

LIGHT WATER REACTOR  
CORE MELTDOWN ANALYSES

by

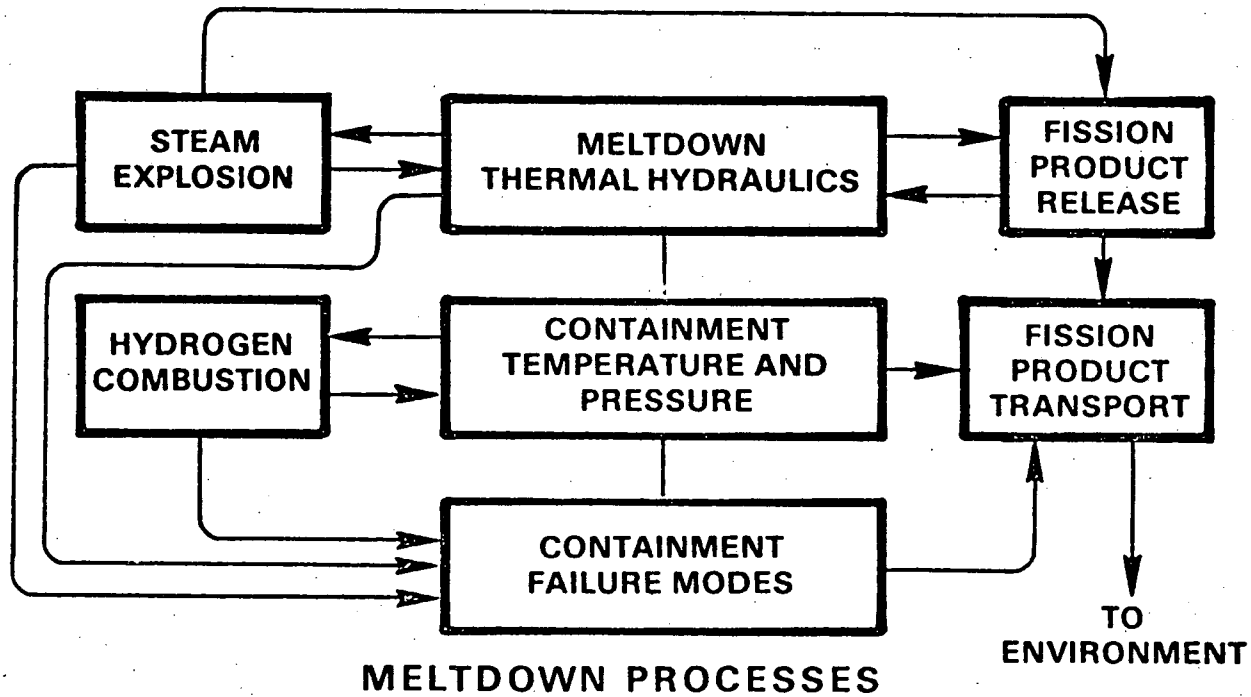
Peter Cybulskis

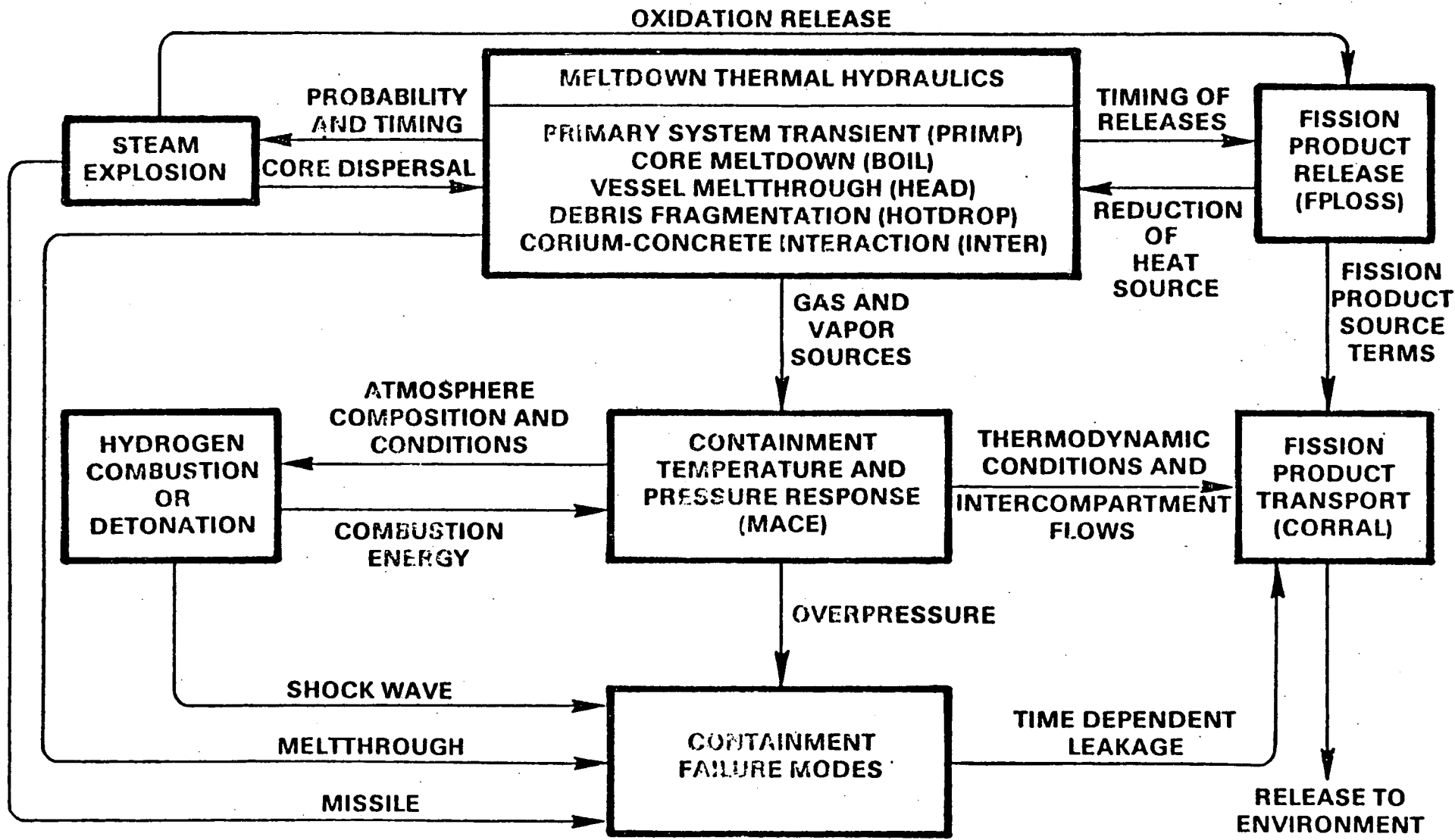
Presented At The

Technology Meetings With  
Zion and Indian Point Utilities on  
Mitigation Features for Core Melt Accidents

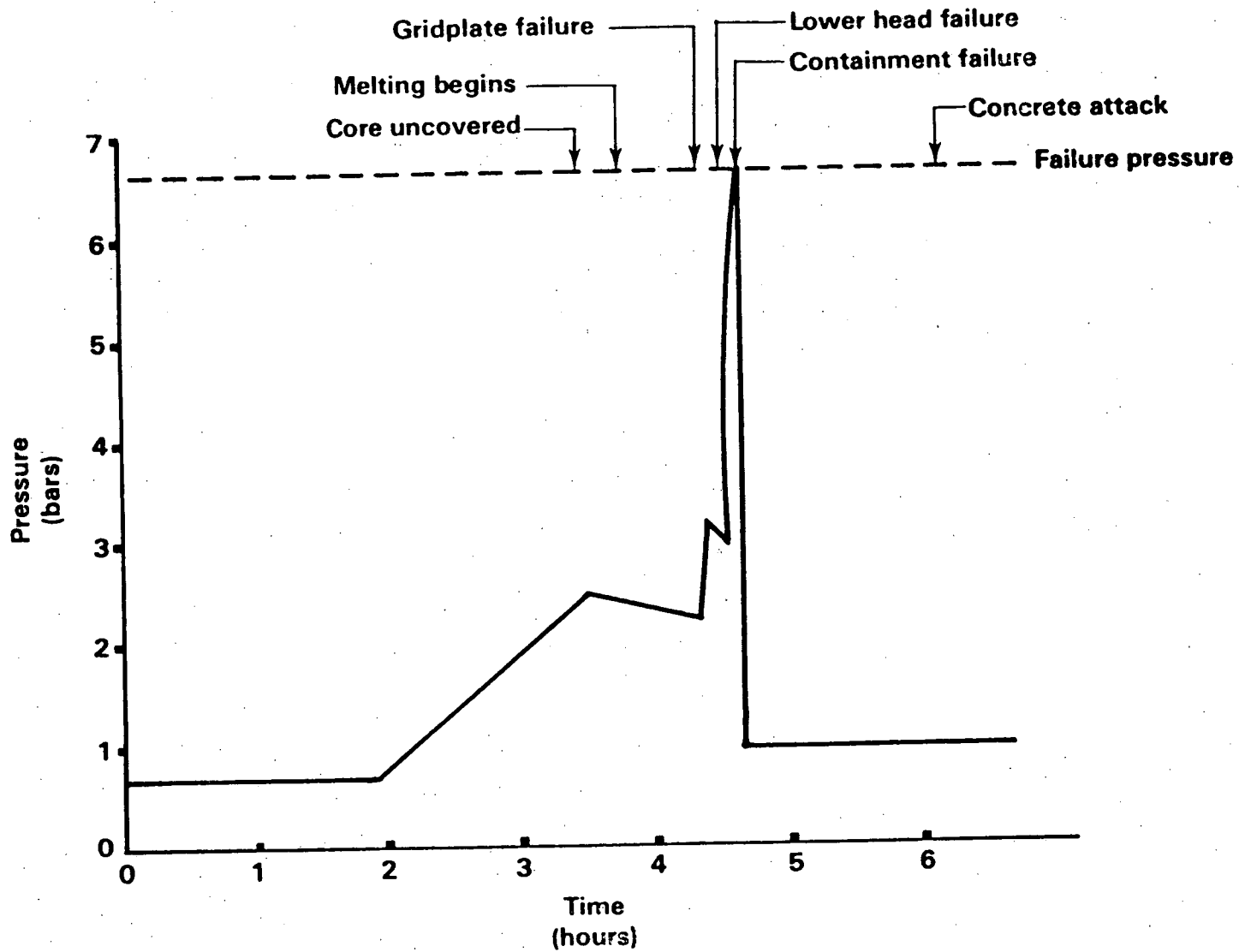
Chicago, Illinois  
May 7-8, 1980

BATTELLE  
Columbus Laboratories  
505 King Avenue  
Columbus, Ohio 43201





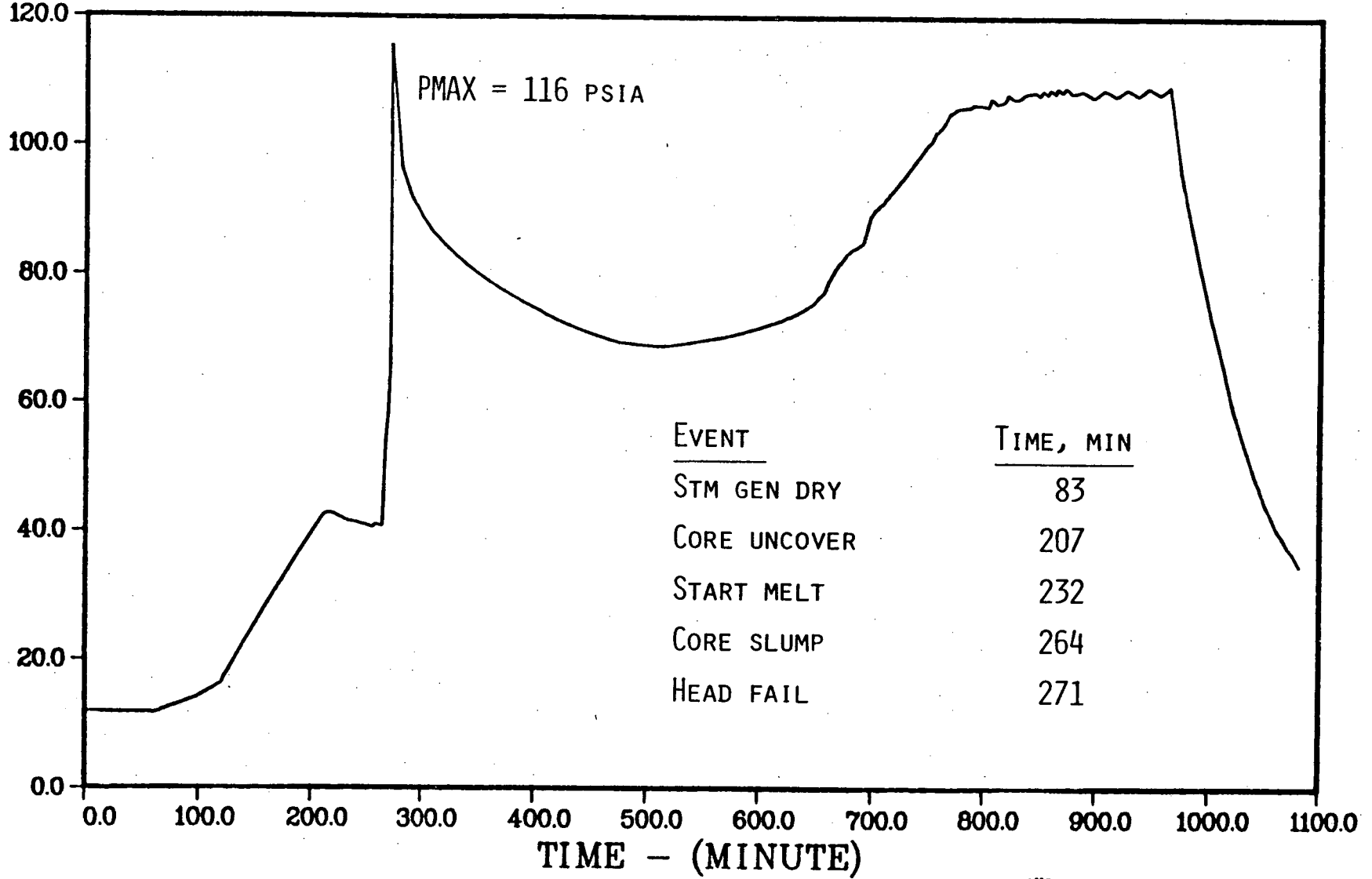
Core Meltdown Phenomena



Pressure History for TMLB'  $\delta$

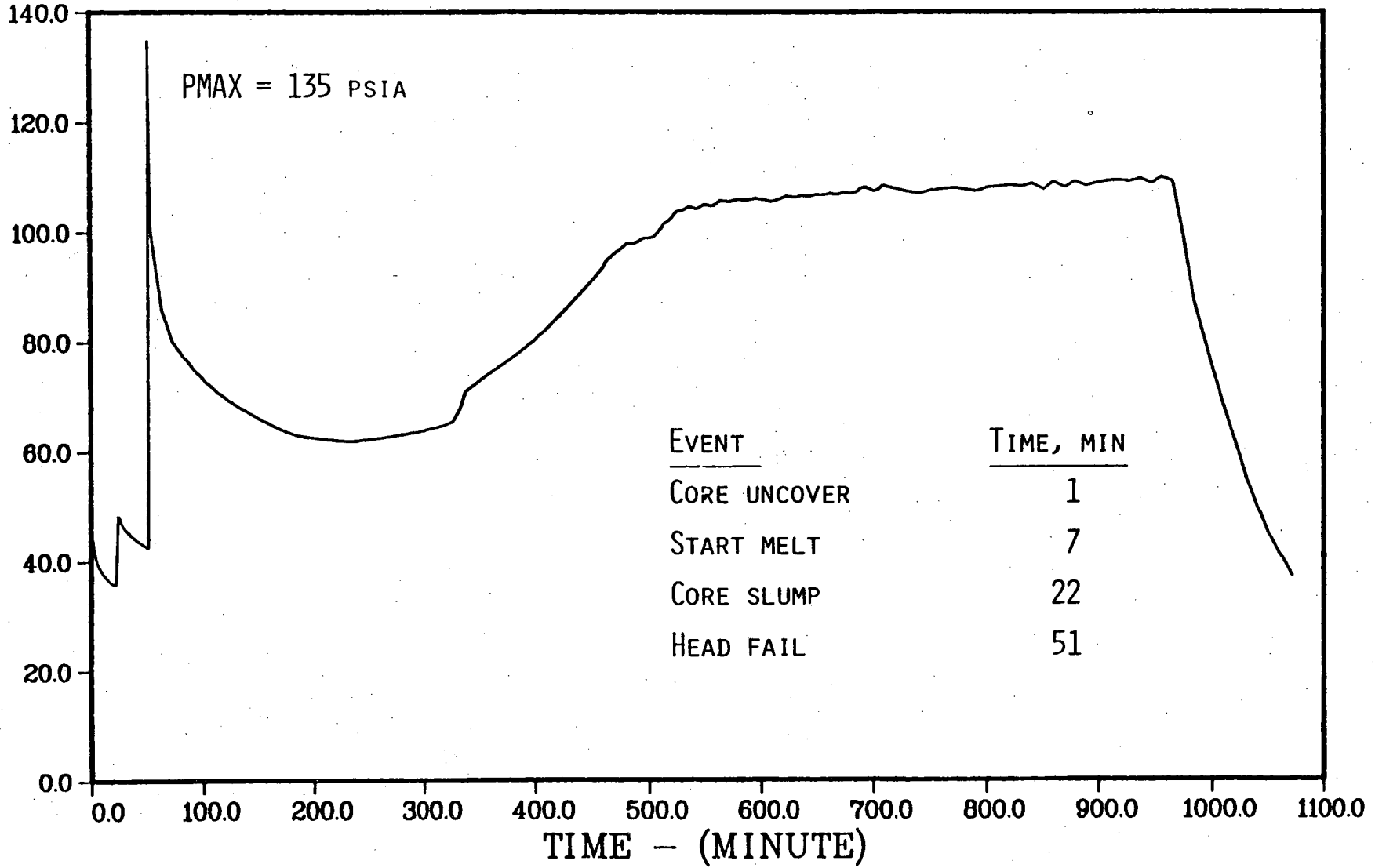
# INDIAN PT 3, TMLB - BASE CASE

PRESSURE IN CONTAINMENT VOLUME NO. 1, PSIA



# IP3 AB GAMMA BASE CASE

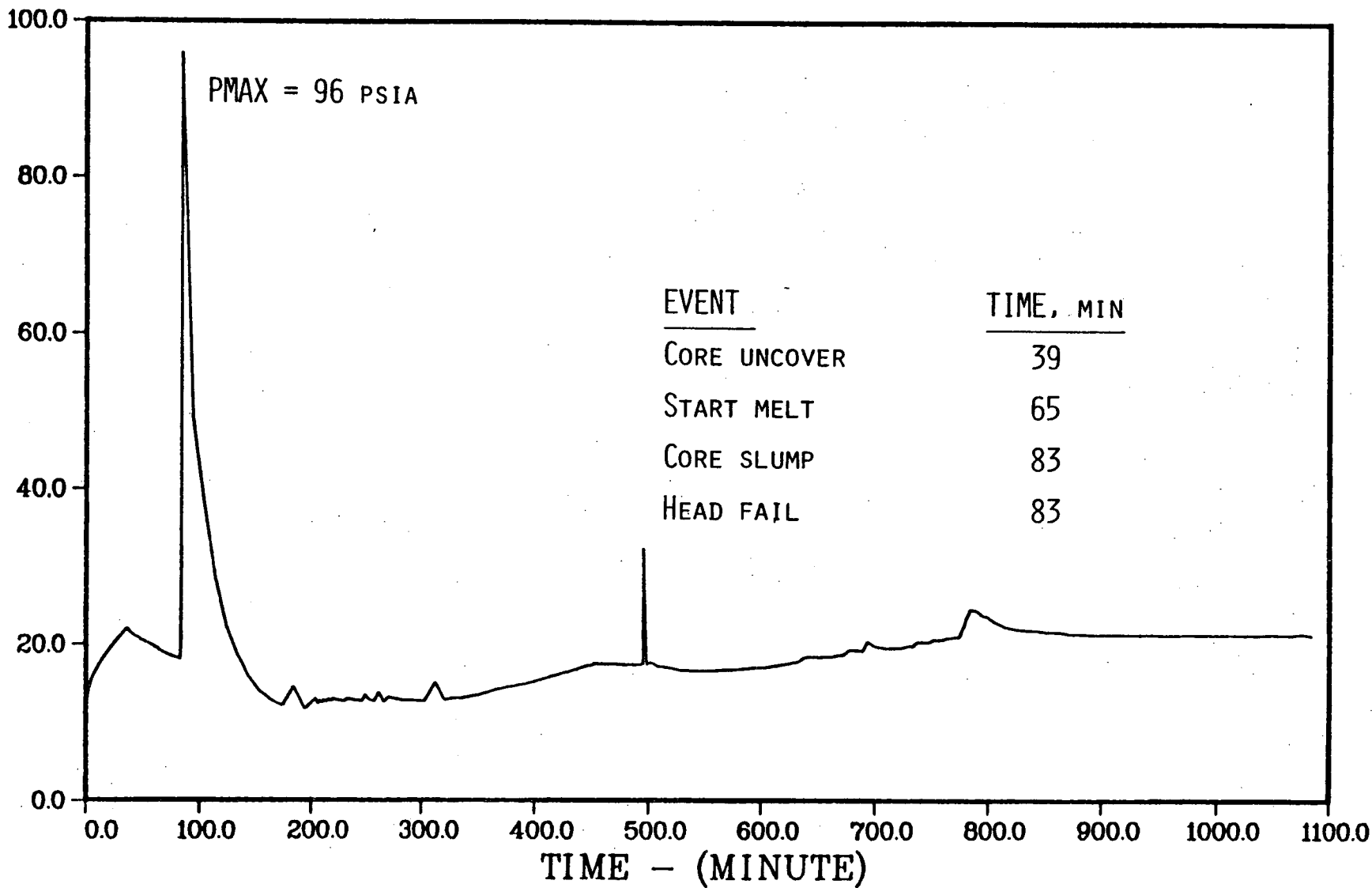
PRESSURE IN CONTAINMENT VOLUME NO. 1, PSIA



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# IP3 S2D BASE CASE

PRESSURE IN CONTAINMENT VOLUME NO. 1, PSIA



WASH-1400 FISSION PRODUCT RELEASE MODEL

RELEASE MECH.	PERCENT OF CORE INVENTORY RELEASED						
	Xe-Kr	I-Br	Cs-Rb	Te	Ba-Sr	Ru	La
GAP	3	4	13	0.1	$10^{-5}$	-	-
MELT	87	86	70	15	10	3	0.3
VAPOR	10	10	17	85	1	5	1
TOTAL	100	100	100	100	11	8	1.3

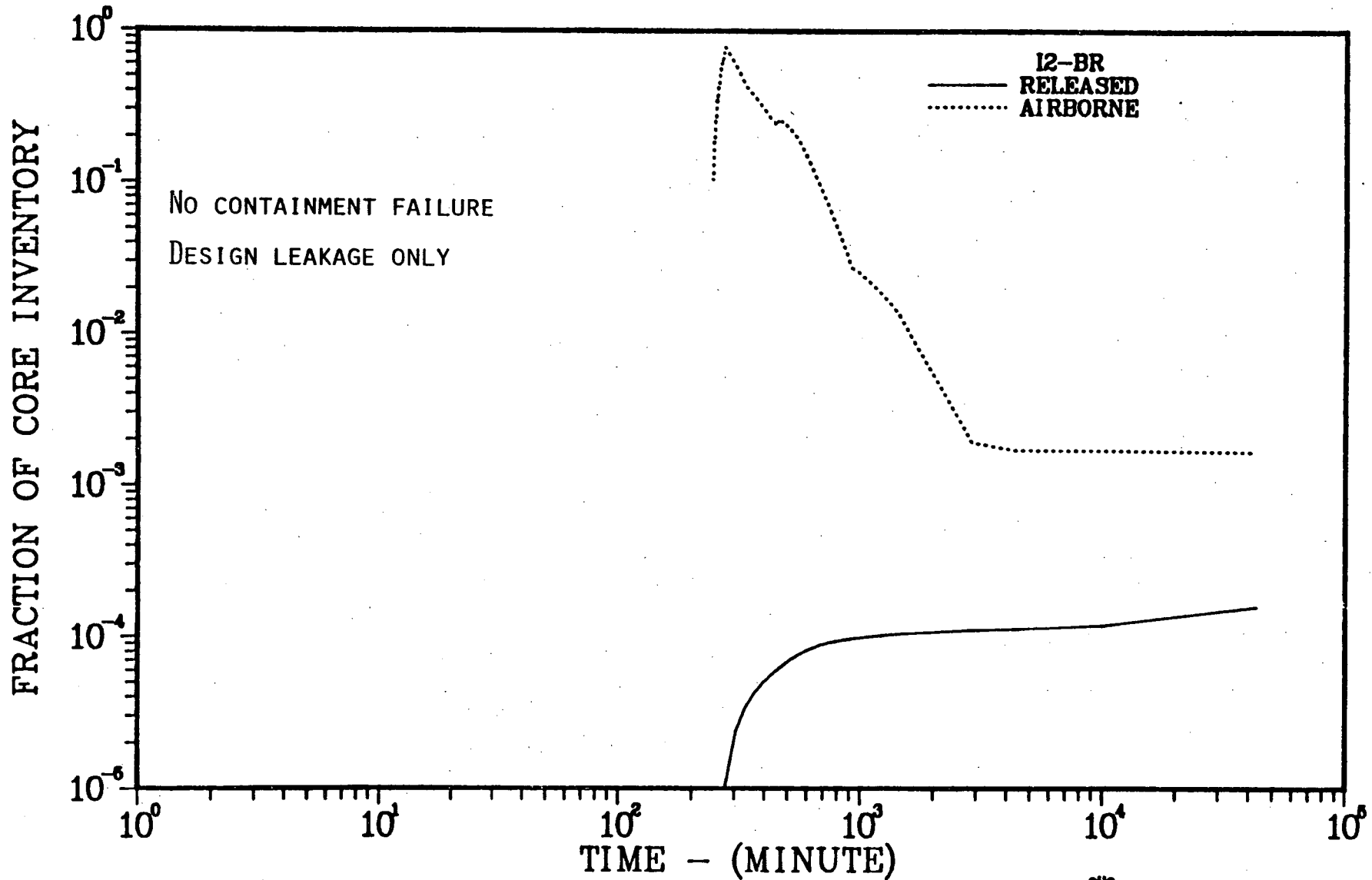


WASH-1400 FISSION PRODUCT RELEASE MODEL

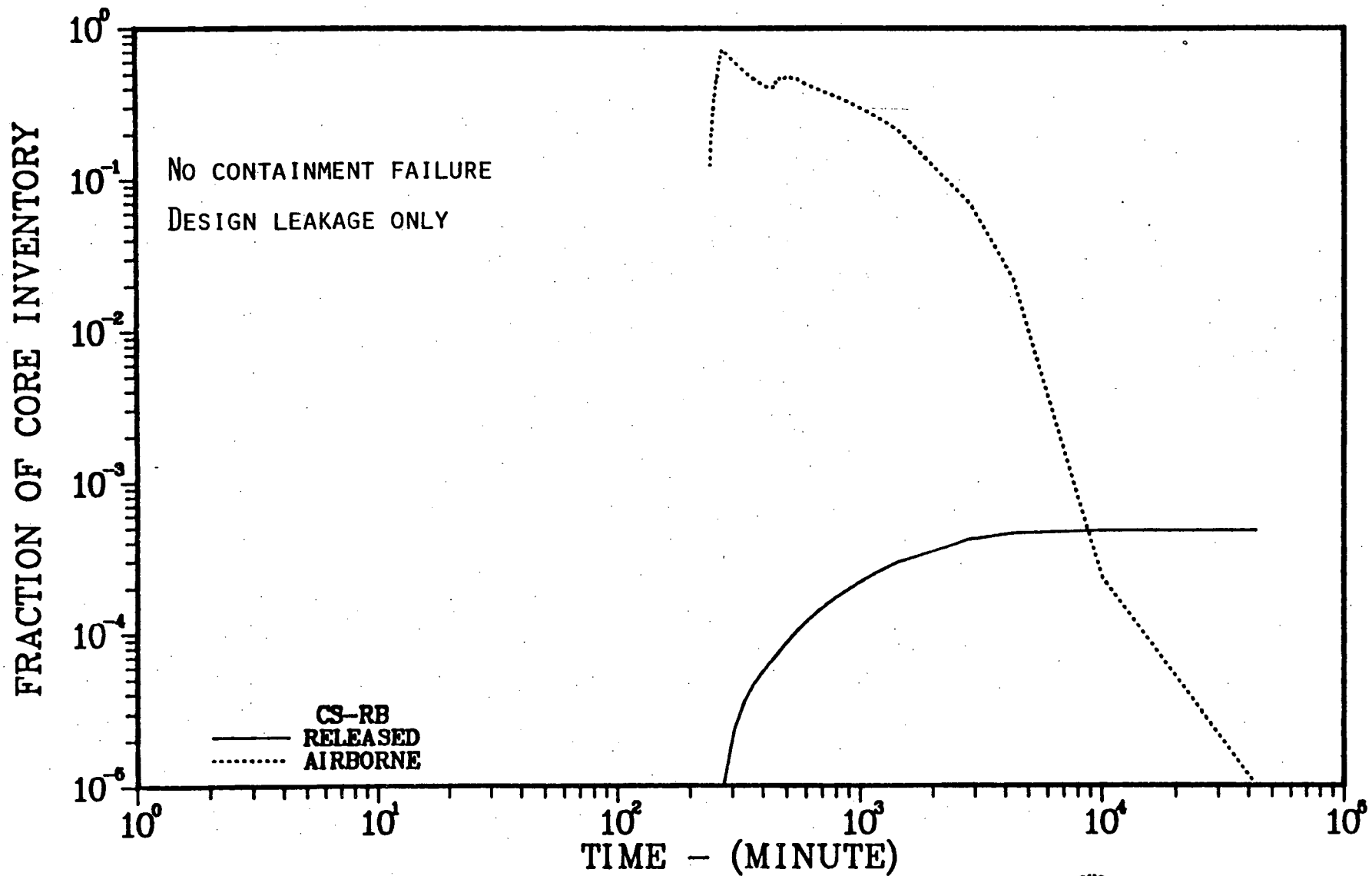
RELEASE MECH.	PERCENT OF CORE INVENTORY RELEASED						
	XE-Kr	I-Br	Cs-Rb	Te	Ba-Sr	Ru	La
GAP	3	4	13	0.1	$10^{-5}$	-	-
	1-12	0.1-20	0.4-30	$10^{-4}$ -4	$10^{-7}$ -.04	-	-
MELT	87	86	70	15	10	3	0.3
	50-88	50-80	40-70	5-25	2-20	1-10	.01-1
VAPOR	10	10	17	85	1	5	1
	49-0	50-0	60-0	95-71	0.2-4	1-22	0.2-5
TOTAL	100	100	100	100	11	8	1.3
	100	100	100	100	2-24	2-32	0.2-6

RELEASE MECH.	PERCENT OF CORE INVENTORY RELEASED						
	Xe-Kr	I-Br	Cs-Rb	Te	Ba-Sr	Ru	La
GAP	3	4	13	0.1	10 <sup>-5</sup>	-	-
	1-12	0.1-20	0.4-30	10 <sup>-4</sup> -4	10 <sup>-7</sup> -.04	-	-
MELT	87	86	70	15	10	3	0.3
	50-88	50-80	40-70	5-25	2-20	1-10	.01-1
STEAM EXPL.	5	5	-	26	-	44	-
	22-0	22-0	-	28-21	-	45-40	-
VAPOR	5	5	8	42	0.5	2	0.5
	24-0	25-0	30-0	48-36	0.1-2	0.5-11	0.1-2.5
TOTAL	100	100	91	83	10	49	0.8
	97-100	97-100	70-100	81-86	2-22	46-61	0.1-3.5

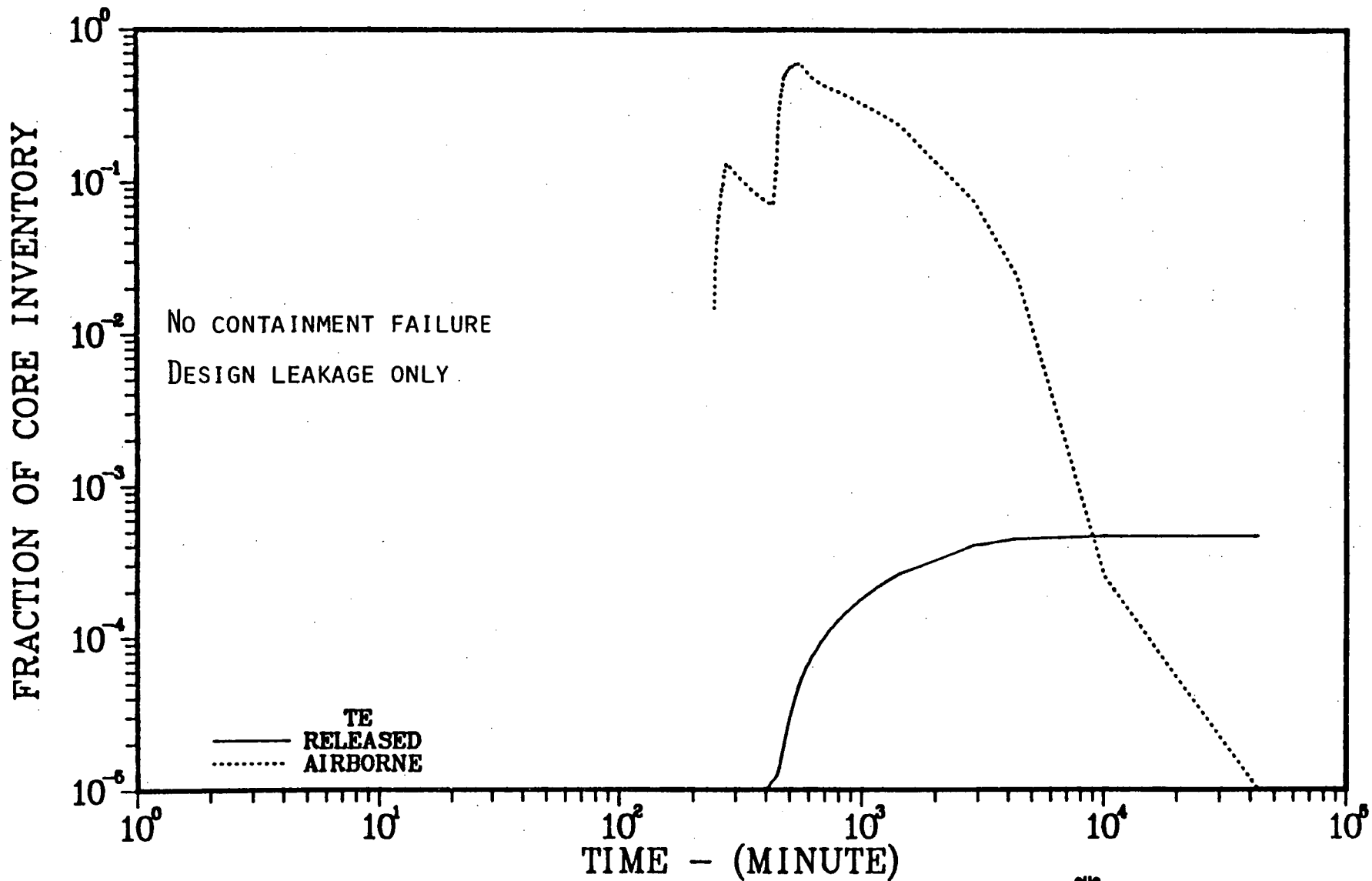
# IP3TMLB - CASE 1



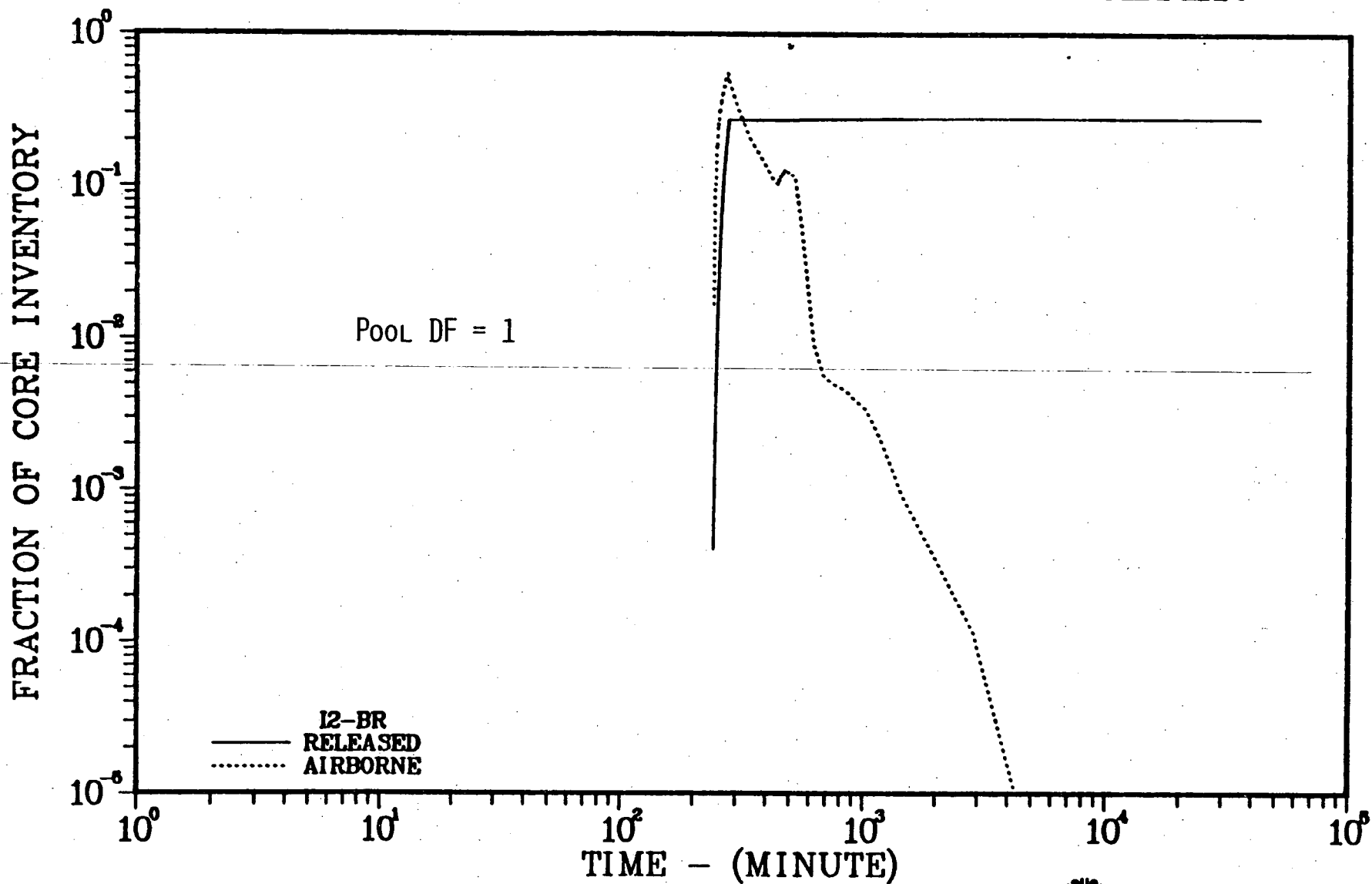
# IP3TMLB - CASE 1



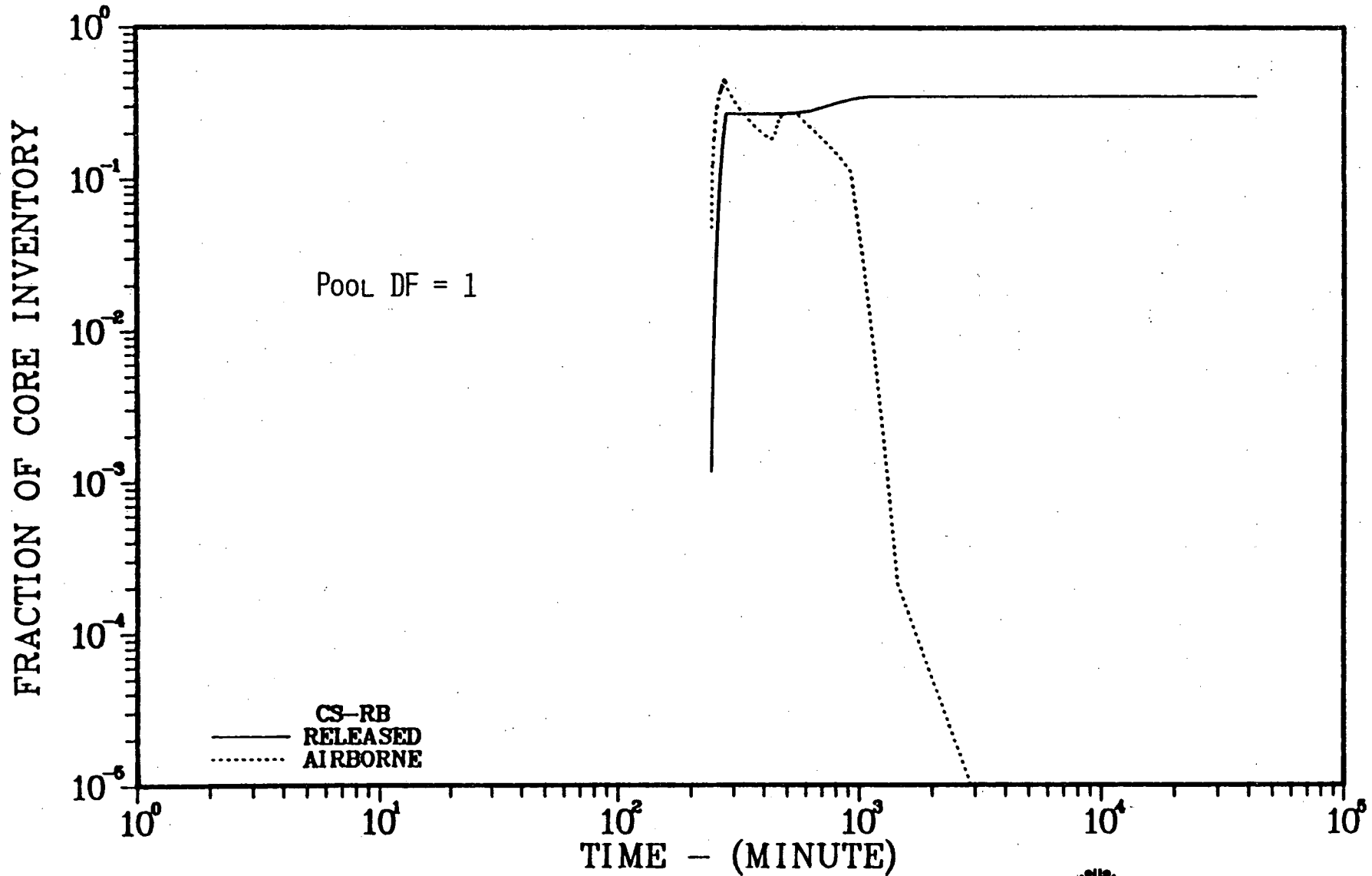
# IP3TMLB - CASE 1



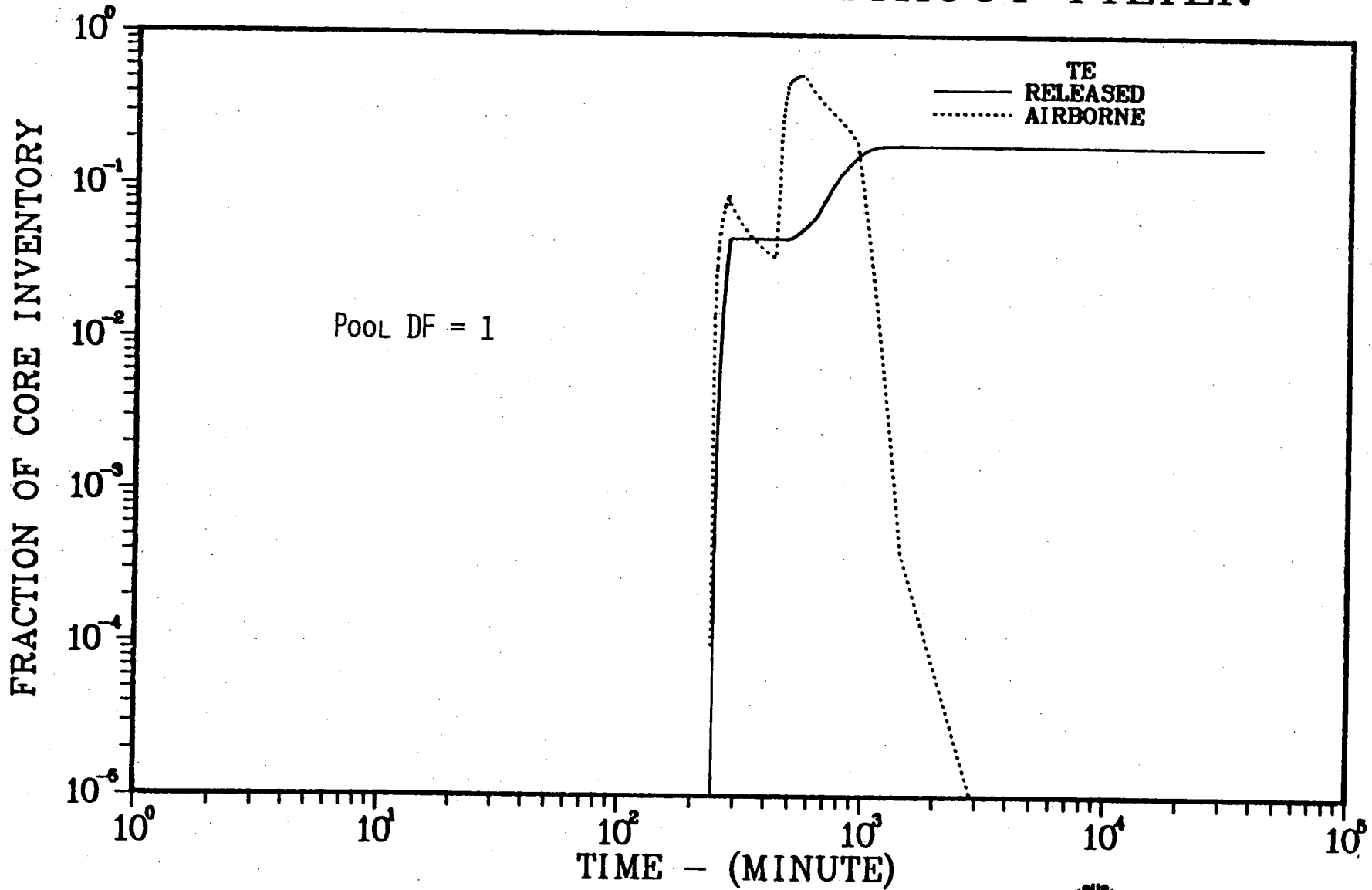
# IP3TMLB - CASE 3 WITHOUT FILTER



# IP3TMLB - CASE 3 WITHOUT FILTER

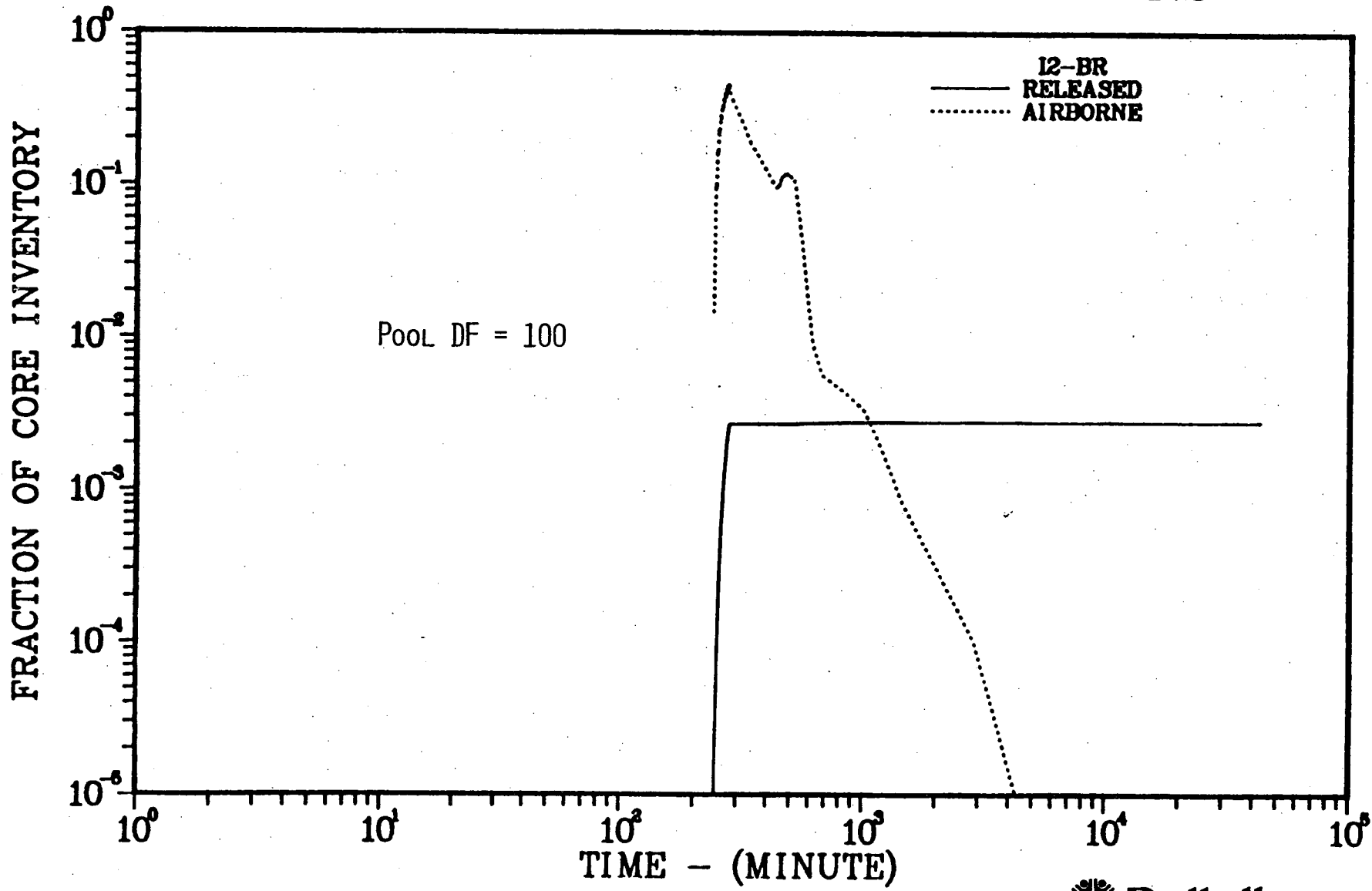


# IP3TMLB - CASE 3 WITHOUT FILTER

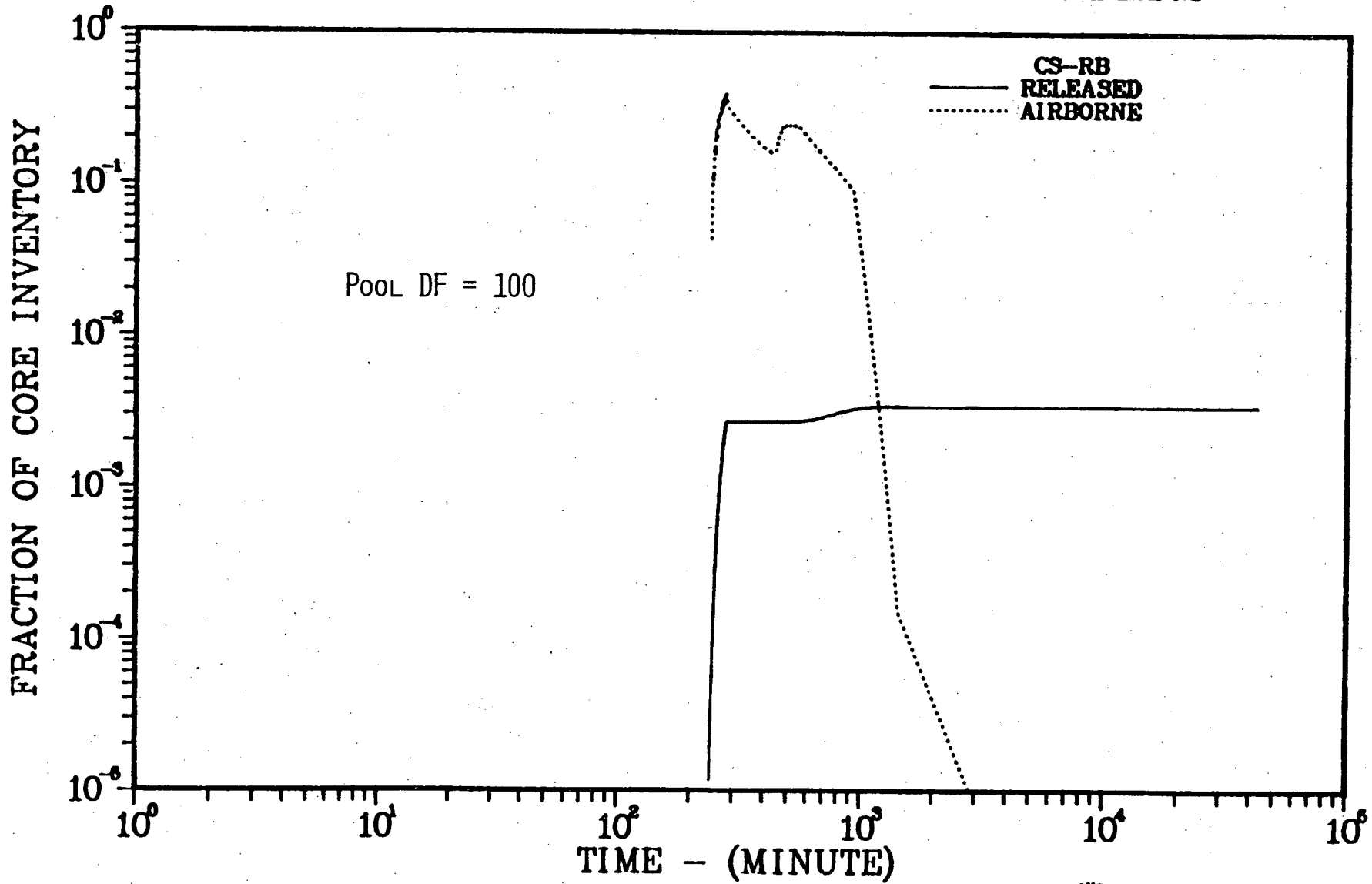




# IP3TMLB - CASE 3 WITH FILTERS



# IP3TMLB - CASE 3 WITH FILTERS



# IP3TMLB - CASE 3 WITH FILTERS

