NEW YORK POWER AUTHORITY
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
DOCKET NO. 50-333

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The following environmental radiological monitoring sample is an anomalous measurement based on the criteria outlined in Section 5.6.2.B of the James A. FitzPatrick Environmental Technical Specifications (ETS):

MOLLUSK SAMPLES

Sample Location*	Date	Mn-54 pCi/g (wet)	Recount
1. Offsite (Control)	06/18/84	<0.009 (LLD)	<0.036 (LLD)
2. Onsite NMPP	06/21/84	0.11 ± 0.01	0.13 ± 0.04

Sample Location*	Date	Co-60 pCi/g (wet)	Recount
1. Offsite (Control)	06/18/84	<0.008 (LLD)	<0.029 (LLD)
2. Onsite NMPP	06/21/84	0.11 ± 0.01	0.15 ± 0.04

*See Technical Specification, Appendix B, for location details.

The detected levels of Mn-54 and Co-60 in the NMPP (onsite) mollusk sample was greater than 10 times the control location (offsite) results for the same sample period. The control station 10 times value is based on 10 times an LLD value (4.66 sigma).

The total release of Mn-54 and Co-60, via liquid effluent (the source of this 10 times concentration) from the James A. FitzPatrick Nuclear Power Plant for the period of January 1, 1984 through June 21, 1984 was 9.2E-3 and 6.5E-4 curies, respectively. This represents 0.098 percent (Mn-54 and Co-60 combined) of the Technical Specification quarterly limit of 10 curies.

The release of liquid effluent during this period was well within the objectives outlined in the James A. FitzPatrick Nuclear Power Plant ETS Appendix B Section 2.3.A.

A possible explanation for the detection of 10 times concentrations of Mn-54 and Co-60 in the mollusk samples collected is the very high bioaccumulation factor (concentration factor). Due to the fact that stable manganese and cobalt are essential trace elements important to fresh water mollusk, a bioaccumulation factor of up to 1,600,000 (mean value = 300,000) can exist for manganese, and a bioaccumulation factor of up to 85,000 (mean

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value = 32,408) can exist for cobalt. The bioaccumulation factor will vary with the concentrations of manganese and cobalt in the lake. Because of these high concentration factors, trace quantities of Mn-54 and Co-60 will be accumulated in the mollusk which are indigenous to the site.

The fresh water mollusks found in the vicinity of Nine Mile Point are not consumed by humans and are considered to be in the aquatic food chain to only a limited degree. Because fresh water mollusks are not considered edible, no accurate estimate of the possible dose contribution to man from their use as a food can be made. A dose estimate can be made using inflated parameters for the purpose of evaluation of possible dose contribution from the use of fresh water mollusks. Using the average individual consumption of seafood of 1.0 kg/yr for an adult, the dose due to ingestion would be 0.0006 mrem/yr whole body and 0.0059 mrem/yr to the gastrointestinal tract from Mn-54 and Co-60 concentrations combined. A review of Mn-54 data from 1974 through 1984 shows that a definite trend exists for the reduction of Mn-54 concentrations in mollusk samples since 1974. The reportable concentration of 0.11 pCi/g (wet) shows a decrease in Mn-54 concentration in mollusk sample results from 1983. A review of Co-60 data from 1974 through 1984 shows that a trend exists for the reduction of Co-60 concentrations in mollusk samples, with a slight increase in 1984.

It should be noted that recent NRC reporting requirements which were included in the proposed Radiological Effluent Technical Specifications, list the reporting levels of Mn-54 and Co-60 as 30 pCi/g (wet) and 10 pCi/g (wet) for fresh water fish samples, respectively. These new reporting levels are nearly two orders of magnitude higher than the level being reported here.

James A. FitzPatrick
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Corbin A. McNeill, Jr.
Resident Manager

September 14, 1984
JAFP-84-0877

United States
Nuclear Regulatory Commission
Region I
631 Park Avenue
King Of Prussia, PA 19406

Attention: Thomas E. Murley
Regional Administrator

SUBJECT: DOCKET NO. 50-333
ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM
ANOMALOUS MEASUREMENT REPORT

Gentlemen:

We have attached an Environmental Radiological Monitoring Program Anomalous Measurement Report in accordance with Section 5.6.2(b) of the James A. FitzPatrick Environmental Technical Specifications.

If there are any questions concerning this report, please contact Mr. John A. Solini at (315) 342-3840, extension 248.

Very truly yours,

by Sir R Cameron

CORBIN A. McNEILL, JR.
RESIDENT MANAGER

CAM:JAS:jaa
Attachment (2 pp)

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