWING REPRESENTS ONLY THE MAJOR DESIGN FEATURES OF THIS PROJECT. ALL DETAILS, EQUIPMENT DESCRIPTIONS AND SPECIAL INSTRUCTIONS SHALL BE DEVELOPED DURING THE TITLE II EFFORT.
2. THIS DRAWING APPLIES TO TRAILER (B) ON DRAWING JS-025-058-C-1

REFERENCE DRAWINGS

CIVIL	JS-025-058-C-C4
STRUCTURAL	NOT USED IN TITLE 1
ARCHITECTURAL	JS-025-058-4-A1
MECHANICAL	
PLUMBING PLAN	JS-025-058-4-M2
FIRE PROTECTION	JS-025-058-4-FP1
ELECTRICAL	JS-025-058-4-E1
COMMUNICATION	T.B.D.

U. S. DEPARTMENT OF ENERGY

NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
CHANGE HOUSE TRAILER TYPE B
HVAC PLAN

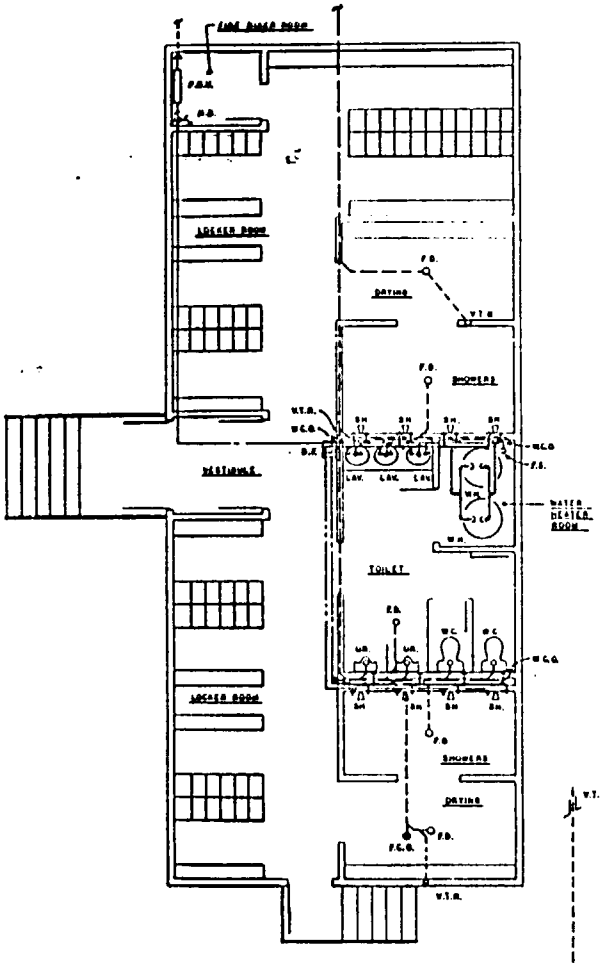
HOWELL HARRIS INC.
ARCHITECTS-ENGINEERS

JS-025-058-4-M1

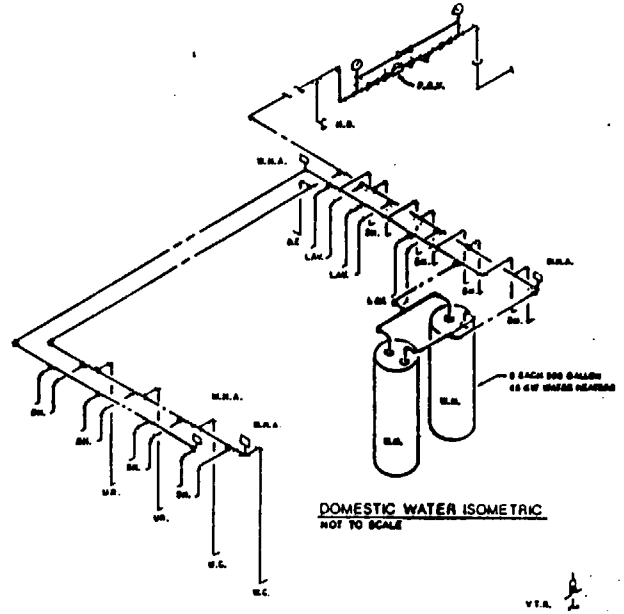
DRAWING SCALE

1/4" = 1'-0"

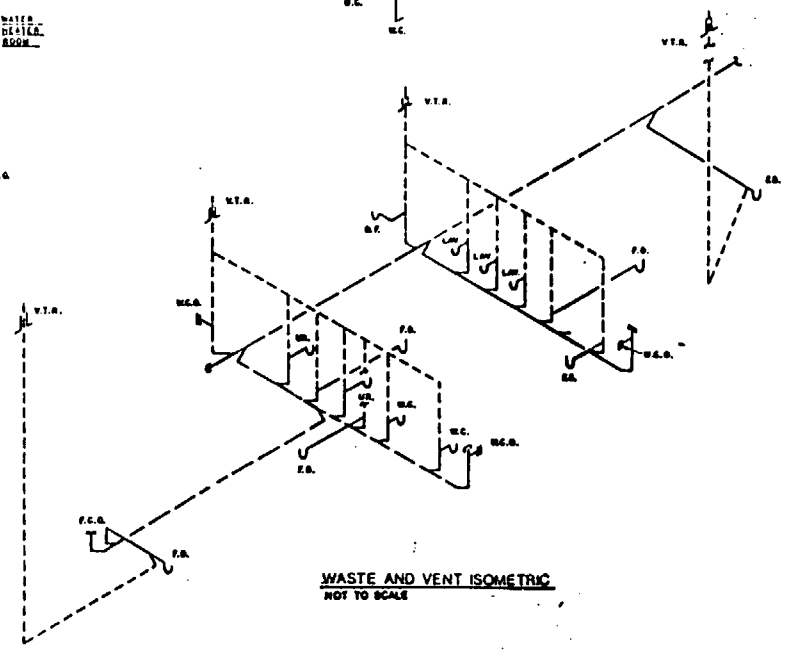
TITLE 1
50% SUBMITTAL



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



DOMESTIC WATER ISOMETRIC
NOT TO SCALE



WASTE AND VENT ISOMETRIC
NOT TO SCALE

GENERAL NOTES

1. THIS TITLE I DRAWING REFLECTS ONLY THE MAJOR DESIGN FEATURES OF THIS PROJECT. ALL DETAILS, EQUIPMENT DESCRIPTIONS AND SPECIAL INSTRUCTIONS SHALL BE DEVELOPED DURING THE TITLE II EFFORT.
2. THIS DRAWING APPLIES TO TRAILER (A) ON DRAWING JS-025-058-3-C4

FOR REFERENCE DRAWINGS, SEE DRAWING M1

GRAPHIC SCALE

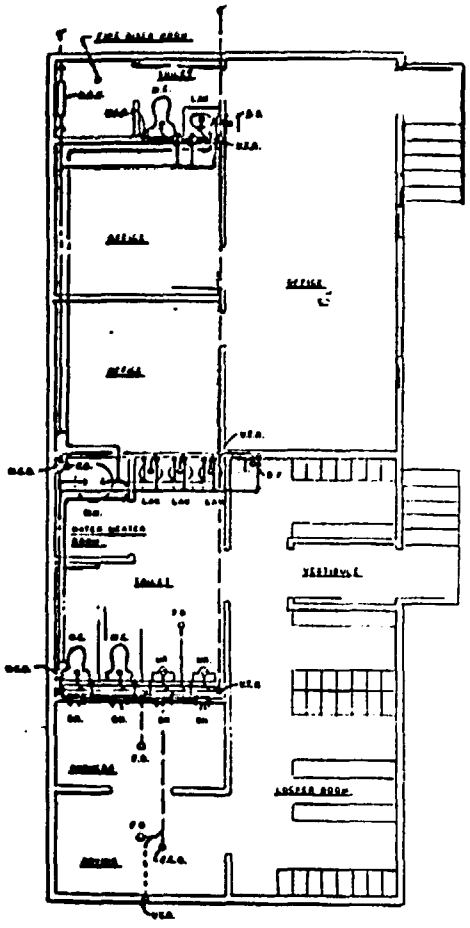
TITLE I
BOX SUBMITTAL

U. S. DEPARTMENT OF ENERGY
NEVADA OPERATIONS OFFICE, LAS VEGAS, NEVADA

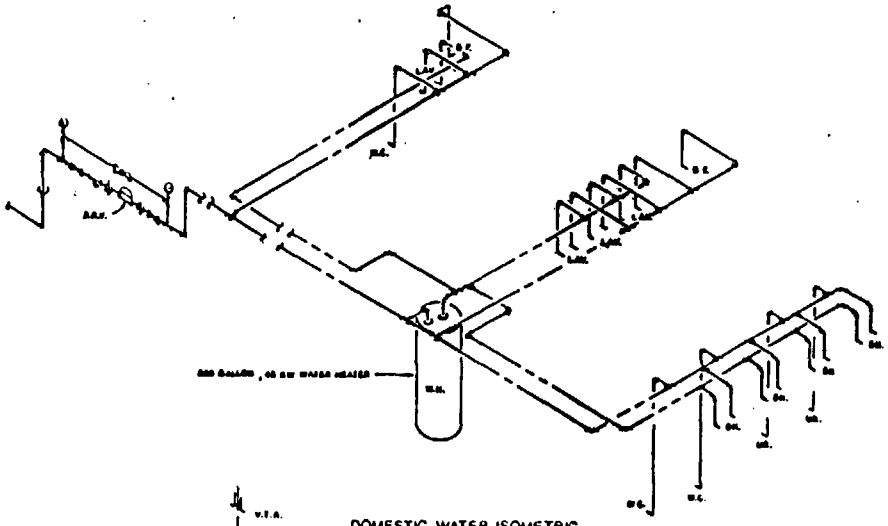
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
CHANGE HOUSE TRAILER TYPE A
PLUMBING PLAN

HOLMES & NARVER, INC.
ARCHITECTS-ENGINEERS

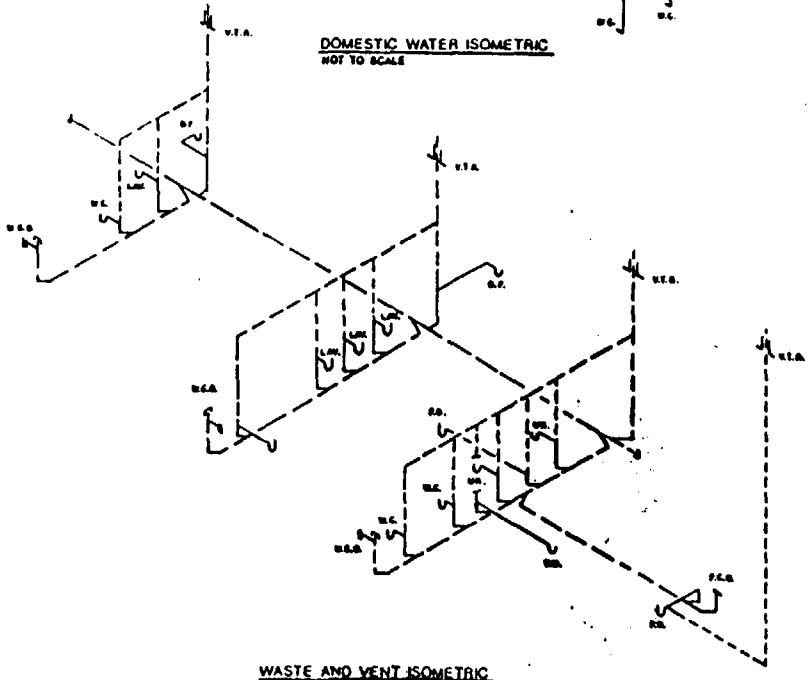
JS-025-058-3-M2



PLUMBING PLAN



DOMESTIC WATER ISOMETRIC
NOT TO SCALE



WASTE AND VENT ISOMETRIC
NOT TO SCALE

GENERAL NOTES

1. [illegible]
2. [illegible]

FOR REFERENCE DRAWINGS, SEE DRAWING M1

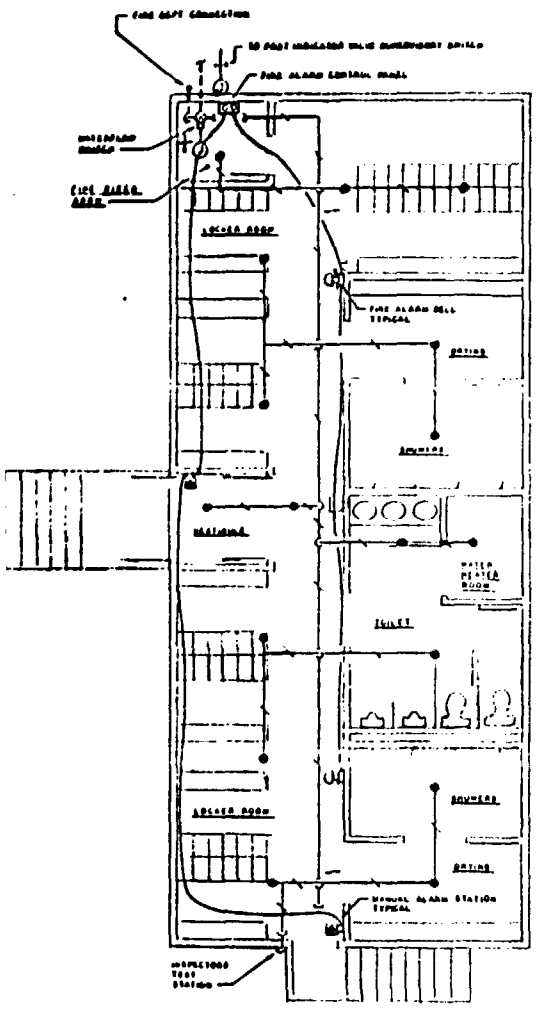
TITLE I
SOX SUBMITTAL

U. S. DEPARTMENT OF ENERGY

NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
CHANGE HOUSE TRAILER TYPE B
PLUMBING PLAN

HOWARD, BARKER INC.
ARCHITECTS - ENGINEERS

JS-025-050-4-M2



FIRE PROTECTION AND FIRE ALARM PLAN

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

GENERAL NOTES

1. THIS TITLE I DRAWING DEPICTS ONLY THE MAJOR DESIGN FEATURES OF THE PROJECT. ALL DETAILS/EQUIPMENT DESCRIPTIONS AND SPECIAL INSTALLATIONS SHALL BE DEVELOPED DURING THE TITLE II EFFORT.
2. AN ORDINARY HAZARD GROUP 2 WET FIRE SPRINKLER SYSTEM SHALL BE PROVIDED.
3. THIS DRAWING APPLIES TO TRAILER (A) ON DRAWING JS-025-E&F-C4

REFERENCE DRAWINGS

CIVIL	JS-025-E&F-C4
STRUCTURAL	NOT USED IN TITLE I
ARCHITECTURAL	JS-025-058-3-A1
MECHANICAL	JS-025-058-3-M1
ELECTRICAL	JS-025-058-3-E1
COMMUNICATION	T.B.D.

DRAWING SCALE

0 1 2 3 FT

1/4" = 1'-0"

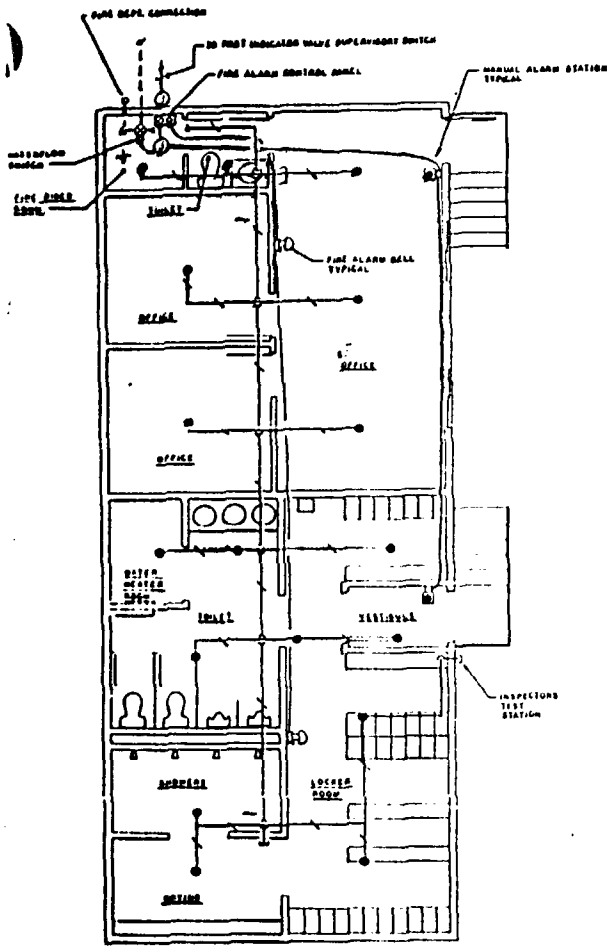
TITLE I
50% SUBMITTAL

U. S. DEPARTMENT OF ENERGY

NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
CHANGE HOUSE TRAILER TYPE A
FIRE PROT. & FIRE ALARM PLAN

HOLMES & NARVER INC
ARCHITECTS-ENGINEERS

JS-025-058-3-FP1



FIRE PROTECTION AND FIRE ALARM PLAN

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

GENERAL NOTES

1. THIS TITLE I DRAWING DEPICTS ONLY THE MAJOR DESIGN FEATURES OF THE PROJECT. ALL DETAILS, EQUIPMENT DESCRIPTIONS AND SPECIAL INSTRUCTIONS SHALL BE DEVELOPED DURING THE TITLE II EFFORT.
2. AN ORDINARY HAZARD GROUP 2 WET PIPE SPRINKLER SYSTEM WILL BE PROVIDED.
3. THIS DRAWING APPLIES TO TRAILER (B) ON DRAWING JS-025-056-C4.

REFERENCE DRAWINGS

CIVIL	JS-025-056-C4
STRUCTURAL	NOT USED IN TITLE I
ARCHITECTURAL	JS-025-056-4-A1
MECHANICAL	JS-025-056-4-M1
ELECTRICAL	JS-025-056-4-E1
COMMUNICATION	T.B.D.

GRAPHIC SCALE

TITLE I
50% SUBMITTAL

U. S. DEPARTMENT OF ENERGY

NEVADA NUCLEAR WASTE STORAGE INVESTIGATIO
EXPLORATORY SHAFT FACILITY
CHANGE HOUSE TRAILER TYPE B
FIRE PROT. & FIRE ALARM PLAN

HOLMES & NARVER INC.
ARCHITECTS-ENGINEERS

JS-025-056-4-FP1

REMAINING WORK

- HOIST HOUSE
- SURFACE DATA BUILDING
- SUBSURFACE DATA BUILDING
- A&E BUILDING

NNWSI/ESF TITLE I 50% REVIEW

MAY 9, 1988

JOSEPH DUMAS

ELECTRICAL DESIGN

DUMAS

DESIGN BASIS AND CRITERIA

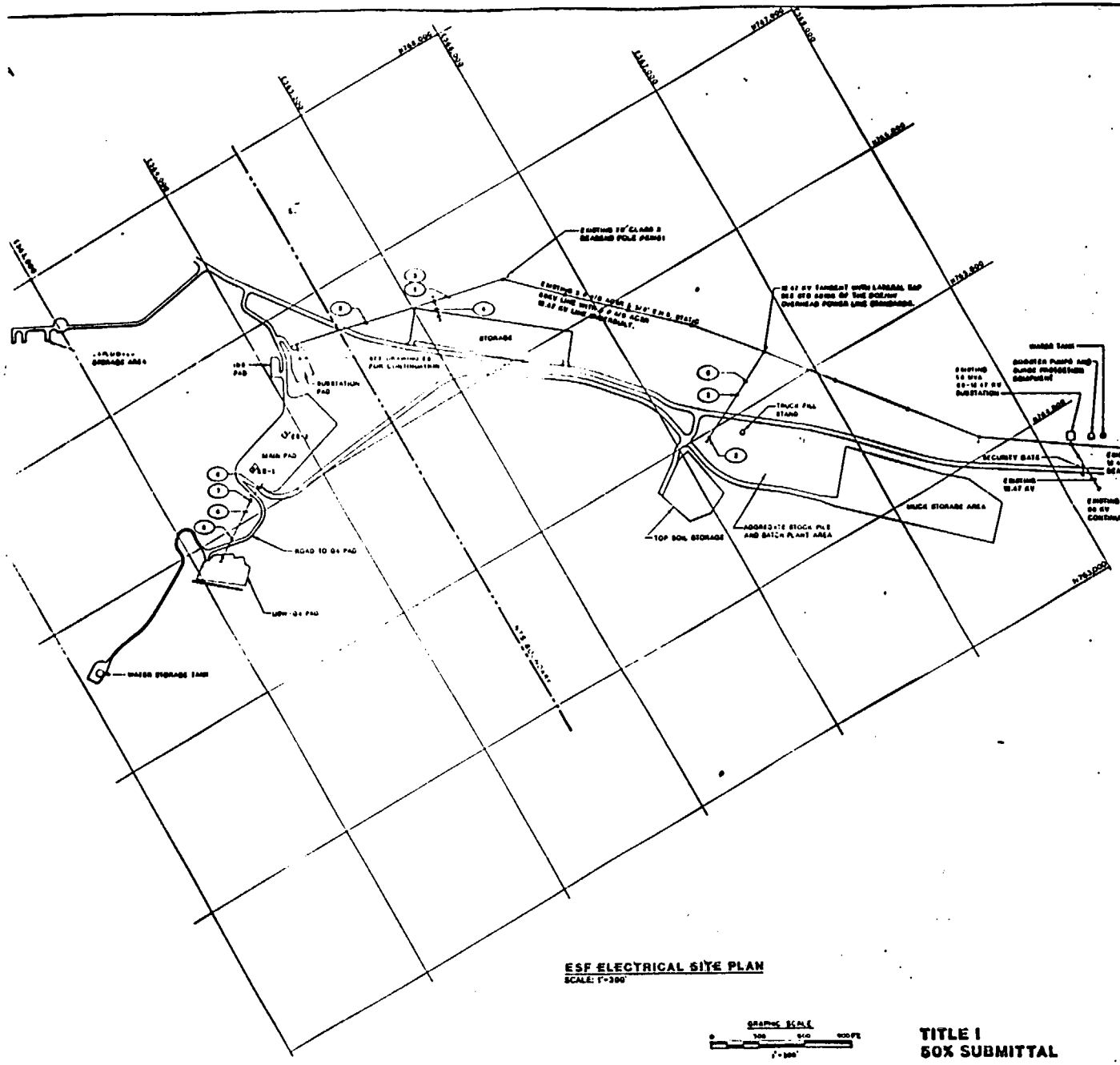
- SUBSYSTEM DESIGN REQUIREMENTS DOCUMENT
- DESIGN BASIS DOCUMENT

CODES AND STANDARDS

- NATIONAL ELECTRICAL CODE, NFPA 70
- NATIONAL ELECTRICAL SAFETY CODE, ANSI C2
- ILLUMINATING ENGINEERING SOCIETY REFERENCE AND HANDBOOK
- LIFE SAFETY CODE, NFPA 101
- DOE ORDER 6430 "GENERAL DESIGN CRITERIA MANUAL"
- MINE SAFETY AND HEALTH ADMINISTRATION (MSHA), CODE OF FEDERAL REGULATION, TITLE 30
- DOE OVERHEAD POWERLINE STANDARDS

POWER SYSTEMS REQUIREMENTS

- ELECTRICAL POWER SYSTEM
- STANDBY POWER SYSTEM
- UNINTERRUPTED POWER SYSTEM(S)



GENERAL NOTES

1. THIS RULE 1 DRAWING DEPICTS ONLY THE MAJOR DESIGN FEATURES OF THE PROJECT. ALL DETAILS, EQUIPMENT DESCRIPTIONS AND SPECIAL INSTRUCTIONS SHALL BE DEVELOPED DURING THE RULE 2 DESIGN.
2. ALL EQUIPMENT SHALL BE WATERPROOF.
3. ALL WORK, EQUIPMENT AND MATERIAL SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRICAL SAFETY CODE, AND EG AND THE PROJECT CONSTRUCTION SPECIFICATIONS.

KEYED NOTES:

1. INSTALL 3 # 4/0 ACSR & 3/0" S.S.S. STATIC, 69 KV LINE TO SUBSTATION PAD. USE VERTICAL CONSTRUCTION, BRANCH FROM EXISTING 69 KV TRANSMISSION LINE.
2. INSTALL 70' CLASS 3 POLE (TYP).
3. INSTALL 3 # 4/0 ACSR, 12.47 KV LINE UNDER 69 KV TRANSMISSION LINE ONE SPAN FROM EXISTING POLE # 5905.
4. INSTALL 4 # 4/0 ACSR, 12.47 KV LINE TO 45' CLASS 3 POLE AT STORAGE AREA AND DEADEND.
5. INSTALL 45' CLASS 3 POLE TYPICAL FOR 4.16 KV LINE.
6. NEW 4.16 KV UNDERGROUND SERVICE TO NEW DEADEND POLE WITH RISER. SEE DRAWING E6 FOR CONTINUATION.
7. NEW 4.16 KV DEADEND POLE WITH RISER. SEE STD. #00110 OF THE DOE/NV OVERHEAD POWER LINE STANDARDS.
8. INSTALL 4 # 2 ACSR, 4.16 KV DISTRIBUTION LINE FROM DEADEND POLE WITH RISER TO LOW-G4 PAD DEADEND POLE. SEE STD. #00101 OF THE DOE/NV OVERHEAD POWER LINE STANDARDS.
9. INSTALL 4 # 4/0 ACSR, 12.47 KV LINE TO BATCH PLANT AREA. SEE STD. #00101 OF THE DOE/NV OVERHEAD POWER LINE STANDARDS.

FOR REFERENCE DRAWINGS, SEE DRAWING T2

ESF ELECTRICAL SITE PLAN
SCALE: 1"=300'

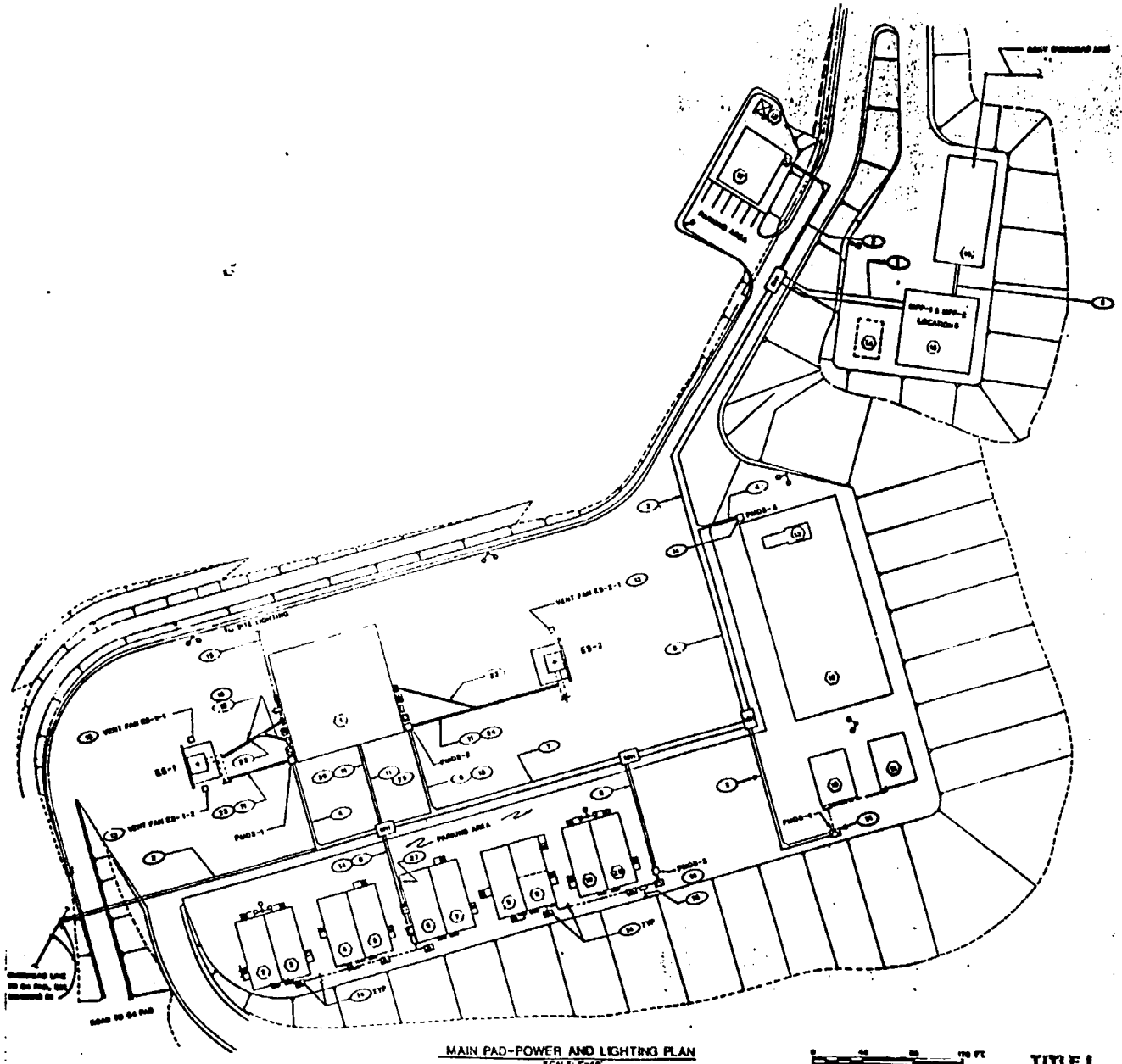
GRAPHIC SCALE
0 300 600 900 FT
1"=300'

TITLE I
50% SUBMITTAL

U.S. DEPARTMENT OF ENERGY
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY
ESF ELECTRICAL SITE PLAN

HOLMES & NARVER, INC.
ARCHITECTS - ENGINEERS

JS-025-ESF-E1



MAIN PAD-POWER AND LIGHTING PLAN
SCALE: 1"=40'

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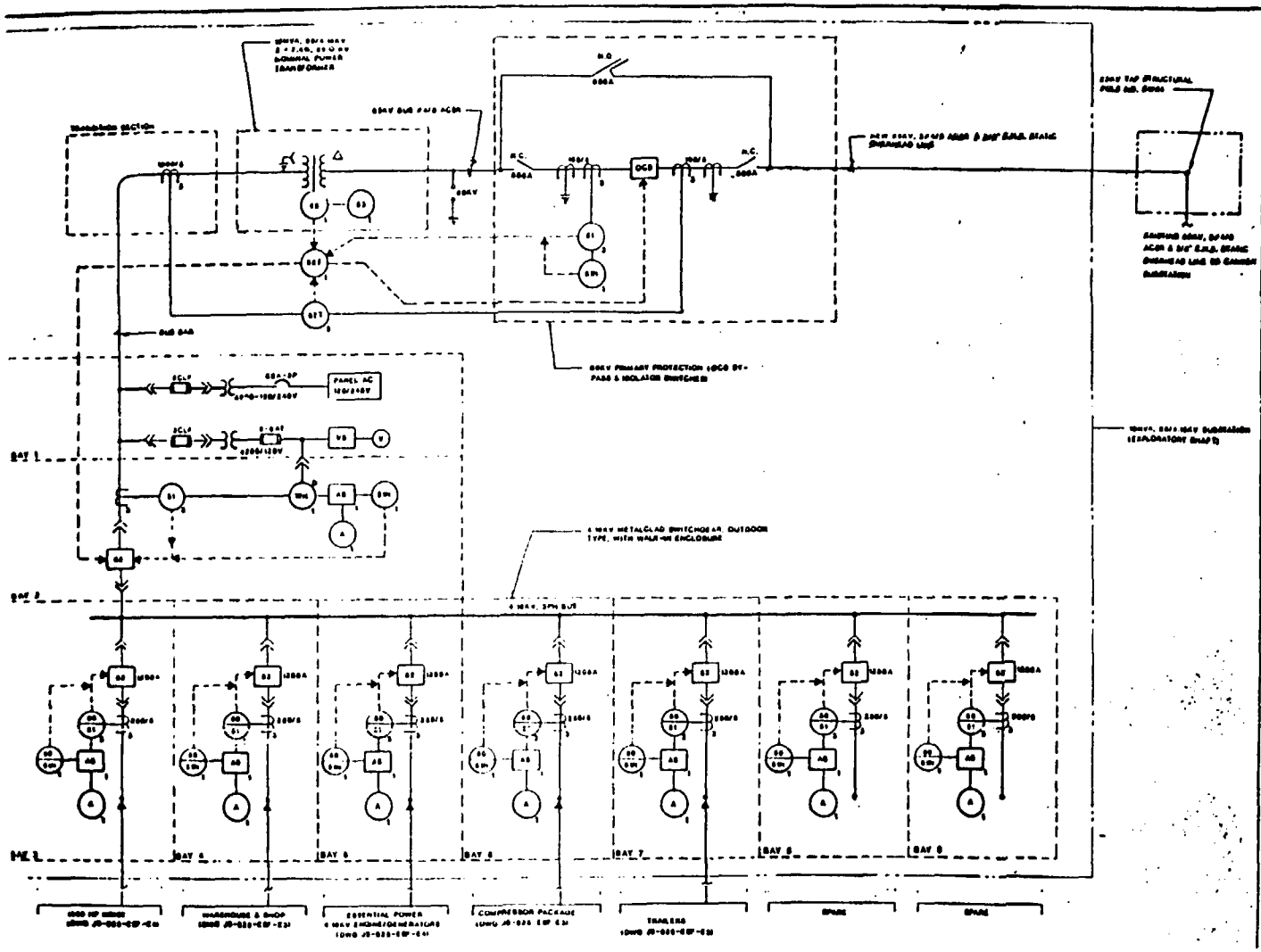
- (993) [illegible]
- (994) [illegible]
- (995) [illegible]
- (996) [illegible]
- (997) [illegible]
- (998) [illegible]
- (999) [illegible]
- (1000) [illegible]

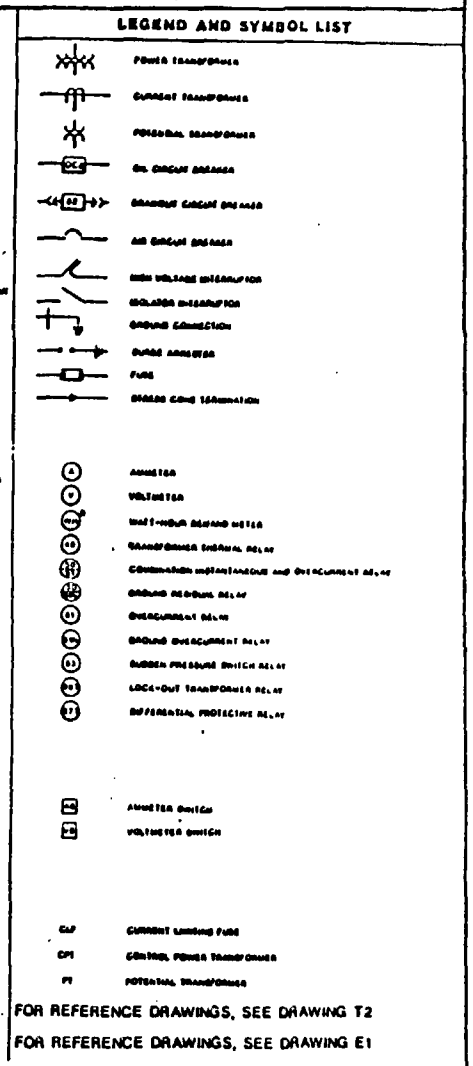
NOTES:

1. FOR GENERAL NOTES, SEE DRAWING E1.
2. ALL CONDUIT SIZES INDICATED ARE ASSUMED.
3. LIGHT FIXTURE—1000W HIGH PRESSURE SODIUM FLOODLIGHT TYPE, MOUNTED AT TOP OF 40 FT. POLE, QUANTITY OF FIXTURES AS INDICATED ON DWGS.
4. TOP OF DUCT BANK TO BE INSTALLED A MINIMUM OF 48" FROM FINISH ROAD OR PARKING AREA WITH A 4"/100' DRAIN SLOPE TOWARD MANHOLE AND TO HAVE A MINIMUM OF 3" CONCRETE ENCASEMENT AT THE TOP, BOTTOM AND SIDES.

FOR REFERENCE DRAWINGS, SEE DRAWING T2

TITLE I
50% SUBMITTAL





MAIN SWITCHGEAR ONE LINE DIAGRAM

TITLE I
50% SUBMITTAL

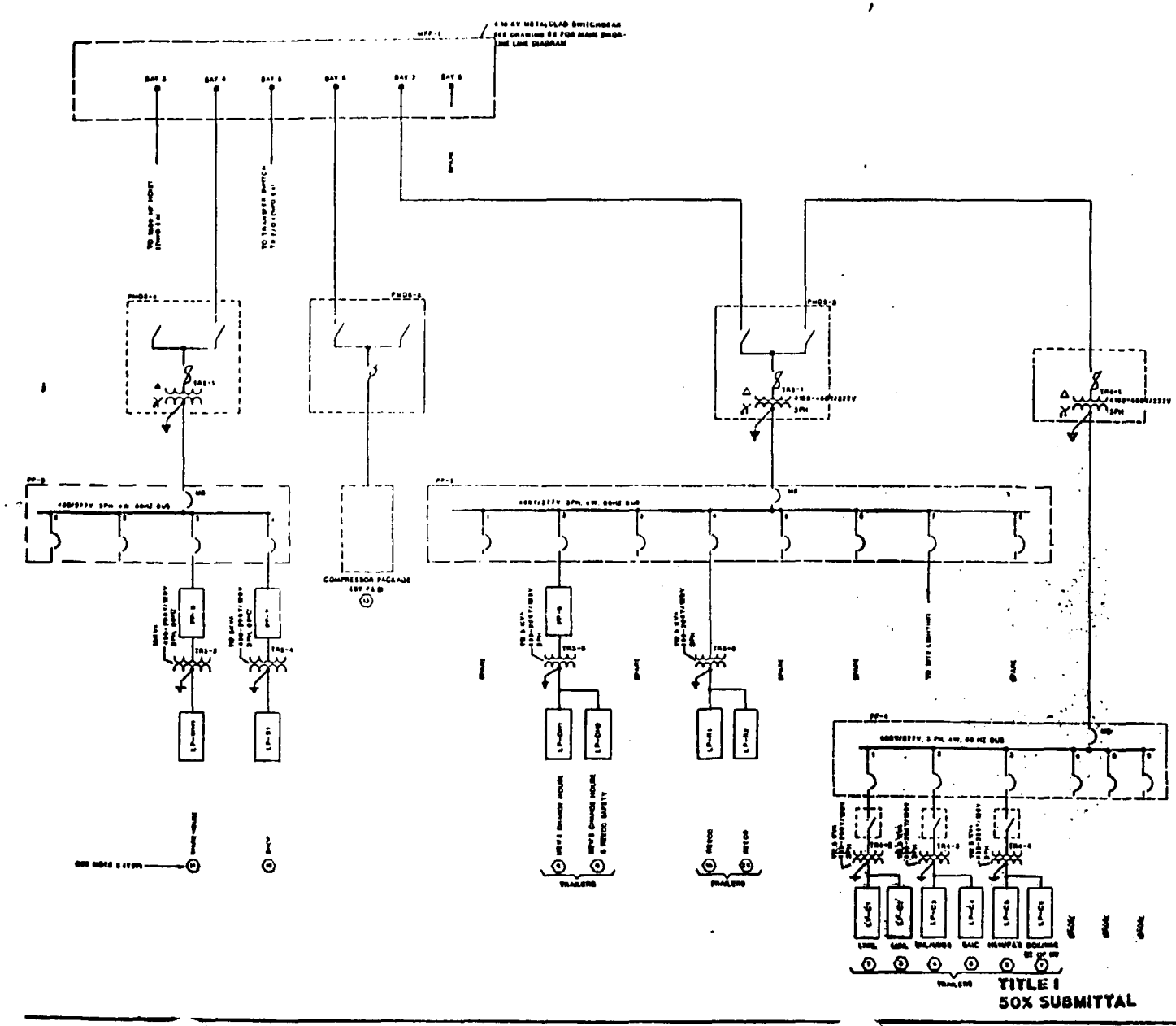
U. S. DEPARTMENT OF ENERGY

NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
EXPLORATORY SHAFT FACILITY

MAIN SWGR-ONE LINE DIAGRAM

HOLMES & NARVER, INC.
ARCHITECTS-ENGINEERS

JS-025-ESF-E2



NOTES:

1. FOR GENERAL NOTES, SEE DRAWING E1.
2. FOR LEGEND, SEE DRAWING E2.
3. NUMBER IN HEXAGON (1) IDENTIFIES ITEM AS SHOWN IN LEGEND ON DRAWING E2.

FOR REFERENCE DRAWINGS, SEE DRAWING T2

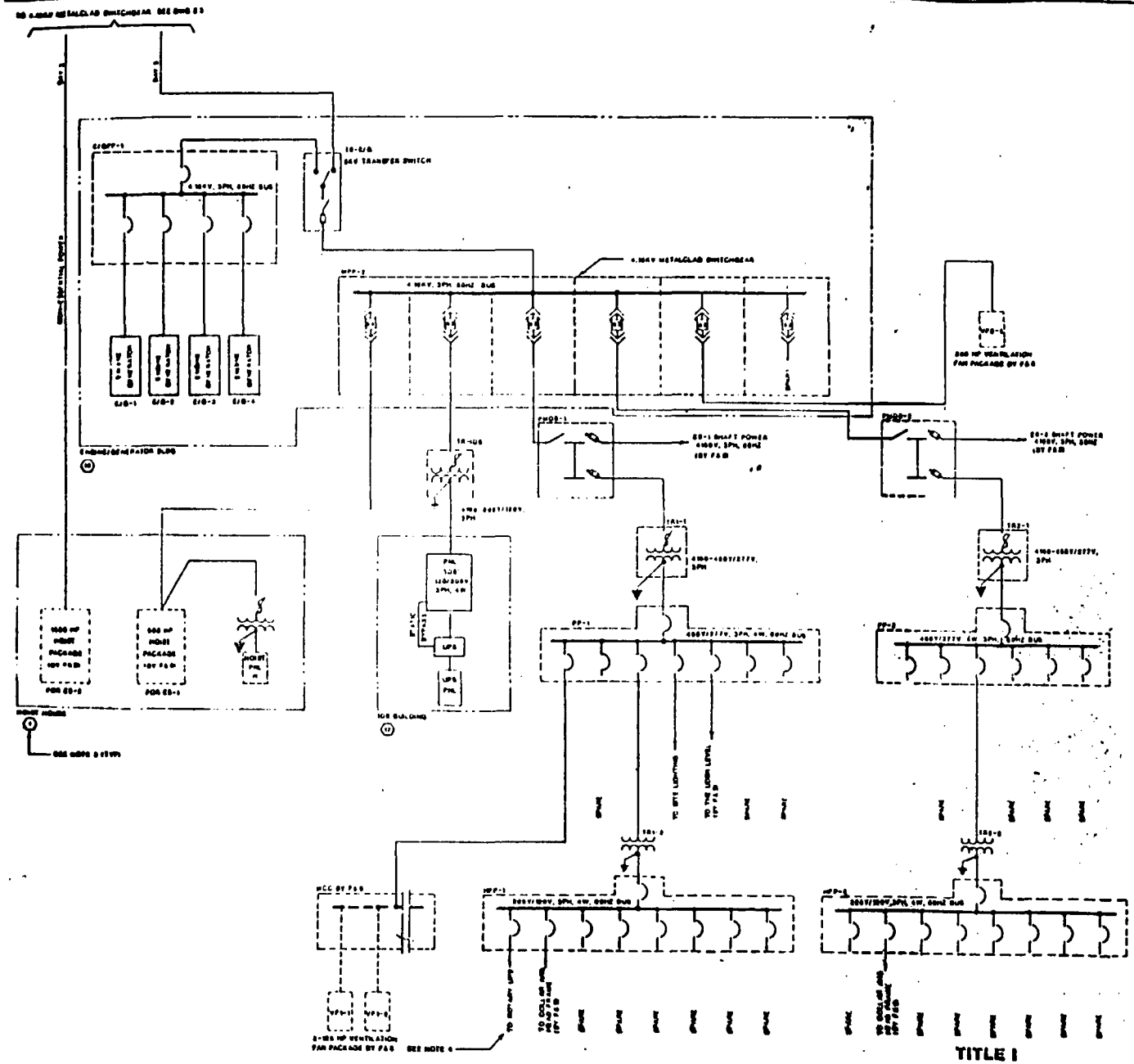
TITLE I
50% SUBMITTAL

U. S. DEPARTMENT OF ENERGY
LAS VEGAS, NEVADA

NEVADA NUCLEAR WASTE STORAGE INVESTIGA
EXPLORATORY SHAFT FACILITY
NON-ESSENTIAL POWER
ONE LINE DIAGRAM

HOLMES & NARVER, INC.
ARCHITECTS-ENGINEERS
LAS VEGAS, NEVADA

JS-025-ESF-E1



NOTES:

1. FOR GENERAL NOTES, SEE DRAWING E1.
2. FOR LEGEND, SEE DRAWING E2.
3. NUMBER IN HEXAGON (1) IDENTIFIES ITEM AS SHOWN IN LEGEND ON DRAWING E2.
4. FOR TEMPORARY IN-SHAFT 480/277V, 3PH UPS POWER FOR THE DATA ACQUISITION STATIONS IN SHAFT ES-1.

FOR REFERENCE DRAWINGS, SEE DRAWING T2

TITLE I
50% SUBMITTAL

U. S. DEPARTMENT OF ENERGY

NEVADA NUCLEAR WASTE STORAGE INVESTIGAT

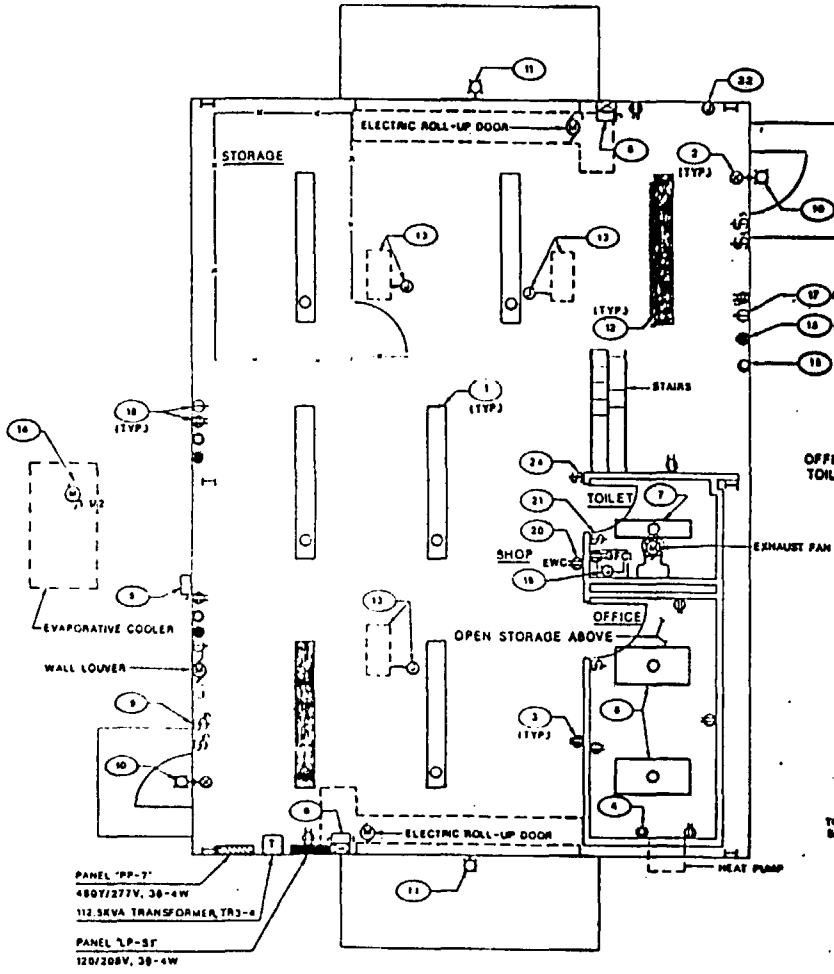
EXPLORATORY SHAFT FACILITY
ESSENTIAL POWER
ONE LINE DIAGRAM

HOLMES & NARVER, INC.
ARCHITECTS-ENGINEERS

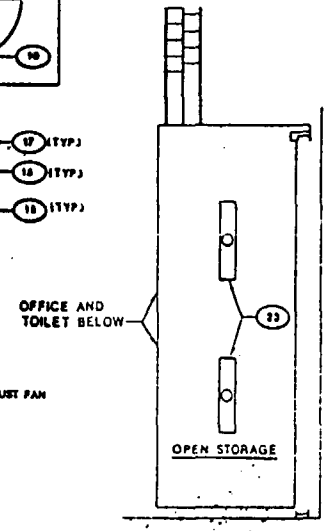
JS-025-ESF-E4

NORTH

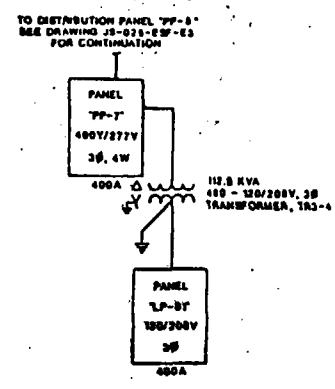
SHOP BUILDING 6000



LIGHTING AND POWER PLAN
SCALE: 1/4"=1'-0"



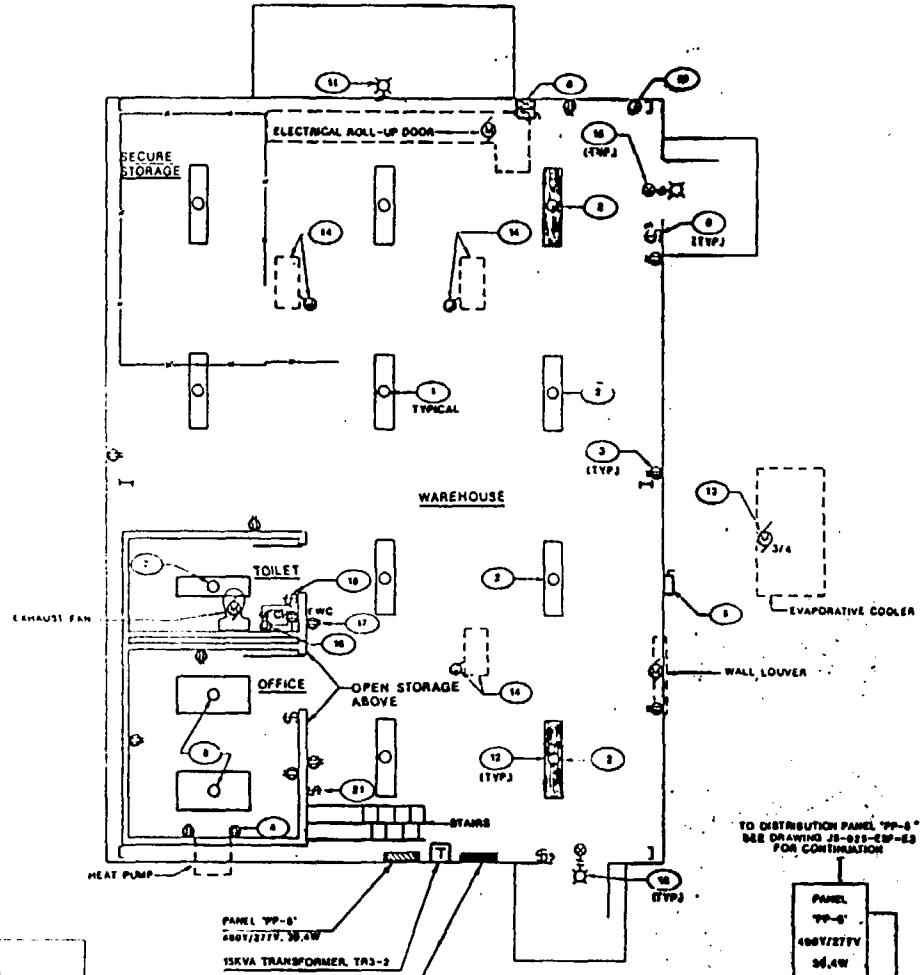
OPEN STORAGE LIGHTING PLAN
SCALE: 1/4"=1'-0"



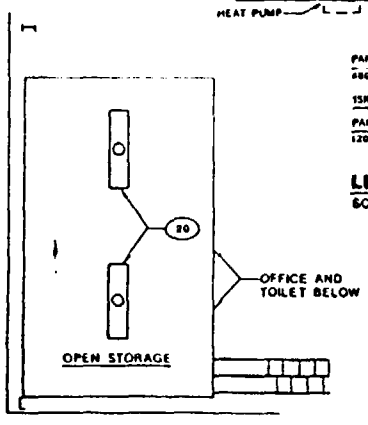
ONE LINE DIAGRAM
NOT TO SCALE

NORTH

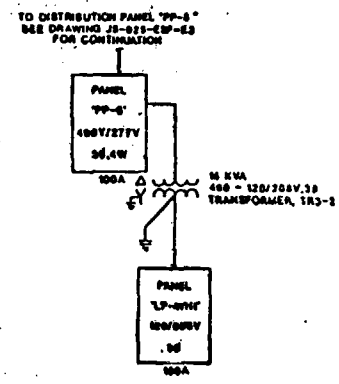
WAREHOUSE BUILDING 6001



LIGHTING AND POWER PLAN
SCALE: 1/4"=1'-0"

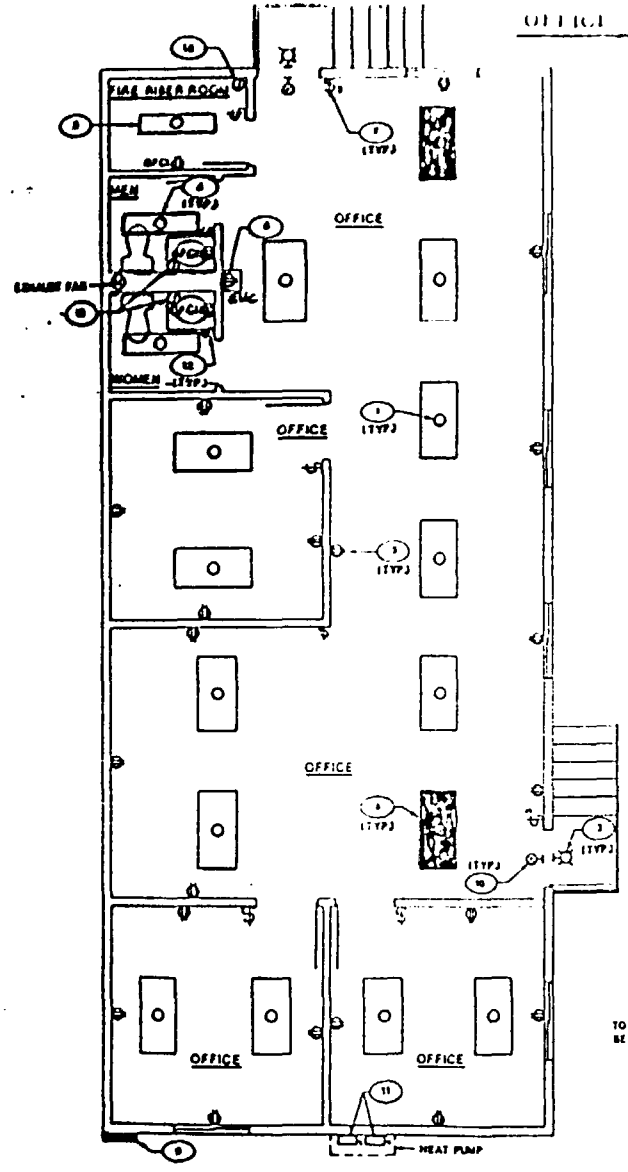


OPEN STORAGE LIGHTING PLAN
SCALE 1/4"=1'-0"

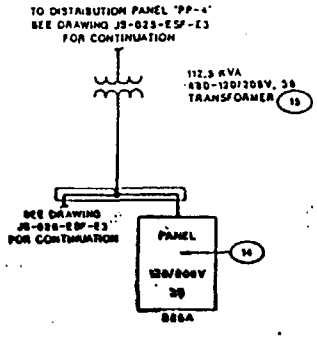


ONE LINE DIAGRAM
NOT TO SCALE

OFFICE TRAILER - TYPE A

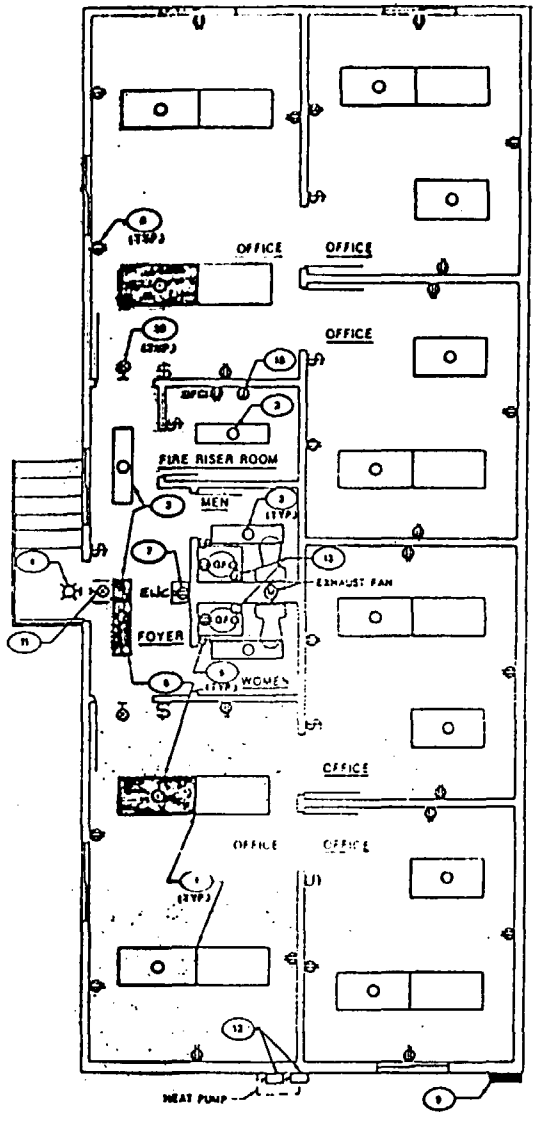


LIGHTING AND POWER PLAN
SCALE: 1/4"=1'-0"

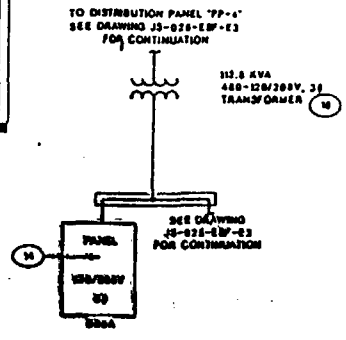


ONE LINE DIAGRAM
NOT TO SCALE

OFFICE TRAILER - TYPE B

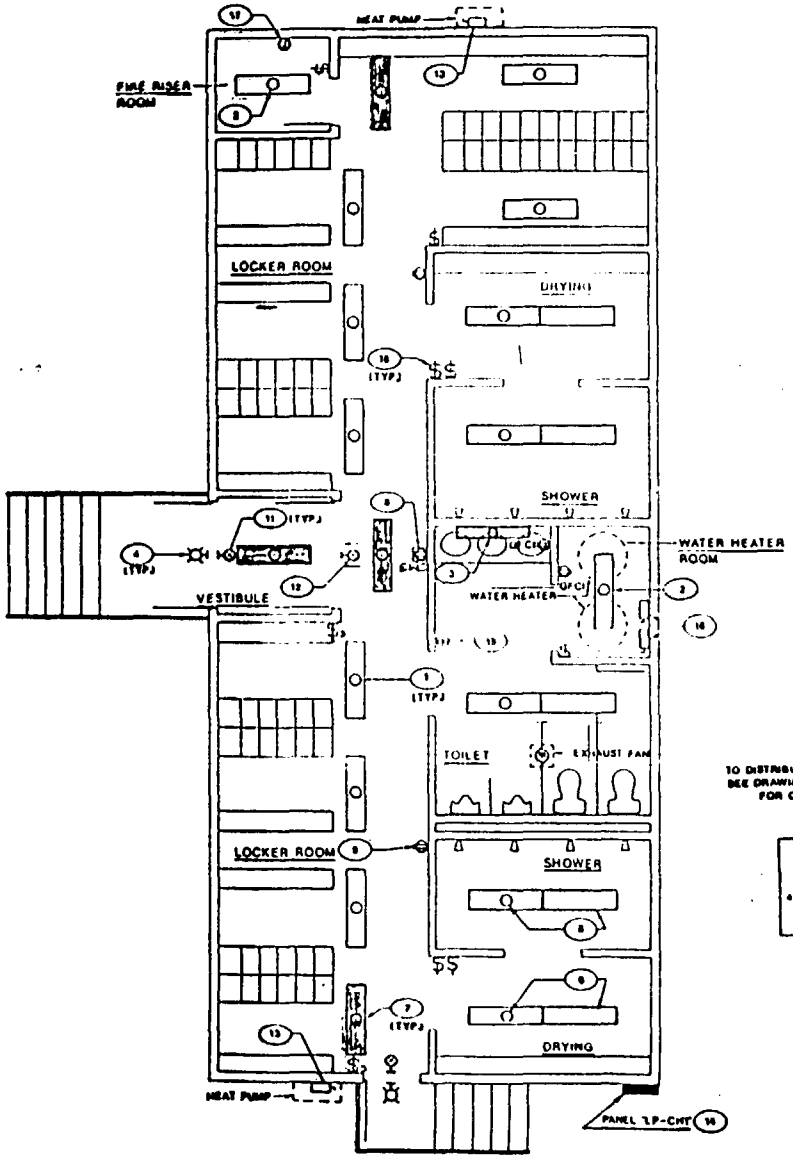


LIGHTING AND POWER PLAN
SCALE: 1/4"=1'-0"

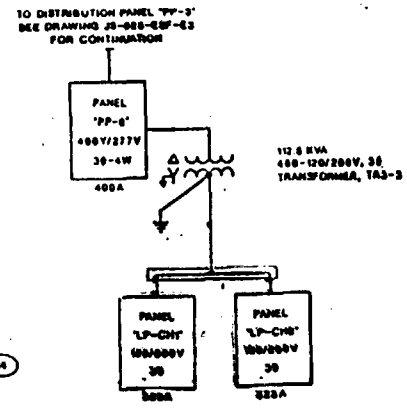


ONE LINE DIAGRAM
NOT TO SCALE

CHANGE HOUSE TRAILER - TYPE A

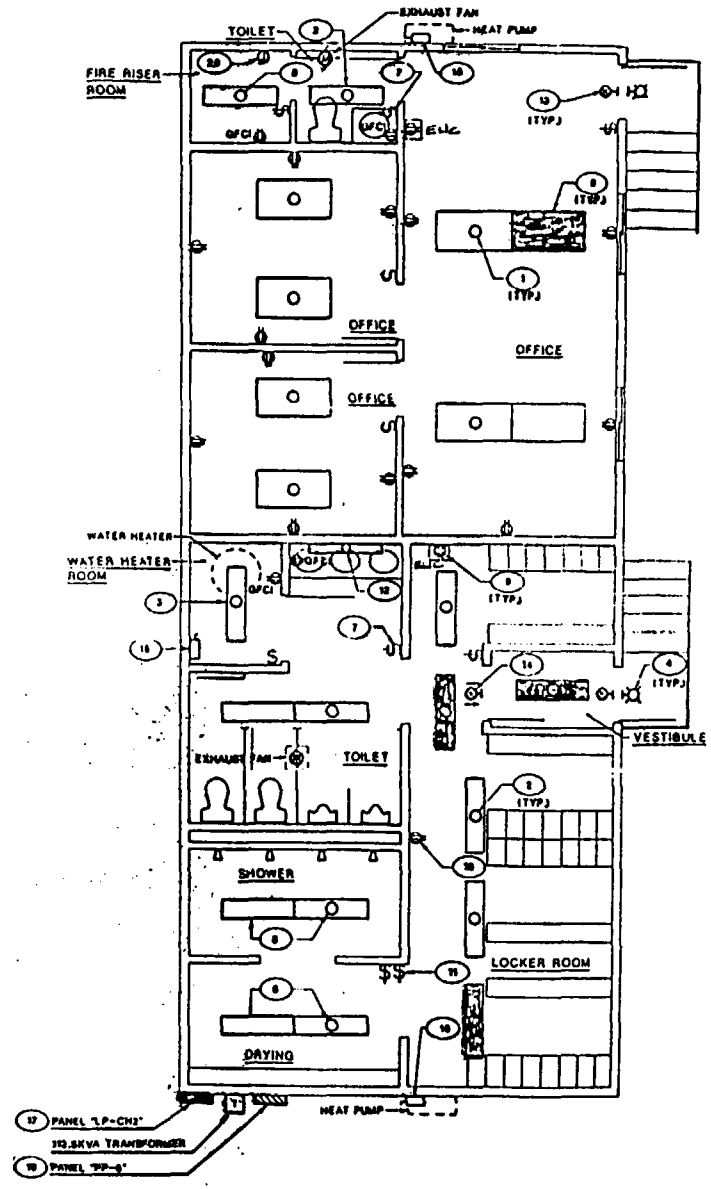


LIGHTING AND POWER PLAN
SCALE: 1/4"=1'-0"



ONE LINE DIAGRAM
NOT TO SCALE

CHANGE HOUSE TRAILER - TYPE B



LIGHTING AND POWER PLAN
SCALE: 1/4"=1'-0"

REMAINING WORK

- HOIST HOUSE
- SURFACE DATA BUILDING
- SUBSURFACE DATA BUILDING
- A&E BUILDING
- SUBSURFACE POWER AND LIGHTING FOR TEST ALCOVES

WORKSHOPS

Tuesday, May 10, 1988, Room 3

TIME	SUBJECT	ORGANIZATION
8:00 a.m.	U/G Design Flexibility	F&S
10:00 a.m.	Roof Control/Rock Mech.	F&S
1:00 p.m.	Shaft Excavation and Control Blasting	F&S
3:00 p.m.	Site Drainage and PMF	H&N

5:30 CLOSE OUT WITH GERTZ

COVER

F S

engineering
construction
management

NNWSI

EXPLORATORY SHAFT FACILITY

FENIX & SCISSON, INC.

TITLE I 50& REVIEW

PRESENTATION

MAY 9, 1988

FENIX & SCISSON

FIFTY PERCENT TITLE I DESIGN

PROJECT OVERVIEW

DICK BULLOCK

MAY 9, 1988

TITLE I DESIGN

- THE TITLE I EFFORT CONSISTS OF DEVELOPING A PRELIMINARY UNDERGROUND ESF DESIGN AND SUPPORTING DESIGN INFORMATION.

- TITLE I DESIGN WILL SERVE AS A BASIS FOR ADDITIONAL DEFINITION OF DESIGN CRITERIA AND SCOPE FOR THE TITLE II DEFINITIVE DESIGN OF THE ESF.

CONTRACTUAL REQUIREMENTS

DESIGN OF:

- o EXCAVATION AND LINING OF THE TWO SHAFTS
- o HOISTS AND HEADFRAMES FOR THE TWO SHAFTS
- o SUBSURFACE EXCAVATIONS
- o UTILITIES AND COMMUNICATIONS IN-SHAFT AND UNDERGROUND
- o MINE PLANT
- o SHAFT INTERNALS (FURNISHINGS) AND CONVEYANCES FOR THE TWO SHAFTS

INTERFACE WITH:

- o HOLMES & NARVER - SURFACE FACILITIES
- o REECO - CONSTRUCTION
- o LANL - TEST COORDINATOR GROUP - TESTING

BASIC DESIGN PHILOSOPHY

- ANALYZE GEOTECHNICAL DATA FOR SHAFT LINING AND SUBSURFACE DESIGN APPLICATIONS
- DETERMINE CRITERIA FOR PERMANENT (100 YEAR LIFE) AND NONPERMANENT (5 YEAR LIFE) STRUCTURES
- CONDUCT TRADE-OFF STUDIES FOR OPTIMUM SUBSYSTEM DESIGN
- PREPARE CALCULATIONS AND SKETCHES

- SUBJECT DESIGN TO INTERNAL INTER-DISCIPLINE REVIEW FOR COMPLIANCE WITH DESIGN REQUIREMENTS

- SUBJECT DESIGN TO PEER REVIEW (SUCH AS THIS 50% TITLE I REVIEW). RESOLVE COMMENTS AND INCORPORATE RESOLUTIONS INTO DESIGN.

- ALL OF THE ABOVE SUBJECT TO A WELL ESTABLISHED QA PROGRAM, SURVEILANCE AND AUDITS

QUALITY ASSURANCE

- THE PURPOSE OF FENIX & SCISSON QA PROGRAM IS TO PROVIDE CONFIDENCE THAT F & S WILL CONTINUALLY ACHIEVE SATISFACTORY QUALITY PERFORMANCE.

- THE QA PROGRAM IS BASED UPON THE NNWSI QA PLAN, NVO-196-17 AS APPLICABLE TO QA LEVELS I AND II, AND NNWSI ADMINISTRATIVE PROCEDURES.

- ALL F & S DESIGN PERSONNEL ARE INDOCTRINATED, TRAINED AND REQUIRED TO COMPLY WITH REQUIREMENTS OF QA PLAN AND PROCEDURES.

- QA PROGRAM INCLUDES CONTROLS TO VERIFY CONFORMANCE OF ALL ELEMENTS OF THE PROGRAM INCLUDING:

  - PERSONNEL
  - ORGANIZATION
  - WORK ASSIGNMENTS
  - PROCEDURE
  - DOCUMENTATION
  - NONCONFORMANCE
  - CORRECTIVE ACTION

- QA PERSONNEL ASSURE THAT THE QA PROGRAM IS EXECUTED EFFECTIVELY AND VERIFY, BY CHECKING, AUDITING, SURVEILANCE AND INSPECTION, THAT QUALITY AFFECTING ACTIVITIES ARE PERFORMED CORRECTLY.

OVERALL ACCOMPLISHMENTS

- KICKOFF MEETING FOR TITLE I DESIGN TOOK PLACE ON JANUARY 13, 1988.

- STAFFING UP, TRAINING, QA AND DESIGN PROCEDURE INDOCTRINATION WAS COMPLETED.

- DURING THIS PERIOD, WE RELOCATED OUR DESIGN OFFICE FROM TULSA TO LAS VEGAS FOR GREATER EFFICIENCY AND BETTER COORDINATION WITH OTHER PROGRAM PARTICIPANTS.

- HAVE BROUGHT IN PARSONS BRINCKERHOFF AS PART OF THE F & S TEAM. PARSONS BRINCKERHOFF HAS HAD VALUABLE EXPERIENCE IN SALT, BASALT AND TUFF PROJECTS AND HAS CONSIDERABLY STRENGTHENED OUR DESIGN CAPABILITY.

- TITLE I DESIGN EFFORT IS ON SCHEDULE.

- THIS 50% TITLE I DESIGN REVIEW IS THE FIRST OF ITS KIND IN NNWSI AND WE LOOK FORWARD TO YOUR CONSTRUCTIVE COMMENTS.

ORDER OF PRESENTATION

1. LOREN WEYAND	OVERALL TECHNICAL REVIEW
2. BRUCE STANLEY	SHAFT & SUBSURFACE DESIGN
3. ROMEO JURANI	VENTILATION DESIGN
4. IVO LANGE	STRUCTURAL DESIGN
5. CHUCK HATCHER	ELECTRICAL DESIGN
6. LARRY BARTO	UTILITIES

FENIX & SCISSON

FIFTY PERCENT TITLE I DESIGN

TECHNICAL OVERVIEW

LOREN WEYAND

MAY 9, 1988

- THE DESIGN BASELINE
- F & S DESIGN CONTROL PROCEDURES
- CONFIGURATION MANAGEMENT
- DESCRIPTION OF 50% TITLE I REVIEW PACKAGE
- REMAINING TITLE I WORK SCHEDULE

THE ESF DESIGN BASELINE

- o SDRD (NVO-309)
  - APPENDIX B TEST AND IDS REQUIREMENTS
  - APPENDIX C TEST HOLE REQUIREMENTS
- o APPROVED ENGINEERING CHANGE REQUESTS (ECR)
- o REFERENCE INFORMATION BASE (RIB)
- o CODES & REGULATIONS

F&S DESIGN CONTROL PROCEDURES

- PROCEDURES WHICH PROVIDE CONTROL AND CONFIRMING DOCUMENTATION FOR:
  - RECEIPT AND TRANSMITTAL OF TECHNICAL DATA
  - DESIGN METHODOLOGY, ANALYSIS AND CALCULATION
  - DESIGN INTERFACE CONTROL
  - CHANGE CONTROL

CONFIGURATION MANAGEMENT

- o F&S BASIS FOR DESIGN DOCUMENT (BFD) REVISION 1
- o F&S TITLE I SCOPE AND PLANNING DOCUMENT (DSPD) REVISION 1
  - F&S SCOPE OF WORK
  - DELIVERABLES
  - DESIGN BUDGETS AND SCHEDULES
- o DESIGN INTERFACE CONTROL PROCEDURES

DESCRIPTION OF TITLE I 50% DESIGN REVIEW PACKAGE

- o. DRAWINGS
- o. OUTLINE SPECIFICATIONS
- o CALCULATIONS AND ANALYSIS

REMAINING TITLE I WORK SCHEDULE

- o WORK CONTINUING THROUGH REVIEW PERIOD
- o IMPACT OF MOVE ON SCHEDULE
- o COMPLETE BALANCE OF GEN. ARRGTS.
- o REFLECT REVIEW/COMMENT RESULTS
- o SCHEDULED COMPLETION
- o LLD ITEM DESIGNS COMPLETE FOR TITLE I REVIEW

FENIX & SCISSON

FIFTY PERCENT TITLE I DESIGN

SHAFT & SUBSURFACE DESIGN

BRUCE STANLEY

MAY 9, 1988

DESIGN GOALS

- o SAFETY
- o TEST SUPPORT
- o CONSTRUCTABILITY
- o FLEXIBILITY

TECHNICAL CRITERIA SOURCES

1. SDRD

   1.2.6.0 GENERAL

   1.2.6.4 FIRST SHAFT

   1.2.6.5 SECOND SHAFT

   1.2.6.6 UNDERGROUND EXCAVATIONS

   1.2.6.8 UNDERGROUND TESTS

   APPENDIX A ESF SKETCHES

   APPENDIX B TEST AND ID REQUIREMENTS

   APPENDIX C TEST HOLE REQUIREMENTS

2. REFERENCE INFORMATION BASE

3. BASIS FOR DESIGN

4. DESIGN SCOPE AND PLANNING DOCUMENT

5. GENERIC REQUIREMENTS DOCUMENT

6. STATE AND FEDERAL REGULATIONS AND STANDARDS

CODES AND STANDARDS

- o STATE OF NEVADA
  - MINE SAFETY AND HEALTH STANDARDS
- o CALIFORNIA ADMINISTRATIVE CODE
  - TUNNEL SAFETY ORDERS
  - MINE SAFETY ORDERS
- o CODE OF FEDERAL REGULATIONS
  - 30 CFR57
  - 10 CFR60
- o D.O.E. ORDERS
- o VARIOUS STANDARDS AND RECOMMENDED PRACTICES

ES-1 AND ES-2 SHAFT

- o COLLAR
- o LINER (includes ground support)
- o EXCAVATION
- o SUMP

COLLAR FEATURES

- o SIMPLE - MONOLITHIC
- o UTILITY ACCESS
- o FUNCTIONAL
  - HEADFRAME SUPPORT
  - MUCK DUMPING
  - MATERIALS HANDLING
  - VENTILATION ACCOMMODATION

LINER DESIGN FEATURES

- NON - HYDROSTATIC
- STATIC LOADS
- DYNAMIC LOADS
- CONSTRUCTABILITY
- DESIGN LIFE
- TEST SUPPORT

SHAFT EXCAVATION

- o CONTROLLED DRILL AND BLAST
- o TEST SUPPORT
- o SAFETY FOR CONTRACTOR AND PRINCIPAL INVESTIGATOR
- o SCHEDULING

SUMP AND TAILSHAFT

- o SIMPLE - NON-HYDROSTATIC
- o ES-2 MUCK LOADOUT FACILITIES
- o ES-1 NO SKIP LOADING

SUBSURFACE LAYOUT

- TEST AREAS
- SUPPORT AREAS
- EXPLORATION DRIFTS
- AREAS OF FUTURE EXPANSION
- GROUND SUPPORT

REMAINING TITLE I TASKS

- o LINER DESIGN
- o GROUND SUPPORT
- o DUST COLLECTION SYSTEM
- o DESIGN COORDINATION - A/E'S, DISCIPLINES
- o DEFINITION OF GEOTECHNICAL PARAMETERS AFFECTING THE DESIGN
- o SPECIALTY ITEMS - PROCUREMENT ITEMS

FENIX & SCISSON

FIFTY PERCENT TITLE I DESIGN

STRUCTURAL DESIGN

HOISTING SYSTEM

IVO LANGE

MAY 9, 1988

ESF DESIGN - TITLE I

PHASE I (50%) - OPERATIONAL HOISTING SYSTEM

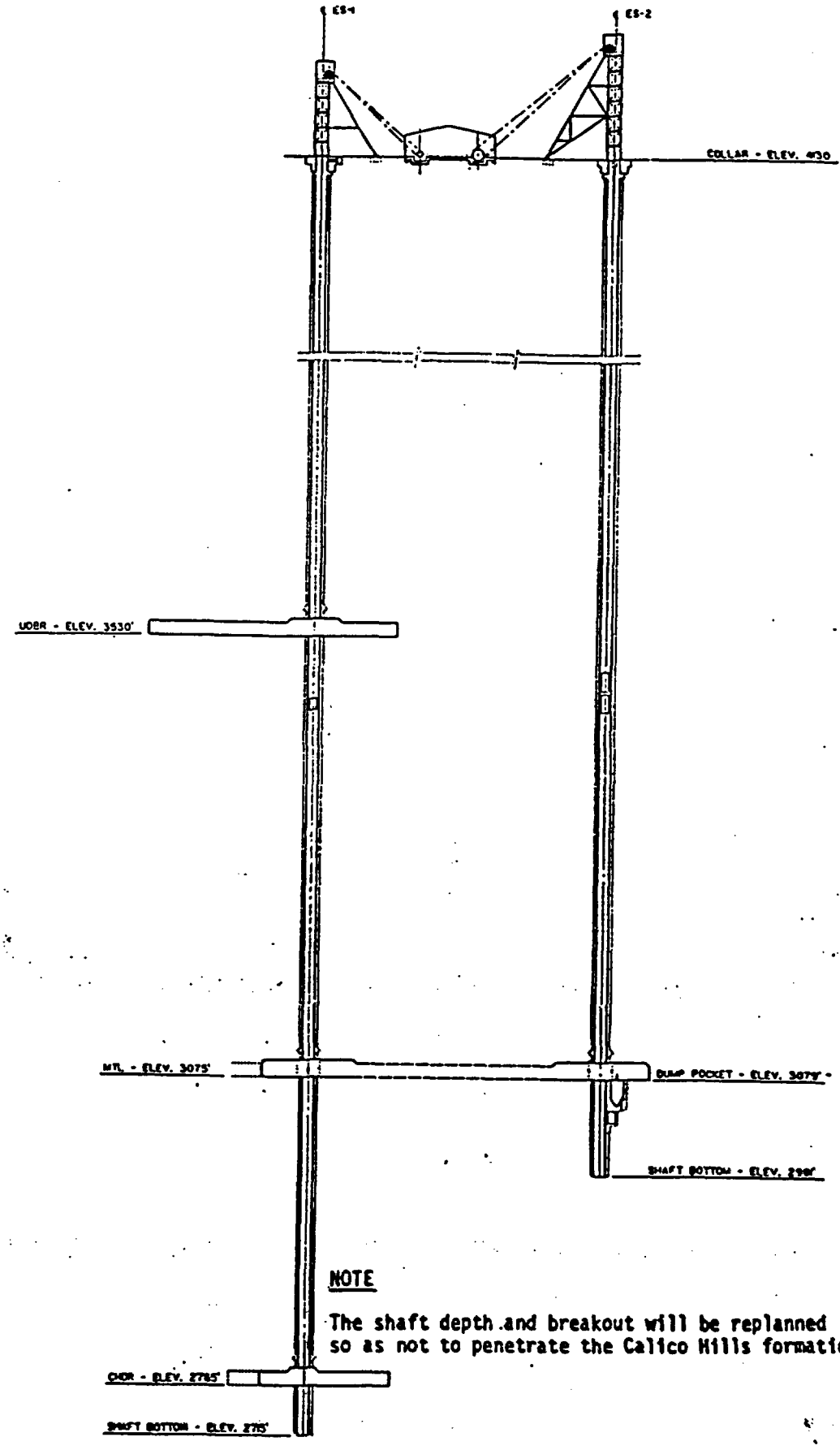
- o GENERAL ARRANGEMENT
- o SUPPORT CALCULATIONS (PRELIMINARY)
  - FLEET ANGLES
  - OVERRUNS
  - HOISTING RATE
  - DUTY CYCLES

PHASE II - SINKING HOISTING SYSTEMS AND EQUIPMENT

- o GENERAL ARRANGEMENT
- o SUPPORT CALCULATIONS (FINAL)
- o DESIGN CRITERIA FOR TITLE II
- o PROCUREMENT PACKAGES

GENERAL CRITERIA OF DESIGN

- SAFETY OF MAN AND MATERIAL HANDLING
- CAPACITY AND FUNCTIONAL REQUIREMENTS
- CONSTRUCTIBILITY
- MAINTENANCE REQUIREMENTS
- COST COMPATIBLE TO EXPECTED LIFE



NOTE

The shaft depth and breakout will be replanned so as not to penetrate the Calico Hills formation.

OPERATIONAL HOISTING SYSTEM

MOVABLE PARTS:

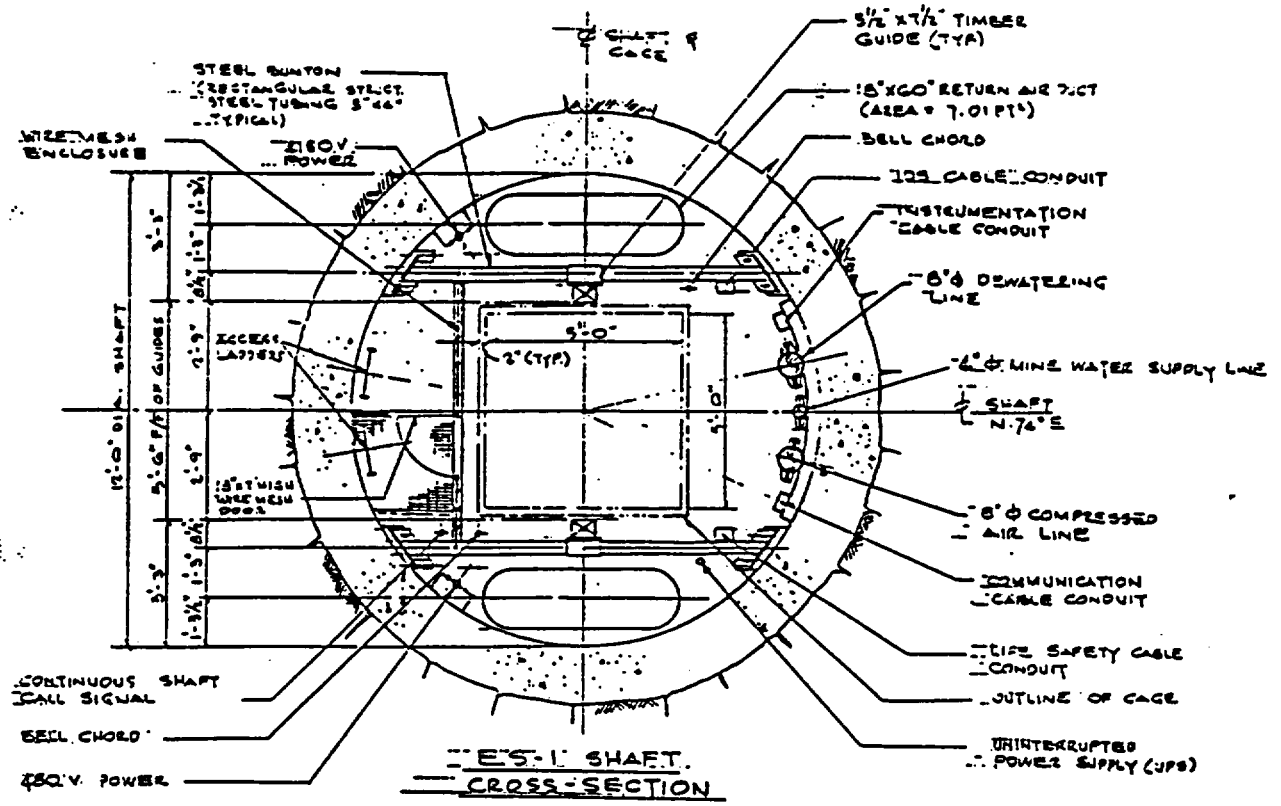
- o CONVEYANCES AND ROPES

STATIONARY PARTS:

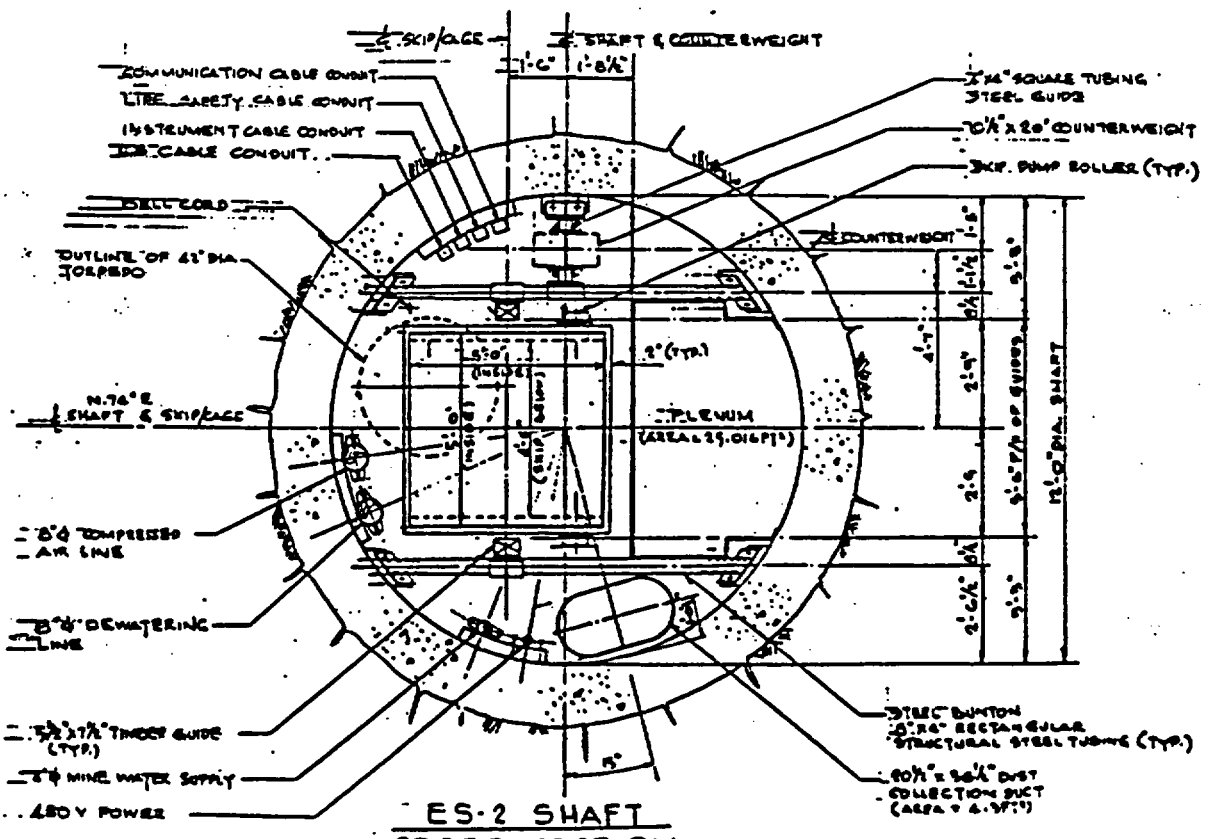
- o HOIST AND ELECTRICAL POWER
- o HEADFRAME WITH HEADSHEAVES
- o SHAFT
  - COLLAR
  - SHAFT
  - STATIONS
  - TAIL SHAFT
- o RIGID GUIDES
- o COMMUNICATION AND INSTRUMENTATION

SHAFTS

- HOISTING
- VENTILATION
- UTILITY LINES
- EMERGENCY EGRESS
- SHAFT INSTRUMENTATION SYSTEM



ES-1 SHAFT
CROSS-SECTION



ES-2 SHAFT
CROSS-SECTION

FENIX & SCISSON

FIFTY PERCENT TITLE I DESIGN

UNDERGROUND VENTILATION

ROMEO JURANI

MAY 9, 1988

DESIGN BASIS

- SDRD REV. 1 (12/87)
- NEVADA MINE HEALTH AND SAFETY STANDARDS
- CAL. MINE SAFETY & TUNNEL CODES
- 30 CFR 57 (MSHA)

DESIGN INPUT

- o MAX. SHAFT VEL. 2000 fpm
- o MAX. DRIFT VEL. 1500 fpm
- o MIN. DRIFT VEL. 60 fpm
- o SUPPORT DIESEL EQUIP.
  (100 cfm/Bhp-)
- o CONTROLLED AIR FLOW

DESIGN INPUT (CON'T)

- o MINIMIZED LEAKAGE & UNCONTROLLED RECIRCULATION AS PRACTICABLE
- o AIR COOLING POWER EQUAL OR TO EXCEED 400 W/M^2
- o BACKUP SYSTEM FOR UNINTERRUPTED SUPPLY OF FRESH AIR
- o OPTIMIZED SYSTEM WITHIN NNWSI OBJECTIVES

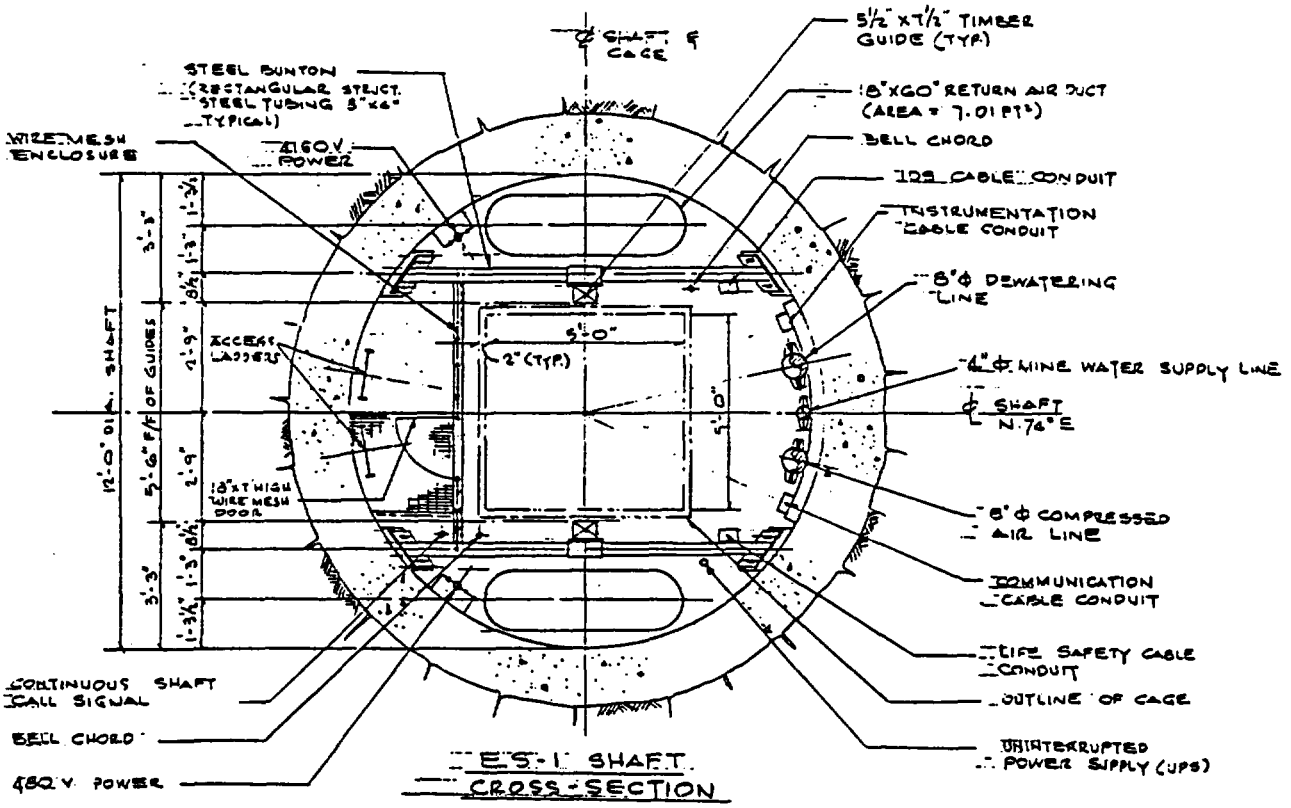
MINING SCHEDULE CONSTRAINT

- TESTING AND CHARACTERIZATION SCHEDULE IMPOSED THAT MTL BE DEVELOPED WITH ONE SHAFT (ES-2) AS SUPPLY AND RETURN AIRWAY

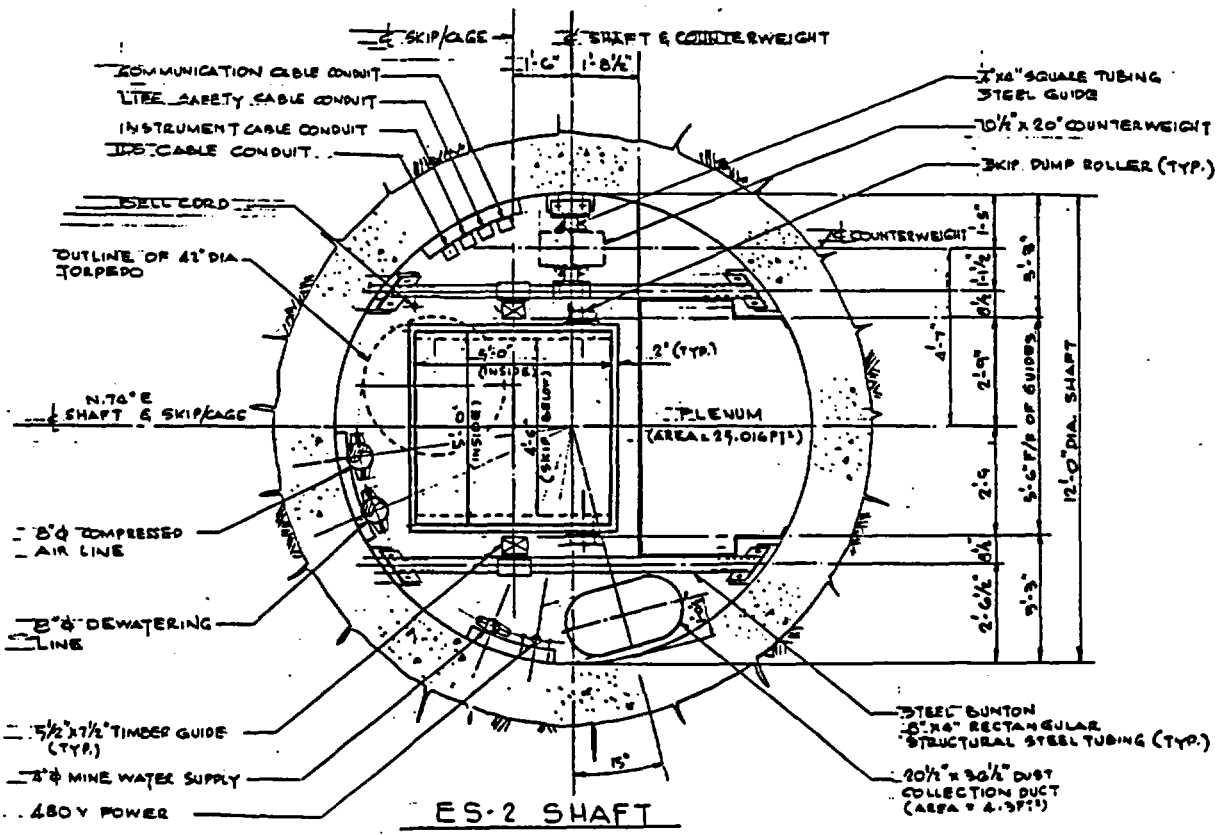
  (DISCUSSION IN WORKSHOP)

GENERAL VENTILATION MODE

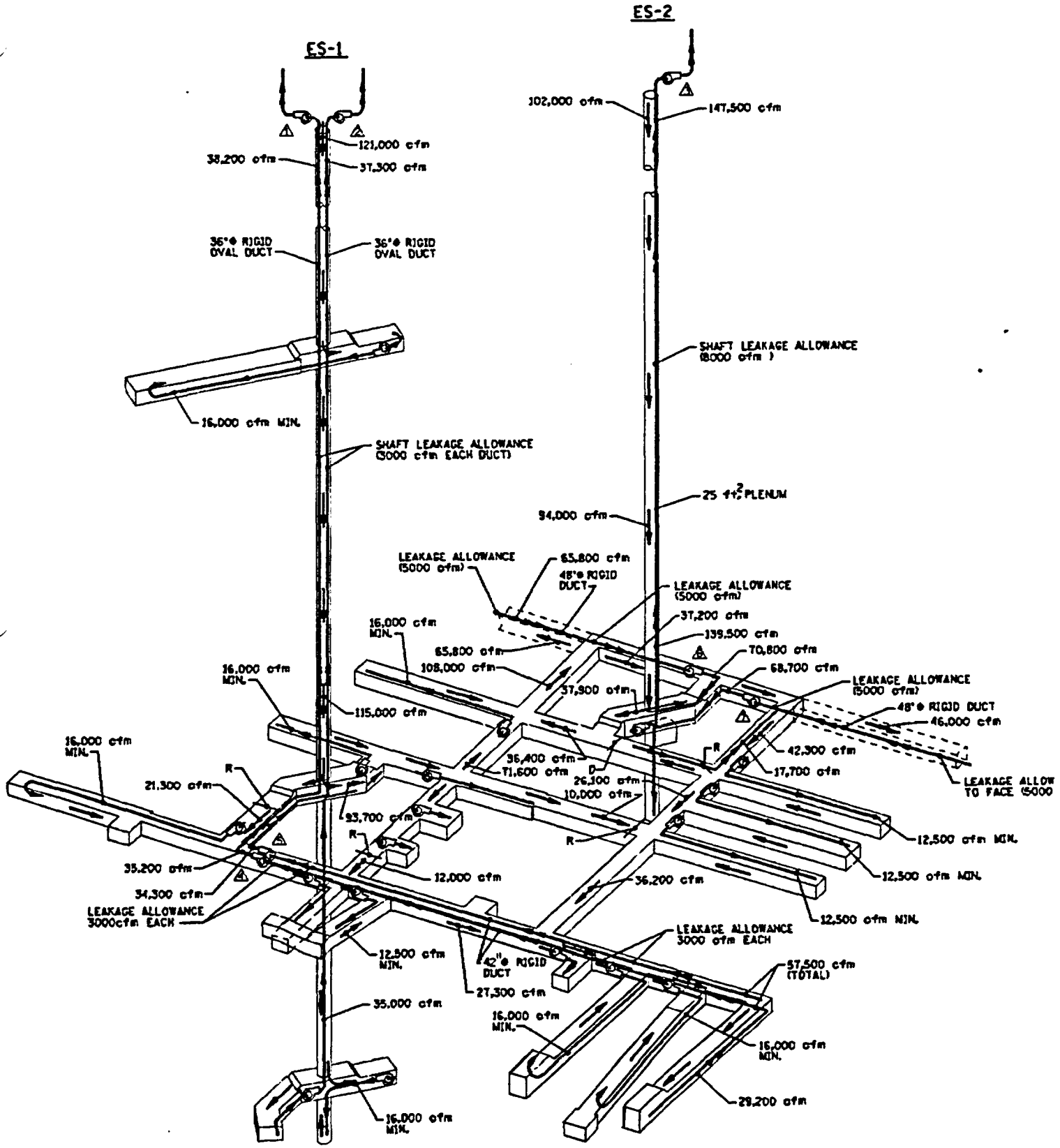
- RETURN AIRWAY THROUGH RIGID DUCTS AND EXHAUST FANS
- BOTH SHAFTS ARE FRESH AIR SUPPLY AIRWAYS



ES-1 SHAFT
CROSS-SECTION



ES-2 SHAFT
CROSS-SECTION


ES-1
ES-2
121,000 cfm
38,200 cfm
37,300 cfm
36"Φ RIGID OVAL DUCT
36"Φ RIGID OVAL DUCT
16,000 cfm MIN.
SHAFT LEAKAGE ALLOWANCE (5000 cfm EACH DUCT)
102,000 cfm
147,500 cfm
SHAFT LEAKAGE ALLOWANCE (8000 cfm)
25 ft² PLENUM
94,000 cfm
LEAKAGE ALLOWANCE (5000 cfm)
65,800 cfm
48"Φ RIGID DUCT
LEAKAGE ALLOWANCE (5000 cfm)
37,200 cfm
139,500 cfm
16,000 cfm MIN.
65,800 cfm
108,000 cfm
70,800 cfm
68,700 cfm
37,900 cfm
LEAKAGE ALLOWANCE (5000 cfm)
48"Φ RIGID DUCT
46,000 cfm
16,000 cfm MIN.
115,000 cfm
16,000 cfm MIN.
42,300 cfm
17,700 cfm
36,400 cfm
71,600 cfm
26,100 cfm
10,000 cfm
LEAKAGE ALLOW TO FACE (5000
21,300 cfm
R
23,700 cfm
12,500 cfm MIN.
12,500 cfm MIN.
12,500 cfm MIN.
35,200 cfm
34,300 cfm
12,000 cfm
36,200 cfm
LEAKAGE ALLOWANCE 3000cfm EACH
LEAKAGE ALLOWANCE 3000 cfm EACH
12,500 cfm MIN.
42"Φ RIGID DUCT
27,300 cfm
57,500 cfm (TOTAL)
35,000 cfm
16,000 cfm MIN.
16,000 cfm MIN.
29,200 cfm
16,000 cfm MIN.

TOTAL RETURN (FT ^{3} / MIN.)

- SHAFT COLLAR

ES-1	121,000
ES-2	102,000
TOTAL	223,000

TOTAL AIR SUPPLY (FT ^{3} / MIN.)

SHAFT COLLAR

● ES-1 NO. 1 DUCT	38,200
● ES-1 NO. 2 DUCT	37,300
● ES-2 PLENUM	147,500
TOTAL	223,000

PRIMARY FAN DUTY REQUIREMENT

ID	LOCATION	STATIC PRESSURE (INCH WATER GAUGE)	AIR QUANTITY (FT^3/ MIN.)
1	SURFACE ES-1	10.5	39,700
2	SURFACE ES-1	10.7	38,800
3	SURFACE ES-2	10.2	149,000
4	UNDERGROUND BOOSTER ES-1	10.2	35,200
5	UNDERGROUND BOOSTER ES-1	8.3	34,300
6	UNDERGROUND BOOSTER ES-2	9.2	70,900
7	UNDERGROUND BOOSTER ES-2	9.8	68,800

COMPLETED IN 50% TITLE I

- OPTIMIZED VENT SYSTEM WITHIN PROJECT OBJECTIVES
- AIRFLOW DISTRIBUTION
- FAN DUTY REQUIREMENTS
- PRESSURE LOSSES
- DUCTING SIZES

REMAINING WORK

- o SIZE & SPECS. OF LOW NOISE PRIMARY FANS
- o HEAT FLOW & WORK TEMP. ANALYSIS
- o COOLING & HEATING CONCEPT IF REQUIRED
- o DUST CONTROL
- o VENT. MONITOR
- o AUX. FANS

FENIX & SCISSON

FIFTY PERCENT TITLE I DESIGN

ELECTRICAL DESIGN

CHUCK HATCHER

MAY 9, 1988

ELECTRICAL UTILITY SYSTEMS

- POWER
- CONTROL / INSTRUMENTATION
- LIGHTING
- COMMUNICATIONS
- MONITORING AND WARNING SYSTEM

DESIGN BASIS AND CRITERIA

- **GENERAL CRITERIA**
  - SAFETY
  - ECONOMY
- **SUBSYSTEMS DESIGN REQUIREMENT DOCUMENT (SDRD)**
- **BASIS FOR DESIGN (BFD)**
- **REFERENCE INFORMATION BASE (RIB)**

APPLICABLE CODES AND STANDARDS

- **REGULATIONS**
  - DOE 6430.1A CHAPTERS V, VI, VII
  - MSHA 30 CFR PART 57
- **CODES**
  - NEC NFPA 70
  - NESC
  - LOCAL AND NTS CODES
    - EXAMPLE: REECO CODE C-13 FOR OBSTRUCTION LIGHTING
- **STANDARDS**
  - IEEE
  - ANSI
  - NEMA

DESIGN FEATURES

- **POWER SYSTEM CONFIGURATION**
  - PHILOSOPHY
  - STANDBY SYSTEM
- **TECHNICAL ANALYSIS PACKAGES**
  - ELECTRICAL SYSTEM
  - LIGHTING EVALUATION
- **MULTIPLE INTERFACE POINTS**
- **AREAS FOR FURTHER INVESTIGATION**
  - HOISTS
    - FIELD VERIFICATION
    - CONTROL PHILOSOPHY
  - GROUNDING SYSTEMS

INTERFACE COORDINATION

- **POWER SYSTEMS**
  - SURFACE
  - SHAFTS
  - UNDERGROUND
- **MONITORING / WARNING SYSTEMS**
  - MINING OPERATIONS (F&S)
  - OTHERS (H&N)
- **VENTILATION SYSTEMS**
- **COMMUNICATIONS SYSTEMS**
- **SHAFT INSTRUMENTATION**
- **I.D.S. REQUIREMENTS**
- **FIRE PROTECTION SYSTEMS**
- **GROUNDING SYSTEMS**

WORK TO COMPLETE TITLE I

- DRAWINGS
- SPECIFICATIONS
- CALCULATIONS
- TECHNICAL STUDIES

FENIX & SCISSON

FIFTY PERCENT TITLE I DESIGN

UTILITIES

LARRY BARTO

MAY 9, 1988

SUBSURFACE UTILITIES - MECHANICAL

- MINE WATER DISTRIBUTION SYSTEM
- MINE WASTE WATER REMOVAL SYSTEM
- COMPRESSED AIR SYSTEM

MINE WATER DISTRIBUTION SYSTEM

DESIGN BASIS AND CRITERIA

- FACILITATES BOTH FIRE PROTECTION & CONSTRUCTION NEEDS
- NON-POTABLE
- CHEMICALLY TRACED - PART OF SURFACE (H&N) DESIGN
- DESIGNED FOR 5 YEAR MAINTAINABLE LIFE

DESIGN FEATURES

- o DISTRIBUTION LOOP FOR RELIABILITY
- o WATER HAMMER ARRESTORS
- o PRESSURE REGULATORS AT EACH STATION LEVEL
- o EXCESS FLOW CONTROL VALVES
- o DEMAND ANALYSIS USES LOAD FACTOR OF 1.0
- o FLEXIBILITY ALLOWANCE OF 35%
- o DESIGN VELOCITY - 10fps MAXIMUM, EMERGENCY ONLY
- o DESIGN USER PRESSURE - 80 psig
- o GROOVED PIPE AND FITTINGS
- o HOSE STATIONS

REMAINING WORK

- o DETAILED ROUTING IN SHAFT CONFIGURATION
- o DETAILED ROUTING FOR EACH LEVEL
- o HANGER CONFIGURATIONS
- o FINALIZE FIRE PROTECTION DEMANDS (INTERFACE WITH H & N)
- o FINAL DETERMINATION OF PIPE SIZES
- o LOCATE CONTROL, MONITORING, AND PROTECTION DEVICES

MINE WASTE WATER REMOVAL SYSTEM

DESIGN BASIS AND CRITERIA

- o COLLECTION AND TRANSFER OF CONSTRUCTION, TESTING, FIRE PROTECTION, AND NATURAL OCCURRING WATER TO A SURFACE FACILITY
- o UTILIZES FULL OPERATING REDUNDANCY
- o DESIGNED FOR 5 YEAR MAINTAINABLE LIFE

DESIGN FEATURES

- o EACH SHAFT CAPABLE OF FULL FLOW
- o EACH PUMP CAPABLE OF LIFTING MINE WASTE WATER FROM MTL TO THE SURFACE IN ONE LIFT
- o DESIGN INCLUDES MEASURES TO LIMIT WATER HAMMER
- o PUMPING AND STORAGE SYSTEM CAPACITY TO HANDLE EMERGENCY SITUATIONS
- o CAPACITY TO TRANSFER GROUND WATER FAULT INFLOW
- o DESIGN VELOCITY - 8 fps MAXIMUM
- o GROOVED PIPE AND FITTINGS

REMAINING WORK

- o DETAILED ROUTING IN SHAFT CONFIGURATION
- o DETAILED ROUTING FOR EACH LEVEL
- o HANGER CONFIGURATIONS
- o FINALIZE FIRE PROTECTION DEMANDS (INTERFACE WITH H & N)
- o FINAL DETERMINATION OF PIPE SIZES
- o LOCATE CONTROL, MONITORING, AND PROTECTION DEVICES
- o FINAL PUMP SELECTIONS

COMPRESSED AIR SYSTEM

DESIGN BASIS AND CRITERIA

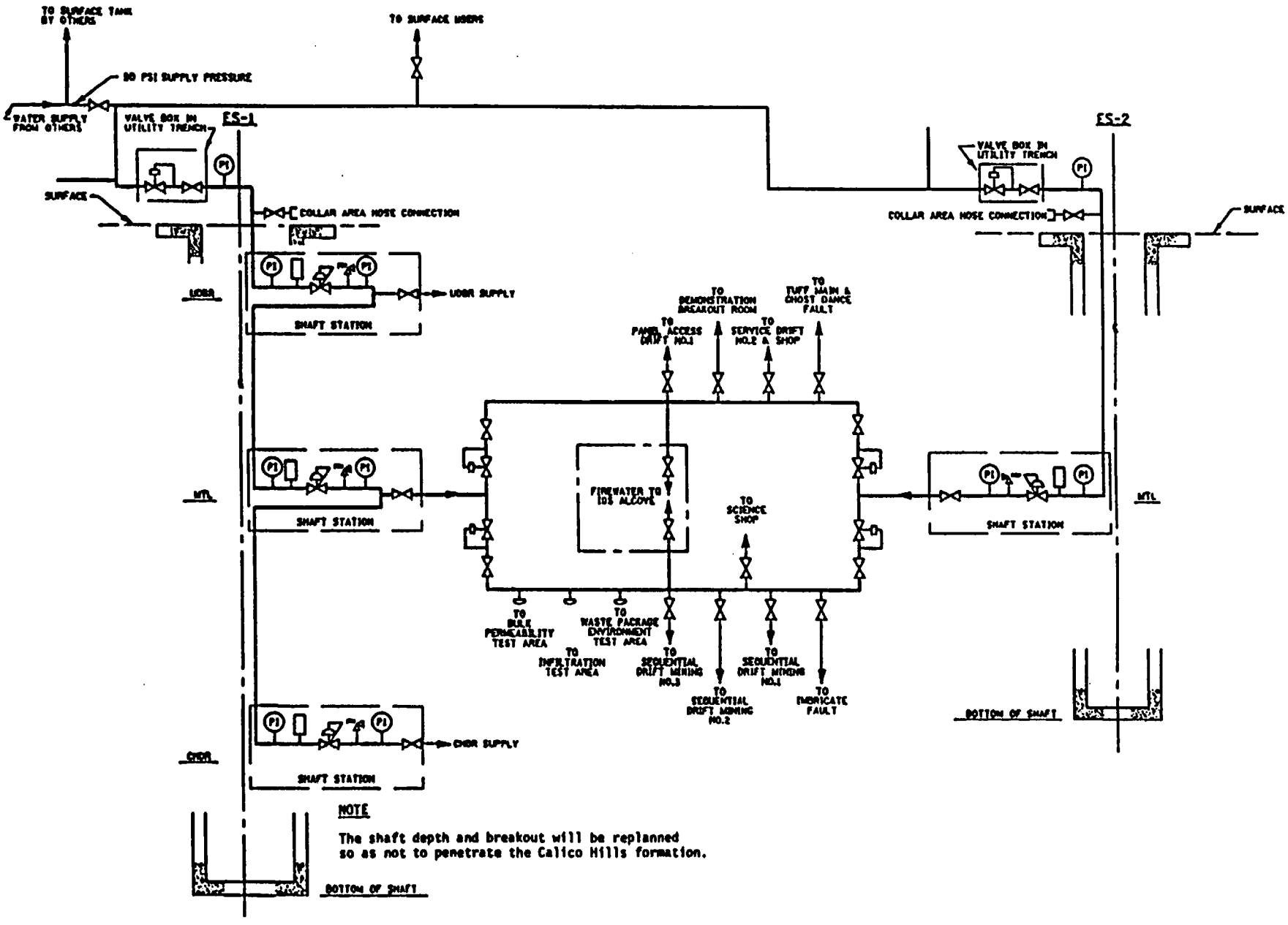
- SHALL MEET ESF UNDERGROUND CONSTRUCTION REQUIREMENTS
- SHALL MEET UNDERGROUND ESF OPERATIONS AND SITE CHARACTERIZATION TESTING REQUIREMENTS
- DESIGNED FOR 5 YEAR MAINTAINABLE LIFE

DESIGN FEATURES

- o DISTRIBUTION LOOP FOR SYSTEM RELIABILITY
- o ADDITION OF AFTERCOOLERS TO GFE COMPRESSORS TO REDUCE AIR TEMPERATURE FOR PERSONNEL PROTECTION
- o DEMAND ANALYSIS USES LOAD FACTOR OF 1.0
- o FLEXIBILITY ALLOWANCE OF 35%
- o CORRECTIONS MADE FOR ALTITUDE AND LEAKAGE
- o AIR FLOW /PRESSURE DROP DETERMINATIONS
- o DESIGN USER PRESSURE - 100 psig
- o GROOVED PIPE AND FITTINGS
- o HOSE STATIONS
- o AIR RECEIVER

REMAINING WORK

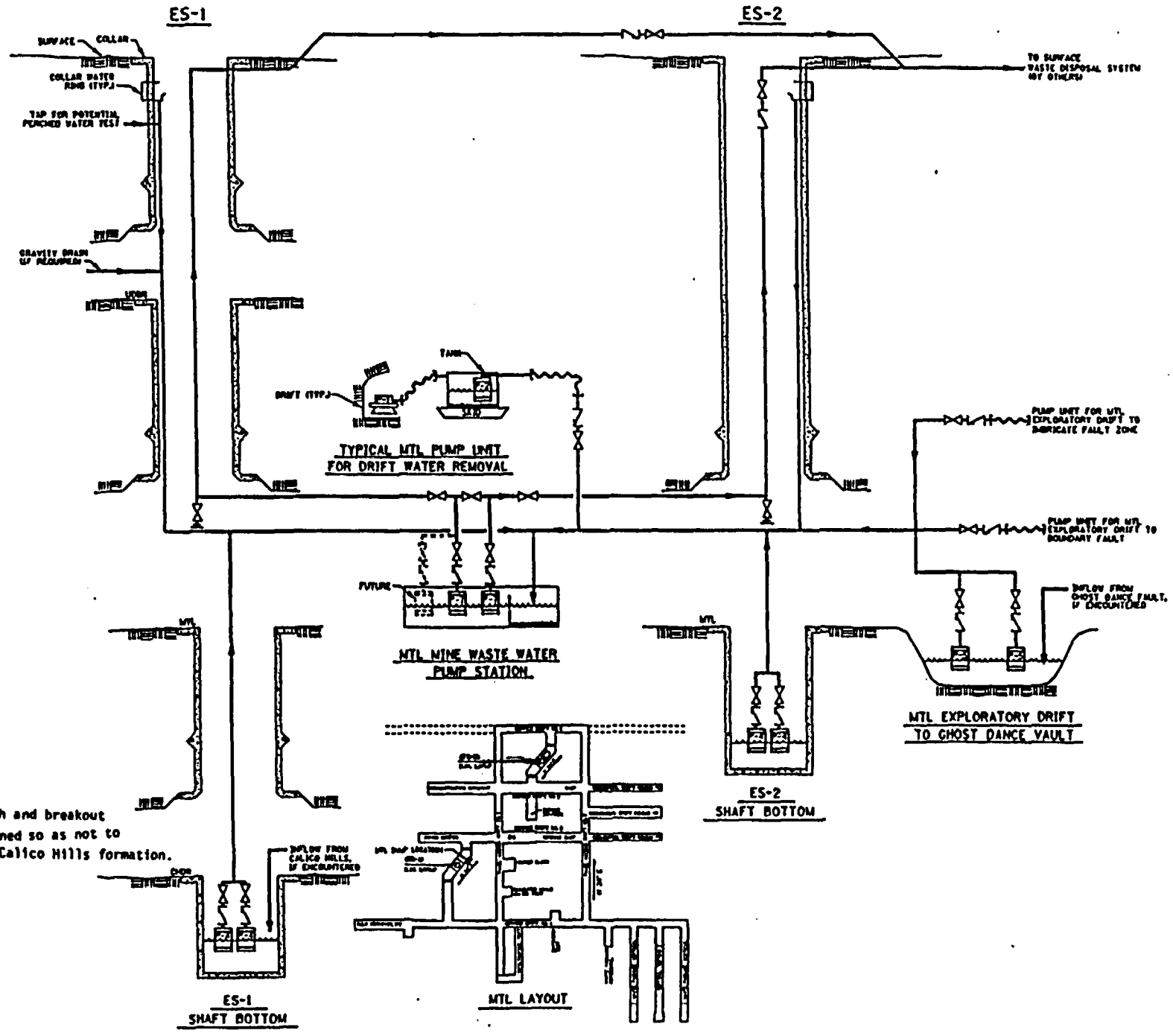
- o DETAILED ROUTING IN SHAFT CONFIGURATION
- o DETAILED ROUTING FOR EACH LEVEL
- o HANGER CONFIGURATIONS
- o FINALIZE CONSTRUCTION AND TESTING EQUIPMENT DEMANDS
- o FINAL DETERMINATION OF PIPE SIZES
- o FINAL DETERMINATION OF RECEIVER SIZE
- o LOCATE CONTROL, MONITORING, AND PROTECTION DEVICES
- o CONSIDER CONSTRUCTION/TESTING SCHEDULE ADJUSTMENTS TO REDUCE SYSTEM PEAK



NOTE

The shaft depth and breakout will be replanned so as not to penetrate the Calico Hills formation.

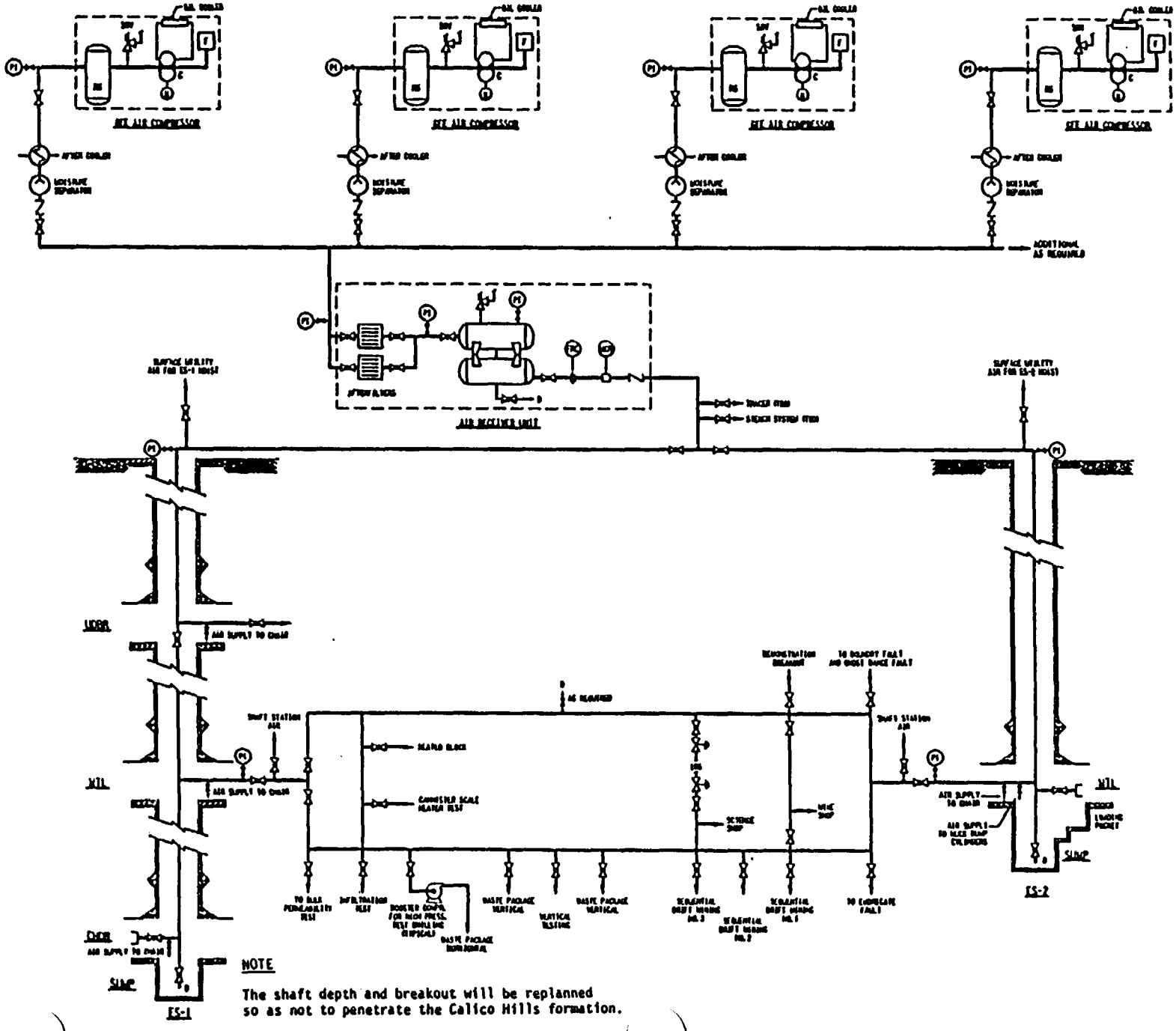
A



NOTE

The shaft depth and breakout will be replanned so as not to penetrate the Calico Hills formation.

B



NOTE

The shaft depth and breakout will be replanned so as not to penetrate the Calico Hills formation.

U.S. DEPARTMENT OF ENERGY

OCRWM

OGR

Nevada Nuclear Waste Storage Investigations PROJECT

YUCCA MOUNTAIN

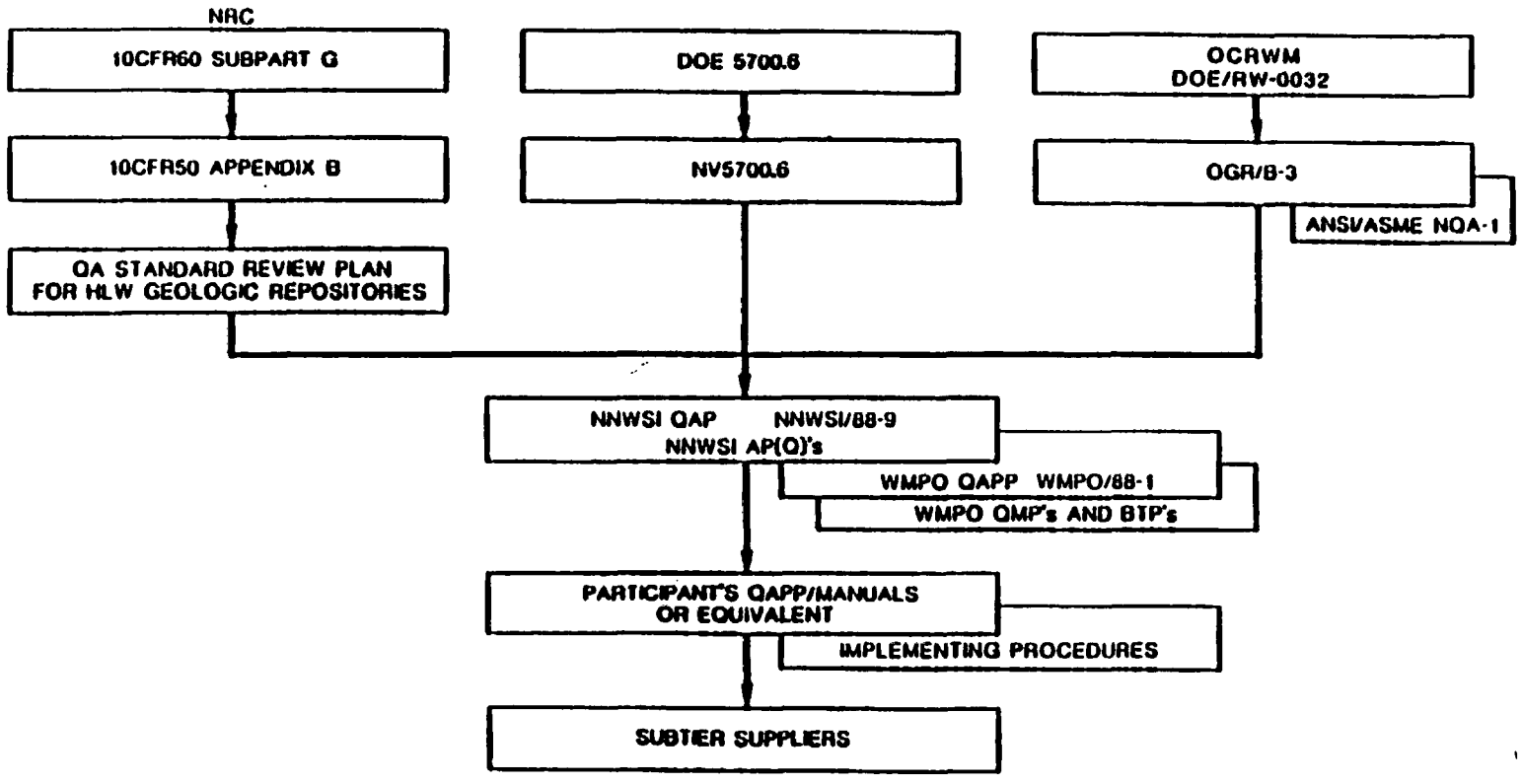
Nevada
Nuclear Waste
Storage Investigations Project

NNWSI
QUALITY ASSURANCE
REQUIREMENTS

United States Department of Energy
Nevada Operations Office/Waste Management Project Office

NNWSI PROJECT

CRITERIA FOR QUALITY ASSURANCE



QUALITY ASSURANCE TRAINING

DOCUMENT REVIEW/ACCEPTANCE/APPROVAL
QMP-06-03

- RESPONSIBILITIES AND METHODS
- REVIEW, ACCEPTANCE, AND APPROVAL
- DOCUMENTS AND REVISIONS
  - AFFECTING QUALITY OF NNWSI ITEMS OR ACTIVITIES
  - ASSESSMENT/ATTAINMENT OF NNWSI GOALS
  - REPRESENT RESULT OF SERVICES FOR THE WMPO

QUALITY ASSURANCE TRAINING

DEFINITIONS

- "ACCEPTANCE, ACCEPTABLE, OR ACCEPTED"
  - INDICATE SUITABILITY FOR NNWSI PROJECT
  - DOES NOT -

    INDICATE AUTHENTICATION OF DATA OR INTERPRETATIONS

    RELIEVE AUTHORS OF RESPONSIBILITY FOR DEFENSE OF DATA OR INTERPRETATION

QUALITY ASSURANCE TRAINING

DEFINITIONS

- "APPROVAL OR APPROVED"
  - INDICATE AGREEMENT WITH FORM, TENOR, AND DETAILS, - ADMINISTRATIVE AND MANAGEMENT DOCUMENTS
  - DOES NOT -

    RELIEVE ORIGINATOR OF CONTRACTURAL OBLIGATIONS

QUALITY ASSURANCE TRAINING

DEFINITIONS

- "MAJOR COMMENTS" -
  - SIGNIFICANT CONFLICTS
  - DEVIATIONS FROM -

    NNWSI PROJECT POLICY
    QUALITY ASSURANCE REQUIREMENTS
    TECHNICAL POSITIONS
    OMISSIONS OF INFORMATION
- "EDITORIAL/GRAMMATICAL COMMENTS"
- "SUGGESTIONS"

QUALITY ASSURANCE TRAINING

PROCEDURE

- LISTS OF QUALIFIED REVIEW PERSONNEL
- REVIEW AND COMMENT FORM FOR COMMENTS
- COMMENTS REVIEWED FOR EXTENT AND CONTENT
- COMMENTS TRANSMITTED TO ORIGINATING ORGANIZATION
- COMMENTS RESOLVED AND DOCUMENTED

QUALITY ASSURANCE TRAINING

PROCEDURE

- DISPUTES DOCUMENTED ON TECHNICAL COMMENT REVIEW AND RESPONSE FORM
- DISPUTES RESOLVED BY APPROPRIATE DOE/NV AND WMPO AUTHORITIES
- RESOLUTION OF DISPUTES DOCUMENTED AND TRACEABLE.
- COPIES OF DISPUTE RESOLUTION AVAILABLE TO AUTHORS, TPO AND REVIEWER

QUALITY ASSURANCE TRAINING

SUMMARY OF QMP-06-03

- REVIEW, ACCEPTANCE AND APPROVAL
- REVIEWS PERFORMED BY QUALIFIED PERSONNEL
- COMMENTS RECORDED ON DRS(S)
- RESOLUTIONS BY AUTHOR AND REVIEWER
- DISPUTES RESOLVED BY DOE/NV OR WMPO
- RESOLUTION OF DISPUTES DOCUMENTED

DESIGN REVIEW PLAN-OVERVIEW

- REVIEW PURPOSE
- OVERALL DESIGN REVIEW RESPONSIBILITY
- PARTICIPATING ORGANIZATIONS
- REVIEW RESPONSIBILITY OF PARTICIPATING ORGANIZATIONS
- REVIEW PROCESS
- WORKSHOPS
- COMMENT DISPOSITION AND CONSOLIDATION
- COMMENT RESOLUTION
- REPORT

DESIGN REVIEW PLAN-OVERVIEW

REVIEW PURPOSE

THE PURPOSE OF THIS DESIGN REVIEW IS TO ENSURE THAT THE DESIGNS BEING PREPARED ARE:

- IN COMPLIANCE WITH REQUIREMENTS AND CRITERIA
- SAFE
- CONSTRUCTIBLE
- OPERABLE
- SUPPORT SITE CHARACTERIZATION

DESIGN REVIEW PLAN-OVERVIEW

OVERALL DESIGN REVIEW RESPONSIBILITY

- THE WMPO HAS GIVEN THE OVERALL DESIGN REVIEW RESPONSIBILITY TO SAIC
- THE SPECIFIC REQUEST IS TO PERFORM THE REVIEW IN ACCORDANCE WITH:
  - QMP-06-03, DOCUMENT REVIEW/ACCEPTANCE/APPROVAL.
  - WMPO APPROVED TITLE I - DESIGN REVIEW PLAN FOR THE ESF AT 50 PERCENT COMPLETION

DESIGN REVIEW PLAN-OVERVIEW

PARTICIPATING ORGANIZATIONS

1. U.S. DEPARTMENT OF ENERGY/HEADQUARTERS (DOE/HQ)
2. NEVADA OPERATIONS OFFICE (NVO)
3. NEVADA TEST SITE OPERATIONS (NTSO)
4. WASTE MANAGEMENT PROJECT OFFICE (WMPO)
5. WESTON
6. SCIENCE APPLICATIONS INTERNATIONAL CORPORATION
7. U.S. ARMY CORPS OF ENGINEERS (USCOE)
8. MINE SAFETY AND HEALTH ADMINISTRATION (MSHA)
9. BUREAU OF MINES (B OF M)
10. REYNOLDS ELECTRICAL AND ENGINEERING COMPANY (REECo)
11. LOS ALAMOS NATIONAL LABORATORY (LOS ALAMOS)
12. U.S. GEOLOGICAL SURVEY (USGS)
13. SANDIA NATIONAL LABORATORIES (SNL)
14. LAWRENCE LIVERMORE NATIONAL LABORATORY (LLNL)

OBSERVING ORGANIZATIONS

1. U.S. NUCLEAR REGULATORY COMMISSION (NRC)
2. THE STATE OF NEVADA
3. UNIVERSITY OF NEVADA

DESIGN REVIEW PLAN-OVERVIEW

REVIEW RESPONSIBILITY OF PARTICIPATING ORGANIZATIONS

ORGANIZATIONAL WORKSCOPES FOR THE DESIGN REVIEW ARE DEFINED IN ENCLOSURE 3 OF THE APPROVED DESIGN REVIEW PLAN

DESIGN REVIEW PLAN-OVERVIEW

REVIEW PROCESS

- OBTAIN DETAILED INFORMATION AND ASK QUESTIONS ABOUT SPECIFIC DESIGN TOPICS DURING WORKSHOPS

- DEVELOP COMMENTS ON THE DRAWINGS AND SPECIFICATIONS IN ACCORDANCE WITH THE APPROVED DESIGN REVIEW PLAN.

- BEFORE SUBMITTING COMMENTS TO DESIGN REVIEW SECRETARY/ DISCIPLINE COORDINATORS, THE COMMENTS ARE TO BE CHECKED BY THE LEAD REPRESENTATIVE FROM YOUR ORGANIZATION TO ASSURE THEY ARE APPROPRIATE AND DO NOT CONFLICT WITH OTHER COMMENTS FROM YOUR ORGANIZATION. CONFLICTS MUST BE RESOLVED BEFORE SUBMITTAL

DESIGN REVIEW PLAN-OVERVIEW

702-565-8176

WORKSHOPS

(4) SITE DRAINAGE + PAD DETAILS

WORKSHOPS - TUESDAY, MAY 10, 1988, ROOM 3

TIME	SUBJECT	BY
10 AM	MAJOR ITEMS DRIVING SURFACE DESIGN	H&N
1 PM	CONSTRUCTION REQUIREMENTS FOR TRAILERS	H&N
3 PM	SURFACE ELECTRICAL SYSTEM WILL COVER UNDERGROUND	H&N

DESIGN REVIEW PLAN-OVERVIEW

(1) DON'T HAVE FORM AVAILABLE FOR POSTCLOSURE

WORKSHOPS

- LOCATION OF ESF – DON'T HAVE PEOPLE AVAIL. DESIGNER GIVEN COMMENTS
- (1) EXTENT OF LATERAL EXCAV (FLEXIBILITY)
- (3) SHAFT EXCAVATION CONTROLLED BLASTING
- ESF TESTING DRILL + DESIGN REQUIREMENTS

WORKSHOPS – WEDNESDAY, MAY 11, 1988, ROOM 3

TIME	SUBJECT	BY
10 AM	(2) ROOF CONTROL/ROCK MECHANICS	F&S
1 PM	HOISTING	F&S
3 PM	VENTILATION	F&S

DESIGN REVIEW PLAN-OVERVIEW

COMMENT DISPOSITION AND CONSOLIDATION

- o DESIGN REVIEW BOARD IS RESPONSIBLE FOR CONSOLIDATING ALL COMMENTS FOR TRANSMITTAL TO A/Es

- o COMMENTS SUBMITTED WILL BE REVIEWED BY THE REVIEW SECRETARY AND DISCIPLINE COORDINATORS FOR APPROPRIATENESS

  - * STYLE (HOW WORDED)

  - * CONTENT (PERMISSIBLE SUBJECT MATTER)

  - * WITHIN ORGANIZATION'S ASSIGNED SCOPE, WITHIN PERSON'S EXPERTISE

DESIGN REVIEW PLAN-OVERVIEW

COMMENT DISPOSITION AND CONSOLIDATION (CONT.)

- COMMENTS DEEMED INAPPROPRIATE BECAUSE OF:
  - STYLE, SUGGESTIONS WILL BE MADE FOR MAKING THEM APPROPRIATE
  - OTHER REASONS, DISPOSITION WILL BE TO SUGGEST THEY BE WITHDRAWN OR NOT TRANSMITTED TO THE A/Es

DESIGN REVIEW PLAN-OVERVIEW

COMMENT DISPOSITION AND CONSOLIDATION (CONT.)

DESIGN REVIEW CHAIRMAN HAS FINAL AUTHORITY REGARDING DISPOSITION IF REVIEWER DISAGREES WITH REVIEW SECRETARY AND DISCIPLINE COORDINATOR

DESIGN REVIEW PLAN-OVERVIEW

COMMENT DISPOSITION AND COLSOLIDATION (CONT.)

- o ALL COMMENTS TO BE TRANSMITTED TO A/Es FROM ALL REVIEWERS WILL BE CONSOLIDATED BY:
  - * A/E
  - * ENGINEERING DISCIPLINE
  - * DRAWING OR SPECIFICATION NUMBER
  - * SIMILAR COMMENTS
- o CONSOLIDATED COMMENTS WILL BE RETYPED ON THE TECHNICAL COMMENT REVIEW AND RESPONSE FORM

DESIGN REVIEW PLAN-OVERVIEW

COMMENT RESOLUTION

- EACH COMMENT WILL BE CONSIDERED BY THE APPROPRIATE A/E AND A RESOLUTION WILL BE PROPOSED BY THEM

- THE PROPOSED RESOLUTION CAN BE TO:

  * AGREE WITH COMMENT AND MAKE NECESSARY CHANGE

  * DISAGREE WITH COMMENT

DESIGN REVIEW PLAN-OVERVIEW

COMMENT RESOLUTION

- o EACH PROPOSED RESOLUTION WILL BE COVERED DURING THE COMMENT RESOLUTION MEETING.

  - * COMMENT IS CLOSED IF REVIEWER AGREES WITH IT.

  - * IF REVIEWER DISAGREES, THE RESOLUTION WILL BE DISCUSSED. IF RESOLUTION CANNOT BE ACHIEVED WITHIN A REASONABLE TIME, THE DESIGN REVIEW CHAIRMAN WILL ASK THE INVOLVED PARTIES TO CONTINUE THE DISCUSSION OUTSIDE OF THE FORMAL RESOLUTION MEETING AND BRING THE AGREED TO RESOLUTION BACK TO THE RESOLUTION MEETING.

DESIGN REVIEW PLAN-OVERVIEW

REPORT

THE DESIGN REVIEW CHAIRMAN WILL ISSUE A FINAL REPORT TO THE WMPO AND REVIEWING ORGANIZATIONS WITHIN 27 DAYS AFTER THE FINAL COMMENT RESOLUTION MEETING. THE REPORT WILL CONTAIN:

- ALL COMMENTS SUBMITTED ON THE REVIEW AND COMMENT FORM FOR DISPOSITIONING
- ALL COMMENTS SUBMITTED TO A/Es WITH AGREED UPON RESOLUTIONS
- SUMMARY OF MAJOR FINDINGS DURING THE REVIEW

OPENING REMARKS

- PURPOSE

  - TO PERFORM A COMPREHENSIVE, DOCUMENTED REVIEW OF THE ESF TITLE I DESIGN ACTIVITIES AT 50 PERCENT COMPLETION

  - TO DETERMINE IF WORK TO DATE MEETS PROJECT AND PROGRAM REQUIREMENTS

OPENING REMARKS (CONT.)

- THE WMPO HAS GIVEN THE OVERALL DESIGN REVIEW RESPONSIBILITY TO SCIENCE APPLICATIONS INTERNATIONAL CORPORATION (SAIC)

- THE SPECIFIC REQUEST IS TO PERFORM THE REVIEW IN ACCORDANCE WITH:

  * QMP-06-03, DOCUMENT REVIEW/ACCEPTANCE/APPROVAL.

  * WMPO APPROVED TITLE I DESIGN REVIEW PLAN FOR THE ESF AT 50 PERCENT COMPLETION

NEED TO GET

OVERVIEW OF DESIGN REVIEW

- DESIGN PRESENTATION MEETING AGENDA
- DESIGN REVIEW BOARD
- DESIGN REVIEW SCHEDULE

OVERVIEW OF DESIGN REVIEW

DESIGN PRESENTATION MEETING AGENDA

SCHEDULE	ITEM	RESPONSIBILITY
8:00 - 8:05 AM	OPENING REMARKS	WMPO
8:05 - 8:15	OVERVIEW OF DESIGN REVIEW	SAIC
8:15 - 9:00	REMARKS BY NRC	NRC
9:00 - 9:30	TESTING REQUIREMENTS OVERVIEW	LANL
9:30 - 9:45	BREAK	
9:45 - 11:15	H&N DESIGN PRESENTATION	H&N
11:15 - 12:00	F&S DESIGN PRESENTATION	F&S
12:00 - 1:00 PM	LUNCH	
1:00 - 2:15	F&S DESIGN PRESENTATION (CONT.)	F&S
2:15 - 2:45	DESIGN REVIEW PLAN-OVERVIEW	SAIC

OVERVIEW OF DESIGN REVIEW

DESIGN PRESENTATION MEETING AGENDA (CONT.)

SCHEDULE	ITEM	RESPONSIBILITY
2:45 - 3:15	QA TRAINING ON COMMENT PROCEDURE	SAIC
3:15 - 3:30	BREAK	
3:30 - 4:00	QA TRAINING (CONT.)	SAIC
4:00 - 4:15	PROCEDURES AND INSTRUCTIONS TO REVIEWERS	SAIC
4:15 - 4:30	COMMENT DISPOSITION	SAIC
4:30 - 4:45	REVIEW LOGISTICS	SAIC
4:45 - 5:15	QUESTIONS FOR CLARIFICATION	SAIC
5:15 - 5:30	CLOSING COMMENTS AND REVIEW PACKAGE DISTRIBUTION	SAIC/WMPO

OVERVIEW OF DESIGN REVIEW

DESIGN REVIEW BOARD

KEN BEALL	CHAIRMAN
JOE REISER	SECRETARY
PETE KARNOSKI	QUALITY ASSURANCE

REVIEWER	DISCIPLINE
MARGE BRAKE	CIVIL/STRUCTURAL/ARCHITECTURAL
ED CIKANEK	GEOTECHNICAL
RON TOME'	MECHANICAL
IVAN COTTLE	TESTING
JIM McCONVILLE	ELECTRICAL
TOM PYSTO	ENVIRONMENTAL DESIGN
STEVE SMITH	REPOSITORY/OPERATIONS
ALVIN LANGSTAFF	MINING/VENTILATION
STAN PHILLIPS	SAFETY
MARSHALL DAVENPORT	LICENSING

OVERVIEW OF DESIGN REVIEW

DESIGN REVIEW SCHEDULE

DATE	ACTIVITY
MAY 9	DESIGN PRESENTATION MEETING
MAY 10-16	REVIEW AND WORKSHOPS
MAY 17-20	COMMENT DISPOSITIONING BY SAIC
MAY 23-27	COMMENT CONSOLIDATION AND TRACKING
MAY 30	CONSOLIDATED COMMENTS DUE TO A/Es
MAY 30-JUNE 3	COMMENT RESPONSE PREPARATION BY A/Es
JUNE 6-10	COMMENT RESOLUTION MEETING
JULY 9	FINAL SAIC REPORT TO THE WMPO AND REVIEWING ORGANIZATIONS

NNWSI-ESF
50% DESIGN REVIEW
PRESENTATION OUTLINE
MAY 9, 1988

I.	Project Overview	J. C. Calovini
II.	Project Criteria Evaluation and Review	
III.	Technical Aspect	R. L. Schreiner
IV.	Civil: 1. Design Basis and Criteria 2. Applicable Codes 3. Description of Salient Design Features 4. Remaining Work	R. G. Musick
V.	Architectural/Structural: 1. Design Basis and Criteria 2. Applicable Codes 3. Description of Salient Design Features 4. Remaining Work	R. C. Greenwold
VI.	Mechanical/Fire Protection: 1. Design Basis and Criteria 2. Applicable Codes 3. Description of Salient Design Features 4. Remaining Work	B. H. Anzai
VII.	Electrical: 1. Design Basis and Criteria 2. Applicable Codes 3. Description of Salient Design Features 4. Remaining Work	J. A. Dumas
VIII.	Wrap-up	J. C. Calovini

NNWSI ESF 50% TITLE I REVIEW

MAY 9, 1988

ESF TESTING DRIVEN DESIGN REQUIREMENTS

BY T. J. MERSON

LOS ALAMOS REPRESENTATIVE TO ICWG

TESTING DESIGN REQUIREMENTS - SOURCES OF INFORMATION

OFFICIAL SOURCE ESF SDRD

- APPENDIX B and C
- APPENDIX A
- ECR 004 (SNL DWG R070048A)

INFORMAL INFORMATION

- INTEGRATION MEETINGS
- RESPONSE LETTERS TO DESIGN QUESTIONS
- EXPLORATORY SHAFT TEST PLAN (ESTP)
- IDS TITLE I DESIGN REPORT

APPENDIXES A, B AND C of ESF SDRD

APPENDIX B

- EACH TEST HAS A SEPARATE SET
- INTENDED TO BE UPDATED AS PLANS EVOLVE
- SOME INFORMATION NOT YET AVAILABLE
  - CONCEPTUAL TEST PLANS ONLY
  - SOME DETAIL NOT NEEDED FOR TITLE I

APPENDIX A

ECR 004

INTEGRATION MEETINGS

- ICWG
- DESIGN INTERFACE MEETINGS
- WEEKLY DESIGN STATUS BRIEFINGS
- ESTP COMMITTEE
- IDS IMPLEMENTATION COMMITTEE

RESPONSE LETTERS TO DESIGN QUESTIONS

EXAMPLES

- SPACE REQUIREMENTS MAY 1987
- EXCAVATION EFFECTS HOLE PATTERNS AT BREAKOUTS
- RESPONSES TO A/E QUESTIONS

EXPLORATORY SHAFT TEST PLAN (ESTP)

- FUNDAMENTAL BASIS FOR ESF TEST PLANNING
- ALL PARTICIPANTS WERE INVOLVED IN DEVELOPMENT
- NOT PUBLISHED (STILL BEING REVIEWED)

IDS TITLE I DESIGN

- DRAFT SUBMITTED TO WMPO & PARTICIPANTS 11/87
- REVISED DRAFT AVAILABLE MARCH 1988

SUMMARY

- TITLE I IS PRELIMINARY DESIGN
- TEST PLANS WILL CONTINUE TO EVOLVE
  - REVIEW OF SCP
  - NRC AND STATE COMMENTS
  - RESULTS OF PROTOTYPE TESTING
- PROTOTYPE TESTING IN PROGRESS
  - TEST DETAILS NOT YET AVAILABLE
- PRINCIPLE PURPOSE OF ESF IS TO SUPPORT SITE CHARACTERIZATION TESTING.

<<A&S>>T&MSS Audits & Surveillance Branch
<<A-E>>architect-engineer
<<AADT>>average annual weekday traffic
<<ACD>>Advanced Conceptual Design
<<ACOE>>Army Corps of Engineers
<<ACRS>>Advisory Committee on Reactor Safeguards
<<ACS>>American Chemical Society
<<ACV>>at-completion variance
<<ACWP>>actual cost of work performed
<<ADM>>arrow diagram method
<<ADP>>Automated Data Processing
<<ADTF>>At Depth Test Facility
<<A/E>>Architect/Engineer
<<AEC>>Atomic Energy Commission (now DOE)
<<AESD>>Advanced Energy Systems Division (Westinghouse)
<<AFR>>Audit Finding Report
<<AGNS>>Allied General Nuclear Services
<<AI>>action item
<<AICHE>>American Institute of Chemical Engineers
<<AIDS>>Activity Information Data Systems
<<AISI>>American Iron and Steel Institute
<<ALARA>>as low as reasonably acceptable
<<AMAX>>American Metals Climax, hot ash mine
<<ANL>>Argonne National Laboratory
<<ANS>>American Nuclear Society
<<ANSI>>American National Standards Institute
<<AO>>annotated outline
<<AP>>Administrative Procedure
<<APD>>areal power density
<<APS>>autocorrelated photon spectroscopy
<<ASME>>American Society of Mechanical Engineers
<<ASNT>>American Society of Nondestructive Testing
<<ASTM>>American Society for Testing and Materials
<<BAC>>budget at completion
<<BCL>>Battelle Columbus Laboratory
<<BCWP>>budgeted cost for work performed
<<BCWS>>budgeted cost for work scheduled
<<BFD>>Basis for Design
<<BHC>>borehole compensated
<<BHT>>bottom hole temperature
<<BIA>>Bureau of Indian Affairs
<<BLM>>Bureau of Land Management
<<BMI>>Battelle Memorial Institute
<<BNI>>Bechtel National, Inc.
<<BOM>>Bureau of Mines
<<BP>>before present
<<BTU>>British Thermal Unit
<<BWIP>>Basalt Waste Isolation Project
<<BWR>>Boiling Water Reactor
<<C&C>>Consultation and Cooperation Agreement (DOE w/State)
<<C/SCB>>T&MSS Cost/Schedule Control Branch
<<C/SCR>>Cost/Schedule Change Request
<<C/SCS>>Cost/Schedule Control System
<<C/SCSC>>Cost/Schedule Control System Criteria

<<CAAZ>>Construction Authorization Application
<<CAM>>Constant Air Monitor
<<CAR>>Corrective Action Report
<<CAR>>Contract Administrator Representative
<<CBB>>control budget base
<<CBRS>>Coastal Barrier Resources System
<<CCB>>Change Control Board
<<CCRPC>>Clark County Regional Planning Council
<<CDA>>Copper Development Association
<<CDR>>Conceptual Design Report
<<CEC>>cation exchange capacity
<<CFR>>Code of Federal Regulations
<<CHDBR>>Calico Hills Demonstration Breakout Room
<<CH-TRU>>contract-handled transuranic waste
<<CHLW>>Commercial High-Level Waste
<<Ci>>Curies
<<CM>>Configuration Management
<<CMB>>T&MSS Configuration Management Branch
<<CMP>>Configuration Management Plan
<<CMSC>>California Mine and Safety Code
<<COB>>close of business
<<COTR>>Contracting Officer's Technical Representative
<<COVE>>code verification
<<COW>>coldworked, not furnace-sensitized and welded
<<CPAF>>Cost Plus Award Fee
<<CPI>>cost performance index
<<CPM>>Critical Path Method
<<CPR>>Cost Performance Report
<<CRA>>Comment Response Appendix (EA)
<<CRD>>Comments & Response Document
<<CRPO>>Crystalline Rock Project Office (Chicago)
<<CRT>>cathode ray tube
<<CSF>>consolidated and overpacked spent fuel
<<CSIR>>Council for Scientific and Industrial Research (S. African)
<<CSSB>>T&MSS Computer Support Services Branch
<<CT>>Connecticut
<<CTRW>>commercial transuranic waste
<<CV>>cost variance
<<CVR>>Cost Variance Report
<<CWBS>>Contractor Work Breakdown Structure
<<CWSFPP>>Commercial Waste and Spent Fuel Packaging Program
<<DAF>>Department of the Air Force
<<DBA>>Design Base Accidents
<<DBR>>demonstration breakout room
<<DBSPD>>Design Basis and Scope and Planning Documents
<<DEIS>>Draft Environmental Impact Statement
<<DHLW>>Defense High-Level Waste
<<DOA>>U.S. Department of Agriculture
<<DOC>>U.S. Department of Commerce
<<DOE>>Department of Energy
<<DOE/AL>>Department of Energy/Albuquerque Office
<<DOE/CRPO>>Department of Energy/Crystalline Rock Project Office
<<DOE/NV>>Department of Energy/Nevada Operations Office
<<DOE/RL>>Department of Energy/Richland Operations Office

<<DOI>>U.S. Department of the Interior
<<DOT>>U.S. Department of Transportation
<<DRI>>Desert Research Institute
<<DRMS>>Data Record Management System
<<DRS>>Document Review Sheet
<<DSAR>>draft Safety Analysis Report
<<DSPD>>Design Scope and Planning Document
<<DW>>dry well
<<DWPF>>Defense Waste Processing Facility
<<dBA>>See Glossary
<<E-MAD>>Engineering, Maintenance, and Disassembly (Facility)
<<EA>>Environmental Assessment
<<EAC>>estimate at completion
<<EACR>>Environmental Area Characterization Report
<<EBS>>Engineered Barrier System
<<ECG>>Environmental Coordinating Group
<<ECP>>Environmental Compliance Plan
<<EDX>>energy dispersive x-ray
<<EEMD/NV>>Engineering and Energy Management Div., Nevada Operations
<<EEO>>equal employment opportunity
<<EFA>>event frequency analysis
<<EG&G>>Edgerton, Germeshausen & Grier, Inc.
<<Eh>>Oxidation Potential
<<EIA>>Energy Information Agency
<<EIS>>Environmental Impact Statement
<<EIV>>emplacement installation vehicle
<<EMF>>electromagnetic field
<<EMG>>Electromagnetic Gravity Data
<<EMMP>>Environmental Monitoring and Mitigation Plan
<<EMP>>electron microprobe (analysis)
<<EPA>>Environmental Protection Agency
<<EPC>>East Process Cell
<<EPMP>>environmental permit management plan
<<EPP>>Environmental Program Plan
<<EPR>>Electrochemical Potentiokinetic Reaction
<<EPR>>electrochemical potentiometer reactivation
<<EPRG>>Environmental Peer Review Group
<<ERC>>Environmental Research Corporation
<<ERDA>>Energy Research and Development Administration
<<ES>>Exploratory Shaft
<<ES>>sulfide electrode potential
<<ESAAB>>Energy Systems Acquisition Advisory Board
<<ESD>>Employment Security Department (State of Nevada)
<<ESF>>Exploratory Shaft Facility
<<ESG>>Environmental Systems Group
<<ESI>>Effective Solutions, Inc.
<<ESTP>>Exploratory Shaft Test Plan
<<ETC>>estimate to complete
<<ETG>>Environmental Technology Group
<<ETP>>Engineering Test Plan
<<EV>>estimated variance
<<F&AD>>T&MSS Finance & Administration Division
<<F&S>>Fenix and Scisson - Drilling & Mining A/E at NTS
<<F-ICB>>Isolation - Interference Control Board

<<FAA>>Federal Aviation Authority
<<FASM>>fuel-assembly structural material
<<FEIS>>Final Environmental Impact Statement
<<FFP>>firm-fixed price
<<FIAP>>fraction of the inventory in the aqueous phase
<<FIS>>Financial Information System (DOE)
<<FLMPA>>Federal Land Management Policy Act (of 1976)
<<FONSI>>Funding Of No Significant Impact
<<FORS>>Forrestal building (DOE/HQ)
<<FPCD>>Final Procurement & Construction
<<FPI>>fixed-price incentive
<<FRS>>First Repository States
<<FSOPP>>Facility Specific Outreach & Public Participation Plan
<<FTE>>Full-Time Equivalent
<<FTS>>Federal Telecommunication System
<<FTT>>fuel temperature test
<<FY>>fiscal year
<<FYCE>>Fiscal Year Current Estimate
<<G&A>>general and administrative (costs)
<<GAO>>General Accounting Office
<<GETT>>grants-equal-to-taxes
<<GFE>>Government Furnished Equipment
<<GOE>>Government Owned Equipment
<<GPF>>Generic Packaging Facility
<<GRD>>Generic Requirement Document
<<GTP>>Generic Technical Position
<<G-TUF>>G-Tunnel Underground Facility
<<GWTT>>groundwater travel time
<<g>>physical constant repr. the acceleration due to gravity
<<H&N>>Holmes and Narver - Facility Design & Support Contractor (surface/NTS)
<<HAW>>high-activity waste
<<HC>>hydrocarbons
<<HEDL>>Hanford Engineering Development Laboratory
<<HEPA>>High Efficiency Particle Filters
<<HFEM>>high-frequency electromagnetic
<<HLW>>High-Level Waste
<<HMTA>>Hazardous Materials Transportation Act
<<HP>>Hewlett Packard
<<HQ>>Headquarters
<<HSX>>horizontal surface extensometer
<<IA>>internal audit
<<IAEA>>International Atomic Energy Agency
<<IAH>>International Association of Hydrologists
<<IG>>Inspector General
<<ICC>>Interstate Commerce Commission
<<ICG>>Interface Coordination Group
<<ICP>>inductively-coupled plasma (spectrometer)
<<ICWG>>Interface Control Working Group
<<ID>>inside diameter
<<IDS>>Integrated Data System
<<IGA>>intergranular corrosion attack
<<IGC>>International Geologic Congress
<<IGIS>>Interactive Graphics Information System
<<ILW>>intermediate-level waste

<<IMS>>Information Management System
<<INAA>>instrumental neutron activation analysis
<<INCRA>>International Copper Research Association
<<INEL>>Idaho National Engineering Laboratory
<<IRC>>Internal Review Committee
<<ISCG>>Institutional and Socioeconomic Coordinating Group
<<ISRM>>International Society for Rock Mechanics
<<ITC>>International Technology Corporation
<<IWG>>Interface Working Groups
<<IYB>>in your basket
<<KEV>>thousands of electron volts
<<LA>>License Application
<<LAD>>License Application Design
<<LANL>>Los Alamos National Laboratory (Los Alamos)
<<LATA>>Los Alamos Technical Association
<<LBL>>Lawrence Berkeley Laboratory
<<LCP>>Location Characterization Plan
<<LET>>linear energy transfer
<<LHD>>load haul dump
<<LLNL>>Lawrence Livermore National Laboratory
<<LLW>>low-level waste
<<LMFBR>>liquid-metal fast breeder reactor
<<LOE>>level of effort
<<LSS>>Licensing Support System
<<LTR>>Licensing Topical Reports
<<LTS>>low temperature sensitization
<<LVCVA>>Las Vegas Convention and Visitors Authority
<<LVMPD>>Las Vegas Metropolitan Police Department
<<LWR>>Light-Water-Reactor
<<Los Alamos>>Los Alamos National Laboratory
<<M>>magnitude (Richter scale)
<<M&M>>monitoring and mitigation (agreement)
<<M&O>>Maintenance & Operation
<<MBO>>Management by Objectives
<<MCC>>Materials Characterization Center
<<MCC>>manned control car
<<MCR>>Master Control Room
<<MDSWG>>Mine Design Study Working Group
<<MG>>Management Group
<<MGDS>>Mined Geologic Disposal System
<<MICCS>>Management Information and Committment Control System
<<MIO>>Material Integration Office
<<MIS>>Management Information System (SAIC)
<<MIT>>materials interaction test
<<MITRE>>USAF Think Tank
<<MMI>>modified Mercalli intensity
<<MMP>>Meteorological Monitoring Plan
<<MOA>>Memorandum of Agreement
<<MOU>>Memorandum of Understanding
<<MP>>Management Plan
<<MPBB>>maximum permissible body burden
<<MPBX>>multiple-point borehole extensometer
<<MPC>>maximum permissible concentrate
<<MRB>>Materials Review Board

<<MRS>>Monitored Retrievable Storage
<<MSA>>Major Systems Acquisition
<<MSHA>>Mine Safety and Health Administration
<<MSSR>>Milestone Schedule and Status Report
<<MT>>metric tons
<<MTHM>>metric tons of heavy metal
<<MTU>>metric tons of uranium
<<MWD>>megawatt-days
<<NAAQS>>Nevada Ambient Air Quality Standard
<<NAC>>Nevada Administrative Code
<<NAFB>>Nellis Air Force Base
<<NAFBR>>Nellis Air Force Bombing Range
<<NAFR>>Nellis Air Force Range
<<NAS>>National Academy of Sciences
<<NCR>>Nonconformance Report
<<NCRP>>National Council on Radiation Protection and Measurements
<<NCSL>>National Conference of State Legislature
<<ND>>not determined, not detected
<<NDCNR>>Nevada Department of Conservation and Natural Resources
<<NDE>>non-destructive evaluation
<<NDEP>>Nevada Department of Environmental Protection
<<NDH>>Nevada Department of Health
<<NDHPA>>Nevada Division of Historic Preservation and Archaeology
<<NDOSH>>Nevada Division of Occupational Safety and Health
<<NDRH>>Nevada Division of Radiological Health
<<NDSL>>Nevada Division of State Lands
<<NDT>>non-destructive testing
<<NDW>>Nevada Department of Wildlife
<<NDWR>>Nevada Division of Water Resources
<<NEPA>>National Environmental Policy Act
<<NGI>>Norges Geotekniske Institute (Norwegian Geotechnical Inst.)
<<NHP>>Nevada Highway Patrol
<<NMFE>>Nuclide Migration Field Experiment
<<NMFEG>>Nuclide Migration Field Experiment In Granite
<<NMFET>>Nuclide Migration Field Experiment In Tuff
<<NNWSI>>Nevada Nuclear Waste Storage Investigations Project
<<NOAA>>National Oceanic and Atmospheric Administration
<<NOCS>>Nevada Office of Community Service
<<NPO>>NWTS Program Office (DOE)
<<NPS>>National Park Service
<<NQA-1>>Nuclear Quality Assurance Guideline
<<NR>>not reported
<<NRC>>Nuclear Regulatory Commission
<<NRDA>>Nevada Research and Development Area
<<NRDS>>Nuclear Rocket Research Development System
<<NRS>>Nevada Revised Statutes
<<NSHCC>>Nevada State Health and Coordinating Council
<<NSIM>>Nevada State Inspector of Mines
<<NSL>>Nevada State Library
<<NSR>>new source review
<<NSTF>>Near Surface Test Facility
<<NTS>>Nevada Test Site
<<NTSO>>Nevada Test Site Office
<<NUREG>>NRC regulation (or position preface)

NVO
<<NV>>Nevada Operations Office
<<NWMDL>>Nevada Waste Management Distribution List
<<NWPA>>Nuclear Waste Policy Act
<<NWPO>>Nevada Nuclear Waste Project Office (State office)
<<NWSRA>>National Wild and Scenic River Act
<<NWTS>>Nuclear Waste Terminal Storage
<<OAG>>other administrative and general (costs)
<<OBERS>>Office of Business and Economic Research Services (hist.)
<<OCRWM>>Office of Civilian Radioactive Waste Management
<<OCS>>Office of Community Services (State of Nevada)
<<OD>>outside diameter
<<ODC>>other direct charges
<<OGR>>Office of Geologic Repositories
<<OMB>>Office of Management and Budget
<<OMD>>off my desk
<<ONI>>Office of NWTS Integration
<<ONWI>>Office of Nuclear Waste Isolation
<<ONWM>>Office of Nuclear Waste Management & Fuel Cycle Programs
<<OPFM>>Office Project Facilities Management
<<OR>>Onsite Representative
<<IRC>>internal review committee
<<ORNL>>Oak Ridge National Laboratory
<<OSHA>>Occupational Safety and Health Authority
<<OSTI>>Office of Scientific and Technical Information (DOE)
<<OSTS>>Office of Storage & Transportation System
<<OWI>>Office of Waste Isolation
<<P&S>>planning and scheduling
<<P&SB>>T&MSS Planning and Scheduling Branch
<<PA>>Performance Assessment
<<PAC>>potentially adverse condition
<<PACG>>Performance Assessment Coordinating Group
<<PASS>>Performance Assessment Support Service
<<PBO&D>>Parsons, Brinckerhoff, Ouade, and Douglas
<<PCDP>>Prototypical Consolidation Demonstration Project
<<PDM>>Problem Definition Memo
<<PETT>>Payment-Equal-To-Taxes
<<PI>>Principal Investigator
<<PIs>>Principal Investigators
<<PIMS>>Project Information Management System
<<PIP>>Performance Improvement Plan
<<PIRC>>Permanent Internal Review Committee
<<PLO>>Public Land Order
<<PM>>Project Managers
<<PM>>particulate matter
<<PM-TPO>>Project Manager - Technical Project Officer
<<PMCS))Project Management Control System
<<PMDS>>performance measurement data system
<<PMF>>Probable Maximum Flood
<<PMIS>>Project Management Information Sheet
<<PMOA>>Programmatic Memorandum of Agreement
<<PMP>>Project Management Plan
<<PMS>>Performance Measurement System
<<PMSD>>T&MSS Project Management Support Division
<<PNL>>Pacific Northwest Laboratory (Battelle)

<<POC>>Project Overview Committee
<<PPM>>parts per million
<<PQM>>Project Quality Manager
<<PRAM>>Probabilistic Risk Assessment Methodology
<<PRC>>Project Record Center
<<PRCR>>Preliminary Repository Concepts Report
<<PS>>T&MSS Project Services Branch
<<PSAR>>Preliminary Safety Analysis Report
<<PSD>>Prevention of Significant Deterioration
<<PSG>>Physical Science Group
<<PSRV>>pseudorelative response velocity
<<PUREX>>plutonium-uranium extraction
<<PWBS>>Project Work Breakdown Structure
<<PWR>>Pressurized Water Reactor
<<Q>>quality factor
<<QA>>Quality Assurance
<<QA>>T&MSS Quality Assurance Division
<<QALAS>>Quality Assurance Level Assignment Sheets
<<QAOC>>Quality Assurance Overview Contractor
<<QAP>>Quality Assurance Plan
<<QAPP>>Quality Assurance Program Plan
<<QARMS>>Quality Assurance Records Management System
<<QASC>>Quality Assurance Support Contractor
<<QC>>Quality Control
<<QMP>>Quality Management Procedure
<<QP>>Quality Procedure
<<QR>>Quality Review
<<QRMC>>Quality Records Management Committee
<<RA>>reduction area
<<RAM>>Responsibility Assignment Matrix
<<RAMS>>Remote Area Monitoring System
<<RAT>>radiological assistance team
<<RC>>Regulatory Compliance
<<RCG>>Radioactive Concentrate Guide
<<RCI>>Resource Communities, Inc.
<<RCR>>Review Comment Record
<<REECo>>Reynolds Electrical and Engineering Company
<<REM>>See Glossary
<<REV>>representative elementary volumes
<<RFP>>Request for Proposal
<<RH-TRU>>remote-handled transuranics
<<RIB>>Reference Information Base
<<RIF>>Reduction in Force
<<RMB/NV>>Resource Management and Budgets/Nevada Office
<<RMM>>regional mesoscale model
<<RMP>>Records Management Plan
<<RNM>>Radionuclide Migration
<<RPG>>Radiation Protection Guide
<<SA/V>>ratio of Surface Area to Solution Volume
<<SAD>>Safety Assessment Document
<<SAIC>>Science Applications International Corporation
<<SARP>>safety analysis report for packaging
<<SBTP>>Surface Based Test Plan
<<SCA>>Site Characterization Analysis (NRC analysis of SCR)

<<SCC>>stress corrosion cracking
<<SCE>>saturated calomel electrode
<<SCP>>Site Characterization Plan
<<SCR>>Site Characterization Report
<<SCS>>Soil Conservation Service
<<SDD>>System Description Document
<<SDR>>Subsystem Design Requirement
<<SDRD>>Subsystem Design Review Document
<<SEB>>Source Evaluation Board
<<SEG>>Science Engineering Group
<<SEIG>>Systems Engineering Integration Group
<<SEM>>scanning electron microscope
<<SEMP>>System Engineering Management Plan
<<SESC>>Site Evaluation Steering Committee
<<SEWG>>Site Evaluation Working Group
<<SF>>Spent Fuel
<<SFT-C>>Spent Fuel Test-Climax
<<SHPO>>State Historical Preservation Office
<<SIG>>Site Integration Group
<<SIP>>Scientific Investigations Plan
<<SIP>>site investigation planning
<<SJC-WCD>>San Juan County Water Conservation District
<<SM&IB>>T&MSS Site Management & Integration Branch
<<SMMP>>Socioeconomic Monitoring & Mitigation Plan
<<SMSA>>standard metropolitan statistical area
<<SNGBZ>>Sierra Nevada-Great Basin Boundary Zone
<<SNL>>Sandia National Laboratories
<<SOC>>Sample Overview Committee
<<SOP>>Standard Operating Procedure
<<SOW>>Statement of Work
<<SPA>>Subsystem Performance Assessment
<<SPCC>>Spill Prevention Control and Counter-measure Plan
<<SPI>>Schedule Performance Index
<<SR>>State Route
<<SRL>>Savannah River Laboratory
<<SRPO>>Salt Rock Project Office (Columbus, OH)
<<SRR>>Site Recommendation Report (DOE/HO 3-1)
<<SSC>>surface storage casks
<<SEO>>Source Election Official
<<SSR>>slow-strain rate (test)
<<STC>>Society for Technical Communication
<<STV>>Surface Transport Vehicle
<<SV>>schedule variance
<<SW>>secondary waste
<<SWL>>Static Water Level
<<SWO>>Stop Work Order
<<SWP>>State Water Plan
<<T&MSS>>Technical and Management Support Services
<<IAPD>>initial area power density
<<TAR>>Travel Authorization Request
<<TBD>>to be determined
<<TC>>Thermal Conductivity
<<TCPI>>To-complete Cost Performance Index
<<TD>>total depth

<<TDP>>Technical Detail Procedure
<<TE>>Thermal Expansion
<<TEF>>Test and Evaluation Facility
<<TGA>>thermogravimetric analysis
<<TGSCC>>transgranular stress corrosion cracking
<<TIC>>Technical Information Center (DOE) (historical)
<<TLD>>thermoluminescent dosimeter
<<TLV>>threshold limit value
<<TOC>>Technical Overview Committee
<<TOSPAC>>Total System Performance Assessment Code
<<TPC>>temperature profile capsule
<<TPO>>Technical Project Officer
<<TPR>>Technical Project Review
<<TRU>>Transuranic Waste
<<TSM>>Topopah Spring Member
<<TSP>>total suspended particles
<<TTC>>Transportation Technology Center
<<TTS>>time-temperature-sensitization
<<TWC>>Texas Water Commission
<<U.S.>>United States
<<UCRS>>Uniform Contractor Reporting Service (DOE)
<<UDBR>>Upper Demonstration Breakout Room
<<UNE>>underground nuclear explosion
<<UNLV>>University of Nevada, Las Vegas
<<UNR>>University of Nevada, Reno
<<UNWMG>>Utility Nuclear Waste Management Group
<<UP>>Union Pacific Railroad
<<USAF>>U.S. Air Force
<<USBM>>United States Bureau of Mines
<<USC>>U.S. Code
<<USFS>>U.S. Forest Service
<<USFWS>>U.S. Fish and Wildlife Service
<<USGS>>U. S. Geological Survey
<<UTCG>>Underground Testing Coordinating Group
<<UZ>>Unsaturated Zone
<<VAR>>Variance Analysis Report
<<VFD>>Volunteer Fire Department
<<VSP>>vertical seismic profiling
<<W>>waste
<<W>>Westinghouse
<<W-AESD>>Westinghouse - Advanced Energy System Division
<<W/WTSD>>Westinghouse Waste Technology Services Division
<<WAP>>Waste Acceptance Process
<<WAPS>>Waste Acceptance Preliminary Specifications
<<WBS>>Work Breakdown Structure
<<WEC>>Westinghouse Electric Corporation
<<WESTPO>>Western (Governors) Policy Office
<<WG>>Working Group
<<WGC>>Working Group Coordinator
<<WHB>>waste handling building
<<WI>>Working Instructions
<<WIPP>>Waste Isolation Pilot Plant
<<WLM>>working level month
<<WMPO/NV>>Waste Management Project Office/Nevada Operations Office

<<WMSC>>Waste Management Steering Committee
<<WP>>waste package
<<WPAS>>Work Package Approval System
<<WPCG>>Waste Package Coordinating Group
<<WSA>>Wilderness Study Area
<<WV>>West Valley
<<WVDP>>West Valley Demonstration Project
<<WVHLW>>West Valley high-level waste
<<XRD>>x-ray diffraction
<<XRF>>x-ray fluorescence
<<YM>>Yucca Mountain
<<YS>>yield strength

REVIEW LOGISTICS

- TYPING
- COPYING
- LIBRARY
- ORGANIZATION REVIEW LOCATIONS

REVIEW LOGISTICS

LIBRARY

NNWSI PROJECT REGULATORY
DOCUMENT MANUAL [2]
10 CFR 60
10 CFR 960
40 CFR 191
NEPA
NWPA
29 CFR 1910 W/UPDATES
29 CFR 1926 W/UPDATES
30 CFR 0-199
FWPCA
RIB [2]
GRMGDS [2]
ISSUES HIERARCHY FOR A
MGDS [2]

DOE ORDERS
6430.1A [2]
5480.1
5480.4
5481.1
SDRD [4]
SCP/CDR
SCP/CD [2]
NQA1
WMPO/88-1 W/QMPs [2]
NVO-196-17 REV 5 W/SOPs [2]
QALAS
DWG R07048A, ECR 4 VERSION [8]
ECRs [2]
CONSTRUCTION SCHEDULE [2]

REVIEW LOGISTICS

LIBRARY (CONT.)

*AASHTO GDHS
*ACI 318, *318.1
ANSI A58.1, *C2
*UBC, *UMC, *UPC
*NFPA 70, *101
CAC, TITLE 8, CHAP 4, SUBCH 17 AND 20
NRS, PART 1, TITLE 46, CHAPTERS 444, 445, AND 512
NEV DEPT OF HWYS, STD SPEC FOR ROAD AND BRIDGE CONST
NEV DEPT OF HWYS, STD PLANS FOR ROAD AND BRIDGE CONST
NEV DOT, ROAD DESIGN DIV, DESIGN MANUAL, PARTS 1 AND 2
H&N SCOPE AND PLANNING BASIS DOCUMENT (12)
H&N DESIGN BASIS DOCUMENT (12)
H&N QA MANUAL (2)
F&S DESIGN SCOPE AND PLANNING DOCUMENT (12)
F&S BASIS FOR DESIGN (12)
F&S QA MANUAL

*AVAILABLE UPON REQUEST

COMMENT DISPOSITION

- DEVELOPMENT OF FORMAL COMMENTS
- COMMENT TRACKING
- DISCIPLINE AND ORGANIZATION CODES
- FORMS

COMMENT DISPOSITION

DEVELOPMENT OF FORMAL COMMENTS

- COMMENTS MADE AND CHECKED BY REVIEWER
- HANDWRITTEN COMMENTS SUBMITTED TO SAIC FOR TYPING
- COMMENTS DRAFT TYPED ONTO REVIEW AND COMMENT FORM
- TYPED COMMENTS CHECKED BY REVIEWER; CORRECTIONS NOTED ON TYPED FORM
- LEAD REPRESENTATIVE REVIEWS COMMENTS FOR COMPLIANCE WITH COMMENT REQUIREMENTS

COMMENT DISPOSITION

DEVELOPMENT OF FORMAL COMMENTS (CONT.)

- CORRECTIONS MADE BY TYPING ONTO CLEAN FORMS; COMMENT NUMBERS ASSIGNED BY SAIC
- TYPED COMMENTS RECHECKED BY REVIEWER
- REVIEWER SIGNS SECTION A OF EACH SHEET OF CORRECTED FORMS AND SUBMITS TO DESIGN REVIEW SECRETARY/DISCIPLINE COORDINATOR AFTER LEAD REPRESENTATIVE INITIALS EACH SHEET ABOVE DISPOSITION COLUMN

COMMENT DISPOSITION

DEVELOPMENT OF FORMAL COMMENTS (CONT.)

- REVIEWER AND DESIGN REVIEW SECRETARY/DISCIPLINE COORDINATOR AGREE ON APPROPRIATENESS OF COMMENTS (COMMENTS CAN BE REVISED OR DELETED), AND PROPOSED DISPOSITION

- SECRETARY/DISCIPLINE COORDINATOR NOTES DISPOSITION ON SIGNED FORMS AND SIGNS

- REVIEWER SIGNS SECTION B OF SHEET 1 OF THE FORM ACKNOWLEDGING AGREEMENT WITH DISPOSITION

- REVIEW CHAIRMAN OR REVIEW SECRETARY SIGNS SHEETS

- QA REPRESENTATIVE SIGNS SHEETS

COMMENT DISPOSITION

COMMENT TRACKING

- COMMENT IDENTIFICATION NUMBERS WILL BE ASSIGNED BY THE REVIEW SECRETARY/DISCIPLINE COORDINATOR

- FOUR PART IDENTIFICATION NUMBER:

  * CATEGORY CODE

  * ORGANIZATION CODE

  * REVIEWERS INITIALS

  * SEQUENTIAL REVIEWER COMMENT NUMBER

  EXAMPLE: C.T.EC.021

COMMENT DISPOSITION

COMMENT TRACKING

- DURING RESOLUTION MEETINGS, COMMENTS WILL BE IDENTIFIED BY DISCIPLINE AND NUMBER

- EACH REVIEWER WILL BE GIVEN A LISTING OF HIS COMMENTS WITH THEIR LOCATION IN THE CONSOLIDATED COMMENT SET

COMMENT DISPOSITION

DISCIPLINE AND ORGANIZATION CODES

CATEGORY	CODE	ORGANIZATION	CODE
GENERAL	G	DOE/HQ	Q
CIVIL	C	NVO	N
MECHANICAL	M	NTSO	E
ARCHITECTURAL	A	WMPO	J
ELECTRICAL	E	WESTON	K
SHAFTS	F	SAIC	T
MINING	I	USCOE	C
SPECIFICATIONS	S	MSHA	M
		B OF M	B
		REECo	R
		LOS ALAMOS	A
		USGS	G
		SNL	S
		LLNL	L

Page No. of

NNWSI PROJECT **REVIEW AND COMMENT FORM**

To: _____

From: _____ Date _____

Document No.	Document Title	Rev. No.	Doc. Date

Project	Work Package Manager	Originator	Requested Completion Date: _____

Document Intended Usage:

Sections of Document to be Reviewed:

If Applicable:
CDMS No. _____
WP No. _____

Page, Para. & Line No.	Man-datory	Non-Man-datory	Review Comment Note: Peer review comments shall include rationale	Comment Disposition

A. Reviewer	Date	Dispositioned By	Date

Comment Resolution Complete

B. Reviewer	Date	Responsible Manager	Date	QA Specialist	Date

NNWSI PROJECT	**REVIEW AND COMMENT FORM (Continuation Sheet)**	Page No. of

Document No.	Document Title	Rev. No.	Doc. Date

Page, Para. & Line No.	Man-datory	Non-Man-datory	Review Comment	Comment Disposition

A. Reviewer	Date	Dispositioned By	Date

TECHNICAL COMMENT REVIEW AND RESPONSE FORM

DOCUMENT TITLE		3. CONTRACTOR	6. REVIEWING ORGANIZATION
			7. CONTRACT NO.
2. DOCUMENT NO.	4. REVISION NO.	5. DOCUMENT DATE	8. S.O.W. REFERENCE OR DD & RR

9. ITEM NO.	10. PAGE, SECTION NO., OR DRAWING NO.	11. COMMENTS	12. ACTION/RESPONSE

13. Reviewed by Date	14. Concurrence by Date	15. Resolution by Date	16. Approved DOE Date
ganization _____	Organization _____	Organization _____	Organization _____

Page _____ of _____

TECHNICAL COMMENT REVIEW AND RESPONSE FORM
(Continuation Sheet)

DOCUMENT TITLE	CONTRACTOR	DOCUMENT DATE

ITEM NO.	PAGE, SECTION NO., OR DRAWING NO.	COMMENTS	ACTION/RESPONSE

ESF TITLE I 50% DESIGN REVIEW

REVIEWER COMMENT RESOLUTION DESIGNATION AUTHORITY

THE REVIEWER, NAMED BELOW, IN HIS ABSENCE DESIGNATES AND TRANSFERS COMMENT RESOLUTION AUTHORITY AND CONCURRENCE AUTHORITY TO HIS LEAD REPRESENTATIVE.

ORGANIZATION NAME: _____

LEAD REPRESENTATIVE: _____

DATE: _____

ESF TITLE I 50% DESIGN REVIEW

COMMENT RESOLUTION CONCURRENCE

THE REVIEW TEAM LEAD REPRESENTATIVE CONCURS WITH ALL THE RESOLUTIONS DEVELOPED FOR ALL OF THE COMMENTS SUBMITTED BY HIS ORGANIZATION DURING THE DESIGN COMMENT AND RESOLUTION ACTIVITIES.

ORGANIZATION NAME: _____

LEAD REPRESENTATIVE: _____

DATE: _____

PROCEDURES AND INSTRUCTIONS TO REVIEWERS

- GENERAL REQUIREMENTS FOR COMMENTS
- INSTRUCTIONS TO REVIEWERS
- REVIEWER'S RESPONSIBILITY

PROCEDURES AND INSTRUCTIONS TO REVIEWERS

INSTRUCTIONS TO REVIEWERS (CONT.)

- COMMENTS BY EACH REVIEWER MUST BE IDENTIFIED BY DISCIPLINE ON THE APPROPRIATE FORMS BEFORE SUBMITTAL
- DO NOT NUMBER COMMENTS
- CONFLICTING COMMENTS WITHIN REVIEWING ORGANIZATIONS MUST BE RESOLVED INTERNALLY BEFORE SUBMITTAL TO THE DESIGN REVIEW SECRETARY/DISCIPLINE COORDINATOR
- DESIGN REVIEW SECRETARY WILL TRY TO ACCOMMODATE ALL REVIEW COMMENTS

PROCEDURES AND INSTRUCTIONS TO REVIEWERS

REVIEWER'S RESPONSIBILITY

- COMPLETE FORM N-QA-007, WMPO PROFICIENCY REVIEW REPORT (REVIEWER'S QUALIFICATIONS)

- COMPLETE DRAFT OF REVIEW AND COMMENT FORM. USE OF THIS FORM IS MANDATORY

- CHECK AND SIGN THE TYPED VERSION OF THE REVIEW AND COMMENT FORM

- REVIEWER'S PARTICIPATION IS COMPLETE ONLY AFTER ALL HIS REVIEW AND COMMENT FORMS HAVE BEEN SIGNED AND COMMENTS DISPOSITIONED

PROCEDURES AND INSTRUCTIONS TO REVIEWERS

GENERAL REQUIREMENTS FOR COMMENTS

- MAKE THEM SPECIFIC AND TO THE POINT
- GIVE ENOUGH DETAIL TO COMMUNICATE THE INTENT OF THE COMMENT AND ALLOW ITS RESOLUTION
- IF THE DOCUMENT IS A SPECIFICATION, GIVE PAGE NUMBER, PARAGRAPH AND SENTENCE NUMBER (I.e., PAGE 3, 4TH PARAGRAPH, 3RD SENTENCE)
- IF THE DOCUMENT IS A DRAWING, GIVE SPECIFIC ZONE NUMBER (I.e., 2A-C-001, ZONE A-6, DETAIL 1, ETC.)

PROCEDURES AND INSTRUCTIONS TO REVIEWERS

GENERAL REQUIREMENTS FOR COMMENTS (CONT.)

- DO NOT MAKE COMMENTS IN THE FORM OF QUESTIONS DIRECTED TO THE A/E

  - MAKE COMMENTS THAT CAN BE RESOLVED BY THE A/E

PROCEDURES AND INSTRUCTIONS TO REVIEWERS

GENERAL REQUIREMENTS FOR COMMENTS (CONT.)

- DO NOT MAKE COMMENTS CONSISTING ONLY OF "MORE DETAIL REQUIRED," "EXPAND," "CHANGE," OR "CLARIFY." IF THIS TYPE OF COMMENT IS NECESSARY, SPECIFY THE ADDITIONAL DETAIL, CHANGE, OR CLARIFICATION REQUIRED.

- DO NOT MAKE "FOR INFORMATION ONLY" COMMENTS

- REVIEW RECORDS MAY BECOME PUBLIC INFORMATION. COMMENTS SHOULD BE STRUCTURED IN A PROFESSIONAL MANNER.

PROCEDURES AND INSTRUCTIONS TO REVIEWERS

INSTRUCTIONS TO REVIEWERS

- THE DESIGN NEEDS TO MEET THE APPROVED (NOT PENDING OR DESIRED) REQUIREMENTS AND SHOULD BE REASONABLE AND DEFENSIBLE.

- COMMENTS MUST CONSIDER THE STAGE OF DESIGN COMPLETION AND SCOPE OF THE REVIEW. REMEMBER, THIS IS A 50 PERCENT TITLE I DESIGN.

- REVIEWS ARE INTENDED TO IMPROVE THE DESIGN PACKAGE, HOWEVER, REVIEWERS SHOULD NOT IMPOSE PERSONAL ALTERNATIVE DESIGN CHOICES.

PROCEDURES AND INSTRUCTIONS TO REVIEWERS

INSTRUCTIONS TO REVIEWERS (CONT.)

- REVIEWERS SHOULD RESTRICT THEIR COMMENTS TO THEIR AREA OF EXPERTISE AND TO THE SCOPE OF WORK ASSIGNED BY THE WMPO TO THEIR ORGANIZATION

- PROVIDE SUPPORTING EVIDENCE SUCH AS REFERENCES OR VERIFIED INFORMATION

INSTRUCTIONS TO REVIEWERS (CONT.)

- PROPER COMMENTS SHOULD BE VERIFIED:
  - FIRST BY REVIEWER
  - SECOND BY THE LEAD REPRESENTATIVE OF THE REVIEWING ORGANIZATION
  - THIRD BY THE SAIC DESIGN REVIEW SECRETARY/ DISCIPLINE COORDINATOR