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DECLASSIFICATION CONFIRMED

S. E. Gydesen, PNL Classification Officer

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HW--3-3628

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E. A. Baker 4/21/86

Classification Cancelled (Change to
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By AUTHORITY OF PNL Classification
Officer Date 9-29-62

RECORD
COPY

- 86009194 HW-3-3628
HW-3-3628
- 1 - H.M. Parker-C. Gernertfeld
 - 2 - W.D. Norwood-P.A. Paquin
 - 3 - H.M. Smith-W.C. Kay-
F.B. Vaughan-700 file
 - 4 - Area Engineer
 - 5 - Area Engineer
 - 6 - J.W. Healy-L.D. Turner
 - 7 - C.M. Patterson-F.P. Heyman
 - 8 - 300 file
 - 9 - Pink copy
 - 10 - Yellow copy

August 29, 1946

I 131 DEPOSITION IN CATTLE GRAZING ON NORTH

MARGIN OF M.E.W.

INTRODUCTION

Privately owned herds of cattle ranging to the Columbia River from North of the Project area may have accumulated considerable I131 in their thyroid glands from grazing on contaminated vegetation. By use of portable instruments the thyroids of three of these animals were counted. Cattle were grazing opposite 100-D Area, about eleven miles North of the 200 Area waste stacks.

A special detail of Army personnel and equipment was used in assisting the writer to accomplish this work.

SUMMARY

This work indicated an activity in the order of 0.04 to 0.05 μ c of I131. The three animals checked showed practically the same results in spite of variation in sex and age.

Cheat grass and green Russian thistles from the area showed an activity from 5×10^{-2} to 1.4×10^{-1} μ c/kg, which is 0.7 of tolerance for grazing animals. (3)

PROCEDURE

The lack of corrals or other suitable barriers made the capture of a large number of specimens impractical. With some difficulty, cattle were roped from Army jeeps, then thrown and tied for the check. G.M. Counters with 1/16" aluminum shields were held in contact with the skin in the regions of the right, left and center of the thyroid. Background readings were taken on the skin of the upper neck or shoulder. Two instruments were used on animals #1 and #2 and only one used on #3. The first instrument, a low voltage gamma counter with attached head phones had previously

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been calibrated to 200 c/m per μ c of I^{131} . (1) The cattle were in good flesh, thus probably giving a greater shielding effect than sheep previously checked. Considering this condition it may be assumed that results here reported are conservatively low. (2)

RESULTS

Instrument 1 could be considered most reliable since the range of activity was not sufficient to satisfactorily activate the portable G.M. Counter. Unfortunately the low voltage cut failed after the second animal, probably due to excessive heat from the sun. The readings of the two instruments check well enough to roughly verify results. Since counts were for only three minutes each, readings are not far above 90% confidence level.

Tabulation of Results

Date 8-9-46

	First Animal 6 Mo. Heifer		Second Animal 6 Mo. Steer		Third Animal 4 Yr. Cow	
Neck						
Backgrounds Set I	19 c/m		20 c/m			
Set II	3 μ Amp.		3 μ Amp		3 μ Amp	
Net Readings:	c/m	μ c	c/m	μ c	c/m	μ c
Set I Right Side	8 \pm [6]	0.04	7 \pm [6]	0.04	-	-
Center	10 \pm [7]	0.05	8 \pm [6]	0.04	-	-
Left Side	7 \pm [6]	0.04	9 \pm [7]	0.05	-	-
	μ Amp		μ Amp		μ Amp	
Set II Right Side	~ 1	~ 0.05	~ 1	~ 0.05	~ 1	~ 0.05
Center	~ 1	~ 0.05	~ 1	~ 0.05	~ 1	~ 0.05
Left Side	~ 1	~ 0.05	~ 1	~ 0.05	~ 1	~ 0.05

KKH:mv

REFERENCES

- (1) " I^{131} Accumulation in the Thyroid of Sheep Grazing Near H.E.W." Doc. #3-3455, dated 3-1-46, K. E. Herde to J. W. Neely.
- (2) "Detection of I^{131} in the Body", Doc. #7-4451, J. W. Neely.
- (3) "Tolerable Concentrations of Radioactive Iodine on Edible Plants" Doc. #7-3217, dated 1-14-46, H. M. Parker to W. D. Herwood

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