



Tennessee Valley Authority  
1101 Market Street, LP 3R  
Chattanooga, Tennessee 37402-2801

R. M. Krich  
Vice President  
Nuclear Licensing

Br 2

April 29, 2011

10 CFR 30.37

Licensing Assistance Team  
Division of Nuclear Materials Safety  
U.S. Nuclear Regulatory Commission, Region I  
475 Allendale Road  
King of Prussia, Pennsylvania 19406-1415

Tennessee Valley Authority  
Material License No. 41-08165-18  
Docket No. 030-35695

APR 29 2011 10:24

RECEIVED  
MAY 11

**Subject: By-Product Material License Renewal Application for Tennessee Valley Authority's Central Laboratories Services**

The purpose of this letter is to request a renewed by-product material license for the Tennessee Valley Authority's (TVA's) Central Laboratories Services. Material License No. 41-08165-18 for the Central Laboratories Services expires on May 31, 2011. In accordance with 10 CFR 30.36(a), TVA is submitting this application for renewal not less than thirty days before the expiration of the license.

TVA has reviewed and prepared this application for renewal in accordance with the guidance provided in NUREG-1556, "Consolidated Guidance About Materials Licenses." For the licensed activities conducted at the Central Services Laboratories facility, TVA followed the guidance in NUREG-1556, Volume 7, "Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope Including Gas Chromatographs and X-Ray Fluorescence Analyzers."

Enclosure 1 is the original, signed NRC Form 313 requesting renewal of the subject license. Enclosure 2 includes the supporting information for Items 5 through 11 of NRC Form 313 consistent with Volume 7 of NUREG-1556.

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NMSS/RGN1 MATERIALS-002

U.S. Nuclear Regulatory Commission  
April 29, 2011  
Page 2

By letters dated April 18, 2008 and June 6, 2008, TVA provided information to meet the financial assurance and decommissioning record keeping requirements of 10 CFR 30.35. In a letter to TVA dated June 24, 2008, the NRC noted that it had no further questions on the financial assurance and decommissioning information provided by TVA. The NRC also noted that cost estimates must be adjusted at intervals not to exceed three years in accordance with 10 CFR 30.35(e). Therefore, TVA intends to provide updated financial assurance and decommissioning information by June 3, 2011.

If you have any questions regarding this license renewal request, please contact Kara Stacy at (423) 751-3489.

Respectfully,



R. M. Krich

Enclosures:

1. NRC Form 313, "Application for Materials License", Material License No. 41-08165-18
2. Detailed Information Supporting NRC Form 313, Items 5-11

cc (Enclosures):

NRC Document Control Desk

**Enclosure 1**

**NRC Form 313  
"Application for Materials License"**

**Material License No. 41-08165-18**

# APPLICATION FOR MATERIALS LICENSE

Estimated burden per response to comply with this mandatory collection request: 4.3 hours. Submittal of the application is necessary to determine that the applicant is qualified and that adequate procedures exist to protect the public health and safety. Send comments regarding burden estimate to the Records and FOIA/Privacy Services Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to [infocollects.resource@nrc.gov](mailto:infocollects.resource@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0120), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

**INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.**

**APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:**

**IF YOU ARE LOCATED IN:**

OFFICE OF FEDERAL & STATE MATERIALS AND ENVIRONMENTAL MANAGEMENT PROGRAMS  
DIVISION OF MATERIALS SAFETY AND STATE AGREEMENTS  
U.S. NUCLEAR REGULATORY COMMISSION  
WASHINGTON, DC 20555-0001

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

MATERIALS LICENSING BRANCH  
U.S. NUCLEAR REGULATORY COMMISSION, REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, IL 60532-4352

**ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:**

**IF YOU ARE LOCATED IN:**

ALABAMA, CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, FLORIDA, GEORGIA, KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, NORTH CAROLINA, PENNSYLVANIA, PUERTO RICO, RHODE ISLAND, SOUTH CAROLINA, TENNESSEE, VERMONT, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS, LOUISIANA, MISSISSIPPI, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH, WASHINGTON, OR WYOMING, SEND APPLICATIONS TO:

LICENSING ASSISTANCE TEAM  
DIVISION OF NUCLEAR MATERIALS SAFETY  
U.S. NUCLEAR REGULATORY COMMISSION, REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PA 19406-1415

NUCLEAR MATERIALS LICENSING BRANCH  
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV  
612 E. LAMAR BOULEVARD, SUITE 400  
ARLINGTON, TX 76011-4125

030 35695  
X

**PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTIONS.**

**1. THIS IS AN APPLICATION FOR (Check appropriate item)**

- A. NEW LICENSE
- B. AMENDMENT TO LICENSE NUMBER
- C. RENEWAL OF LICENSE NUMBER **41-08165-18**

**2. NAME AND MAILING ADDRESS OF APPLICANT (Include ZIP code)**

**Tennessee Valley Authority  
LP 3R  
1101 Market Street  
Chattanooga, Tennessee 37402-2801**

**3. ADDRESS WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED**

**TVA Central Laboratories Services Building  
Chickamauga Power Service Center  
N. Side Chickamauga Reservation  
Chattanooga, Tennessee**

**4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION**

**Kara M. Stacy  
TELEPHONE NUMBER  
**(423) 751-3489****

SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

**5. RADIOACTIVE MATERIAL**

a. Element and mass number; b. chemical and/or physical form; and c. maximum amount which will be possessed at any one time.

**6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.**

**7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE.**

**8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.**

**9. FACILITIES AND EQUIPMENT.**

**10. RADIATION SAFETY PROGRAM.**

**11. WASTE MANAGEMENT.**

**12. LICENSE FEES (See 10 CFR 170 and Section 170.31)**

FEE CATEGORY **1.D, 2.C, 3.M** AMOUNT ENCLOSED \$

**13. CERTIFICATION. (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.**

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 39, AND 40, AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

**CERTIFYING OFFICER -- TYPED/PRINTED NAME AND TITLE**

**SIGNATURE**

**DATE**

**R. M. Krich, Vice President, Nuclear Licensing**

**4/29/11**

**FOR NRC USE ONLY**

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS
			\$		

APPROVED BY

DATE

**Enclosure 2**

**Tennessee Valley Authority  
Application for Materials License for Renewal of Nuclear By-Product  
Material License No. 41-08165-18  
Docket No. 030-35695**

**Detailed Information Supporting  
NRC Form 313, Items 5-11**

**Enclosure 2**

**Tennessee Valley Authority  
Application for Materials License for Renewal of Nuclear By-Product  
Material License No. 41-08165-18  
Docket No. 030-35695**

The Tennessee Valley Authority (TVA) has prepared this application for renewal of Material License No. 41-08165-18 in accordance with the guidance of NUREG-1556, "Consolidated Guidance About Materials Licenses." Specifically, TVA followed the guidance in NUREG-1556, Volume 7, "Program-Specific Guidance about Academic, Research and Development, and Other Licenses of Limited Scope Including Gas Chromatographs and X-Ray Fluorescence Analyzers" in order to provide supporting information for Items 5 through 11 of NRC Form 313, "Application for Materials License." Detailed supporting information for Items 5 through 11 is provided below.

**Item 5**

**Radioactive Material**

- |  |  |   |
|--|--|---|
| A. Any radioactive material with atomic numbers 1 through 83 | A. Contamination on equipment or samples | A. 1 millicurie per radionuclide and 10 millicuries total |
| B. Any radioactive material with atomic numbers above 83     | B. Contamination on equipment or samples | B. 1 microcurie per radionuclide and 20 microcuries total |

**Item 6**

**Purpose(s) For Which Licensed Material Will Be Used**

Possession, repair, inspection, and testing of contaminated equipment and chemical analysis of liquid samples.

**Item 7**

**Individual(s) Responsible For Radiation Safety Program And Their Training And Experience**

- A. Licensed material, including any material designated under Item 5, shall be used by, or under the supervision of Alyce Brooks or other individuals who have received the training equivalent to that described in this application, and who have been designated by the Radiation Safety Officer (RSO). Ms. Brooks is currently listed as an authorized user on the license for this facility as approved in Amendment 3 to the license on March 11, 2011.

- B. The RSO is James B. Colagross.

The RSO has the direct responsibility to ensure that all licensed activities under his authority are conducted safely and in accordance with license conditions and the ALARA philosophy. He also has the responsibility to obtain qualified health physics support for license activities. Mr. Colagross is currently listed as the RSO on the license for this facility.

- C. The qualifications and background for the individuals named above are contained in Attachment 1.
- D. Personnel who provide health physics support for activities covered by this license shall be health physics technicians with at least two years of experience.

### **Item 8**

#### **Training For Individuals Working In Or Frequenting Restricted Areas**

Personnel involved in the use of licensed material shall receive a radiation protection orientation before their assignment to work in any contamination or radiation area. The orientation will cover all pertinent radiation protection practices and procedures to a degree sufficient to allow the individual to perform assigned work without incurring unnecessary radiation exposure. Reorientation will be provided within 24 months of initial or previous training. Orientations will be conducted by TVA health physics support personnel. A copy of the training agenda is shown in Attachment 2.

### **Item 9**

#### **Facilities And Equipment**

TVA's Central Laboratories Services (CLS) Building is located on the same site and adjacent to Chickamauga Dam, Chattanooga, Tennessee. It is primarily a facility for the support of TVA's nuclear plants in the area of calibration and repair of portable test equipment and the chemical analysis of specimens. Some of the items handled by this facility may be radiologically contaminated. A floor plan of the CLS Building is presented in Attachment 3.

TVA's Norris Engineering Laboratory facility is located at 129 Pine Road, Norris, Tennessee. This facility will be used on a limited basis for the calibration of high volume flow meters. Licensed material will be used only in the main laboratory area (one room). A floor plan of this facility which indicates where licensed work will be performed is presented in Attachment 4.

### **Item 10**

#### **Radiation Safety Program**

The Radiation Safety Program is administered by those individuals listed in Item 7. Health physics support is available on request from TVA's nuclear plants.

## Radiation Monitoring Instruments

A variety of radiation detection instruments are available for use in support of the laboratory operations. The following radiation detection instruments, or similar, are examples of the instruments which may be used. TVA will use instruments that meet the radiation monitoring instrument specifications published in Appendix M to NUREG-1556, Volume 7, "Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope Including Gas Chromatographs and X-Ray Fluorescence Analyzers," dated December 1999. TVA reserves the right to upgrade our survey instrument as necessary.

1. Ludlum Model 14C with an external GM detector
2. Bicron Surveyor MX with an external alpha detector
3. Bicron Model RSO-5 with an ion chamber detector
4. Bicron Surveyor 50 scaler with a frisker probe

Survey instruments shall be calibrated at intervals not to exceed six months and after each instrument servicing. Records of each instrument calibration shall be maintained at TVA's Western Area Radiological Laboratory (WARL) for a period of two years after the date of calibration. Each radiation survey instrument shall bear a current calibration tag stating the date of calibration and calibration due date.

Instrument calibration will be performed at WARL by the Environmental Radiological Monitoring and Instrumentation Department of TVA's Nuclear Assurance and Services. Each instrument will be calibrated so that a plus or minus 20-percent accuracy can be demonstrated at two or more widely separated points, other than zero, on each scale.

## Material Receipt and Accountability

Upon arrival of any contaminated item at the laboratory, the package will be placed in an area designated for the storage of contaminated items. The storage area will be secured and posted. These packages will not be opened until a work area is prepared for safely handling the material and qualified health physics support is present. Packages will be surveyed upon opening. Surveys and monitoring will be conducted in accordance with applicable regulations. No Type A packages will be received under this license.

Current records of all nonexempt quantities of radioactive material possessed under the license shall be maintained. The records shall include the nuclides present, and the activity of each nuclide. The records shall be maintained by TVA and copies shall be maintained at CLS.

All nonexempt quantities of radioactive materials shall be stored in covered containers and clearly labeled with the appropriate warnings and information.

These containers shall be in a locked room within the building, the building will be locked during non-work hours, and the area patrolled by TVA security personnel. In addition, the building will have controlled access during work hours.

Physical inventories will be conducted at intervals not to exceed six months, to account for all sealed sources and devices received and possessed under the license.

## Occupational Dose

TVA will monitor individuals with thermoluminescent dosimeters (TLDs) in accordance with the criteria in the section entitled "Radiation Safety Program - Occupational Dose" in NUREG-1556, Volume 7, "Consolidated Guidance about Materials Licenses: Program Specific Guidance About Academic, Research and Development and Other Licenses of Limited Scope Including Gas Chromatographs and X-Ray Fluorescence Analyzers," dated December 1999. The TLDs used are part of TVA's personnel dosimetry system and are exchanged quarterly. Direct reading dosimeters will be supplied by TVA, if deemed appropriate by health physics personnel. Direct reading dosimeters are calibrated at least annually.

## Safe Use of Radionuclides and Emergency Procedures

TVA has written procedures in place for the safe use and emergencies associated with the licensed material. An emergency response plan is not required because the facility is not proposed to possess material in excess of 10 CFR 30.72 Schedule C amounts.

The written procedures ensure that the following general policies are observed when radioactive material is being used in the laboratory:

1. TLD badges as required by 10 CFR 20, shall be worn by personnel in radiologically controlled areas, radioactive materials area, contaminated area, radiation area, high radiation area, or airborne radioactivity area.
2. Protective clothing (i.e., laboratory coat, gloves, safety glasses, etc.) shall be worn as deemed appropriate by health physics personnel.
3. Contaminated clothing must be disposed in or on designated places after use.
4. Spills of radioactive material or contamination on apparatus, surfaces, clothing, or the body must be immediately reported to the RSO or his designated representatives.
5. Smoking, eating, and drinking are forbidden in all areas subject to radioactive contamination.
6. All containers of nonexempt quantities of radioactive materials shall be clearly labeled with appropriate warnings and information.
7. Any contamination on the body must be removed under the direction of Health Physics personnel by immediate decontamination and must be reported to the RSO or his designated representative.
8. All contaminated waste material must be placed in designated containers. The mixing of liquid and solid waste shall be avoided whenever possible.
9. Before leaving a designated contamination zone, an appropriate personnel survey must be performed. Any signs of contamination shall be immediately reported to Health Physics personnel.
10. No employee shall work with radioactive materials containing 1 millicurie or more of volatile radioiodine.

11. An initial bioassay will be required prior to initial entry into any contaminated areas. A termination bioassay will be required of individuals that have entered bioassay areas.

### Radiation Surveys

TVA will survey the facility and maintain contamination levels in accordance with the survey frequencies and contamination levels published in Appendix Q to NUREG-1556, Volume 7, "Program Specific Guidance about Academic, Research and Development and Other Licenses of Limited Scope Including Gas Chromatographs and X-Ray Fluorescence Analyzers," dated December 1999.

Additional details of TVA's CLS survey program are described below:

Radiologically restricted areas shall be established in accordance with 10 CFR 20. These areas shall be identified, posted, and surveyed. All work performed in any contaminated zone will be under the supervision of health physics personnel. The RSO will obtain backup and onsite assistance as needed.

Surveys of the facilities and equipment will be performed before release for unrestricted use. These surveys will be performed by personnel with at least two years experience in health physics. Residual contamination will be eliminated to the extent possible consistent with ALARA principles. No facilities or equipment will be released for unrestricted use if transferable contamination levels exceed 1000 dpm/100 cm<sup>2</sup> beta/gamma or 20 dpm/100 cm<sup>2</sup> alpha, or if fixed levels, measured with a frisker or similar instrument, exceed 100 cpm above background.

TVA does not intend to possess sealed sources or devices at the CLS facility. However, if TVA does possess sealed sources or devices at the facility in the future (as authorized by the license), it will leak test such sources as follows:

Leak tests of sealed sources will be performed by or under the supervision of health physics technicians with a minimum of two years experience. Beta/gamma sources shall be tested for leakage at intervals not to exceed six months and alpha sources shall be leak-tested every three months. The test shall be capable of detecting the presence of 0.005 microcuries of removable contamination. The test sample shall be taken from the source or from appropriate accessible surfaces of the device in which the source is mounted or stored. Records of leak-test results shall be kept in units of microcuries and maintained by TVA, and a copy shall be maintained at CLS for at least two years.

If the test reveals the presence of 0.005 microcuries or more of removable contamination, the source shall be withdrawn from use and shall be decontaminated, repaired, or disposed of in accordance with applicable regulations. Within five days after determining that a source has leaked, a report describing the equipment involved, the test results, and the corrective action taken shall be submitted to the Nuclear Regulatory Commission (NRC).

Any licensed sealed source is exempt from such leak tests when the source contains 100 microcuries or less of beta- and /or gamma-emitting material or 10

microcuries or less of alpha-emitting material. The periodic leak test required by this section does not apply to beta/gamma sealed sources that are stored and not being used. Such sources shall be tested for leakage prior to any use or transfer to another person, unless they have been leak-tested within six months prior to the date of use or transfer.

### Transportation

The licensee may transport licensed material or deliver licensed material to a carrier for transport in accordance with the provisions of Title 10, Code of Federal Regulations, Part 71.

### Records

Copies of all required records for this program shall be maintained at CLS, with the exception of instrument calibration records and radiation exposure/TLD records which are maintained by TVA.

## Item 11

### Waste Management

All radioactive materials shall be appropriately packaged, surveyed, and labeled in accordance with applicable NRC and Department of Transportation regulations governing the transport of radioactive materials. Radioactive material shall be transported to TVA nuclear plants, approved disposal sites, or other appropriate approved facilities for disposal.

**ATTACHMENT 1**

**Background and Qualification of Authorized User and Radiation Safety Officer**

## **James B. Colagross**

The proposed Radiation Safety Officer for this license is James B. Colagross.

Mr. Colagross is currently the Radiation Safety Supervisor (Non-Nuclear), in TVA's Radiation Safety (Non-Nuclear) group. Mr. Colagross has previously served as the Radiation Safety Officer for this license.

Mr. Colagross has over 30 years of radiological control experience and is also currently serving as the Radiation Safety Officer for Material License Nos. 41-08165-08, 41-08165-18, and 41-25370-01. His duties include taking radiation surveys, conducting leak tests, and providing radiation safety training classes. In addition to his current position, Mr. Colagross has held Radiation Safety Senior Technician, Project Manager Cleaning and Support Services, and Radiological Control Senior Technician positions at TVA since 1987. Prior to joining TVA, Mr. Colagross served as a Radiological Control Senior Technician between 1979 and 1987.

Mr. Colagross's training has included environmental sampling, control and use of sealed sources, personnel monitoring, personnel decontamination, and maintaining records of shipment/receipt of radioactive material. He has also completed training in Radioactive Material Shippers Class and Hazardous Waste Training Program (HAZWOPER) 29 CFR 1910.120.

### **EDUCATION**

Attended University of North Alabama, 1972-1973

Radioactive Material Shipping Class, 2002

Hazardous Waste Training Program (HAZWOPER) - 29 CFR 1910.120, 2002

CPR/ First Aid Training, 1996

TVAU Facilitator Training, 1995

Philip Plato Panasonic TLD class, 1992

## Alyce B Brooks

### Experience

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October 1979 to  
January 1985

Tennessee Valley Authority

Soddy-Daisy, TN/  
Spring City, TN

#### **Instrument Mechanic Apprentice/Instrument Mechanic**

- Enrolled in TVA Instrument Mechanic Apprenticeship Program. Training included nuclear plant operation, instrumentation as well as radiological practices.

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January 1985 to  
January 1986

Workforce, Inc.

Clinton, IL

#### **Instrument Technician**

- Responsible for initial calibration of plant instrumentation at Clinton Power Station.
- Maintained radiological training and general employee training for security access.

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January 1986 to  
October 1987

WISCO

Waynesboro, GA

#### **Instrument Technician/Procedure Writer**

- Responsible for calibration of plant instrumentation at Vogtle Nuclear Plant
- Maintained security access to the plant which included radiological training.

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January 1989 to  
October 2008

Tennessee Valley Authority

Soddy-Daisy, TN

#### **Measuring and Test Equipment Supervisor**

- Responsible for the M&TE Program at Sequoyah Nuclear Plant.
- Responsible for maintaining M&TE in the Radiological Controlled and Clean Areas. Duties included calibration scheduling for offsite and onsite calibration of contaminated test equipment. Coordinated with the Radiological Control Group (RCG) for shipments to Central Laboratories which included surveying and packaging to meet procedural requirements. Other duties included working with the RCG on surveys of test equipment exiting the RCA, and handling and control of test equipment for decontamination.
- Maintained security access which included Radiological, Fitness for Duty, and Plant Access Training.
- Purchased and maintained test equipment for Sequoyah Dry Cask Campaigns. Coordinated post testing of instrumentation with Central Laboratories. Maintained round the clock support for post testing and calibration activities.

October 2008 to present

Tennessee Valley Authority

Chattanooga, TN

#### **Operations Manager - Central Laboratories Services**

- Received contaminated shipments from TVA Nuclear sites. Provided support of calibrations at Central Laboratories which included coordination of radiological shipments with the RSO. Continue to maintain Nuclear Plant and RCA Access at TVA's nuclear plants. Training also includes CLS Radiological Training in support of hot shipments to CLS.

## ATTACHMENT 2

### Radiation Safety and Control Training Agenda

- I. Introduction
- II. Discussion of License
  - A. Source Material
  - B. License Conditions
    - 1. Location
    - 2. Documents
    - 3. Supervision and Authorized Use
    - 4. Leak Testing and Instrumentation
    - 5. Source Inventory
    - 6. Records
    - 7. Security and Storage Postings
- III. Basic Principles of Radiation
  - A. Types of Radiation and Their Properties
    - 1. Alpha
    - 2. Beta
    - 3. Gamma and X-ray
    - 4. Neutron
  - B. Atomic and Nuclear Structure
    - 1. Atoms and Elements
    - 2. Fundamental Particles (Protons, Neutrons, and Electrons)
    - 3. Isotopes
  - C. Instrumentation
  - D. ALARA
    - 1. Time
    - 2. Distance
    - 3. Shielding
  - E. Radioactive Decay
    - 1. Half-Lives
    - 2. Decay Curves

## F. Sources of Radiation

1. Natural
  - a. Cosmic and Solar
  - b. Terrestrial
  - c. Food
  - d. Geographic Location
2. Man-made
3. Medical

## G. Radiation Measurements

1. Curies
2. REMS

## H. Contamination and Radiation

# IV. Dose and Dose Rates

## A. TVA Limits

1. TEDE
2. TODE
3. Extremities

# V. Personal Protection and Control

- A. Dressout Requirements
- B. Dosimetry
- C. Radiation Detection Instruments

# VI. Biological Effects of Radiation

- A. Risk Factors in Comparison with Other Risks
- B. Short-Term and Long-Term Effects of Radiation
- C. Prenatal Effects

# VII. Responsibilities of Workers

# VIII. Radioactive Material - Receipt, Shipping, and Disposal

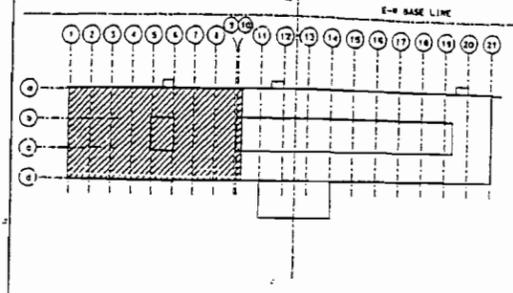
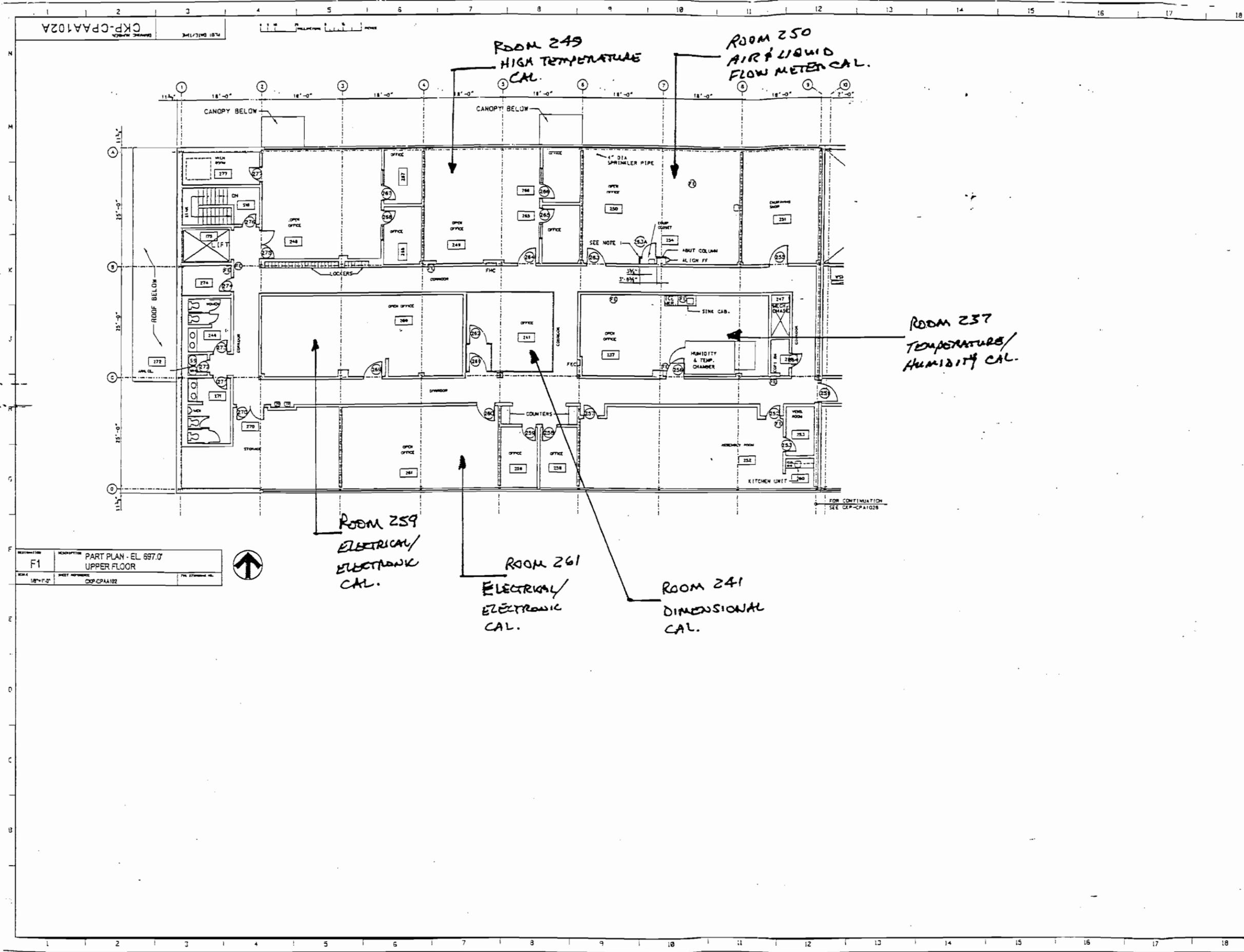
# XI. Emergency Response

**ATTACHMENT 3**

**Central Laboratories Services  
Floor Plan**

CKP-CPAA102A

ELECTRONIC FILE NAME: \HOLD\101a.CAL



DESCRIPTION	LOCATION KEY
SCALE	BUILDING A
NTS	

NOTES:  
 1. 4" STYP EACH FACE ON 3 1/2" METAL STUDS @ 16" O.C. TO BOTTOM OF CEILING. DIMENSIONS SHOWN ARE FROM EXISTING CONSTRUCTION OR FACE OF NEW STUD TO FACE OF STUD.

DESCRIPTION	PART PLAN - EL. 697.0'
SCALE	UPPER FLOOR
DATE	CKP-CPAA102

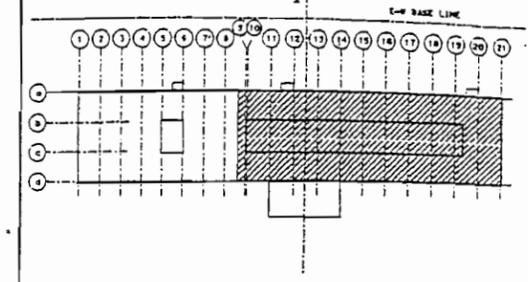
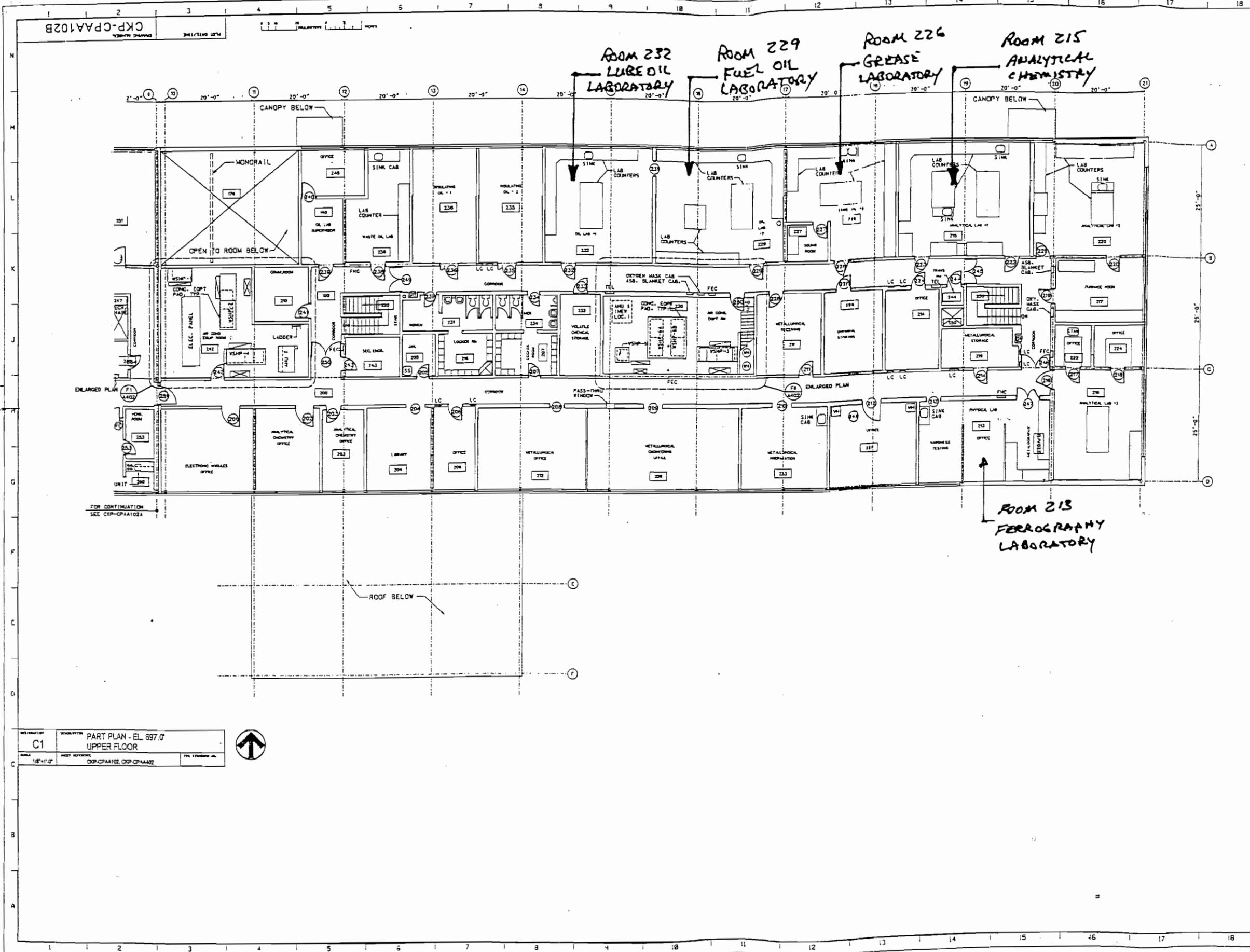


DESCRIPTION					
REV	DATE	DRWN	CHKD	APPR	ISSD
254					
TVA FACILITIES SERVICES 400 SUMMIT HILL DR. KNOXVILLE, TN 37902					
TVA CONTRACT NUMBER					
PROJECT NUMBER					
SCALE: NOTED EXCEPT WHERE NOTED					

PROJECT: CKP MASTER DRAWING  
 BUILDING A  
 DRAWING TITLE: ARCHITECTURAL  
 PART PLAN - EL. 697.0'  
 UPPER FLOOR  
 FACILITY: CHICKAMAUGA PSC, TENNESSEE  
 TENNESSEE VALLEY AUTHORITY

DESIGN	DISCIPLINE INTERFACE	PROJ. APPL.
DRWN	DESIGNED	CIVIL
JD HORNER	DESIGNED	ELECTRICAL
CHKD	CHECKED	METALLICAL
JD HORNER	CHECKED	MECHANICAL
		D. & T. R.
		INTERIOR
ISSUE DATE	OLD DRAWING NUMBER	DRAWING NUMBER
8/4/98		CKP-CPAA102A R0

THIS IS A CAD ORIGINAL DO NOT CHANGE MANUALLY



DESCRIPTION	LOCATION KEY
SCALE	BUILDING A
MTS	

REVISION	DESCRIPTION
C1	PART PLAN - EL. 697.0' UPPER FLOOR



DESCRIPTION	

REV	DATE	DRWN	DS'N	CHKD	RVND	APPR	ISSD
1							

PROJECT: CKP MASTER DRAWING  
BUILDING A

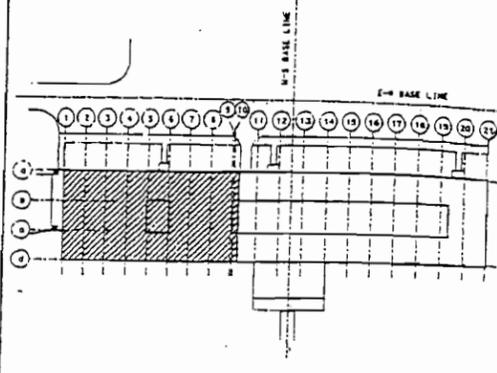
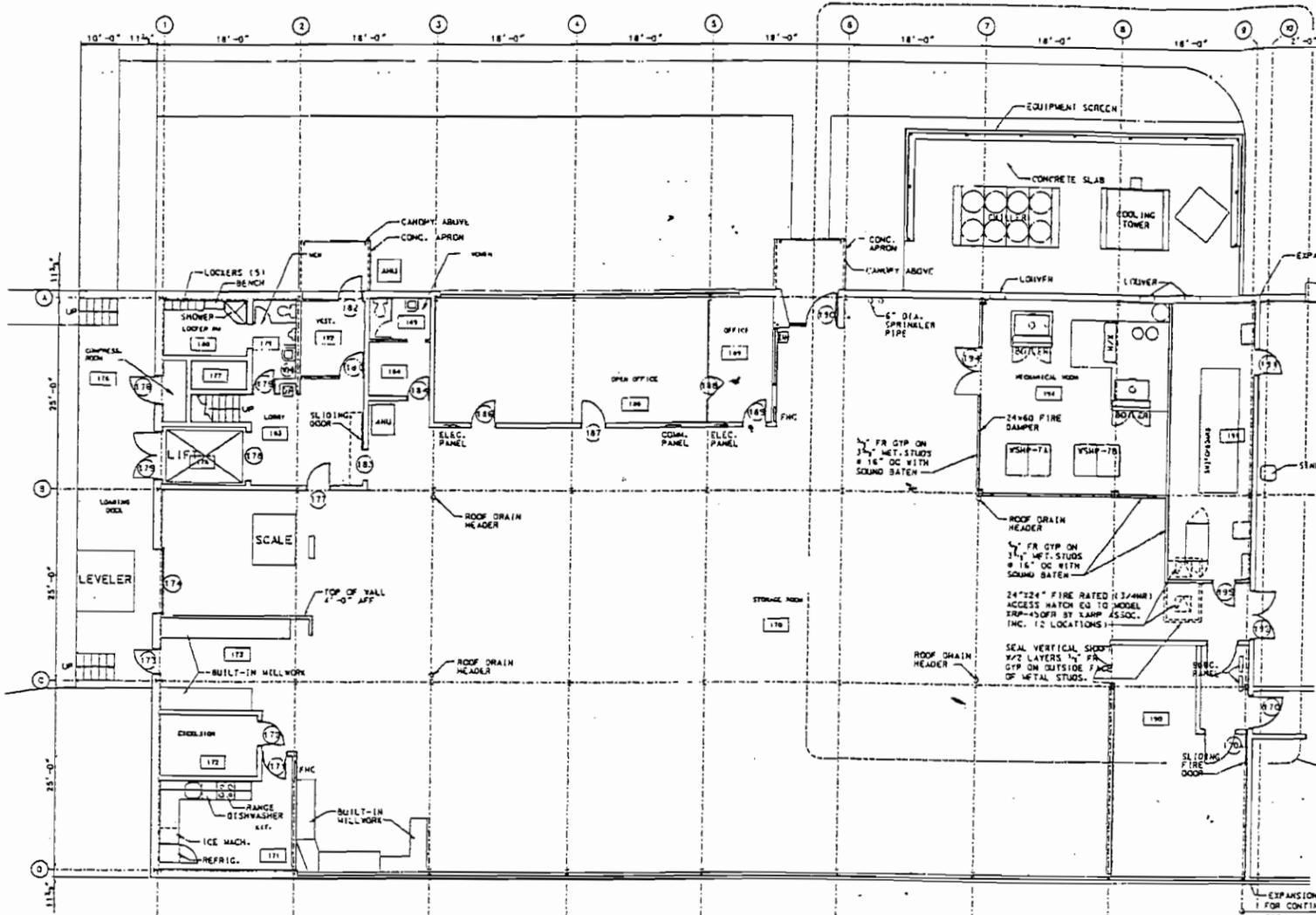
ARCHITECTURAL  
PART PLAN - EL. 697.0'  
UPPER FLOOR

FACILITY: CHICKAMAUGA PSC, TENNESSEE  
TENNESSEE VALLEY AUTHORITY

DESIGN	DISCIPLINE INTERFACE	PROJ. APPL.
DESIGNED	CIVIL	ELECTRICAL
MECHANICAL	ARCHITECTURAL	D. & T.R.
INTERIOR		

ISSUE DATE	OLD DRAWING NUMBER	DRAWING NUMBER
8/4/98		CKP-CPAA102B RO

THIS IS A CADD ORIGINAL DO NOT CHANGE MANUALLY



DESCRIPTION: LOCATION KEY  
BUILDING A

NOTES:  
1. SEE ENLARGED PLAN CKP-CPAA101 FOR CONSTRUCTING WALLS, CONCRETE EQUIPMENT, P.A.S., ETC.

DESCRIPTION: PART PLAN - 685.0'  
ENTRY LEVEL



REV	DATE	DRWN	DSGN	CHKD	RYWD	APPD	ISSD

PREP REG: TVA FACILITIES SERVICES  
400 SUMMIT HILL DR. KNOXVILLE, TN 37802

TVA CONTRACT NUMBER: PROJECT NUMBER:

SCALE: NOTED EXCEPT WHERE NOTED

PROJECT: CKP MASTER DRAWING  
BUILDING A

DRAWING TITLE: ARCHITECTURAL  
PART PLAN  
ENTRY LEVEL

FACILITY: CHICKAMAUGA PSC, TENNESSEE  
TENNESSEE VALLEY AUTHORITY

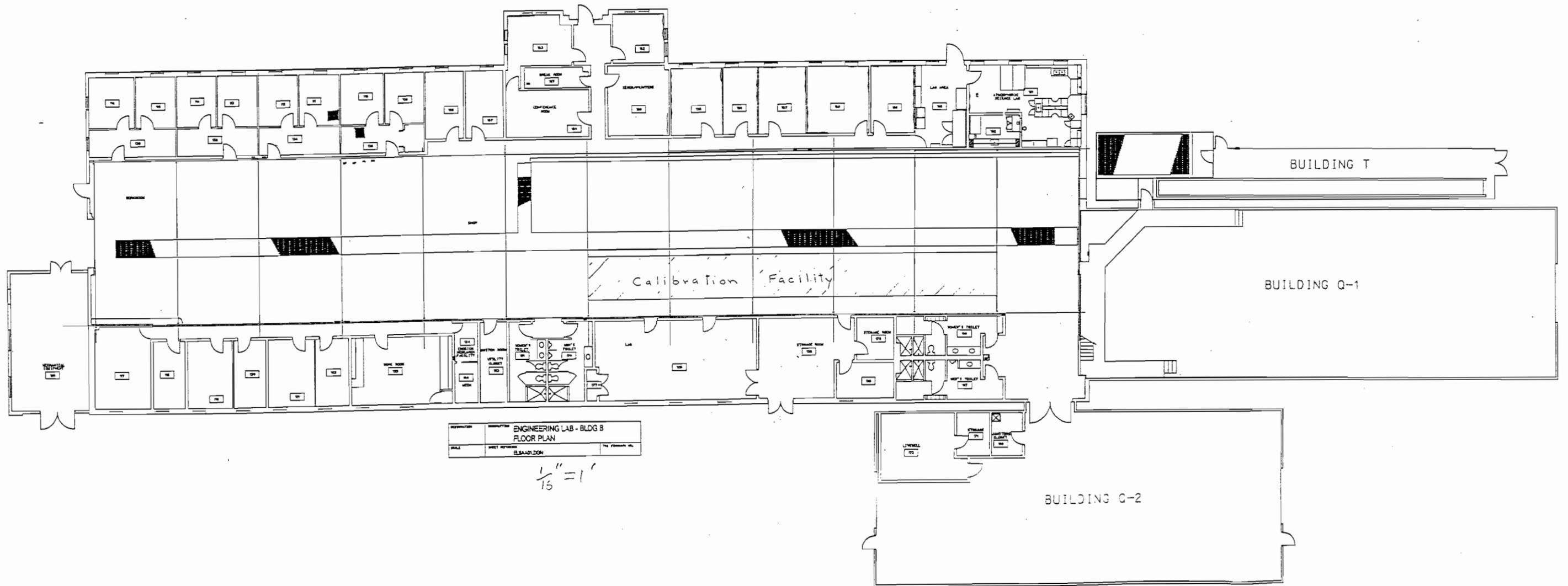
DESIGN	DISCIPLINE INTERFACE	PROJ. APPL.
DESIGNED: J D HORNER	CIVIL, ELECTRICAL	1.
CHECKED: J D HORNER	MECHANICAL, ARCHITECTURAL	2.
ISSUED: J D HORNER	DIVISION, D. & T. R.	3.

ISSUE DATE: 8/4/98 OLD DRAWING NUMBER: DRAWING NUMBER: CKP-CPAA101A R0



**ATTACHMENT 4**

Norris Engineering Laboratory  
Floor Plan



This is to acknowledge the receipt of your letter/application dated

4/29/2011, and to inform you that the initial processing which includes an administrative review has been performed.

RENEWAL 41-08165-18  
There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

Please provide to this office within 30 days of your receipt of this card

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A copy of your action has been forwarded to our License Fee & Accounts Receivable Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned **Mail Control Number** 575065.  
When calling to inquire about this action, please refer to this control number.  
You may call us on (610) 337-5398, or 337-5260.