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RESPONSE TO FREEDOM OF INFORMATION ACT (FOIA) REQUEST

FOIA — 97-129

RESPONSE TYPE  
☒ FINAL (4th) ☐ PARTIAL

DATE  
JUL 15 1997

DOCKET NUMBER(S) (if applicable)

REQUESTER  
Ophelia Williams

PART I.—AGENCY RECORDS RELEASED OR NOT LOCATED (See checked boxes)

☐ No agency records subject to the request have been located.

☐ No additional agency records subject to the request have been located.

☐ Requested records are available through another public distribution program. See Comments section.

☐ Agency records subject to the request that are identified in Appendix(es) \_\_\_\_\_ are already available for public inspection and copying at the NRC Public Document Room, 2120 L Street, N.W., Washington, DC.

☒ Agency records subject to the request that are identified in Appendix(es) E are being made available for public inspection and copying at the NRC Public Document Room, 2120 L Street, N.W., Washington, DC, in a folder under this FOIA number.

☐ The nonproprietary version of the proposal(s) that you agreed to accept in a telephone conversation with a member of my staff is now being made available for public inspection and copying at the NRC Public Document Room, 2120 L Street, N.W., Washington, DC, in a folder under this FOIA number.

☐ Agency records subject to the request that are identified in Appendix(es) \_\_\_\_\_ may be inspected and copied at the NRC Local Public Document Room identified in the Comments section.

☐ Enclosed is information on how you may obtain access to and the charges for copying records located at the NRC Public Document Room, 2120 L Street, N.W., Washington, DC.

☒ Agency records subject to the request are enclosed.\*

☐ Records subject to the request have been referred to another Federal agency(ies) for review and direct response to you.

☒ Fees

☐ You will be billed by the NRC for fees totaling \$ \_\_\_\_\_.

☒ You will receive a refund from the NRC in the amount of \$ 153.59.

☐ In view of NRC's response to this request, no further action is being taken on appeal letter dated \_\_\_\_\_, No. \_\_\_\_\_.

PART II. A—INFORMATION WITHHELD FROM PUBLIC DISCLOSURE

☒ Certain information in the requested records is being withheld from public disclosure pursuant to the exemptions described in and for the reasons stated in Part II, B, C, and D. Any released portions of the documents for which only part of the record is being withheld are being made available for public inspection and copying in the NRC Public Document Room, 2120 L Street, N.W., Washington, DC in a folder under this FOIA number.

COMMENTS

\*Copies of the records identified on Appendix E and the releasable portions of the records identified on Appendix F are enclosed.

The actual fees for processing your request are:

7.5 hrs. professional search @ \$33.67 per hr.	= \$252.49
7 hrs. professional review @ \$33.67 per hr.	= \$235.69
177 pages of duplication @ \$0.20 per page	= \$35.40
TOTAL	= \$523.58
(LESS ADVANCE PAYMENT OF \$677.17)	= \$153.59

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*FOIA*

SIGNATURE, DIRECTOR, DIVISION OF FREEDOM OF INFORMATION AND PUBLICATIONS SERVICES

9707290002 970715  
PDR FOIA  
WILLIAM97-129 PDR



**RESPONSE TO FREEDOM OF  
INFORMATION ACT (FOIA) REQUEST  
(CONTINUATION)**

FOIA NUMBER(S)

**FOIA — 97-129**

DATE

**JUL 15 1997**

**PART II B — APPLICABLE EXEMPTIONS**

Records subject to the request that are described in the enclosed Appendix(es) F are being withheld in their entirety or in part under the Exemption No.(s) and for the reason(s) given below pursuant to 5 U.S.C. 552(b) and 10 CFR 9.17(a) of NRC regulations.

1 The withheld information is properly classified pursuant to Executive Order. (Exemption 1)

2 The withheld information relates solely to the internal personnel rules and procedures of NRC. (Exemption 2)

3 The withheld information is specifically exempted from public disclosure by statute indicated. (Exemption 3)

Sections 141-145 of the Atomic Energy Act, which prohibits the disclosure of Restricted Data or Formerly Restricted Data (42 U.S.C. 2161-2165).

Section 147 of the Atomic Energy Act, which prohibits the disclosure of Unclassified Safeguards Information (42 U.S.C. 2167).

☒ 4 The withheld information is a trade secret or commercial or financial information that is being withheld for the reason(s) indicated. (Exemption 4)

☒ The information is considered to be confidential business (proprietary) information.

The information is considered to be proprietary information pursuant to 10 CFR 2.790(d)(1).

The information was submitted and received in confidence pursuant to 10 CFR 2.790(d)(2).

5 The withheld information consists of interagency or intraagency records that are not available through discovery during litigation. (Exemption 5). Applicable Privilege:

Deliberative Process. Disclosure of predecisional information would tend to inhibit the open and frank exchange of ideas essential to the deliberative process. Where records are withheld in their entirety, the facts are inextricably intertwined with the predecisional information. There also are no reasonably segregable factual portions because the release of the facts would permit an indirect inquiry into the predecisional process of the agency.

Attorney work-product privilege. (Documents prepared by an attorney in contemplation of litigation.)

Attorney-client privilege. (Confidential communications between an attorney and his/her client.)

6 The withheld information is exempted from public disclosure because its disclosure would result in a clearly unwarranted invasion of personal privacy. (Exemption 6)

7 The withheld information consists of records compiled for law enforcement purposes and is being withheld for the reason(s) indicated. (Exemption 7)

Disclosure could reasonably be expected to interfere with an enforcement proceeding because it could reveal the scope, direction, and focus of enforcement efforts, and thus could possibly allow recipients to take action to shield potential wrongdoing or a violation of NRC requirements from investigators. (Exemption 7 (A))

Disclosure would constitute an unwarranted invasion of personal privacy. (Exemption 7(C))

The information consists of names of individuals and other information the disclosure of which could reasonably be expected to reveal identities of confidential sources. (Exemption 7 (D))

OTHER

**PART II C — DENYING OFFICIALS**

Pursuant to 10 CFR 9.25(b) and/or 9.25(c) of the U.S. Nuclear Regulatory Commission regulations, it has been determined that the information withheld is exempt from production or disclosure, and that its production or disclosure is contrary to the public interest. The persons responsible for the denial are those officials identified below as denying officials and the Director, Division of Freedom of Information and Publications Services, Office of Administration, for any denials that may be appealed to the Executive Director for Operations (EDO).

DENYING OFFICIAL	TITLE/OFFICE	RECORDS DENIED	APPELLATE OFFICIAL		
			EDO	SECRETARY	IG
Ashok C. Thadani	Director, Office of Nuclear Regulatory Research	App F	X		

**PART II D — APPEAL RIGHTS**

The denial by each denying official identified in Part II C may be appealed to the Appellate Official identified there. Any such appeal must be made in writing within 30 days of receipt of this response. Appeals must be addressed, as appropriate, to the Executive Director for Operations, to the Secretary of the Commission, or to the Inspector General, U.S. Nuclear Regulatory Commission, Washington, DC 20555, and should clearly state on the envelope and in the letter that it is an "Appeal from an Initial FOIA Decision."

APPENDIX E  
RECORDS BEING RELEASED IN THEIR ENTIRETY

<u>NO.</u>	<u>DATE</u>	<u>DESCRIPTION/ (PAGE COUNT)</u>
1.	10/18/95	Letter to A. Malliakos, RES, from T. Blanchat, SNL, Subject: Scaled PAR Performance (4 pages)
2	10/19/95	Letter to A. Malliakos, RES, from T. Blanchat, SNL, Subject: Schedule of Activity Associated with the PAR Tests (2 pages)
3	11/21/95	Letter to A. Malliakos, RES, from R. Gido, SNL, Subject: PAR (Passive Autocatalytic Recombiner) Schedule (2 pages)
4	1/16/96	Draft letter to A. Malliakos, RES, from T. Blanchat, SNL, Subject: Status of the PAR Tests (3 pages)
5	2/4/96	Facsimile from L. Seyfferth, NIS, to T. Blanchat, copy: A. Malliakos, Subject: PAR Test Program (1 page)
6	2/7/96	Facsimile to A. Malliakos, RES, from SNL, Subject: PAR Performance Test Matrix (preliminary, 2-6-96) (1 page)
7	2/7/96	Facsimile to A. Malliakos, RES, from T. Blanchat, SNL, Subject: PAR Performance Test Matrix (preliminary, 2-6-96) (1 page)
8	2/8/96	Facsimile from SNL, Subject: Table 1 PAR Tests Instrumentation Summary (proposed, 2-8-96) (1 page)
9	3/8/96	Letter to A. Malliakos, RES, from T. Blanchat, SNL, Subject: Initial Conditions, Instrumentation, and Test Procedure for the PAR-1 Test (4 pages)
10	3/22/96	Facsimile from L. Seyfferth, NIS, to T. Blanchat, SNL, copy: A. Malliakos, Subject: PAR Test Program (1 page)

- |    |         |   |
|----|---------|---|
| 11 | 3/25/96 | Letter to A. Malliakos, RES, from<br>T. Blanchat, SNL, Subject: Test Plan for<br>the PAR Tests (51 pages)         |
| 12 | 3/29/96 | Letter to A. Malliakos, RES, from<br>T. Blanchat, SNL, Subject: Anticipated Test<br>Data for PAR-1 (1 page)       |
| 13 | 6/13/96 | Letter to A. Malliakos, RES, from<br>T. Blanchat, SNL, Subject: Clarification of<br>the PAR Test Matrix (2 pages) |
| 14 | 2/12/97 | Letter to A. Malliakos, RES, from<br>T. Blanchat, SNL, Subject: Status of the<br>PAR Test Program (1 page)        |
| 15 | Undated | Top View of PAR (1 page)  |
| 16 | Undated | Table 1 PAR Performance Test Matrix (1 page)  |
| 17 | Undated | Figure of Scaled PARs (1 page)  |

APPENDIX F  
RECORD BEING WITHHELD IN PART

<u>NO.</u>	<u>DATE</u>	<u>DESCRIPTION/(PAGE COUNT)/EXEMPTION</u>
1.	2/12/97	Letter to A Malliakos, RES from T Blanchat, Sandia, Subject: Estimate of Funds for Three PAR Tests (2 pages) <b>EX. 4</b>

## FOIA/PA REQUEST

Case No: 97-129  
Date Rec'd: 4-7-97  
Action Off: Per  
Related Case:

J/R/A ASSOCIATES  
Regulatory Information & Support Systems  
P.O. Box 4604  
Capitol Heights, MD 20791-4604

301/ 249-9672

March 29, 1998<sup>7</sup>  
OGW-97-070

Mr. Russell A. Powell, Chief  
Freedom of Information /  
Local Public Document Room Branch  
U.S. NUCLEAR REGULATORY COMMISSION  
Washington, DC 20555

**SUBJECT: FREEDOM OF INFORMATION ACT REQUEST**

Dear Mr. Powell:

NRC sponsored testing last year (Summer and Fall) at the Sandia National Labs on the performance of a device called a Passive Autocatalytic Recombiner (PAR).

Pursuant to the Freedom of Information Act, 5 U.S.C. Paragraph 552, and to the Nuclear Regulatory Commission's (NRC) regulations, I request a copy of:


The data and any existing records, including but not limited to draft and final reports on this test program.

I would appreciate your prompt response within ten working days of the receipt of this request, as provided by the Code and NRC's policies and because my project is time-sensitive, I would appreciate anything you can do to expedite the release of the items. I agree to pay such fees as required under 10 CFR Paragraph 9.33 et seq. without further authorization, however, please call if the fees exceed \$100.00.

If you have any questions regarding this request, please do not hesitate to call me at the number above.

Thank you for your services.

Sincerely,

  
Ophelia G. Williams

970603014<sup>18</sup>



## Sandia National Laboratories

P.O. Box 5800  
Albuquerque, New Mexico 87185-1137

October 18, 1995

Asimios Malliakos, Ph.D.  
Accident Evaluation Branch  
U.S. Nuclear Regulatory Commission  
T-10-K-8  
11545 Rockville Pike  
Rockville, MD 20852

Subject: Scaled PAR Performance

Dear Dr. Malliakos:

I have coded the equations for an analytical model of a PAR that was presented in a paper by Sher et al. entitled "Models for Evaluating the Performance of Passive Autocatalytic Recombiners (PARs)." This paper was presented at the 1995 National Heat Transfer Conference in Portland, Oregon. It was noted that the PAR would generate heat during operation and that the depletion of hydrogen would deplete oxygen and produce steam. This would effect the vessel gas temperature and pressure during operation. The code includes simple radiative and convective heat transfer processes to the vessel walls (without the heat transfer models the vessel gas temperature rises to unrealistically high temperatures). Also, the code does not attempt to model the transient response which lasts roughly 1-2 hour (and is hydrogen concentration dependent) while the PAR gets into thermal equilibrium.

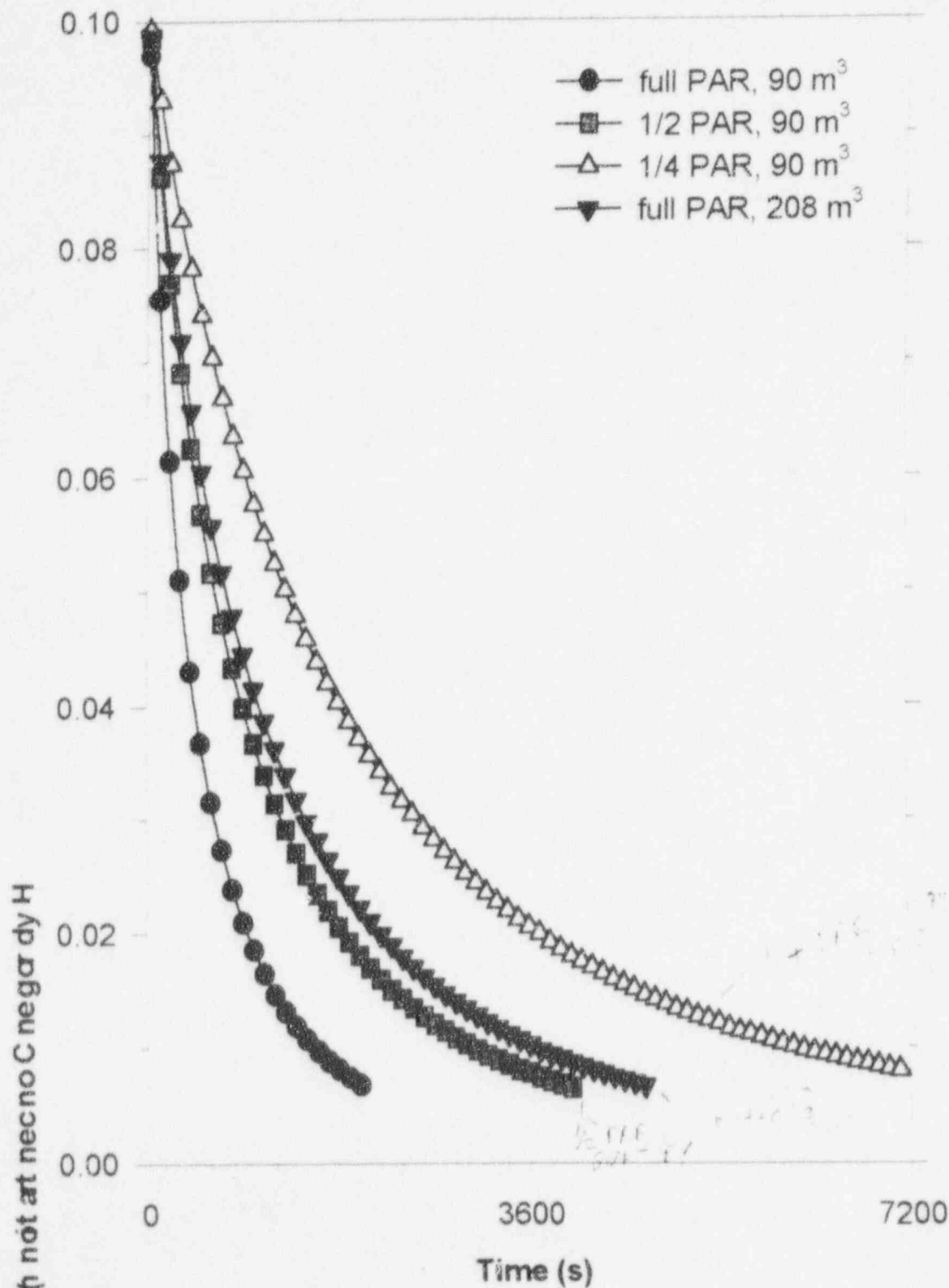
Two figures are attached. The first figure shows hydrogen depletion versus time for three PARs (full, 1/2, and 1/4 scale) in the Surtsey vessel with the false floor removed (volume = 90 m<sup>3</sup>). The initial conditions assume 1 bar gas pressure at 300 K temperature, with gas concentrations of 90% air and 10% hydrogen. The figure also compares a depletion curve for a full scale PAR in the Battelle-Frankfort facility that was partitioned as a 208 m<sup>3</sup> volume. The comparison shows that performing tests with a 1/2 scale PAR in the Surtsey vessel should reduce hydrogen levels at the same time scales as in the Battelle tests.

The second figure shows hydrogen depletion rates versus concentration. Depletion rate is closely related to the number of catalytic plates, therefore, the depletion rate curves for a full scale PAR are different compared to a 1/2 scale PAR.

I recommend that we obtain a full scale PAR from NIS based on the design presented in the RFQ. This would allow us to test whatever scaled PAR desired simply by removing plates and inserting an end piece to maintain the scaled chimney exit flow area to inlet area.

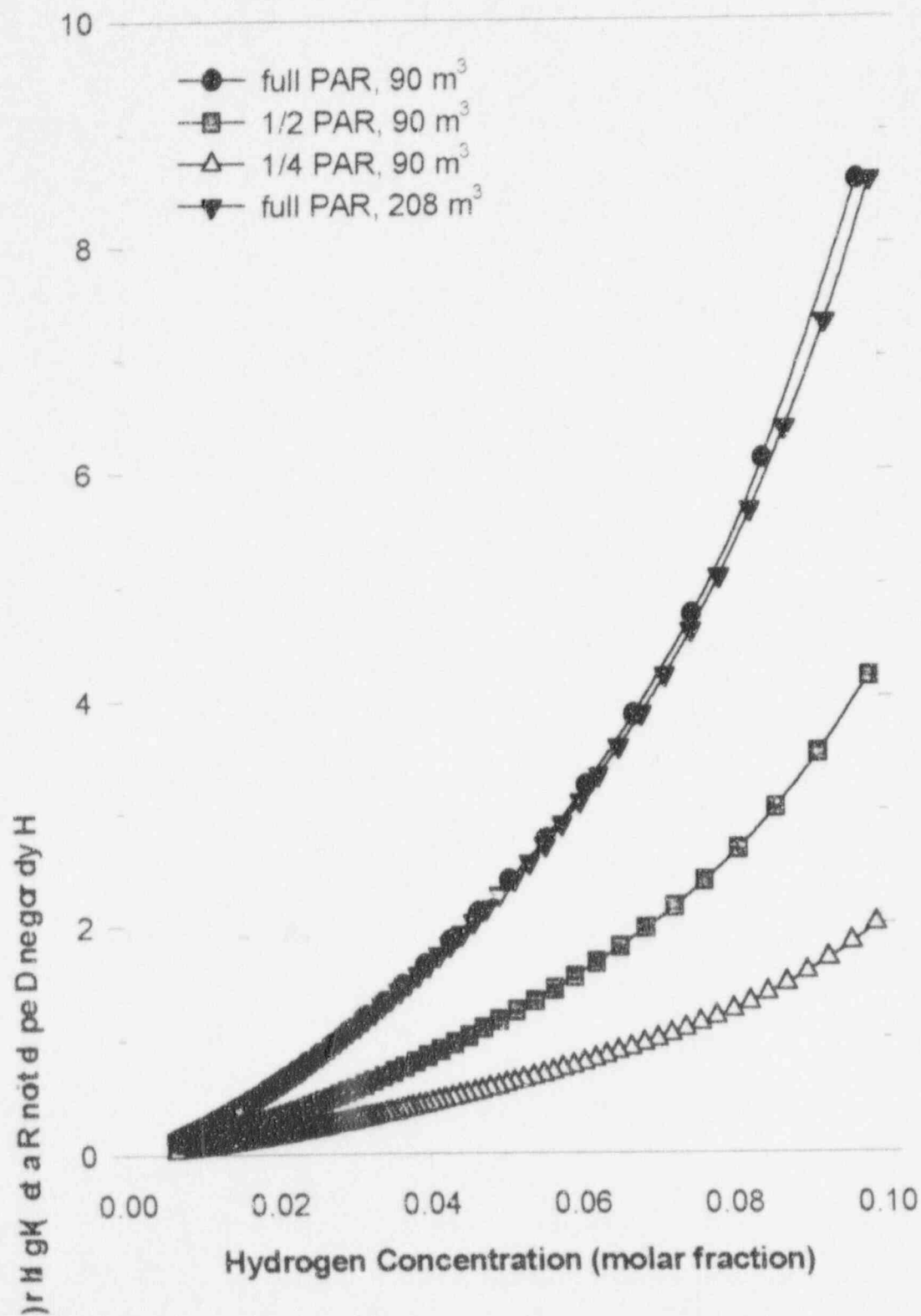
If you have questions, do not hesitate to call me.

ELI



Hydrogen depletion versus time.  
(IC: 1 bar air and 300 K)





**Hydrogen depletion rate versus concentration.  
(IC: 1 bar air and 300 K)**

Asimios Malliakos, Ph.D.

- 2 -

October 18, 1995

Sincerely,

Thomas Blanchat, Ph.D.  
Severe Accident Phenomenology  
Department 6422  
Phone (505) 845-3048  
FAX (505) 845-3435

Copies:  
MS0739  
MS1137  
MS1137

R. G. Gido (6421)  
M. D. Allen (6422)  
M. Pilch (6422)