

See memo to file
21

MAR 24 1992

MEMORANDUM FOR: A. Bert Davis, Regional Administrator

FROM: Charles E. Norelius, Director, Division of Radiation
Safety and Safeguards

SUBJECT: RADIATION EXPOSURES OF EMPLOYEES AT THE SOUTHERLY
WASTE WATER TREATMENT PLANT
(AITS 92-0029)

This is in response to your memorandum of January 24, 1992, in which you requested DRSS to assure that an evaluation of employees at the Southerly Sewerage Plant is conducted to determine whether or not employees were exposed to excessive amounts of radiation due to the presence of cobalt-60 contamination at the site. As you are aware, this site was determined to be contaminated in April 1991 following an aerial monitoring survey that had been conducted in the Cleveland, Ohio area. Set forth below is a description of the activities already conducted and those planned by my staff in an attempt not only to determine what remediation will be required at the site but also to evaluate radiation exposures which may have been received by plant employees as a result of the cobalt-60 contaminant. It is anticipated, as described below, that this final evaluation of personnel exposures will be made within the next 90 days following the receipt and evaluation of additional site characterization information and planned whole body counting of Southerly Plant personnel.

Following the identification of this site in April 1991, members of my staff and the Ohio Department of Health visited the site to conduct radiation surveys and confirm that the contaminant was cobalt-60. Radiation levels at that time were found to be 30 to 60 uR/hr at 1 meter and 250 uR/hr in animal holes sub-surface. Soil concentrations were found to be up to 79 pCi/gram. At that time, it was determined that the material had likely been placed at the plant in the late 1970s or early 1980s.

In September 1991, Oak Ridge Associated Universities (ORAU) under NRC contract, initiated site characterization work at the site. This initial characterization work included soil and water samples and direct radiation measurements. During the week of March 16, 1992, ORAU is returning to the site to obtain additional samples which will include deep sub-surface sampling. Region III will be present for that work.

MAR 24 1992

In January 1992, the NRC received a draft report from ORAU describing the results of their September site surveys. These results revealed contamination concentrations well in excess of what was initially thought to be present (e.g., surface soil concentrations up to 9900 pCi/gram and sub-surface concentrations up to 7733 pCi/gram. Direct radiation surveys revealed results ranging from 6 to 97 uR/hr at 1 meter above the surface. Background radiation levels ranged from 6 to 11 uR/hr. In discussing the report and data with ORAU, it appeared that the cobalt-60 contaminant was discrete "flake-like" particles. With this information, we submitted a Request for Technical Assistance to ORAU to determine whether a chemical analysis of the contaminant could be performed. This would be an important piece of information to assist in the evaluation of internal dose to a person. Those results are pending.


On February 18, 1992, DRSS initiated a special inspection at the site. In addition to reviewing matters including security and access control and collecting samples for confirmatory analysis, a review was initiated to obtain a detailed understanding of the sewerage treatment process used at the Southerly Plant and changes in that process over the years. In addition, plant equipment surveys were conducted. No significant direct radiation levels were found present nor was any evidence of contamination found on any of the onsite process equipment. These efforts will facilitate determining potential employee exposures due to the cobalt-60 contamination in the sludge and sludge ash.


Based on the findings to date, it appears that the greatest likelihood for personnel exposure would have been internal exposures to those personnel involved with the handling of dry ash. Based upon the results of direct radiation measurements, it does not appear that any significant external exposures would have been received. Arrangements are currently being made to have a selected group of employees involved with the dry ash process undergo whole body counting. It is anticipated that this counting will be completed with the cooperation of the Perry Nuclear Power Plant within the next 60 days. This should coincide closely with the completion of ORAU survey work and receipt of the chemical analysis of the contaminant, enabling us to estimate exposures to personnel working at the site. As previously indicated, this evaluation should be completed within the next 90 days.

If you have any questions regarding this matter, please let me know. I will keep you apprised of our efforts at this site when data becomes available.

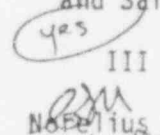
ORIGINAL SIGNED BY CHARLES E. NORELIUS

Charles E. Norelius, Director
Division of Radiation Safety
and Safeguards


Caniano/jl
3/18/92


Srenjowski
3/18


Grobe
3/18


Norelius
3/24/92



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

January 24, 1992

MEMORANDUM FOR: Charles E. Norelius, Director, Division of Radiation
Safety and Safeguards

FROM: A. Bert Davis, Regional Administrator

SUBJECT: COBALT CONTAMINATION AT SOUTHERLY SEWAGE PLANT
(AITS 92 0029)

At the press conference where contaminated sites were discussed on January 22, 1992, I committed doing an evaluation to determine whether or not sewage plant workers were exposed to excessive amounts of radiation. Please assure that such an evaluation is performed. Roy Caniano was present at the conference and is aware of this commitment.

A Bert Davis

A. Bert Davis
Regional Administrator

cc: C. J. Paperiello
R. J. Caniano
J. Strasma

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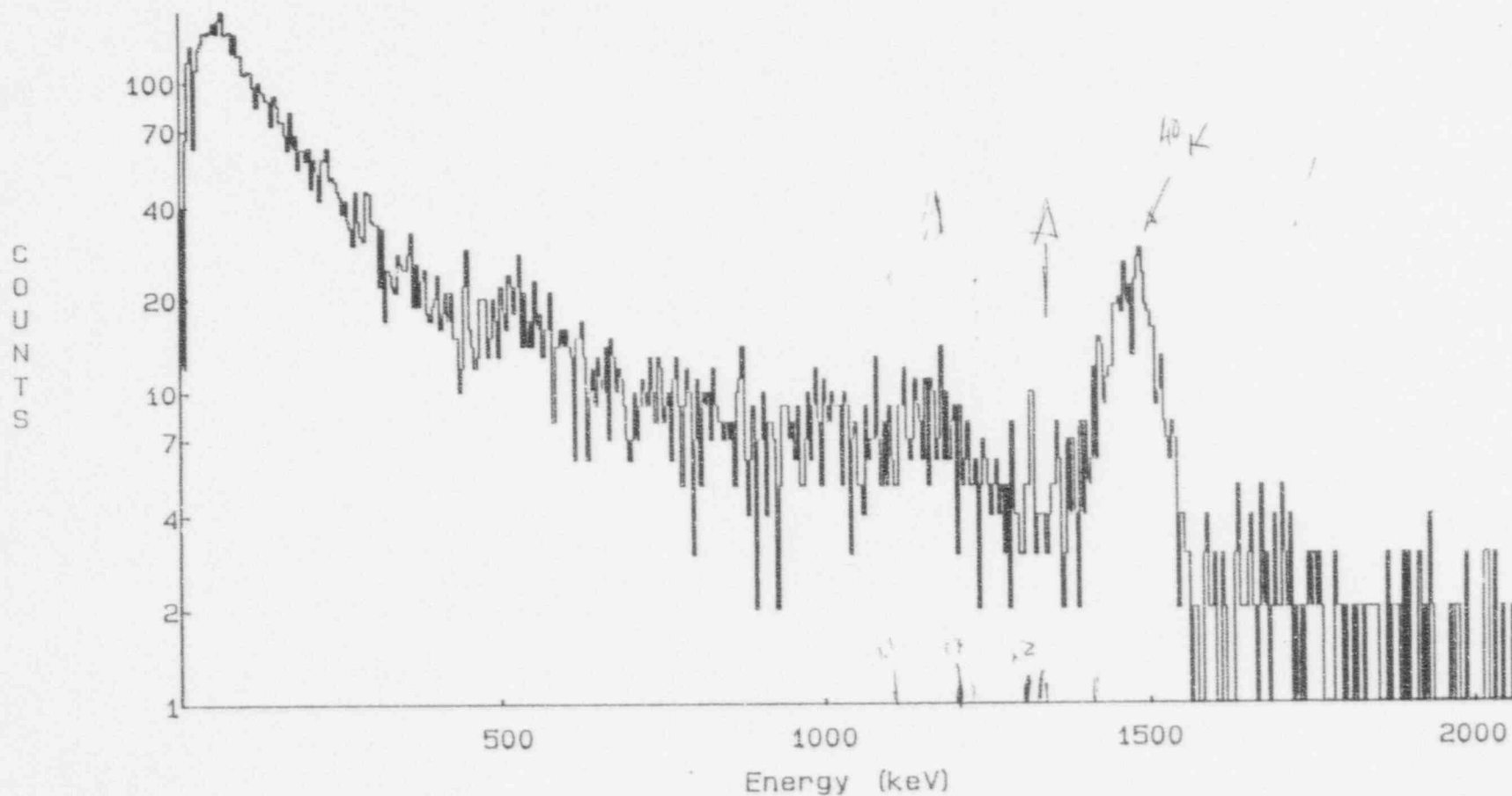
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Sample Title: Initial Count

HPGe

Example

A/22



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Live Time: 0 00:02:00.00

Sample Time: 7-APR-92 14:07
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Sample Type: DAILY CHECK

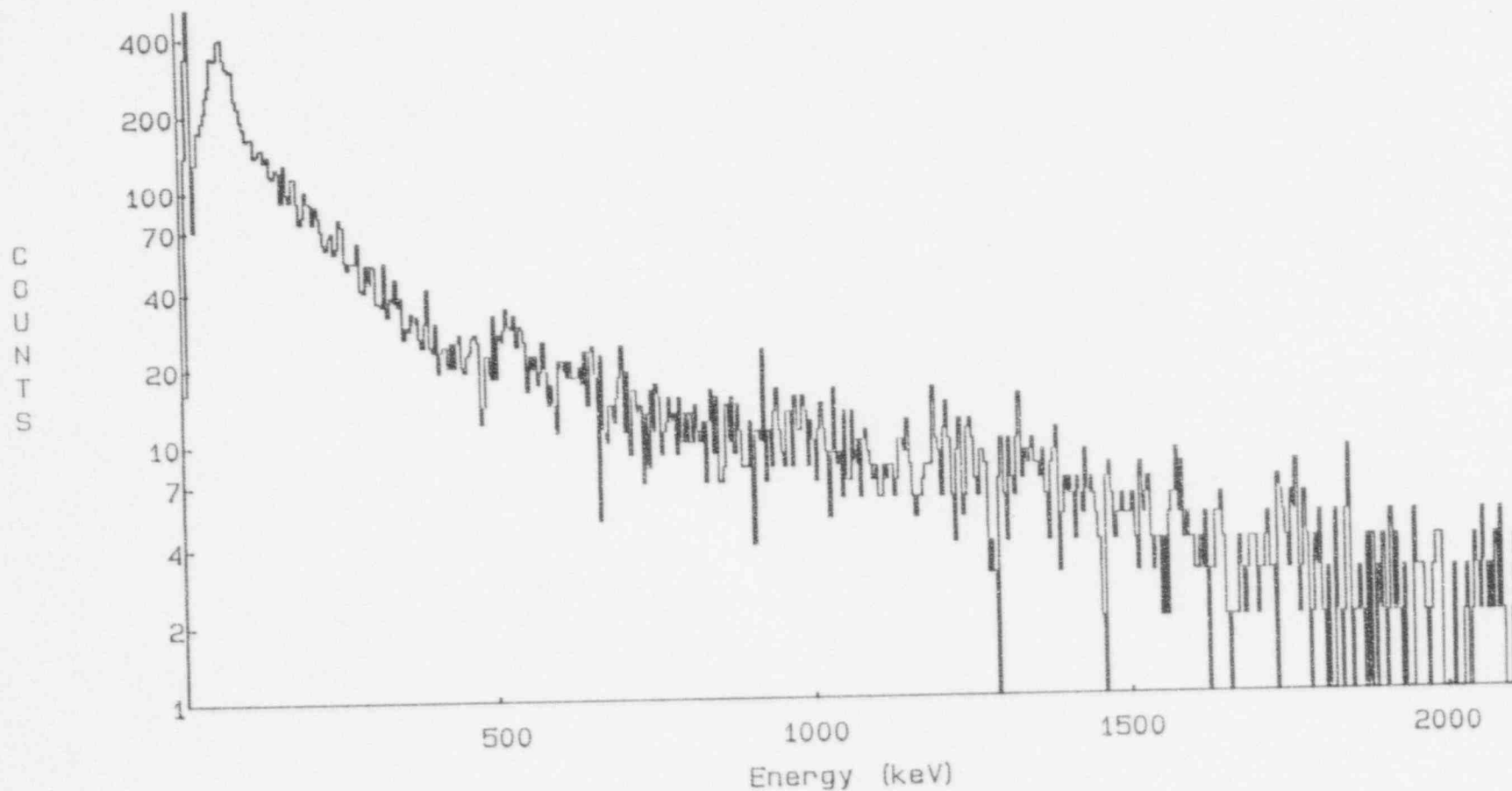
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Slope: 2.26E+00

23

Example

A/23

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Sample Title: BACKGROUND



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Real Time: 0 00: 04: 01.36
Live Time: 0 00: 04: 00.00

Sample Time: 15-APR-92 04: 52
Sample ID: DAILY
Sample Type: DAILY CHECK

FWHM Parameters:
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Slope: 2.22E+00