

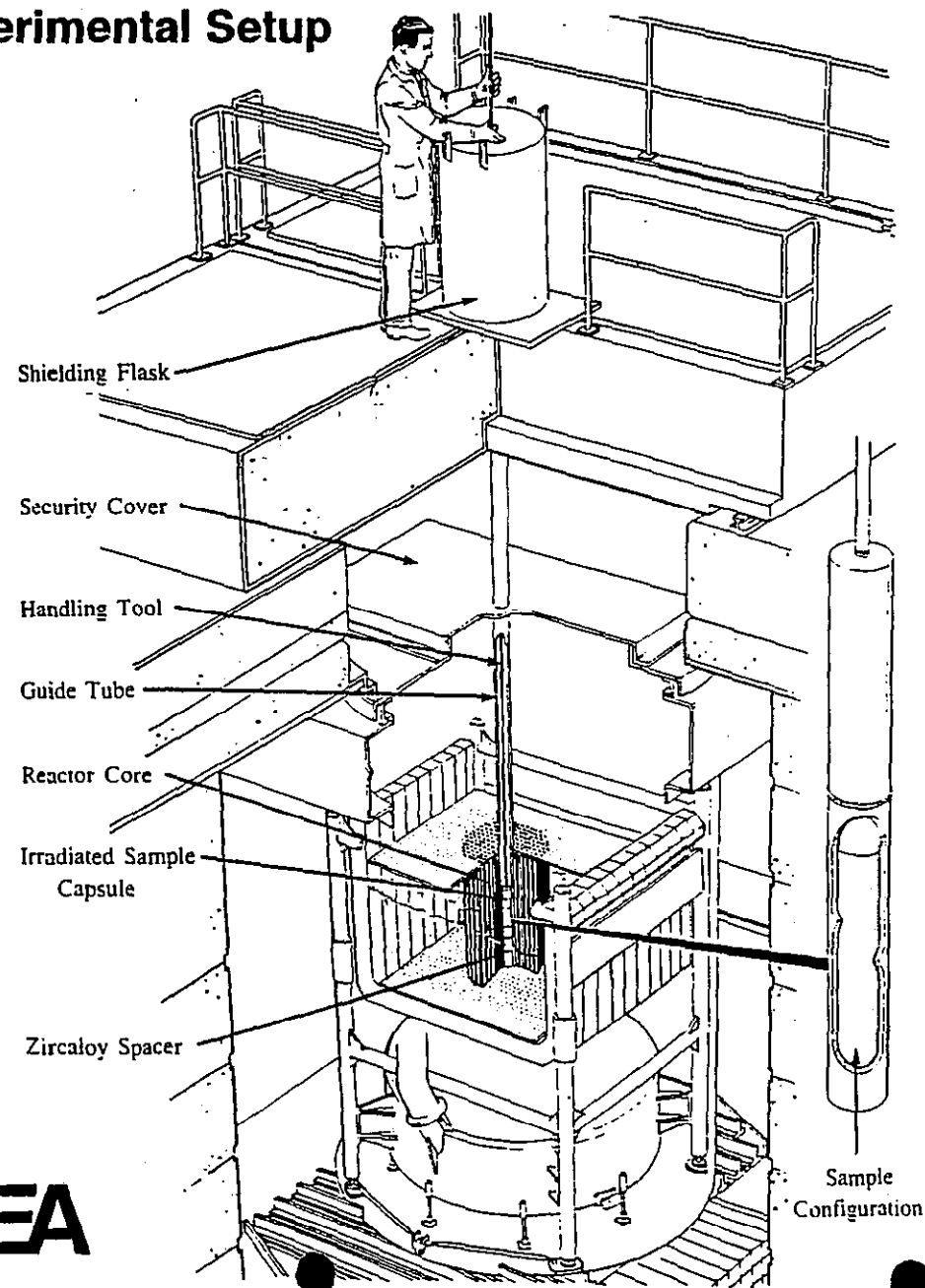
**Some Provisional Results from the 1993/94 UK
JEF2.2 Benchmarking Programme**

- **CERES Phase I Burn-up Credit (WIMS)**
- **Plutonium Nitrate Spheres (MONK6)**
- **Graphite Shielding (MCBEND)**

**N T Gulliford
D Hanlon
G A Wright**

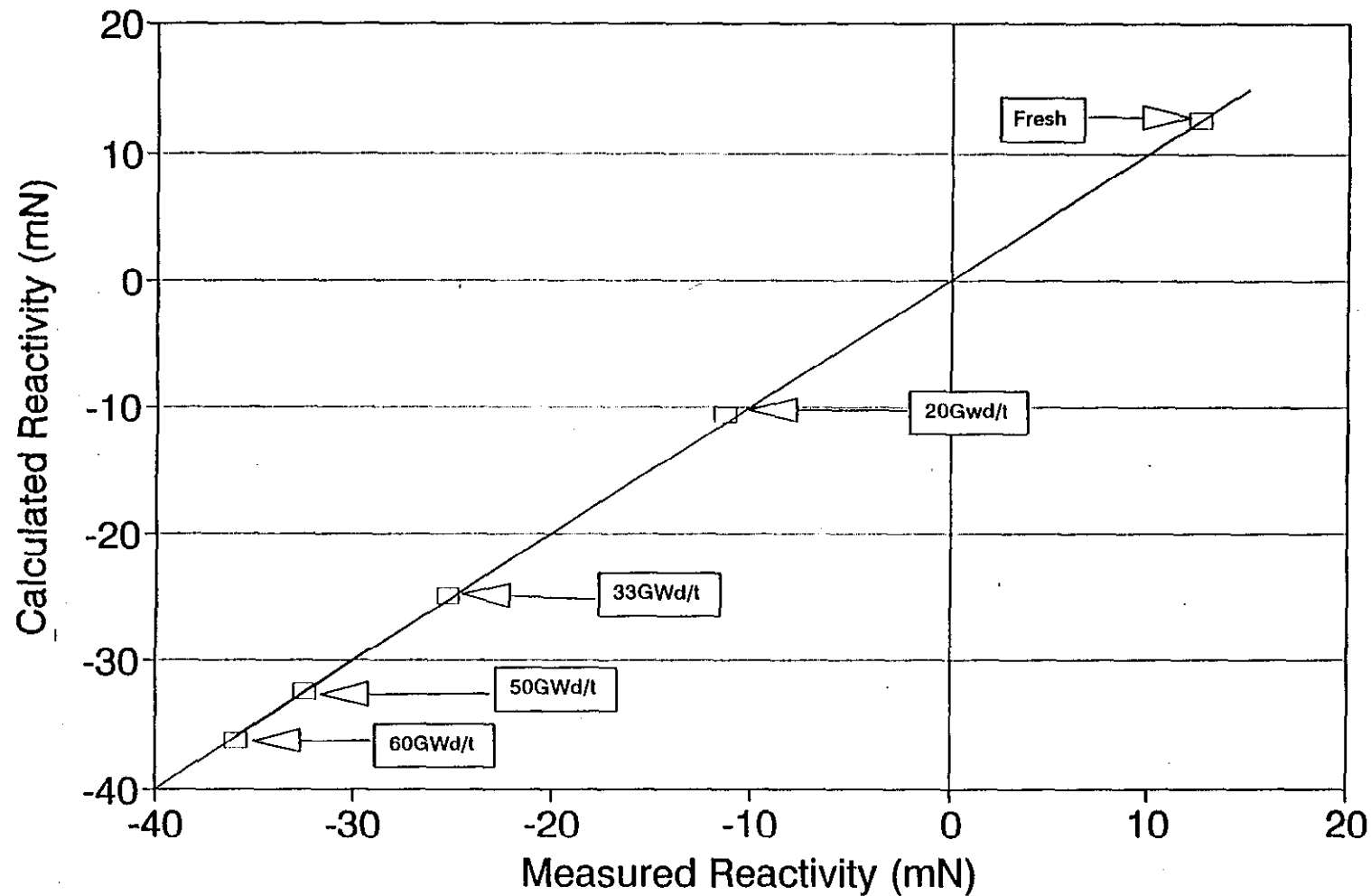
Provisional Results of CERES Burn-up Credit Analysis

1: Experimental Setup



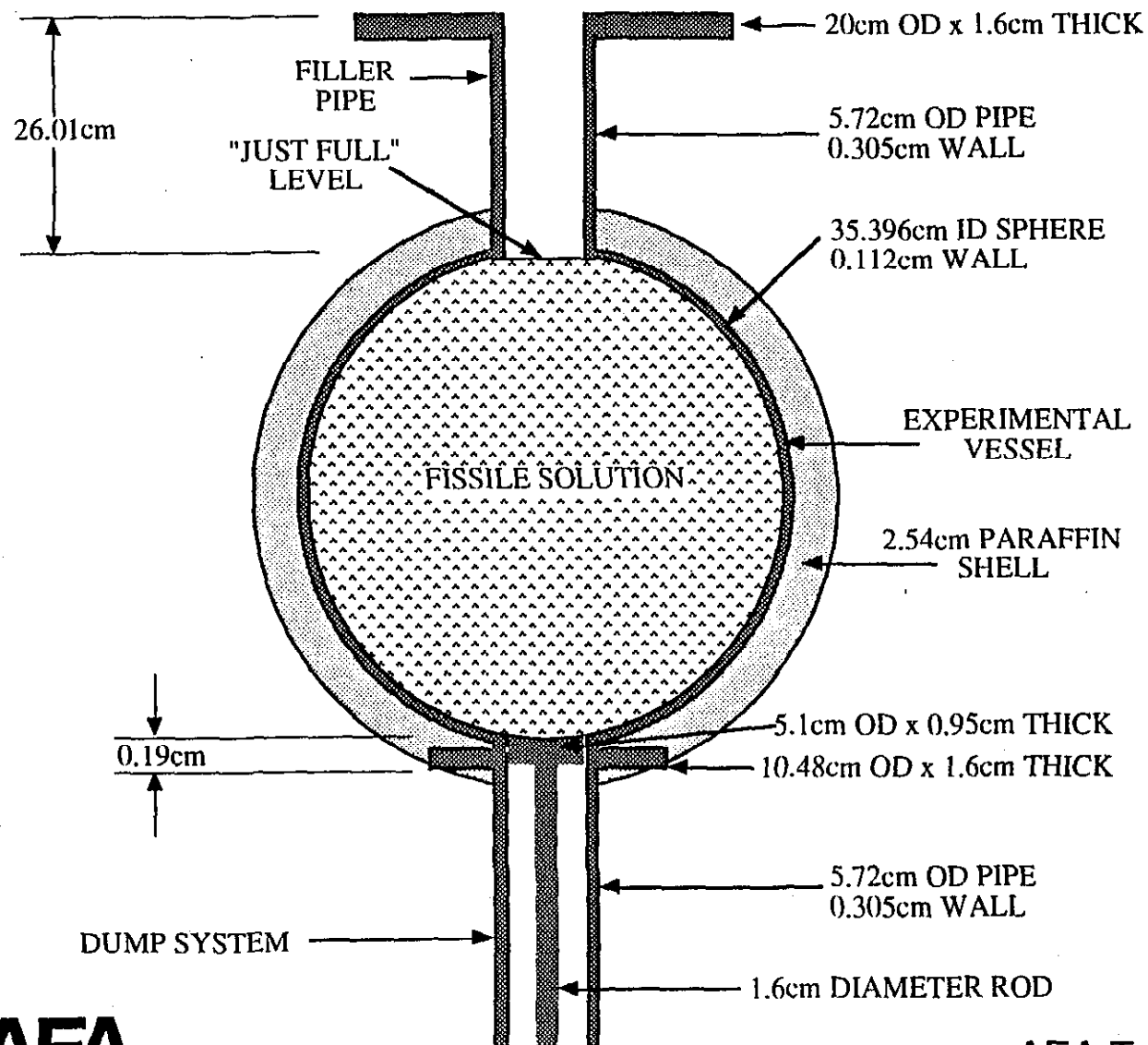
Provisional Results of CERES Burn-up Credit Analysis

2: WIMS/JEF2.2 Results for DIMPLE Phasel



Provisional Results of Pu Criticality Benchmark Analysis

1: Sectional View of Experiment (Case 5.05)



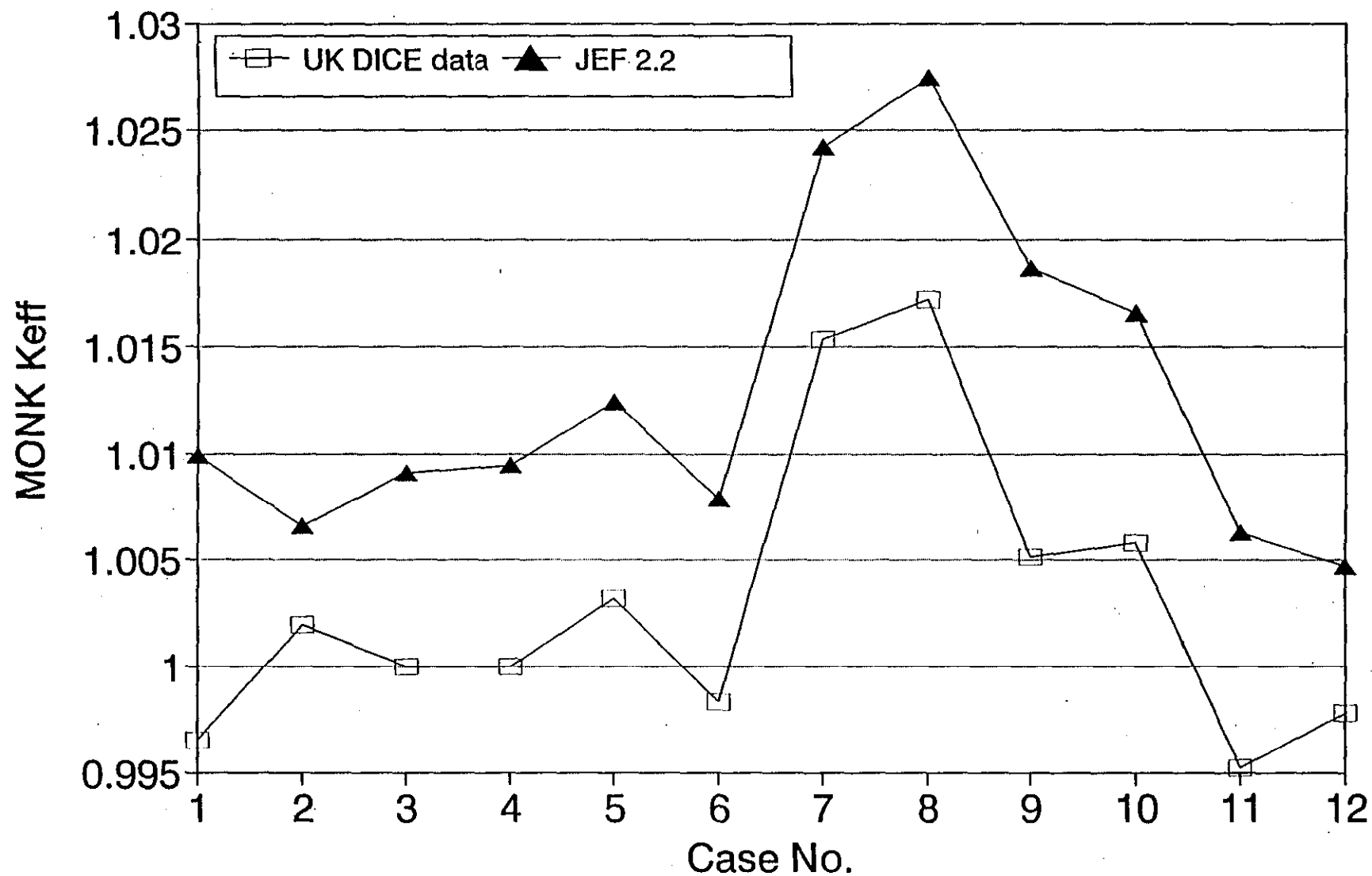
Provisional Results of Pu Criticality Benchmark Analysis

2: Critical Parameters

MONK Validation Number	Pu Benchmark Number	Critical Radius (cm)	Reflector	Solution Density (g/cc)	Plutonium Concentration (g/l)	Excess Nitrate Concentration (Molarity)	H:PU Atom Ratio
5.01	2	19.318	None	1.43	172.3	4.96	124.8
5.02	4	19.318	0.6604cm Stainless Steel	1.08	34.3	0.49	758.0
5.03	14	19.318	32cm Water	1.06	24.4	0.53	1067.0
5.04	15	19.318	0.2cm Stainless Steel + 32cm Water	1.06	25.2	0.55	1031.0
5.05	17	17.698	2.54cm Paraffin	1.22	53.6	4.31	434.4
5.06	18	17.698	1.27cm Paraffin	1.15	53.6	2.19	459.4
5.07	19	17.698	2.54cm Paraffin	1.34	97.6	6.00	223.4
5.08	20	17.698	25.4cm concrete	1.21	36.6	4.39	650.8
5.09	21	17.698	10.16cm concrete	1.14	35.5	2.89	684.3
5.10	22	17.698	10.16cm concrete	1.25	45.2	5.86	496.0
5.11	23	17.698	10.16cm concrete + 0.0762cm Cadmium	1.22	50.9	4.57	454.5
5.12	24	17.698	32cm Water + 0.0762cm Cadmium	1.13	46.9	1.41	540.2

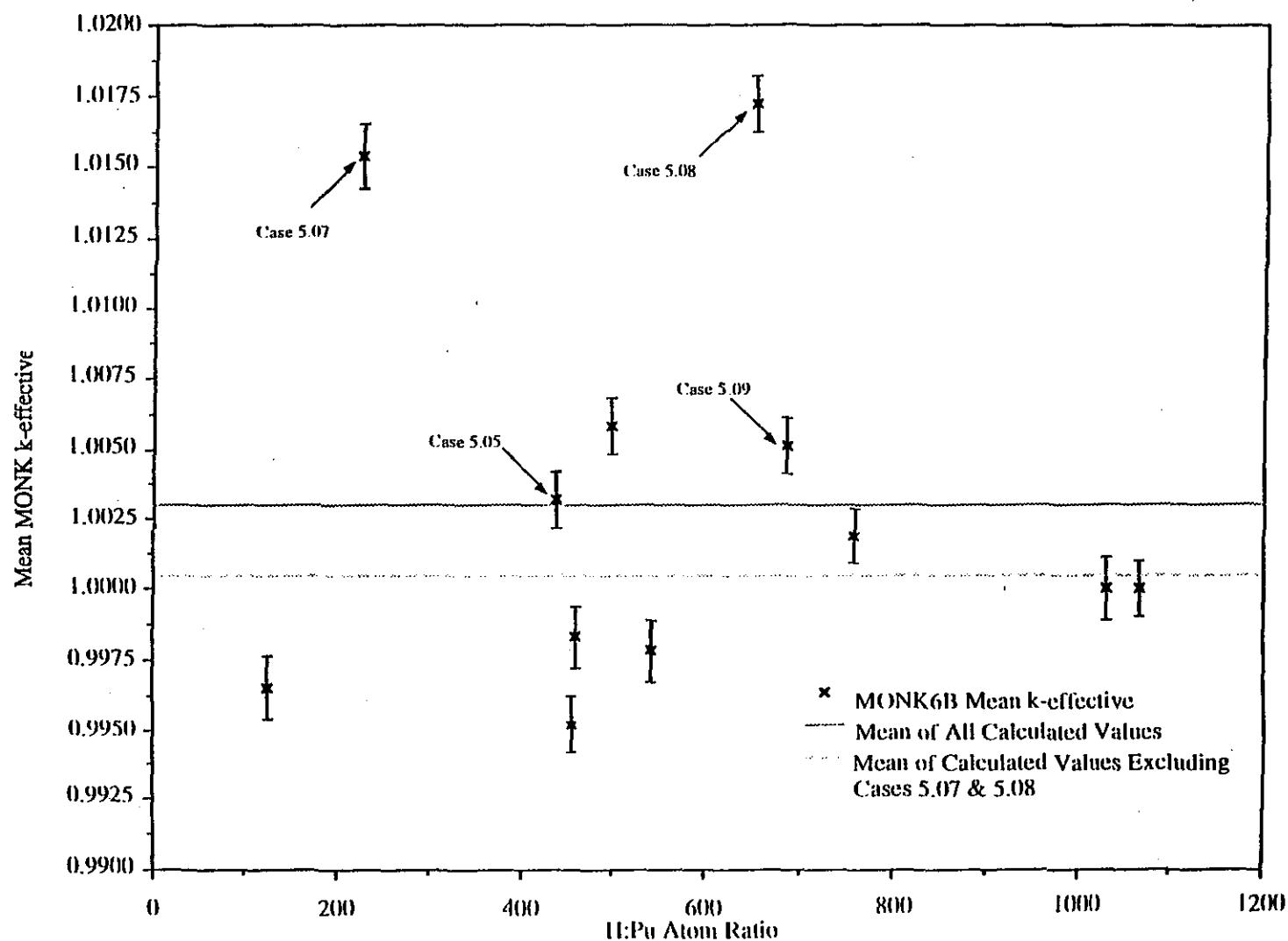
Provisional Results of Pu Criticality Benchmark Analysis

3: MONK6 Results



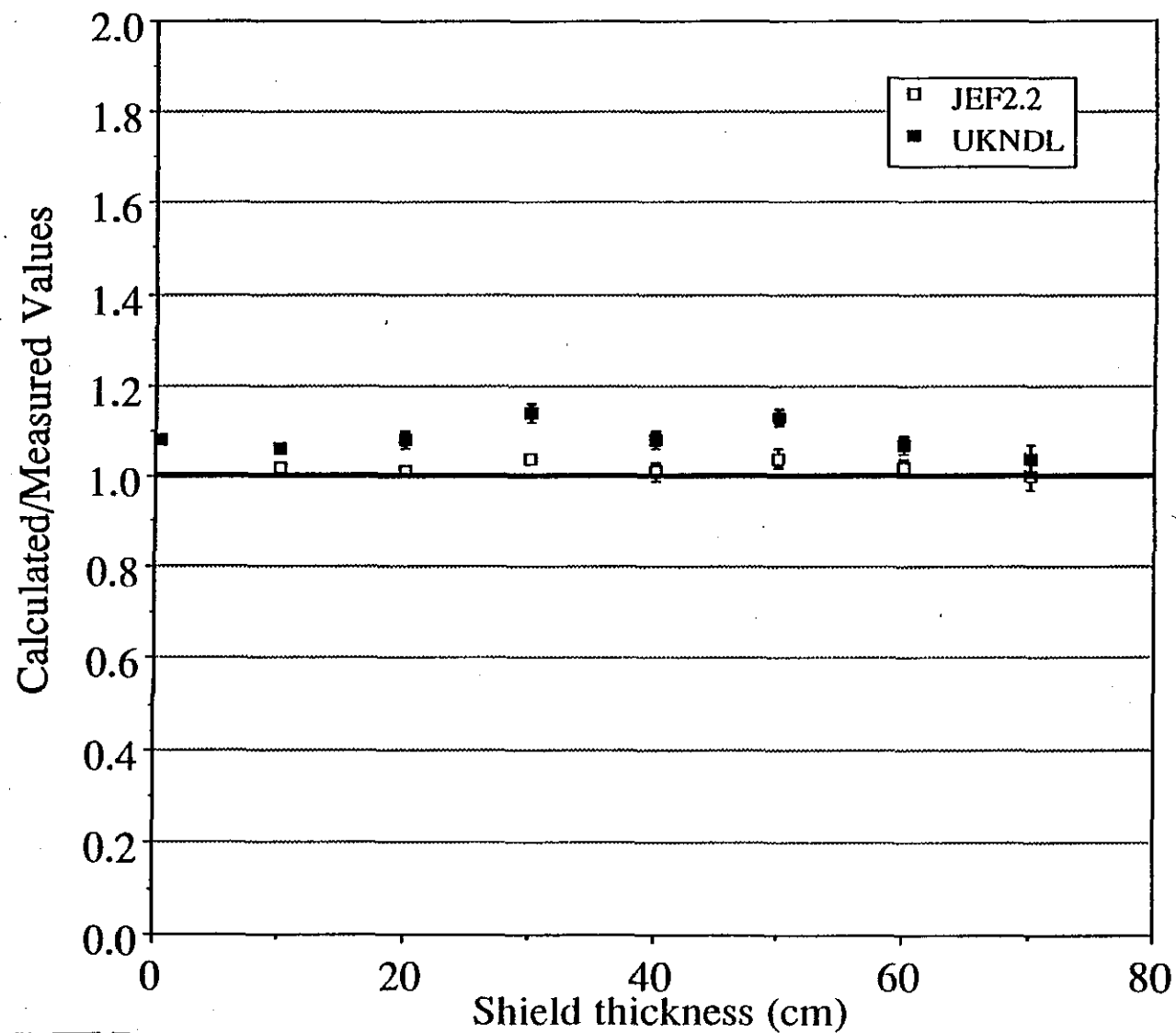
Provisional Results of Pu Criticality Benchmark Analysis

4: Trend with H:Pu Atom Ratio (UK DICE data)



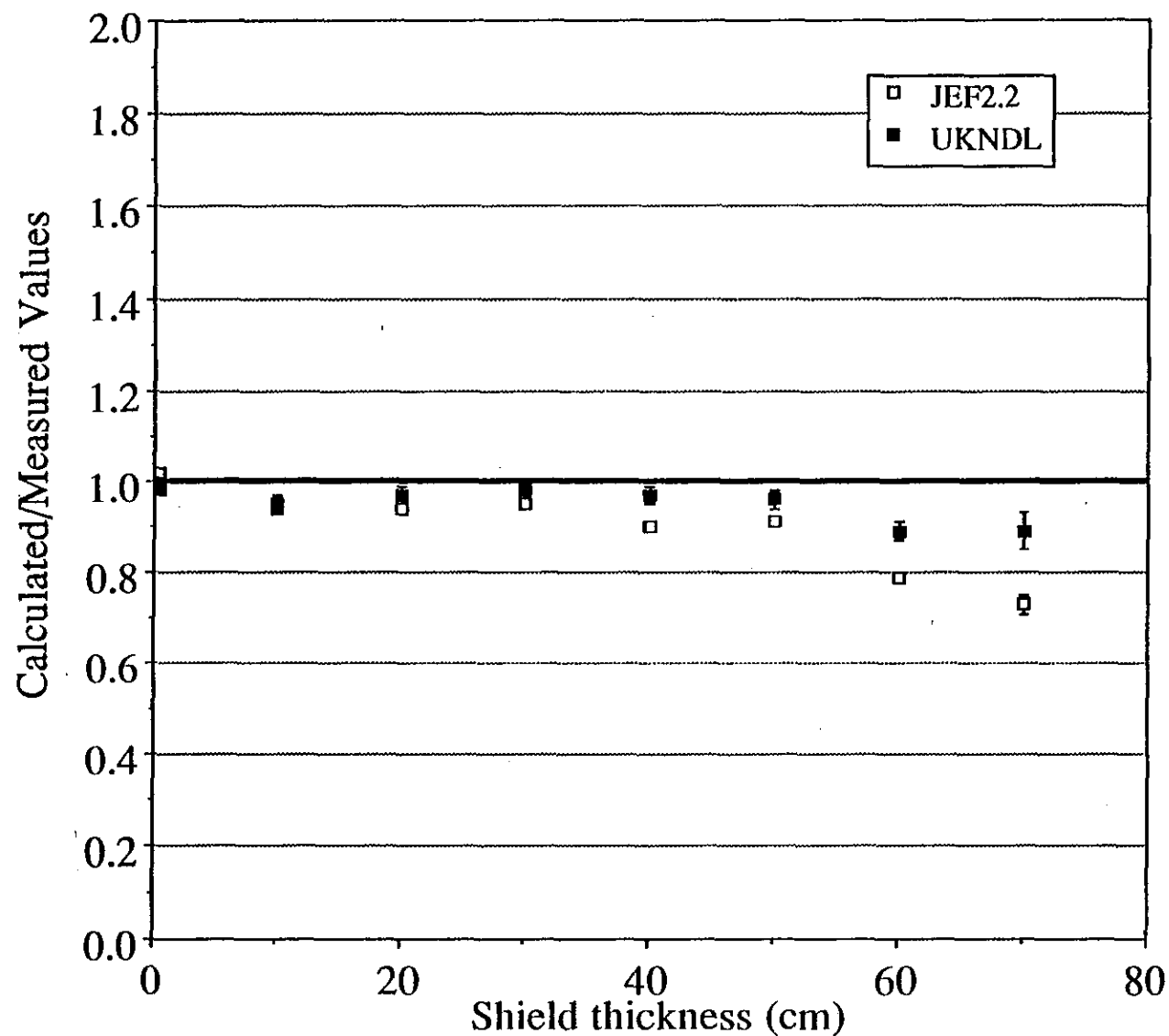
Provisional Results of Graphite Shielding Benchmark Analysis

1: C/M Values for S32(n,p)P32 Detector



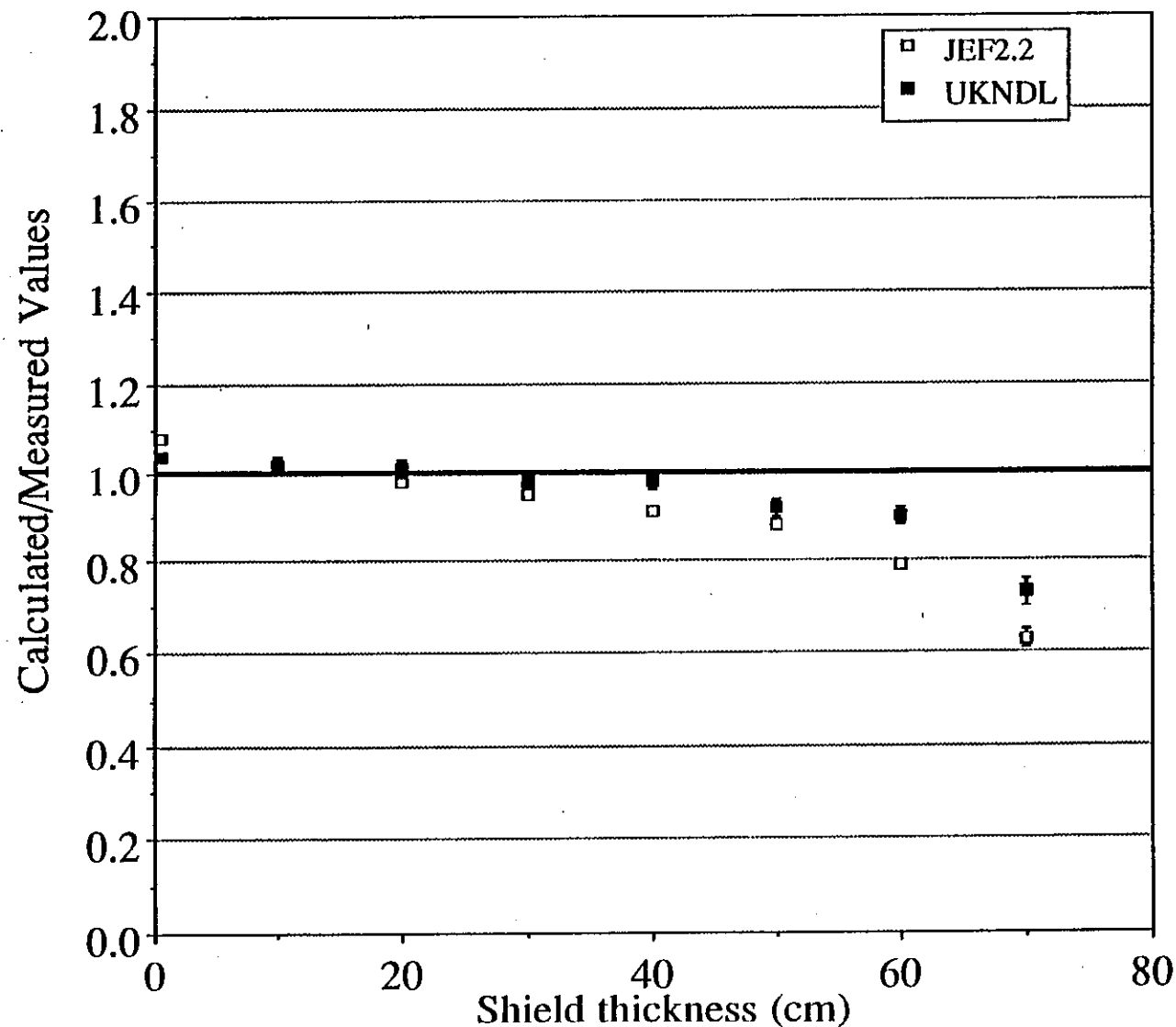
Provisional Results of Graphite Shielding Benchmark Analysis

2: C/M Values for In115(n,n)In115m Detector



Provisional Results of Graphite Shielding Benchmark Analysis

3: C/M Values for Rh103(n,n)Rh103 Detector



Provisional Results of Graphite Shielding Benchmark Analysis

4: Winfrith Graphite Benchmark Experiment in ASPIS

