

December 13, 1971

Anthony Z. Roisman, Esq.  
Berlin, Roisman & Kessler  
1910 N Street, N.W.  
Washington, D.C. 20036

In the Matter of Consolidated Edison Company of New York, Inc.  
Indian Point Nuclear Generating Unit No. 2  
Docket No. 50-247

Dear Mr. Roisman:

In response to your inquiry I am transmitting herewith a document entitled "Methyl Iodide Conversion" prepared by the AEC regulatory staff.

Sincerely,

Myron Karman  
Counsel for AEC Regulatory Staff

Enclosure  
As stated

cc w/encl: Samuel W. Jensch, Esq.  
Mr. R. B. Briggs  
Dr. John C. Geyer  
J. Bruce MacDonald, Esq.  
Angus Macbeth, Esq.  
Honorable William J. Burke  
Paul S. Shemin, Esq.  
Leonard M. Trosten, Esq.  
Algie A. Wells, Esq.  
Mr. Stanley T. Robinson, Jr.

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OFFICE ▶	OGC <i>MK</i>					
SURNAME ▶	MKarman/rmh					
DATE ▶	12-13-71					

METHYL IODIDE CONVERSION

The fraction of organic iodides must be viewed in the context of the total available amount of iodine released. The total mass of iodine which can theoretically be converted to organic iodides is limited by the fractional conversion in the fuel (limited to about 0.2% by the available carbon inventory) and by the additional conversion in the containment atmosphere and on surfaces. The latter two are limited by considerations of thermodynamic equilibrium and by the availability of total organic contaminants. Because of this, the maximum concentration (mass per unit volume) of organic iodides should be relatively constant regardless of the total iodine concentration.

The above reasoning has been shown to be in accord with experimental results. Large iodine releases lead to small fractional conversion to organic iodides and, conversely, small releases lead to relatively large fractional conversion. The results reported in ORNL-4635 fall into the latter category. An excellent summary of many of the experimental results is to be found in a publication by the Battelle Northwest Laboratory, BNWL-319 entitled "Review of Methyl Iodide Behavior in Systems Containing Airborne Radioiodine".

As noted previously, the staff analysis is concerned primarily with the environmental impact of hypothetical accidents which could lead to large releases of fission products from the core. The staff evaluation

for the Design Basis Accident includes both improbably large values for the total release and for the conversion to the more difficult to remove organic iodide fraction. The assumed organic fraction, for the purpose of site evaluation, is 2.5% of the entire iodine inventory. As noted previously, this hypothetical number exceeds the entire fractional release of all forms of iodine reported in ORNL-4635 and is almost 200 times larger than the observed organic iodide fraction.