

SUMMARY REPORT

THE AERIAL RADIOLOGIC SURVEY
OF
THE UNITED NUCLEAR FACILITY
AT
NUCLEAR LAKE NEAR PAWLING, NEW YORK

DATE OF SURVEY: MAY 1980

APPROVED FOR PUBLICATION



J. Robert Mueller, EG&G, Inc.



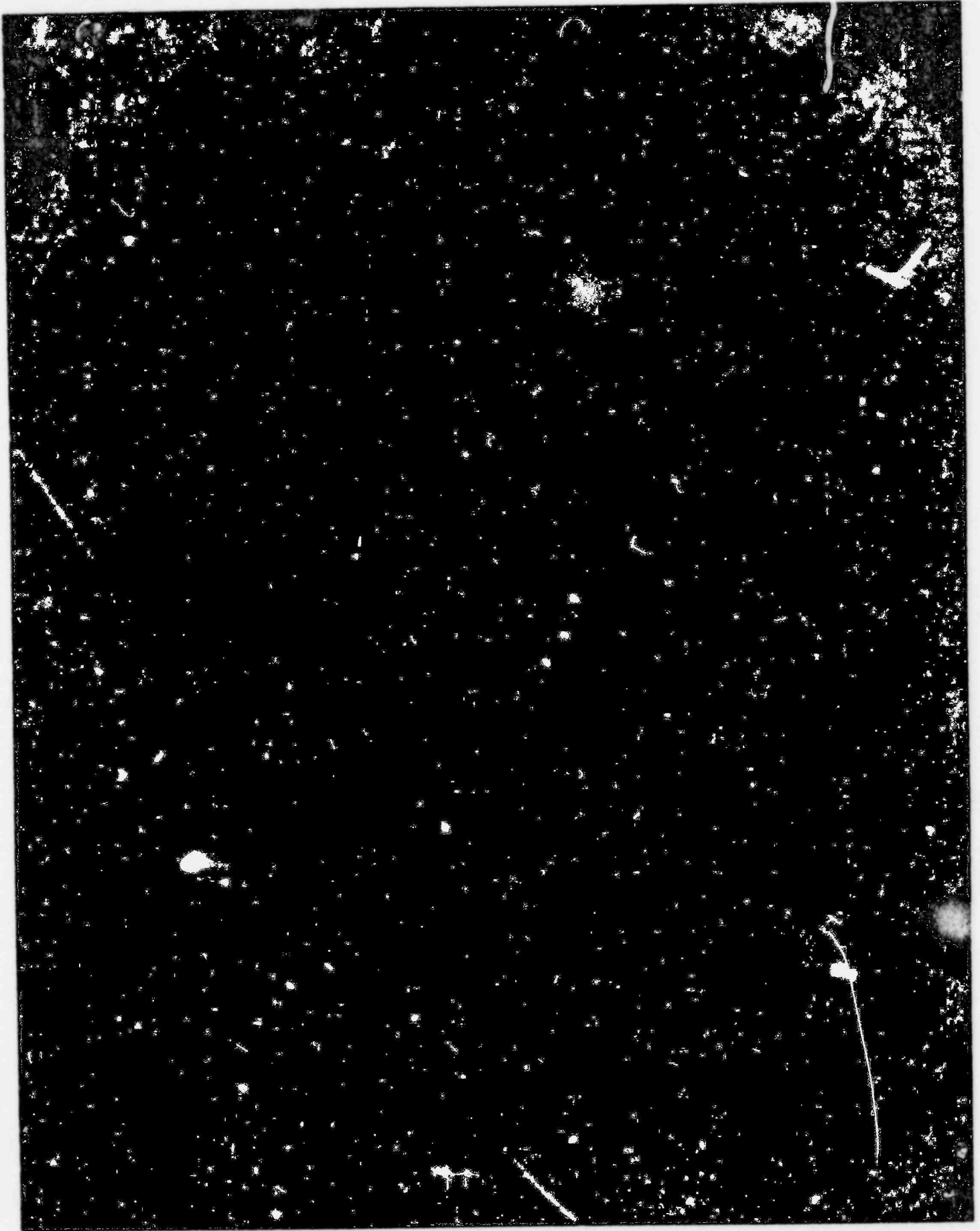
Herbert F. Hahn, Department of Energy

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The Aerial Measurement System operated by EG&G, Inc., for the United States Department of Energy, was used to conduct an Aerial Radiologic Survey over the decommissioned United Nuclear Corporation facility near Pawling, New York, in May 1980. The purpose of this survey was to establish if any fixed gamma photon emitting material(s) was present at this site and if so, to affect precise location and quantification of such material(s).

To this end, a Boeing 105 helicopter, fitted with gamma radiation detection equipment, was flown in routinely employed, standard operative manner (in re height, speed, navigational parameters, etc.) over the area shown in the attached Figure.

For this particular survey, two distinct operative modes of gamma detection were employed; Mode I (M_I) -- high energy (50 KEV-3000 KEV) and Mode II (M_{II}) -- low energy (12 KEV-300-KEV). M_I represents that region of energy where most man-made gamma emitting radionuclides would normally be detected. M_{II} represents that energy region where gamma radiation indicative of most transuranic activity would be detected. Since Plutonium activity was the major activity of interest, an indirect method of detection was necessary. Plutonium is primarily an alpha (α) emitter; thus direct detection and quantification with the airborne system used was not feasible. Therefore, the M_{II} mode was utilized in an effort to detect $^{241}\text{Americium}$, a gamma photon emitting daughter product



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AERIAL RADIOLOGIC SURVEY AREA

of the Plutonium activity. Furthermore, an effort was made to enhance the detectability of low energy gamma emitting radioactivity by having the helicopter hover over the formerly used laboratory buildings near the lake. This was done to increase the counting time over the locations most likely to be the site of a possible radioactive source, thus increasing the probability of detection. In analyzing the gamma radiation activity data thus obtained, normal environmental (natural background) gamma radiation was subtracted rendering an accurate assay of any fixed gamma radioactivity.

Preliminary analyses of collected data clearly indicate that no man-made gamma photon activity (M_1) above normal environmental background levels was detected. Additionally, the airborne system employed detected no evidence of transuranic activity (M_{11}).