



## NUCLEAR CONSULTANTS

BOX 6172, LAMBERT FIELD • ST. LOUIS, MISSOURI 63145 • 314 PErshing 9-8927

DIVISION OF MALLINCKRODT CHEMICAL WORKS

LABORATORIES IN ST. LOUIS  
LOS ANGELES, CLEVELAND, NEW  
YORK, CHICAGO AND ATLANTA  
OFFICES IN MAJOR CITIES

July 25, 1966

Director  
Isotopes Branch  
Division of Materials Licensing  
U. S. Atomic Energy Commission  
1717 "H" Street  
Washington 25, D. C.

Gentlemen:

A report was made to you indicating the personnel that at one time or another during the first quarter of 1966 had burdens in excess of 0.14 uc of I-131 in their thyroid glands. This information was not submitted in strict accordance with the provisions of Paragraph 20.405. Therefore, this information is being resubmitted at this time. For ease in computational purposes, unity (1.00) indicates a thyroid burden of 0.14 uc.

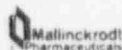
The exposures listed were not attributable to ingestion or to adsorption on the skin and subsequent absorption into the body. It is assumed that these exposures were due to airborne concentrations of I-131 and therefore are reportable in accordance with the provisions of 10 CFR 20.

The air sampling program indicated several areas in which high air concentrations of I-131 existed. These areas were the I-131 tagging room, the diagnostic capsule matching room, the drug and waste storage room, and the sterile room. No one single cause was found for the high air concentrations in these areas; rather, several corrective steps had to be taken in each area to reduce air concentrations to permissible levels.

When a corrective step was taken, a time lag was involved in order to determine the effectiveness of the corrective measure. Several false steps were taken before the actual cause or causes were determined. These corrective measures were instituted over a six month period culminating during the third week of May.

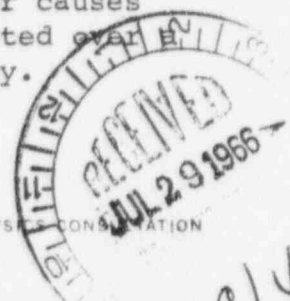
Information in this record was deleted  
in accordance with the Freedom of Information  
Act, exemptions 6

RADIOPHARMACEUTICALS • RADIOISOTOPES



MEDICAL PHYSICS CONSULTATION

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One of the major causes for high air concentrations in the I-131 tagging room was a change in production procedures.

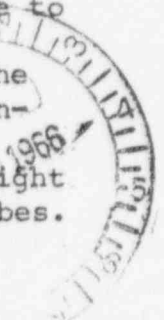
The stabilizer used in the production of I-131 diagnostic capsules was changed in the early part of the year from cysteine to ascorbic acid. This change was brought to the attention of the health physics department through interrogation of the individuals involved with capsule production. Further investigation indicated a correlation between increased thyroid burdens and this change in production procedures. The production procedure was then altered to resume the use of cysteine as the stabilizer of choice. This change affected a marked decrease in air concentrations in the iodine tagging room.

Other changes which also resulted in reduced air concentrations were as follows:

The open hoods were converted to quasi-glove boxes by the addition of lucite windows to which were affixed glove box gloves. The diagnostic capsules which previously were stored behind a concrete block wall in the tagging room were transferred to a shielded base cabinet under the I-131 production hood. This base cabinet was put under negative pressure by connecting it to the hood exhaust system. A greater negative pressure differential was created between the tagging room and the main laboratory by closing the auxiliary air supply to the tagging room.

Reduced air concentrations of I-131 were also observed in the diagnostic capsule matching room as a result of the reversion to cysteine. The shielded base cabinet for the matching machine in which the activity is stored was also connected to the I-131 exhaust system resulting in further reduced air concentrations.

The highest airborne concentrations of I-131 were found in the drug and waste storage room. This room had no air inlet nor outlet. Therefore, small amounts of volatile I-131 could give rise to high airborne concentrations. A new blower was installed on the roof to exhaust air from the drug and waste storage room. A small opening through the ceiling of this room was provided for inlet air. The diameter of the inlet opening was made smaller than the diameter of the exhaust opening such that this room was made to go negative with respect to the adjacent dispensing laboratory. This change not only resulted in reduced air concentration in the drug and waste storage room but also resulted in reduced air concentrations in the dispensing laboratory and in the production laboratory. High level radioactive waste was packaged in air tight two gallon steel containers prior to transfer to the storage tubes.



Director, Isotopes Branch  
Washington 25, D. C.

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July 25, 1966  
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The lids on fiber drums used to store low level radioactive waste were sealed with tape after filling.

Another new blower was provided on the roof to exhaust air from the sterile room. Two glove boxes were installed in the sterile room and connected to the exhaust blower. Air concentrations in this area were greatly reduced by these measures.

The combined effect of all of the above measures resulted in air concentrations well within permissible levels after the third week in May throughout the entire laboratory. Increased thyroid burdens subsequent to then have been due to specific situations rather than relating to any general problems.

During the week of June 27th the contents of the I-131 production hood, consisting of contaminated equipment, shielding, and glassware, were indiscriminately removed from the hood for decontamination. Air samples assayed later that morning indicated high airborne radioactivity concentrations of I-131 in the tagging room. All personnel were immediately restricted from the I-131 tagging room. A thyroid burden determination was made on all laboratory personnel. The following individuals, all of whom had worked in the tagging room, were found to have thyroid burdens in excess of the permissible limit.

Chemist No. 1  
Chemist No. 2  
Chemist No. 3  
Technician No. 2

Future decontamination efforts shall be judiciously controlled by the Health Physics department.

The thyroid burdens listed for Chemist No. 1 and Chemist No. 2 during the week starting 7/4 were as a result of the uptake on 6/27. Since the specific cause for the initial uptake was known, none of these individuals were restricted from performing their normal work functions.

During the week starting 7/4, Technician No. 4 exceeded the permissible limit. It is fairly certain as demonstrated by air samples that this uptake was due to the production of T and O A capsules. T and O A capsule production is being transferred to a glove box which will be connected to the I-131 exhaust system.

Chemist No. 2 exceeded the permissible thyroid burden during the week of 7/18. The cause for this uptake is as yet undetermined.

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Washington 25, D. C.


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We have experienced recurrent problems with Technician No. 3. The work functions of this individual have been changed repeatedly in an attempt to maintain this individual's thyroid burden within permissible limits. None of these changes resulted in any appreciable decrease in the thyroid burden. It has only recently been brought to our attention that this individual has been under a doctor's care for an abnormal thyroid condition. We have contacted the attending physician, and he has indicated that the thyroid burdens were most likely attributable to the abnormality.

You will note that none of the individuals has exceeded the permissible thyroid burden on a quarterly average basis.

Sincerely yours,

NUCLEAR CONSULTANTS DIVISION  
MALLINCKRODT CHEMICAL WORKS



Donald W. Soldan, Manager  
Health Physics Department

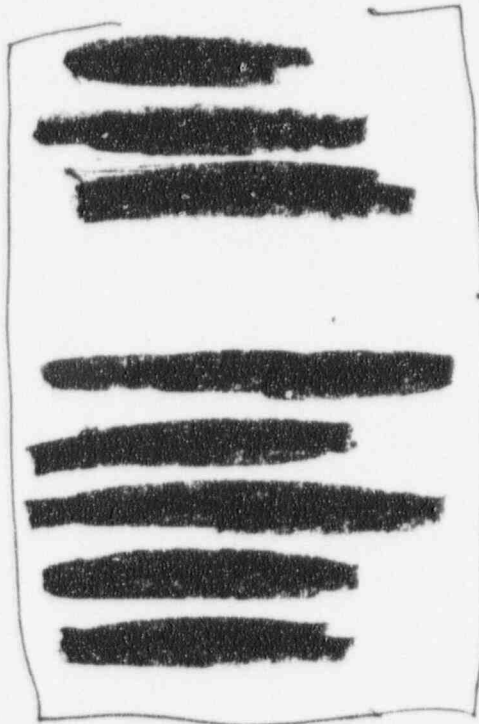
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Enclosures

Copy to Manager, Region III  
Division of Compliance, USAEC

NUCLEAR CONSULTANTS

DIVISION MALLINCKRODT CHEMICAL WORKS



Chemist No. 1

Chemist No. 2

Chemist No. 3

Ex 6

Technician No. 1

Technician No. 2

Technician No. 3

Technician No. 4

Technician No. 5

Above is a list of individuals reported on our overexposure report dated July 25, 1966.

1966 PRACTICAL PERMISSIBLE IODINE-131 THYROID BURDEN\*

*Exemption 6*

Chemical No. 1 [REDACTED] 9 Identification No. [REDACTED] 7 No. [REDACTED]

| PERIOD OF EXPOSURE | 1/3/66-1/1/66<br>1st Quarter | W.S. | 4/4/66-7/1/66<br>2nd Quarter | W.S. | 1/4/66-10/2/66<br>3rd Quarter | W.S.  | 10/3/66-1/1/67<br>4th Quarter |
|--------------------|------------------------------|------|------------------------------|------|-------------------------------|-------|-------------------------------|
| WEEK BEHAVING      |                              |      |                              |      |                               |       |                               |
| 1/3                | 2.34 ***R                    | 4/4  | .49                          | 7/4  | 1.46***                       | 10/3  |                               |
| 1/10               | 1.74 ***                     | 4/11 | .52                          | 7/11 | Terminated                    | 10/10 |                               |
| 1/17               | 1.37 ***                     | 4/18 | .59                          | 7/18 | 7/8/66                        | 10/17 |                               |
| 1/24               | .94                          | 4/25 | .65                          | 7/25 |                               | 10/24 |                               |
| 1/31               | .63 U                        | 5/2  | .39                          | 8/1  |                               | 10/31 |                               |
| 2/7                | .54                          | 5/9  | .54                          | 8/8  |                               | 11/7  |                               |
| 2/14               | .55                          | 5/16 | .51                          | 8/15 |                               | 11/14 |                               |
| 2/21               | 1.50 ***R                    | 5/23 | .59                          | 8/22 |                               | 11/21 |                               |
| 2/28               | .99                          | 5/30 | .91                          | 8/29 |                               | 11/28 |                               |
| 3/7                | .90 U                        | 6/6  | .51                          | 9/5  |                               | 12/5  |                               |
| 3/14               | .65                          | 6/13 | .44                          | 9/12 |                               | 12/12 |                               |
| 3/21               | .55                          | 6/20 | .81                          | 9/19 |                               | 12/19 |                               |
| 3/28               | .10                          | 6/27 | 1.82 ***                     | 9/26 |                               | 12/26 |                               |

.24\*\*

.71

.93

QUANTITATIVE RANGE

\*Practical Permissible Thyroid Burden based on a permissible quarterly average thyroid burden of 0.14 microcuries of Iodine-131.

\*\*Calculated from extrapolated values.

\*\*\*Reportable on air concentration basis.

R Restricted from work in the tagging room.

U Unrestricted.

/js  
1/6/66

## NUCLEAR CONSULTANTS

## 1966 FRACTIONAL PERMISSIBLE IODINE-131 THYROID BURDEN\*

Chemist, No. 2  
Name

Social Security No.

Identification No.



| PERIOD OF EXPOSURE | 1/3/66-4/3/66 | 4/4/66-7/3/66 | 7/4/66-10/2/66 | 10/3/66-1/1/67 |
|--------------------|---------------|---------------|----------------|----------------|
|                    | 1st Quarter   | 2nd Quarter   | 3rd Quarter    | 4th Quarter    |
| WEEK STARTING      | W.S.          | W.S.          | W.S.           | W.S.           |
| 1/3                | .99           | 4/4 .68       | 7/4 1.12**     | 10/3           |
| 1/10               | .68           | 4/11 .28      | 7/11 .87       | 10/10          |
| 1/17               | .66           | 4/18 .52      | 7/18 1.43***   | 10/17          |
| 1/24               | .42           | 4/25 .67      | 7/25           | 10/24          |
| 1/31               | .34           | 5/2 .89       | 8/1            | 10/31          |
| 2/7                | .91           | 5/9 .71       | 8/8            | 11/7           |
| 2/14               | .73           | 5/16 ---      | 8/15 .         | 11/14          |
| 2/21               | .44           | 5/23 .28      | 8/22           | 11/21          |
| 2/28               | .62           | 5/30 .41      | 8/29           | 11/28          |
| 3/7                | .70           | 6/6 .21       | 9/5            | 12/5           |
| 3/14               | .83           | 6/13 .61      | 9/12           | 12/12          |
| 3/21               | .74           | 6/20 .39      | 9/19           | 12/19          |
| 3/28               | .53           | 6/27 1.43**   | 9/26           | 12/26          |
| QUARTERLY AVERAGE  | .66           | .59           |                |                |


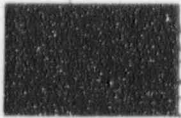
\*Fractional Permissible Thyroid Burden based on a permissible quarterly average thyroid burden of 0.14 microcuries of Iodine-131.

\*\*Reportable on air concentration basis.

\*\*Restricted from all work with I-131.

/js  
1/6/66

1966 FRACTIONAL PERMISSIBLE IODINE-131 THYROID BURDEN\*

| Chemist No. 3      |  | Name          |         | Social Security No.  |     | Certification No.   |  |
|--------------------|--|---------------|---------|--|-----|---|--|
|                    |  | <i>Exempt</i> |         |  |     |  |  |
| PERIOD OF EXPOSURE |  | 1/3/66-4/3/66 |         | 4/4/66-7/3/66  |     | 7/4/66-10/2/66  |  |
| WEEK STARTING      |  | 1st Quarter   |         | 2nd Quarter  |     | 3rd Quarter   |  |
|                    |  | W.S.          |         | W.S.   |     | W.S.  |  |
| 1/3                |  | 4/4           | .54     | 7/4  | .52 | 10/3  |  |
| 1/10               |  | 4/11          | .50     | 7/11   | .72 | 10/10   |  |
| 1/17               |  | 4/18          | .57     | 7/18   | .93 | 10/17   |  |
| 1/24               |  | 4/25          | .62     | 7/25   |     | 10/24   |  |
| 1/31               |  | 5/2           | .51     | 8/1  |     | 10/31   |  |
| 2/7                |  | 5/9           | .44     | 8/8  |     | 11/7  |  |
| 2/14               |  | 5/16          | .30     | 8/15   |     | 11/14   |  |
| 2/21               |  | 5/23          | .62     | 8/22   |     | 11/21   |  |
| 2/28               |  | 5/30          | .51     | 8/29   |     | 11/28   |  |
| 3/7                |  | 6/6           | .30     | 9/5  |     | 12/5  |  |
| 3/14               |  | 6/13          | 1.01**  | 9/12   |     | 12/12   |  |
| 3/21               |  | 6/20          | .61     | 9/19   |     | 12/19   |  |
| 3/28               |  | 6/27          | 1.05*** | 9/26   |     | 12/26   |  |
| QUARTERLY AVERAGE  |  | .14           |         | .59  |     |   |  |

Fractional Permissible Thyroid Burden based on a permissible quarterly average thyroid burden of 0.14 microcuries of Iodine-131.

\*\*Gross hand contamination. Not reportable on air concentration basis.

\*\*\*Reportable on air concentration basis.

/js  
1/6/66



## NUCLEAR CONSULTANTS

## 1966 FRACTIONAL PERMISSIBLE IODINE-131 THYROID BURDEN\*

— Technician No. 1  
 Name:

Social Security No.

Identification No.



| <u>PERIOD OF EXPOSURE</u> | <u>1/3/66-4/3/66</u> | <u>4/4/66-7/3/66</u> | <u>7/4/66-10/2/66</u> |     |                    |
|---------------------------|----------------------|----------------------|-----------------------|-----|--------------------|
|                           | <u>1st Quarter</u>   | <u>2nd Quarter</u>   | <u>3rd Quarter</u>    |     | <u>4th Quarter</u> |
| <u>WEEK STARTING</u>      | <u>W.S.</u>          |                      | <u>W.S.</u>           |     | <u>W.S.</u>        |
| 1/3                       | 4/4                  |                      | 7/4                   | .23 | 10/3               |
| 1/10                      | 4/11                 |                      | 7/11                  | --- | 10/10              |
| 1/17                      | 4/18                 |                      | 7/18                  | .24 | 10/17              |
| 1/24                      | 4/25                 |                      | 7/25                  |     | 10/24              |
| 1/31                      | 5/2                  |                      | 8/1                   |     | 10/31              |
| 2/7                       | 5/9                  | .60                  | 8/8                   |     | 11/7               |
| 2/14                      | 5/16                 | 1.75**R              | 8/15                  | .   | 11/14              |
| 2/21                      | 5/23                 | .82                  | 8/22                  |     | 11/21              |
| 2/28                      | 5/30                 | .44 U                | 8/29                  |     | 11/28              |
| 3/7                       | 6/6                  | .26                  | 9/5                   |     | 12/5               |
| 3/14                      | 6/13                 | .25                  | 9/12                  |     | 12/12              |
| 3/21                      | 6/20                 | .34                  | 9/19                  |     | 12/19              |
| 3/28                      | 6/27                 | .22                  | 9/26                  |     | 12/26              |
| <u>QUARTERLY AVERAGE</u>  |                      | .59                  |                       |     |                    |

\*Fractional Permissible Thyroid Burden based on a permissible quarterly average thyroid burden of 0.14 microcuries of Iodine-131.

\*\*Reportable on air concentration basis.

R Restricted from work in the tagging room.

U Unrestricted.

/js

1/6/66

## NUCLEAR CONSULTANTS

## 1966 FRACTIONAL PERMISSIBLE IODINE-131 THYROID BURDEN\*

Technician No. 2

Name

Social Security No.

Identification No.

| PERIOD OF EXPOSURE       | 1/3/66-4/3/66      |             | 4/4/66-7/3/66      |             | 7/4/66-10/2/66     |             | 10/3/66-1/1/67     |
|--------------------------|--------------------|-------------|--------------------|-------------|--------------------|-------------|--------------------|
|                          | <u>1st Quarter</u> |             | <u>2nd Quarter</u> |             | <u>3rd Quarter</u> |             | <u>4th Quarter</u> |
| <u>WEEK STARTING</u>     |                    | <u>W.S.</u> |                    | <u>W.S.</u> |                    | <u>W.S.</u> |                    |
| 1/3                      |                    | 4/4         | .64 U              | 7/4         | .96                | 10/3        |                    |
| 1/10                     |                    | 4/11        | .45                | 7/11        | .67                | 10/10       |                    |
| 1/17                     |                    | 4/18        | .63                | 7/18        | .77                | 10/17       |                    |
| 1/24                     | .13                | 4/25        | .64                | 7/25        |                    | 10/24       |                    |
| 1/31                     | .33                | 5/2         | .33                | 8/1         |                    | 10/31       |                    |
| 2/7                      | .43                | 5/9         | .62                | 8/8         |                    | 11/7        |                    |
| 2/14                     | .64                | 5/16        | 1.59** R           | 8/15        |                    | 11/14       |                    |
| 2/21                     | 1.26**             | 5/23        | .99                | 8/22        |                    | 11/21       |                    |
| 2/28                     | 1.57**             | 5/30        | .72 U              | 8/29        |                    | 11/28       |                    |
| 3/7                      | 2.36**             | 6/6         | .23                | 9/5         |                    | 12/5        |                    |
| 3/14                     | 2.75**             | 6/13        | .38                | 9/12        |                    | 12/12       |                    |
| 3/21                     | 1.65** R           | 6/20        | .25                | 9/19        |                    | 12/19       |                    |
| 3/28                     | .87                | 6/27        | 1.39**             | 9/26        |                    | 12/26       |                    |
| <u>QUARTERLY AVERAGE</u> |                    |             |                    |             |                    |             |                    |
|                          | .92                |             | .68                |             |                    |             |                    |

\*Fractional Permissible Thyroid Burden based on a permissible quarterly average thyroid burden of 0.14 microcuries of Iodine-131.

\*\*Reportable on air concentration basis.

R Restricted from diagnostic capsule production.

U Unrestricted.

/js

1/6/66

## NUCLEAR CONSULTANTS

## 1966 FRACTIONAL PERMISSIBLE IODINE-131 THYROID BURDEN\*

Technician No. 3

|                    | Name          |      | Social Security No. |      | Identification No. |                |
|--------------------|---------------|------|---------------------|------|--------------------|----------------|
| PERIOD OF EXPOSURE | 1/3/66-4/3/66 |      | 4/4/66-7/3/66       |      | 7/4/66-10/2/66     | 10/3/66-1/1/67 |
|                    | 1st Quarter   |      | 2nd Quarter         |      | 3rd Quarter        | 4th Quarter    |
| WEEK STARTING      |               | W.S. |                     | W.S. |                    | W.S.           |
| 1/3                | .25           | 4/4  | 1.61** R-4          | 7/4  | 67.09***           | 10/3           |
| 1/10               | .44           | 4/11 | 1.39**              | 7/11 | 38.22              | 10/10          |
| 1/17               | .43           | 4/18 | 1.04**              | 7/18 | 22.64              | 10/17          |
| 1/24               | .35           | 4/25 | 1.13**              | 7/25 |                    | 10/24          |
| 1/31               | .56           | 5/2  | 1.43** R-5          | 8/1  |                    | 10/31          |
| 2/7                | .52           | 5/9  | 1.02**              | 8/8  |                    | 11/7           |
| 2/14               | .61           | 5/16 | 1.31**              | 8/15 |                    | 11/14          |
| 2/21               | .65           | 5/23 | .96                 | 8/22 |                    | 11/21          |
| 2/28               | 1.12** R-1    | 5/30 | .82 U               | 8/29 |                    | 11/28          |
| 3/7                | 1.91**        | 6/6  | .56                 | 9/5  |                    | 12/5           |
| 3/14               | 2.26** R-2    | 6/13 | .41                 | 9/12 |                    | 12/12          |
| 3/21               | 1.64**        | 6/20 | .34                 | 9/19 |                    | 12/19          |
| 3/28               | 1.31** R-3    | 6/27 | -- Hospital         | 9/26 |                    | 12/26          |
| QUARTERLY AVERAGE  | .94           |      | 1.00                |      |                    |                |

\*Fractional Permissible Thyroid Burden based on a permissible quarterly average thyroid burden of 0.14 microcuries of Iodine-131.

\*\*Reportable on air concentration basis.

\*\*\*Administered I-131 diagnostic capsules by her doctor.

R-1 Restricted from tagging room.

/js R-2 Restricted from work with diagnostic capsule matching machine.

1/6/66 R-3 Restricted from sterile room.

R-4 Restricted from T and O A capsule production.

R-5 Restricted from all work with I-131.

U Unrestricted.

1/1/67

## NUCLEAR CONVERTANTS

## 1966 FRACTIONAL PERMISSIBLE IODINE-131 THYROID BURDEN\*

Technician No. 4

|                    | Name          |      | Social Security No. |      | Identification # |                |
|--------------------|---------------|------|---------------------|------|------------------|----------------|
| PERIOD OF EXPOSURE | 1/3/66-4/3/66 |      | 4/4/66-7/3/66       |      | 7/4/66-10/2/66   | 10/3/66-1/1/67 |
|                    | 1st Quarter   |      | 2nd Quarter         |      | 3rd Quarter      | 4th Quarter    |
| WEEK STARTING      |               | W.S. |                     | W.S. |                  | W.S.           |
| 1/3                | 2.20** R-1    | 4/4  | .30 U               | 7/4  | 1.32**           | 10/3           |
| 1/10               | 1.17**        | 4/11 | 1.09**              | 7/11 | 1.12***          | 10/10          |
| 1/17               | 1.49**        | 4/18 | .77                 | 7/18 | .63              | 10/17          |
| 1/24               | 1.09**        | 4/25 | 1.11**              | 7/25 |                  | 10/24          |
| 1/31               | .83 U         | 5/2  | 1.21** R-3          | 8/1  |                  | 10/31          |
| 2/7                | 1.40**        | 5/9  | .31                 | 8/8  |                  | 11/7           |
| 2/14               | 2.02**        | 5/16 | .32 U               | 8/15 |                  | 11/14          |
| 2/21               | 1.24** R-2    | 5/23 | .30                 | 8/22 |                  | 11/21          |
| 2/28               | .92           | 5/30 | .51                 | 8/29 |                  | 11/28          |
| 3/7                | .27           | 6/6  | .38                 | 9/5  |                  | 12/5           |
| 3/14               | .13           | 6/13 | .42                 | 9/12 |                  | 12/12          |
| 3/21               | .04           | 6/20 | .61                 | 9/19 |                  | 12/19          |
| 3/28               | .04           | 6/27 | .78                 | 9/26 |                  | 12/26          |
| QUARTERLY AVERAGE  |               |      |                     |      |                  |                |
|                    | .99           |      | .74                 |      |                  |                |

\*Fractional Permissible Thyroid Burden based on a permissible quarterly average thyroid burden of 0.14 microcuries of Iodine-131.

\*\*Reportable on air concentration basis.

\*\*\*Restricted from all work with I-131.

R-1 Restricted from diagnostic capsule production.

R-2 Restricted entirely from laboratory. Worked as health physics technician.

R-3 Restricted from work in the tagging room.

U Unrestricted.

/js

1/6/66

## NUCLEAR CONSULTANTS

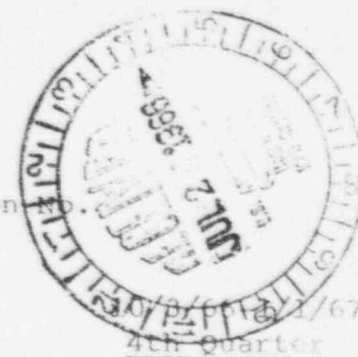
## 1966 FRACTIONAL PERMISSIBLE IODINE-131 THYROID BURDEN\*

Technician No. 5

Name

Social Security No.

Identification



| PERIOD OF EXPOSURE       | 1/3/66-4/3/66      | 4/4/66-7/3/66      | 7/4/66-10/2/66     | 10/3/66-1/1/67     |
|--------------------------|--------------------|--------------------|--------------------|--------------------|
|                          | <u>1st Quarter</u> | <u>2nd Quarter</u> | <u>3rd Quarter</u> | <u>4th Quarter</u> |
| <u>WEEK STARTING</u>     | <u>W.S.</u>        | <u>W.S.</u>        | <u>W.S.</u>        | <u>W.S.</u>        |
| 1/3                      | .28                | 4/4 .55            | 7/4 .15            | 10/3               |
| 1/10                     | .50                | 4/11 .47           | 7/11 .11           | 10/10              |
| 1/17                     | .56                | 4/18 .62           | 7/18 .37           | 10/17              |
| 1/24                     | .54                | 4/25 1.08 **       | 7/25               | 10/24              |
| 1/31                     | .59                | 5/2 1.04 **        | 8/1                | 10/31              |
| 2/7                      | .38                | 5/9 .74            | 8/8                | 11/7               |
| 2/14                     | .75                | 5/16 .59           | 8/15 .             | 11/14              |
| 2/21                     | .80                | 5/23 .38           | 8/22               | 11/21              |
| 2/28                     | 1.00               | 5/30 .17           | 8/29               | 11/28              |
| 3/7                      | .99                | 6/6 .13            | 9/5                | 12/5               |
| 3/14                     | .60                | 6/13 .11           | 9/12               | 12/12              |
| 3/21                     | .38                | 6/20 .20           | 9/19               | 12/19              |
| 3/28                     | .41                | 6/27 .25           | 9/26               | 12/26              |
| <u>QUARTERLY AVERAGE</u> | .60                | .49                |                    |                    |

\*Fractional Permissible Thyroid Burden based on a permissible quarterly average thyroid burden of 0.14 microcuries of Iodine-131.

\*\*Reportable on air concentration basis.

/js  
1/6/66