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November 8, 2005

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NM381

U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Attention: Ms. P. Henderson

03003026

Subject: Amendment Request License #37-02766-01

2005 NOV 10 PM 1:02  
RECEIVED

Gentlemen,

We are requesting an amendment to our Broadscope license to reflect the verification of suitability of our MRI building for unrestricted use as described in 10CFR Part 20. This building is physically connected to the hospital section of Fox Chase Cancer Center. Razing is planned for January 2006.

Byproduct material was used in only four areas of this building. Bench top research was conducted that incorporated typical activities and types of radioactive material used in a laboratory setting. Specifically only H-3, C-14, P-32 and P-33 compounds were used. No alpha particle emitting radioactive material was used and there were no known airborne releases. The MRI building decommissioning report is enclosed.

Future plans include the construction of a new building that may house some radioactive material use laboratories.

If you have any questions concerning this request please call Karen Sheehan, the Radiation Safety Officer for this facility at (215) 728-3021.

Sincerely,

R. Donald Leedy

Cc: Karen L. Sheehan  
Enclosure: Decommissioning report

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IONIZING MATERIALS-002

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**Introduction**

The MRI Building at Fox Chase Cancer Center (FCCC), 333 Cottman Ave, Philadelphia Pennsylvania 19111, was constructed in 1985 and is scheduled for demolition in January 2006. It is a two-story building connected to the Hospital. The location of the MRI Building on the FCCC campus is shown on Attachment 1. The building contains office space, waiting areas, mechanical areas, animal facilities a fitness center and seven labs. Only four labs, M019, M144, M153 and M157, had radioactive material used or stored in them. The ground floor contains one lab M019 that encompasses approximately 10 percent (400 sq ft) of the ground floor. The remaining space on the ground floor is dedicated to office space, animal facilities and mechanical facilities. The first floor has six labs M144, M 151, M153, M155, M156, and M157. Only labs M144 (400 sq ft), M153 (400 sq ft), and M157 (90 sq ft) representing less than 15 percent of the first floor area, had licensed material use or storage. The rest of the first floor contains office space, the MRI facility, hallways, waiting areas and a fitness center facility. The layout of the Ground floor and First floor of the MRI Building is shown on Attachment 2. All lab areas have vinyl tile floors, painted sheet rock walls, stainless steel, Formica, or composition bench tops and molded sinks. Some labs have modern chemical fume hoods. All surfaces were designed to provide a durable work/floor/wall surface that was easily cleaned.

**Radioisotope use:**

No alpha-emitting radioactivity was used or stored in the MRI Building. Only H-3, C-14, P-32 and P-33 were possessed or used in the MRI building. All work involved normal benchtop procedures used in biomedical research. No work involved procedures that were expected to generate airborne radioactivity. A review of survey records shows no spills of licensed material or releases of activity to the environs except for sewer disposals that were well within license limits. The use started in 1992 and except for one sewer disposal of H-3 in room M144 in July of 2005, all work with radioactivity ceased by September of 2003. All remaining activity was transferred to other licensed facilities at FCCC when work ceased in 2003. Four primary investigators used licensed materials in the MRI Building. Two of these investigators remain at FCCC and are authorized to use licensed material at other locations at FCCC. Preliminary lab closeout surveys at the time that work ceased showed the labs to be free of residual activity. The total activity possessed in the MRI Building from 1992 through September 2005 was 7 mCi P-32, 15 mCi P-33, 13 mCi H-3 and 6 mCi C-14. These values were rounded up to the next millicurie amount.

**Survey Procedures**

In October and November of 2005 all of the lab areas in the MRI building were surveyed in accordance with requirements of 10 CFR 30.36. and using the Consolidated Nuclear Material Safety and Safeguards Decommissioning Guidance of (NUREG 1757 Vols. 1 Rev. 1 and Vol. 2.) Specifically the following procedures were performed:

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- One hundred percent scanning of all surfaces in the areas where licensed material was used or stored, using an appropriate radiation detection instrument. Also all laboratory areas in the building that did not have licensed material used or stored in them and the hallway area outside of laboratories used for licensed material were scanned in a similar manner.
- Evaluations for total and removable radioactive material were made in all lab areas at a frequency of one wipe comprising 100 sq cm per 300sq ft. Also hood ducts in all labs and sink drains in labs M019, M144 and M157 were evaluated for total and removable radioactivity. Wipes were assayed in a liquid scintillation counter with known efficiencies for H-3, C-14, P-32 and P-33.
- Evaluations of radiation levels at one meter above all surfaces in the lab areas.
- A visual check of all areas to ensure that all radioactive material and any posting and labeling for radioactive material had been removed.

#### **Instruments used**

Surface area scanning was performed with a Ludlum Model 3 survey meter SR# 168293, equipped with a Model 44-9 (Pancake) probe SR# PR172979. The background for this system as measured in office areas of the MRI building was 40 cpm. This unit was last calibrated for cpm response on September 1, 2005. This system will not detect H-3 but will detect C-14, P-32 and P-33. This system has Efficiencies (4pi) of approximately 4 percent for C-14, 15 percent for P33 and 30 percent for P-32. This system will detect surface contamination that is less than ten percent of the Acceptable Screening Levels for unrestricted release for C-14 as given in Table B.1 of NUREG – 1757, Vol. 1, Rev. 1. This system will also detect P-32 and P 33 surface contamination much more efficiently than C-14 but because these materials, with short half-lives, have not been used since 2003, a minimum detectable screening value was not determined. It is known, however, that this system will detect localized P-32 or P-33 contamination below 1000dpm.

Radiation levels at one meter above surfaces were measured using an Invision ionization chamber meter Model 451P, SR# 6679 with a background, as measured in office areas of the MRI building, of 3 microroentgen per hour. This unit was last calibrated on September 21,2005.

Removable radioactivity assays. Because no areas exhibited elevated radiation levels, wipe tests were taken at a frequency of one wipe comprising 100 sq cm per 300sq ft and evaluated using a Beckman Model LS6000 TA liquid scintillation counter SR# 7060641. This unit was last calibrated on July 8, 2005. This unit has efficiencies of greater than 50 percent for each of the isotopes used in the MRI Building. This system will detect

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removable activity several orders of magnitude below the Acceptable Screening Levels for Unrestricted Release for H-3, and C-14 as given in Table B.1 of NUREG – 1757, Vol 1, Rev. 1. The background levels for this unit are 16 cpm for H-3, 12 cpm for C-14, 34 cpm for P-33 and 8 cpm for P-32.

### **Survey Results**

The visual survey found that all posting and labeling for radioactive materials had been removed and that no visually identifiable licensed material remained.

The scanning of all surfaces with the Ludlum meter and pancake probe found no areas that were distinguishable from the background level.

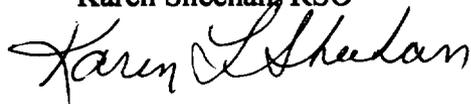
The measurement of radiation levels at one meter above surfaces found no areas that were distinguishable from the background level.

The wipe tests for removable radioactivity found no areas that were distinguishable from background levels.

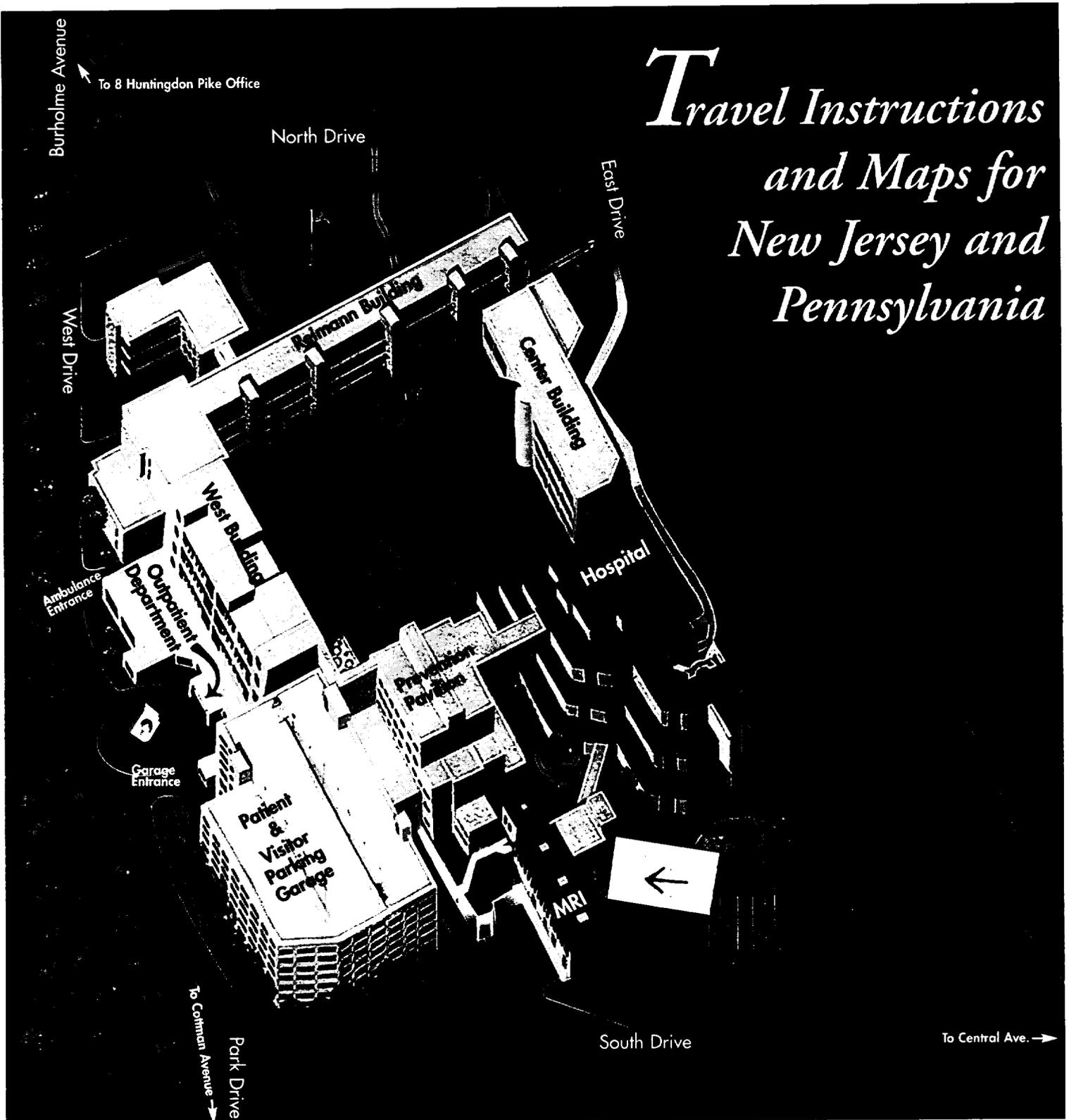
### **Conclusion**

We believe the MRI Building is suitable for unrestricted release in accordance with the criteria for decommissioning in 10 CFR 20 Subpart E.

Karen Sheehan, RSO

A handwritten signature in cursive script that reads "Karen Sheehan".

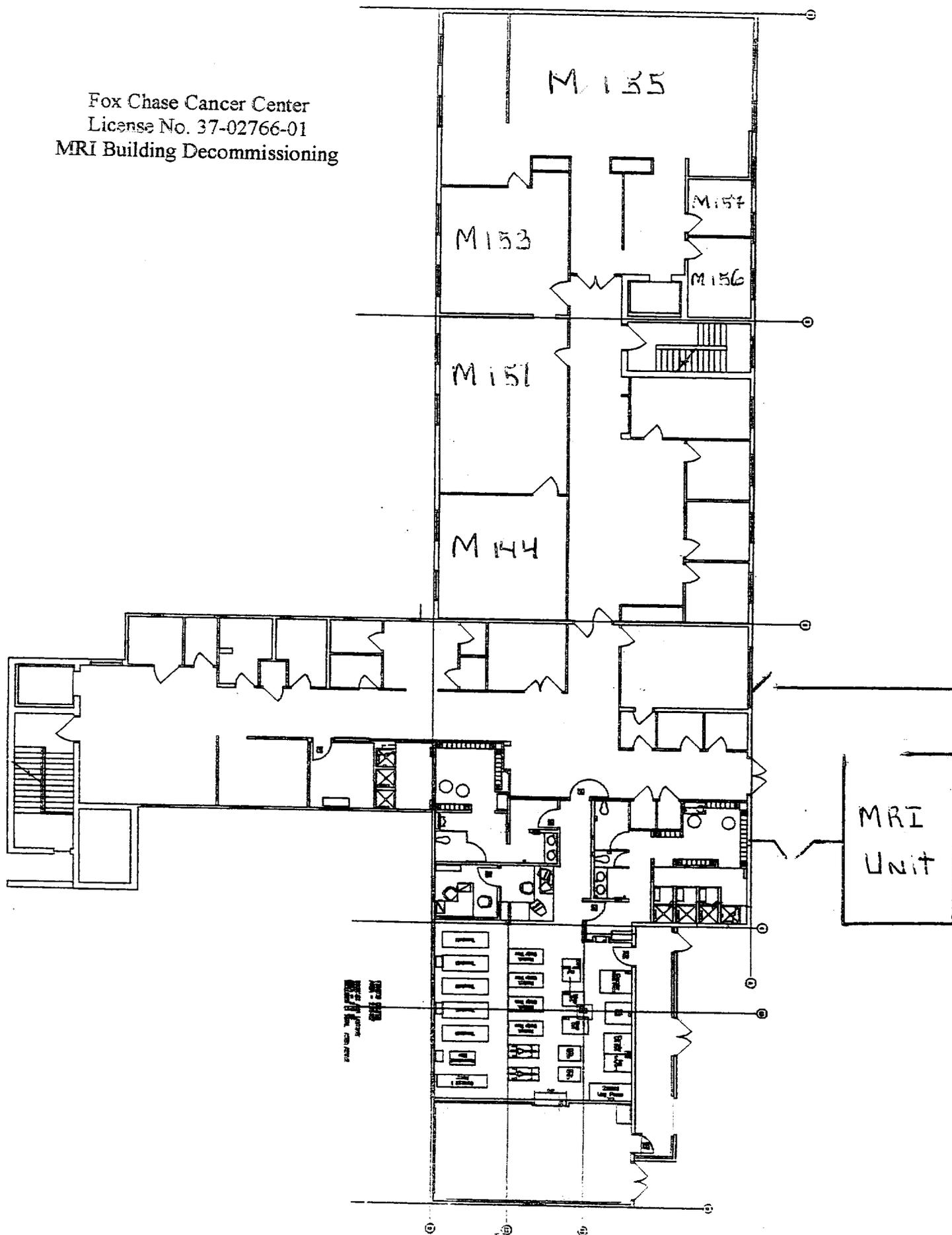
# *Travel Instructions and Maps for New Jersey and Pennsylvania*



- **Outpatient Parking:**  
Garage levels 1, 2 and 3
- **All Other Visitors:**  
Garage levels 4 and above



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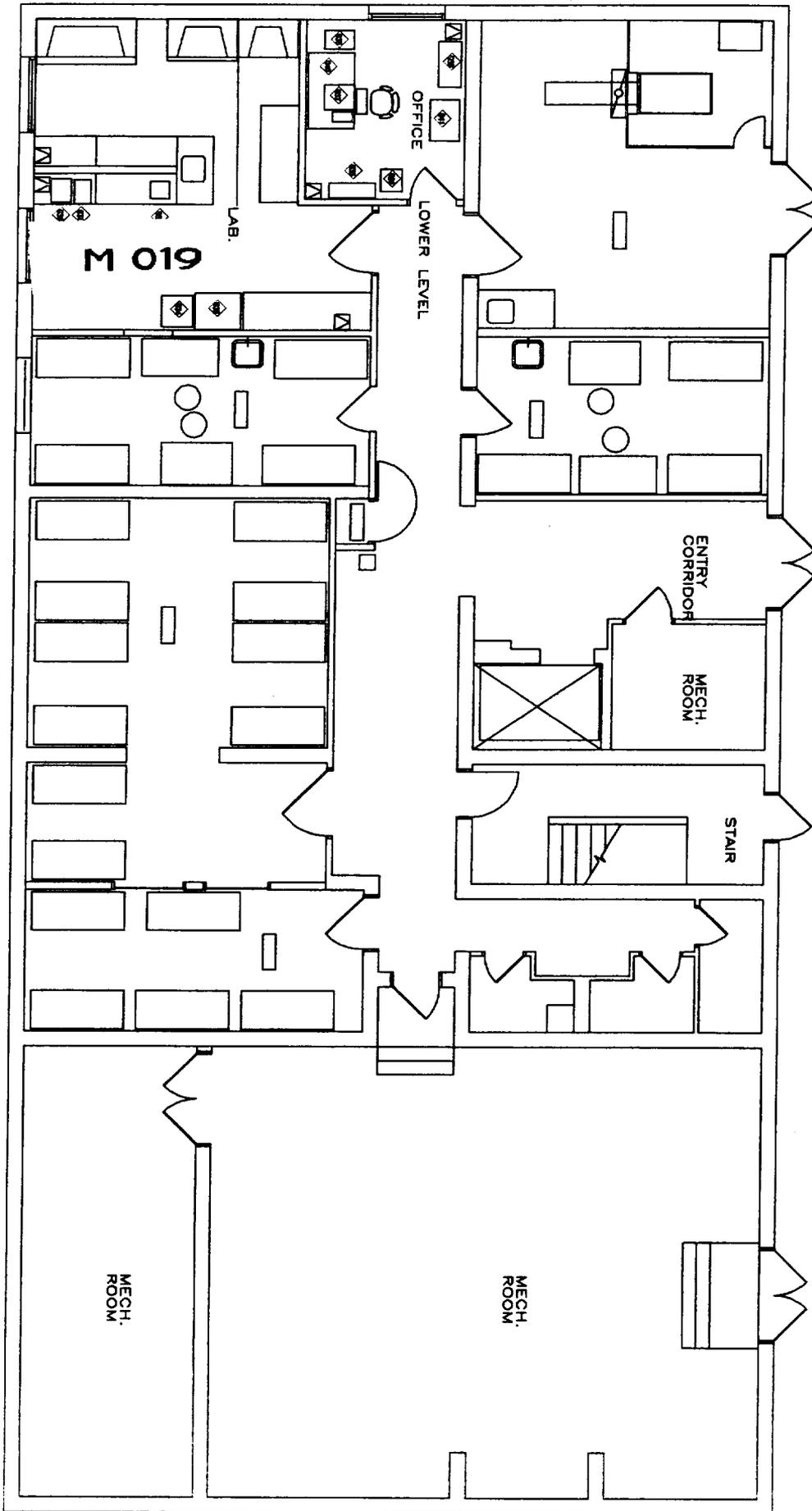


ATTACHMENT 2

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2017-07-11

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

11/8/2005, and to inform you that the initial processing which includes an administrative review has been performed.

AMEND. 37-02766-01  
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** 137974.  
When calling to inquire about this action, please refer to this control number.  
You may call us on (610) 337-5398, or 337-5260.