

MALLINCKRODT CHEMICAL WORKS

MANUFACTURERS OF
FINE CHEMICALS FOR MEDICINAL, PHOTOGRAPHIC
ANALYTICAL AND INDUSTRIAL PURPOSES

CABLE ADDRESSES
MALLINCKRODT, ST. LOUIS
DESABRIDO, NEW YORK
CODES
A B C FIFTH ED. W.P.
A B C SIXTH ED.
BENTLEY'S COMPLETE PHRASE
BENTLEY'S SECOND PHRASE

FACTORIES: ST. LOUIS, JERSEY CITY, MONTREAL
SALES OFFICES: ST. LOUIS, NEW YORK, CHICAGO, CINCINNATI, CLEVELAND
DETROIT, LOS ANGELES, PHILADELPHIA, SAN FRANCISCO, MONTREAL, TORONTO

SECOND AND MALLINCKRODT STS ST. LOUIS, 7. MO.

Mallinckrodt
FINE CHEMICALS
Standard Since 1867

MARCH 14, 1961

MR. H. L. PRICE, DIRECTOR
DIVISION OF LICENSING AND REGULATION
U. S. ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

DEAR MR. PRICE:

PURSUANT TO THE PROVISIONS OF 10 CFR PART 20, PARAGRAPH 20.103, (C) (3), THE NUCLEAR DIVISION, COMMERCIAL OPERATIONS OF MALL-
INCKRODT CHEMICAL WORKS WOULD LIKE TO MAKE APPLICATION FOR A MODIFICATION TO LICENSE NO. SNM 33 TO INCLUDE AN EXEMPTION FROM THE PROVISIONS OF PARAGRAPH 20.103, (A), TO PERMIT AUTHORIZED USE OF RESPIRATORY PROTECTION DURING THE OPERATION DESCRIBED BELOW.

DURING THE PROCESSING OF AMMONIUM DIURANATE CONTAINING URANIUM ENRICHMENTS OF LESS THAN 6 PERCENT URANIUM 235, A FILTRATION IS PERFORMED USING A PLATE AND FRAME FILTER PRESS. THE FILTER PRESS IS ENCLOSED IN A LARGE WALK-IN TYPE HOOD WHICH IS EQUIPPED WITH AN EXHAUST SYSTEM THAT MAINTAINS THE ENCLOSURE AT A NEGATIVE PRESSURE WITH RESPECT TO THE GENERAL WORKING AREA. WHEN THE FILTRATION IS COMPLETE, THE CAKE IS REMOVED MANUALLY FROM THE PRESS AND PLACED IN TRAYS WHICH ARE INSERTED INTO A DRYER. TWO OPERATORS PERFORM THIS TRANSFER OPERATION. EVEN THOUGH THE CAKE IS WET, AIR-BORNE URANIUM CONCENTRATIONS EXCEED THE LEVELS SPECIFIED IN APPENDIX B. IN ORDER TO PROVIDE RESPIRATORY PROTECTION DURING THIS OPERATION, FULL-FACE AIR SUPPLIED MASKS ARE SUPPLIED. USE OF THE MASKS IS MANDATORY.

THE FOLLOWING IS OFFERED IN ANSWER TO THE QUESTION POSED IN SUBPARAGRAPH (3):

- (1) THE RESPIRATORY PROTECTION EQUIPMENT IN USE IS THE ACME FULL VISION NO. 6 FACE PIECE AND FILTER CARTRIDGE:

To RSB
has been approved

THE RESPIRATOR IS CONNECTED TO A COMPRESSED AIR SYSTEM AND SUPPLIED WITH AIR AT $\frac{5}{8}$ POUNDS PER SQUARE INCH GAUGE PRESSURE. EACH SYSTEM BRANCH IS EQUIPPED WITH AN ADDITIONAL FILTER. THE COMPRESSOR IS LOCATED IN AN AREA OF THE PLANT WHERE THE PRESENCE OF RADIOACTIVE MATERIALS IS NOT PERMITTED. THE AIR INTAKE IS SITUATED ON THE OUTSIDE OF THE BUILDING AT A HEIGHT OF TEN FEET ABOVE THE GROUND. THE RESPIRATORS OPERATE UNDER A POSITIVE PRESSURE WITH RESPECT TO THE AIR OUTSIDE OF THE MASKS. ANY LEAKS WOULD BE OUT OF RATHER THAN INTO THE RESPIRATOR. THE CONCENTRATION OF THE AIR WHICH IS SUPPLIED IS IN THE ORDER OF 0.5×10^{-12} MICROCURIES PER MILLILITER OR LESS. THIS TYPE OF RESPIRATOR, WHEN PROPERLY USED, HAS AN EFFICIENCY WHICH APPROACHES 100 PERCENT.

- (II) EACH EMPLOYEE PERFORMING THE OPERATION UNDER CONSIDERATION IS ISSUED A FULL-FACE AIR SUPPLIED RESPIRATOR PREVIOUSLY DESCRIBED AND IS INSTRUCTED IN ITS PROPER FIT AND USE. IT IS HIS RESPONSIBILITY TO CLEAN THE RESPIRATOR AND REPORT ANY MALFUNCTION OR MAINTENANCE REQUIREMENTS. THE SAFETY ENGINEER AND THE PLANT FOREMAN INSPECT THE EQUIPMENT ON A SCHEDULED MONTHLY BASIS TO INSURE ADEQUATE MAINTENANCE AND CLEANING. ALL DEFECTIVE EQUIPMENT, WHETHER REPORTED BY THE USER OR OBSERVED DURING THE INSPECTIONS, IS REPLACED.

NEW EMPLOYEES ARE INSTRUCTED IN THE PROPER FITTING AND CLEANING OF HIS PERSONAL PROTECTIVE EQUIPMENT. ON A QUARTERLY BASIS, AN INSTRUCTOR CONDUCTS AN INSPECTION OF THE EQUIPMENT AND INDOCTRINATES PERSONNEL IN FITTING AND USE.

- (III) USE OF THE AIR-SUPPLIED RESPIRATORS IS A RIGID REQUIREMENT DURING THE TRANSFER OF THE MATERIAL FROM THE FILTER PRESS. A NOTICE TO THIS EFFECT IS POSTED

ON THE ENCLOSURE ENTRY DOOR. USE OF THE PROTECTIVE EQUIPMENT IS CONTINUALLY STRESSED BY PLANT AND AREA SUPERVISION. NONCOMPLIANCE SUBJECTS THE INVOLVED PERSONNEL TO DISCIPLINARY ACTION WHICH CAN BE AS SEVERE AS TEMPORARY LAY-OFF. SUCH ACTION HAS BEEN TAKEN ON SIX OCCASIONS DURING THE PAST THREE YEARS. AT THIS TIME, GENERAL COMPLIANCE IS EXCELLENT. THE USE OF PROTECTIVE EQUIPMENT IS DISCUSSED IN A HEALTH AND SAFETY HANDBOOK WHICH IS CURRENTLY IN A LATE STAGE OF PREPARATION.

DURING THE COURSE OF A NORMAL 40 HOUR WORK WEEK, THE MAXIMUM TIME THAT WOULD BE SPENT IN THE OPERATION UNDER CONSIDERATION WHEN AIR SUPPLIED RESPIRATORY PROTECTIVE EQUIPMENT IS REQUIRED IS APPROXIMATELY 10 HOURS.

(IV) THE AVERAGE URANIUM AIRBORNE CONCENTRATIONS IN THE GENERAL BREATHING ZONES OF THE EMPLOYEES DURING THE FILTER PRESS UNLOADING HAS BEEN DETERMINED TO BE 2×10^{-9} MICROCURIES PER MILLILITER OF AIR WHILE THE GENERAL AREA AVERAGE CONCENTRATION IS 7×10^{-10} MICROCURIES PER MILLILITER OF AIR.

WE WOULD LIKE TO REQUEST YOUR EARLY CONSIDERATION OF THIS APPLICATION. SHOULD YOU REQUIRE ADDITIONAL INFORMATION, PLEASE NOTIFY US ACCORDINGLY.

VERY TRULY YOURS,

NUCLEAR DIVISION



FRANK ZEITLIN
MANAGER, COMMERCIAL OPERATIONS

CC: MANAGER
OAK RIDGE OPERATIONS OFFICE
U. S. ATOMIC ENERGY COMMISSION
P. O. Box E
OAK RIDGE, TENNESSEE