



Department of Energy

Richland Operations Office
P.O. Box 550
Richland, Washington 99352

NOV 27 1994

94-PMDB-144

President
Westinghouse Hanford Company
Richland, Washington

Dear Sir:

PROJECT W-405, K BASIN ESSENTIAL SYSTEMS RECOVERY, DESIGN CRITERIA DOCUMENTS AND VALIDATION PROCESS (WHC-SD-SNF-CR-001, REV. 0/WHC-SD-SNF-CR-002, REV.0)

The Design Criteria Documents for the Electrical and Maintenance Shop/Support Facility have been reviewed and are approved upon satisfactory resolution and/or incorporation of the enclosed comments.

The subject project consists of four subprojects: 100K Water Supply and Distribution; Electrical; Fire Protection; and Maintenance Shop/Support Facility. A technical baseline was established for the Water Supply and Distribution Subproject in accordance with RLIP 4700.1A, Project Management System, through an RL-approved Functional Design Criteria (FDC). As discussed in meetings held on September 20 and 22, 1994, and in accordance with DOE Order 4700.1, Project Management System, RL concurs with the use of RL-approved Design Criteria Documents (DCD), in place of an FDC, to establish the technical baselines for the remaining three subprojects. The DCD shall be controlled in the same manner as an FDC, in accordance with RLID 4700.1.

If you have any questions, please contact Julie Schmitz on 376-5875.

Sincerely,

J. L. Daily, Acting Director
Nuclear Materials Division

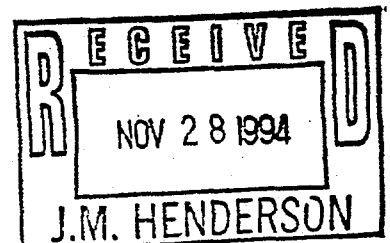
PMD:JKS

Enclosure

cc w/encl:
J. M. Henderson, WHC

MASTER

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RL COMMENTS ON DESIGN CRITERIA DOCUMENTS
PROJECT W-405
K BASIN ESSENTIAL SYSTEMS RECOVERY

NOVEMBER 10, 1994

MAINTENANCE SUB-PROJECT DESIGN CRITERIA DOCUMENT

1. Section 1.5.1 - Include "inadequate ventilation" as an example of deficiencies.
2. Section 1.5.3 incorrectly refers to the Maintenance Organization being responsible for the maintenance of the fire protection systems. The Fire Systems and Maintenance Group of the HFD performs this function. Suggest deleting the words "fire protection."
3. Section 1.5.3 incorrectly refers to the Maintenance Organization being responsible for the HEPA filters and HVAC. The document should be revised to reflect the correct responsibilities.
4. Delete Sections 2.2, Cost and 2.3, Schedule from this document.
5. Section 4.1 - Add "and documented" to the end last sentence of the first paragraph.

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RELEASE AUTHORIZATION

Document Number: WHC-SD-SNF-CR-002, REV 0

Document Title: Design Criteria Document, Maintenance Shop/Support Facility, K-Basin Essential Systems Recovery, Project W-405

Release Date: 12/13/94

This document was reviewed following the procedures described in WHC-CM-3-4 and is:

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:


Kara M. Broz

December 13, 1994


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7. Abstract This Design Criteria Document provides the criteria for design and construction of maintenance shop/support facility modifications for the 109KE building that are essential to protect the safe operation and storage of spent nuclear fuel in the K-Basin facilities.		
8. RELEASE STAMP <div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> OFFICIAL RELEASE  BY WHC DATE DEC 14 1994 <i>STA#3</i> </div>		

DESIGN CRITERIA DOCUMENT
PROJECT W-405
MAINTENANCE SHOP/SUPPORT FACILITY

WHC-SD-SNF-CR-002, REV. 0

OCTOBER 1994

Prepared by: Westinghouse Hanford Company

Approvals:

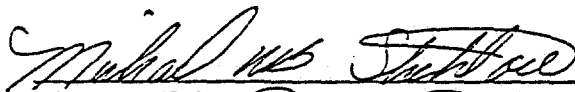
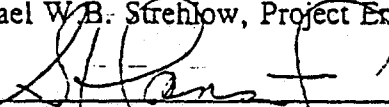

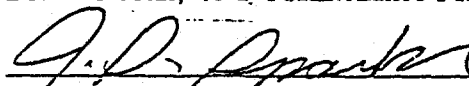
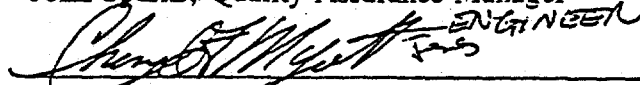
 Michael W.B. Strehlow, Project Engineer	10-5-94 Date
 George Hansrote, Project Manager	10-5-94 Date
 Bruce Deban, SNF Maintenance Manager	10-5-94 Date
 John Sparks, Quality Assurance Manager	10-5-94 Date
 J.C. Hamrick, SNF Safety Manager	10/6/94 Date

TABLE OF CONTENTS

	Page
1.0 INTRODUCTION	1
1.1 BACKGROUND	1
1.2 WORK SCOPE	1
1.3 LOCATION	1
1.4 INTERFACES	1
1.5 JUSTIFICATION	2
2.0 FACILITY REQUIREMENTS	4
2.1 FUNCTIONAL	4
3.0 GENERAL REQUIREMENTS	4
3.1 SAFETY	5
3.2 ENVIRONMENTAL	6
3.3 SAFEGUARDS AND SECURITY	6
3.4 QUALITY ASSURANCE	7
3.5 DECONTAMINATION AND DECOMMISSIONING	7
4.0 CODES, STANDARDS, CRITERIA AND PROCEDURES	7
5.0 REFERENCES	10

ATTACHMENTS

ATTACHMENT 1 - MAINTENANCE SHOP/SUPPORT FACILITY SPACE
REQUIREMENTS

ATTACHMENT 2 - MAINTENANCE SHOP/SUPPORT FACILITY GENERAL
ARRANGEMENT DRAWINGS

1.0 INTRODUCTION

1.1 BACKGROUND

During the next 10 years a substantial amount of work is scheduled in the K-Basin Area related to the storage and eventual removal of irradiated N-Reactor fuel. Currently, maintenance support activities are housed in existing structures that were constructed in the early 1950's. These forty-year-old facilities and their supporting services are substandard, leading to inefficiencies. Because of numerous identified deficiencies and the planned increase in the numbers of K-Basin maintenance personnel, adequate maintenance support facilities that allow efficient operations are needed.

An engineering study (Reference A) evaluated three facility alternatives for housing the maintenance functions for the K-Basin area. A selection was made based upon economics and mission capabilities and is included in Project W-405. This document defines the design criteria for that solution.

1.2 WORK SCOPE

The objective of this sub-project of Project W-405 is to provide a maintenance and storage facility which meets the K-Basin Maintenance Organization requirements as defined in Attachment 1. In Reference A, existing guidelines and requirements were used to allocate space for the maintenance activities and to provide a layout concept (See Attachment 2). The design solution includes modifying the existing 190K-E building to provide space for shops, storage, and administration support functions. The primary reason for the modification is to simplify siting/permitting and make use of existing infrastructure. In addition, benefits relative to design loads will be realized by having the structure inside 190K-E.

The new facility will meet the Maintenance Organization approved requirements in Attachment 1 relating to maintenance activities, storage areas, and personnel support services. This sub-project will also resolve outstanding findings and/or deficiencies relating to building fire protection, HVAC requirements, lighting replacement/ upgrades, and personnel facilities. Compliance with building codes, local labor agreements and safety standards will result. (See References B and C for deficiencies)

1.3 LOCATION

1.3.1 All of the work involved with this sub-project is located at the K-Basin complex in the 190K-East Main Pump House Building or in immediately adjacent areas.

1.4 INTERFACES

This sub-project will interface with three other sub-projects that, together, constitute Project W-405. Maintenance Facility interfaces with the other sub-projects are described below.

1.4.1 WATER SUPPLY AND DISTRIBUTION SYSTEM INTERFACES

1.4.1.1 The Water Treatment sub-project will deactivate two existing service water pumps in building 190K-E. This Maintenance Facility sub-project will not impact or be impacted by that activity.

In addition, coordination with the Water System Project Engineer is needed because potable, service, and fire protection water will be supplied to 190K-E.

1.4.2 ELECTRICAL SYSTEM INTERFACES

1.4.2.1 Information about the changes in the electrical loads inside 190K-E will be provided to the Electrical System Project Engineer, because power will be supplied from 165K-E. Also the electrical sub-project will eliminate the 4160 volt service. Loss of this service will not impact this sub-project.

1.4.3 FIRE PROTECTION SYSTEM INTERFACES

1.4.3.1 Building 190K-E does not have fire protection. The Fire Protection sub-project will add fire protection and suppression capability to the building and will provide interface ties for the modified structure. Interface with the Fire Protection subproject design authority and the Maintenance Shop/Support Facility design authority will be required.

1.4.4 EXISTING MAINTENANCE OPERATIONS/STORAGE INTERFACES

1.4.4.1 Currently 190K-E houses a machine shop and maintenance storage areas. Modifications inside 190K-E will have only a minor effect on these operations. However, coordination will be required to relocate machine shop activities during modification.

The availability of sufficient service, potable, and sanitary water drainage capacity will be determined based on as-built information for the 190K-E building. If additional drainage capacity is needed, coordination will be required to locate existing underground drains in the yard area. Excavation permits will be obtained by the constructor prior to the start of any earth work.

1.5 JUSTIFICATION

1.5.1 K-BASINS FUTURE MISSION AND ACTIVITIES

Maintenance activities are currently housed in Building 1717K which contains many deficiencies. Examples of deficiencies include lead-based paint, asbestos partitions, walls, and roof, an inadequate electrical system, a roof needing replacement, inadequate ventilation, and a water piping system containing high levels of heavy metals that make it unfit for potable water distribution. Also, an existing un-reinforced concrete block wall in 1717K does not comply with DOE seismic criteria for the site. Correcting these deficiencies will require vacating the building.

In addition, insufficient working space is available in 1717K, requiring that some maintenance equipment (saws, drill presses, etc.) be installed and used in the 190K-E building, about 200 yards away. Also, several activities such as welding and painting are performed in the N-Area, about six miles away due to lack of supporting 190K-E infrastructure.

Finally, the lack of a single, centralized facility results in a significant loss of maintenance man-hours to unnecessary travel between buildings. For example, all personnel not working in 1717K must travel to/from 1717K at least four times a day to change and eat lunch. This non-productive time could become productive by having a single, consolidated maintenance facility. A modification will be constructed inside 190K-E to centralize all maintenance activities and meet all habitability/fire protection/efficiency requirements.

This solution is similar to that for other facility conversion projects occurring at the site which take advantage of existing structures. For example, Project D-391 is a conversion/modification of an existing building due to a change in mission. The 12,000 sq. ft. second floor of Building 325 was primarily mechanical space and is being converted to include restrooms, a new HVAC system, lunch and conference rooms, and an upgraded electrical system.

1.5.2 MAINTENANCE SUPPORT REQUIREMENTS FOR K-BASINS

The mission of the K-Basins is to function as an interim storage facility for 2,300 tons of irradiated N-reactor fuel until fuel removal. The Tri-Party Agreement deadline for removal is 2002. The K-Basins were recently identified as presenting an unacceptable risk to the environment from possible releases due to seismic activity. Therefore, removal of the fuel rods from the pools or storage in a stable form has been elevated to a "top" priority. It is anticipated that fuel removal/storage will generate increased operational activity over the next 6 to 12 years. The Maintenance Organization must support these additional operations.

1.5.3 MAINTENANCE ORGANIZATION

The Maintenance Organization has the responsibility for maintaining all the environmental monitoring, communications, mechanical, electrical, instrumentation, structural, pneumatic, hydraulic, etc. systems in the K area. The systems include equipment such as water distribution pumps, fuel pool heat exchangers, electrical transformers, ion exchange columns, air compressors, cranes and hoists, DC electrical, circuit breakers, office facilities, general grounds,

etc.

To maintain the above equipment currently requires a staff of 13 management and administrative personnel, 6 engineers and 48 craft personnel (See Exhibit 1.1). Crafts represented include electricians, instrumentation and control technicians, pipefitters, a carpenter, a sign painter, welders, etc.

The maintenance man-hour workload projection will decrease due to less maintenance required when new electrical distribution and water supply equipment is installed. But, the workload overall will increase due to increased operational activity at the K-Basins and recovered systems being placed in a structured maintenance program.

1.5.4 MAINTENANCE FACILITY/EQUIPMENT REQUIREMENTS

For the K-Basins Maintenance Organization to satisfy the support requirements discussed in section 1.5.2 with the human resources identified in section 1.5.3, certain minimum facilities and equipment are needed. The detailed facility space requirements are provided in Attachment 1.

2.0 FACILITY REQUIREMENTS

2.1 FUNCTIONAL REQUIREMENTS

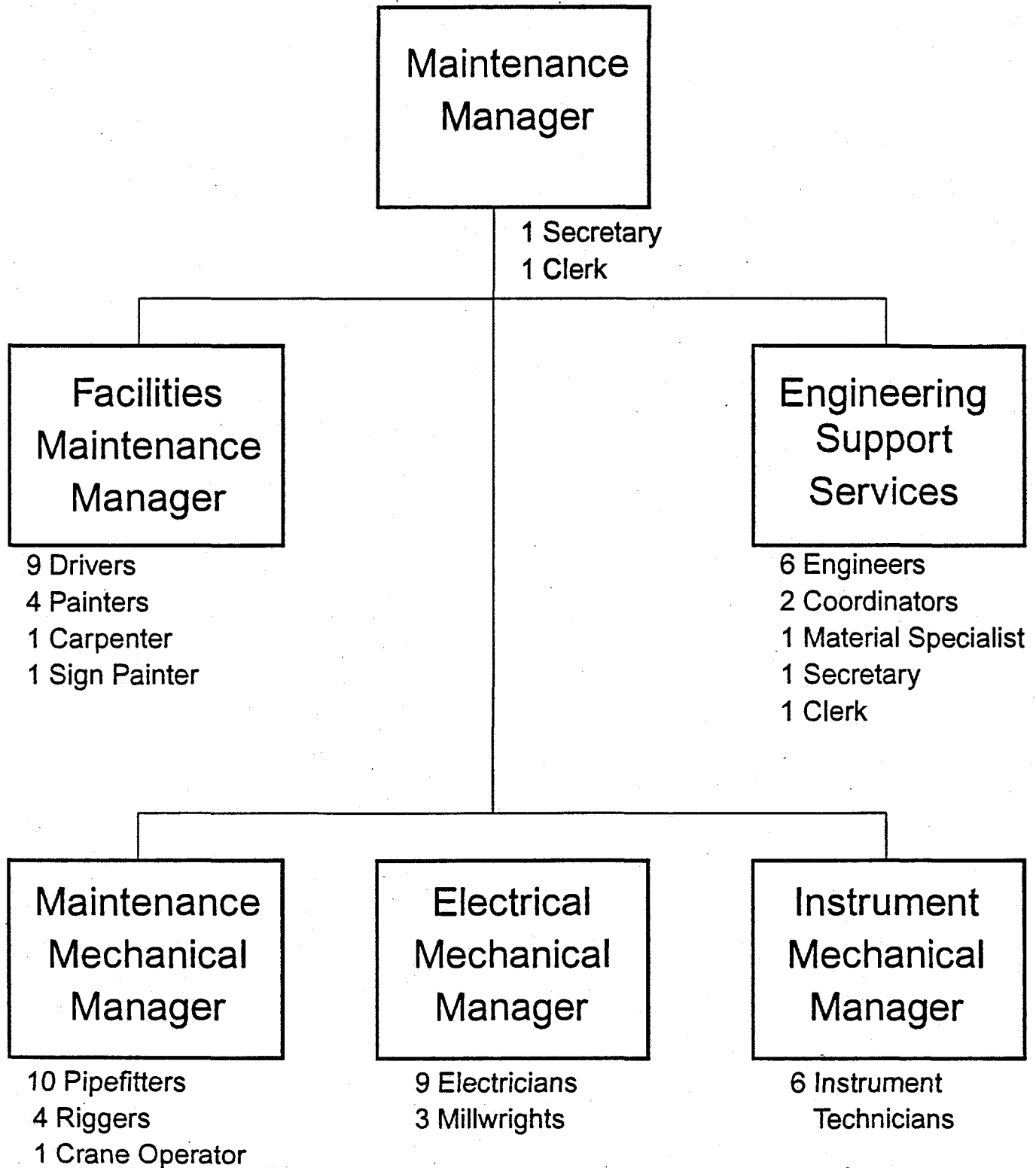
2.1.1 The new structure inside 190K-E shall meet the Maintenance Organization's requirements for maintenance activities space, storage space, equipment services, and personnel support services for 75 people (15 support personnel and 60 trades personnel). This number includes an allowance for future growth. Included in the sub-project is the correction of outstanding building findings and/or deficiencies. Compliance with building codes and safety standards referenced in section 4.0 will result.

2.1.1.1 UTILITIES - The Maintenance Shop/Support Facility will require electrical power, water (hot/cold potable) and sewer services. These potable water and sewer service utilities are required to provide drinking water and shower facilities for 60 maintenance personnel. The potable water supply shall be provided from the existing area potable water supply system which runs through the 190K-E/165K basement. The anticipated demand is 2800 GPD (15 x 15 GPD + 60 x 35 GPD + 20% margin). The new sanitary waste outflow from 190K-E shall be reviewed to verify the impact of the additional demand on an existing septic tank system. In the event inadequate septic tank facilities exist, other design options shall be used to remove the sanitary waste (i.e. lift pump station/piping).

2.1.1.2 MISCELLANEOUS PADS AND STRUCTURES - Reference A identified four external pads/structures required for support of the K-Basins maintenance work. The requirement for two self-contained flammable materials storage modules was added after

Exhibit 1.1

K-BASINS MAINTENANCE ORGANIZATION CHART



Total = 67 Personnel

Reference A was produced. These five outdoor facilities are:

1. Covered storage racks for gas bottles
2. Two satellite accumulation area pads - 20' x 20' each
3. Laydown/Storage area pad - 20' x 30'
4. Snow removal equipment building (prefab 20' x 30', including slab and foundation, three sides and roof)
5. Two flammable materials storage buildings

Reference A provides preliminary descriptions. These pads and structures will be west of 190K-E and are expected to be simple slab-on-grade construction.

2.1.1.3 **LIGHTING** - The existing lighting in 190K-E is both insufficient and inefficient. Use as a storage area and maintenance shop will continue until the new two-story facility is complete. An interim plan will accommodate the existing mission and make space available for the new two-story structure. Since the proposed general arrangement of 190K-E is known (Attachment 2), an interim plan will include as much "permanent" work as possible. The approach will be to design the "permanent" lighting for the 190K-E, install the fixtures, and furnish power as part of the interim plan. Where possible, existing equipment will be relocated to "permanent" locations and power supplied accordingly. Temporary lighting will be furnished as required.

2.1.1.4 **ACOUSTICAL BARRIERS** - Currently there are two large pumps operating which generate unacceptable noise levels for an administrative/shop area. A sound barrier will be designed and installed to eliminate this concern unless it is verified that the pumps will be removed from service as planned. If the pumps will not be in service after beneficial occupancy, the barriers will not be installed.

2.1.1.5 **MISCELLANEOUS INTERIOR WORK** - Specific maintenance activities, such as welding and refrigeration repair, require special services (e.g., ventilation, HEPA filters). In addition certain security, separation, and traffic barriers are required. These areas are shown on Attachment 2.

2.1.1.6 **"NEW" STRUCTURE** - The major design work for this sub-project is a "new" structure that meets the requirements of Attachment 1. Structural steel, insulated siding, and interior walls and ceilings will create a two-story facility inside 190K-E. The facility will house file storage areas, change rooms, sanitary facilities, lunch rooms, craft dispatch areas, a conference room, offices, shop areas, etc.

2.1.1.7 **FIRE PROTECTION** - The 190K-E building "new" structure will include the installation of a fire detection and suppression system. (The Fire Protection sub-project will install an automatic fire suppression system in 190K-E which will provide an interface with the two-story structure.)

2.1.1.8 HVAC - Reference A identified the need to furnish heating and cooling to the 190K-E maintenance shop and storage areas separately from that of the two-story structure. Existing systems are deficient.

2.1.1.9 COMMUNICATIONS - Communication capabilities will include telephone, H-LAN, computer, and Fax machine connections as well as a public address/intercom system.

3.0 GENERAL REQUIREMENTS

3.1 SAFETY REQUIREMENTS

3.1.1 Safety classification for the sub-project will comply with WHC-CM-1-3, "Management Requirements and Procedures," MRP 5.46. "Safety Classification of Systems, components, and Structures."

3.1.2 This sub-project is designated as hazard type-Normal Public Risk (NPR). Formal safety analysis, in accordance with DOE Order 5481.1B, "Safety Analysis and Review System", is not required for NPR projects. The construction and operation of the facility involves hazards that are routinely encountered and accepted in the course of everyday living by the vast majority of the general public. Safety reviews performed during the normal planning, design and execution of the sub-project will identify and mitigate hazards associated with construction and operations. A preliminary assessment indicated that the highest Safety Class will be SC-3.

3.1.3 Work for this sub-project involves modification activities at K-Basins and is considered acceptable when following existing procedures and by meeting or exceeding general industry standards.

3.1.4 The design shall consider the traffic safety impacts for both personnel and emergency response equipment.

Construction contractors will be required to take reasonable precautions for protection of the health and safety of their employees, subcontractors, operating contractor and DOE personnel. This includes providing continuous access to construction areas by emergency vehicles and personnel and ensuring that emergency evacuation routes are not obstructed.

3.2 ENVIRONMENTAL REQUIREMENTS

3.2.1 REGULATORY COMPLIANCE

3.2.1.1 The design shall comply with the environmental requirements of 40 CFR 260, 261, 264, and 265.

3.2.1.2 Only new construction sites must comply with the Resource Conservation and Recovery Act and applicable State and Federal laws and standards. This sub-project is not new construction.

Modifications to bring existing facilities into compliance with applicable State and Federal environmental laws and standards, including the Resource Conservation and Recovery Act, are not included in this sub-project.

3.2.2 ENVIRONMENTAL RELEASES

3.2.2.1 Releases of radioactive material and non-radioactive hazardous material shall not exceed the criteria in WHC-CM-7-5, "Environmental Compliance." However, no releases of radioactive or hazardous materials are anticipated.

3.3 SAFEGUARDS AND SECURITY REQUIREMENTS

3.3.1 Safeguards and security requirements shall be established with assistance from personnel in the Safeguards and Security organization.

3.3.2 Part of this sub-project's work is located in a security protected area requiring personnel having "L/5" or higher clearances for unescorted access. A construction security plan approved by Safeguards and Security will be required in accordance with WHC-CM-4-33, "Security Manual," Section 2.15, "Limited and Protected Area Construction Security Access." Escorts for non-cleared personnel shall be required in accordance with Section 1.6., "Escorting."

3.4 QUALITY ASSURANCE REQUIREMENTS

3.4.1 "Quality Assurance" (QA) activities for all contractors involved with the design, construction, testing and inspection of the proposed facility shall be determined and executed following a Project W-405 specific Quality Assurance Program Plan (QAPP). The QAPP shall establish QA program requirements which verify inspection, testing, adequacy of design and the quality of construction and manufactured components. The QA program shall be in accordance with the requirements of 10 CFR 830, "Nuclear Safety Management, Subpart A, General Provision, Section 830.120, Quality Assurance Requirements." Based on these requirements, the implementation of the "graded approach" will provide the following assurances:

- a) Design data and design decisions are documented and traceable.
- b) The final design meets the requirements of this design criteria.
- c) The design and design criteria are adequately supported by studies, specifications and analyses.

- d) Construction is performed in accordance with the design documents.
- e) Inspection and testing will confirm adequacy of design, quality of the construction and manufactured components, operability, maintainability, and reliability.

3.5 DECONTAMINATION AND DECOMMISSIONING

3.5.1 No radioactive contamination of this facility is anticipated. Thus, decontamination will not be required.

4.0 CODES, STANDARDS, CRITERIA AND PROCEDURES

4.1 Design and construction shall be in accordance with applicable DOE Orders, Hanford Plant Standards, WHC procedures and national consensus codes and standards developed by organizations such as the American Society of Mechanical Engineers (ASME), American National Standards Institute (ANSI), American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), National Fire Protection Association (NFPA), Underwriter's Laboratories (UL), Institute of Electrical and Electronic Engineers (IEEE), and Sheet Metal and Air Conditioning Contractor's National Association (SMACNA). The latest edition of all codes and standards in effect at the beginning of definitive design shall be used and documented.

The primary design criteria shall be DOE Order 6430.1A, "General Design Criteria," which contains a list of potentially applicable codes and standards. The following documents are applicable codes, standards, procedures, etc. that are not listed in DOE Order 6430.1A. Sections in 6430.1A that are applicable to this project shall be specifically identified prior to definitive design in the Project Management Plan (Reference D).

- a) WHC-CM-1-3, "Management Requirements and Procedures"
- b) WHC-CM-4-2, "Quality Assurance Manual"
- c) WHC-CM-4-3, "Industrial Safety Manual"
- d) WHC-CM-4-33, "Security Manual"
- e) WHC-CM-4-40, "Industrial Hygiene Manual"
- f) WHC-CM-4-41, "Fire Protection Program Manual"
- g) WHC-CM-4-46, "Non-Reactor Facility Safety Analysis Manual"
- h) WHC-CM-7-5, "Environmental Compliance"

- i) SDC 4.1, Revision 12, Hanford Plant Standards, Standard Arch.-Civil Design Criteria - Design Loads for Facilities
- j) SDC 4.2, Rev. 0, Hanford Plant Standard, Design and Installation of Expansion Anchors
- k) American Institute of Steel Construction (AISC), Manual of Steel Construction, Allowable Stress Design, Ninth Ed., Chicago, Illinois, 1989
- l) American Society of Civil Engineers (ASCE), Minimum Design Loads for Buildings and Structures, ASCE 7-88
- m) American National Standard Institute (ANSI) - for calculating interrupting and momentary duties of "Power Circuit Breakers"
- n) Insulated Cable Engineers Association (ICEA) S-19-81- for Rubber Insulated Power and Control Cables
- o) Illuminating Engineering Society (IES)-Handbook for Recommendation of Illumination Levels for Various Facilities
- p) WAC 248-54, Washington State Board of Health Drinking Regulations, September, 1989
- q) Underwriter's Laboratory (UL) Std. 845, and Industrial Control System (ICS) - 2 for Motor Control Centers
- r) American National Standards Institute (ANSI) 255-1 - Paint Finishes for MCCs and Panel Boards
- t) Occupational Safety & Health Act (OSHA) - for Electrical Equipment and General Design

5.0

REFERENCES

- A) P.O. MSH-SVU-032191, Engineering Study, Upgrade of the K-Basins Maintenance Shop/Office Facility, May 1994
- B) WHC-SD-N037-ES-001, Revision), "100K Area Fire Protection Upgrades Engineering Study," March 28, 1994
- C) WHC-SD-NR-FLE-003, Revision 0, "Engineering Evaluation and Recommendations for Various 100K, 100N and 300 Area Roofing Systems at the Hanford Site, "Gale Associates, Baltimore, Maryland, March 8, 1994.
- D) WHC-SD-SNF-PMP-003, Project Management Plan for K-Basins Essential Systems Recovery, Project W-405, October 1994

Attachment 1

Maintenance Shop/Support Facility

Requirements

Shops/Warehousing/Craft Personnel FacilitiesApproximate Area in ft²

High Bay

Receiving, Storage, & Tool Rm.	6,120
Shop Equipment Area (capable of handling 20' pipe & monorail)	1,800
Maintenance Area	1,500
Rigging Loft (cage)	200

Low Bay

Instrument Shop including calibrations (Level 4 Manager office attached includes 480/240 volt test bench)	600
Electric Shop (Level 4 Manager office attached, includes 480/240 volt test bench)	600
Mechanical Dispatch Area (Level 4 Manager office attached)	200
Facilities Dispatch Area (Level 4 Manager office attached)	200
Welding/Grinding Area	500
Refrigeration Shop	250
Restrooms/Change Area for Craft People Male - -3 W.C., 2 urinal, 3 lav., 6 showers, Locker/Change Area Female - -1 W.C., 1 lav., 1 shower, Locker/Change Area	1,300
Lunch/Kitchen & all Employee Meeting Area (50 minimum) (adjacent to main floor lunch room, sharing common accordion type wall)	1,000
Contingency for Expansion	600
Total Shops/Warehouse Space	<hr/> 14,870

Outdoor Areas

Covered Gas Bottle Storage Area	400
Satellite Accumulation Area	800
Laydown/Storage Area	600
Enclosed (3 sides w/roof) Snow Removal Equipment Area	600
Total Outdoor Space	2,400

Administrative Areas

Offices

1-Manager, level 3 @ 225	225
5-Managers, level 4 @ 150	750
6-Exempts, @ 100	600
1-Admin. Assit., @ 125	125
5-Secretarial (2)/Clerical (3), @ 100	500
5 Engineering @ 100	500
2-Exempt (future) @ 100	200
1-Sign Painter (upstairs) @ 200	200

File Storage 700

Conference Room 300
 (VCR capabilities,
 adjacent to main floor lunch room,
 sharing common accordion type wall)

Kitchen Facilities 200
 (microwaves, refrigerators, stove, sink, table, etc)

Restrooms
 Male - -2 W.C., 1 urinal, 1 lav.
 Female - -1 W.C., 1 lav. 200

Janitors Closet 100
 Allowance for halls, 500
 Allowance for sheetrock, walls, 1,000
 Allowance for mech., elect., & comm. equip. 200

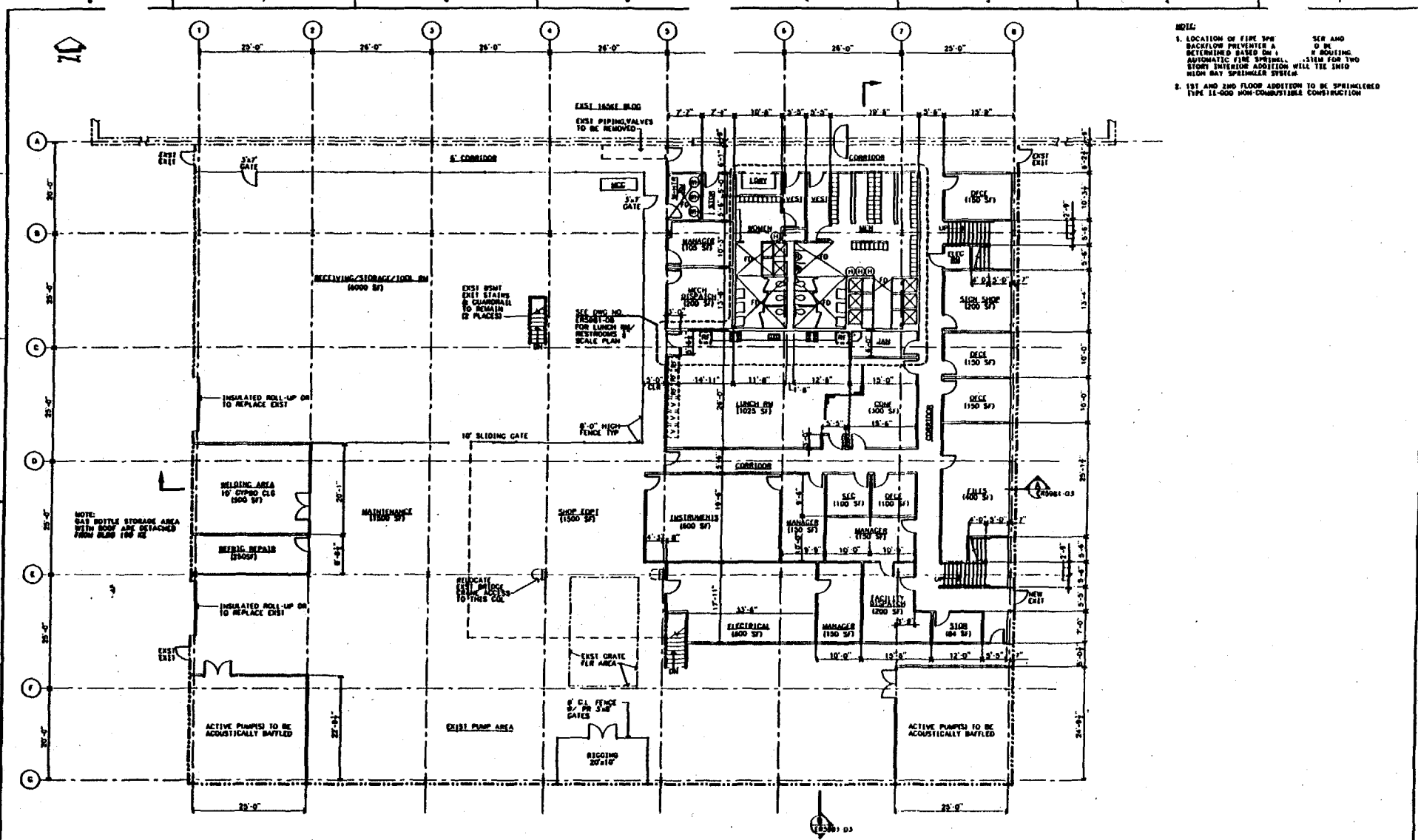
Total Administrative Space (ft²) 6,300

Attachment 2

Maintenance Shop/Support Facility

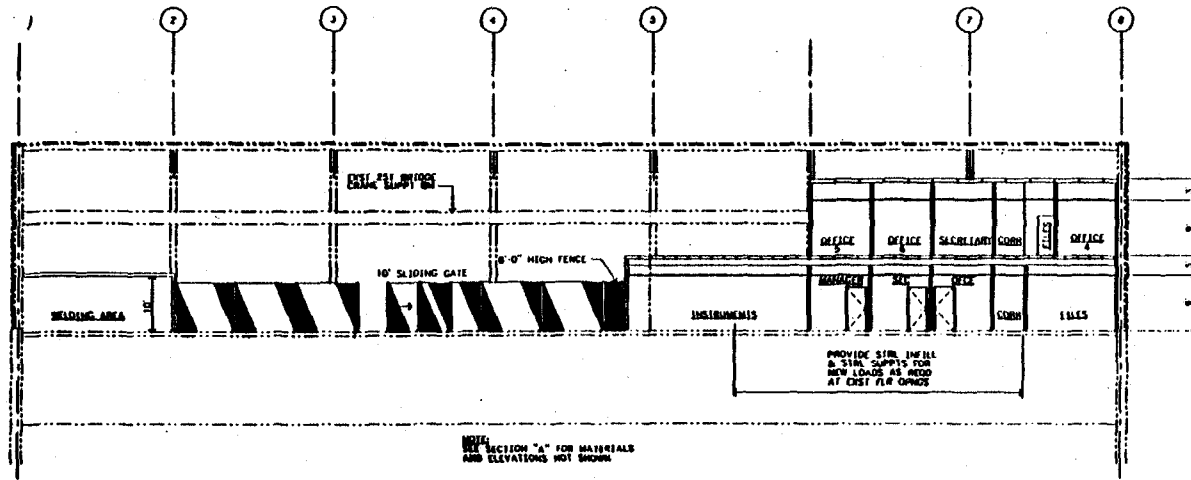
General Arrangement Drawings

- NOTE:
1. LOCATION OF FIRE SPS BACKFLOW PREVENTER A D BE DETERMINED BASED ON AUTOMATIC FIRE SPRINKLER SYSTEM INTERIOR ADDITION WILL USE HIGH RAY SPRINKLER SYSTEM.
 2. 1ST AND 2ND FLOOR ADDITION TO BE SPRINKLERED TYPE 11-000 NON-COMBUSTIBLE CONSTRUCTION

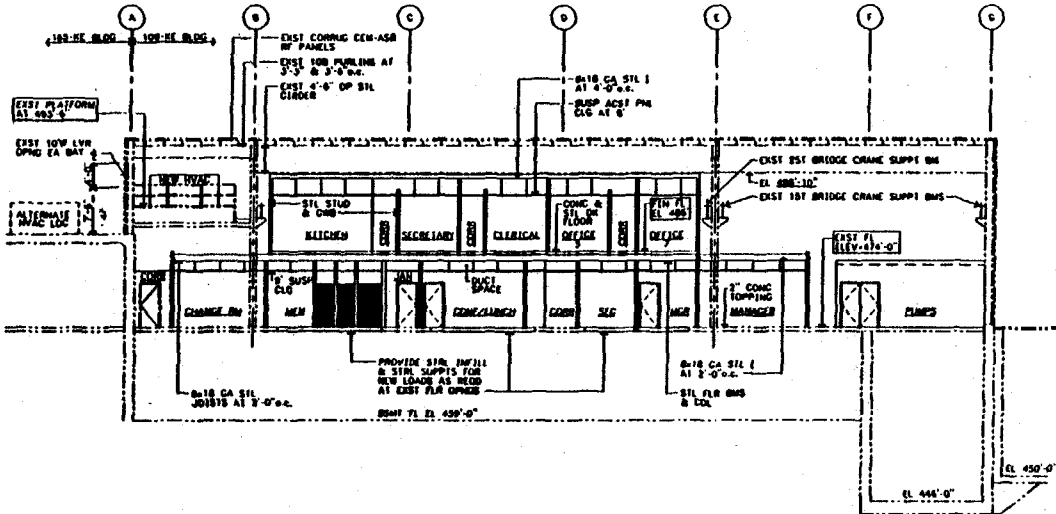


FIRST FLOOR PLAN
SCALE: 1" = 1'-0"

D.B. ADVICE BY: J.M. ALTIVEROS DATE: 5/1/80 SEE DWG/AT FORM SEE DWG/AT FORM SEE DWG/AT FORM BY: J.M. ALTIVEROS	U.S. DEPARTMENT OF ENERGY GENERAL ARRANGEMENT MAINT SHOP/OFFICE FACILITY PLAN - FIRST FLOOR ER5981-01 10
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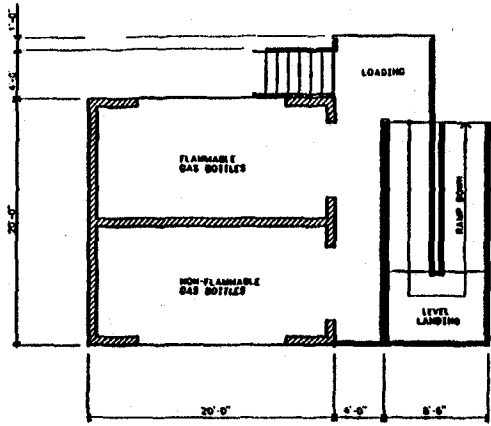
109-KE BLDG SECTION "A" (5' SOUTH OF LINE D)
SCALE: 1/4" = 1'-0"



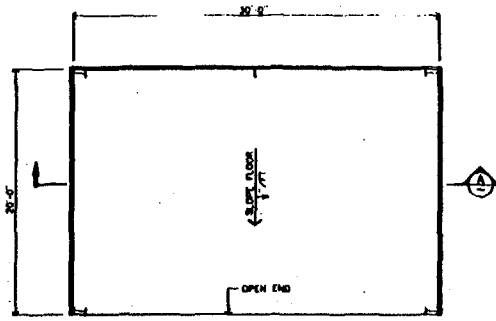
109-KE BLDG SECTION "B" (15' WEST OF LINE 6)
SCALE: 1/4" = 1'-0"

DESIGNED BY		CHECKED BY		DATE		SCALE		PROJECT	
D. B. JAYCE		M. J. ALLIVEROS		1980		1:86		GENERAL ARRANGEMENT MAINT SHOP/OFFICE FACILITY BUILDING SECTIONS	
DRAWN BY		CHECKED BY		DATE		SCALE		PROJECT	
M. J. ALLIVEROS		M. J. ALLIVEROS		1980		1:86		GENERAL ARRANGEMENT MAINT SHOP/OFFICE FACILITY BUILDING SECTIONS	
SEC. DRAT FORM		SEC. DRAT FORM		DATE		SCALE		PROJECT	
M. J. ALLIVEROS		M. J. ALLIVEROS		1980		1:86		GENERAL ARRANGEMENT MAINT SHOP/OFFICE FACILITY BUILDING SECTIONS	
DRAWING LIST		DRAWING LIST		DATE		SCALE		PROJECT	
M. J. ALLIVEROS		M. J. ALLIVEROS		1980		1:86		GENERAL ARRANGEMENT MAINT SHOP/OFFICE FACILITY BUILDING SECTIONS	

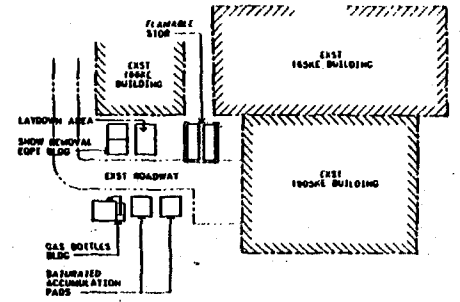
WHC-SD-SNF-CR-002, REV 0



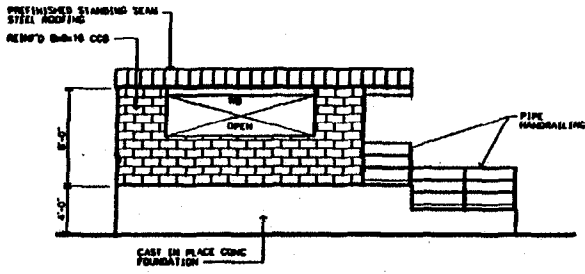
GAS BOTTLES BUILDING FLOOR PLAN
SCALE: 1" = 1'-0"



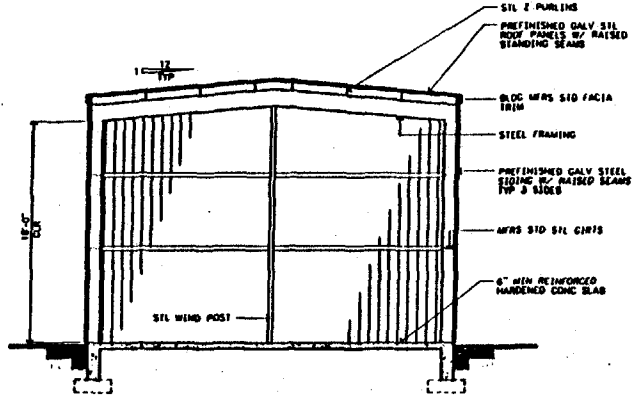
SNOW REMOVAL EOPT SHELTER FLOOR PLAN
SCALE: 1" = 1'-0"



SITE PLAN
SCALE: 1" = 100'



SOUTH ELEVATION
SCALE: 1" = 1'-0"



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

U.S. DEPARTMENT OF ENERGY GENERAL ARRANGEMENT SUPPORT FACILITIES PLANS, SECTIONS, ELEVATIONS UPGRADE OF THE S. BASIN SHOP/OFFICE FACILITY		ER5981-04 10
PROJECT NO. 15498104 DRAWING NO. CR-ACD-12 (PLAN) SHEET NO. 1 TOTAL SHEETS 1	DATE 11/88 DESIGNED BY [REDACTED] CHECKED BY [REDACTED] APPROVED BY [REDACTED]	PLOT SCALE: 1" = 1'-0" SHEET NO. 1 TOTAL SHEETS 1