RED ALDER (*Alnus rubra* Bong.) AS A BIOACCUMULATOR OF INDIUM AND DYSPROSIUM WITH AND WITHOUT DTPA TREATMENT AS MEASURED BY NEUTRON ACTIVATION ANALYSIS

A Thesis

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Master of Science

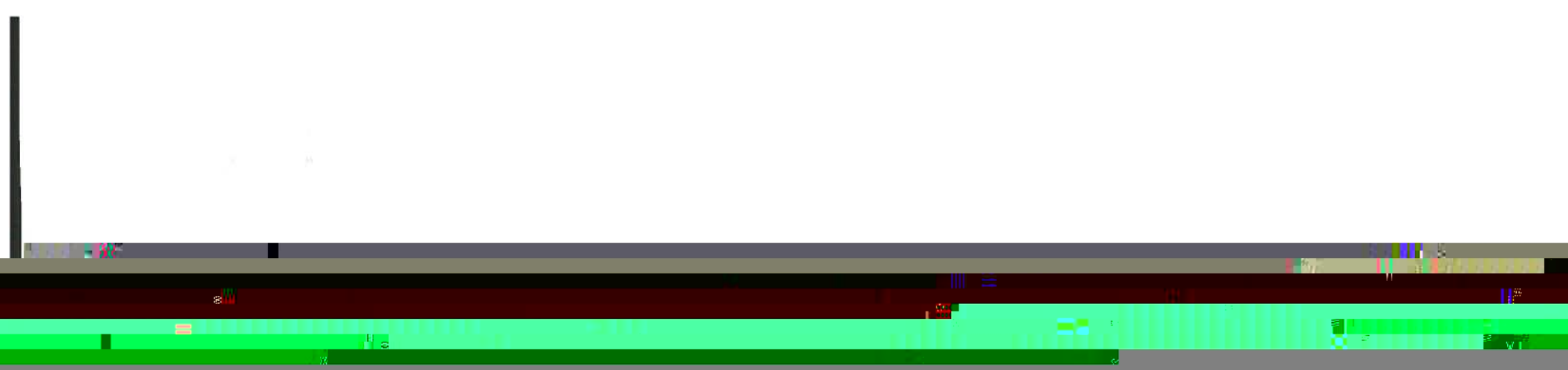
in

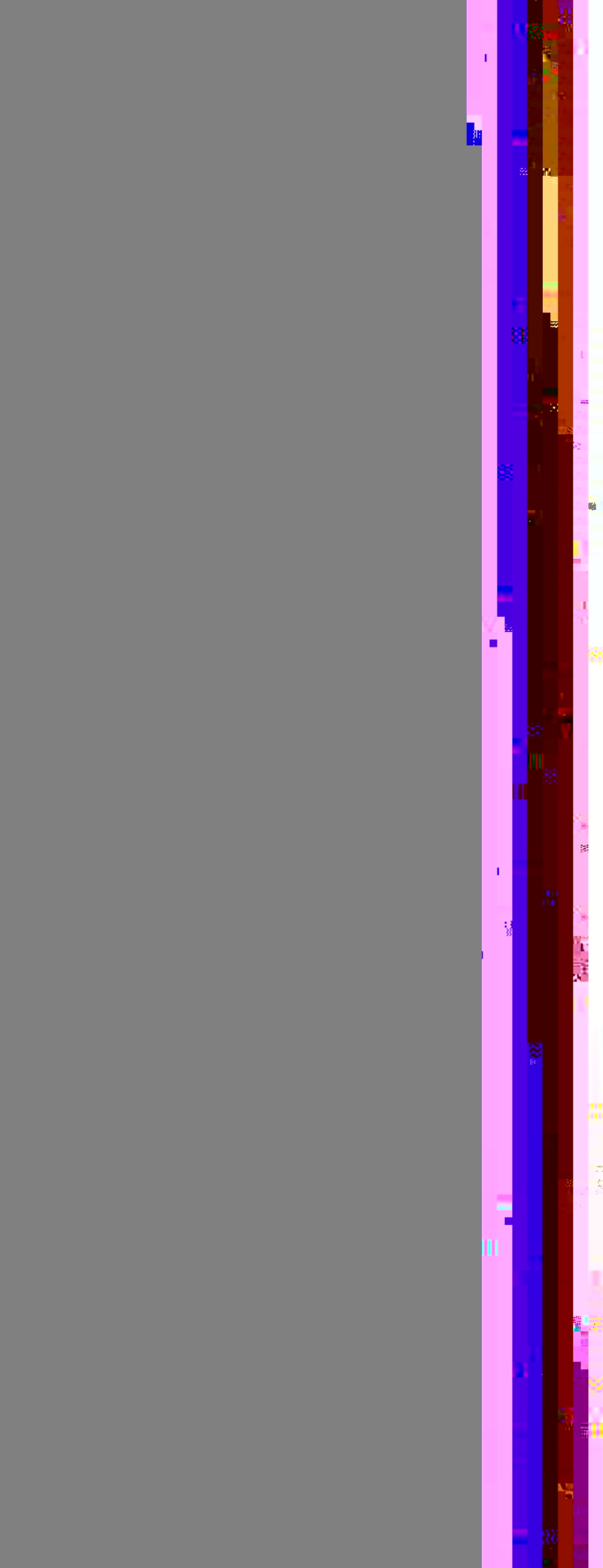
The Department of Botany

DEDICATED TO

MY

Brother Mohamed





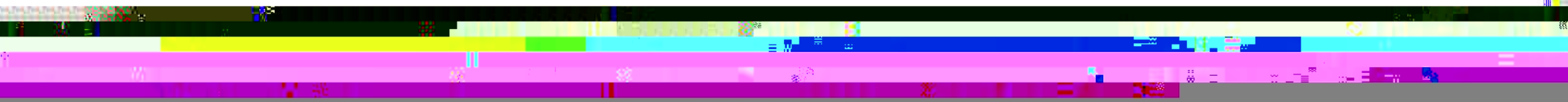
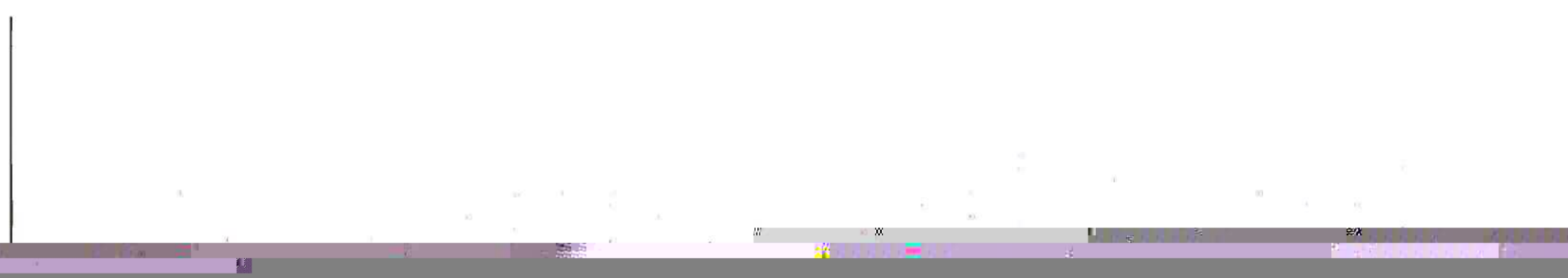
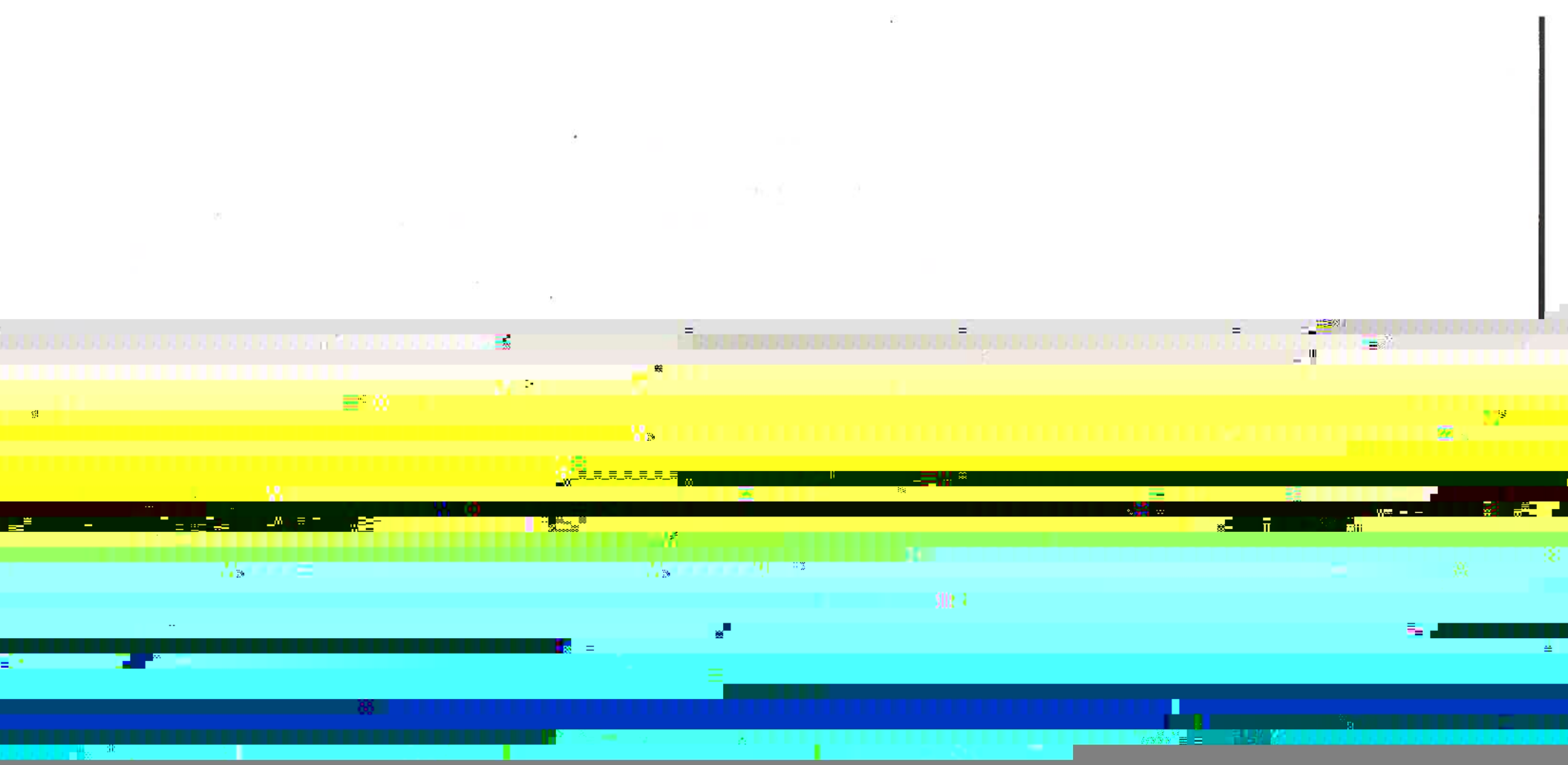


FIGURE 2-1

Location of McDonald Forest in the State of Oregon.





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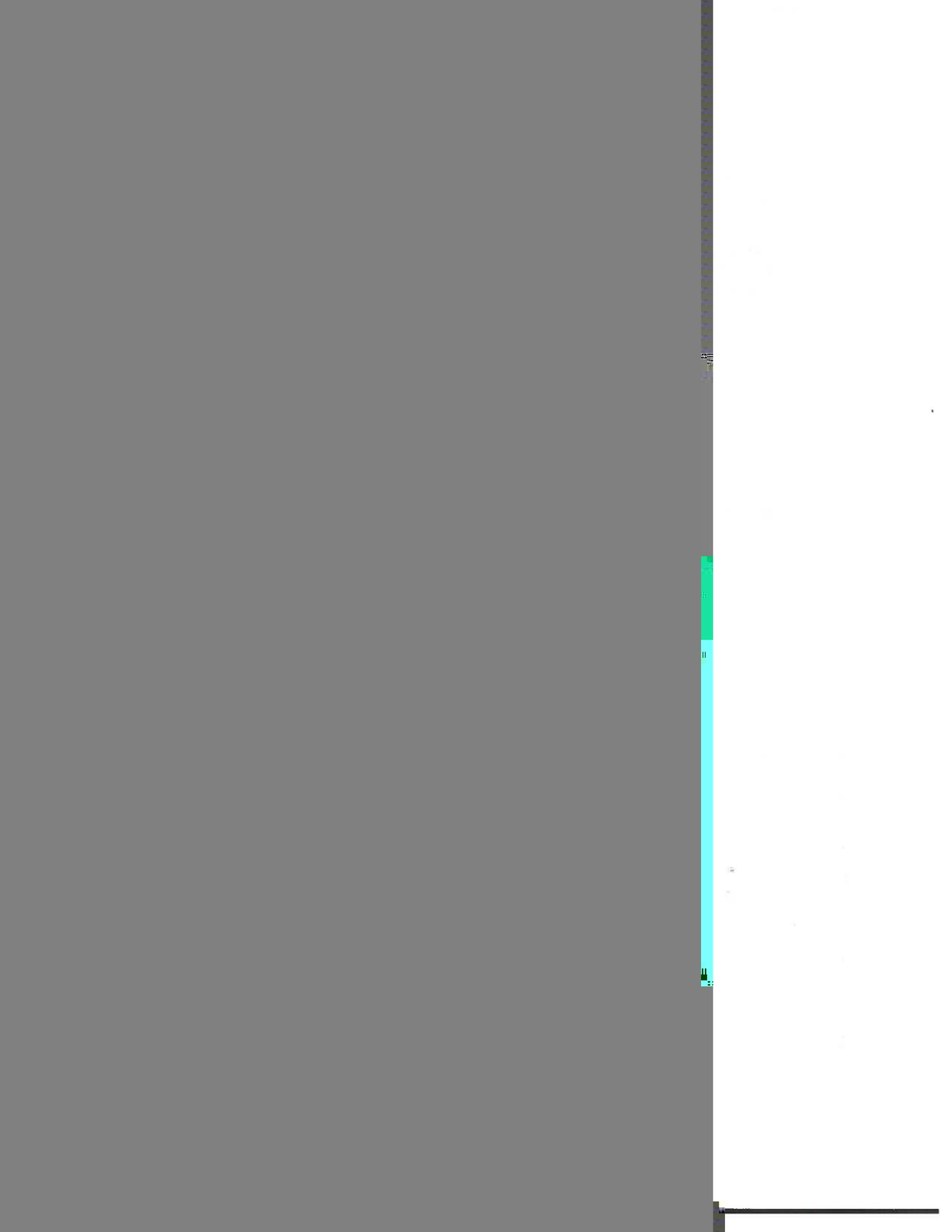

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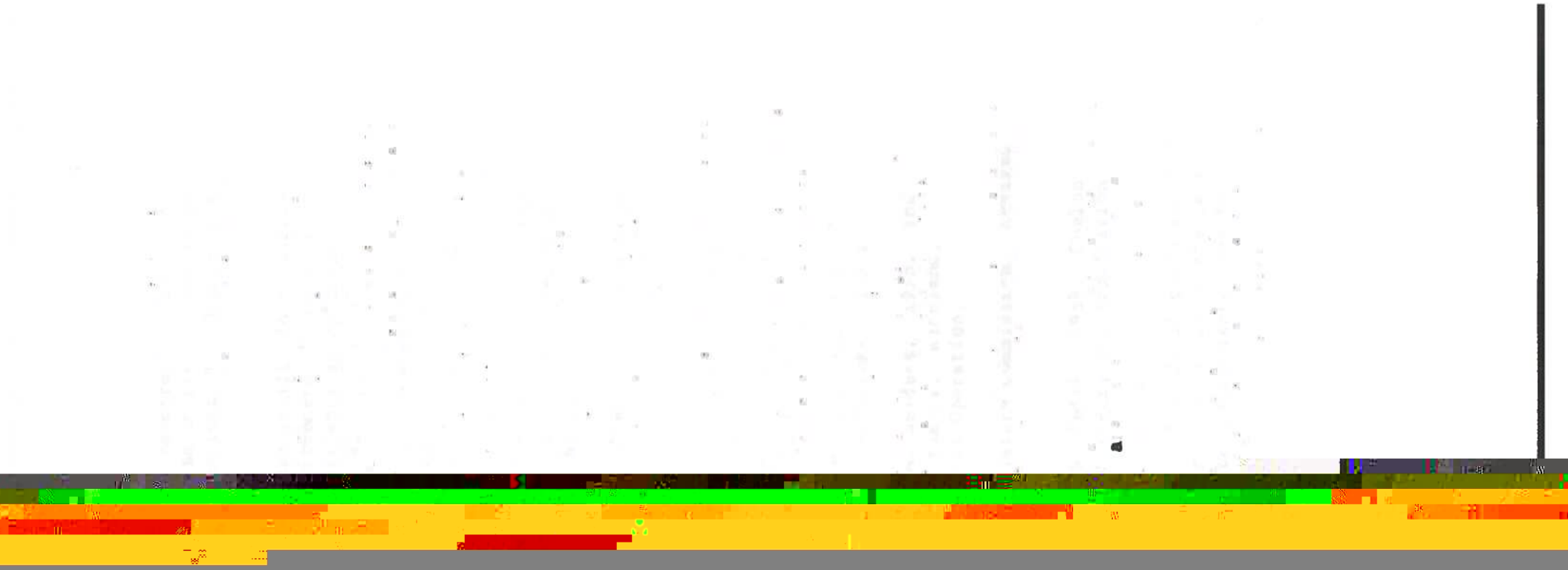

$$\frac{5.00 \text{ g of the element}}{105 \text{ ml}} = 0.0476 \text{ g/ml or } 4.76 \times 10^4 \text{ µg of the element/ml}$$

$$\frac{4.76 \times 10^4 \text{ µg/ml}}{200} = 2.38 \times 10^2 \text{ µg/ml} \qquad (1)$$

$$\frac{2.38 \times 10^2 \text{ µg/ml}}{100} = 2.38 \text{ µg/ml} \qquad (2)$$

ne mole of (ML)

based on mole basis for the reaction

cers used to the selected chelating agent:

and

$$\frac{4.25\ g}{162.5} = 0.026 \text{ moles of Dy}$$

A volume of 96 ml of commercial DTPA was used to give an exce s amount of the chelating agent.

The concentration of chelated In and Dy in µg/ml (ppm) in the original stock solution of 150 ml (the solution that introduced to the stream) were calculated as follows:

$$\text{The concentration of chelated In} = \frac{\text{wt. in grams}}{\text{volume in ml}} = \frac{5\ g}{150\ ml}.$$

$$= 3.33 \times 10^4\ \mu g/ml$$

The In-DTPA and

out as follows:

a) 1.0 ml from the original stock solution was diluted with 99 ml DW.

$$\frac{3.33 \times 10^4\ \mu g/ml}{100\ ml} = 3.3 \times 10^2\ \mu g/ml \qquad \text{(In)}$$

$$\frac{2.83 \times 10^4\ \mu g/ml}{100\ ml} = 2.83 \times 10^2\ \mu g/ml \qquad \text{(Dy)} \qquad (1)$$

b) A second dilution of 100 times was obta ned by mixing : .0 ml fron the above stock solution + 99 ml DW the concen·ra:tion became:

APPENDIX C

Oregon State University Radiation Center Safety Procedures

The concentration of Dy in the stream water after 2.1 hr of tracer administration:

$$\text{in} \qquad {}^{D}_{D1} = 0.332 \ \mu gDy/ml \qquad (3)$$

uda El-Fawaris

Approved:

Stephen Whitaker, Co-chairman
Major Professor and Chairman

Ronald Knapp, Co-Chairman

James D. Trawnham
Dean of the Graduate School

Date of Examination:

Monday, April 21, 1980