

EXXON NUCLEAR IDAHO COMPANY, Inc.

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16 February 1982

GE/SEC Chemical Procedures
Moe-3-82

Mr. C. E. McCracken
U. S. Nuclear Regulatory Commission
Phillips Bldg. Room P-302
Bethesda, MD 20014

Reference: B. G. Motes, "Evaluation of GE and SEC Chemical Procedures for Post-accident Analysis of Reactor Coolant Samples", November 1981

Dear Conrad:

In ENICO's evaluation of proposed chemical procedures for postaccident analysis of reactor coolant samples, referenced above, the presence or absence of radiologically induced interferences (effects) were noted for chemical procedures with available test data. For chemical procedures without available test data, it was noted whether radiologically induced interferences were anticipated or not. In the report a general statement was included which indicated that the basis for determining whether radiological effects were anticipated or not was past experiences of personnel involved in the evaluation.

In response to your recent request for a brief amplification of the basis used to determine whether or not radiological effects on the individual procedures are anticipated or not, I have included in the enclosed table a list of the procedures and the respective basis used. Again it should be emphasized that the evaluation for these procedures are professional judgements; they have not been confirmed with laboratory testing. As recommended in the report the procedures should be laboratory tested to confirm the existence or nonexistence of radiologically induced effects.

If you require additional information please call (FTS 583-3577).

Sincerely,

B.G.Motes
B. G. Motes
Radiochemistry

BGM:aer

Enclosure

cc: B. Barnhart, NRC
G.L. Vivian, COE-ID

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TABLE I
BASIS FOR RADIOLOGICAL EFFECTS ON SEC/GE CHEMICAL PROCEDURES

Method/Analysis	Radiological Effects	Anticipated	Basis
Fluoroborate SIE/Boron	Unknown	No	Chemistry of the procedure and SEC literature review of radiological effects on similar materials used in construction of the SIE.
Curcumin Spectrophotometric/Boron	Unknown	No	Chemistry of the procedure.
Plasma Spectroscopy/Boron	Unknown	No	Independence of procedure chemistry.
Carminic Acid Spectrophotometric/Boron	No	--	Chemistry of the procedure.
Mannitol Titrimetry/Boron	Unknown	No	Chemistry of the procedure, SEC literature review of radiological effects on pH probes, and prior use of the procedure to analyze relatively high activity samples.
Boronometry/Boron	No	--	Independence of procedure chemistry and prior usage of boronometers in high radiation fields.
Ion Chromatography/Boron	Unknown	No	Chemistry of the method and prior use of a similar method to analyze relatively high activity (~1R) samples, including a diluted postaccident TMI-2 sample (~0.5R)
Ion Chromatography/Chloride	Unknown	No	Chemistry of the method and prior use of a similar method to analyze relatively high activity samples, including a diluted postaccident TMI-2 sample (~0.5R).
Specific Ion Electrode/Chloride	Unknown	No	SEC literature review of radiological effects on similar materials used to construct the electrode.
Turbidimetric/Chloride	Yes	--	Laboratory tests by SEC/HUS.
Colorimetric/Chloride	Unknown	Yes	Laboratory test by SEC/HUS on the turbidimetric method, which is essentially the same as the colorimetric method.