

DOCKETED

November 30, 1981

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

'81 DEC -3 P4:57

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Before the Atomic Safety and Licensing Board

In the Matter of )

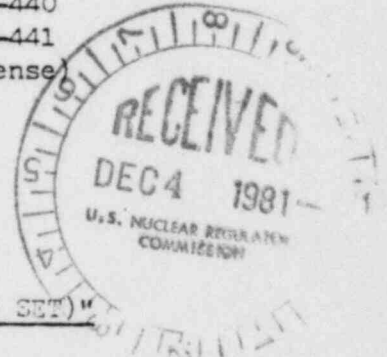
CLEVELAND ELECTRIC ILLUMINATING )  
COMPANY, Et Al. )

(Perry Nuclear Power Plant, )  
Units 1 and 2) )

Docket Nos. 50-440

50-441

(Operating License)



OCRE RESPONSE TO "APPLICANTS' INTERROGATORIES  
AND REQUEST FOR PRODUCTION OF DOCUMENTS  
TO INTERVENOR OHIO CITIZENS FOR RESPONSIBLE ENERGY (FIRST SET)"

(To conserve its scarce resources by cutting duplication and postage costs, Ohio Citizens for Responsible Energy ("OCRE") will not reproduce here the interrogatories propounded it. OCRE will respond to those interrogatories using the same sequence and numeration encountered.)

ISSUE NO. 1 (Applicants' Emergency Evacuation Plans

1. Dr. Jan Beyea, Senior Energy Scientist for the National Audobon Society. (Dr. Beyea asked to be contacted exclusively through OCRE channels.)
2. Dr. James Scott, 13935 Ivymount, Sugarland, TX 77478. Dr. Scott is self-employed. His titles are: Physicist, Chemist and Lawyer. His educational and professional qualifications are as follows:  
 B.S. Chemistry, Physics, and Mathematics, 1964;  
 he graduated with highest honors;  
 M.S. Physics, University of Texas, 1966  
 J.D. University of Houston, 1977  
 Lawyers in Mensa, member

(b), (c), and (d) Broadly put, Mr. Scott will testify on physical phenomena the exact nature of which shall be clarified later by this Intervenor.

3. "Protection of the Thyroid Gland in the Event of Releases of Radioiodine," NCRP Report No. 55, Recommendation of the National Council on Radiation Protection and Measurements, August, 1977.

"Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," NUREG-0654, FEMA-REP-1, Revision 1, November 1980.

*DS03  
3  
1/1*

10 CFR Part 50, section 50.47 and App. E.

FSAR for PNPP, App. 13A.

"Functional Criteria for Emergency Response Facilities", NUREG-0696,  
February 1981.

"Three Mile Island: A Report to the Commissioners and to the Public,"  
NUREG/CR-1250 (Rogovin Report), Vol. II, Part 3, pp. 993-1051.

"Examination of the Use of Potassium Iodide (KI) as an Emergency  
Protective Measure for Nuclear Reactor Accidents," NUREG/CR-1433,  
David C. Aldrich and Roger M. Blond, March 1980.

"Radiation Protection: An Analysis of Thyroid Blocking," by David C.  
Aldrich and Roger M. Blond. A paper presented at the International  
Conference on Current Nuclear Power Plant Safety Issues, Stockholm,  
October 20-24, 1980, IAEA-CN-39/102.

"Emergency Planning for Reactor Accidents," by Dr. Jan Beyea, The Bulletin  
of Atomic Scientists, December 1980, pp. 40-45.

"Testimony of FEMA's Vernon E. Adler and Frederick J. Bath on Contentions  
Related to Offsite Emergency Planning," TMI Restart proceedings,  
Docket No. 50-289, March 16, 1981.

"Testimony of Frederick J. Bath and Vernon E. Adler of the Federal  
Emergency Management Agency on Certain Offsite Emergency Planning  
Contentions," TMI-1 Restart proceedings, Docket No. 50-289, February  
23, 1981.

"Stockpiling of Potassium Iodide for the General Public as a Condition  
for Restart of TMI Unit 1", Direct Testimony of Dr. Jan Beyea on  
behalf of the Anti-Nuclear Group Representing York regarding ANGRY  
Contention No. III B(D), TMI Restart proceeding, Docket No. 50-289.

"Emergency Preparedness Evaluation for TMI-1," NUREG-0746, December 1980,  
and Supplement 1, May 29, 1981.

"Licensee's Testimony of Robert E. Rogan, George J. Giangi, and Alexis  
Tsaggaris on the Adequacy of Onsite Emergency Preparedness at Three  
Mile Island, Unit 1," TMI Restart Proceedings, Docket No. 50-289,  
February 9, 1981.

"Testimony on Behalf of the Anti-Nuclear Group Representing York On  
Municipal and School Emergency Planning in York Co., Pa. and York  
County Emergency Response to Three Mile Island," by the League of  
Women Voters of Greater York (Pa), Mary Ryscavage, Md., Arlene Miller,  
and Judith Hilliard, TMI Restart proceedings, Docket No. 50-289,  
April 27, 1981.

"Transcripts of TH-1 Restart Hearings, Docket No. 50-289,

<u>date</u>	<u>pages</u>
?	13771-2
March 5, 1981	14239-40, 14377-8
March 10	14620-628
March 11	15045-46
March 12	15136, 15148, 15152-3
April 4	17665-6
April 8	18161-2
April 9	18338-18795
?	19069-19075
April 16	19342-3
April 17	19396-19403
April 21	19639-19645
April 30	20796-97, 20830-1
May 1	20894-5, 20912, 20967-8
May 15	21508, 21589, 21621-2

"Suggested Policy of the Food and Drug Administration on the Use of Potassium Iodide by the General Public in a Radiation Emergency", by Gordon Thompson, PhD and Patrick Barton, Intern, Union of Concerned Scientists, August 1981.

46 FR 30199, Notice of Availability of Draft Recommendations on Use of Potassium Iodide as a Thyroid Blocking Agent in a Radiation Emergency, Docket No. 81N-0087, June 5, 1981.

"Background Material for the Development of the Food and Drug Administration's Recommendations on Thyroid-Blocking with Potassium Iodide," prepared by the Bureau of Radiological Health and Bureau of Drugs, April 1981.

"Guideline Labeling for Potassium Iodide for use as a Thyroid-Blocking Agent in a Radiation Emergency, Docket No. 78D-0304, FDA (availability announced December 15, 1978 (43 FR 58790).

"Notice of Changes to Labeling Guideline, Potassium Iodide as a Thyroid-Blocking Agent in a Radiation Emergency, August 17, 1979, 44 FR 48347, Docket No. 78D-0343.

Statement by Joseph P. Mile, Associate Commissioner for Regulatory Affairs and James S. Benson, Deputy Director Bureau of Radiological Health, Food and Drug Administration Before the Subcommittee on Nuclear Regulation Committee on Environment and Public Works, United States Senate, April 27, 1981.

45 FR 11912, "Notice of Approval and Availability", FDA Docket No. 80N-0063. The FDA has approved two New Drug Applications for KI from Wallace Laboratories.

"Summary of Bases of Approval for NDA 18-308 and NDA 18-307, "Thyro-Block Solution" and "Thyro-Block Tablets" from Wallace Laboratories.

41 FR 38312, September 9, 1976, "Over-the-Counter Drugs: Establishment of a Monograph for OTC Cold, Cough, Allergy, Bronchodilator and Anti-asthmatic Products," also at 38357, the use of iodides as expectorants.

43 FR 58790, December 15, 1978, "Accidental Radioactive Contamination of Human and Animal Feeds and Potassium Iodide as a Thyroid-Blocking Agent in a Radiation Emergency," FDA.

"Report to the President," FEMA, June 1980, pp. Ex-2, III-28 through III-32.

"State of Ohio Nuclear Power Plant Emergency Response Plan," December 1980, prepared by the Adjutant General's Department Disaster Services Committee.

"Staff Report to the President's Commission of the Accident at Three Mile Island," Report of the Emergency Preparedness and Response Task Force, October 1979.

"Available Thyroid Protection," Science, Vol. 204, June 8, 1979 at 1032, letter from Frank von Hippel.

4. OCRE has not identified which documents will be used in this manner.
5. (a) Potassium iodide (KI) should be distributed to every household within 10 miles of the plant and stockpiled at two hospitals for the following reasons:
  - (1) Radioactive isotopes of iodine are produced in abundance by the fission process in nuclear reactors (IAEA-CN-39/102 at 2 and Science, Vol. 204 at 1032).
  - (2) These isotopes, either in elemental form or in iodine compounds, are quite volatile and therefore are available for atmospheric release in the event of a nuclear accident. Ibid.
  - (3) Radioiodine is readily absorbed by the body after inhalation, and additional absorption can occur through the grass-cow-milk food chain (Beyea, Bulletin of Atomic Scientists at 41).
  - (4) Iodine is selectively absorbed by the thyroid gland; the body cannot distinguish between stable and radioactive iodine; this concentration of radioiodine in the thyroid gland can cause local radiation damage, resulting in effects such as hypothyroidism and thyroid nodules, about 30-45% of which are cancerous. FDA Draft Recommendations, April 1981 at 7.

- (5) The use of KI as a thyroid blocking agent can markedly decrease the uptake of radioiodine by the thyroid gland; however, to be effective, the KI must be ingested just prior to or simultaneously with the exposure to radioiodine. The effectiveness of KI after inhalation and/or ingestion of radioiodine decreases rapidly with time. NUREG/CR-1433 at 19.
- (6) The FDA has approved two new drug applications (from Wallace Laboratories, "Thyro-Block Solution" and Thyro-Block Tablets") for potassium iodide as a thyroid blocking agent in a radiation emergency. 45 FR 11912, February 22, 1980 and "Summary of Bases of Approval for NDA 18-308 and NDA 18-307.
- (7) The FDA concludes that under the conditions of use in a radiation emergency (130 mg KI daily for those persons over one year of age, for up to ten days) potassium iodide is safe and effective. 43 FR 58799, "Conclusions".
- (8) The National Council on Radiation Protection recommends the use of thyroid blocking agents when projected thyroid radiation doses exceed ten (10) rads. NCRP Report No. 55 at 32.
- (9) Predistribution of KI is essential for its timely and effective use. See the following quote from the NCRP No. 55 at 26-27:

Since effectiveness against thyroid uptake of radioiodines depends upon the almost instant availability of blocking agents, every available appropriate outlet should be considered as a stockpiling and distribution point. In determining such stations, a consideration should be given to population concentrations in relation to the facility.

Stockpiling and distribution centers can include the nuclear facility, firehouses, police stations, hospitals, clinics, factories, office buildings, municipal buildings, schools, physicians' and dentists' offices, pharmacies, and other facilities where normal medical emergency services are usually available. This report does not develop details of stockpiling and distribution since, if these methods are to be used, the implementation is best determined by local authorities and the operators of the nuclear facility.

Since early access to blocking agents is of utmost importance and the blocking agents are inexpensive, redundancy is desirable and wastage is not a prime consideration. Supplies of potassium iodide can be stored in a variety of places, including homes, especially for those distant from the previously listed distribution centers, and those who anticipate difficulty in reaching such centers because of lack of transportation, difficulty in ambulation, traffic congestion, or weather conditions."

- (10) FEMA has urged that potassium iodide be stockpiled for use in radiological emergencies. "Report to the President," FEMA, June 1980, at Ex-2.
  - (11) According to Dr. Jan Beyea, the availability of potassium iodide may aid in an efficient and orderly evacuation by reducing panic among the evacuees, since they would know that KI is available as a backup measure. Direct Testimony, TMI-1 Restart proceeding at 6.
  - (12) Thyroid blocking agents are used around nuclear facilities in other countries. Sweden is planning to issue KI to residents within a 20-km radius of their four nuclear power plants. Beyea Testimony, TMI-1 Restart proceeding at 9. In England, potassium iodate ( $KIO_3$ ) is used. NCRP Report No. 55 at 23.
  - (13) Just recently the State of Tennessee has decided to distribute KI to people living near the Sequoyah nuclear power plant. AP, November 3, 1981.
  - (14) The Applicant has made no provision in its FSAR for the use of radioprotective drugs by the general public or by emergency workers, and neither has Alan M. Voorhees and Associates, an agent of Applicant, in the Evacuation Study, Appendix D of Appendix 13A of the FSAR. The only mention of thyroid blocking agents is in Section 6.5.2 of Appendix 13A, and this pertains only to CEI employees. Thus, the Applicant's emergency plans have not fulfilled the requirements of NUREG-0654, Planning Standard J, "Protective Response," Evaluation Criteria 6c, 10e and 10f. Note that that document also recommends thyroid prophylaxis as a protective measure. Id. at I-51.
- (b) (References are provided with the response to 5(a) above.)
- (c) (See OCRE response to Interrogatory number 1.)
- (d) Unknown at this time. This information will be provided at a later date.

ISSUE NO. 2 (Financial Responsibility)

Reflecting the spirit of OCRE's telephonic contact on November 16, 1981 with Applicants' counsel, OCRE respectfully declines to answer Interrogatories 6 through 13 pertaining to Applicants' financial responsibility at this point. It was agreed then that matters related to this issue would be put on hold pending the outcome of the current rulemaking on 10 CFR 50.33(f). Counsel for Applicant indicated that resolution of the matter was forthcoming ("around the end of the year") and if not, all related affairs, such as these interrogatories, could be "resurrected."

Issue No. 5 (Scram Discharge Volume)

14. Robert Alexander, 2030 Portsmouth St. #2, Houston, TX 77098.  
Mr. Alexander is employed by the Houston Independent School District.
15. (a)-(d) Unknown at this time. This information will be provided at a later date.
16. Memorandum for Harold Denton from Carlyle Michelson dated August 1, 1980:  
"AEOB Report on the Browns Ferry Three Partial Failure to Scram on June 28, 1980."  
  
Minutes of the ACRS Fluid Dynamics Subcommittee Meeting, Los Angeles, CA, August 19-20, 1980.  
  
"Safety Concerns Associated with Pipe Breaks in the BWR Scram System,"  
NUREG-0785, May 1981.  
  
IE Bulletin No. 80-17: "Failure of 76 of 185 Control Rods To Fully Insert During a Scram at a BWR."  
  
IE Bulletin No. 80-17, Supp. No. 1.  
  
IE Bulletin No. 80-17, Supp. No. 2: "Failure Revealed by Testing Subsequent to Failure of Control Rods to Insert During a Scram at a BWR."  
  
Memorandum for Dr. Milton S. Plesset from Members of ACRS Task Force dated August 8, 1980: "A Review of Recent Malfunctions of BWR Scram System."  
  
Article in Energy Users Report (April 9, 1981) at 647 re: SDV Pipe Breaks.  
  
IE Information Notice No. 80-45: "Potential Failure of BWR Backup Manual Scram Capability," dated December 17, 1980.  
  
IE Information Notice No. 80-43: "Failure of the Continuous Water Level Monitor for the Scram Discharge Volume at Dresden Unit #2."  
  
Letter to Donald P. Dize (Niagara Mohawk Power Corp.) from Thomas A. Ippolito, NRC Division of Licensing, dated May 13, 1981.  
  
Amendment No. 43 to DPR-63 and related safety evaluation by Staff.  
  
"NRC Eyes Problem In Reactor Plumbing," Washington Post (April 8, 1981) at A9.
17. OCRE has not identified which documents will be used in this manner at this time.
18. (a) OCRE adopts, with the note below, the "Discussion of Safety Concerns" in NUREG-0785 (sections 2-1 through 2-5). This Intervenor is currently

unsure of design differences between the Mark III and the earlier Mark I and II models with respect to the SDV system and its location within containment. The PNEP PSAR does not verify the differences one way or another. Pending further discovery on this issue, OCRE will retain for its factual bases of this contention the NUREG-0785 explanation.

- (b) References included in response to number 13(a) above.
  - (c) (See response to Interrogatory 14.)
  - (d) Unknown at this time.
19. (a) By "demonstrate the safety", OCRE intends that the Applicants should meet the applicable criteria found in Appendix A of 10 CFR Part 50. Specifically general design criteria 54 and 55 which require that reactor coolant pressure boundary piping systems penetrating primary containment be provided with redundant isolation and containment capabilities which reflect the importance to safety of isolating these piping systems. NUREG-0785 at 11.
- (b) References included in response to number 19(a) above.
  - (c) (See response to Interrogatory 14.)
  - (d) Unknown at this time.

Issue No. 7 (Clam Biofouling)

20. Jeff Alexander, 929 Wilmington Ave. #H, Dayton, OH 45420.  
Mr. Jeff Alexander is a student at the University of Dayton.

Robert Warneke, 3262 Branard #18, Houston, TX 77098.  
Mr. Warneke is a student at the University of Houston.

Robert McMann, Arlington, Texas.  
Mr. McMann is a researcher at the University of Texas.

21. (a)-(d) Unknown at this time. This information will be provided later.

22. Notes of Meeting with ANO concerning clams by M. Masnik.

"Asiatic Clams Cause Shutdown of Arkansas Nuclear One - Unit 2," by M. Masnik, Environmental Engineering Branch, U.S. N.R.C.

Letter to Director, NRR, NRC, from W. Cavanaugh, III, AP&L dated September 18, 1980.



PNO-IV-80-28A dated September 18, 1980.

Memo to R. A. Clark, DOL, from R.L. Ballard, DE, dated September 19, 1980.

LER 80-065/031-0 dated October 16, 1980.

Memo to H.R. Denton, MRR, and V. Stello, Jr., I&E, from C. Michelson, AEOD, dated October 21, 1980.

Agenda/MRC-AP&L Meeting on ANO-1 and ANO-2 Service Water System Fouling, dated October 22, 1980.

Letter to Director, MRR, MRC, from D.C. Trimble, AP&L, dated December 2, 1980.

Memo to T. M. Novak, DOL, from D. R. Muller, DE, dated March 2, 1981.

Letter to Director, M.R.R., MRC, from D.C. Trimble, AP&L, dated March 30, 1981.

Memo to V. Stello, I&E, from C. Michelson, AEOD, dated March 31, 1981.

PNO-II-81-31, dated April 27, 1981.

Letter to P. J. O'Reilly, MRC, from R. C. Dietz, CP&L, dated April 30, 1981.

PNO-II-81-33, dated May 6, 1981.

Letter to B. H. Grier, Region I, MRC, from I. R. Finfrock, Jr., JCP&L, dated May 14, 1981 - LER 81-017/03L-0.

Letter to J.P. O'Reilly, MRC, from C.R. Dietz, dated May 19, 1981.

Letter to North Carolina Department of Natural Resources and Community Development from W. A. Haller, Duke Power Company, dated June 4, 1981.

PNO-V-81-33, dated June 9, 1981.

Notes of Meeting at Brunswick on June 17, 1981, by M. Masnik.

Attendance List - AEOD-BSEP Visit, June 17, 1981.

Letter to Region V, NRC, from J. G. Haynes, SCEC, received July 8, 1981.

Memo for the file from Eugene Imbro and Joan Giannelle re: Loss of Residual Hear Removal Capability at Brunswick Units 1 and 2, dated July 22, 1981.

NUREG/CR-1350: "Evaluation of Factors Effecting Toxicity of Chlorine."

Brunswick Steam Electric Plant Unit Nos. 1 and 2: Response to IE Bulletin 81-03, dated May 26, 1981.

LER dated MAY 19, 1981 for event which occurred May 6, 1981 regarding shell blockage in RHR heat exchangers.

IE Information Notice No. 81-21, dated July 21, 1981.

"Interactions of Corbicula sp. with Power Plants," by J.S. Mattice, Environmental Sciences Division, ORNL, presented October 13-15, 1977.

"Control Studies on Corbicula For Steam-Electric Generating Plants," by L. B. Goss et al., presented October 13-15, 1977.

23. OCRE has not identified which documents will be used in this manner at this time.
24. OCRE objects to this interrogatory in its entirety and respectfully declines to answer same. The issue is moot: "Corbicula has been found in Lake Erie ...." Detroit Edison Response to IE Bulletin 81-03, dated April 10, 1981 at 1. A response to this interrogatory would be pointless.
25. B.A. Botany, Zoology; Miami University, 1979  
M.S. Biology; University of Dayton, (April, 1982)  
Thesis: "Population Energetics of the Freshwater Clam Musculium Lacustre."
  - (b) Mr. Jeff Alexander has conducted periodic sampling of corbicula population in Dayton, Ohio.
26. (a) Yes.
  - (b) OCRE response is premised on corbicula's introduction into the Plant's auxiliary cooling systems through the extraction of lake water bearing corbicula larvae. The larvae will settle out in a slow moving column

of water and attach themselves. Given subsequent reproductive cycles, the increase in both the population size and the size of the organism will degrade flow rates in the cooling system, particularly in condensers and heat exchangers.

A latency period of eighteen months to three years after initial plant operation will pass prior to significant fouling problems. This is due two factors: First, the eastward migration of corbicula in the lake is not rapid and secondly, the alteration of the aquatic habitat by PNPP will not be instantaneous.

- (c) "Control Studies on Corbicula for Steam-Electric Generating Plants," L.B.Goss, et al. See section entitled "Description of the Biofouling Problem".

"Asiatic Clams Cause Shutdown Of ANO - Unit 2," M. Masnik, EEB, MRC, at 2, 3.

Opinion of Jeff Alexander.

- (d) (See response to Interrogatory 20.)
- (e) Unknown at this time.
27. (a) Evaluation of the Applicants' methods for detecting the presence of corbicula is incomplete at this time. OCRE should complete its evaluation within three weeks and a response will issue then.

(b)-(f) (See response immediately above.)

28. Robert Alexander, 2030 Portsmouth St. #2, Houston, TX 77098 ("RA")  
Mr. Alexander is an instructor with the Houston Independent School District.

Jeff Alexander, 929 Wilmington Ave #H, Dayton, OH. ("JA")  
Mr. Jeff Alexander is a student at the University of Dayton.

Robert Warneke, 3262 Branard #18, Houston, TX 77098. ("RW")  
Mr. Warneke is a student at the University of Houston.

Susan Hiatt, 8275 Munson Road, Mentor, OH 44060. ("SH")  
Ms. Hiatt is a free-lance researcher for OCRE.

Dr. Albert Burky, University of Dayton, Dayton, Ohio. ("AB")  
Dr. Burky is a professor at the University of Dayton.

Note: Initials for persons listed above used in Interrogatories below.

29.	<u>person</u>	<u>interrogatories information provided for</u>
	RA	all
	JA	20 - 27

29. (continued)

<u>person</u>	<u>interrogatories</u>
RW	20, 26
SH	1-5, 14, 18, 19
AB	20

30. Response is same as that to Interrogatory 29 with the omission of AB.
31. OCRE objects in part to this Interrogatory. OCRE will indicate at this time that the search for documents was conducted in the same correlative manner as found in its response to Interrogatory 29.

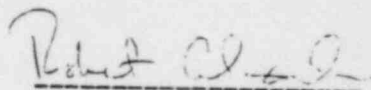
As to where said searches were conducted, OCRE feels that infringes too close upon the work-product doctrine. F.R.C.P. 26 (1990) and 10 CFR 2.740 (b)(2). This Intervenor believes that disclosure of those locations could reveal portions of OCRE strategy and legal theory.

32. None known of at this time.

Request for Production of Documents

OCRE is willing to produce for copying any of the aforementioned documents at places convenient to OCRE.

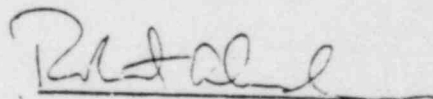
Respectfully submitted,



Robert Alexander  
OCRE Interim Representative  
2030 Portsmouth St. #2  
Houston, TX 77000

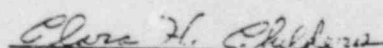
AFFIDAVIT OF ROBERT ALEXANDER

I, Robert Alexander, having been duly sworn depose and say that I have read these answers to Interrogatories filed by Applicant and that those answers are true to the best of my knowledge and belief.



Robert Alexander

Sworn to before me and subscribed in my presence on the 30<sup>th</sup> day of November, 1981.

  
Notary Public

CLARA H. CHILDERS  
Notary Public in and for the State of Texas  
My Commission Expires April 25, 1985

CERTIFICATE OF SERVICE

This is to certify that copies of the foregoing OCRM Response to Applicants' Interrogatories and Request for Production of Documents To *era* Intervenor Ohio Citizens For Responsible Energy (First Set) have been served upon the following by deposit in the United States mail, postage prepaid *SERVICE* 50 day of November, 1981. *BRANCH*

'81 DEC -3 P4:58

Robert Alexander  
Robert Alexander

SERVICE LIST

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