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MALCOLM THEISEN, ANALYSIS

BOX # 51

Name (ADD) - Organization  
R. C. Giffey, Reports and Statistics Branch  
Date  
11/23/51  
December 20, 1951

Kenneth Kasschau, Acting Director of Research and Medicine

WEEKLY ACTIVITY REPORT  
DECLASSIFICATION RECOMMENDED

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*John Downing* ORG  
Name (ADC) - Organization

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11/23/51  
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Radioactivity Survey Results on Bottom Muds in Clinch River

Further field work has been accomplished on definition of radioactive sediments in the Clinch River embayment below the plant area. In general, observations of varying degrees of radioactivity up to about five times background, support earlier theories that the velocity of the river is sufficient to transport most of the activity-laden silt to beyond Gallagher Bridge before deposition. The intensity of radiation from the bottom deposits is found to be highest at about Mile 12 in the Clinch River (just upstream from the mouth of Popular Creek).

Ecological Survey Work to Include Studies of Water Birds

In connection with the analysis of radioactivity in the organs and tissues of fish from White Oak Lake, a few man-hours per week have been spent on a preliminary study of coot or mud-hen which is prevalent on the lake as a continuous population to provide some clues to avian sites of tissue and organ deposition. At the present time there is indication of low-level radioactivity in the musculature and the digestive tract of the coot, with the highest amounts detected in the gizzard at about 400 counts per minute per gram of tissue. The principal isotopes deposited have not been identified. The preliminary study may point to need for more detailed examination of other birds which feed on floating vegetation or bottom organisms.

Mount Laboratory Studies Show Pathological Action of Small Amounts of Polonium

In the studies of the effects of single low-level injections of Po<sup>210</sup> in rats, it is now found that pathological effects appear 290 days after injection. These effects are the thinning and disruption of the kidney tubules, interference with excretion, and variable degrees of blood damage.

Convair and ORNL Meeting on Proposed Air Scattering Experiments

ORNL and Convair held a meeting at the Laboratory on December 18, 1951, for the purpose of discussing proposed tower experiments to investigate

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the effect of air and ground scattering on contemplated shields for nuclear power aircraft. The meeting was also attended by representatives of the Air Force, AEC, and GE. The meeting served to point up differences in technical opinions, approach to solution of the problem and ultimate aim of the experimentation as proposed by each of the main participants of the meeting. The meeting has resulted in careful joint review of each proposal and it is hoped that this review will result in an integrated program designed to provide this part of the necessary technical data for the over-all program for the first nuclear powered aircraft.

Anion Exchange Studies

The study of the behavior of the metal ions on anion exchange resins as a function of chloride concentration has been extended to include the alkalis, the Groups II and III elements, the rare earths, selected elements from Groups IV and V, Fe, Co, Ni, Pa and U. The differences in behavior which have been observed are sufficient to indicate that this technique has considerable promise as a method of isolating and purifying many elements.

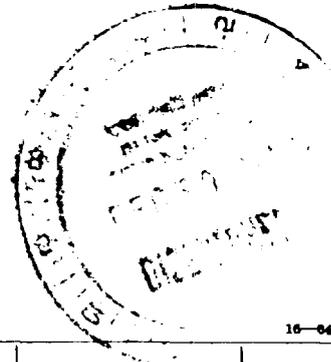
Status of ADP Program

It has been tentatively decided to use 20' trays in the ADP plant. This decision will essentially halve the number of trays, bringing the total to a maximum of 1500. Maxon Construction Company has estimated that the stripping of Beta 4 building is 75 per cent complete and that work has started on the stripping of the Alpha 5 building. Carbide and Carbon Chemicals Company has determined that the construction of a smaller plant prior to November 10, 1952, for alternate demands is not feasible.

Kenneth Kasschau

Roth:vh

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